TWIN RIVERS BLOCK A

SACRAMENTO, CA 95811

FIRE ALARM SYSTEM

BUILDING ADDRESSES
BUILDING E - 1200 RICHARDS BLVD
BUILDING D1 - 1240 RICHARDS BLVD
BUILDING D1 - 1248 RICHARDS BLVD
BUILDING D2 - 1254 RICHARDS BLVD
BUILDING B - 1262 RICHARDS BLVD
BUILDING C - 1280 RICHARDS BLVD
BUILDING A3 - 520 PIPEVINE STREET
BUILDING A3 - 1291 RINGLET AVE
BUILDING A3 - 1261 RINGLET AVE
BUILDING A5 - 1243 RINGLET AVE

PROJECT DECRIPTION
NEW CONSTRUCTION OF 10 NEW MIXED-INCOME APARTMENT BUILDINGS, RANGING FROM 2 TO 4 STORIES. 104 TOTAL DWELLING UNITS.

SCOPE OF WORK
INSTALLATION OF AUTOMATIC FIRE ALARM SYSTEM PER THESE DRAWINGS. UPON COMPLETION OF INSTALLATION A COMPLETE PRETEST SHALL BE PERFORM TO VERIFY FUNCTIONALITY OF THE SYSTEM. IF FUNCTIONALITY IS SATISFACTORY, THEN THE PROPER DOCUMENTION SHALL SUBMITTED TO THE AHJ PRIOR TO SCHEDULING A FINAL INSPECTION.

BUILDINGS A3 & A5 CODE ANALYSIS TABLE

OCCUPANCY CLASS:	R2
CONSTRUCTION TYPE:	TYPE V-B
NUMBER OF LEVELS/ STORIES:	2 STORIES
OVERALL HEIGHT OF BUILDING:	19'-0"
BUILDING TOTAL SQUARE FOOTAGE:	BLDG A3 = 4,382 S.F. BLDG A5 = 7,222 S.F.
TYPE OF SYSTEM:	AUTOMATIC FIRE ALARM SYSTEM
BUILDING IS FULLY SPRINKLERED:	YES (NFPA-13)
MECHANICAL UPGRADE:	YES

BUILDINGS B & D CODE ANALYSIS TABLE

OCCUPANCY CLASS:	R2
CONSTRUCTION TYPE:	TYPE V-A
NUMBER OF LEVELS/ STORIES:	3 STORIES
OVERALL HEIGHT OF BUILDING:	29'-0"
BUILDING TOTAL SQUARE FOOTAGE:	BLDGS B & D2 = 17914 S.F. BLDG D1 = 18,588 S.F.
TYPE OF SYSTEM:	AUTOMATIC FIRE ALARM SYSTEM
BUILDING IS FULLY SPRINKLERED:	YES (NFPA-13)
MECHANICAL UPGRADE:	YES

BUILDING C CODE ANALYSIS TABLE

OCCUPANCY CLASS:	R2
CONSTRUCTION TYPE:	TYPE V-B
NUMBER OF LEVELS/ STORIES:	3 STORIES
OVERALL HEIGHT OF BUILDING:	29'-0"
BUILDING TOTAL SQUARE FOOTAGE:	7,021 S.F.
TYPE OF SYSTEM:	AUTOMATIC FIRE ALARM SYSTEM
BUILDING IS FULLY SPRINKLERED:	YES (NFPA-13)
MECHANICAL UPGRADE:	YES

BUILDING E CODE ANALYSIS TABLE

OCCUPANCY CLASS:	R2, B, A3
CONSTRUCTION TYPE:	TYPE V-A
NUMBER OF LEVELS/ STORIES:	4 STORIES
OVERALL HEIGHT OF BUILDING:	43'-0"
BUILDING TOTAL SQUARE FOOTAGE:	53,608 S.F.
TYPE OF SYSTEM:	AUTOMATIC FIRE ALARM SYSTEM
BUILDING IS FULLY SPRINKLERED:	YES (NFPA-13)
MECHANICAL UPGRADE:	YES
EMERGENCY GENERATOR:	NO
OFF-SITE EMERGENCY GENERATOR:	NO
FIRE PUMP	YES
RPDA (BACKFLOW DEVICE)	YES

SEQUENCE OF OPERATIONS MATRIX

SYSTEM OUTPUTS: / SYSTEM INPUTS:	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE COMMON TROUBLE SIGNAL	ACTUATE NOTIFICATION APPLIANCE CIRCUITS	ACTUATE ELEVATOR RECALL PRIMARY TO 1ST FLR	ACTUATE ELEVATOR RECALL ALTERNATE 2ND FLR	ACTUATE ELEVATOR SHUNT-TRIP	ACTUATE ELEVATOR SMOKE GUARD	GLOBAL SHUT-DOWN ALL FIRE SMOKE DAMPERS	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION
MANUAL PULL STATION BY PANEL	●	●					●						●		
SMOKE DETECTOR ABOVE PANEL	●	●					●						●		
1ST FLOOR ELEVATOR LOBBY SMOKE DETECTOR	●	●					●		●		●		●		
2ND THRU 4TH FLR ELEVATOR LOBBY SMOKE DETECTOR	●	●					●	●			●		●		
ELEVATOR MACHINE RM SMOKE DETECTOR	●	●					●	●					●		
ELEVATOR MACHINE RM HEAT DETECTOR	●	●					●	●		●			●		
ELEVATOR SHUNT TRIP 120V POWER LOSS	●						●								
FIRE SMOKE DAMPER SPOT SMOKE DETECTOR. SEE FSD METHOD OF ACTIVATION NOTE (M-3)	●						●					●	●		
WATERFLOW SWITCH ACTIVATED	●	●					●						●		
SPRINKLER ISOLATION VALVE CLOSED			●	●										●	
SITE BACKFLOW VALVE CLOSED			●	●										●	
FACU SYSTEM TROUBLE					●	●									●
FACU AC FAIL					●	●									●
FACU LOW BATTERY					●	●									●
INITIATING ZONE SHORT	●	●					●						●		
SLC LOOP EARTH GROUND					●	●									●
NOTIFICATION CIRCUIT OPEN					●	●									●
NOTIFICATION CIRCUIT SHORT					●	●									●
NOTIFICATION CIRCUIT EARTH GROUND					●	●									●
BOOSTER PANEL AC FAIL					●	●									●
BOOSTER PANEL LOW BATTERY					●	●									●
CELLULAR TROUBLE / COMM FAIL					●	●									●
2 WAY ECS TROUBLE (COMM FAIL, COMMON TROUBLE)			●	●										●	

GENERAL NOTES

1- ALL WIRING SHALL BE IN ACCORDANCE WITH CALIFORNIA ELECTRICAL CODE (CEC) AND REGULATIONS. REFERENCE APPLICABLE EDITIONS UNDER "APPLICABLE CODES AND REGULATIONS".

2- WIRING SHALL NOT BE LOOPED THROUGH DEVICES UPON TERMINATION. WIRE MUST BE CUT FOR IN AND OUT RUNS PRIOR TO DEVICE TERMINATION.

3- ALL CONDUITS SHALL BE A MINIMUM OF 3/4". CONDUIT SIZES SHALL BE IN ACCORDANCE WITH C.E.C., CHAPTER 9 TABLES AND EXAMPLES ON CONDUIT FILLS.

4- ALL DEVICES IN THE ALARM SYSTEM SHALL BE COMPATIBLE AND INSTALLED TO THE MANUFACTURERS SPECIFICATIONS.

5- AUDIBILITY OF ALARM SHALL BE NOT LESS THAN 15dB ABOVE AMBIENT SOUND THROUGHOUT AREA OF ALARM.

6- ALL STROBE APPLIANCES SHALL BE SYNCHRONIZED IN ACCORDANCE WITH NATIONAL FIRE ALARM CODE (NFPA 72). REFERENCE APPLICABLE EDITIONS UNDER "APPLICABLE CODES AND REGULATIONS".

7- SMOKE DETECTOR AND HEAT DETECTOR LOCATIONS ARE BASED ON SMOOTH CEILING WITH MAXIMUM HEIGHT OF 10 FEET UNLESS OTHERWISE NOTED.

8- STROBE LOCATIONS ARE BASED ON 10 FOOT CEILING HEIGHTS AND ARE INSTALLED IN ACCORDANCE WITH NATIONAL FIRE ALARM CODE (NFPA 72) UNLESS OTHERWISE NOTED. REFERENCE APPLICABLE EDITIONS UNDER "APPLICABLE CODES AND REGULATIONS".

9- WALL-MOUNTED STROBE APPLIANCES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80 INCHES AND NOT GREATER THAN 96 INCHES ABOVE FINISHED FLOOR LEVEL.

10- OPERABLE PORTION OF MANUAL PULL STATIONS SHALL BE MOUNTED AT 48" ABOVE FINISHED FLOOR LEVEL.

11- FIRE ALARM SIGNAL SHALL MEET ANSI V3.41, AUDIBLE EMERGENCY EVACUATION SIGNAL (TEMPORAL PATTERN).

12- INITIATION DEVICE CIRCUITS ARE RATED POWER LIMITED. MINIMUM RECOMMENDED WIRE SIZE IS LISTED.

13- CONTROL CIRCUITS ARE NON-POWER LIMITED. MINIMUM RECOMMENDED WIRE SIZE TO BE DETERMINED BY CIRCUIT LOAD.

14- WHERE SHIELDED CABLE IS USED, THE SHIELD SHALL BE CONTINUOUS AND GROUNDED ONLY AT THE RESPECTIVE CONTROL PANEL.

15- REFER TO RESPECTIVE CATALOG CUT SHEETS FOR ELECTRICAL MOUNTING HARDWARE.

16- T-TAPPING OR PARALLEL BRANCHING OF ADDRESSABLE INITIATION DEVICE CIRCUITS IS PERMITTED ON CLASS B CIRCUITS ONLY. T-TAPPING IS PROHIBITED ON ANY OTHER CIRCUITS (I.E. NAC, IDC, PANEL NETWORK WIRING).

17- PHOTOELECTRIC DETECTORS SHALL NOT BE WITHIN 36" OF DIRECT AIR STREAM SUPPLY AIR OUTLETS.

18- UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE PERFORMED IN THE PRESENCE OF THE AHJ.

19- ALL DEVICES OF THE FIRE ALARM SYSTEM SHALL BE APPROVED AND LISTED BY THE CALIFORNIA STATE FIRE MARSHAL.

20- AUDIBILITY WILL BE DETERMINED BY THE FIELD FIRE MARSHAL.

21- FIRE ALARM INSTALLER IN CHARGE OF THIS PROJECT MUST BE "STATE CERTIFIED" WITH THE DIVISION OF APPRENTICESHIP STANDARDS, AND SHALL FURNISH ID CARD UPON REQUEST LOCAL AHJ.

22- INITIATION AND NOTIFICATION CIRCUITS SHALL BE CLEARLY IDENTIFIED AT ALL JUNCTION BOXES AND TERMINATIONS.

23- THE TELEPHONE NUMBER OF THE 24 HOUR MONITORING SERVICE SHALL BE PLACE ON THE DOOR OF THE PANEL OR NEXT TO THE PANEL ON THE WALL.

24- CIRCUIT BREAKER FOR THE FIRE ALARM PANEL SHALL BE RED IN COLOR AND HAVE A LOCK OUT ON IT.

25- FIRE BELL SHALL BE ON IT'S OWN BREAKER.

26- ALL NOTIFICATION APPLIANCES INSTALLED WITHIN THIS PROJECT SHALL PROVIDE A DISTINCTIVE THREE-PULSE TEMPORAL PULSE FIRE ALARM SIGNAL IN ACCORDANCE WITH SECTION 3-7.2 OF NFPA.

27- 48 HOUR ADVANCE NOTICE REQUIRED FOR ALL INSPECTIONS

28- ACCESS KEYS FOR FACP AND PULLSTATIONS SHALL BE PROVIDED AND LABELED FOR PLACEMENT IN THE KNOX BOX.

29- A 24 HOUR LISTED FIRE MONITORING SERVICES SHALL RECEIVE SIGNALS.

30- ROOM IN WHICH FACP IS LOCATED SHALL BE LABEL ACCORDING TO FD POLICY.

31- CALL FOR FINAL FIRE ALARM TEST AND INSPECTION AT LEAST 24 HOURS IN ADVANCE. APPROVED PLANS MUST BE ON SITE FOR FINAL INSPECTION. ALL AREAS THAT REQUIRE INSPECTION MUST BE ACCESSIBLE. THIS MAY MEAN HAVING A LIFT ON SITE TO INSPECT/TEST WORK, AS REQUIRED.

32- AN NFPA 72 2016 RECORD OF COMPLETION SHALL BE COMPLETED AND PROVIDED TO THE FIRE INSPECTOR AT TIME OF FINAL ACCEPTANCE INSPECTION/TESTING.

DRAWING SHEET INDEX

SHEET	SHEET DESCRIPTION	SHEET CONTENTS
FA-0.0	TITLE SHEET	SEQ OF OPS, NOTES, CODE ANALYSIS, SCOPE OF WORK, DEVICE LEGEND, WIRE LEGEND, DETAILS
FA-0.1	SITE PLAN	
FA-1.0	BUILDING E - 1ST FLOOR PLAN	1ST FLOOR, FIRE PUMP HOUSE
FA-1.1	BUILDING E - 2ND FLOOR PLAN	
FA-1.2	BUILDING E - 3RD FLOOR PLAN	
FA-1.3	BUILDING E - 4TH FLOOR PLAN	
FA-1.4	BUILDING E - ROOF PLAN	
FA-2.0	BUILDING D1 - FLOOR PLAN	
FA-3.0	BUILDING D2 - FLOOR PLAN	
FA-4.0	BUILDING B - FLOOR PLAN	
FA-5.0	BUILDING C - FLOOR PLAN	
FA-6.0	BUILDING A3 - FLOOR PLAN	
FA-7.0	BUILDING A5 - FLOOR PLAN	
FA-8.0	SYSTEM RISER DIAGRAM - BUILDING E & D1	BUILDING E INCLUDES A3,A5 & FIRE PUMP HOUSE
FA-8.1	SYSTEM RISER DIAGRAM - BUILDINGS D2, B, & C	
FA-9.0	BATTERY & VOLTAGE DROP CALCULATIONS -1	
FA-9.1	BATTERY & VOLTAGE DROP CALCULATIONS -2	
FA-9.2	FURTURE HEARING IMPAIRED UNIT BUILD OUT WORST CASE VOLTAGE DROP CALCULATIONS	
FA-10.0	POINT TO POINT WIRING DETAIL	

DEVICE LEGEND & LIST OF MATERIALS

	QTY	DESCRIPTION	MANUFACTURE	MODEL	CSFM#	BACKBOX TYPE
FACU	1	FIRE ALARM SYSTEM CONTROL PANEL	SILENT KNIGHT	6820	7165-0559:0500	INCLUDED
FAA	1	REMOTE ANNUNCIATOR	SILENT KNIGHT	5860	7165-0559:0500	INCLUDED
FAC	1	CELLULAR COMMUNICATION PANEL	SILENT KNIGHT	CELL-CAB-SK	7165-0559:0500	INCLUDED
BPS	10	BOOSTER POWER SUPPLY PANEL	SILENT KNIGHT	5495	7300-0559:0123	INCLUDED
--	2	12V, 18AH RECHARGEABLE LEAD-ACID BATTERIES	POWER SONIC	PS12180	--	--
--	20	12V, 7AH RECHARGEABLE LEAD-ACID BATTERIES	POWER SONIC	PS1270	--	--
FAD	1	SYSTEM RECORDS CABINET	SPACE AGE	ACE-11	7300-0553:0110	--
	16	INTELLIGENT PHOTOELECTRIC SMOKE DETECTOR	SILENT KNIGHT	SK-PHOTO-W	7272-0559:0512	4S BOX W/ 3.0 MUDRING
	1	INTELLIGENT HEAT DETECTOR	SILENT KNIGHT	SK-HEAT-W	7270-0559:0511	4S BOX W/ 3.0 MUDRING
F	1	ADDRESSABLE PULL STATION	SILENT KNIGHT	SK-PULL-SA	7150-0559:0161	4S BOX
MM	47	ADDRESSABLE SINGLE INPUT MINI MODULE	SILENT KNIGHT	SK-MINI-MON	7300-0559:0155	4S BOX
CR	8	ADDRESSABLE RELAY MODULE	SILENT KNIGHT	SK-RELAY	7300-0559:0155	4S BOX
NR	4	ADDRESSABLE NOTIFICATION MODULE	SILENT KNIGHT	SK-CONTROL	7300-0559:0155	4S BOX
R	3	120VAC, 10 AMP RELAY	AIR PRODUCTS	PAM-1	7300-1004:0101	4S BOX
	208	HORN (LOW FREQUENCY)	SYSTEM SENSOR	HWL-LF	7135-1653:0516	1-GANG
	54	MULTI-CANDELA WALL HORN-STROBE	SYSTEM SENSOR	P2WL	7135-1653:0503	1-GANG
C	1	MULTI-CANDELA CEILING HORN-STROBE	SYSTEM SENSOR	PC2WL	7135-1653:0503	1-GANG
WP	2	MULTI-CANDELA WALL HORN-STROBE, WEATHERPROOF	SYSTEM SENSOR	P2WK	7125-1653:0188	SA-WBB
	17	MULTI-CANDELA WALL STROBE	SYSTEM SENSOR	SWL	7125-1653:0504	1-GANG
C	2	MULTI-CANDELA CEILING STROBE	SYSTEM SENSOR	SCWL	7125-1653:0504	1-GANG
	11	SPRINKLER FLOW SWITCH (BY OTHERS)	MUST BE CSFM LISTED			--
	19	SPRINKLER CONTROL VALVE TAMPER SWITCH (BY OTHERS)	MUST BE CSFM LISTED			--
	1	SITE BACKFLOW TAMPER SWITCH (BY OTHERS)	MUST BE CSFM LISTED			--
FSD	--	FIRE SMOKE DAMPERS (BY OTHERS)	MUST BE CSFM LISTED			--

WIRE LEGEND

WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID
C	REMOTE ANN	16/4 FPLR SOLID
U	UNDERGROUND CIRCUIT	SOLID RATED IN CONDUIT 18/2 UNDERGROUND

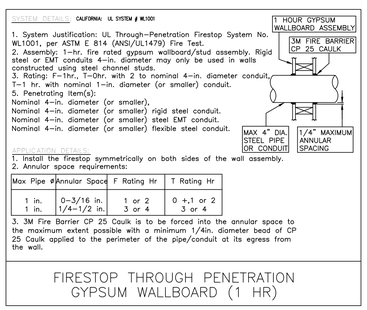
** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.

APPLICABLE CODES AND REGULATIONS

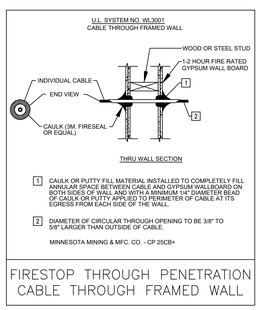
CALIFORNIA BUILDING CODE, TITLE 24 CALIFORNIA CODE OF REGULATIONS (CCR)
2019 CALIFORNIA BUILDING CODE (CBC), TITLE 24 PART 2
2019 CALIFORNIA ELECTRICAL CODE (CEC), TITLE 24 PART 3
2019 CALIFORNIA MECHANICAL CODE (CMC), TITLE 24 PART 4
2019 CALIFORNIA FIRE CODE (CFC), TITLE 24 PART 9
NATIONAL FIRE PROCTECTION ASSOCIATION
2019 NFPA 72
2011 NFPA 70
2019 NFPA 90A

CENTRAL MONITORING STATION

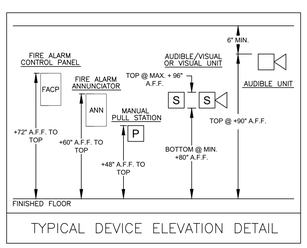
CRIME ALERT MONITORING CENTER
690 LENFEST ROAD
SAN JOSE, CA 95133
PHONE #: 800.829.8877



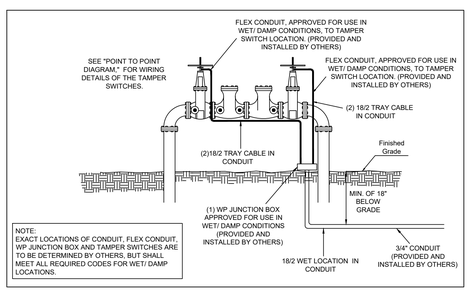
FIRESTOP THROUGH PENETRATION GYPSUM WALLBOARD (1 HR)



FIRESTOP THROUGH PENETRATION CABLE THROUGH FRAMED WALL



TYPICAL DEVICE ELEVATION DETAIL



VICINITY MAP

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN ELECTRICAL SERVICES
501 SAN BENITO STREET, 3RD FLOOR
HOLLISTER, CA 95023
CONTACT: 831.638.1737
C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

STAMP:

LICENSED ELECTRICAL CONTRACTOR
AMERICAN ELECTRICAL SERVICES
License No. 569761
EXP. Date: 07/31/2021
C-10
STATE OF CALIFORNIA

SIGNATURE: IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER: FUEGO ENGINEERING & DESIGN
P.O. BOX 880922
PORT SAINT LUCIE , FL 34988
Carlos Olveras (619) 610-8637, NICET III #84003
carlos.olveras@fuegoeng.com

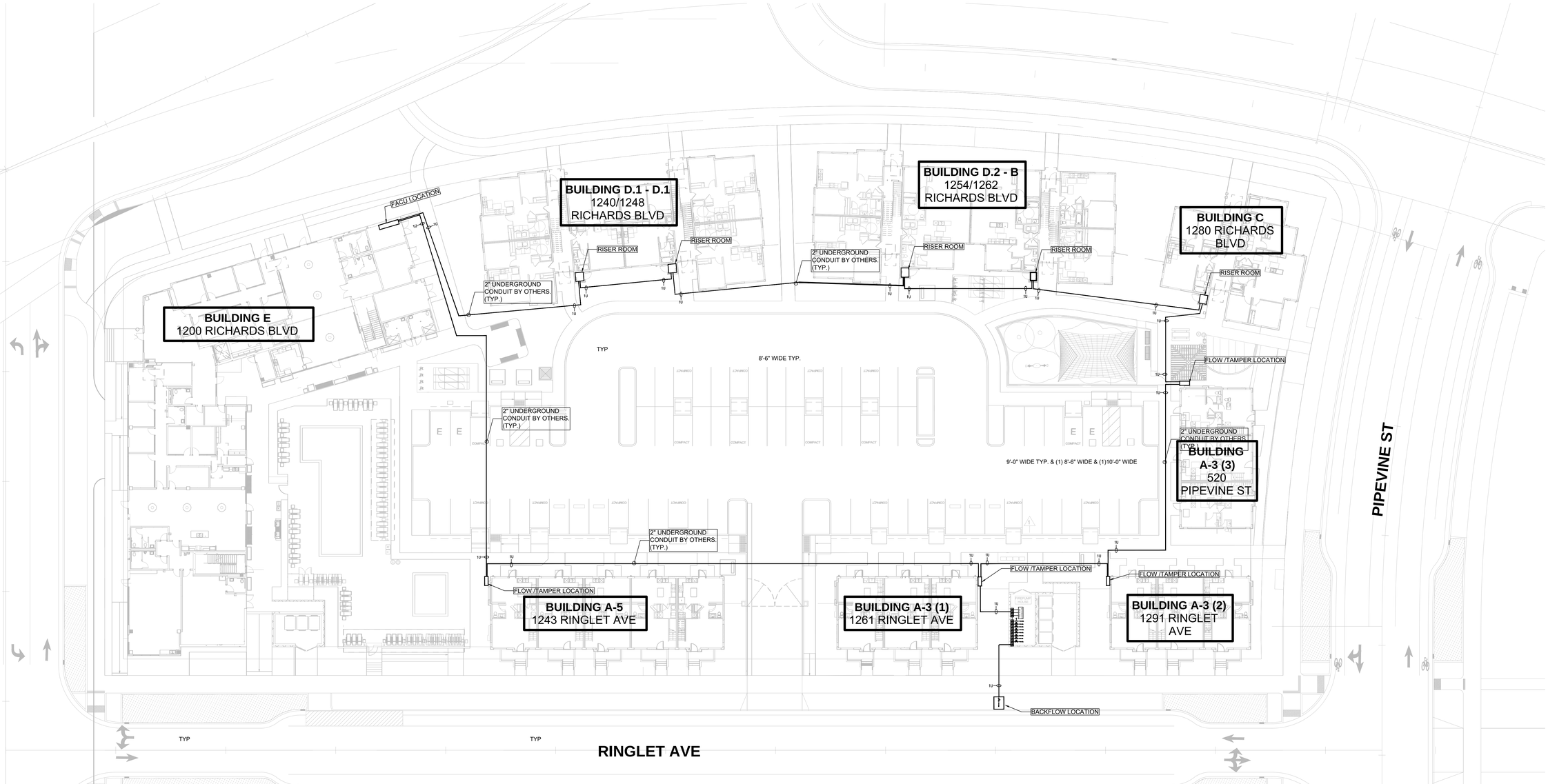
DESIGN: C.O. | DRAWN: C.O.
CHECKED: RC | JOB NO:
DATE: 03/22/2021 | PLOT:

SHEET TITLE: TITLE SHEET

TWIN RIVERS BLOCK A
FIRE ALARM SYSTEM

SCALE: N.T.S.

SHEET NO. FA-0.0



SITE PLAN

NOT TO SCALE

NORTH

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN ELECTRICAL SERVICES
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STATE OF CALIFORNIA

SIGNATURE:
IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A

SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER:
FUEGO ENGINEERING & DESIGN
P.O. BOX 880922
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (619) 610-8637, NICET III #84003
carlos.oliveras@fuegoeng.com

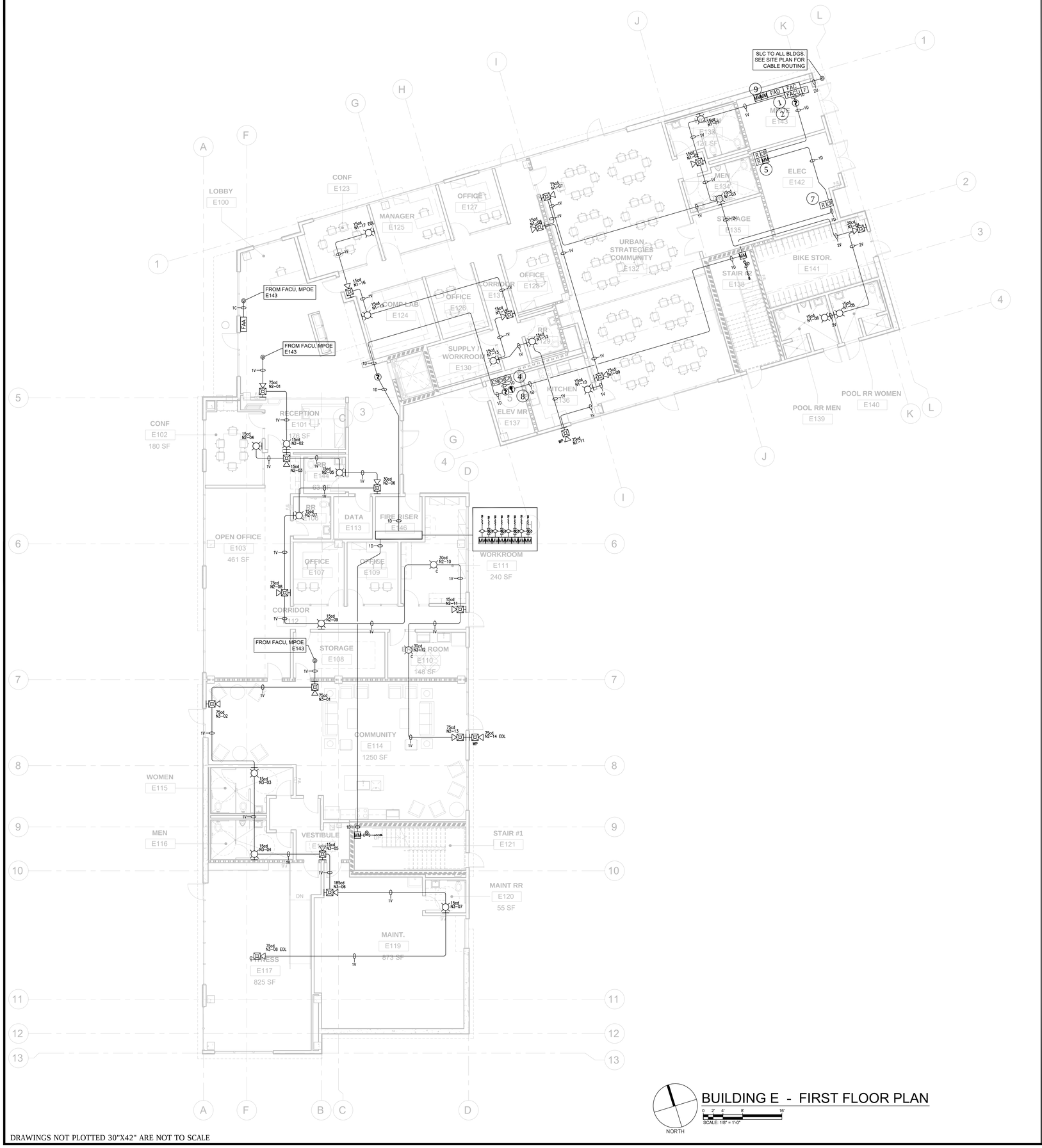
DESIGN: C.O.	DRAWN: C.O.
CHECKED: RC	JOB NO:
DATE: 03/22/2021	PLOT:

SHEET TITLE:
SITE PLAN

TWIN RIVERS BLOCK A
FIRE ALARM SYSTEM

SCALE: N.T.S.

SHEET NO.
FA-0.1



BUILDING E - FIRST FLOOR PLAN

NORTH

SCALE: 1/8" = 1'-0"

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

SMOKE DAMPER ACTUATION	
M-1	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIR VELOCITY, TEMPERATURE AND HUMIDITY ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
M-2	WHERE A SMOKE DAMPER IS INSTALLED ABOVE SMOKE BARRIER DOORS IN A SMOKE BARRIER, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL BE INSTALLED ON EITHER SIDE OF THE SMOKE BARRIER DOOR OPENING.
M-3	WHERE A SMOKE DAMPER IS INSTALLED IN AN AIR TRANSFER OPENING IN A WALL, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL INSTALLED WITHIN 5' HORIZONTALLY OF THE DAMPER.
M-4	WHERE A SMOKE DAMPER IS INSTALLED IN A CORRIDOR WALL OR CEILING, THE DAMPER SHALL BE PERMITTED TO BE CONTROLLED BY A SMOKE DETECTION SYSTEM INSTALLED IN THE CORRIDOR.
M-5	WHERE A TOTAL-COVERAGE SMOKE-DETECTION SYSTEM IS PROVIDED WITHIN AREAS SERVED BY A HEATING, VENTILATION AND AIR-CONDITIONING (HVAC) SYSTEM, SMOKE DAMPERS SHALL BE PERMITTED TO BE CONTROLLED BY THE SMOKE DETECTION SYSTEM.
REFER TO 716.3.3.2 (CBC 2019)	

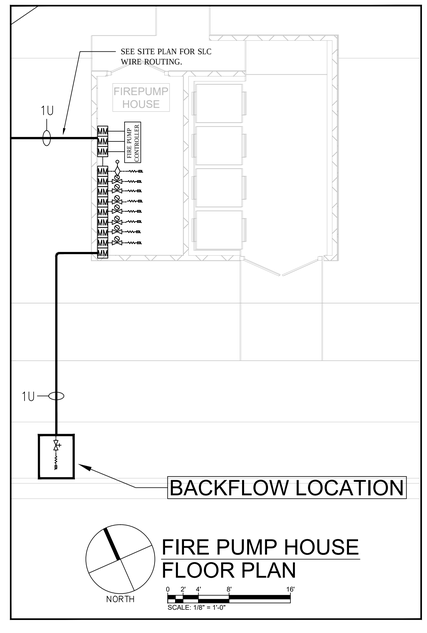
KEY NOTES	
1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FACP / BOOSTER POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
2	INSTALL SYSTEMS RECORD CABINET ADJACENT TO FACP.
3	INSTALL SMOKE DETECTOR NO MORE THAN 5 FEET FROM FIRE CONTROL / BOOSTER POWER SUPPLY PANEL.
4	ELEVATOR RECALL RELAY MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
5	ELEVATOR SHUNT-TRIP MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
6	SMOKE GUARD INTERFACE RELAY. FIELD VERIFY LOCATION AND COORDINATE WITH ELEVATOR CONTRACTOR.
7	FIRE SMOKE DAMPER ACTIVATION RELAY. FIELD VERIFY LOCATION WITH ELECTRIC CONTRACTOR.
8	INSTALL HEAT DETECTOR NO MORE THAN 24" FROM SPRINKLER HEAD.
9	2 WAY ECS MONITOR MODULES.
10	NOTIFICATION MODULE USE TO TRIGGER BPS.
11	NOT USED.

GENERAL NOTES

1. SMOKE ALARMS IN UNITS INSTALLED BY ELECTRICAL CONTRACTOR. REFERENCE ELECTRICAL PLAN FOR LOCATIONS.

DEVICE LEGEND	
SYMBOL	DESCRIPTION
FACU	FIRE ALARM SYSTEM CONTROL PANEL
FAA	REMOTE ANNUNICATOR
FAC	CELLULAR COMMUNICATOR
FAD	FIRE ALARM DOCUMENT CABINET
BPS	BOOSTER POWER SUPPLY
	SMOKE DETECTOR
	HEAT DETECTOR
F	ADDRESSABLE PULL STATION
IM	ADDRESSABLE INPUT MODULE
CR	ADDRESSABLE RELAY MODULE
R	10 AMP PAM RELAY
NR	NOTIFICATION MODULE
	HORN LOW FREQ
	HORN-STROBE WALL
WP	HORN-STROBE WALL, WP
	HORN-STROBE CEILING
	STROBE CEILING
	STROBE WALL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SPRINKLER BACKFLOW SWITCH
FSD	FIRE SMOKE DAMPER

WIRE LEGEND		
WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID
C	REMOTE ANN	16/4 FPLR SOLID
U	UNDERGROUND CIRCUIT	SOLID RATED IN CONDUIT 18/2 UNDERGROUND
** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.		



FIRE PUMP HOUSE FLOOR PLAN

NORTH

SCALE: 1/8" = 1'-0"

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C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

STAMP:

LICENSED ELECTRICAL CONTRACTOR — AMERICAN ELECTRICAL SERVICES — License No. 569761 — EXP Date: 07/31/2021 — C-10 — STATE OF CALIFORNIA

SIGNATURE:

IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A

SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER: FUEGO ENGINEERING & DESIGN
P.O. BOX 880922
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (619) 610-8637, NICET III #84003
carlos.oliveras@fuegoeng.com

DESIGN: C.O.	DRAWN: C.O.
CHECKED: RC	JOB NO:
DATE: 03/22/2021	PLOT:

SHEET TITLE:

BUILDING E
FIRE FLOOR PLAN

TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8" = 1'-0"

SHEET NO.

FA-1.0

BUILDING E - SECOND FLOOR PLAN

NORTH

0 2' 4' 8' 16'

SCALE: 1/8" = 1'-0"

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

SMOKE DAMPER ACTUATION

SD1	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIR VELOCITY, TEMPERATURE AND HUMIDITY ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
SD2	WHERE A SMOKE DAMPER IS INSTALLED ABOVE SMOKE BARRIER DOORS IN A SMOKE BARRIER, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL BE INSTALLED ON EITHER SIDE OF THE SMOKE BARRIER DOOR OPENING.
SD3	WHERE A SMOKE DAMPER IS INSTALLED IN AN AIR TRANSFER OPENING IN A WALL, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL INSTALLED WITHIN 5' HORIZONTALLY OF THE DAMPER.
SD4	WHERE A SMOKE DAMPER IS INSTALLED IN A CORRIDOR WALL OR CEILING, THE DAMPER SHALL BE PERMITTED TO BE CONTROLLED BY A SMOKE DETECTION SYSTEM INSTALLED IN THE CORRIDOR.
SD5	WHERE A TOTAL-COVERAGE SMOKE-DETECTION SYSTEM IS PROVIDED WITHIN AREAS SERVED BY A HEATING, VENTILATION AND AIR-CONDITIONING (HVAC) SYSTEM, SMOKE DAMPERS SHALL BE PERMITTED TO BE CONTROLLED BY THE SMOKE DETECTION SYSTEM.

REFER TO 716.3.3.2 (CBC 2019)

KEY NOTES

1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FACP / BOOSTER POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
2	INSTALL SYSTEMS RECORD CABINET ADJACENT TO FACP.
3	INSTALL SMOKE DETECTOR NO MORE THAN 5 FEET FROM FIRE CONTROL / BOOSTER POWER SUPPLY PANEL.
4	ELEVATOR RECALL RELAY MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
5	ELEVATOR SHUNT-TRIP MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
6	SMOKE GUARD INTERFACE RELAY. FIELD VERIFY LOCATION AND COORDINATE WITH ELEVATOR CONTRACTOR.
7	FIRE SMOKE DAMPER ACTIVATION RELAY. FIELD VERIFY LOCATION WITH ELECTRIC CONTRACTOR.
8	INSTALL HEAT DETECTOR NO MORE THAN 24" FROM SPRINKLER HEAD.
9	2 WAY ECS MONITOR MODULES.
10	NOTIFICATION MODULE USE TO TRIGGER BPS.
11	NOT USED.

GENERAL NOTES

1. SMOKE ALARMS IN UNITS INSTALLED BY ELECTRICAL CONTRACTOR. REFERENCE ELECTRICAL PLAN FOR LOCATIONS.

DEVICE LEGEND

SYMBOL	DESCRIPTION
FACU	FIRE ALARM SYSTEM CONTROL PANEL
FAA	REMOTE ANNUNICATOR
FAC	CELLULAR COMMUNICATOR
FAD	FIRE ALARM DOCUMENT CABINET
BPS	BOOSTER POWER SUPPLY
	SMOKE DETECTOR
	HEAT DETECTOR
F	ADDRESSABLE PULL STATION
MM	ADDRESSABLE INPUT MODULE
CR	ADDRESSABLE RELAY MODULE
R	10 AMP PAM RELAY
NR	NOTIFICATION MODULE
	HORN LOW FREQ
	HORN-STROBE WALL
WP	HORN-STROBE WALL, WP
	HORN-STROBE CEILING
	STROBE CEILING
	STROBE WALL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SPRINKLER BACKFLOW SWITCH
FSD	FIRE SMOKE DAMPER

WIRE LEGEND

WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID
C	REMOTE ANN	16/4 FPLR SOLID
U	UNDERGROUND CIRCUIT	SOLID RATED IN CONDUIT 18/2 UNDERGROUND

** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.

AMERICAN ELECTRICAL SERVICES
501 SAN BENITO STREET, 3RD FLOOR
HOLLISTER, CA 95023
CONTACT: 831.638.1737
C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

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AMERICAN ELECTRICAL SERVICES
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IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

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DESIGNER:
FUEGO ENGINEERING & DESIGN
P.O. BOX 880922
PORT SAINT LUCIE , FL 34988
Carlos Olveras (619) 610-8637, NICET III #840003
carlos.olveras@fuegoeng.com

DESIGN: C.O.	DRAWN: C.O.
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DATE: 03/22/2021	PLOT:

SHEET TITLE:
BUILDING E
SECOND FLOOR PLAN

TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8"=1'-0"

SHEET NO.
FA-1.1

SMOKE DAMPER ACTUATION

(M3-1)	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIRFLOW, VELOCITY, AND CLEAN AIR CONDITIONS ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
(M2-2)	WHERE A SMOKE DAMPER IS INSTALLED ABOVE SMOKE BARRIER DOORS IN A SMOKE BARRIER, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL BE INSTALLED ON EITHER SIDE OF THE SMOKE BARRIER DOOR OPENING.
(M3-3)	WHERE A SMOKE DAMPER IS INSTALLED IN AN AIR TRANSFER OPENING IN A WALL, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL INSTALLED WITHIN 5' HORIZONTALLY OF THE DAMPER.
(M2-4)	WHERE A SMOKE DAMPER IS INSTALLED IN A CORRIDOR WALL OR CEILING, THE DAMPER SHALL BE PERMITTED TO BE CONTROLLED BY A SMOKE DETECTION SYSTEM INSTALLED IN THE CORRIDOR.
(M2-5)	WHERE A TOTAL-COVERAGE SMOKE-DETECTION SYSTEM IS PROVIDED WITHIN AREAS SERVED BY A HEATING, VENTILATION AND AIR-CONDITIONING (HVAC) SYSTEM, SMOKE DAMPERS SHALL BE PERMITTED TO BE CONTROLLED BY THE SMOKE DETECTION SYSTEM.

REFER TO 716.3.3.2 (CBC 2019)

KEY NOTES

1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FSCP / BOOSTER POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
2	INSTALL SYSTEMS RECORD CABINET ADJACENT TO FACP.
3	INSTALL SMOKE DETECTOR NO MORE THAN 5 FEET FROM FIRE CONTROL / BOOSTER POWER SUPPLY PANEL.
4	ELEVATOR RECALL RELAY MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
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7	FIRE SMOKE DAMPER ACTIVATION RELAY. FIELD VERIFY LOCATION WITH ELECTRIC CONTRACTOR.
8	INSTALL HEAT DETECTOR NO MORE THAN 24' FROM SPRINKLER HEAD.
9	2 WAY ECS MONITOR MODULES.
10	NOTIFICATION MODULE USE TO TRIGGER BPS.
11	NOT USED.

GENERAL NOTES

1. SMOKE ALARMS IN UNITS INSTALLED BY ELECTRICAL CONTRACTOR. REFERENCE ELECTRICAL PLAN FOR LOCATIONS.

DEVICE LEGEND

SYMBOL	DESCRIPTION
FACU	FIRE ALARM SYSTEM CONTROL PANEL
FAA	REMOTE ANNUNICATOR
FAC	CELLULAR COMMUNICATOR
FAD	FIRE ALARM DOCUMENT CABINET
BPS	BOOSTER POWER SUPPLY
	SMOKE DETECTOR
	HEAT DETECTOR
F	ADDRESSABLE PULL STATION
MM	ADDRESSABLE INPUT MODULE
	ADDRESSABLE RELAY MODULE
R	10 AMP PAM RELAY
NM	NOTIFICATION MODULE
	HORN LOW FREQ
	HORN-STROBE WALL
WP	HORN-STROBE WALL, WP
	HORN-STROBE CEILING
	STROBE CEILING
	STROBE WALL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SPRINKLER BACKFLOW SWITCH
FSD	FIRE SMOKE DAMPER

WIRE LEGEND

WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID
C	REMOTE ANN	16/4 FPLR SOLID
U	UNDERGROUND CIRCUIT	SOLID RATED IN CONDUIT 18/2 UNDERGROUND.

** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.

BUILDING E - THIRD FLOOR PLAN

NORTH

SCALE: 1/8" = 1'-0"

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SHEET TITLE:
BUILDING E
THIRD FLOOR PLAN

TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8" = 1'-0"

SHEET NO.
FA-1.2

SMOKE DAMPER ACTUATION	
M-1	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIRFLOW, VELOCITY, AND DUCT CONFIGURATION ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
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REFER TO 716.3.3.2 (CBC 2019)	

KEY NOTES	
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GENERAL NOTES

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DEVICE LEGEND	
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	HORN-STROBE WALL, WP
	HORN-STROBE CEILING
	STROBE CEILING
	STROBE WALL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SPRINKLER BACKFLOW SWITCH
FSD	FIRE SMOKE DAMPER

WIRE LEGEND		
WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID
C	REMOTE ANN	16/4 FPLR SOLID
U	UNDERGROUND CIRCUIT	SOLID RATED IN CONDUIT 18/2 UNDERGROUND.

** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.

BUILDING E - FOURTH FLOOR PLAN

NORTH

SCALE: 1/8" = 1'-0"

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN ELECTRICAL SERVICES
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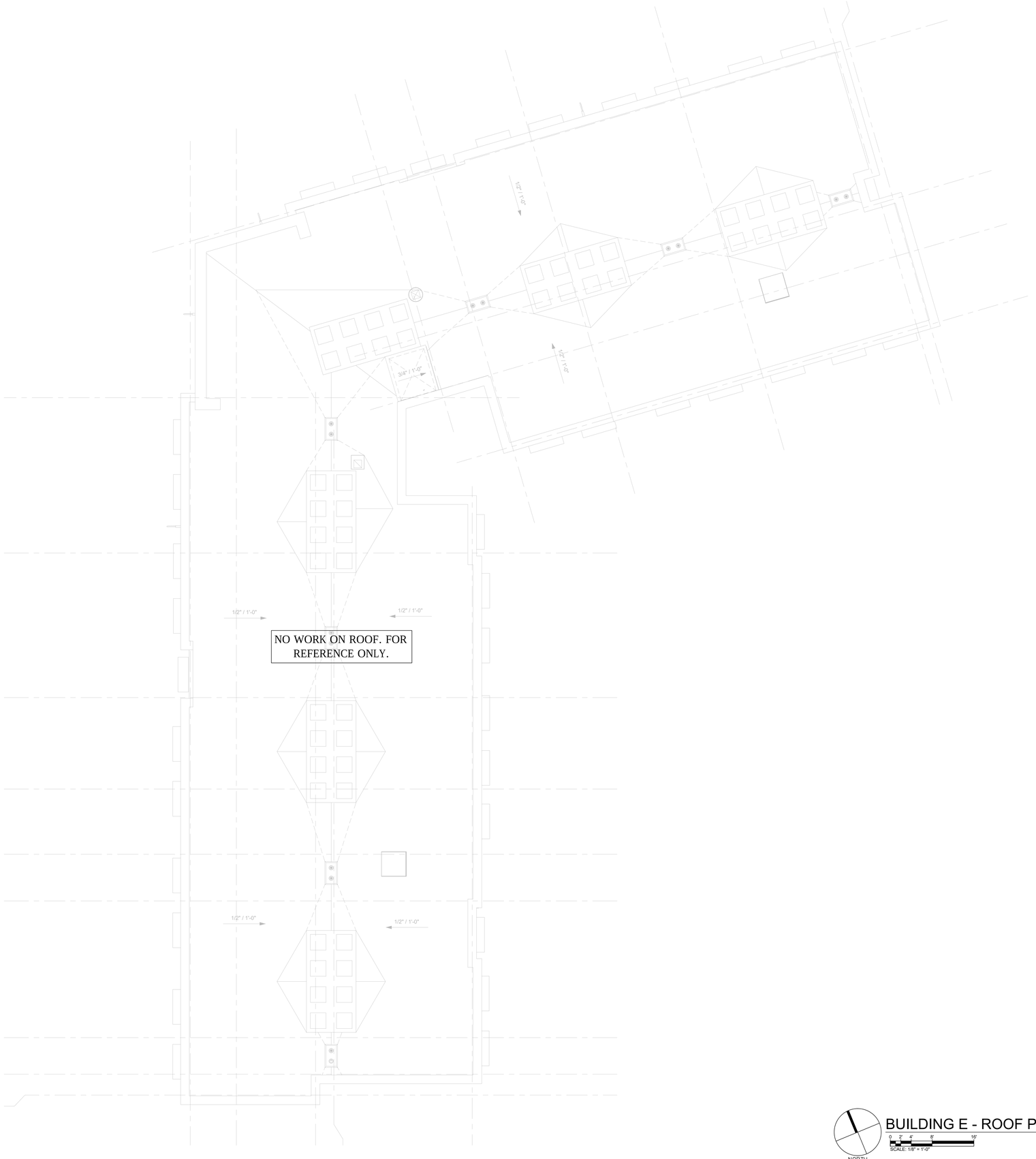
SHEET TITLE:
BUILDING E
FOURTH FLOOR PLAN

TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8" = 1'-0"

SHEET NO.
FA-1.3



NORTH

BUILDING E - ROOF PLAN

0 2' 4' 8' 16'

SCALE: 1/8" = 1'-0"

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SMOKE DAMPER ACTUATION

SD-1	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIRFLOW, VELOCITY, TEMPERATURE AND HUMIDITY ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
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SD-5	WHERE A TOTAL-COVERAGE SMOKE-DETECTION SYSTEM IS PROVIDED WITHIN AREAS SERVED BY A HEATING, VENTILATION AND AIR-CONDITIONING (HVAC) SYSTEM, SMOKE DAMPERS SHALL BE PERMITTED TO BE CONTROLLED BY THE SMOKE DETECTION SYSTEM.

REFER TO 716.3.3.2 (CBC 2019)

KEY NOTES

1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FACP / BOOSTER POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
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10	NOTIFICATION MODULE USE TO TRIGGER BPS.
11	NOT USED.

GENERAL NOTES

1. SMOKE ALARMS IN UNITS INSTALLED BY ELECTRICAL CONTRACTOR. REFERENCE ELECTRICAL PLAN FOR LOCATIONS.

DEVICE LEGEND

SYMBOL	DESCRIPTION
FACU	FIRE ALARM SYSTEM CONTROL PANEL
FAA	REMOTE ANNUNICATOR
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WIRE LEGEND

WIRE TAG	PURPOSE	TYPE
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DATE: 03/22/2021	PLOT:

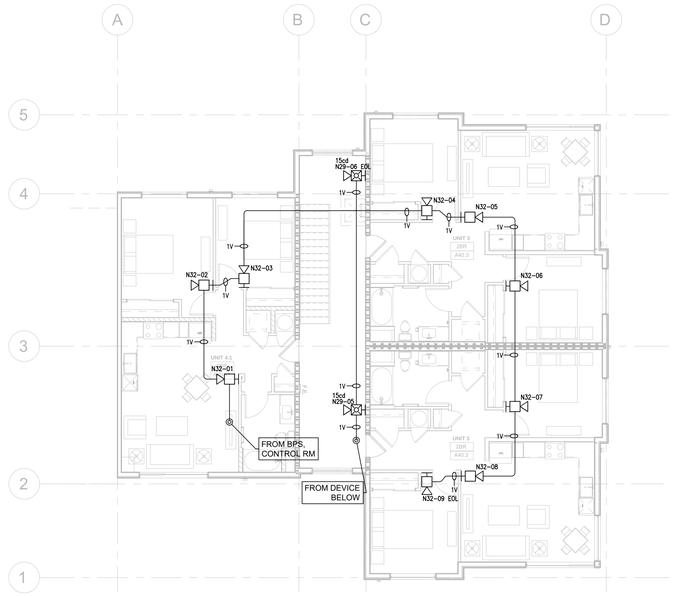
SHEET TITLE:
BUILDING E
ROOF PLAN

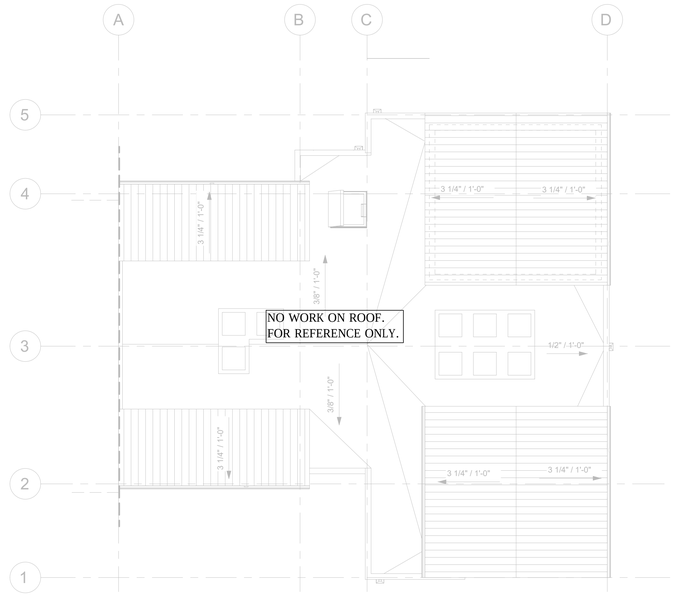
TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8" = 1'-0"

SHEET NO.
FA-1.4





NORTH

BUILDING D1
THIRD & ROOF FLOOR PLAN

SCALE: 1/8" = 1'-0"

SMOKE DAMPER ACTUATION	
SD-1	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIRFLOW, VELOCITY, AND CLEARANCE THAT IS ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
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3	INSTALL SMOKE DETECTOR NO MORE THAN 5 FEET FROM FIRE CONTROL / BOOSTER POWER SUPPLY PANEL.
4	ELEVATOR RECALL RELAY MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
5	ELEVATOR SHUNT-TRIP MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
6	SMOKE GUARD INTERFACE RELAY. FIELD VERIFY LOCATION AND COORDINATE WITH ELEVATOR CONTRACTOR.
7	FIRE SMOKE DAMPER ACTIVATION RELAY. FIELD VERIFY LOCATION WITH ELECTRIC CONTRACTOR.
8	INSTALL HEAT DETECTOR NO MORE THAN 24" FROM SPRINKLER HEAD.
9	2 WAY ECS MONITOR MODULES.
10	NOTIFICATION MODULE USE TO TRIGGER BPS.
11	NOT USED.

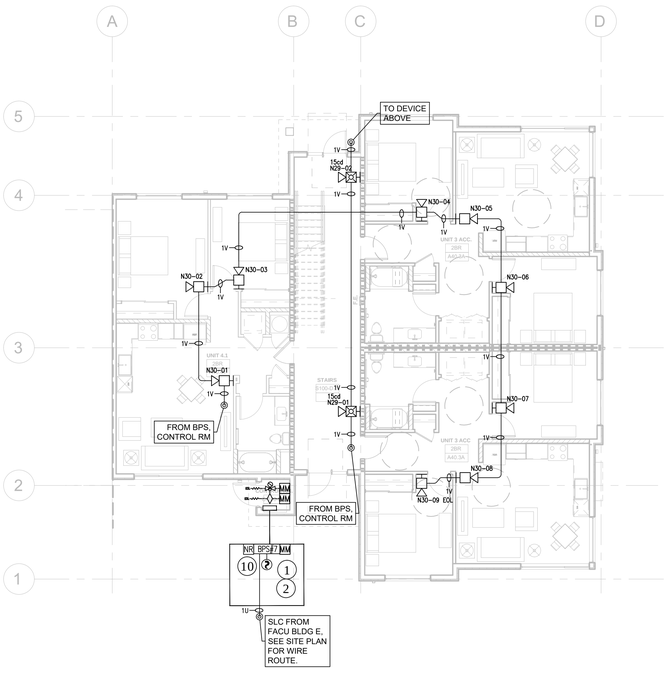
GENERAL NOTES

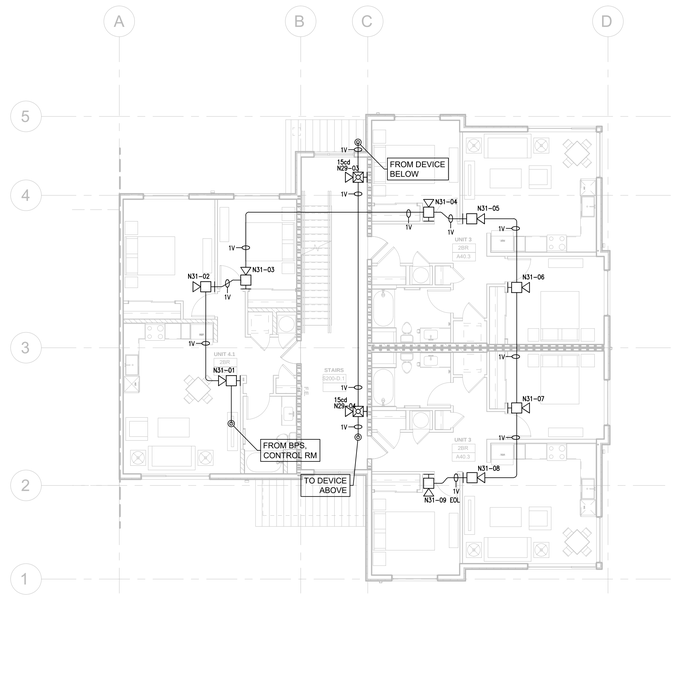
1. SMOKE ALARMS IN UNITS INSTALLED BY ELECTRICAL CONTRACTOR. REFERENCE ELECTRICAL PLAN FOR LOCATIONS.

DEVICE LEGEND	
SYMBOL	DESCRIPTION
FACU	FIRE ALARM SYSTEM CONTROL PANEL
FAA	REMOTE ANNUNICATOR
FAC	CELLULAR COMMUNICATOR
FAD	FIRE ALARM DOCUMENT CABINET
BPS	BOOSTER POWER SUPPLY
	SMOKE DETECTOR
	HEAT DETECTOR
F	ADDRESSABLE PULL STATION
IM	ADDRESSABLE INPUT MODULE
RM	ADDRESSABLE RELAY MODULE
R	10 AMP PAM RELAY
NM	NOTIFICATION MODULE
	HORN LOW FREQ
	HORN-STROBE WALL
WP	HORN-STROBE WALL, WP
	HORN-STROBE CEILING
	STROBE CEILING
	STROBE WALL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SPRINKLER BACKFLOW SWITCH
FSD	FIRE SMOKE DAMPER

WIRE LEGEND		
WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID
C	REMOTE ANN	16/4 FPLR SOLID
U	UNDERGROUND CIRCUIT	SOLID RATED IN CONDUIT 18/2 UNDERGROUND.

** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.





NORTH

BUILDING D1
FIRST & SECOND FLOOR PLAN

SCALE: 1/8" = 1'-0"

NOTE: TYPICAL OF 2 BUILDINGS -
1240 / 1248 RICHARDS BLVD

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN
ELECTRICAL SERVICES
501 SAN BENITO STREET, 3RD FLOOR
HOLLISTER, CA 95023
CONTACT: 831.638.1737
C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

STAMP:

LICENSED ELECTRICAL CONTRACTOR
AMERICAN ELECTRICAL SERVICES
License No. 569761
EXP Date: 07/31/2021
C-10
STATE OF CALIFORNIA

SIGNATURE:
IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER: FURGO ENGINEERING & DESIGN
P.O. BOX 880522
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (615) 610-8637 , NICET III #846003
carlos.oliveras@furgoeng.com

DESIGN: C.O.	DRAWN: C.O.
CHECKED: RC	JOB NO:
DATE: 03/22/2021	PLOT:

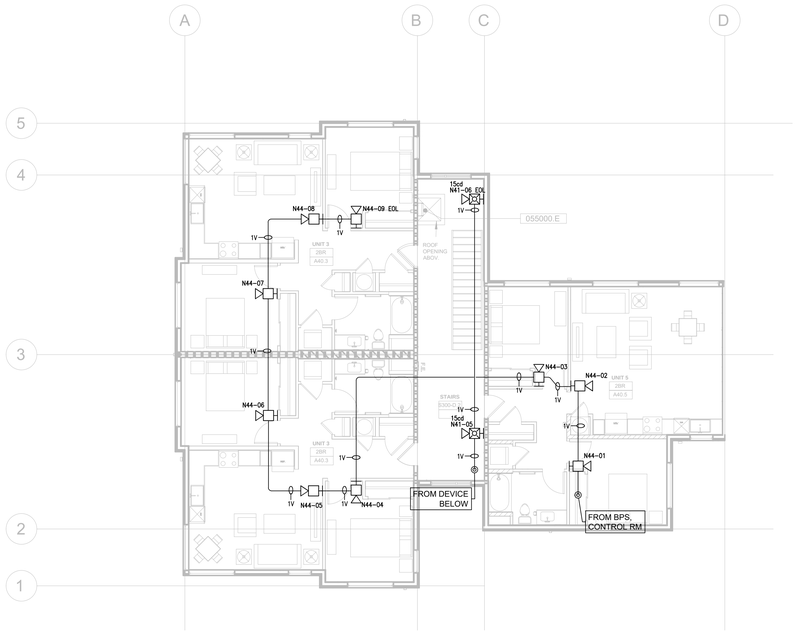
SHEET TITLE:
BUILDING D1
FLOOR PLAN

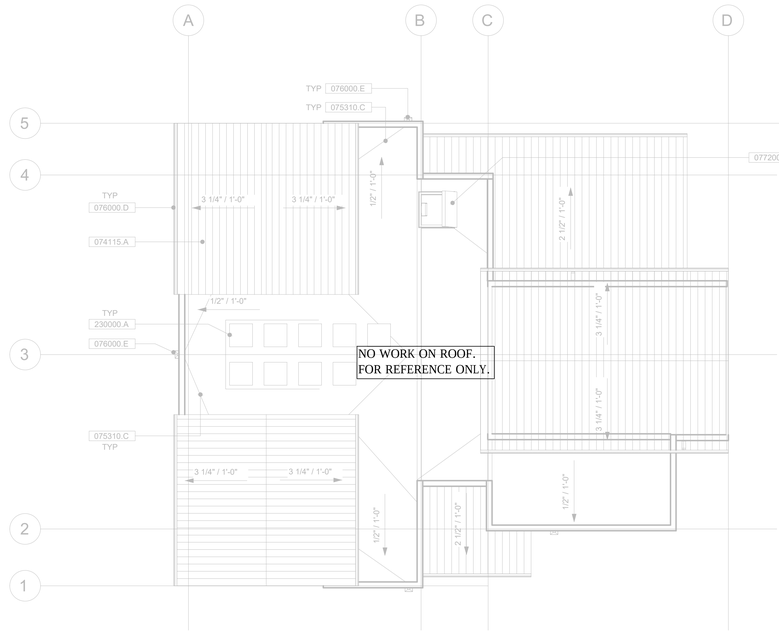
TWIN RIVERS BLOCK A

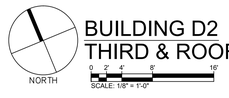
FIRE ALARM SYSTEM

SCALE: 1/8"=1'-0"

SHEET NO.
FA-2.0







BUILDING D2
THIRD & ROOF FLOOR PLAN

SCALE: 1/8" = 1'-0"

SMOKE DAMPER ACTUATION	
SD-1	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIRFLOW, VELOCITY AND TEMPERATURE RANGE ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
SD-2	WHERE A SMOKE DAMPER IS INSTALLED ABOVE SMOKE BARRIER DOORS IN A SMOKE BARRIER, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL BE INSTALLED ON EITHER SIDE OF THE SMOKE BARRIER DOOR OPENING.
SD-3	WHERE A SMOKE DAMPER IS INSTALLED IN AN AIR TRANSFER OPENING IN A WALL, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL INSTALLED WITHIN 5' HORIZONTALLY OF THE DAMPER.
SD-4	WHERE A SMOKE DAMPER IS INSTALLED IN A CORRIDOR WALL OR CEILING, THE DAMPER SHALL BE PERMITTED TO BE CONTROLLED BY A SMOKE DETECTION SYSTEM INSTALLED IN THE CORRIDOR.
SD-5	WHERE A TOTAL-COVERAGE SMOKE-DETECTION SYSTEM IS PROVIDED WITHIN AREAS SERVED BY A HEATING, VENTILATION AND AIR-CONDITIONING (HVAC) SYSTEM, SMOKE DAMPERS SHALL BE PERMITTED TO BE CONTROLLED BY THE SMOKE DETECTION SYSTEM.
REFER TO 716.3.3.2 (CBC 2019)	

KEY NOTES	
1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FSCP / BOOSTER. POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
2	INSTALL SYSTEMS RECORD CABINET ADJACENT TO FACP.
3	INSTALL SMOKE DETECTOR NO MORE THAN 5 FEET FROM FIRE CONTROL / BOOSTER POWER SUPPLY PANEL.
4	ELEVATOR RECALL RELAY MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
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9	2 WAY ECS MONITOR MODULES.
10	NOTIFICATION MODULE USE TO TRIGGER BPS.
11	NOT USED.

GENERAL NOTES

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DEVICE LEGEND	
SYMBOL	DESCRIPTION
FACU	FIRE ALARM SYSTEM CONTROL PANEL
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FAC	CELLULAR COMMUNICATOR
FAD	FIRE ALARM DOCUMENT CABINET
BPS	BOOSTER POWER SUPPLY
	SMOKE DETECTOR
	HEAT DETECTOR
F	ADDRESSABLE PULL STATION
IM	ADDRESSABLE INPUT MODULE
	ADDRESSABLE RELAY MODULE
R	10 AMP PAM RELAY
NM	NOTIFICATION MODULE
	HORN LOW FREQ
	HORN-STROBE WALL
WP	HORN-STROBE WALL, WP
	HORN-STROBE CEILING
	STROBE CEILING
	STROBE WALL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SPRINKLER BACKFLOW SWITCH
FSD	FIRE SMOKE DAMPER

WIRE LEGEND		
WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID **
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** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.

AMERICAN
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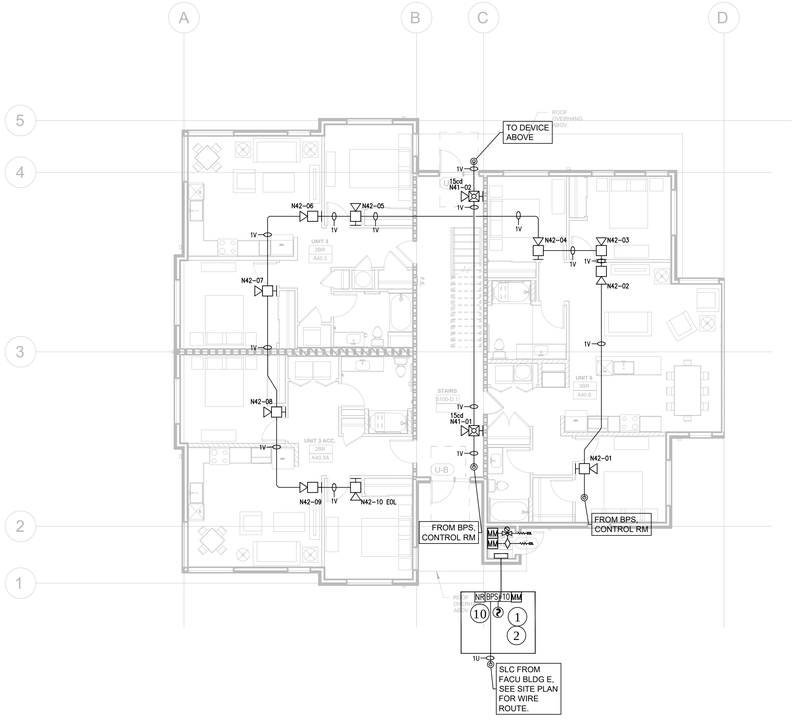
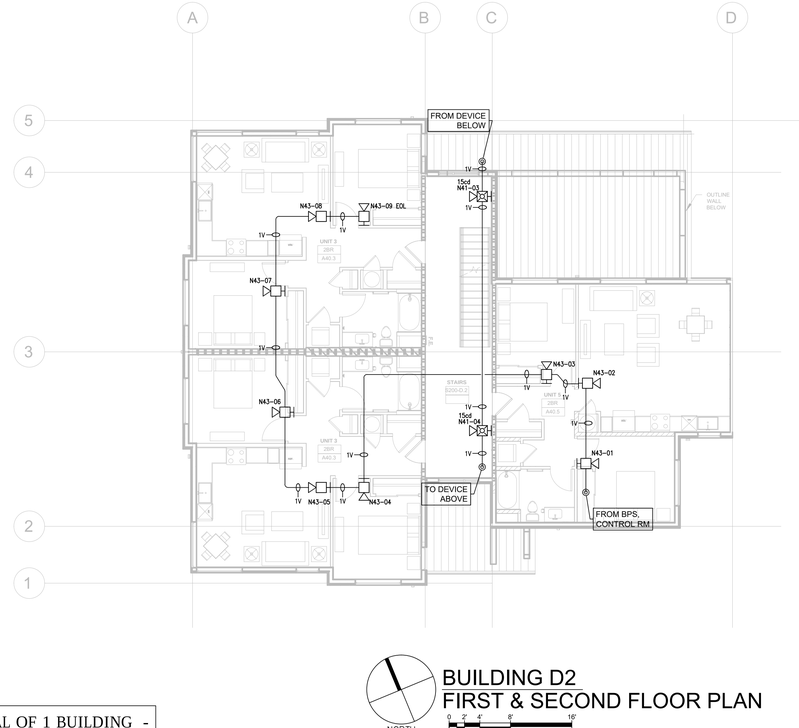




BUILDING D2
FIRST & SECOND FLOOR PLAN

SCALE: 1/8" = 1'-0"

NOTE: TYPICAL OF 1 BUILDING - 1254 RICHARDS BLVD

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER: FURGO ENGINEERING & DESIGN
P.O. BOX 880522
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (619) 610-8637 , NICET III #846003
carlos.oliveras@furgoeng.com

DESIGN:	C.O.	DRAWN:	C.O.
CHECKED:	RC	JOB NO:	
DATE:	03/22/2021	PLOT:	

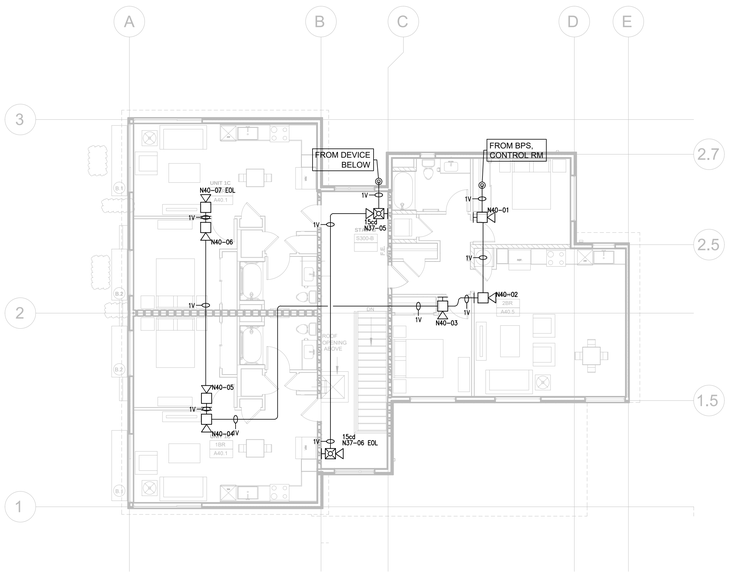
SHEET TITLE:
BUILDING D2
FLOOR PLAN

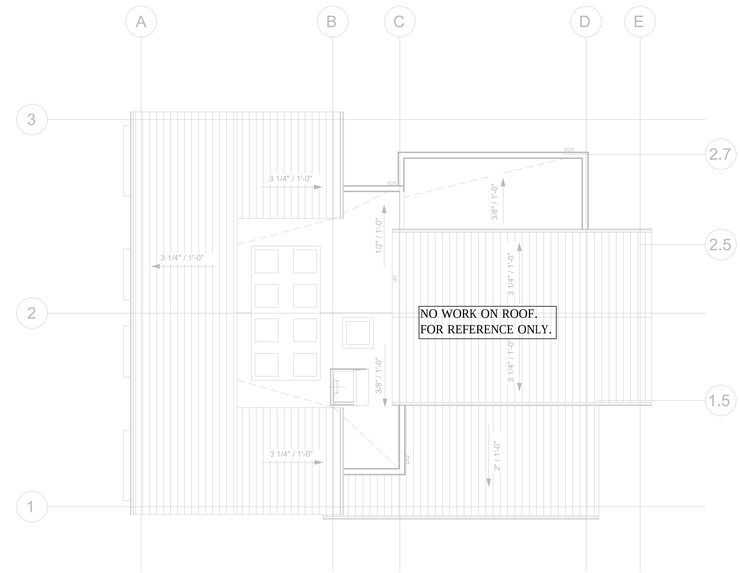
TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8" = 1'-0"

SHEET NO.
FA-3.0





NORTH

BUILDING D2
THIRD & ROOF FLOOR PLAN

SCALE: 1/8" = 1'-0"

SMOKE DAMPER ACTUATION	
SD-1	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIRFLOW, VELOCITY AND CLEAN AIR CONDITIONS ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
SD-2	WHERE A SMOKE DAMPER IS INSTALLED ABOVE SMOKE BARRIER DOORS IN A SMOKE BARRIER, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL BE INSTALLED ON EITHER SIDE OF THE SMOKE BARRIER DOOR OPENING.
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SD-5	WHERE A TOTAL-COVERAGE SMOKE-DETECTION SYSTEM IS PROVIDED WITHIN AREAS SERVED BY A HEATING, VENTILATION AND AIR-CONDITIONING (HVAC) SYSTEM, SMOKE DAMPERS SHALL BE PERMITTED TO BE CONTROLLED BY THE SMOKE DETECTION SYSTEM.
REFER TO 716.3.3.2 (CBC 2019)	

KEY NOTES	
1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FACP / BOOSTER POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
2	INSTALL SYSTEMS RECORD CABINET ADJACENT TO FACP.
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4	ELEVATOR RECALL RELAY MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
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7	FIRE SMOKE DAMPER ACTIVATION RELAY. FIELD VERIFY LOCATION WITH ELECTRIC CONTRACTOR.
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9	2 WAY ECS MONITOR MODULES.
10	NOTIFICATION MODULE USE TO TRIGGER BPS.
11	NOT USED.

GENERAL NOTES

1. SMOKE ALARMS IN UNITS INSTALLED BY ELECTRICAL CONTRACTOR. REFERENCE ELECTRICAL PLAN FOR LOCATIONS.

DEVICE LEGEND	
SYMBOL	DESCRIPTION
FACU	FIRE ALARM SYSTEM CONTROL PANEL
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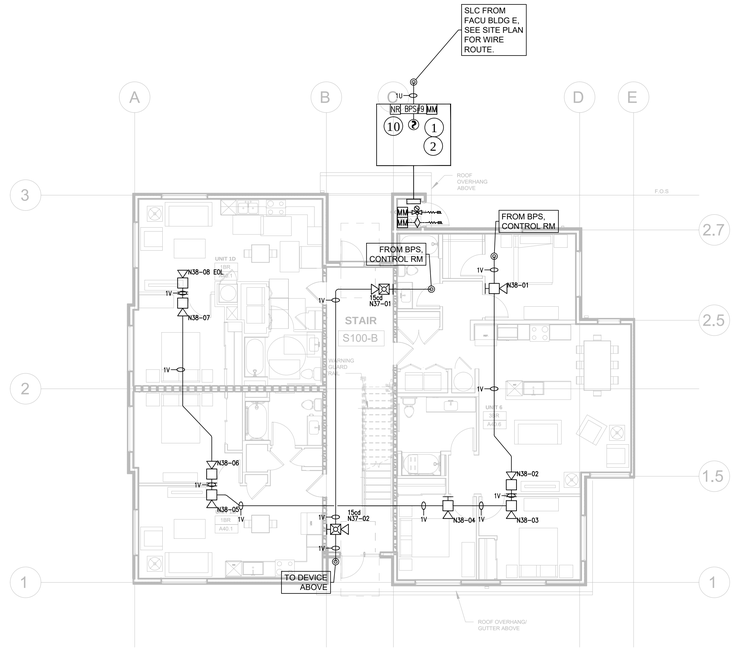
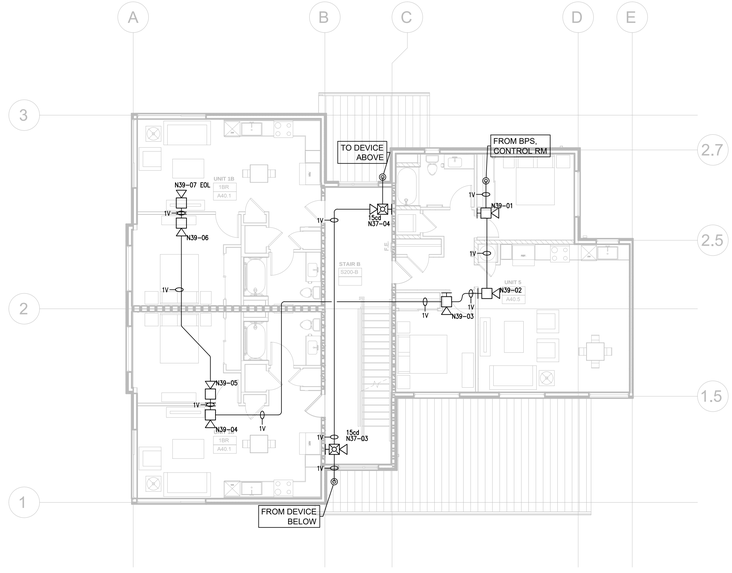
FAC	CELLULAR COMMUNICATOR
FAD	FIRE ALARM DOCUMENT CABINET
BPS	BOOSTER POWER SUPPLY
	SMOKE DETECTOR
	HEAT DETECTOR
F	ADDRESSABLE PULL STATION
IM	ADDRESSABLE INPUT MODULE
	ADDRESSABLE RELAY MODULE
R	10 AMP PAM RELAY
	NOTIFICATION MODULE
	HORN LOW FREQ
	HORN-STROBE WALL
WP	HORN-STROBE WALL, WP
	HORN-STROBE CEILING
	STROBE CEILING
	STROBE WALL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SPRINKLER BACKFLOW SWITCH
FSD	FIRE SMOKE DAMPER

WIRE LEGEND		
WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID
C	REMOTE ANN	16/4 FPLR SOLID
U	UNDERGROUND CIRCUIT	SOLID RATED IN CONDUIT 18/2 UNDERGROUND.

** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.





NORTH

BUILDING B
FIRST & SECOND FLOOR PLAN

SCALE: 1/8" = 1'-0"

NOTE: TYPICAL OF 1 BUILDING - 1262 RICHARDS BLVD

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN ELECTRICAL SERVICES
501 SAN BENITO STREET, 3RD FLOOR
HOLLISTER, CA 95023
CONTACT: 831.638.1737
C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

STAMP:

AMERICAN ELECTRICAL SERVICES
LICENSED ELECTRICAL CONTRACTOR
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STATE OF CALIFORNIA

SIGNATURE:
IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER: FUEGO ENGINEERING & DESIGN
P.O. BOX 880522
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (615) 610-8637 , NICET III #846003
carlos.oliveras@fuegoeng.com

DESIGN: C.O.	DRAWN: C.O.
CHECKED: RC	JOB NO:
DATE: 03/22/2021	PLOT:

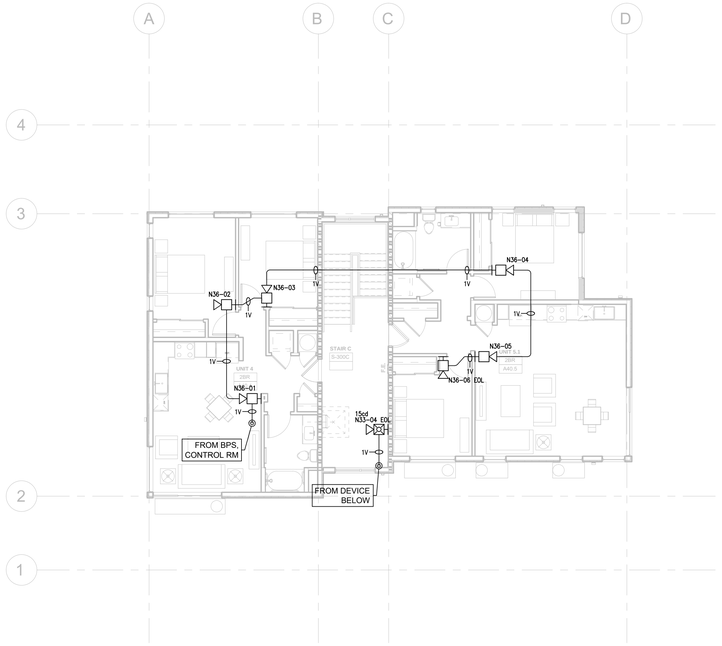
SHEET TITLE:
BUILDING B
FLOOR PLAN

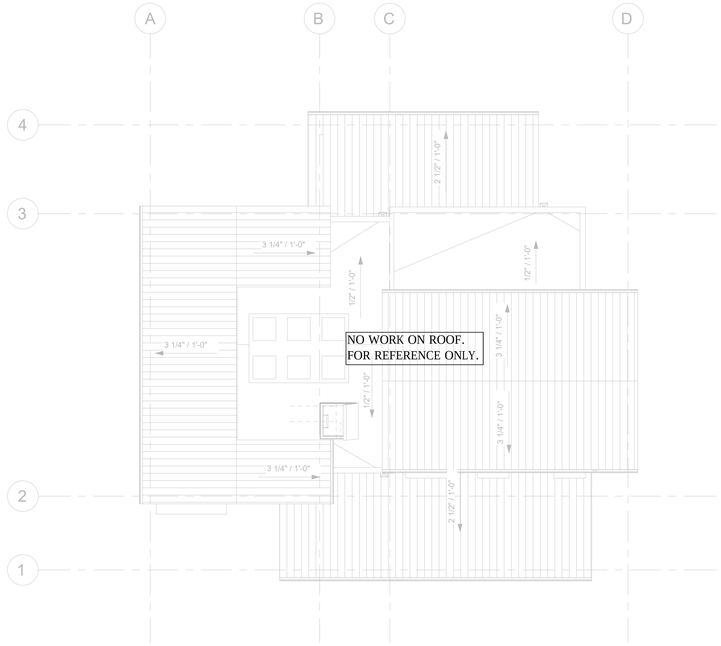
TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8"=1'-0"

SHEET NO.
FA-4.0





NORTH

BUILDING C
THIRD & ROOF FLOOR PLAN

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SMOKE DAMPER ACTUATION	
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REFER TO 716.3.3.2 (CBC 2019)

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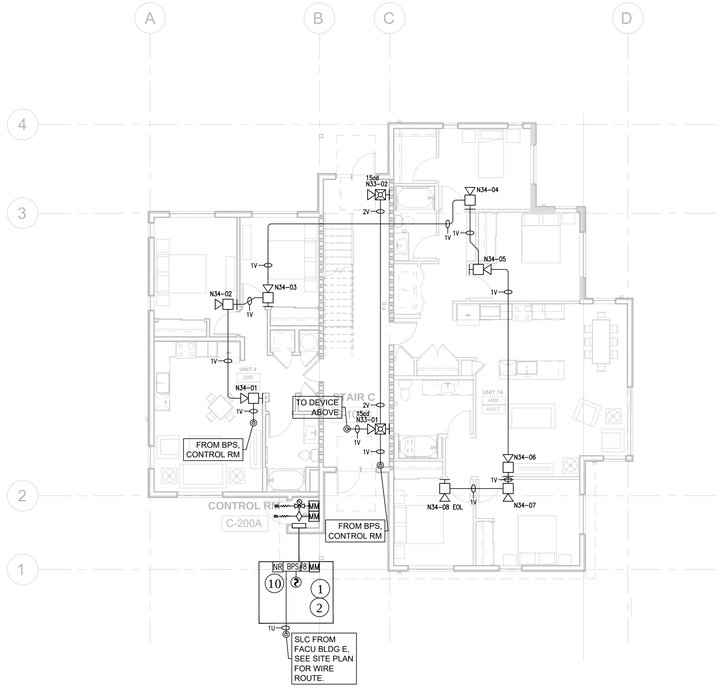

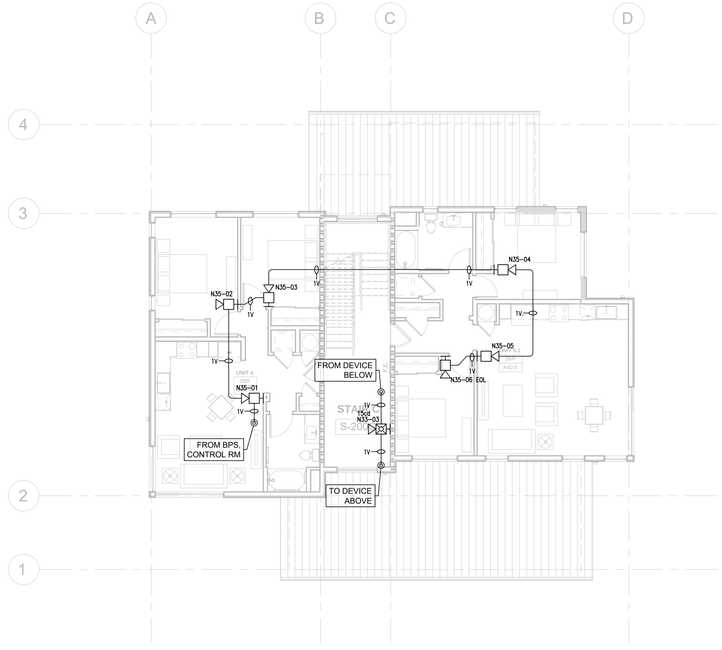

NORTH

BUILDING C
FIRST & SECOND FLOOR PLAN

SCALE: 1/8" = 1'-0"

NOTE: TYPICAL OF 1 BUILDING - 1280 RICHARDS BLVD

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

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P.O. BOX 880522
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (615) 610-8637 , NICET III #846003
carlos.oliveras@furgoeng.com

DESIGN:	C.O.	DRAWN:	C.O.
CHECKED:	RC	JOB NO:	
DATE:	03/22/2021	PLOT:	

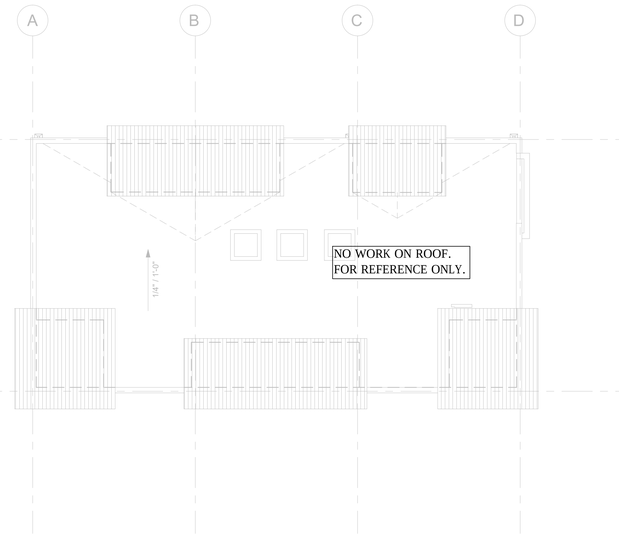
SHEET TITLE:
BUILDING C
FLOOR PLAN

TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8" = 1'-0"

SHEET NO.
FA-5.0



NORTH

BUILDING A3
ROOF PLAN

0 2' 4' 8' 16'
SCALE: 1/8" = 1'-0"

SMOKE DAMPER ACTUATION	
SD-1	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIRFLOW, VELOCITY, AND CLEAN AIR CONDITIONS ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
SD-2	WHERE A SMOKE DAMPER IS INSTALLED ABOVE SMOKE BARRIER DOORS IN A SMOKE BARRIER, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL BE INSTALLED ON EITHER SIDE OF THE SMOKE BARRIER DOOR OPENING.
SD-3	WHERE A SMOKE DAMPER IS INSTALLED IN AN AIR TRANSFER OPENING IN A WALL, A SPOT-TYPE DETECTOR LISTED FOR RELEASING SERVICE SHALL INSTALLED WITHIN 5' HORIZONTALLY OF THE DAMPER.
SD-4	WHERE A SMOKE DAMPER IS INSTALLED IN A CORRIDOR WALL OR CEILING, THE DAMPER SHALL BE PERMITTED TO BE CONTROLLED BY A SMOKE DETECTION SYSTEM INSTALLED IN THE CORRIDOR.
SD-5	WHERE A TOTAL-COVERAGE SMOKE-DETECTION SYSTEM IS PROVIDED WITHIN AREAS SERVED BY A HEATING, VENTILATION AND AIR-CONDITIONING (HVAC) SYSTEM, SMOKE DAMPERS SHALL BE PERMITTED TO BE CONTROLLED BY THE SMOKE DETECTION SYSTEM.
REFER TO 716.3.3.2 (CBC 2019)	

KEY NOTES	
1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FACP / BOOSTER. POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
2	INSTALL SYSTEMS RECORD CABINET ADJACENT TO FACP.
3	INSTALL SMOKE DETECTOR NO MORE THAN 5 FEET FROM FIRE CONTROL / BOOSTER POWER SUPPLY PANEL.
4	ELEVATOR RECALL RELAY MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
5	ELEVATOR SHUNT-TRIP MODULES. FIELD VERIFY LOCATION. INSTALL NO MORE THAN 3'-0" AWAY FROM INTERFACE DEVICE.
6	SMOKE GUARD INTERFACE RELAY. FIELD VERIFY LOCATION AND COORDINATE WITH ELEVATOR CONTRACTOR.
7	FIRE SMOKE DAMPER ACTIVATION RELAY. FIELD VERIFY LOCATION WITH ELECTRIC CONTRACTOR.
8	INSTALL HEAT DETECTOR NO MORE THAN 24" FROM SPRINKLER HEAD.
9	2 WAY ECS MONITOR MODULES.
10	NOTIFICATION MODULE USE TO TRIGGER BPS.
11	NOT USED.

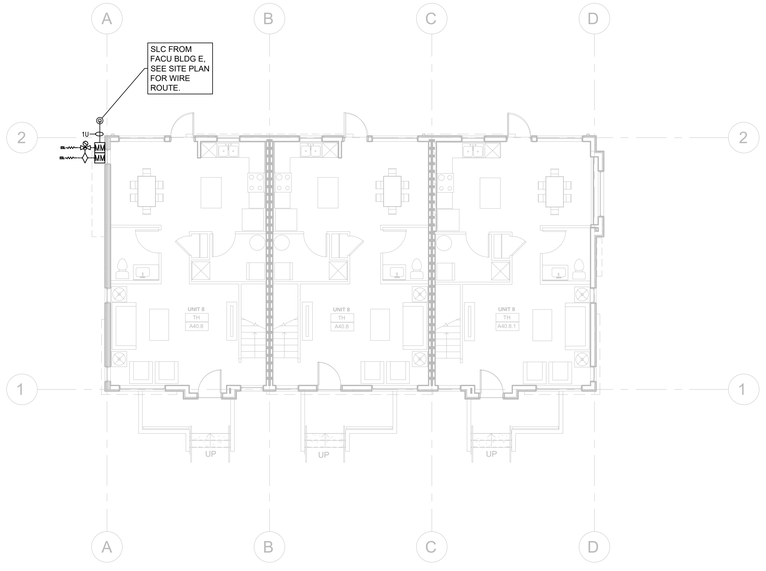
GENERAL NOTES

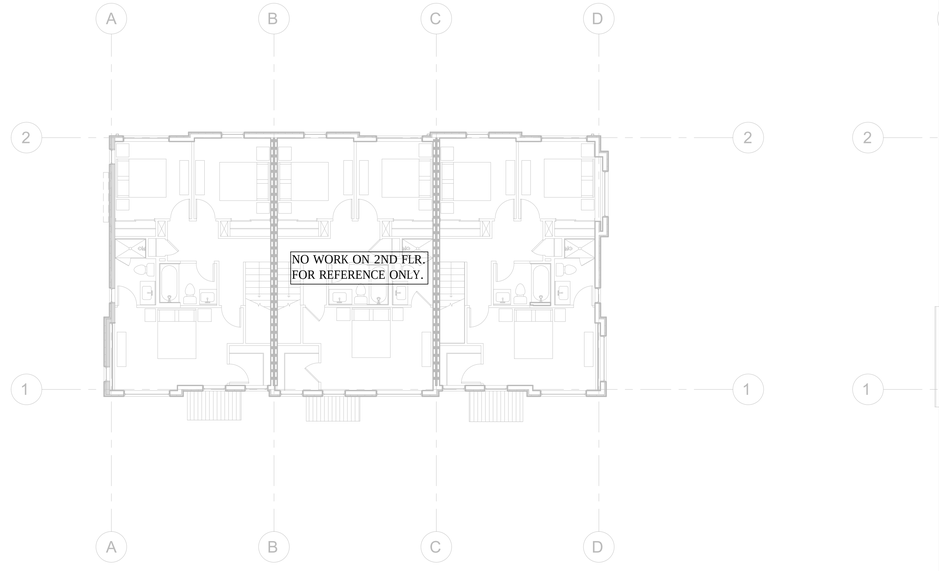
1. SMOKE ALARMS IN UNITS INSTALLED BY ELECTRICAL CONTRACTOR. REFERENCE ELECTRICAL PLAN FOR LOCATIONS.

DEVICE LEGEND	
SYMBOL	DESCRIPTION
FACU	FIRE ALARM SYSTEM CONTROL PANEL
FAA	REMOTE ANNUNICATOR
FAC	CELLULAR COMMUNICATOR
FAD	FIRE ALARM DOCUMENT CABINET
BPS	BOOSTER POWER SUPPLY
	SMOKE DETECTOR
	HEAT DETECTOR
F	ADDRESSABLE PULL STATION
IM	ADDRESSABLE INPUT MODULE
	ADDRESSABLE RELAY MODULE
R	10 AMP PAM RELAY
NM	NOTIFICATION MODULE
	HORN LOW FREQ
	HORN-STROBE WALL
WP	HORN-STROBE WALL, WP
	HORN-STROBE CEILING
	STROBE CEILING
	STROBE WALL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SPRINKLER BACKFLOW SWITCH
FSD	FIRE SMOKE DAMPER

WIRE LEGEND		
WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID
C	REMOTE ANN	16/4 FPLR SOLID
U	UNDERGROUND CIRCUIT	SOLID RATED IN CONDUIT 18/2 UNDERGROUND.

** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.





NOTE: TYPICAL OF 3 BUILDINGS -
520 PIPEVINE ST. 1261 / 1291
RINGLET AVE

NORTH

BUILDING A3
FIRST & SECOND FLOOR PLAN

0 2' 4' 8' 16'
SCALE: 1/8" = 1'-0"

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN
ELECTRICAL SERVICES
501 SAN BENITO STREET, 3RD FLOOR
HOLLISTER, CA 95023
CONTACT: 831.638.1737
C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

STAMP:

LICENSED ELECTRICAL CONTRACTOR
AMERICAN ELECTRICAL SERVICES
License No. 569761
EXP Date: 07/31/2021
C-10
STATE OF CALIFORNIA

SIGNATURE:
IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER: FURGO ENGINEERING & DESIGN
P.O. BOX 880522
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (615) 610-8637 , NICET III #84003
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DESIGN: C.O.	DRAWN: C.O.
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DATE: 03/22/2021	PLOT:

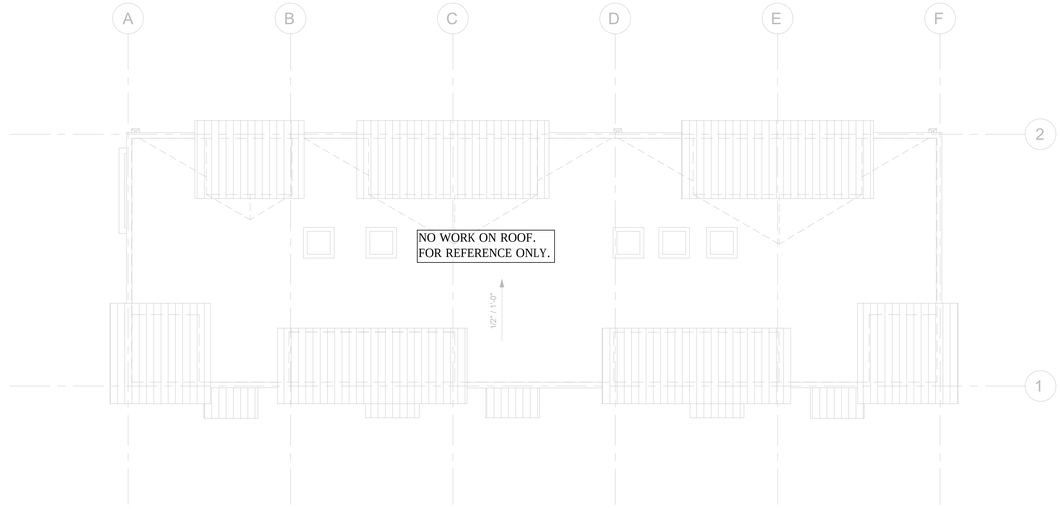
SHEET TITLE:
BUILDING A3
FLOOR PLAN

TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8" = 1'-0"

SHEET NO.
FA-6.0



NORTH

BUILDING A5
ROOF PLAN

SCALE: 1/8" = 1'-0"

SMOKE DAMPER ACTUATION

SD-1	WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER. THE DETECTOR SHALL BE LISTED FOR THE AIRFLOW, VELOCITY, AND CLEAR SPACE RANGE ANTICIPATED AT THE POINT WHERE IT IS INSTALLED. OTHER THAN IN MECHANICAL SMOKE CONTROL SYSTEMS, DAMPERS SHALL BE CLOSED UPON FAN SHUTDOWN WHERE LOCAL SMOKE DETECTORS REQUIRE A MINIMUM VELOCITY TO OPERATE.
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REFER TO 716.3.3.2 (CBC 2019)

KEY NOTES

1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FACP / BOOSTER POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
2	INSTALL SYSTEMS RECORD CABINET ADJACENT TO FACP.
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10	NOTIFICATION MODULE USE TO TRIGGER BPS.
11	NOT USED.

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DEVICE LEGEND

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BPS	BOOSTER POWER SUPPLY
	SMOKE DETECTOR
	HEAT DETECTOR
F	ADDRESSABLE PULL STATION
IM	ADDRESSABLE INPUT MODULE
	ADDRESSABLE RELAY MODULE
R	10 AMP PAM RELAY
NM	NOTIFICATION MODULE
	HORN LOW FREQ
	HORN-STROBE WALL
WP	HORN-STROBE WALL, WP
	HORN-STROBE CEILING
	STROBE CEILING
	STROBE WALL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SPRINKLER BACKFLOW SWITCH
FSD	FIRE SMOKE DAMPER

WIRE LEGEND

WIRE TAG	PURPOSE	TYPE
D	ADDRESSABLE CIRCUIT	18/2 FPLR SOLID
V	NAC CIRCUIT	14/2 FPLR SOLID
T	BPS TRIGGER	18/2 FPLR SOLID
C	REMOTE ANN	16/4 FPLR SOLID
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** ALL FIRE ALARM CONDUIT SHALL BE A MINIMUM OF 3/4" U.O.N.

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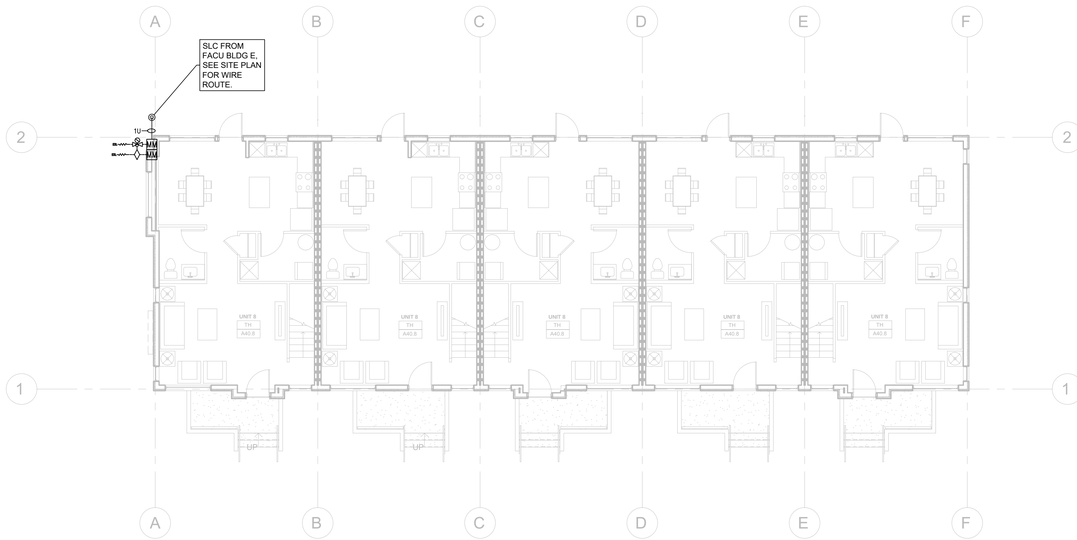
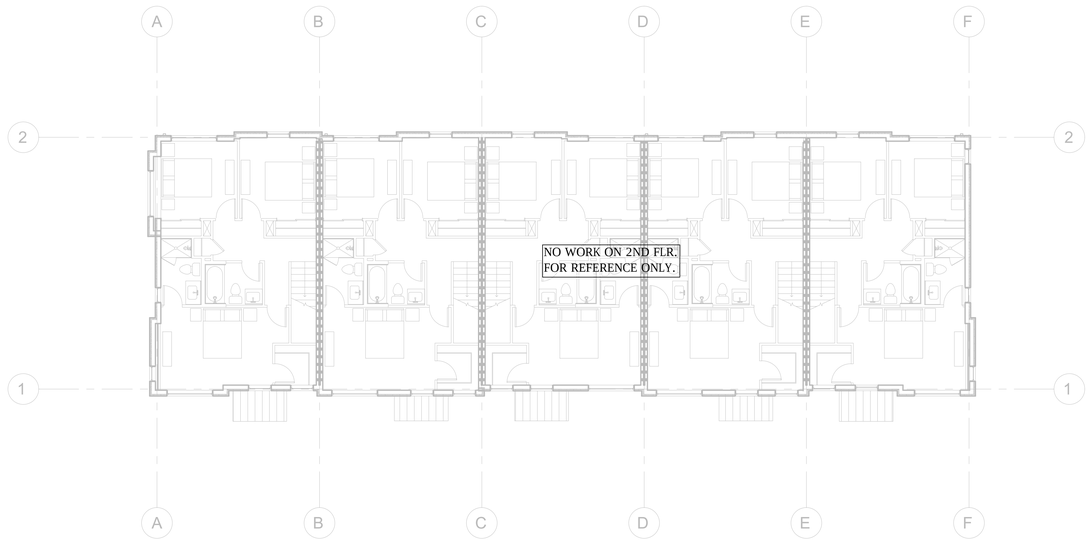




NOTE: TYPICAL OF 1 BUILDING -
1243 RINGLET AVE

NORTH

BUILDING A5
FIRST & SECOND FLOOR PLAN

SCALE: 1/8" = 1'-0"

TWIN RIVERS BLOCK A

SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER:
FUEGO ENGINEERING & DESIGN
P.O. BOX 880522
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (615)-510-8637 , NICET III #484003
carlos.oliveras@fuegoeng.com

DESIGN: C.O.	DRAWN: C.O.
CHECKED: RC	JOB NO:
DATE: 03/22/2021	PLOT:

SHEET TITLE:
BUILDING A5
FLOOR PLAN

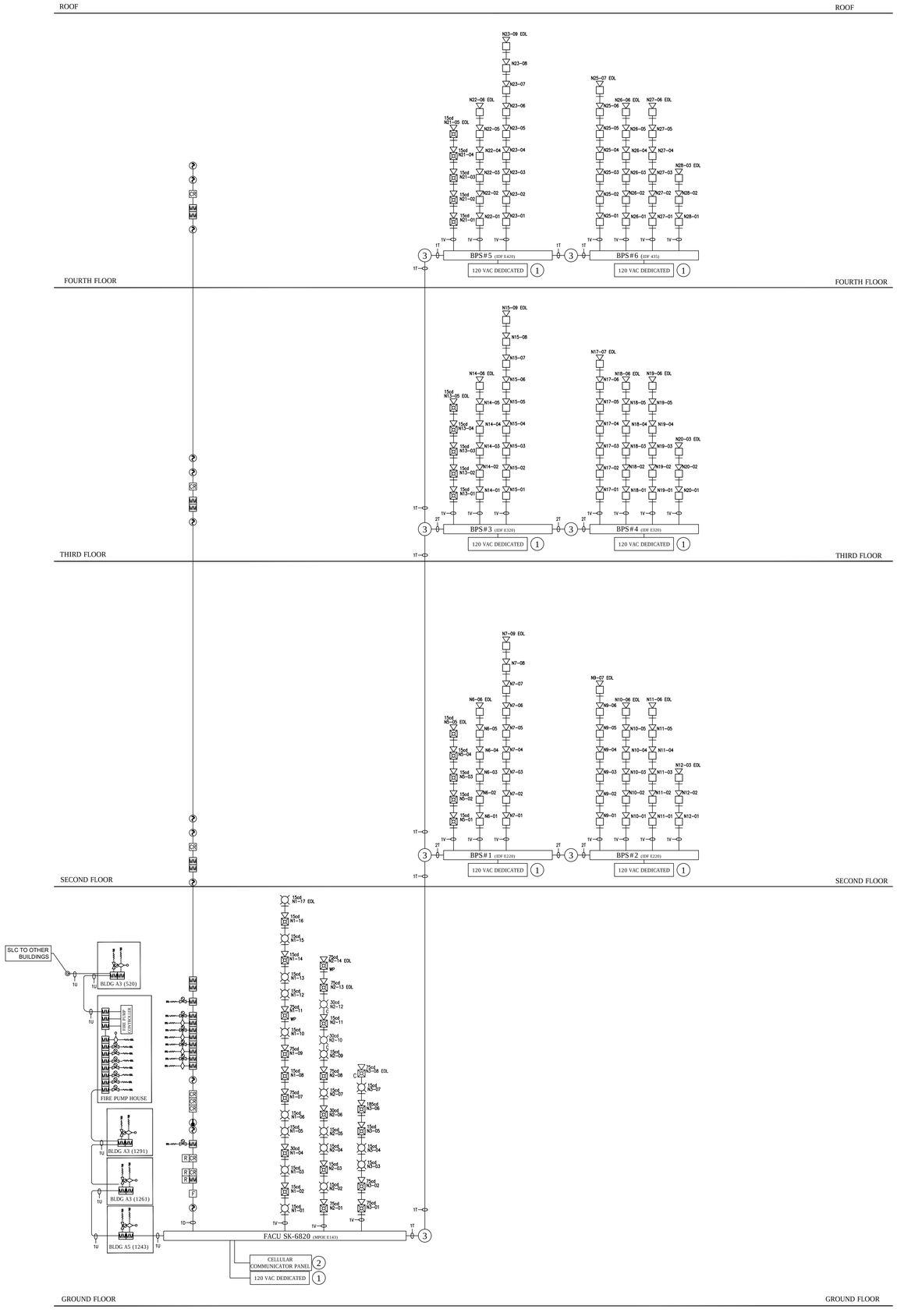
TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: 1/8" = 1'-0"

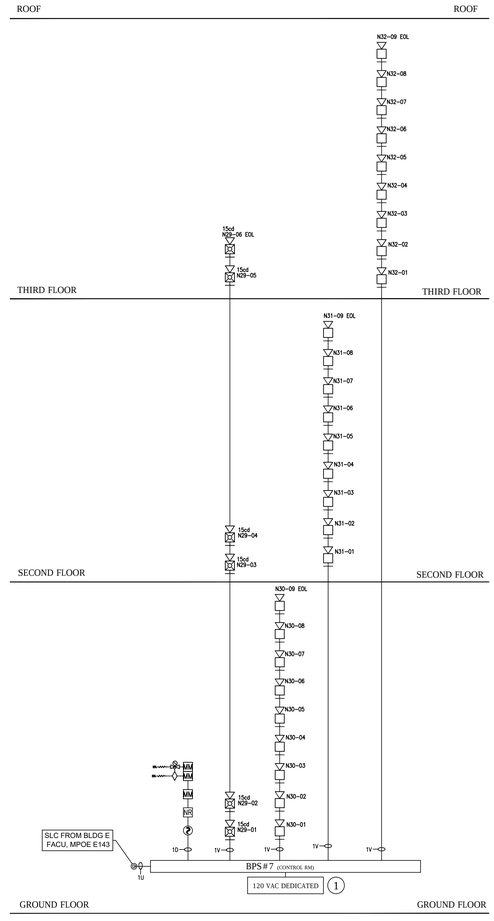
SHEET NO.
FA-7.0

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE



SYSTEM RISER - BUILDING E

SYSTEM RISER NOTES	
1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FACP / BOOSTER POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
2	METHOD OF COMMUNICATIONS TO CENTRAL STATION SHALL BE VIA CELLULAR COMMUNICATOR PER NFPA-72 SECTION 26.6.3.1.5 SINGLE PATH OF COMMUNICATIONS.
3	FACP SHALL UTILIZE NAC 4 TO TRIGGER ALL BOOSTER PANEL ON ALARM.
4	UTILIZE AUX POWER FROM BPS#1 FOR DOOR HOLDER CIRCUIT.



NOTE TYPICAL OF 2 BUILDINGS (1240 & 1248)

SYSTEM RISER - BUILDING D1

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN ELECTRICAL SERVICES
501 SAN BENITO STREET, 3RD FLOOR
HOLLISTER, CA 95023
CONTACT: 831.638.1737
C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

STAMP:

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AMERICAN ELECTRICAL SERVICES
License No. 569761
EXP Date: 07/31/2021
C-10
STATE OF CALIFORNIA

SIGNATURE: IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

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DESIGN: C.O.	DRAWN: C.O.
CHECKED: RC	JOB NO:
DATE: 03/22/2021	PLOT:

SHEET TITLE:

SYSTEM RISER DIAGRAM
BUILDING E & D1

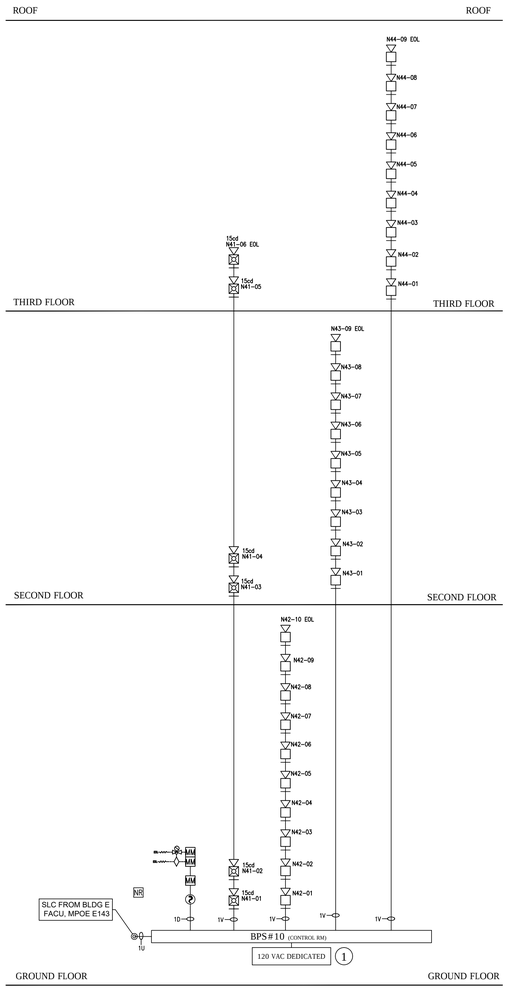
TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: N.T.S.

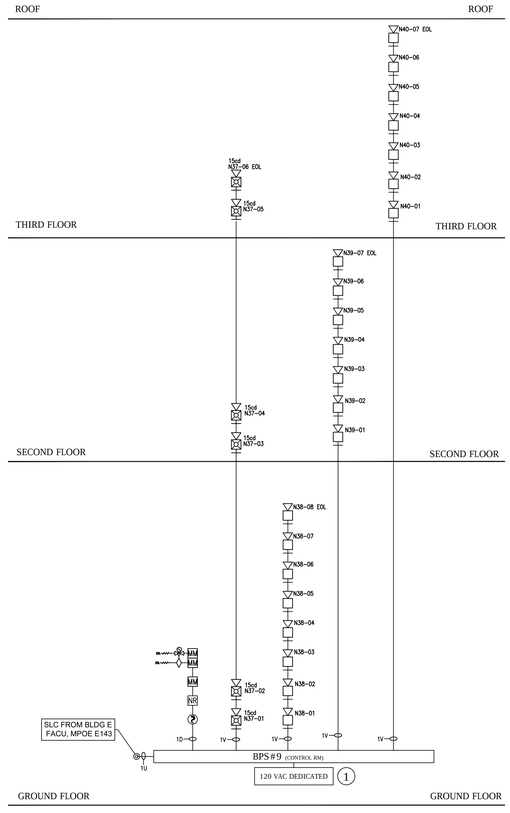
SHEET NO.

FA-8.0



NOTE TYPICAL OF 1 BUILDING (1254)

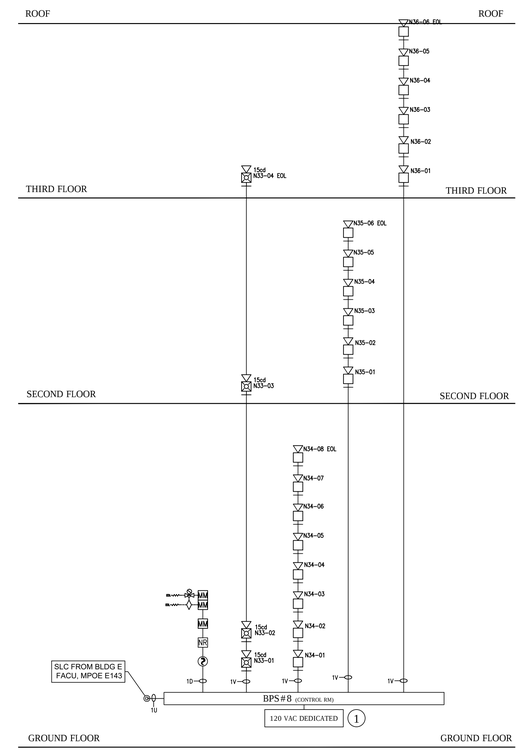
SYSTEM RISER DIAGRAM - BUILDING D2



NOTE TYPICAL OF 1 BUILDING (1262)

SYSTEM RISER DIAGRAM - BUILDING B

SYSTEM RISER NOTES	
1	120 VAC, 20 AMP DEDICATED CIRCUIT TO FACP / BOOSTER POWER SUPPLIES PROVIDED BY OTHERS. BREAKER SHALL BE RED IN COLOR AND LOCKED OUT IN THE "ON" POSITION.
2	METHOD OF COMMUNICATIONS TO CENTRAL STATION SHALL BE VIA CELLULAR COMMUNICATOR PER NFPA-72 SECTION 26.6.3.1.5 SINGLE PATH OF COMMUNICATIONS.
3	FACP SHALL UTILIZE NAC 4 TO TRIGGER ALL BOOSTER PANEL ON ALARM.
4	UTILIZE AUX POWER FROM BPS#1 FOR DOOR HOLDER CIRCUIT.



NOTE TYPICAL OF 1 BUILDING (1280)

SYSTEM RISER DIAGRAM - BUILDING C

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN ELECTRICAL SERVICES
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HOLLISTER, CA 95023
CONTACT: 831.638.1737
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AMERICAN ELECTRICAL SERVICES
License No. 569761
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C-10
STATE OF CALIFORNIA

SIGNATURE:
IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER:
FUEGO ENGINEERING & DESIGN
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DESIGN: C.O.	DRAWN: C.O.
CHECKED: RC	JOB NO:
DATE: 03/22/2021	PLOT:

SHEET TITLE:

SYSTEM RISER DIAGRAM
BUILDINGS D2, B, & C

TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: N.T.S.

SHEET NO.

FA-8.1

6820 FACU - (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL FACP COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	6820 MAIN BOARD	1	0.19000A	0.19000A	0.25000A	0.25000A	
	CELL-CAB-SK CELLULAR COMMUNICATOR	1	0.05500A	0.05500A	0.10000A	0.10000A	
	SK-PULL-SA PULL STATION	1	0.00035A	0.00035A	0.00035A	0.00035A	
	SK-MINI-MON MINI-MONITOR MODULE	47	0.00035A	0.01645A	0.00035A	0.01645A	
	SK-PHOTO-W SMOKE DETECTOR	16	0.00020A	0.00320A	0.00450A	0.07200A	
	SK-HEAT-W HEAT DETECTOR	1	0.00020A	0.00020A	0.00450A	0.00450A	
	SK-RELAY RELAY MODULE	8	0.00026A	0.00204A	0.00026A	0.00204A	
	SK-CONTROL NOTIFICATION MODULE	4	0.00038A	0.00150A	0.00038A	0.00150A	
	5860 REMOTE ANNUNCIATOR	1	0.02000A	0.02000A	0.02500A	0.02500A	
			Total Standby Current =	0.419A	Total Alm Current=	1.012A	

	HORN-STROBE DEVICES	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N1	N2	N3	N4-SPARE	I/O-5-SPARE	I/O-6-SPARE	
	15cd STROBE WALL	0.043A	9	5	5	0			
	30cd STROBE WALL / CEILING	0.063A	0	2	2	0			
	15cd HORN-STROBE, WALL	0.054A	4	2	2	0			
	30cd HORN-STROBE, WALL	0.074A	1	1	1	0			
	75cd HORN-STROBE, WALL OR 95cd STROBE, WALL	0.121A	2	3	3	0			
		NAC CKT CURRENT DRAW =	1.095A	1.062A	1.062A	0.000A		TOTAL NAC CKT CURRENT DRAW =	3.219A

	TOTAL STANDBY CALCULATIONS		TOTAL STANDY CALCU
16	Total standby current		0.419
17	Multiply by 24 / 60 for standby hours needed.		24H
18	Total standby AH (Amp Hours)		10.0498 AH
	ALARM CURRENT CALCULATIONS		**TOTAL ALARM CURRENT CALCU**
19	Total alarm current		4.231
20	Multiply by 0.0833 for 5 min or 0.25 for 15 minutes of alarm		0.0833
21	Total alarm current.		0.3524 AH
	BATTERY BACKUP REQUIREMENTS		
22	Sub total, add line 18+21		10.4022 AH
23	Multiply by 1.2 for 20% Battery Derating Factor		20%
24	Total AH (Amp Hours)		12.4826 AH
			(2) BATTERY SUPPLIED = 10 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N1-01	0.043A	19'	21'	1.095A	0.141v	1.095A	1.525v	7.4777%
N1-02	0.054A	10'	11'	1.052A	0.071v			
N1-03	0.043A	9'	10'	0.998A	0.061v	N.A.C #1 HORN-STROBE CIRCUIT		
N1-04	0.074A	37'	41'	0.955A	0.239v			
N1-05	0.043A	22'	24'	0.881A	0.131v			
N1-06	0.043A	3'	3'	0.838A	0.017v			
N1-07	0.121A	100'	110'	0.795A	0.537v			
N1-08	0.054A	8'	9'	0.674A	0.036v			
N1-09	0.121A	34'	37'	0.620A	0.142v			
N1-10	0.043A	3'	3'	0.499A	0.010v			
N1-11	0.176A	12'	13'	0.456A	0.037v			
N1-12	0.043A	19'	21'	0.280A	0.036v			
N1-13	0.043A	7'	8'	0.237A	0.011v			
N1-14	0.054A	11'	12'	0.194A	0.014v			
N1-15	0.043A	35'	39'	0.140A	0.033v			
N1-16	0.054A	7'	8'	0.097A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N2-01	0.121A	145'	160'	1.062A	1.046v	1.062A	1.797v	8.8105%
N2-02	0.043A	15'	17'	0.941A	0.095v			
N2-03	0.054A	3'	3'	0.898A	0.018v	N.A.C #2 HORN-STROBE CIRCUIT		
N2-04	0.043A	8'	9'	0.844A	0.046v			
N2-05	0.043A	20'	22'	0.801A	0.108v			
N2-06	0.074A	8'	9'	0.758A	0.041v			
N2-07	0.043A	20'	22'	0.684A	0.092v			
N2-08	0.121A	17'	19'	0.641A	0.074v			
N2-09	0.043A	13'	14'	0.520A	0.046v			
N2-10	0.063A	33'	36'	0.477A	0.106v			
N2-11	0.054A	12'	13'	0.414A	0.034v			
N2-12	0.063A	18'	20'	0.360A	0.044v			
N2-13	0.121A	25'	28'	0.297A	0.050v			

5495 BPS#1 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N5	N6	N7	N8-SPARE	
	15cd STROBE WALL	0.043A	0	0	0	0	
	15cd HORN-STROBE, WALL	0.054A	5	0	0	0	
	30cd HORN-STROBE, WALL	0.074A	0	0	0	0	
	HORN LOW FREQ	0.108A	0	6	8	0	
		NAC CKT CURRENT DRAW =	0.270A	0.648A	1.090A	0.000A	
						TOTAL NAC CKT CURRENT DRAW =	2.008A

	TOTAL STANDBY CALCULATIONS		TOTAL STANDY CALCU
16	Total standby current		0.075
17	Multiply by 24 / 60 for standby hours needed.		24H
18	Total standby AH (Amp Hours)		1.8000 AH
	ALARM CURRENT CALCULATIONS		**TOTAL ALARM CURRENT CALCU**
19	Total alarm current		2.213
20	Multiply by 0.0833 for 5 min		0.0830
21	Total alarm current.		0.1837 AH
	BATTERY BACKUP REQUIREMENTS		
22	Sub total, add line 18+21		1.9837 AH
23	Multiply by 1.2 for 20% Battery Derating Factor		20%
24	Total AH (Amp Hours)		2.3804 AH
			(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N5-01	0.054A	71'	78'	0.270A	0.129v	0.270A	0.317v	1.5518%
N5-02	0.054A	52'	57'	0.216A	0.076v			
N5-03	0.054A	38'	42'	0.162A	0.042v	N.A.C #5 HORN-STROBE CIRCUIT		
N5-04	0.054A	64'	70'	0.108A	0.047v			
N5-05	0.054A	63'	69'	0.054A	0.023v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N6-01	0.108A	31'	34'	0.648A	0.136v	0.648A	0.307v	1.5053%
N6-02	0.108A	3'	3'	0.540A	0.011v			
N6-03	0.108A	19'	21'	0.432A	0.055v	N.A.C #6 HORN-STROBE CIRCUIT		
N6-04	0.108A	3'	3'	0.324A	0.007v			
N6-05	0.108A	66'	73'	0.216A	0.096v			
N6-06	0.108A	3'	3'	0.108A	0.002v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N7-01	0.108A	33'	36'	1.090A	0.243v	1.090A	0.575v	2.8164%
N7-02	0.108A	6'	7'	0.982A	0.040v			
N7-03	0.108A	8'	9'	0.874A	0.047v			
N7-04	0.108A	19'	21'	0.766A	0.098v	N.A.C #7 HORN-STROBE CIRCUIT		
N7-05	0.108A	3'	3'	0.658A	0.013v			
N7-06	0.108A	20'	22'	0.550A	0.074v			
N7-07	0.108A	3'	3'	0.442A	0.009v			
N7-08	0.108A	20'	22'	0.334A	0.045v			
N7-09	0.226A	3'	3'	0.226A	0.005v			

5495 BPS#2 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N9	N10	N11	N12	
	HORN LOW FREQ	0.108A	7	6	6	3	
		NAC CKT CURRENT DRAW =	0.756A	0.648A	0.648A	0.324A	
						TOTAL NAC CKT CURRENT DRAW =	2.376A

	TOTAL STANDBY CALCULATIONS		TOTAL STANDY CALCU
16	Total standby current		0.075
17	Multiply by 24 / 60 for standby hours needed.		24H
18	Total standby AH (Amp Hours)		1.8000 AH
	ALARM CURRENT CALCULATIONS		**TOTAL ALARM CURRENT CALCU**
19	Total alarm current		2.581
20	Multiply by 0.0833 for 5 min		0.0830
21	Total alarm current.		0.2142 AH
	BATTERY BACKUP REQUIREMENTS		
22	Sub total, add line 18+21		2.0142 AH
23	Multiply by 1.2 for 20% Battery Derating Factor		20%
24	Total AH (Amp Hours)		2.4171 AH
			(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N9-01	0.108A	52'	57'	0.756A	0.266v	0.756A	0.449v	2.1990%
N9-02	0.108A	3'	3'	0.648A	0.013v			
N9-03	0.108A	24'	26'	0.540A	0.088v	N.A.C #9 HORN-STROBE CIRCUIT		
N9-04	0.108A	3'	3'	0.432A	0.009v			
N9-05	0.108A	27'	30'	0.324A	0.059v			
N9-06	0.108A	6'	7'	0.216A	0.009v			
N9-07	0.108A	8'	9'	0.108A	0.006v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N10-01	0.108A	129'	142'	0.648A	0.565v	0.648A	0.672v	3.2932%
N10-02	0.108A	3'	3'	0.540A	0.011v			
N10-03	0.108A	20'	22'	0.432A	0.058v	N.A.C #10 HORN-STROBE CIRCUIT		
N10-04	0.108A	3'	3'	0.324A	0.007v			
N10-05	0.108A	20'	22'	0.216A	0.029v			
N10-06	0.108A	3'	3'	0.108A	0.002v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N11-01	0.108A	79'	87'	0.648A	0.346v	0.648A	0.444v	2.1776%
N11-02	0.108A	8'	9'	0.540A	0.029v			
N11-03	0.108A	6'	7'	0.432A	0.018v	N.A.C #11 HORN-STROBE CIRCUIT		
N11-04	0.108A	17'	19'	0.324A	0.037v			
N11-05	0.108A	6'	7'	0.216A	0.009v			
N11-06	0.108A	8'	9'	0.108A	0.006v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N12-01	0.108A	156'	172'	0.324A	0.341v	0.324A	0.357v	1.7521%
N12-02	0.108A	8'	9'	0.216A	0.012v			
N12-03	0.108A	6'	7'	0.108A	0.004v	N.A.C #12 HORN-STROBE CIRCUIT		

5495 BPS#3 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N13	N14	N15	N16-SPARE	
	15cd HORN-STROBE, WALL	0.054A	5	0	0	0	
	HORN LOW FREQ	0.108A	0	6	8	0	
		NAC CKT CURRENT DRAW =	0.270A	0.648A	1.090A	0.000A	
						TOTAL NAC CKT CURRENT DRAW =	2.008A

	TOTAL STANDBY CALCULATIONS		TOTAL STANDY CALCU
16	Total standby current		0.075
17	Multiply by 24 / 60 for standby hours needed.		24H
18	Total standby AH (Amp Hours)		1.8000 AH
	ALARM CURRENT CALCULATIONS		**TOTAL ALARM CURRENT CALCU**
19	Total alarm current		2.213
20	Multiply by 0.0833 for 5 min		0.0830
21	Total alarm current.		0.1837 AH
	BATTERY BACKUP REQUIREMENTS		
22	Sub total, add line 18+21		1.9837 AH
23	Multiply by 1.2 for 20% Battery Derating Factor		20%
24	Total AH (Amp Hours)		2.3804 AH
			(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N13-01	0.054A	71'	78'	0.270A	0.129v	0.270A	0.317v	1.5518%
N13-02	0.054A	52'	57'	0.216A	0.076v			
N13-03	0.054A	38'	42'	0.162A	0.042v	N.A.C #13 HORN-STROBE CIRCUIT		
N13-04	0.054A	64'	70'	0.108A	0.047v			
N13-05	0.054A	63'	69'	0.054A	0.023v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N14-01	0.108A	31'	34'	0.648A	0.136v	0.648A	0.307v	1.5053%
N14-02	0.108A	3'	3'	0.540A	0.011v			
N14-03	0.108A	19'	21'	0.432A	0.055v	N.A.C #14 HORN-STROBE CIRCUIT		
N14-04	0.108A	3'	3'	0.324A	0.007v			
N14-05	0.108A	66'	73'	0.216A	0.096v			
N14-06	0.108A	3'	3'	0.108A	0.002v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N15-01	0.108A	33'	36'	1.090A	0.243v	1.090A	0.575v	2.8164%
N15-02	0.108A	6'	7'	0.982A	0.040v			
N15-03	0.108A	8'	9'	0.874A	0.047v	N.A.C #15 HORN-STROBE CIRCUIT		
N15-04	0.108A	19'	21'	0.766A	0.098v			
N15-05	0.108A	3'	3'	0.658A	0.013v			
N15-06	0.108A	20'	22'	0.550A	0.074v			
N15-07	0.108A	3'	3'	0.442A	0.009v			
N15-08	0.108A	20'	22'	0.334A	0.045v			
N15-09	0.226A	3'	3'	0.226A	0.005v			

5495 BPS#4 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N17	N18	N19	N20	
	HORN LOW FREQ	0.108A	7	6	6	3	
		NAC CKT CURRENT DRAW =	0.756A	0.648A	0.648A	0.324A	
						TOTAL NAC CKT CURRENT DRAW =	2.376A

	TOTAL STANDBY CALCULATIONS		TOTAL STANDY CALCU
16	Total standby current		0.075
17	Multiply by 24 / 60 for standby hours needed.		24H
18	Total standby AH (Amp Hours)		1.8000 AH
	ALARM CURRENT CALCULATIONS		**TOTAL ALARM CURRENT CALCU**
19	Total alarm current		2.581
20	Multiply by 0.0833 for 5 min		0.0830
21	Total alarm current.		0.2142 AH
	BATTERY BACKUP REQUIREMENTS		
22	Sub total, add line 18+21		2.0142 AH
23	Multiply by 1.2 for 20% Battery Derating Factor		20%
24	Total AH (Amp Hours)		2.4171 AH
			(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N17-01	0.108A	52'	57'	0.756A	0.266v	0.756A	0.449v	2.1990%
N17-02	0.108A	3'	3'	0.648A	0.013v			
N17-03	0.108A	24'	26'	0.540A	0.088v	N.A.C #17 HORN-STROBE CIRCUIT		
N17-04	0.108A	3'	3'	0.432A	0.009v			
N17-05	0.108A	27'	30'	0.324A	0.059v			
N17-06	0.108A	6'	7'	0.216A	0.009v			
N17-07	0.108A	8'	9'	0.108A	0.006v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N18-01	0.108A	129'	142'	0.648A	0.565v	0.648A	0.672v	3.2932%
N18-02	0.108A	3'	3'	0.540A	0.011v			
N18-03	0.108A	20'	22'	0.432A	0.058v	N.A.C #18 HORN-STROBE CIRCUIT		
N18-04	0.108A	3'	3'	0.324A	0.007v			
N18-05	0.108A	20'	22'	0.216A	0.029v			
N18-06	0.108A	3'	3'	0.108A	0.002v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N19-01	0.108A	79'	87'	0.648A	0.346v	0.648A	0.444v	2.1776%
N19-02	0.108A	8'	9'	0.540A	0.029v			
N19-03	0.108A	6'	7'	0.432A	0.018v	N.A.C #19 HORN-STROBE CIRCUIT		
N19-04	0.108A	17'	19'	0.324A	0.037v			
N19-05	0.108A	6'	7'	0.216A	0.009v			
N19-06	0.108A	8'	9'	0.108A	0.006v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N20-01	0.108A	156'	172'	0.324A	0.341v	0.324A	0.357v	1.7521%
N20-02	0.108A	8'	9'	0.216A	0.012v			
N20-03	0.108A	6'	7'	0.108A	0.004v	N.A.C #20 HORN-STROBE CIRCUIT		

5495 BPS#5 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N21	N22	N23	N24-SPARE	
	15cd HORN-STROBE, WALL	0.054A	5	0	0	0	
	HORN LOW FREQ	0.108A	0	6	9	0	
		NAC CKT CURRENT DRAW =	0.270A	0.648A	0.972A	0.000A	
						TOTAL NAC CKT CURRENT DRAW =	1.890A

	TOTAL STANDBY CALCULATIONS		TOTAL STANDY CALCU
16	Total standby current		0.075
17	Multiply by 24 / 60 for standby hours needed.		24H
18	Total standby AH (Amp Hours)		1.8000 AH
	ALARM CURRENT CALCULATIONS		**TOTAL ALARM CURRENT CALCU**
19	Total alarm current		2.095
20	Multiply by 0.0833 for 5 min		0.0830
21	Total alarm current.		0.1739 AH
	BATTERY BACKUP REQUIREMENTS		
22	Sub total, add line 18+21		1.9739 AH
23	Multiply by 1.2 for 20% Battery Derating Factor		20%
24	Total AH (Amp Hours)		2.3687 AH
			(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N21-01	0.054A	71'	78'	0.270A	0.129v	0.270A	0.317v	1.5518%
N21-02	0.054A	52'	57'	0.216A	0.076v			
N21-03	0.054A	38'	42'	0.162A	0.042v	N.A.C #21 HORN-STROBE CIRCUIT		
N21-04	0.054A	64'	70'	0.108A	0.047v			
N21-05	0.054A	63'	69'	0.054A	0.023v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N22-01	0.108A	31'	34'	0.648A	0.136v	0.648A	0.307v	1.5053%
N22-02	0.108A	3'	3'	0.540A	0.011v			
N22-03	0.108A	19'	21'	0.432A	0.055v	N.A.C #22 HORN-STROBE CIRCUIT		
N22-04	0.108A	3'	3'	0.324A	0.007v			
N22-05	0.108A	66'	73'	0.216A	0.096v			
N22-06	0.108A	3'	3'	0.108A	0.002v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N23-01	0.108A	33'	36'	0.972A	0.217v	0.972A	0.483v	2.3671%
N23-02	0.108A	6'	7'	0.864A	0.035v			
N23-03	0.108A	8'	9'	0.756A	0.041v	N.A.C #23 HORN-STROBE CIRCUIT		
N23-04	0.108A	19'	21'	0.648A	0.083v			
N23-05	0.108A	3'	3'	0.540A	0.011v			
N23-06	0.108A	20'	22'	0.432A	0.058v			
N23-07	0.108A	3'	3'	0.324A	0.007v			
N23-08	0.108A	20'	22'	0.216A	0.029v			
N23-09	0.108A	3'	3'	0.108A	0.002v			

L SERIES SYSTEM SENSOR NOTIFICATION APPLIANCE CURRENT DRAW LIST

	VDC CURRENT							
	Wall		Weatherproof		Ceiling		WALL	
Candela Rating	Strobe	Horn/ Strobe	Strobe	Horn/ Strobe	Strobe	Horn/ Strobe	LF-Horn	LF-Horn / Strobe
15cd	0.043	0.054	0.066	0.079	0.041	0.071	---	---
30cd	0.063	0.074	0.094	0.107	0.063	0.090	---	---
75cd	0.107	0.121	0.158	0.176	0.111	0.143	---	---
95cd	0.121	0.142	0.181	0.194	0.134	0.165	---	---
110cd	0.148	0.162	0.202	0.212	---	---	---	---
115cd	---	---	0.210	0.218	0.158	0.187	---	---
135cd	0.172	0.196	0.228	0.245	---	---	---	---
150cd	---	---	0.246	0.259	0.189	0.217	---	---
177cd	---	---	0.281	0.290	0.226	0.254	---	---
185cd	0.222	0.245	0.286	0.297	---	---	---	---
---	---	---	---	---	---	---	0.108	---
185cd	---	---	---	---	---	---	---	0.266

A x (L/1000) x R x 2)
A= CURRENT REQUIRED BY THE DEVICE
L= LENGTH DISTANCE FROM DEVICE TO DEVICE
R = RESISTANCE OF WIRE PER 1000 FT.
14 AWG = 3.07 OHMS PER 1000FT.
VOLTAGE DROP BASE ON PANELS WORST CASE VOLTAGE OF 20.4 VDC

BATTERY & VOLTAGE DROP CALCULATIONS -1
NOT TO SCALE

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN ELECTRICAL SERVICES
501 SAN BENITO STREET, 3RD FLOOR
HOLLISTER, CA 95023
CONTACT: 831.638.1737
C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

STAMP:

LICENSED ELECTRICAL CONTRACTOR — AMERICAN ELECTRICAL SERVICES — License No. 569761 — EXP Date: 07/31/2021 — C-10 — STATE OF CALIFORNIA

SIGNATURE: IGNACIO VELAZQUEZ

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER: FUEGO ENGINEERING & DESIGN
P.O. BOX 880922
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (619) 618-8637, NICET III #84003
carlos.olveras@fuegoeng.com

DESIGN: C.O. DRAWN: C.O.
CHECKED: RC JOB NO:
DATE: 03/22/2021 PLOT:

SHEET TITLE:
BATTERY & VOLTAGE DROP CALCULATIONS - 1

TWIN RIVERS BLOCK A
FIRE ALARM SYSTEM

SCALE: N.T.S.

SHEET NO.
FA-9.0

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

5495 BPS#6 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N25	N26	N27	N28	
	15cd STROBE WALL	0.043A	0	0	0	0	
	15cd HORN-STROBE, WALL	0.054A	0	0	0	0	
	HORN LOW FREQ	0.108A	7	6	6	3	
		NAC CKT CURRENT DRAW =	0.756A	0.648A	0.648A	0.324A	
						TOTAL NAC CKT CURRENT DRAW =	2.376A

	TOTAL STANDBY CALCULATIONS	TOTAL STANDY CALCU
16	Total standby current	0.075
17	Multiply by 24 / 60 for standby hours needed.	24H
18	Total standby AH (Amp Hours)	1.8000 AH

	ALARM CURRENT CALCULATIONS	TOTAL ALARM CURRENT CALCU
19	Total alarm current	2.581
20	Multiply by 0.0833 for 5 min	0.0830
21	Total alarm current.	0.2142 AH

	BATTERY BACKUP REQUIREMENTS	
22	Sub total, add line 18+21	2.0142 AH
23	Multiply by 1.2 for 20% Battery Derating Factor	20%
24	Total AH (Amp Hours)	2.4171 AH

(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N25-01	0.108A	52'	57'	0.756A	0.266v	0.756A	0.449v	2.1990%
N25-02	0.108A	3'	3'	0.648A	0.013v			
N25-03	0.108A	24'	26'	0.540A	0.088v	N.A.C #25 HORN-STROBE CIRCUIT		
N25-04	0.108A	3'	3'	0.432A	0.009v			
N25-05	0.108A	27'	30'	0.324A	0.059v			
N25-06	0.108A	6'	7'	0.216A	0.009v			
N25-07	0.108A	8'	9'	0.108A	0.006v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N26-01	0.108A	129'	142'	0.648A	0.565v	0.648A	0.672v	3.2932%
N26-02	0.108A	3'	3'	0.540A	0.011v			
N26-03	0.108A	20'	22'	0.432A	0.058v	N.A.C #26 HORN-STROBE CIRCUIT		
N26-04	0.108A	3'	3'	0.324A	0.007v			
N26-05	0.108A	20'	22'	0.216A	0.029v			
N26-06	0.108A	3'	3'	0.108A	0.002v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N27-01	0.108A	79'	87'	0.648A	0.346v	0.648A	0.444v	2.1776%
N27-02	0.108A	8'	9'	0.540A	0.029v			
N27-03	0.108A	6'	7'	0.432A	0.018v	N.A.C #27 HORN-STROBE CIRCUIT		
N27-04	0.108A	17'	19'	0.324A	0.037v			
N27-05	0.108A	6'	7'	0.216A	0.009v			
N27-06	0.108A	8'	9'	0.108A	0.006v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N28-01	0.108A	156'	172'	0.324A	0.341v	0.324A	0.357v	1.7521%
N28-02	0.108A	8'	9'	0.216A	0.012v			
N28-03	0.108A	6'	7'	0.108A	0.004v	N.A.C #28 HORN-STROBE CIRCUIT		

5495 BPS#7 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N29	N30	N31	N32	
	15cd HORN-STROBE, WALL	0.054A	6	0	0	0	
	HORN LOW FREQ	0.108A	0	9	9	9	
		NAC CKT CURRENT DRAW =	0.324A	0.972A	0.972A	0.972A	
						TOTAL NAC CKT CURRENT DRAW =	3.240A

	TOTAL STANDBY CALCULATIONS	TOTAL STANDY CALCU
16	Total standby current	0.075
17	Multiply by 24 / 60 for standby hours needed.	24H
18	Total standby AH (Amp Hours)	1.8000 AH

	ALARM CURRENT CALCULATIONS	TOTAL ALARM CURRENT CALCU
19	Total alarm current	3.445
20	Multiply by 0.0833 for 5 min	0.0830
21	Total alarm current.	0.2859 AH

	BATTERY BACKUP REQUIREMENTS	
22	Sub total, add line 18+21	2.0859 AH
23	Multiply by 1.2 for 20% Battery Derating Factor	20%
24	Total AH (Amp Hours)	2.5031 AH

(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N29-01	0.054A	26'	29'	0.324A	0.057v	0.324A	0.199v	0.9762%
N29-02	0.054A	30'	33'	0.270A	0.055v			
N29-03	0.054A	20'	22'	0.216A	0.029v	N.A.C #29 HORN-STROBE CIRCUIT		
N29-04	0.054A	30'	33'	0.162A	0.033v			
N29-05	0.054A	20'	22'	0.108A	0.015v			
N29-06	0.054A	30'	33'	0.054A	0.011v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N30-01	0.108A	25'	28'	0.972A	0.103v	0.972A	0.448v	2.1971%
N30-02	0.108A	14'	15'	0.864A	0.082v			
N30-03	0.108A	4'	4'	0.756A	0.020v	N.A.C #30 HORN-STROBE CIRCUIT		
N30-04	0.108A	31'	34'	0.648A	0.136v			
N30-05	0.108A	5'	6'	0.540A	0.018v			
N30-06	0.108A	12'	13'	0.432A	0.035v			
N30-07	0.108A	15'	17'	0.324A	0.033v			
N30-08	0.108A	12'	13'	0.216A	0.018v			
N30-09	0.108A	5'	6'	0.108A	0.004v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N31-01	0.108A	45'	50'	0.972A	0.295v	0.972A	0.640v	3.1394%
N31-02	0.108A	14'	15'	0.864A	0.082v			
N31-03	0.108A	4'	4'	0.756A	0.020v	N.A.C #31 HORN-STROBE CIRCUIT		
N31-04	0.108A	31'	34'	0.648A	0.136v			
N31-05	0.108A	5'	6'	0.540A	0.018v			
N31-06	0.108A	12'	13'	0.432A	0.035v			
N31-07	0.108A	15'	17'	0.324A	0.033v			
N31-08	0.108A	12'	13'	0.216A	0.018v			
N31-09	0.108A	5'	6'	0.108A	0.004v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N32-01	0.108A	65'	72'	0.972A	0.427v	0.972A	0.772v	3.7830%
N32-02	0.108A	14'	15'	0.864A	0.082v			
N32-03	0.108A	4'	4'	0.756A	0.020v	N.A.C #32 HORN-STROBE CIRCUIT		
N32-04	0.108A	31'	34'	0.648A	0.136v			
N32-05	0.108A	5'	6'	0.540A	0.018v			
N32-06	0.108A	12'	13'	0.432A	0.035v			
N32-07	0.108A	15'	17'	0.324A	0.033v			
N32-08	0.108A	12'	13'	0.216A	0.018v			
N32-09	0.108A	5'	6'	0.108A	0.004v			

5495 BPS#8 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N33	N34	N35	N36	
	15cd HORN-STROBE, WALL	0.054A	4	0	0	0	
	HORN LOW FREQ	0.108A	0	8	6	6	
		NAC CKT CURRENT DRAW =	0.216A	0.864A	0.648A	0.648A	
						TOTAL NAC CKT CURRENT DRAW =	2.376A

	TOTAL STANDBY CALCULATIONS	TOTAL STANDY CALCU
16	Total standby current	0.075
17	Multiply by 24 / 60 for standby hours needed.	24H
18	Total standby AH (Amp Hours)	1.8000 AH

	ALARM CURRENT CALCULATIONS	TOTAL ALARM CURRENT CALCU
19	Total alarm current	2.581
20	Multiply by 0.0833 for 5 min	0.0830
21	Total alarm current.	0.2142 AH

	BATTERY BACKUP REQUIREMENTS	
22	Sub total, add line 18+21	2.0142 AH
23	Multiply by 1.2 for 20% Battery Derating Factor	20%
24	Total AH (Amp Hours)	2.4171 AH

(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N33-01	0.054A	25'	28'	0.216A	0.036v	0.216A	0.113v	0.5542%
N33-02	0.054A	30'	33'	0.162A	0.033v			
N33-03	0.054A	50'	55'	0.108A	0.036v	N.A.C #33 HORN-STROBE CIRCUIT		
N33-04	0.054A	20'	22'	0.054A	0.007v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N34-01	0.108A	25'	28'	0.864A	0.146v	0.864A	0.468v	2.2956%
N34-02	0.108A	14'	15'	0.756A	0.071v			
N34-03	0.108A	4'	4'	0.648A	0.018v	N.A.C #34 HORN-STROBE CIRCUIT		
N34-04	0.108A	32'	41'	0.540A	0.135v			
N34-05	0.108A	8'	9'	0.432A	0.023v			
N34-06	0.108A	30'	33'	0.324A	0.066v			
N34-07	0.108A	3'	3'	0.216A	0.004v			
N34-08	0.108A	7'	8'	0.108A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N35-01	0.108A	45'	50'	0.648A	0.197v	0.648A	0.359v	1.7592%
N35-02	0.108A	14'	15'	0.540A	0.051v			
N35-03	0.108A	4'	4'	0.432A	0.012v	N.A.C #35 HORN-STROBE CIRCUIT		
N35-04	0.108A	32'	35'	0.324A	0.070v			
N35-05	0.108A	18'	20'	0.216A	0.026v			
N35-06	0.108A	4'	4'	0.108A	0.003v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N36-01	0.108A	65'	72'	0.648A	0.284v	0.648A	0.446v	2.1883%
N36-02	0.108A	14'	15'	0.540A	0.051v			
N36-03	0.108A	4'	4'	0.432A	0.012v	N.A.C #36 HORN-STROBE CIRCUIT		
N36-04	0.108A	32'	35'	0.324A	0.070v			
N36-05	0.108A	18'	20'	0.216A	0.026v			
N36-06	0.108A	4'	4'	0.108A	0.003v			

5495 BPS#9 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N37	N38	N39	N40	
	15cd HORN-STROBE, WALL	0.054A	6	0	0	0	
	HORN LOW FREQ	0.108A	0	8	7	7	
		NAC CKT CURRENT DRAW =	0.324A	0.864A	0.756A	0.756A	
						TOTAL NAC CKT CURRENT DRAW =	2.700A

	TOTAL STANDBY CALCULATIONS	TOTAL STANDY CALCU
16	Total standby current	0.075
17	Multiply by 24 / 60 for standby hours needed.	24H
18	Total standby AH (Amp Hours)	1.8000 AH

	ALARM CURRENT CALCULATIONS	TOTAL ALARM CURRENT CALCU
19	Total alarm current	2.905
20	Multiply by 0.0833 for 5 min	0.0830
21	Total alarm current.	0.2411 AH

	BATTERY BACKUP REQUIREMENTS	
22	Sub total, add line 18+21	2.0411 AH
23	Multiply by 1.2 for 20% Battery Derating Factor	20%
24	Total AH (Amp Hours)	2.4493 AH

(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N37-01	0.054A	18'	20'	0.324A	0.039v	0.324A	0.201v	0.9869%
N37-02	0.054A	36'	40'	0.270A	0.066v			
N37-03	0.054A	20'	22'	0.216A	0.029v	N.A.C #37 HORN-STROBE CIRCUIT		
N37-04	0.054A	36'	40'	0.162A	0.039v			
N37-05	0.054A	20'	22'	0.108A	0.015v			
N37-06	0.054A	36'	40'	0.054A	0.013v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N38-01	0.108A	25'	28'	0.864A	0.146v	0.864A	0.439v	2.1525%
N38-02	0.108A	25'	28'	0.756A	0.128v			
N38-03	0.108A	3'	3'	0.648A	0.013v	N.A.C #38 HORN-STROBE CIRCUIT		
N38-04	0.108A	7'	8'	0.540A	0.026v			
N38-05	0.108A	30'	33'	0.432A	0.088v			
N38-06	0.108A	3'	3'	0.324A	0.007v			
N38-07	0.108A	21'	23'	0.216A	0.031v			
N38-08	0.108A	3'	3'	0.108A	0.002v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N39-01	0.108A	45'	50'	0.756A	0.210v	0.756A	0.460v	2.2527%
N39-02	0.108A	10'	11'	0.648A	0.044v			
N39-03	0.108A	5'	6'	0.540A	0.018v	N.A.C #39 HORN-STROBE CIRCUIT		
N39-04	0.108A	44'	48'	0.432A	0.128v			
N39-05	0.108A	3'	3'	0.324A	0.007v			
N39-06	0.108A	21'	23'	0.216A	0.031v			
N39-07	0.108A	3'	3'	0.108A	0.002v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N40-01	0.108A	65'	72'	0.756A	0.332v	0.756A	0.559v	2.7389%
N40-02	0.108A	10'	11'	0.648A	0.044v			
N40-03	0.108A	5'	6'	0.540A	0.018v	N.A.C #40 HORN-STROBE CIRCUIT		
N40-04	0.108A	44'	48'	0.432A	0.128v			
N40-05	0.108A	3'	3'	0.324A	0.007v			
N40-06	0.108A	19'	21'	0.216A	0.028v			
N40-07	0.108A	3'	3'	0.108A	0.002v			

5495 BPS#10 (5 MINUTES IN ALARM, 24HRS STANDBY) — SILENT KNIGHT

	A	B	C	D	E	F	
	INTERNAL POWER SUPPLY COMPONENTS	Quantity	Standby Current	Total Standby Current (B x C)	Alarm Current	Total Alarm Current (B x E)	
	5495 MAIN POWER SUPPLY BOARD	1	0.075A	0.075A	0.205A	0.205A	
			Total Standby Current =	0.075A	Total Alm Current=	0.205A	

	HORN / STROBE CIRCUITS	DEVICE CURRENT DRAW	CIRCUIT # AND QTY N41	N42	N43	N44	
	15cd HORN-STROBE, WALL	0.054A	6	0	0	0	
	HORN LOW FREQ	0.108A	0	10	9	9	
		NAC CKT CURRENT DRAW =	0.324A	1.080A	0.972A	0.972A	
						TOTAL NAC CKT CURRENT DRAW =	3.348A

	TOTAL STANDBY CALCULATIONS	TOTAL STANDY CALCU
16	Total standby current	0.075
17	Multiply by 24 / 60 for standby hours needed.	24H
18	Total standby AH (Amp Hours)	1.8000 AH

	ALARM CURRENT CALCULATIONS	TOTAL ALARM CURRENT CALCU
19	Total alarm current	3.553
20	Multiply by 0.0833 for 5 min	0.0830
21	Total alarm current.	0.2949 AH

	BATTERY BACKUP REQUIREMENTS	
22	Sub total, add line 18+21	2.0949 AH
23	Multiply by 1.2 for 20% Battery Derating Factor	20%
24	Total AH (Amp Hours)	2.5139 AH

(2) BATTERY SUPPLIED = 7 AMP

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N41-01	0.054A	25'	28'	0.324A	0.055v	0.324A	0.197v	0.9654%
N41-02	0.054A	30'	33'	0.270A	0.055v			
N41-03	0.054A	20'	22'	0.216A	0.029v	N.A.C #41 HORN-STROBE CIRCUIT		
N41-04	0.054A	30'	33'	0.162A	0.033v			
N41-05	0.054A	20'	22'	0.108A	0.015v			
N41-06	0.054A	30'	33'	0.054A	0.011v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N42-01	0.108A	25'	28'	1.080A	0.182v	1.080A	0.656v	3.2181%
N42-02	0.108A	28'	31'	0.972A	0.184v			
N42-03	0.108A	3'	3'	0.864A	0.018v	N.A.C #42 HORN-STROBE CIRCUIT		
N42-04	0.108A	7'	8'	0.756A	0.036v			
N42-05	0.108A	26'	29'	0.648A	0.114v			
N42-06	0.108A	5'	6'	0.540A	0.018v			
N42-07	0.108A	14'	15'	0.432A	0.041v			
N42-08	0.108A	19'	21'	0.324A	0.042v			
N42-09	0.108A	13'	14'	0.216A	0.019v			
N42-10	0.108A	5'	6'	0.108A	0.004v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N43-01	0.108A	45'	50'	0.972A	0.295v	0.972A	0.657v	3.2217%
N43-02	0.108A	10'	11'	0.864A	0.058v			
N43-03	0.108A	5'	6'	0.756A	0.026v	N.A.C #43 HORN-STROBE CIRCUIT		
N43-04	0.108A	37'	41'	0.648A	0.162v			
N43-05	0.108A	5'	6'	0.540A	0.018v			
N43-06	0.108A	14'	15'	0.432A	0.041v			
N43-07	0.108A	15'	17'	0.324A	0.033v			
N43-08	0.108A	14'	15'	0.216A	0.020v			
N43-09	0.108A	5'	6'	0.108A	0.004v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N44-01	0.108A	65'	72'	0.972A	0.427v	0.972A	0.789v	3.8653%
N44-02	0.108A	10'	11'	0.864A	0.058v			
N44-03	0.108A	5'	6'	0.756A	0.026v	N.A.C #44 HORN-STROBE CIRCUIT		
N44-04	0.108A	37'	41'	0.648A	0.162v			
N44-05	0.108A	5'	6'	0.540A	0.018v			
N44-06	0.108A	14'	15'	0.432A	0.041v			
N44-07	0.108A	15'	17'	0.324A	0.033v			
N44-08	0.108A	14'	15'	0.216A	0.020v			
N44-09	0.108A	5'	6'	0.108A	0.004v			

L SERIES SYSTEM SENSOR NOTIFICATION APPLIANCE CURRENT DRAW LIST

VDC CURRENT

Candela Rating	Wall Strobe	Wall Horn/ Strobe	Weatherproof Strobe	Weatherproof Horn/ Strobe	Ceiling Strobe	Ceiling Horn/ Strobe	WALL LF-Horn	WALL LF-Horn / Strobe
15cd	0.043	0.054	0.066	0.079	0.041	0.071	--	--
30cd	0.063	0.074	0.094	0.107	0.063	0.090	--	--
75cd	0.107	0.121	0.158	0.176	0.111	0.143	--	--
95cd	0.121	0.142	0.181	0.194	0.134	0.165	--	--
110cd	0.148	0.162	0.202	0.212	--	--	--	--
115cd	--	--	0.210	0.218	0.158	0.187	--	--
135cd	0.172	0.196	0.228	0.245	--	--	--	--
150cd	--	--	0.246	0.259	0.189	0.217	--	--
177cd	--	--	0.281	0.290	0.226	0.254	--	--
185cd	0.222	0.245	0.286	0.297	--	--	--	--
--	--	--	--	--	--	--	0.108	--
185cd	--	--	--	--	--	--	--	0.266

A x (L/1000) x R x 2)
A= CURRENT REQUIRED BY THE DEVICE
L= LENGTH DISTANCE FROM DEVICE TO DEVICE
R = RESISTANCE OF WIRE PER 1000 FT.
14 AWG = 3.07 OHMS PER 1000 FT.
VOLTAGE DROP BASE ON PANEL'S WORST CASE VOLTAGE OF 20.4 VDC

BATTERY & VOLTAGE DROP CALCULATIONS - 2

NOT TO SCALE

DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

AMERICAN ELECTRICAL SERVICES
501 SAN BENITO STREET, 3RD FLOOR
HOLLISTER, CA 95023
CONTACT: 831.638.1737
C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

STAMP:

LICENSED ELECTRICAL CONTRACTOR — AMERICAN ELECTRICAL SERVICES — STATE OF CALIFORNIA
License No. 569761
EXP. Date: 07/31/2021
C-10

SIGNATURE: IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER: FUEGO ENGINEERING & DESIGN
P.O. BOX 880922
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (615) 610-8637 , NICET III #84003
carlos.oliveras@fuegoeng.com

DESIGN: C.O. | DRAWN: C.O.
CHECKED: RC | JOB NO:
DATE: 03/22/2021 | PLOT:

SHEET TITLE: BATTERY & VOLTAGE DROP CALCULATIONS - 2

TWIN RIVERS BLOCK A
FIRE ALARM SYSTEM

SCALE: N.T.S.

SHEET NO. FA-9.1

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N6-01	0.266A	31'	34'	1.596A	0.334v	1.596A	0.756v	3.7076%
N6-02	0.266A	3'	3'	1.330A	0.027v			
N6-03	0.266A	19'	21'	1.064A	0.137v	N.A.C #6		
N6-04	0.266A	3'	3'	0.798A	0.016v	HORN-STROBE CIRCUIT		
N6-05	0.266A	66'	73'	0.532A	0.237v			
N6-06	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N7-01	0.266A	33'	36'	2.354A	0.525v	2.354A	1.158v	5.6777%
N7-02	0.266A	6'	7'	2.088A	0.085v			
N7-03	0.266A	8'	9'	1.822A	0.098v	N.A.C #7		
N7-04	0.266A	19'	21'	1.556A	0.200v	HORN-STROBE CIRCUIT		
N7-05	0.266A	3'	3'	1.290A	0.026v			
N7-06	0.266A	20'	23'	1.024A	0.138v			
N7-07	0.266A	3'	3'	0.758A	0.015v			
N7-08	0.266A	20'	22'	0.492A	0.066v			
N7-09	0.226A	3'	3'	0.226A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N9-01	0.266A	52'	57'	1.862A	0.654v	1.862A	1.105v	5.4161%
N9-02	0.266A	3'	3'	1.596A	0.032v			
N9-03	0.266A	24'	26'	1.330A	0.216v	N.A.C #9		
N9-04	0.266A	3'	3'	1.064A	0.022v	HORN-STROBE CIRCUIT		
N9-05	0.266A	27'	30'	0.798A	0.146v			
N9-06	0.266A	6'	7'	0.532A	0.022v			
N9-07	0.266A	8'	9'	0.266A	0.014v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N10-01	0.266A	129'	142'	1.596A	1.391v	1.596A	1.655v	8.1110%
N10-02	0.266A	3'	3'	1.330A	0.027v			
N10-03	0.266A	20'	22'	1.064A	0.144v	N.A.C #10		
N10-04	0.266A	3'	3'	0.798A	0.016v	HORN-STROBE CIRCUIT		
N10-05	0.266A	20'	22'	0.532A	0.072v			
N10-06	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N11-01	0.266A	79'	87'	1.596A	0.852v	1.596A	1.094v	5.3633%
N11-02	0.266A	8'	9'	1.330A	0.072v			
N11-03	0.266A	6'	7'	1.064A	0.043v	N.A.C #11		
N11-04	0.266A	17'	19'	0.798A	0.092v	HORN-STROBE CIRCUIT		
N11-05	0.266A	6'	7'	0.532A	0.022v			
N11-06	0.266A	8'	9'	0.266A	0.014v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N12-01	0.266A	156'	172'	0.798A	0.841v	0.798A	0.880v	4.3153%
N12-02	0.266A	8'	9'	0.532A	0.029v			
N12-03	0.266A	6'	7'	0.266A	0.011v	N.A.C #12		
						HORN-STROBE CIRCUIT		

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N13-01	0.054A	71'	78'	0.270A	0.129v	0.270A	0.317v	1.5518%
N13-02	0.054A	53'	57'	0.216A	0.076v			
N13-03	0.054A	38'	42'	0.162A	0.042v	N.A.C #13		
N13-04	0.054A	64'	70'	0.108A	0.047v	HORN-STROBE CIRCUIT		
N13-05	0.054A	63'	69'	0.054A	0.023v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N14-01	0.266A	31'	34'	1.596A	0.334v	1.596A	0.756v	3.7076%
N14-02	0.266A	3'	3'	1.330A	0.027v			
N14-03	0.266A	19'	21'	1.064A	0.137v	N.A.C #14		
N14-04	0.266A	3'	3'	0.798A	0.016v	HORN-STROBE CIRCUIT		
N14-05	0.266A	66'	73'	0.532A	0.237v			
N14-06	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N15-01	0.266A	23'	26'	2.354A	0.525v	2.354A	1.158v	5.6777%
N15-02	0.266A	6'	7'	2.088A	0.085v			
N15-03	0.266A	8'	9'	1.822A	0.098v	N.A.C #15		
N15-04	0.266A	19'	21'	1.556A	0.200v	HORN-STROBE CIRCUIT		
N15-05	0.266A	3'	3'	1.290A	0.026v			
N15-06	0.266A	20'	22'	1.024A	0.138v			
N15-07	0.266A	3'	3'	0.758A	0.015v			
N15-08	0.266A	20'	22'	0.492A	0.066v			
N15-09	0.226A	3'	3'	0.226A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N17-01	0.266A	52'	57'	1.862A	0.654v	1.862A	1.105v	5.4161%
N17-02	0.266A	3'	3'	1.596A	0.032v			
N17-03	0.266A	24'	26'	1.330A	0.216v	N.A.C #17		
N17-04	0.266A	3'	3'	1.064A	0.022v	HORN-STROBE CIRCUIT		
N17-05	0.266A	27'	30'	0.798A	0.146v			
N17-06	0.266A	6'	7'	0.532A	0.022v			
N17-07	0.266A	8'	9'	0.266A	0.014v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N18-01	0.266A	129'	142'	1.596A	1.391v	1.596A	1.655v	8.1110%
N18-02	0.266A	3'	3'	1.330A	0.027v			
N18-03	0.266A	20'	22'	1.064A	0.144v	N.A.C #18		
N18-04	0.266A	3'	3'	0.798A	0.016v	HORN-STROBE CIRCUIT		
N18-05	0.266A	20'	22'	0.532A	0.072v			
N18-06	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N19-01	0.266A	79'	87'	1.596A	0.852v	1.596A	1.094v	5.3633%
N19-02	0.266A	8'	9'	1.330A	0.072v			
N19-03	0.266A	6'	7'	1.064A	0.043v	N.A.C #19		
N19-04	0.266A	17'	19'	0.798A	0.092v	HORN-STROBE CIRCUIT		
N19-05	0.266A	6'	7'	0.532A	0.022v			
N19-06	0.266A	8'	9'	0.266A	0.014v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N20-01	0.266A	156'	172'	0.798A	0.841v	0.798A	0.880v	4.3153%
N20-02	0.266A	8'	9'	0.532A	0.029v			
N20-03	0.266A	6'	7'	0.266A	0.011v	N.A.C #20		
						HORN-STROBE CIRCUIT		

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N22-01	0.266A	31'	34'	1.596A	0.334v	1.596A	0.756v	3.7076%
N22-02	0.266A	3'	3'	1.330A	0.027v			
N22-03	0.266A	19'	21'	1.064A	0.137v	N.A.C #22		
N22-04	0.266A	3'	3'	0.798A	0.016v	HORN-STROBE CIRCUIT		
N22-05	0.266A	66'	73'	0.532A	0.237v			
N22-06	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N23-01	0.266A	33'	36'	2.394A	0.534v	2.394A	1.189v	5.8300%
N23-02	0.266A	6'	7'	2.128A	0.086v			
N23-03	0.266A	8'	9'	1.862A	0.101v	N.A.C #23		
N23-04	0.266A	19'	21'	1.596A	0.205v	HORN-STROBE CIRCUIT		
N23-05	0.266A	3'	3'	1.330A	0.027v			
N23-06	0.266A	20'	22'	1.064A	0.144v			
N23-07	0.266A	3'	3'	0.798A	0.016v			
N23-08	0.266A	20'	22'	0.532A	0.072v			
N23-09	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N25-01	0.266A	52'	57'	1.862A	0.654v	1.862A	1.105v	5.4161%
N25-02	0.266A	3'	3'	1.596A	0.032v			
N25-03	0.266A	24'	26'	1.330A	0.216v	N.A.C #25		
N25-04	0.266A	3'	3'	1.064A	0.022v	HORN-STROBE CIRCUIT		
N25-05	0.266A	27'	30'	0.798A	0.146v			
N25-06	0.266A	6'	7'	0.532A	0.022v			
N25-07	0.266A	8'	9'	0.266A	0.014v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N26-01	0.266A	129'	142'	1.596A	1.391v	1.596A	1.655v	8.1110%
N26-02	0.266A	3'	3'	1.330A	0.027v			
N26-03	0.266A	20'	22'	1.064A	0.144v	N.A.C #26		
N26-04	0.266A	3'	3'	0.798A	0.016v	HORN-STROBE CIRCUIT		
N26-05	0.266A	20'	22'	0.532A	0.072v			
N26-06	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N27-01	0.266A	79'	87'	1.596A	0.852v	1.596A	1.094v	5.3633%
N27-02	0.266A	8'	9'	1.330A	0.072v			
N27-03	0.266A	6'	7'	1.064A	0.043v	N.A.C #27		
N27-04	0.266A	17'	19'	0.798A	0.092v	HORN-STROBE CIRCUIT		
N27-05	0.266A	6'	7'	0.532A	0.022v			
N27-06	0.266A	8'	9'	0.266A	0.014v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N28-01	0.266A	156'	172'	0.798A	0.841v	0.798A	0.880v	4.3153%
N28-02	0.266A	8'	9'	0.532A	0.029v			
N28-03	0.266A	6'	7'	0.266A	0.011v	N.A.C #28		
						HORN-STROBE CIRCUIT		

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N30-01	0.266A	25'	28'	2.394A	0.254v	2.394A	1.104v	5.4113%
N30-02	0.266A	14'	15'	2.128A	0.201v			
N30-03	0.266A	4'	4'	1.862A	0.050v	N.A.C #30		
N30-04	0.266A	31'	34'	1.596A	0.334v	HORN-STROBE CIRCUIT		
N30-05	0.266A	5'	6'	1.330A	0.045v			
N30-06	0.266A	12'	13'	1.064A	0.086v			
N30-07	0.266A	15'	17'	0.798A	0.081v			
N30-08	0.266A	12'	13'	0.532A	0.043v			
N30-09	0.266A	5'	6'	0.266A	0.009v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N31-01	0.266A	45'	50'	2.394A	0.728v	2.394A	1.577v	7.7323%
N31-02	0.266A	14'	15'	2.128A	0.201v			
N31-03	0.266A	4'	4'	1.862A	0.050v	N.A.C #31		
N31-04	0.266A	31'	34'	1.596A	0.334v	HORN-STROBE CIRCUIT		
N31-05	0.266A	5'	6'	1.330A	0.045v			
N31-06	0.266A	12'	13'	1.064A	0.086v			
N31-07	0.266A	15'	17'	0.798A	0.081v			
N31-08	0.266A	12'	13'	0.532A	0.043v			
N31-09	0.266A	5'	6'	0.266A	0.009v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N32-01	0.108A	65'	72'	0.972A	0.427v	0.972A	0.772v	3.7830%
N32-02	0.108A	14'	15'	0.864A	0.082v			
N32-03	0.108A	4'	4'	0.756A	0.020v	N.A.C #32		
N32-04	0.108A	31'	34'	0.648A	0.136v	HORN-STROBE CIRCUIT		
N32-05	0.108A	5'	6'	0.540A	0.018v			
N32-06	0.108A	12'	13'	0.432A	0.035v			
N32-07	0.108A	15'	17'	0.324A	0.033v			
N32-08	0.108A	12'	13'	0.216A	0.018v			
N32-09	0.108A	5'	6'	0.108A	0.004v			

NOTE: TYPICAL FOR BUILDINGS 1240, 1248,

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N34-01	0.266A	25'	28'	2.128A	0.359v	2.128A	1.153v	5.6539%
N34-02	0.266A	14'	15'	1.862A	0.176v			
N34-03	0.266A	4'	4'	1.596A	0.043v	N.A.C #34		
N34-04	0.266A	37'	41'	1.330A	0.332v	HORN-STROBE CIRCUIT		
N34-05	0.266A	8'	9'	1.064A	0.057v			
N34-06	0.266A	30'	33'	0.798A	0.162v			
N34-07	0.266A	3'	3'	0.532A	0.011v			
N34-08	0.266A	7'	8'	0.266A	0.013v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N35-01	0.266A	45'	50'	1.596A	0.485v	1.596A	0.884v	4.3329%
N35-02	0.266A	14'	15'	1.330A	0.126v			
N35-03	0.266A	4'	4'	1.064A	0.029v	N.A.C #35		
N35-04	0.266A	32'	35'	0.798A	0.172v	HORN-STROBE CIRCUIT		
N35-05	0.266A	18'	20'	0.532A	0.065v			
N35-06	0.266A	4'	4'	0.266A	0.007v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N36-01	0.266A	65'	72'	1.596A	0.701v	1.596A	1.099v	5.3897%
N36-02	0.266A	14'	15'	1.330A	0.126v			
N36-03	0.266A	4'	4'	1.064A	0.029v	N.A.C #36		
N36-04	0.266A	32'	35'	0.798A	0.172v	HORN-STROBE CIRCUIT		
N36-05	0.266A	18'	20'	0.532A	0.065v			
N36-06	0.266A	4'	4'	0.266A	0.007v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N38-01	0.266A	25'	28'	2.128A	0.359v	2.128A	1.082v	5.3016%
N38-02	0.266A	25'	28'	1.862A	0.314v			
N38-03	0.266A	3'	3'	1.596A	0.032v	N.A.C #38		
N38-04	0.266A	7'	8'	1.330A	0.063v	HORN-STROBE CIRCUIT		
N38-05	0.266A	30'	33'	1.064A	0.216v			
N38-06	0.266A	3'	3'	0.798A	0.016v			
N38-07	0.266A	21'	23'	0.532A	0.075v			
N38-08	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N39-01	0.266A	45'	50'	1.862A	0.566v	1.862A	1.132v	5.5482%
N39-02	0.266A	10'	11'	1.596A	0.108v			
N39-03	0.266A	5'	6'	1.330A	0.045v	N.A.C #39		
N39-04	0.266A	44'	48'	1.064A	0.316v	HORN-STROBE CIRCUIT		
N39-05	0.266A	3'	3'	0.798A	0.016v			
N39-06	0.266A	21'	23'	0.532A	0.075v			
N39-07	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N40-01	0.266A	65'	72'	1.862A	0.817v	1.862A	1.376v	6.7459%
N40-02	0.266A	10'	11'	1.596A	0.108v			
N40-03	0.266A	5'	6'	1.330A	0.045v	N.A.C #40		
N40-04	0.266A	44'	48'	1.064A	0.316v	HORN-STROBE CIRCUIT		
N40-05	0.266A	3'	3'	0.798A	0.016v			
N40-06	0.266A	19'	21'	0.532A	0.068v			
N40-07	0.266A	3'	3'	0.266A	0.005v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N42-01	0.266A	25'	28'	2.660A	0.449v	2.660A	1.612v	7.9269%
N42-02	0.266A	28'	31'	2.394A	0.453v			
N42-03	0.266A	3'	3'	2.128A	0.043v	N.A.C #42		
N42-04	0.266A	7'	8'	1.862A	0.088v	HORN-STROBE CIRCUIT		
N42-05	0.266A	26'	29'	1.596A	0.280v			
N42-06	0.266A	5'	6'	1.330A	0.045v			
N42-07	0.266A	14'	15'	1.064A	0.101v			
N42-08	0.266A	19'	21'	0.798A	0.102v			
N42-09	0.266A	13'	14'	0.532A	0.047v			
N42-10	0.266A	5'	6'	0.266A	0.009v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N43-01	0.266A	45'	50'	2.394A	0.728v	2.394A	1.619v	7.9348%
N43-02	0.266A	10'	11'	2.128A	0.144v			
N43-03	0.266A	5'	6'	1.862A	0.063v	N.A.C #43		
N43-04	0.266A	37'	41'	1.596A	0.399v	HORN-STROBE CIRCUIT		
N43-05	0.266A	5'	6'	1.330A	0.045v			
N43-06	0.266A	14'	15'	1.064A	0.101v			
N43-07	0.266A	15'	17'	0.798A	0.081v			
N43-08	0.266A	14'	15'	0.532A	0.050v			
N43-09	0.266A	5'	6'	0.266A	0.009v			

Device #	Device Draw	Distance	Distance + 10%	Amps	Volt Drop	Total Amps	Total Drop	Percent Drop
N44-01	0.266A	65'	72'	2.394A	1.051v	2.394A	1.942v	9.5200%
N44-02	0.266A	10'	11'	2.128A	0.144v			
N44-03	0.266A	5'	6'	1.862A	0.063v	N.A.C #44		
N44-04	0.266A	37'	41'	1.596A	0.399v	HORN-STROBE CIRCUIT		
N44-05	0.266A	5'	6'	1.330A	0.045v			
N44-06	0.266A	14'	15'	1.064A	0.101v			
N44-07	0.266A	15'	17'	0.798A	0.081v			
N44-08	0.266A	14'	15'	0.532A	0.050v			
N44-09	0.266A	5'	6'	0.266A	0.009v			

FUTURE ADA BUILD OUT:

ALL CIRCUITS ARE DESIGNED TO ALLOW FOR FUTURE UPGRADE TO ACCOMMODATE THE HEARING IMPAIRED WITHOUT THE REQUIREMENT OF ADDITIONAL CABLE OR CONSTRUCTION.

CALCULATIONS FOR WORST CASE SCENARIO (CIRCUIT WITH THE LONGEST CABLE RUN AND FULLY LOADED WITH LOW FREQUENCY HORNS AND 177cd STROBES) IS POSTED BELOW.

UPGRADE TO 185cd STROBES IS DONE BY REPLACING EXISTING LOW FREQUENCY HORN WITH LOW FREQUENCY HORN/STROBE. CIRCUITS ARE DESIGNED TO ACCEPT NEW DEVICES WITHOUT NEED FOR ADDITIONAL CIRCUITS. ADDITIONAL POWER SUPPLIES MAY BE NECESSARY TO BALANCE THE AMPERAGE LOAD TO MAINTAIN POWER SUPPLY LIMITS.

AT TIME OF CONVERSION 120VAC SMOKE ALARM IN UNIT TO BE REPLACED WITH 120VAC SMOKE ALARM WITH INTEGRATED STROBE.

AMERICAN ELECTRICAL SERVICES
501 SAN BENITO STREET, 3RD FLOOR
HOLLISTER, CA 95023
CONTACT: 831.638.1737
C-7 | C-10 # 569761 (EXP. DATE 07/31/2021)

AES

STAMP:

LICENSED ELECTRICAL CONTRACTOR
AMERICAN ELECTRICAL SERVICES
License No. 569761
EXP Date: 07/31/2021
C-10
STATE OF CALIFORNIA

SIGNATURE:
IGNACIO VELAZQUEZ

TWIN RIVERS BLOCK A
SACRAMENTO, CA 95811

REV.	DATE	DESCRIPTION	D.B.
1			
2			
3			
4			

DESIGNER: FUEGO ENGINEERING & DESIGN
P.O. BOX 880922
PORT SAINT LUCIE , FL 34988
Carlos Oliveras (619) 618-8637, NICET III #840003
carlos.oliveras@fuegoeng.com

DESIGN: C.O.	DRAWN: C.O.
CHECKED: RC	JOB NO:
DATE: 03/22/2021	PLOT:

SHEET TITLE:
FUTURE HEARING IMPAIR UNIT BUILD OUT
WORST CASE VOLTAGE DROP CALCULATIONS

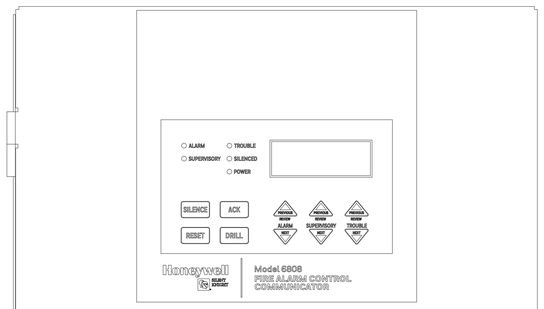
TWIN RIVERS BLOCK A

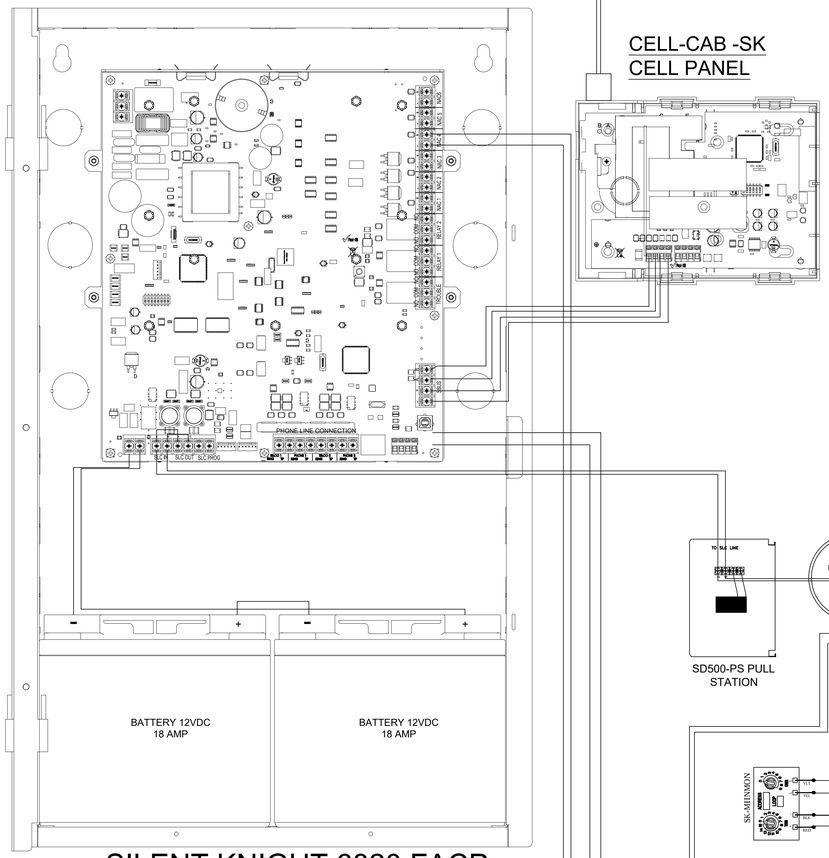
FIRE ALARM SYSTEM

SCALE: N.T.S.

SHEET NO.
FA-9.2

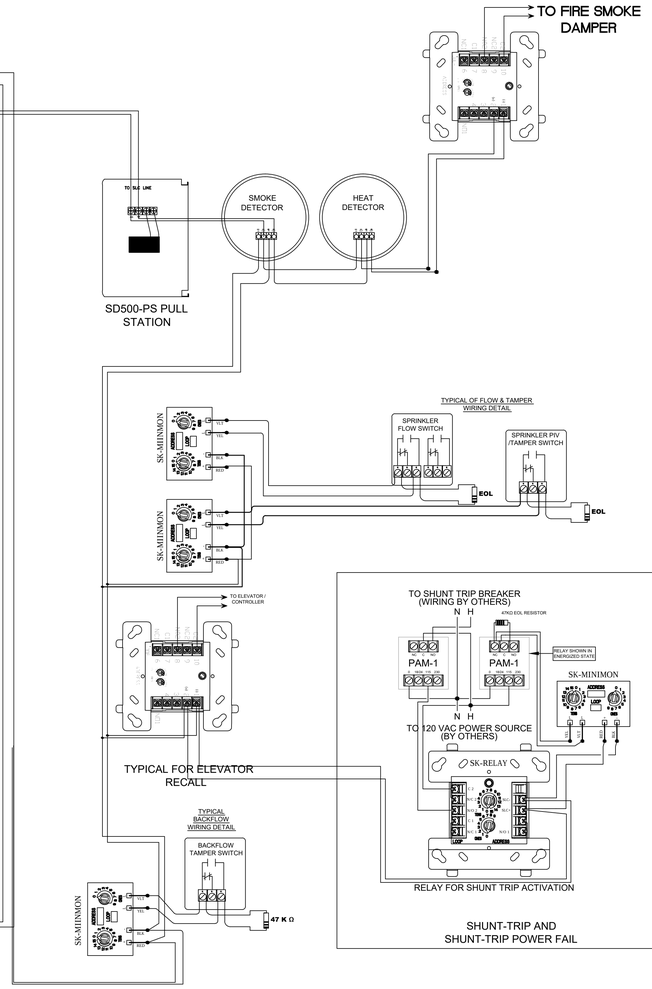
DRAWINGS NOT PLOTTED 30"X42" ARE NOT TO SCALE

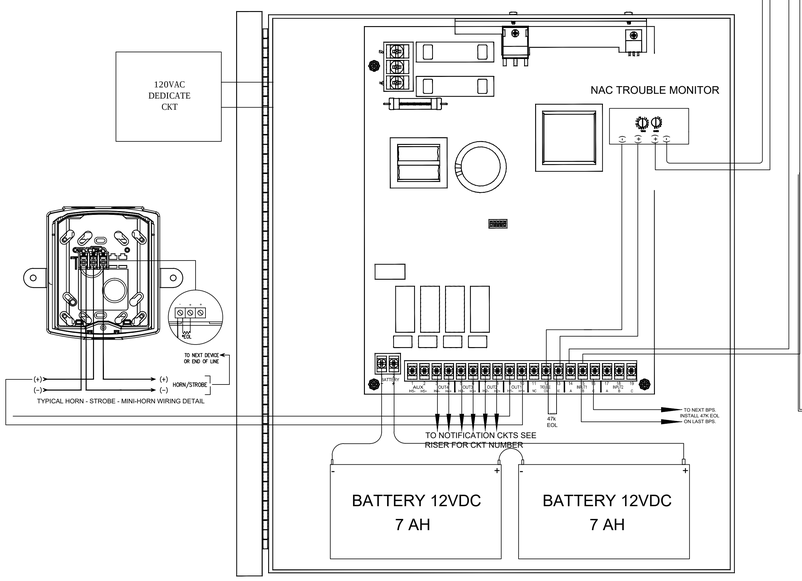




SILENT KNIGHT 6820 FACP

TO 120 VAC 20 AMP. DEDICATED CIRCUIT BREAKER, IDENTIFIED " FIRE ALARM CONTROL CIRCUIT" . SHALL BE LOCK-ON TYPE.





5495 NAC PANEL
TYPICAL NAC PANEL WIRING DETAIL

TO 120 VAC 20 AMP. DEDICATED CIRCUIT BREAKER, IDENTIFIED " FIRE ALARM CONTROL CIRCUIT" . SHALL BE LOCK-ON TYPE.

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DESIGN: C.O.	DRAWN: C.O.
CHECKED: RC	JOB NO:
DATE: 03/22/2021	PLOT:

SHEET TITLE:
POINT TO POINT
WIRING DETAIL

TWIN RIVERS BLOCK A

FIRE ALARM SYSTEM

SCALE: N.T.S.

SHEET NO.
FA-10.0