CFVH HARNETT MOB - 1ST & 2ND FLOOR FIT-UP
LILLINGTON, NC

SYMBOL LEGEND

SYMBOL	DESCRIPTION	MODEL #	QTY.	BACKBOX
FACP	FIRE ALARM CONTROL PANEL W/DACT & BATTERIES	EXISTING	N/A	N/A
FAA	LCD REMOTE ANNUNCIATOR	EXISTING	N/A	N/A
FAC	FIRE ALARM CELLULAR COMMUNICATOR	EXISTING	N/A	N/A
RPS	REMOTE POWER SUPPLY, 24VDC, 10 AMPS	EXISTING	N/A	N/A
⬡	PHOTOELECTRIC SMOKE SENSOR W/BASE	FSP-951, B300-6	1	4" OCTAGON, 1-1/2" DEEP
D	DUCT DETECTOR HOUSING W/PHOTOELECTRIC DETECTOR	DNR, FSP-951R	1	N/A
F	MANUAL PULL STATION	EXISTING	N/A	N/A
T	REMOTE TEST STATION W/ALARM INDICATOR	RTS151KEY	1	SINGLE GANG, 1-1/2" DEEP
AIM	MONITOR MODULE	FMM-1	3	N/A
AOM	RELAY MODULE	FRM-1	1	N/A
PM	MULTI-VOLTAGE RELAY	PAM-1	1	N/A
▷⊗◁	HORN STROBE, CEILING MOUNT, WHITE	PC2WLED	175	4" SQUARE, 1-1/2" DEEP
⊗	STROBE, CEILING MOUNT, WHITE	SCWLED	25	4" SQUARE, 1-1/2" DEEP
– – – – – –	DENOTES EXISTING DEVICE OR WIRING	N/A	N/A	N/A
⏦	DENOTES NAC END-OF-LINE RESISTOR	N/A	N/A	N/A

FIRE ALARM NOTES:

1. FIRE ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES, INCLUDING THE 2018 NC STATE BUILDING CODE AND THE 2013 EDITION OF NFPA 72.
2. "cd" RATING IS CALCULATED PER NFPA AND IT IS MINIMUM. PROVIDE MINIMUM OR HIGHER.
3. ALL VISIBLE APPLIANCES SHALL BE SYNCHRONIZED PER NFPA 72.
4. AUDIBLE FIRE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DBA ABOVE THE AVERAGE AMBIENT SOUND PRESSURE LEVEL AT ALL LOCATIONS WITHIN THE OCCUPIABLE SPACE. TYPICAL AVERAGE SOUND PRESSURE LEVELS ARE GIVEN IN NFPA 72, TABLE A.18.4.3.
5. REFER TO FLOOR PLANS FOR DEVICE TYPE AND LOCATION.
6. LABEL ALL DEVICES WITH ADDRESSES.
7. LABEL ALL END-OF-LINE DEVICES WITH "EOL" ON DEVICE.
8. ALL CABLE TO BE FREE OF SHORTS, GROUNDS, AND OPENS.
9. SIGNALING LINE CIRCUIT (SLC) WIRING SHALL BE CLASS 'B' AS PER NFPA 72.
10. NOTIFICATION APPLIANCE CIRCUIT (NAC) WIRING SHALL BE CLASS 'B' AS PER NFPA 72. CIRCUITS MAY NOT BE BRANCHED IN ANY WAY. THE END-OF-LINE RESISTOR SHALL PROVIDE CIRCUIT SUPERVISION.
11. SMOKE DETECTORS SHALL BE MOUNTED AT LEAST 3 FEET FROM ANY SUPPLY AIR DIFFUSER OR RETURN AIR VENT.
12. VERIFY REMOTE TEST STATION LOCATION PRIOR TO ROUGH-IN.
13. INSTALLING CONTRACTOR TO PROVIDE PGS A MARKED-UP SET OF SHOP DRAWINGS SHOWING ANY CHANGES IN WIRING ROUTING OR DEVICE ADDRESSES.
14. ALL OPENINGS IN RATED ASSEMBLIES SHALL BE REPAIRED AS PER LOCAL BUILDING CODES.

WIRE LEGEND

SYMBOL	DESCRIPTION	WIRE TYPE/SIZE	COLOR
SLC	SIGNALING LINE CIRCUIT (SLC)	16/2 FPLP SOLID TWISTED PAIR, NO SHIELD	RED JACKET RED, BLACK
NAC*X*	NOTIFICATION APPLIANCE CIRCUIT (NAC)	14/2 FPLP STRANDED	RED JACKET RED, BLACK
E	INITIATING DEVICE CIRCUIT (IDC)	14/2 FPLP STRANDED	RED JACKET RED, BLACK
T	REMOTE TEST STATION	18/4 FPLP SOLID	RED JACKET RD, GN, YW, BLK

NOTIFICATION DEVICE LABELING

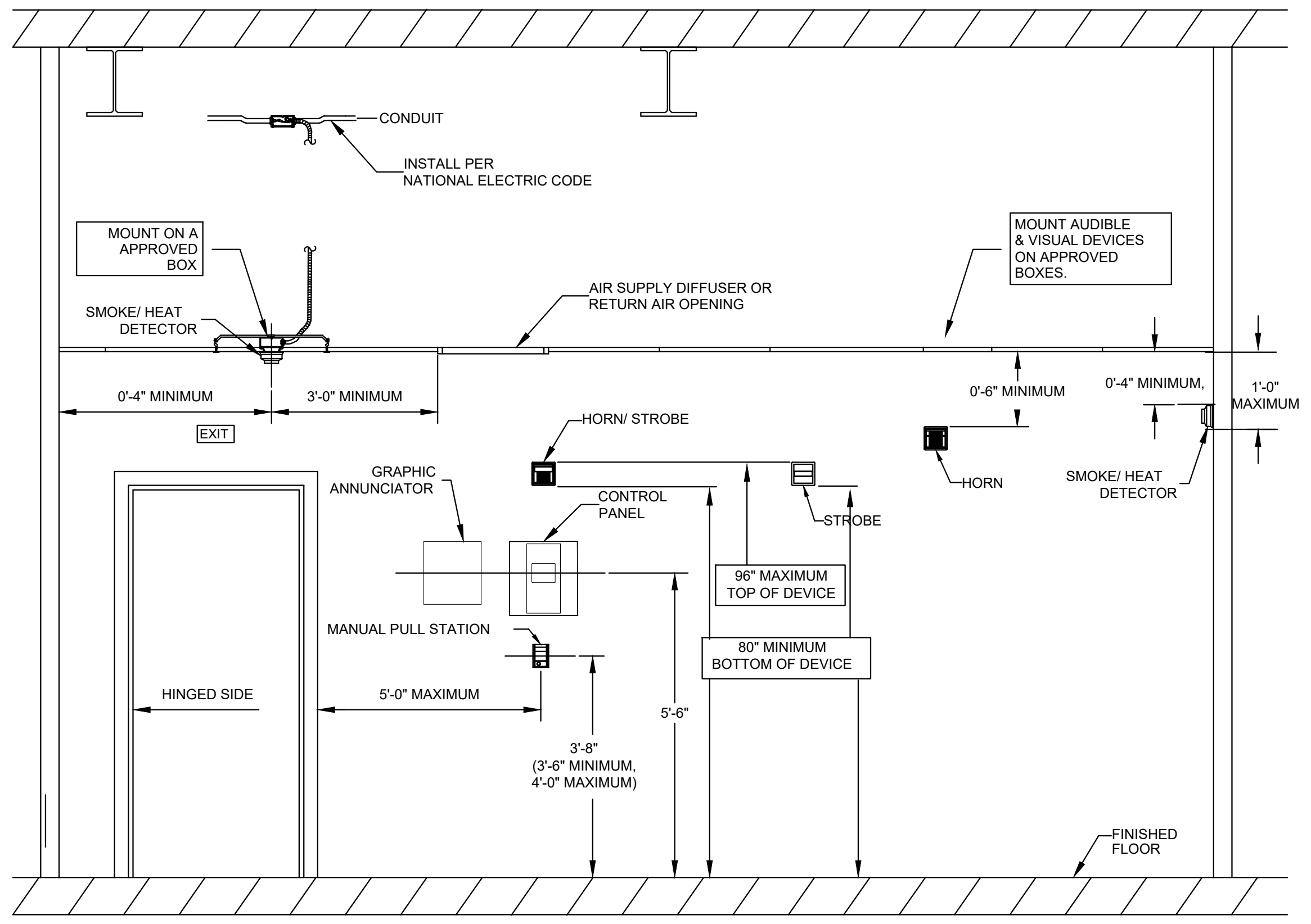
1-2-01
- INDICATES DEVICE # ON CIRCUIT
- INDICATES RPS CIRCUIT #
- INDICATES RPS #

SLC DEVICE LABELING

1D001
- INDICATES DEVICE # ON CIRCUIT
- INDICATES DETECTOR ('M' FOR MODULE)
- INDICATES SLC LOOP #

SYSTEM INPUTS	BUILDING SYSTEM OUTPUTS																			CENTRAL COMMUNICATOR				
	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTIVATE GENERAL EVACUATION SIGNAL	DISPLAY CHANGE OF STATUS	ACTIVATE EXTERNAL HORN/STROBE	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL COMM.	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL COMM.	TRANSMIT TROUBLE SIGNAL TO CENTRAL COMM.	ACTIVATE HVAC SHUTDOWN	OPEN ELEVATOR SMOKE DAMPER	ALL ELEVATORS IN BANK RETURN TO PRIMARY FLOOR	ALL ELEVATORS IN BANK RETURN TO ALTERNATE FLOOR	TRIP ELEVATOR SHUNT TRIP BREAKER	FIREMAN'S HAT ALARM IN CAR	UNLOCK ACCESS CONTROLLED EGRESS DOORS	SHOW CHANGE OF STATUS ON ANNUNCIATOR	SHOW CHANGE OF STATUS ON CENTRAL PANEL	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION
MANUAL PULL STATION	●	●					●	●	●	●			●						●	●	●	●		
BUILDING SMOKE DETECTOR	●	●					●	●	●	●			●						●	●	●	●		
BUILDING HEAT DETECTOR	●	●					●	●	●	●			●						●	●	●	●		
SPRINKLER WATERFLOW	●	●					●	●	●	●			●						●	●	●	●		
SPRINKLER TAMPER			●	●				●			●									●	●		●	
FIRE ALARM AC POWER FAILURE					●	●		●				●								●	●			●
FIRE ALARM SYSTEM LOW BATTERY					●	●		●				●								●	●			●
OPEN CIRCUIT					●	●		●				●								●	●			●
GROUND FAULT					●	●		●				●								●	●			●
NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●		●				●								●	●			●
HOOD SUPPRESSION SYSTEM	●	●					●	●	●	●			●						●	●	●	●		
DUCT DETECTORS			●	●				●			●		●							●	●		●	
HEAT DETECTOR IN ELEVATOR SHAFT	●	●					●	●	●	●			●				●		●	●	●	●		
SMOKE DETECTOR IN ELEVATOR SHAFT	●	●					●	●	●	●			●	●		●		●	●	●	●	●		
HEAT DETECTOR IN ELEVATOR EQUIPMENT ROOM	●	●					●	●	●	●			●				●		●	●	●	●		
SMOKE DETECTOR IN ELEVATOR EQUIPMENT ROOM	●	●					●	●	●	●			●	●		●		●	●	●	●	●		
ELEVATOR LOBBY SMOKE DET. ON PRIMARY RECALL FLOOR	●	●					●	●	●	●			●	●		●			●	●	●	●		
ELEVATOR LOBBY SMOKE DET. ON OTHER THAN PRIMARY RECALL FLOOR	●	●					●	●	●	●			●	●	●				●	●	●	●		

FIRE ALARM MATRIX



NFPA 72 & ADA INSTALLATION REQUIREMENTS

DRAWING INDEX

FA-0	FIRE ALARM DETAILS
FA-1	1ST FLOOR FIRE ALARM PLAN
FA-2	2ND FLOOR FIRE ALARM PLAN
FA-3	CALCULATIONS & RISER

NO.	DATE	REVISION	BY

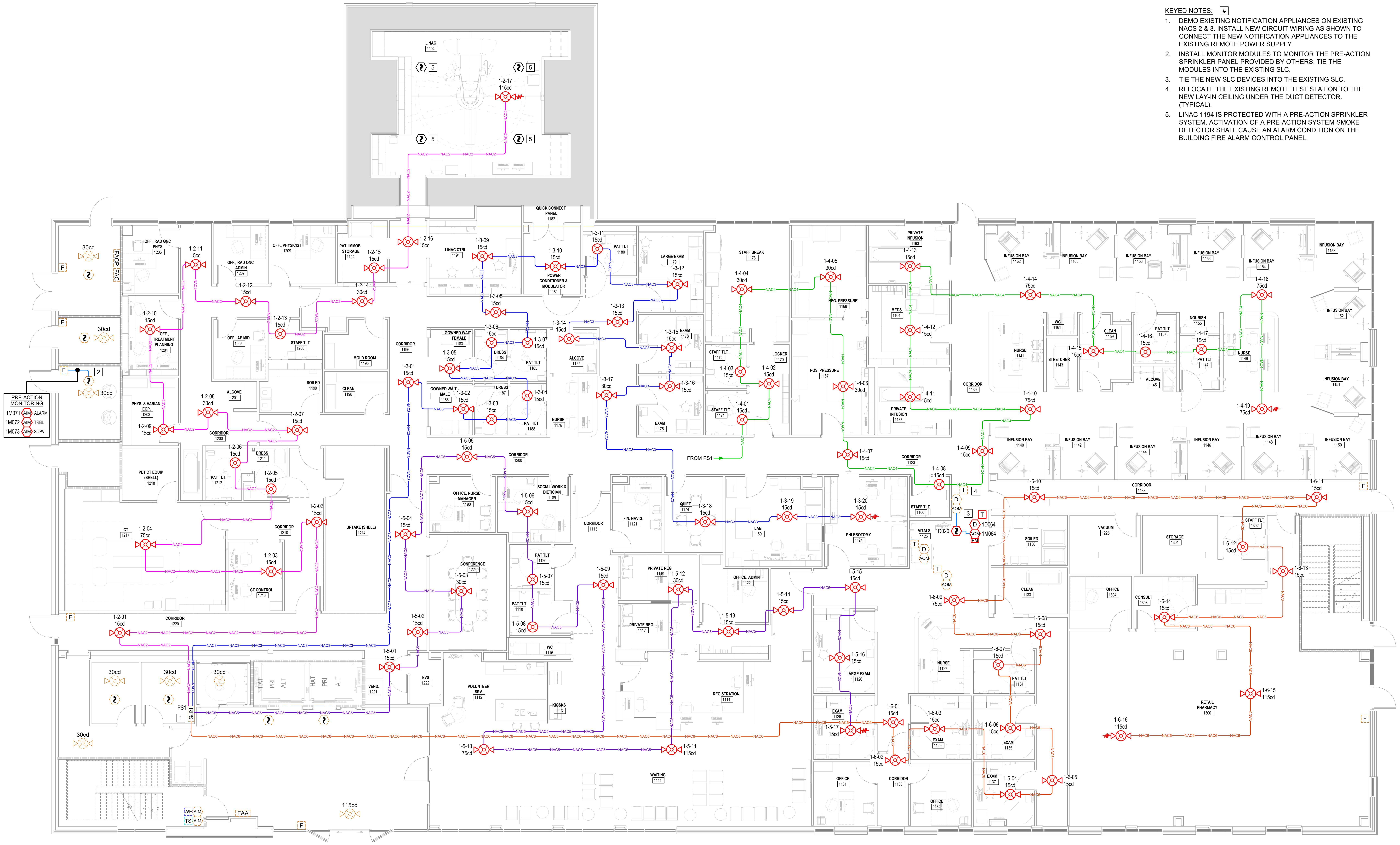
PATTERSON
GROUP SERVICES
POWERED BY APi GROUP
1824 DOUGLAS DRIVE
SANFORD, NC 27330
(919) 776-2403
NC LICENSE # 30023-SP-FA/LV

FIRE ALARM SYSTEM ALTERATIONS FOR:
CFVH HARNETT MOB -
1ST & 2ND FLOOR FIT-UP
225 BRIGHTWATER DRIVE
LILLINGTON, NC 27546

COVER
SHEET

DATE:	**02/26/2024**
DRAWN BY:	**JRC**
CHECKED BY:	**CP**
SCALE:	**NONE**

SHEET:
FA-0
SHEET 1 OF 4



1 FA-2 **1ST FLOOR FIRE ALARM PLAN**

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

KEYED NOTES: #

1. DEMO EXISTING NOTIFICATION APPLIANCES ON EXISTING NACS 2 & 3. INSTALL NEW CIRCUIT WIRING AS SHOWN TO CONNECT THE NEW NOTIFICATION APPLIANCES TO THE EXISTING REMOTE POWER SUPPLY.
2. INSTALL MONITOR MODULES TO MONITOR THE PRE-ACTION SPRINKLER PANEL PROVIDED BY OTHERS. TIE THE MODULES INTO THE EXISTING SLC.
3. TIE THE NEW SLC DEVICES INTO THE EXISTING SLC.
4. RELOCATE THE EXISTING REMOTE TEST STATION TO THE NEW LAY-IN CEILING UNDER THE DUCT DETECTOR. (TYPICAL).
5. LINAC 1194 IS PROTECTED WITH A PRE-ACTION SPRINKLER SYSTEM. ACTIVATION OF A PRE-ACTION SYSTEM SMOKE DETECTOR SHALL CAUSE AN ALARM CONDITION ON THE BUILDING FIRE ALARM CONTROL PANEL.

NO.	DATE	REVISION	BY

PATTERSON
GROUP SERVICES
POWERED BY APi GROUP
1824 DOUGLAS DRIVE
SANFORD, NC 27330
(919) 776-2403
NC LICENSE # 30023-SP-FA/LV

FIRE ALARM SYSTEM ALTERATIONS FOR:

CFVH HARNETT MOB - 1ST & 2ND FLOOR FIT-UP

225 BRIGHTWATER DRIVE
LILLINGTON, NC 27546

1ST FLOOR
FIRE ALARM PLAN

DATE:	02/26/2024
DRAWN BY:	JRC
CHECKED BY:	CP
SCALE:	1/8"=1'-0"

SHEET:

FA-1

SHEET 2 OF 4

KEYED NOTES: #

1. DEMO EXISTING NOTIFICATION APPLIANCES ON EXISTING NACS 2 & 3. INSTALL NEW CIRCUIT WIRING AS SHOWN TO CONNECT THE NEW NOTIFICATION APPLIANCES TO THE EXISTING REMOTE POWER SUPPLY.
2. RELOCATE THE EXISTING REMOTE TEST STATION TO THE NEW LAY-IN CEILING UNDER THE DUCT DETECTOR. (TYPICAL).

1 FA-2 2ND FLOOR FIRE ALARM PLAN

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

NO.	DATE	REVISION	BY

PATTERSON GROUP SERVICES
POWERED BY APi GROUP
1824 DOUGLAS DRIVE
SANFORD, NC 27330
(919) 776-2403
NC LICENSE # 30023-SP-FA/LV

FIRE ALARM SYSTEM ALTERATIONS FOR:

CFVH HARNETT MOB - 1ST & 2ND FLOOR FIT-UP

225 BRIGHTWATER DRIVE
LILLINGTON, NC 27546

2ND FLOOR FIRE ALARM PLAN

DATE:	02/26/2024
DRAWN BY:	JRC
CHECKED BY:	CP
SCALE:	1/8"=1'-0"

SHEET:

FA-3

SHEET 3 OF 4

NOTIFIER by Honeywell

Standby Battery Calculation
NFS-320 Fire Alarm Control Panel

Protected Premises: CFVH - Harnett MOB 1st & 2nd Floor Fit-Up **Date:** 2/26/2024
Address: 225 Brightwater Drive
City: Lillington **State:** NC **Zip:** 27546

Panel ID: FACP **Location:** Main Elec. 107

System Device	Qty	Standby Current Draw		Alarm Current Draw	
		Draw	Standby	Draw	Alarm
CPU-320 Main Board	1	0.250000	0.250000	0.250000	0.250000
# NACs in use	1	0.035000	0.035000	0.035000	0.035000
KDM-R2 Display (Backlight on)	1	0.100000	0.100000	0.100000	0.100000
LCD2-80 LCD Remote Annunciator	1	0.045000	0.045000	0.098000	0.098000
HW-AV-LTE Communicator	1	0.060000	0.060000	0.200000	0.200000
FSP-951 Photoelectric Detector	17	0.000200	0.003400	0.004500	0.076500
FST-851R Thermal Detector-135 w/ ROR	2	0.000200	0.000400	0.004500	0.009000
NBG-12LX Manual Pull Station	14	0.000375	0.005250	0.005000	0.070000
DNR Duct Detector w/FSP-951R	10	0.000200	0.002000	0.004500	0.045000
RTS151KEY	10	0.000000	0.000000	0.012000	0.120000
FMM-1 Monitor Module	15	0.000375	0.005625	0.005000	0.075000
FRM-1 Relay Module	19	0.000255	0.004845	0.006500	0.123500
XP10-M Ten Input Monitor Module	1	0.003500	0.003500	0.055000	0.055000
HPF-PS10B Trigger	3	0.000000	0.000000	0.020000	0.060000
*FSP-951 Photoelectric Detector	1	0.000200	0.000200	0.004500	0.004500
*DNR Duct Detector w/FSP-951R	1	0.000200	0.000200	0.004500	0.004500
*FMM-1 Monitor Module	3	0.000375	0.001125	0.005000	0.015000
*FRM-1 Relay Module	1	0.000255	0.000255	0.006500	0.006500
*RTS151KEY	1	0.000000	0.000000	0.012000	0.012000
		Total Standby:	**0.517**	**Total Alarm:**	**1.360**

Secondary Load Requirements 15.02 **Amp Hours**
Total Secondary Load from the calculation table below.

Current Draw (Amps)		Time (Hours)	Total (AH)
Secondary Standby Load		Required Standby Time	
0.517		24	12.40
Secondary Alarm Load		Required Alarm Time	
1.360		0.084	0.11
		Total Secondary Load	12.52
		Derating Factor	1.2
		Secondary Load Requirements	**15.02**

Battery Selection 18 **Amp Hours**
*Devices added for this project.

FACP STANDBY BATTERY CALCULATION

NOTIFIER by Honeywell

Standby Battery Calculation
HPF-PS10B Remote Power Supply

Protected Premises: CFVH Harnett MOB 1st & 2nd Floor Fit-Up **Date:** 2/26/2024
Address: 225 Brightwater Drive
City: Lillington **State:** NC **Zip:** 27546

Panel ID: PS1 **Location:** 1st Floor, Electrical 103

System Device	Qty	Standby Current Draw		Alarm Current Draw	
		Draw	Standby	Draw	Alarm
HPF-PS1010 Main Board	1	0.156000	0.156000	0.176000	0.176000
PC2WLED30	6	0.000000	0.000000	0.038000	0.228000
PC2WLED115	12	0.000000	0.000000	0.120000	1.440000
SCWLED30	1	0.000000	0.000000	0.022000	0.022000
*PC2WLED15	53	0.000000	0.000000	0.035000	1.855000
*PC2WLED30	8	0.000000	0.000000	0.038000	0.304000
*PC2WLED75	7	0.000000	0.000000	0.087000	0.609000
*PC2WLED115	4	0.000000	0.000000	0.120000	0.480000
*SCWLED15	17	0.000000	0.000000	0.018000	0.306000
		Total Standby:	**0.156**	**Total Alarm:**	**5.420**

Secondary Load Requirements 5.04 **Amp Hours**
Total Secondary Load from the calculation table below.

Current Draw (Amps)		Time (Hours)	Total (AH)
Secondary Standby Load		Required Standby Time	
0.156		24	3.74
Secondary Alarm Load		Required Alarm Time	
5.420		0.084	0.46
		Total Secondary Load	4.20
		Derating Factor	1.2
		Secondary Load Requirements	**5.04**

Battery Selection 7 **Amp Hours**
*Devices added for this project.

PS1 STANDBY BATTERY CALCULATION

NOTIFIER by Honeywell

Standby Battery Calculation
HPF-PS10B Remote Power Supply

Protected Premises: CFVH Harnett MOB 1st & 2nd Floor Fit-Up **Date:** 2/26/2024
Address: 225 Brightwater Drive
City: Lillington **State:** NC **Zip:** 27546

Panel ID: PS2 **Location:** 2nd Floor , Electrical 203

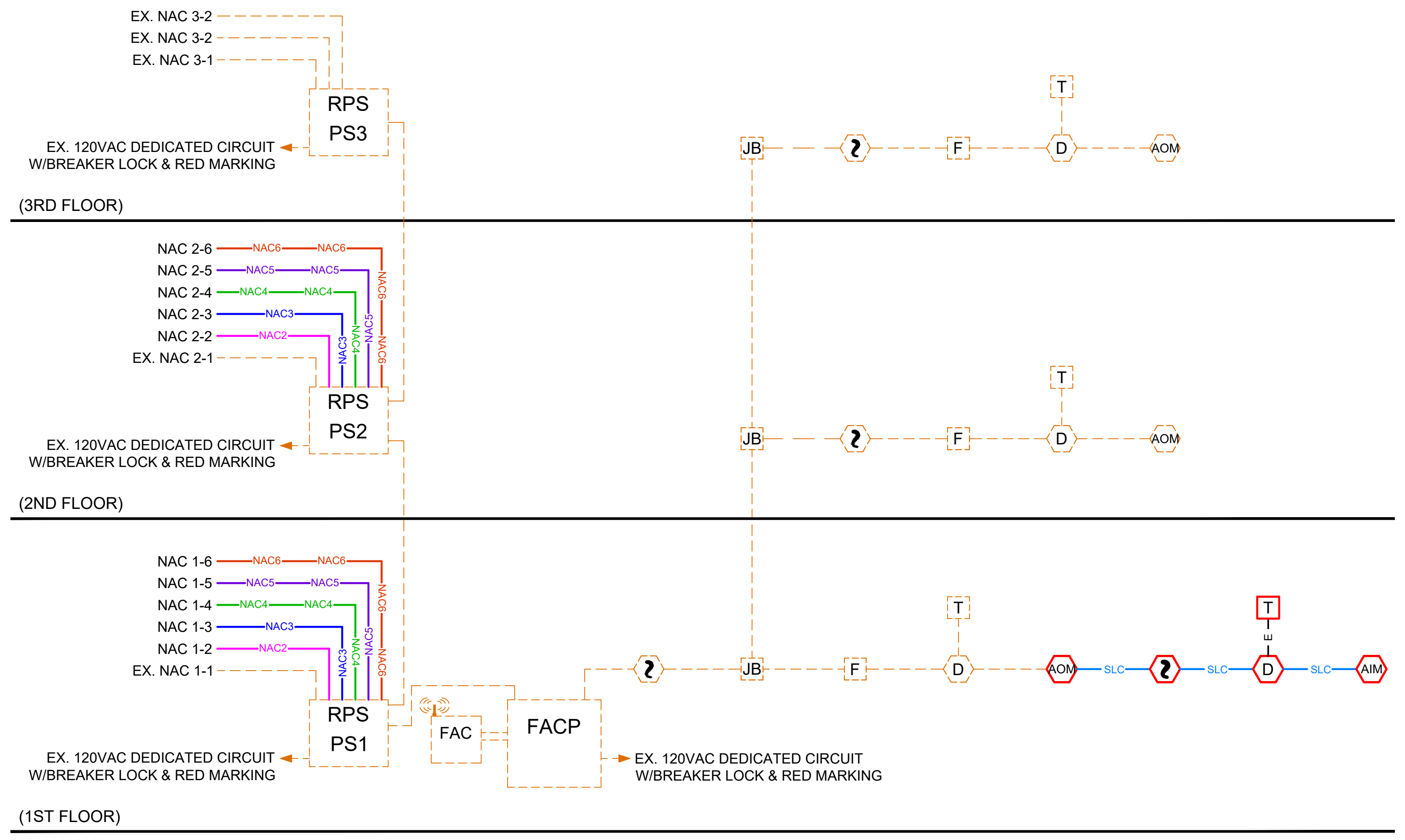
System Device	Qty	Standby Current Draw		Alarm Current Draw	
		Draw	Standby	Draw	Alarm
HPF-PS1010 Main Board	1	0.156000	0.156000	0.176000	0.176000
PC2WLED30	3	0.000000	0.000000	0.038000	0.114000
SCWLED30	1	0.000000	0.000000	0.022000	0.022000
*PC2WLED15	84	0.000000	0.000000	0.035000	2.940000
*PC2WLED30	14	0.000000	0.000000	0.038000	0.532000
*PC2WLED75	4	0.000000	0.000000	0.087000	0.348000
*PC2WLED115	1	0.000000	0.000000	0.120000	0.120000
*SCWLED15	12	0.000000	0.000000	0.018000	0.216000
		Total Standby:	**0.156**	**Total Alarm:**	**4.468**

Secondary Load Requirements 4.94 **Amp Hours**
Total Secondary Load from the calculation table below.

Current Draw (Amps)		Time (Hours)	Total (AH)
Secondary Standby Load		Required Standby Time	
0.156		24	3.74
Secondary Alarm Load		Required Alarm Time	
4.468		0.084	0.38
		Total Secondary Load	4.12
		Derating Factor	1.2
		Secondary Load Requirements	**4.94**

Battery Selection 7 **Amp Hours**
*Devices added for this project.

PS2 STANDBY BATTERY CALCULATION



FIRE ALARM RISER

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 2-2 **Minimum Voltage:** 16
Area Covered: 2nd Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	PC2WLED15	0.035	45	45	20.18
2	PC2WLED15	0.035	30	75	20.04
3	PC2WLED15	0.035	30	105	19.91
4	PC2WLED15	0.035	25	130	19.80
5	PC2WLED15	0.035	30	160	19.68
6	SCWLED15	0.018	30	190	19.57
7	PC2WLED15	0.035	25	215	19.48
8	PC2WLED30	0.038	35	250	19.36
9	PC2WLED15	0.035	40	290	19.23
10	PC2WLED15	0.035	25	315	19.15
11	PC2WLED15	0.035	25	340	19.08
12	PC2WLED15	0.035	25	365	19.02
13	PC2WLED15	0.035	25	390	18.96
14	PC2WLED30	0.038	25	415	18.91
15	PC2WLED15	0.035	40	455	18.83
16	PC2WLED15	0.035	25	480	18.79
17	PC2WLED15	0.035	25	505	18.76
18	PC2WLED15	0.035	30	535	18.72
19	PC2WLED15	0.035	25	560	18.70
20	SCWLED15	0.018	25	585	18.68
21	PC2WLED15	0.035	25	610	18.66
22	PC2WLED15	0.035	30	640	18.65
23	PC2WLED15	0.035	25	665	18.64
	Total Power:	**0.777**	**% Voltage Drop:**		**-8.62%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 2-3 **Minimum Voltage:** 16
Area Covered: 2nd Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	PC2WLED30	0.038	50	50	20.15
2	PC2WLED15	0.035	35	85	19.98
3	PC2WLED15	0.035	25	110	19.87
4	PC2WLED15	0.035	35	145	19.72
5	PC2WLED30	0.038	30	175	19.59
6	PC2WLED15	0.035	40	215	19.44
7	PC2WLED15	0.035	20	235	19.36
8	PC2WLED15	0.035	25	260	19.28
9	PC2WLED15	0.035	25	285	19.20
10	PC2WLED30	0.038	20	305	19.14
11	PC2WLED15	0.035	30	335	19.05
12	PC2WLED15	0.035	25	360	18.99
13	SCWLED15	0.018	30	390	18.92
14	PC2WLED15	0.035	30	420	18.85
15	PC2WLED15	0.035	20	440	18.81
16	PC2WLED15	0.035	25	465	18.77
17	PC2WLED15	0.035	25	490	18.73
18	PC2WLED15	0.035	25	515	18.70
19	PC2WLED15	0.035	20	535	18.67
20	PC2WLED30	0.038	35	570	18.64
21	PC2WLED15	0.035	25	595	18.63
22	PC2WLED15	0.035	20	615	18.62
23	PC2WLED15	0.035	20	635	18.61
	Total Power:	**0.800**	**% Voltage Drop:**		**-8.76%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 2-4 **Minimum Voltage:** 16
Area Covered: 2nd Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	SCWLED15	0.018	105	105	19.87
2	PC2WLED15	0.035	25	130	19.75
3	PC2WLED15	0.035	25	155	19.63
4	PC2WLED15	0.035	25	180	19.52
5	PC2WLED15	0.035	20	200	19.44
6	PC2WLED15	0.035	25	225	19.34
7	PC2WLED15	0.035	25	250	19.24
8	PC2WLED15	0.035	20	270	19.17
9	PC2WLED15	0.035	25	295	19.09
10	PC2WLED30	0.038	30	325	18.99
11	PC2WLED15	0.035	25	350	18.92
12	PC2WLED30	0.038	20	370	18.87
13	PC2WLED15	0.035	25	395	18.81
14	PC2WLED15	0.035	30	425	18.74
15	PC2WLED15	0.035	20	445	18.70
16	SCWLED15	0.018	35	480	18.64
17	PC2WLED15	0.035	25	505	18.59
18	PC2WLED15	0.035	45	550	18.53
19	PC2WLED15	0.035	25	575	18.50
20	SCWLED15	0.018	25	600	18.47
21	PC2WLED15	0.035	30	630	18.45
22	PC2WLED30	0.038	35	665	18.42
23	PC2WLED15	0.035	30	695	18.41
24	PC2WLED15	0.035	25	720	18.40
	Total Power:	**0.798**	**% Voltage Drop:**		**-9.78%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 2-5 **Minimum Voltage:** 16
Area Covered: 2nd Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	PC2WLED15	0.035	120	120	19.82
2	PC2WLED15	0.035	35	155	19.66
3	SCWLED15	0.018	25	180	19.55
4	PC2WLED15	0.035	20	200	19.47
5	PC2WLED15	0.035	30	230	19.35
6	PC2WLED15	0.035	25	255	19.25
7	PC2WLED30	0.038	30	285	19.14
8	PC2WLED15	0.035	35	320	19.03
9	PC2WLED15	0.035	35	355	18.92
10	PC2WLED30	0.038	30	385	18.83
11	PC2WLED15	0.035	30	415	18.75
12	PC2WLED15	0.035	25	440	18.69
13	PC2WLED15	0.035	25	465	18.63
14	PC2WLED15	0.035	20	485	18.59
15	PC2WLED15	0.035	30	515	18.54
16	PC2WLED30	0.038	25	540	18.50
17	PC2WLED15	0.035	35	575	18.45
18	PC2WLED15	0.035	20	595	18.43
19	PC2WLED15	0.035	45	640	18.39
20	PC2WLED15	0.035	30	670	18.37
21	SCWLED15	0.018	30	700	18.35
22	SCWLED15	0.018	30	730	18.34
23	PC2WLED30	0.038	25	755	18.33
	Total Power:	**0.766**	**% Voltage Drop:**		**-10.12%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 2-6 **Minimum Voltage:** 16
Area Covered: 2nd Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	PC2WLED115	0.120	50	50	20.08
2	PC2WLED75	0.087	55	105	19.77
3	SCWLED15	0.018	55	160	19.49
4	PC2WLED75	0.087	25	185	19.37
5	PC2WLED75	0.087	40	225	19.19
6	PC2WLED75	0.087	50	275	19.00
7	SCWLED15	0.018	25	300	18.92
8	PC2WLED30	0.038	25	325	18.84
9	PC2WLED15	0.035	25	350	18.76
10	PC2WLED15	0.035	45	395	18.64
11	PC2WLED15	0.035	25	420	18.57
12	PC2WLED15	0.035	25	445	18.52
13	PC2WLED15	0.035	25	470	18.46
14	PC2WLED15	0.035	30	500	18.41
15	PC2WLED15	0.035	25	525	18.37
16	SCWLED15	0.018	30	555	18.32
17	PC2WLED15	0.035	30	585	18.28
18	PC2WLED15	0.035	30	615	18.25
19	PC2WLED15	0.035	35	650	18.22
20	PC2WLED15	0.035	25	675	18.20
21	PC2WLED15	0.035	30	705	18.19
22	PC2WLED15	0.035	25	730	18.19
	Total Power:	**1.015**	**% Voltage Drop:**		**-10.86%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

2ND FLOOR VOLTAGE DROP CALCULATIONS

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 1-2 **Minimum Voltage:** 16
Area Covered: 1st Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	PC2WLED15	0.035	45	45	20.21
2	PC2WLED15	0.035	60	105	19.96
3	PC2WLED15	0.035	25	130	19.86
4	PC2WLED75	0.087	35	165	19.74
5	SCWLED15	0.018	40	205	19.61
6	SCWLED15	0.018	25	230	19.54
7	PC2WLED15	0.035	30	260	19.45
8	PC2WLED30	0.038	30	290	19.37
9	PC2WLED15	0.035	20	310	19.32
10	PC2WLED15	0.035	30	340	19.26
11	PC2WLED15	0.035	30	370	19.20
12	PC2WLED15	0.035	25	395	19.15
13	SCWLED15	0.018	25	420	19.11
14	PC2WLED30	0.038	30	450	19.07
15	PC2WLED15	0.035	20	470	19.05
16	PC2WLED15	0.035	25	495	19.02
17	PC2WLED115	0.120	50	545	18.98
	Total Power:	**0.687**	**% Voltage Drop:**		**-6.94%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 1-3 **Minimum Voltage:** 16
Area Covered: 1st Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	PC2WLED15	0.035	115	115	19.95
2	PC2WLED15	0.035	25	140	19.86
3	SCWLED15	0.018	20	160	19.79
4	SCWLED15	0.018	25	185	19.71
5	PC2WLED15	0.035	30	215	19.61
6	SCWLED15	0.018	25	240	19.54
7	SCWLED15	0.018	20	260	19.48
8	PC2WLED15	0.035	25	285	19.41
9	PC2WLED15	0.035	25	310	19.35
10	PC2WLED15	0.035	25	335	19.29
11	SCWLED15	0.018	20	355	19.25
12	PC2WLED15	0.035	30	385	19.19
13	PC2WLED15	0.035	30	415	19.13
14	PC2WLED15	0.035	25	440	19.10
15	PC2WLED15	0.035	30	470	19.06
16	PC2WLED15	0.035	20	490	19.03
17	PC2WLED30	0.038	25	515	19.01
18	PC2WLED15	0.035	50	565	18.98
19	PC2WLED15	0.035	25	590	18.97
20	PC2WLED15	0.035	25	615	18.96
	Total Power:	**0.618**	**% Voltage Drop:**		**-7.05%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 1-4 **Minimum Voltage:** 16
Area Covered: 1st Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	SCWLED15	0.018	160	160	19.60
2	PC2WLED15	0.035	25	185	19.48
3	SCWLED15	0.018	20	205	19.38
4	PC2WLED30	0.038	25	230	19.27
5	PC2WLED30	0.038	30	260	19.14
6	PC2WLED30	0.038	35	295	19.00
7	PC2WLED15	0.035	25	320	18.90
8	SCWLED15	0.018	35	355	18.77
9	PC2WLED15	0.035	25	380	18.69
10	PC2WLED75	0.087	30	410	18.59
11	PC2WLED15	0.035	35	445	18.49
12	PC2WLED15	0.035	25	470	18.43
13	PC2WLED15	0.035	25	495	18.37
14	PC2WLED75	0.087	35	530	18.30
15	PC2WLED15	0.035	30	560	18.25
16	SCWLED15	0.018	20	580	18.23
17	SCWLED15	0.018	25	605	18.20
18	PC2WLED75	0.087	30	635	18.16
19	PC2WLED75	0.087	30	665	18.15
	Total Power:	**0.797**	**% Voltage Drop:**		**-11.05%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 1-5 **Minimum Voltage:** 16
Area Covered: 1st Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	PC2WLED15	0.035	65	65	20.11
2	PC2WLED15	0.035	25	90	20.01
3	PC2WLED30	0.038	25	115	19.91
4	PC2WLED15	0.035	30	145	19.80
5	PC2WLED15	0.035	35	180	19.67
6	PC2WLED15	0.035	30	210	19.57
7	SCWLED15	0.018	25	235	19.50
8	SCWLED15	0.018	20	255	19.44
9	PC2WLED15	0.035	30	285	19.35
10	PC2WLED75	0.087	60	345	19.19
11	PC2WLED115	0.120	40	385	19.11
12	PC2WLED30	0.038	40	425	19.06
13	PC2WLED15	0.035	25	450	19.03
14	PC2WLED15	0.035	25	475	19.01
15	PC2WLED15	0.035	25	500	18.99
16	PC2WLED15	0.035	25	525	18.98
17	PC2WLED15	0.035	25	550	18.97
	Total Power:	**0.704**	**% Voltage Drop:**		**-6.99%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

Point to Point Voltage Drop Analysis
HPF-PS10B Remote Power Supply
Source Voltage: 20.4 Nominal System Voltage

Project Name: CFVH Harnett MOB Fit-Up **Date:** 2/26/2024
Circuit No: 1-6 **Minimum Voltage:** 16
Area Covered: 1st Floor **Wire Gauge:** 14
Ohm's per 1,000 ft.: 3.14

Device Number	Part Number	Current (amps)	Distance (Feet)		Voltage at Device
			Between	Total	
1	PC2WLED15	0.035	140	140	19.74
2	PC2WLED15	0.035	20	160	19.65
3	PC2WLED15	0.035	25	185	19.55
4	PC2WLED15	0.035	35	220	19.41
5	PC2WLED15	0.035	20	240	19.33
6	PC2WLED15	0.035	30	270	19.22
7	SCWLED15	0.018	25	295	19.14
8	PC2WLED15	0.035	25	320	19.05
9	PC2WLED75	0.087	30	350	18.96
10	PC2WLED15	0.035	40	390	18.86
11	PC2WLED15	0.035	60	450	18.73
12	SCWLED15	0.018	35	485	18.65
13	PC2WLED15	0.035	25	510	18.61
14	PC2WLED15	0.035	40	550	18.54
15	PC2WLED115	0.120	40	590	18.48
16	PC2WLED115	0.120	40	630	18.45
	Total Power:	**0.748**	**% Voltage Drop:**		**-9.58%**

NOTE: These calculations double the wire length indicated to account for the total wire resistance of the circuit. DC resistance at 75°C/167°F per NFPA 70, Ch. 9, Table 8. **Go**

1ST FLOOR VOLTAGE DROP CALCULATIONS

NO.	DATE	REVISION	BY

PATTERSON
GROUP SERVICES
POWERED BY **APi GROUP**
1824 DOUGLAS DRIVE
SANFORD, NC 27330
(919) 776-2403
NC LICENSE # 30023-SP-FA/LV

FIRE ALARM SYSTEM ALTERATIONS FOR:
CFVH HARNETT MOB -
1ST & 2ND FLOOR FIT-UP
225 BRIGHTWATER DRIVE
LILLINGTON, NC 27546

FIRE ALARM
CALCULATIONS &
RISER

DATE: 02/26/2024
DRAWN BY: JRC
CHECKED BY: CP
SCALE: 1/8"=1'-0"

SHEET:
FA-3
SHEET 4 OF 4