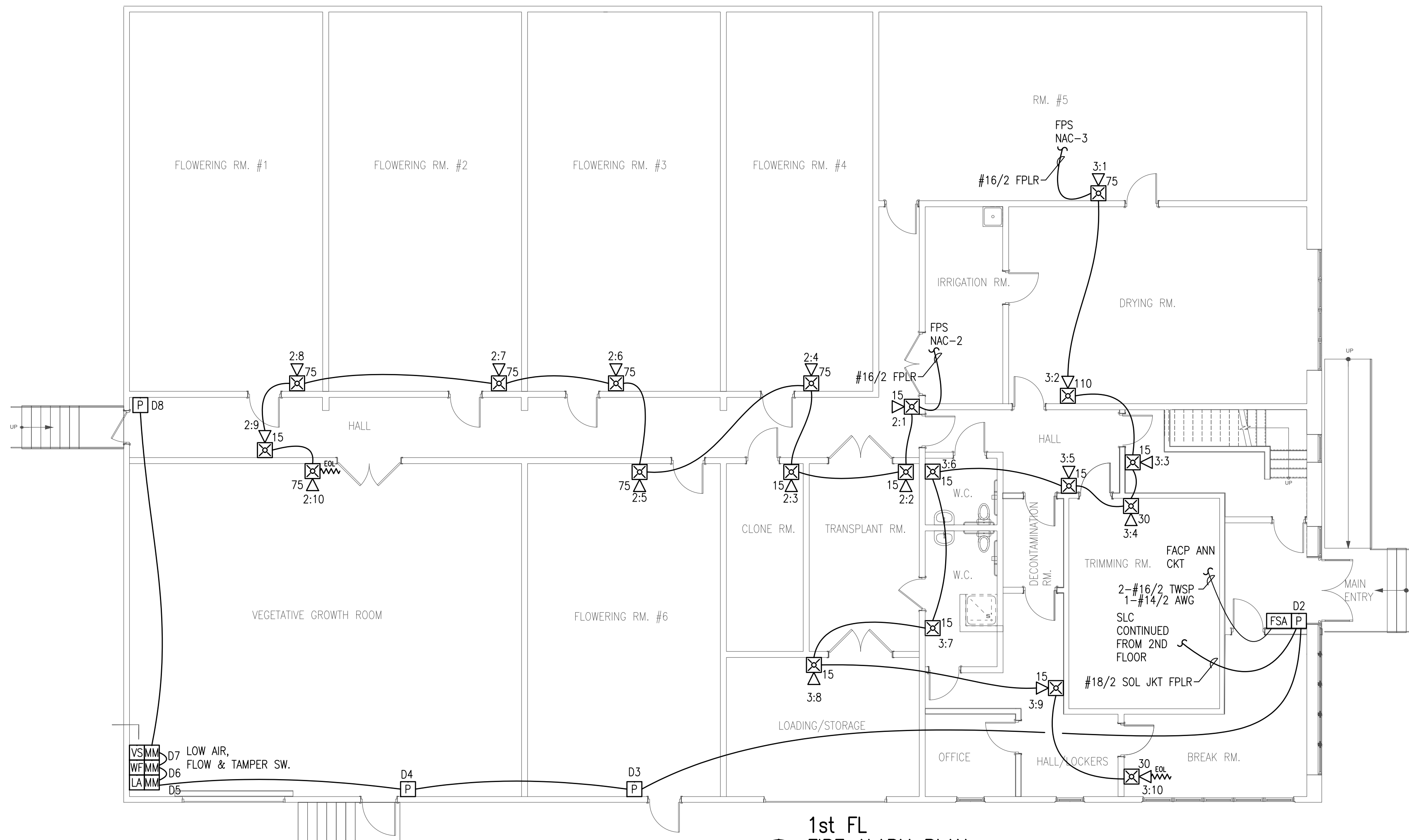


2nd FL
FIRE ALARM PLAN
SCALE: 1/8"=1'-0"



1st FL
FIRE ALARM PLAN
SCALE: 1/8"=1'-0"

GENERAL NOTES:

- SCOPE OF WORK: INSTALL FIRE ALARM SYSTEM AS SHOWN ON PLANS MEETING BOTH THE LOCAL AND STATE CODE REQUIREMENTS. PANEL IS AN ADDRESSABLE FIRE-LITE (FL-ES50X). HORN STROBES ARE SYSTEM SENSOR.
- THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
- INSTALLATION SHALL COMPLY WITH NEC, NFPA 72 AND ALL OTHER APPLICABLE CODES AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- WIRING DEPICTED ON THESE PLANS IS SCHEMATIC - ACTUAL WIRE LOCATIONS MAY DIFFER FROM THESE PLANS. WIRING SHALL BE PERFORMED AS ACTUAL BUILDING CONSTRUCTION CONDITIONS ALLOW AND TO MINIMIZE PENETRATIONS THROUGH AREA SEPARATION WALLS AND FIRE WALLS. THE USE OF A RACEWAY IS PERMITTED AS LONG AS NO 110V OR HIGHER VOLTAGE CABLES ARE IN THE SAME RACEWAY.
- FIRE RATINGS SHALL BE MAINTAINED FOR ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION.
- POWER FOR ALL FIRE ALARM PANELS AND FIRE ALARM POWER SUPPLIES MUST BE PROVIDED BY A DEDICATED AC BRANCH CIRCUIT. THE LOCATION OF THE BRANCH CIRCUIT BREAKER SHALL BE PERMANENTLY IDENTIFIED AT THE CONTROL UNIT AND SHALL HAVE A RED MARKING IN ACCORDANCE WITH NFPA 72.
- POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST REMAIN SEPARATED IN CABINET. ALL POWER-LIMITED CIRCUIT WIRING MUST REMAIN AT LEAST 0.25" AWAY FROM ANY NONPOWER-LIMITED CIRCUIT WIRING. FURTHERMORE, ALL POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST ENTER AND EXIT THE CABINET THROUGH DIFFERENT KNOCK OUTS AND/OR SEPARATE CONDUITS.
- ALL FIRE ALARM CABLING SHALL BE ACCEPTABLE TO THE FIRE ALARM EQUIPMENT MANUFACTURER FOR THE INTENDED PURPOSE.
- SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER CONSTRUCTION CLEAN-UP IS COMPLETED AND FINAL.
- LOCATE SMOKE DETECTORS A MINIMUM OF THREE (3) FEET FROM MECHANICAL DIFFUSERS. WALL-MOUNTED SMOKE DETECTORS SHALL BE LOCATED A MINIMUM OF 4" AND A MAXIMUM OF 12" FROM CEILING.
- PROVIDE SYNCHRONIZATION OF ALL VISUAL NOTIFICATION APPLIANCE CIRCUITS. PROVIDE ALL REQUIRED SYNC MODULES. PROVIDE A MULTI-SYNC MODE SLAVE CONNECTION BETWEEN ALL SYNC MODULES.
- UPON COMPLETION OF THE FIRE ALARM SYSTEM INSTALLATION AND PROGRAMMING, THE INSTALLING CONTRACTOR SHALL PERFORM FINAL TESTING OF THE ENTIRE SYSTEM, PER ALL APPLICABLE CODES, AND SHALL COORDINATE AND PERFORM A FINAL FIRE ALARM SYSTEM INSPECTION.
- PROVIDE OFF-SITE MONITORING AS REQUIRED BY THE INTERNATIONAL FIRE CODE, SECTION 907.6.5 AND THE LOCAL AUTHORITY HAVING JURISDICTION.
- INSTALLING CONTRACTOR SHALL, PHYSICALLY, LABEL ALL INITIATING DEVICES AND NOTIFICATION APPLIANCE CIRCUIT END OF LINE (WHEN WIRING CLASS "B"). THESE LABELS SHALL BE IN PLACE PRIOR TO START-UP AND TESTING.

FIRE ALARM SYMBOL LEGEND		
NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT		
SYMBOL	DESCRIPTION	MOUNTING
[FCP]	FIRE CONTROL PANEL (FL-ES50X)	WALL-TOP @ 66"
[FPS]	NAC POWER SUPPLY (FL-FCP524F56)	FIELD VERIFY
[S]	ADDRESSABLE SMOKE (FL-SD365)	CEILING
[P]	ADDRESSABLE PULL STATION (FL-BG12X)	WALL @ 48"
[WF]	MONITOR MODULE (FL-MMF300)	FIELD VERIFY
[H/S]	HORN/STROBE (SYSTEM SENSOR BK-P2WL)	WALL 80"-96"
[S]	STROBE (SYSTEM SENSOR BK-SWL)	WALL 80"-96"
[AES]	SEA NET WIRELESS RADIO TRANSMITTER (7788F-UPL-P)	FIELD VERIFY

ABBREVIATION	DESCRIPTION
E	EXISTING
G	WITH GUARD
P	PENDANT MOUNT
R	RESIDENTIAL (110V)
S	SOUNDER BASE
WP	WEATHER PROOF
EOL	END OF LINE RESISTOR
EOLR	END OF LINE RELAY
AWG	AMERICAN WIRE GAUGE
TWP	TWISTED PAIR
TWSP	TWISTED SHIELDED PAIR
FPLP	FIRE POWER LIMITED PLENUM
FPLR	FIRE POWER LIMITED RISER
NAC	NOTIFICATION APPLIANCE CIRCUIT
SLC	SIGNALING LINE CIRCUIT

[S]	SPK	STROBE
(W)	(W)	CANDELA
75	75	30

(2)	DEVICE ADDRESS	(1)	OR	DD1
L1D001				
(D or M)	NOTES LOOP #	(#)		
	(#)			

1-#16/2 TWP	WIRE TYPE ABBREVIATED
	CONDUCTOR COUNT
	WIRE SIZE
	# OF CABLES (IF OMITTED ONLY 1 CABLE NEEDED)

OPERATIONS MATRIX	FIRE ALARM OUTPUT										
	FIRE ALARM OUTPUT	ACTIVATE ALARM INDICATOR	ACTIVATE AUDIBLE ALARM	ACTIVATE SUPERVISORY INDICATOR	ACTIVATE AUDIBLE SUPERVISORY SIGNAL	ACTIVATE TROUBLE INDICATOR	ACTIVATE AUDIBLE TROUBLE INDICATOR	TRANSMIT ALARM SIGNAL	TRANSMIT SUPERVISORY SIGNAL	TRANSMIT TROUBLE SIGNAL	ACTIVATE NOTIFICATION APPLIANCES
FIRE ALARM INPUT											
SMOKE DETECTORS	●	●	●					●			●
PULL STATIONS		●	●								●
WATERFLOW SWITCHES		●	●					●			●
VALVE TAMPER SWITCHES				●	●						
FIRE ALARM AC POWER FAIL								●	●		●
FIRE ALARM LOW BATTERY								●	●		●
OPEN CIRCUIT								●	●		●
GROUND FAULT								●	●		●
NAC SHORT CIRCUIT								●	●		●
LOSS OF AC TO BUILDING								●	●		●

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	12/2/2019

SEACOAST SECURITY

4 Summer Street • Freeport, Maine 04032
Office: (207) 706-3369 • Fax: (207) 865-0852

HAZY HILL FARM
470 RIVERSIDE STREET
PORTLAND, ME 04103
FIRE ALARM PLAN

DRAWN	JOHN STAMPS UNICAD JOB #19352
CHECKED	BRADY B. HAWS NICET III 138751
DATE	12/2/2019
REVISION	0
SCALE	1/8"=1'-0"

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/10/2020

Shop drawings created by
5784 W. 4900 St.
Hesper, UT 84313
Office: 801.985.0410

www.unicad.net Fire Alarm Design & Drafting Services

UNICAD Inc.

FA-1

AES Radio Battery Calculation		12/2/2019	
PROJECT NAME: Hazy Hills Farm			
Standby Time: 24 Hours			
Required Alarm Time: 60 Minutes			
AC Branch Current: Amps @ 120V			
Regulated Load in Standby			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
AES RADIO	1	X 0.27	= 0.26700
TOTAL STANDBY LOAD			0.27
Regulated Load in ALARM			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
AES RADIO	1	X 1.30	= 1.30000
TOTAL ALARM LOAD			1.30
Battery Requirements			
Standby Load Current (Amps)	0.26700	X	Required Standby Time in Hours 24 = 6.41
Alarm Load Current (Amps)	1.30000	X	Required Alarm Time in Hours 1.00000 = 1.30
Total Ampere Hours (before derating factor)			7.71
Derating Factor	X		1.2
TOTAL AMPERE HOURS REQUIRED			= 9.25
BATTERIES TO BE PROVIDED (2 - 12v)			9 AH

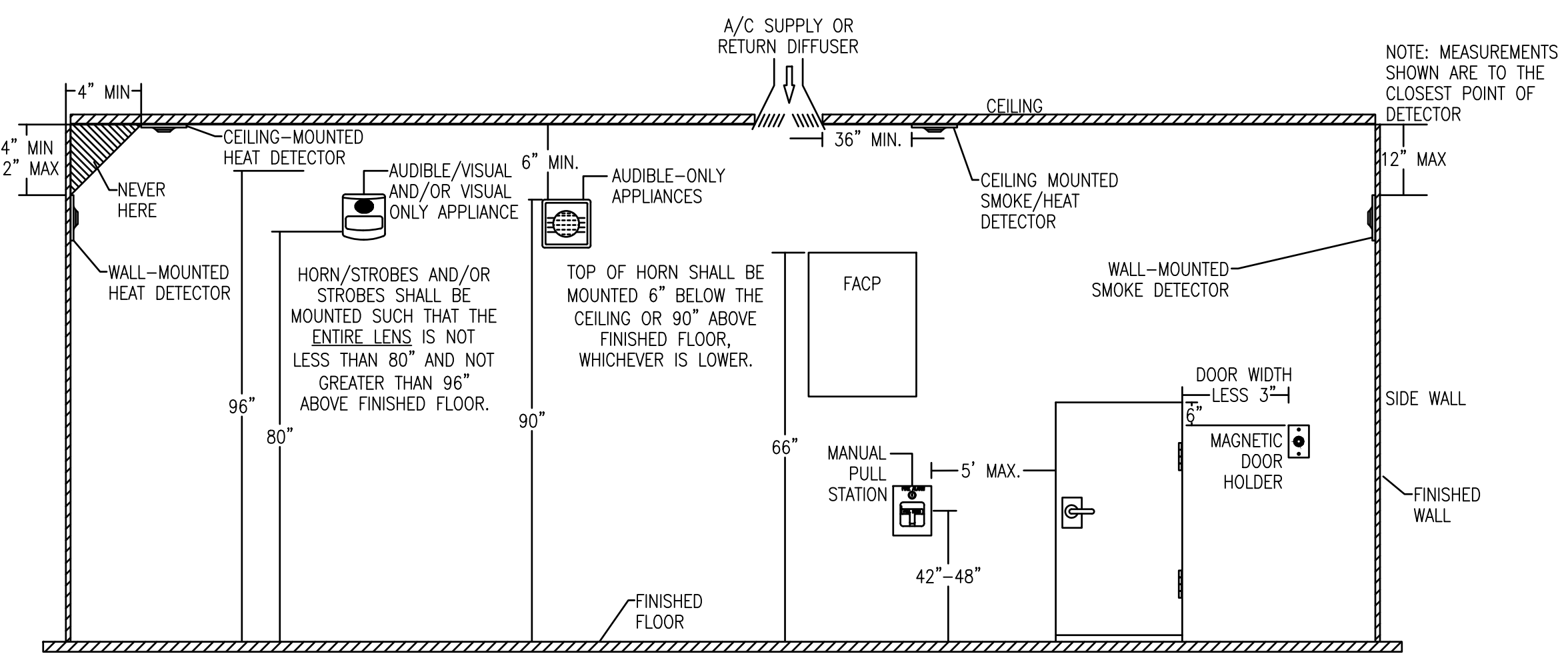
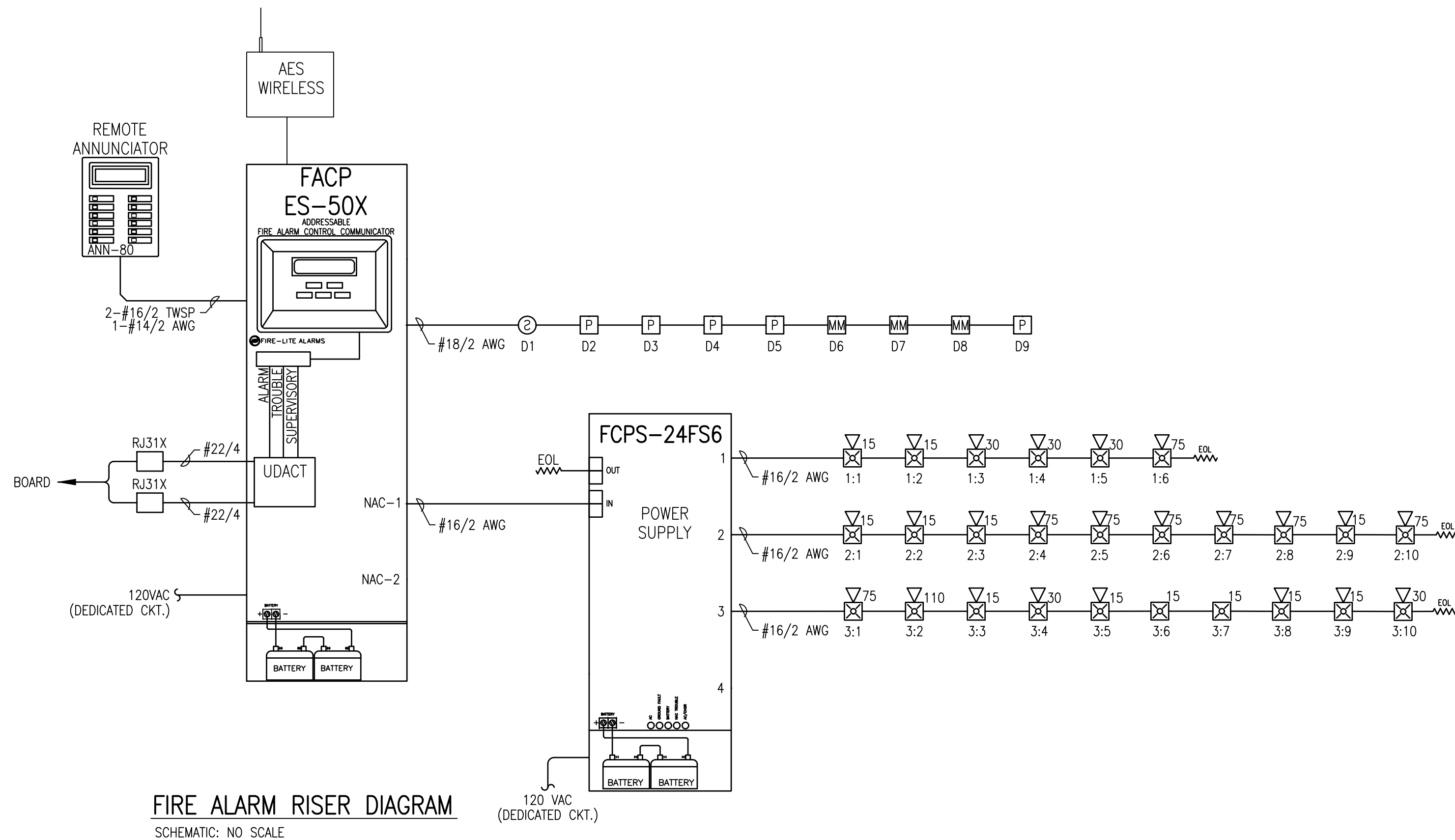
FACP Battery Calculation		12/2/2019	
PROJECT NAME: Hazy Hills Farm			
Required Standby Time: 24 Hours			
Required Alarm Time: 5 Minutes			
AC Branch Current: Amps @ 120V			
Regulated Load in Standby			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FACP MAINBOARD (ES-50X)	1	X 0.14100	= 0.14100
SMOKE DETECTOR - SD365	1	X 0.00030	= 0.00030
MONITOR MODULE - MMF-300	3	X 0.00075	= 0.00225
PULL STATION - BG-12X	5	X 0.00023	= 0.00115
ANNUNCIATOR - ANN-80	1	X 0.01500	= 0.01500
TOTAL STANDBY LOAD			0.15970
Regulated Load in ALARM			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FACP MAINBOARD (ES-50X)	1	X 0.22000	= 0.22000
Maximum Current Draw for all Addressable Devices	1	X 0.40000	= 0.40000
ANNUNCIATOR - ANN-80	1	X 0.04000	= 0.04000
TOTAL ALARM LOAD			0.66000
Battery Requirements			
Standby Load Current (Amps)	0.15970	X	Required Standby Time in Hours 24.00000 = 3.83280
Alarm Load Current (Amps)	0.66000	X	Required Alarm Time in Hours 0.08333 = 0.05500
Total Ampere Hours (before derating factor)			3.88780
Derating Factor	X		1.2
TOTAL AMPERE HOURS REQUIRED			= 4.66536
BATTERIES TO BE PROVIDED (2 - 12v)			7 AH

FPS Battery Calculation		12/2/2019	
PROJECT NAME: Hazy Hills Farm			
Required Standby Time: 24 Hours			
Required Alarm Time: 5 Minutes			
AC Branch Current: Amps @ 120V			
Regulated Load in Standby			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FPS MAINBOARD	1	X 0.09100	= 0.09100
TOTAL STANDBY LOAD			0.09100
Regulated Load in ALARM			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FPS MAINBOARD	1	X 0.14500	= 0.14500
FPS NAC-1 (See Voltage Drop Calculations)	1	X 0.45100	= 0.45100
FPS NAC-2 (See Voltage Drop Calculations)	1	X 0.87500	= 0.87500
FPS NAC-3 (See Voltage Drop Calculations)	1	X 1.21900	= 1.21900
TOTAL ALARM LOAD			2.69000
Battery Requirements			
Standby Load Current (Amps)	0.09100	X	Required Standby Time in Hours 24.00000 = 2.18400
Alarm Load Current (Amps)	2.69000	X	Required Alarm Time in Hours 0.08333 = 0.22417
Total Ampere Hours (before derating factor)			2.40817
Derating Factor	X		1.2
TOTAL AMPERE HOURS REQUIRED			= 2.88980
BATTERIES TO BE PROVIDED (2 - 12v)			7 AH

Point to Point NAC Voltage Drop Calculation		12/2/2019				
Project Name: Hazy Hills Farm						
Circuit Number: FPS-NAC1						
Nominal System Voltage	20.4 volts	Wire Gauge	Resistance Per 1000			
Minimum Device Voltage	16.0 volts	16	4.89			
Distance from source to 1st device	15 feet	16	4.89			
Wire Gauge for balance of circuit: 16						
Max Output Current	3.00 amps					
Total Circuit Current	0.451 amps					
End of Line Voltage	20.12 volts					
Circuit is within limits						
Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop	
Device 1	AV15	0.054	15	20.33	0.066	0.32%
Device 2	AV15	0.054	15	20.28	0.124	0.61%
Device 3	AV30	0.074	15	20.23	0.175	0.86%
Device 4	AV30	0.074	15	20.19	0.214	1.05%
Device 5	AV30	0.074	15	20.16	0.243	1.19%
Device 6	AV75	0.121	30	20.12	0.278	1.36%
Totals		0.451	105			
Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).						

Point to Point NAC Voltage Drop Calculation		12/2/2019				
Project Name: Hazy Hills Farm						
Circuit Number: FPS-NAC2						
Nominal System Voltage	20.4 volts	Wire Gauge	Resistance Per 1000			
Minimum Device Voltage	16.0 volts	16	4.89			
Distance from source to 1st device	40 feet	16	4.89			
Wire Gauge for balance of circuit: 16						
Max Output Current	3.00 amps					
Total Circuit Current	0.875 amps					
End of Line Voltage	19.20 volts					
Circuit is within limits						
Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop	
Device 1	AV15	0.054	40	20.06	0.342	1.68%
Device 2	AV15	0.054	15	19.94	0.463	2.27%
Device 3	AV15	0.054	30	19.71	0.688	3.37%
Device 4	AV75	0.121	15	19.61	0.792	3.88%
Device 5	AV75	0.121	15	19.52	0.879	4.31%
Device 6	AV75	0.121	30	19.38	1.017	4.99%
Device 7	AV15	0.054	15	19.33	1.069	5.24%
Device 8	AV75	0.121	30	19.24	1.156	5.66%
Device 9	AV15	0.054	15	19.22	1.181	5.79%
Device 10	AV75	0.121	15	19.20	1.199	5.88%
Totals		0.875	220			
Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).						

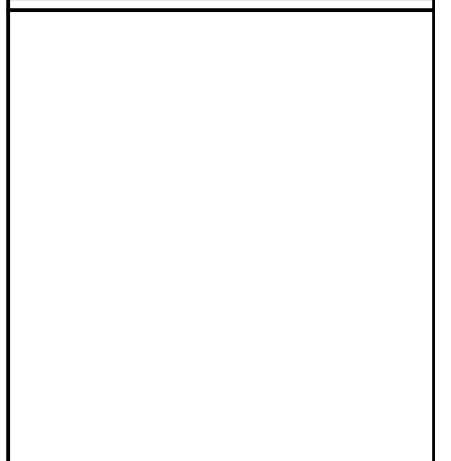
Point to Point NAC Voltage Drop Calculation		12/2/2019				
Project Name: Hazy Hills Farm						
Circuit Number: FPS-NAC3						
Nominal System Voltage	20.4 volts	Wire Gauge	Resistance Per 1000			
Minimum Device Voltage	16.0 volts	16	4.89			
Distance from source to 1st device	40 feet	16	4.89			
Wire Gauge for balance of circuit: 16						
Max Output Current	3.00 amps					
Total Circuit Current	1.219 amps					
End of Line Voltage	18.53 volts					
Circuit is within limits						
Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop	
Device 1	AV75	0.121	40	19.92	0.477	2.34%
Device 2	AV110	0.162	30	19.60	0.799	3.92%
Device 3	AV15	0.054	15	19.46	0.936	4.59%
Device 4	AV30	0.074	15	19.33	1.066	5.22%
Device 5	AV15	0.054	20	19.18	1.224	6.00%
Device 6	VO15	0.043	30	18.96	1.445	7.08%
Device 7	VO15	0.043	15	18.85	1.549	7.59%
Device 8	AV15	0.054	15	18.75	1.647	8.07%
Device 9	AV15	0.540	35	18.54	1.857	9.11%
Device 10	AV30	0.074	20	18.53	1.872	9.18%
Totals		1.219	235			
Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).						



FIRE ALARM DEVICE MOUNTING HEIGHTS
SCALE: NOT TO SCALE

DATE	DESCRIPTION
12/2/2019	ISSUED FOR REVIEW & APPROVAL

REVISION	DESCRIPTION
0	



HAZY HILL FARM
470 RIVERSIDE STREET
PORTLAND, ME 04103
FIRE ALARM PLAN

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