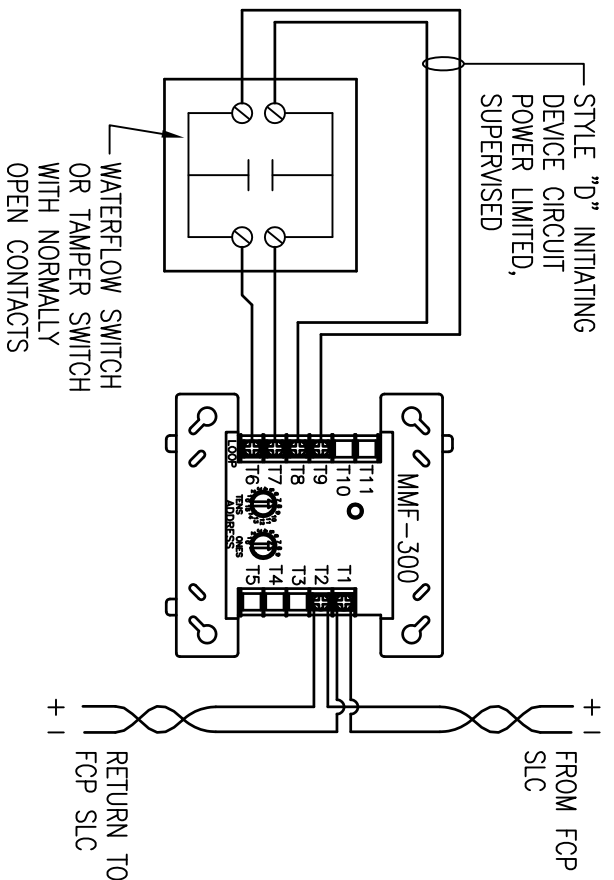
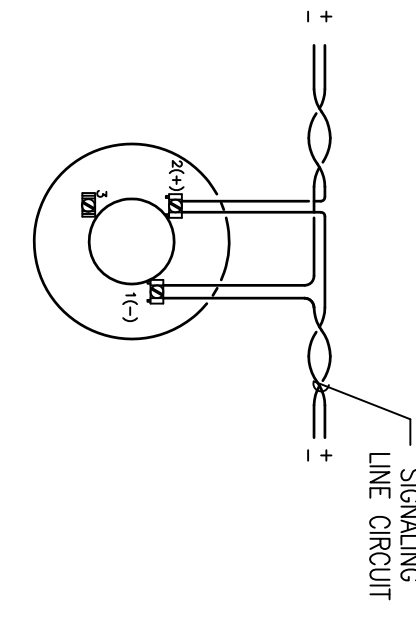


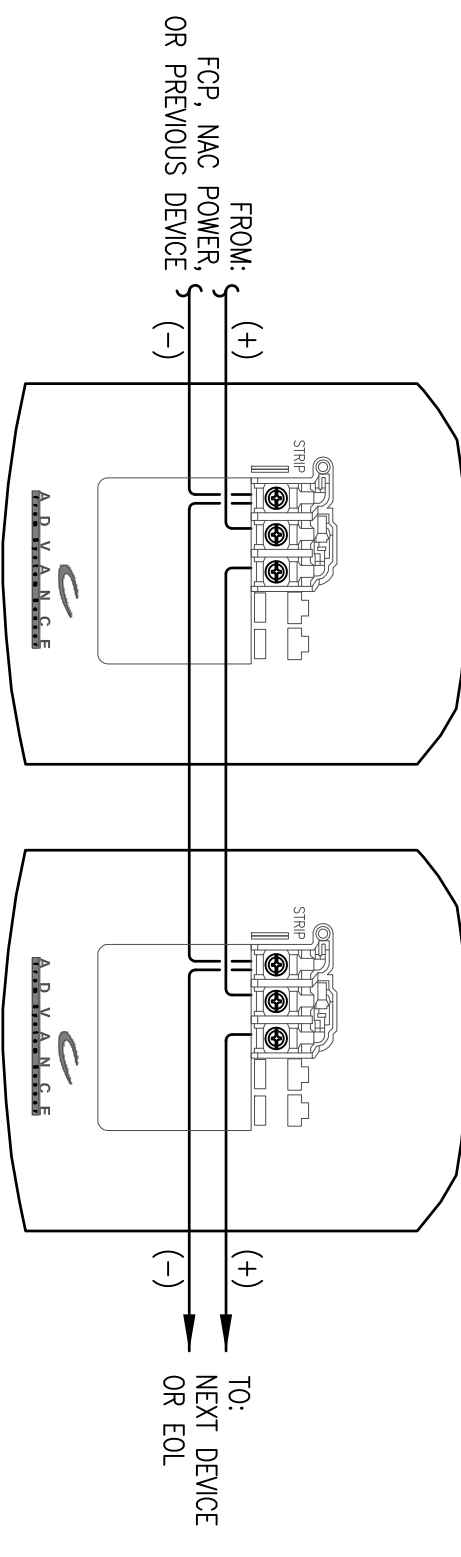
MANUAL PULL STATION WIRING DETAIL
SCHEMATIC: NO SCALE



WATERFLOW / TAMPER WIRING DETAIL
SCHEMATIC: NO SCALE



ADDRESSABLE SMOKE DETECTOR WIRING DETAIL
SCHEMATIC: NO SCALE



TYPICAL 2 WIRE STROBE WIRING DETAIL
SCHEMATIC: NO SCALE

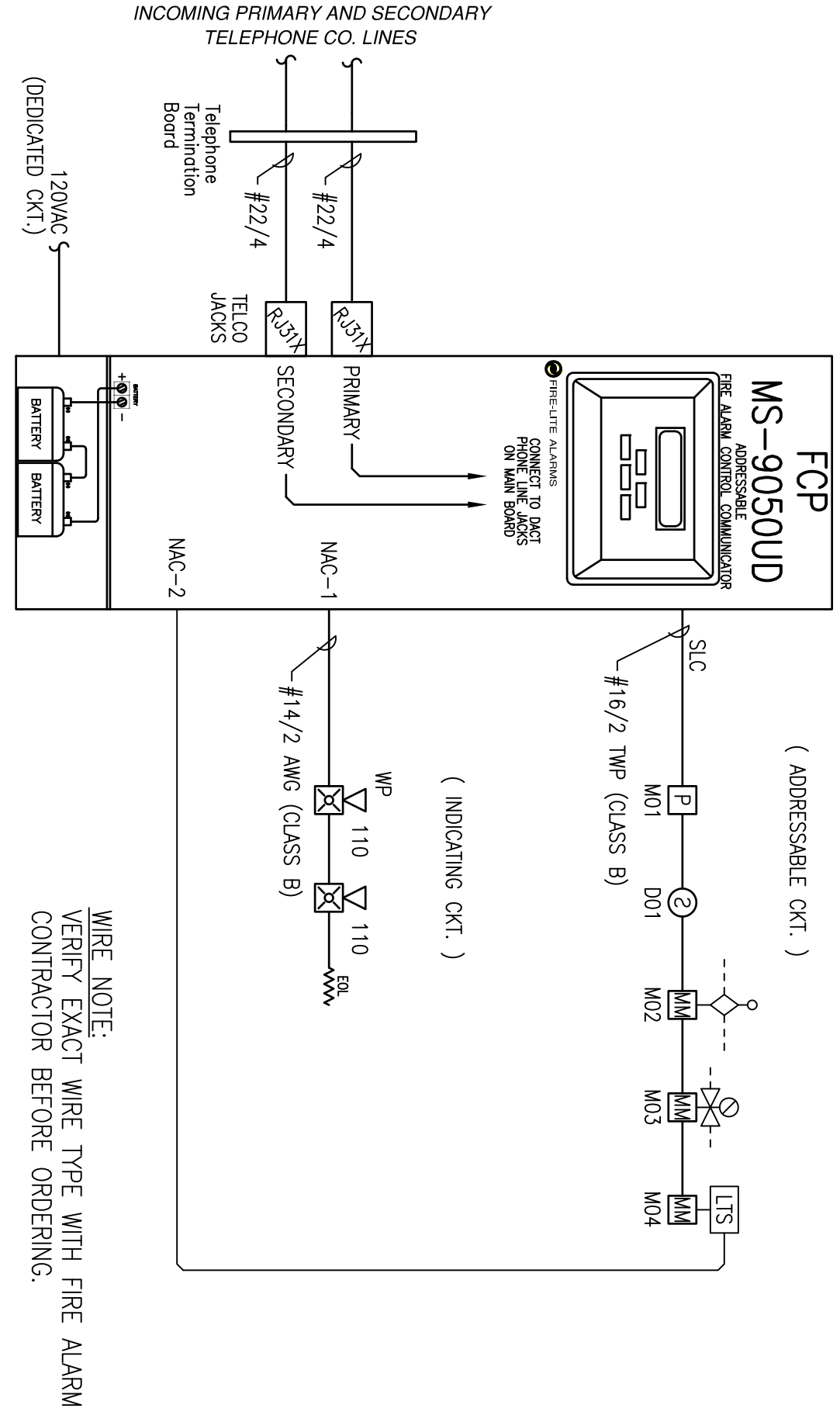
GENERAL NOTES:

- 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.
- POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST REMAIN SEPARATED IN CABINET. ALL POWER-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.
- WHEN UTILIZING CLASS "A" CIRCUITS, SEPARATE OUTGOING AND RETURN CONDUCTORS OF CLASS "A" CIRCUITS BY A MINIMUM OF 12" WHERE RUN VERTICALLY AND 48" WHERE RUN HORIZONTALLY.
- WHEN UTILIZING SHIELDED CABLE THE SHIELDS THROUGH AND INSULATE AT EACH JUNCTION BOX. INSULATE AND TAPE BACK AT END.
- 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. CEILING-MOUNTED SMOKE DETECTORS SHALL BE MOUNTED ON CEILINGS AND NOT ON THE BOTTOMS OF BEAMS OR JOISTS.
- PROVIDE SYNCHRONIZATION OF ALL VISUAL NOTIFICATION APPLIANCE CIRCUITS. PROVIDE ALL REQUIRED SYNC MODULES. PROVIDE A MULTI-SYNC MODE SLAVE CONNECTION BETWEEN ALL SYNC MODULES.
- VERIFY ALL FIELD SELECTABLE AUDIBILITY SETTINGS OF NOTIFICATION APPLIANCES WITH FIRE ALARM CONTRACTOR.
- 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 907.15 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.

FACP Battery Calculation			
PROJECT NAME:	PAPI AND ROMANO BUILDERS		
Required Standby Time:	24 Hours		
Required Alarm Times:	5 Minutes		
Regulated Load in Standby			
Device Type	Number of Devices	Current (Amperes)	Total Current (Amperes)
FACP - MS9050UD MAIN CIRCUIT BOARD	1	0.20000	0.20000
MAX ALARM DRAW - ALL ADDRESSABLE DEV.	1	0.40000	0.40000
NAC-1 (See Voltage Drop Calculations)	1	0.42400	0.42400
NAC-2 (To EA200-24)	1	0.12000	0.12000
MONITOR MODULE - MMF-300	1	0.00040	0.00040
PULL STATION - GC-121X	1	0.00023	0.00023
MAX ALARM DRAW - ALL ADDRESSABLE DEV.	1	0.00000	0.00000
TOTAL STANDBY LOAD			0.12173
Regulated Load in Alarm			
Device Type	Number of Devices	Current (Amperes)	Total Current (Amperes)
FACP - MS9050UD MAIN CIRCUIT BOARD	1	0.20000	0.20000
MAX ALARM DRAW - ALL ADDRESSABLE DEV.	1	0.40000	0.40000
NAC-1 (See Voltage Drop Calculations)	1	0.42400	0.42400
NAC-2 (To EA200-24)	1	0.12000	0.12000
TOTAL ALARM LOAD			1.14400
Battery Requirements			
Standby Load	0.12173	X	24.00000 = 2.92152
Current (Amperes)	1.14400	X	0.08333 = 0.09533
Total Amperes Hours (before derating factor)			3.01665
Derating Factor			X
BATTERIES TO BE PROVIDED (2 - 12V)			3.02022
			7 AH

Point to Point NAC Voltage Drop Calculation			
Project Name	PAPI AND ROMANO BUILDERS		
Circuit Number	NAC-1		
Nominal System Voltage	20.4	volts	Wire Resistance Per 1000
Minimum Device Voltage	16.0	volts	Gauge
Distance from source to 1st device	15	feet	14
Wire Gauge for balance of circuit	15		3.07
Max Output Current	3.00	amps	
Total Circuit Current	0.424	amps	
Circuit Is within Limits	20.33	volts	
Device	Distance	Voltage at Device	Drop from source
Device 1	15	20.36	0.039
Device 2	20	20.33	0.19%
Totals	35		0.32%

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 manufacturer's listed minimum operating voltage (IE: rated operating voltage 16-35 VDC (24 VDC nominal)).



FIRE ALARM RISER DIAGRAM
SCHEMATIC: NO SCALE

FIRE ALARM SYMBOL LEGEND

SYMBOL	DESCRIPTION	MOUNTING
[FACP]	FIRE ALARM CONTROL PANEL	WALL-TOP @ 66"
[FSA]	FIRE ALARM POWER SUPPLY	FIELD VERIFY
[FSA]	FIRE SYSTEM ANNUNCIATOR	WALL-TOP @ 66"
[FSD]	FIRE/SMOKE DAMPER	BY OTHERS
⊙	FIRE/SMOKE DETECTOR	CEILING
⊙	DUOT SMOKE DETECTOR	BY OTHERS
⊙	HEAT DETECTOR	CEILING
[CM]	ADDRESSABLE CONTROL MODULE	FIELD VERIFY
[AM]	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
[P]	MANUAL PULL STATION	WALL @ 48"
[R]	CONTROL RELAY (MULTI-VOLTAGE)	FIELD VERIFY
[RM]	ADDRESSABLE RELAY MODULE	FIELD VERIFY
[KB]	KNOCK BOX	FIELD VERIFY
[WFS]	WATER FLOW SWITCH	BY OTHERS
[WTS]	WALL TAMPER SWITCH	BY OTHERS
[LTS]	LOW TEMPERATURE SENSOR	FIELD VERIFY
[CST]	CEILING MOUNT STROBE	FIELD VERIFY
[CMT]	CEILING MOUNT HORN / STROBE	FIELD VERIFY
[CSP]	CEILING MOUNT SPEAKER / STROBE	FIELD VERIFY
[MH]	MANI HORN	WALL @ 10'-0"
[SH]	HORN / STROBE	WALL 80"-96"
[SP]	SPEAKER / STROBE	WALL 80"-96"
[S]	SPEAKER	WALL @ 90"
[S]	STROBE	WALL 80"-96"
ABBREVIATION	DESCRIPTION	
E	EXISTING	
G	WITH GUARD	
P	PENDENT MOUNT	
R	RESIDENTIAL (110V)	
S	SOUNDER BASE	
WP	WEATHER PROOF	
EOL	END OF LINE RESISTOR	
END	END OF LINE RELAY	
AWG	AMERICAN WIRE GAUGE	
WP	WATERPROOF	
TWSP	TWISTED SHIELDED PAIR	
FPP	FIRE POWER LIMITED PLENUM	
FPR	FIRE POWER LIMITED RISER	

APPLICABLE CODES:

MAINE UNIFORM ENERGY & BUILDING CODE
 PORTLAND CITY CODE, CHAPTER 10, FIRE PREVENTION & PROTECTION
 NFPA 1, FIRE CODE & NFPA 101, LIFE SAFETY CODE

OPERATIONS MATRIX		FIRE ALARM OUTPUT																		
SMOKE DETECTORS		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PULL STATIONS		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
WATERFLOW SWITCHES		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
VALVE TAMPER SWITCHES		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LOW TEMPERATURE SENSOR		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FIRE ALARM AC POWER FAIL		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FIRE ALARM LOW BATTERY		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
OPEN CIRCUIT		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
GROUND FAULT		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
NAC SHORT CIRCUIT		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LOSS OF AC TO BUILDING		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

RESERVED FOR CITY STAMP

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	10/14/2015

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CALCS, DETAILS, LEGEND, MATRIX, NOTES

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 Checked: WAYNE B. HANES NECT IV 90496
 Date: 10/14/2015

Scale: NONE
FA-1