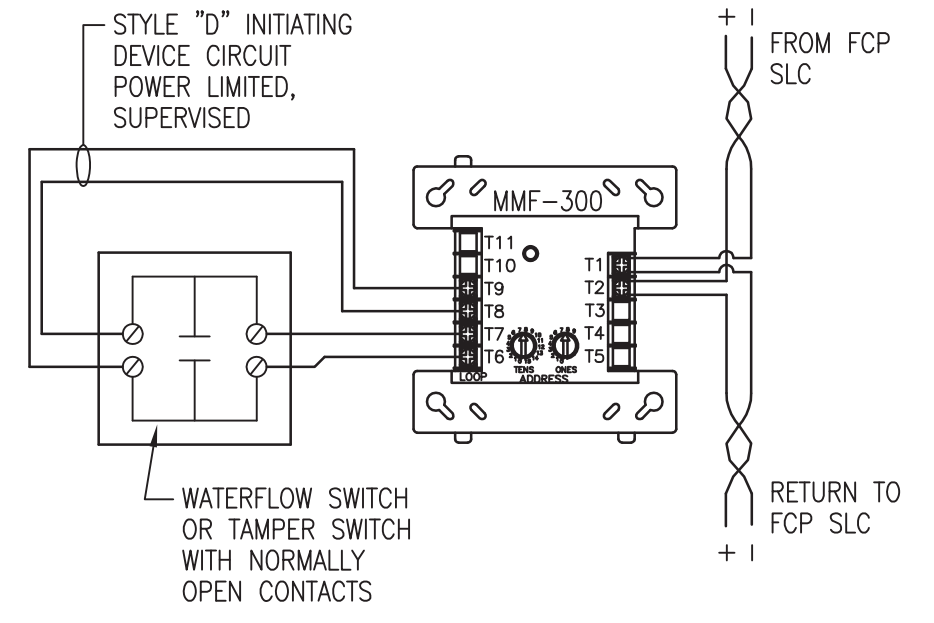
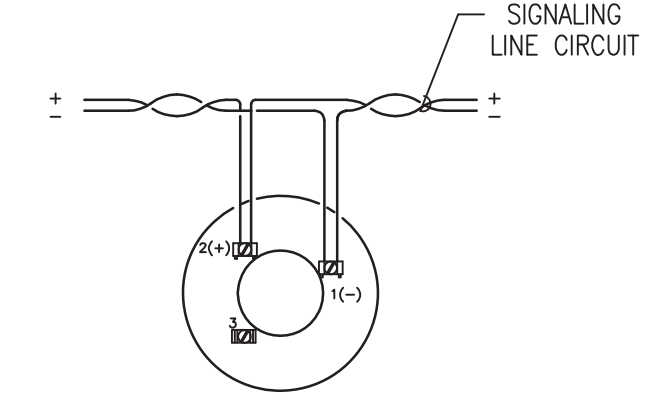


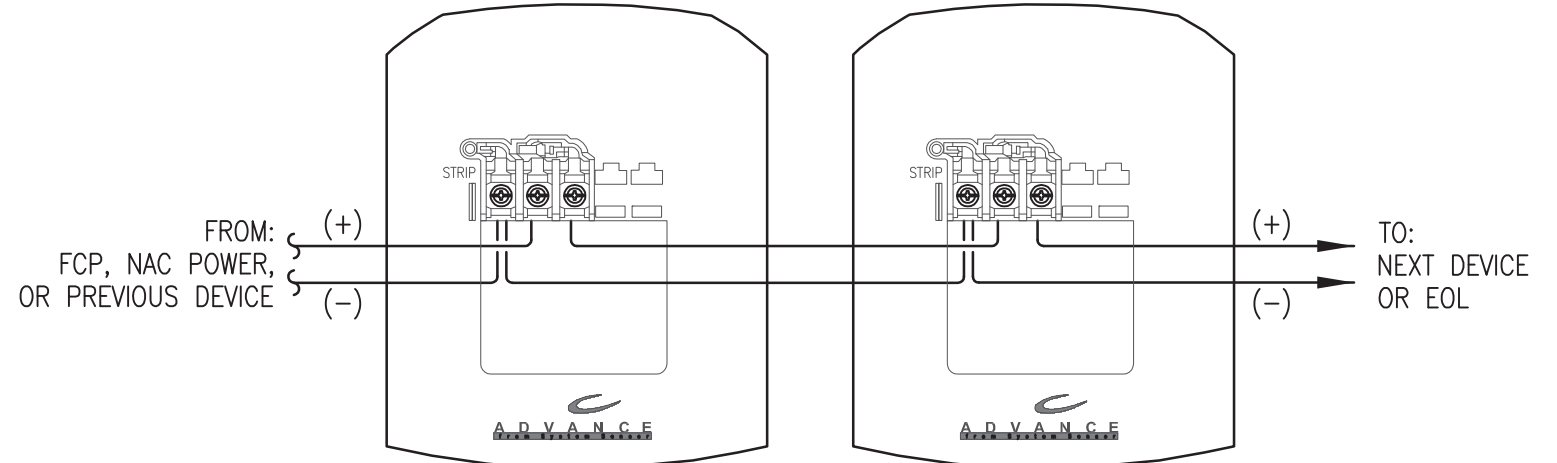
MANUAL PULL STATION WIRING DETAIL
SCHEMATIC: NO SCALE



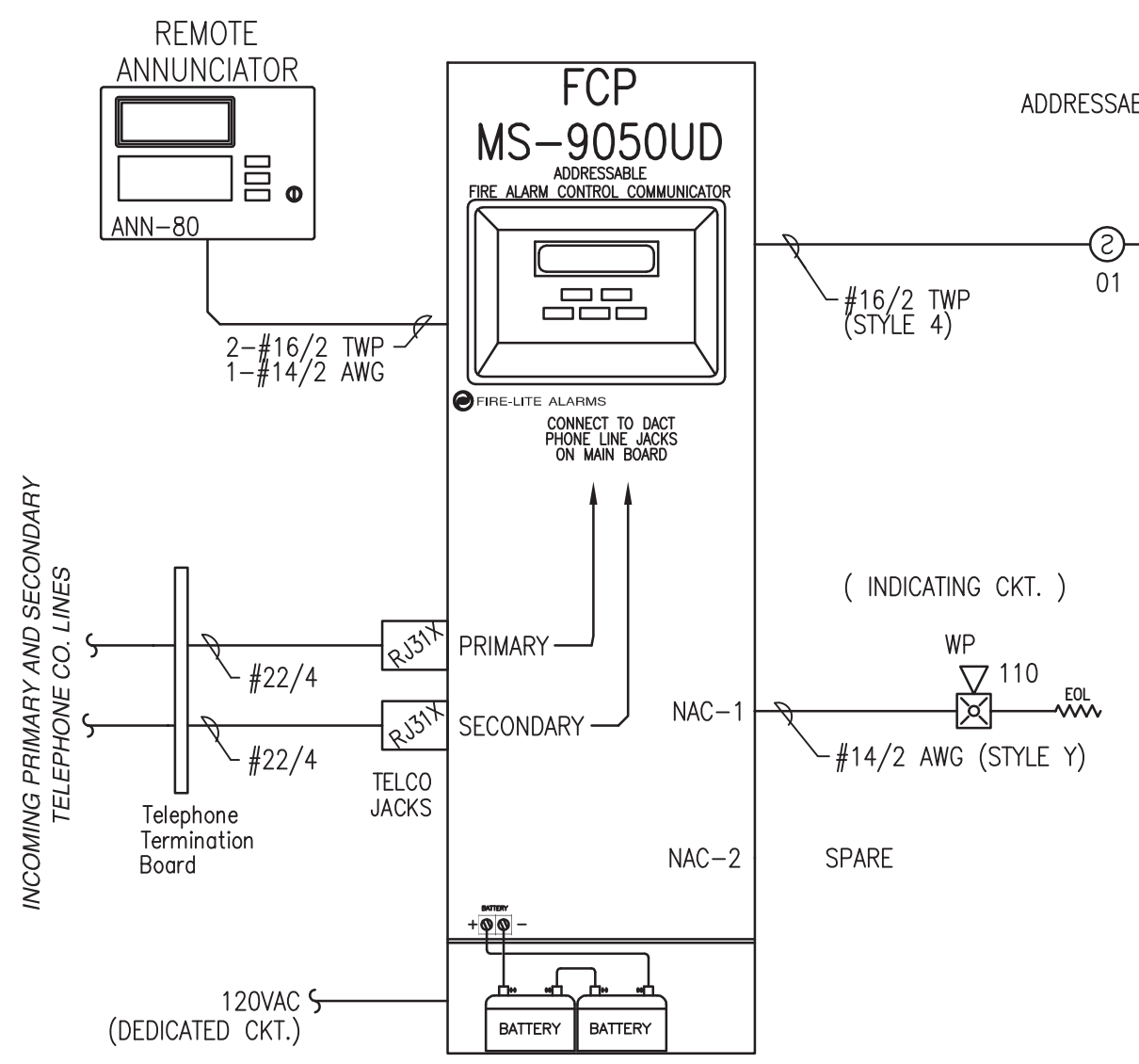
WATERFLOW / TAMPER WIRING DETAIL
SCHEMATIC: NO SCALE



ADDRESSABLE SMOKE DETECTOR WIRING DETAIL
SCHEMATIC: NO SCALE



TYPICAL 2 WIRE STROBE WIRING DETAIL
SCHEMATIC: NO SCALE



FIRE ALARM RISER DIAGRAM
SCHEMATIC: NO SCALE

WIRE NOTE:
VERIFY EXACT WIRE TYPE WITH FIRE ALARM CONTRACTOR BEFORE ORDERING.

NAC Circuit Voltage Drop Calculation 6/12/2013

Project Name	91 STATE STREET		
Circuit Number	NAC-1		
Nominal System Voltage	20.4 volts	Wire Gauge	Resistance Per 1000
Minimum Device Voltage	16 volts	14	6.14
Distance from source to 1st device	80	14	6.14
Wire Gauge for balance of circuit		14	6.14
Max Output Current	1.5 amps		
Total Circuit Current	0.212 amps		

Circuit is within limits

Device	Distance previous device	Voltage at device	Drop from source	Percent Drop
Device 1	0.212	20.30	0.10	1%
Totals	80			

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 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.
- 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 TIE 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.

APPLICABLE CODES:

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

FIRE ALARM SYMBOL LEGEND

NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT

SYMBOL	DESCRIPTION	MOUNTING
FCP	FIRE ALARM CONTROL PANEL	WALL-TOP @ 66"
FPS	FIRE ALARM POWER SUPPLY	FIELD VERIFY
FSA	FIRE SYSTEM ANNUNCIATOR	WALL-TOP @ 66"
FSD	FIRE/SMOKE DAMPER	BY OTHERS
⊙	SMOKE DETECTOR	CEILING
⊙	DUCT SMOKE DETECTOR	BY OTHERS
⊙	HEAT DETECTOR	CEILING
SIM	SERIAL INTERFACE MODULE	FIELD VERIFY
CM	ADDRESSABLE CONTROL MODULE	FIELD VERIFY
MM	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
P	MANUAL PULL STATION	WALL @ 48"
R	CONTROL RELAY (MULTI-VOLTAGE)	FIELD VERIFY
RM	ADDRESSABLE RELAY MODULE	FIELD VERIFY
⊙	MAGNETIC DOOR HOLDER	FIELD VERIFY
⊙	WATER FLOW SWITCH	BY OTHERS
⊙	VALVE TAMPER SWITCH	BY OTHERS
⊙	BELL	BY OTHERS
⊙	CEILING MOUNT STROBE	FIELD VERIFY
⊙	CEILING MOUNT HORN / STROBE	FIELD VERIFY
⊙	CEILING MOUNT SPEAKER / STROBE	FIELD VERIFY
⊙	MINI HORN	WALL @ 10'-0"
⊙	HORN / STROBE	WALL 80"-96"
⊙	SPEAKER / STROBE	WALL 80"-96"
⊙	SPEAKER	WALL @ 90"
⊙	STROBE	WALL 80"-96"
⊙	KNOX BOX	FIELD VERIFY

ABBREVIATION	DESCRIPTION
E	EXISTING
G	WITH GUARD
P	PENDENT 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

SPEAKER WATTAGE (W) 75 STROBE CANDLEA 30

⊙ DEVICE ADDRESS ⊙ DO1
L10001 OR DO1
(L - DENOTES LOOP #)
(D or M - DENOTES DETECTOR OR MODULE #)

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

OPERATIONS MATRIX

FIRE ALARM INPUT	FIRE ALARM OUTPUT		
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	●	●	●

FCP Battery Calculation 6/12/2013

PROJECT NAME: 91 STATE STREET
Required Standby Time: 24 Hours
Required Alarm Time: 5 Minutes

Regulated Load in Standby				
Device Type	Number of Devices	Current (Amps)		Total Current (Amps)
MS-9050UD Main Circuit Board	1	X	0.12000	= 0.12000
ANN-80 Remote Annunciator	1	X	0.01500	= 0.01500
SD355 Smoke Detector	1	X	0.00030	= 0.00030
MMF-300 Monitor Module	2	X	0.00040	= 0.00080
BG-12LX Pull Station	1	X	0.00023	= 0.00023
TOTAL STANDBY LOAD				0.13633

Regulated Load in ALARM				
Device Type	Number of Devices	Current (Amps)		Total Current (Amps)
MS-9050UD Main Circuit Board	1	X	0.20000	= 0.20000
ANN-80 Remote Annunciator	1	X	0.04000	= 0.04000
All Addressable Devices - Maximum Draw	1	X	0.40000	= 0.40000
NAC-1	1	X	0.21200	= 0.21200
TOTAL ALARM LOAD				0.85200

Battery Requirements			
Standby Load	Required Standby Time in Hours	Current (Amps)	
0.13633	X	24.00000	= 3.27192
Alarm Load	Required Alarm Time in Hours	Current (Amps)	
0.85200	X	0.08333	= 0.07100
Total Ampere Hours (before derating factor)			3.34292
Derating Factor			1.2
TOTAL AMPERE HOURS REQUIRED			4.01150
BATTERIES TO BE PROVIDED (2 - 12v)			7 AH

CUNNINGHAM
Security Systems
10 Princes Point Road, Yarmouth, Maine 04096
Office: 207.846.3350 • Fax: 207.846.6080

91 STATE STREET
PORTLAND, MAINE 04101

CALCS, DIAGRAMS, LEGEND, MATRIX, NOTES

DRAWN	JPB UNICAD JOB #13290
CHECKED	WAYNE B. HAWES NCET IV 90496
DATE	6/11/2013
REVISION	0
SCALE	NONE