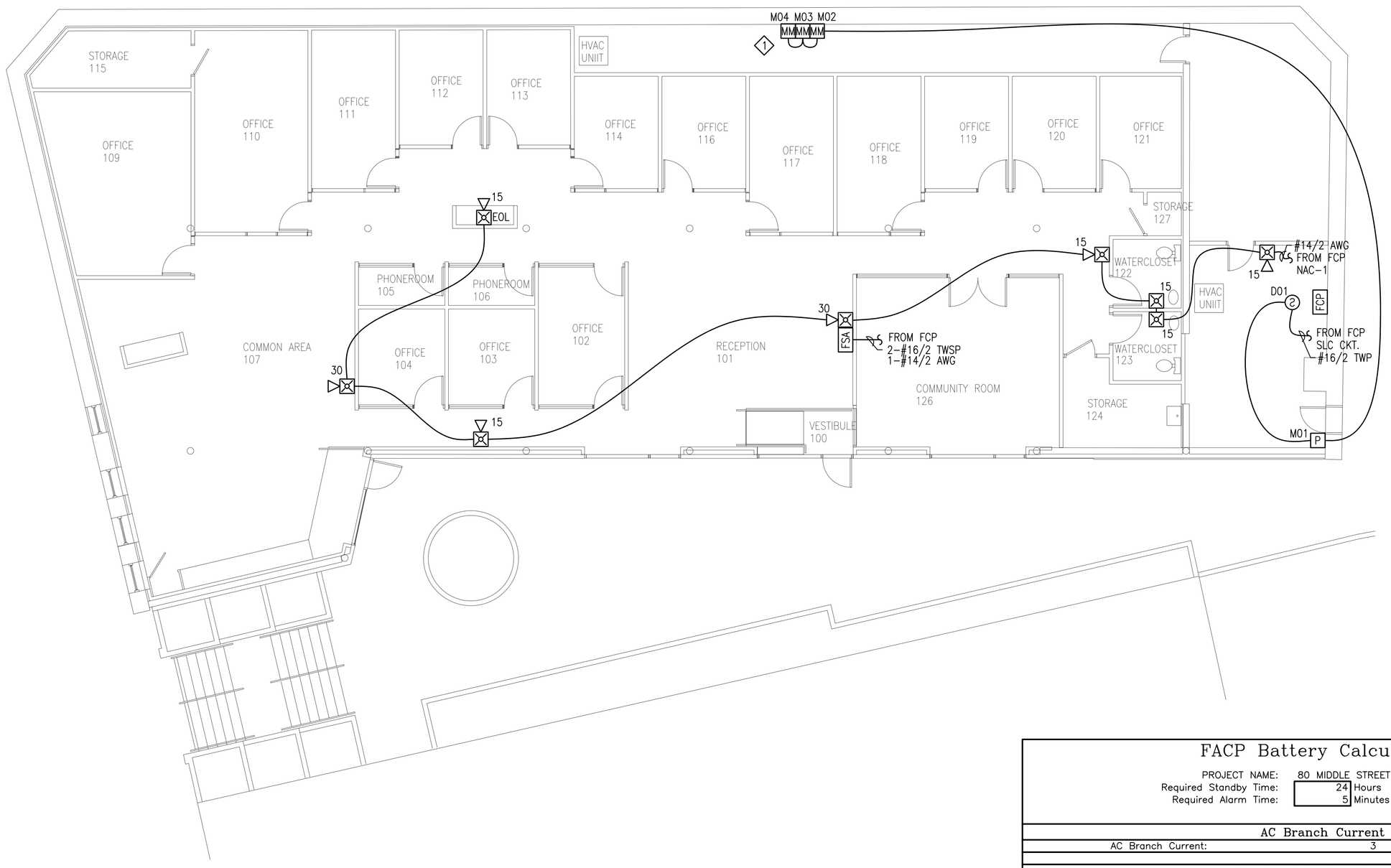


80 MIDDLE STREET – FIRE ALARM PLAN

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

OPERATIONS MATRIX	FIRE ALARM OUTPUT	ACTIVATE ALARM INDICATOR	ACTIVATE AUDIBLE ALARM	ACTIVATE AUDIBLE SUPERVISORY INDICATOR	ACTIVATE AUDIBLE SUPERVISORY SIGNAL	ACTIVATE TROUBLE INDICATOR	ACTIVATE AUDIBLE TROUBLE INDICATOR	TRANSMIT ALARM SIGNAL	TRANSMIT SUPERVISORY SIGNAL	TRANSMIT TROUBLE SIGNAL
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						●	●			●

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"
FSA	FIRE SYSTEM ANNUNCIATOR	WALL–TOP @ 66"
(S)	SMOKE DETECTOR	CEILING
MM	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
P	MANUAL PULL STATION	WALL @ 48"
	WATER FLOW SWITCH	BY OTHERS
	VALVE TAMPER SWITCH	BY OTHERS
	HORN / STROBE	WALL 80"–96"
	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
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 – (3W) – SS – 75 – STROBE CANDELA – HS – 30

(S) – DEVICE ADDRESS – (H)
L1D001 OR D01
(L – DENOTES LOOP #)
(D or M – DENOTES DETECTOR OR MODULE #)

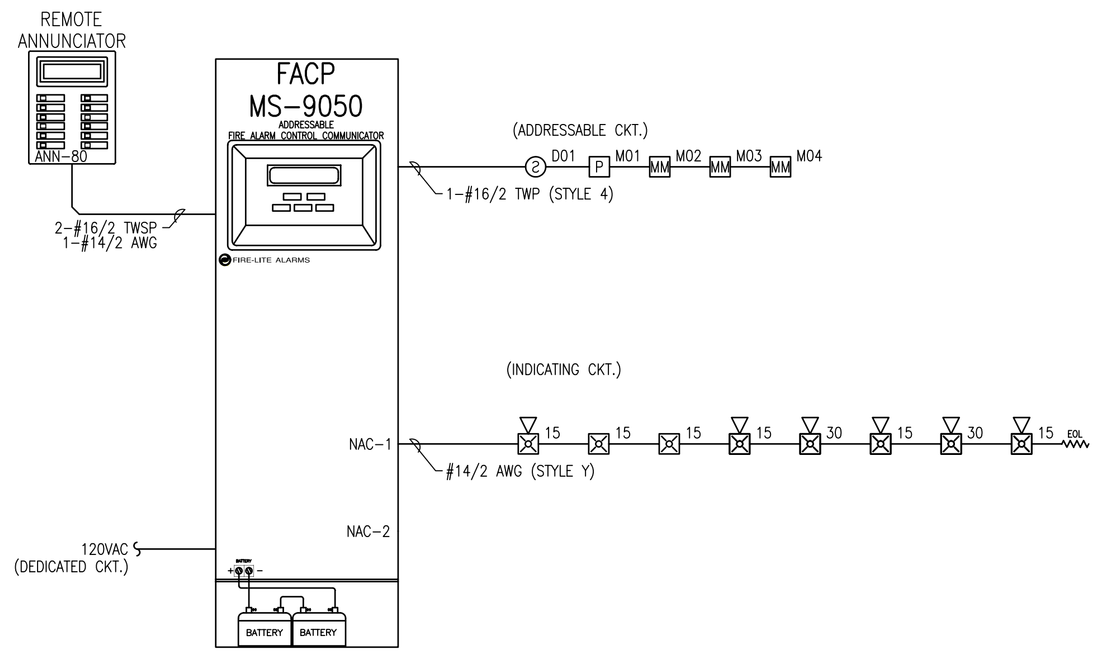
1–#16/2 TWP
WIRE TYPE ABBREVIATED
CONDUCTOR COUNT
WIRE SIZE
OF CABLES (IF OMITTED ONLY 1 CABLE NEEDED)

GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
2. INSTALLATION SHALL COMPLY WITH NEC, NFPA 72 AND ALL OTHER APPLICABLE CODES AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
3. 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.
4. FIRE RATINGS SHALL BE MAINTAINED FOR ALL PENETRATIONS THROUGH FIRE–RATED CONSTRUCTION.
5. POWER FOR ALL FIRE ALARM PANELS AND FIRE ALARM POWER SUPPLIES MUST BE PROVIDED BY A DEDICATED AC BRANCH CIRCUIT.
6. 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.
7. 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.
8. WHEN UTILIZING SHIELDED CABLE TIE SHIELDS THROUGH AND INSULATE AT EACH JUNCTION BOX. INSULATE AND TAPE BACK AT END.
9. ALL FIRE ALARM CABLING SHALL BE ACCEPTABLE TO THE FIRE ALARM EQUIPMENT MANUFACTURER FOR THE INTENDED PURPOSE.
10. SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER CONSTRUCTION CLEAN–UP IS COMPLETED AND FINAL.
11. 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.
12. PROVIDE SYNCHRONIZATION OF ALL VISUAL NOTIFICATION APPLIANCE CIRCUITS. PROVIDE ALL REQUIRED SYNC MODULES. PROVIDE A MULTI–SYNC MODE SLAVE CONNECTION BETWEEN ALL SYNC MODULES.
13. VERIFY ALL FIELD SELECTABLE AUDIBILITY SETTINGS OF NOTIFICATION APPLIANCES WITH FIRE ALARM CONTRACTOR.
14. 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.
15. PROVIDE OFF–SITE MONITORING AS REQUIRED BY THE INTERNATIONAL FIRE CODE, SECTION 907.15 AND THE LOCAL AUTHORITY HAVING JURISDICTION.
16. 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.

SHEET NOTES:

1. ADDRESSABLE MONITOR MODULE(S) PROVIDED TO MONITOR ALL WATER FLOW, PRESSURE SWITCHES, TAMPER SWITCHES AND POST INDICATING VALVES ASSOCIATED WITH THE FIRE SPRINKLER SYSTEM. INSTALLING CONTRACTOR SHALL FIELD VERIFY EXACT MOUNTING, CIRCUITING AND PROGRAMMING REQUIREMENTS. FIELD VERIFY EXACT QUANTITY AND LOCATION(S).



FIRE ALARM RISER DIAGRAM

SCHEMATIC: NO SCALE

FACP Battery Calculation

5/2/2012

PROJECT NAME: 80 MIDDLE STREET
Required Standby Time: 24 Hours
Required Alarm Time: 5 Minutes

AC Branch Current

AC Branch Current: 3 Amps @ 120V

Regulated Load in Standby

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
Main Circuit Board	1	X	0.12000	=	0.12000
ANN–80 (–W)	1	X	0.01500	=	0.01500
SD355 SMOKE DETECTOR	1	X	0.00030	=	0.00030
MMF–301 MONITOR MODULE	3	X	0.00038	=	0.00113
BG–12LX PULL STATION	1	X	0.00023	=	0.00023
IPGSMDP Communicator	1	X	0.08000	=	0.08000
TOTAL STANDBY LOAD					0.21666

Regulated Load in ALARM

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
Main Circuit Board	1	X	0.20000	=	0.20000
ANN–80 (–W)	1	X	0.04000	=	0.04000
ALL Addressable Devices – Maximum draw	1	X	0.40000	=	0.40000
IPGSMDP Communicator	1	X	0.50000	=	0.50000
TOTAL ALARM LOAD					1.14000

Battery Requirements

Standby Load			Required Standby Time in Hours		
Current (Amps)	0.21666	X	24.00000	=	5.19972
Alarm Load			Required Alarm Time in Hours		
Current (Amps)	1.14000	X	0.08333	=	0.09500
Total Ampere Hours (before derating factor)					5.29472
Derating Factor				X	1.2
TOTAL AMPERE HOURS REQUIRED				=	6.35366
BATTERIES TO BE PROVIDED (2 – 12v)					>7 AH

NAC Circuit Voltage Drop Calculation

5/2/2012

Project Name: 80 MIDDLE STREET
Circuit Number: Circuit Number

			Wire Gauge	Resistance Per 1000
Nominal System Voltage	20.4	volts		
Minimum Device Voltage	16	volts		
Distance from source to 1st device	12		14	6.14
Wire Gauge for balance of circuit			14	6.14
Max Output Current	2.5	amps		
Total Circuit Current	0.662	amps		

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.079		20.35	0.05	0%
Device 2	0.066	18	20.29	0.11	1%
Device 3	0.066	6	20.27	0.13	1%
Device 4	0.079	12	20.23	0.17	1%
Device 5	0.107	32	20.16	0.24	1%
Device 6	0.079	44	20.09	0.31	2%
Device 7	0.107	19	20.07	0.33	2%
Device 8	0.079	27	20.06	0.34	2%
Totals	0.662	170			

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	05/02/2012

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80 MIDDLE STREET
NEW OFFICES
PORTLAND, MAINE
FIRE ALAM PLAN

DRAWN	CRB UNICAD JOB #12193
CHECKED	WAYNE B. HAWS NICET IV 90496
DATE	05/02/2012
REVISION	0
SCALE	1'–0" = 1/8"

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