PLAN NORTH

BASEMENT FIRE ALARM PLAN

SCALE: 1/8"=1'-0" 0 4' 8' 16'

RESERVED FOR CITY STAMP

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	11/10/2016

SEACOAST SECURITY

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

15 UNIT APARTMENT BUILDING
48 WILMOT STREET
PORTLAND, MAINE 04101
EMENT FIRE ALARM PLAN & VOLTAGE CALCS

SHEET NOTES:

1. ADDRESSABLE MONITOR MODULE PROVIDED TO MONITOR THE CONVENTIONAL PULL STATION. INSTALLING CONTRACTOR SHALL FIELD VERIFY EXACT MOUNTING, CIRCUITING AND PROGRAMMING REQUIREMENTS. FIELD VERIFY EXACT QUANTITY AND LOCATION(S).
2. 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).

Point to Point NAC Voltage Drop Calculation 11/9/2016

Project Name	48 WILMOT ST APARTMENTS			
Circuit Number	NAC-1			
Nominal System Voltage	20.4	volts	Wire Gauge	Resistance Per 1000
Minimum Device Voltage	16.0	volts		
Distance from source to 1st device	35	feet	16	4.89
Wire Gauge for balance of circuit			16	4.89
Max Output Current	1.50	amps		
Total Circuit Current	0.428	amps		
End of Line Voltage	20.10	volts		

Circuit is within limits

	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.107	35	20.25	0.147	0.72%
Device 2	0.107	24	20.18	0.222	1.09%
Device 3	0.107	26	20.12	0.276	1.35%
Device 4	0.107	25	20.10	0.302	1.48%
Totals	0.428	110			

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 11/9/2016

Project Name	48 WILMOT ST APARTMENTS			
Circuit Number	NAC-2			
Nominal System Voltage	20.4	volts	Wire Gauge	Resistance Per 1000
Minimum Device Voltage	16.0	volts		
Distance from source to 1st device	25	feet	16	4.89
Wire Gauge for balance of circuit			16	4.89
Max Output Current	1.50	amps		
Total Circuit Current	0.322	amps		
End of Line Voltage	20.04	volts		

Circuit is within limits

	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.017	25	20.32	0.079	0.39%
Device 2	0.079	27	20.24	0.159	0.78%
Device 3	0.017	28	20.18	0.221	1.08%
Device 4	0.017	15	20.15	0.252	1.23%
Device 5	0.079	27	20.10	0.303	1.48%
Device 6	0.017	28	20.07	0.333	1.63%
Device 7	0.079	22	20.05	0.354	1.74%
Device 8	0.017	27	20.04	0.359	1.76%
Totals	0.322	199			

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 11/9/2016

Project Name	48 WILMOT ST APARTMENTS			
Circuit Number	NAC-3			
Nominal System Voltage	20.4	volts	Wire Gauge	Resistance Per 1000
Minimum Device Voltage	16.0	volts		
Distance from source to 1st device	45	feet	16	4.89
Wire Gauge for balance of circuit			16	4.89
Max Output Current	1.50	amps		
Total Circuit Current	0.322	amps		
End of Line Voltage	20.10	volts		

Circuit is within limits

	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.017	45	20.26	0.142	0.69%
Device 2	0.079	10	20.23	0.172	0.84%
Device 3	0.017	11	20.20	0.196	0.96%
Device 4	0.017	23	20.16	0.243	1.19%
Device 5	0.079	13	20.13	0.267	1.31%
Device 6	0.017	10	20.12	0.278	1.36%
Device 7	0.079	18	20.10	0.295	1.45%
Device 8	0.017	14	20.10	0.298	1.46%
Totals	0.322	144			

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 11/9/2016

Project Name	48 WILMOT ST APARTMENTS			
Circuit Number	NAC-4			
Nominal System Voltage	20.4	volts	Wire Gauge	Resistance Per 1000
Minimum Device Voltage	16.0	volts		
Distance from source to 1st device	55	feet	16	4.89
Wire Gauge for balance of circuit			16	4.89
Max Output Current	1.50	amps		
Total Circuit Current	0.322	amps		
End of Line Voltage	20.08	volts		

Circuit is within limits

	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.017	55	20.23	0.173	0.85%
Device 2	0.079	7	20.21	0.194	0.95%
Device 3	0.017	11	20.18	0.218	1.07%
Device 4	0.017	27	20.13	0.274	1.34%
Device 5	0.079	10	20.11	0.292	1.43%
Device 6	0.017	11	20.10	0.305	1.49%
Device 7	0.079	18	20.08	0.321	1.58%
Device 8	0.017	7	20.08	0.323	1.58%
Totals	0.322	146			

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)).

Date: 12/14/16

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

CITY OF PORTLAND, MAINE — RESURGAM

shop drawings created by:
5794 W. 4600 So.
Hooper, UT 84315
Office: 801.985.0410
UNI
www.unicad.net
Fire Alarm Des