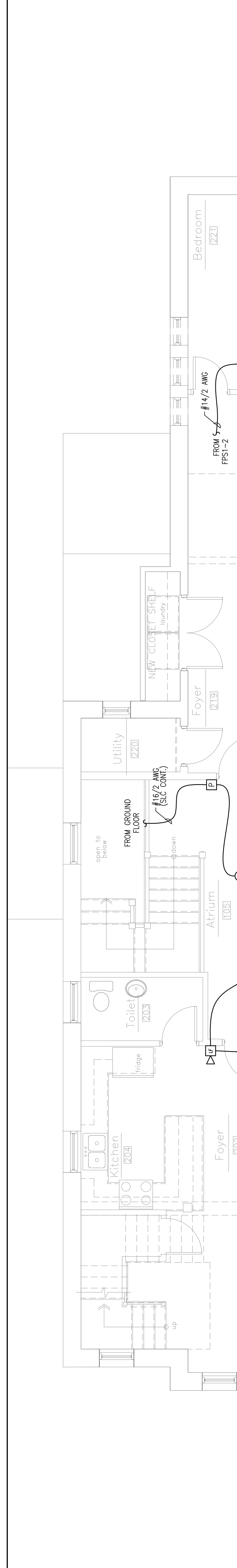


REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	4/19/2016
1	REVISED PER FULL SPRINKLER SYSTEM	8/4/2016

RESERVED FOR CITY STAMP



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

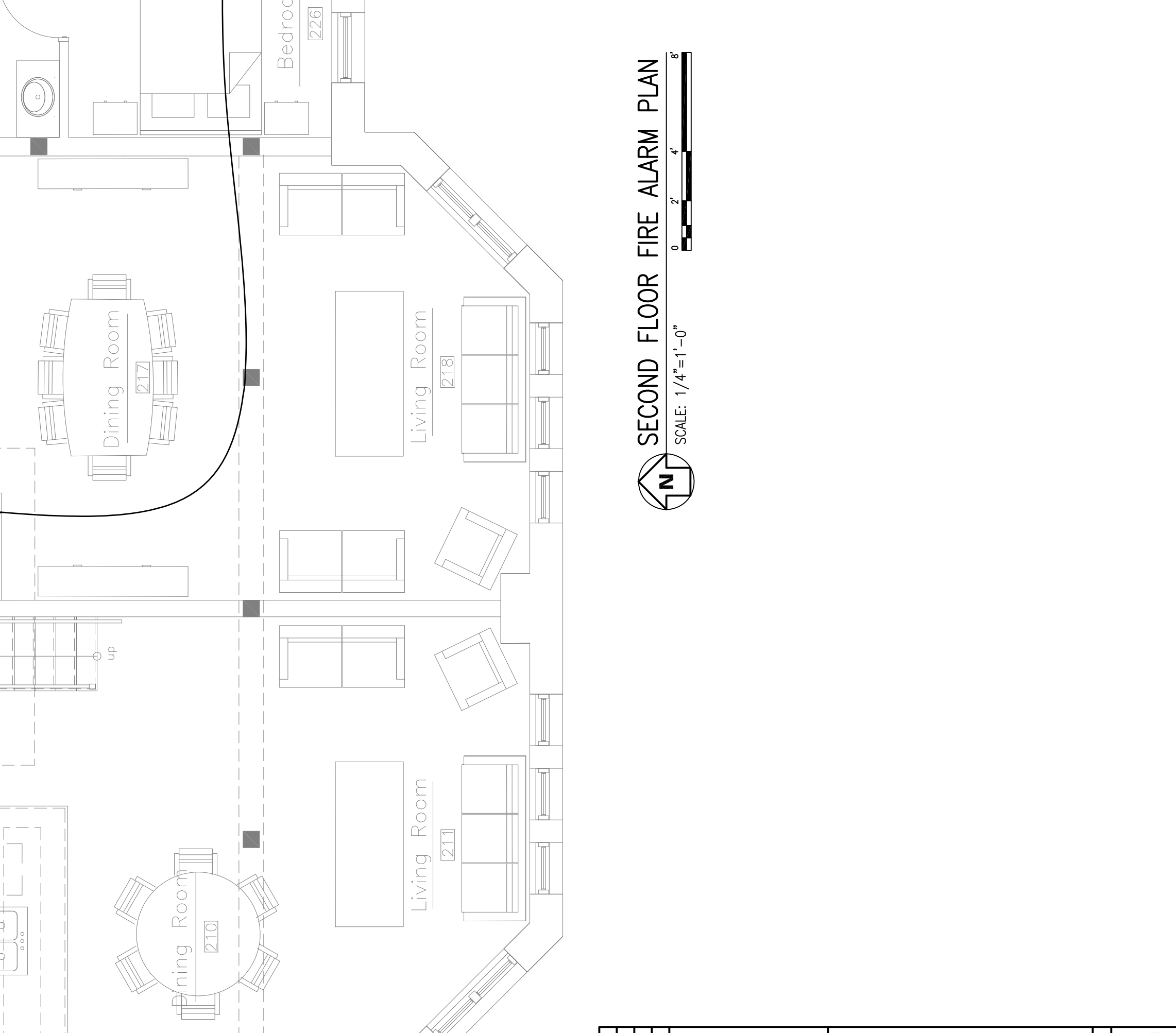
32 THOMAS STREET APARTMENTS
PORTLAND, MAINE 04102
SECOND FLOOR FIRE ALARM PLAN

Point to Point NAC Voltage Drop Calculation		4/18/2016	
Project Name	32 THOMAS ST APPTS		
Circuit Number	FFS1-1		
Nominal System Voltage	20.7 volts	Wire	Resistance
Device Voltage	16.0 volts	Gauge	Per 1000
Distance from source, 1st device	15 feet	14	3.07
Wire Gauge for balance of circuit			
Max Output Current	2.00 amps		
Total Circuit Current	1.454 amps		
End of Line Voltage	19.41 volts		
Circuit is within limits			
Device	Current	Distance	Device
1	0.079	15	20.27
2	0.079	20	20.11
3	0.079	5	20.08
4	0.176	15	19.98
5	0.176	35	19.78
6	0.107	25	19.67
7	0.079	25	19.57
8	0.066	10	19.54
9	0.066	10	19.50
10	0.066	20	19.46
11	0.138	15	19.42
12	0.138	15	19.41
Totals	1.454	215	19.41
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		4/18/2016	
Project Name	32 THOMAS ST APPTS		
Circuit Number	FFS1-2		
Nominal System Voltage	20.7 volts	Wire	Resistance
Device Voltage	16.0 volts	Gauge	Per 1000
Distance from source, 1st device	25 feet	14	3.07
Wire Gauge for balance of circuit			
Max Output Current	2.00 amps		
Total Circuit Current	1.045 amps		
End of Line Voltage	19.60 volts		
Circuit is within limits			
Device	Current	Distance	Device
1	0.138	25	20.24
2	0.138	25	20.10
3	0.138	30	19.96
4	0.138	50	19.77
5	0.079	15	19.72
6	0.138	20	19.63
7	0.138	25	19.63
8	0.138	30	19.60
Totals	1.045	220	19.60
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		4/18/2016	
Project Name	32 THOMAS ST APPTS		
Circuit Number	FFS1-3		
Nominal System Voltage	20.7 volts	Wire	Resistance
Device Voltage	16.0 volts	Gauge	Per 1000
Distance from source, 1st device	160 feet	14	3.07
Wire Gauge for balance of circuit			
Max Output Current	2.00 amps		
Total Circuit Current	1.104 amps		
End of Line Voltage	19.37 volts		
Circuit is within limits			
Device	Current	Distance	Device
1	0.138	60	19.99
2	0.138	30	19.82
3	0.138	35	19.64
4	0.138	30	19.51
5	0.138	10	19.48
6	0.138	15	19.44
7	0.138	30	19.39
8	0.138	15	19.37
Totals	1.104	225	19.37
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		4/18/2016	
Project Name	32 THOMAS ST APPTS		
Circuit Number	FFS1-2		
Nominal System Voltage	20.7 volts	Wire	Resistance
Device Voltage	16.0 volts	Gauge	Per 1000
Distance from source, 1st device	25 feet	14	3.07
Wire Gauge for balance of circuit			
Max Output Current	2.00 amps		
Total Circuit Current	1.045 amps		
End of Line Voltage	19.60 volts		
Circuit is within limits			
Device	Current	Distance	Device
1	0.138	25	20.24
2	0.138	25	20.10
3	0.138	30	19.96
4	0.138	50	19.77
5	0.079	15	19.72
6	0.138	20	19.63
7	0.138	25	19.63
8	0.138	30	19.60
Totals	1.045	220	19.60
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		4/18/2016	
Project Name	32 THOMAS ST APPTS		
Circuit Number	FFS1-1		
Nominal System Voltage	20.7 volts	Wire	Resistance
Device Voltage	16.0 volts	Gauge	Per 1000
Distance from source, 1st device	15 feet	14	3.07
Wire Gauge for balance of circuit			
Max Output Current	2.00 amps		
Total Circuit Current	1.454 amps		
End of Line Voltage	19.41 volts		
Circuit is within limits			
Device	Current	Distance	Device
1	0.212	15	20.27
2	0.079	20	20.11
3	0.079	5	20.08
4	0.176	15	19.98
5	0.176	35	19.78
6	0.107	25	19.67
7	0.079	25	19.57
8	0.066	10	19.54
9	0.066	10	19.50
10	0.066	20	19.46
11	0.138	15	19.42
12	0.138	15	19.41
Totals	1.454	215	19.41
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)).			