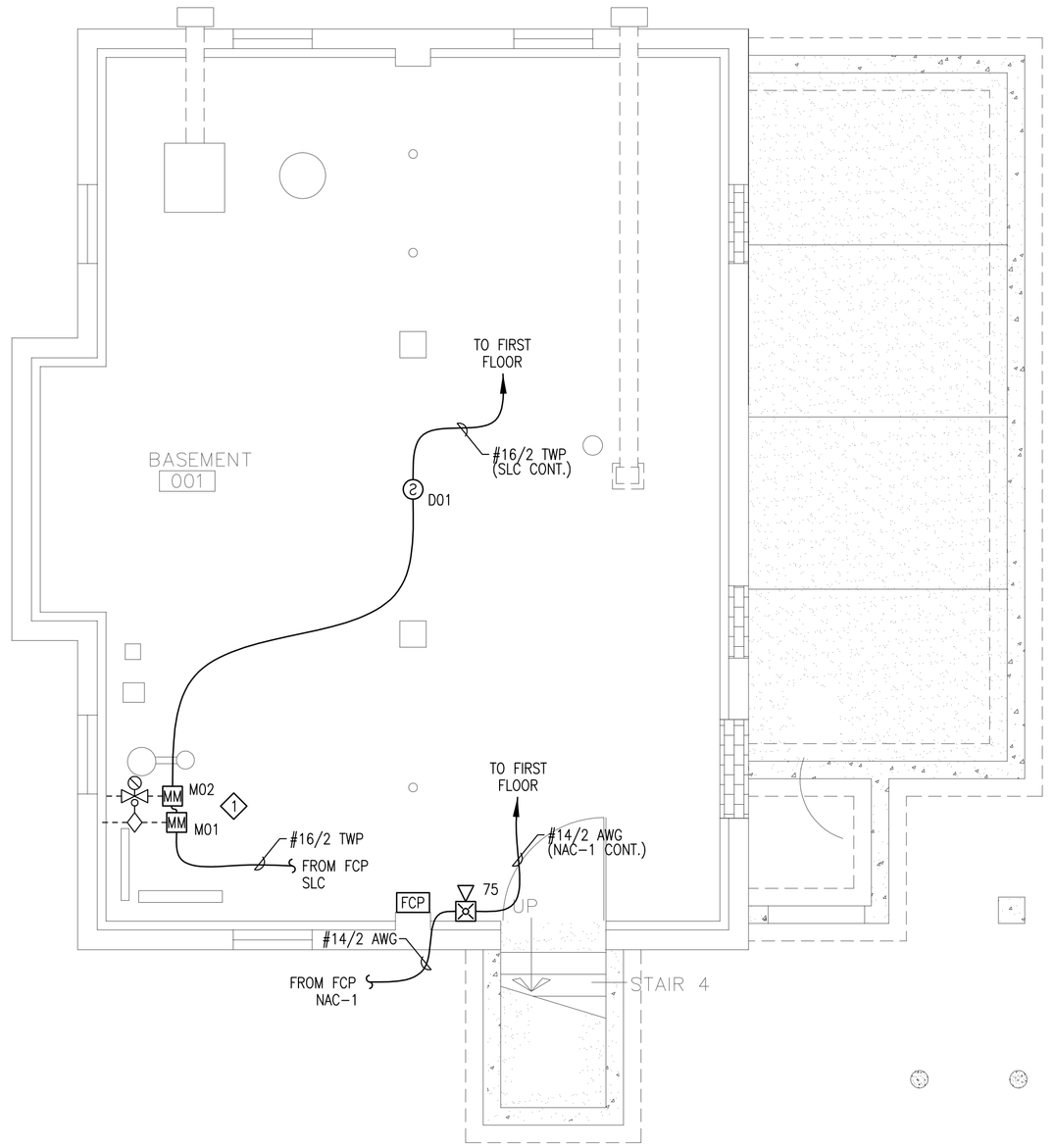

N

BASEMENT FIRE ALARM PLAN

SCALE: 1/4"=1'-0" 0 2' 4' 8'

RESERVED FOR CITY STAMP

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	9/30/2013

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

SHALOM HOUSE
503 WOODFORD STREET
PORTLAND, MAINE 04103
CALCULATIONS & BASEMENT FIRE ALARM PLAN

FCP Battery Calculation

9/30/2013

PROJECT NAME: SHALOM HOUSE-503 WOODFORD 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-9200UDLS Main Circuit Board	1	X	0.14500	=	0.14500
ANN-80 Remote Annunciator	1	X	0.01500	=	0.01500
SD355 Smoke Detectors	25	X	0.00030	=	0.00750
MMF-300 Monitor Modules	12	X	0.00040	=	0.00480
BG-12LX Pull Stations	1	X	0.00030	=	0.00030
Carbon Monoxide Detector	4	X	0.02000	=	0.08000
TOTAL STANDBY LOAD					0.25260

Regulated Load in ALARM

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
MS-9200UDLS Main Circuit Board	1	X	0.27500	=	0.27500
ANN-80 Remote Annunciator	1	X	0.04000	=	0.04000
Carbon Monoxide Detector	4	X	0.04000	=	0.16000
Max. Alarm Draw – All Addressable Devices	1	X	0.40000	=	0.40000
NAC-1 (See voltage drop calcs for device quantity)	1	X	0.80400	=	0.80400
NAC-2	1	X	0.40500	=	0.40500
TOTAL ALARM LOAD					2.08400

Battery Requirements

Standby Load			Required Standby Time in Hours		
Current (Amps)	0.25260	X	24.00000	=	6.06240
Alarm Load			Required Alarm Time in Hours		
Current (Amps)	2.08400	X	0.08333	=	0.17367
Total Ampere Hours (before derating factor)					6.23607
Derating Factor				X	1.2
TOTAL AMPERE HOURS REQUIRED				=	7.48328
BATTERIES TO BE PROVIDED (2 – 12v)					12 AH

NAC Circuit Voltage Drop Calculation 9/30/2013

Project Name	SHALOM HOUSE-503 WOODFORD STREET		
Circuit Number	NAC-1		
Nominal System Voltage	20.4 volts	Wire Gauge	Resistance Per 1000
Minimum Device Voltage	16 volts		
Distance from source to 1st device	10	14	6.14
Wire Gauge for balance of circuit		14	6.14
Max Output Current	1.0 amps		
Total Circuit Current	0.804 amps		

Circuit is within limits

	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.176		20.35	0.05	0%
Device 2	0.176	35	20.22	0.18	1%
Device 3	0.066	7	20.21	0.19	1%
Device 4	0.290	16	20.17	0.23	1%
Device 5	0.017	8	20.17	0.23	1%
Device 6	0.079	32	20.15	0.25	1%
Totals	0.804	103			

NAC Circuit Voltage Drop Calculation 9/30/2013

Project Name	SHALOM HOUSE-503 WOODFORD STREET		
Circuit Number	NAC-2		
Nominal System Voltage	20.4 volts	Wire Gauge	Resistance Per 1000
Minimum Device Voltage	16 volts		
Distance from source to 1st device	45	14	6.14
Wire Gauge for balance of circuit		14	6.14
Max Output Current	1.0 amps		
Total Circuit Current	0.405 amps		

Circuit is within limits

	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.066		20.29	0.11	1%
Device 2	0.017	14	20.26	0.14	1%
Device 3	0.079	9	20.24	0.16	1%
Device 4	0.017	9	20.23	0.17	1%
Device 5	0.017	6	20.22	0.18	1%
Device 6	0.017	11	20.21	0.19	1%
Device 7	0.017	20	20.18	0.22	1%
Device 8	0.017	10	20.17	0.23	1%
Device 9	0.079	20	20.15	0.25	1%
Device 10	0.079	12	20.15	0.25	1%
Totals	0.405	156			

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).

DRAWN	JPB UNICAD JOB #13531
CHECKED	WAYNE B. HAWS NICET IV 90496
DATE	9/30/2013
REVISION	0
SCALE	1/4"=1'-0"

FA-2