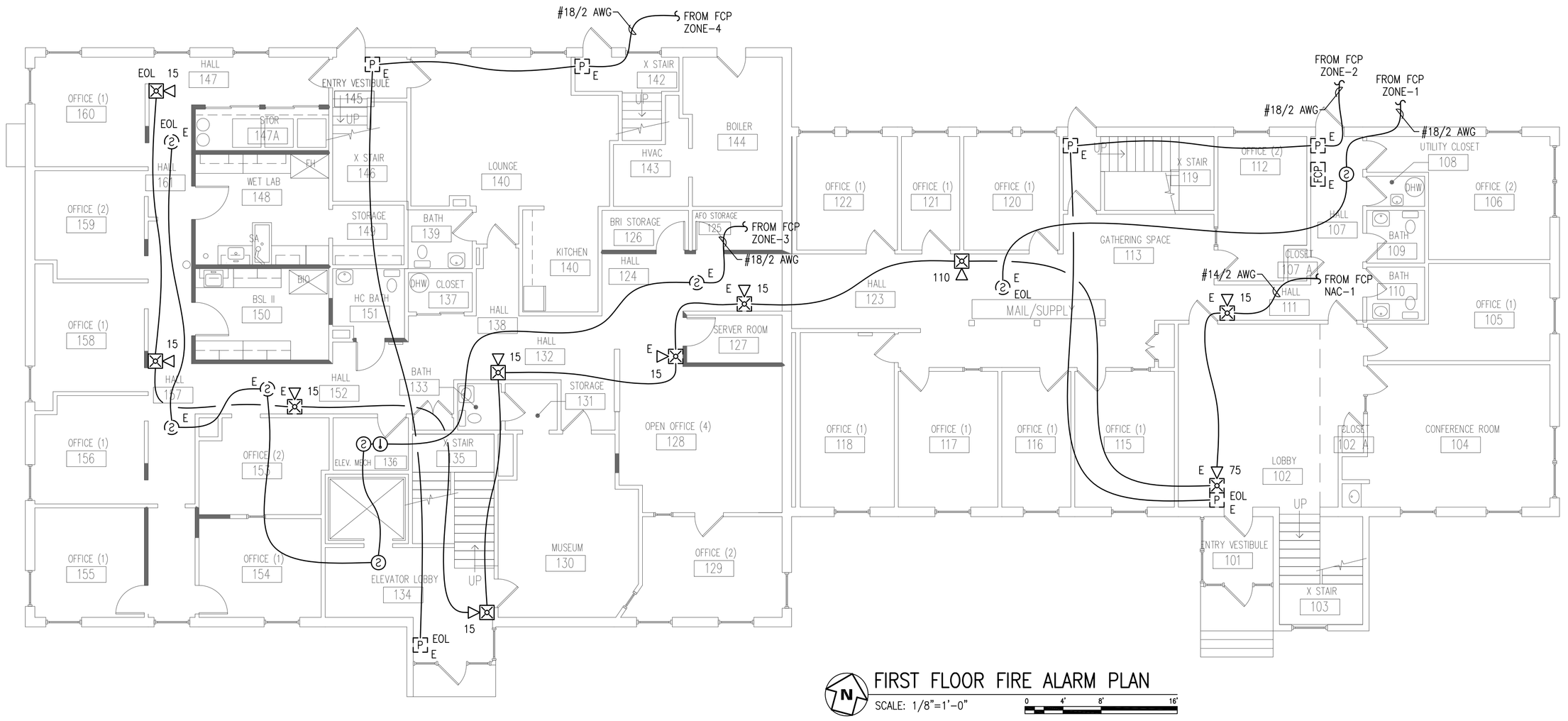

FIRST FLOOR FIRE ALARM PLAN

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

RESERVED FOR CITY STAMP

FCP Battery Calculation

4/28/2015

PROJECT NAME: 276 CANCO ROAD
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-10UD Main Circuit Board	1	X	0.13300	=	0.13300
Smoke Detectors	18	X	0.00005	=	0.00090
Heat Detectors	4	X	0.00000	=	0.00000
Pull Stations	10	X	0.00000	=	0.00000
TOTAL STANDBY LOAD					0.13390

Regulated Load in ALARM

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
MS-10UD Main Circuit Board	1	X	0.28200	=	0.28200
Smoke Detectors	18	X	0.13000	=	2.34000
Heat Detectors	4	X	0.00000	=	0.00000
Pull Stations	10	X	0.00000	=	0.00000
NAC-1 (See voltage drop calcs for device quantity)	1	X	1.02000	=	1.02000
NAC-2	1	X	0.25500	=	0.25500
NAC-3		X		=	0.00000
NAC-4		X		=	0.00000
TOTAL ALARM LOAD					3.89700

Battery Requirements

Standby Load			Required Standby Time in Hours		
Current (Amps)	0.13390	X	24.00000	=	3.21360
Alarm Load			Required Alarm Time in Hours		
Current (Amps)	3.89700	X	0.08333	=	0.32475
Total Ampere Hours (before derating factor)					3.53835
Derating Factor				X	1.2
TOTAL AMPERE HOURS REQUIRED				=	4.24602
BATTERIES TO BE PROVIDED (2 - 12v)					7 AH

NAC Circuit Voltage Drop Calculation — 4/28/2015

Project Name: 276 CANCO ROAD
Circuit Number: NAC-1

			Wire Gauge	Resistance Per 1000
Nominal System Voltage	20.4	volts		
Minimum Device Voltage	16	volts		
Distance from source to 1st device	25		14	6.14
Wire Gauge for balance of circuit			14	6.14
Max Output Current	1.5	amps		
Total Circuit Current	1.020	amps		

Circuit is within limits

	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.079		20.24	0.16	1%
Device 2	0.176	22	20.12	0.28	1%
Device 3	0.212	55	19.86	0.54	3%
Device 4	0.079	29	19.76	0.64	3%
Device 5	0.079	12	19.72	0.68	3%
Device 6	0.079	23	19.67	0.73	4%
Device 7	0.079	26	19.62	0.78	4%
Device 8	0.079	42	19.56	0.84	4%
Device 9	0.079	22	19.54	0.86	4%
Device 10	0.079	30	19.52	0.88	4%
Totals	1.020	286			

NAC Circuit Voltage Drop Calculation — 4/28/2015

Project Name: 276 CANCO ROAD
Circuit Number: NAC-2

			Wire Gauge	Resistance Per 1000
Nominal System Voltage	20.4	volts		
Minimum Device Voltage	16	volts		
Distance from source to 1st device	30		14	6.14
Wire Gauge for balance of circuit			14	6.14
Max Output Current	1.5	amps		
Total Circuit Current	0.255	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	0.176	30	20.32	0.08	0%
Totals	0.255	60			

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	4/29/2015

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276 CANCO ROAD
PORTLAND, MAINE 04103
CALCS & FIRST FLOOR FIRE ALARM PLAN

DRAWN	JPB UNICAD JOB #15144
CHECKED	WAYNE B. HAWS NICET IV 90496
DATE	4/29/2015
REVISION	0
SCALE	1/8" = 1'-0"

FA-2