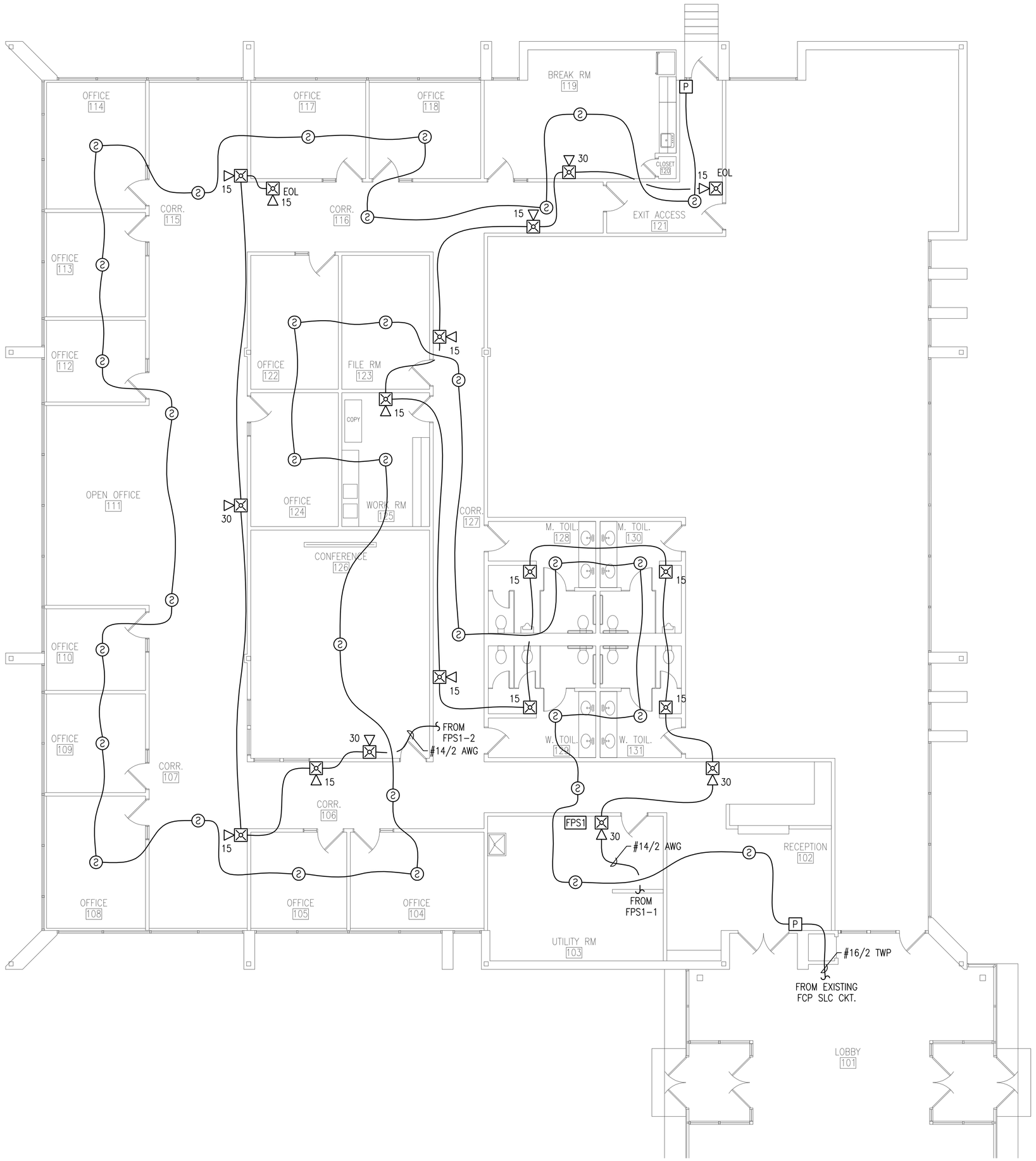

FIRE ALARM PLAN

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

Existing FCP Battery Calculation

6/12/2013

PROJECT NAME: CROSS INSURANCE
Required Standby Time: 24 Hours
Required Alarm Time: 5 Minutes

Regulated Load in Standby

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
Existing Vista-128FBP System		X		=	0.00000
New 4193SN Two Zone SIM (for Pull Stations)	2	X	0.00150	=	0.00300
New 5192SD Smoke Detectors	33	X	0.00280	=	0.09240
TOTAL STANDBY LOAD					0.09540

Regulated Load in ALARM

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
Existing Vista-128FBP System		X		=	0.00000
New 4193SN Two Zone SIM (for Pull Stations)	2	X	0.00150	=	0.00300
New 5192SD Smoke Detectors	33	X	0.00280	=	0.09240
TOTAL ALARM LOAD					0.09540

Battery Requirements

Standby Load			Required Standby Time in Hours		
Current (Amps)	0.09540	X	24.00000	=	2.28960
Alarm Load			Required Alarm Time in Hours		
Current (Amps)	0.09540	X	0.08333	=	0.00795
Total Ampere Hours (before derating factor)					2.29755
Derating Factor				X	1.2
TOTAL AMPERE HOURS REQUIRED				=	2.75706

BATTERIES TO BE PROVIDED (2 – 12v) FIELD VERIFY

NOTE: THE ABOVE BATTERY CALCULATION IS A COMBINED TOTAL OF THE ADDITIONAL LOADS THAT WILL BE ADDED FROM THE SCOPE OF THIS PROJECT. FIELD VERIFY THE SIZE OF THE EXISTING BATTERIES AND UPSIZE ACCORDINGLY.

FPS1 Battery Calculation

6/12/2013

PROJECT NAME: CROSS INSURANCE
Required Standby Time: 24 Hours
Required Alarm Time: 5 Minutes

Regulated Load in Standby

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
Altronix AL802ULADA	1	X	0.09000	=	0.09000
TOTAL STANDBY LOAD					0.09000

Regulated Load in ALARM

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
Altronix AL802ULADA	1	X	0.17500	=	0.17500
FPS1-1	1	X	0.98000	=	0.98000
FPS1-2	1	X	0.53000	=	0.53000
TOTAL ALARM LOAD					1.68500

Battery Requirements

Standby Load			Required Standby Time in Hours		
Current (Amps)	0.09000	X	24.00000	=	2.16000
Alarm Load			Required Alarm Time in Hours		
Current (Amps)	1.68500	X	0.08333	=	0.14042
Total Ampere Hours (before derating factor)					2.30042
Derating Factor				X	1.2
TOTAL AMPERE HOURS REQUIRED				=	2.76050

BATTERIES TO BE PROVIDED (2 – 12v) 7 AH

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 7/29/2013

RESERVED FOR CITY STAMP

NAC Circuit Voltage Drop Calculation

6/12/2013

Project Name: CROSS INSURANCE
Circuit Number: FPS1-1

Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 5
Wire Gauge for balance of circuit: 14 / 14

Wire Gauge	Resistance Per 1000
14	6.14
14	6.14

Max Output Current: 1.5 amps
Total Circuit Current: 0.980 amps

Circuit is within limits

	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.107		20.37	0.03	0%
Device 2	0.107	21	20.26	0.14	1%
Device 3	0.066	12	20.20	0.20	1%
Device 4	0.066	18	20.12	0.28	1%
Device 5	0.066	17	20.06	0.34	2%
Device 6	0.066	18	19.99	0.41	2%
Device 7	0.079	17	19.94	0.46	2%
Device 8	0.079	40	19.84	0.56	3%
Device 9	0.079	13	19.81	0.59	3%
Device 10	0.079	25	19.77	0.63	3%
Device 11	0.107	12	19.76	0.64	3%
Device 12	0.079	21	19.75	0.65	3%
Totals	0.980	219			

NAC Circuit Voltage Drop Calculation

6/12/2013

Project Name: CROSS INSURANCE
Circuit Number: FPS1-2

Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 35
Wire Gauge for balance of circuit: 14 / 14

Wire Gauge	Resistance Per 1000
14	6.14
14	6.14

Max Output Current: 1.5 amps
Total Circuit Current: 0.530 amps

Circuit is within limits

	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.107		20.29	0.11	1%
Device 2	0.079	8	20.27	0.13	1%
Device 3	0.079	18	20.23	0.17	1%
Device 4	0.107	39	20.16	0.24	1%
Device 5	0.079	39	20.13	0.27	1%
Device 6	0.079	5	20.12	0.28	1%
Totals	0.530	144			

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	6/13/2013

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CROSS INSURANCE
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PORTLAND, MAINE 04101
CALCULATIONS & FIRE ALARM PLAN

DRAWN	JPB UNICAD JOB #13294
CHECKED	WAYNE B. HAWS NICET IV 90496
DATE	6/12/2013
REVISION	0
SCALE	1/8"=1'-0"

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FA-2