

FCP Battery Calculation

4/9/2015

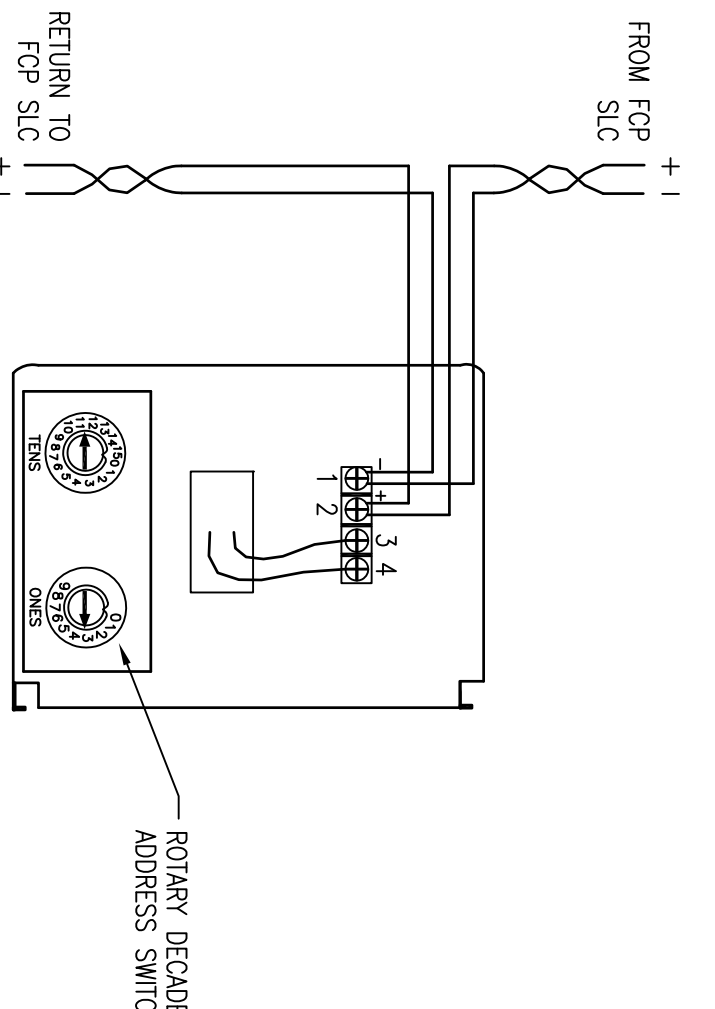
PROJECT NAME: 6 CITY CENTER
 Required Standby Time: 24 Hours
 Required Alarm Time: 5 Minutes

Regulated Load in Standby			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
MS-9200UDLS Main Circuit Board	1	0.15888	0.15888
MAN-80 Remote Annunciator	1	0.000350	0.000350
SD355 Smoke Detectors	7	0.000350	0.002450
H355 Heat Detectors	2	0.00040	0.00080
KMF-300 Monitor Modules	3	0.00027	0.00081
CRF-300 Relay Modules	4	0.00030	0.00120
BC-12LX Pull Stations	13	0.00030	0.00390
TOTAL STANDBY LOAD			0.16888

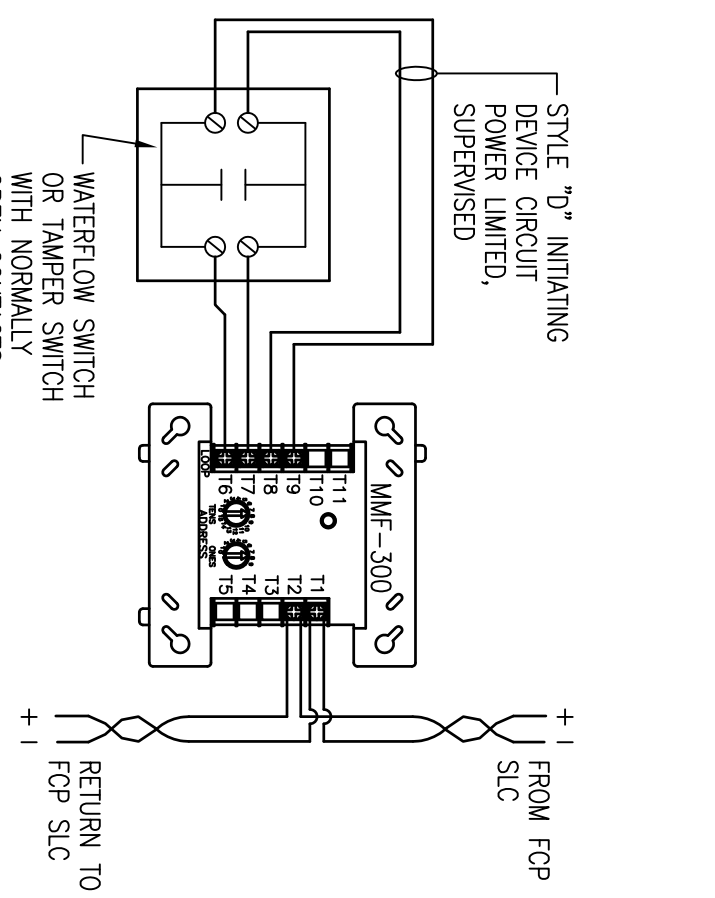
Regulated Load in Alarm			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
MS-9200UDLS Main Circuit Board	1	0.27500	0.27500
MAN-80 Remote Annunciator	1	0.04000	0.04000
SD355 Smoke Detectors	1	0.000350	0.000350
H355 Heat Detectors	1	0.00040	0.00040
KMF-300 Monitor Modules	1	1.50100	1.50100
CRF-300 Relay Modules	1	1.21500	1.21500
BC-12LX Pull Stations	1	1.03500	1.03500
TOTAL ALARM LOAD			5.65400

Battery Requirements			
Standby Load	0.16888	Required Standby Time in Hours	24.00000
Current (Amps)	0.16888	Required Alarm Time in Hours	4.05312
Alarm Load	5.65400	Required Alarm Time in Hours	0.42171
Current (Amps)	5.65400	Required Alarm Time in Hours	4.52479
Total Amper Hours (before derating factor)			4.94719
Derating Factor			1.12
TOTAL AMPERE HOURS REQUIRED			5.42914

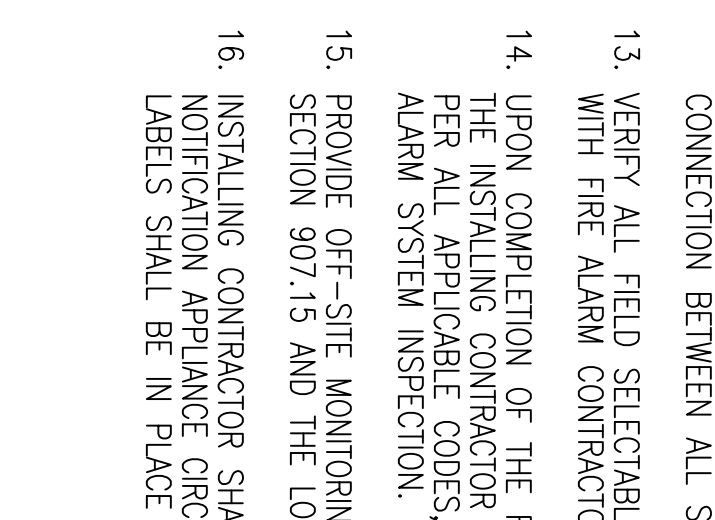
BATTERIES TO BE PROVIDED (2 - 12V)



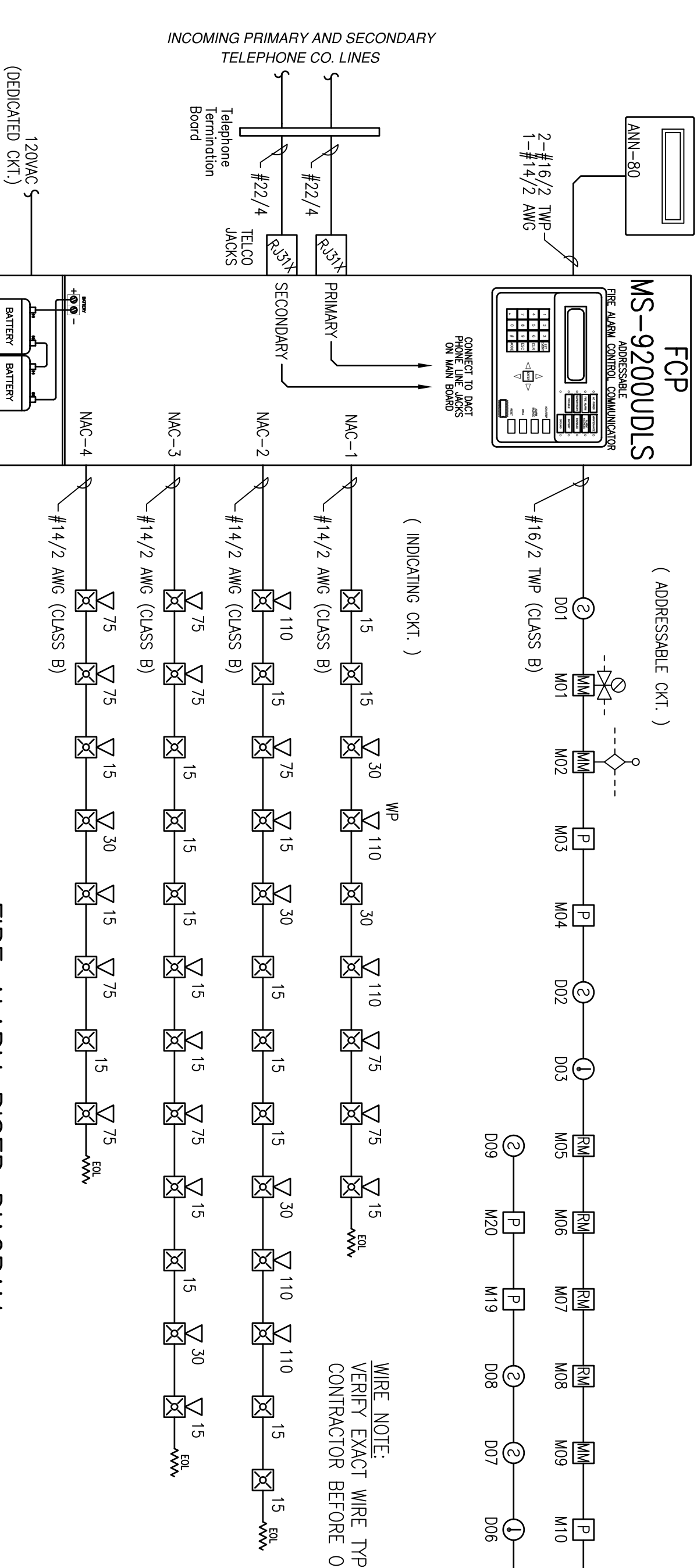
MANUAL PULL STATION WIRING DETAIL
 SCHEMATIC: NO SCALE



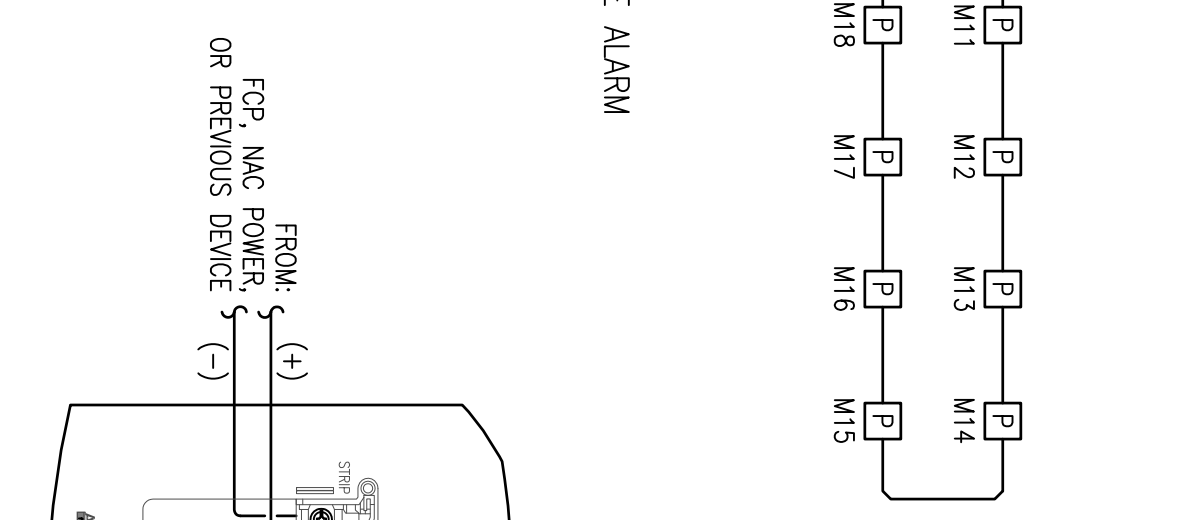
ADDRESSABLE SMOKE DETECTOR WIRING DETAIL
 SCHEMATIC: NO SCALE



WATERFLOW / TAMPER WIRING DETAIL
 SCHEMATIC: NO SCALE



FIRE ALARM RISER DIAGRAM
 SCHEMATIC: NO SCALE



TYPICAL 2 WIRE STROBE WIRING DETAIL
 SCHEMATIC: NO SCALE

GENERAL NOTES:

- THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
- INSTALLATION SHALL COMPLY WITH NEC, NEPA 72 AND ALL OTHER APPLICABLE CODES AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- WIRING DEPICTED ON THESE PLANS IS SCHEMATIC - ACTUAL WIRE LOCATIONS MAY DIFFER FROM THESE PLANS. WIRING SHALL BE PERFORMED AS ACTUAL BUILDING CONSTRUCTION CONDITIONS ALLOW AND TO MINIMIZE PENETRATIONS THROUGH AREA SEPARATION WALLS AND FIRE WALLS. THE USE OF RACEWAY IS PERMITTED AS LONG AS NO 110V OR HIGHER VOLTAGE CABLES ARE IN THE SAME RACEWAY.
- FIRE RATINGS SHALL BE MAINTAINED FOR ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION.
- POWER FOR ALL FIRE ALARM PANELS AND FIRE ALARM POWER SUPPLIES MUST BE PROVIDED BY A DEDICATED AC BRANCH CIRCUIT.
- POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST REMAIN SEPARATED IN CABINET. ALL POWER-LIMITED CIRCUIT WIRING MUST REMAIN AT LEAST 0.25" AWAY FROM ANY NONPOWER-LIMITED CIRCUIT WIRING. FURTHERMORE, ALL POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST ENTER AND EXIT THE CABINET THROUGH DIFFERENT KNOCK OUTS AND/OR SEPARATE CONDUITS.
- WHEN UTILIZING CLASS "A" CIRCUITS SEPARATE OUTGOING AND RETURN CONDUCTORS OF CLASS "A" CIRCUITS BY A MINIMUM OF 12" WHERE RUN VERTICALLY AND 48" WHERE RUN HORIZONTALLY.
- WHEN UTILIZING SHIELDED CABLE THE SHIELDS THROUGH AND INSULATE AT EACH JUNCTION BOX, INSULATE AND TAPE BACK AT END.
- ALL FIRE ALARM CABLING SHALL BE ACCEPTABLE TO THE FIRE ALARM EQUIPMENT MANUFACTURER FOR THE INTENDED PURPOSES.
- SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER CONSTRUCTION CLEAN-UP IS COMPLETED AND FINAL.
- LOCATE SMOKE DETECTORS A MINIMUM OF THREE (3) FEET FROM MECHANICAL DIFFUSERS. WALL-MOUNTED SMOKE DETECTORS SHALL BE LOCATED A MINIMUM OF 4" AND A MAXIMUM OF 12" FROM CEILING. CEILING-MOUNTED SMOKE DETECTORS SHALL BE MOUNTED ON CEILINGS AND NOT ON THE BOTTOMS OF BEAMS OR JOISTS.
- PROVIDE SYNCHRONIZATION OF ALL VISUAL NOTIFICATION APPLIANCE CIRCUITS. PROVIDE ALL REQUIRED SYNC MODULES. PROVIDE A MULTI-SYNC MODE SLAVE CONNECTION BETWEEN ALL SYNC MODULES.
- VERIFY ALL FIELD SELECTABLE AUDIBILITY SETTINGS OF NOTIFICATION APPLIANCES WITH FIRE ALARM CONTRACTOR.
- UPON COMPLETION OF THE FIRE ALARM SYSTEM INSTALLATION AND PROGRAMMING, THE INSTALLING CONTRACTOR SHALL PERFORM FINAL TESTING OF THE ENTIRE SYSTEM, PER ALL APPLICABLE CODES, AND SHALL COORDINATE AND PERFORM A FINAL FIRE ALARM SYSTEM INSPECTION.
- PROVIDE OFF-SITE MONITORING AS REQUIRED BY THE INTERNATIONAL FIRE CODE, SECTION 907.15 AND THE LOCAL AUTHORITY HAVING JURISDICTION.
- INSTALLING CONTRACTOR SHALL, PHYSICALLY LABEL ALL INITIATING DEVICES AND NOTIFICATION APPLIANCE CIRCUIT END OF LINE (WHEN WIRING CLASS "B"), THESE LABELS SHALL BE IN PLACE PRIOR TO START-UP AND TESTING.

FIRE ALARM SYMBOL LEGEND

SYMBOL	DESCRIPTION	MOUNTING
FCP	FIRE ALARM CONTROL PANEL	WALL-TOP @ 66"
FPS	FIRE ALARM POWER SUPPLY	FIELD VERIFY
FSA	FIRE SYSTEM ANNUNCIATOR	WALL-TOP @ 66"
FSD	FIRE/SMOKE DAMPER	BY OTHERS
SD	SMOKE DETECTOR	CEILING
SDS	SMOKE DETECTOR	BY OTHERS
DD	DUCT SMOKE DETECTOR	CEILING
CM	ADDRESSABLE CONTROL MODULE	FIELD VERIFY
AM	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
P	MANUAL PULL STATION	WALL @ 48"
R	CONTROL RELAY (MULTI-VOLTAGE)	FIELD VERIFY
RM	ADDRESSABLE RELAY MODULE	FIELD VERIFY
MD	MAGNETIC DOOR HOLDER	FIELD VERIFY
WFS	WATER FLOW SWITCH	BY OTHERS
VS	VALVE TAMPER SWITCH	BY OTHERS
B	BELL	BY OTHERS
CS	CEILING MOUNT STROBE	FIELD VERIFY
CS	CEILING MOUNT HORN / STROBE	FIELD VERIFY
CS	CEILING MOUNT SPEAKER / STROBE	FIELD VERIFY
CS	HORN / STROBE	WALL @ 10'-0"
CS	HORN / STROBE	WALL 80'-96"
CS	SPEAKER / STROBE	WALL 80'-96"
CS	SPEAKER	WALL @ 90"
CS	STROBE	WALL 80'-96"
KB	KNOX BOX	FIELD VERIFY

APPLICABLE CODES:

MAINE UNIFORM ENERGY & BUILDING CODE
 PORTLAND CITY CODE, CHAPTER 10, FIRE PREVENTION & PROTECTION
 NFPA 1, FIRE CODE, & NFPA 101, LIFE SAFETY CODE

OPERATIONS MATRIX

OPERATIONS	FIRE ALARM OUTPUT	ACTIVATE ALARM INDICATOR	ACTIVATE AUDIBLE ALARM	ACTIVATE SUPERVISORY INDICATOR	ACTIVATE AUDIBLE SUPERVISORY SIGNAL	ACTIVATE TROUBLE INDICATOR	ACTIVATE AUDIBLE TROUBLE INDICATOR	TRANSMIT ALARM SIGNAL	TRANSMIT SUPERVISORY SIGNAL	TRANSMIT TROUBLE SIGNAL	ACTIVATE ALTERNATE ELEVATOR RECALL	ACTIVATE PRIMARY RECALL	ACTIVATE ELEVATOR SHUNT
FIRE ALARM INPUT	●	●	●	●	●	●	●	●	●	●	●	●	●
SMOKE DETECTORS	●	●	●	●	●	●	●	●	●	●	●	●	●
HEAT DETECTORS	●	●	●	●	●	●	●	●	●	●	●	●	●
PULL STATIONS	●	●	●	●	●	●	●	●	●	●	●	●	●
PRIMARY RECALL FIR, ELEV LOBBY SMOKE DET	●	●	●	●	●	●	●	●	●	●	●	●	●
ALTERNATE RECALL FIR, ELEV LOBBY SMOKE DET	●	●	●	●	●	●	●	●	●	●	●	●	●
TOP OF ELEV SHAFT SMOKE DET	●	●	●	●	●	●	●	●	●	●	●	●	●
ELEVATOR EQUIPMENT ROOM SMOKE DET	●	●	●	●	●	●	●	●	●	●	●	●	●
ELEVATOR EQUIPMENT ROOM HEAT DET	●	●	●	●	●	●	●	●	●	●	●	●	●
TOP OF ELEV SHAFT HEAT DET	●	●	●	●	●	●	●	●	●	●	●	●	●
WATERFLOW SWITCHES	●	●	●	●	●	●	●	●	●	●	●	●	●
VALVE TAMPER SWITCHES	●	●	●	●	●	●	●	●	●	●	●	●	●
FIRE ALARM AC POWER FAIL	●	●	●	●	●	●	●	●	●	●	●	●	●
FIRE ALARM LOW BATTERY	●	●	●	●	●	●	●	●	●	●	●	●	●
OPEN CIRCUIT	●	●	●	●	●	●	●	●	●	●	●	●	●
GROUND FAULT	●	●	●	●	●	●	●	●	●	●	●	●	●
NAC SHORT CIRCUIT	●	●	●	●	●	●	●	●	●	●	●	●	●
LOSS OF AC TO BUILDING	●	●	●	●	●	●	●	●	●	●	●	●	●

RESERVED FOR CITY STAMP

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	4/2/2015
1	REVISED PER CLIENT REVIEW	4/10/2015

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BATTERY CALC, DETAILS, LEGEND, MATRIX, NOTES

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DESIGNED BY: JPB
 DRAWN: UNIGAD JOB #15211
 CHECKED: WYANNE B. HAYS
 NECT IV 90486
 DATE: 4/2/2015
 SCALE: NONE

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