

FCP Battery Calculation

3/11/2015

PROJECT NAME: ALLSPEED CYCLERY & SNOW LLC
 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-9200UDS Main Circuit Board EXISTING	X	0.00023	0.00000
BO-12LX Pull Stations NEW	3	X	0.00069
TOTAL STANDBY LOAD			0.00069
Regulated Load in Alarm			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
MS-9200UDS Main Circuit Board EXISTING	X	X	0.00000
Max Alarm Draw - All Addressable Devices (Existing)	X	X	0.00000
MS-1 (See voltage drop calc for device quantity)	1	1.01200	1.01200
TOTAL ALARM LOAD			1.01200
Battery Requirements			
Standby Load	Required Standby Time in Hours	0.00069	X
Current (Amps)	24.00000	=	0.01656
Alarm Load	Required Alarm Time in Hours	1.01200	X
Current (Amps)	0.08333	=	0.08433
Total Ampere Hours (before derating factor)			0.10089
Derating Factor			X
TOTAL AMPERE HOURS REQUIRED			0.12107

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.

NAC Circuit Voltage Drop Calculation

Project Name	ALLSPEED CYCLERY & SNOW LLC
Circuit Number	EXISTING NAC CRT
Nominal System Voltage	20.4 volts
Minimum Device Voltage	16 volts
Distance from source to 1st device	75
Wire Gauge for balance of circuit	14
Resistance Per 1000	6.14
Max Output Current	1.33 amps
Total Circuit Current	1.012 amps

Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.176	35	19.93	0.47	2%
Device 2	0.176	19.75	0.65	3%	3%
Device 3	0.176	22	0.72	4%	4%
Device 4	0.066	16	0.76	4%	4%
Device 5	0.066	7	0.78	4%	4%
Device 6	0.176	50	19.62	0.83	4%
Device 7	0.176	207	19.57	0.83	4%
Totals					

GENERAL NOTES:

- THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
- INSTALLATION SHALL COMPLY WITH NEC, NFPA 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 A 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 NON-POWER-LIMITED CIRCUIT WIRING MUST REMAIN SEPARATED IN CABINET. ALL POWER-LIMITED CIRCUIT WIRING MUST REMAIN AT LEAST 0.25" AWAY FROM ANY NON-POWER-LIMITED CIRCUIT WIRING. FURTHERMORE, ALL POWER-LIMITED AND NON-POWER-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 PURPOSE.
- 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 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 COMANDUANE AND PERFORM A FINAL FIRE ALARM SYSTEM INSPECTION.
- PROVIDE OFF-SITE MONITORING AS REQUIRED BY THE INTERNATIONAL FIRE CODE, SECTION 907.19 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.

APPLICABLE CODES:

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

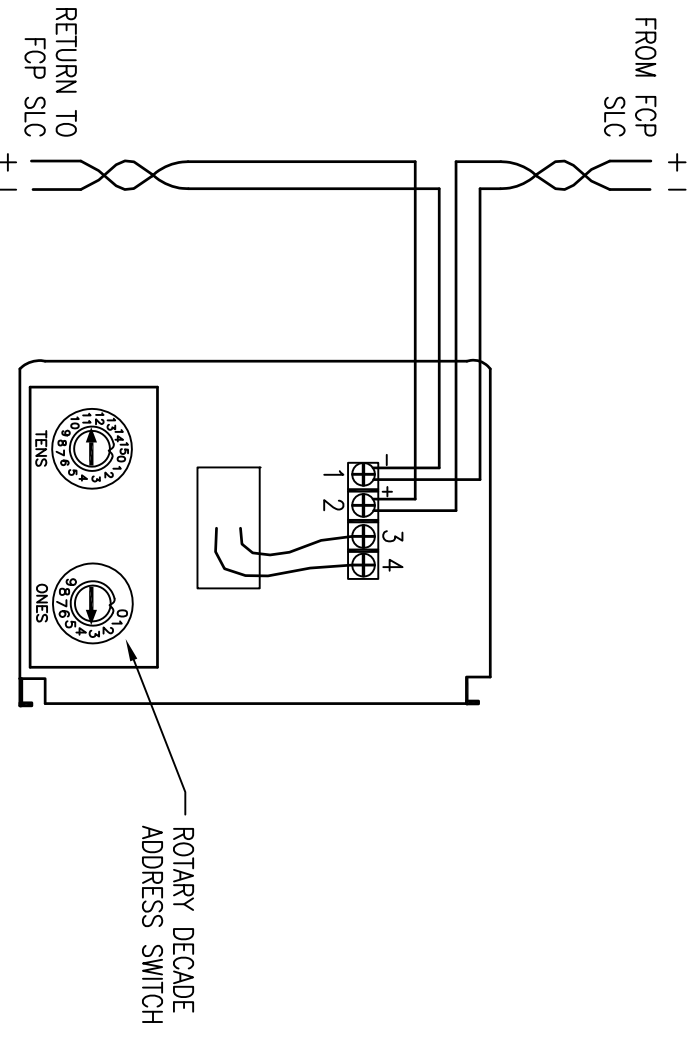
FIRE ALARM SYMBOL LEGEND

SYMBOL	DESCRIPTION	MOUNTING
FCB	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
SD-	DUCT SMOKE DETECTOR	BY OTHERS
HED	HEAT DETECTOR	CEILING
AM	ADDRESSABLE CONTROL MODULE	FIELD VERIFY
MM	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
P	MANUAL PULL STATION	WALL @ 48"
CR	CONTROL RELAY (MULTI-VOLTAGED)	FIELD VERIFY
RM	ADDRESSABLE RELAY MODULE	FIELD VERIFY
RM	SERIAL INTERFACE MODULE	FIELD VERIFY
WFS	WATER FLOW SWITCH	BY OTHERS
VTS	VALVE TAMPER SWITCH	BY OTHERS
B	BELL	BY OTHERS
CS	CEILING MOUNT STROBE	FIELD VERIFY
CH	CEILING MOUNT HORN / STROBE	FIELD VERIFY
CS/S	CEILING MOUNT SPEAKER / STROBE	FIELD VERIFY
H	HORN	WALL @ 10'-0"
H/S	HORN / STROBE	WALL @ 80"-96"
S	SPEAKER / STROBE	WALL @ 80"-96"
SP	SPEAKER	WALL @ 90"
ST	STROBE	WALL @ 80"-96"

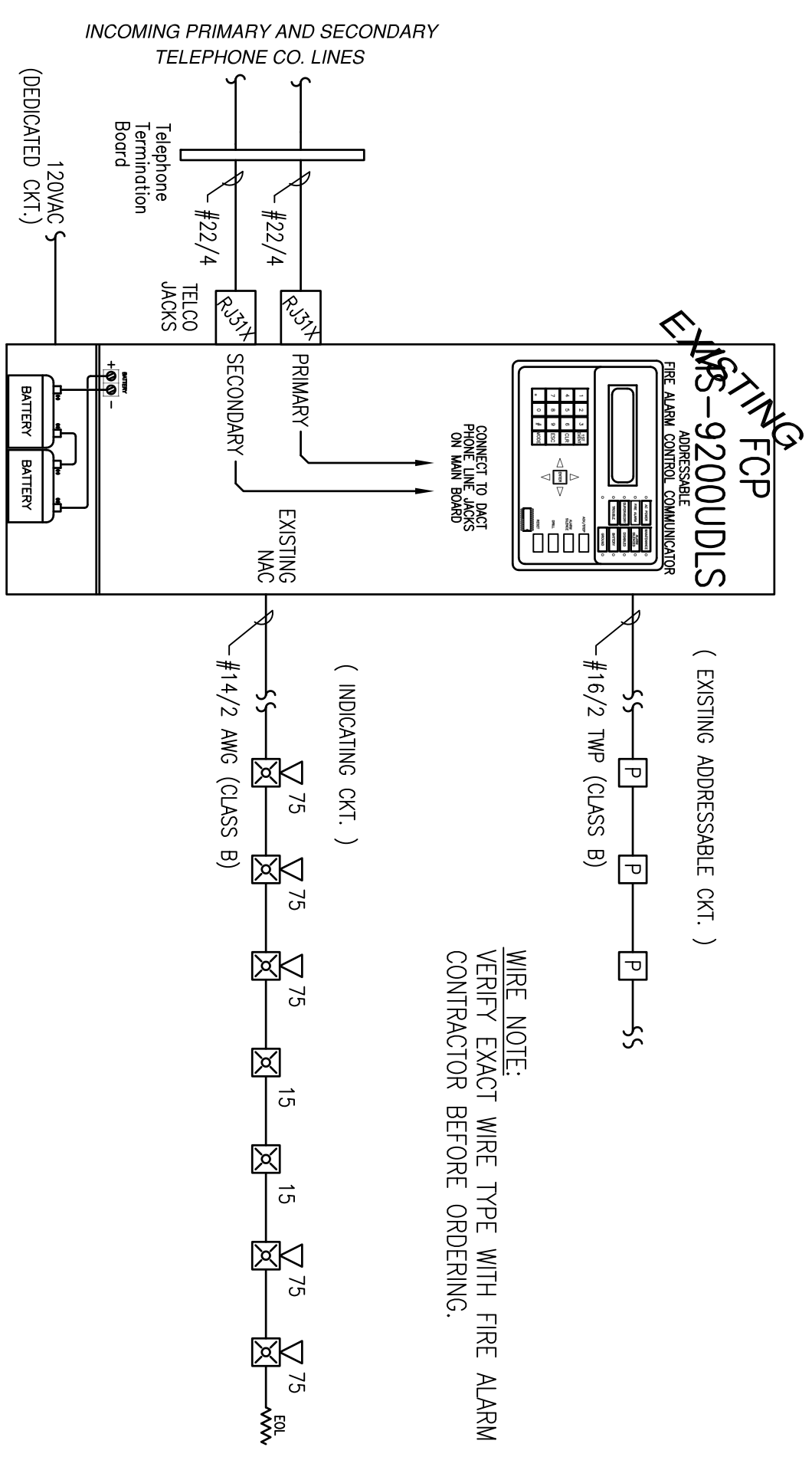
T.1. OPERATIONS MATRIX

	FIRE ALARM INPUT	FIRE ALARM OUTPUT
PULL STATIONS	●	●
FIRE ALARM AC POWER FAIL	●	●
FIRE ALARM LOW BATTERY	●	●
OPEN CIRCUIT	●	●
GROUND FAULT	●	●
NAC SHORT CIRCUIT	●	●
LOSS OF AC TO BUILDING	●	●

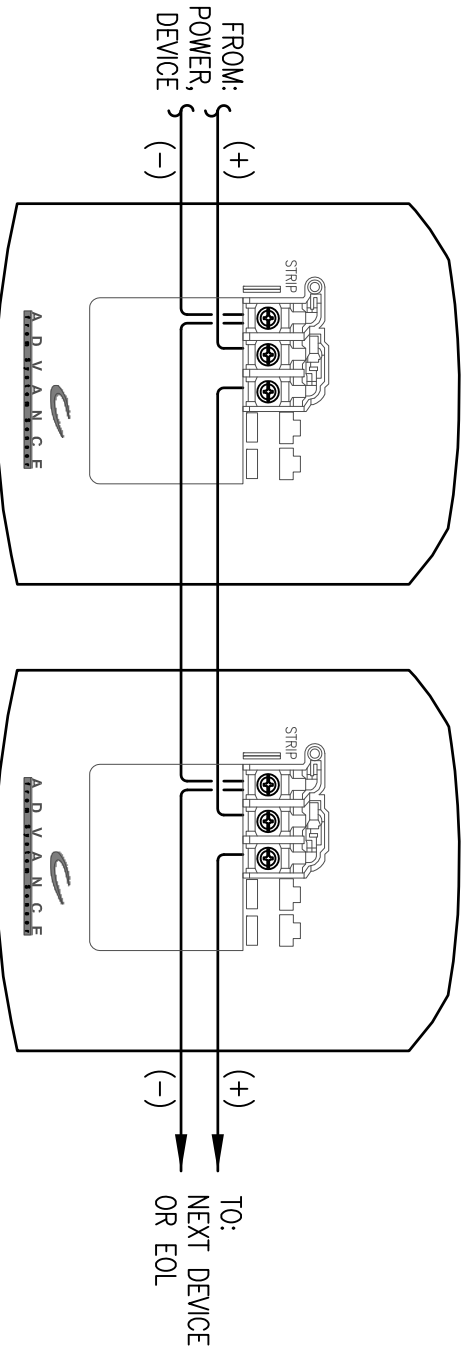
MANUAL PULL STATION WIRING DETAIL



FIRE ALARM RISER DIAGRAM



TYPICAL 2 WIRE STROBE WIRING DETAIL



RESERVED FOR CITY STAMP

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	1/28/2015
1	ADDED PULL STATIONS	3/11/2015

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CALCS, DETAILS, LEGEND, MATRIX, NOTES

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FA-1

DATE	1/28/2015
CHECKED	WYNNE B. HAWES
DRAWN	JPB UNIGAD JOB #15066

KEY PLAN
 NOT TO SCALE

