

STATEMENT OF WORK

1. MODIFY THE EXISTING FIRE ALARM SYSTEM TO ACCOMMODATE THE NEW DEVICES
2. THE NEW FIRST FLOOR DEVICES (PARTIAL REMODEL)
3. WORK SHALL BE POWERED BY EXISTING SIGNAL POWER EXPANDERS.

SINGLE SYSTEM NOTE

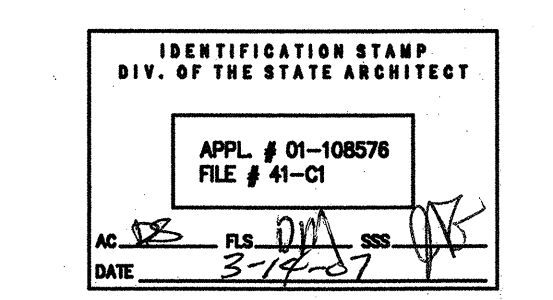
1. ALL WIRING SHALL BE IN CONDUIT U.O.N. MINIMUM CONDUIT SIZE SHALL BE 3/4"
2. PROVIDED AND INSTALL ALL CONDUIT, BOXES CONDUCTORS, POWER SUPPLY, RELAYS, ZONE MODULES, CHIRPS, SWITCHES ETC. FOR A COMPLETE AND OPERABLE FIRE ALARM, CLOCK, TELEPHONE/INTERCOM, ETC.
3. ALL CABLES COMING INTO THE STD OR FTD CHNS SHALL TERMINATE TO TERMINAL BLOCKS ON RAIL MOUNTED TO THE CHN.
4. ALL REQUIREMENT OF CONTRACT SPECIFICATIONS AND DRAWING APPLY.
5. INSTALLATION SHALL CONFORM TO REQUIREMENTS OF APPLICABLE ELECTRICAL CODES
6. TEE-TAP INSIDE BUILDING IN JUNCTION BOX, USE TERMINAL BLOCKS.
7. FIRE ALARM FIELD WIRING SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
8. 120VAC 60HZ INPUT POWER FOR FIRE ALARM CONTROLS SHALL BE A DEDICATED, LOCKING BREAKER PROPERLY LABELED "SOURCE FROM LINE OF MAIN DISCONNECT OR EMERGENCY POWER"
9. ALL WIRING INCLUDING SHIELDS MUST BE DRY AND FREE OF SHORTS AND GROUNDS.
10. 120VAC IS NOT PERMITTED IN SAME CONDUIT WITH LOW VOLTAGE WIRING.
11. DO NOT APPLY POWER EXCEPT IN THE PRESENCE IF A FACTORY-TRAINED FIRE ALARM TECHNICAL REPRESENTATIVE
12. THERE WILL BE NO CONDUIT ENTRY ALLOWED 18" OR LOWER ON THE SIDE PANELS OR THROUGH THE BOTTOM OF ALL CONTROL EQUIPMENT BACKBOARDS.
13. ALL VISUAL ALARM IN THE MULTI-USER ROOM, SHALL BE SYNCHRONIZED.
14. VISUAL DEVICE SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A FLASHING LIGHT SOURCE NOT LESS THAN 75 CANDELA. NO PLACE IN ANY ROOM SHALL BE MORE THAN 8 FT FROM THE DEVICE.
15. UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATER-TIGHT FITTINGS AND WIRES TO BE APPROVED FOR WET LOCATIONS.
16. ALL WIRE, PANEL AND DEVICE TERMINATION, CONDUIT, PHYSICAL MOUNTING, ETC. SHALL BE PROVIDED BY OTHER FIRE ALARM SYSTEM MANUFACTURER.
17. ALL EXISTING CLOCKS AND SPEAKER SHOWN SHALL BE DISCONNECTED AND REMOVED AND TURNED OVER TO THE SCHOOL DISTRICT.
18. EXISTING MASTER INTERCOM/COMMUNICATION SYSTEM SHALL BE REMOVED AND TURNED OVER TO THE SCHOOL DISTRICT.
19. ALL NEW COMBINATION CLOCK AND SPEAKER DEVICES SHALL BE INSTALLED SURFACE MOUNTED ABOVE BLACKBOARD IN THE CLASSROOM.
20. AUDIBLE DEVICES TO BE AT LEAST 15 DBA ABOVE THE EQUIPMENT SOUND LEVEL BUT NOT LESS THAN 75 DBA AT 10' OR MORE THAN 110 DBA AT THE MINIMUM HEARING DISTANCE.
21. AUDIBLE DEVICE SHALL SOUND THE CALIFORNIA UNIFORM FIRE ALARM SIGNAL.
22. FIRE ALARM CONTRACTOR SHALL PROVIDE A "RECORD OF COMPLETION" TO THE INSPECTOR OF RECORD (IOR) 10 DA AFTER COMPLETION OF OPERATIONAL ACCEPTANCE TESTS.
23. FINAL FIRE ALARM TEST SHALL BE MADE WITH DSA INSPECTOR OF RECORD (IOR) AND SHALL BE MADE WITHIN 10 BUSINESS DAYS OF THE DATE OF FINAL FIRE ALARM TESTING.
24. IOR SHALL VERIFY THE TESTS WERE PERFORMED AND APPROVED.

- APPLICABLE CODES
1. 2001 BUILDING STANDARDS ADMINISTRATIVE CODE
PART 1, TITLE 24 C.C.R.
 2. 2001 CALIFORNIA BUILDING CODE (CBC)
PART 2, TITLE 24 C.C.R.
 - (1997 UNIFORM BUILDING CODE VOLUME 1-3 AND 1998 CALIFORNIA AMENDMENTS).
 3. 2001 CALIFORNIA ELECTRICAL CODE (CEC)
PART 3, TITLE 24 C.C.R.
(1993 NATIONAL ELECTRICAL CODE AND 1998 CALIFORNIA AMENDMENTS)
 4. 2001 CALIFORNIA MECHANICAL CODE (CMC)
PART 4, TITLE 24 C.C.R.
(1984 UNIFORM MECHANICAL CODE AND 1995 CALIFORNIA AMENDMENTS)
 5. 2001 CALIFORNIA PLUMBING CODE (CPC)
PART 5, TITLE 24 C.C.R.
(1994 UNIFORM FIRE CODE AND 1995 CALIFORNIA AMENDMENTS)
 6. 2001 CALIFORNIA FIRE CODE (CFC)
PART 6, TITLE 24 C.C.R.
(1994 UNIFORM FIRE CODE AND 1995 CALIFORNIA AMENDMENTS)
 7. 2001 CALIFORNIA REFERENCED STANDARDS CODE.
PART 12, TITLE 24 C.C.R.
 8. 1990 TITLE 16, C.C.R. PUBLIC SAFETY, STATE FIRE MARSHAL REGULATORS
PARTIAL LIST OF APPLICABLE NFPA STANDARDS.
NFPA 13 - AUTOMATIC SPRINKLER SYSTEMS 1993 EDITION
NFPA 14 - STANDPIPE SYSTEMS 1999 EDITION
NFPA 19 - HOSE CONNECTION SYSTEMS 1999 EDITION
NFPA 24 - PRIVATE FIRE ARMS 1992 EDITION
CALIFORNIA AMENDED 7-NFPA 72 - NATIONAL FIRE ALARM CODES 1996 EDITION
NFPA 652 - SERVICE MANUAL - PLAN OF FLOOR COVERING SYSTEMS 1998 EDITION
NFPA 601 - CLEAN AGENT FIRE EXTINGUISHING SYSTEM 1994 EDITION
- REFERENCE CODE SECTION FOR NFPA STANDARDS - CBC (SFA) 3303.1.3

SEQUENCE OF OPERATION

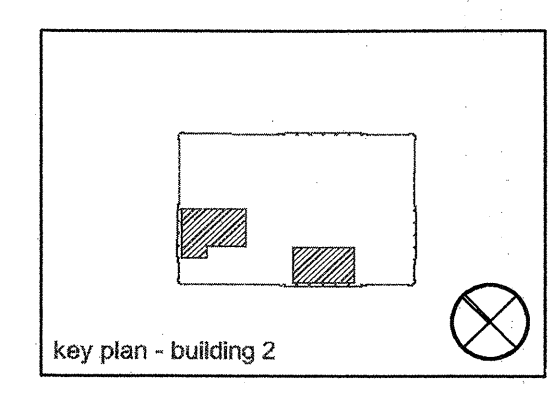
1. ACTUATION OF ANY PULL STATION:
 - A. LIGHT CIRCUIT LED AT CONTROL PANEL DESIGNATING THE CIRCUIT INVOLVED.
 - B. SEND ALARM SIGNAL TO CENTRAL MONITORING STATION.
 - C. ACTIVATE ALL HORNS, HORN/STROBES AND STATION.
2. ACTUATION OF ANY SMOKE DETECTOR SHALL:
 - A. PERFORM FUNCTIONS SPECIFIED FOR MANUAL PULL STATION.
 - B. DAMPERS SHALL CLOSE @ ACTUATION OF SMOKE DETECTOR
3. SYSTEM OPEN OR SHORT-CIRCUIT AND GROUND FAULT SHALL:
 - A. SOUND TROUBLE ALARM AND LIGHT TROUBLE LED AT THE FIRE ALARM CONTROL PANEL.

NOTE
THE EXISTING FIRE ALARM PANEL AND SYSTEM WAS APPROVED UNDER SBA APPLICATION #01-100317. SCOPE OF WORK ON THESE DRAWINGS IS LIMITED TO THE ADDITION OF VISUAL ALARM NOTIFICATION DEVICES (SHOWN ON EF-2.0) TO EXISTING FIRE ALARM PANEL AND SIGNAL POWER EXPANDERS.



02.02.07 DSA SUBMITTAL
DSA BACKCHECK

rev. date issue



STEINBERG ARCHITECTS
project no: 06044 date: 03/15/07
drawn by: VB checked by: DL
scale: 1/4"=1'-0"

FIRE ALARM EQUIPMENT LIST,
GENERAL NOTES, AND SITE PLAN

SYMBOL	DESCRIPTION	CSDM LISTING	REMARKS
[FSCP]	KIRKLAND FIREMAN'S SMOKE CONTROL PANEL # B694D-0-32	7120-1178:100	EXISTING
[CTC]	FIRE ALARM TERMINAL CABINET (PROVIDED BY OTHERS) (EXISTING)		EXISTING
[PAD-2 #3]	AUXILIARY POWER SUPPLY PANEL (PAD-2)	7300-0087:175	EXISTING
(E) [S] 15CD	24 VDC STROBE 15 CANDELA (RSS-2415W-FR) WEELOCK	7125-0785:141	
(N) [S] 75CD	24 VDC STROBE 75 CANDELA (RSS-2475W-FR) WEELOCK	7125-0785:141	
(J)	JUNCTION BOX (BY OTHERS)		
(E)	DENOTES EXISTING		
(N)	DENOTES NEW		

WIRING LEGEND

SYMBOL	WIRE TYPE	USED ON
1A	2-CONDUCTOR, #18 AWG SOLID TWISTED SHIELDED CABLE	ADDRESSABLE ALARM INITIATING DEVICES: - LP-SERIES SMOKE DETECTORS - TR-SERIES INTERFACE MODULES - AD-SERIES DUCT DETECTORS - MS-SERIES PULL STATION
1B	2-CONDUCTOR, #12 AWG SOLID	FACP OR PAD-2 24 VDC POWER TO - STROBE CIRCUIT
1C	2-CONDUCTOR, #12 AWG SOLID	FACP OR PAD-2 24 VDC POWER TO - HORN CIRCUIT
1D	2-CONDUCTOR, #18 AWG SOLID TWISTED SHIELDED CABLE	MXL NETWORK WIRING
1E	2-CONDUCTOR, #14 AWG THIN STRANDED	TR TO MONITORED DEVICES: - TAMPER SWITCH - WATERFLOW SWITCH - FAN INTERFACE WIRING
1F	2-CONDUCTOR, #12 AWG SOLID	24 VDC POWER
	2-CONDUCTOR, #12 AWG SOLID, THIN (GROUNDED WIRE)	120 VAC POWER

VOLTAGE DROP CALCULATIONS

VOLTAGE DROP FOR A GIVEN LENGTH OF CONDUCTOR = $1 \times \text{FEET} \times 21.6 \text{ C.M.}$

WHERE: I = AMPERES PER TERMINAL OF LOAD
FEET = ONE WAY DISTANCE IN FEET MEASURED FROM SOURCE OF SUPPLY TO LOAD
21.6 = CONSTANT (RESISTANCE OF CONDUCTOR @ 10.8 OHMS PER L.M. FOR TWICE THE LENGTH)
C.M. = CROSS SECTIONAL AREA IN CIRCULAR MILS (SEE CHART BELOW)

WIRE SIZE (AWG)	12	14	16	18	20
CIRCULAR MILS (C.M.)	6530	4110	2580	1620	1020

LONGEST AUDIBLE CIRCUIT - CKT BVI
APPROX. LENGTH OF CONDUCTOR - 400 FEET
TOTAL CURRENT LOAD FOR CKT A1 - .805 AMPS

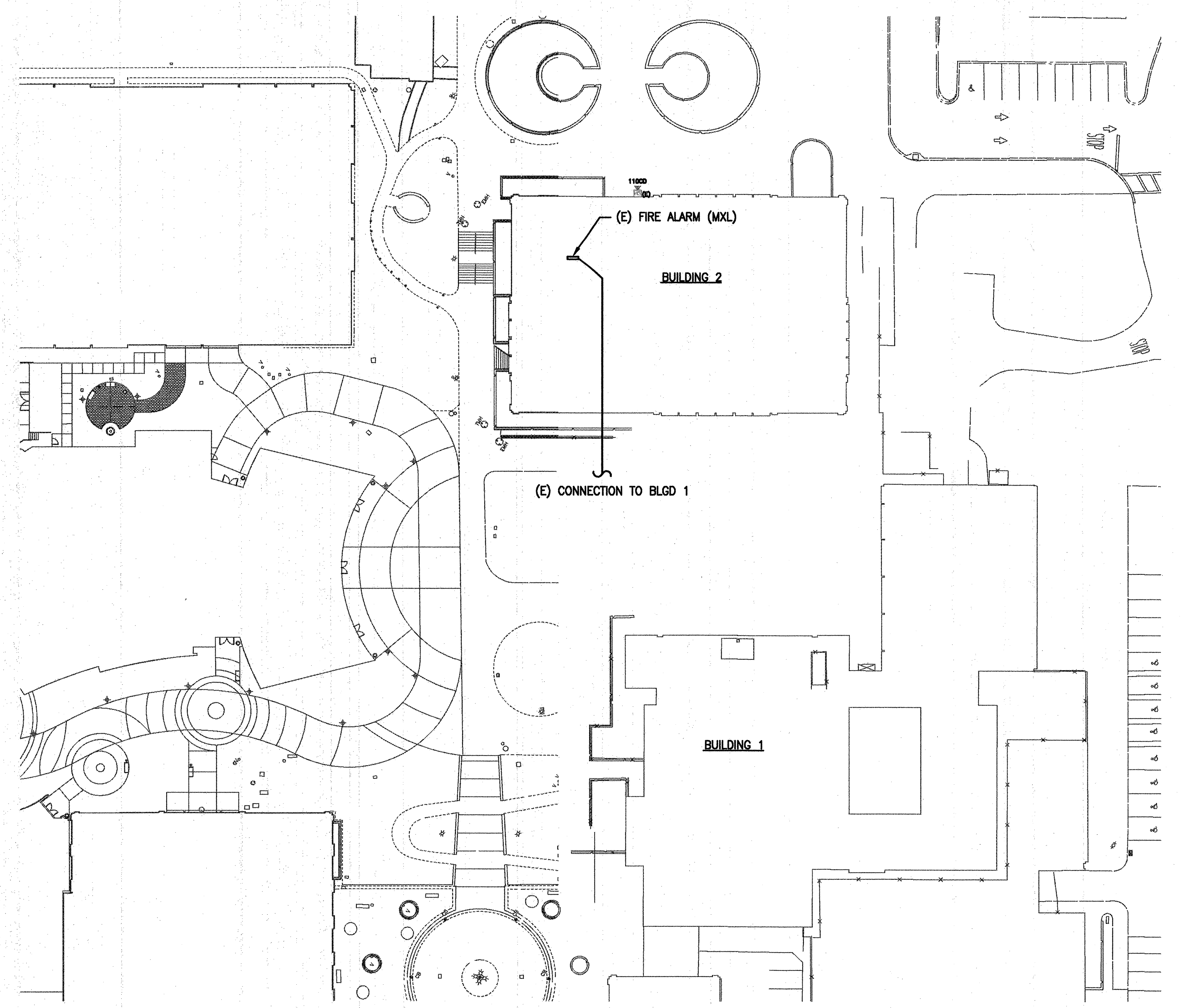
VOLTAGE DROP = $\frac{0.805 \times 400 \times 21.6}{6530} = \frac{6955}{6530} = 1.1 \text{ VOLTS}$

% OF VOLTAGE DROP = $\frac{1.1 \text{ VOLTS}}{24 \text{ VOLTS}} = .046 \text{ OR } 4.6\%$

THUS, THE 1.1 VOLTS DROP IS WITHIN THE DEVICE OPERATING VOLTAGE RANGE
NOTE: THE OPERATING VOLTAGE OF THE AUDIBLE/VISUAL SIGNALS USED IS 18 TO 31 VDC.

GENERAL ELECTRICAL NOTES

1. ALL WIRING MUST CONFORM WITH SPECIFICATIONS, CALIFORNIA ELECTRICAL CODE (CURRENT EDITION), DRAWINGS AND LOCAL CODES.
2. ANY DEVIATION FROM THE DESIGN AND LOCATION OF EQUIPMENT SHOWN MUST FIRST HAVE A WRITTEN APPROVAL FROM CERBERUS-PYROTRONICS. ANY DEVIATION FROM DESIGN MUST ALSO BE INDICATED ON CERBERUS-PYROTRONICS AT SHOP DRAWINGS (SUBMITTALS) AND RETURNED TO CERBERUS-PYROTRONICS AT TIME OF JOB COMPLETION
3. ALL INSTALLATION MATERIALS SUCH AS CONDUITS, FITTINGS, JUNCTION BOXES, TERMINAL CABINETS, PULL BOXES, HANGERS, ETC ARE NOT SUPPLIED BY CERBERUS-PYROTRONICS.
4. INITIATING DEVICE AND AUDIBLE ALARM DEVICE POLARITY MUST BE OBSERVED.
5. ALL INDICATING CIRCUIT WIRES MUST BE SUPERVISED. HENCE NO PARALLEL BRANCHING OF WIRES IS PERMISSIBLE.
6. WIRE RUNS ON FLOOR PLANS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATION OF ALL WIRES RUNS TO BE DETERMINED IN FIELD.
7. ALL PULL-IN TYPE DETECTORS REQUIRE A 4" OCTAGONAL, 1-1/2" OR DEEPER MOUNTING BOX.
8. IONIZATION SMOKE DETECTORS SHALL NOT BE LOCATED IN DIRECT AIR STREAM FROM SUPPLY AIR OUTLETS.
10. DO NOT APPLY 120 VAC POWER TO CONTROL PANEL UNTIL A CERBERUS-PYROTRONICS SERVICE TECHNICIAN HAS INSPECTED ALL SYSTEM WIRING CONNECTIONS AND HAS APPROVED THE SYSTEM TO BE TURNED ON.



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