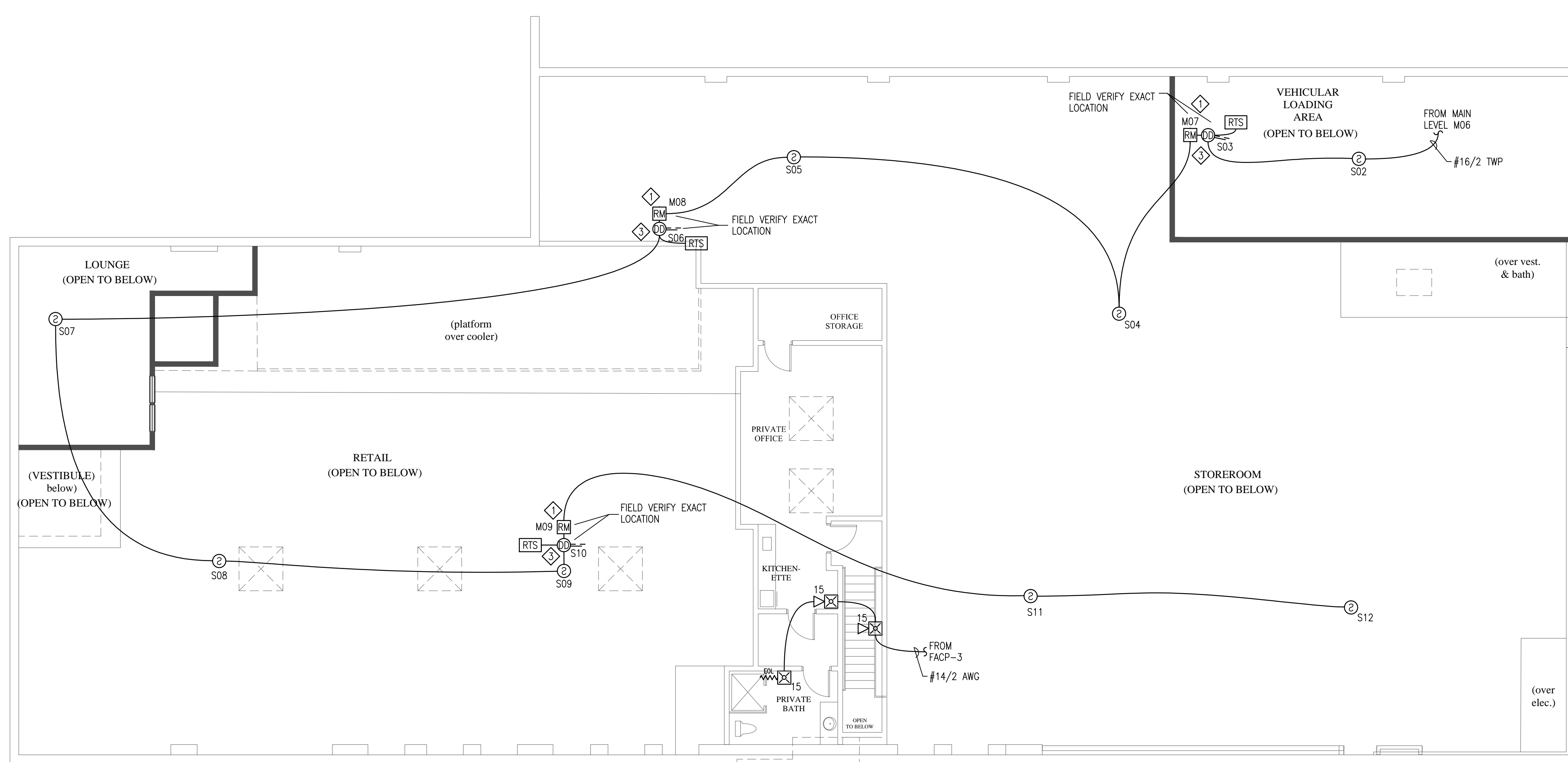


**MAIN LEVEL
FIRE ALARM PLAN**
SCALE: 1/8"=1'-0"



**MEZZANINE LEVEL
FIRE ALARM PLAN**
SCALE: 1/8"=1'-0"

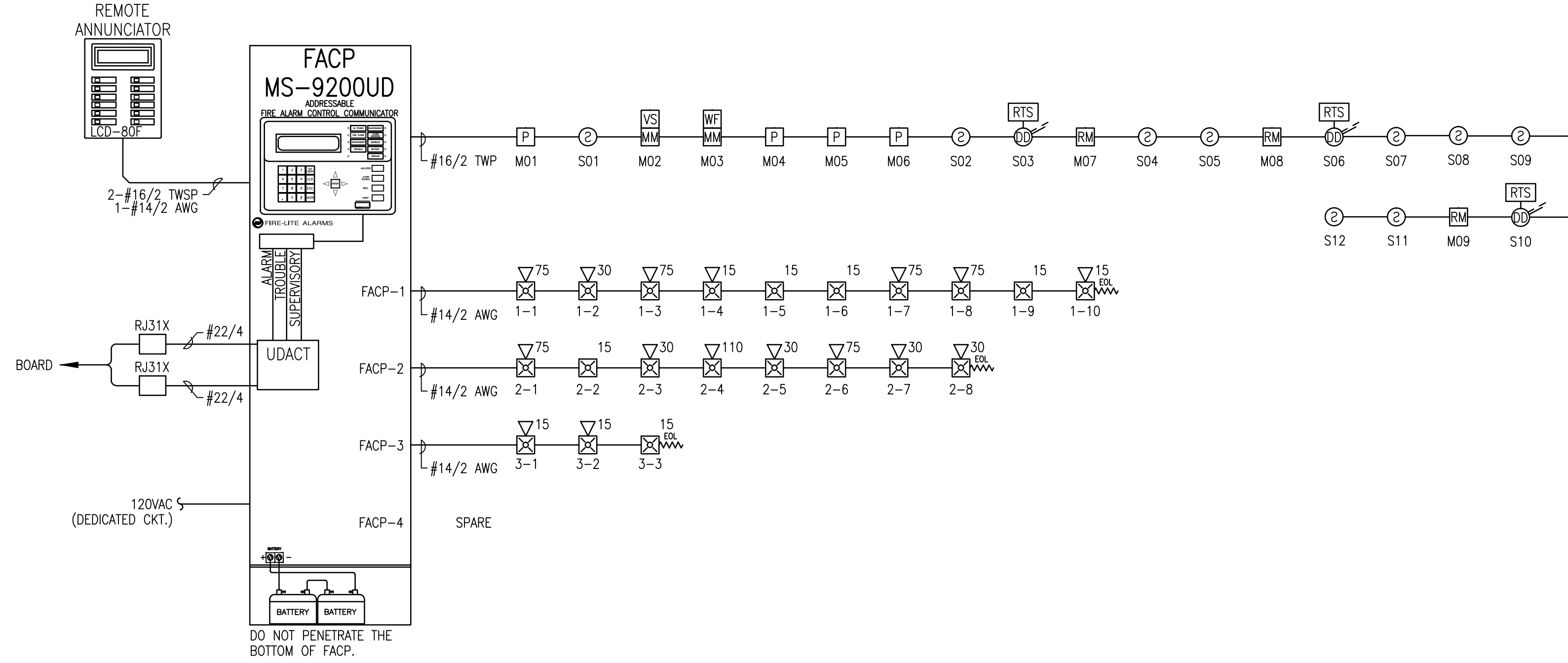
REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	8/15/2017

CUNNINGHAM
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10 Princess Point Road, Yarmouth, Maine 04096
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**ALTA VISTA
495 FOREST AVE
PORTLAND, ME 04101
FIRE ALARM PLAN**

DRAWN	CWS UNICAD JOB #17472
CHECKED	BRADY B. HAWES NICET III 138751
DATE	8/15/2017
REVISION	0
SCALE	1/8"=1'-0"





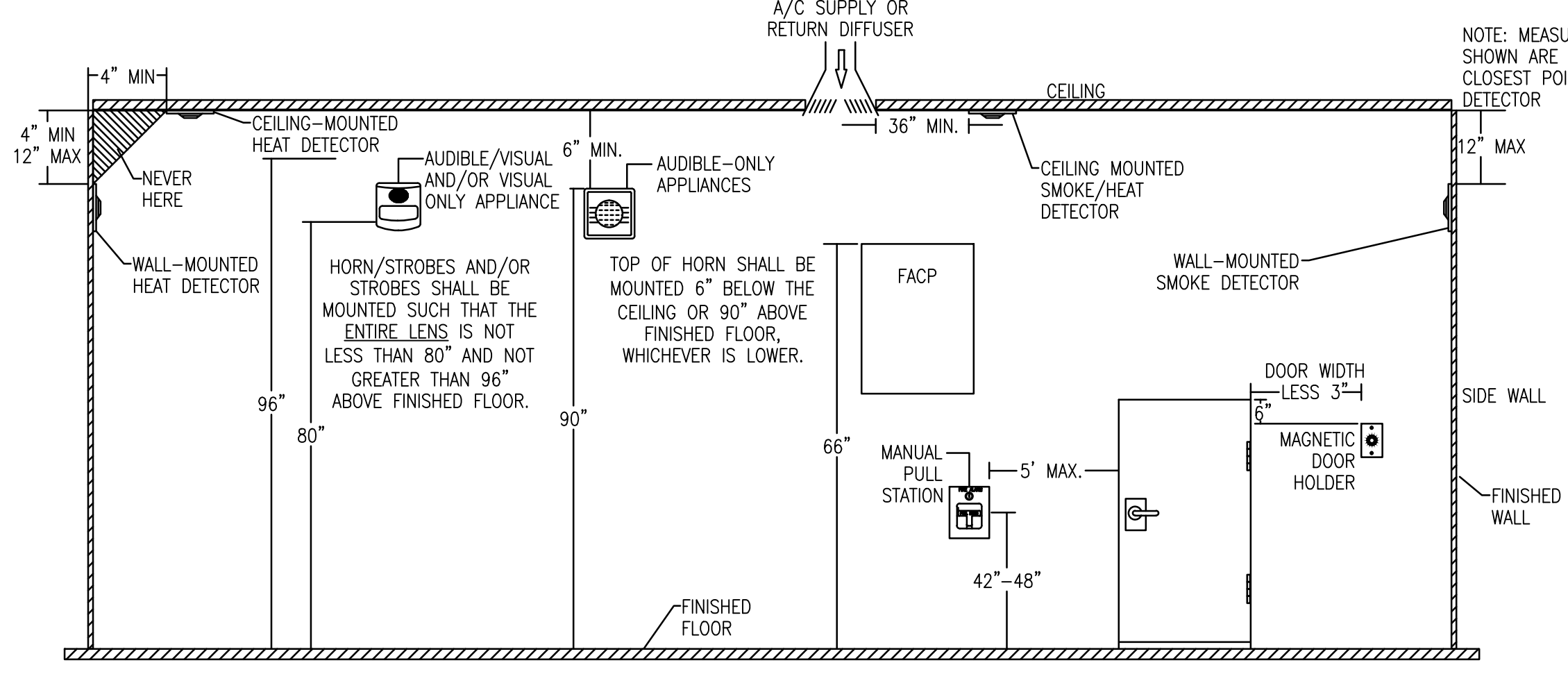
FIRE ALARM RISER DIAGRAM
SCHEMATIC: NO SCALE

SYMBOL	DESCRIPTION	MOUNTING
FACP	FIRE ALARM CONTROL PANEL	WALL-TOP @ 66"
FSA	FIRE SYSTEM ANNUNCIATOR	WALL-TOP @ 66"
RTS	REMOTE TEST SWITCH	WALL-TOP @ 66"
SD	SMOKE DETECTOR	CEILING
DD	DUCT DETECTOR	FIELD VERIFY
RM	ADDRESSABLE RELAY MODULE	FIELD VERIFY
MM	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
P	MANUAL PULL STATION	WALL @ 48"
KB	KNOX BOX	WALL @ 48"
WF	WATER FLOW SWITCH	BY OTHERS
VS	VALVE SUPERVISORY SWITCH	BY OTHERS
HS	HORN / STROBE	WALL 80"-96"
ST	STROBE	WALL 80"-96"

ABBREVIATION	DESCRIPTION
E	EXISTING
G	WITH GUARD
P	PENDANT MOUNT
R	RESIDENTIAL (110V)
S	SLINDER BASE
WP	WEATHER PROOF
EOLR	END OF LINE RESISTOR
EOLR	END OF LINE RELAY
AWG	AMERICAN WIRE GAUGE
TWP	TWISTED PAIR
TWSP	TWISTED SHIELDED PAIR
FPLR	FIRE POWER LIMITED PLENUM
FPLR	FIRE POWER LIMITED RISER
NAC	NOTIFICATION APPLIANCE CIRCUIT
SLC	SIGNALING LINE CIRCUIT

- GENERAL NOTES:
- SCOPE OF WORK: THIS PROJECT SHALL INCLUDE THE INSTALLATION OF A NEW ADDRESSABLE FIRE ALARM SYSTEM WITH OCCUPANT NOTIFICATION THROUGHOUT.
 - 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. THE LOCATION OF THE BRANCH CIRCUIT BREAKER SHALL BE PERMANENTLY IDENTIFIED AT THE CONTROL UNIT AND SHALL HAVE A RED MARKING IN ACCORDANCE WITH NFPA 72.
 - 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 TIE 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 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 907.6.5 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.

FACP Battery Calculation		8/16/2017
PROJECT NAME:	ALTA VISTA	
Required Standby Time:	24 Hours	
Required Alarm Time:	5 Minutes	
AC Branch Current		
Device Type	Number of Devices	Current (Amps)
FACP MAINBOARD	1	0.14500
SMOKE DETECTOR	9	0.00030
DUCT DETECTOR	3	0.00030
REMOTE TEST SWITCH	3	0.01200
MONITOR MODULE	2	0.00040
RELAY MODULE	3	0.00025
PULL STATION	4	0.00030
ANNUNCIATOR	1	0.01500
TOTAL STANDBY LOAD		0.20235
Regulated Load in ALARM		
Device Type	Number of Devices	Current (Amps)
FACP MAINBOARD	1	0.27500
MAX. ALARM FOR ADDRESSABLE DEVICES	1	0.40000
ANNUNCIATOR	1	0.04000
FACP-1 (See Voltage Drop Calculations)	1	0.79500
FACP-2 (See Voltage Drop Calculations)	1	0.74300
FACP-3 (See Voltage Drop Calculations)	1	0.15100
FACP-4 (See Voltage Drop Calculations)	1	0.00000
TOTAL ALARM LOAD		2.40400
Battery Requirements		
Standby Load	0.20235	Required Standby Time in Hours
Current (Amps)	24.00000	= 4.85640
Alarm Load	2.40400	Required Alarm Time in Hours
Current (Amps)	0.08333	= 0.20033
Total Ampere Hours (before derating factor)		5.05673
Derating Factor		1.2
TOTAL AMPERE HOURS REQUIRED		6.06808
BATTERIES TO BE PROVIDED (@ - 12v) = 7 AH		



FIRE ALARM DEVICE MOUNTING HEIGHTS
SCALE: NOT TO SCALE

Point to Point NAC Voltage Drop Calculation		8/15/2017
Project Name	ALTA VISTA	
Circuit Number	FACP-1	
Nominal System Voltage	20.4 volts	Wire Resistance
Minimum Device Voltage	16.0 volts	Gauge Per 1000
Distance from source to 1st device	60 feet	14 3.07
Wire Gauge for balance of circuit		14 3.07
Max Output Current	3.00 amps	
Total Circuit Current	0.795 amps	
End of Line Voltage	19.39 volts	
Circuit is within limits		
Device	Distance	Drop from source
Current	previous device	Device
Device 1	0.121	60
Device 2	0.074	55
Device 3	0.121	35
Device 4	0.054	25
Device 5	0.043	15
Device 6	0.043	20
Device 7	0.121	50
Device 8	0.121	60
Device 9	0.043	25
Device 10	0.054	20
Totals	0.795	365

Point to Point NAC Voltage Drop Calculation		8/15/2017
Project Name	ALTA VISTA	
Circuit Number	FACP-2	
Nominal System Voltage	20.4 volts	Wire Resistance
Minimum Device Voltage	16.0 volts	Gauge Per 1000
Distance from source to 1st device	70 feet	14 3.07
Wire Gauge for balance of circuit		14 3.07
Max Output Current	3.00 amps	
Total Circuit Current	0.743 amps	
End of Line Voltage	19.52 volts	
Circuit is within limits		
Device	Distance	Drop from source
Current	previous device	Device
Device 1	0.121	20
Device 2	0.043	20
Device 3	0.074	25
Device 4	0.162	40
Device 5	0.074	50
Device 6	0.121	45
Device 7	0.074	50
Device 8	0.074	20
Totals	0.743	330

Point to Point NAC Voltage Drop Calculation		8/15/2017
Project Name	ALTA VISTA	
Circuit Number	FACP-3	
Nominal System Voltage	20.4 volts	Wire Resistance
Minimum Device Voltage	16.0 volts	Gauge Per 1000
Distance from source to 1st device	100 feet	14 3.07
Wire Gauge for balance of circuit		14 3.07
Max Output Current	3.00 amps	
Total Circuit Current	0.151 amps	
End of Line Voltage	20.29 volts	
Circuit is within limits		
Device	Distance	Drop from source
Current	previous device	Device
Device 1	0.054	100
Device 2	0.054	15
Device 3	0.043	20
Totals	0.151	135

- SHEET NOTES:
- ADDRESSABLE RELAY MODULE(S) PROVIDED FOR FAN SHUT DOWN. TIE TO INDICATED UNIT FAN CONTROLLER. INSTALLING CONTRACTOR SHALL FIELD VERIFY EXACT MOUNTING, CIRCUITING, AND PROGRAMMING REQUIREMENTS. FIELD VERIFY EXACT QUANTITY AND LOCATION(S) WITH MECHANICAL DIVISION.
 - ADDRESSABLE MONITOR MODULE(S) PROVIDED TO MONITOR ALL WATER FLOW, PRESSURE SWITCHES, TAMPER SWITCHES AND POST INDICATING VALVES ASSOCIATED WITH THE FIRE SPRINKLER SYSTEM. INSTALLING CONTRACTOR SHALL FIELD VERIFY EXACT MOUNTING, CIRCUITING AND PROGRAMMING REQUIREMENTS. FIELD VERIFY EXACT QUANTITY AND LOCATION(S).
 - DUCT SMOKE DETECTORS PROVIDED FOR THE RETURN AIR PATH AT ALL AIR HANDLING UNITS HAVING A CAPACITY GREATER THAN 2,000 CFM AND FOR THE SUPPLY AIR PATH AT ALL AIR HANDLING UNITS HAVING A CAPACITY GREATER THAN 15,000 CFM. INSTALLING CONTRACTOR SHALL FIELD VERIFY EXACT MOUNTING, CIRCUITING AND PROGRAMMING REQUIREMENTS. PROVIDE FOR SHUT DOWN OF THE ASSOCIATED UNIT FAN(S). FIELD VERIFY UNIT POWER SOURCE. USE MULTI-VOLTAGE CONTROL RELAY(S) IF REQUIRED. FIELD VERIFY EXACT QUANTITY AND LOCATION(S) WITH MECHANICAL DIVISION. PROVIDE REMOTE ALARM/SUPERVISORY INDICATION IN A LOCATION ACCEPTABLE TO THE LOCAL A/H WHEN IN-DUCT SMOKE DETECTOR INDICATOR IS NOT VISIBLE TO RESPONDING PERSONNEL.

OPERATIONS MATRIX	FIRE ALARM OUTPUT										
	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 TROUBLE SIGNAL	ACTIVATE NOTIFICATION APPLIANCES	SHUTDOWN AIR HANDLERS IN EXCESS OF 2,000 CFM
FIRE ALARM INPUT											
SMOKE DETECTORS											
DUCT DETECTORS											
PULL STATIONS											
WATERFLOW SWITCHES											
VALVE SUPERVISORY SWITCHES											
FIRE ALARM AC POWER FAIL											
FIRE ALARM LOW BATTERY											
OPEN CIRCUIT											
GROUND FAULT											
NAC SHORT CIRCUIT											
LOSS OF AC TO BUILDING											

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NOTES, DETAILS, CALCS & FIRE ALARM RISER DIAGRAM

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	8/15/2017

DRAWN	CWS UNICAD JOB #17472
CHECKED	BRADY B. HAWES NICET III 138751
DATE	8/15/2017
REVISION	0
SCALE	1/8"=1'-0"

FA-2

