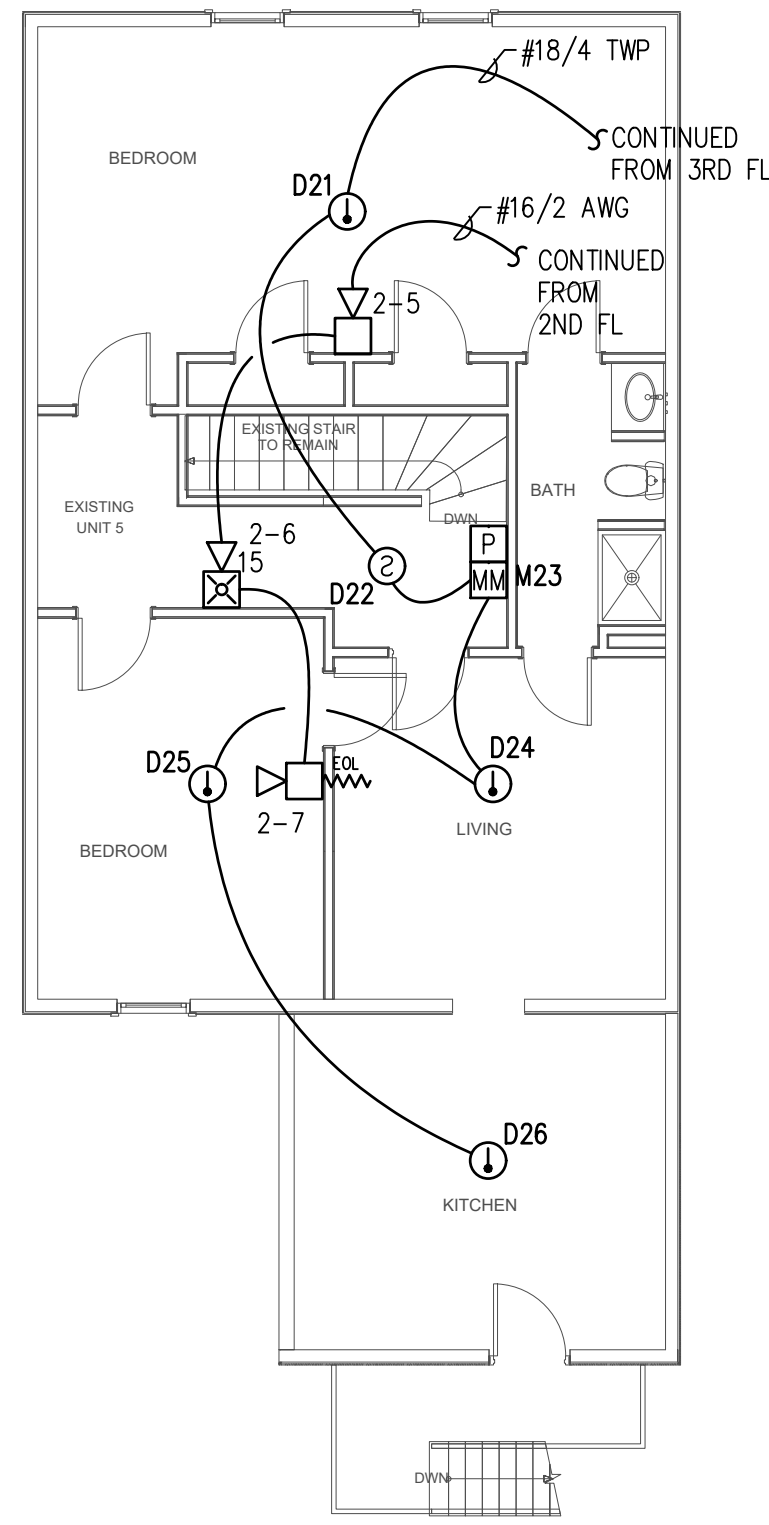
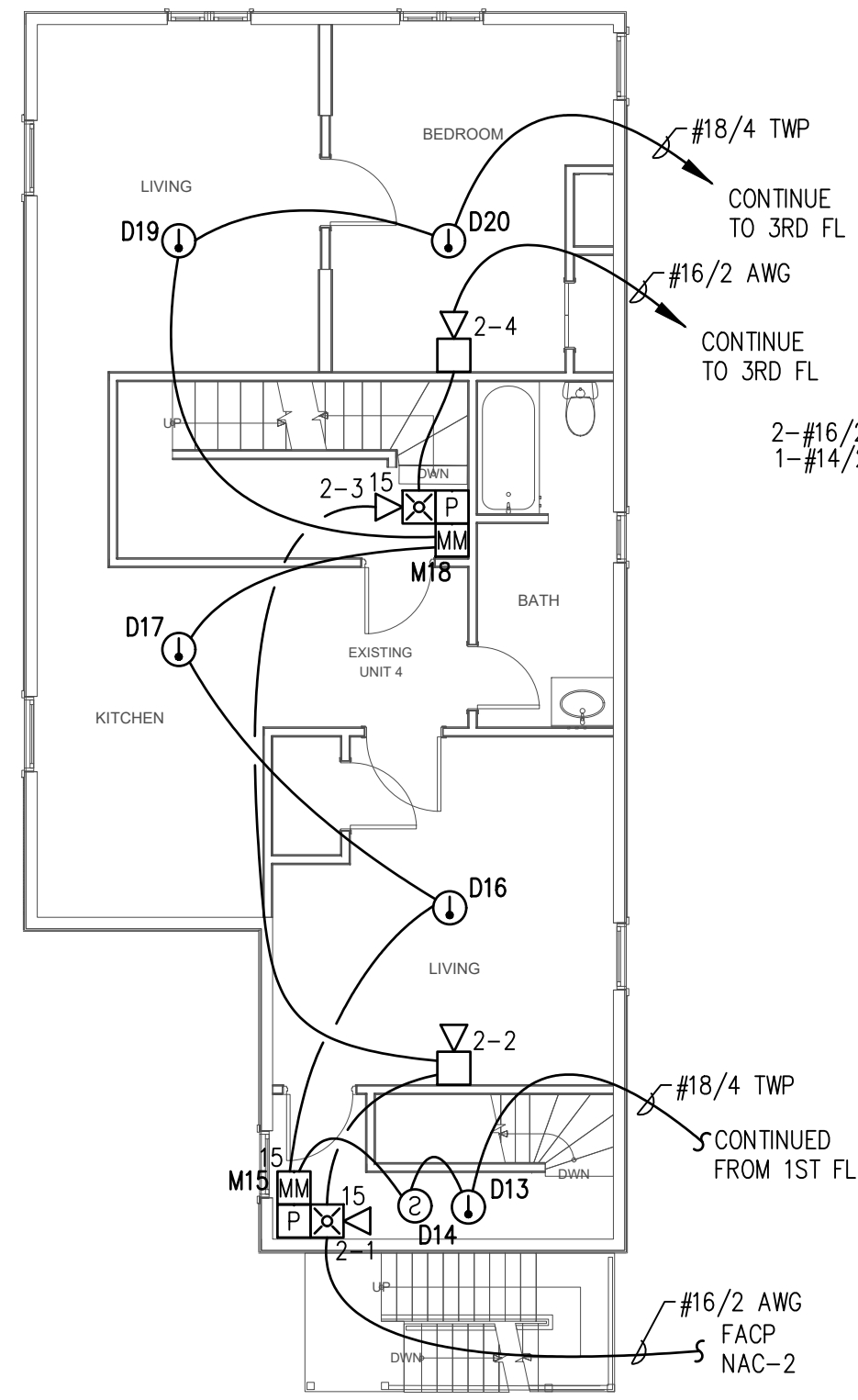




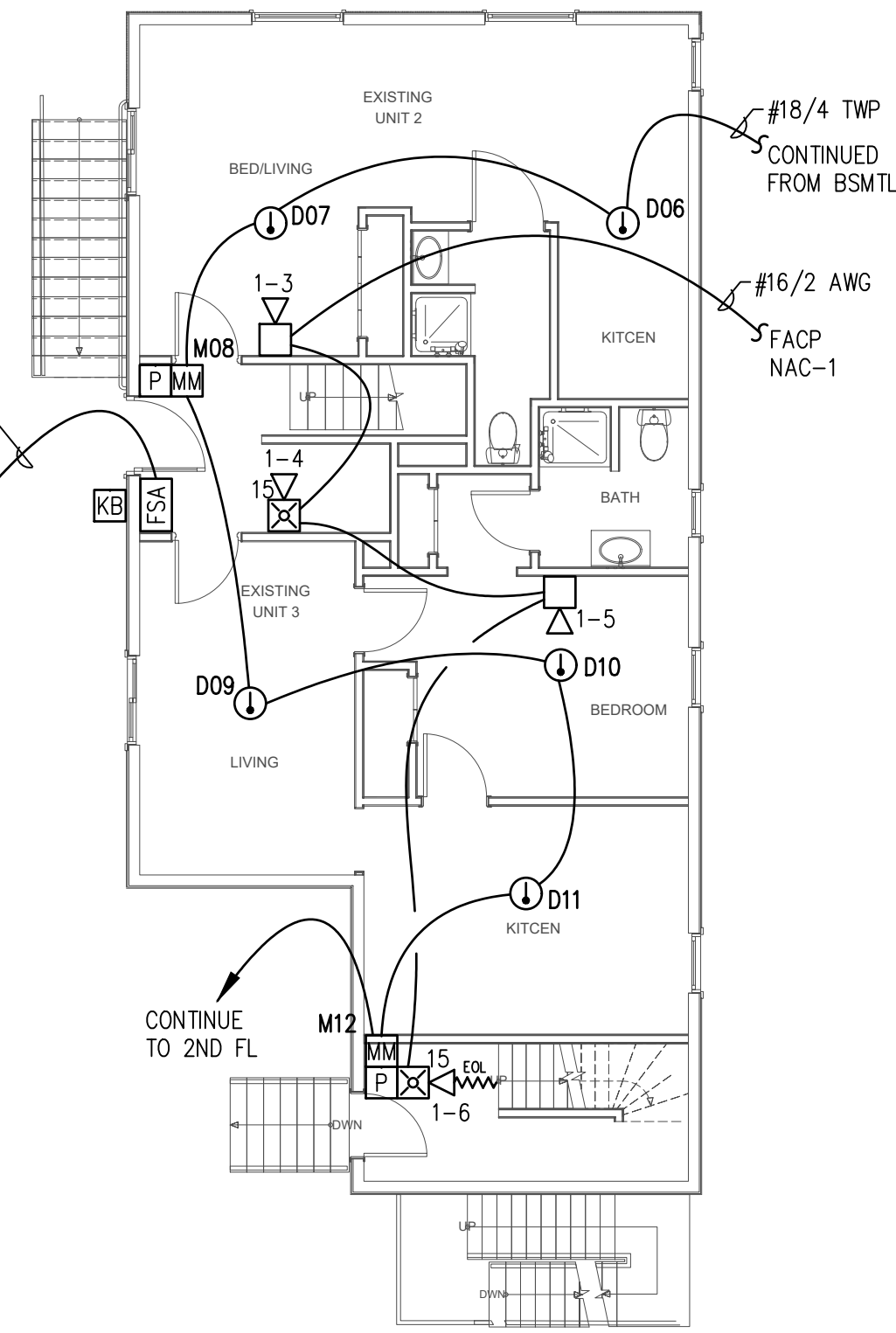
Reviewed for Code Compliance
 Permitting and Inspections Department
 Approved with Conditions
 02/20/2020



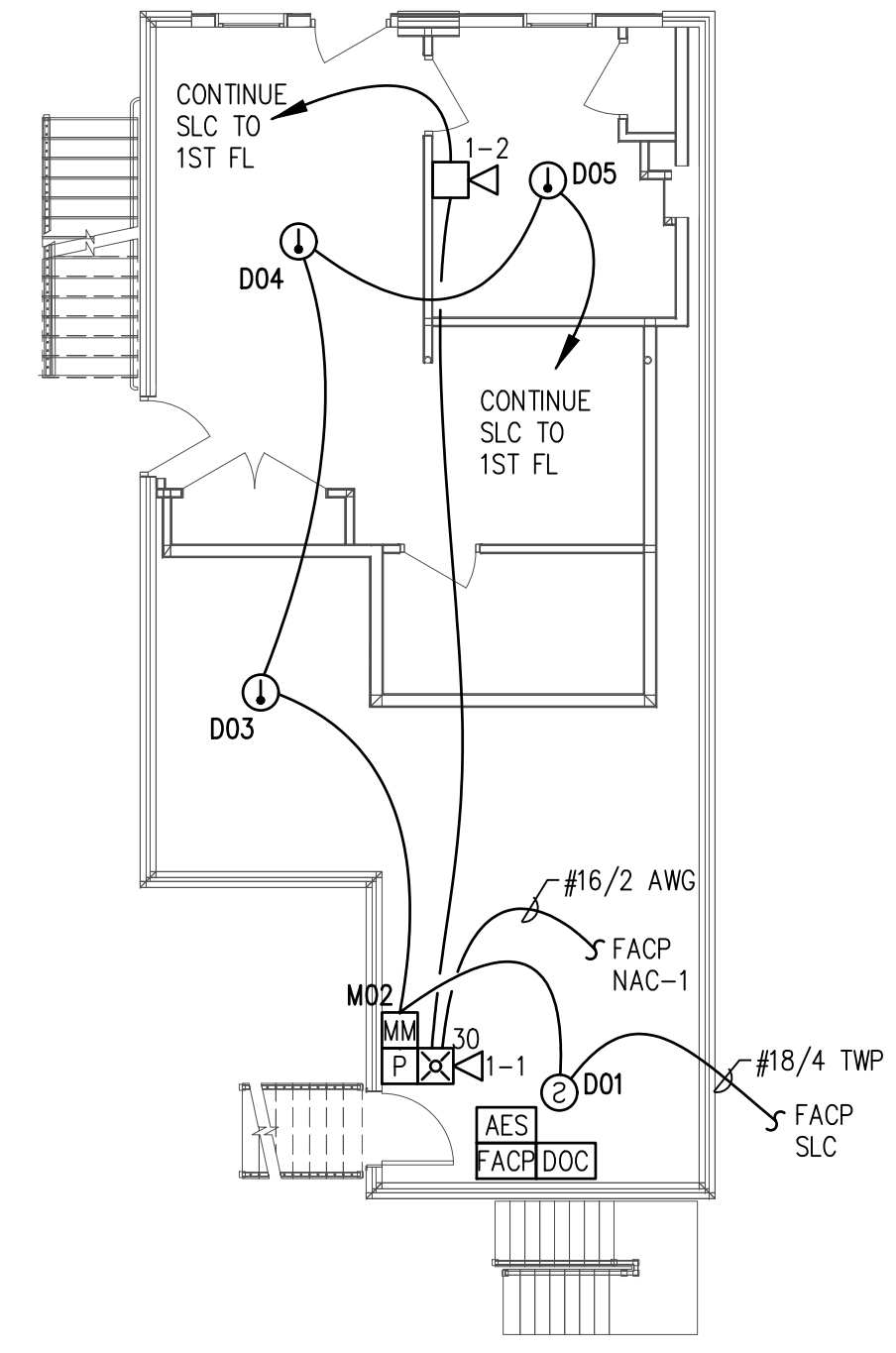
THIRD FLOOR
 FIRE ALARM PLAN
 SCALE: 1/8"=1'-0"



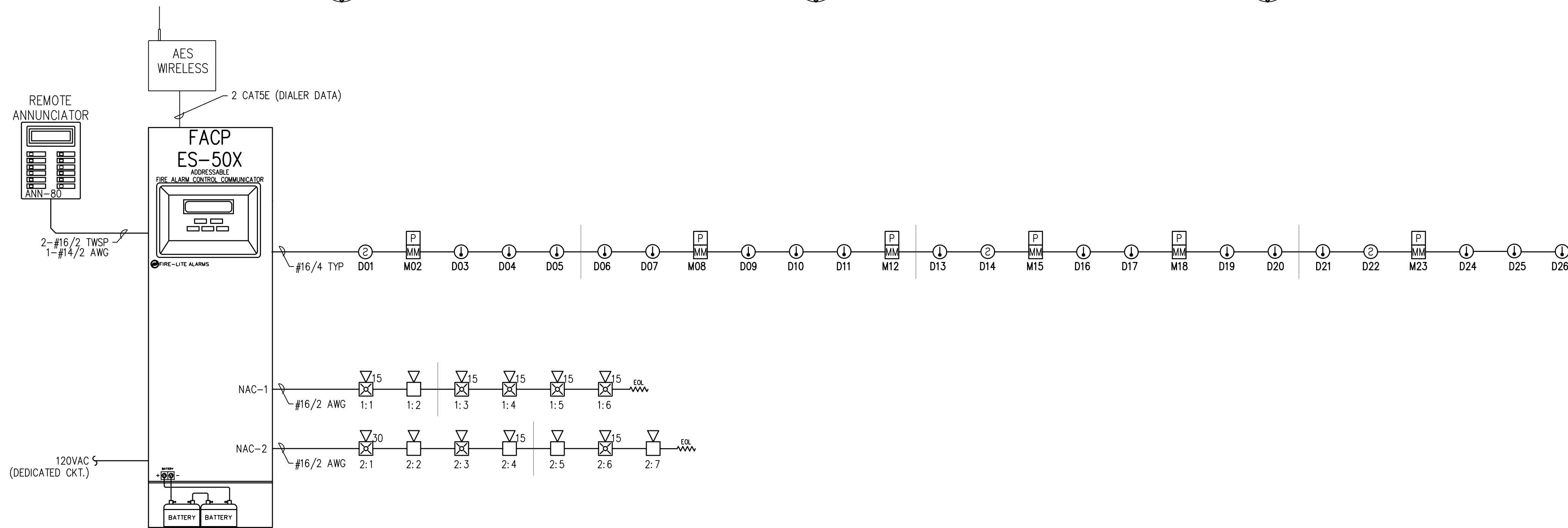
SECOND FLOOR
 FIRE ALARM PLAN
 SCALE: 1/8"=1'-0"



FIRST FLOOR
 FIRE ALARM PLAN
 SCALE: 1/8"=1'-0"



BASEMENT
 FIRE ALARM PLAN
 SCALE: 1/8"=1'-0"



FIRE ALARM RISER DIAGRAM
 SCHEMATIC: NO SCALE

SPECIAL NOTE:
 1. LOCAL 120VAC SMOKE ALARMS ARE NOT SHOWN. THEY ARE EITHER EXISTING OR WILL BE INSTALLED BY THE ELECTRICAL CONTRACTOR.

REVISION	DESCRIPTION	DATE
1/29/2020	ISSUED FOR REVIEW & APPROVAL	1/29/2020

SEACOAST SECURITY
 4 Summer Street • Freeport, Maine 04032
 Office: (207) 706-3369 • Fax: (207) 865-0852

BJB REALTY, LLC
 100 FOREST AVE.
 PORTLAND, ME 04101
FIRE ALARM PLAN

DRAWN	JOHN STAMPS UNICAD JOB #20036
CHECKED	BRADY B. HAWS NICET IV 138751
DATE	1/29/2020
REVISION	0
SCALE	1/8"=1'-0"

Shop drawings created by
 5784 W. 4600 St.
 Hesper, UT 84313
 Office: 801.985.0410

UNICAD Inc.
 Fire Alarm Design & Drafting Services

FA-1

FACP Battery Calculation					1/29/2020
PROJECT NAME: BJB REALTY					
Required Standby Time: 24 Hours					
Required Alarm Time: 5 Minutes					
AC Branch Current: Amps @ 120V					
Regulated Load in Standby					
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)		
FACP MAINBOARD (ES-50X)	1	X 0.14100	=	0.14100	
SMOKE DETECTOR - SD365	3	X 0.00030	=	0.00090	
HEAT DETECTOR - H355	17	X 0.00030	=	0.00510	
MONITOR MODULE - MMF-300	6	X 0.00075	=	0.00450	
PULL STATION - BG-12SL	6	X 0.00000	=	0.00000	
TOTAL STANDBY LOAD				0.15150	
Regulated Load in ALARM					
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)		
FACP MAINBOARD (ES-50X)	1	X 0.25700	=	0.25700	
Maximum Current Draw for all Addressable Devices	1	X 0.40000	=	0.40000	
ANNUNCIATOR - ANN-80	1	X 0.04000	=	0.04000	
FACP-NAC1 (See Voltage Drop Calculations)	1	X 0.28700	=	0.28700	
FACP-NAC2 (See Voltage Drop Calculations)	1	X 0.23000	=	0.23000	
TOTAL ALARM LOAD				1.21400	
Battery Requirements					
Standby Load		Required Standby Time in Hours			
Current (Amps)	0.15150	X 24.00000	=	3.63600	
Alarm Load		Required Alarm Time in Hours			
Current (Amps)	1.21400	X 0.08333	=	0.10117	
Total Ampere Hours (before derating factor)				3.73717	
Derating Factor				X 1.2	
TOTAL AMPERE HOURS REQUIRED				4.48460	
BATTERIES TO BE PROVIDED (2 - 12v)				7 AH	

Point to Point NAC Voltage Drop Calculation					1/29/2020	
Project Name: BJB REALTY						
Circuit Number: FACP-NAC1						
Nominal System Voltage	20.4	volts	Wire Gauge	14	Resistance Per 1000	
Minimum Device Voltage	16.0	volts		14	3.07	
Distance from source to 1st device	15	feet		14	3.07	
Wire Gauge for balance of circuit						
Max Output Current	3.00	amps				
Total Circuit Current	0.287	amps				
End of Line Voltage	20.20	volts				
Circuit is within limits						
Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop	
Device 1	HS15	0.054	15	20.37	0.026	0.13%
Device 2	MH	0.017	50	20.30	0.098	0.48%
Device 3	HS15	0.054	40	20.25	0.151	0.74%
Device 4	HS15	0.054	20	20.23	0.171	0.84%
Device 5	HS15	0.054	25	20.21	0.187	0.92%
Device 6	HS15	0.054	40	20.20	0.201	0.98%
Totals		0.287	190			
Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).						

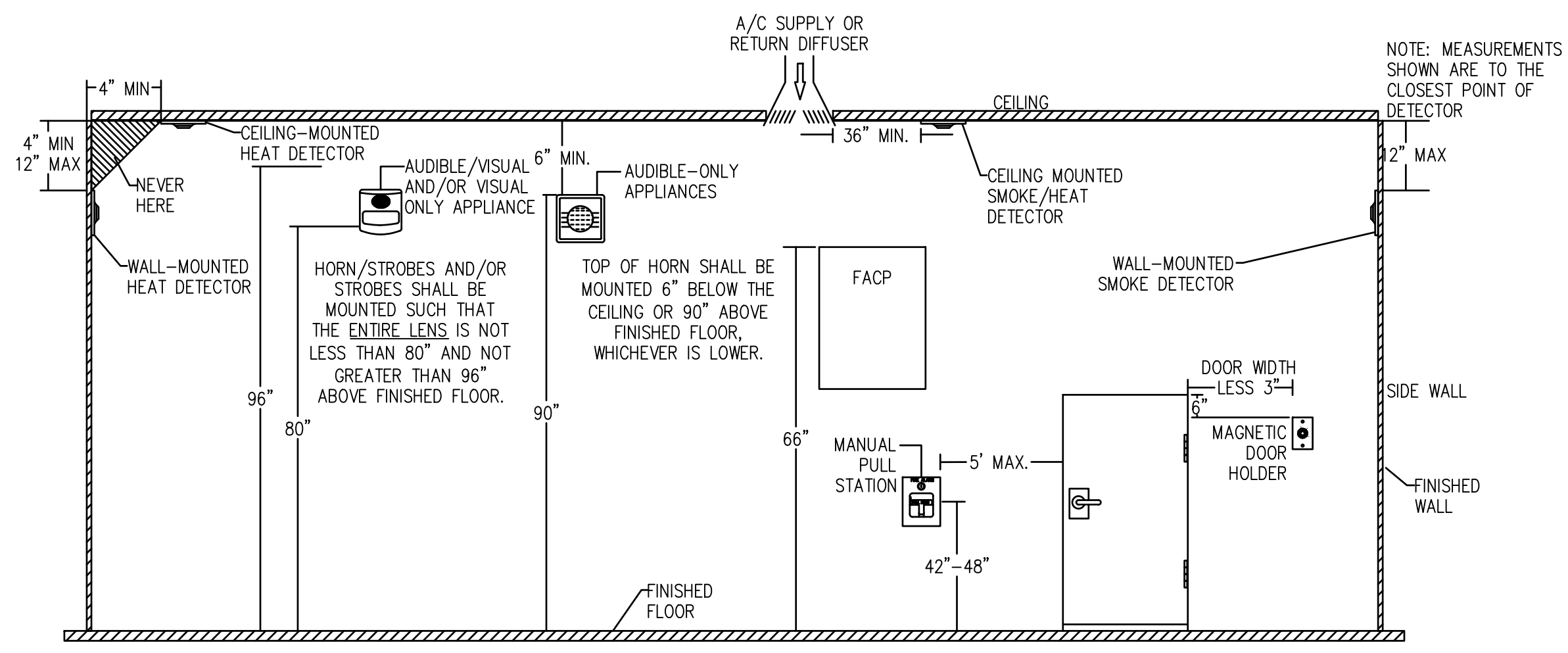
Point to Point NAC Voltage Drop Calculation					1/29/2020	
Project Name: BJB REALTY						
Circuit Number: FACP-NAC2						
Nominal System Voltage	20.4	volts	Wire Gauge	14	Resistance Per 1000	
Minimum Device Voltage	16.0	volts		14	3.07	
Distance from source to 1st device	40	feet		14	3.07	
Wire Gauge for balance of circuit						
Max Output Current	3.00	amps				
Total Circuit Current	0.230	amps				
End of Line Voltage	20.23	volts				
Circuit is within limits						
Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop	
Device 1	HS15	0.054	40	20.34	0.056	0.28%
Device 2	MH	0.017	20	20.32	0.078	0.38%
Device 3	HS15	0.054	45	20.28	0.122	0.60%
Device 4	MH	0.017	20	20.27	0.135	0.66%
Device 5	MH	0.017	40	20.24	0.157	0.77%
Device 6	HS15	0.054	25	20.23	0.167	0.82%
Device 7	MH	0.017	20	20.23	0.170	0.83%
Totals		0.230	210			
Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).						

GENERAL NOTES:

- SCOPE OF WORK: PARTS AND LABOR TO INSTALL A NEW FIRE ALARM SYSTEM MEETING ALL LOCAL AND STATE CODE REQUIREMENTS. NEW FIRE ALARM SYSTEM WILL BE TESTED TO VERIFIED SYSTEM IS OPERATIONAL AS RECOMMENDED.
- 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.
- 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.

FIRE ALARM SYMBOL LEGEND		
NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT		
SYMBOL	DESCRIPTION	MOUNTING
FACP	FIRE ALARM CONTROL PANEL	WALL-TOP @ 66"
FSA	FIRE SYSTEM ANNUNCIATOR	WALL-TOP @ 66"
SD	SMOKE DETECTOR	CEILING
HD	HEAT DETECTOR	CEILING
P	MANUAL PULL STATION	WALL @ 48"
MM	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
MH	MINI HORN	WALL @ 10'-0"
H	HORN / STROBE	WALL 80"-96"
KB	KNOX BOX	FIELD VERIFY
DOC	DOCUMENT BOX	FIELD VERIFY
ABBREVIATION	DESCRIPTION	
E	EXISTING	
G	WITH GUARD	
P	PENDANT MOUNT	
R	RESIDENTIAL (110V)	
S	SOUNDER BASE	
WP	WEATHER PROOF	
EOL	END OF LINE RESISTOR	
EOLR	END OF LINE RELAY	
AWG	AMERICAN WIRE GAUGE	
TWP	TWISTED PAIR	
TWSP	TWISTED SHIELDED PAIR	
FPLP	FIRE POWER LIMITED PLENUM	
FPLR	FIRE POWER LIMITED RISER	
NAC	NOTIFICATION APPLIANCE CIRCUIT	
SLC	SIGNALING LINE CIRCUIT	

FIRE ALARM INPUT	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
SMOKE DETECTORS (SPOT OR BEAM)	●	●					●		●
HEAT DETECTORS	●	●					●		●
DUCT DETECTORS			●	●				●	
PULL STATIONS	●	●					●		●
FIRE ALARM AC POWER FAIL				●	●			●	●
FIRE ALARM LOW BATTERY				●	●			●	●
OPEN CIRCUIT				●	●			●	●
GROUND FAULT				●	●			●	●
NAC SHORT CIRCUIT				●	●			●	●
LOSS OF AC TO BUILDING				●	●			●	●



FIRE ALARM DEVICE MOUNTING HEIGHTS
SCALE: NOT TO SCALE



BJB REALTY, LLC
100 FOREST AVE.
PORTLAND, ME 04101
FIRE ALARM PLAN

DRAWN	JOHN STAMPS UNICAD JOB #20036
CHECKED	BRADY B. HAWS NICET IV 138751
DATE	1/29/2020
REVISION	0
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www.unicad.net Fire Alarm Design & Drafting Services

FA-2