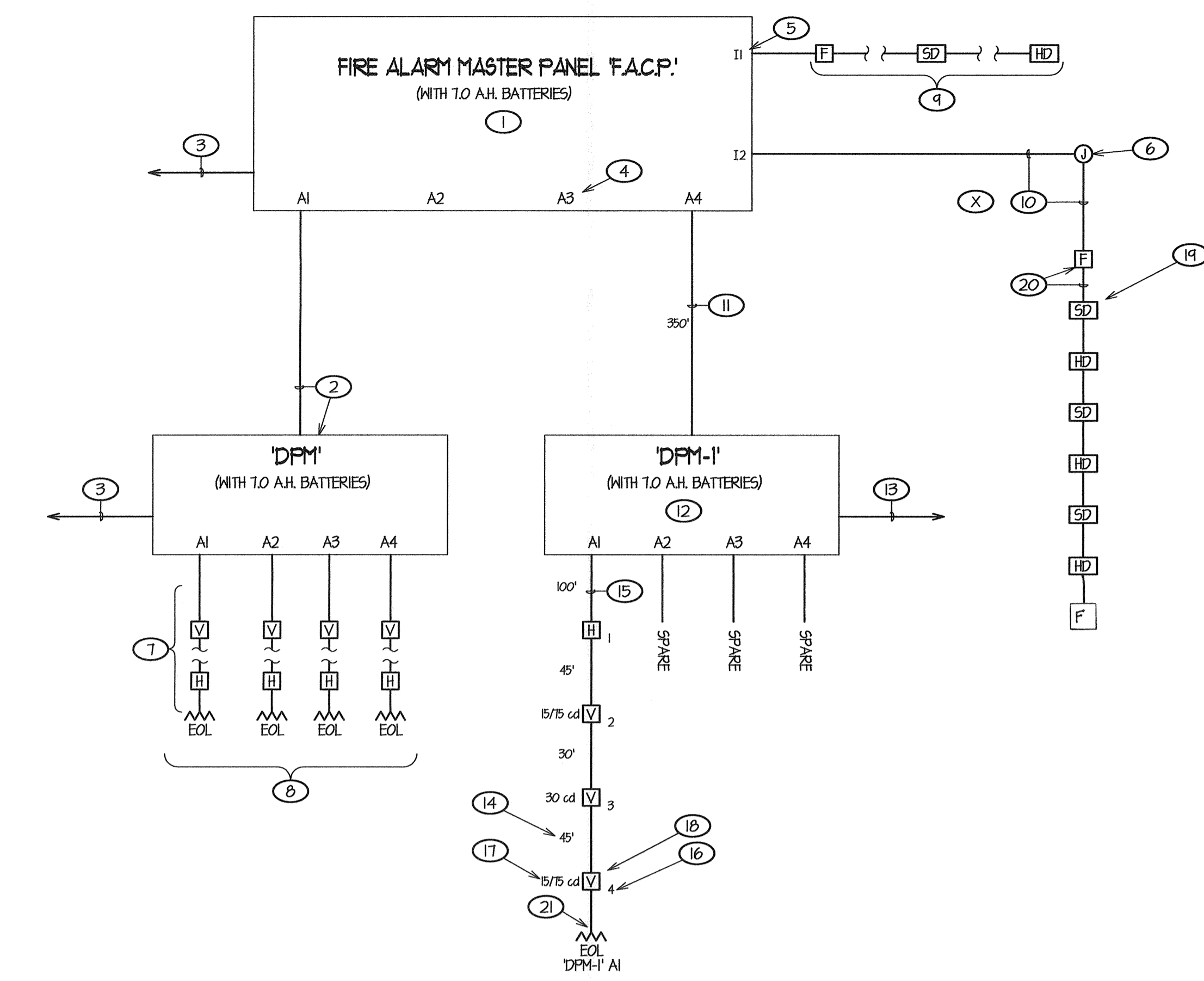
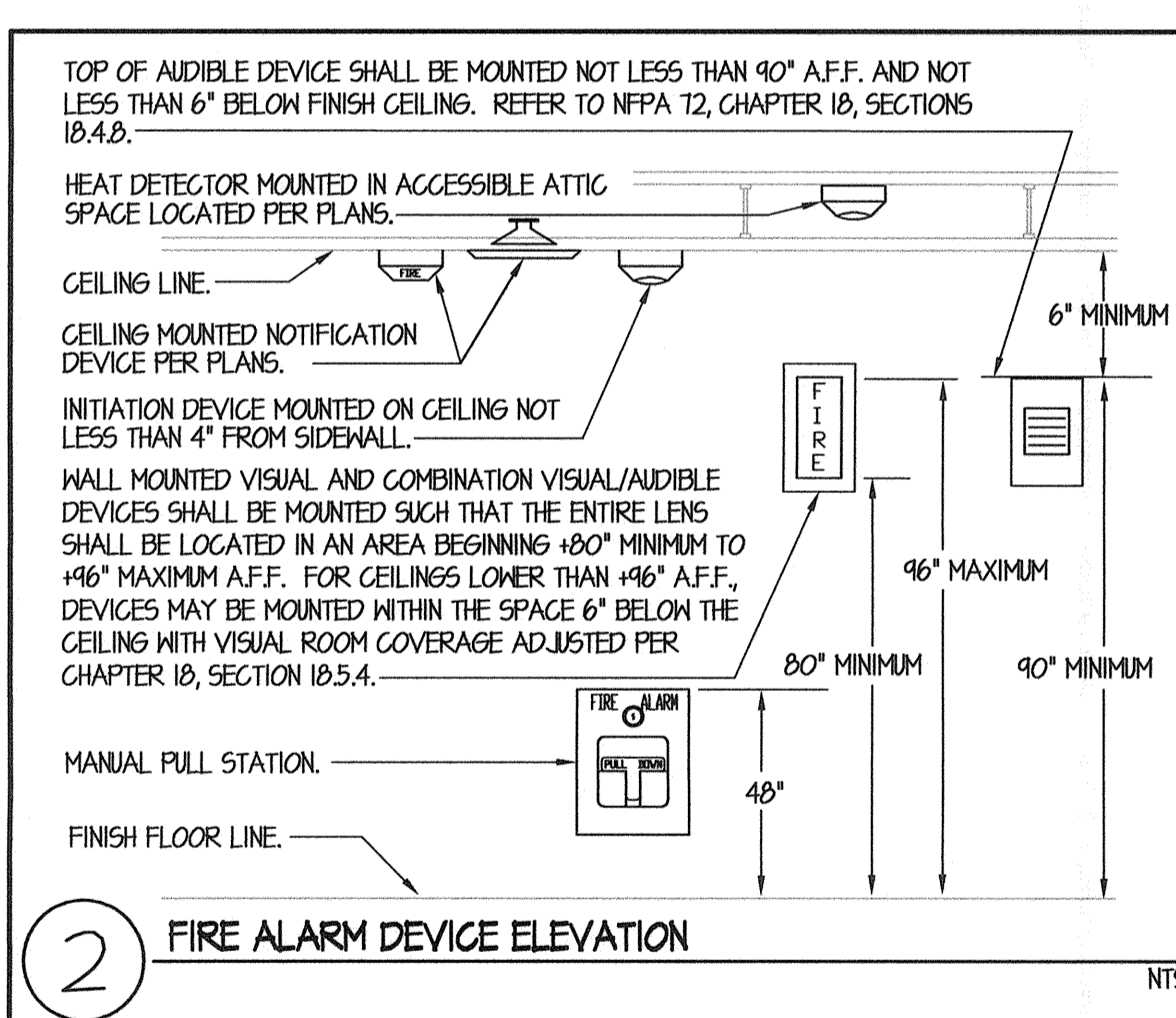


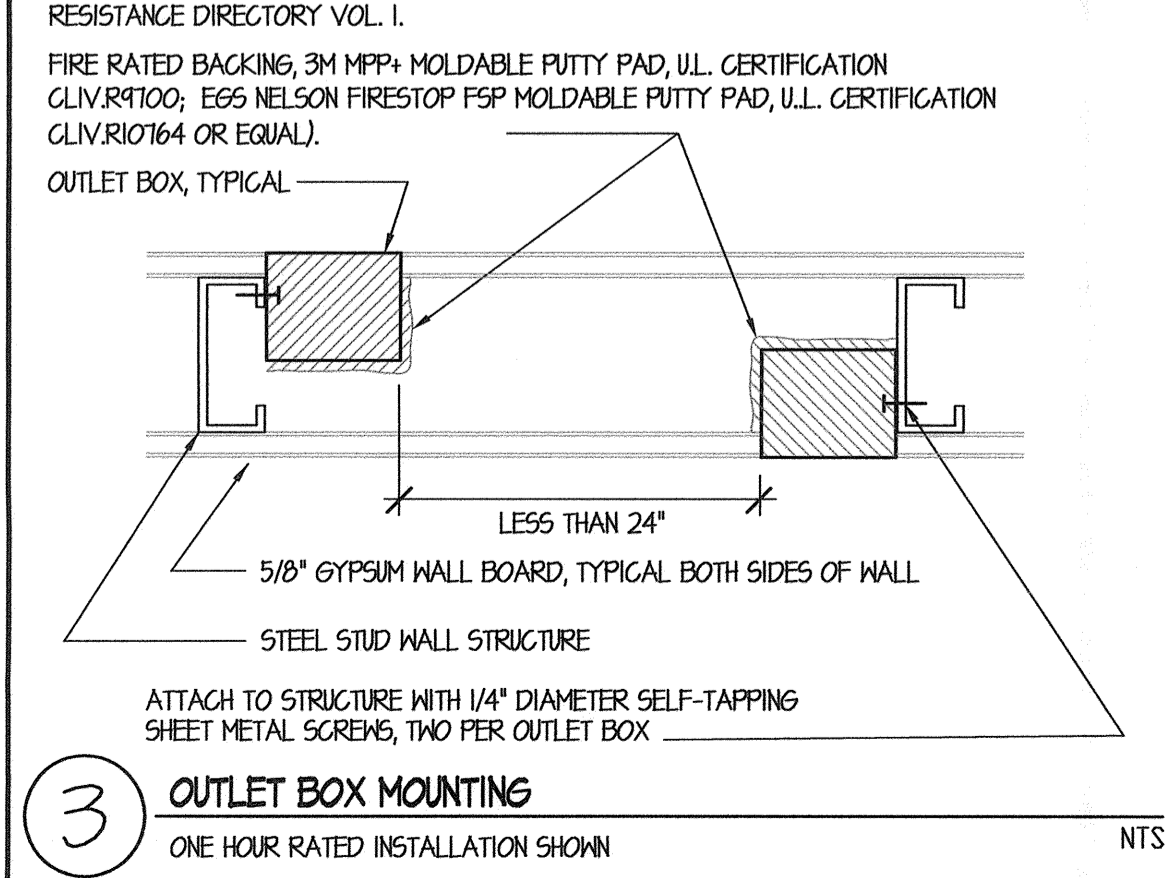
1" = 40'-0"
 1" = 30'-0"
 1" = 20'-0"
 1" = 1'-0"
 1/8" = 1'-0"
 1/4" = 1'-0"



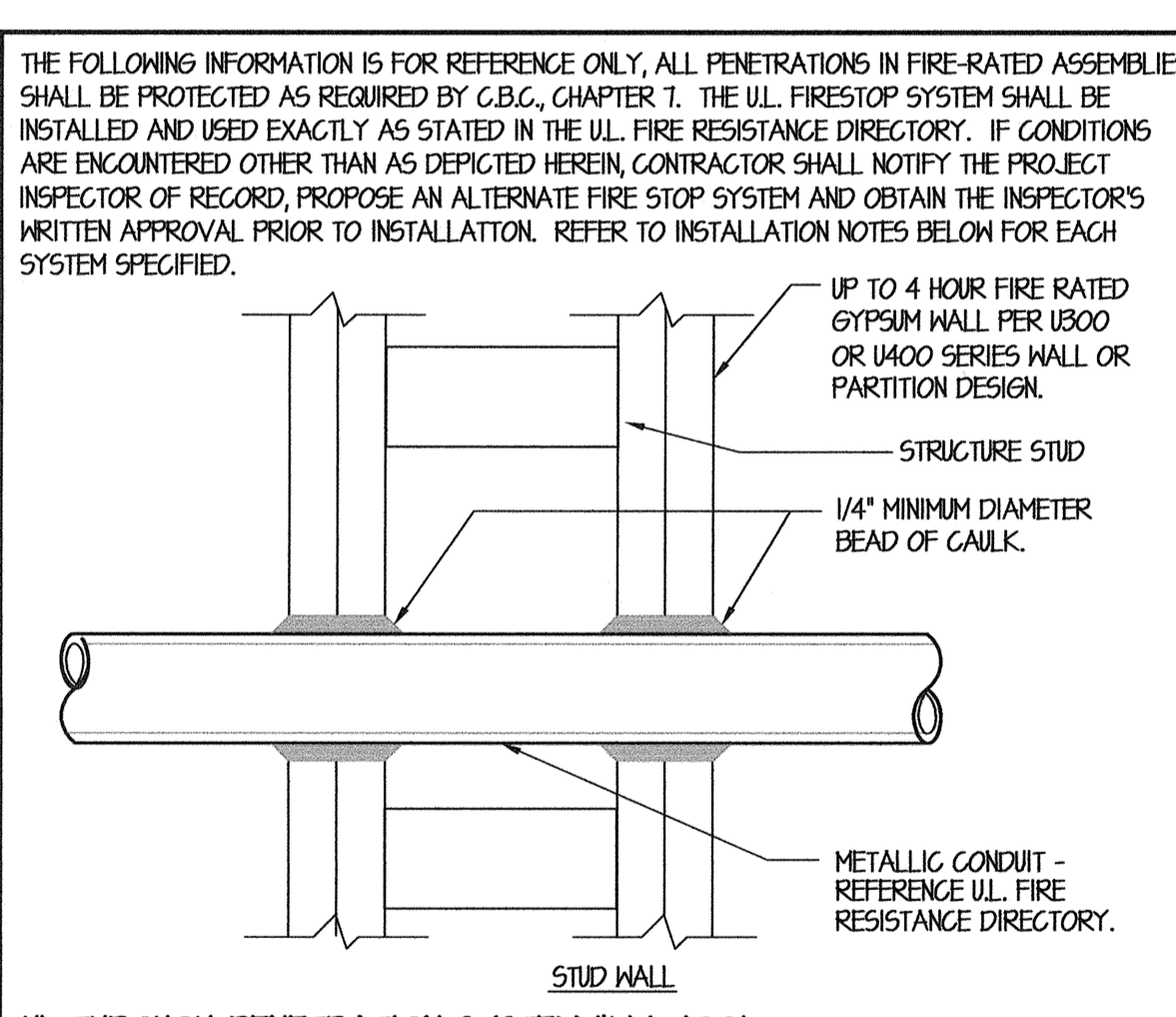
1 FIRE ALARM SINGLE LINE DIAGRAM
 NO SCALE



2 FIRE ALARM DEVICE ELEVATION
 NTS

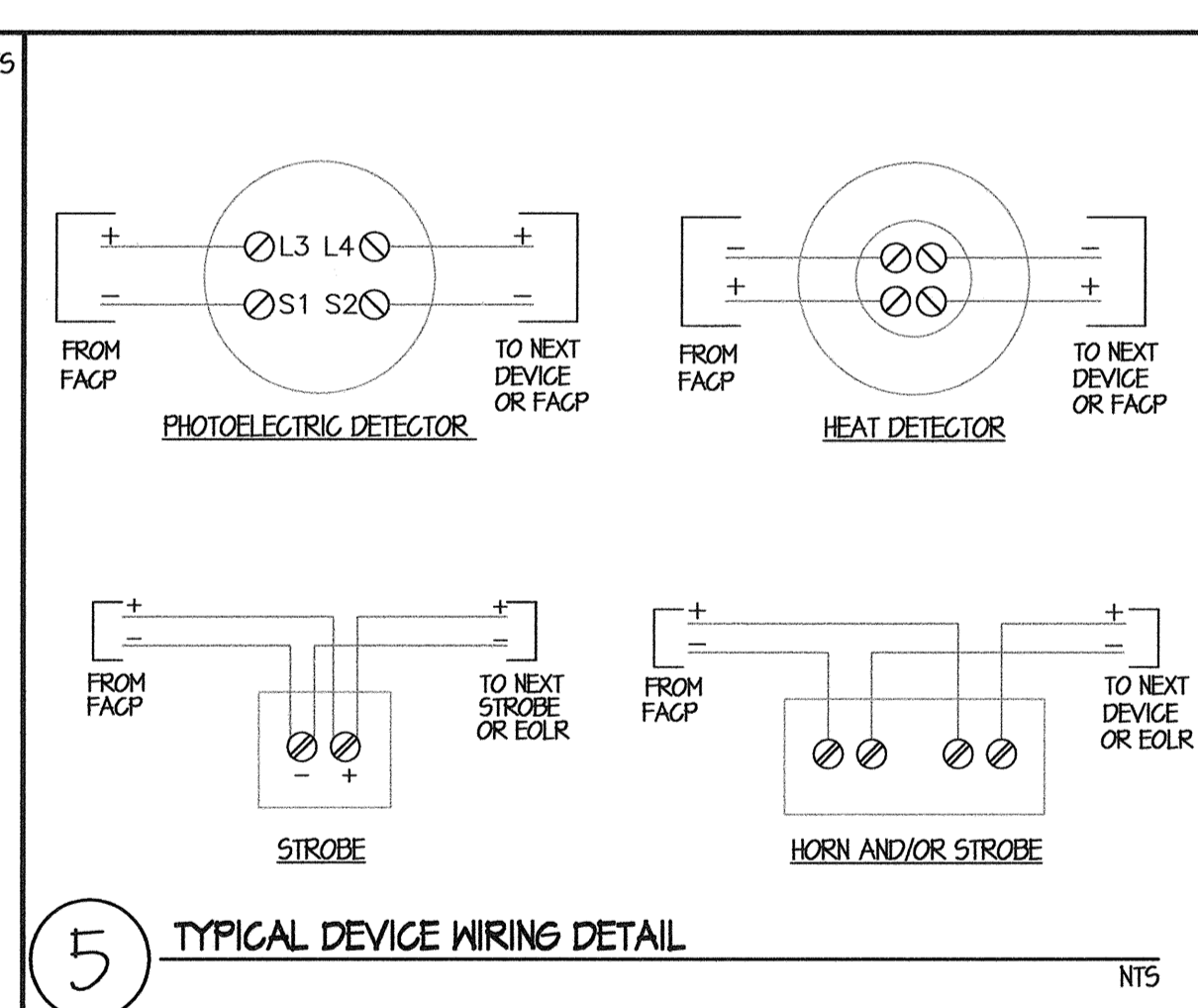


3 OUTLET BOX MOUNTING
 ONE HOUR RATED INSTALLATION SHOWN
 NTS



4 FIRESTOP REQUIREMENTS FOR CONDUIT PENETRATION
 FOR METALLIC CONDUITS THROUGH FIRE RATED WALLS
 NTS

MAXIMUM CONDUIT DIAMETER (INCHES)	F RATING	T RATING
1	1 OR 2	0, 1 OR 2
1	3 OR 4	3 OR 4
4	1 OR 2	0
6	3 OR 4	0



5 TYPICAL DEVICE WIRING DETAIL
 NTS

FIRE ALARM SINGLE LINE DIAGRAM NOTES

- EXISTING FIRE ALARM CONTROL PANEL TO REMAIN. PANEL IS A FIRENET 412T AS MANUFACTURED BY HOCHIKI, C.S.F.M. # 7165-0410-0194, INSTALLED UNDER EMERGENCY CIRCUMSTANCES IN 2010 WITH PROTECTION MONITORING PER NFPA T2, CHAPTER 10, SECTION 10.15 REQUIREMENTS. REFER TO FIRE ALARM CALCULATIONS, THIS SHEET AND SITE ELECTRICAL PLAN, SHEET E101 FOR COORDINATION/REFERENCE.
- EXISTING FIRE ALARM DISTRIBUTED POWER MODULE AND FIRE ALARM FEEDER FROM FIRE ALARM CONTROL PANEL 'F.A.C.P.' TO REMAIN. DFM IS 5K5345 AS MANUFACTURED BY SILENT KNIGHT, C.S.F.M. # 7300-0554-0123, INSTALLED UNDER EMERGENCY CIRCUMSTANCES IN 2010 WITH PROTECTION MONITORING PER NFPA T2, CHAPTER 14 REQUIREMENTS. REFER TO FIRE ALARM CALCULATIONS, THIS SHEET AND SITE ELECTRICAL PLAN, SHEET E101 FOR COORDINATION/REFERENCE.
- TO EXISTING DEDICATED 120VAC, 20A CIRCUIT BREAKER FOR EXISTING FIRE ALARM CONTROL EQUIPMENT TO REMAIN, NO WORK REQUIRED.
- NOTIFICATION CIRCUIT DESIGNATION, TYPICAL.
- INITIATION CIRCUIT DESIGNATION.
- EXISTING BUILDING SIGNAL PULL CAN LOCATED IN EQUIPMENT ROOM TO REMAIN. REFER TO FIRE ALARM PLAN, SHEET E3.01 FOR COORDINATION/REFERENCE.
- EXISTING NOTIFICATION APPLIANCES AND CIRCUITING SHOWN FOR CLARITY ONLY, TYPICAL WHERE OCCURS THIS PANEL. NO WORK REQUIRED. REFER TO FIRE ALARM BATTERY CALCULATIONS, THIS SHEET FOR COORDINATION/REFERENCE.
- EXISTING NOTIFICATION CIRCUIT END OF LINE RESISTOR TO REMAIN, SHOWN FOR CLARITY ONLY. NO WORK REQUIRED.
- EXISTING INITIATING DEVICES AND CIRCUITING SHOWN FOR CLARITY ONLY. NO WORK REQUIRED.
- ONE 1" CABLE (INITIATION) IN EXISTING 1" C. PER PLANS.
- 2 #12 CU THIN (NOTIFICATION) IN EXISTING 1" C. PER PLANS.
- PROVIDE NEW FIRE ALARM DISTRIBUTED POWER MODULE PER SPECIFICATIONS AND CONNECT PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE POWER FOR FIRE ALARM PLAN, SHEET E3.01. REFER TO FIRE ALARM CALCULATIONS, THIS SHEET FOR COORDINATION/REFERENCE.
- TO DEDICATED 120VAC, 20A CIRCUIT BREAKER FOR FIRE ALARM CONTROL EQUIPMENT PER NFPA T2, CHAPTER 10, SECTION 10.5.1 AND PROVIDE RED COLOR CIRCUIT BREAKER HANDLE AND DISCONNECT LOCATION LABELING PER NFPA T2, CHAPTER 10, SECTION 10.5.2. ADDITIONALLY, CONTRACTOR SHALL PROVIDE AND INSTALL A LISTED LOCK OUT DEVICE COMPATIBLE WITH THE CIRCUIT BREAKER FOR ADDED PROTECTION. REFER TO FIRE ALARM PLAN, SHEET E3.01 FOR COORDINATION/REFERENCE.
- 21 DENOTES DISTANCE BETWEEN NOTIFICATION APPLIANCES, TYPICAL.
- RUN 2 #12 CU THIN (NOTIFICATION) BETWEEN NOTIFICATION APPLIANCES, TYPICAL, SHOWN HERE FOR CLARITY ONLY. SEE FIRE ALARM PLAN, SHEET E3.01 TO DETERMINE EXACT ROUTING REQUIREMENTS OF FIRE ALARM CIRCUITING AND CONDUIT.
- DENOTES NOTIFICATION APPLIANCE NUMBER USED IN VOLTAGE DROP CALCULATIONS, TYPICAL. REFER TO FIRE ALARM VOLTAGE DROP AND BATTERY CALCULATIONS, THIS SHEET FOR COORDINATION/REFERENCE.
- DENOTES FIRE ALARM VISIBLE NOTIFICATION APPLIANCE NOMINAL CANDELA RATING REQUIRED, TYPICAL.
- PROVIDE NOTIFICATION APPLIANCE PER SPECIFICATIONS, TYPICAL. REFER TO INDIVIDUAL BUILDING FIRE ALARM PLANS FOR EXACT DEVICE LOCATIONS, QUANTITIES AND CONDUIT ROUTING REQUIREMENTS. REFER TO FIRE ALARM SYMBOL SCHEDULE, THIS SHEET FOR COORDINATION/REFERENCE.
- PROVIDE INITIATING DEVICE PER SPECIFICATIONS, TYPICAL. REFER TO INDIVIDUAL BUILDING FIRE ALARM PLANS FOR EXACT DEVICE LOCATIONS, QUANTITIES AND CONDUIT ROUTING REQUIREMENTS. REFER TO FIRE ALARM SYMBOL SCHEDULE, THIS SHEET FOR COORDINATION/REFERENCE.
- EXISTING INITIATION DEVICE IN AREA OF WORK TO REMAIN. EXTEND ONE 1" CABLE PER PLANS FROM EXISTING JUNCTION BOX, ITEM 6 ABOVE, AND CONTINUE BETWEEN INITIATION APPLIANCES, TYPICAL, SHOWN HERE FOR CLARITY ONLY. SEE BUILDING FIRE ALARM PLAN TO DETERMINE EXACT ROUTING REQUIREMENTS OF FIRE ALARM CIRCUITING AND CONDUIT.
- END OF LINE RESISTOR FOR INDICATED NOTIFICATION CIRCUIT, TYPICAL. PROVIDE AND INSTALL AT LAST NOTIFICATION APPLIANCE IN CIRCUIT PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

FIRE ALARM BATTERY CALCULATIONS - "DFM-1"

EQUIPMENT DESCRIPTION	QUANTITY		SUPERVISORY CURRENT (AMPERES)		ALARM CURRENT (AMPERES)	
	EXISTING	NEW	EACH	SUB-TOTAL	EACH	SUB-TOTAL
DISTRIBUTED POWER MODULE	0	1	0.090	0.090	0.090	0.090
HORNS	1	0	0.000	0.000	0.028	0.028
VISUALS	5/15 cd	0	2	0.000	0.000	0.090
VISUALS	30 cd	0	1	0.000	0.000	0.093
SUB-TOTAL AMPERES				0.090 AMPS		0.391 AMPS
				x 24 HOURS		x 0.084 HOURS
SUB-TOTAL AMPERE-HOURS				2.16 A.H.		0.023 A.H.

TOTAL REQUIRED AMPERE-HOURS FOR: FIRE ALARM CONTROL PANEL 2.163 A.H.
 BATTERY NON-LINEAR DISCHARGE CHARACTERISTIC FACTOR x 1.2
 TOTAL MINIMUM AMPERE HOURS REQUIRED 2.631 A.H.
 PROVIDED BATTERY CAPACITY 7.0 A.H.

FIRE ALARM VOLTAGE DROP CALCULATIONS - FIRE ALARM PANEL

DEVICE NUMBER	UNIT AMPERES	TOTAL AMPERES	WIRE LENGTH	AWG SIZE	CIRC. MILS	OHMS RES. PER FT.	SEGMENT % VD	TOTAL % VD
1	0.028	0.30	100'	#12	6530	0.00164	0.48	0.48
2	0.090	0.27	45'	#12	6530	0.00164	0.20	0.68
3	0.092	0.18	30'	#12	6530	0.00164	0.09	0.77
4	0.090	0.09	45'	#12	6530	0.00164	0.07	0.84

ANNUNCIATION CIRCUIT: "DFM-1" AI
 TOTAL PERCENTAGE DROP IN CIRCUIT: 0.84%
 BASED UPON A 24 VDC CIRCUIT OPERATING AT 70 DEGREES FARENHEIT

FIRE ALARM SYMBOL SCHEDULE

[]	FIRE ALARM MASTER PANEL HOCHIKI FIRENET 412T (C.S.F.M. # 7165-0410-0194)
[]	FIRE ALARM DISTRIBUTED POWER MODULE HOCHIKI #FN-642-ILADA (C.S.F.M. # 7315-0410-0166)
[SD]	AUTOMATIC SMOKE DETECTOR (PHOTOELECTRIC) - HOCHIKI #ALG-V (C.S.F.M. #1212-0410-0144) HOCHIKI #EB-NSA-6 BASE (C.S.F.M. #1300-0410-0132)
[HD]	AUTOMATIC HEAT DETECTOR MOUNTED IN ATTIC HOCHIKI #FE-140 (C.S.F.M. #1210-0410-0114) HOCHIKI #EC-224L BASE (C.S.F.M. #1300-0410-0132)
[F]	FIRE ALARM MANUAL PULL STATION (C.S.F.M. # 7150-0410-0169) HOCHIKI #DF-AM3-KL-LP
[V]	WALL MOUNTED VISUAL DEVICE - CANDELA RATING PER PLANS WHEEL LOCK #RS-24MCM-FM (C.S.F.M. #1125-0185-0141) CURRENT: 0.090 A 5/15 CD 0.092A 30 CD
[EOL]	CIRCUIT END OF LINE RESISTOR.

FIRE ALARM SYSTEM OPERATIONAL MATRIX

SYMBOL	DEVICE DESCRIPTION	ACTIVATE EVACUATION HORNS/STROBES	RELEASE DOOR CLOSURE DEVICE	SHUT DOWN HVAC FANS	ANNUNCIATE AT BUILDING F.A.C.P.	ACTIVATE FIRE/SMOKE DAMPERS	ACTIVATE FIRE RATED ROLL-UP DOORS
[SD]	SMOKE DETECTOR	X	X		X	X	X
[F]	Manual Pull	X	X		X	X	X
[HD]	HEAT DETECTOR	X	X		X		X

COMPLETE AUTOMATIC FIRE ALARM SYSTEM SUBMITTAL

THE FIRE ALARM SYSTEM DESIGN IS A COMPLETE PLAN SUBMITTAL PER DSA POLICY. THE CONTRACTOR SHALL INSTALL THE AUTOMATIC, ADDRESSABLE FIRE PROTECTION SYSTEM AS SHOWN AND AS HEREIN SPECIFIED. IF ANY SUBSTITUTION OF FIRE ALARM EQUIPMENT IS TO BE REQUESTED, SUCH REQUEST SHALL BE MADE A MINIMUM OF TEN BUSINESS DAYS PRIOR TO PROJECT BID DATE. THE CONTRACTOR SUBMITTAL SHALL INCLUDE ALL MANUFACTURER'S CATALOG SPECIFICATION SHEETS, THE CSM LISTING SHEETS FOR INDIVIDUAL COMPONENTS COMPRISING THE SUBSTITUTED FIRE ALARM SYSTEM, BATTERY LOAD CALCULATIONS AND VOLTAGE DROP CALCULATIONS FOR EACH SIGNALING CIRCUIT. SHOULD THE SUBSTITUTED SYSTEM BE APPROVED AND INSTALLED, THE CONTRACTOR SHALL PROVIDE ONE SET OF REPRODUCIBLE CAD GENERATED, DSA-ORS APPROVED AND STAMPED 'AS-CONSTRUCTED' DRAWINGS TO THE ENGINEER UPON COMPLETION OF THE SYSTEM INSTALLATION.

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Issue Date: 07/19/12
 Date: 07/19/12
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 DR: VWW
 PC: CJM

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 OFFICE OF REGULATION SERVICES
 03-114521
 AC: FLS SS
 DATE: 5/11/12

TRACKING #: - - - - -

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 Sheet No.: **E5.01**
 Release: -

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