

FIRE ALARM SYSTEM

PROJECT

GENERAL NOTES

- THESE DRAWINGS DEPICT GENERAL LOCATIONS OF LIFE SAFETY EQUIPMENT & FIELD DEVICES. EXACT ROUTING OF CONDUITS TO BE DETERMINED IN THE FIELD BY THE INSTALLING CONTRACTOR TO SUIT CONDITIONS.
- ALL FIRE ALARM SYSTEM WIRING SHALL BE CLEAR FROM SHORTS, OPENS AND GROUNDS.
- SHOULD ANY CONDITIONS EXIST THAT DIFFER FROM WHAT IS INDICATED ON THESE DRAWINGS WHICH CAUSE MAJOR DEVIATIONS IN THE WORK SHOWN, THE CONTRACTOR SHALL CONTACT THE DESIGNER IN A TIMELY MANNER SO AS NOT TO IMPAIR THE CONSTRUCTION SCHEDULE.
- CONTRACTOR IS RESPONSIBLE FOR MAKING AND OBTAINING APPROVAL FOR ALL NECESSARY ADJUSTMENTS IN CIRCUITING AS REQUIRED TO ACCOMMODATE THE RELOCATION OF EQUIPMENT AND/OR DEVICES WHICH ARE AFFECTED BY ANY AUTHORIZED CHANGE.
- THE POWER CIRCUIT TO THE FACP AND TO THE FIRE ALARM POWER SUPPLIES SHALL BE ON A DEDICATED 120V, 20A BRANCH CIRCUIT BREAKER, AND SHALL HAVE A RED MARKING, LOCK-ON PROVISION AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL." THE LOCATION OF THE CIRCUIT DISCONNECT MEANS (CIRCUIT BREAKER) SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.
- ANY SMOKE DETECTOR HEAD INSTALLED BEFORE THE BUILDING IS CLEANED AND ACCEPTED SHALL BE COVERED TO PROTECT FROM DUST.
- INSTALLATION OF DEVICES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. POWER LIMITED AND NON-POWER LIMITED FIELD WIRING MUST BE INSTALLED WITHIN THE FACP ENCLOSURE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- ALL WIRING SHALL BE INSTALLED ACCORDING TO NFPA 70 (NEC).
- FIRE ALARM CIRCUITS EXTENDING BEYOND ONE BUILDING AND RUN OUTDOORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70 ARTICLES 760, 770, 775 AND 800 WHERE APPLICABLE.
- ALL WIRING, INCLUDING SHIELDS MUST BE DRY AND FREE OF SHORTS AND GROUNDS.
- ALL SHIELDED WIRE MUST HAVE SHIELD CONTINUITY AT FULL LENGTH OF THE WIRE.
- ONLY FIRE ALARM SYSTEM WIRING CAN BE RUN IN THE SAME CONDUIT.
- MAINTAIN 40 PERCENT MAXIMUM CONDUIT FILL RATIO AS PER NEC REQUIREMENTS.
- EXISTING CONDUITS MAY BE USED BY THE INSTALLATION CONTRACTOR AS DEEMED NECESSARY. HOWEVER, ANY EXISTING CONDUIT WILL BE USED ONLY IF CONDUITS MEET CURRENT STANDARDS AND CODES.
- THE FIRE ALARM SYSTEM SHALL BE MONITORED BY A CENTRAL UL LISTED MONITORING STATION.
- ALL CEILINGS ARE ASSUMED TO BE 10' A.F.F., SMOOTH CONSTRUCTION UNLESS NOTED OTHERWISE.

SCOPE OF WORK

INSTALLATION OF A NEW MANUAL AND AUTOMATIC FIRE ALARM SYSTEM. A NEW PANEL IS BEING INSTALLED ALONG WITH NOTIFICATION DEVICES AS PER THE APPLICABLE CODES. SPRINKLER WATERFLOW IS BEING MONITORED TO ACTIVATE NOTIFICATION DEVICES UPON ALARM.

APPLICABLE CODES

2022 CALIFORNIA BUILDING CODE (VOL 1 & 2)
2022 CALIFORNIA ELECTRICAL CODE
2022 CALIFORNIA MECHANICAL CODE
2022 CALIFORNIA PLUMBING CODE
2022 CALIFORNIA ENERGY CODE
2022 CALIFORNIA FIRE CODE
ADA STANDARDS FOR ACCESSIBLE DESIGN - 2010 ED.
NFPA 72 2022

CONTRACTOR INFO

SYSTEM DESIGNER/INSTALLER	DRAWINGS PREPARED BY
NAME: EMAIL: PHONE #:	JEM SYSTEMS LLC jem@jemsystems.com 480-977-3555

MONITORING COMPANY

NAME:
PHONE:
ADDRESS #:

SHEET INDEX

SHEET#	SHEET DESCRIPTION
FA-00	COVER SHEET
FA-01	PROJECT INFORMATION
FA-02	FLOOR PLAN

REVISION:

NO.	DESCRIPTION	DATE
1	FIRST RELEASE	
2	FIRE DEPT. CORRECTIONS	09/30/2024
3		
4		
5		

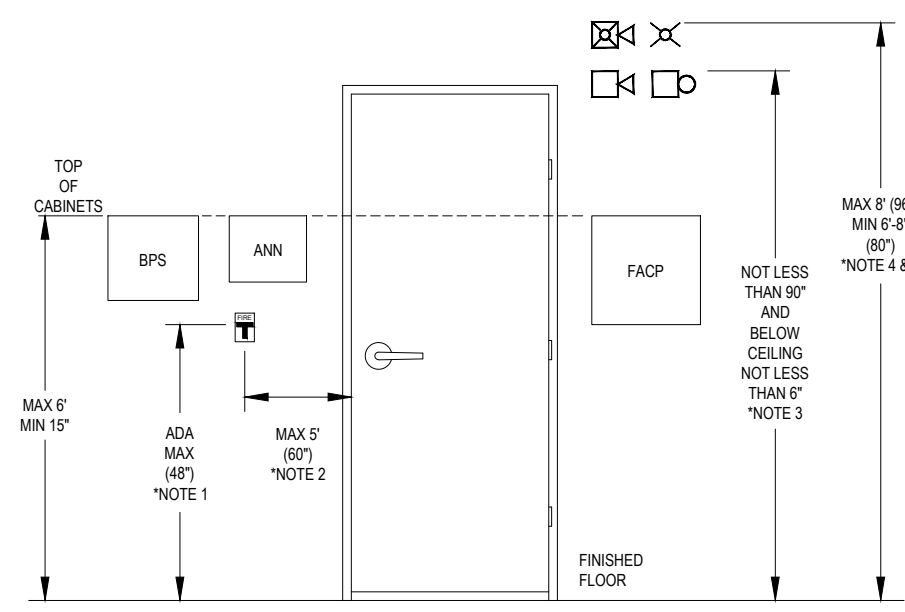
SHEET DESCRIPTION:
FIRE ALARM SYSTEM
COVER SHEET

DRAWN BY: JEM SYSTEMS
DATE: 09.30.2024
SCALE: SEE DRAWINGS

SHEET:
FA-00

BUILDING DATA			
CONSTRUCTION TYPE:	III-B	FIRE PROTECTION:	FULLY SPRINKLERED
OCCUPANCY GROUP:	B/S1/F1	NUMBER OF STORES:	1
OCCUPANT LOAD:	8	WORK AREA:	14,311 SQFT

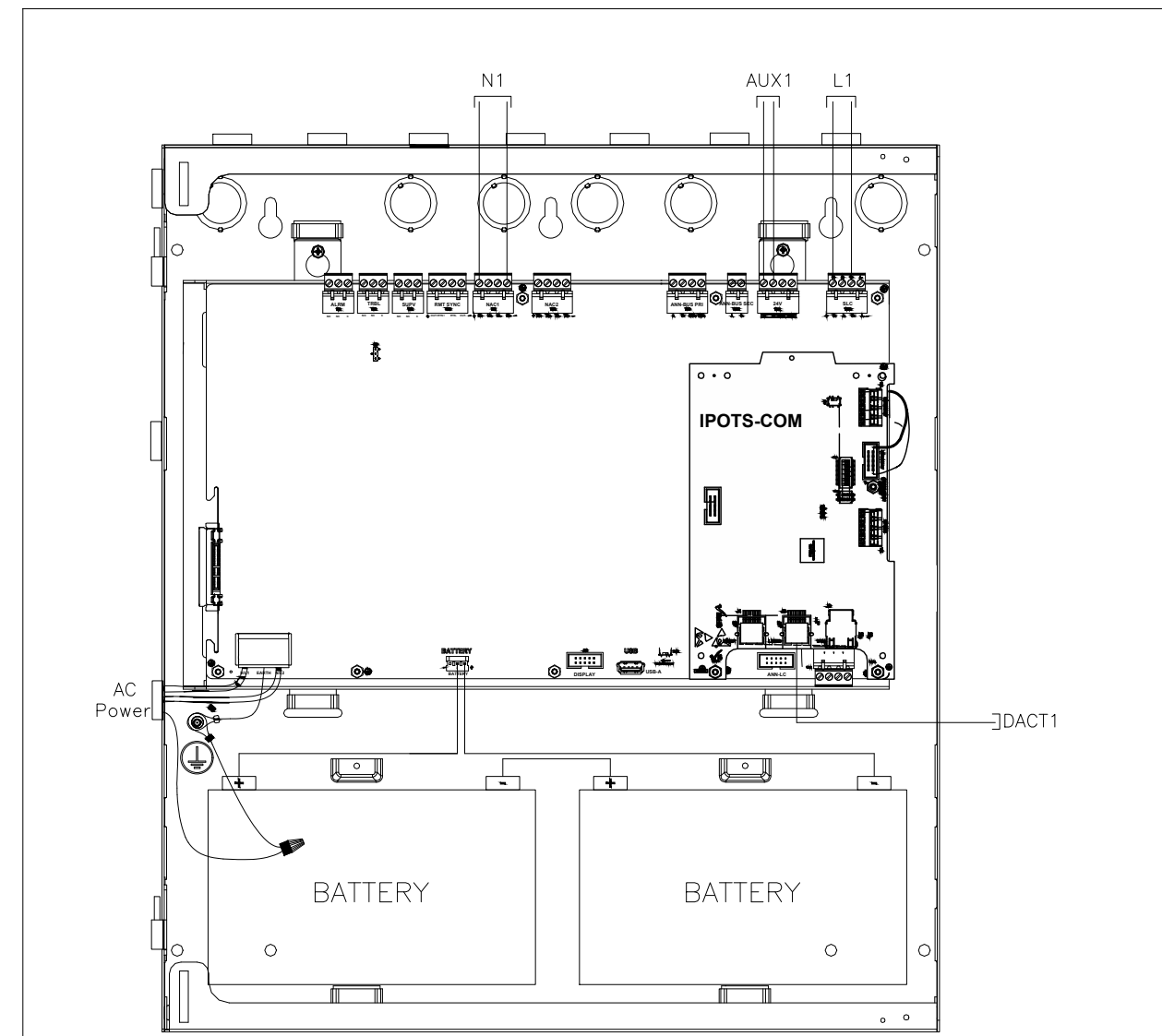
- TYPICAL MOUNTING HEIGHTS**
- NFPA 72 2022 17.15.6 THE OPERABLE PART OF EACH MANUAL FIRE ALARM BOX SHALL BE NOT LESS THAN 42in AND NOT MORE THAN 48in FROM THE FINISHED FLOOR.
 - NFPA 72 2022 17.15.9.4 MANUAL FIRE ALARM BOXES SHALL BE LOCATED WITHIN 5R OF EACH EXIT DOORWAY ON EACH FLOOR.
 - NFPA 72 2022 18.4.9.1 IF CEILING HEIGHTS ALLOW, AND UNLESS OTHERWISE PERMITTED BY 18.4.9.2 THROUGH 18.4.9.5, WALL-MOUNTED APPLIANCES SHALL HAVE THEIR TOPS ABOVE THE FINISHED FLOORS AT HEIGHTS OF NOT LESS THAN 90in AND BELOW THE FINISHED CEILING AT DISTANCES OF NOT LESS THAN 6in.
 - NFPA 72 2022 18.4.9.3 IF COMBINATION AUDIBLE/ VISIBLE APPLIANCES ARE INSTALLED, THE LOCATION OF THE INSTALLED APPLIANCE SHALL BE DETERMINED BY THE REQUIREMENTS OF 18.5.5. (SEE NOTE 5).
 - NFPA 72 2022 18.5.5.1 WALL-MOUNTED APPLIANCES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80in AND NOT GREATER THAN 96in ABOVE THE FINISHED FLOOR OR AT THE MOUNTING HEIGHT SPECIFIED USING THE PERFORMANCE BASED ALTERNATIVE OF 18.5.5.7.



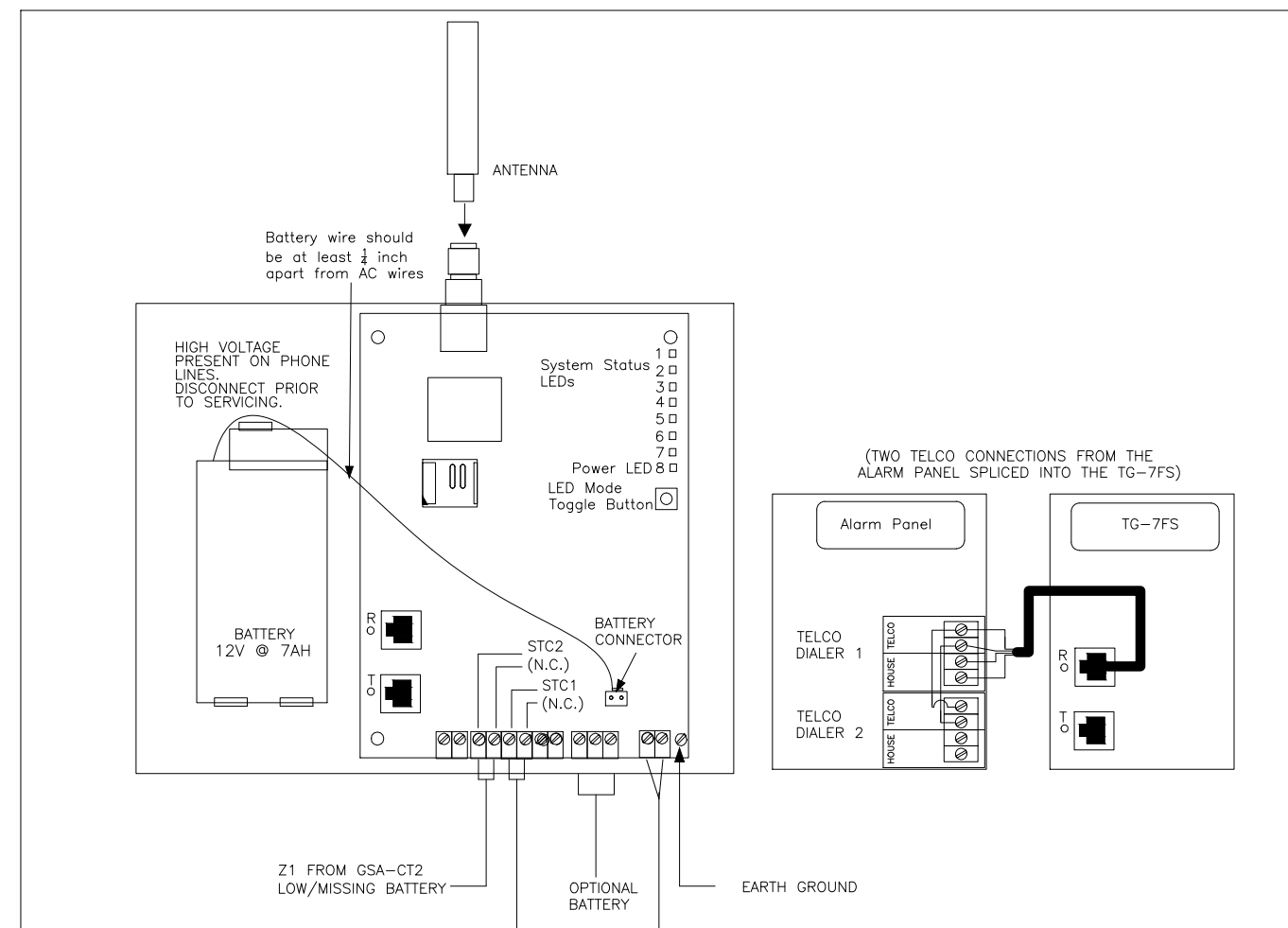
EQUIPMENT LIST					
SYMBOL	QUANTITY	MANUFACTURER	PART NO	DESCRIPTION	CSFM
[FACU]	1	FIRELITE	ES-50X	FIRE ALARM CONTROL PANEL	7165-0075:0500
[CELL]	1	TELGUARD	TG-7FS	COMMUNICATOR	7300-1402:0504
[F]	1	FIRELITE	BG-12LX	ADDRESSABLE MANUAL PULL STATION	7150-0075:0184
[AM]	2	FIRELITE	MMF-301	ADDRESSABLE MINI MONITOR MODULE	7300-0075:0185
[S]	1	FIRELITE	SD365 W/B300-6	SMOKE DETECTOR W/ STANDARD BASE	7272-0075:0502
[S] CO	23	FIRELITE	SD365CO W/B300-6	CO DETECTOR W/ STANDARD BASE	7272-0075:0507
[S] CO	1	SYSTEM SENSOR	P2RL	HORN/STROBE, WALL, RED	7135-1653:0503
[PIV]	1	GENERIC	-	POST INDICATOR VALVE (BY OTHERS)	N/A
[S]	1	GENERIC	-	WATERFLOW SWITCH (BY OTHERS)	N/A

CABLE AND WIRE LEGEND					
LABEL	PART NO	RESISTANCE MFT	AWG	DESCRIPTION	TOTAL LENGTH
D	16/2 FPLP (SLC)	4.1	16	SLC - 2 COND. SOLID COPPER FPLP ADDRESSABLE UNSHIELDED	580'
E	RJ31X (PHL)	16.14	22	PHONE LINE - RJ31X SOLID COPPER TWISTED SHIELDED	3'
P	14/2 FPLP (AUX)	2.6	14	AUX POWER - 2 COND. SOLID COPPER FPLP UNSHIELDED	3'
V	14/2 FPLP (NAC)	2.6	14	NAC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	54'
Z	18/2 FPLP (IDC)	6.5	18	IDC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	10'

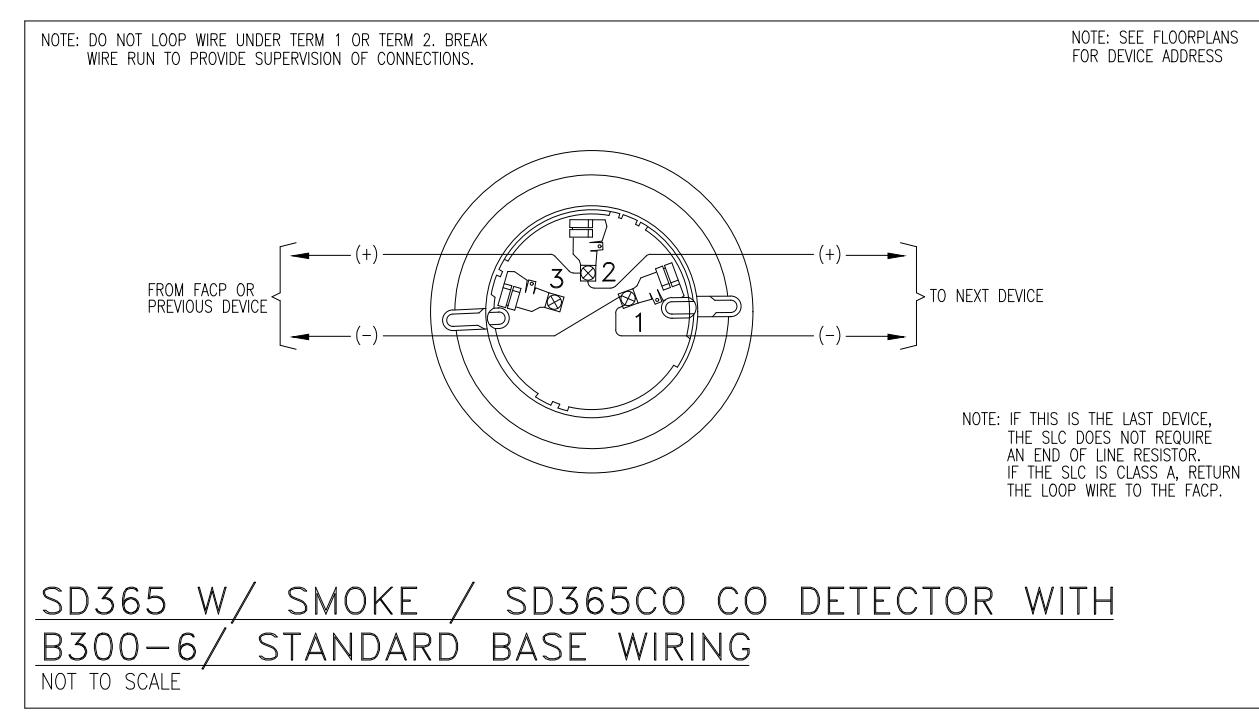
PANEL FACU 1 (ES-50X) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS)									
CIRCUIT	SYMBOL	QTY	PART NO.	DESCRIPTION	STANDBY CURRENT		SECONDARY ALARM CURRENT		
					CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)	
PANEL COMPONENTS		1	ES-50X	INTELLIGENT ADDRESSABLE FACP WITH COMMUNICATOR	0.000	0.000	0.000	0.000	
		1	ES-50X MAIN BOARD	MAIN BOARD FOR ES-50X FIRE ALARM CONTROL PANEL	0.141	0.141	0.257	0.257	
		1	IPOTS-COM	DUAL TECHNOLOGY (POTS AND IP) COMMUNICATOR(REPLACEMENT BOARD) FOR THE ENDURANCE SERIES PANELS	0.040	0.040	0.041	0.041	
	FACU 1-AUX1	[CELL]	1	TG-7FS	COMMERCIAL FIRE CELLULAR ALARM COMMUNICATOR FOR LTE NETWORKS, TELCO	0.040	0.040	0.200	0.200
	FACU 1-L1	[F]	1	BG-12LX	ADDRESSABLE MANUAL PULL STATION WITH INTERFACE MODULE MOUNTED INSIDE	0.000375	0.000	0.005	0.005
[AM]		2	MMF-301	MINIATURE VERSION OF MMF-300. EXCLUDES LED AND STYLE D OPTION. CONNECTS WITH WIRE PIGTAILS. MAY MOUNT IN DEVICE BACKBOX	0.00035	0.001	0.0006	0.001	
[S]		1	SD365 W/B300-6	WHITE, ADDRESSABLE PHOTOELECTRIC DETECTOR, STANDARD BASE	0.0002	0.000	0.0045	0.005	
[S] CO		23	SD365CO W/B300-6	ADVANCED MULTI-CRITERIA FIRE/CO DETECTOR, LITESPEED®, WHITE, STANDARD BASE	0.0002	0.005	0.0045	0.104	
FACU 1-N1	[S]	1	P2RL	HORN/STROBE, WALL, RED 15CD	0.000	0.000	0.054	0.054	
FACU 1-DACT	[CELL]	1	TG-7FS	COMMERCIAL FIRE CELLULAR ALARM COMMUNICATOR FOR LTE NETWORKS, TELCO	0.000	0.000	0.000	0.000	
					TOTAL STANDBY (A)	0.227	TOTAL ALARM (A)	0.666	
					REQUIRED STANDBY TIME (HOURS)			24	
					REQUIRED ALARM TIME (MINUTES)			5	
SECONDARY STANDBY LOAD (A)					0.227				
SECONDARY ALARM LOAD (A)					0.666				
STANDBY AND ALARM SUBTOTAL (AMP HOURS)							5.501		
DERATING FACTOR							1.25		
SECONDARY LOAD REQUIREMENTS (AMP HOURS)							6.876		
PROVIDE (2) 12V 7AH BATTERIES									



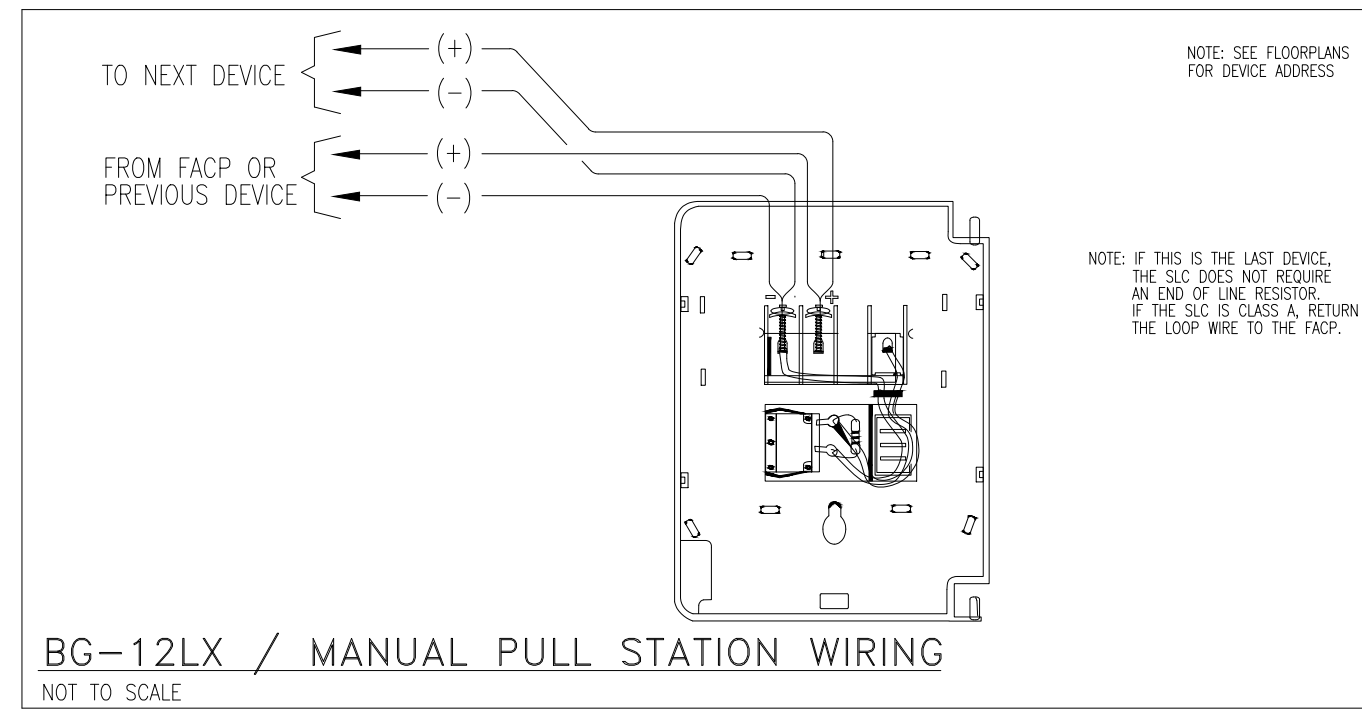
ES-50X / FACP-1 / FIRE ALARM CONTROL PANEL WIRING
NOT TO SCALE



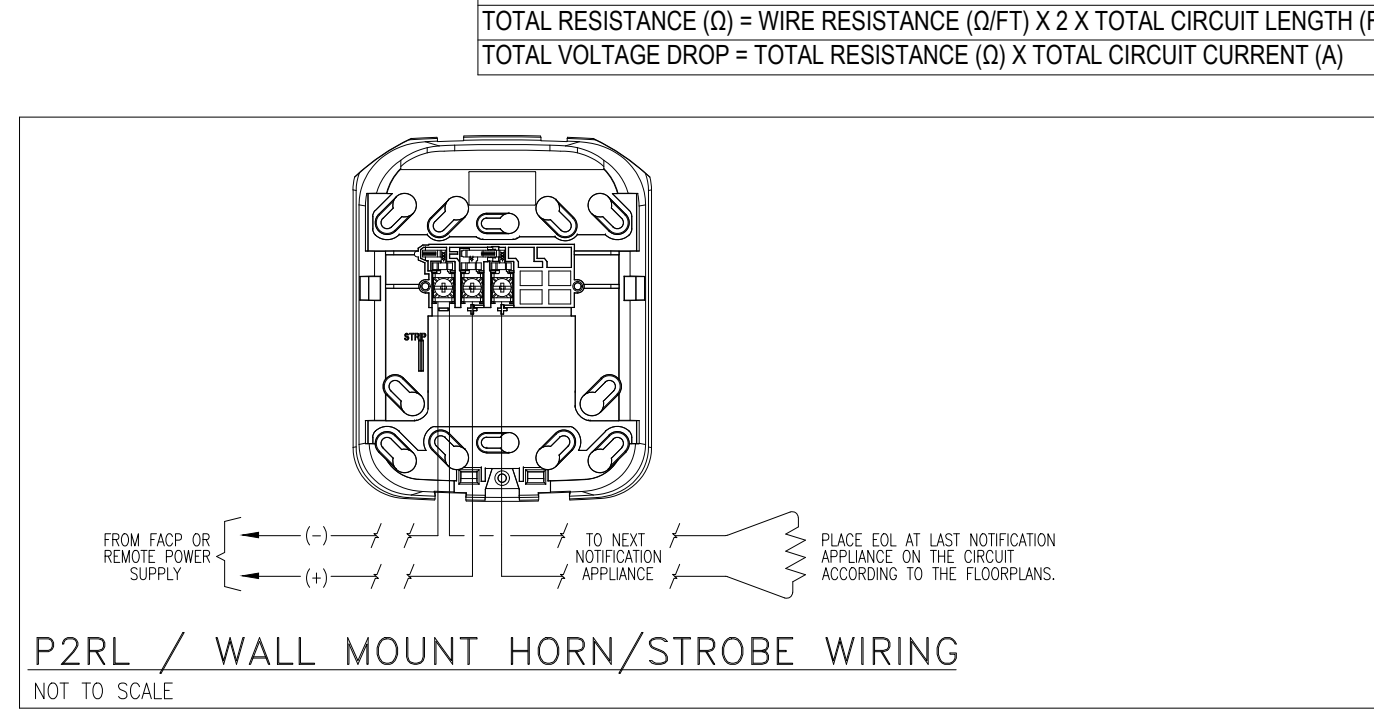
TG-7FS / COMMUNICATOR WIRING
NOT TO SCALE



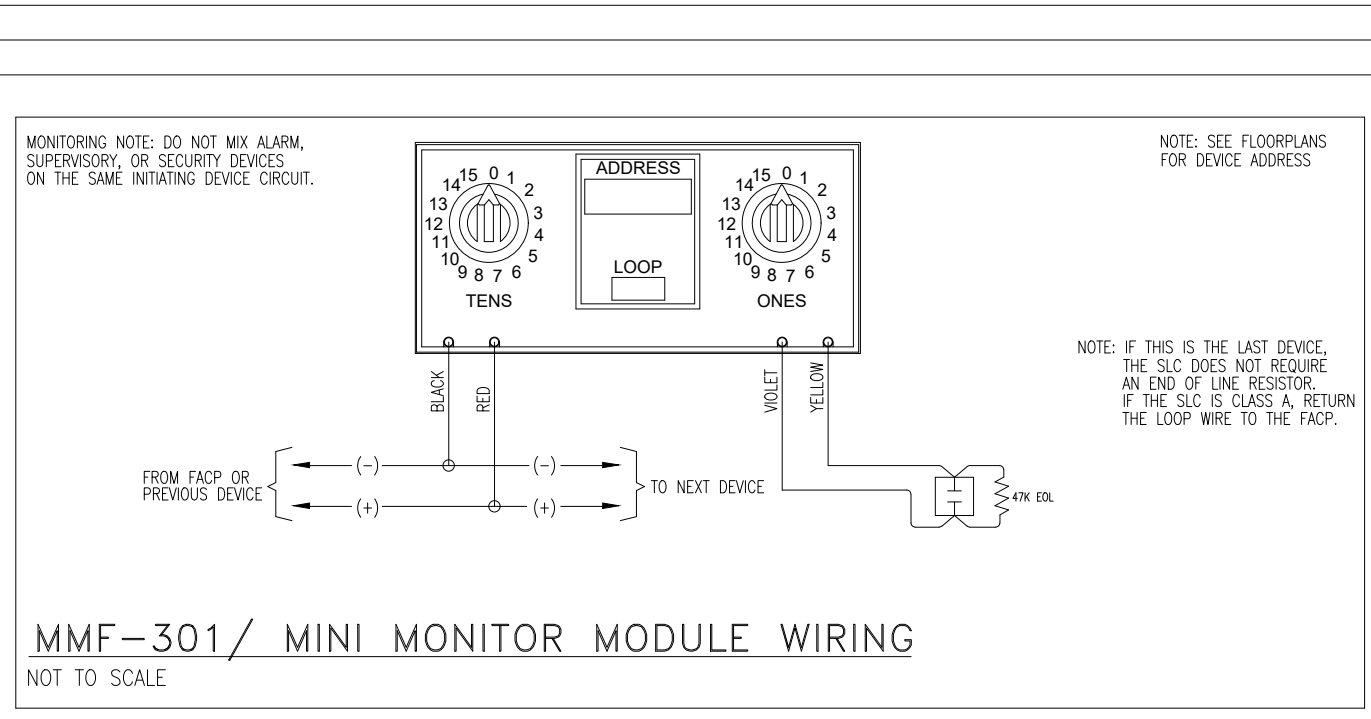
SD365 W/ SMOKE / SD365CO CO DETECTOR WITH B300-6 / STANDARD BASE WIRING
NOT TO SCALE



BG-12LX / MANUAL PULL STATION WIRING
NOT TO SCALE



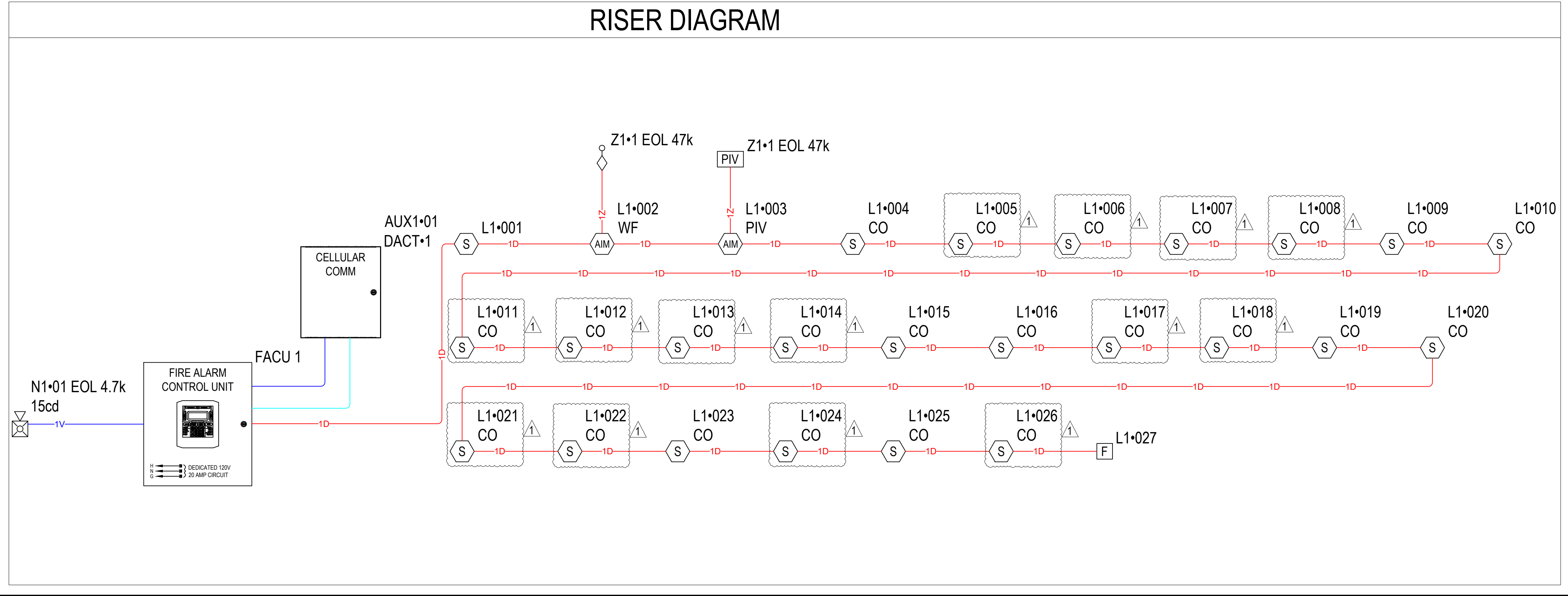
P2RL / WALL MOUNT HORN/STROBE WIRING
NOT TO SCALE



MMF-301 / MINI MONITOR MODULE WIRING
NOT TO SCALE

LUMP SUM REPORT SUMMARY																			
DISTANCE MEASURED USING DRAWN SEGMENT LENGTHS WITH 10.00% ADDITIONAL LENGTH CALCULATED																			
SOURCE	CIRCUIT	PART NO	MAX. CARD CURRENT (A)	TOTAL CARD CURRENT (A)	SPARE CARD CURRENT (A)	SPARE CARD CURRENT %	MAX. CIRCUIT CURRENT (A)	TOTAL CIRCUIT CURRENT (A)	SPARE CIRCUIT CURRENT (A)	SPARE CIRCUIT CURRENT %	WIRE GAUGE	WIRE RESISTANCE (OHMS/FT)	TOTAL CIRCUIT LENGTH (FT)	TOTAL CIRCUIT RESISTANCE (OHMS)	STARTING CALCULATION VOLTAGE	MIN. OPERATIONAL VOLTAGE	MAX. VOLTAGE DROP	END OF LINE VOLTAGE	VOLTAGE DROP %
FACU 1 (ES-50X)	AUX1 N1	ES-50X MAIN BOARD	3	0.3637	2.6363	87.88 %	1	0.2	0.8	80.00 %	14	2.600	3	0.016683	20.400	16	0.00334	20.39666	0.02 %
							2.500	0.054	2.446	97.84 %	14	2.600	54	0.27867	20.400	16	0.01505	20.38495	0.07 %

CALCULATION METHODS:
TOTAL RESISTANCE (OHMS) = WIRE RESISTANCE (OHMS/FT) X TOTAL CIRCUIT LENGTH (FT)
TOTAL VOLTAGE DROP = TOTAL RESISTANCE (OHMS) X TOTAL CIRCUIT CURRENT (A)



RISER DIAGRAM

EVENT	TROUBLE SIGNAL @ FIRE ALARM CONTROL PANEL	SUPERVISORY SIGNAL @ FIRE ALARM CONTROL PANEL	ALARM SIGNAL @ FIRE ALARM CONTROL PANEL	CARBON MONOXIDE SIGNAL @ FIRE ALARM CONTROL PANEL	TROUBLE SIGNAL @ OFF SITE MONITORING	SUPERVISORY SIGNAL @ OFF SITE MONITORING	ALARM SIGNAL @ OFF SITE MONITORING	CARBON MONOXIDE SIGNAL @ OFF SITE MONITORING	ACTIVATE LOCAL AUDIBLE SIGNAL FOR CARBON MONOXIDE	ACTIVATE NOTIFICATION DEVICES	ACTIVATE EXTERIOR NOTIFICATION DEVICE AT F.D. RESPONSE POINT
SMOKE DETECTOR											
MANUAL PULL STATION											
WATERFLOW SWITCH											
CO DETECTOR											
POST INDICATOR VALVES											
NOTIFICATION APPLIANCE CIRCUIT SHORT											
CELLULAR DISCONNECT											

NOTE: ALL SIGNALS WILL BE SENT TO A CENTRAL STATION

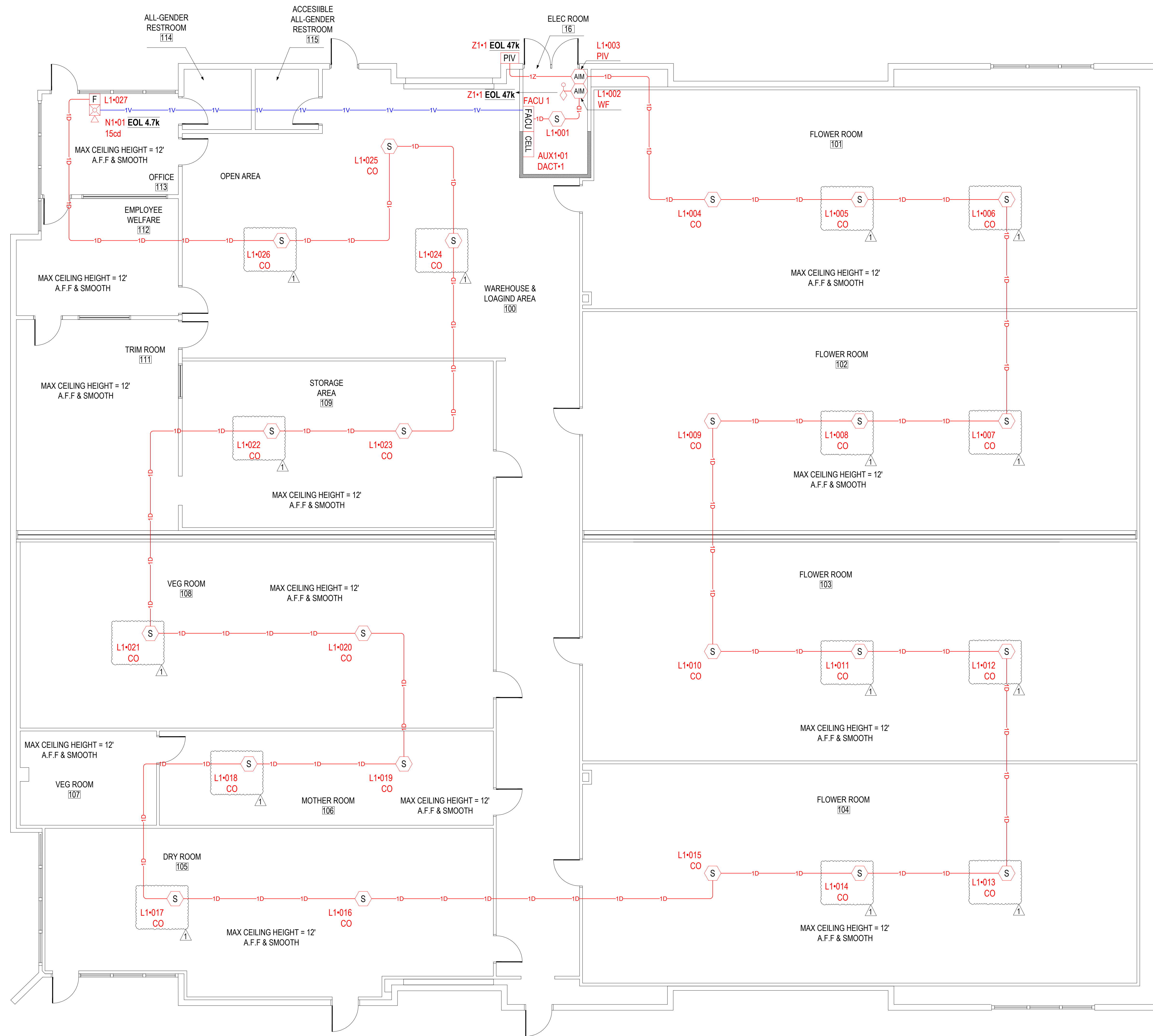
PROJECT

REVISION:
FIRST RELEASE
FIRE DEPT CORRECTIONS
09/30/2024

SHEET DESCRIPTION:
FIRE ALARM SYSTEM
PROJECT INFORMATION

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DATE: 09.30.2024
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SHEET:
FA-01

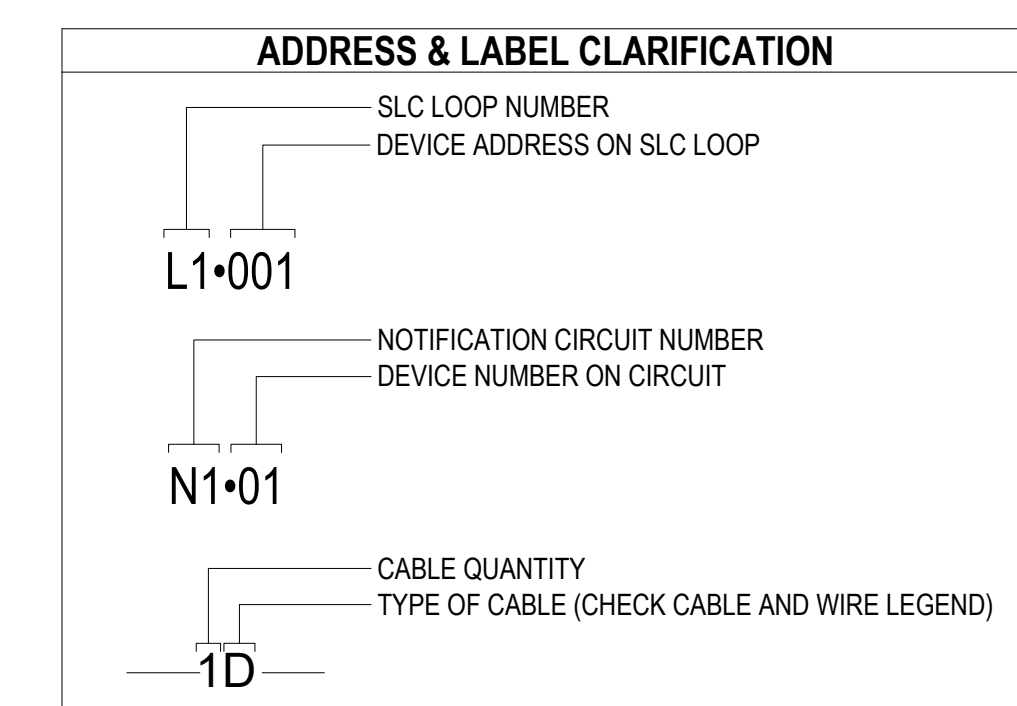


DEVICE LEGEND	
SYMBOL	DESCRIPTION
[FACU]	FIRE ALARM CONTROL PANEL
[CELL]	COMMUNICATOR
[F]	ADDRESSABLE MANUAL PULL STATION
[AIM]	ADDRESSABLE MINI MONITOR MODULE
[S]	SMOKE DETECTOR W/ STANDARD BASE
[S] CO	CO DETECTOR W/ STANDARD BASE
[HORN]	HORN/STROBE, WALL, RED
[PIV]	POST INDICATOR VALV (BY OTHERS)
[WF]	WATERFLOW SWITCH (BY OTHERS)

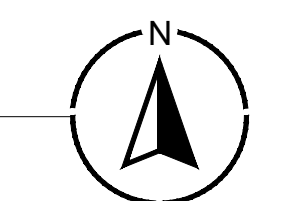
ABBREVIATIONS	
SYMBOL	DESCRIPTION
PIV	POST INDICATOR VALVE
WF	WATERFLOW SWITCH

CABLE AND WIRE LEGEND	
LABEL	DESCRIPTION
D	SLC - 2 COND. SOLID COPPER FPLP ADDRESSABLE UNSHIELDED
E	PHONE LINE - RJ31X SOLID COPPER TWISTED SHIELDED
P	AUX POWER - 2 COND. SOLID COPPER FPLP UNSHIELDED
V	NAC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED
Z	IDC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED

NFPA 72 - TABLE A.18.4.4 AVERAGE AMBIENT SOUND LEVEL ACCORDING TO LOCATION	
LOCATION	SOUND LEVEL (dBA)
1. BUSINESS OCCUPANCIES	54
2. EDUCATIONAL OCCUPANCIES	45
3. INDUSTRIAL OCCUPANCIES	88
4. INSTITUTIONAL OCCUPANCIES	50
5. MERCANTILE OCCUPANCIES	40
6. MECHANICAL ROOMS	91
7. PIERS AND WATER SURROUNDED STRUCTURES	40
8. PLACES OF ASSEMBLY	60
9. RESIDENTIAL OCCUPANCIES	35
10. STORAGE OCCUPANCIES	30
11. THOROUGHFARES, HIGH-DENSITY URBAN	70
12. THOROUGHFARES, MEDIUM-DENSITY URBAN	55
13. THOROUGHFARES, RURAL AND SUBURBAN	40
14. TOWER OCCUPANCIES	35
15. UNDERGROUND STRUCTURES AND WINDOWLESS BLDGS	40
16. VEHICLES AND VESSELS	50



1 FLOOR PLAN
0' 1" 5' 10"
3/16" = 1'-0"



PROJECT

REVISION:	FIRST RELEASE
	FIRE DEPT. CORRECTIONS 09/30/2024

SHEET DESCRIPTION:
FIRE ALARM SYSTEM
FLOOR PLAN

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SHEET:
FA-02