



Submittal #28 31 00-2.0 28 31 00 - Fire Alarm

McCarthy Building Companies Inc.
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Overland Park, Kansas 66204
Phone: (913) 202-7002

Project: 003057.000 - Saint Luke's Continuous Work Projects 2023
100 NE Saint Luke's Blvd,
Lees Summit, Missouri 64086

283100-2 Fire Alarm - Shop Drawing

SPEC SECTION:	28 31 00 - Fire Alarm	SUBMITTAL MANAGER:	Joseph Locascio (McCarthy Building Companies Inc)
STATUS:	Draft	DATE CREATED:	05/27/2023
ISSUE DATE:		REVISION:	0
RESPONSIBLE CONTRACTOR:		RECEIVED FROM:	
RECEIVED DATE:		SUBMIT BY:	
FINAL DUE DATE:	08/24/2023	LOCATION:	
TYPE:	Shop Drawing	COST CODE:	
CRITICAL:	No		
APPROVERS:	Nadia Opalenik (McCarthy Building Companies Inc), Brian Dostal (ACI Boland Inc), Shari McConnell (IMEG Corp)		
BALL IN COURT:			

DISTRIBUTION:

DESCRIPTION:

B. Shop Drawings: 1. Shop Drawings shall be prepared by persons with the following qualifications: a. Trained and certified by manufacturer in fire alarm system design. b. Fire alarm certified by NICET, minimum Level III. 2. System Operation Description: Detailed description for this Project, including method of operation and supervision of each type of circuit and sequence of operations for manually and automatically initiated system inputs and outputs. Manufacturer's standard descriptions for generic systems are not acceptable. 3. Device Address List: Coordinate with final system programming. 4. System riser diagram with device addresses, conduit sizes, and cable and wire types and sizes. 5. Wiring Diagrams: Power, signal, and control wiring. Include diagrams for equipment and for system with all terminals and interconnections identified. Show wiring color code. 6. Batteries: Specifications. 7. Duct Smoke Detectors: Performance parameters and installation details for each detector, verifying that each detector is listed for the complete range of air velocity, temperature, and humidity possible when air-handling system is operating. 28 31 00 - 2 FIRE ALARM

ATTACHMENTS:

This review is for general conformance with Plans and Specifications only. Any deviations from same not clearly noted by the Preparer have not been reviewed. Review shall not constitute a complete check of detailed dimensions or count or serve to relieve the Preparer of contractual responsibility for any error or deviation from contract requirements.

SUBMITTAL WORKFLOW

#	NAME	SUBMITTER/ APPROVER	SENT DATE	DUE DATE	RETURNED DATE	RESPONSE	ATTACHMENTS
1	Paul Dame	Submitter		8/10/2023	7/27/2023	Submitted	SLE_Nuc_Med_Spect_CT_Dwgs.pdf
COMMENTS:							
2	Nadia Opalenik	Approver		8/10/2023		Pending	
COMMENTS:							
3	Brian Dostal	Approver		8/24/2023		Pending	
COMMENTS:							
4	Shari McConnell	Approver		8/24/2023		Pending	
COMMENTS:							



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BY

DATE

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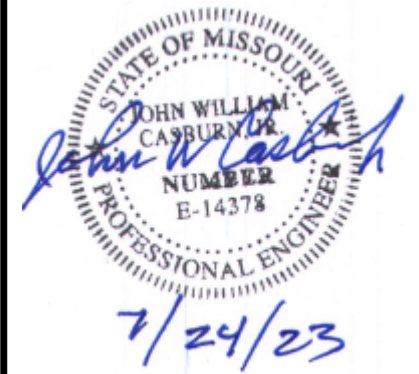
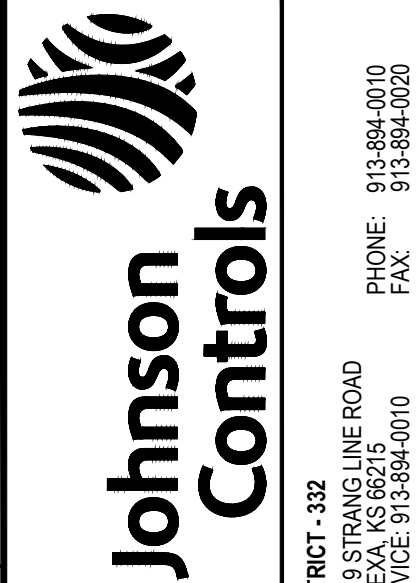
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30 x 42 - Arch D Size



SLE NUCLEAR MEDICINE SPECT CT

FIRE ALARM SYSTEM



SLE NUCLEAR MEDICINE SPECT CT

ST. LUKES HOSPITAL
100 NE SAINT LUKE'S BLVD
LEE'S SUMMIT, MO 64086

DRAWING INDEX

Sheet Number	Sheet Title
FA-001	COVER SHEET
FA-101	DEVICE DETAILS

LEGENDS

FIRE ALARM SYMBOL LEGEND

SYMBOL	DESCRIPTION	BRAND	MODEL	BACKBOX	WIRE TYPE
INITIATING DEVICES					
	ADDRESSABLE PHOTOELECTRIC SMOKE SENSOR W/ STANDARD BASE	SIMPLEX	4098-9714 HEAD 4098-9792 BASE	4" OCT, 1-1/2" D	M
	ADDRESSABLE PHOTOELECTRIC SMOKE SENSOR W/ 4-WIRE RELAY BASE	SIMPLEX	4098-9714 HEAD 4098-9791 BASE	4" OCT, 1-1/2" D	M
	SUPERVISED RELAY	SIMPLEX	2098-9737	MOUNTS IN BASE BOX	R
NOTIFICATION APPLIANCES ** TAP ALL SPEAKERS AT 70.7 VOLTS **					
#	SPEAKER/STROBE, WALL, RED, FIRE	SIMPLEX	EXISTING	EXISTING BACKBOX	S
#	STROBE, WALL, RED, FIRE	SIMPLEX	EXISTING	EXISTING BACKBOX	A

FIRE ALARM WIRE LEGEND

CIRCUIT DESCRIPTION		CONSTRUCTION	GAUGE	CIRCUIT PROPERTIES	FPLR	FPLD	THIN	THIN	OUTDOOR	CL
A	ADDRESSABLE NOTIFICATION	UTP SOLID	14 AWG	60pfr. MAX CAPACITANCE; 3 twist/ft. MINIMUM	X	X				
M	IDNET	UTP SOLID	18 AWG	60pfr. MAX TOTAL LINE CAPACITANCE	X	X	X	X		
P	POWER	2 COND. SOLID	14 AWG		X	X	X	X		
R	RELAY	2 COND. SOLID	14 AWG		X	X	X	X		
S	AUDIO - SPEAKER	STP SOLID	18 AWG	30pfr. MAX CAPACITANCE RECOMMENDED	X	X				
CONDUIT SIZE				MAX CONDUCTOR AREA		CONDUIT SIZE		MAX CONDUCTOR AREA		
1/2"		0.122 SQ. INCH*		1-1/4"		0.598 SQ. INCH*				
3/4"		0.213 SQ. INCH*		1-1/2"		0.814 SQ. INCH*				
1"		0.346 SQ. INCH*		2"		1.342 SQ. INCH*				
* 40% CONDUIT FILL PER N.E.C.				STP = SHIELDED TWISTED PAIR						
ITEMS SUCH AS CAPACITANCE BETWEEN CONDUCTORS AND WIRE GAUGE CAN BE CRUCIAL TO THE CIRCUIT DESIGN OF THIS SYSTEM. INSTALLATION, THE INSTALLING CONTRACTOR IS RESPONSIBLE FOR SELECTING AND INSTALLING CABLE MANUFACTURER AND MODEL THAT MEETS OR EXCEEDS THE ABOVE REQUIREMENTS. RECOMMENDED CABLE MANUFACTURERS AND MODEL NUMBERS ARE AVAILABLE UPON REQUEST.										

APPLICABLE CODES & STANDARDS

INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION
INTERNATIONAL FIRE CODE (IFC), 2018 EDITION
NATIONAL FIRE ALARM AND SIGNALING CODE (NFPA 72), 2016 EDITION
NATIONAL ELECTRIC CODE (NEFA 70), 2017 EDITION

OCCUPANCY TYPE(S):
B BUSINESS GROUP

SPRINKLER PROTECTION:
BUILDING IS FULLY SPRINKLED

JOHNSON CONTROLS CONTACTS

Sales Representative
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SCOPE OF WORK

MODIFY EXISTING FIRE ALARM SYSTEM: PROVIDE NEW DEVICES; RELOCATE AND DEMO EXISTING DEVICES AS SHOWN ON DRAWINGS.
ALL NEW WIRING TO BE CLASS B.
VERIFY ALL CIRCUITS, LOADS, AND ADDRESSES INCLUDING EXISTING AND RELOCATED DEVICES TO WHICH NEW DEVICES ARE CONNECTED.
DOCUMENT INFORMATION ON PLANS AND CHART FOUND ON FA-001 UNDER CALCULATIONS.
THE EXISTING FIRE ALARM SYSTEM SHALL NOT BE DISCONNECTED OR TAKEN OUT OF SERVICE WITHOUT WRITTEN PERMISSION FROM THE OWNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE OWNER THE TIMING OF ANY EXISTING FIRE ALARM SYSTEM DEMOLITION WORK.

DESIGN STATEMENT

THIS PROJECT'S DESIGN IS BASED ON THE ENGINEERED PLANS BY ACI BOLAND ARCHITECTS DATED 04/07/2023

ABBREVIATIONS LEGEND

AC = ABOVE CEILING
AFF = ABOVE FINISHED FLOOR
AUI = AUTHORITY HAVING JURISDICTION
ALM = ALARM
ANN = ANNUNCIATOR
BMS = BUILDING MANAGEMENT SYSTEM
C = CEILING MOUNTED
CD = CANDELA RATING
DET = DETECTOR
DGP = DATA GATHERING PANEL
E = EXISTING TO REMAIN
EOL = END OF LINE
EPO = EMERGENCY POWER OFF
ER = ELEVATOR RECALL
FAA = FIRE ALARM ANNUNCIATOR
FACP = FIRE ALARM CONTROL PANEL
FATC = FIRE ALARM TERMINAL CABINET
FBD = FURNISHED BY OTHERS
FCO = FIRE COMMAND CENTER
FIR = FIRE ALARM TRANSPONDER
H = HIGH HUMIDITY
HT = HEIGHT
HVAC = HEATING VENTILATION & AIR CONDITIONING
IMS = INFORMATION MANAGEMENT SYSTEM
MAX = MAXIMUM
MIN = MINIMUM
NA = NOT APPLICABLE
NAC = NOTIFICATION APPLUANCE CIRCUIT
NDU = NETWORK DISPLAY UNIT
NEC = NATIONAL ELECTRIC CODE
NFPA = NATIONAL FIRE PROTECTION ASSOCIATION
NIC = NOT IN CONTRACT
NPU = NETWORK PROCESSING UNIT
NTS = NOT TO SCALE
PAP = PRE-ACTION PANEL
RC = EXISTING TO REMOVE AND COVER
RD = EXISTING DEVICE TO BE RELOCATED
RL = RELOCATED DEVICE
RR = REMOVE EXISTING & REPLACE WITH NEW
SCC = STATUS COMMAND CENTER
SLC = SIGNALING LINE CIRCUIT
SMK = SMOKE
SUPV = SUPERVISORY
TAC = TRUFALEART ADDRESSABLE CONTROLLER
TOS = TOP OF SHAFT
TRBL = TROUBLE
TS = TAMPER SWITCH
TYP = TYPICAL
UNON = UNLESS OTHERWISE NOTED
VCC = VOICE COMMAND CENTER
VT = VALVE TAMPER
W = WATTAGE
W/ = WITH
W/O = WITHOUT
WF = WATERFLOW
WG = WIRE GUARD
WP = WEATHERPROOF
XP = EXPLOSION PROOF

DEVICE TAG LEGEND

PANEL DESIGNATOR

- FA = FACP (NON-NETWORK)
- # = NODE NUMBER
- TR = TRANSPONDER NUMBER
- #TR = NODE TRANSPONDER NUMBER
- NR = NAC EXTENDER NUMBER

CIRCUIT DESIGNATOR

- AP = IDNAC CIRCUIT NUMBER
- DP = DOOR HOLDER CIRCUIT NUMBER
- FR = FIRE PHONE CIRCUIT
- HP = AUDIBLE (HORN) CIRCUIT NUMBER
- IM = IDNET LOOP NUMBER
- PR = POWER CIRCUIT NUMBER
- SR = SPEAKER CIRCUIT NUMBER
- VS = VISUAL CIRCUIT NUMBER
- ZR = ZONE NUMBER

DEVICE NUMBER

BRANCH / ISOLATED LOOP DESIGNATOR:

- (L#) = IDNET ISOLATED LOOP NUMBER
- (B) = IDNAC BRANCH NUMBER
- (E#B) = EPR# NUMBER BRANCH NUMBER

1. IDNAC = ADDRESSABLE NOTIFICATION CIRCUIT
2. EPR = ENHANCED POWER REPEATER

EXISTING SYSTEM SEQUENCE OF OPERATIONS

SYSTEM INPUTS	SYSTEM OUTPUTS											
	CTRL UNIT ANNUNCIATION						NOTIFICATION			FIRE SAFETY CONTROL		
	A	B	C	D	E	F	G	H	I	J	K	L
1 SMOKE SENSOR/DETECTOR	X	X					X	X	X	X	X	
2 SMOKE SENSOR/DETECTOR BY DOOR HOLDERS	X	X					X	X	X	X	X	
3 SMOKE SENSOR/DETECTOR IN PATIENT ROOM	X	X					X	X	X	X	X	
4 FIRE ALARM AC POWER FAILURE					X	X			X		X	
5 FIRE ALARM SYSTEM LOW BATTERY					X	X			X		X	
6 OPEN CIRCUIT OR GROUND FAULT					X	X			X		X	
(FOR CRASH BANDS ONLY, MONITORING SEQUENCE OF OPERATIONS)												
							X			X		

GENERAL NOTES

- THESE DRAWINGS DEPICT GENERAL LOCATIONS OF LIFE SAFETY EQUIPMENT & FIELD DEVICES. EXACT ROUTING OF CONDUITS IS TO BE DETERMINED IN THE FIELD BY THE INSTALLING CONTRACTOR TO SUIT CONDITIONS. ALL CHANGES SHALL BE CLEARLY INDICATED ON THE RECORD DRAWINGS.
- 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 JOHNSON CONTROLS 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. ALL CHANGES SHALL BE CLEARLY INDICATED ON THE RECORD DRAWINGS.
- A STAMPED SET OF APPROVED FIRE ALARM DRAWINGS SHALL BE AT THE JOB SITE AND SHALL BE USED FOR INSTALLATION.
- 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.
- UPDATE THE AS-BUILT DRAWING SET DAILY WITH JOB PROGRESS. RETURN THE AS-BUILT DRAWING SET TO JOHNSON CONTROLS NO LATER THAN 7 DAYS AFTER FINAL TEST.
- THE CONTRACTOR WILL MAINTAIN ALL AREAS OF THE BUILDING IN A NEAT AND WORKMANLIKE MANNER.
- DO NOT APPLY POWER EXCEPT IN THE PRESENCE OF A FACTORY TRAINED JOHNSON CONTROLS TECHNICAL REPRESENTATIVE.
- ANY SMOKE DETECTOR HEAD INSTALLED BEFORE THE BUILDING IS CLEANED AND ACCEPTED SHALL BE COVERED TO PROTECT FROM DUST. ANY FALSE ALARMS DUE TO DIRT CONTAMINATED HEADS SHALL BE THE RESPONSIBILITY OF THE FIRE ALARM INSTALLER.
- THE FIRE ALARM INSTALLER WILL MAINTAIN THE FIRE RESISTANCE INTEGRITY OF ALL WALL, CEILING, AND ROOF ASSEMBLIES ANY TIME THAT WORK IS NOT ACTIVELY BEING PERFORMED.
- 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 AND APPLICABLE ELECTRICAL CODES. REFER TO APPLICABLE CODES & STANDARDS FOR SPECIFIC CODE REFERENCES.
- ALL WIRING SHALL BE INSTALLED ACCORDING TO APPLICABLE ELECTRICAL CODES.
- FIRE ALARM CIRCUITS SHALL BE IDENTIFIED IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES. MARK ALL FIRE ALARM WIRES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODE SECTIONS FOR POWER LIMITED AND NON-POWER LIMITED WIRE.
- FIRE ALARM CABLE INSTALLED IN DUCTS, PLENUM, AND OTHER SPACES USED FOR ENVIRONMENTAL AIR SHALL BE TYPE FPLP.
- FIRE ALARM CABLE INSTALLED IN THE VERTICAL RUNS AND PENETRATING MORE THAN ONE FLOOR OR CABLES INSTALLED IN VERTICAL RUNS IN SHAFTS SHALL BE TYPE FPLP.
- FIRE ALARM CABLE INSTALLED IN UNDERGROUND CONDUIT OR OTHER WET LOCATIONS SHALL BE UL LISTED FOR WET LOCATIONS.
- FIRE ALARM CIRCUITS EXTENDING BEYOND ONE BUILDING AND RUN OUTDOORS SHALL BE INSTALLED IN ACCORDANCE APPLICABLE ELECTRICAL CODES, 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 SYSTEM WIRING CAN BE RUN IN THE SAME CONDUIT.
- 120VAC IS NOT PERMITTED IN THE SAME CONDUIT WITH LOW VOLTAGE WIRING.
- MAINTAIN MAXIMUM CONDUIT FILL RATIO AS PER APPLICABLE ELECTRICAL CODES 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. JOHNSON CONTROLS MAKES NO STATEMENTS WRITTEN OR VERBAL AS TO THE CONDITION OF EXISTING CONDUITS.

CALCULATIONS

PANEL AND CIRCUIT LOADS

PANEL 24VDC AMPS STANDBY	AMPS
PANEL 24VDC AMPS ALARM	AMPS
NAC1 ALARM	AMPS
NAC2 ALARM	AMPS
NAC3 ALARM	AMPS
NAC4 ALARM	AMPS
FACP BATTERY SIZE	AMPS
FACP BATTERY MANUFACTURE DATE	

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