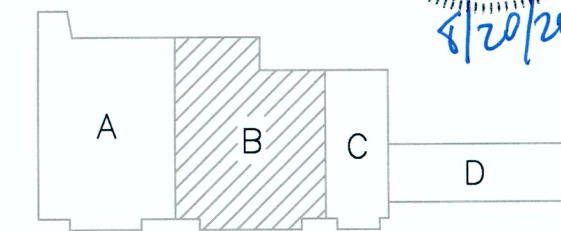




EX = EXISTING TO REMAIN

GENERAL NOTES

1. MOUNTING HEIGHTS AND LOCATIONS: (OR PER NFPA 72)
 - A. PULL STATION – 48" AFF.
 - B. STROBE, HORN/STROBE, SPEAKER/STROBE – 80" AFF.
 - C. SMOKE DETECTORS – SHALL NOT BE LOCATED CLOSER THAN 3FT. FROM AN AIR SUPPLY DIFFUSER OR AN AIR RETURN VENT.
 - D. DUCT DETECTORS SHALL BE INSTALLED AS PER NFPA 90A AND APPROVED BY A.H.J.
2. ALL CONDUIT SHALL BE A MIN. 3" UNLESS OTHERWISE SPECIFIED AND MAY NOT EXCEED 40% FILL AS PER N.E.C.. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL CONDUIT AND ELECTRICAL BOXES AS WELL INSURE PROPER CONDUIT FILL.
3. SYSTEM DESIGNED AS PER MANUFACTURERS RECOMMENDATIONS. ALL DEVICE LOCATIONS AND QUANTITIES SHALL BE CONFIRMED AT THE JOB SITE BY THE INSTALLING CONTRACTOR.
4. SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CITY, COUNTY AND STATE STANDARDS, INCLUDING THE 2018 INTERNATIONAL BUILDING CODE, THE 2016 NFPA 72, THE 2011 NFPA 90 AND THE 2018 INTERNATIONAL FIRE CODE.
5. ALL WIRING THAT ENTERS AND/OR LEAVES A SPACE SHALL HAVE PROPER SLEEVING AND FIRE CAULKING BY THE ELECTRICAL CONTRACTOR.
6. INSTALLING CONTRACTOR TO FIELD VERIFY ALL DEVICE LOCATIONS FOR THE PURPOSE OF MEETING LOCAL AND NATIONAL CODES AS WELL AS MAINTAIN REQUIREMENTS FOR A FULLY FUNCTIONAL SYSTEM.
7. VERIFY DEVICE LOCATIONS DO NOT CONFLICT WITH MECHANICAL, ELECTRICAL OR OTHER EQUIPMENT.
8. RATED FIRE WALL PENETRATIONS WILL BE IN ACCORDANCE WITH IBC 2012, SECTION 714. PER IFCC 2012 INSTRUCTIONS.
9. AN ANALYSIS OF THE EXISTING FIRE PROTECTION SYSTEM HAS BEEN PERFORMED TO ENSURE THE PROPOSED MODIFICATIONS CAN BE PROPERLY INTEGRATED WITH THE EXISTING FIRE DETECTION, ALARM, NOTIFICATION AND SUPPRESSION SYSTEM DEVICES.

A circular professional engineer seal for the State of Missouri. The outer ring contains the text "STATE OF MISSOURI" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The center of the seal contains the name "JOHN WILLIAM CASPERSON" and the license number "NUMBER E-14378". A blue ink signature is written across the seal.

PROJECT: ROSS DRESS FOR LESS #2313
480 NW CHIPMAN ROAD
LEE'S SUMMIT, MISSOURI 64086

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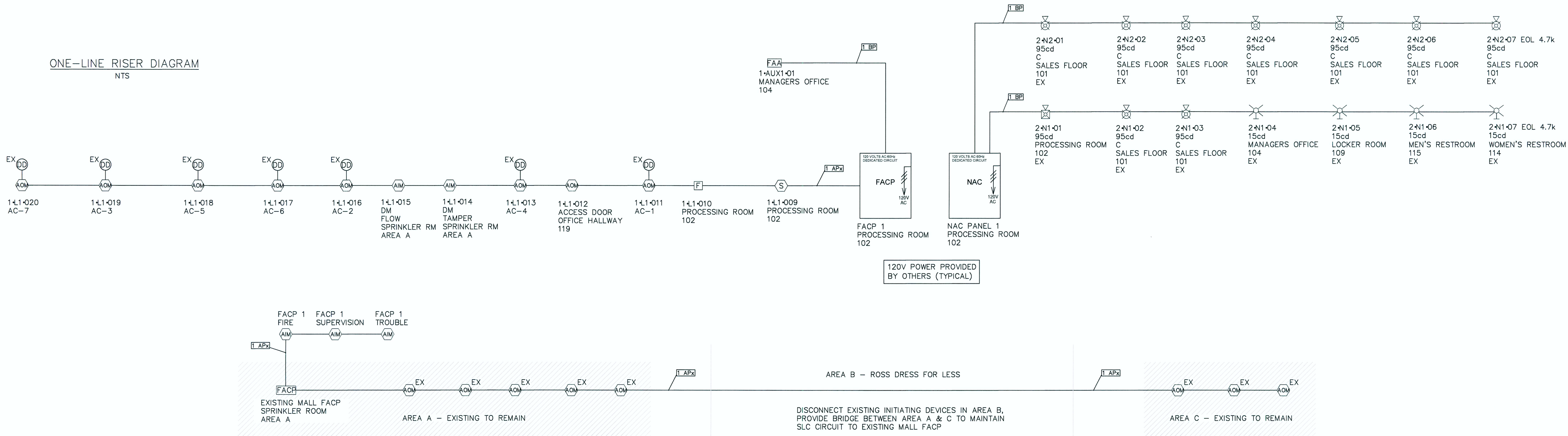
DRAWING APPROVALS

SCALE: AS SHOWN		
DRAWN BY:	JDH	08/12/2020
ENGINEER:		
CHECK BY:	SAJ	08/12/2020
DATE:		08/12/2020




DRAWING TITLE:
ROSS DRESS FOR LESS
#2313
480 NW CHIPMAN ROAD
LEE'S SUMMIT, MO 64086


DRAWING SHEET NO.
FA-1

ONE-LINE RISER DIAGRAM
NTS







NEW FACP 1 – VOLTAGE DROP				
Total Used Current: (All Circuits)			0.2000A	
Lump Sum Voltage Drop Calculation for Panel 1 Circuit AUX1				
Starting Calculation Voltage: 20.4000v		Minimum Operational Voltage: 16.0000v		
Total Circuit Current: 0.2000A		Total Distance: 116.9535'		
Voltage Drop: 0.1436v		End Of Line Voltage: 20.2564v		
Percent Drop: 0.70 %		Wire GA=#14 AWG		
Distance measured using drawn segment lengths with 10.00 % additional length calculated				
Device Symbol	Qty.	Part No.	Description	Device Current
FAA	1	FMR 7036	LCD Annunciator	0.1000A

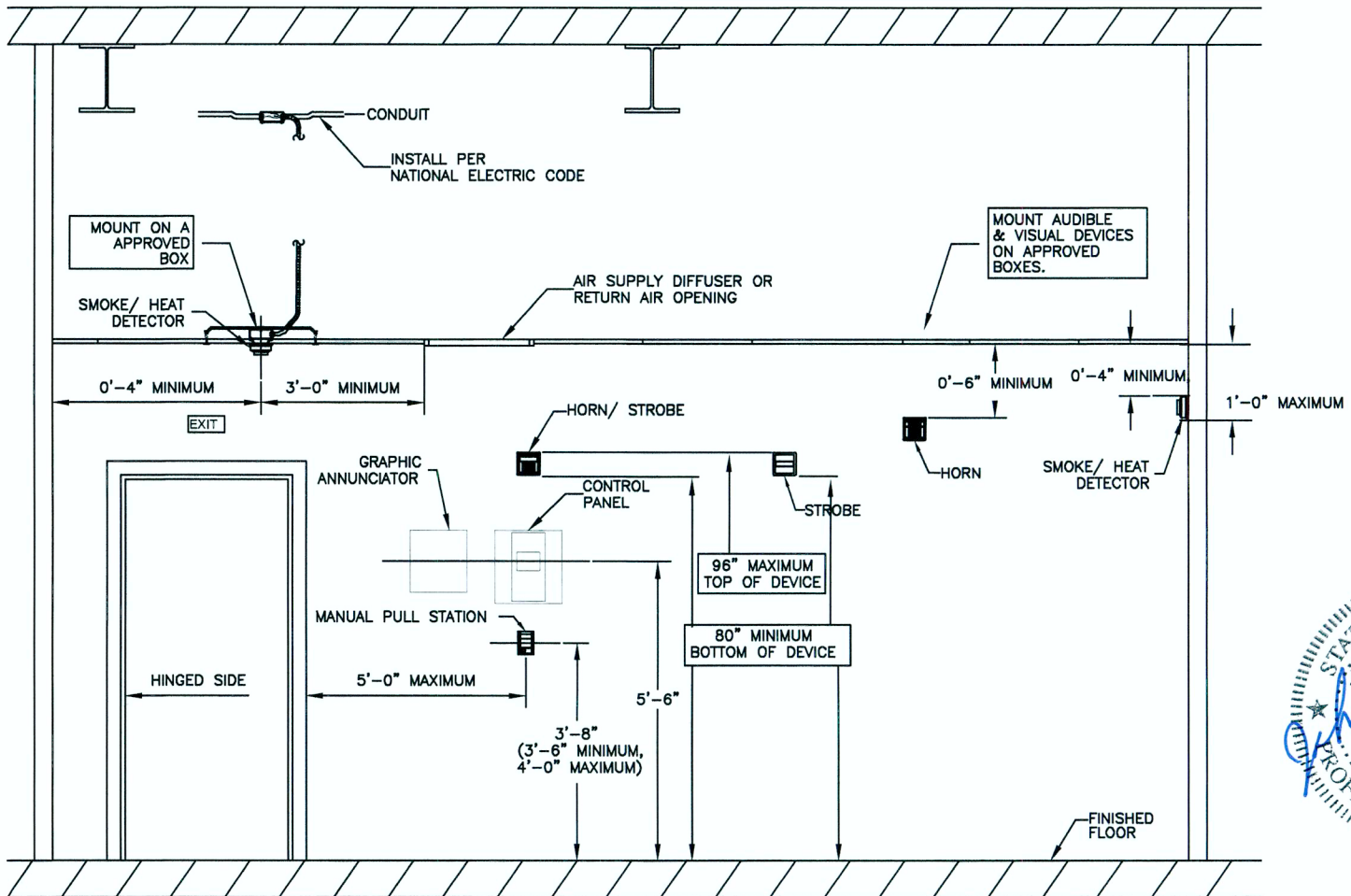
NEW NAC PANEL 2 – VOLTAGE DROP				
Total Used Current: (All Circuits)			2.2740A	
Lump Sum Voltage Drop Calculation for Panel 2 Circuit N1				
Starting Calculation Voltage: 20.4000v		Minimum Operational Voltage: 16.0000v		
Total Circuit Current: 0.8670A		Total Distance: 219.7982'		
Voltage Drop: 1.1701v		End Of Line Voltage: 19.2299v		
Percent Drop: 5.74 %		Wire GA=#14 AWG		
Distance measured using drawn segment lengths with 10.00 % additional length calculated				
Device Symbol	Qty.	Part No.	Description	Device Current
	1	P2W	2–Wire Horn/Strobe white 95cd	0.2010A
 C	2	PC2W	2–Wire Horn/Strobe ceiling white 95cd	0.2010A
	4	SW	Strobe white 15cd	0.0660A

Lump Sum Voltage Drop Calculation for Panel 2 Circuit N2				
Starting Calculation Voltage: 20.4000v		Minimum Operational Voltage: 16.0000v		
Total Circuit Current: 1.4070A		Total Distance: 378.2344'		
Voltage Drop: 3.2676v		End Of Line Voltage: 17.1324v		
Percent Drop: 16.02 %		Wire GA=#14 AWG		
Distance measured using drawn segment lengths with 10.00 % additional length calculated				
Device Symbol	Qty.	Part No.	Description	Device Current
	7	PC2W	2-Wire Horn/Strobe ceiling white 95cd	0.2010A

NEW FACP 1 (FPD-7024) BATTERY CALCULATION								
SECONDARY POWER SOURCE REQUIREMENTS								
				STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)		
PANEL COMPONENTS		QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL
		1	D7039	Fire Alarm Control Panel Expansion Board	1 x 0.15	= 0.15	1 x 0.15	= 0.15
		1	FPD-7024 MAIN BOARD	Fire Alarm Control Panel Main Board	1 x 0.20	= 0.20	1 x 0.38	= 0.38
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
1-AUX1	FAA	1	FMR 7036	LCD Annunciator	1 x 0.10	= 0.10	1 x 0.10	= 0.10
1-L1	S	1	D7050 w/D7050 B6 BASE	DETECTOR, SMOKE, ADDRESSABLE PHOTO w/STANDARD BASE	1 x 0.00024	= 0.00024	1 x 0.00024	= 0.00024
	AIM	1	D7052	Addressable Dual Monitor Module	1 x 0.00	= 0.00	1 x 0.00	= 0.00
	AIM DM	1	D7052	Addressable Dual Monitor Module	1 x 0.00024	= 0.00024	1 x 0.00024	= 0.00024
	ADM	2	D7053	Addressable Relay Module	2 x 0.00	= 0.00	2 x 0.00	= 0.00
	ADM	6	D7053	Addressable Relay Module	6 x 0.00024	= 0.00144	6 x 0.00024	= 0.00144
	F	1	FMM 7045 D	Addressable Pull Station	1 x 0.00024	= 0.00024	1 x 0.00024	= 0.00024
					TOTAL STANDBY (A)	0.45216	TOTAL ALARM (A)	0.63216
					REQUIRED STANDBY TIME = 24.00 HOURS			
					REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD				0.45216	x 24.00	= 10.8518 AH		
SECONDARY ALARM LOAD				0.63216	x 0.0833	= 0.0527 AH		
STANDBY AND ALARM LOAD SUBTOTAL					10.9045 AH			
DERATING FACTOR					x 1.20			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)					13.0854 AH			
PROVIDE (2) 12V 18AH BATTERIES @ 24VDC								

NEW NAC PANEL 2 (AL802ULADA) BATTERY CALCULATION								
SECONDARY POWER SOURCE REQUIREMENTS								
				STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)		
PANEL COMPONENTS		QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL
		1	AL802ULADA Main Board	Fire Alarm Power Supply Main Board	1 x 0.09	= 0.09	1 x 0.175	= 0.175
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
2-N1		1	P2W	2-Wire Horn/Strobe white 95cd	1 x 0.00	= 0.00	1 x 0.201	= 0.201
		2	PC2W	2-Wire Horn/Strobe ceiling white 95cd	2 x 0.00	= 0.00	2 x 0.201	= 0.402
		4	SW	Strobe white 15cd	4 x 0.00	= 0.00	4 x 0.066	= 0.264
2-N2		7	PC2W	2-Wire Horn/Strobe ceiling white 95cd	7 x 0.00	= 0.00	7 x 0.201	= 1.407
					TOTAL STANDBY (A)	0.09	TOTAL ALARM (A)	2.449
					REQUIRED STANDBY TIME = 24.00 HOURS			
					REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD				0.09	x 24.00	= 2.16 AH		
SECONDARY ALARM LOAD				2.449	x 0.0833	= 0.2041 AH		
STANDBY AND ALARM LOAD SUBTOTAL					2.3641 AH			
DERATING FACTOR					x 1.20			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)					2.8369 AH			
PROVIDE (2) 12V 8AH BATTERIES @ 24VDC								

THIS IS FOR REFERENCE ONLY, NOT ALL DEVICES MAY BE USED, SEE SPECIFICATION IF CONDUIT IS TO BE NEEDED THROUGHOUT.



SEQUENCE OF OPERATIONS

1. SYSTEM SHALL HAVE 24 HOURS OF BACK-UP BATTERY AND 5 MINUTES OF ALARM TIME.
2. SYSTEM SHALL HAVE TWO INDEPENDENT COMMUNICATION AND BE MONITORED BY AN APPROVED UL CENTRAL STATION.
3. UPON ACTIVATION OF ANY FIRE ALARM INITIATING DEVICES;
 - A. ALARM SIGNALS SHALL BE MONITORED.
 - B. INDICATING DEVICES SHALL BE ACTIVATED.
 - C. A GENERAL ALARM SHALL BE ACTIVATED.
 - D. ALL RTU'S AT AND OVER 2000 CFM SHALL SHUTDOWN.
 - E. APPROVED UL CENTRAL STATION SHALL BE NOTIFIED.
 - F. ONCE HORNS ARE SILENCED STROBES WILL CONTINUE TO FLASH UNTIL RESET.
4. UPON ACTIVATION OF A TROUBLE OR SUPERVISORY SIGNAL;
 - A. SIGNALS SHALL BE MONITORED.
 - B. APPROVED UL CENTRAL STATION AND CUSTOMER SHALL BE NOTIFIED.

CUSTOMER: STACCO ELECTRICAL CONSTRUCTION CO.
11030 HICKMAN MILLS DRIVE
KANSAS CITY, MISSOURI 64134

PROJECT: ROSS DRESS FOR LESS #2313
480 NW CHIPMAN ROAD
LEE'S SUMMIT, MISSOURI 64086

FIRE ALARM SYSTEM CALCULATIONS

8220 MELROSE
LENEXA, KS 66214
913-362-0000

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DRAWING APPROVALS

PROJECT NO.	REVISIONS				NOTE
	DATE	BY	CHKD	APPD	

SCALE: AS SHOWN
DRAWN BY: JDH 08/12/20
ENGINEER: SAJ 08/12/20
CHECK BY: SAJ 08/12/20
DATE: 08/12/2020

DRAWING TITLE:
ROSS DRESS FOR LESS
#2313
480 NW CHIPMAN ROAD
LEE'S SUMMIT, MO 64086

FIRE ALARM SYSTEM
CALCULATIONS

DRAWING SHEET NO.
FA-2