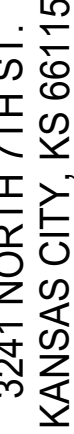


NICET LEVEL IV CERT. #129883
FIRE PROTECTION ENGINEERING
TECHNOLOGY - FIRE ALARM SYSTEMS



WILSHIRE HILLS III
FIRE ALARM

**FIRE ALARM
COVER SHEET**

REFERENCE
NUMBER
FA1.1
SHEET 1 OF 8

NOTE: ADDITIONAL DEVICES MAY BE REQUIRED TO COMPLY WITH AHJ REQUIREMENTS

2010 ADA STANDARDS FOR ACCESSIBLE DESIGN, SECTIONS 215 AND 702
MANUFACTURER'S SPECIFICATIONS

5720 Reeder Shawnee, Ks. 66203 (913)262-177

S:\B-Projects\KCB\Wishare Hills III_FACILITY\191240912 Wishare Hills FA2.1 First Floor Drawing.dwg
PRINTED BY: CHUCK TOWNSEND

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Signature: *Charles Townsend*

EXP Date: 08/01/2025

Charles Townsend

NICET LEVEL IV CERT. #129883
FIRE PROTECTION ENGINEERING
TECHNOLOGY - FIRE ALARM SYSTEMS



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3241 NORTH 7TH ST.
KANSAS CITY, KS 66115

SYMBOL	DATE	DESCRIPTION
1	REV1	

WILSHIRE HILLS III FIRE ALARM

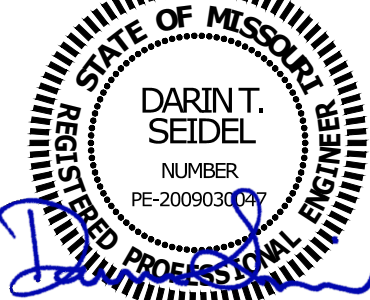
PROJECT #:
191240912
DRAWN BY:
C. TOWNSEND
REVIEWED BY:
K. WELLS
REFERENCE DRAWING:
ASBUILT SUBMITTED BY:
E201 POWER PLAN

NE MANHATTAN DR.
LEES SUMMIT, MO 64064

FIRE ALARM
FIRST FLOOR PLAN

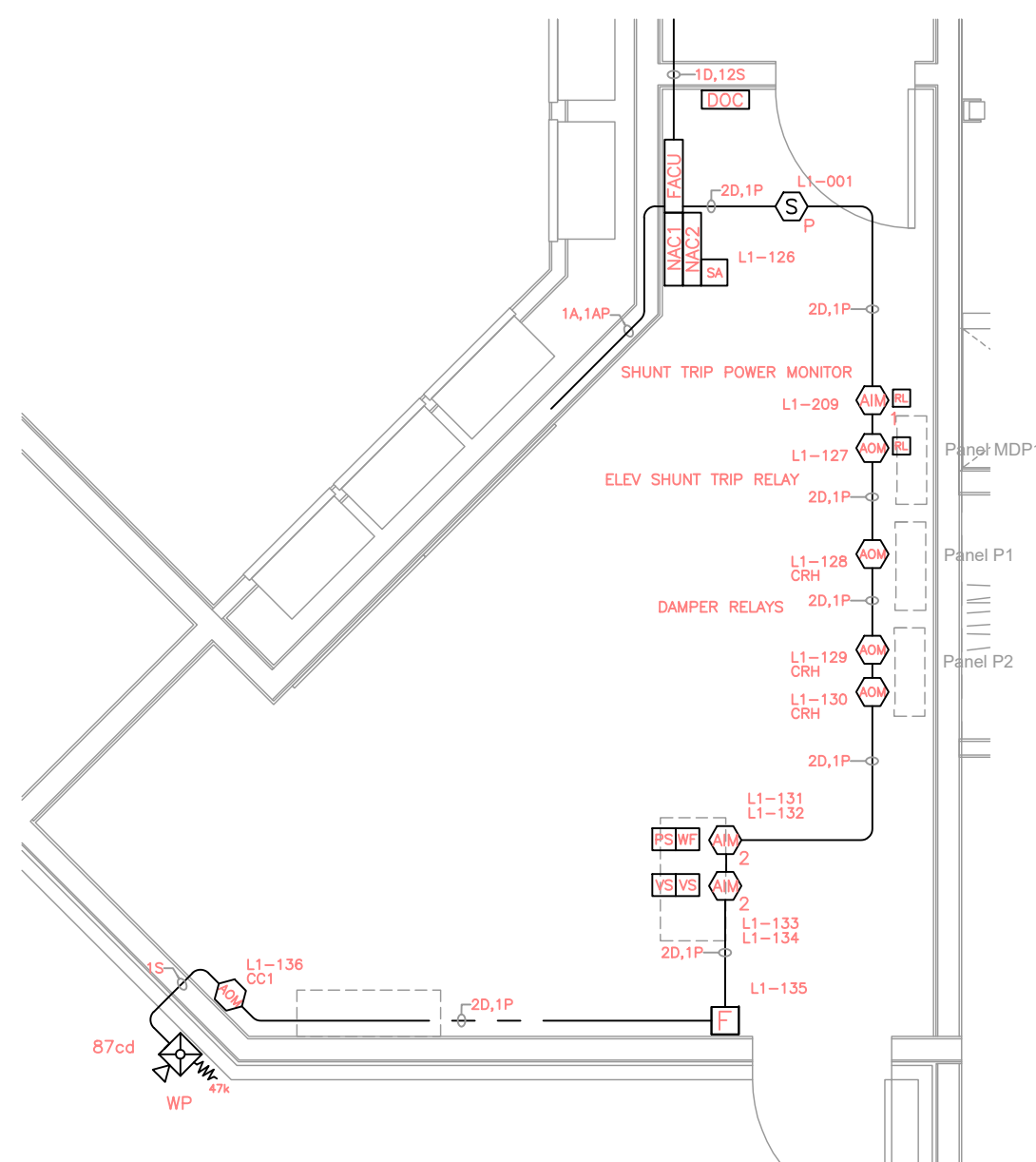
REFERENCE
NUMBER
FA2.1
SHEET 2 OF 8

12/6/2024



**BC ENGINEERS
INCORPORATED**

5720 Reeder Shawnee, Ka. 66203 (913)262-1772



S:\B-Projects\KCB\Wishare Hills III_FACILITY\191240912 Wishare Hills FA2.2 Second Floor Drawing.dwg
PRINTED BY: CHUCK TOWNSEND

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FA1.2B
FA1.2A

FA1.2B
FA1.2A

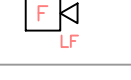
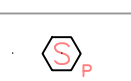
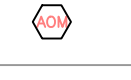
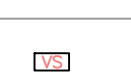
FA1.2B
FA1.2A

FA1.2B
FA1.2A

SECOND FLOOR POWER PLAN - CONT.
1/8" = 1'-0"

SECOND FLOOR POWER PLAN
1/8" = 1'-0"

Signature: 
EXP Date: 08/01/2025
Charles Townsend
NICET LEVEL IV CERT. #129883
FIRE PROTECTION ENGINEERING
TECHNOLOGY - FIRE ALARM SYSTEMS

SYMBOL LEGEND			
SYMBOL	DESCRIPTION	MODEL #	QUANTITY
	LOW FREQUENCY FIRE ALARM HORN/STROBE	GAUFW-HM	5
	LOW FREQUENCY FIRE ALARM HORN	GAUFW-H	21
	FIRE ALARM MINI HORN/STROBE	G1AWF	3
	FIRE ALARM MINI HORN	G1AWF	13
	FIRE ALARM STROBE	G1WVF	4
	FIRE ALARM HORN/STROBE	GAUWF	8
	PHOTO SMOKE DETECTOR	SGA-OSD	19
	DUCT DETECTOR, MOUNTED BY DIVISION 15	SGA-SD, SD-136	2
	EXISTING DOUBLE ACTION PULL STATION	SGA-278	2
	CONTROL RELAY MODULE	SGA-CR	1
	DUAL INPUT MODULE	SGA-CT2	1
	SINGLE-INPUT MODULE	SGA-CT1	17
	DUCT DETECTOR TEST STATION WITH KEY SWITCH AND REMOTE ALARM LED	SGA-TRK	2
	WATER FLOW SWITCH, PROVIDED AND INSTALLED BY SPRINKLER SYSTEM CONTRACTOR, MONITORED BY FIRE ALARM CONTRACTOR.		1
	TAMPER SWITCH, PROVIDED AND INSTALLED BY SPRINKLER SYSTEM CONTRACTOR, MONITORED BY FIRE ALARM CONTRACTOR.		1

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3241 NORTH 7TH ST.
KANSAS CITY, KS 66115

SYMBOL	DATE	DESCRIPTION
1	REV1	

WILSHIRE HILLS III
FIRE ALARM

ENGINEERED BY: PROJECT #:
SVC OF ATLANTA 191240912
DRAWN BY: ET BID ID:
C. TOWNSEND 60810
REVIEWED BY: PROJECT MANAGER
K. WELLS JASON LOAR
REFERENCE DRAWING: JASON LOAR
E202 POWER PLAN

NE MANHATTAN DR.
LEES SUMMIT, MO 64064
FIRE ALARM
SECOND FLOOR PLAN

REFERENCE
NUMBER
FA2.2
SHEET 3 OF 8

12/6/2024
DARIN T. SEIDEL
NUMBER
RE-20090302
BC ENGINEERS
INCORPORATED
5720 Reeder Shawnee, Ka. 66203 (913)262-1772

S:\B-Projects\KC88\Wilshire Hills III_FACILITY\191240912 Wilshire Hills FA2.3 Third Floor Drawing.dwg
PRINTED BY: CHUCK TOWNSEND

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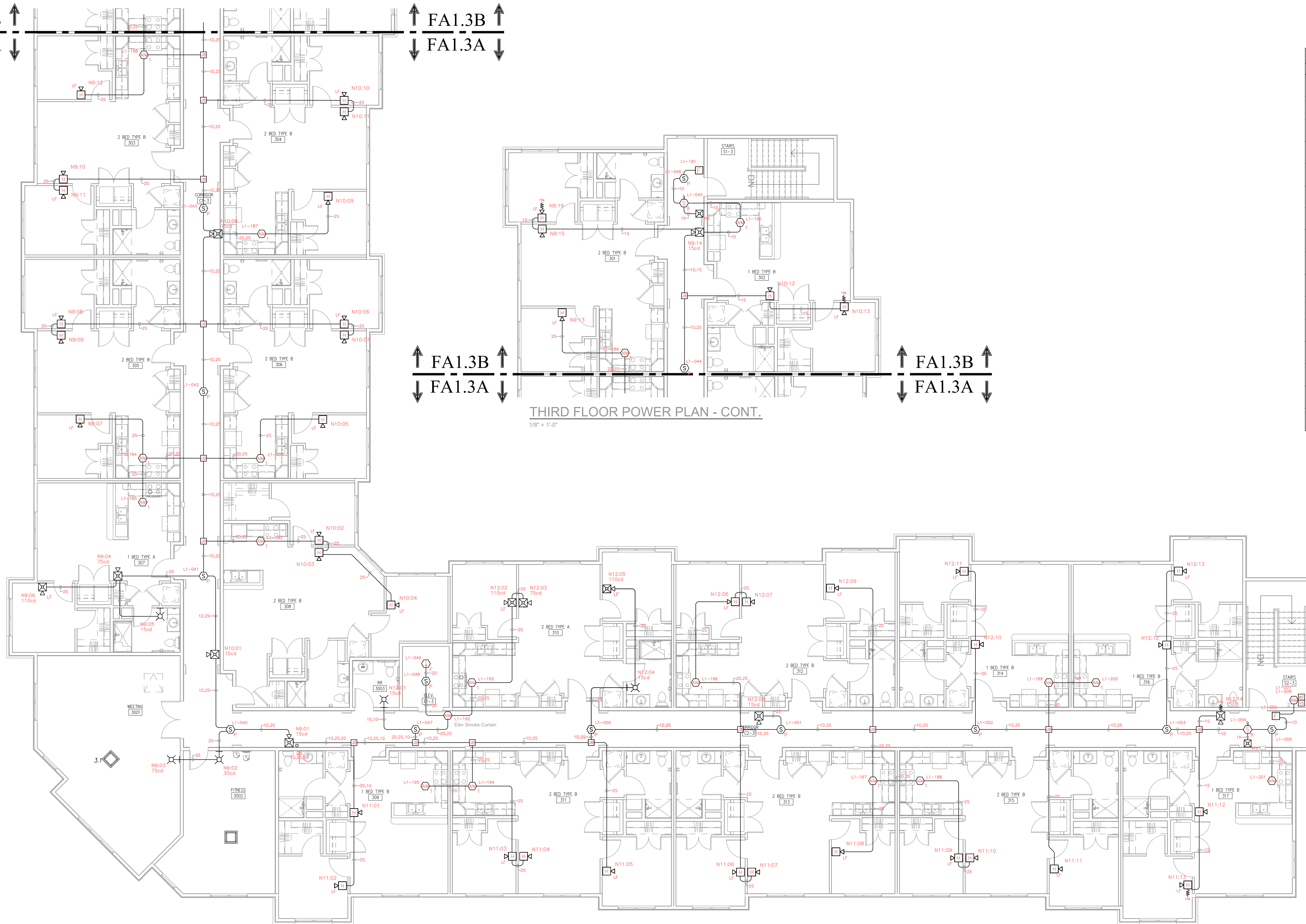
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↑ FA1.3B ↑
↓ FA1.3A ↓

↑ FA1.3B ↑
↓ FA1.3A ↓

↑ FA1.3B ↑
↓ FA1.3A ↓

↑ FA1.3B ↑
↓ FA1.3A ↓



THIRD FLOOR POWER PLAN
1/8" = 1'-0"

SYMBOL LEGEND			
SYMBOL	DESCRIPTION	MODEL #	QUANTITY
	LOW FREQUENCY FIRE ALARM HORN/STROBE	G4LFW-HM	3
	LOW FREQUENCY FIRE ALARM HORN	G4LFW-H	25
	FIRE ALARM MINI HORN/STROBE	G1AWF	2
	FIRE ALARM MINI HORN	G1AWF	15
	FIRE ALARM STROBE	G1WVF	5
	FIRE ALARM HORN/STROBE	G4AWF	6
	PHOTO SMOKE DETECTOR	SGA-OSD	13
	DUCT DETECTOR, MOUNTED BY DIVISION 15	SGA-SD, SD-136	2
	FIXED TEMPERATURE HEAT DETECTOR	SGA-HFS	1
	EXISTING DOUBLE ACTION PULL STATION	SGA-278	2
	CONTROL RELAY MODULE	SGA-CR	1
	DUAL INPUT MODULE	SGA-CI2	1
	SINGLE-INPUT MODULE	SGA-CI1	17
	DUCT FLOW TEST STATION WITH KEY SWITCH AND REMOTE ALARM LED	SGA-TRK	2
	WATER FLOW SWITCH, PROVIDED AND INSTALLED BY SPRINKLER SYSTEM CONTRACTOR, MONITORED BY FIRE ALARM CONTRACTOR		1
	TAMPER SWITCH, PROVIDED AND INSTALLED BY SPRINKLER SYSTEM CONTRACTOR, MONITORED BY FIRE ALARM CONTRACTOR		1

Signature:
EXP Date: 08/01/2025
Charles Townsend
NICET LEVEL IV CERT. #129883
FIRE PROTECTION ENGINEERING
TECHNOLOGY - FIRE ALARM SYSTEMS



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KANSAS CITY, KS 66115

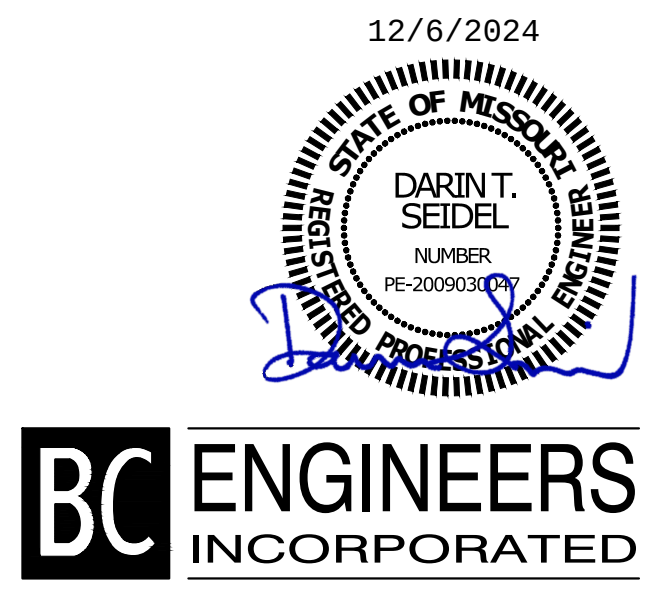
SYMBOL	DATE	DESCRIPTION
1	REV1	

WILSHIRE HILLS III FIRE ALARM

ENGINEERED BY: PROJECT #:
SVC OF ATLANTA 191240912
DRAWN BY: ET BID ID:
C. TOWNSEND 60810
REVIEWED BY: PROJECT MANAGER
K. WELLS JASON LOAR
REFERENCE DRAWING: ASBUILT SUBMITTED BY:
E203 POWER PLAN

NE MANHATTAN DR.
LEES SUMMIT, MO 64064
FIRE ALARM
THIRD FLOOR PLAN

REFERENCE
NUMBER
FA2.3
SHEET 4 OF 8



BC ENGINEERS
INCORPORATED
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NICET LEVEL IV CERT. #129883
FIRE PROTECTION ENGINEERING
TECHNOLOGY - FIRE ALARM SYSTEMS



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3241 NORTH 7TH ST.
KANSAS CITY, KS 66115

[illegible]

WILSHIRE HILLS III
FIRE ALARM

ENGINEERED BY: SWC OF ATLANTA	PROJECT #: 191240912
DRAWN BY: C. TOWNSEND	ET BID ID: 60810
REVIEWED BY: K. WELLS	PROJECT MANAGER: JASON LOAR
REFERENCE DRAWING:	ASBUILT SUBMITTED BY:

NE MANHATTAN DR.
LEES SUMMIT, MO 64064

FIRE ALARM
FACU DETAILS

REFERENCE
NUMBER
FA4.1
SHEET 5 OF 8



Fire Alarm System Battery Calculation Form

System voltage (Vdc):	24
Supervisory Hours:	24
Alarm Minutes:	5
% Extra Battery Capacity:	15%
Total Supervisory (mA):	271.00
AH required - Supervisory:	6.50
Total Alarm (mA):	5639.00
AH required - Alarm:	0.47
Total AH required (with %):	8.02

Project name:	QTS DC2 SUWANE
Project number:	401-FN-N0460
Panel type:	EST3
Panel Location:	ELECTRICAL RM
Panel ID:	FACP
Comment:	

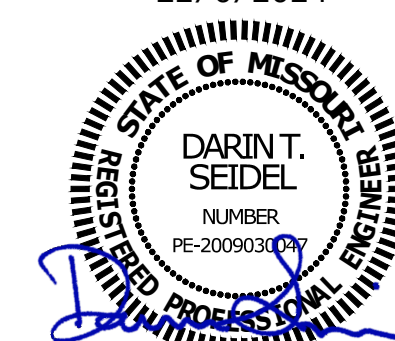
Note: Current values for SLC Loops are with the SLC loop fully loaded. Individual devices do not need to be listed for this calculation.

Quantity	Model	Candela	Supervisory mA	Alarm mA	Total Sup. U/lne	Total Ala. U/lne
	iO1000	1	172	267	172.00	267.00
1	RLC-D	N/A	99	115	99.00	115.00
5	G4LFWF-HVM	0	395	0	0.00	1975.00
21	G4LFWF-H	0	112	0	0.00	2352.00
3	G1AWWF	75cd	0	45	0.00	135.00
13	G1AWWF	N/A	0	23	0.00	299.00
4	G1VWF	15cd	0	24	0.00	96.00
8	G4AWWF	15cd	0	50	0.00	400.00

[illegible]

INPUT/OUTPUT MATRIX
SCALE: NTS

12/6/2024



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INCORPORATED

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S:\B-Projects\KC88\Wishire Hills III_FACILITY\191240912 Wishire Hills FA4.2 BPS Details Calculations.dwg
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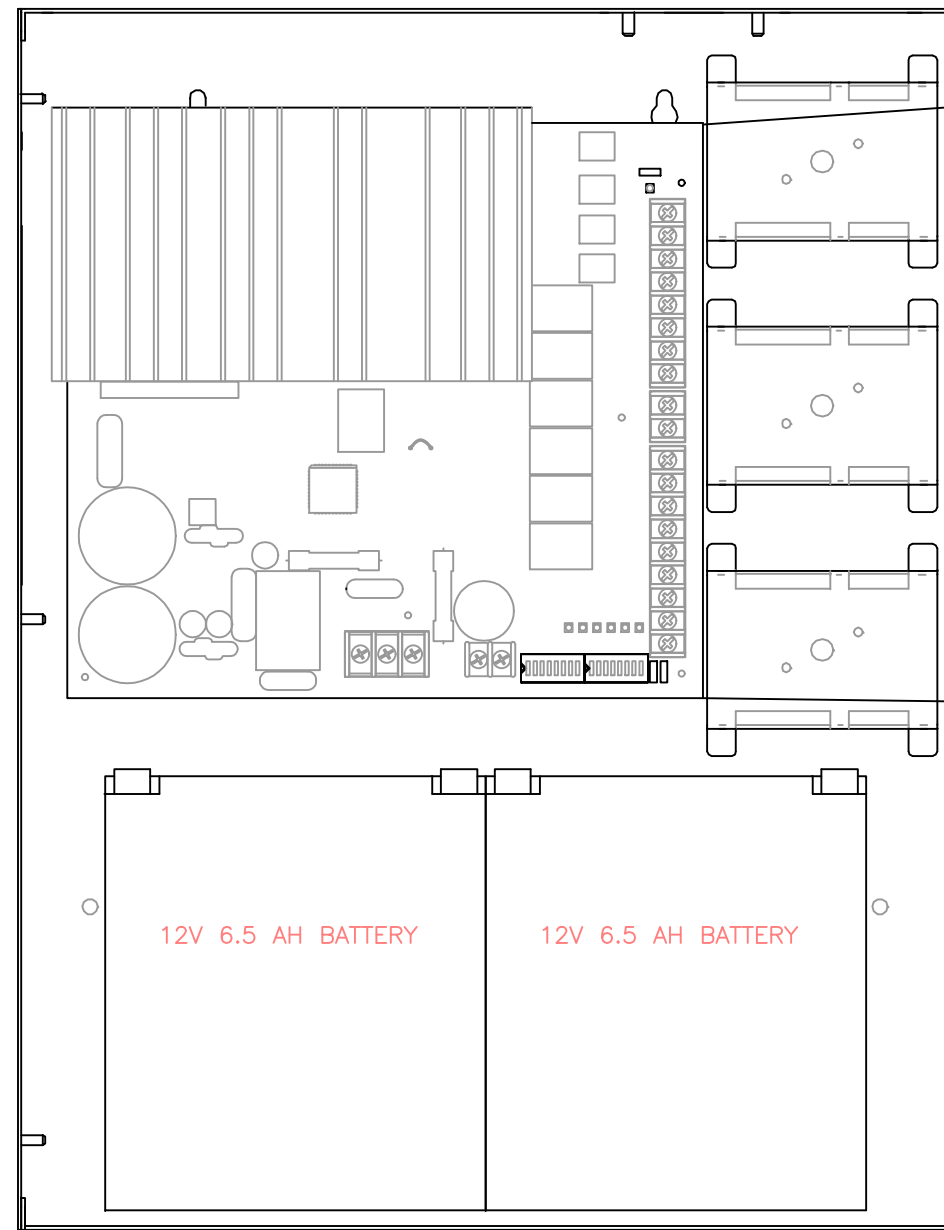
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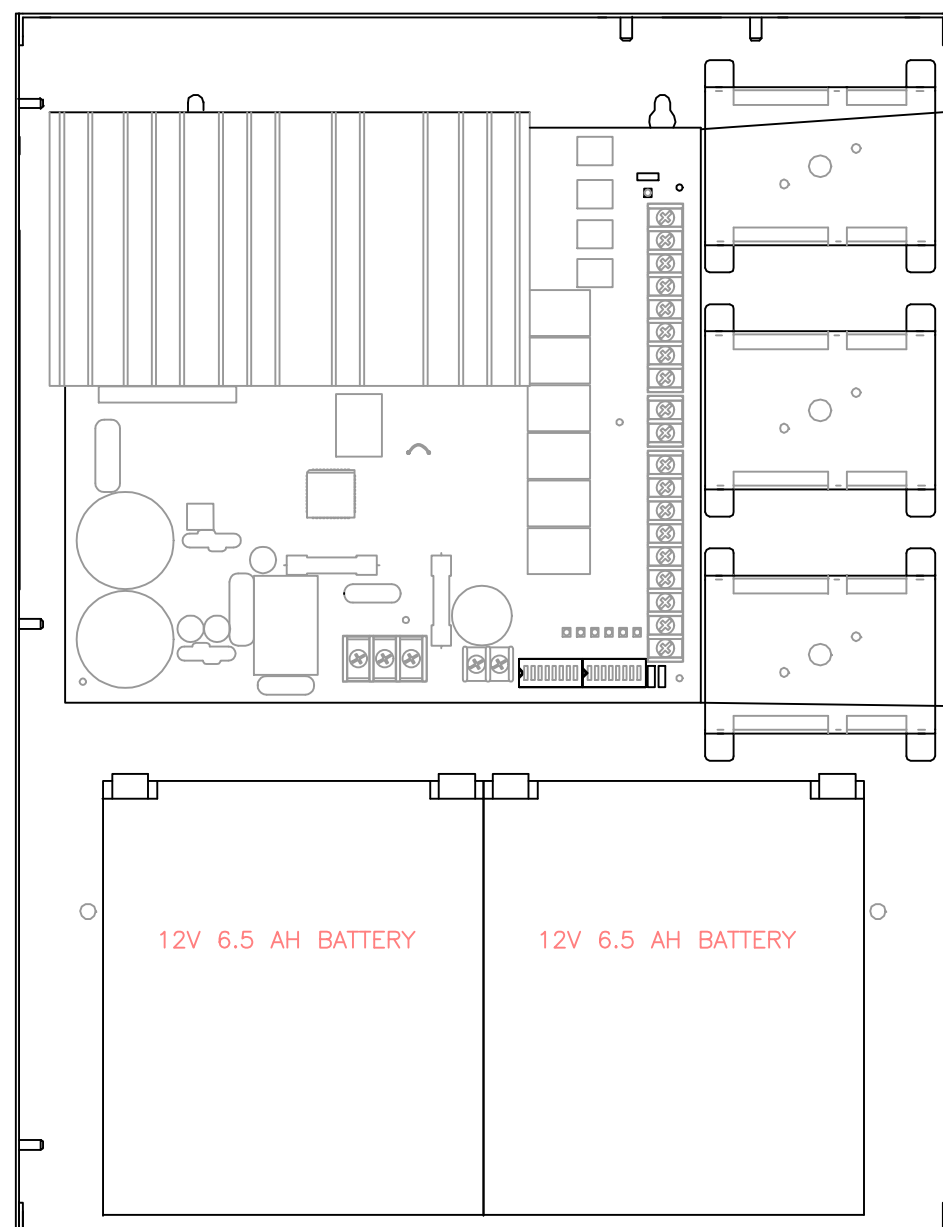
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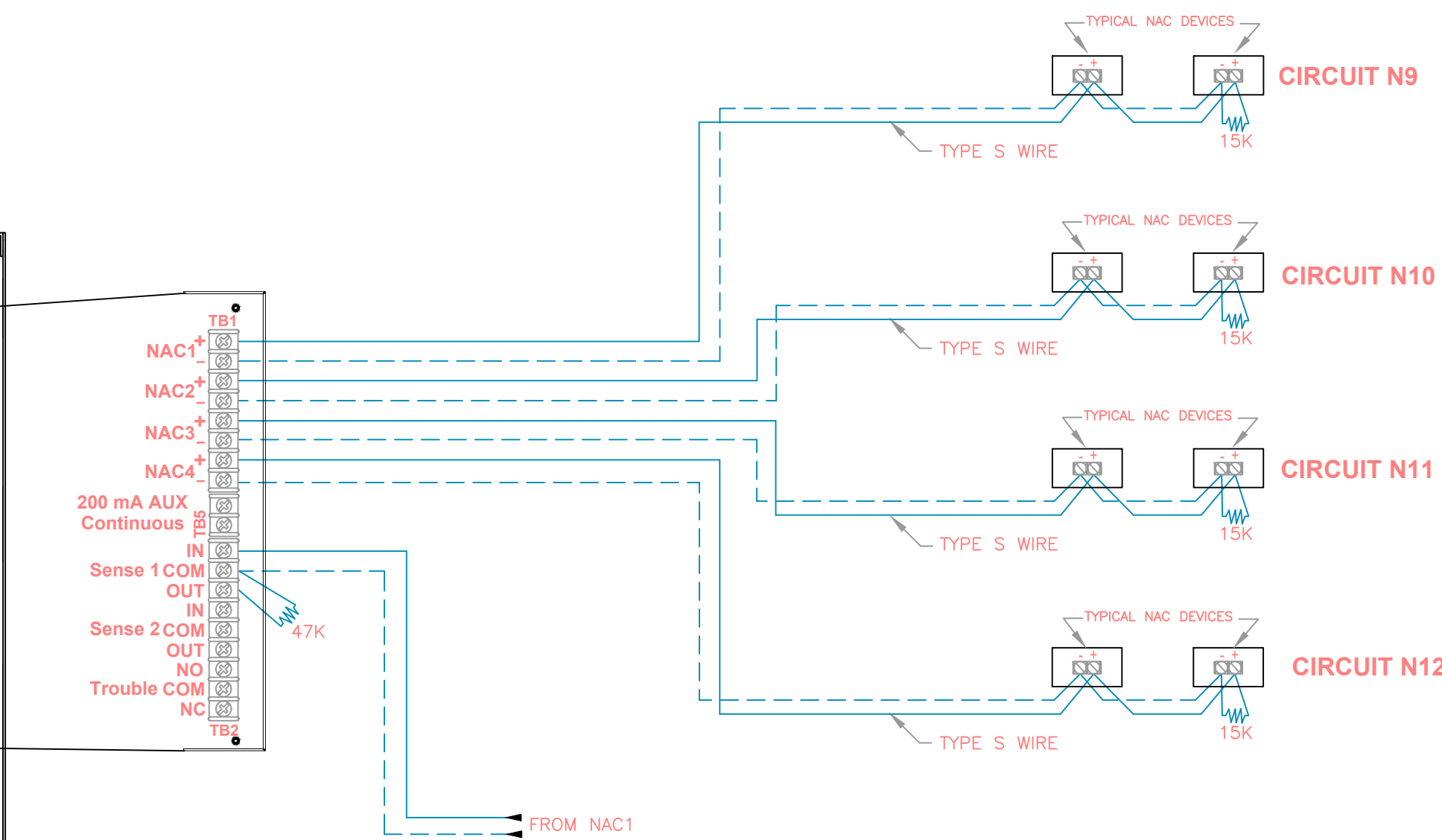
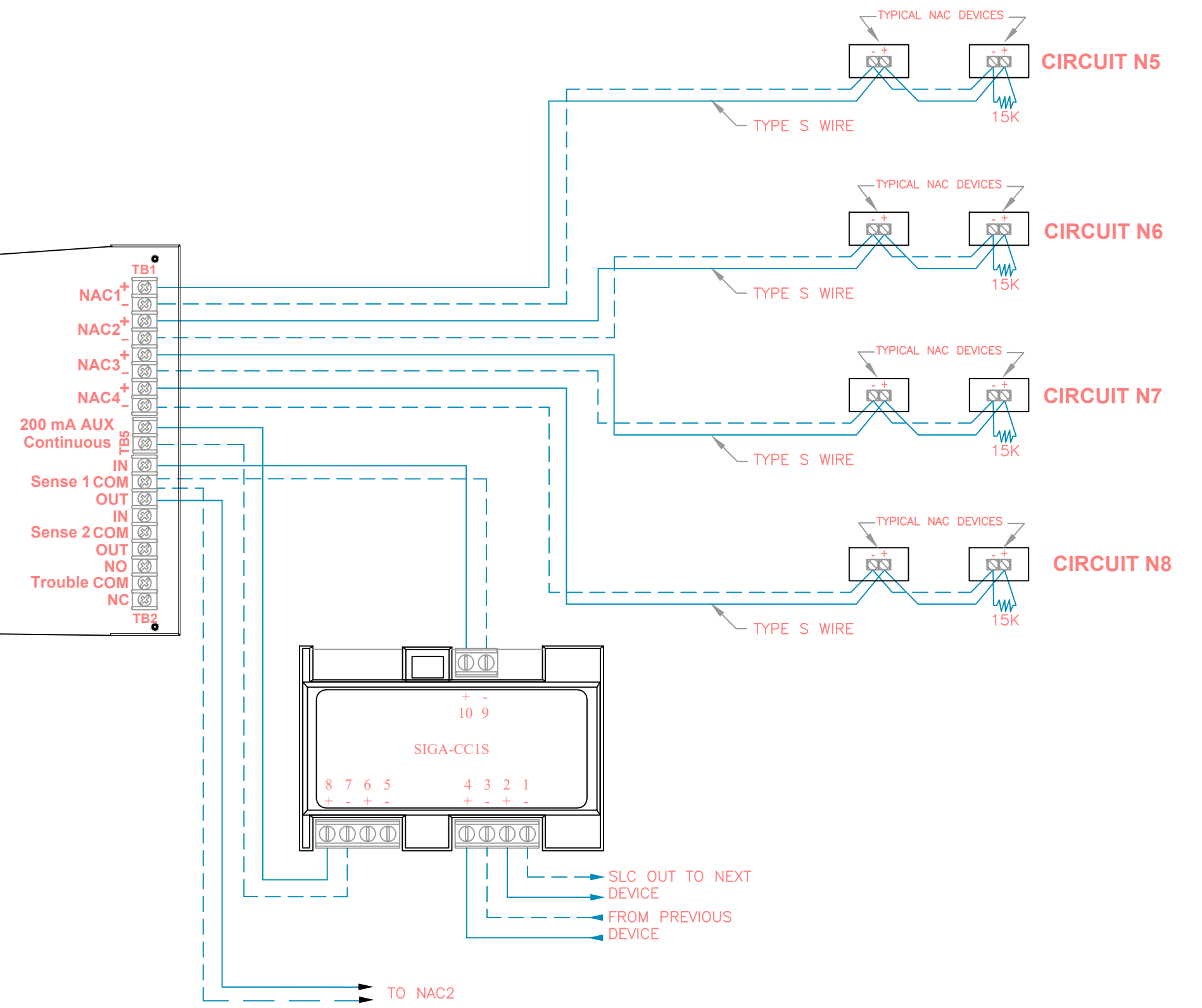
NAC 1

**FIRST FLOOR
SPRINKLER ROOM**



NAC 2

**FIRST FLOOR
SPRINKLER ROOM**



Fire Alarm System Battery Calculation							
Project #:				Project Name:			
Panel ID:				Panel Model:			
Location:				Notes:			
System Voltage(VDC):				AH required for Supervisory:			
Supervisory Hours:				AH required for Alarm:			
Alarm Minutes:				Total AH Required:			
Spare Capacity %:				Total AH Required With Spare Capacity:			
Amp Hour Provided:				6.5 AH			
Quantity	Model	Device Type	Candela	Supervisory Current (Amps)	Alarm Current (Amps)	Total Supervisory Current	Total Alarm Current
1	BPS10A	Power Supply	n/a	0.070	0.070	0.070	0.070
6	G4AVWF	Horn/Strobe	15cd	0.000	0.005	0.000	0.390
1	G4AVWF	Horn/Strobe	75cd	0.000	0.005	0.000	0.065
1	G1VWF	Strobe	75cd	0.000	0.032	0.000	0.032
3	G4LFWF-HVM	Horn/Strobe	75cd	0.000	0.055	0.000	0.165
4	G1VWF	Strobe	15cd	0.000	0.032	0.000	0.128
5	G4LFWF-HVM	Horn/Strobe	110cd	0.000	0.395	0.000	1.975
23	G4LFWF-H	Horn	N/A	0.000	0.159	0.000	3.657
14	G1AWF	Mini Horn	N/A	0.000	0.029	0.000	0.426
Totals:				0.070	0.888	0.070	6.888

Fire Alarm System Battery Calculation							
Project #:				Project Name:			
Panel ID:				Panel Model:			
Location:				Notes:			
System Voltage(VDC):				AH required for Supervisory:			
Supervisory Hours:				AH required for Alarm:			
Alarm Minutes:				Total AH Required:			
Spare Capacity %:				Total AH Required With Spare Capacity:			
Amp Hour Provided:				6.5 AH			
Quantity	Model	Device Type	Candela	Supervisory Current (Amps)	Alarm Current (Amps)	Total Supervisory Current	Total Alarm Current
1	BPS10A	Power Supply	n/a	0.070	0.000	0.070	0.000
6	G4AVWF	Horn/Strobe	15cd	0.000	0.005	0.000	0.390
1	G1VWF	Strobe	30cd	0.000	0.032	0.000	0.032
1	G1VWF	Strobe	75cd	0.000	0.032	0.000	0.032
2	G1VWF	Strobe	75cd	0.000	0.055	0.000	0.110
3	G1VWF	Strobe	15cd	0.000	0.032	0.000	0.096
3	G4LFWF-HVM	Horn/Strobe	110cd	0.000	0.395	0.000	1.185
25	G4LFWF-H	Horn	N/A	0.000	0.159	0.000	3.975
15	G1AWF	Mini Horn	N/A	0.000	0.029	0.000	0.945
Totals:				0.070	5.885	0.070	5.885

Signature: 
EXP Date: 08/01/2025
Charles Townsend
NICET LEVEL IV CERT. #129883
FIRE PROTECTION ENGINEERING
TECHNOLOGY - FIRE ALARM SYSTEMS



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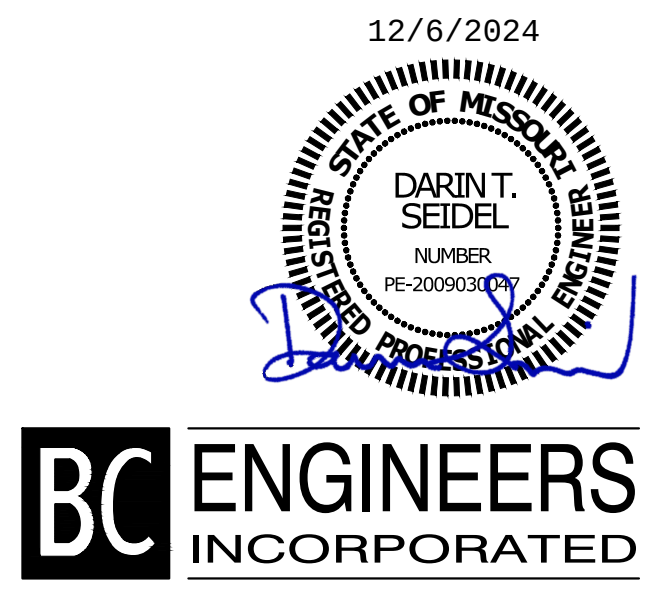
SYMBOL	1	REV1	DATE	DESCRIPTION

**WILSHIRE HILLS III
FIRE ALARM**

ENGINEERED BY: PROJECT #:
SVC OF ATLANTA 191240912
DRAWN BY: ET BID ID:
C. TOWNSEND 60810
REVIEWED BY: PROJECT MANAGER
K. WELLS JASON LOAR
REFERENCE DRAWING: ASBUILT SUBMITTED BY:

NE MANHATTAN DR.
LEES SUMMIT, MO 64064
FIRE ALARM
BPS DETAILS

REFERENCE
NUMBER
FA4.2
SHEET 6 OF 8



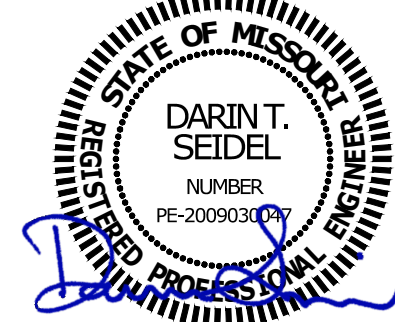
5720 Reeder Shawnee, Ka. 66203 (913)262-1772

Signature: 

EXP Date: 08/01/2025

 Charles TownsendNICET LEVEL IV CERT. #129883
FIRE PROTECTION ENGINEERING
TECHNOLOGY - FIRE ALARM SYSTEMSSOUTH WESTERN COMMUNICATIONS
WWW.SWC.NETSWC OF KANSAS CITY
3241 NORTH 7TH ST.
KANSAS CITY, KS 66115DATE
SYMBOL
1
REV1
DESCRIPTIONWILSHIRE HILLS III
FIRE ALARMPROJECT #:
191240912
ET BID ID:
60810
ENGINEERED BY:
SVC OF ATLANTA
DRAWN BY:
C. TOWNSEND
REVIEWED BY:
K. WELLS
REFERENCE DRAWING:
ASSULT/SUBMITTED BY:
...NE MANHATTAN DR.
LEES SUMMIT, MO 64064FIRE ALARM
NAC CALCULATIONSREFERENCE
NUMBER
FA4.3
SHEET 7 OF 8

12/6/2024

BC ENGINEERS
INCORPORATED
5720 Reeder Shawnee, Ka. 66203 (913)262-1772

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Voltage Drop Calculations

Starting Voltage: 18.10 Max Voltage Drop (Volts): 2.8
Minimum Device Voltage: 15.30 Max Voltage Drop (%): 7.9

Wire Resistance					
Wire AWG	Ohms Per 1000'		Wire AWG	Ohms Per 1000'	
10	1.24		14	3.07	
12	1.98		16	4.89	

Circuit ID: N1
Wire gauge to 1st device: 14
Wire gauge for balance of circuit: 14
Power Supply Circuit ID: NAC/AUX 1
Max Current for Circuit: 2.7
Circuit Control Type: Direct to BPS
Circuit Location: First Floor
Calculation Result: Passed

Total Wire Length: 798
Total Circuit Current (amps): 0.356
EOL Voltage: 18.21
Total Voltage Drop: 0.89
Total Voltage Drop %: 4.87%

		Wire Length							
		From Source or Previous Device (feet)		Voltage at Device (feet)		Total Voltage Drop At Device		Voltage Drop Percent	
Device ID	Model	Candela	Device Current (amps)	Distance (feet)	Device Voltage (feet)	Voltage at Device (feet)	Total Voltage Drop At Device	Voltage Drop Percent	
N1-01	GA/VVFP	15cd	0.050	68	18.91	0.188	0.976	0.97%	
N1-02	GA/PWF-H/M	75cd	0.050	100	18.73	0.373	1.36%		
N1-03	GV/VFP	15cd	0.024	20	18.70	0.405	2.12%		
N1-04	GA/PWF-H/M	110cd	0.028	34	18.66	0.403	2.12%		
N1-05	GA/PWF-H	N/A	0.024	82	18.54	0.556	2.91%		
N1-06	GA/PWF-H	N/A	0.028	89	18.45	0.654	3.43%		
N1-07	GV/VFP	N/A	0.011	20	18.43	0.673	3.62%		
N1-08	GV/VFP	N/A	0.011	80	18.36	0.783	4.18%		
N1-09	GA/PWF-H	N/A	0.023	20	18.34	0.788	3.97%		
N1-10	GA/PWF-H	N/A	0.023	72	18.26	0.895	4.92%		
N1-11	GA/PWF-H	N/A	0.011	78	18.26	0.844	4.42%		
N1-12	GA/VVFP	15cd	0.011	64	18.23	0.872	4.87%		
N1-13	GV/VFP	N/A	0.011	37	18.21	0.886	4.94%		
N1-14	GA/PWF-H	N/A	0.050	20	18.21	0.892	4.87%		

Circuit ID: N2
Wire gauge to 1st device: 14
Wire gauge for balance of circuit: 14
Power Supply Circuit ID: NAC/AUX 2
Max Current for Circuit: 2.7
Circuit Control Type: Direct to BPS
Circuit Location: First Floor
Calculation Result: Passed

Total Wire Length: 513
Total Circuit Current (amps): 0.337
EOL Voltage: 18.63
Total Voltage Drop: 0.47
Total Voltage Drop %: 2.45%

			Wire Length From Source or Previous Device (Feet)					Voltage Drop At Voltage Drop Total Voltage Drop At Voltage Drop Percentage	
Device ID	Model	Candela	Device Current (amps)	Wire Length (Feet)	Device Voltage (Volts)	Voltage at Device (Volts)	Total Voltage Drop (Volts)	Voltage Drop Percentage	
N2-01	GA/VVFP	15cd	0.050	67	18.96	0.139	0.72%		
N2-02	GA/VVFP	75cd	0.112	23	18.92	0.179	0.94%		
N2-03	GA/PWF-H	N/A	0.023	85	18.86	0.228	1.20%		
N2-04	GA/PWF-H	N/A	0.011	84	18.78	0.317	1.66%		
N2-05	GV/VFP	N/A	0.011	20	18.77	0.334	1.75%		
N2-06	GA/VVFP	15cd	0.011	46	18.70	0.370	1.94%		
N2-07	GA/PWF-H	N/A	0.023	42	18.70	0.420	2.10%		
N2-08	GA/PWF-H	N/A	0.050	81	18.65	0.448	2.34%		
N2-09	GV/VFP	N/A	0.011	20	18.66	0.465	2.37%		
N2-10	GV/VFP	N/A	0.011	66	18.63	0.465	2.43%		
N2-11	GA/PWF-H	N/A	0.023	20	18.63	0.468	2.45%		

Circuit ID: N3
Wire gauge to 1st device: 14
Wire gauge for balance of circuit: 14
Power Supply Circuit ID: NAC/AUX 3
Max Current for Circuit: 2.7
Circuit Control Type: Direct to BPS
Circuit Location: First Floor
Calculation Result: Passed

Total Wire Length: 840
Total Circuit Current (amps): 0.287
EOL Voltage: 18.61
Total Voltage Drop: 0.49
Total Voltage Drop %: 2.58%

		Wire Length From Source or Pendant						
	Model	Candela	Device Current (amps)	Wire Length Device (feet)	Voltage at Device	Total Voltage Drop At Device	Voltage Drop Percent	
N3-01	GA/VVFP	15cd	0.023	49	18.93	0.074	0.39%	
N3-02	GV/VFP-H	N/A	0.028	14	18.96	0.139	0.73%	
N3-03	GA/PWF-H	N/A	0.028	14	18.94	0.189	0.97%	
N3-04	GA/PWF-H/M	110cd	0.028	78	18.84	0.287	1.35%	
N3-05	GA/PWF-H/M	75cd	0.024	20	18.82	0.279	1.46%	
N3-06	GV/VFP	15cd	0.028	32	18.79	0.309	1.62%	
N3-07	GA/PWF-H/M	110cd	0.011	73	18.73	0.365	1.91%	
N3-08	GA/PWF-H	N/A	0.023	20	18.72	0.279	1.46%	
N3-09	GV/VFP	N/A	0.011	83	18.67	0.425	2.23%	
N3-10	GA/PWF-H	N/A	0.011	43	18.65	0.446	2.34%	
N3-11	GA/PWF-H	N/A	0.023	20	18.66	0.466	2.36%	
N3-12	GV/VFP	N/A	0.011	82	18.62	0.478	2.50%	
N3-14	GV/VFP	N/A	0.023	64	18.61	0.481	2.57%	
N3-15	GA/PWF-H	N/A	0.011	22	18.61	0.483	2.58%	

Circuit ID: N4
Wire gauge to 1st device: 14
Wire gauge for balance of circuit: 14
Power Supply Circuit ID: NAC/AUX 4
Max Current for Circuit: 2.7
Circuit Control Type: Direct to BPS
Circuit Location: First Floor
Calculation Result: Passed

Total Wire Length: 635
Total Circuit Current (amps): 0.321
EOL Voltage: 18.37
Total Voltage Drop: 0.73
Total Voltage Drop %: 3.87%

	Model	Candela	Device Current (amps)	Wire Length From Source (feet)	Device Voltage (Feet)	Voltage at Device	Total Voltage Drop At Device	Voltage Drop Percent
N4-01	GV/VFP	15cd	0.024	77	18.95	0.152	0.80	0.80
N4-02	GA/PWF-H/M	110cd	0.028	48	18.86	0.207	1.09	1.29
N4-03	GV/VFP	N/A	0.028	20	18.82	0.283	1.48	1.48
N4-04	GV/VFP	15cd	0.024	67	18.71	0.382	2.02	2.02
N4-05	GA/PWF-H/M	110cd	0.028	20	18.66	0.408	2.18	2.18
N4-06	GA/PWF-H	N/A	0.011	46	18.60	0.487	2.50	2.50
N4-07	GV/VFP	N/A	0.023	20	18.58	0.522	2.73	2.73
N4-08	GV/VFP	15cd	0.050	60	18.52	0.661	3.54	3.54
N4-09	GA/PWF-H	N/A	0.011	40	18.49	0.613	3.21	3.21
N4-10	GV/VFP	N/A	0.023	64	18.44	0.669	3.45	3.45
N4-11	GA/PWF-H	N/A	0.011	22	18.43	0.672	3.62	3.62
N4-12	GV/VFP	N/A	0.023	75	18.39	0.711	3.72	3.72
N4-13	GA/PWF-H	N/A	0.011	22	18.38	0.719	3.77	3.77
N4-14	GA/VVFP	15cd	0.050	41	18.37	0.732	3.93	3.93

Voltage Drop Calculations

Starting Voltage: 18.10 Max Voltage Drop (Volts): 2.8
Minimum Device Voltage: 15.30 Max Voltage Drop (%): 7.9

Wire Resistance							
Wire AWG	Ohms Per 1000'		Wire AWG	Ohms Per 1000'		Wire AWG	Ohms Per 1000'
10	1.24		14	3.07		18	7.77
12	1.58		16	4.89			

Circuit ID: N5
Wire gauge to 1st device: 14
Wire gauge for balance of circuit: 14
Power Supply Circuit ID: NAC/AUX 1
Max Current for Circuit: 2.7
Circuit Control Type: Direct to BPS
Circuit Location: Second Floor
Calculation Result: Passed

Total Wire Length: 830
Total Circuit Current (amps): 0.390
EOL Voltage: 18.10
Total Voltage Drop: 1.00
Total Voltage Drop %: 5.55%

Device ID	Model	Candela	Device Current (amps)	Wire Length From Source (feet)	Device Voltage (Feet)	Total Voltage Drop At Device	Voltage Drop Percent
N5-01	GA/VVFP	15cd	0.050	100	18.79	0.311	1.63%
N5-02	GA/VVFP	75cd	0.050	20	18.75	0.383	1.98%
N5-03	GV/VFP	75cd	0.024	67	18.63	0.472	2.47%
N5-04	GA/PWF-H/M	110cd	0.028	40	18.56	0.538	2.82%
N5-05	GV/VFP	15cd	0.024	22	18.53	0.570	2.98%
N5-06	GA/PWF-H/M	110cd	0.028	34	18.49	0.615	3.22%
N5-07	GA/PWF-H	N/A	0.011	78	18.43	0.704	3.68%
N5-08	GA/PWF-H	N/A	0.011	83	18.31	0.793	4.15%
N5-09	GV/VFP	N/A	0.023	20	18.29	0.813	4.26%
N5-10	GV/VFP	N/A	0.023	48	18.25	0.865	4.47%
N5-11	GA/PWF-H	N/A	0.011	20	18.23	0.889	4.89%
N5-12	GA/PWF-H	N/A	0.011	85	18.18	0.958	4.84%
N5-13	GA/PWF-H	N/A	0.011	28	18.14	0.989	5.02%
N5-14	GA/VVFP	15cd	0.050	67	18.11	0.993	5.02%
N5-15	GV/VFP	N/A	0.023	38	18.10	1.001	5.24%
N5-16	GA/PWF-H	N/A	0.011	20	18.10	1.003	5.25%

Circuit ID: N6
Wire gauge to 1st device: 14
Wire gauge for balance of circuit: 14
Power Supply Circuit ID: NAC/AUX 2
Max Current for Circuit: 3
Circuit Control Type: Direct to BPS
Circuit Location: Second Floor
Calculation Result: Passed

Total Wire Length: 676
Total Circuit Current (amps): 0.371
EOL Voltage: 18.37
Total Voltage Drop: 0.73
Total Voltage Drop %: 3.83%

		Wire Length					
		From Source		To Source		Voltage Drop At	
Device ID	Model	Candela	Device Current (amps)	Device Voltage (Volts)	Voltage at Device (Volts)	Total Voltage Drop At Device (Volts)	Voltage Drop Percent
N6-01	GA/VVFP	15cd	0.050	18.80	18.59	0.206	1.05%
N6-02	GA/PWF-H	NA	0.112	38	18.73	0.271	1.44%
N6-03	GV/VFP	NA	0.023	20	18.70	0.387	2.08%
N6-04	GA/PWF-H	NA	0.011	28	18.67	0.400	2.12%
N6-05	GA/PWF-H	NA	0.011	86	18.58	0.522	2.74%
N6-06	GA/PWF-H	NA	0.011	83	18.49	0.605	3.17%
N6-07	GV/VFP	NA	0.023	20	18.48	0.523	3.27%
N6-08	GA/VVFP	15cd	0.050	37	18.45	0.654	3.42%
N6-09	GA/PWF-H	NA	0.011	42	18.43	0.675	3.53%
N6-10	GA/PWF-H	NA	0.011	84	18.39	0.719	3.72%
N6-11	GV/VFP	NA	0.023	20	18.38	0.717	3.79%
N6-12	GV/VFP	NA	0.023	64	18.37	0.720	3.82%
N6-13	GA/PWF-H	NA	0.011	23	18.37	0.730	3.83%

Circuit ID: N7
Wire gauge to 1st device: 14
Wire gauge for balance of circuit: 14
Power Supply Circuit ID: NAC/AUX 3
Max Current for Circuit: 3
Circuit Control Type: Direct to BPS
Circuit Location: Second Floor
Calculation Result: Passed

Total Wire Length: 757
Total Circuit Current (amps): 0.287
EOL Voltage: 18.42
Total Voltage Drop: 0.68
Total Voltage Drop %: 3.58%

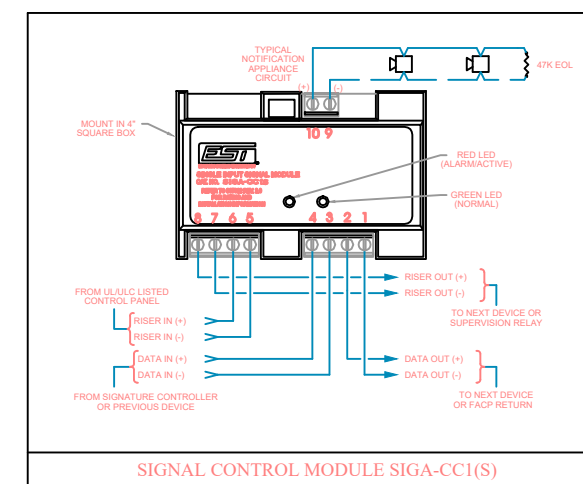
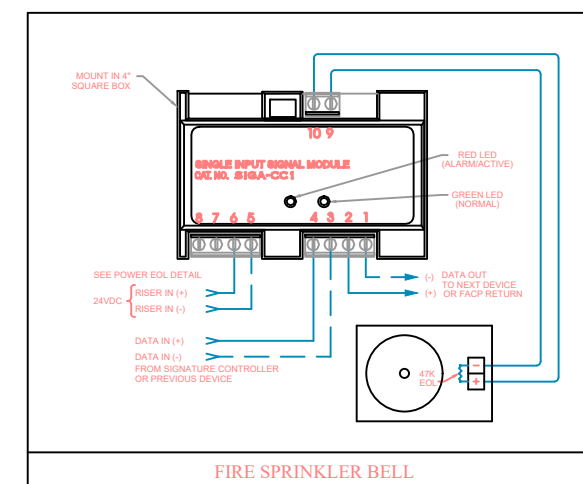
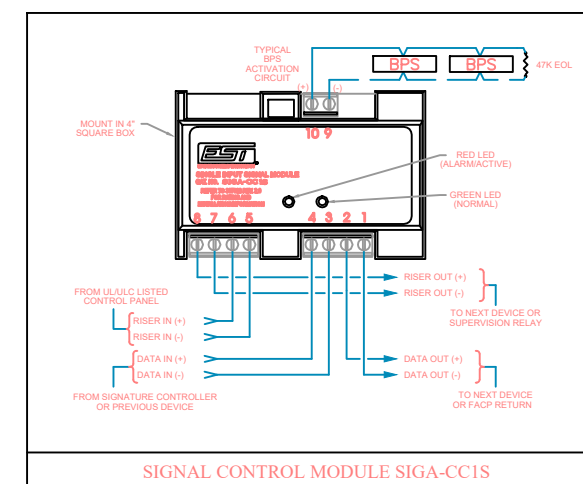
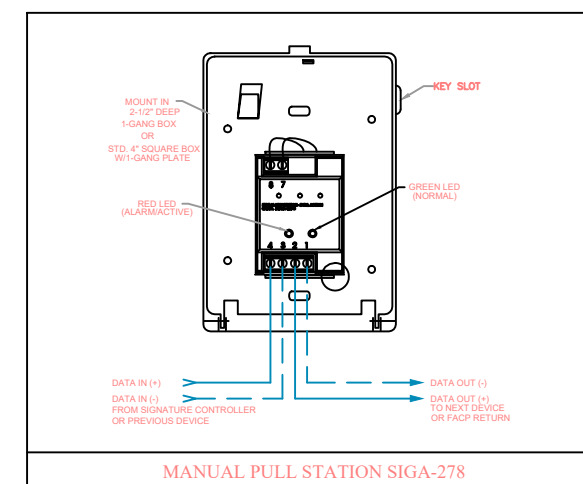
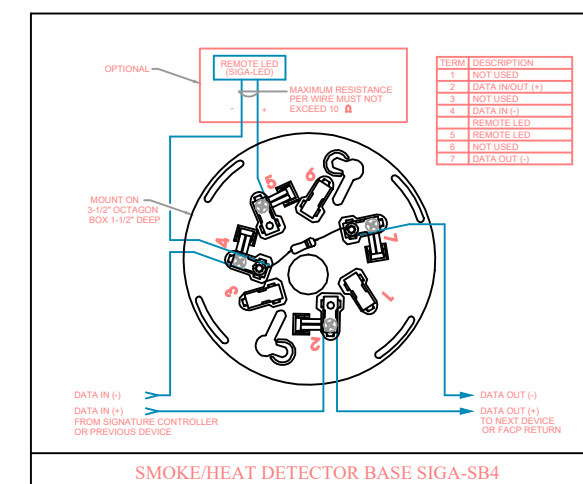
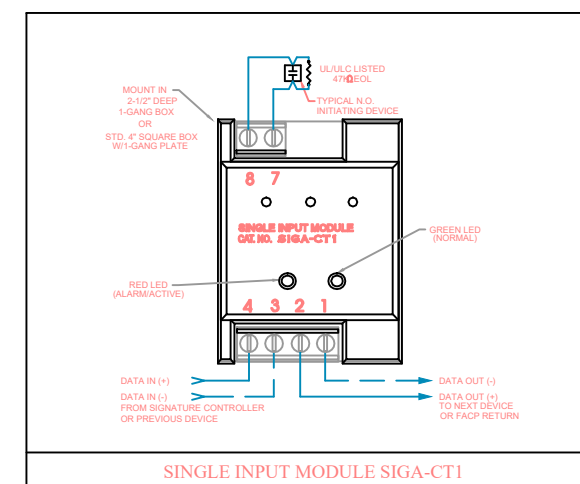
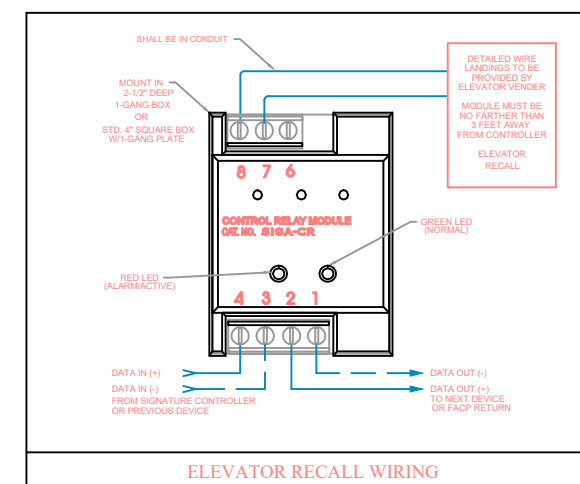
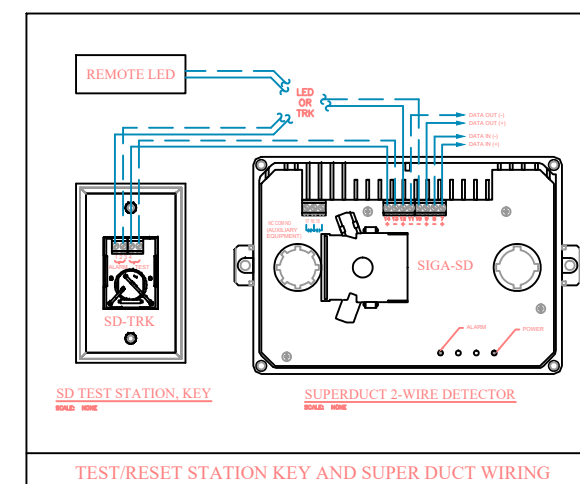
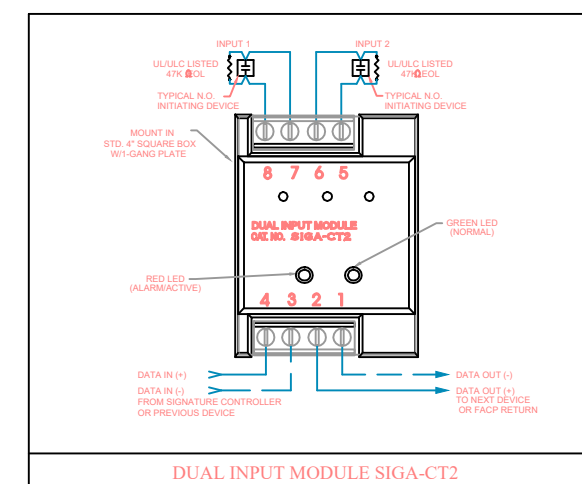
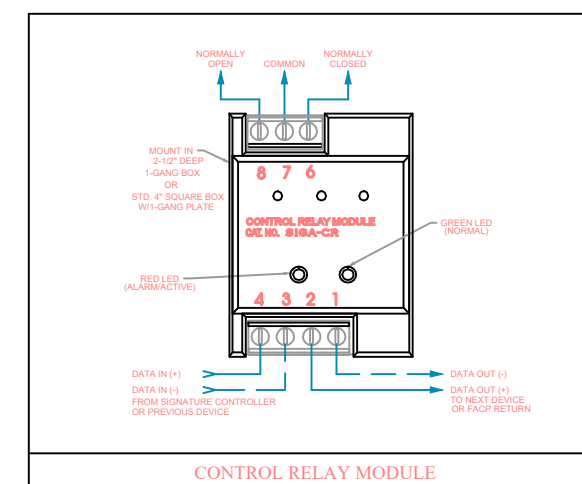
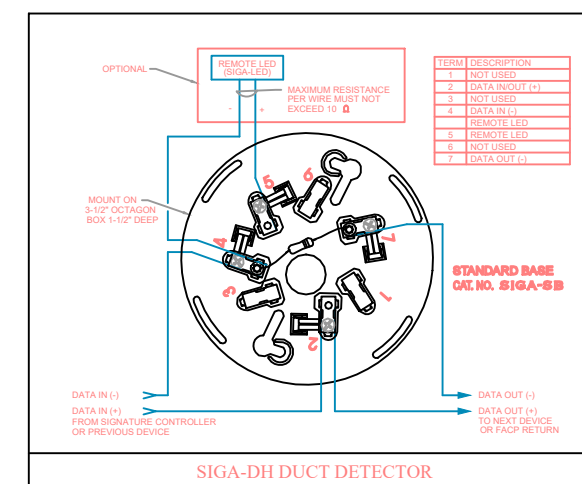
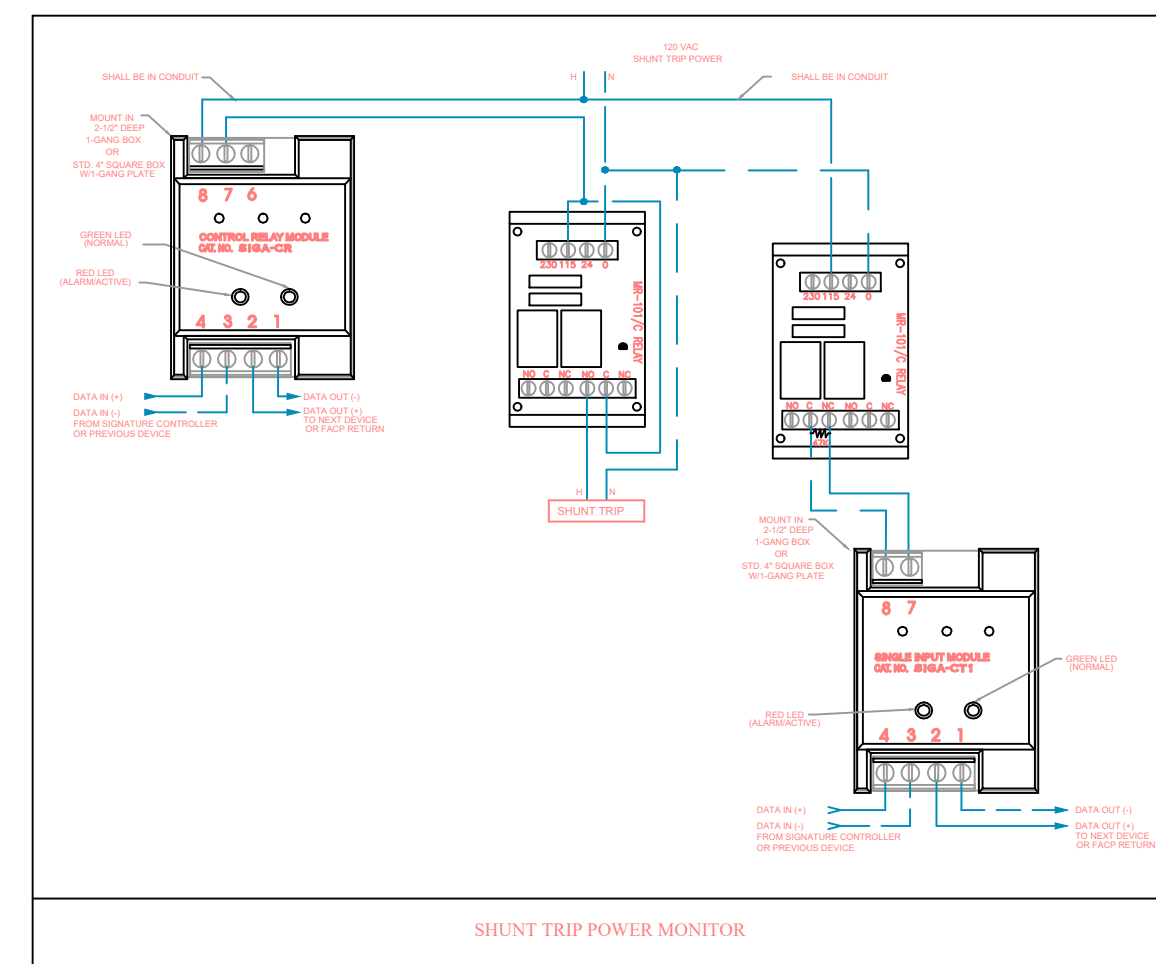
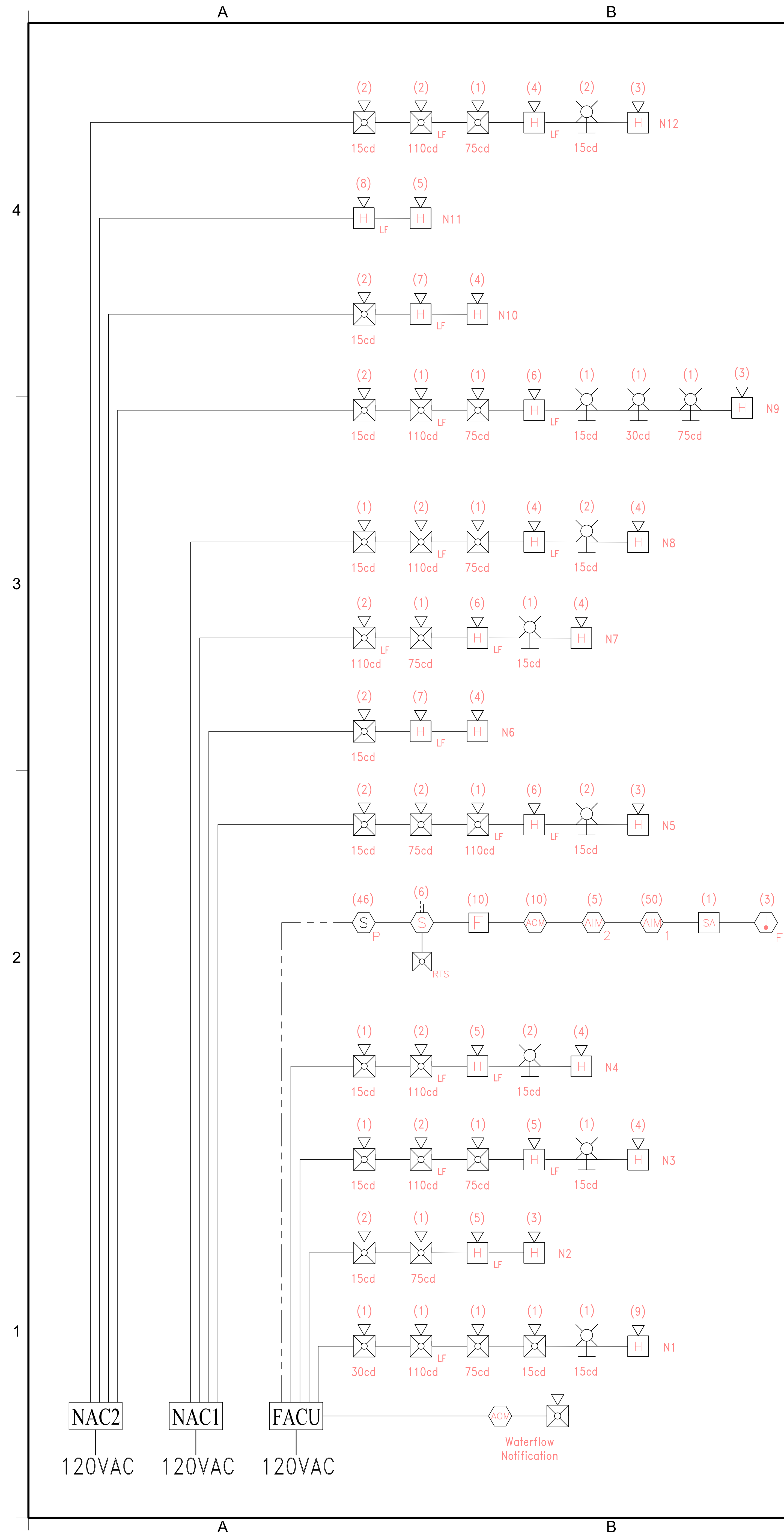
		Wire Length From Source of Previous Device (feet)						
		Candela	Device Current (amps)	Voltage at Device (feet)	Total Voltage Drop At Device (feet)	Voltage Drop Percent		
N7-01	GV/VFP	N/A	0.023	150	18.85	0.206	1.05%	
N7-02	GA/PWF-H	N/A	0.011	22	18.82	0.278	1.45%	
N7-03	GA/PWF-H/M	110cd	0.028	77	18.71	0.388	2.03%	
N7-04	GA/PWF-H/M	110cd	0.028	20	18.69	0.413	2.16%	
N7-05	GV/VFP	15cd	0.024	70	18.61	0.489	2.56%	
N7-06	GA/PWF-H/M	110cd	0.028	32	18.58	0.519	2.72%	
N7-07	GA/PWF-H	N/A	0.011	46	18.55	0.564	2.90%	
N7-08	GV/VFP	N/A	0.023	20	18.53	0.588	2.97%	
N7-09	GA/PWF-H	N/A	0.011	81	18.49	0.613	3.21%	
N7-10	GA/PWF-H	N/A	0.011	44	18.47	0.586	3.22%	
N7-11	GV/VFP	N/A	0.023	20	18.46	0.643	3.37%	
N7-12	GA/PWF-H	N/A	0.011	90	18.43	0.688	3.50%	
N7-13	GV/VFP	N/A	0.023	64	18.42	0.682	3.57%	
N7-14	GA/PWF-H	N/A	0.011	22	18.42	0.683	3.58%	

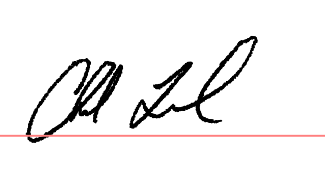
Circuit ID: N8
Wire gauge to 1st device: 14
Wire gauge for balance of circuit: 14
Power Supply Circuit ID: NAC/AUX 4
Max Current for Circuit: 3
Circuit Control Type: Direct to BPS
Circuit Location: Second Floor
Calculation Result: Passed

Total Wire Length: 683
Total Circuit Current (amps): 0.321
EOL Voltage: 18.24
Total Voltage Drop: 0.68
Total Voltage Drop %: 3.50%

	Model	Candela	Device Current (amps)	Wire Length From Source (feet)	Device Voltage (Feet)	Voltage at Device	Total Voltage Drop At Device	Voltage Drop Percent
N8-01	GV/VFP	15cd	0.024	140	18.82	0.276	1.45%	
N8-02	GA/PWF-H/M	110cd	0.028	48	18.73	0.271	1.44%	
N8-03	GA/PWF-H/M	110cd	0.028	20	18.69	0.407	2.13%	
N8-04	GA/VVFP	15cd	0.024	70	18.58	0.521	2.72%	
N8-05	GA/PWF-H/M	110cd	0.028	31	18.53	0.587	2.97%	
N8-06	GA/PWF-H	N/A	0.011	50	18.47	0.633	3.31%	
N8-07	GV/VFP	N/A	0.023	20	18.46	0.687	3.44%	
N8-08	GA/VVFP	15cd	0.050	55	18.38	0.718	3.76%	
N8-09	GA/PWF-H	N/A	0.011	48	18.34	0.756	3.96%	
N8-10	GV/VFP	N/A	0.023	41	18.31	0.786	4.12%	
N8-11	GA/PWF-H	N/A	0.011	22	18.30	0.799	4.18%	
N8-12	GV/VFP	N/A	0.023	76	18.26	0.838	4.39%	
N8-13	GA/PWF-H	N/A	0.011	22	18.25	0.847	4.43%	
N8-14	GA/VVFP	15cd	0.020	40	18.24	0.859	4.52%	

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FIRE PROTECTION ENGINEERING
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SOUTH WESTERN COMMUNICATIONS
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WILSHIRE HILLS III
FIRE ALARM

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SVC OF ATLANTA
DRAWN BY:
C. TOWNSEND
REVIEWED BY:
K. WELLS
REFERENCE DRAWING:
...

PROJECT #:
191240912
ET BID ID:
60810
PROJECT MANAGER:
JASON LOAR
ASSULT SUBMITTED BY:
...

NE MANHATTAN DR.
LEES SUMMIT, MO 64064

FIRE ALARM
RISER DIAGRAM

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NUMBER
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SHEET 8 OF 8