

SAM
MIRBAHA
**PORT
FOLIO**

BIM AND
ENGINEERING
2024

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SAM MIRBAHA

BIM & VDC COORDINATOR
ENGINEERING DESIGN AND
COORDINATION

EDUCATION

University of Texas at Dallas

Master of Science in Data
Analytics and Research

University of Texas at Dallas

Bachelor of Arts in
Design and Technology

SKILLS

- CAD Software
- 1-Autocad
2-Revit
3-Microstation
4-Navisworks
5-SOLIDWORKS
6-Desigo CC
 - Data Visualization
 - Programming

1-Python
2-SQL
3-R programming

English Fluent

Farsi Native

Arabic speaking, reading

REFERENCES

Taylor J. Fisher, PMP
Site Installation PM
Jacksonville, FL 32256
Mobile: +1 (904) 378-6132

PROFILE

Dedicated and detail-oriented BIM professional with extensive experience in electrical systems, fire alarm design, and VDC coordination. Proven ability to streamline workflows, enhance project delivery, and mentor teams in cutting-edge BIM technologies. My skills in both design and engineering help optimize workflows and save project time and cost.

EXPERIENCES

2022 Siemens
BIM and VDC Engineer

- Prepare AutoCAD MEP and Revit/BIM working drawings, detail drawings, schedules and isometrics for plan/spec and as-built drawings.
- Coordinate mechanical design drawings with other trades such as plumbing, electrical, fire protection as well as the structure, architecture, civil and any other building trades.
- Maintain and oversee the filing systems for submittals and AutoCAD files, and the engineering reference
- Perform engineering updates from red-line and as-built drawings.

2018 Next Office
Project Designer 1

2014 RYRA Design and construction studio
Assistant/intern

Autodesk Revit Certified
Professional Certification

Autodesk AutoCAD Certified
Professional Certification

CONTENTS

- 1 My participation in the large-scale Tyndall AFB Recreation Project for the Department of Defense, where I represented Siemens and contributed to a significant initiative.
- 2 Two complex projects where I took full ownership as the lead fire alarm engineer, demonstrating my ability to manage projects independently.
- 3 My experience as a mentee in the fire alarm designer mentorship program, which provided valuable training and insights.

TYNDALL

AIR FORCE BASE



BIM
COORDINATION

PROJECT STAGES

1. PROJECT INITIATION

I DEFINED THE PROJECT SCOPE, DELIVERABLES, STAKEHOLDERS, AND COMMUNICATION CHANNELS.

3. 3D MODELING

- **MODEL PREPARATION:** I EXPORTED AND CLEANED ARCHITECTURAL BACKGROUNDS AND SET UP THE REVIT FILE FOR THE FIRE ALARM SYSTEM, BUILDING AUTOMATION AND SECURITY SYSTEMS.
- **MODEL CREATION:** I USED REVIT TO METICULOUSLY PLACE DEVICES, MODEL RISERS (SLAB PENETRATIONS), AND MODEL FIRE ALARM AND BAU PANELS.

5. 2D DOCUMENTATION

I GENERATED 2D SHOP DRAWINGS FOR PANEL LAYOUTS, DEVICE DETAILS, REFLECTED CEILING COORDINATION, AND RISER SLAB PENETRATIONS BASED ON THE COORDINATED 3D MODEL IN REVIT, ALL WITHIN THE TIMEFRAME ESTABLISHED BY THE BIM SCHEDULE.

2. EXECUTION PLAN (BEP)

I REVIEWED THE BEP, FOCUSING ON THE 3D MODEL COORDINATION PROCESS, INCLUDING:

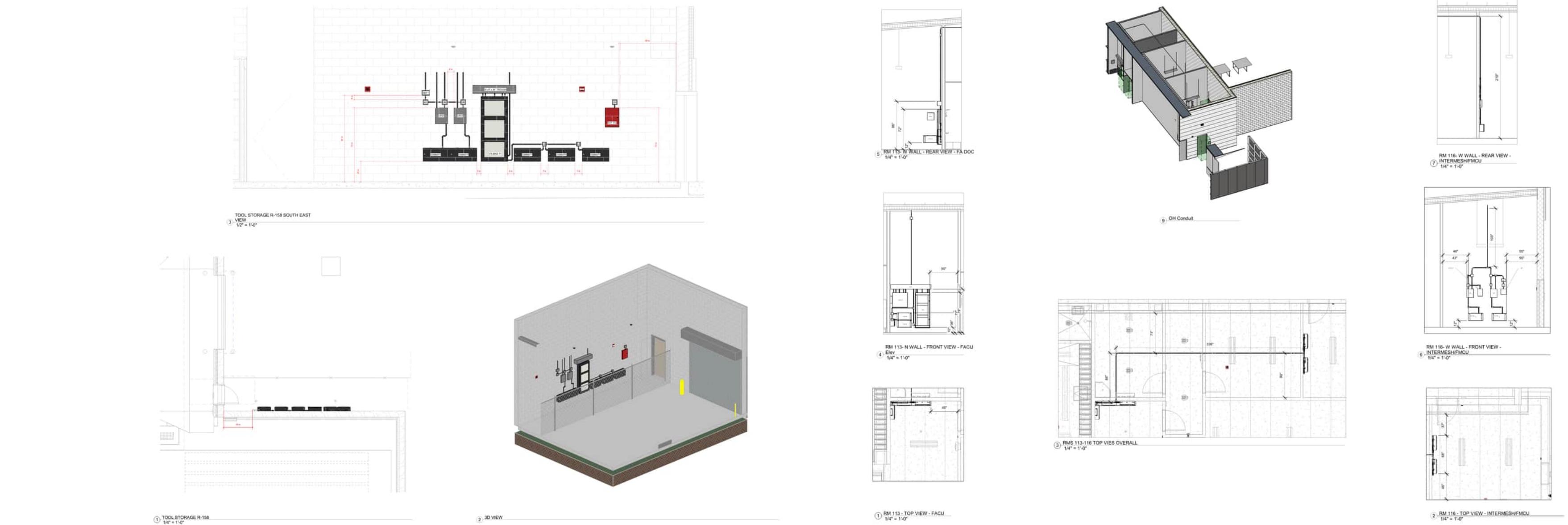
- WEEKLY COORDINATION MEETING SCHEDULE
- NAMING CONVENTIONS FOR ELEMENTS IN THE MODEL
- LEVEL OF DETAIL REQUIRED FOR MODELING FILE DELIVERY REQUIREMENTS FOR THE BIM SCHEDULE

4. COORDINATION AND REVIEW

- I PARTICIPATED IN WEEKLY COORDINATION MEETINGS AS OUTLINED IN THE BIM SCHEDULE TO DISCUSS MODEL PROGRESS, IDENTIFY AND RESOLVE CLASHES USING NAVISWORKS, AND ENSURE ALL DISCIPLINES WERE COORDINATED.
- I COLLABORATED WITH PROJECT MANAGERS TO DISCUSS CLASH DETECTION USING BIMTRACK, ENSURING THE REVIT MODEL MET PROJECT REQUIREMENTS AND THE BIM SCHEDULE REMAINED ON TRACK.

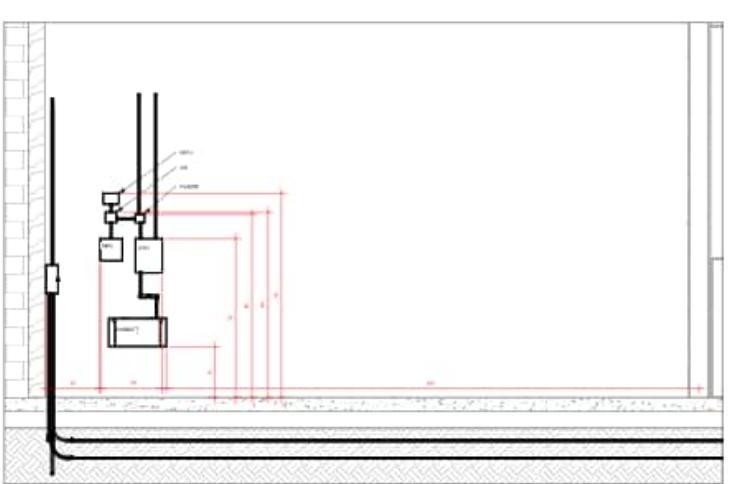
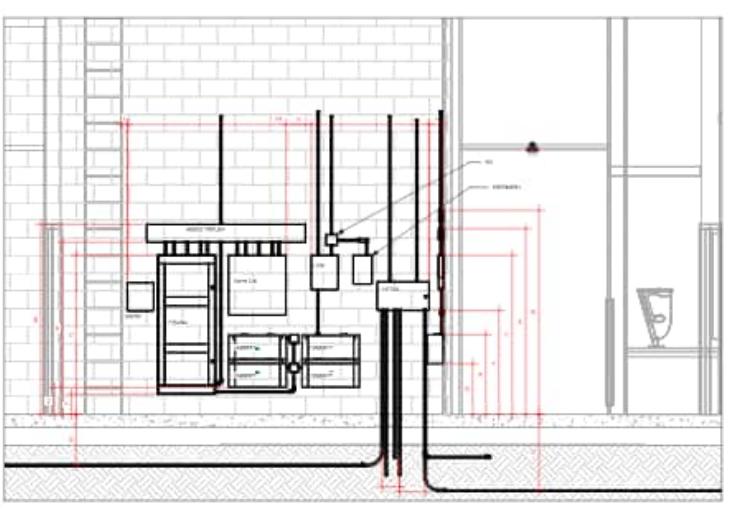
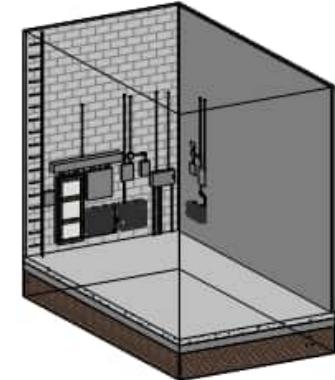
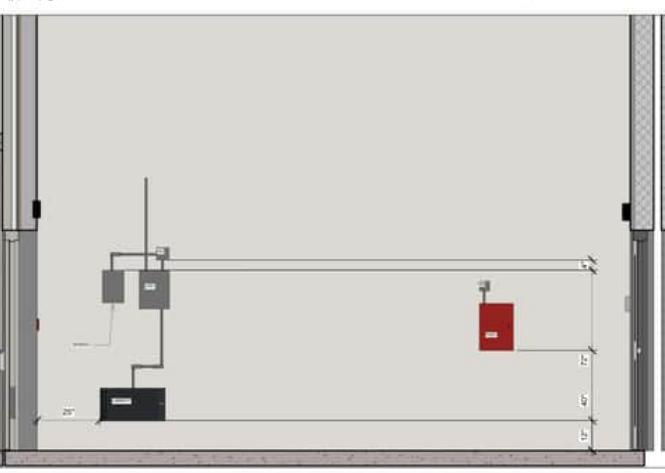
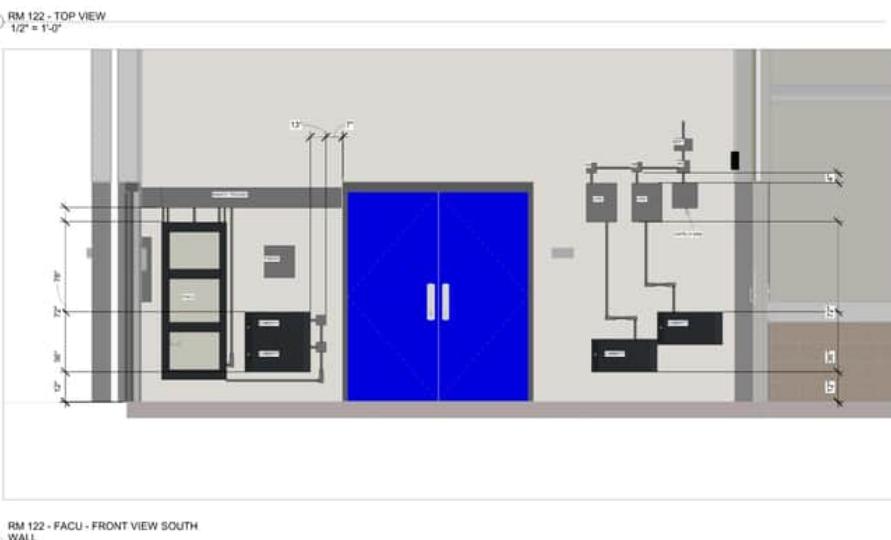
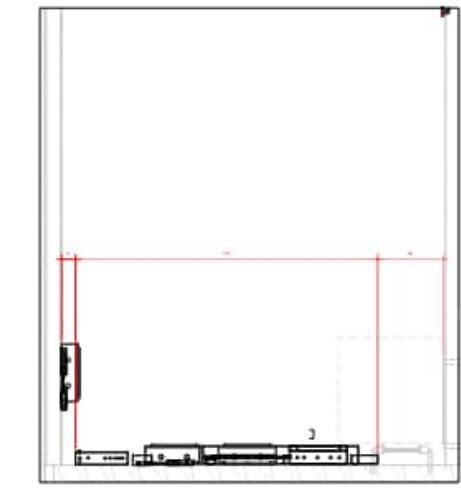
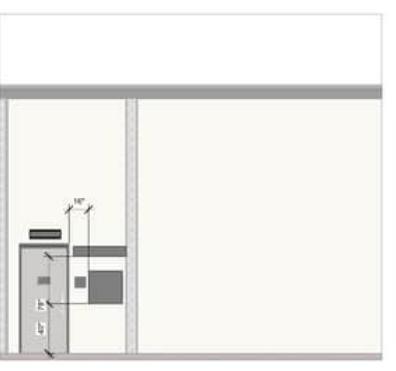
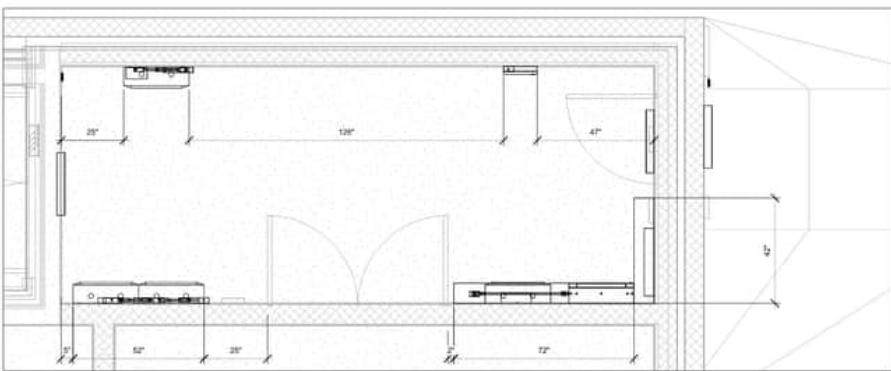
FIRE ALARM SYSTEMS

2024



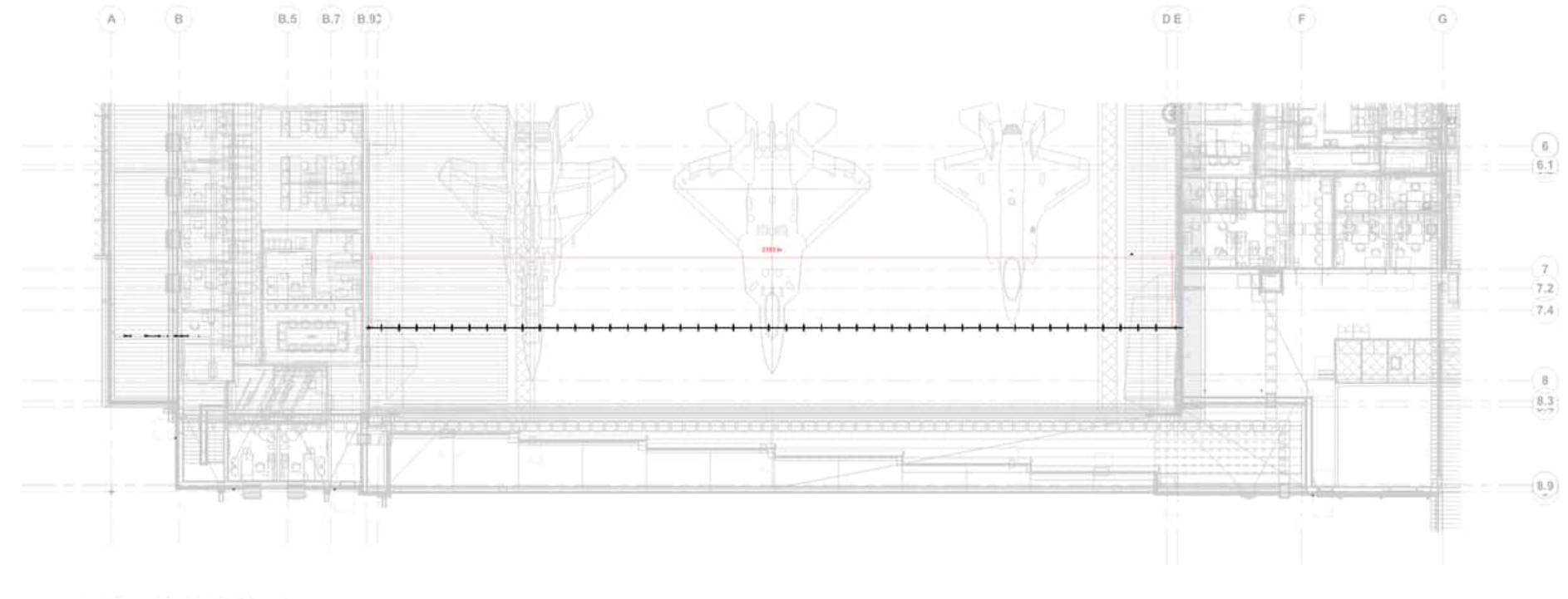
FIRE ALARM SYSTEMS

2024

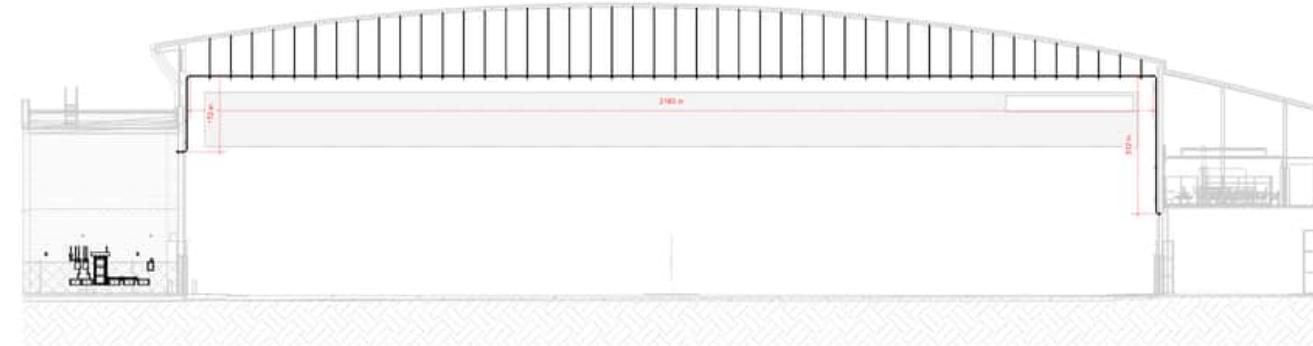


OH CONDUIT ROUTING

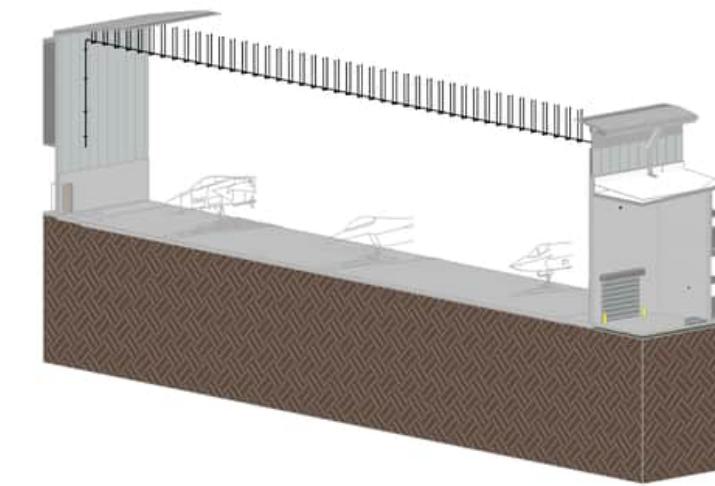
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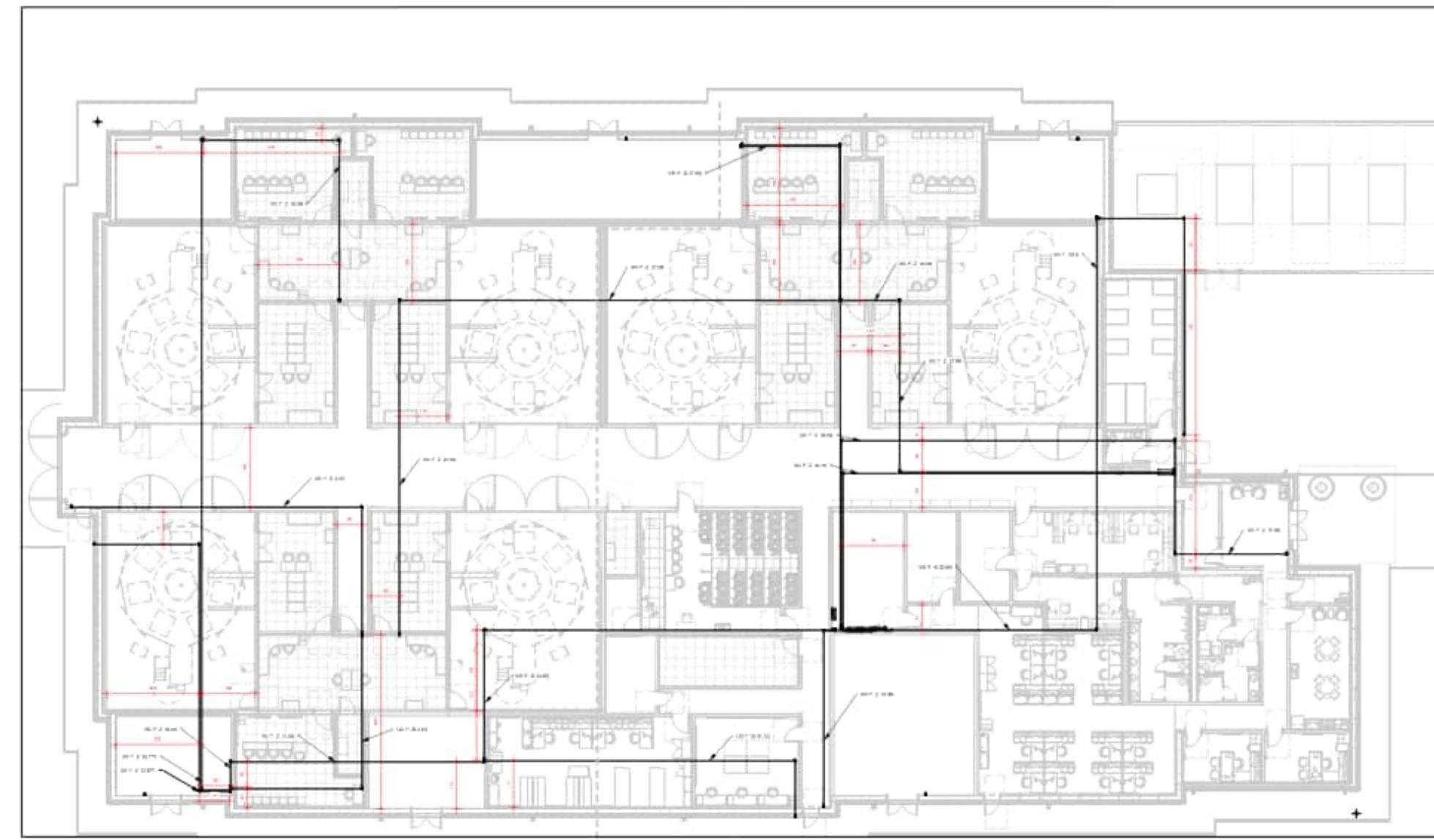
① B01 - HANGAR 1 - OH Conduit - Top View
1/16" = 1'-0"

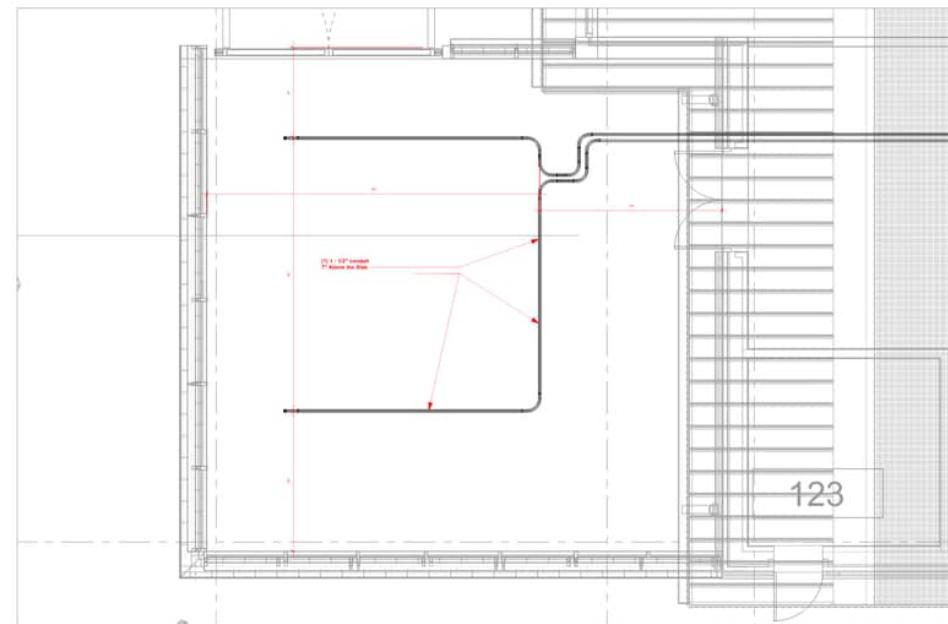


② B01 - HANGAR 1 - OH Conduit - Rear View
1/16" = 1'-0"

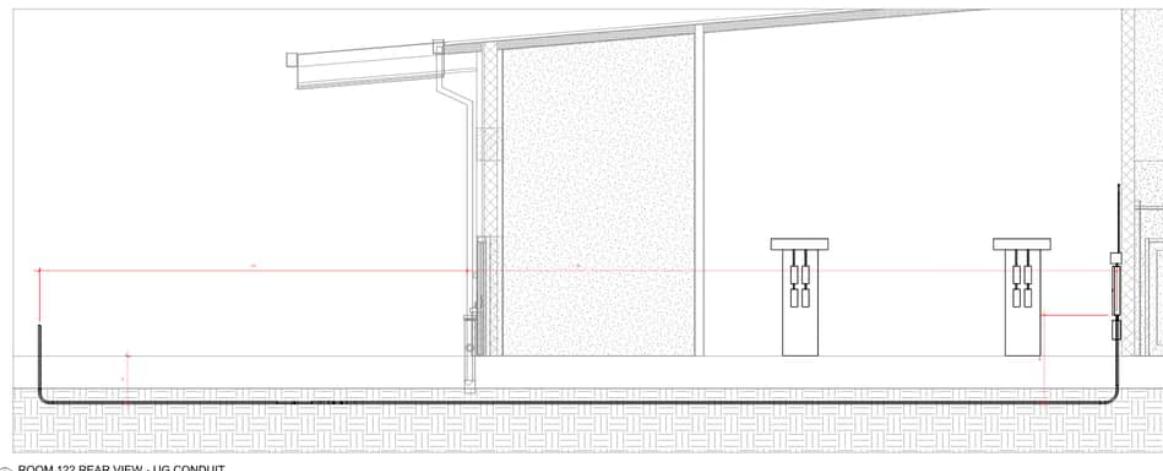
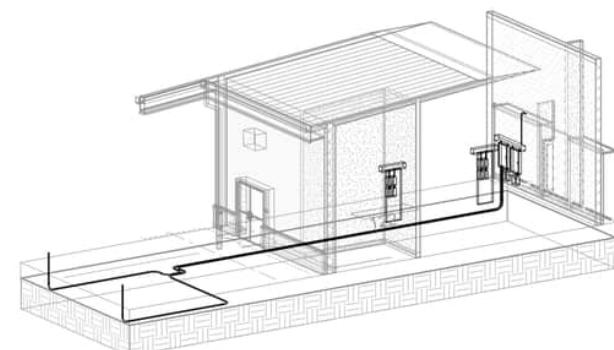


③ 3D View - OH

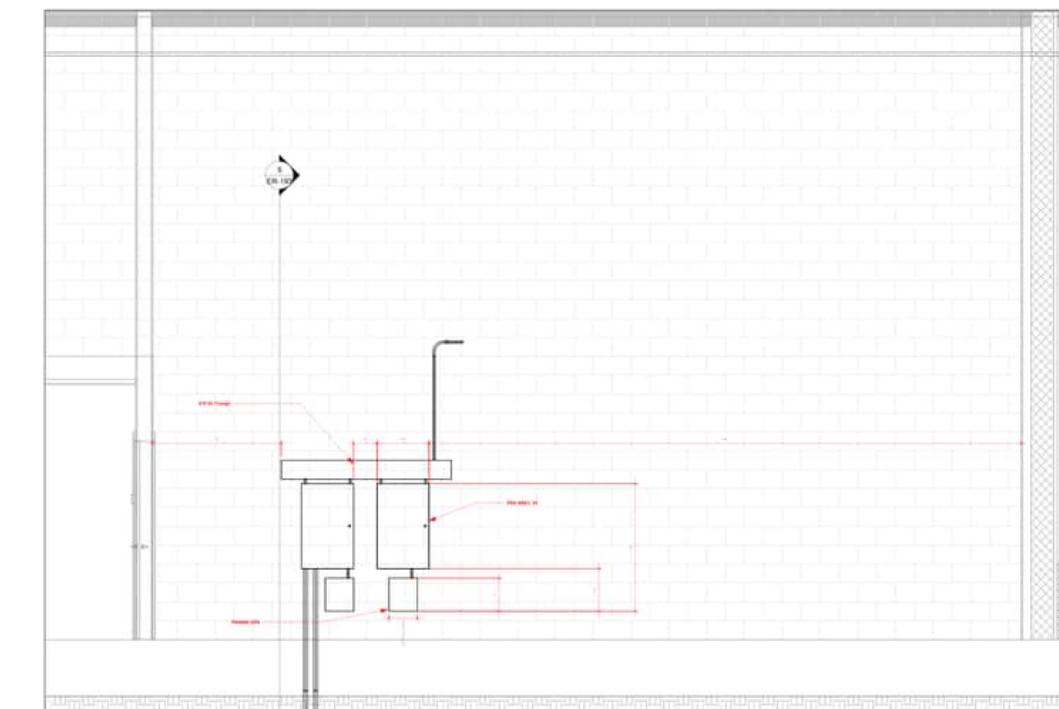




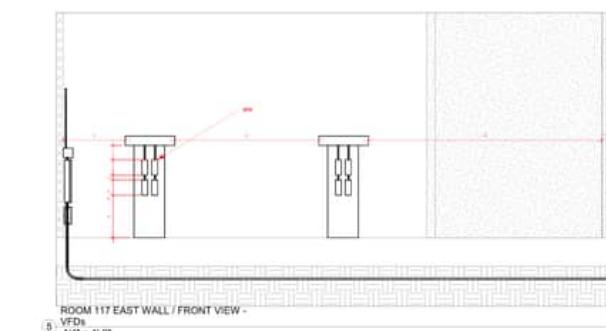
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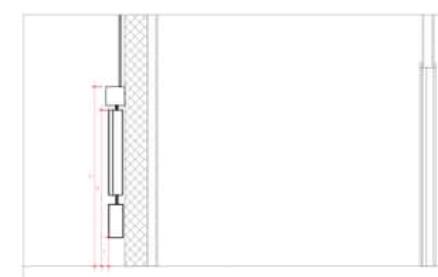
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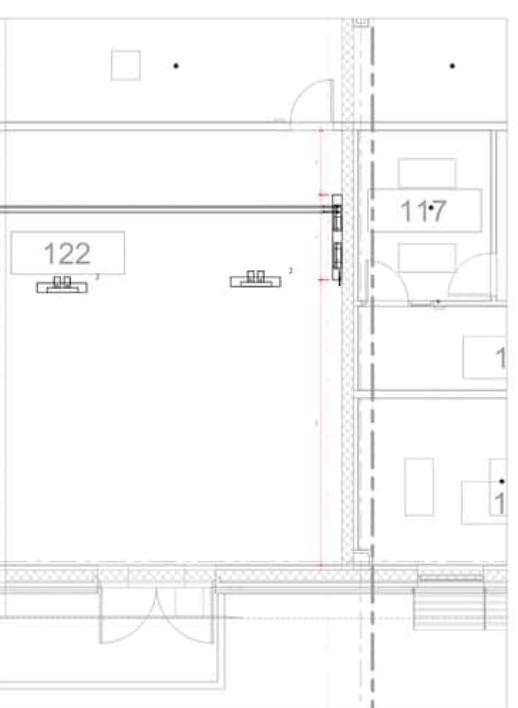
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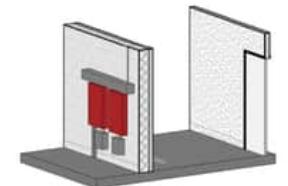
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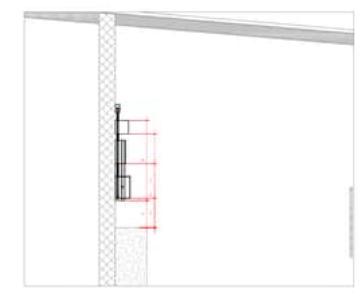
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④



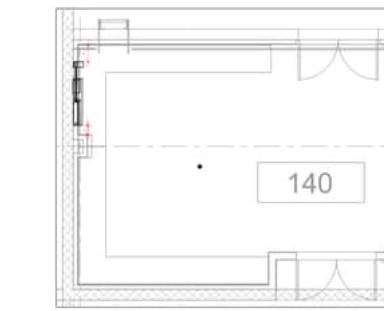
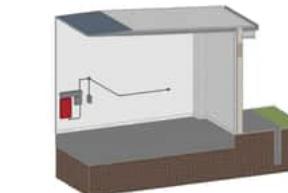
ROOM 153 WEST WALL / FRONT VIEW -
PXCM-3
 $\frac{3}{8}$ " + 1'-0"



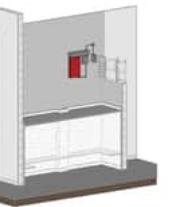
ROOM 153 WEST WALL / REAR VIEW -
PXCM-3
 $\frac{3}{8}$ " + 1'-0"



③ RM 135-PXCM 5 TOP VIEW
 $\frac{3}{16}$ " + 1'-0"



① RM 140-PXCM 4 TOP VIEW
1'-0"



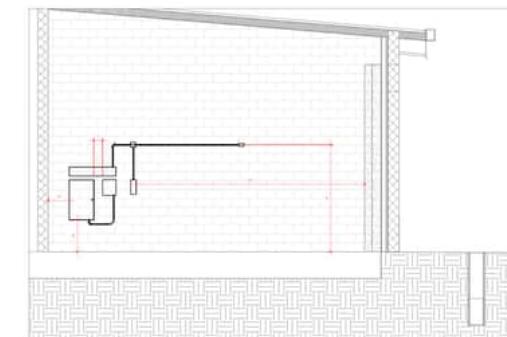
④ 3D-RM 140



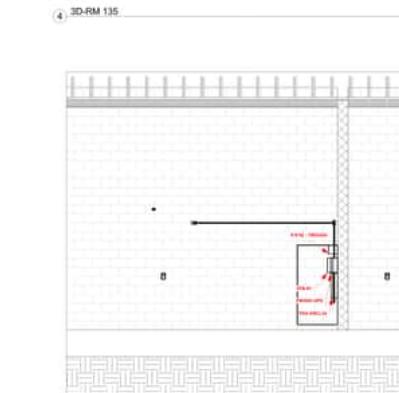
② RM 153-PXCM 3 TOP VIEW
1'-0"



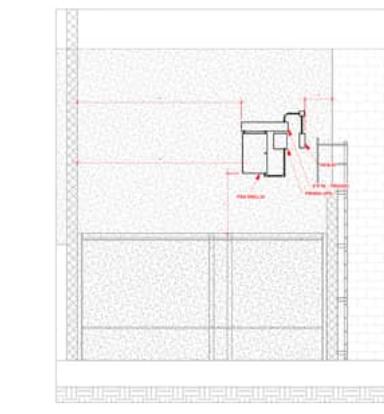
① 3D-RM 153



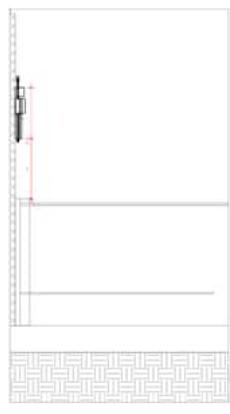
① ROOM 135 WEST WALL FRONT VIEW -
PXCM-5
 $\frac{1}{16}$ " + 1'-0"



② ROOM 135 WEST WALL REAR VIEW -
PXCM-5
 $\frac{1}{16}$ " + 1'-0"



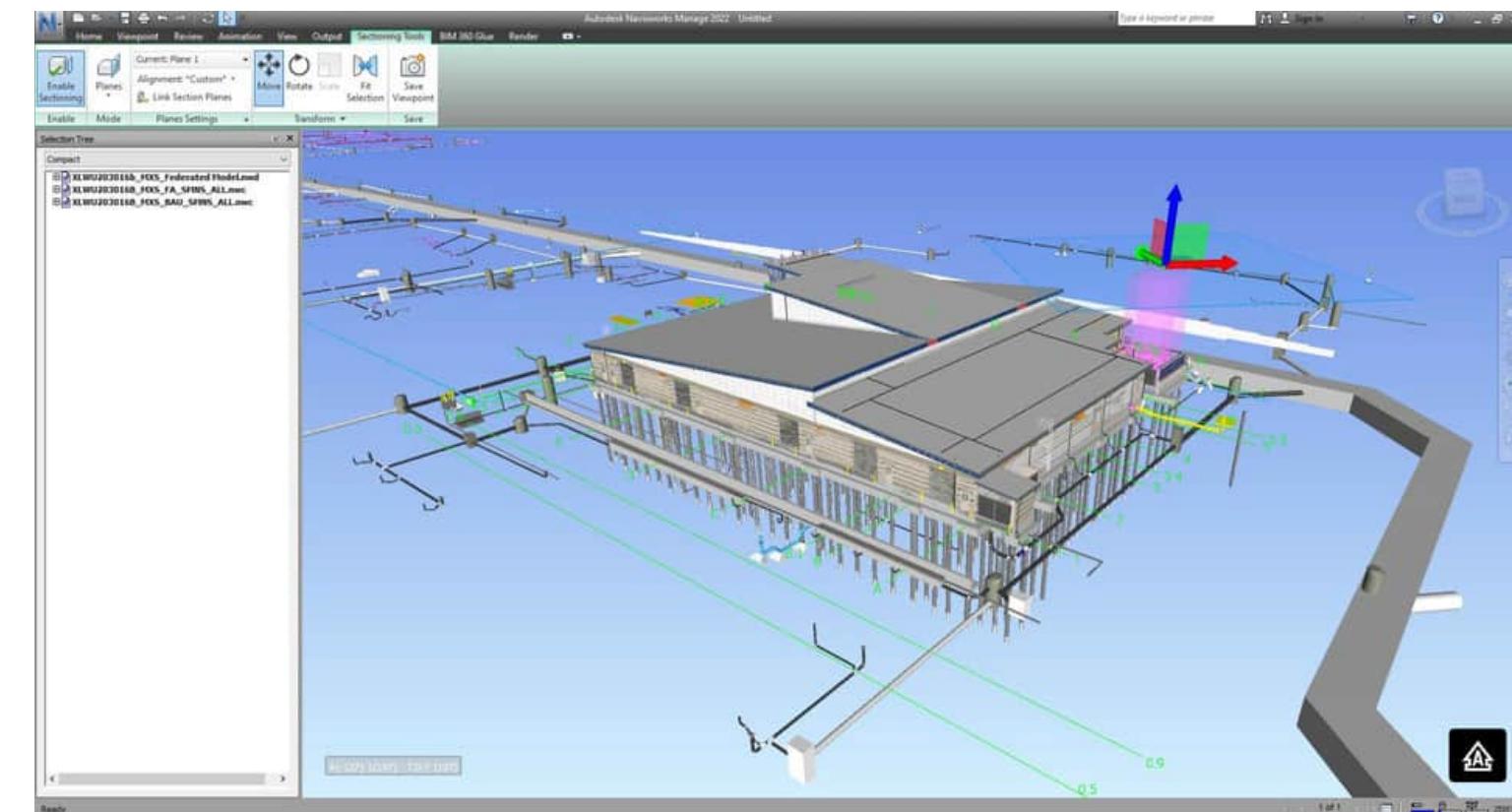
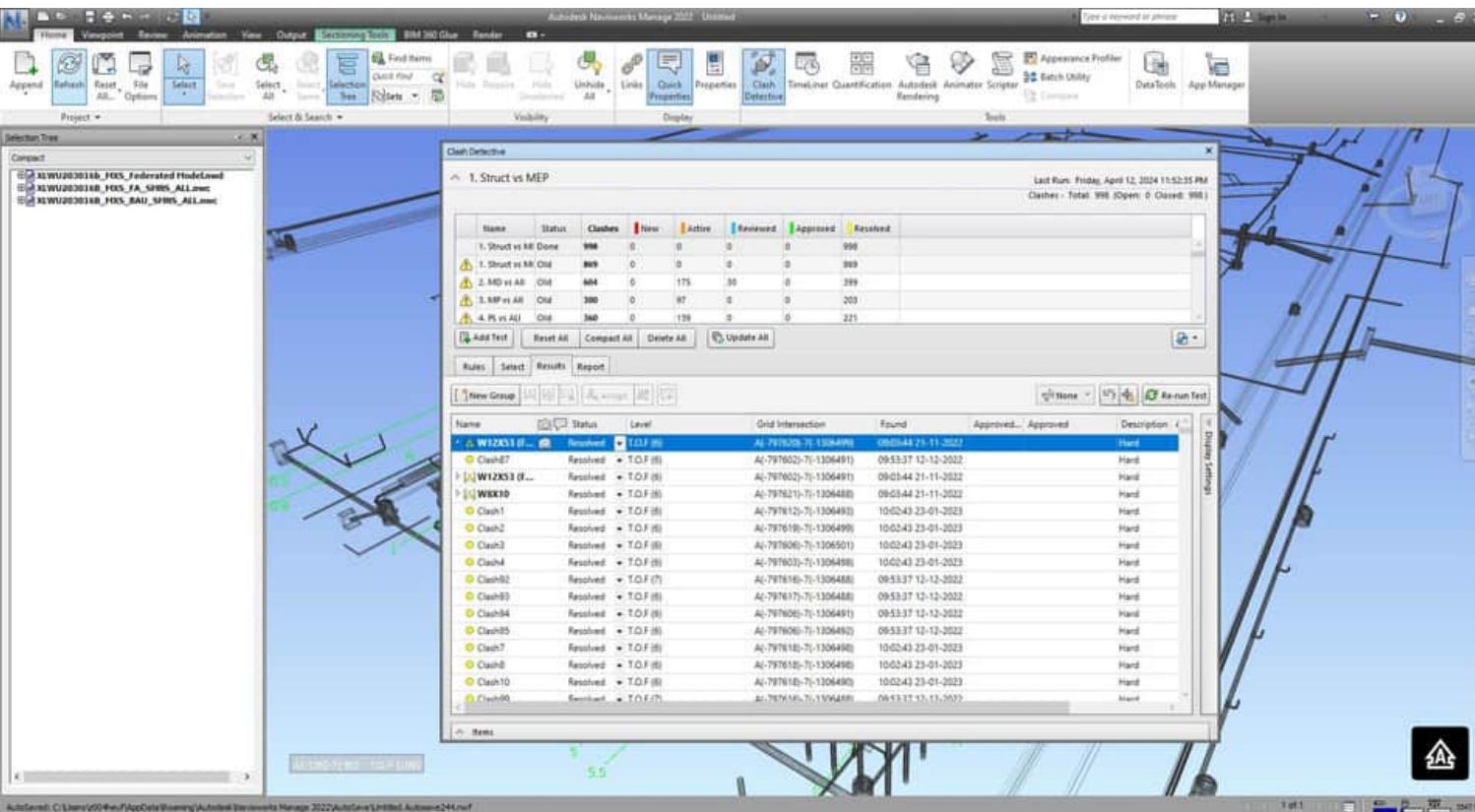
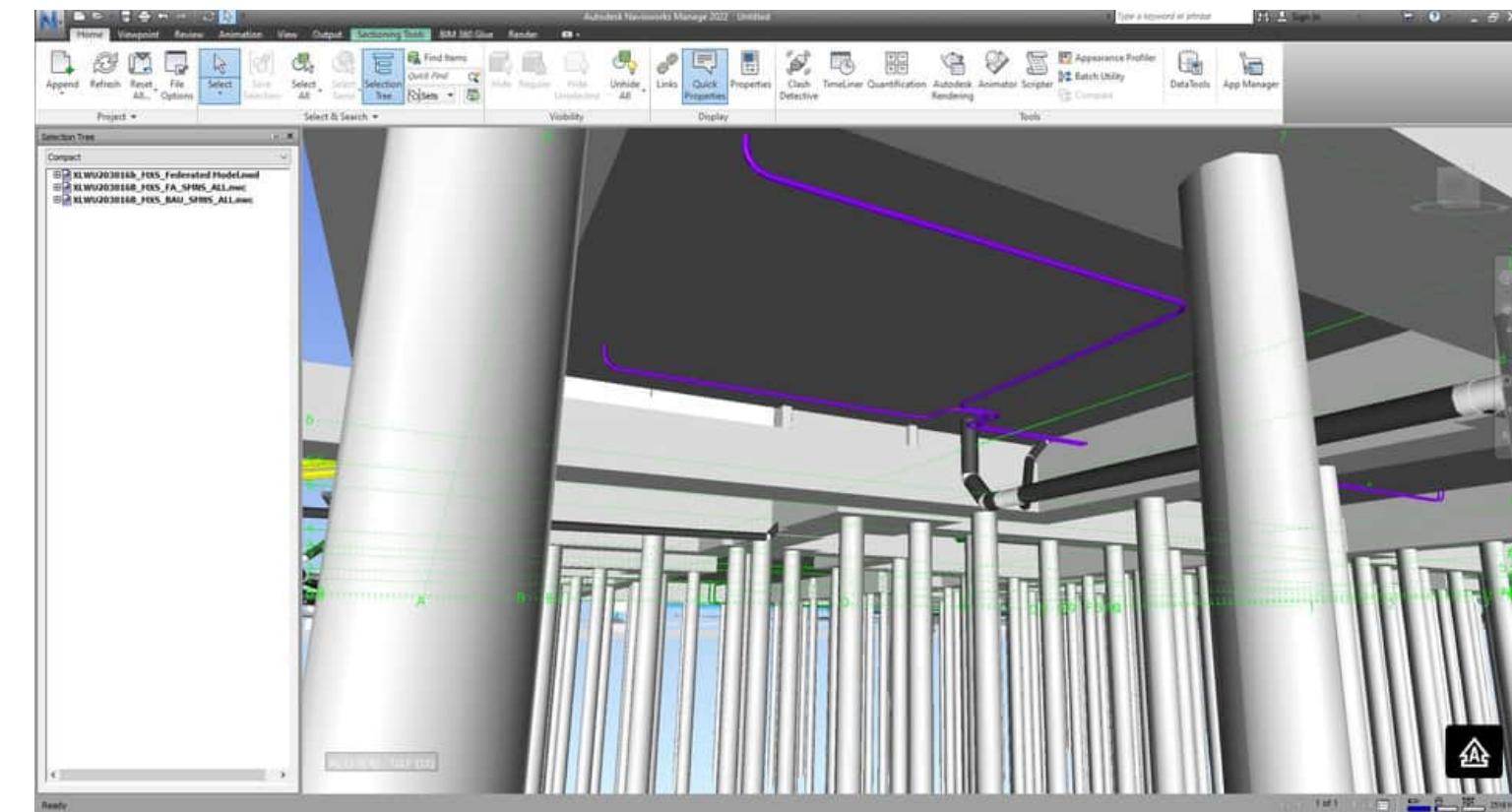
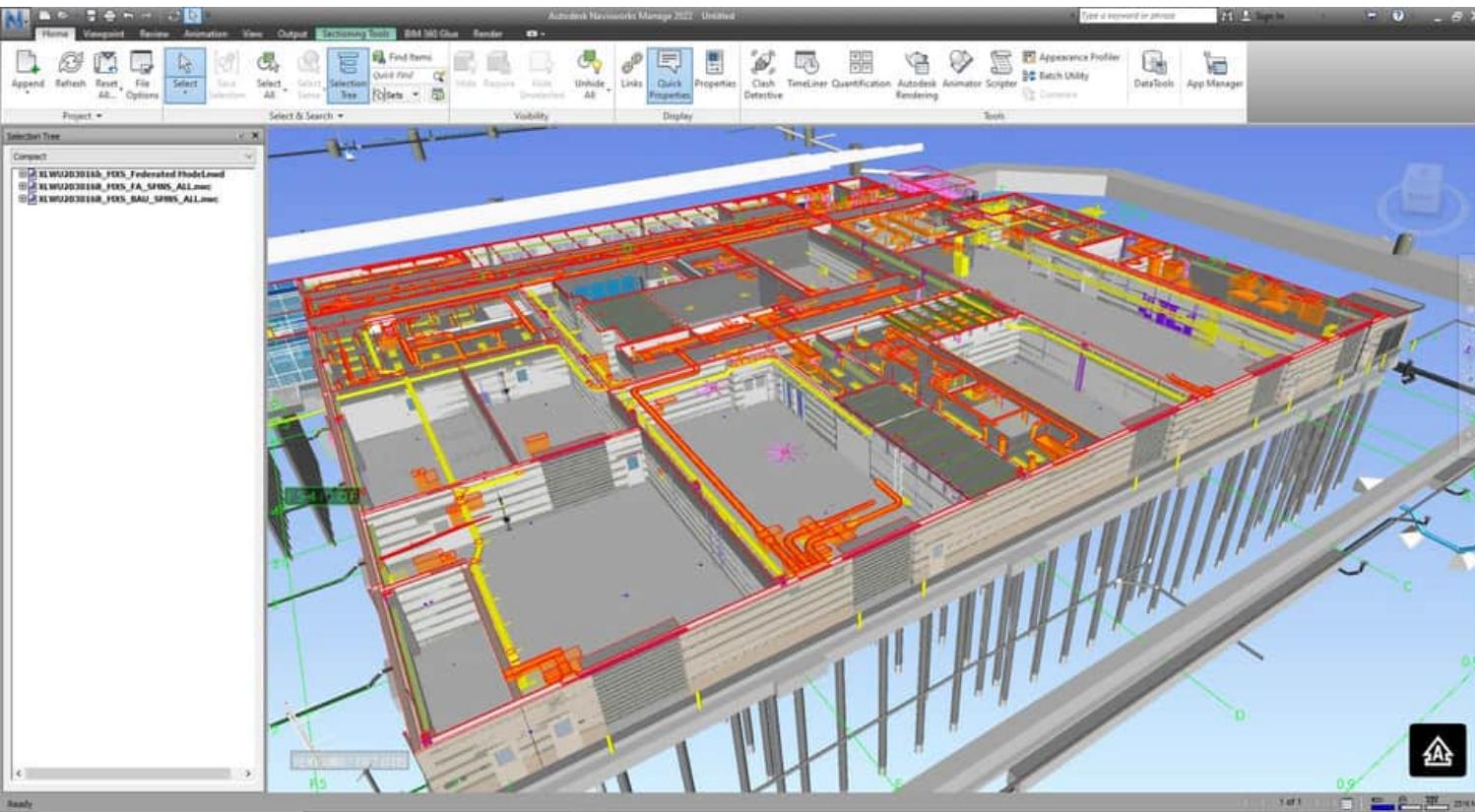
③ ROOM 140 WEST WALL / FRONT VIEW -
PXCM-4
 $\frac{1}{16}$ " + 1'-0"



④ ROOM 140 WEST WALL / REAR VIEW -
PXCM-4
 $\frac{1}{16}$ " + 1'-0"

NAVISWORKS AND CLASH DETECTION

2024



DEVICE SCHEDULE

2024

Fire Alarm Device Schedule							
Count	Family	Elevation from Level	Level	Location - Room Number	Model	Drawing Number	IFC NAME
1	Pull Station	4'- 0"	FIRST FLOOR	100	XMS-D	FA202	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	122	XMS-D	FA204	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	122	XMS-D	FA204	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	123	XMS-D	FA204	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	130	XMS-D	FA203	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	142	XMS-D	FA203	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	150	XMS-D	FA201	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	177	XMS-D	FA201	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	178	XMS-D	FA201	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	189	XMS-D	FA201	DOUBLE ACTION MANUAL PULL STATION
1	Pull Station	4'- 0"	FIRST FLOOR	188	XMS-D	FA204	DOUBLE ACTION MANUAL PULL STATION
1	speaker waterproof 2W WP	7' 3"	FIRST FLOOR	178 ext	SETSF-VW	FA201	Speaker
1	speaker waterproof 2W WP	7' 3"	FIRST FLOOR	100 ext	SETSF-VW	FA202	Speaker
1	speaker waterproof 2W WP	7' 3"	FIRST FLOOR	135 ext	SETSF-VW	FA203	Speaker
1	speaker waterproof 2W WP	7' 3"	FIRST FLOOR	189 ext	SETSF-VW	FA204	Speaker
1	speaker waterproof 2W WP	7' 3"	FIRST FLOOR	123 ext	SETSF-VW	FA204	Speaker
1	speaker waterproof 2W WP	7' 3"	FIRST FLOOR	122 ext	SETSF-VW	FA204	Speaker
1	EXP Speaker	7' - 6"	FIRST FLOOR	178	AM300GCX	FA201	Explosion Proof Speaker
1	EXP STROBE	7' - 6"	FIRST FLOOR	178	D2XB1LD3DC024MNOH1R/C	FA201	Explosion Proof Strobe
1	EXP Pull Station	4'- 0"	FIRST FLOOR	178	MSM-EXP/XTRI-M	FA201	Explosion Proof Manual Pull Station
1	EXP Speaker	7' - 6"	FIRST FLOOR	165	AM300GCX	FA202	Explosion Proof Speaker
1	EXP STROBE	7' - 6"	FIRST FLOOR	165	D2XB1LD3DC024MNOH1R/C	FA202	Explosion Proof Strobe
1	EXP Speaker	7' - 6"	FIRST FLOOR	135	AM300GCX	FA203	Explosion Proof Speaker
1	EXP STROBE	7' - 6"	FIRST FLOOR	135	D2XB1LD3DC024MNOH1R/C	FA203	Explosion Proof Strobe
1	EXP Speaker	7' - 6"	FIRST FLOOR	135	AM300GCX	FA203	Explosion Proof Speaker
1	EXP STROBE	7' - 6"	FIRST FLOOR	135	D2XB1LD3DC024MNOH1R/C	FA203	Explosion Proof Strobe
1	EXP Pull Station	4'- 0"	FIRST FLOOR	135	MSM-EXP/XTRI-M	FA203	Explosion Proof Manual Pull Station
1	ET - LED-4000UL-24V	8'-10"	FIRST FLOOR	177	LED4000UL/24V	FA201	EMERGENCY TEXTUAL VISIBLE DISPLAY
1	ET - LED-4000UL-24V	8'-10"	FIRST FLOOR	150	LED4000UL/24V	FA201	EMERGENCY TEXTUAL VISIBLE DISPLAY
1	ET - LED-4000UL-24V	8'-10"	FIRST FLOOR	100	LED4000UL/24V	FA202	EMERGENCY TEXTUAL VISIBLE DISPLAY
1	ET - LED-4000UL-24V	8'-10"	FIRST FLOOR	142	LED4000UL/24V	FA203	EMERGENCY TEXTUAL VISIBLE DISPLAY
1	ET - LED-4000UL-24V	8'-10"	FIRST FLOOR	135	LED4000UL/24V	FA203	EMERGENCY TEXTUAL VISIBLE DISPLAY



THE TWIN TOWERS

FIRE ALARM SYSTEM
DESIGN

PROJECT STAGES

1-ORIENTATION- TURN OVER

2-BACKGROUND CLEANUP

3-DEVICE LAYOUT

4-DEVICE ADDRESSING

5-POINT TO POINT/ CONDUIT LAYOUT

6-RISER DIAGRAM

7-CALCULATIONS(BATTERY, VOLTAGE ETC)
PANEL LAYOUT AND DETAILS

8-SMOKE CONTROL PANEL LAYOUT

9-SUPPORT PAGES (COVER-MATRIX-ETC)

10-CREATE DRAWING SET

11-PRINTING AND SUBMITTAL ASSEMBLY/EFS MAINTENANCE

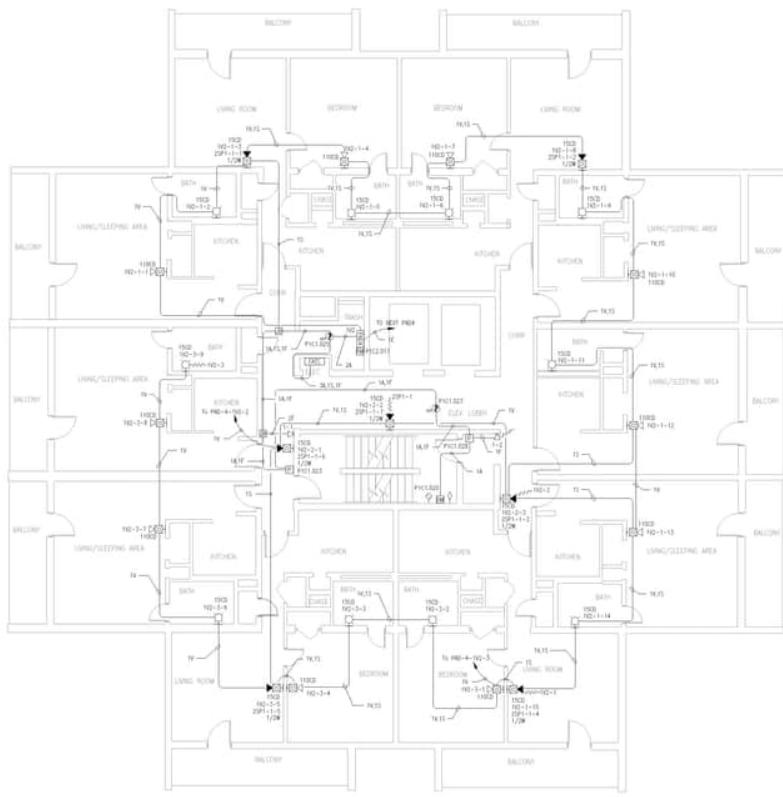
12-QUALITY CONTROL/ SUPERVISION

FIRE ALARM SYSTEMS

2024

FIRE ALARM SYSTEMS

2024



1 SECOND LEVEL FIRE ALARM PLAN - BUILDING A

1/8" = 1'-0"

SIEMENS

SIEMENS INDUSTRY, INC.
3000 WESTERN AVENUE
JACKSONVILLE, FL 32256
850.504.0344

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FIRE PERMIT - F-23-603634.000-TEMP

1 NO/NO/NO/NO FIRE ALARM

2 NO/NO/NO/NO FIRE ALARM

3 NO/NO/NO/NO FIRE ALARM

4 NO/NO/NO/NO FIRE ALARM

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138 NO/NO/NO/NO FIRE ALARM

139 NO/NO/NO/NO FIRE ALARM

140 NO/NO/NO/NO FIRE ALARM

141 NO/NO/NO/NO FIRE ALARM

142 NO/NO/NO/NO FIRE ALARM

143 NO/NO/NO/NO FIRE ALARM

144 NO/NO/NO/NO FIRE ALARM

145 NO/NO/NO/NO FIRE ALARM

146 NO/NO/NO/NO FIRE ALARM

147 NO/NO/NO/NO FIRE ALARM

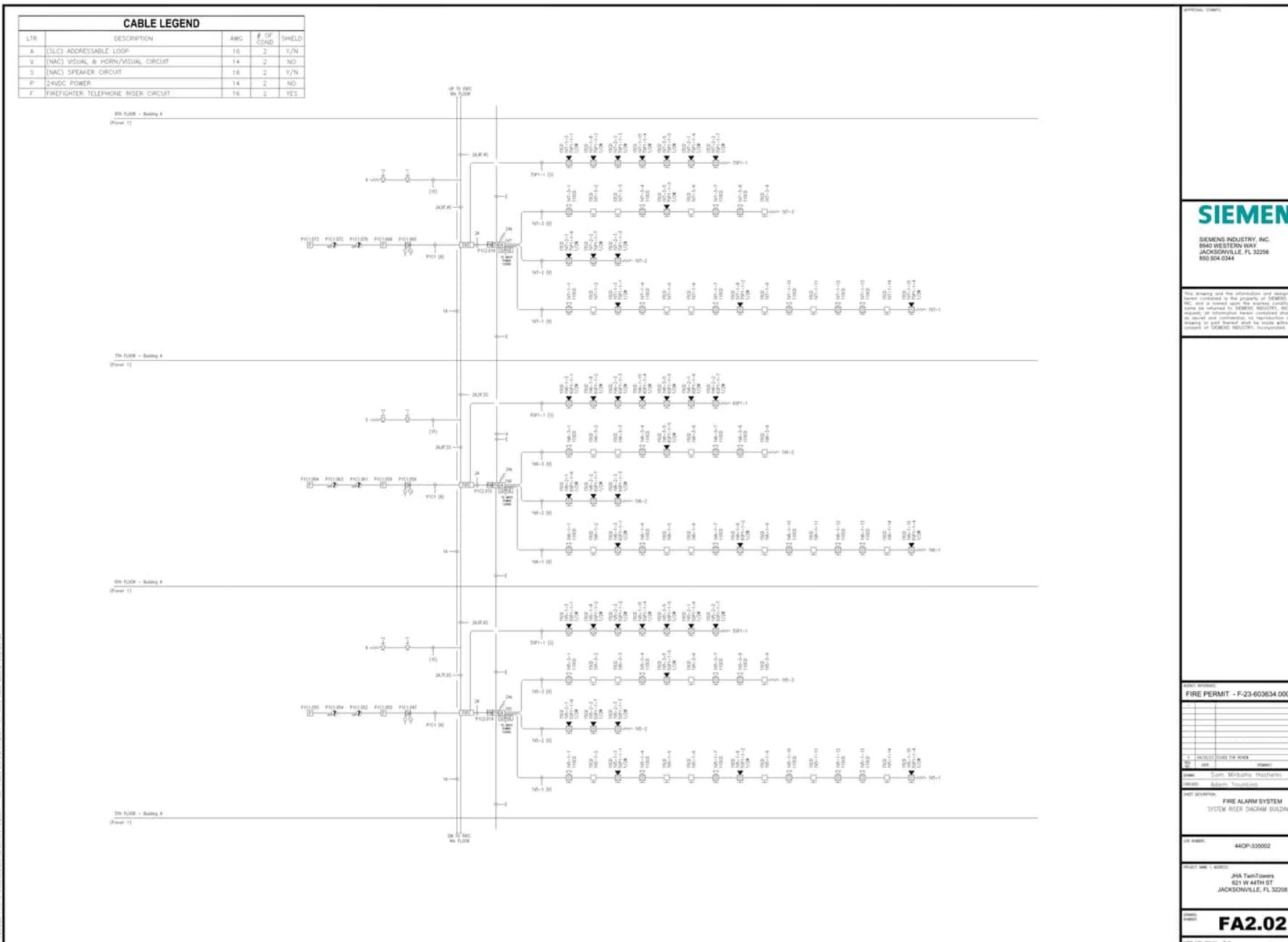
148 NO/NO/NO/NO FIRE ALARM

149 NO/NO/NO/NO FIRE ALARM

150 NO/NO/NO/NO FIRE ALARM

RISER DIAGRAMS

2024



PANEL LAYOUTS

2024



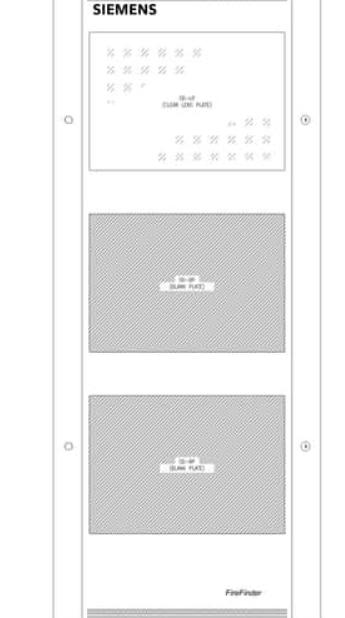
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FIRE PERMIT - F-23-603634.000-TEMP

FA3.02



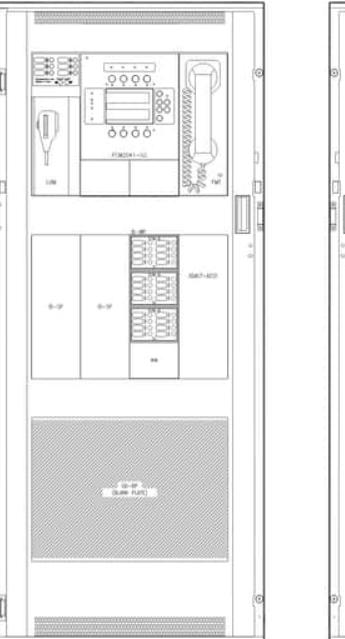
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FA3.02



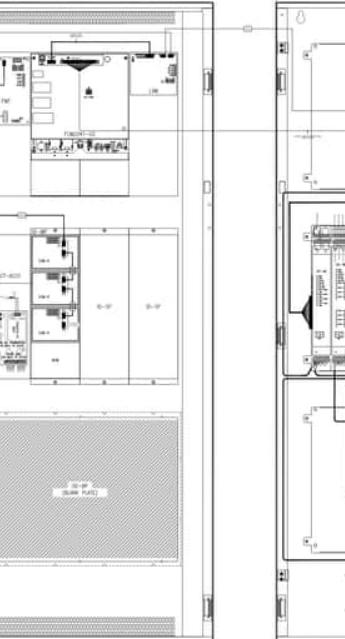
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CALCULATIONS

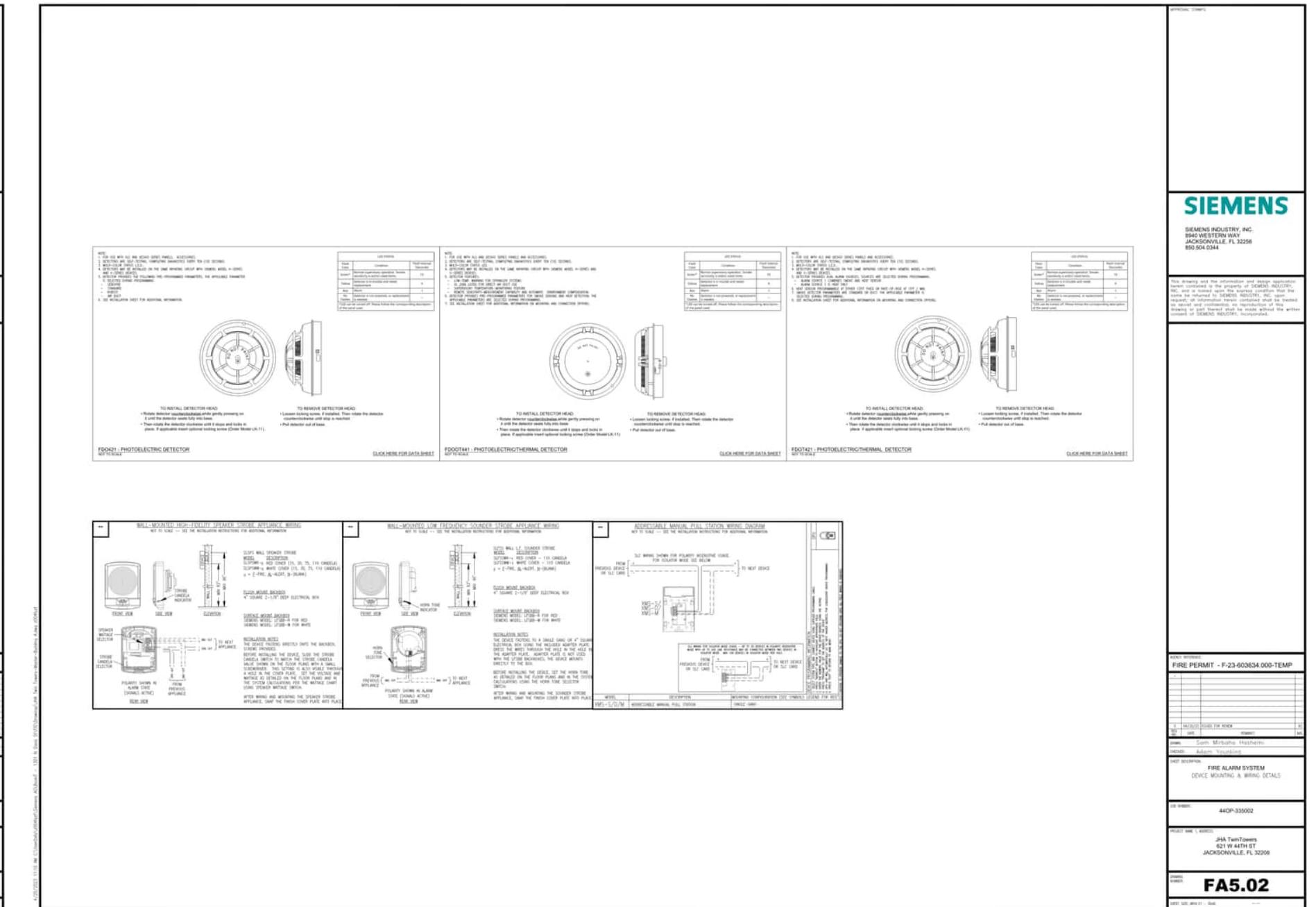
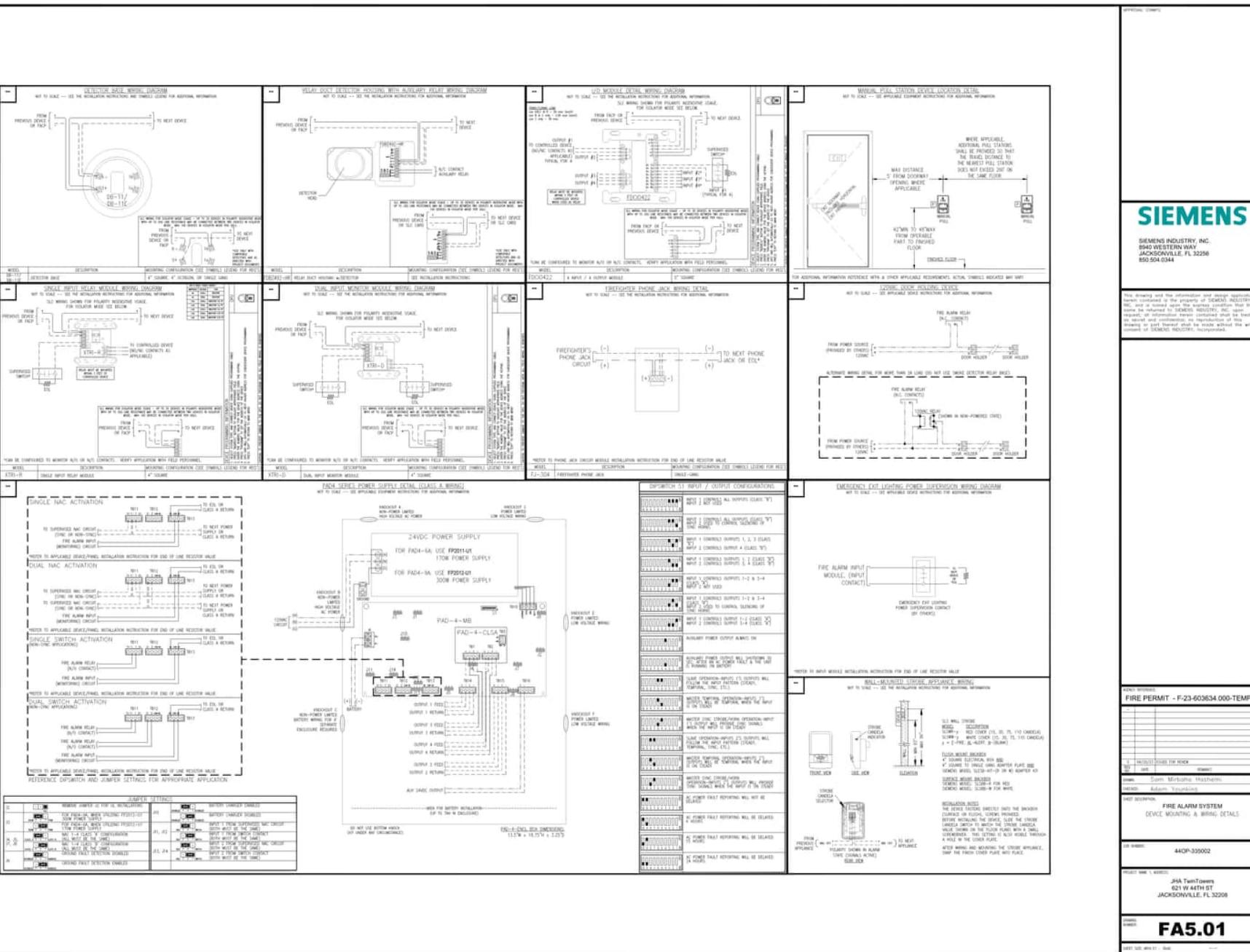
2024

BUILDING NAME:		JHA Twin Towers Building A																																																																																																																																																																																																																																																									
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<table border="1"> <thead> <tr> <th></th> <th>Standby Current (mA)</th> <th>Alarm Current (mA)</th> <th></th> </tr> <tr> <th>Device</th> <th>Total</th> <th>Individual measured</th> <th>Terminal</th> </tr> <tr> <th>Current</th> <th>Current</th> <th>Current</th> <th>Current</th> </tr> </thead> <tbody> <tr> <td>1. PFC44112</td> <td>120</td> <td>100</td> <td>100</td> </tr> <tr> <td>Power Supply/Backup Charger</td> <td>150</td> <td>150</td> <td>150</td> </tr> <tr> <td>2. 100A</td> <td>20</td> <td>20</td> <td>20</td> </tr> <tr> <td>1. PPA412</td> <td>150</td> <td>150</td> <td>150</td> </tr> <tr> <td>Power Supply/Lantern</td> <td>150</td> <td>150</td> <td>150</td> </tr> <tr> <td>2. 100A</td> <td>20</td> <td>20</td> <td>20</td> </tr> <tr> <td>1. VMT</td> <td>75</td> <td>75</td> <td>75</td> </tr> <tr> <td>Videophone Marine Telephone</td> <td>75</td> <td>75</td> <td>75</td> </tr> <tr> <td>2. 100A</td> <td>10</td> <td>10</td> <td>10</td> </tr> <tr> <td>Active LED</td> <td>4</td> <td>4</td> <td>4</td> </tr> <tr> <td>1. PPA412</td> <td>50</td> <td>50</td> <td>50</td> </tr> <tr> <td>Power Supply/Backup Charger</td> <td>100</td> <td>115.58</td> <td>25</td> </tr> <tr> <td>1. VM</td> <td>51</td> <td>51</td> <td>51</td> </tr> <tr> <td>Live Voice Microphone</td> <td>51</td> <td>51</td> <td>51</td> </tr> <tr> <td>2. 100A</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>NCM-8</td> <td>14</td> <td>14</td> <td>14</td> </tr> <tr> <td>Health Control Module</td> <td>14</td> <td>14</td> <td>14</td> </tr> <tr> <td>24</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>1. DZC400</td> <td>500</td> <td>500</td> <td>500</td> </tr> <tr> <td>Digital Zone Card</td> <td>500</td> <td>500</td> <td>500</td> </tr> <tr> <td>24</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>1. DNO4</td> <td>170</td> <td>170</td> <td>140</td> </tr> <tr> <td>Digital Message Card</td> <td>170</td> <td>170</td> <td>140</td> </tr> <tr> <td>2. 100A</td> <td>200</td> <td>200</td> <td>200</td> </tr> <tr> <td>Power Supply/Backup Charger</td> <td>200</td> <td>200</td> <td>200</td> </tr> <tr> <td>1. PAM-100</td> <td>5</td> <td>5</td> <td>5</td> </tr> <tr> <td>Speaker Load Module</td> <td>5</td> <td>5</td> <td>5</td> </tr> <tr> <td>1. DZC400</td> <td>50</td> <td>50</td> <td>50</td> </tr> <tr> <td>Digital Zone Card</td> <td>50</td> <td>50</td> <td>50</td> </tr> <tr> <td>2. 100A</td> <td>210</td> <td>210</td> <td>210</td> </tr> <tr> <td>Zone Indicating Card</td> <td>210</td> <td>210</td> <td>210</td> </tr> <tr> <td>1. DNO4</td> <td>5</td> <td>5</td> <td>5</td> </tr> <tr> <td>Digital Network Output module</td> <td>5</td> <td>5</td> <td>5</td> </tr> <tr> <td>2. 100A</td> <td>200</td> <td>200</td> <td>200</td> </tr> <tr> <td>Class A Device Loop Card</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>1. DNO4</td> <td>20</td> <td>20</td> <td>20</td> </tr> <tr> <td>Digital Network Output module</td> <td>20</td> <td>20</td> <td>20</td> </tr> <tr> <td>2. 100A</td> <td>20</td> <td>20</td> <td>20</td> </tr> <tr> <td>Photo-electric</td> <td>0.26</td> <td>0.26</td> <td>0.41</td> </tr> <tr> <td>26</td> <td>0.41</td> <td>0.41</td> <td>0.41</td> </tr> <tr> <td>1. T0007441</td> <td>24.7</td> <td>24.7</td> <td>24.7</td> </tr> <tr> <td>Dust photoelectric detector</td> <td>24.7</td> <td>24.7</td> <td>24.7</td> </tr> <tr> <td>2. 100A</td> <td>24.7</td> <td>24.7</td> <td>24.7</td> </tr> <tr> <td>1. ABSL-D</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> </tr> <tr> <td>A Manual status</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> </tr> <tr> <td>1. AT10-D</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> </tr> <tr> <td>A Duct Input module</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> </tr> <tr> <td>1. D052482-HB</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> </tr> <tr> <td>Duct Housing w/ Reheat</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> </tr> <tr> <td>1. 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Battery Size/(Total Standby A + 1.25 Safety Factor): 34.4000 Ah</td> <td></td> <td></td> </tr> <tr> <td colspan="4">DC24V Current: 7 Amps</td> </tr> </tbody> </table>					Standby Current (mA)	Alarm Current (mA)		Device	Total	Individual measured	Terminal	Current	Current	Current	Current	1. PFC44112	120	100	100	Power Supply/Backup Charger	150	150	150	2. 100A	20	20	20	1. PPA412	150	150	150	Power Supply/Lantern	150	150	150	2. 100A	20	20	20	1. VMT	75	75	75	Videophone Marine Telephone	75	75	75	2. 100A	10	10	10	Active LED	4	4	4	1. PPA412	50	50	50	Power Supply/Backup Charger	100	115.58	25	1. VM	51	51	51	Live Voice Microphone	51	51	51	2. 100A	100	100	100	NCM-8	14	14	14	Health Control Module	14	14	14	24	1	1	1	1. DZC400	500	500	500	Digital Zone Card	500	500	500	24	1	1	1	1. DNO4	170	170	140	Digital Message Card	170	170	140	2. 100A	200	200	200	Power Supply/Backup Charger	200	200	200	1. PAM-100	5	5	5	Speaker Load Module	5	5	5	1. DZC400	50	50	50	Digital Zone Card	50	50	50	2. 100A	210	210	210	Zone Indicating Card	210	210	210	1. DNO4	5	5	5	Digital Network Output module	5	5	5	2. 100A	200	200	200	Class A Device Loop Card	100	100	100	1. DNO4	20	20	20	Digital Network Output module	20	20	20	2. 100A	20	20	20	Photo-electric	0.26	0.26	0.41	26	0.41	0.41	0.41	1. T0007441	24.7	24.7	24.7	Dust photoelectric detector	24.7	24.7	24.7	2. 100A	24.7	24.7	24.7	1. ABSL-D	0.5	0.5	0.5	A Manual status	0.5	0.5	0.5	1. AT10-D	0.5	0.5	0.5	A Duct Input module	0.5	0.5	0.5	1. D052482-HB	0.5	0.5	0.5	Duct Housing w/ Reheat	0.5	0.5	0.5	1. D052482-HB	0.065	0.065	0.065	Duct Housing w/ Reheat	0.065	0.065	0.065	Total Standby Current: 12.0622 Amps				BATTERY SIZING CALCULATIONS				Total Standby Current: 2.0622 Amps		Standby Time Required:	24 hours	Total Alarm Current: 12.0622 Amps		Alarm Time Required:	15 Minutes	Total Power on Circuit: 2.2720 Watts		Standby Battery Capacity:	40 Ah	Calculated Minimum Battery: 67.0001 Ah		Type Battery Capacity:	15.50 Ah	Min. Battery Size/(Total Standby A + 1.25 Safety Factor): 34.4000 Ah				DC24V Current: 7 Amps			
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1. PPA412	Power Supply/Lantern	150	150	150	150	150	150	150	150	150	150																																																																																																																																																																																																																																																																																																																																																												
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1. VMT	Videophone Marine Telephone	75	75	75	75	75	75	75	75	75	75																																																																																																																																																																																																																																																																																																																																																												
2. 100A	100A	10	10	10	10	10	10	10	10	10	10																																																																																																																																																																																																																																																																																																																																																												
1. Active LED	Active LED	4	4	4	4	4	4	4	4	4	4																																																																																																																																																																																																																																																																																																																																																												
1. PPA412	Power Supply/Backup Charger	50	50	50	50	50	50	50	50	50	50																																																																																																																																																																																																																																																																																																																																																												
1. VM	Live Voice Microphone	51	51	51	51	51	51	51	51	51	51																																																																																																																																																																																																																																																																																																																																																												
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NCM-8	Health Control Module	14	14	14	14	14	14	14	14	14	14																																																																																																																																																																																																																																																																																																																																																												
24	1	1	1	1	1	1	1	1	1	1	1																																																																																																																																																																																																																																																																																																																																																												
1. DZC400	Digital Zone Card	500	500	500	500	500	500	500	500	500	500																																																																																																																																																																																																																																																																																																																																																												
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1. DNO4	Digital Message Card	170	170	140	17	140	230	230	230	230	230																																																																																																																																																																																																																																																																																																																																																												
2. 100A	Power Supply/Backup Charger	200	200	200	200	200	200	200	200	200	200																																																																																																																																																																																																																																																																																																																																																												
1. PAM-100	Speaker Load Module	5	5	5	5	5	5	5	5	5	5																																																																																																																																																																																																																																																																																																																																																												
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2. 100A	Power Supply/Backup Charger	210	210	210	210	210	210	210	210	210	210																																																																																																																																																																																																																																																																																																																																																												
1. AT10-D	A Duct Input module	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5																																																																																																																																																																																																																																																																																																																																																												
1. D052482-HB	Duct Housing w/ Reheat	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5																																																																																																																																																																																																																																																																																																																																																												
1. D052482-HB	Duct Housing w/ Reheat	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065																																																																																																																																																																																																																																																																																																																																																												
Total Standby Current: 12.0622 Amps																																																																																																																																																																																																																																																																																																																																																																							
BATTERY SIZING CALCULATIONS																																																																																																																																																																																																																																																																																																																																																																							
Total Standby Current: 2.0622 Amps		Standby Time Required:	24 hours																																																																																																																																																																																																																																																																																																																																																																				
Total Alarm Current: 12.0622 Amps		Alarm Time Required:	15 Minutes																																																																																																																																																																																																																																																																																																																																																																				
Total Power on Circuit: 2.2720 Watts		Standby Battery Capacity:	40 Ah																																																																																																																																																																																																																																																																																																																																																																				
Calculated Minimum Battery: 67.0001 Ah		Type Battery Capacity:	15.50 Ah																																																																																																																																																																																																																																																																																																																																																																				
Min. Battery Size/(Total Standby A + 1.25 Safety Factor): 34.4000 Ah																																																																																																																																																																																																																																																																																																																																																																							
DC24V Current: 7 Amps																																																																																																																																																																																																																																																																																																																																																																							
<table border="1"> <thead> <tr> <th colspan="12">FIRE PERMIT - F-23-60364.000-TEMP</th> </tr> <tr> <th colspan="12">FIRE ALARM SYSTEM SYSTEM CALCULATIONS</th> </tr> </thead> <tbody> <tr> <td>Device Model</td> <td>Line Resistance (ft)</td> <td>Length (ft)</td> <td>Drop (ft)</td> <td>Current (A)</td> <td>Capacitance (F)</td> <td>Inductance (H)</td> <td>Capacitance (F)</td> <td>Inductance (H)</td> <td>Capacitance (F)</td> <td>Inductance (H)</td> <td>Total On</td> </tr> <tr> <td>Speaker - 12 Volt Tap</td> <td>0.01</td> <td>0.01</td> <td>0.01</td> <td>0.01</td> <td>0.0000000000000000</td> <td>0.0000000000000000</td> <td>0.00000</td></tr></tbody></table>												FIRE PERMIT - F-23-60364.000-TEMP												FIRE ALARM SYSTEM SYSTEM CALCULATIONS												Device Model	Line Resistance (ft)	Length (ft)	Drop (ft)	Current (A)	Capacitance (F)	Inductance (H)	Capacitance (F)	Inductance (H)	Capacitance (F)	Inductance (H)	Total On	Speaker - 12 Volt Tap	0.01	0.01	0.01	0.01	0.0000000000000000	0.0000000000000000	0.00000																																																																																																																																																																																																																																																																																																																
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DEVICE WIRINGS

2024





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FIRE ALARM SYSTEM
DESIGN

PROJECT STAGES

1-ORIENTATION- TURN OVER

2-BACKGROUND CLEANUP

3-DEVICE LAYOUT

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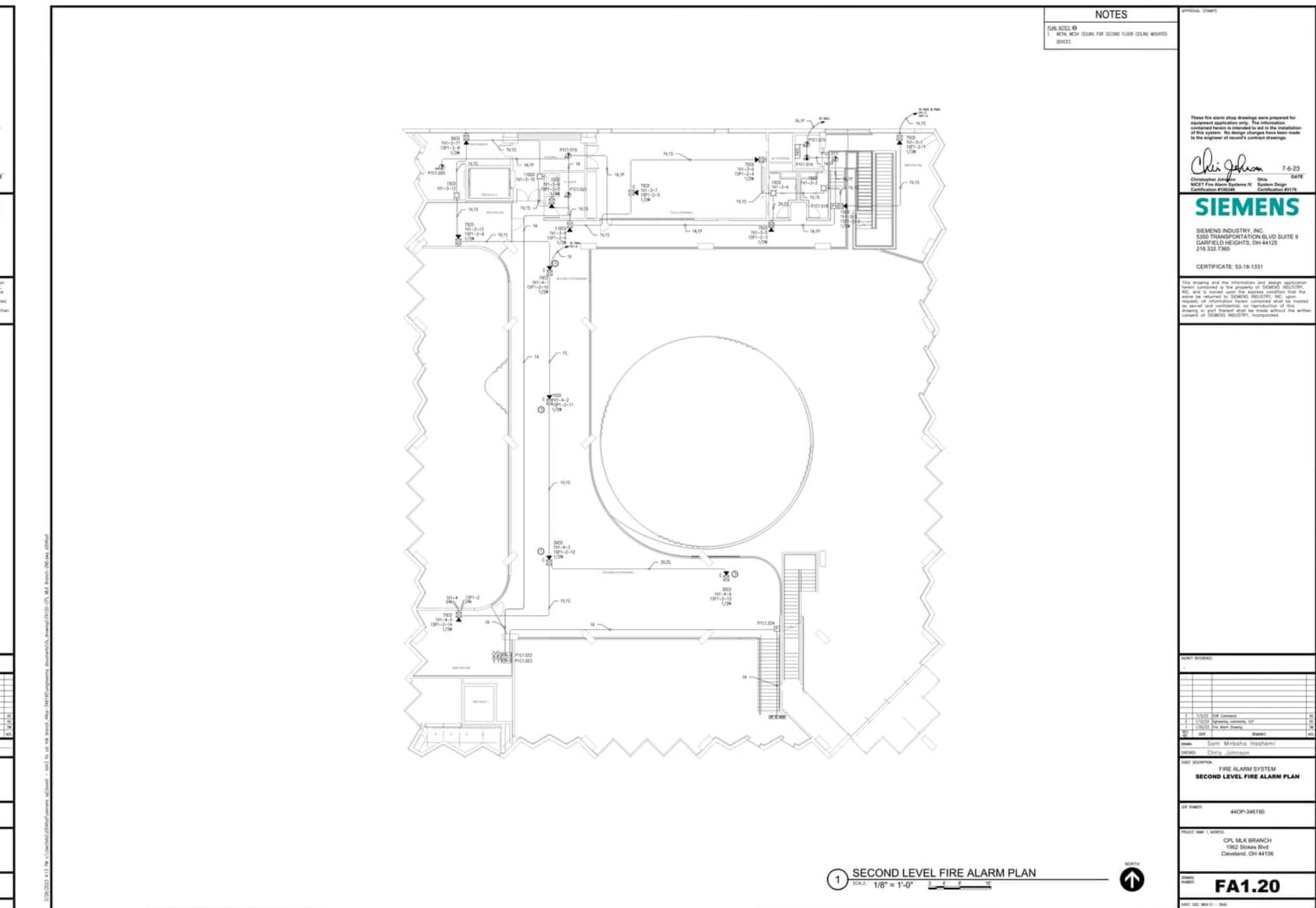
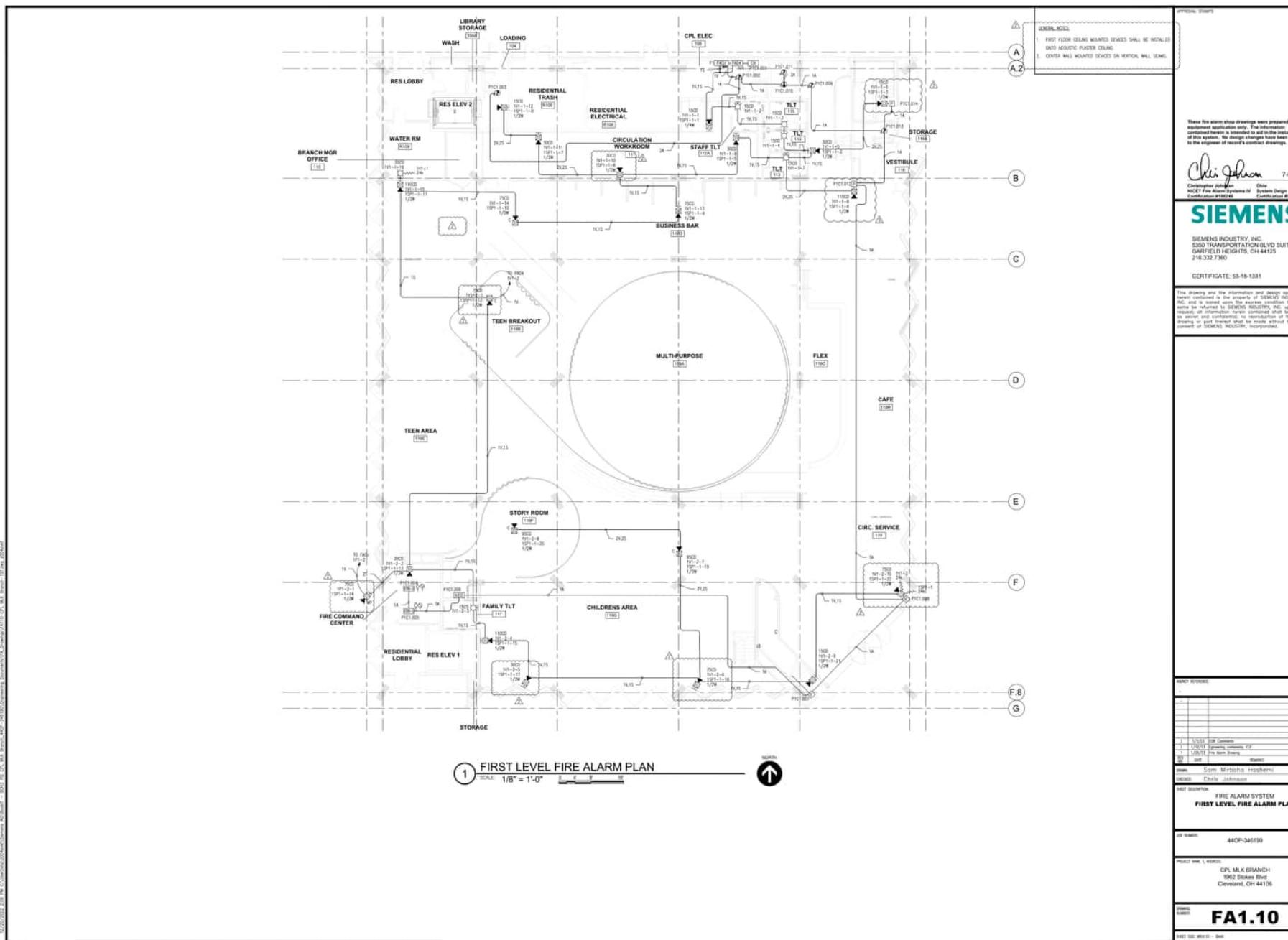
12-QUALITY CONTROL/ SUPERVISION

FIRE ALARM SYSTEMS

2024

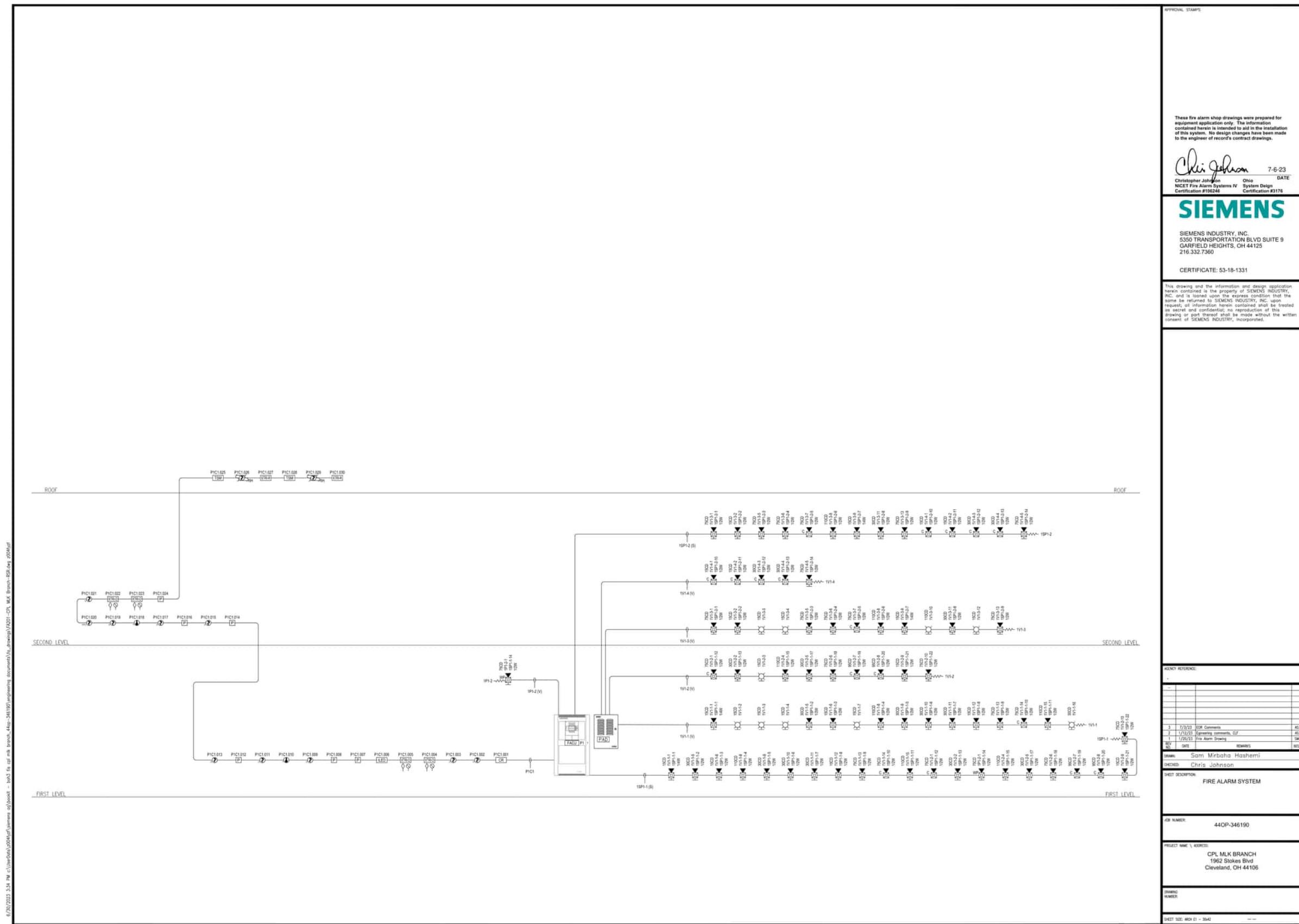
FIRE ALARM SYSTEMS

2024



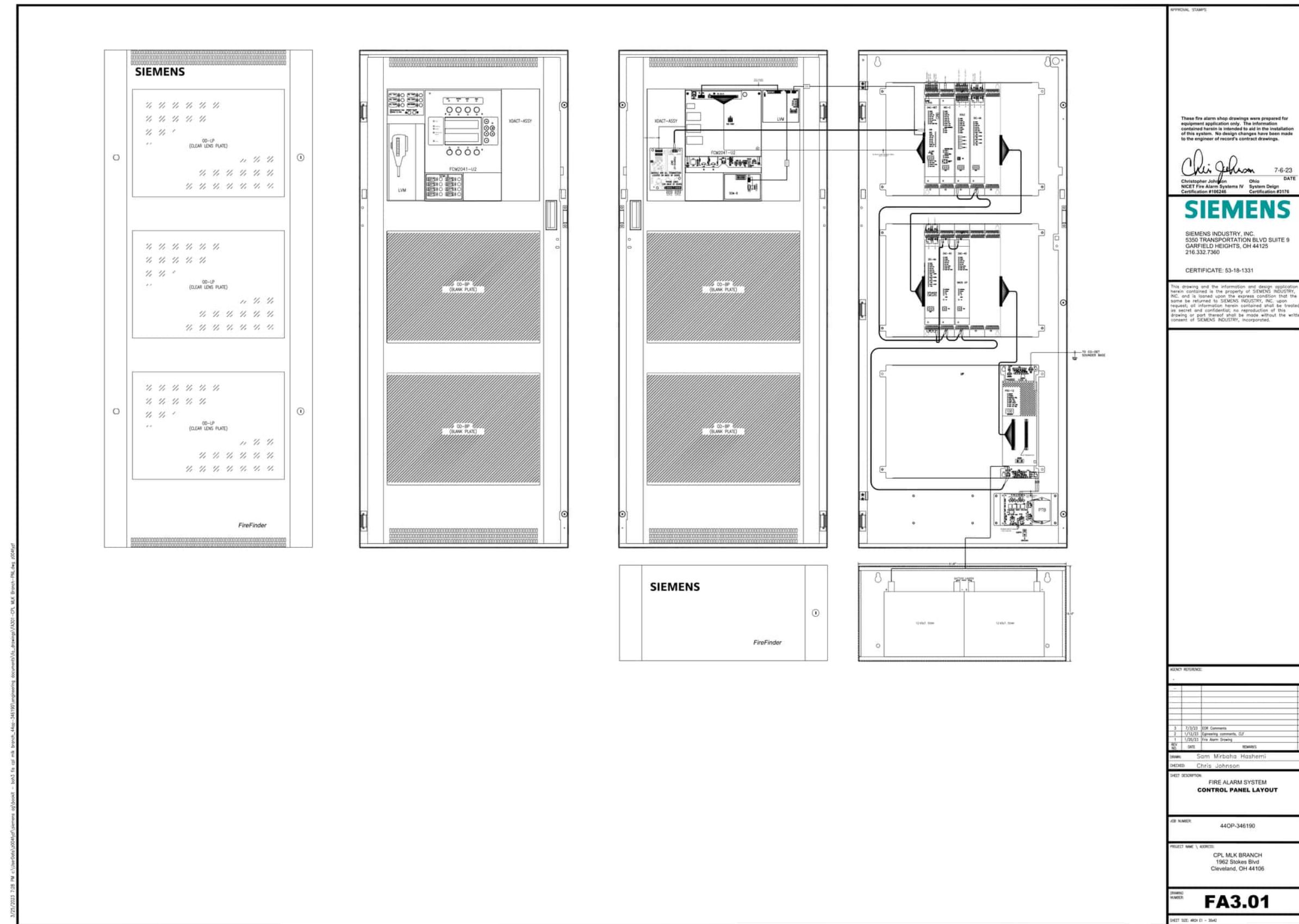
RISER DIAGRAM

2024



PANEL LAYOUTS

2024



CALCULATIONS

2024

Module	Device	Description	Qty	Power Calculations		Battery Calculations	
				Backplane Current 24V (mA)	Backplane Current 6.2V (mA)	Screw Terminal 24V Current (mA)	Standby 24 VDC Current
GDC4A	Conventional Detector	Go to the CDC-4 sheet (double click)		0.0	0.0	0.0	0.0
DAC	Digital Audio Card		1	230.0			230.0
DLC & XDLIC	XDLIC	X Device Loop Card	1	1.0	100.0	100.0	100.0
	FDOOTC441	Dual optical/thermal/CO detector	1		0.8	0.8	0.8
	FDOOTC441	Dual optical/thermal detector	20		13.6	13.6	13.6
	FDI421	Photo detector	2	0.6	0.6	0.6	0.6
	FDI421	Thermal detector	2	0.6	0.6	0.6	0.6
	XMS-S	X Manual station	17	8.5	8.5	8.5	8.5
	LVM	X Dual input module	4	3.8	3.8	3.8	3.8
	XTRI-R	X Single input/single relay module	1	0.8	0.8	0.8	0.8
	LED-HW	Intelligent LED	1	1.0	1.0	1.0	1.0
	TSM-1X	Intelligent Switch	2	1.0	1.0	1.0	1.0
	LPB	Local Page Board	1	25.0	95.0		50.0
	LVM	Live Voice Module	1		51.0	51.0	51.0
	NIC	Network Interface Card	1	120.0			120.0
	SCM	Switch Control Module	1		14.0	14.0	14.0
	Switch	Active Pushbutton Switch	8	8.0	8.0	8.0	8.0
ZAC		Zone Amplifier Card	1	151.0	151.0	151.0	151.0
ZAC		Total Speaker Wattage	17.5			927.5	
ZAC Backup		Zone Amplifier Card - Backup	1	150.0		150.0	
Total ZCs	Zone Indicating Cards	Go to the ZC sheet (double click)		0.0	0.0	0.0	6331.0
PSC-12		Power Supply Card 288 Watts	1				178.0
PSC Relay		Active Relay on the PSC					0.0
See Note 1		AUX Standby Current [mA] on A.C.					
See Note 1		AUX Alarm Current [mA] on A.C.					
See Note 1		AUX Standby Current on Battery [mA]					
See Note 1		AUX Alarm Current on Battery [mA]					
Total [A]				0.3750	0.0960	0.5043	7.6130
							1.2325

Parameter	Max value	Actual value	Result
24V Backplane Current	2A	0.375	OK
6.2V Backplane Current	2A	0.096	OK
Total 24V Standby Current	5	0.880	OK
Total 24V Alarm Current	12A * Number of PS	7.968	OK

Parameter	Max value	Actual value	Result
Max Standby [hrs]	24		
Warning: 90 hours required for Pre-Action or Deluge systems (may be less if an engine driven generator is provided)			
Max Alarm [min]	15		
Battery capacity reserve [%]	20		

Required Battery Capacity [AH]	31.48
Required Battery Capacity with reserve [AH]:	37.78

Parameter	Max value	Actual value	Result
24V Backplane Current	2A	0.375	OK
6.2V Backplane Current	2A	0.096	OK
Total 24V Standby Current	5	0.880	OK
Total 24V Alarm Current	12A * Number of PS	7.968	OK

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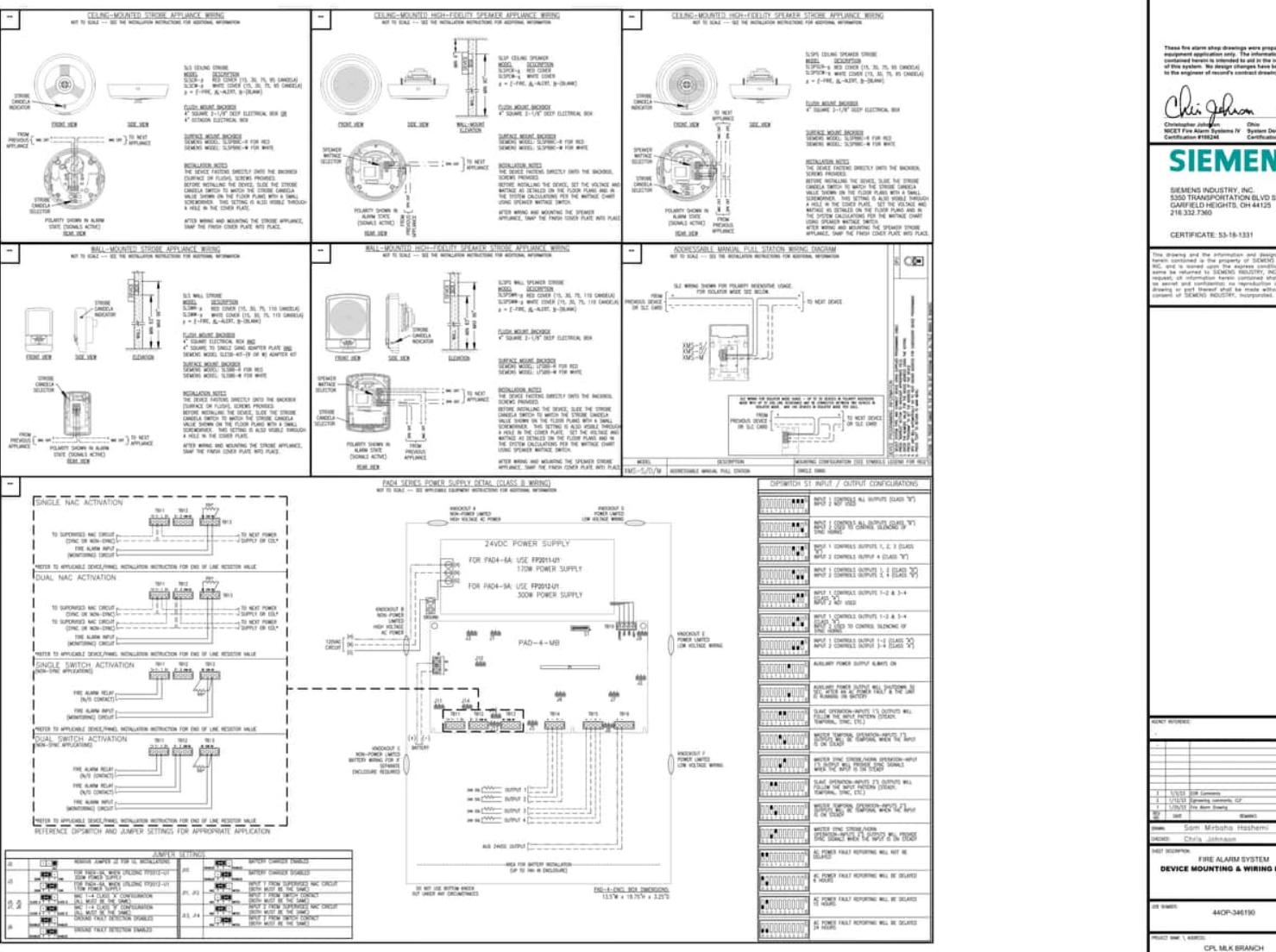
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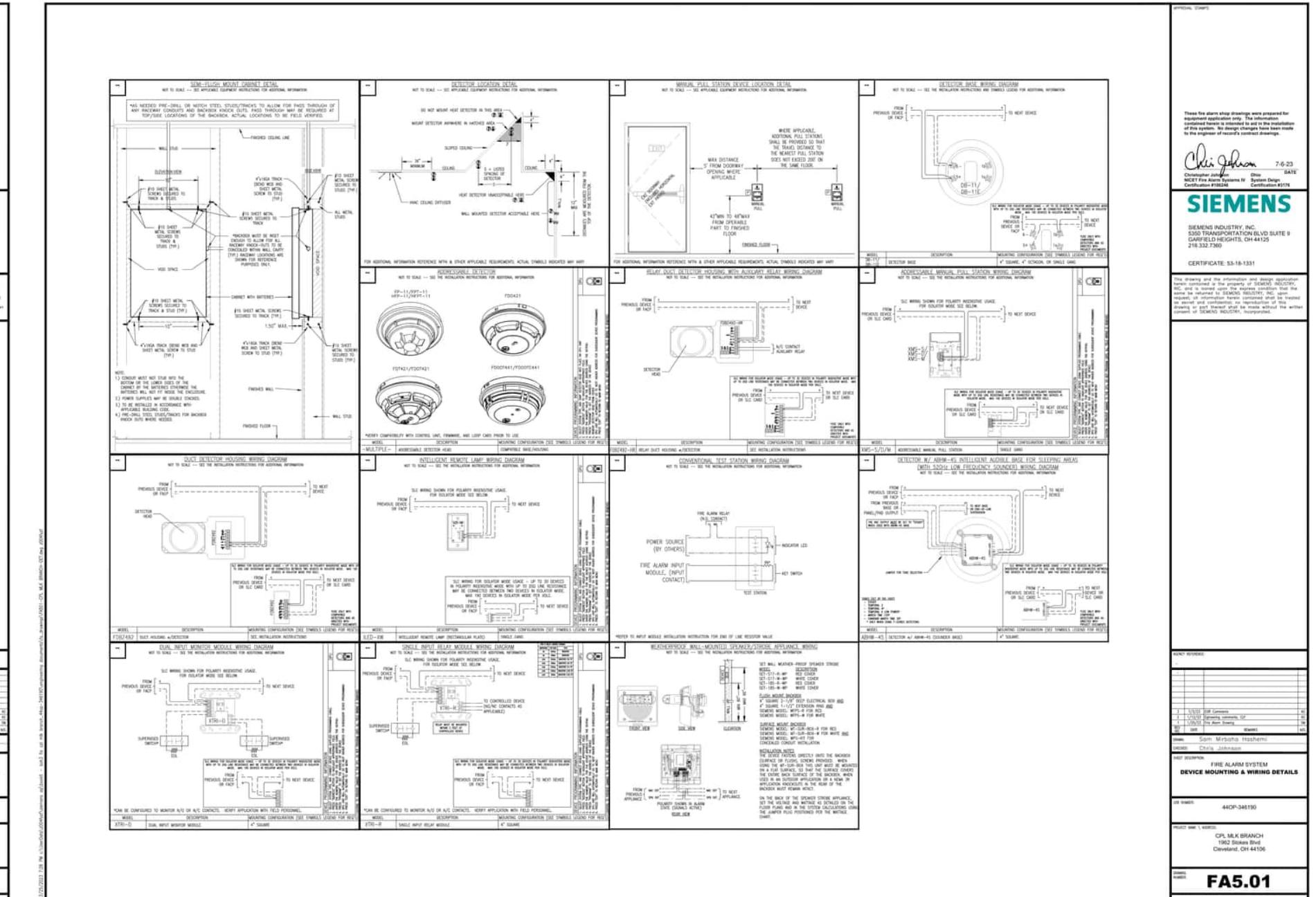
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DEVICE WIRINGS

2024



FA5.02



SIEMENS MENTORSHIP PROGRAM



FIRE ALARM SYSTEM
DESIGN

PROJECT STAGES

1-ORIENTATION- TURN OVER

2-BACKGROUND CLEANUP

3-DEVICE LAYOUT

4-DEVICE ADDRESSING

5-POINT TO POINT/ CONDUIT LAYOUT

6-RISER DIAGRAM

7-CALCULATIONS(BATTERY, VOLTAGE ETC)
PANEL LAYOUT AND DETAILS

8-SMOKE CONTROL PANEL LAYOUT

9-SUPPORT PAGES (COVER-MATRIX-ETC)

10-CREATE DRAWING SET

11-PRINTING AND SUBMITTAL ASSEMBLY/EFS MAINTENANCE

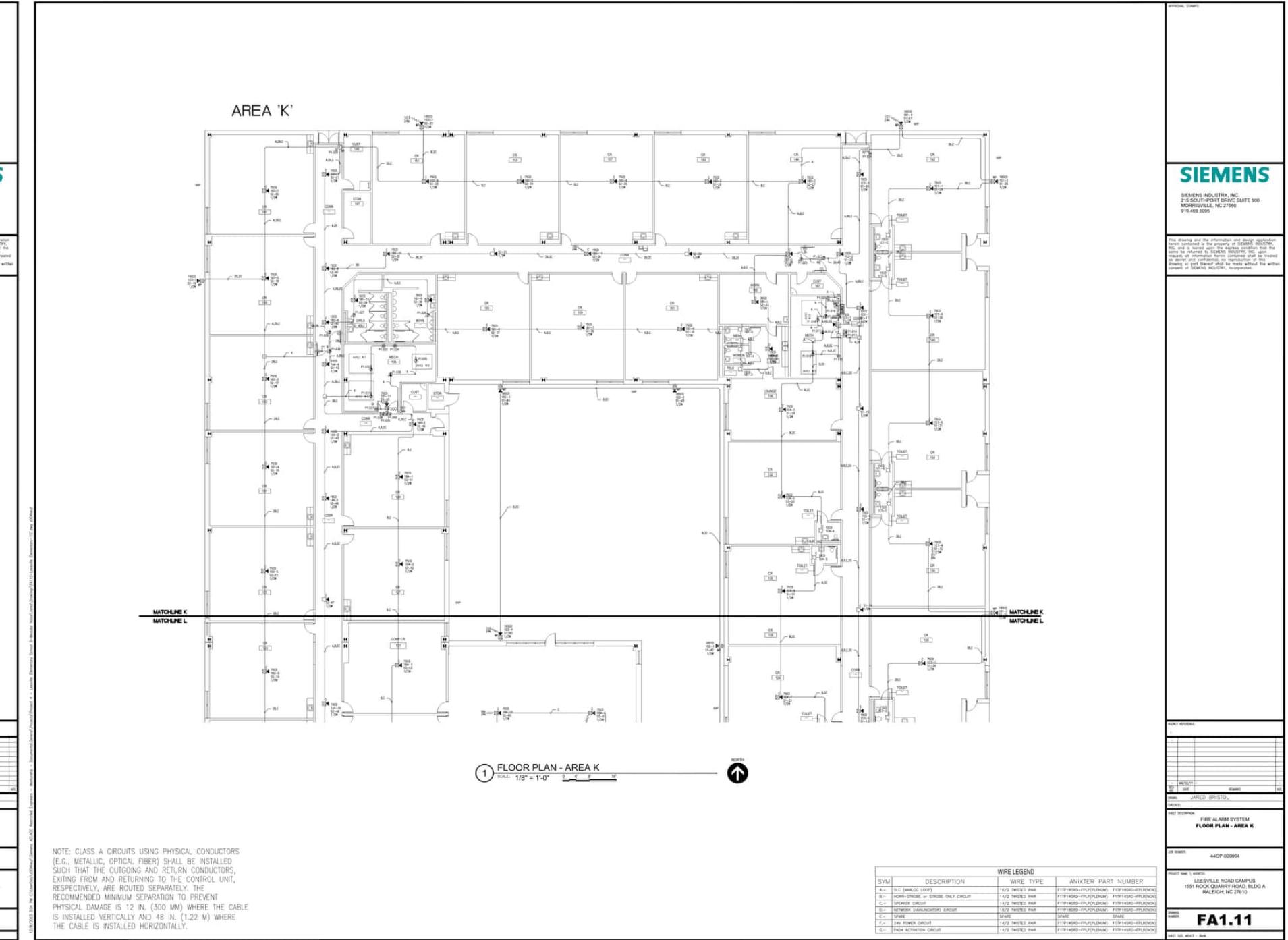
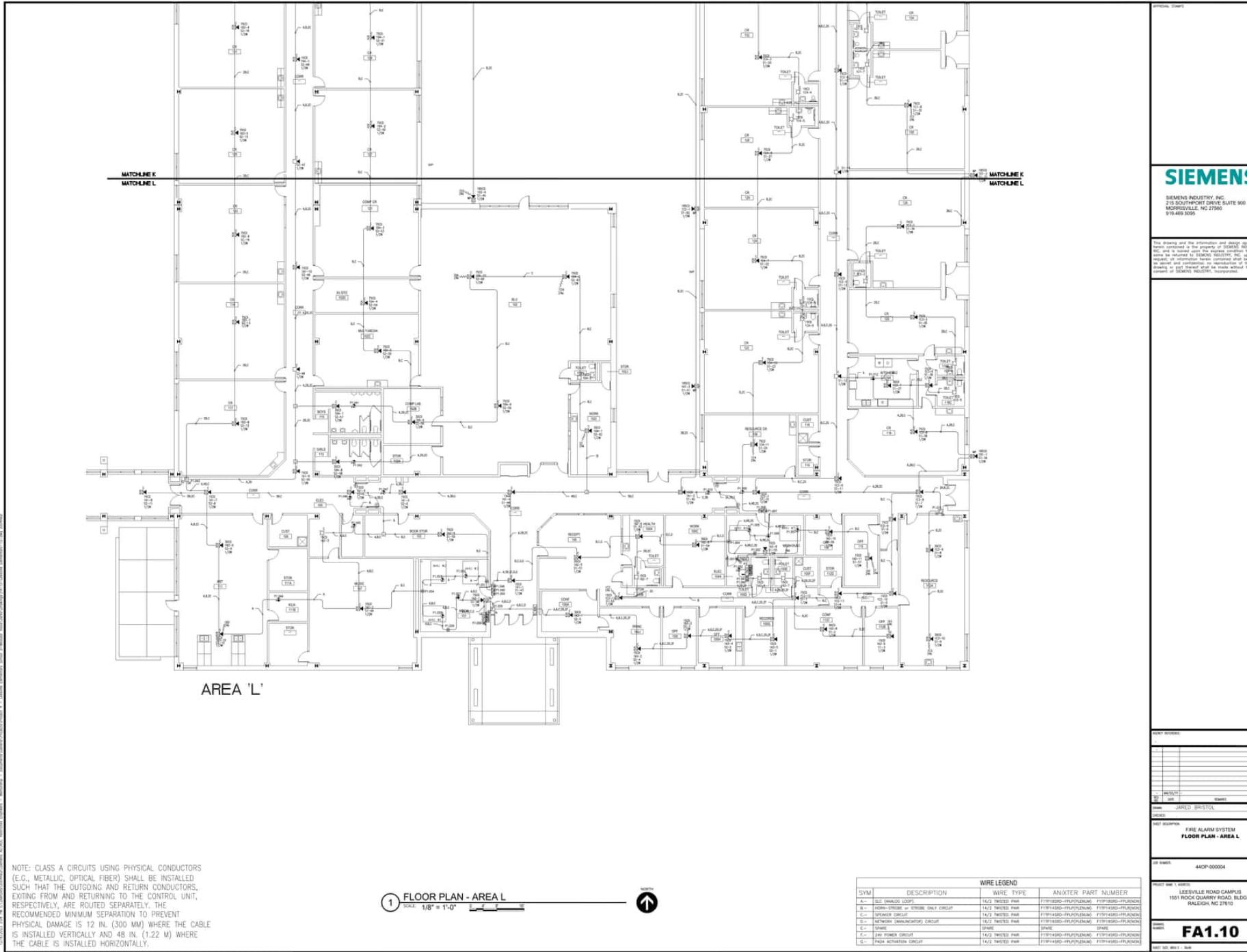
12-QUALITY CONTROL/ SUPERVISION

FIRE ALARM SYSTEMS

SCOPE OF WORK		CHECK LIST FOR START UP		SYMBOL LEGEND		APPROVAL STAMPS																																																																																																																																																													
<p>GENERAL NOTES</p> <p>1. SIEMENS EQUIPMENT IS UNDERWRITERS LABORATORIES (UL) LISTED FOR POWER LIMITED INSTALLATION. 2. ALL RACEWAY RUNS INDICATED WITHIN THIS DRAWING PACKAGE ARE SHOWN DIAGRAMMATICALLY AND ARE FOR CIRCUIT PURPOSES ONLY. ALL RUNS SHOWN SHOULD NOT SERVE IN ANY WAY AS AN ACTUAL ROUTE OR LOCATION FOR FIELD RACEWAYS. EXACT INSTALL LOCATION SHALL BE FIELD DETERMINED. 3. A STAMPED SET OF APPROVED FIRE ALARM PLANS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION. ANY DEVIATION FROM APPROVED PLANS, INCLUDING THE SUBSTITUTION OF DEVICES SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION, INSPECTOR OF RECORD. SIEMENS SHALL NOT BEAR ANY ADDITIONAL COST FOR RE-ENGINEERING AS A RESULT OF DEVIATIONS. 4. UNLESS OTHERWISE NOTED, ALL MANUAL PULL STATIONS SHALL BE MOUNTED AT A MAXIMUM HEIGHT OF 48" ABOVE FINISHED FLOOR TO THE OPERABLE PART. 5. WIRING SHALL NOT BE LOODED UNDER DEVICE TERMINALS. WIRE MUST BE CUT FOR IN AND OUT RUNS PRIOR TO INSTALLING UNDER DEVICE TERMINALS. 6. ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO USE COLOR CODE WIRE NUMBERS 18 AWG SPECIFIED IN THE DRAWINGS. ALL COLOR CODES AND SURE IDENTIFICATIONS SHALL BE MADE CONVENTIONAL THROUGHOUT ALL FIRE ALARM CIRCUITS, CONNECTIONS, TERMINATIONS AND AT JUNCTION BOXES. 7. WHERE SHIELDED CABLE IS USED, THE SHIELD SHALL BE CONTINUOUS AND GROUNDED ONLY ONCE AT THE RESPECTIVE CONTROL PANEL. 8. T-TAPPING IS ONLY ACCEPTABLE ON SLC CLASS B CIRCUITS EXCEPT WHERE CONTRACT SPECIFICATIONS PROHIBIT. 9. ALL INITIATING DEVICES AND ANNUNCIATOR PANELS SHALL BE SUPERVISED TO THE PRINCIPAL POINT OF ANNUNCIATION (FIRE ALARM CONTROL PANEL(S)) TO SUPERVISE ANNUNCIATOR PANEL(S), ALL CIRCUITS AND INITIATING DEVICES. 10. FIRE ALARM SIGNAL SHALL MEET ANSI S3.41, AUDIBLE EMERGENCY EVACUATION SIGNAL (TEMPORAL PATTERN). FIRE ALARM AUDIBILITY SHALL BE NO LESS THAN 15dB (PUBLIC MODE) OR 10dB (PRIVATE MODE) ABOVE AMBIENT SOUND THROUGHOUT THE AREA OF ALARM. 11. WHERE MORE THAN TWO VISUAL APPLIANCES ARE IN THE SAME FIELD OF VIEW, THEY SHALL BE SINGLED OUT AND INDIVIDUALLY ADDRESSABLE. 12. OUTDOOR MOUNTED VISUAL NOTIFICATION APPLIANCES SHALL BE MOUNTED BELOW VISUAL OBSTRUCTIONS, AND WHEN THESE APPLIANCES ARE MOUNTED ABOVE 10' AFF, THEY SHALL BE DERATED OR PROVIDED WITH PERFORMANCE-BASED ALTERNATIVE IN ACCORDANCE WITH NFPA 72. 13. INSTALLATION OF DEVICES SHALL BE IN ACCORDANCE WITH MANUFACTURER INSTALLATION INSTRUCTIONS AND LISTINGS. MISAPPLICATION OF EQUIPMENT AND SUCH VOID ALL WARRANTIES EITHER EXPRESSED OR IMPLIED WITH REGARD TO THE EQUIPMENT AND ITS SERVICE PERIODS. 14. UNLESS NOTED OTHERWISE ALL WIRING AND INSTALLATION METHODS SHALL CONFORM TO APPLICABLE ELECTRICAL CODE. MINIMUM SIZE OF 1/4" METALLIC RACEWAY SHALL BE INSTALLED. 15. EFFORTS MUST BE PLACED ON PLACEMENT OF UNNECESSARY WIRE RUNS WITHIN DEVICE BACKBOXES. DO NOT PLACEMENT WIRE RUNS WITHIN A BACKBOX IF IT DOES NOT SERVE ITS CORRESPONDING DEVICE AND WHICH MAY INHIBIT ITS PROPER INSTALLATION. GOOD WIRING/INSTALLATION PRACTICES MUST BE ADHERED TO AT ALL TIMES. 16. AS FIELD CONDITIONS DICTATE ACTUAL RACEWAY INSTALLATIONS, DEVICE BACK BOXES AND JUNCTION BOXES SHALL BE SIZED PER FIELD INSTALLING CONDITIONS. DEVICE BACK BOX SIZES INDICATED WITHIN THIS DRAWING PACKAGE ARE MINIMUM REQUIREMENTS ONLY. AN INCREASE IN BACK BOX DEPTH, ADDITION OF EXTENSION BOX/BOXES, ETC. MAY BE REQUIRED IN ORDER TO PROPERLY ACCOMMODATE FOR THE QUANTITY OF WIRE AND THE LENGTH OF THE WIRE. 17. THE INSTALLATION OF DEVICE BACKBOXES & WIRE SHALL BE SIZED AND INSTALLED PER APPLICABLE ELECTRICAL CODE. IN ADDITION SUCH BOXES & WIRE SHALL BE INSTALLED IN A MANNER AS TO ALLOW FOR THE EASE OF DEVICE INSTALLATION & FUTURE MAINTENANCE. THE INSTALLATION OF DEVICES SHALL BE SECURED BY PUNCHING HOLES IN THE BACK BOX AND TIGHTLY SEAT THE DEVICE TO ITS FINISHED SURFACE. MAY RESULT IN CRIMPING FAILURES OR OTHER SYSTEM TROUBLES, AND SHALL BE CONSIDERED AN UNACCEPTABLE INSTALLATION STANDARD. 18. DO NOT APPLY POWER TO CONTROL PANEL(S) UNTIL A SIEMENS TECHNICIAN HAS CHECKED THE SYSTEM. INSTALLATION UPON CONTRACTOR'S COMPLETION OF THEIR INSPECTION, POWER WILL BE APPLIED TO THE CONTROL PANEL(S). SIEMENS ASSUMES NO LIABILITY FOR ANY DAMAGE TO THE EQUIPMENT SUPPLIED IF POWER IS APPLIED TO THE CONTROL PANEL(S) PRIOR TO INSPECTION OF THE SYSTEM BY SIEMENS TECHNICIAN. 19. ALL 120VAC CIRCUITS FEEDING FIRE ALARM EQUIPMENT SHALL BE DEDICATED TO A BREAKER LOCK-ON DEVICE AND LABELED "FIRE ALARM". BREAKER ON DEVICE SHALL BE PAINTED RED WHERE REQUIRED BY CONTRACT DOCUMENTS OR JURISDICTIONAL REQUIREMENTS. 20. IN THE EVENT THAT THE CONTRACTOR LOCATES ADDITIONAL CIRCUITS NECESSARY TO THE CONTRACTED WORK INDICATED WITHIN THIS DRAWING PACKAGE, SUCH GENERAL NOTES SHALL NOT BE APPLICABLE TO ANY EXISTING CONDITIONS WITHIN THE FACILITY, I.E. EXISTING CONDITIONS FOUND TO BE PRESENT PRIOR TO THIS CONTRACT WORK PREVIOUSLY PERFORMED BY OTHER FIRE ALARM CONTRACTORS. DEPARTMENT OF DEFENSE IS RELATED TO THIS CONTRACT, SYSTEM PREVIOUSLY APPROVED UNDER PAST CODES / REGULATIONS, ETC. 21. FOR ADDITIONAL INSTALLATION INSTRUCTIONS, REFER TO CATALOG CUT SHEETS AND/OR INSTALLATION INSTRUCTIONS. 22. PER NFPA 72, DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER THE CONSTRUCTION CLEAN-UP OF ALL TRADES IS COMPLETE AND FINAL. EXCEPTION: WHERE REQUIRED BY THE AUTHORITY HAVING JURISDICTION FOR PROTECTION DURING CONSTRUCTION, DEVICES SHALL BE INSTALLED PRIOR TO FINAL CLEAN-UP IF ALL TRADES SHALL BE CLEANED OR REPLACED (IN ACCORDANCE WITH NFPA 72). 23. THESE DRAWINGS DEPICT GENERAL LOCATIONS OF LIFE SAFETY EQUIPMENT & FIELD DEVICES, EXACT ROUTING OF THE CONDUITS TO BE DETERMINED BY THE CONTRACTOR TO SUIT CONDITIONS. ALL CHANGES SHALL BE CLEARLY INDICATED ON THE RECOM DRAWINGS. 24. FIRE ALARM CIRCUITS INSTALLED IN UNDERGROUND CONDUIT OR OTHER WET LOCATIONS SHALL BE UL LISTED FOR WET LOCATIONS.</p>		<p>CHECK LIST FOR START UP</p> <p>THE FOLLOWING IS A LIST OF CRITERIA THAT MUST BE MEET PRIOR TO START UP</p> <ul style="list-style-type: none"> <input type="checkbox"/> MARK-UP THE SIEMENS FIRE SAFETY SHOP DRAWINGS, SHOWING THE ACTUAL WIRE RUNS. NOTE ANY DISCREPANCIES/CHANGES BETWEEN THE ACTUAL CONDITIONS AND THE SYSTEM DRAWINGS SHOULD BE NOTED FOR INCLUSION ON THE FINAL AS-BUILT DRAWINGS OF RECORD. <input type="checkbox"/> ALL DEVICES HAVE BEEN INSTALLED AND TERMINATED PROPERLY. <input type="checkbox"/> CONTACTED SIEMENS FIRE SAFETY PROJECT MANAGER TEN DAYS PRIOR TO SCHEDULED START UP. <input type="checkbox"/> IF YOUR SYSTEM IS BEING FURNISHED WITH A DIALER, APPROPRIATE AMOUNT OF DIALER PHONE JACKS MUST BE INSTALLED WITHIN 3FT OF THE MAIN FIRE ALARM CONTROL UNIT. THESE PHONE LINES MUST BE CONNECTED BEFORE TO ALL BUILDING PHONE EQUIPMENT (NO "S" PREFIX), AND SHOULD HAVE NO DIAL-OUT RESTRICTION. PROVIDE THE SIEMENS PROJECT MANAGER WITH A CUSTOMER EMERGENCY CALL LIST. IF MONITORING NOT PROVIDED BY SIEMENS, THEN FOLLOWING INFORMATION MUST ALSO BE OBTAINED TO SET UP CENTRAL ACCOUNT NUMBER, RECEIVER PHONE NUMBER, AND LOCAL STATION VOLUME LINE NUMBER/S. ALARM COMPANY PHONE NUMBER. <input type="checkbox"/> ALL FIELD DEVICES, SMOKE DETECTORS, MONITOR MODULES, CONTROL MODULES, NOTIFICATION APPLIANCES BOTH VISUAL AND AUDIBLE ARE ADDRESSED AND OUTPUT SET (AS REQUIRED) AND INSTALLED. <p>CHECK FIELD WIRING WITH AN OHM METER</p> <p>ALL FIRE ALARM CIRCUITS SHOULD BE COMPLETED AND TESTED BEFORE THE ARRIVAL OF THE FIRE ALARM TECHNICAL. CIRCUITS MUST BE FREE OF OPEN, SHORTS, AND GROUND FAULTS BEFORE BEING CONNECTED TO THE SYSTEM. CIRCUITS SHOULD HAVE END OF LINE RESISTORS INSTALLED BEFORE TESTING THEM. A WRITTEN CONFIRMATION SHALL BE PROVIDED TO SIEMENS BY THE INSTALLER ACKNOWLEDGING ALL CIRCUITS HAVE BEEN TESTED. ADHERENCE TO THIS PRACTICE WILL SAVE TIME AND MONEY FOR ALL CONCERNED PARTIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TEST THE CIRCUITS THAT CONTROLS THE SYSTEM.</p> <p>A GROUND FAULT IS A CONDUCTOR THAT IS CONNECTED TO GROUND. THEY CAN OCCUR FROM TRIMMED INDUCTION COUPLED CIRCUITS, GROUND FAULTS IN THE SYSTEM, OR FROM THE GROUNDING AND NEGATIVE CONDUCTORS FOR SHORTS TO GROUND. SHORTS CAN BE DETECTED BY MEASURING THE CONTINUITY OF THE GROUND FAULT. SIMPLY CONNECT ONE LEAD OF YOUR METER TO A GOOD GROUND SOURCE AND THE OTHER TO THE CONDUCTOR YOU ARE TRYING TO TEST. THE METER SHOULD GIVE AN INDICATION OF AN OPEN CIRCUIT OR FREE FROM A FAULT. ALL SYSTEM FIELD WIRING MUST BE GROUNDED AND SHORTS, BEFORE THE START UP.</p> <p>MEASURE EACH CONDUCTOR OF THE ACCESSIBLE LOOP (SLC) GND CONDUCTOR TO CONTROL CONDUCTOR, GND CONDUCTOR TO GND CONDUCTOR. THE RESISTANCE SHOULD BE GREATER THAN 1 MEGA OHM. NOTE LINE TO LINE MEASUREMENTS REQUIRE ONE END OF THE PAIR TO BE SHORTED. STRAY VOLTAGES SHOULD BE LESS THAN 1 VDC/AC. RECORD THE READING.</p> <p>MEASURE EACH CONDUCTOR OF THE NOTIFICATION APPLIANCE CIRCUIT (NAC) TO GROUND, AND CONDUCTOR TO CONDUCTOR. THE RESISTANCE SHOULD BE GREATER THAN 1 MEGA OHM, WITHOUT THE END OF LINE RESISTOR. STRAY VOLTAGES SHOULD BE LESS THAN 1 VDC/AC.</p> <p>MEASURE ACROSS THE CONDUCTORS OF A NOTIFICATION APPLIANCE CIRCUIT(NAC), YOUR READING SHOULD BE EQUAL TO THE VALUE OF THE END OF LINE RESISTOR INSTALLED AT THE LAST DEVICE.</p> <p>IF THE MEASUREMENTS ARE NOT WITHIN THE ACCEPTABLE VALUES, THE CIRCUIT WIRING HAS A SHORT OR AN OPEN, AND IS NOT READY FOR START UP!</p>		<table border="1"> <thead> <tr> <th>ITEM NO.</th> <th>SYMBOL</th> <th>QTY.</th> <th>TOTAL</th> <th>SYMBOL LEGEND</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>LANN</td> <td>1</td> <td></td> <td>ANNUNCIATOR</td> </tr> <tr> <td>2</td> <td>FACU</td> <td>1</td> <td></td> <td>FIRE ALARM CONTROL UNIT</td> </tr> <tr> <td>3</td> <td>PACM</td> <td>4</td> <td></td> <td>POWER EXTENDER MODULE</td> </tr> <tr> <td>4</td> <td>SURGE</td> <td>5</td> <td></td> <td>SURGE SUPPRESSOR</td> </tr> <tr> <td>5</td> <td>HA</td> <td>6</td> <td></td> <td>HEAT DETECTOR</td> </tr> <tr> <td>6</td> <td>MM</td> <td>4</td> <td></td> <td>MINI MONITOR MODULE X-SER.</td> </tr> <tr> <td>7</td> <td>PA</td> <td>5</td> <td></td> <td>PULL STATION - DUAL ACTION</td> </tr> <tr> <td>8</td> <td>IO</td> <td>12</td> <td></td> <td>INPUT/OUTPUT MODULE X-SER.</td> </tr> <tr> <td>9</td> <td>OD</td> <td>10</td> <td></td> <td>DUCT DETECTOR</td> </tr> <tr> <td>10</td> <td>SD</td> <td>10</td> <td></td> <td>DUCT DETECTOR HOUSING</td> </tr> <tr> <td>11</td> <td>SD</td> <td>15</td> <td></td> <td>SMOKE DETECTOR</td> </tr> <tr> <td>12</td> <td>TS</td> <td>10</td> <td></td> <td>TEST SWITCH</td> </tr> <tr> <td>13</td> <td>SP</td> <td>7</td> <td></td> <td>SPEAKER</td> </tr> <tr> <td>14</td> <td>ST</td> <td>97</td> <td></td> <td>SPEAKER/STROBE</td> </tr> <tr> <td>15</td> <td>HP</td> <td>11</td> <td></td> <td>SPEAKER/STROBE</td> </tr> <tr> <td>16</td> <td>HS</td> <td>4</td> <td></td> <td>SPEAKER/STROBE</td> </tr> <tr> <td>17</td> <td>CO</td> <td>19</td> <td></td> <td>STROBE</td> </tr> <tr> <td>18</td> <td>HD</td> <td>8</td> <td></td> <td>DOOR HOLDER</td> </tr> </tbody> </table>		ITEM NO.	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<p>VICINITY MAP</p> <p>SIEMENS</p> <p>SIEMENS INDUSTRY, INC. 215 SOUTHPORT DRIVE SUITE 900 RALEIGH, NC 27609 919.499.5095</p> <p>This drawing and the information and design specifications herein contained is the property of SIEMENS INDUSTRY, INC. This drawing and the information and design specifications herein contained may not be reproduced without the written consent of SIEMENS INDUSTRY, INC. The same may be referred to SIEMENS INDUSTRY, INC. or its subsidiaries. Any unauthorized reproduction of this drawing and the information and design specifications herein contained or any part thereof shall be made without the written consent of SIEMENS INDUSTRY, INC., incorporated.</p>																																																																																																																																																																			
<p>DEVICE INSTALLATION/OPERATING GUIDELINES</p> <p>The UL listed operating temperature range for all addressable devices is from 32°F (0°C) to 107°F (40°C). If a device is shown in an area which may experience extreme cold or heat, contact your Siemens representative.</p> <p>Fire alarm equipment shall not be allowed to get wet or allow to be exposed to the elements exceeding normal operating conditions. Listed weatherproof devices are designed to operate in places at an exterior location. All other devices not specifically listed as weatherproof must be installed in listed NEMA enclosures applicable to the anticipated environment and devices.</p> <p>DO NOT INSTALL ANY ADDRESSABLE DEVICES UNTIL THEY HAVE BEEN PROPERLY PROGRAMMED. CONTACT SIEMENS - FDS DIVISION IN ORDER TO SCHEDULE ANY REQUIRED PROGRAMMING.</p> <p>DO NOT REMOVE DUST COVERS FROM SMOKE DETECTORS UNTIL ALL CONSTRUCTION HAS BEEN COMPLETED. DUST COVERS WHICH HAVE BEEN REMOVED FROM ANY DETECTOR PRIOR TO THE FINAL CLEAN-UP OF ALL TRADES SHALL BE CLEANED OR REPAINTED ACCORDING TO THE NFPA 72. NFPA 72 REQUIRES THAT SMOKE DETECTORS NOT BE REPAINTED AS IT MAY CAUSE UNDESIRABLE EFFECTS TO THE DETECTOR.</p> <p>DO NOT ATTACH ANY MAGNETS FOR PURPOSE OF TESTING DETECTORS FOR INITIATION OF AN ALARM IS STRICTLY PROHIBITED. TESTING WITH A MAGNET DOES NOT SATISFY NFPA 72 METHOD REQUIREMENT OF "SMOKE ENTRY INTO THE SENSING CHAMBER", AND MAY CAUSE UNDESIRABLE EFFECTS TO THE DETECTOR.</p> <p>The painting or modifying of fire alarm equipment is strictly prohibited and should not be performed under any circumstances. (smoke detectors, audio / visual appliances, manual pull stations, etc.)</p>		<p>WIRE LEGEND</p> <table border="1"> <thead> <tr> <th>SYM</th> <th>DESCRIPTION</th> <th>WIRE TYPE</th> <th>ANXISTER PART NUMBER</th> </tr> </thead> <tbody> <tr> <td>A-</td> <td>TELE DANOLIS LOOP</td> <td>1/2" TWISTED PAIR</td> <td>F1P11800-FPUFLDNU</td> </tr> <tr> <td>B-</td> <td>HORN-STROBE OR STROBE ONLY CIRCUIT</td> <td>1/2" TWISTED PAIR</td> <td>F1P11800-FPUFLDNU</td> </tr> <tr> <td>C-</td> <td>NOTIFICATION APPLIANCE CIRCUIT</td> <td>1/2" TWISTED PAIR</td> <td>F1P11800-FPUFLDNU</td> </tr> <tr> <td>D-</td> <td>NETWORK (ANNUNCIATOR) CIRCUIT</td> <td>1/2" TWISTED PAIR</td> <td>F1P11800-FPUFLDNU</td> </tr> <tr> <td>E-</td> <td>SPARE</td> <td>SPARE</td> <td></td> </tr> <tr> <td>F-</td> <td>24V POWER CIRCUIT</td> <td>1/2" TWISTED PAIR</td> <td>F1P11800-FPUFLDNU</td> </tr> <tr> <td>G-</td> <td>DOOR ACTUATOR CIRCUIT</td> <td>1/2" TWISTED PAIR</td> <td>F1P11800-FPUFLDNU</td> </tr> </tbody> </table> <p>The above reference is the recommended wire type to be utilized. Wire substitutions of a similar type and of a like nature may be utilized. The use of alternative wires must be approved by the manufacturer and meet the same critical specifications, listings, etc. as the above wire indicated.</p> <p>* - Proper use of listed FPU/FPU/PWP cables shall be used in applicable installation per electrical code.</p> <p>This project to be installed as a conduit installation. Provide required supports spaced in accordance with applicable electrical codes. Conduit shall be used in accordance with NFPA 70 and other codes where required. Where conduit is used, size according to the conduit fill chart and applicable electrical code.</p> <p>EXAMPLE: NUMBER OF CONDUCTOR PAIRS: 24 WIRE TYPE DESIGNATION: F1P11800-FPUFLDNU ABOVE EXAMPLE "24" MEANS "2 TWISTED PAIR CABLES". ALL WIRE AND CABLE TO BE USED, TWISTED AND CONDUIT FILLED FOR ELECTRICAL CODE AND MANUFACTURER'S RECOMMENDATION.</p> <p>CONDUIT FILL CHART - EMT</p> <table border="1"> <thead> <tr> <th>TRADE SIZE</th> <th>INNER DIAMETER</th> <th>AREA 100%</th> <th>AREA 40%</th> </tr> </thead> <tbody> <tr> <td>3"</td> <td>.824</td> <td>.533</td> <td>.213</td> </tr> <tr> <td>1"</td> <td>1.049</td> <td>.864</td> <td>.346</td> </tr> </tbody> </table> <p>DEVICE DESIGNATOR LEGEND</p> <p>EXAMPLE 1: INITIATING DEVICES DEVICE ADDRESS LOOPCARD NUMBER DEVICE SYMBOL</p> <p>EXAMPLE 2: NOTIFICATION DEVICES DEVICE ADDRESS LOOPCARD NUMBER DEVICE SYMBOL</p> <p>EXAMPLE 3: ALARM DEVICES DEVICE REFERENCE NUMBER DEVICE ADDRESS LOOPCARD NUMBER DEVICE SYMBOL</p> <p>EXAMPLE 4: WIRE LABELING CONVENTION ALARM DEVICES LOOPCARD NUMBER POWER SUPPLY/LOOP CARD DEVICE SYMBOL (OPEN/CLOSED)</p>		SYM	DESCRIPTION	WIRE TYPE	ANXISTER PART NUMBER	A-	TELE DANOLIS LOOP	1/2" TWISTED PAIR	F1P11800-FPUFLDNU	B-	HORN-STROBE OR STROBE ONLY CIRCUIT	1/2" TWISTED PAIR	F1P11800-FPUFLDNU	C-	NOTIFICATION APPLIANCE CIRCUIT	1/2" TWISTED PAIR	F1P11800-FPUFLDNU	D-	NETWORK (ANNUNCIATOR) CIRCUIT	1/2" TWISTED PAIR	F1P11800-FPUFLDNU	E-	SPARE	SPARE		F-	24V POWER CIRCUIT	1/2" TWISTED PAIR	F1P11800-FPUFLDNU	G-	DOOR ACTUATOR CIRCUIT	1/2" TWISTED PAIR	F1P11800-FPUFLDNU	TRADE SIZE	INNER DIAMETER	AREA 100%	AREA 40%	3"	.824	.533	.213	1"	1.049	.864	.346	<p>SYSTEM OUTPUTS</p> <p>SYSTEM INPUTS</p> <table border="1"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> <th>11</th> <th>12</th> <th>13</th> <th>14</th> <th>15</th> <th>16</th> <th>17</th> <th>18</th> <th>19</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> </tr> </tbody> </table> <p>SYSTEM INPUTS</p> <table border="1"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> <th>11</th> <th>12</th> <th>13</th> <th>14</th> <th>15</th> <th>16</th> <th>17</th> <th>18</th> <th>19</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> </tr> </tbody> </table> <p>ELEMENTARY SCHOOL FIRE ALARM MATRIX</p> <table border="1"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> <th>11</th> <th>12</th> <th>13</th> <th>14</th> <th>15</th> <th>16</th> <th>17</th> <th>18</th> <th>19</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> </tr> </tbody> </table> <p>APPROVALS</p> <p>1. 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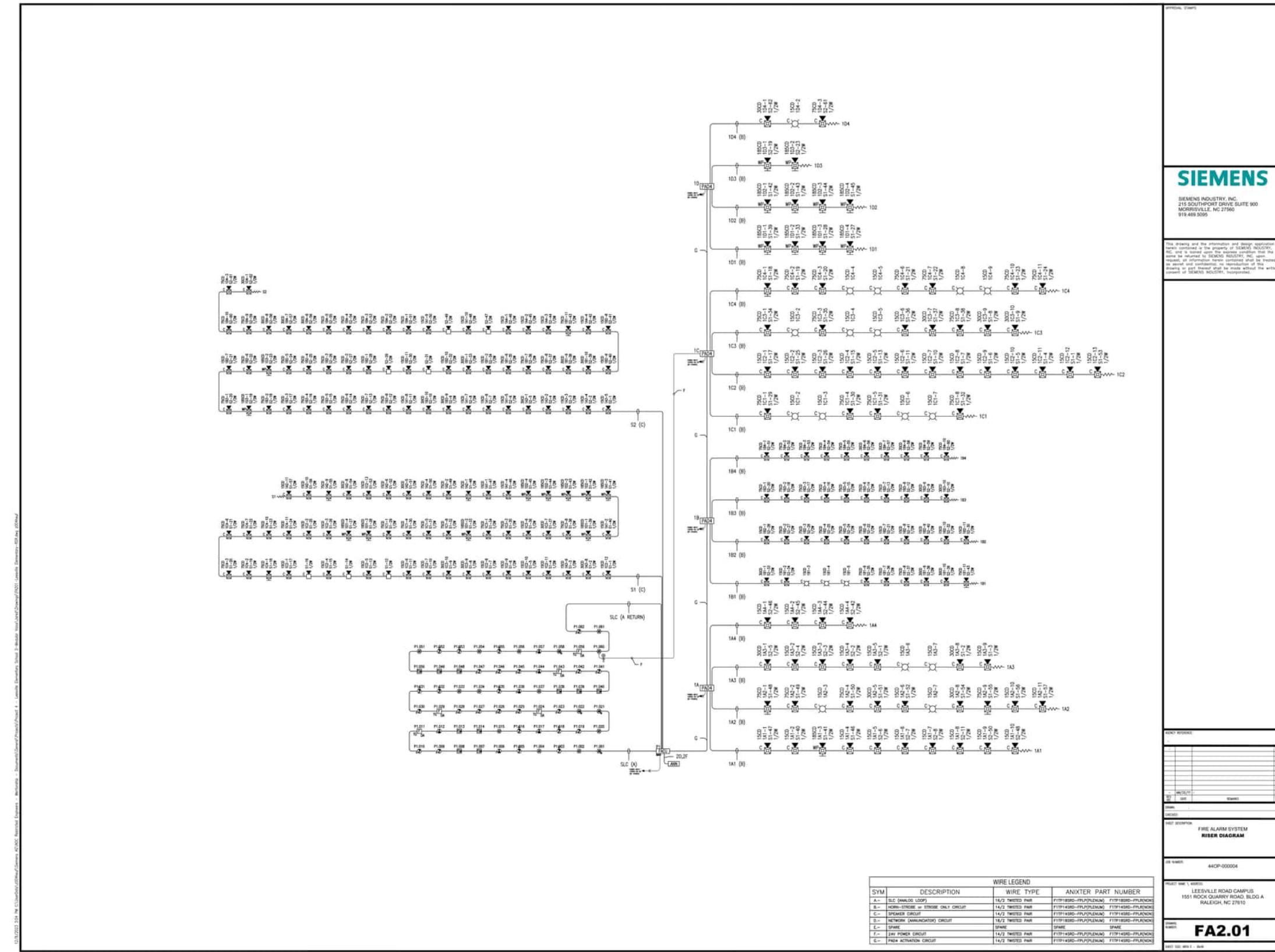
FIRE ALARM SYSTEMS

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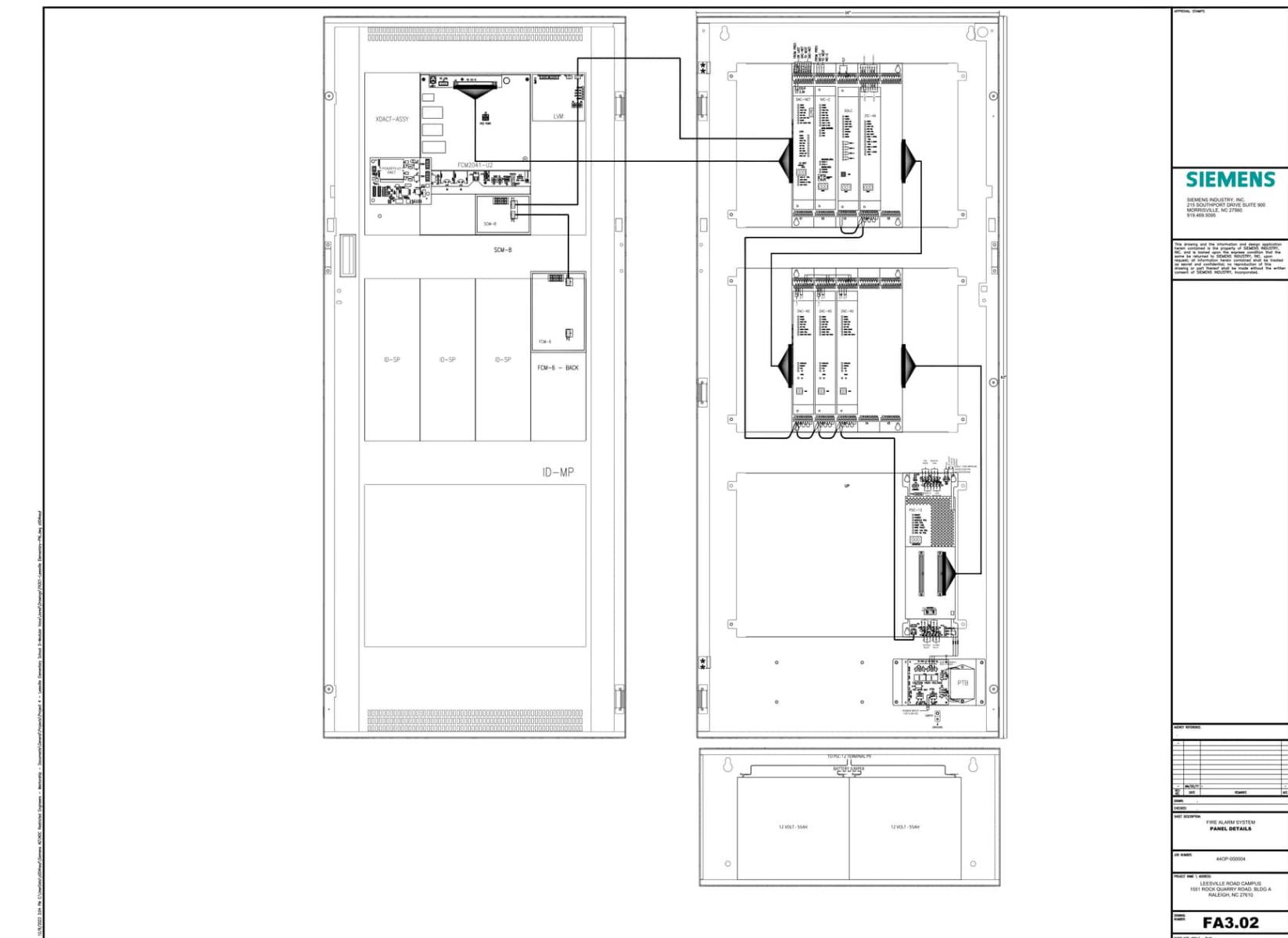
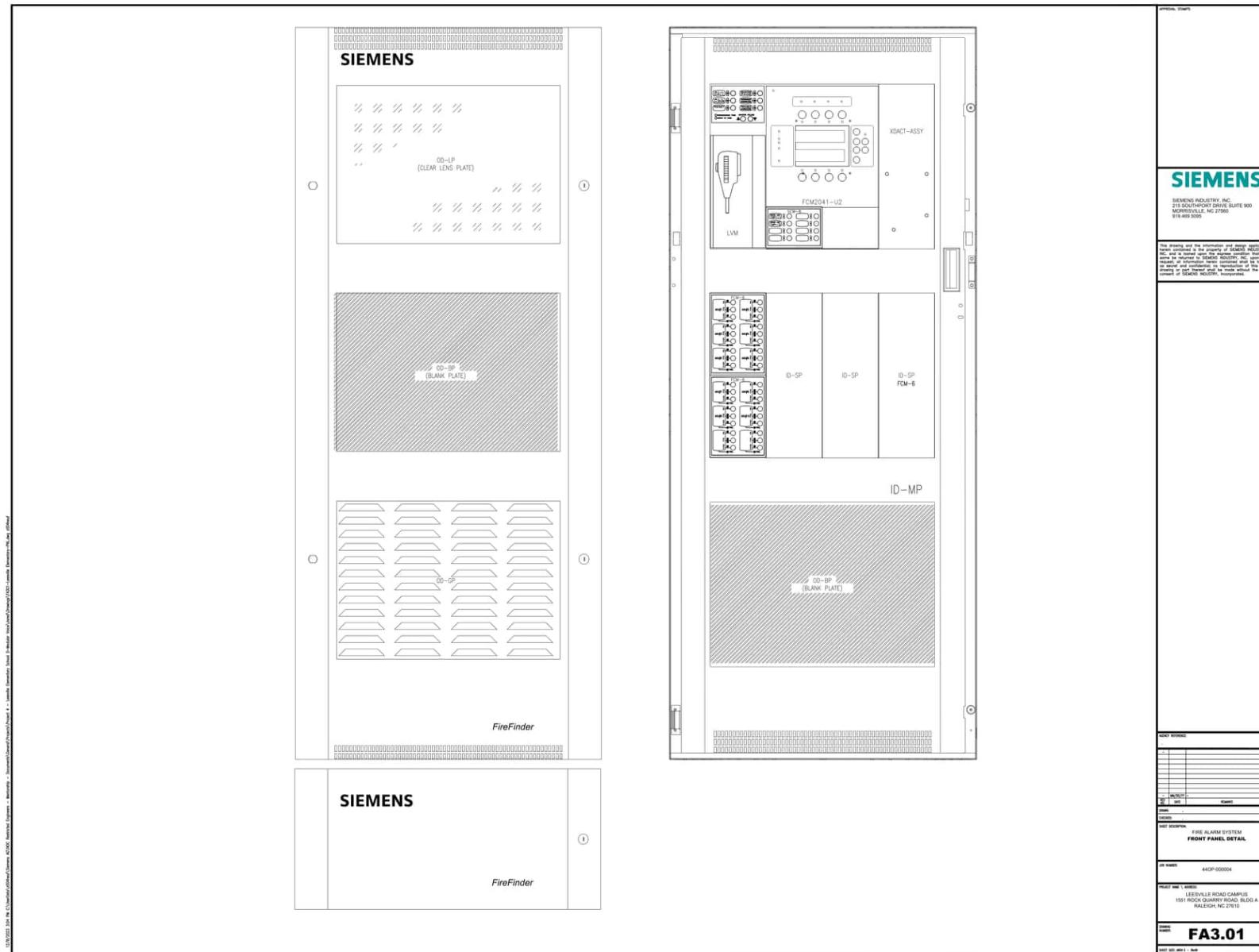
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2024

