

TYPICAL RISER DIAGRAM HIGH-RISE MIXED USE – MODEL H2

FIRE ALARM SYSTEM

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| ISSUE DATE: | |
| REVISION NO.: | |

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| NO. | DATE (MM/DD/YYYY) | DESCRIPTION |
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REVISIONS & ISSUES



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PROJECT NAME:
TYPICAL RISER DIAGRAM
HIGH-RISE MIXED USE - MODEL H2

PROJECT ADDRESS

SHEET TITLE:
COVER PAGE

SHEET NO.
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| DRAWN BY: JBN | DESIGNED BY: JBN |
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| APPROVED BY: | ISSUE DATE: |
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GENERAL NOTES FOR FIRE ALARM SYSTEM RISER

(TYPICAL NOTES ONLY. REFER TO RISER FOR JOB SPECIFICATION DETAILS. CONTRACTOR TO INSTALL SYSTEM TO MEET CAN/ULC-S524:2019 CURRENT STANDARD)

1. WIRING - GENERAL

1.1 THIS RISER DOES NOT REPRESENT CONDUIT OR RISER RUNS. THIS RISER DRAWING IS A DIAGRAMMATIC REPRESENTATION ONLY. THE INTENT OF THE SCOPE OF WORK FOR THIS FIRE ALARM SYSTEM IS TO BE UNDERSTOOD IN CONJUNCTION WITH THE SITE DRAWINGS AND ELECTRICAL SPECIFICATIONS. REFER TO ENGINEER/CONTRACTOR DRAWINGS SPECIFICATIONS AND ADDENDA FOR DEVICE LOCATIONS AND CONDUIT RUNS.

THIS RISER REPRESENTS ONLY THE NEW FIRE ALARM NETWORK SYSTEM TO BE INSTALLED ON THIS SITE. EXCEPT FOR SPECIFICALLY INDICATED ITEMS, THIS RISER DOES NOT REPRESENT ANY PART OF THE EXISTING SYSTEM ON THIS RISER.

1.2 ALL FIRE ALARM WIRING AND DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT STANDARD ULC-S524-19 AND THE LATEST VERSION OF THE LOCAL BUILDING CODE AND ELECTRICAL CODE. WHERE CLASS A CIRCUITS ARE REQUIRED, THE RETURN WIRING SHALL NOT BE INSTALLED IN THE SAME CONDUIT, RACEWAY OR CABLE ASSEMBLY.

1.3 DO NOT WIRE ANY 120 VAC CIRCUITS IN CONDUIT CONTAINING FIRE ALARM CIRCUIT WIRING OR FIRE ALARM SIGNAL/SPEAKER CIRCUITS.

1.4 ALL DEVICES REQUIRE GROUND DETECTION VIA METALLIC CONDUIT, METALLIC SHEATH OR A DESIGNATED GROUND WIRE AS PER C.E.C.

2. FIRE ALARM PANEL POWER REQUIREMENTS

2.1 ALL FIRE ALARM CONTROL AND REMOTE PANELS REQUIRE A 120 VAC POWER FEED CONNECTED TO A DEDICATED BREAKER. (SINGLE PHASE 120 VAC SUPPLY IS PREFERRED).

ELECTRICAL CONTRACTOR TO OBTAIN AND VERIFY BREAKER INFORMATION FOR EACH CONTROL PANEL AND ALL REMOTE PANELS.

2.2 WHEN ROUTING 120 VAC THROUGH MULTIPLE CABINETS, SHIELDED CONDUCTORS MUST BE INSTALLED, TO AVOID AC INDUCED INTERFERENCE.

2.3 USE 12 AWG WIRE WITH 600VAC INSULATION FOR THE AC BRANCH CIRCUIT.

3. FIRE ALARM PANEL MOUNTING REQUIREMENTS

3.1 FOR FIRE ALARM CABINET DIMENSIONS AND CONDUIT ENTRY, REFER TO ATTACHED DOCUMENTS FOR RECOMMENDATION ONLY AND INSTALL AS PER CURRENT ULC INSTALLATION STANDARD S524-19.

THE RECOMMENDED MOUNTING HEIGHT FROM THE FLOOR TO THE TOP OF THE CABINETS IS 1900MM. FOLLOW CAN/ULC-S524-19 FOR MOUNTING HEIGHTS. MINIMUM SPACE BETWEEN PANELS MUST NOT BE LESS 3 INCHES TO ALLOW DOOR TO BE UNLOCKED.

THE VISUAL DISPLAYS AND OPERATING CONTROLS OF THE ANNUNCIATOR OR DISPLAY AND CONTROL CENTRE SHALL BE NOT LESS THAN 600MM AND NOT MORE THAN 1800MM ABOVE THE FINISHED FLOOR LEVEL. (CAN/ULC S524-19 13.8).

3.2 ALL FIRE ALARM CONTROL CABINETS AND MOUNTING BOXES SHALL BE GROUNDED TO TRUE BUILDING GROUND; CONDUIT GROUND IS NOT ACCEPTABLE (#10 AWG IS ACCEPTABLE)

3.3 CONTRACTOR WILL ENSURE THAT ALL FIRE ALARM PANELS ARE MOUNTED WITHIN A ONE-HOUR FIRE RATED ROOM WITH PROPER VENTILATION. WITHOUT PROPER VENTILATION IT MAY CAUSE RANDOM ELECTRONIC PARTS ABNORMAL OR COMMUNICATION TROUBLE.

4. NETWORK NODES WIRING

4.1 THE WIRING FOR THE COMMUNICATION BETWEEN NODES/REPEATERS MUST BE CONTINUOUS, IN CLASS A FORMAT, AS INDICATED ON THE RISER.

4.2 FOR THE MAIN TRUNK OF THE NETWORK, PROVIDE THE FOLLOWING:
 - 1 PAIR, 18 AWG, TWISTED UNSHIELDED AT LEAST SIX TWISTS PER FOOT, 16PF/FT OR LESS, 25OHMS LOSS, AND TWO-HOUR RATED CABLE.
 - 1500 FEET MAXIMUM WIRING DISTANCE BETWEEN NETWORK NODES/REPEATERS WITH SPECIFIED LOW CAPACITANCE, TWISTED PAIR 18 AWG WIRING.
 - RECOMMENDED CABLES (18 AWG, TWISTED AND UNSHIELDED, LOW CAPACITANCE): TYCO PYRO C/C DRAKA LIFELINE

4.3 FOR FIBER OPTIC CIRCUITS:
 THE FIBER OPTIC CABLE CAN BE SINGLE -MODE OR MULTI-MODE. THE ATTENUATION OF CABLING BETWEEN TWO NODES/REPEATERS IS LIMITED BY CABLE CHOICE. IF THE DISTANCE REQUIRED FOR A CIRCUIT SEGMENT IS GREATER THAN PERMITTED, A REPEATER MODULE (RPT-F) MUST BE INSERTED INTO THE CIRCUIT.

4.3.1 SINGLE-MODE (LC DUPLEX CONNECTION TYPE)
 9/125 µm CABLE 9.8 dB LIMIT
 10 km Maximum

4.3.2 MUTLI-MODE (LC DUPLEX CONNECTION TYPE)
 50/125 µm or 62.5/125 µm CABLE 6.6 dB LIMIT
 1.5 km Maximum

THE ACTUAL ATTENUATION CAN BE MEASURED END-TO-END WITH FIBER-OPTIC INDUSTRY STANDARD EQUIPMENT USING A TEST WAVELENGTH OF 1310 NANOMETERS.

OPTICAL FIBRE CONTRACTOR SHOULD PROVIDE DETAILED TEST REPORT OF EACH ON-SITE OPTICAL FIBRE SECTION MEETING THE PERFORMANCE REQUIREMENTS LISTED ABOVE.

5. ADDRESSABLE DEVICE WIRING

5.1 RECOMMENDED SLC WIRING:
USE TWISTED, UNSHIELDED PAIR FOR SLC WIRING. SEE FOLLOWING TABLE:

| FACP: Wire Type and Limitations* | Recommended Max. Distance | Wire Gauged |
|---|---|--|
| RECOMMENDED: Twisted-unshielded pair, 12 to 18 AWG. 40 ohms maximum per length of Style 6 & 7 loops. 40 ohms per branch maximum for Style 4 loops. | 10,000 ft. (3,049 m) 7,971 ft. (2,429 m) 4,980 ft. (1,518 m) 3,132 ft. (955 m) | 12 AWG (3.31 mm ²) 14 AWG (2.08 mm ²) 16 AWG (1.31 mm ²) 18 AWG (0.82 mm ²) |
| Untwisted, Not Recommended | | |
| Note: _Maximum total capacitance of all SLC wiring (both between conductors and from any conductor to ground) should not exceed 0.5 mF. _Inductance shall not exceed 1 mH. _Resistance shall not exceed 40 ohms. | | |

6. SPEAKER CIRCUITS – 25/70 VOLTS

6.1 ONE PAIR 12-18 AWG TWISTED UNSHIELDED PER SPEAKER CIRCUIT. MULTIPLE SPEAKER CIRCUITS MAY BE RUN IN THE SAME CONDUIT. USE SEPARATE CONDUIT(S) FOR SPEAKER CIRCUITS.

6.2 FOR PROPER WIRE GAUGE AND MAXIMUM LINE DISTANCE PLEASE REFER TO THE SPEAKER LOADING CHART LISTED BELOW. THIS CHART DETAILS THE LENGTH OF RUN ALLOWED FOR A SPEAKER CIRCUIT, SO THAT AT THE FURTHEST SPEAKER FROM THE PANEL, THE CALCULATION IS BASED ON A 1dB POWER LOSS (20%) AND A SOURCE OF 70V OR 25V.

| 25V RUNS | MAXIMUM DISTANCE TO LAST SPEAKER AT 1dB LOSS FROM PANEL | | | |
|----------|---|--------------|--------------|--------------|
| | 18AWG (FEET) | 16AWG (FEET) | 14AWG (FEET) | 12AWG (FEET) |
| 60 w | 187 | 300 | 500 | 875 |
| 30 w | 375 | 625 | 1000 | 1500 |
| 15 w | 625 | 1000 | 1500 | 2000 |
| | | | | |
| | | | | |

| 70V RUNS | MAXIMUM DISTANCE TO LAST SPEAKER AT 1dB LOSS FROM PANEL | | | |
|----------|---|--------------|--------------|--------------|
| | 18AWG (FEET) | 16AWG (FEET) | 14AWG (FEET) | 12AWG (FEET) |
| 60 w | 750 | 1200 | 2000 | 3500 |
| 30 w | 1500 | 2500 | 4000 | 6000 |
| 15 w | 2500 | 4000 | 6000 | 8000 |
| | | | | |
| | | | | |

7. NOTIFICATION APPLIANCE CIRCUIT (NAC) (STROBE/HORN, BELL CIRCUITS AND "FIRE DO NOT ENTER" SIGN CIRCUITS)

7.1 12-18 AWG NAC AT ALARM CURRENT LEVEL, NO MORE THAN A 3.3V DROP AT THE END OF CLASS A CIRCUITS, OR 3.7V AT THE END OF CLASS B CIRCUITS. CIRCUITS MAY BE SIZED TO PROVIDE THE MINIMUM RATED OPERATING VOLTAGE OF THE APPLIANCES USED.

7.2 STROBE/HORN CIRCUITS WITH MULTIPLE STROBES/HORNS IN ONE OPEN AREA, SHALL BE SYNCHRONIZED. IF STROBES DISTRIBUTED IN A ONE STROBE PER AREA, DO NOT REQUIRE SYNCHRONIZING.

7.3 FOR PROPER WIRE GAUGE AND FOR MAXIMUM DISTANCE, REFER TO THE LOADING CHART LISTED BELOW.

| ALARM CURRENT (A) | MAXIMUM DISTANCE TO LAST DEVICE FROM PANEL | | | |
|-------------------|--|--------------|--------------|--------------|
| | 18AWG (FEET) | 16AWG (FEET) | 14AWG (FEET) | 12AWG (FEET) |
| 0.12 | 1180 | 1850 | 3000 | 4250 |
| 0.30 | 470 | 750 | 1200 | 1900 |
| 0.60 | 235 | 375 | 600 | 850 |
| 0.90 | 156 | 250 | 400 | 570 |
| 1.20 | 118 | 185 | 300 | 425 |
| 1.50 | 94 | 150 | 240 | 343 |
| 1.70 | 78 | 125 | 200 | 285 |

8. FIREMAN'S HANDSET CIRCUITS

8.1 RECOMMENDED 1 PAIR #14-18 AWG TWISTED SHIELDED FOR EACH HANDSET CIRCUIT. MAX. WIRING RESISTANCE (INCLUDING INDIVIDUAL TELEPHONE ZONE TO LAST HANDSET) PERMITTED IS 40 OHMS.

8.2 ONE HANDSET CIRCUIT IS REQUIRED FOR EACH CIRCUIT IDENTIFIED IN THE ZONE SCHEDULES.

9. RELEASING MODULE

9.1 12-18 AWG. 5 OHMS MAXIMUM PER CIRCUIT FOR CLASS A OR B, OR SIZED TO PROVIDE THE MINIMUM RATED OPERATING VOLTAGE OF THE APPLIANCES USED.

10. RELAY CONTROL CIRCUITS

10.1 2 #12-18 AWG CONDUCTORS PER CONTROL CIRCUIT FROM THE CONTROLLED DEVICE TO THE RELAY MODULE, OTHERWISE SPECIFIED IN RISER DRAWINGS. HIGH VOLTAGE (120V) POWER CIRCUIT SHOULD NOT CONNECT DIRECTLY TO OUTPUT TERMINALS OF RELAY MODULE, WHICH REQUIRES PILOT RELAY PROVIDED BY ELECTRICAL CONTRACTOR.

11. HARDWIRED MONITORING CIRCUITS

11.1 12-18 AWG. MAXIMUM CIRCUIT RESISTANCE IS 100 OHMS. THE MONITORING MODULES MUST CONNECT TO DRY CONTACT WHICH PROVIDED BY NON-ADDRESSABLE DEVICES, FOR EXAMPLE, SPRINKLER DEVICES.

12. ISOLATORS

12.1 ALL REMOTE ISOLATOR MODULES TO BE MOUNTED INSIDE A 4" SQUARE BACK BOX, 2 1/8" DEEP, COMPLETE WITH COVER (TO BE SUPPLIED BY THE CONTRACTOR). PLACE ISOLATORS AS CAN/ULC-S524 CURRENT STANDARD REQUIREMENTS.


12.2 THE MAXIMUM NUMBER OF ADDRESSABLE DEVICES BETWEEN ISOLATORS (OR B224BI ISOLATOR BASES) IS 25 DEVICES.

13. OPERATION TEMPERATURE

13.1 ALL FIELD DEVICES EXCEPT WEATHER PROOF DEVICES AND HEAT DETECTORS SHOULD BE INSTALLED IN THE ENVIRONMENT OF TEMPERATURE RANGE BETWEEN 0~49 °C, OTHERWISE SPECIFIED IN THE DRAWINGS OR DEVICE DATA SHEETS. WEATHER PROOF DEVICE INSTALLATION FOLLOWS MANUFACTURER RECOMMENDATION.

14. MIRCOM SYSTEM END_OF_LINE RESISTORS LIST:

| DEVICE | EOL | DEVICE | EOL |
|-----------------------|------------|--------------------|------------|
| FX-4000 Series NAC | 3.9K, 1/2W | DM-1008A CKT | 3.9K, 1/2W |
| INX-10A NAC | 3.9K, 1/2W | MIX-M502MA | 3.9K, 1/2W |
| BPS-1100 NAC | 3.9K, 1/2W | MIX-M500FPA | 3.9K, 1/2W |
| SGM-1004A NAC | 3.9K, 1/2W | MIX-M501MA | 47K, 1/2W |
| QAA-5230S-70/25 | 22K, 1W | MIX-M500DMA | 47K, 1/2W |
| QAA-5415-70 | 22K, 1W | MIX-M500SA | 47K, 1/2W |
| QAA-5415-25 | 22K, 1W | MIX-M500MA | 47K, 1/2W |
| QAA-5160-70/25 | 10K, 2W | QZT-5302 PHONE CKT | 10K, 1/4W |
| QAA-5230-70/25 | 10K, 2W | QX-MINI NAC | 3.9K, 1/2W |
| MIX-4040 / MIX-4040-M | 22K | MIX-4042 | 3.9K |
| MIX-4041 | 22K | MIX-4046 | 22K |

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| PROJECT NAME: TYPICAL RISER DIAGRAM | | |
| PROJECT ADDRESS | | |
| SHEET TITLE: FIRE ALARM SYSTEM GENERAL NOTES SHEET 1 OF 2 | | |
| SHEET NO. FA1-01 | | |
| DRAWN BY: JBN | DESIGNED BY: JBN | |
| APPROVED BY: | ISSUE DATE: | |

- WIRING NOTES:**
- ① AC MAINS (120VAC):
-1 PAIR #12 AWG.
 - ① ADDRESSABLE DCL LOOP:
-1 PAIR #18 AWG. TWISTED/UNSHIELDED.
 - ② SPEAKER CIRCUIT:
-1 PAIR #16 AWG TWISTED/UNSHIELDED.
 - ③ HORN, STROBE OR HORN/STROBE CIRCUIT:
-1 PAIR #14 AWG. UNSHIELDED.
 - ④A RISER FIRE PHONE CIRCUIT:
-1 PAIR #18 AWG TWISTED/SHIELDED.
 - ④B FLOOR FIRE PHONE CIRCUIT:
-1 PAIR #18 AWG TWISTED/SHIELDED.
 - ⑤ SYNC SIGNAL:
-1 PAIR #18 AWG. UNSHIELDED.
 - ⑥ CONVENTIONAL 2-WIRE INITIATING CIRCUIT:
-1 PAIR #18 AWG. UNSHIELDED.
 - ⑦A NETWORK:
-1 PAIR #18 AWG. TWISTED/UNSHIELDED, LOW CAPACITANCE.
 - ⑦B NETWORK (FIRE PHONE BUS BETWEEN NODES):
-1 PAIR #18 AWG. TWISTED/SHIELDED, LOW CAPACITANCE.
 - ⑦C NETWORK (FIBER OPTIC COMMUNICATION CABLES):
-2x FIBERS SINGLE-MODE 9/125µm (TX, RX)
 - ⑦D NETWORK (FIBER OPTIC COMMUNICATION CABLES):
-2x FIBERS MULTI-MODE 50/125µm OR 62.5/125µm (TX, RX)
 - ⑧A REMOTE ANNUNCIATOR:
-1 PAIR #18 AWG TWISTED/SHIELDED FOR RS-485 COMMUNICATION.
 - ⑧B REMOTE ANNUNCIATOR:
-1 PAIR #14 AWG UNSHIELDED FOR 24VDC POWER.
 - ⑧C REMOTE ANNUNCIATOR (OR CACF):
-1 PAIR #18 AWG. TWISTED/SHIELDED FOR PAGING MICROPHONE.
 - ⑧D REMOTE ANNUNCIATOR (OR CACF):
-1 PAIR #18 AWG. TWISTED FOR PUSH TO TALK SIGNAL.
 - ⑧E REMOTE ANNUNCIATOR (OR CACF):
-1 PAIR #18 AWG. TWISTED/SHIELDED FOR MASTER FIRE TELEPHONE HANDSET.
 - ⑨ HARDWIRED MONITORING CIRCUIT:
-1 PAIR #18 AWG. TWISTED/UNSHIELDED.
 - ⑩ 24VDC POWER CIRCUIT:
-1 PAIR #14 AWG. UNSHIELDED.
 - ⑪ "FIRE DO NOT ENTER" SIGNAL CIRCUIT:
-1 PAIR #14 AWG. UNSHIELDED.
 - ⑫ RELAY CONTROL CIRCUIT:
-1 PAIR #14 AWG. UNSHIELDED.
 - ⑬ RS485 COMMUNICATION BUS BETWEEN FACP AND ANC-4000:
-RPL-MD-991 RIBBON CABLE
 - ⑭ HIGH SPEED DIGITAL AUDIO BUS BETWEEN FACP AND ANC-4000:
-RPL-MD-985 RIBBON CABLE
 - ⑮ INTERCONNECTION BUS BETWEEN QX AUDIO TUBS:
-RPL-MD-525 RIBBON CABLE

LEGEND:

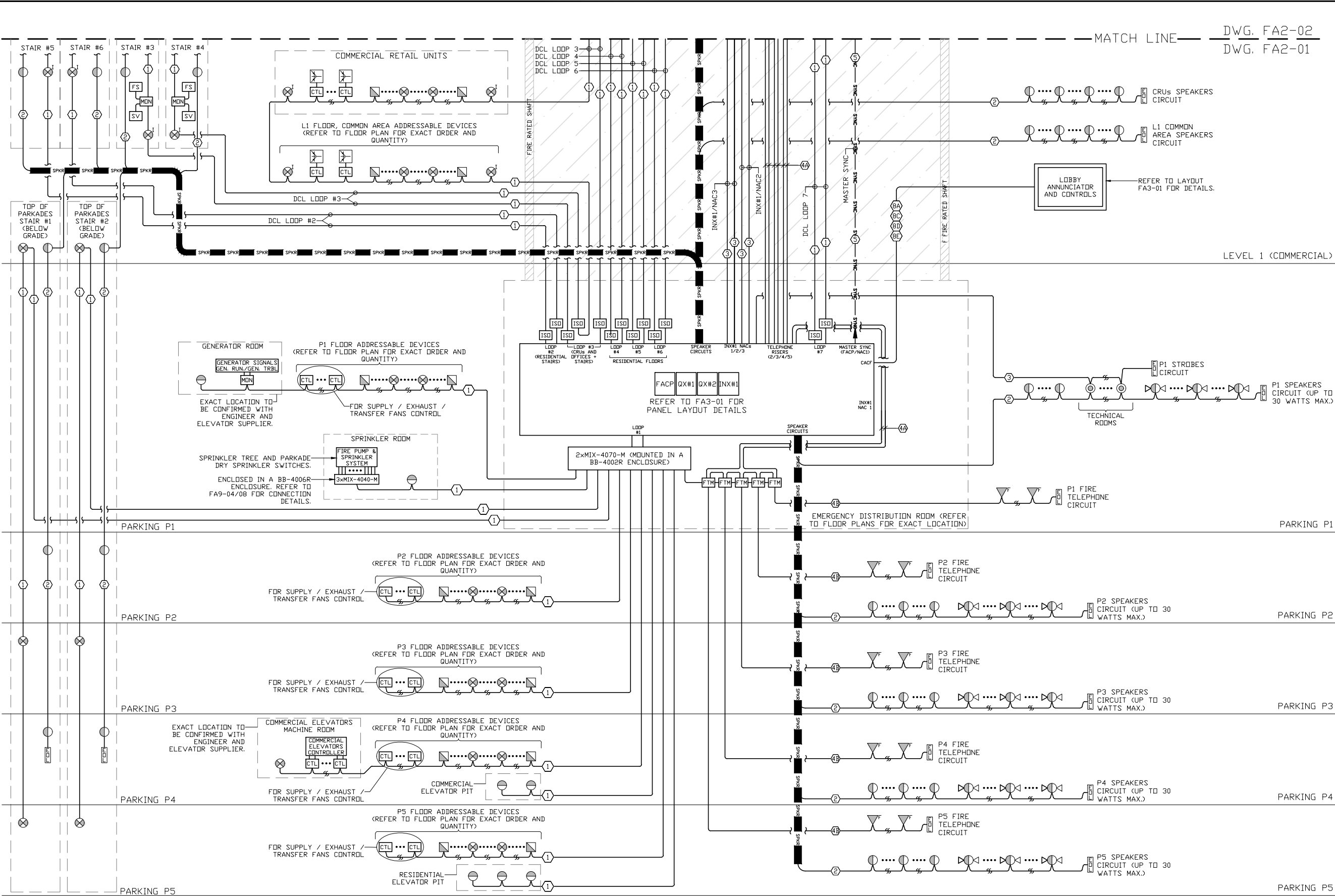
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| | ADDRESSABLE MANUAL PULL STATION. |
| | CONVENTIONAL WEATHERPROOF MANUAL PULL STATION. REQUIRES MONITORING MODULE. |
| | ADDRESSABLE HEAT DETECTOR. |
| | ADDRESSABLE HEAT DETECTOR WITH BUILT-IN ISOLATOR. |
| | ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR. |
| | ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR WITH BUILT-IN ISOLATOR. |
| | ADDRESSABLE PHOTOELECTRIC DUCT TYPE SMOKE DETECTOR. |
| | HORN. |
| | IN-SUITE MINI-HORN. |
| | IN-SUITE LOW FREQUENCY SOUNDER. |
| | HORN/STROBE. |
| | STROBE. |
| | CEILING MOUNT SPEAKER. |
| | WALL MOUNT SPEAKER. |
| | CEILING MOUNT SPEAKER/STROBE. |
| | WALL MOUNT SPEAKER/STROBE |
| | BI-DIRECTIONAL SPEAKERS USED IN PARKADES |
| | ADDRESSABLE DUAL MONITORING MODULE. |
| | ADDRESSABLE DUAL RELAY MODULE. |
| | ADDRESSABLE SUPERVISED OUTPUT MODULE. |
| | ADDRESSABLE FIRE TELEPHONE MODULE. |
| | SHORT-CIRCUIT ISOLATOR MODULE. |
| | END OF LINE RESISTOR. |
| | FIRE TELEPHONE STATION. |
| | SMOKE DAMPER. |
| | ELECTROMAGNETIC DOOR HOLDER. |
| | FLOW SWITCH. |
| | SUPERVISORY VALVE. |
| | SIGNAL OR SPEAKER ISOLATION MODULE. |
| | SUITE SILENCING MODULE. |
| | EARTH GROUND. |

NOTE: Best practice is to run each type of circuit in separate conduit.
Where this is not possible, you may use the guide below to determine where mixed circuits may be ran in the same conduit. You should always check local codes for additional restrictions.
***Note: Always use solid cable (not stranded).**
Never use multi-conductor cable, where more than one pair of insulated conductors share the same jacket (seperate circuits should always be in their own jacket)

| Ckt Type | All Circuits Power Limited Except Where Noted | Circuit Info | Recommended Wire Type (refer to Tables in Installation & Operational Manuals) | Can the Circuit share the same Conduit with other Circuits from the same Panel? (check local codes for restrictions) |
|----------|---|---|---|--|
| 0 | AC MAINS - not Power Limited | 120V 60Hz / 240v 50Hz, Max Single Phase Dedicated Breaker | N/A | NO |
| 1 | SLC / DCL Circuits | Max. Ckt Resistance 40Ω Capacitance 0.5µF Inductance 1 Mh | #16-#18AWG Twisted Pair, Unshielded | YES with 3, 6, 9, 10, 11, 12 |
| 2 | Speaker Circuits - 25/70 Volts | Max. -3dB Drop per Ckt | #12-#18AWG Twisted Pair, Unshielded | YES with 3, 6, 9, 10, 11, 12 |
| 3 | Indicating Circuits, 24VDC Unfiltered, 10 Amps Max | Max. Voltage Drop Ckt 3.3 Volts Class A 3.7 Volts Class B | #12-#18AWG Twisted Pair, Unshielded | YES with 1, 2, 6, 9, 10, 11, 12 |
| 4A | Fire Phone - Riser | Max. Ckt Resistance 40Ω Max. Ckt. Length 8,000FT with #14AWG (Riser & Floor Circuit) | #14-#18AWG Twisted Pair, Shielded | NO |
| 4B | Fire Phone Handset Circuit | Max. Ckt Resistance 40Ω Max. Ckt. Length 8,000FT with #14AWG (Riser & Floor Circuit) | #14-#18AWG Twisted Pair, Shielded | NO |
| 5 | Sync Circuit (INX-10A, SGM-1004S, MIX-4050s, MDL3) | N/A | #16-#18AWG Twisted Pair, Unshielded | YES with 7A, 7C, 7D |
| 6 | Conventional 2-Wire Initiating Circuit | Max. Ckt Resistance 100Ω (50Ω per side) | #16-#18AWG Twisted Pair, Unshielded | YES with 1, 2, 3, 5, 9, 10, 11, 12 |
| 7A | Network - Copper | Max. Voltage: 9V Current: 800mA Frequency: 625K Hz | #18AWG Twisted Pair, Unshielded at least 6 Twists per FT Low Capacitance Two-Hour Rated Cable: Belden 5320 UJ or 5320 UM Draka Lifeline | YES with 5, 7C, 7D |
| 7B | Network - Fire Telephone Bus between Nodes | Max. Ckt Resistance 40Ω Max. Ckt. Length 8,000FT with #14AWG | #14-#18AWG Twisted Pair, Shielded | NO |
| 7C | Network - Fiber Optic (Single-Mode) | Single-Mode: 9/125µm Cable, 9.8dB Limit, 10km Max. | Single -Mode LC Duplex Connection Type | YES with 5, 7A, 7D |
| 7D | Network - Fiber (Multi-Mode) | Multi-Mode: 50/125µm or 62.5/125µm Cable, 6.6dB Limit, 1.5km Max. | Multi-Mode LC Duplex Connection Type | YES with 5, 7A, 7C |
| 8A | RS-485 Communication Bus for Remote Annunciator | Max. Ckt Length 4,000 FT with #20AWG | #18AWG Twisted Pair, Shielded | YES with 8B, 8C, 8D |
| 8B | 24VDC Power Circuit for Remote Annunciator | Max. Voltage Drop Ckt 3.7 Volts Class B | #12-#18AWG Twisted Pair, Unshielded | YES with 8A, 8C, 8D |
| 8C | Microphone Paging Circuit (Audio) | N/A | #18AWG Twisted Pair, Shielded | YES with 8A, 8B, 8D |
| 8D | Microphone PTT Signal | N/A | #18AWG Twisted Pair, Unshielded | YES with 8A, 8B, 8C |
| 8E | Fire Telephone Bus for Master Telephone Handset | Max. Ckt Resistance 40Ω Max. Ckt. Length 8,000FT with #14AWG | #14-#18AWG Twisted Pair, Shielded | NO |
| 9 | Hardwired Monitoring Circuits e.g. Sprinkler Devices | Max. Ckt Resistance 100Ω (Total) | #16-#18AWG Twisted Pair, Unshielded | YES with 1, 2, 3, 6, 10, 11, 12 |
| 10 | 24VDC Power Circuit | Refer to connected devices datasheets for Max. Permitted Voltage Drop | #12-#18AWG Twisted Pair, Unshielded | YES with 1, 2, 3, 6, 9, 11, 12 |
| 11 | Fire Do Not Enter Sign - Circuit | Max. Voltage Drop Ckt 3.3 Volts Class A 3.7 Volts Class B | #12-#18AWG Twisted Pair, Unshielded | YES with 1, 2, 3, 6, 9, 10, 12 |
| 12 | Relay Control Circuit | N/A | #12-#18AWG Twisted Pair, Unshielded | YES with 1, 2, 3, 6, 9, 10, 11 |

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| PROJECT NAME: TYPICAL RISER DIAGRAM | | |
| PROJECT ADDRESS | | |
| SHEET TITLE: FIRE ALARM SYSTEM GENERAL NOTES SHEET 2 OF 2 | | |
| SHEET NO. FA1-02 | | |
| DRAWN BY: JBN | DESIGNED BY: JBN | |
| APPROVED BY: | ISSUE DATE: | |

DWG. FA2-02
 DWG. FA2-01



FIRE ALARM RISER DIAGRAM
 LEVELS P5 TO 1

DRAWING NOTES:

- THIS IS A TYPICAL DRAWING AND DOES NOT REFLECT THE ACTUAL SYSTEM CONNECTIONS IN A PARTICULAR BUILDING. FOR THE ACTUAL NUMBER OF DEVICES / MODULES / BOOSTER PANELS / CIRCUITS, REFER TO THE MIRCDCM BILL OF MATERIALS PREPARED BY MIRCDCM'S REPRESENTATIVE. CONTRACTOR TO USE THIS DRAWING FOR TYPICAL CONNECTION OF DEVICES AND PANELS ONLY.
- REFER TO ELECTRICAL FLOOR PLANS FOR THE EXACT DESIGN, LOCATION OF DEVICES AND QUANTITIES IN EACH FLOOR.
- REFER TO SPRINKLER DRAWINGS FOR THE EXACT LOCATION OF SPRINKLER DEVICES AND QUANTITIES.
- SUITE MINI-HORNS / STROBES AND COMMON AREA HORNS / HORN-STROBES SHALL BE OF THE SAME SYNCHRONIZATION PROTOCOL (EITHER MIRCDCM PROTOCOL OR SYSTEM SENSOR PROTOCOL).
- THE NUMBER OF CIRCUITS SHOWN IN THIS RISER DIAGRAM IS INDICATIVE ONLY. THE EXACT NUMBER OF NOTIFICATION CIRCUITS AND NOTIFICATION DEVICES PER CIRCUIT IS TO BE CALCULATED SO THAT THE VOLTAGE DROPS AND LOADS ARE IN-LINE WITH FA1-01 SECTION 7. NUMBER OF DEVICES PER LOOP SHOULD NOT EXCEED 80% OF THE TOTAL LOOP CAPACITY (240 DEVICES PER LOOP).
- SHORT CIRCUIT ISOLATORS TO BE ADDED WHERE NEEDED, IN ACCORDANCE WITH ZONING AND ULC-5524-2019 REQUIREMENTS. REFER TO FIRE ALARM ZONE SCHEDULE AND LAYOUT FA9-01 FOR DETAILS.
- ELECTRICAL CONTRACTOR TO CONFIRM THE 24VDC CABLE SIZE BETWEEN THE FACP AND FIRE ANNUNCIATOR, WHEN THE LATTER IS POWERED FROM THE FACP. CABLE SIZE IS TO BE SELECTED ACCORDING TO FA1-01 / SECTION 7.
- PANEL BATTERIES AND BATTERY SIZES ARE SHOWN ON THE DRAWING FOR INDICATION ONLY. ELECTRICAL CONTRACTOR / MIRCDCM'S ESTIMATOR OR SALESMAN TO PERFORM BATTERY CALCULATIONS AND DETERMINE THE EXACT REQUIRED BATTERIES SIZES ACCORDING TO THE REQUESTED AUTONOMY.
- INX-10A POWER BOOSTERS ARE NOT COMPATIBLE WITH CSIS-202A1 SIGNAL ISOLATORS. USE FA-1000 POWER BOOSTERS WITH SGM-1004S INSTEAD.
- SPEAKER POWER OUTPUTS, AUDIO CIRCUITS POWER OUTPUTS AND AMPLIFIER POWER OUTPUTS SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY. ELECTRICAL CONTRACTOR TO FOLLOW THE AMPLIFIER SIZES SELECTED IN THE BILL OF MATERIALS RECEIVED FROM MIRCDCM AND SELECT THE ACTUAL WIRE SIZE ACCORDING TO SECTION FA1-01 / SECTION 6.

ABBREVIATIONS:
 -FACP = FIRE ALARM CONTROL PANEL
 -FAAN = FIRE ALARM ANNUNCIATOR PANEL
 -FABP = FIRE ALARM BOOSTER PANEL
 -DCL = DATA COMMUNICATION LOOP
 -RI = ROUGH-IN
 -WP = WEATHERPROOF
 -LF = LOW FREQUENCY

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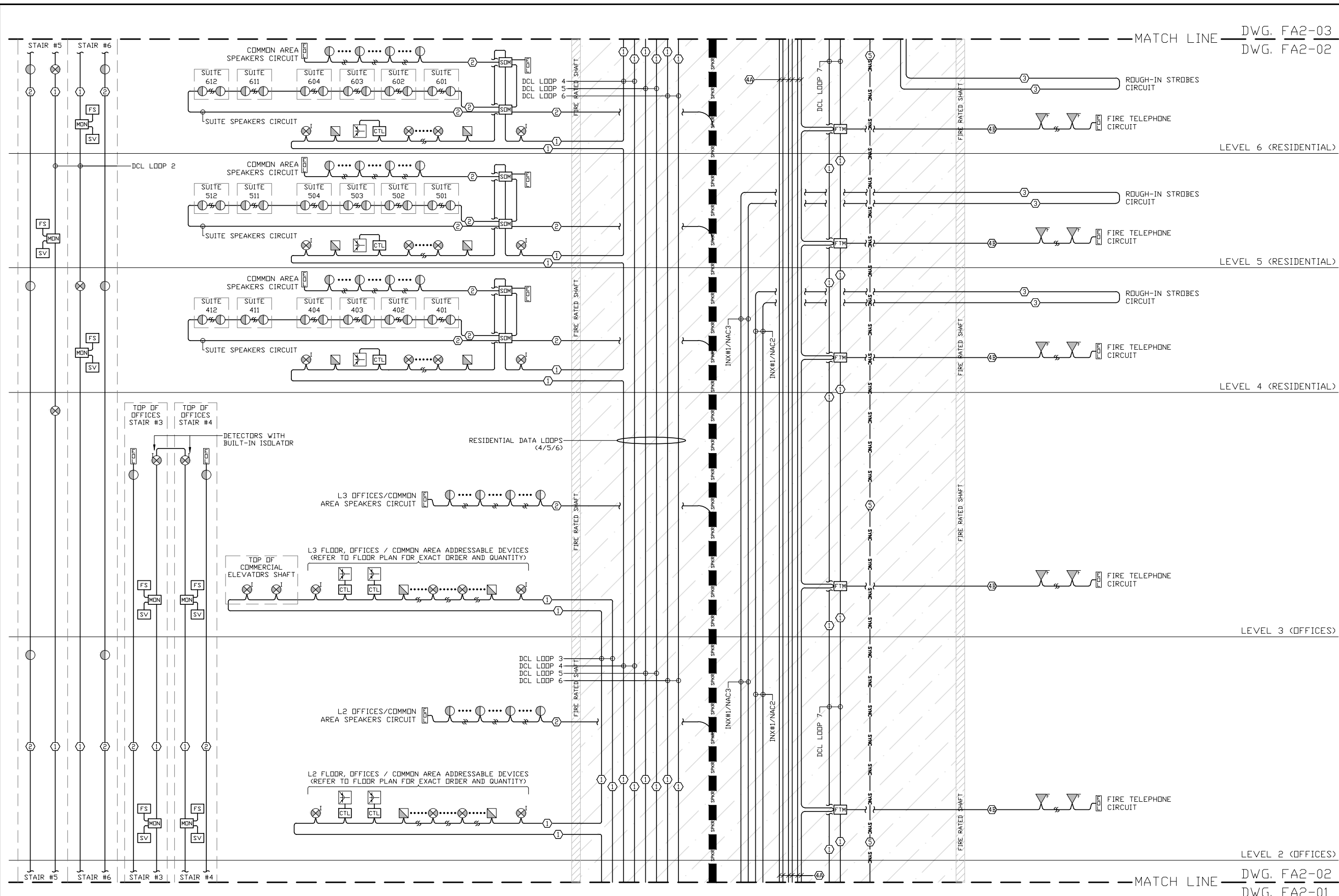
PROJECT NAME:
 TYPICAL RISER DIAGRAM
 HIGH-RISE MIXED USE - MODEL H2

PROJECT ADDRESS

SHEET TITLE:
 FIRE ALARM RISER DIAGRAM
 LAYOUT 1 OF 6

SHEET NO.
 FA2-01

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| DRAWN BY: JBN | DESIGNED BY: JBN |
| APPROVED BY: | ISSUE DATE: |



MATCH LINE DWG. FA2-03
DWG. FA2-02

LEVEL 6 (RESIDENTIAL)

LEVEL 5 (RESIDENTIAL)

LEVEL 4 (RESIDENTIAL)

LEVEL 3 (OFFICES)

LEVEL 2 (OFFICES)

MATCH LINE DWG. FA2-02
DWG. FA2-01

FIRE ALARM RISER DIAGRAM
LEVEL 2 TO 6

DRAWING NOTES:

- THIS IS A TYPICAL DRAWING AND DOES NOT REFLECT THE ACTUAL SYSTEM CONNECTIONS IN A PARTICULAR BUILDING. FOR THE ACTUAL NUMBER OF DEVICES / MODULES / PANEL INTERNAL ADDRESSES / DISPLAY MODULES / BOOSTER PANELS / CIRCUITS, REFER TO THE MIRC'DM BILL OF MATERIALS PREPARED BY MIRC'DM'S REPRESENTATIVE. CONTRACTOR TO USE THIS DRAWING FOR TYPICAL CONNECTION OF DEVICES AND PANELS ONLY.
- REFER TO ELECTRICAL FLOOR PLANS FOR THE EXACT DESIGN, LOCATION OF DEVICES AND QUANTITIES IN EACH FLOOR.
- REFER TO SPRINKLER DRAWINGS FOR THE EXACT LOCATION OF SPRINKLER DEVICES AND QUANTITIES.
- SUITE MINI-HORNS / STROBES AND COMMON AREA HORNS / HORN-STROBES SHALL BE OF THE SAME SYNCHRONIZATION PROTOCOL (EITHER MIRC'DM PROTOCOL OR SYSTEM SENSOR PROTOCOL).
- THE NUMBER OF CIRCUITS SHOWN IN THIS RISER DIAGRAM IS INDICATIVE ONLY. THE EXACT NUMBER OF NOTIFICATION CIRCUITS AND NOTIFICATION DEVICES PER CIRCUIT IS TO BE CALCULATED SO THAT THE VOLTAGE DROPS AND LOADS ARE IN-LINE WITH FAI-01 SECTION 7.
- NUMBER OF DEVICES PER LOOP SHOULD NOT EXCEED 80% OF THE TOTAL LOOP CAPACITY (240 DEVICES PER LOOP).
- SHORT CIRCUIT ISOLATORS TO BE ADDED WHERE NEEDED, IN ACCORDANCE WITH ZONING AND ULC-5524-2019 REQUIREMENTS. REFER TO FIRE ALARM ZONE SCHEDULE AND LAYOUT FA9-01 FOR DETAILS.
- ELECTRICAL CONTRACTOR TO CONFIRM THE 24VDC CABLE SIZE BETWEEN THE FACP AND FIRE ANNUNCIATOR, WHEN THE LATTER IS POWERED FROM THE FACP. CABLE SIZE IS TO BE SELECTED ACCORDING TO FAI-01 / SECTION 7.
- PANEL BATTERIES AND BATTERY SIZES ARE SHOWN ON THE DRAWING FOR INDICATION ONLY. ELECTRICAL CONTRACTOR / MIRC'DM'S ESTIMATOR OR SALESMAN TO PERFORM BATTERY CALCULATIONS AND DETERMINE THE EXACT REQUIRED BATTERIES SIZES ACCORDING TO THE REQUESTED AUTONOMY.
- INX-10A POWER BOOSTERS ARE NOT COMPATIBLE WITH CSIS-202A1 SIGNAL ISOLATORS. USE FA-1000 POWER BOOSTERS WITH SGM-1004S INSTEAD.
- SPEAKER POWER OUTPUTS, AUDIO CIRCUITS POWER OUTPUTS AND AMPLIFIER POWER OUTPUTS SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY. ELECTRICAL CONTRACTOR TO FOLLOW THE AMPLIFIER SIZES SELECTED IN THE BILL OF MATERIALS RECEIVED FROM MIRC'DM AND SELECT THE ACTUAL WIRE SIZE ACCORDING TO SECTION FAI-01 / SECTION 6.

- ABBREVIATIONS:
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 - FAAN = FIRE ALARM ANNUNCIATOR PANEL
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 - DCL = DATA COMMUNICATION LOOP
 - RI = ROUGH-IN
 - WP = WEATHERPROOF
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PROJECT NAME:
TYPICAL RISER DIAGRAM
HIGH-RISE MIXED USE - MODEL H2

PROJECT ADDRESS

SHEET TITLE:
FIRE ALARM RISER DIAGRAM
LAYOUT 2 OF 6

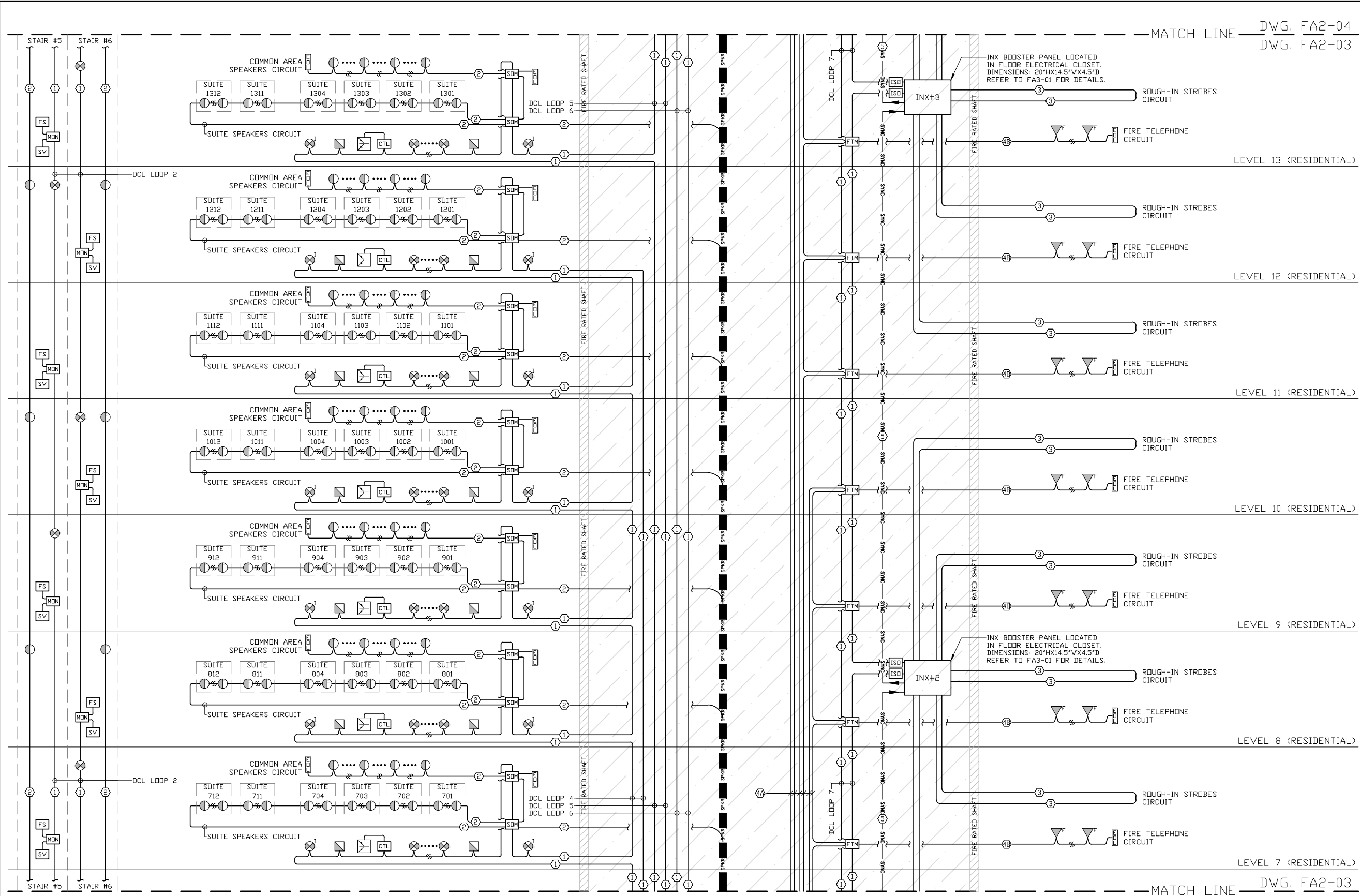
SHEET NO.
FA2-02

DRAWN BY:
JBN

DESIGNED BY:
JBN

APPROVED BY:

ISSUE DATE:



FIRE ALARM RISER DIAGRAM
LEVEL 7 TO 13

MATCH LINE DWG. FA2-04
DWG. FA2-03

MATCH LINE DWG. FA2-03
DWG. FA2-02

DRAWING NOTES:

1. THIS IS A TYPICAL DRAWING AND DOES NOT REFLECT THE ACTUAL SYSTEM CONNECTIONS IN A PARTICULAR BUILDING. FOR THE ACTUAL NUMBER OF DEVICES / MODULES / BOOSTER PANELS / CIRCUITS, REFER TO THE MIRC'DM BILL OF MATERIALS PREPARED BY MIRC'DM'S REPRESENTATIVE. CONTRACTOR TO USE THIS DRAWING FOR TYPICAL CONNECTION OF DEVICES AND PANELS ONLY.
2. REFER TO ELECTRICAL FLOOR PLANS FOR THE EXACT DESIGN, LOCATION OF DEVICES AND QUANTITIES IN EACH FLOOR.
3. REFER TO SPRINKLER DRAWINGS FOR THE EXACT LOCATION OF SPRINKLER DEVICES AND QUANTITIES.
4. SUITE MINI-HORNS / STROBES AND COMMON AREA HORNS / HORN-STROBES SHALL BE OF THE SAME SYNCHRONIZATION PROTOCOL (EITHER MIRC'DM PROTOCOL OR SYSTEM SENSOR PROTOCOL).
5. THE NUMBER OF CIRCUITS SHOWN IN THIS RISER DIAGRAM IS INDICATIVE ONLY. THE EXACT NUMBER OF NOTIFICATION CIRCUITS AND NOTIFICATION DEVICES PER CIRCUIT IS TO BE CALCULATED SO THAT THE VOLTAGE DROPS AND LOADS ARE IN-LINE WITH FAI-01 SECTION 7. NUMBER OF DEVICES PER LOOP SHOULD NOT EXCEED 80% OF THE TOTAL LOOP CAPACITY (240 DEVICES PER LOOP).
7. SHORT CIRCUIT ISOLATORS TO BE ADDED WHERE NEEDED, IN ACCORDANCE WITH ZONING AND ULC-S524-2019 REQUIREMENTS. REFER TO FIRE ALARM ZONE SCHEDULE AND LAYOUT FA9-01 FOR DETAILS.
8. ELECTRICAL CONTRACTOR TO CONFIRM THE 24VDC CABLE SIZE BETWEEN THE FACP AND FIRE ANNUNCIATOR, WHEN THE LATTER IS POWERED FROM THE FACP. CABLE SIZE IS TO BE SELECTED ACCORDING TO FAI-01 / SECTION 7.
9. PANEL BATTERIES AND BATTERY SIZES ARE SHOWN ON THE DRAWING FOR INDICATION ONLY. ELECTRICAL CONTRACTOR / MIRC'DM'S ESTIMATOR OR SALESMAN TO PERFORM BATTERY CALCULATIONS AND DETERMINE THE EXACT REQUIRED BATTERIES SIZES ACCORDING TO THE REQUESTED AUTONOMY.
10. INX-10A POWER BOOSTERS ARE NOT COMPATIBLE WITH CSIS-202A1 SIGNAL ISOLATORS. USE FA-1000 POWER BOOSTERS WITH SGM-1004S INSTEAD.
11. SPEAKER POWER OUTPUTS, AUDIO CIRCUITS POWER OUTPUTS AND AMPLIFIER POWER OUTPUTS SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY. ELECTRICAL CONTRACTOR TO FOLLOW THE AMPLIFIER SIZES SELECTED IN THE BILL OF MATERIALS RECEIVED FROM MIRC'DM AND SELECT THE ACTUAL WIRE SIZE ACCORDING TO SECTION FAI-01 / SECTION 6.

ABBREVIATIONS:
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REVISIONS & ISSUES

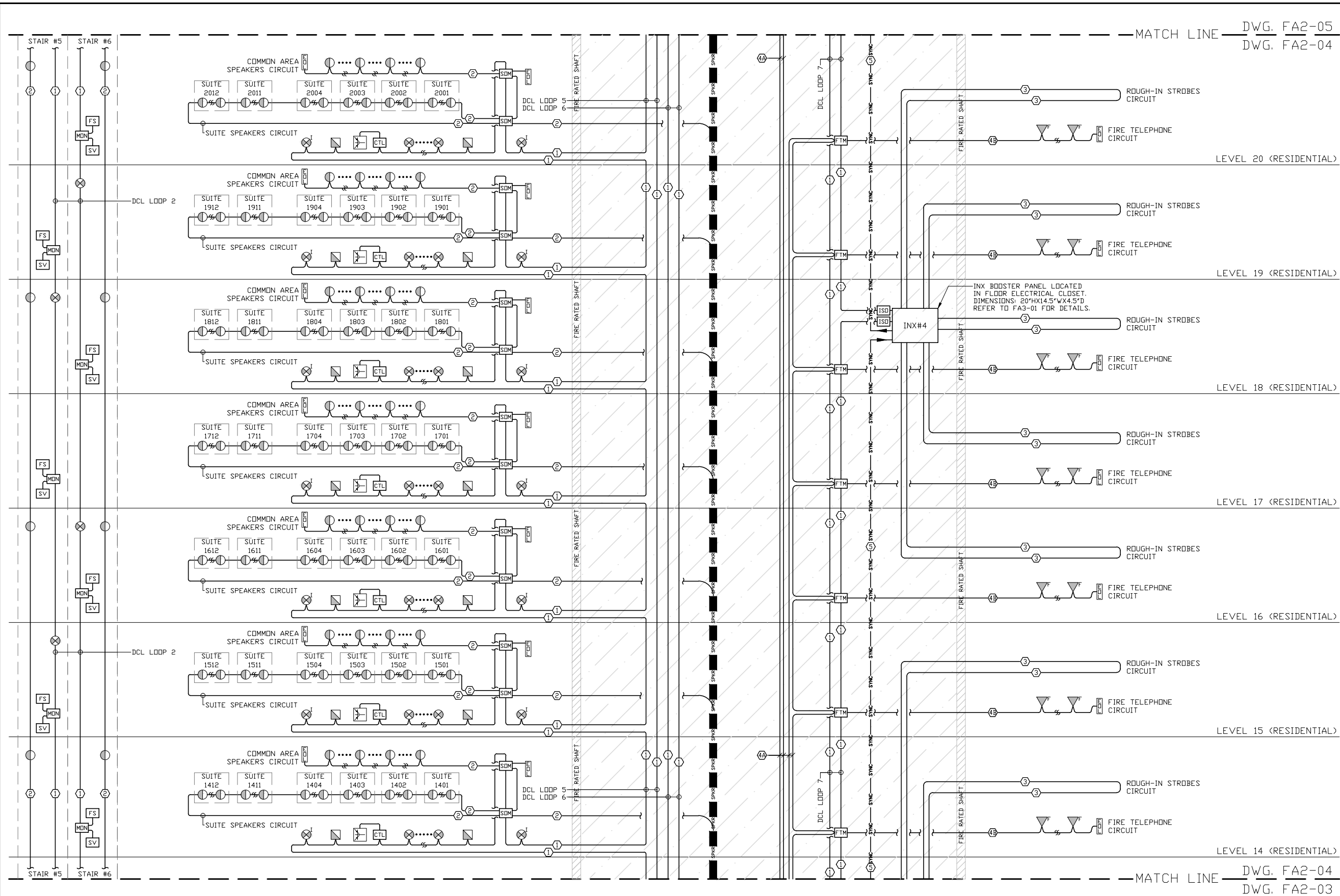
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PROJECT NAME:
 TYPICAL RISER DIAGRAM
 HIGH-RISE MIXED USE - MODEL H2
 PROJECT ADDRESS

SHEET TITLE:
 FIRE ALARM RISER DIAGRAM
 LAYOUT 3 OF 6

SHEET NO.
 FA2-03

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| DRAWN BY: JBN | DESIGNED BY: JBN |
| APPROVED BY: | ISSUE DATE: |



FIRE ALARM RISER DIAGRAM
LEVEL 14 TO 20

- DRAWING NOTES:**
- THIS IS A TYPICAL DRAWING AND DOES NOT REFLECT THE ACTUAL SYSTEM CONNECTIONS IN A PARTICULAR BUILDING. FOR THE ACTUAL NUMBER OF DEVICES / MODULES / PANEL INTERNAL ADDRESSES / DISPLAY MODULES / BOOSTER PANELS / CIRCUITS, REFER TO THE MIRCDCM BILL OF MATERIALS PREPARED BY MIRCDCM'S REPRESENTATIVE. CONTRACTOR TO USE THIS DRAWING FOR TYPICAL CONNECTION OF DEVICES AND PANELS ONLY.
 - REFER TO ELECTRICAL FLOOR PLANS FOR THE EXACT DESIGN, LOCATION OF DEVICES AND QUANTITIES IN EACH FLOOR.
 - REFER TO SPRINKLER DRAWINGS FOR THE EXACT LOCATION OF SPRINKLER DEVICES AND QUANTITIES.
 - SUITE MINI-HORNS / STROBES AND COMMON AREA HORNS / HORN-STROBES SHALL BE OF THE SAME SYNCHRONIZATION PROTOCOL (EITHER MIRCDCM PROTOCOL OR SYSTEM SENSOR PROTOCOL).
 - THE NUMBER OF CIRCUITS SHOWN IN THIS RISER DIAGRAM IS INDICATIVE ONLY. THE EXACT NUMBER OF NOTIFICATION CIRCUITS AND NOTIFICATION DEVICES PER CIRCUIT IS TO BE CALCULATED SO THAT THE VOLTAGE DROPS AND LOADS ARE IN-LINE WITH FAI-01 SECTION 7.
 - NUMBER OF DEVICES PER LOOP SHOULD NOT EXCEED 80% OF THE TOTAL LOOP CAPACITY (240 DEVICES PER LOOP).
 - SHORT CIRCUIT ISOLATORS TO BE ADDED WHERE NEEDED, IN ACCORDANCE WITH ZONING AND ULC-S524-2019 REQUIREMENTS. REFER TO FIRE ALARM ZONE SCHEDULE AND LAYOUT FA9-01 FOR DETAILS.
 - ELECTRICAL CONTRACTOR TO CONFIRM THE 24VDC CABLE SIZE BETWEEN THE FACP AND FIRE ANNUNCIATOR, WHEN THE LATTER IS POWERED FROM THE FACP. CABLE SIZE IS TO BE SELECTED ACCORDING TO FAI-01 / SECTION 7.
 - PANEL BATTERIES AND BATTERY SIZES ARE SHOWN ON THE DRAWING FOR INDICATION ONLY. ELECTRICAL CONTRACTOR / MIRCDCM'S ESTIMATOR OR SALESMAN TO PERFORM BATTERY CALCULATIONS AND DETERMINE THE EXACT REQUIRED BATTERIES SIZES ACCORDING TO THE REQUESTED AUTONOMY.
 - INX-10A POWER BOOSTERS ARE NOT COMPATIBLE WITH CSIS-202A1 SIGNAL ISOLATORS. USE FA-1000 POWER BOOSTERS WITH SGM-1004S INSTEAD.
 - SPEAKER POWER OUTPUTS, AUDIO CIRCUITS POWER OUTPUTS AND AMPLIFIER POWER OUTPUTS SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY. ELECTRICAL CONTRACTOR TO FOLLOW THE AMPLIFIER SIZES SELECTED IN THE BILL OF MATERIALS RECEIVED FROM MIRCDCM AND SELECT THE ACTUAL WIRE SIZE ACCORDING TO SECTION FAI-01 / SECTION 6.

ABBREVIATIONS:

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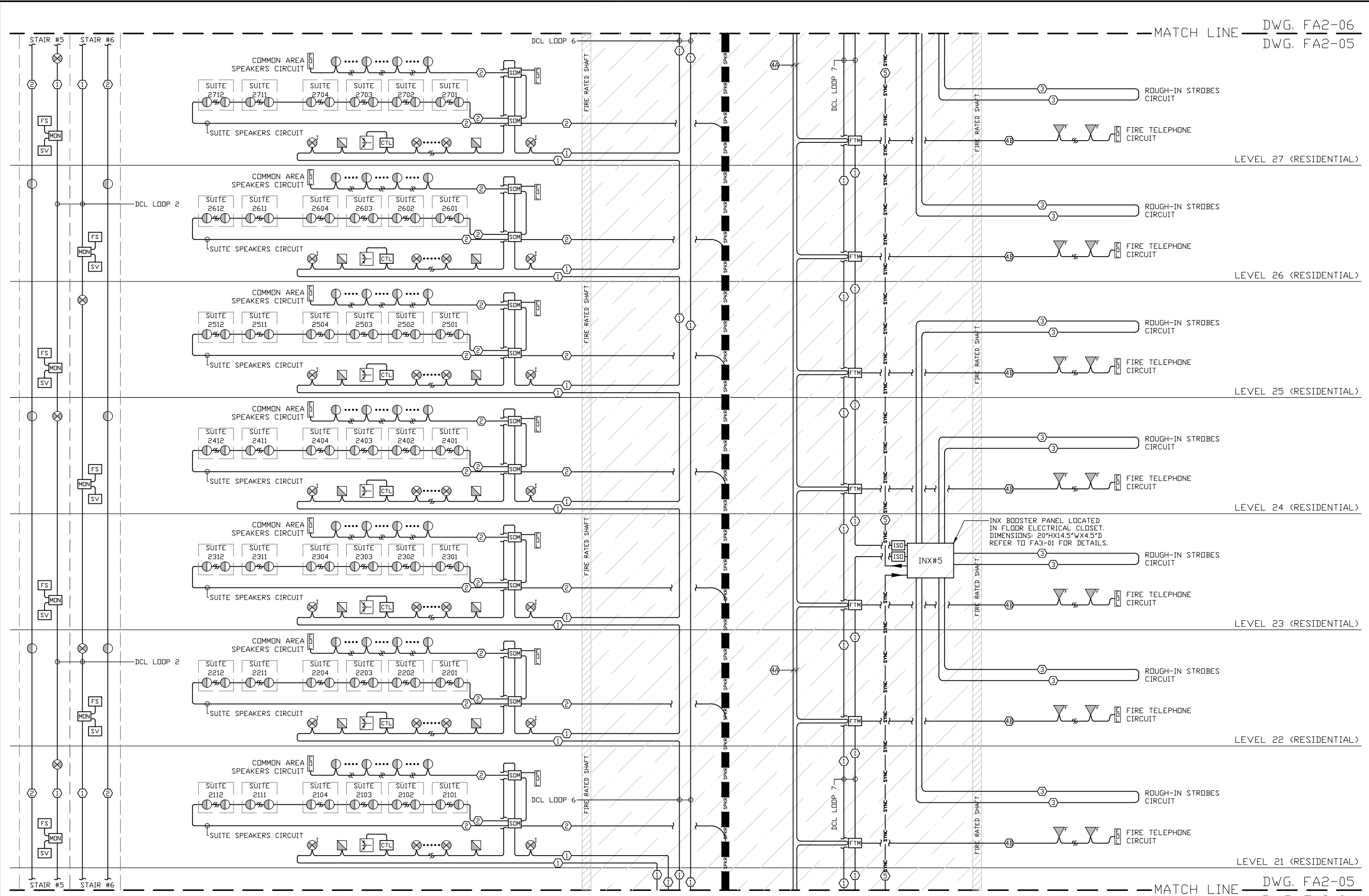
PROJECT NAME:
TYPICAL RISER DIAGRAM
HIGH-RISE MIXED USE - MODEL H2

PROJECT ADDRESS

SHEET TITLE:
FIRE ALARM RISER DIAGRAM
LAYOUT 4 OF 6

SHEET NO.
FA2-04

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| DRAWN BY: JBN | DESIGNED BY: JBN |
| APPROVED BY: | ISSUE DATE: |



FIRE ALARM RISER DIAGRAM
LEVEL 21 TO 27

DRAWING NOTES:

- THIS IS A TYPICAL DRAWING AND DOES NOT REFLECT THE ACTUAL SYSTEM CONNECTIONS IN A PARTICULAR BUILDING. FOR THE ACTUAL NUMBER OF DEVICES / MODULES / PANEL INTERNAL ADDERS / DISPLAY MODULES / BOOSTER PANELS / CIRCUITS, REFER TO THE MIRC'DM BILL OF MATERIALS PREPARED BY MIRC'DM'S REPRESENTATIVE. CONTRACTOR TO USE THIS DRAWING FOR TYPICAL CONNECTION OF DEVICES AND PANELS ONLY.
- REFER TO ELECTRICAL FLOOR PLANS FOR THE EXACT DESIGN, LOCATION OF DEVICES AND QUANTITIES IN EACH FLOOR.
- REFER TO SPRINKLER DRAWINGS FOR THE EXACT LOCATION OF SPRINKLER DEVICES AND QUANTITIES.
- SUITE MINI-HORNS / STROBES AND COMMON AREA HORNS / HORN-STROBES SHALL BE OF THE SAME SYNCHRONIZATION PROTOCOL (EITHER MIRC'DM PROTOCOL OR SYSTEM SENSOR PROTOCOL).
- THE NUMBER OF CIRCUITS SHOWN IN THIS RISER DIAGRAM IS INDICATIVE ONLY. THE EXACT NUMBER OF NOTIFICATION CIRCUITS AND NOTIFICATION DEVICES PER CIRCUIT IS TO BE CALCULATED SO THAT THE VOLTAGE DROPS AND LOADS ARE IN-LINE WITH FAI-01 SECTION 7. NUMBER OF DEVICES PER LOOP SHOULD NOT EXCEED 80% OF THE TOTAL LOOP CAPACITY (240 DEVICES PER LOOP).
- SHORT CIRCUIT ISOLATORS TO BE ADDED WHERE NEEDED, IN ACCORDANCE WITH ZONING AND ULC-S524-2019 REQUIREMENTS. REFER TO FIRE ALARM ZONE SCHEDULE AND LAYOUT FA9-01 FOR DETAILS.
- ELECTRICAL CONTRACTOR TO CONFIRM THE 24VDC CABLE SIZE BETWEEN THE FACP AND FIRE ANNUNCIATOR, WHEN THE LATTER IS POWERED FROM THE FACP. CABLE SIZE IS TO BE SELECTED ACCORDING TO FAI-01 / SECTION 7.
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- INX-10A POWER BOOSTERS ARE NOT COMPATIBLE WITH CSIS-202A1 SIGNAL ISOLATORS. USE FA-1000 POWER BOOSTERS WITH SGM-1004S INSTEAD.
- SPEAKER POWER OUTPUTS, AUDIO CIRCUITS POWER OUTPUTS AND AMPLIFIER POWER OUTPUTS SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY. ELECTRICAL CONTRACTOR TO FOLLOW THE AMPLIFIER SIZES SELECTED IN THE BILL OF MATERIALS RECEIVED FROM MIRC'DM AND SELECT THE ACTUAL WIRE SIZE ACCORDING TO SECTION FAI-01 / SECTION 6.

- ABBREVIATIONS:
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 - DCL = DATA COMMUNICATION LOOP
 - RI = ROUGH-IN
 - WP = WEATHERPROOF
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PROJECT NAME:
TYPICAL RISER DIAGRAM
HIGH-RISE MIXED USE - MODEL H2

PROJECT ADDRESS

SHEET TITLE:
FIRE ALARM RISER DIAGRAM
LAYOUT 5 OF 6

SHEET NO.
FA2-05

DRAWN BY:
JBN

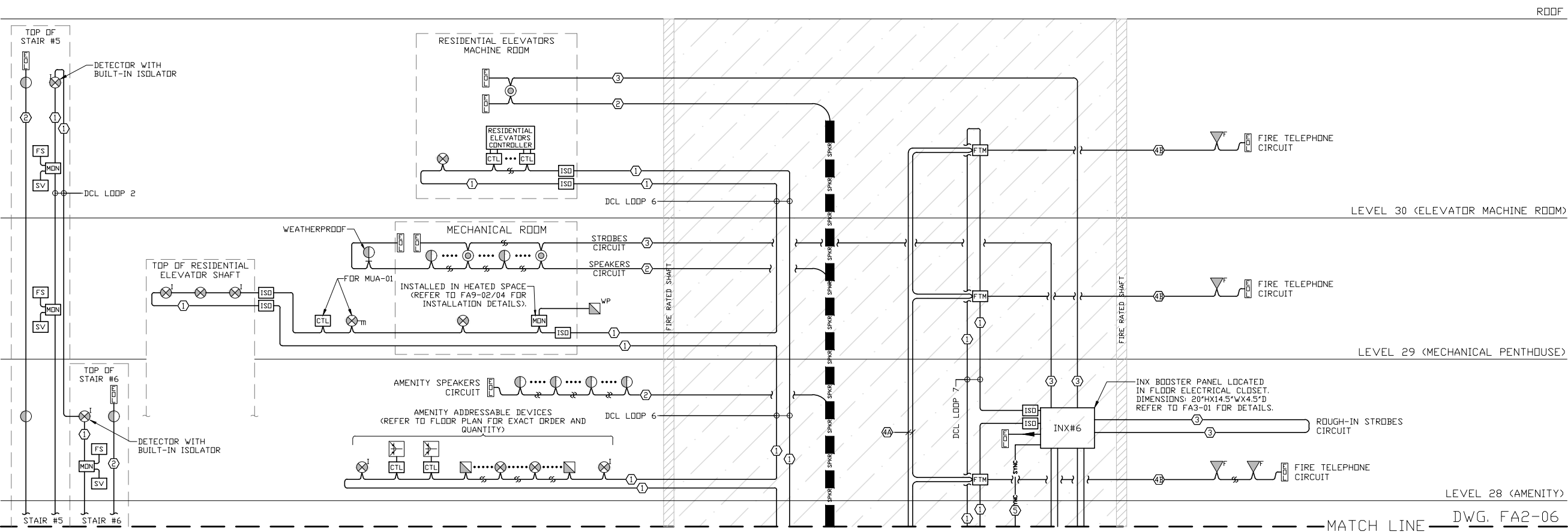
DESIGNED BY:
JBN

APPROVED BY:

ISSUE DATE:

- DRAWING NOTES:**
1. THIS IS A TYPICAL DRAWING AND DOES NOT REFLECT THE ACTUAL SYSTEM CONNECTIONS IN A PARTICULAR BUILDING. FOR THE ACTUAL NUMBER OF DEVICES / MODULES / PANEL INTERNAL ADDERS / DISPLAY MODULES / BOOSTER PANELS / CIRCUITS, REFER TO THE MIRCDCM BILL OF MATERIALS PREPARED BY MIRCDCM'S REPRESENTATIVE. CONTRACTOR TO USE THIS DRAWING FOR TYPICAL CONNECTION OF DEVICES AND PANELS ONLY.
 2. REFER TO ELECTRICAL FLOOR PLANS FOR THE EXACT DESIGN, LOCATION OF DEVICES AND QUANTITIES IN EACH FLOOR.
 3. REFER TO SPRINKLER DRAWINGS FOR THE EXACT LOCATION OF SPRINKLER DEVICES AND QUANTITIES.
 4. SUITE MINI-HORNS / STROBES AND COMMON AREA HORNS / HORN-STROBES SHALL BE OF THE SAME SYNCHRONIZATION PROTOCOL (EITHER MIRCDCM PROTOCOL OR SYSTEM SENSOR PROTOCOL).
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 6. NUMBER OF DEVICES PER LOOP SHOULD NOT EXCEED 80% OF THE TOTAL LOOP CAPACITY (240 DEVICES PER LOOP).
 7. SHORT CIRCUIT ISOLATORS TO BE ADDED WHERE NEEDED, IN ACCORDANCE WITH ZONING AND ULC-S524-2019 REQUIREMENTS. REFER TO FIRE ALARM ZONE SCHEDULE AND LAYOUT FA9-01 FOR DETAILS.
 8. ELECTRICAL CONTRACTOR TO CONFIRM THE 24VDC CABLE SIZE BETWEEN THE FACP AND FIRE ANNUNCIATOR, WHEN THE LATTER IS POWERED FROM THE FACP. CABLE SIZE IS TO BE SELECTED ACCORDING TO FAI-01 / SECTION 7.
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 -RI = ROUGH-IN
 -VP = WEATHERPROOF
 -LF = LOW FREQUENCY



FIRE ALARM RISER DIAGRAM
 LEVEL 28 TO ROOF

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PROJECT NAME:
 TYPICAL RISER DIAGRAM
 HIGH-RISE MIXED USE - MODEL H2

PROJECT ADDRESS

SHEET TITLE:
 FIRE ALARM RISER DIAGRAM
 LAYOUT 6 OF 6

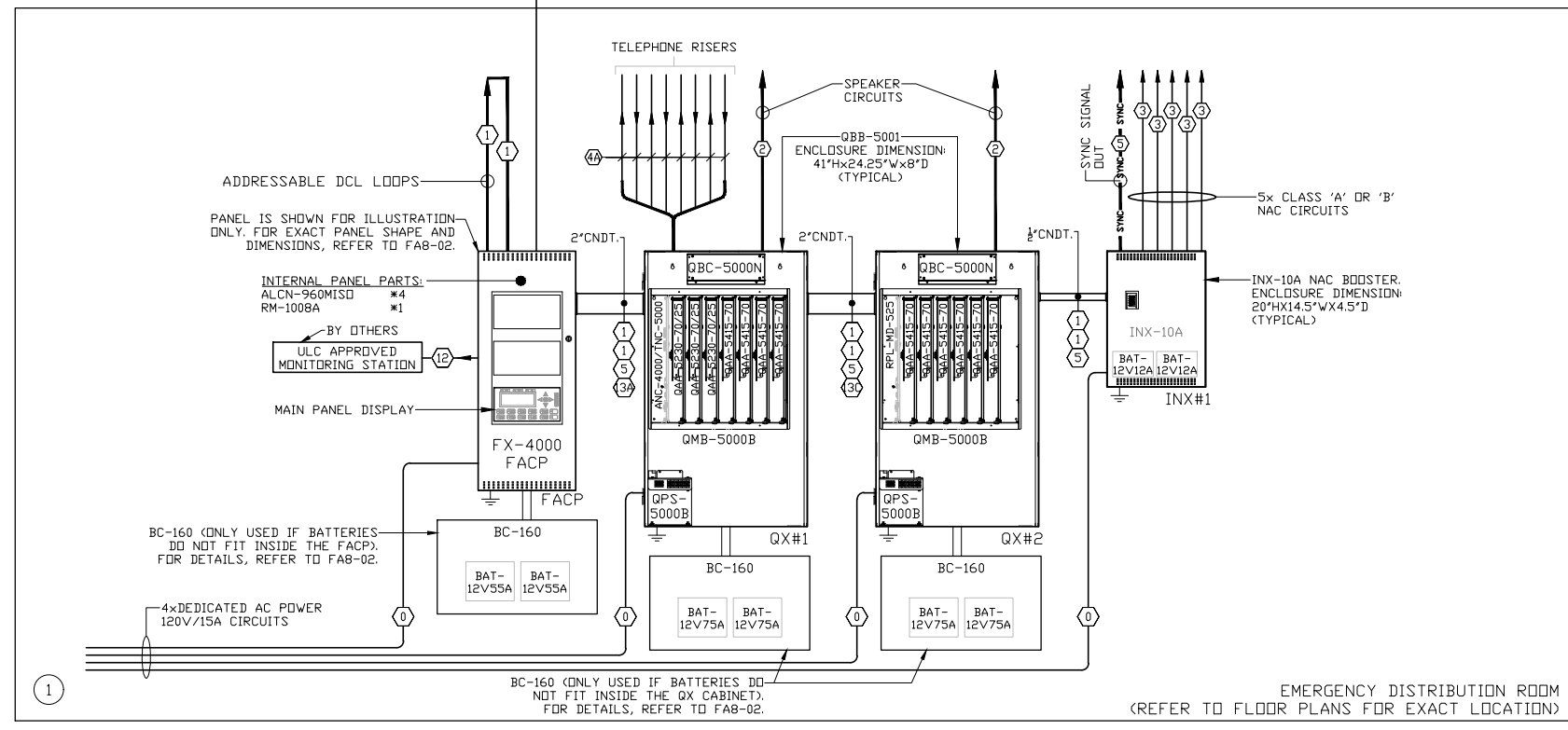
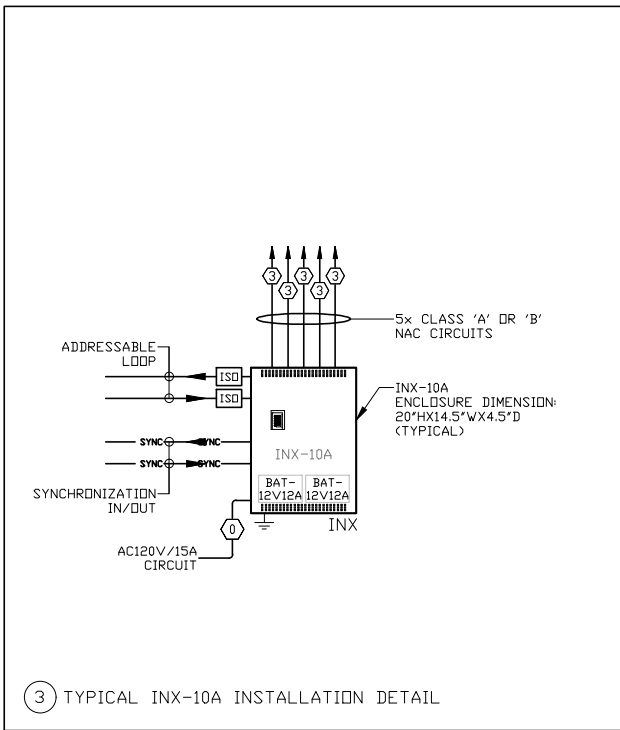
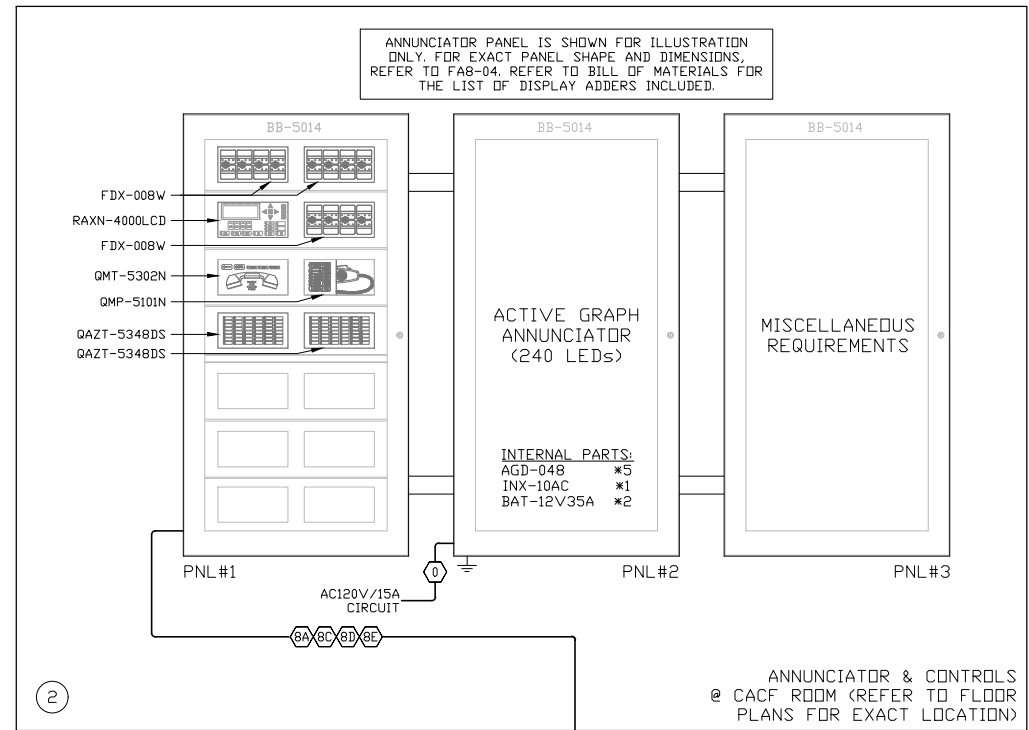
SHEET NO.
 FA2-06

DRAWN BY:
 JBN

DESIGNED BY:
 JBN

APPROVED BY:

ISSUE DATE:



DRAWING NOTES:

1. THIS IS A TYPICAL DRAWING AND DOES NOT REFLECT THE ACTUAL SYSTEM CONNECTIONS IN A PARTICULAR BUILDING. FOR THE ACTUAL NUMBER OF DEVICES / MODULES / PANEL INTERNAL ADDERS / DISPLAY MODULES / BOOSTER PANELS / CIRCUITS, REFER TO THE MIRC'DM BILL OF MATERIALS PREPARED BY MIRC'DM REPRESENTATIVE. CONTRACTOR TO USE THIS DRAWING FOR TYPICAL CONNECTION OF DEVICES AND PANELS ONLY.
2. REFER TO ELECTRICAL FLOOR PLANS FOR THE EXACT DESIGN, LOCATION OF DEVICES AND QUANTITIES IN EACH FLOOR.
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5. THE NUMBER OF CIRCUITS SHOWN IN THIS RISER DIAGRAM IS INDICATIVE ONLY. THE EXACT NUMBER OF NOTIFICATION CIRCUITS AND NOTIFICATION DEVICES PER CIRCUIT IS TO BE CALCULATED SO THAT THE VOLTAGE DROPS AND LOADS ARE IN-LINE WITH FAI-01 / SECTION 7.
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8. ELECTRICAL CONTRACTOR TO CONFIRM THE 24VDC CABLE SIZE BETWEEN THE FACP AND FIRE ANNUNCIATOR, WHEN THE LATTER IS POWERED FROM THE FACP. CABLE SIZE IS TO BE SELECTED ACCORDING TO FAI-01 / SECTION 7.
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| NO. | DATE (MM/DD/YYYY) | DESCRIPTION |
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PROJECT NAME:
TYPICAL RISER DIAGRAM
HIGH-RISE MIXED USE - MODEL H2

PROJECT ADDRESS

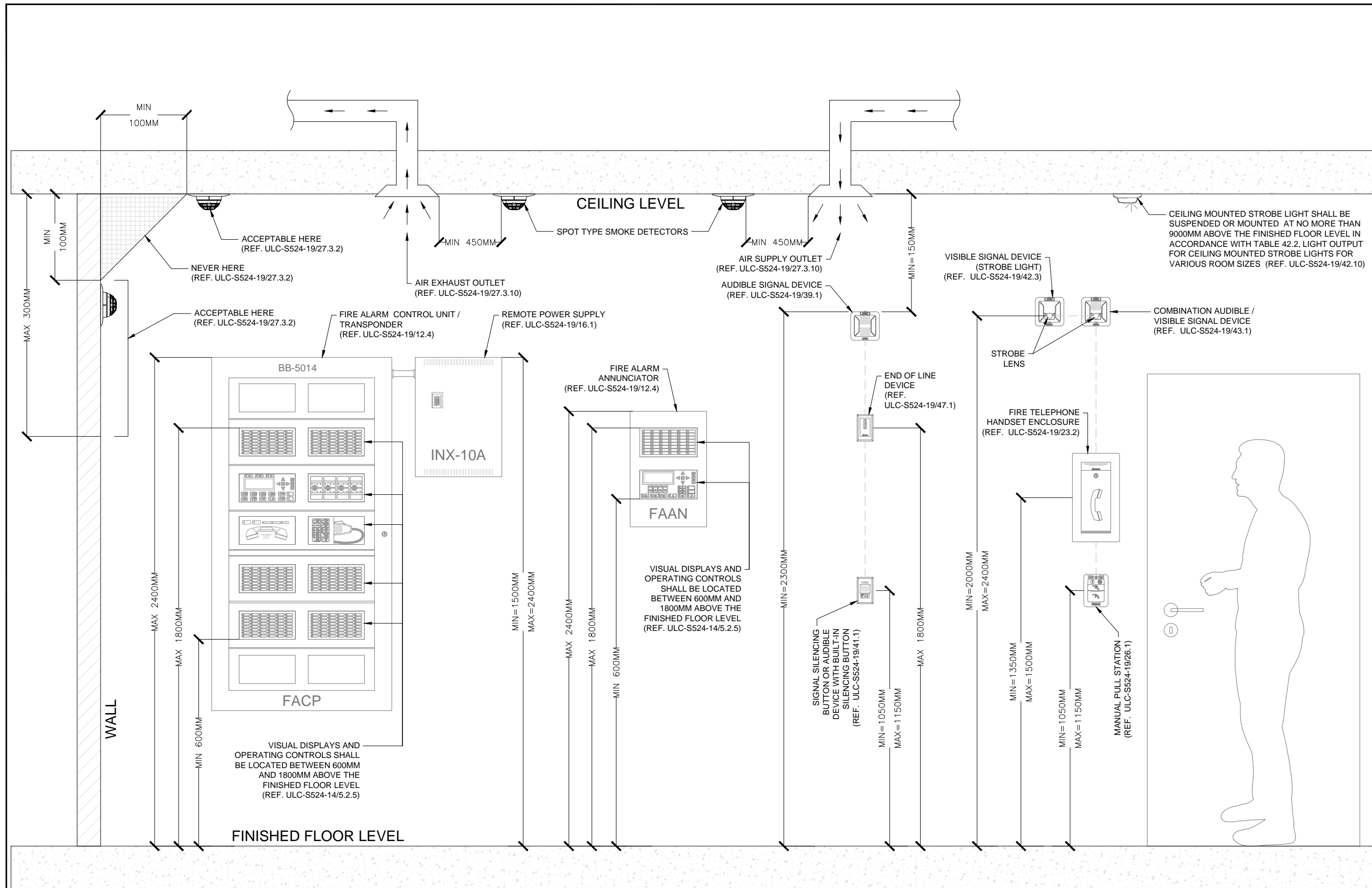
SHEET TITLE:
FIRE ALARM PANEL LAYOUT

SHEET NO.
FA3-01

DRAWN BY: JBN DESIGNED BY: JBN

APPROVED BY: ISSUE DATE:

FIRE ALARM PANEL LAYOUT



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| NO. | DATE (MM/DD/YYYY) | DESCRIPTION |
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REVISIONS & ISSUES

Mircom
ENGINEERED SYSTEMS
25 INTERCHANGE WAY,
VAUGHAN, ONTARIO L4K 5W3
TEL: (888) 660-4655 FAX: (888) 660-4113

PROJECT NAME:
TYPICAL RISER DIAGRAM

PROJECT ADDRESS

SHEET TITLE:
TYPICAL DEVICE HEIGHTS

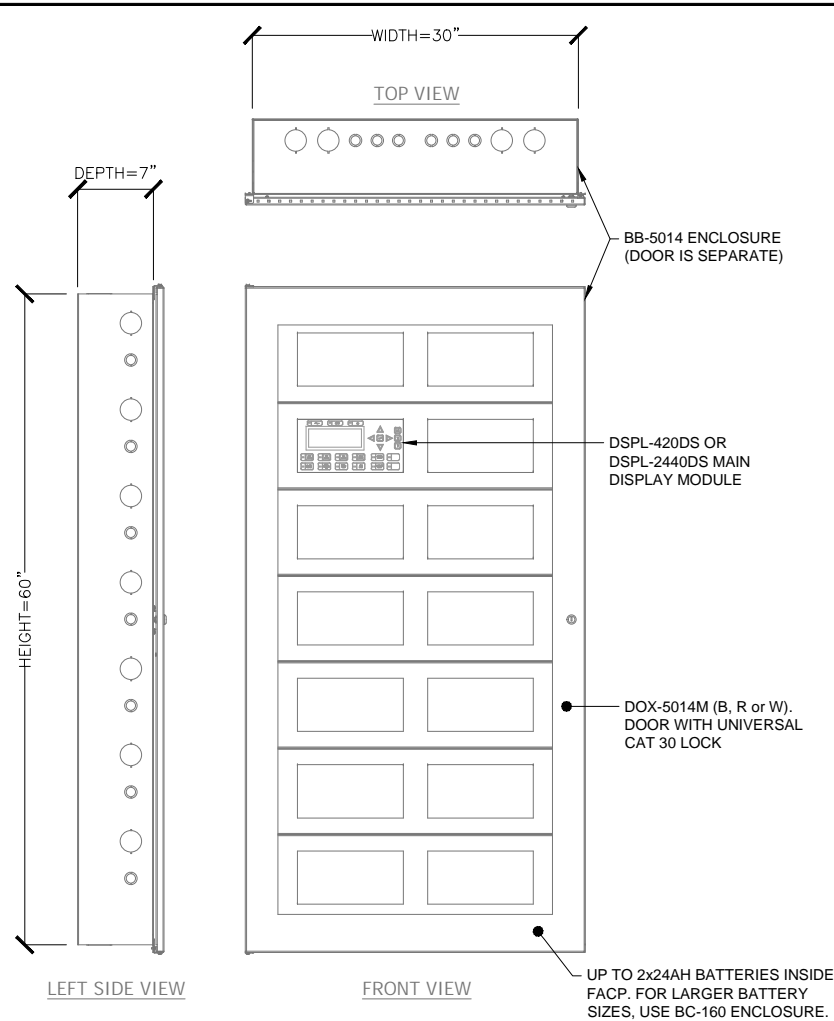
SHEET NO.
FA8-01

DRAWN BY:
JBN

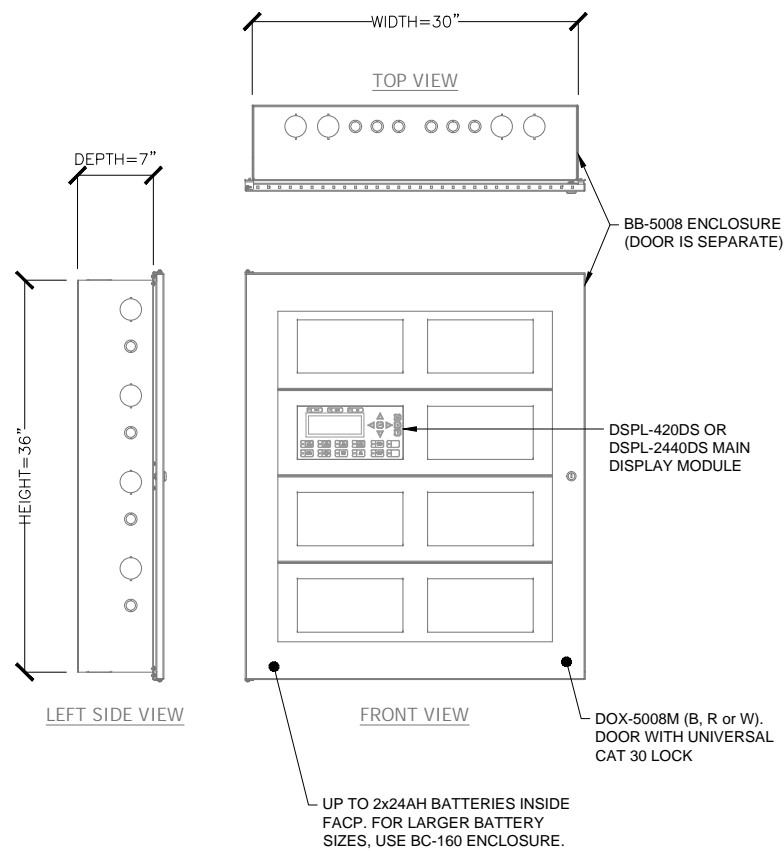
DESIGNED BY:
JBN

APPROVED BY:

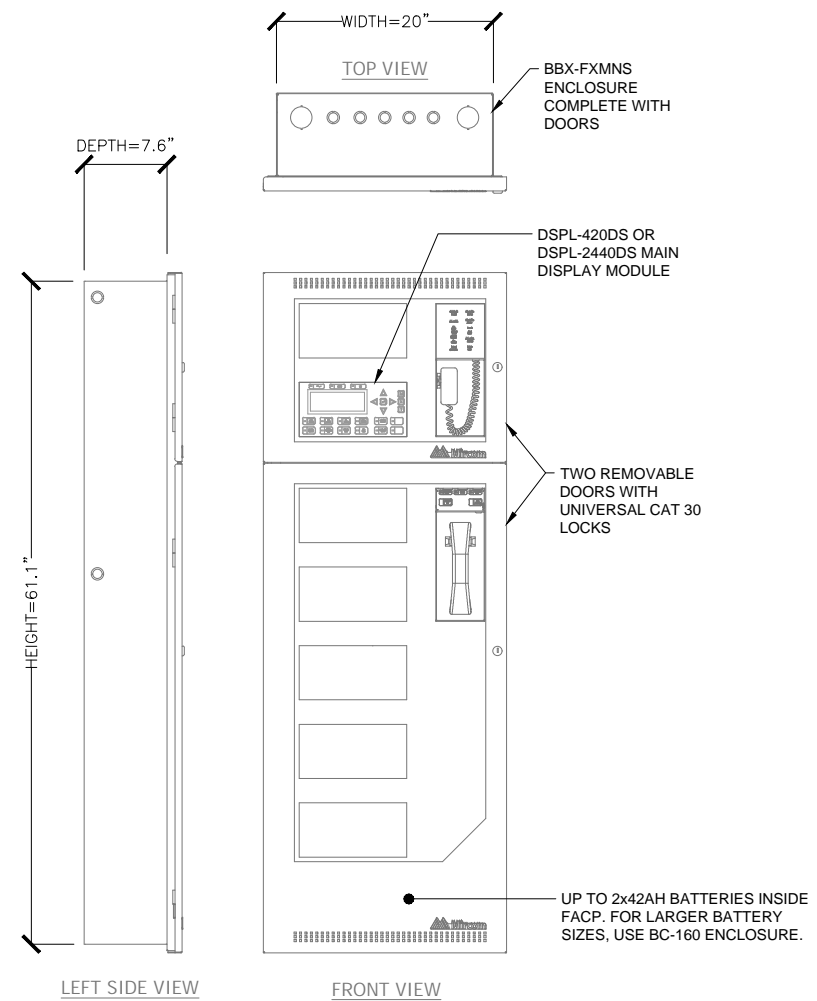
ISSUE DATE:



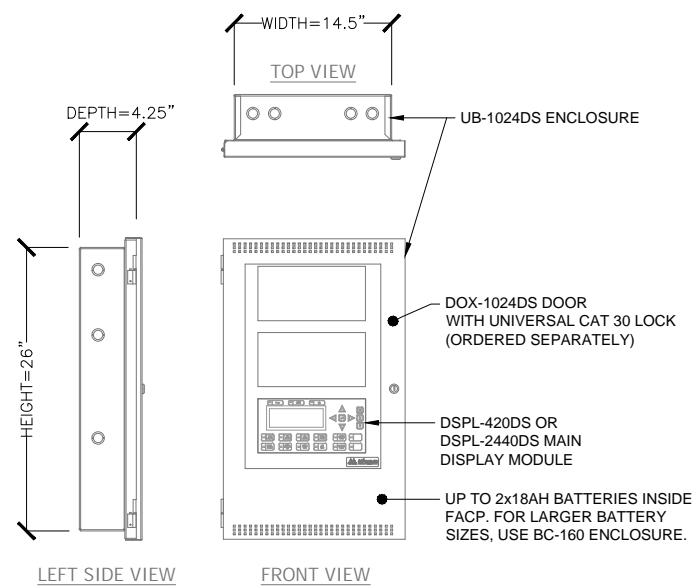
FX-4009-12N ENCLOSED IN A BB-5014 ENCLOSURE OR BB-5014 USED AS A LOBBY CONTROL ENCLOSURE.



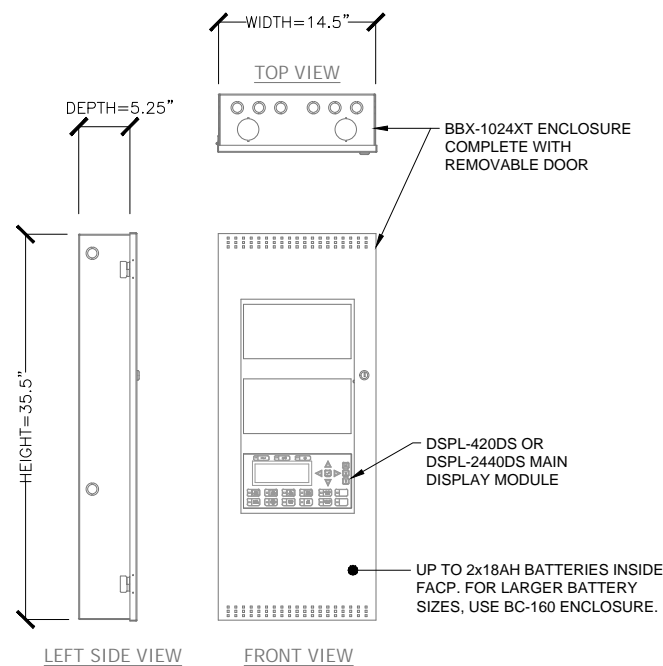
FX-4009-12N ENCLOSED IN A BB-5008 ENCLOSURE OR BB-5008 USED AS A LOBBY CONTROL ENCLOSURE.



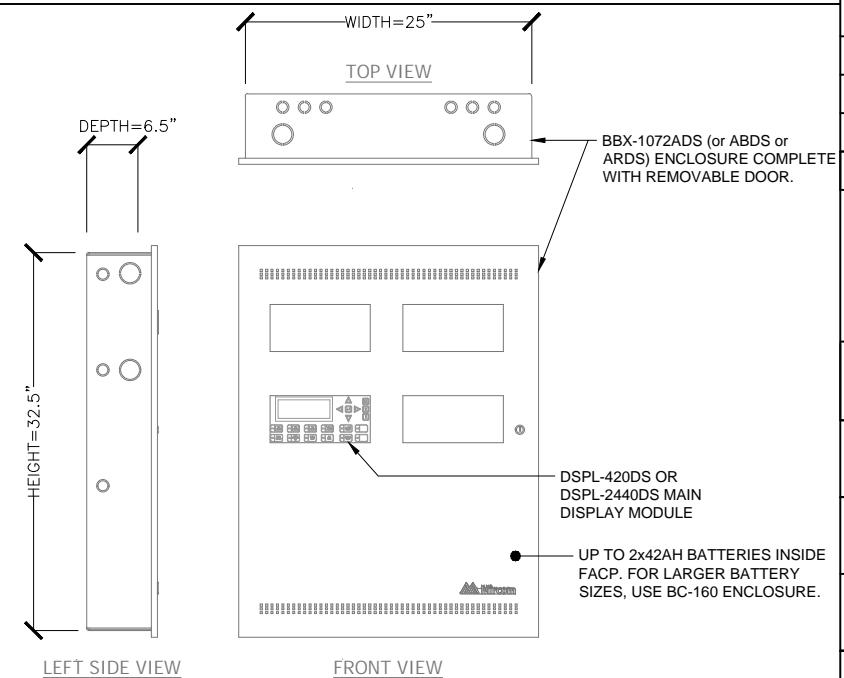
FX-4000MNS ENCLOSED IN A BBX-FXMNS ENCLOSURE.



FX-4003-12N ENCLOSED IN A UB-1024DS ENCLOSURE.



FX-4003-12NXT ENCLOSED IN A BBX-1024XT ENCLOSURE.



FX-4017-12N ENCLOSED IN A BBX-1072ABDS (or ARDS or ADS) ENCLOSURE.

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 TEL: (888) 660-4655 FAX: (888) 660-4113

PROJECT NAME:
 TYPICAL RISER DIAGRAM

PROJECT ADDRESS

SHEET TITLE:
 TYPICAL ENCLOSURE DETAILS
 LAYOUT 1 OF 3

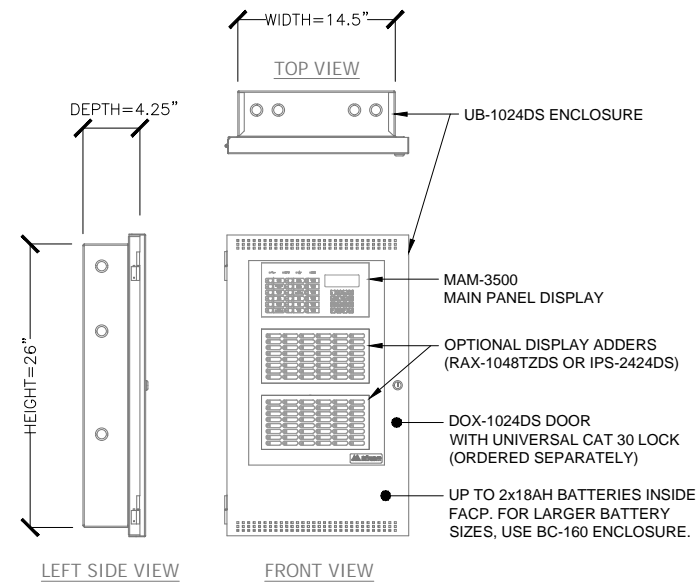
SHEET NO.
 FA8-02

DRAWN BY:
 JBN

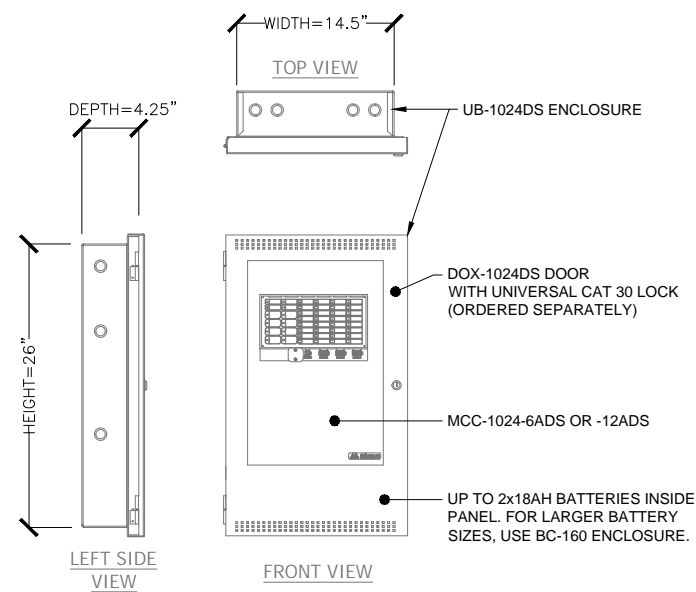
DESIGNED BY:
 JBN

APPROVED BY:

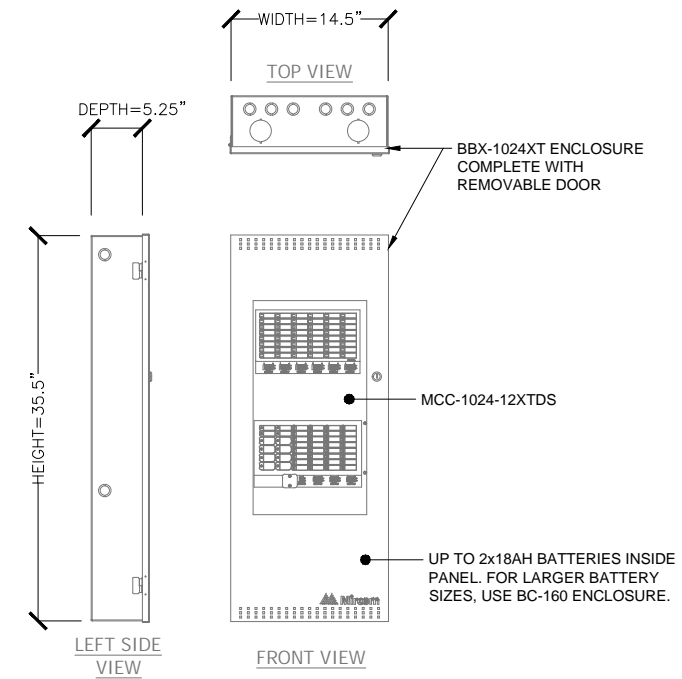
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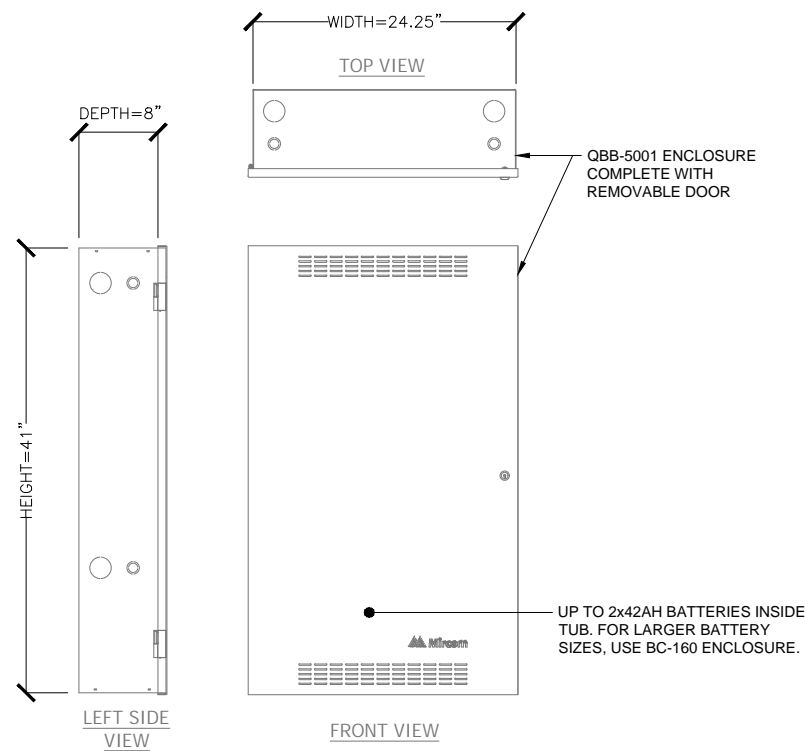
FX-401 ENCLOSED IN A UB-1024DS ENCLOSURE.



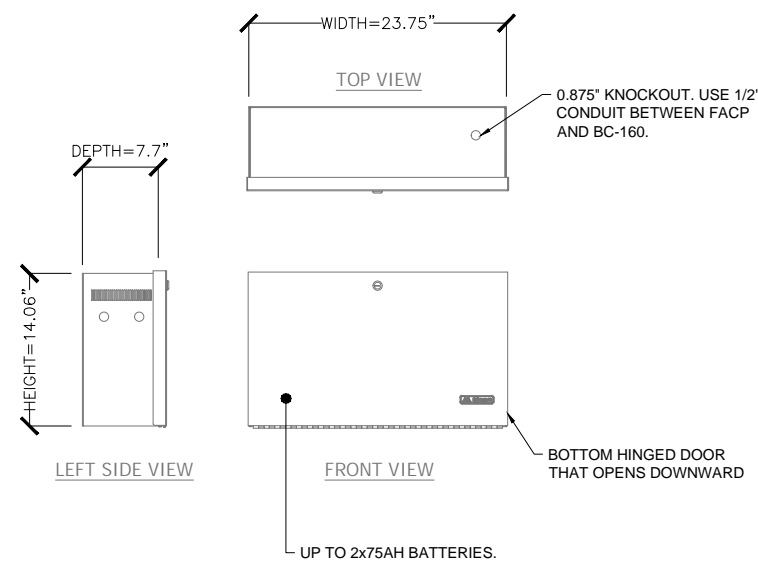
MCC-1024-6ADS OR MCC-1024-12ADS ENCLOSED IN A UB-1024DS ENCLOSURE.



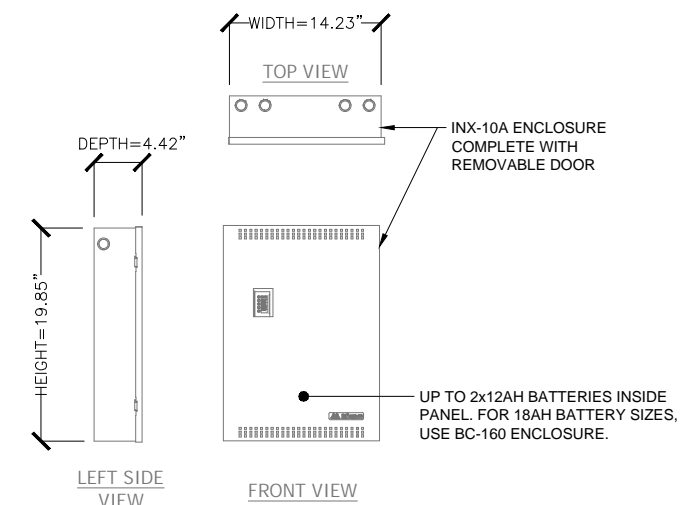
MCC-1024-12XTDS ENCLOSED IN A BBX-1024XT ENCLOSURE.



QBB-5001 AUDIO TUB ENCLOSURE.



BC-160 BATTERY CABINET.



INX-10A POWER BOOSTER

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REVISIONS & ISSUES

Mircom
ENGINEERED SYSTEMS
25 INTERCHANGE WAY,
VAUGHAN, ONTARIO L4K 5W3
TEL: (888) 660-4655 FAX: (888) 660-4113

PROJECT NAME:
TYPICAL RISER DIAGRAM

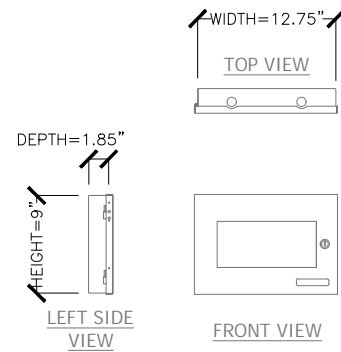
PROJECT ADDRESS

SHEET TITLE:
TYPICAL ENCLOSURE DETAILS
LAYOUT 2 OF 3

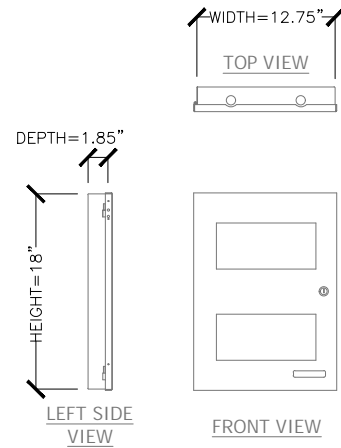
SHEET NO.
FA8-03

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| DRAWN BY: JBN | DESIGNED BY: JBN |
|------------------|---------------------|

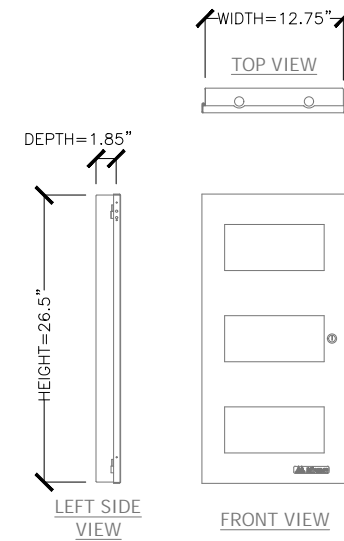
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| APPROVED BY: | ISSUE DATE: |
|--------------|-------------|



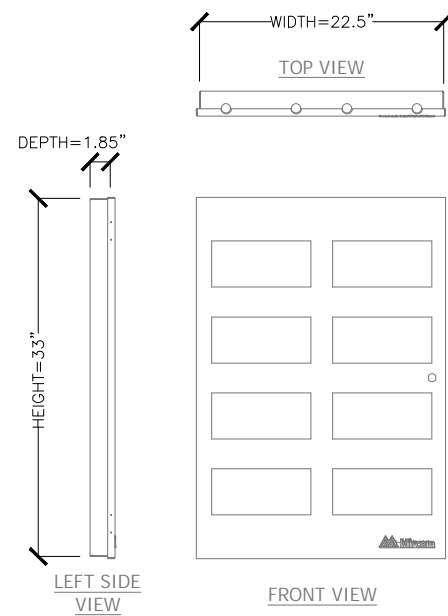
BB-1001D
1-MODULE ANNUNCIATOR ENCLOSURE
FOR INDOOR APPLICATIONS



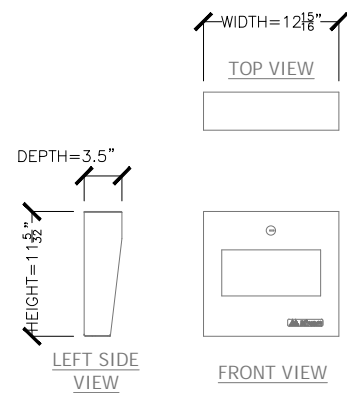
BB-1002D
2-MODULE ANNUNCIATOR ENCLOSURE
FOR INDOOR APPLICATIONS



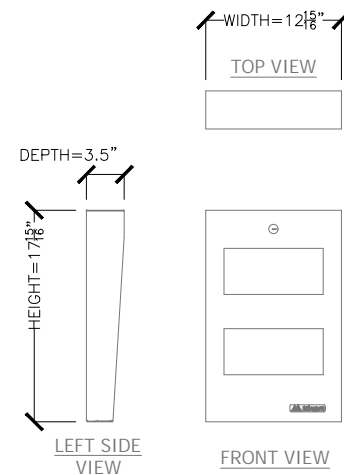
BB-1003D
3-MODULE ANNUNCIATOR ENCLOSURE
FOR INDOOR APPLICATIONS



BB-1008D
8-MODULE ANNUNCIATOR ENCLOSURE
FOR INDOOR APPLICATIONS



BB-1001WPA
1-MODULE ANNUNCIATOR, WEATHER PROTECTED
ENCLOSURE FOR OUTDOOR APPLICATIONS



BB-1002WPA
2-MODULE ANNUNCIATOR, WEATHER PROTECTED
ENCLOSURE FOR OUTDOOR APPLICATIONS

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REVISIONS & ISSUES

Mircom
ENGINEERED SYSTEMS
25 INTERCHANGE WAY,
VAUGHAN, ONTARIO L4K 5W3
TEL: (888) 660-4655 FAX: (888) 660-4113

PROJECT NAME:
TYPICAL RISER DIAGRAM

PROJECT ADDRESS

SHEET TITLE:
TYPICAL ENCLOSURE DETAILS
LAYOUT 3 OF 3

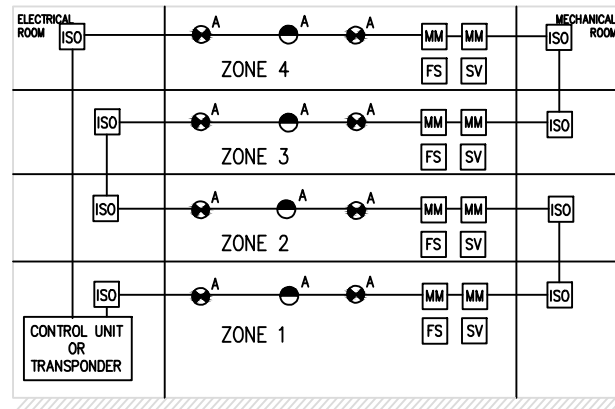
SHEET NO.
FA8-04

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| DRAWN BY: JBN | DESIGNED BY: JBN |
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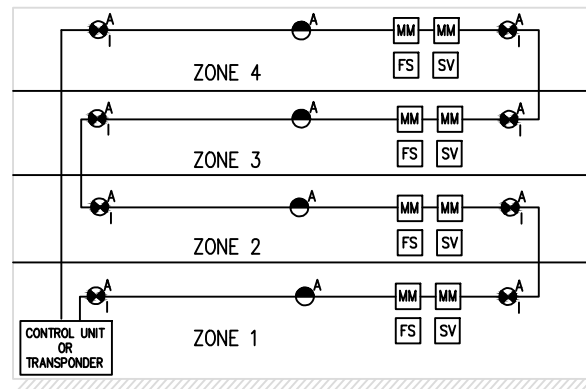
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| APPROVED BY: | ISSUE DATE: |
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TYPICAL ISOLATOR INSTALLATION

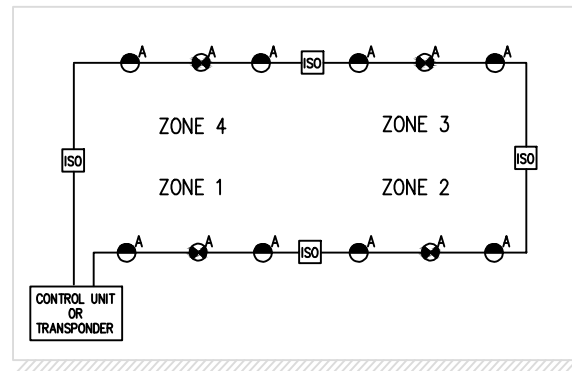
1. EXAMPLE OF ISOLATOR LOCATIONS BETWEEN FIRE ALARM ZONES
(REFERENCE ULC-S524-19 FIGURE: A18-9)



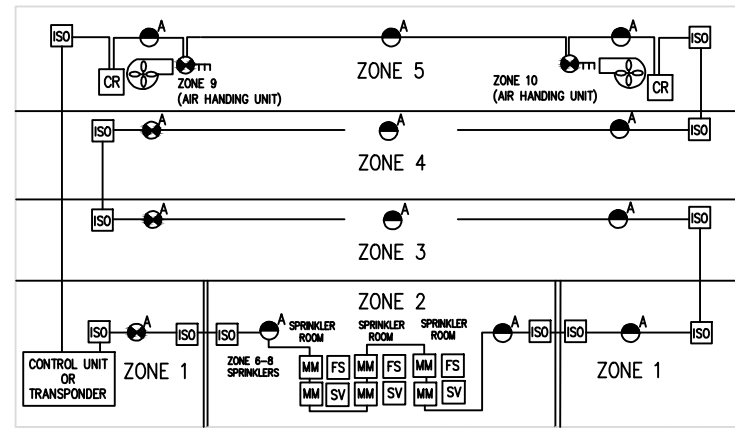
2. EXAMPLE OF FIELD DEVICES WITH INTERNAL ISOLATOR DEVICES BETWEEN FIRE ALARM ZONES
(REFERENCE ULC-S524-19 FIGURE: A18-10)



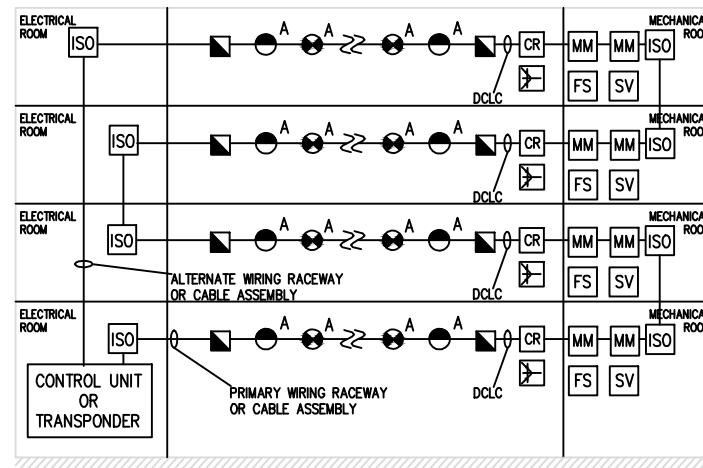
3. EXAMPLE OF ISOLATOR LOCATIONS FOR A LARGE OPEN AREA
(REFERENCE ULC-S524-19 CLAUSE: 48.6)



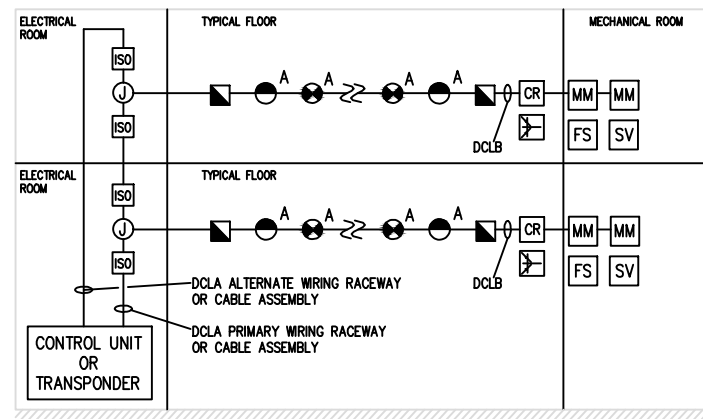
4. EXAMPLE OF ISOLATORS FOR SPRINKLER RISERS AND DUCT-TYPE SMOKE DETECTORS
(REFERENCE ULC-S524-19 FIGURE: A18-12)



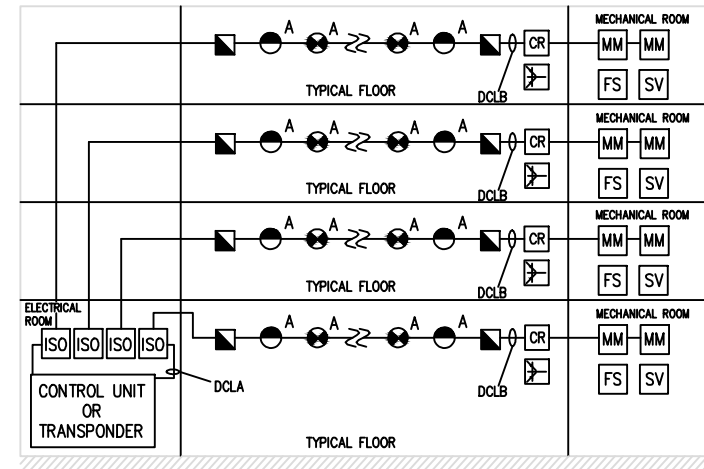
5. ACTIVE FIELD DEVICES AND SUPPORTING FIELD DEVICES CONNECTED TO DATA COMMUNICATION LINK STYLE C
(REFERENCE ULC-S524-19 FIGURE: 19.3)



6. FLOOR DATA COMMUNICATION LINK B (DCLB) CIRCUITS CONNECTED TO DATA COMMUNICATION LINK A (DCLA) INSTALLED IN FIRE-RATED STACKED ELECTRICAL ROOMS
(REFERENCE ULC-S524-19 FIGURE: 19.5)



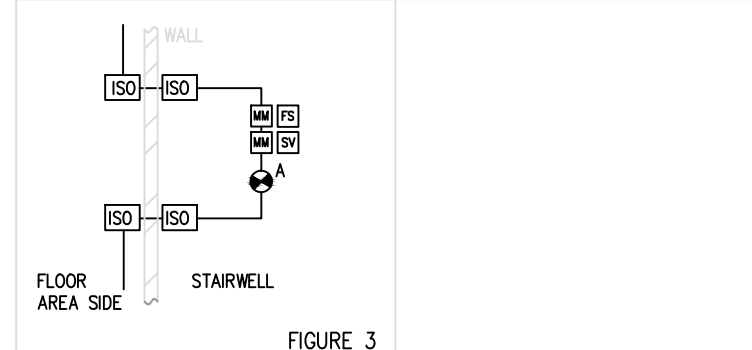
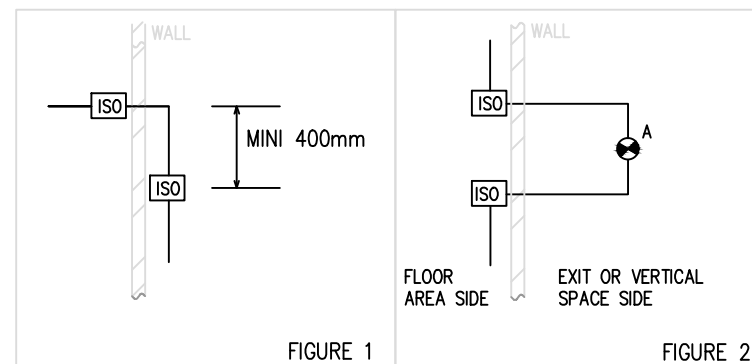
7. FLOOR DATA COMMUNICATION LINK B (DCLB) CIRCUITS CONNECTED TO DATA COMMUNICATION LINK A (DCLA) INSTALLED IN A SINGLE FIRE-RATED ELECTRICAL ROOM
(REFERENCE ULC-S524-19 FIGURE: A18-7)



8. FAULT ISOLATION MODULES INSTALLED ON OPPOSITE SIDES OF THE SAME FIRE SEPARATION SHALL BE OFFSET HORIZONTALLY TO A MINIMUM OF 400 MM, AND NOT LOCATED WITHIN THE SAME STUD SPACE.
(SEE FIGURE 1) - (REFERENCE ULC-S524-19 CLAUSE: 48.5)

9. FAULT ISOLATION MODULES SERVING A SINGLE FIELD DEVICE IN AN EXIT OR VERTICAL SERVICE.
NOTE: FAULT ISOLATION MODULES ARE NOT REQUIRED ON THE EXIT OR VERTICAL SERVICE SPACE SIDE.
(SEE FIGURE 2) - (REFERENCE ULC-S524-19 CLAUSE: 48.7)

10. FAULT ISOLATION MODULES SERVING MULTIPLE FIELD DEVICES IN AN EXIT STAIR.
NOTE: FAULT ISOLATION MODULES ARE REQUIRED ON THE EXIT OR VERTICAL SERVICE SPACE SIDE.
(SEE FIGURE 3) - (REFERENCE ULC-S524-19 CLAUSE: 48.4)



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REVISIONS & ISSUES

Mircom
ENGINEERED SYSTEMS
25 INTERCHANGE WAY,
VAUGHAN, ONTARIO L4K 5W3
TEL: (888) 660-4655 FAX: (888) 660-4113

PROJECT NAME:
TYPICAL RISER DIAGRAM

PROJECT ADDRESS

SHEET TITLE:
TYPICAL ISOLATOR INSTALLATION
DETAILS

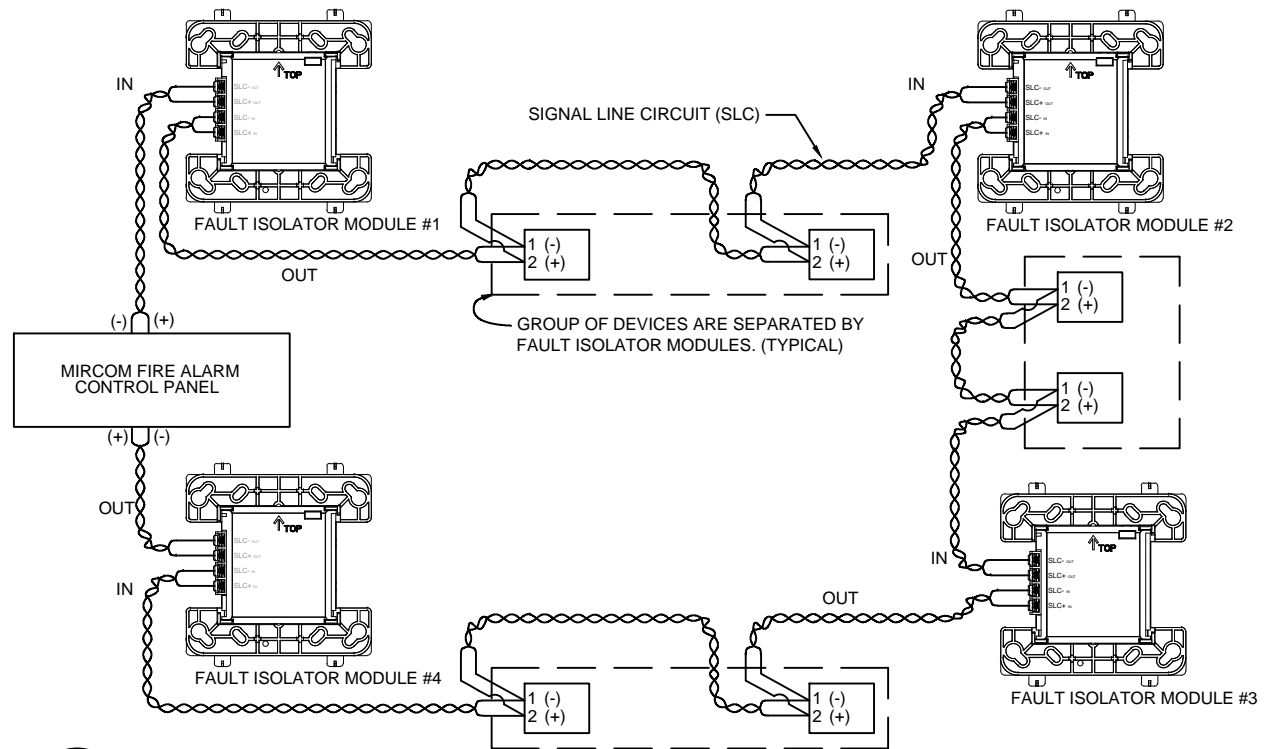
SHEET NO.
FA9-01

DRAWN BY:
JBN

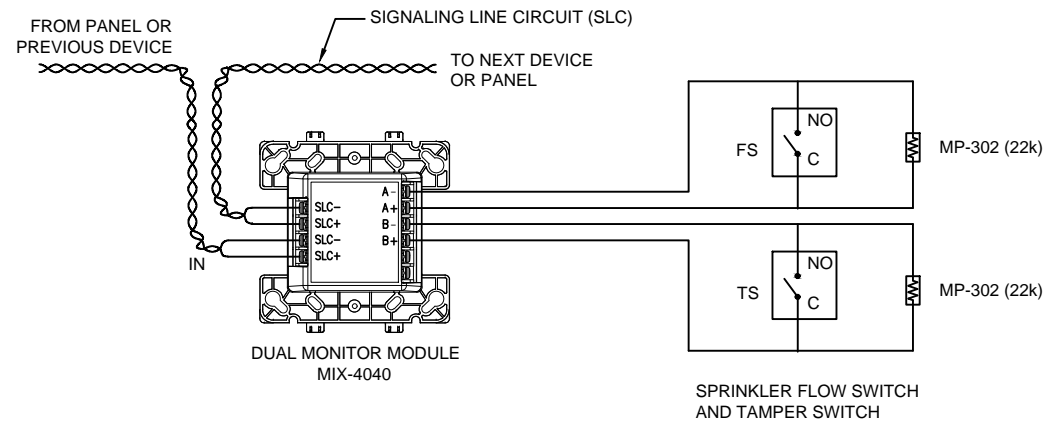
DESIGNED BY:
JBN

APPROVED BY:

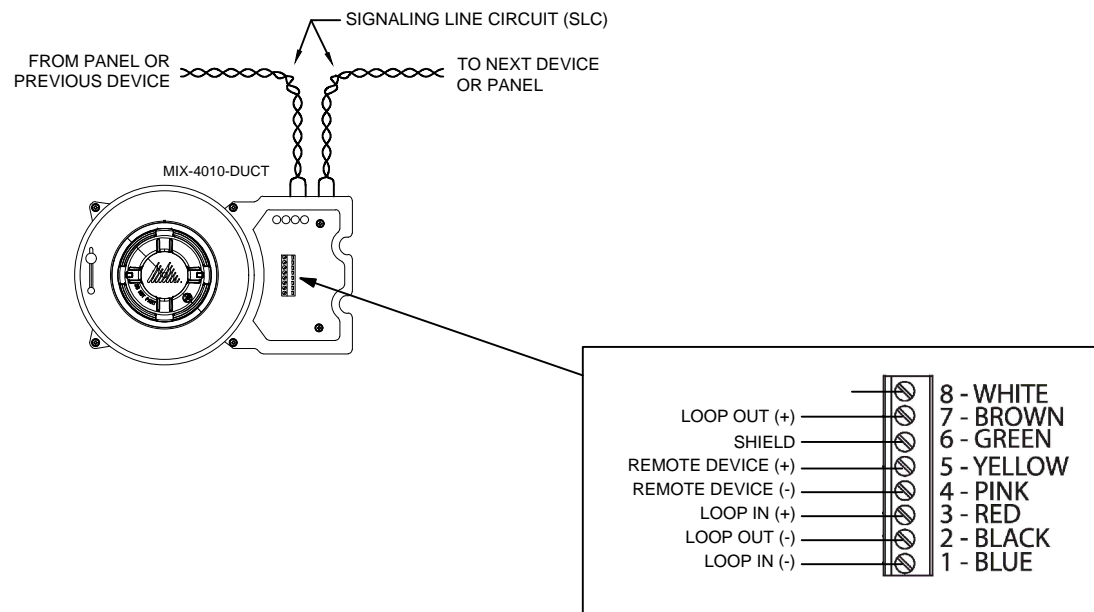
ISSUE DATE:



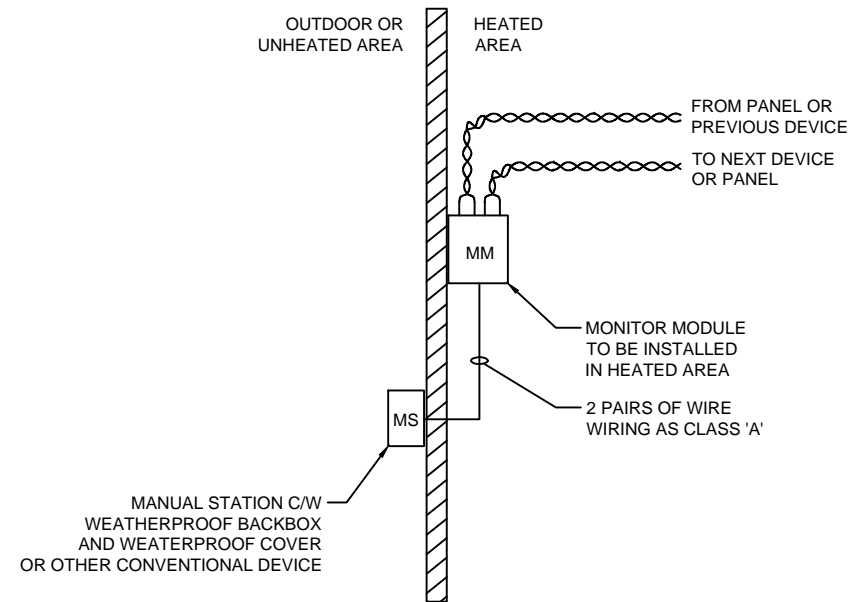
1 ISOLATOR WIRING DETAIL IN THE SLC LOOP



2 DUAL MONITOR MODULE MIX-4040 (OR MIX-4041) WIRING DIAGRAM FOR SPRINKLER FLOW SWITCH AND TAMPER SWITCH



3 DUCT SMOKE DETECTOR INSTALLATION



4 INITIATING DEVICES INSTALLATION AT OUTDOOR OR IN UNHEATED AREA

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| NO. | DATE (MM/DD/YYYY) | DESCRIPTION |
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REVISIONS & ISSUES

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ENGINEERED SYSTEMS
25 INTERCHANGE WAY,
VAUGHAN, ONTARIO L4K 5W3
TEL: (888) 660-4655 FAX: (888) 660-4113

PROJECT NAME:
TYPICAL RISER DIAGRAM

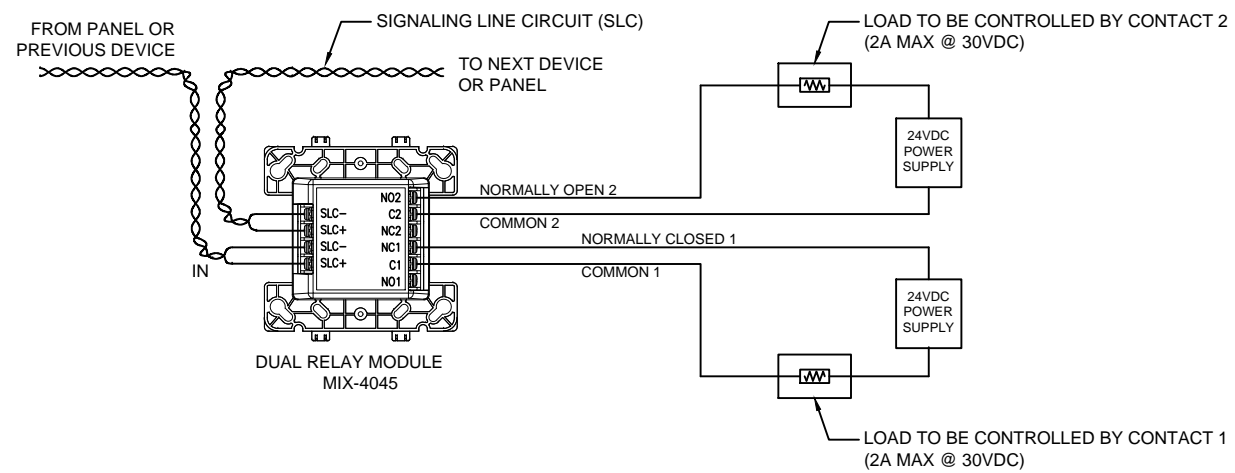
PROJECT ADDRESS

SHEET TITLE:
TYPICAL DEVICE INSTALLATION DETAILS
LAYOUT 1

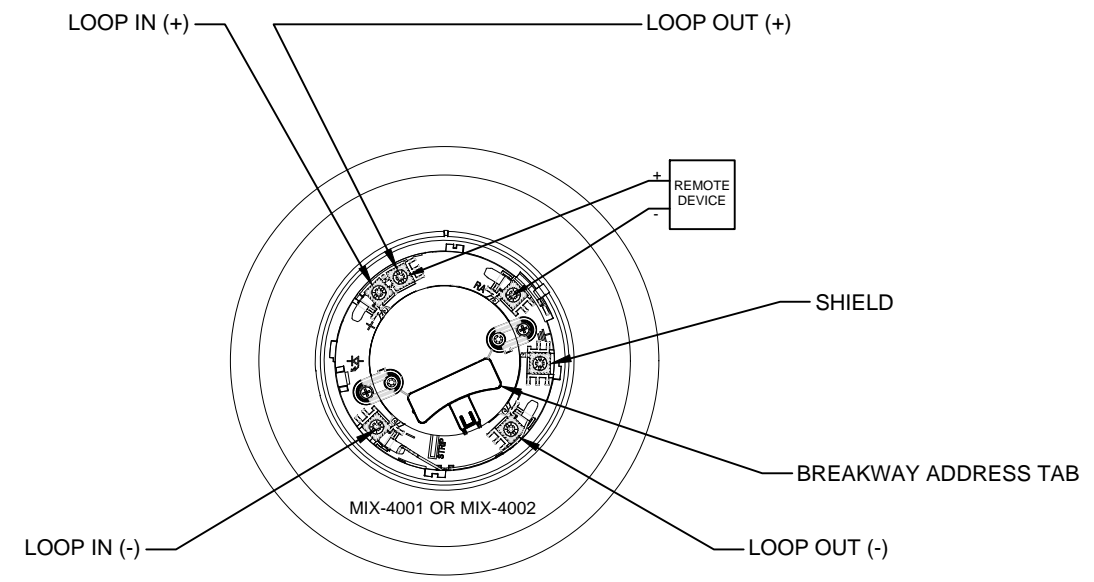
SHEET NO.
FA9-02

| | |
|------------------|---------------------|
| DRAWN BY: JBN | DESIGNED BY: JBN |
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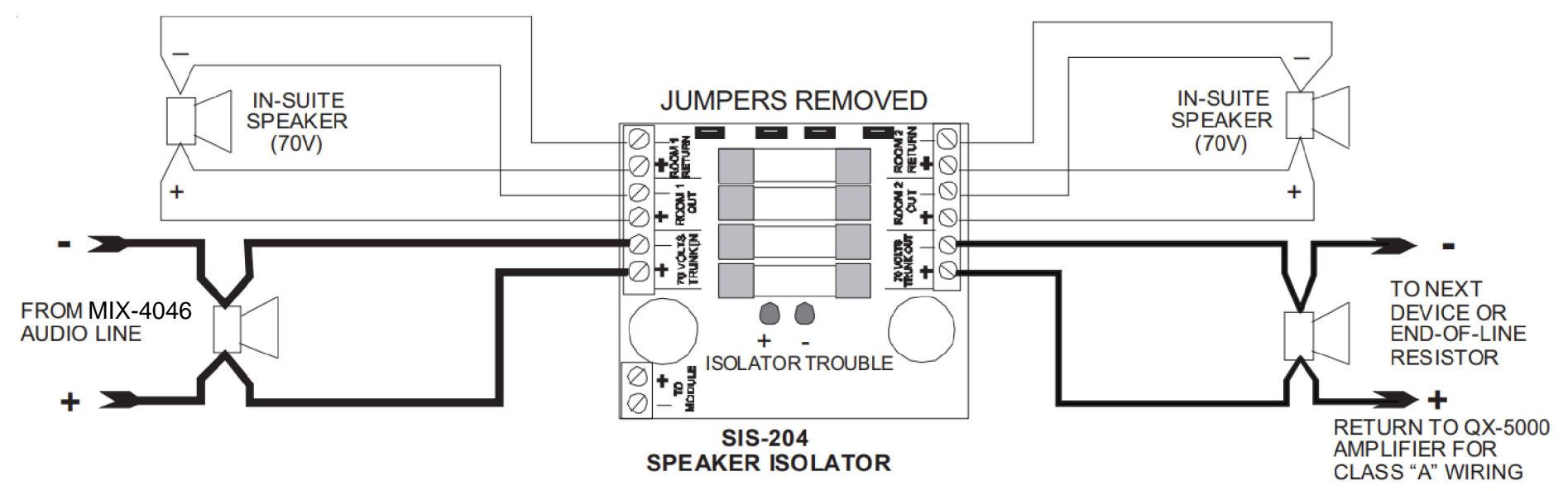
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| APPROVED BY: | ISSUE DATE: |
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5 DUAL RELAY MODULE - SAMPLE WIRING DIAGRAM



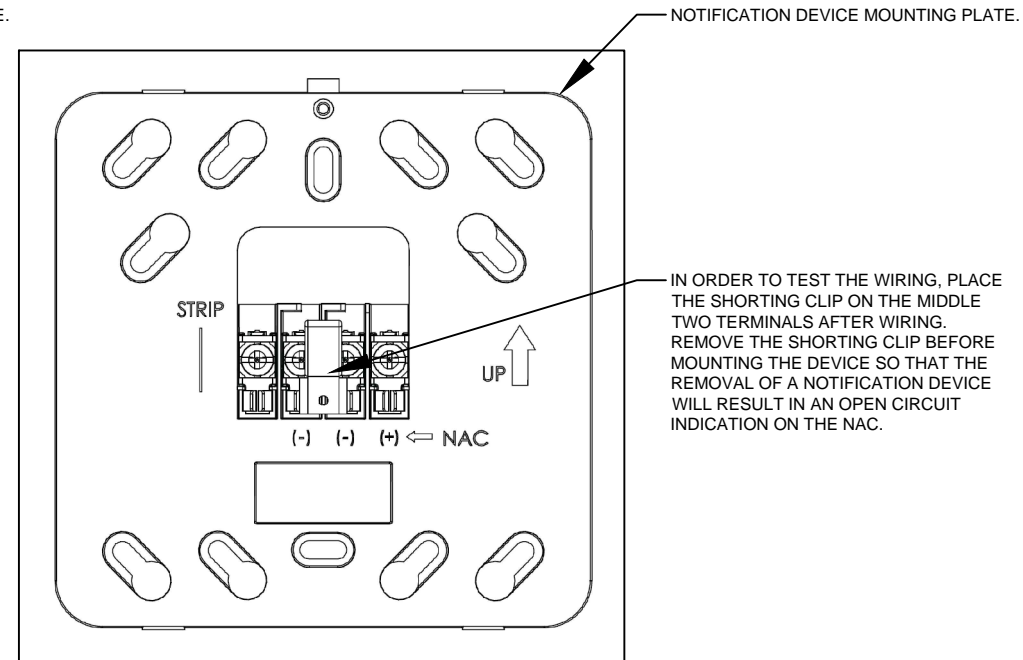
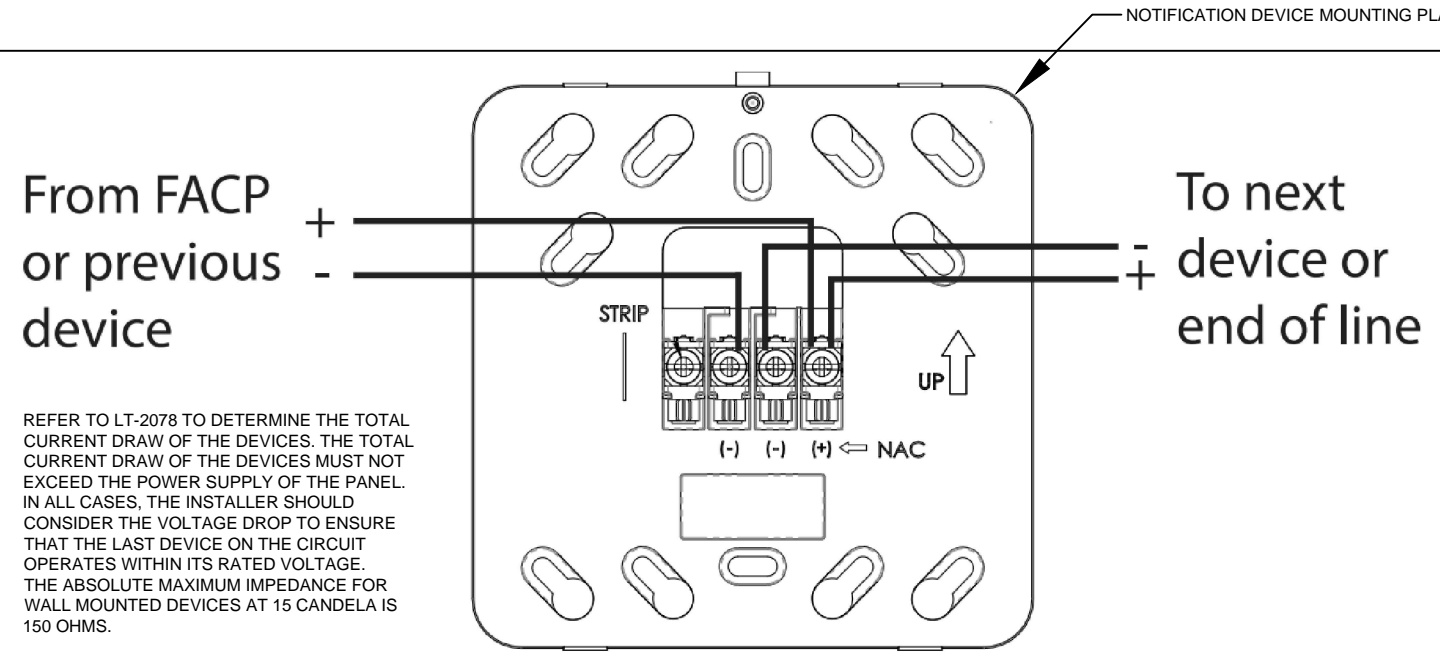
6 MIX-4001 / MIX-4002 DETECTOR BASE WIRING DETAILS



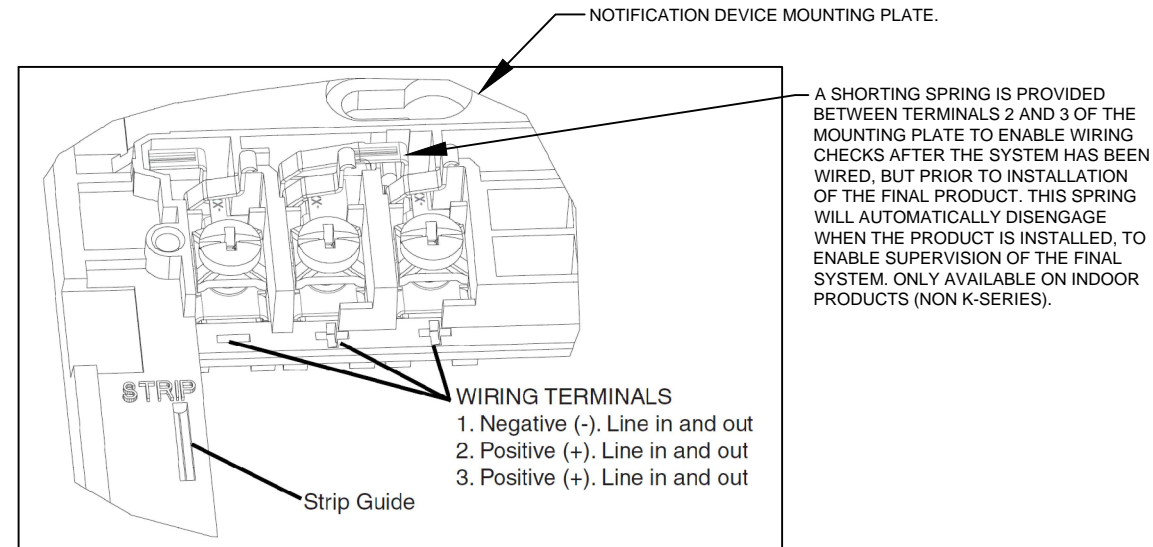
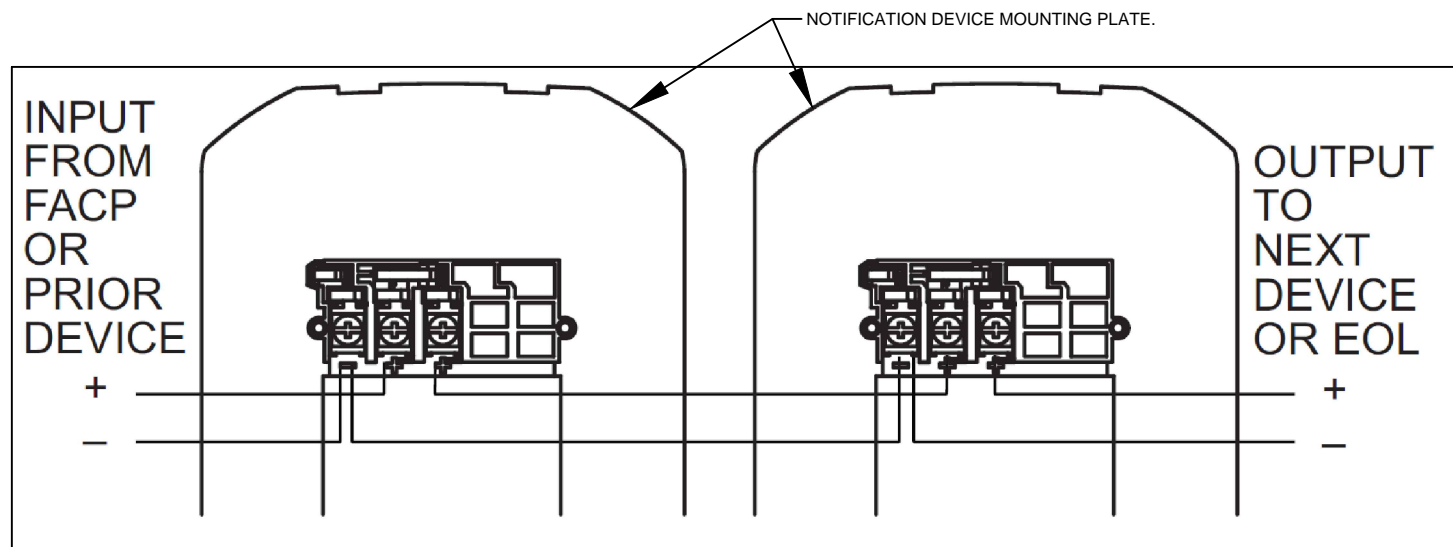
THE (+) LED WILL BLINK FOR AN OPEN ON THE POSITIVE SIDE OF THE IN-SUITE SPEAKER, SIMILARLY, THE (-) LED BLINKS FOR AN OPEN CIRCUIT ON THE NEGATIVE SIDE OF THE IN-SUITE SPEAKER.

7 TYPICAL WIRING OF THE SIS-204 SPEAKER ISOLATOR MODULE IN A SUPERVISED CONFIGURATION

| NO. | DATE (MMDDYYYY) | DESCRIPTION |
|---|---------------------|-------------|
| REVISIONS & ISSUES | | |
| ENGINEERED SYSTEMS 25 INTERCHANGE WAY, VAUGHAN, ONTARIO L4K 5W3 TEL: (888) 660-4655 FAX: (888) 660-4113 | | |
| PROJECT NAME: TYPICAL RISER DIAGRAM | | |
| PROJECT ADDRESS | | |
| SHEET TITLE: TYPICAL DEVICE INSTALLATION DETAILS LAYOUT 2 | | |
| SHEET NO. FA9-03B | | |
| DRAWN BY: JBN | DESIGNED BY: JBN | |
| APPROVED BY: | ISSUE DATE: | |



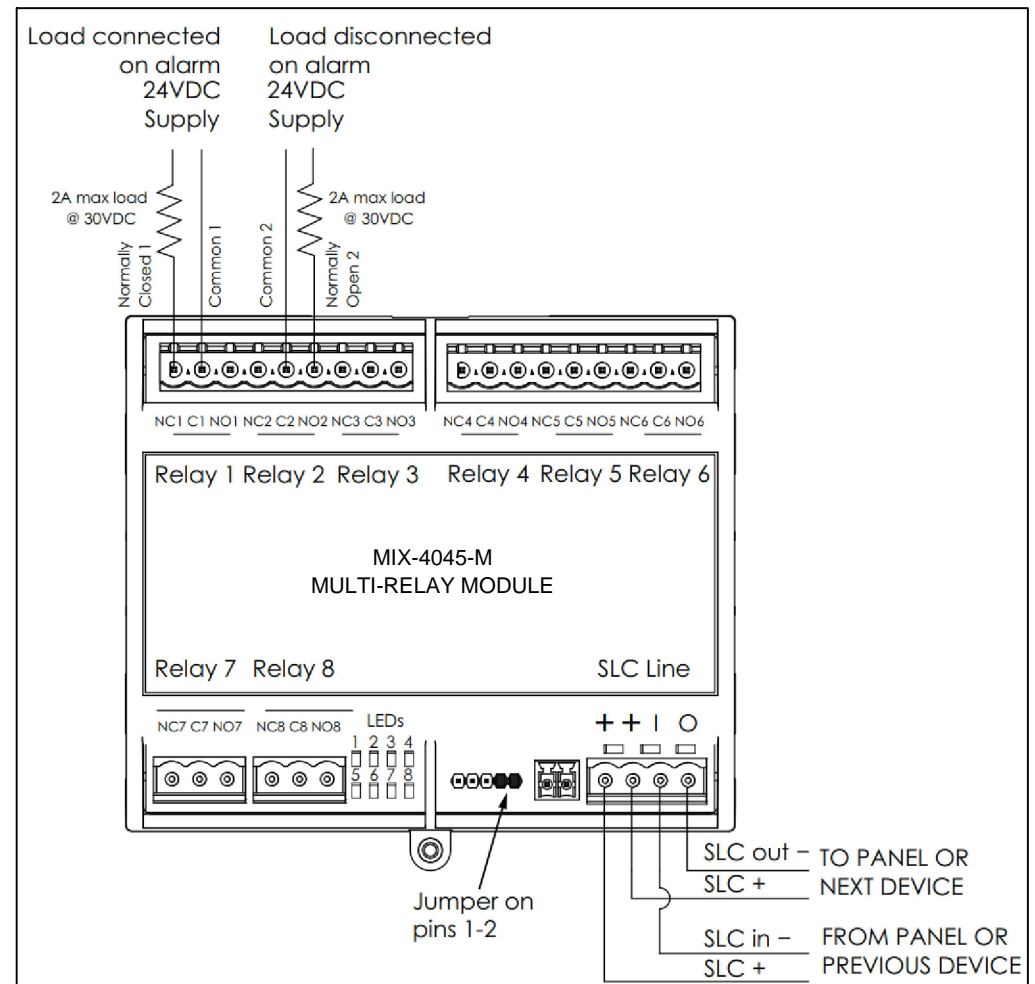
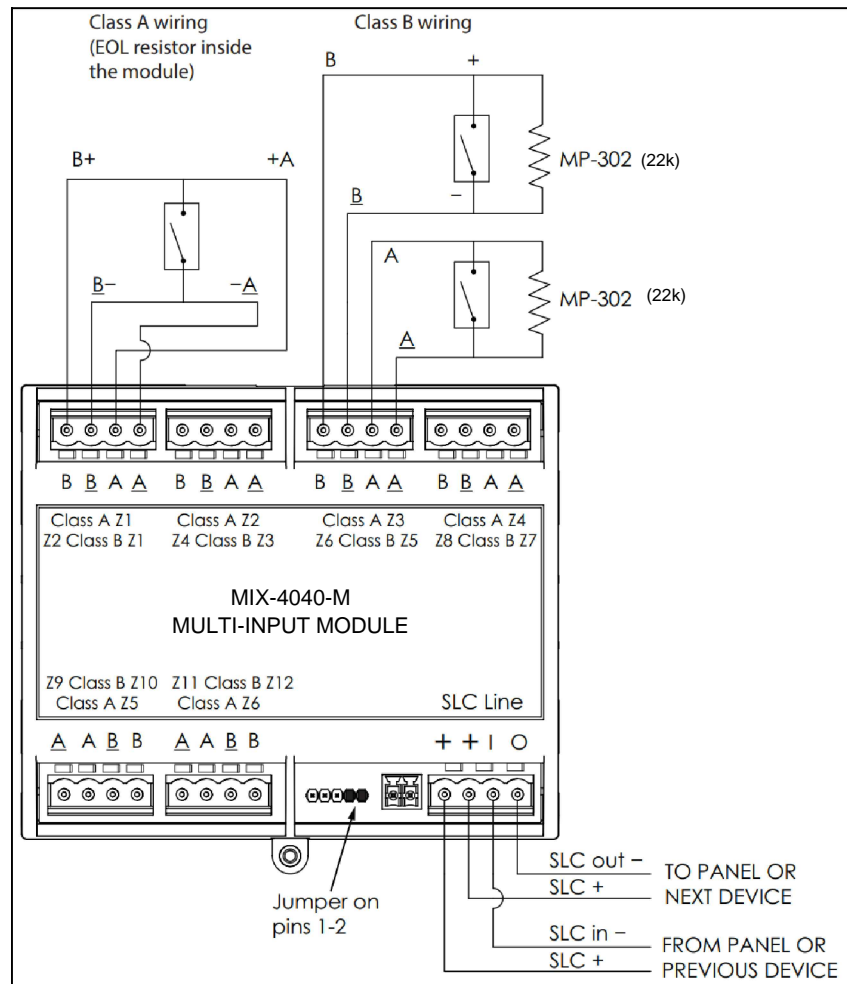
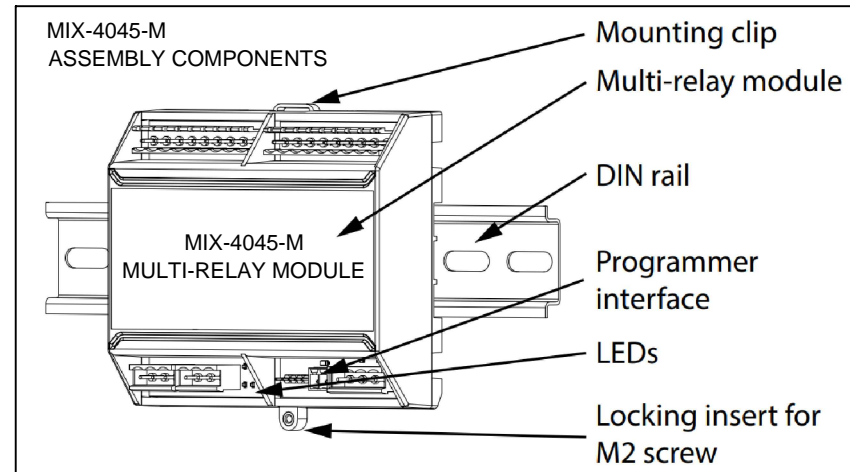
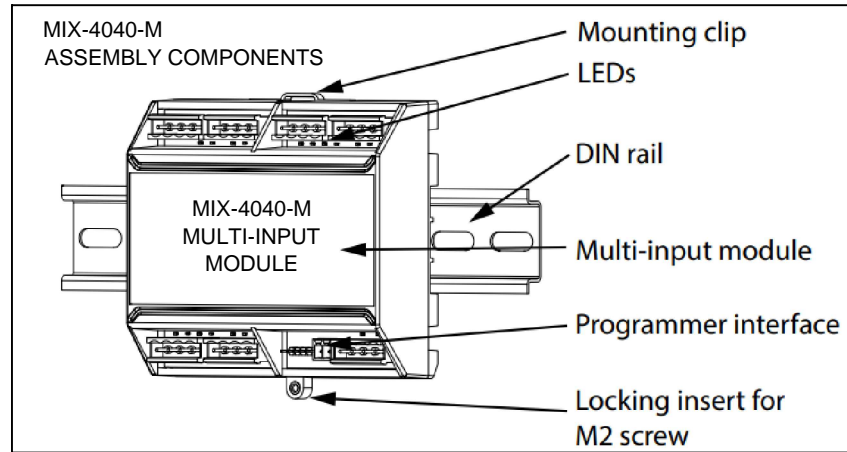
8 MIRCOCOM 400 NOTIFICATION APPLIANCES CONNECTION DETAILS



SYSTEM DESIGNER MUST MAKE SURE THAT THE TOTAL CURRENT DRAWN BY THE DEVICES ON THE LOOP DOES NOT EXCEED THE CURRENT CAPABILITY OF THE PANEL SUPPLY, AND THAT THE LAST DEVICE ON THE CIRCUIT IS OPERATED WITHIN ITS RATED VOLTAGE. THE CURRENT DRAW INFORMATION FOR MAKING THESE CALCULATIONS CAN BE FOUND IN THE TABLES WITHIN THE PRODUCTS MANUAL. FOR CONVENIENCE AND ACCURACY, USE THE VOLTAGE DROP CALCULATOR ON MIRCOCOM'S WEBSITE (WWW.MIRCOCOM.COM). WHEN CALCULATING THE VOLTAGE AVAILABLE TO THE LAST DEVICE, IT IS NECESSARY TO CONSIDER THE VOLTAGE DROP DUE TO THE RESISTANCE OF THE WIRE. THE THICKER THE WIRE, THE SMALLER THE VOLTAGE DROP. WIRE RESISTANCE TABLES CAN BE OBTAINED FROM ELECTRICAL HANDBOOKS. THE TOTAL NUMBER OF STROBES ON A SINGLE NAC MUST NOT EXCEED 40 FOR 24-VOLT APPLICATIONS. LOOP RESISTANCE ON A SINGLE NAC SHOULD NOT EXCEED 120 OHMS FOR 24-VOLT SYSTEMS.


9 SYSTEM SENSOR 2-WIRE NOTIFICATION APPLIANCES CONNECTION DETAILS

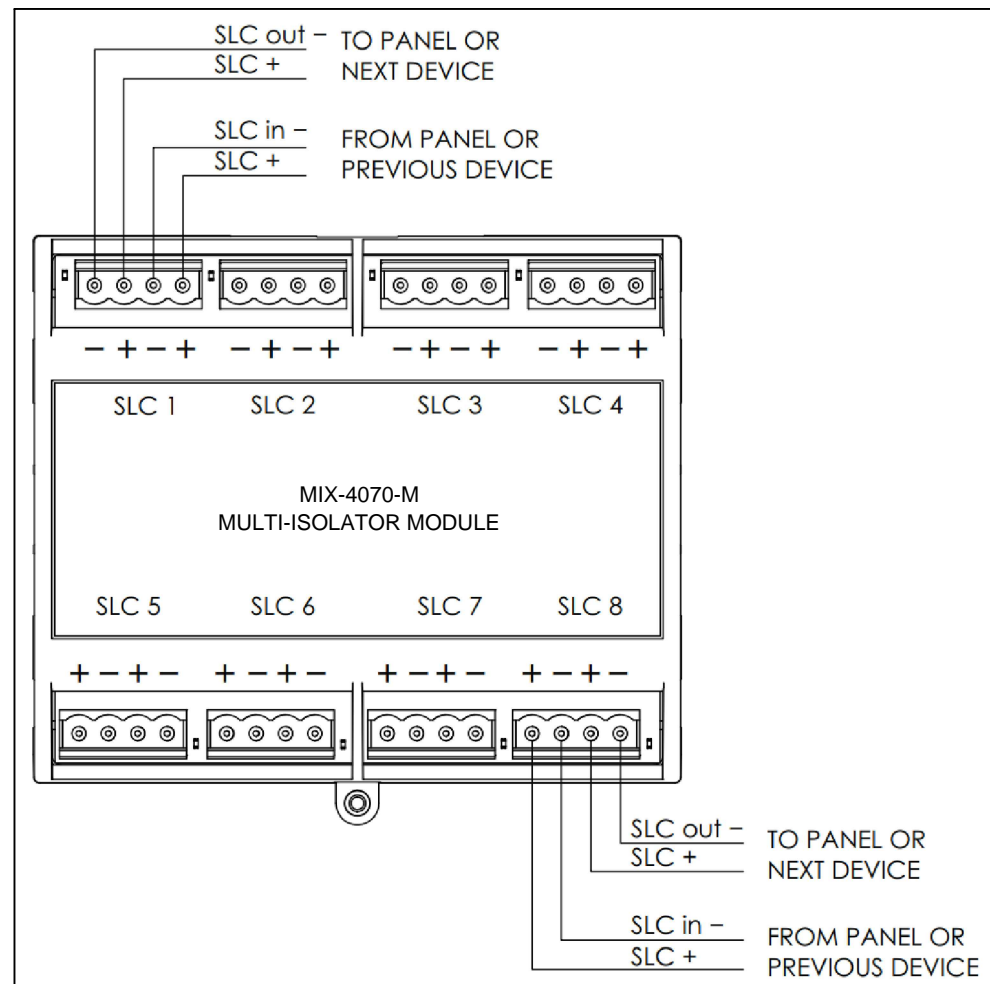
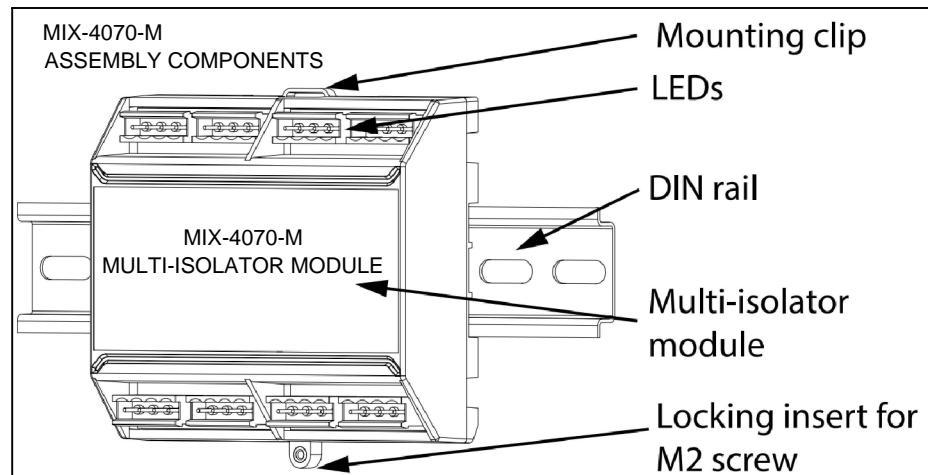
| NO. | DATE (MMDDYYYY) | DESCRIPTION |
|---|---------------------|-------------|
| REVISIONS & ISSUES | | |
| Mircom ENGINEERED SYSTEMS 25 INTERCHANGE WAY, VAUGHAN, ONTARIO L4K 5W3 TEL: (888) 660-4655 FAX: (888) 660-4113 | | |
| PROJECT NAME: TYPICAL RISER DIAGRAM | | |
| PROJECT ADDRESS | | |
| SHEET TITLE: TYPICAL DEVICE INSTALLATION DETAILS LAYOUT 3 | | |
| SHEET NO. FA9-04 | | |
| DRAWN BY: JBN | DESIGNED BY: JBN | |
| APPROVED BY: | ISSUE DATE: | |



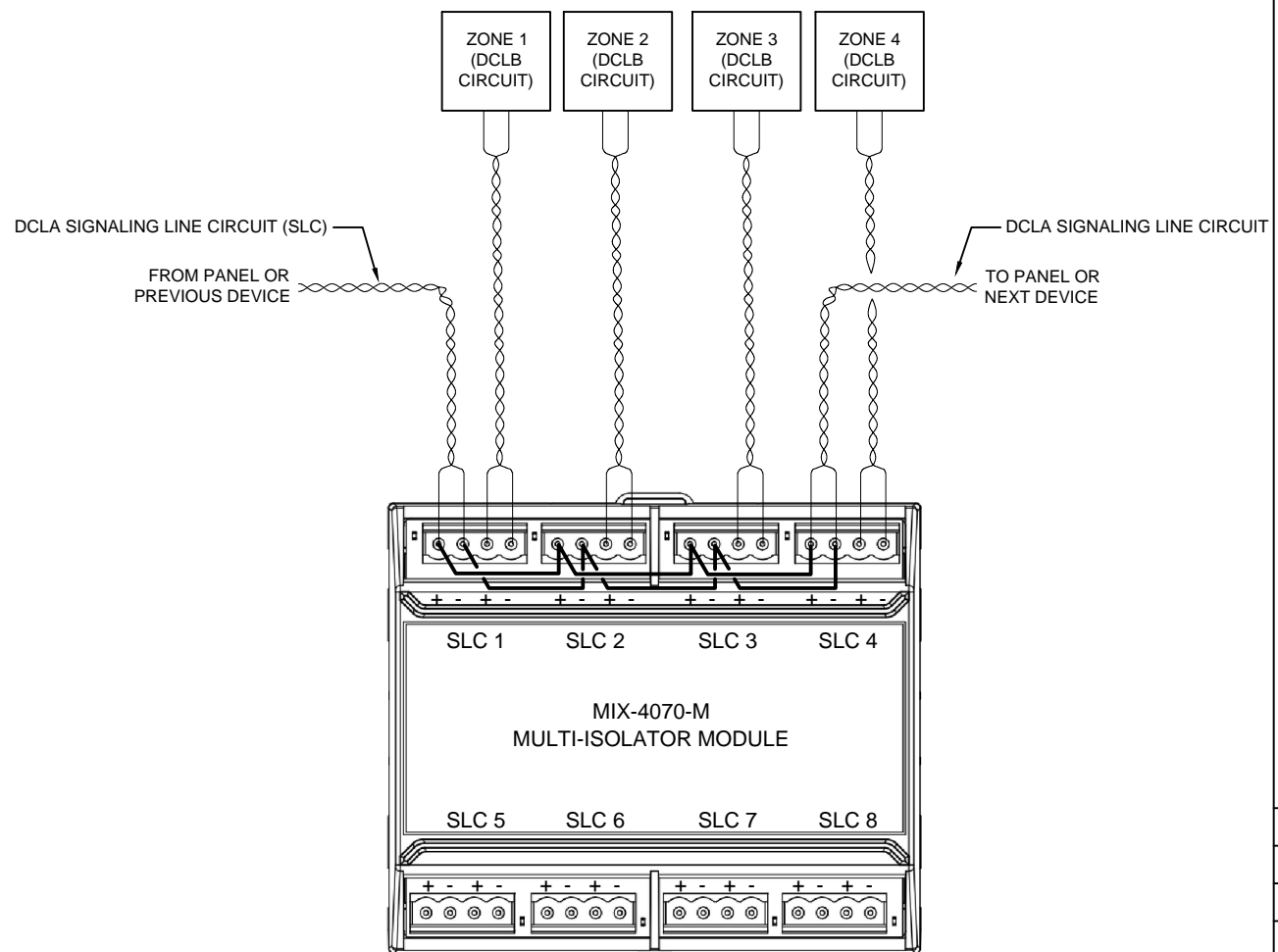
10 MIX-4040-M MULTI-INPUT MODULE
DEVICE CONNECTION - CLASS A/B INPUT WIRING DETAILS

11 MIX-4045-M MULTI-RELAY MODULE
WIRING DETAILS

| NO. | DATE (MMDDYYYY) | DESCRIPTION |
|--|---------------------|-------------|
| REVISIONS & ISSUES | | |
|  ENGINEERED SYSTEMS 25 INTERCHANGE WAY, VAUGHAN, ONTARIO L4K 5W3 TEL: (888) 660-4655 FAX: (888) 660-4113 | | |
| PROJECT NAME: TYPICAL RISER DIAGRAM | | |
| PROJECT ADDRESS | | |
| SHEET TITLE: TYPICAL DEVICE INSTALLATION DETAILS LAYOUT 4 | | |
| SHEET NO. FA9-05 | | |
| DRAWN BY: JBN | DESIGNED BY: JBN | |
| APPROVED BY: | ISSUE DATE: | |




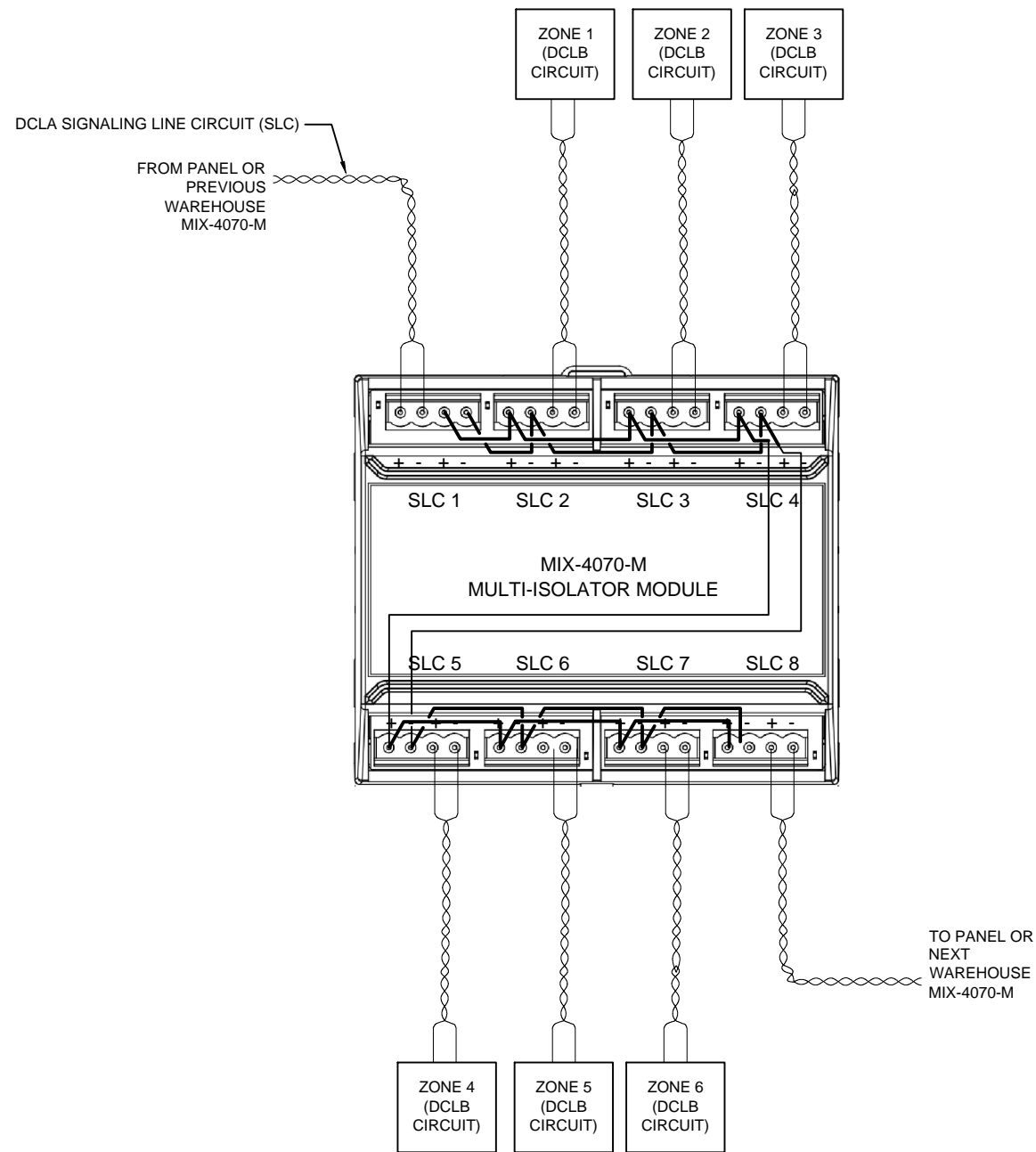
12 MIX-4070-M MULTI-ISOLATOR MODULE
TYPICAL ISOLATOR WIRING DETAILS FOR TWO CIRCUITS



NOTE: THE ABOVE EXAMPLE IS FOR DATA COMMUNICATION LINK B (DCLB) CIRCUITS CONNECTED TO A DATA COMMUNICATION LINK A (DCLA) INSTALLED IN A SINGLE FIRE-RATED ELECTRICAL ROOM (I.E. MIX-4070-M SHOULD BE INSTALLED BESIDE THE FIRE ALARM CONTROL PANEL - REFERENCE ULC-S524-19 FIGURE: A18-7)

13 MIX-4070-M MULTI-ISOLATOR MODULE.
4 DCLB CIRCUITS CONNECTED TO A DCLA LOOP.
MIX-4070-M INSTALLED IN A SINGLE FIRE RATED ELECTRICAL ROOM WITH THE FACP.

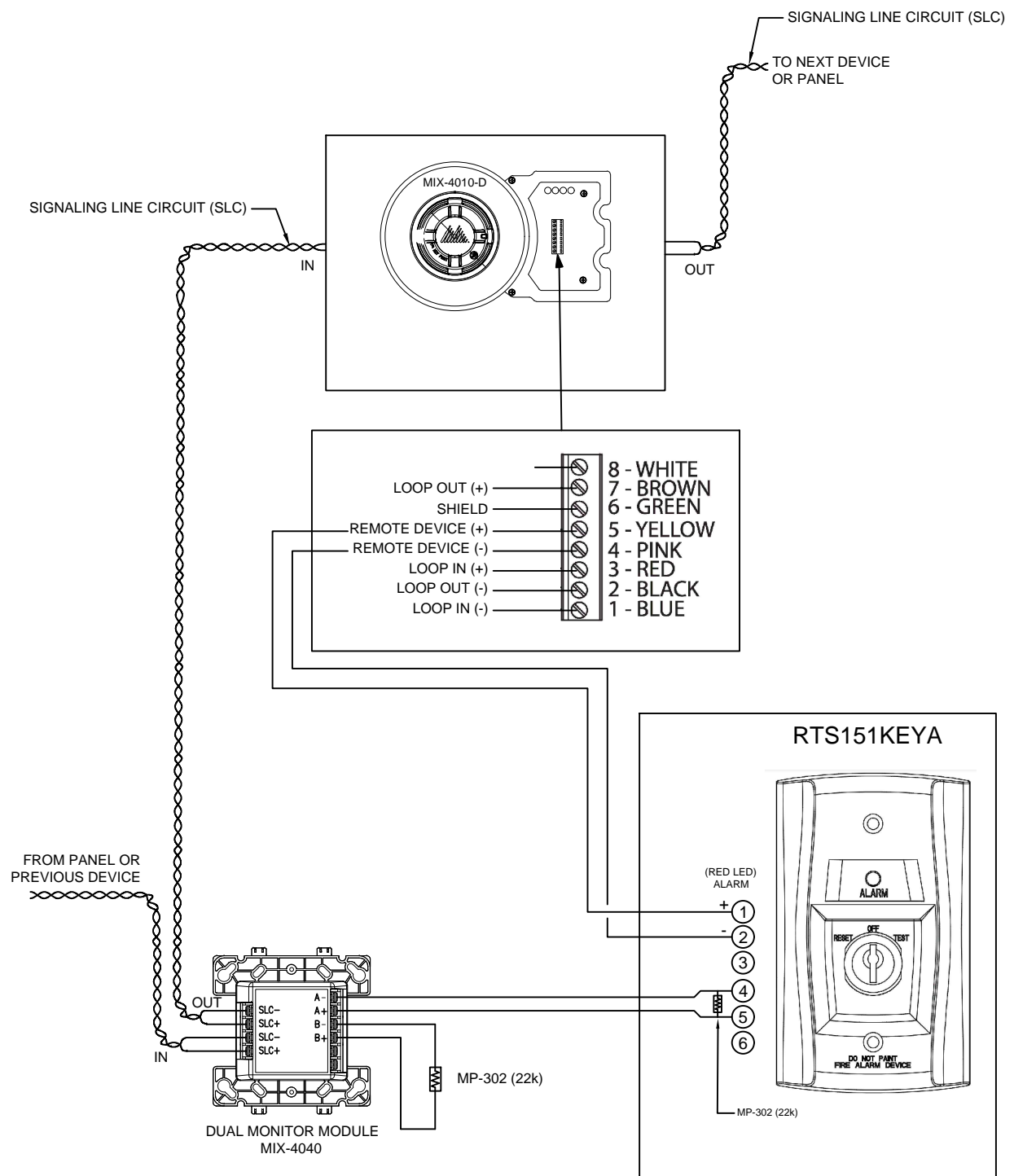
| NO. | DATE (MMDDYYYY) | DESCRIPTION |
|--|---------------------|-------------|
| REVISIONS & ISSUES | | |
|  ENGINEERED SYSTEMS 25 INTERCHANGE WAY, VAUGHAN, ONTARIO L4K 5W3 TEL: (888) 660-4655 FAX: (888) 660-4113 | | |
| PROJECT NAME: TYPICAL RISER DIAGRAM | | |
| PROJECT ADDRESS | | |
| SHEET TITLE: TYPICAL DEVICE INSTALLATION DETAILS LAYOUT 5 | | |
| SHEET NO. FA9-06 | | |
| DRAWN BY: JBN | DESIGNED BY: JBN | |
| APPROVED BY: | ISSUE DATE: | |



NOTE: THIS DIAGRAM IS APPLICABLE IF THE MIX-4070-M IS NOT INSTALLED BESIDE THE FIRE ALARM CONTROL PANEL - REFERENCE ULC-S524-19 FIGURE: A18-6)


14

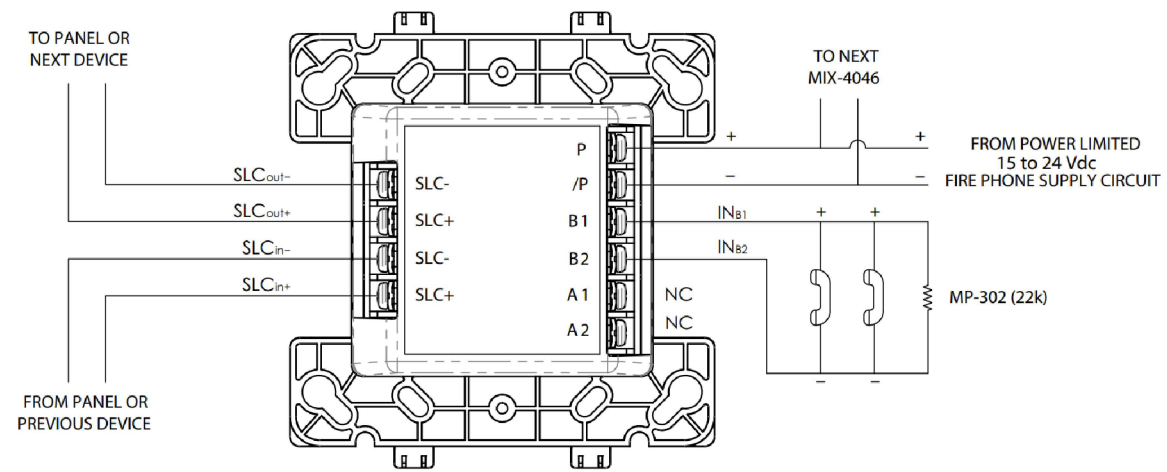
MIX-4070-M MULTI-ISOLATOR MODULE.
6 DCLB CIRCUITS CONNECTED TO A DCLA LOOP.
MIX-4070-M NOT INSTALLED IN THE SAME FIRE-RATED ELECTRICAL ROOM WITH THE FACP.



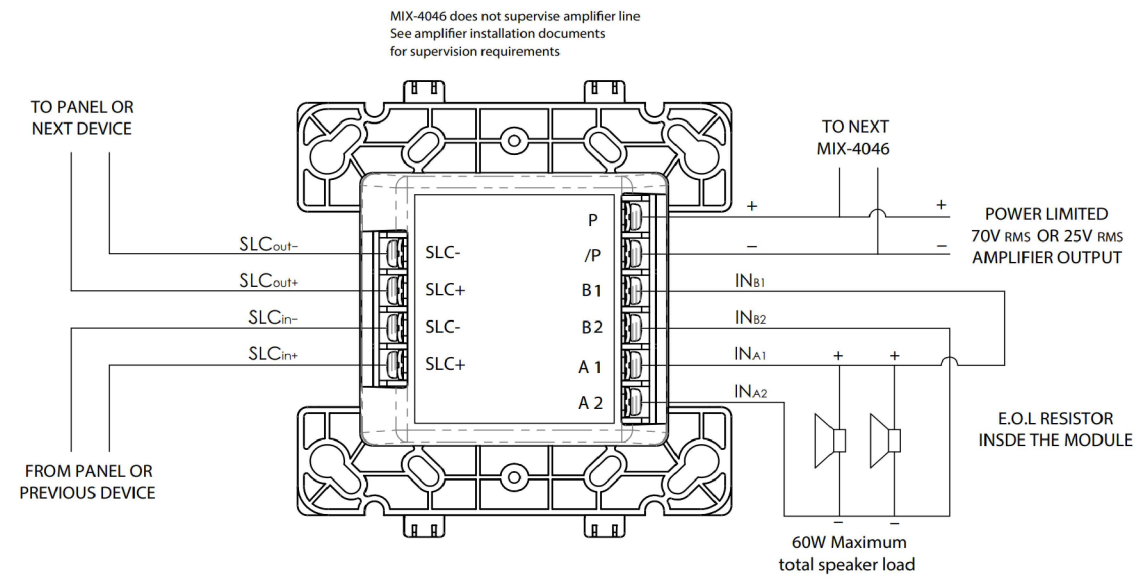
15

REMOTE KEY SWITCH CONNECTION TO MIX-4010-DUCT DETECTOR

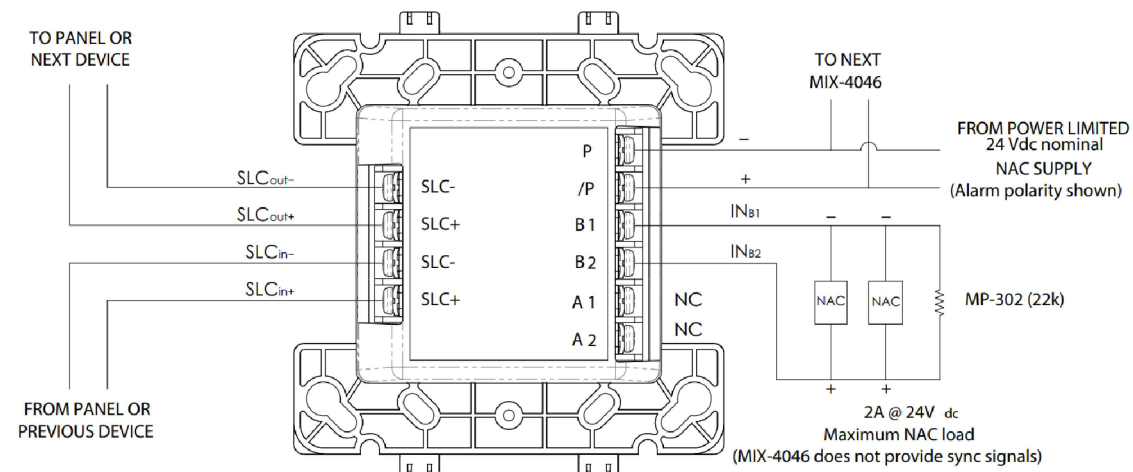
| NO. | DATE (MMDDYYYY) | DESCRIPTION |
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| PROJECT NAME: TYPICAL RISER DIAGRAM | | |
| PROJECT ADDRESS | | |
| SHEET TITLE: TYPICAL DEVICE INSTALLATION DETAILS LAYOUT 6 | | |
| SHEET NO. FA9-07 | | |
| DRAWN BY: JBN | DESIGNED BY: JBN | |
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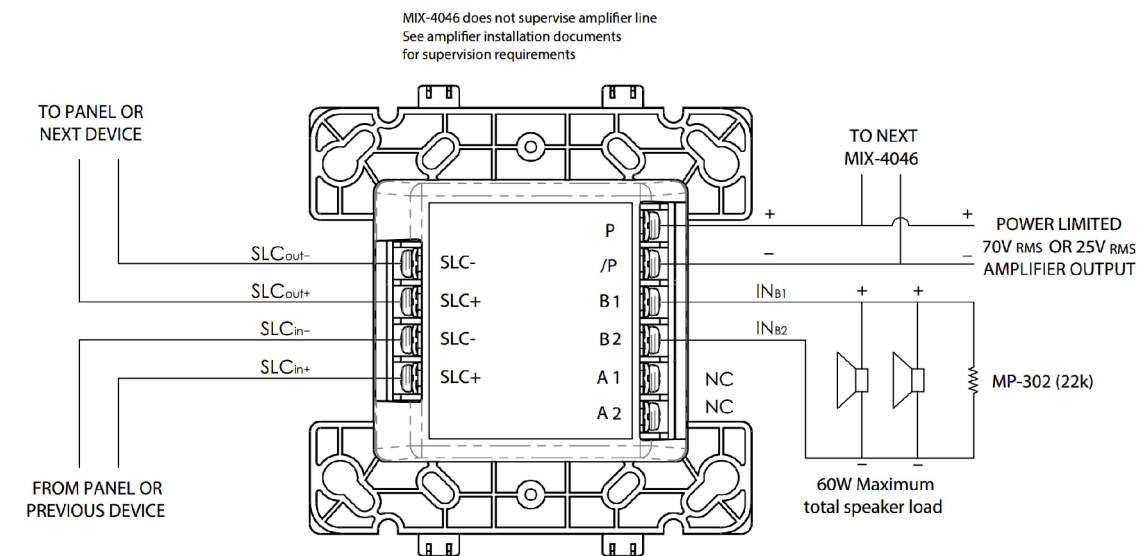
16 MIX-4046 MODULE
SAMPLE CLASS 'B' FLOOR TELEPHONE WIRING



17 MIX-4046 MODULE
SPLIT AUDIO - SAMPLE CLASS 'A' SPEAKER WIRING



18 MIX-4046 MODULE
SAMPLE CLASS 'B' NAC WIRING



19 MIX-4046 MODULE
SPLIT AUDIO - SAMPLE CLASS 'B' SPEAKER WIRING

| NO. | DATE (MMDDYYYY) | DESCRIPTION |
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TEL: (888) 660-4655 FAX: (888) 660-4113

PROJECT NAME:
TYPICAL RISER DIAGRAM

PROJECT ADDRESS

SHEET TITLE:
TYPICAL DEVICE INSTALLATION DETAILS
LAYOUT 7

SHEET NO.
FA9-08

| | |
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