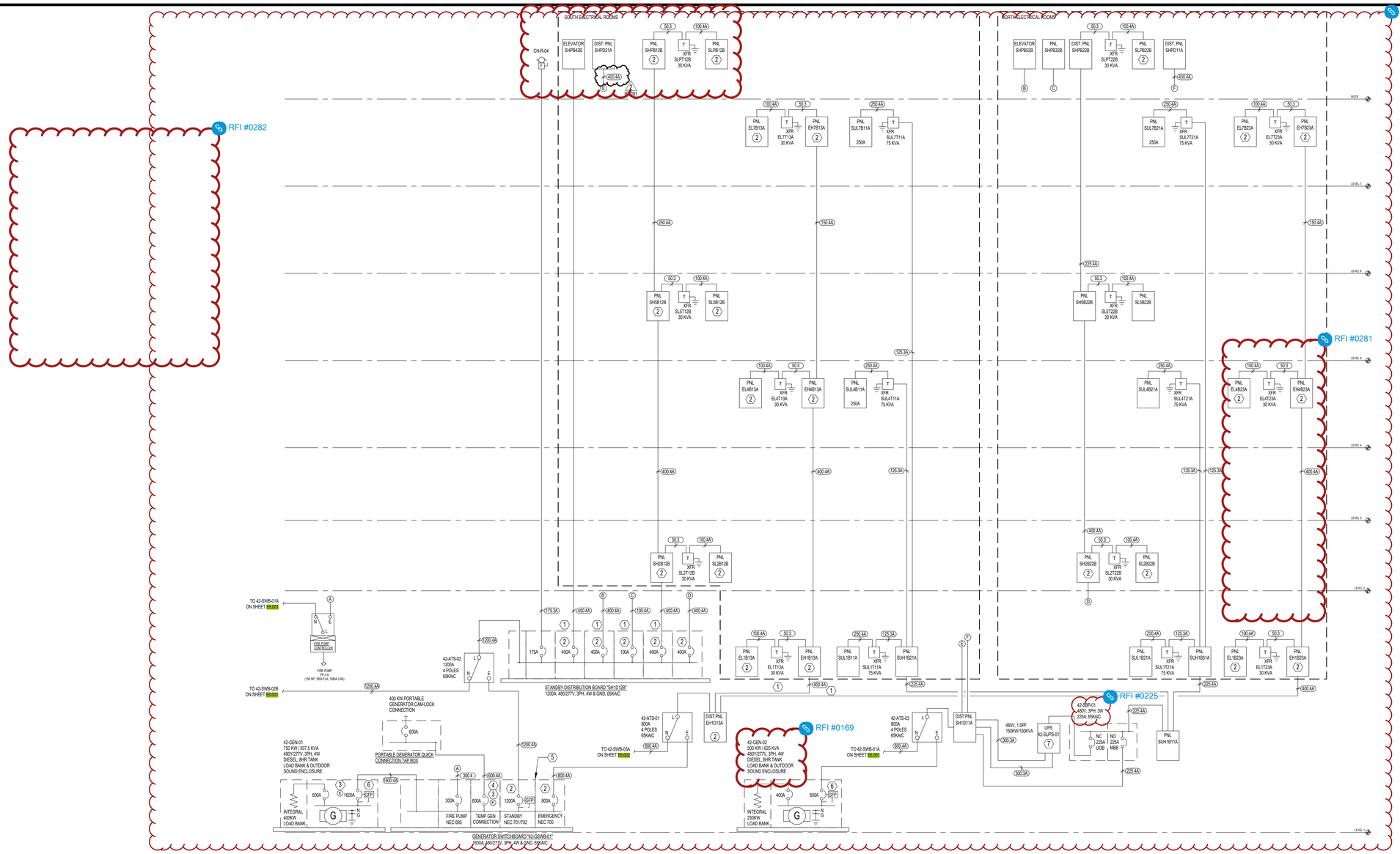

1 EMERGENCY RISER DIAGRAM- ELECTRICAL
12" = 1'-0"

GENERAL NOTES:

A. CONTROL WIRING AND POWER WIRING FOR SMOKE CONTROL SYSTEMS EQUIPMENT, FIRE PUMP EQUIPMENT, AND TEMPORARY GENERATOR CONNECTION MUST COMPLY WITH ONE OF THE FOLLOWING:
- LOCATED EXTERIOR TO THE BUILDING.
- LOCATED WITHIN THE BUILDING IF SEPARATED FROM THE REMAINDER OF THE BUILDING, INCLUDING OTHER MECHANICAL EQUIPMENT, BY NOT LESS THAN 2-HOUR FIRE BARRIER.
  EXCEPTION:
  - ** CONTROL WIRING AND POWER WIRING UTILIZING A LISTED 2-HOUR RATED CABLE OR CABLE SYSTEM.
  - ** ENCASED WITH NOT LESS THAN 2 INCHES OF CONCRETE.
  - ** ENCLOSED IN A DEDICATED 2-HOUR RATED SHAFT LISTED AS AN ELECTRICAL CIRCUIT PROTECTIVE SYSTEM

B. PROVIDE ARC FLASH HAZARD MARKING PER IDAHO ELECTRICAL CODE SECTIONS 110.16, ENSURE MARKINGS MEET THE REQUIREMENTS OF 110.21(B), AND LOCATED CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF EQUIPMENT.

C. PROVIDE LABELING FOR THE FIRE PUMP TAP IN ACCORDANCE WITH IDAHO ELECTRICAL CODE SECTION 230.2.

D. ENERGIZED EQUIPMENT SERVING THE FIRE PUMP SHALL BE MOUNTED AT LEAST 12 INCHES ABOVE THE FLOOR LEVEL PER IDAHO ELECTRICAL CODE 695.12(D).

E. PROVIDE BREAKERS RATED 1200A OR GREATER WITH ARC-ENERGY REDUCTION IN ACCORDANCE WITH IDAHO ELECTRICAL CODE SECTION 240.87(B)(3).

F. SIZE FIRE PUMP FEEDERS SO THAT VOLTAGE DROP AT THE FIRE PUMP CONTROLLER LINE TERMINALS WILL NOT EXCEED 15% BELOW NORMAL VOLTAGE UNDER MOTOR STARTING CONDITIONS (IDAHO ELECTRICAL CODE 695.7(A)).

G. SIZE FIRE PUMP FEEDERS SO THAT VOLTAGE AT THE FIRE PUMP CONTROLLER LINE TERMINALS WILL NOT BE LESS THAN 5% BELOW NORMAL VOLTAGE WHEN THE MOTOR IS OPERATING AT 115% OF THE FULL-LOAD CURRENT RATING OF THE MOTOR (IDAHO ELECTRICAL CODE 695.7(B)).

NOTES:

1. CABLING SHALL BE INSTALLED VIA A 2-HR RATED CABLE, INSTALLED IN A 2-HR RATED ENCLOSURE, ENCASED IN 2" OF CONCRETE, OR LOCATED ON THE EXTERIOR OF THE BUILDING.
2. PROVIDE LSI TYPE BREAKER FOR DISTRIBUTION BREAKER, MAIN BREAKER, AND/OR SELECTED BREAKERS.
3. PROVIDE KIRK KEY AT EACH BREAKER FOR INTERCONNECTION.
4. PROVIDE ADDITIONAL BREAKER SECTION FOR TEMPORARY SOURCE CONNECTION FOR EMERGENCY SWITCHBOARD IN ACCORDANCE WITH IDAHO ELECTRICAL CODE SECTION 700.3(F).
5. PROVIDE SEPARATION BARRIERS IN SWITCHBOARD TO SEPARATE THE FIRE PUMP, EMERGENCY, AND STANDBY SYSTEMS PER IEC REQUIREMENTS.
6. PROVIDE GROUND FAULT INDICATION ONLY.
7. PROVIDE EATON 93PM 150KVA UPS WITH UNITY POWER FACTOR, BATTERY CABINETS TO SUPPORT 23 MINUTES OF RUNTIME, AND 480V INPUT/OUTPUT, OR APPROVED EQUAL.

MTI Conduit and Conductor Schedule
EMT, Compact Stranded Aluminum
3-Phase, 3-Wire, and Ground

SYMBOL	CIRCUIT BREAKER	SETS	PHASE	NEUTRAL	GROUND (Note 5)	CONDUIT (Note 4)	MIN AMPACITY (Note 2 and 7)	MAX CONT. LOAD (Note 3)
100.3A	100A	1	3 #1	N/A	1 #6	1 1/4"	100A	80A
125.3A	125A	1	3 #2/0	N/A	1 #4	1 1/2"	135A	100A
150.3A	150A	1	3 #3/0	N/A	1 #4	1 1/2"	155A	120A
175.3A	175A	1	3 #4/0	N/A	1 #4	2"	180A	140A
200.3A	200A	1	3 #250kcmil	N/A	1 #4	2"	205A	160A
225.3A	225A	1	3 #300kcmil	N/A	1 #2	2"	230A	180A
250.3A	250A	1	3 #350kcmil	N/A	1 #2	2 1/2"	250A	200A
300.3A	300A	1	3 #500kcmil	N/A	1 #2	2 1/2"	310A	240A
350.3A	350A	2	3 #4/0	N/A	1 #1	2"	360A	280A
400.3A	400A	2	3 #250kcmil	N/A	1 #1	2"	410A	320A
450.3A	450A	2	3 #300kcmil	N/A	1 #1/0	2 1/2"	460A	360A
500.3A	500A	2	3 #350kcmil	N/A	1 #1/0	2 1/2"	500A	400A
600.3A	600A	2	3 #500kcmil	N/A	1 #2/0	2 1/2"	620A	480A
800.3A	800A	3	3 #400kcmil	N/A	1 #3/0	2 1/2"	810A	640A
1000.3A	1000A	3	3 #600kcmil	N/A	1 #4/0	3"	1020A	800A
1200.3A	1200A	4	3 #500kcmil	N/A	1 #250kcmil	2 1/2"	1240A	960A
1600.3A	1600A	6	3 #400kcmil	N/A	1 #350kcmil	2 1/2"	1620A	1280A
2000.3A	2000A	6	3 #600kcmil	N/A	1 #400kcmil	3"	2040A	1600A

NOTES:
1. Using 2017 NEC
2. Ampacity in raceway per Table 310.15(B)(16) and 90º column derated 80% based on neutral being current carrying (harmonics), 310.15(B)(5) and Table 310.15(B)(3)(a). Non-derated ampacities at terminations from 75º column are higher.
3. Maximum continuous load based on 80% of circuit breaker size, 210.20(A) and 215.3(A). Conductor ampacity (Note 2) is greater or equal to this load, 210.19(A)(1)(b) and 215.2(A)(1)(b). Non-derated ampacity from 75º column is greater or equal to 1.25x this load, 210.19(A)(1)(a) and 215.2(A)(1)(a).
4. Conduit sizes based on conductor sizes in Chapter 9, Table 5 (THHN/THWN), conduit sizes in Chapter 9, Table 4 (EMT), and 40% fill (Chapter 9, Table 1). Recalculate required size for other conduit and/or conductor types.
5. Grounding conductors sized per Table 250.122. Recalculate required size for service entrance feeders and separately derived systems.
6. Use Standard Utility Details EP-006 and EP-007 for transformer primary and secondary feeders.
7. 800A and less – use next standard size higher OCP device per 240.4(B), over 800A – ampacity equal to or greater than OCP device per 240.4(C).
8. No voltage drop taken into account. Increase conductor size as necessary to limit voltage drop from service to panel to 3% and branch circuits to 2%. 210.19(A) Info Note #4, 215.2(A)(1)(b) Info Note #2. 250.122(B)
9. No derating taken into account other than # of current carrying conductors. Derate from Table 310.15(B)(16) 90º column if necessary. 1.25x load not required for derated conductors. 210.19(A)(1)(b) and 215.2(A)(1)(b).
10. 250AF – Parallel (double) lugs not standard on 250AF, need 400AF for double lugs.
11. 400AF – smaller than 2/0 not available on double lugs for 400AF.

MTI Conduit and Conductor Schedule
EMT, Compact Stranded Aluminum
3-Phase, 4-Wire, and Ground

SYMBOL	BREAKER SIZE	SETS	PHASE	NEUTRAL	GROUND (Note 5)	CONDUIT (Note 4)	MIN AMPACITY (Note 2 and 7)	MAX CONT. LOAD (Note 3)
100.4A	100A	1	3 #1/0	1 #1/0	1 #6	1 1/2"	108A	80A
125.4A	125A	1	3 #2/0	1 #2/0	1 #4	2"	120A	100A
150.4A	150A	1	3 #3/0	1 #3/0	1 #4	2"	140A	120A
175.4A	175A	1	3 #4/0	1 #4/0	1 #4	2"	164A	140A
200.4A	200A	1	3 #250kcmil	1 #250kcmil	1 #4	2 1/2"	184A	160A
225.4A	225A	1	3 #350kcmil	1 #350kcmil	1 #2	2 1/2"	224A	180A
250.4A	250A	1	3 #400kcmil	1 #400kcmil	1 #2	2 1/2"	244A	200A
300.4A	300A	1	3 #500kcmil	1 #500kcmil	1 #2	3"	280A	240A
350.4A	350A	2	3 #4/0	1 #4/0	1 #1	2"	328A	280A
400.4A	400A	2	3 #250kcmil	1 #250kcmil	1 #1	2 1/2"	368A	320A
450.4A	450A	2	3 #350kcmil	1 #350kcmil	1 #1/0	2 1/2"	448A	360A
500.4A	500A	2	3 #400kcmil	1 #400kcmil	1 #1/0	2 1/2"	488A	400A
600.4A	600A	2	3 #500kcmil	1 #500kcmil	1 #2/0	3"	560A	480A
800.4A	800A	3	3 #400kcmil	1 #400kcmil	1 #3/0	2 1/2"	732A	640A
1000.4A	1000A	3	3 #750kcmil	1 #750kcmil	1 #4/0	3 1/2"	1044A	800A
1200.4A	1200A	4	3 #600kcmil	1 #600kcmil	1 #250kcmil	3"	1232A	960A
1600.4A	1600A	5	3 #750kcmil	1 #750kcmil	1 #350kcmil	3 1/2"	1740A	1280A
2000.4A	2000A	6	3 #750kcmil	1 #750kcmil	1 #400kcmil	3 1/2"	2088A	1600A

NOTES:
1. Using 2017 NEC
2. Ampacity in raceway per Table 310.15(B)(16) and 90º column derated 80% based on neutral being current carrying (harmonics), 310.15(B)(5) and Table 310.15(B)(3)(a). Non-derated ampacities at terminations from 75º column are higher.
3. Maximum continuous load based on 80% of circuit breaker size, 210.20(A) and 215.3(A). Conductor ampacity (Note 2) is greater or equal to this load, 210.19(A)(1)(b) and 215.2(A)(1)(b). Non-derated ampacity from 75º column is greater or equal to 1.25x this load, 210.19(A)(1)(a) and 215.2(A)(1)(a).
4. Conduit sizes based on conductor sizes in Chapter 9, Table 5 (THHN/THWN), conduit sizes in Chapter 9, Table 4 (EMT), and 40% fill (Chapter 9, Table 1). Recalculate required size for other conduit and/or conductor types.
5. Grounding conductors sized per Table 250.122. Recalculate required size for service entrance feeders and separately derived systems.
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PAE
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LUMA
Lumald.com

	Date	Description
	11/18/2022	CORE & SHELL 50% DESIGN DEVELOPMENT
	02/03/2023	CONSOLIDATED PROGRESS SET
	05/02/2023	PROGRESS SET
	12/22/2023	CD PROGRESS SET FOR PERMIT AND PRICING
	02/22/2024	CD - MEP BID SET
	03/29/2024	Issue for Permit
1	10/11/2024	ISSSUE FOR CONSTRUCTION
2	12/06/2024	BULLETIN #1

Seal / Signature

Project Name
MICRON BUILDING B42

Project Number
22-1717

Description
EMERGENCY RISER DIAGRAMS - ELECTRICAL

Scale
NOT TO SCALE

E6.003

City of Boise Stamps