

McDONALD'S RESTAURANT
731 SHAW ROAD PUYALLUP, WA 98372

Richard S. Gehlhausen
NICET Certification Number: 140592
Fire Protection Engineering Technology
Fire Alarm Systems - Level III
Certification Expires: August 1, 2027

SCOPE OF WORK:

- TO PROVIDE AN ADDRESSABLE FIRE ALARM SYSTEM TO INCLUDE THE FOLLOWING:
- SMOKE DETECTOR AT FACP IN RISER ROOM
 - MANUAL STATION AT FACP IN RISER ROOM
 - MONITORING OF KITCHEN HOOD SYSTEM
 - MONITORING OF THE FIRE SPRINKLER SYSTEM
 - PROVIDE FULL NOTIFICATION PER NFPA 72, CHAPTER 18

OCCUPANCY CLASSIFICATION: A-2
PARCEL NUMBER: 0420264021

SYSTEM DESCRIPTION:

THIS IS A MANUAL/AUTOMATIC FIRE ALARM SYSTEM,
WITH AN ADDRESSABLE CONTROL PANEL AND INITIATING
DEVICES, WIRED STYLE 4 (CLASS B).

THIS BUILDING IS 100% SPRINKLERED AND IS MONITORED BY:

NORTHWEST ALARM MONITORING
1743 1st AVENUE SOUTH
SEATTLE, WASHINGTON 98134
877-870-0910

FORMULA FOR VOLTAGE DROP CALCULATION

$$I \times \text{WIRE RESISTANCE} \times \text{FEET} = \text{VOLTS DROPPED}$$

I = AMPERES PER TERMINAL OF LOAD (PER DEVICE)

WIRE RESISTANCE = THE RESISTANCE OF WIRE PER FOOT.

FEET = DISTANCE IN FEET MEASURED FROM THE SOURCE
OF THE SUPPLY TO THE LOAD AND BACK.

FIRE ALARM SYSTEM SEQUENCE OF OPERATION

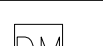
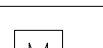
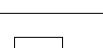
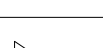
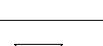
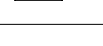
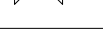
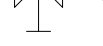
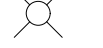
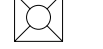
	FACP ALARM	FACP TRBL	FACP SUPV	ACTIVATE AUD/VIS	SHUT DOWN KITCHEN HOOD	SHUT DOWN RTU'S	OFF SITE ALARM	OFF SITE TRBL	OFF SITE SUPV
SMOKE DETECTOR @ FACP	X			X			X		
MONITOR MODULE @ KHS	X			X	X		X		
DUCT DETECTOR @ RTU			X						X
MANUAL PULL STATION	X			X			X		
WATERFLOW SWITCH	X			X			X		
VALVE TAMPER SWITCH			X						X
POST INDICATING VALVE			X						X
BACKFLOW PREVENTER			X						X
INITIATING CIRCUIT STYLE 4 (CLASS B)									
OPEN WIRE		X						X	
GROUNDIED WIRE		X						X	
SHORTED WIRES		X						X	
NOTIFICATION CIRCUIT STYLE 4 (CLASS B)									
OPEN WIRE		X						X	
GROUNDIED WIRE		X						X	
WIRE TO WIRE SHORT/OPEN		X						X	
WIRE TO WIRE SHORT/GND		X						X	
OPEN & GROUND		X						X	
LOSS OF CARRIER		X						X	

GENERAL NOTES: UNLESS OTHERWISE SPECIFIED

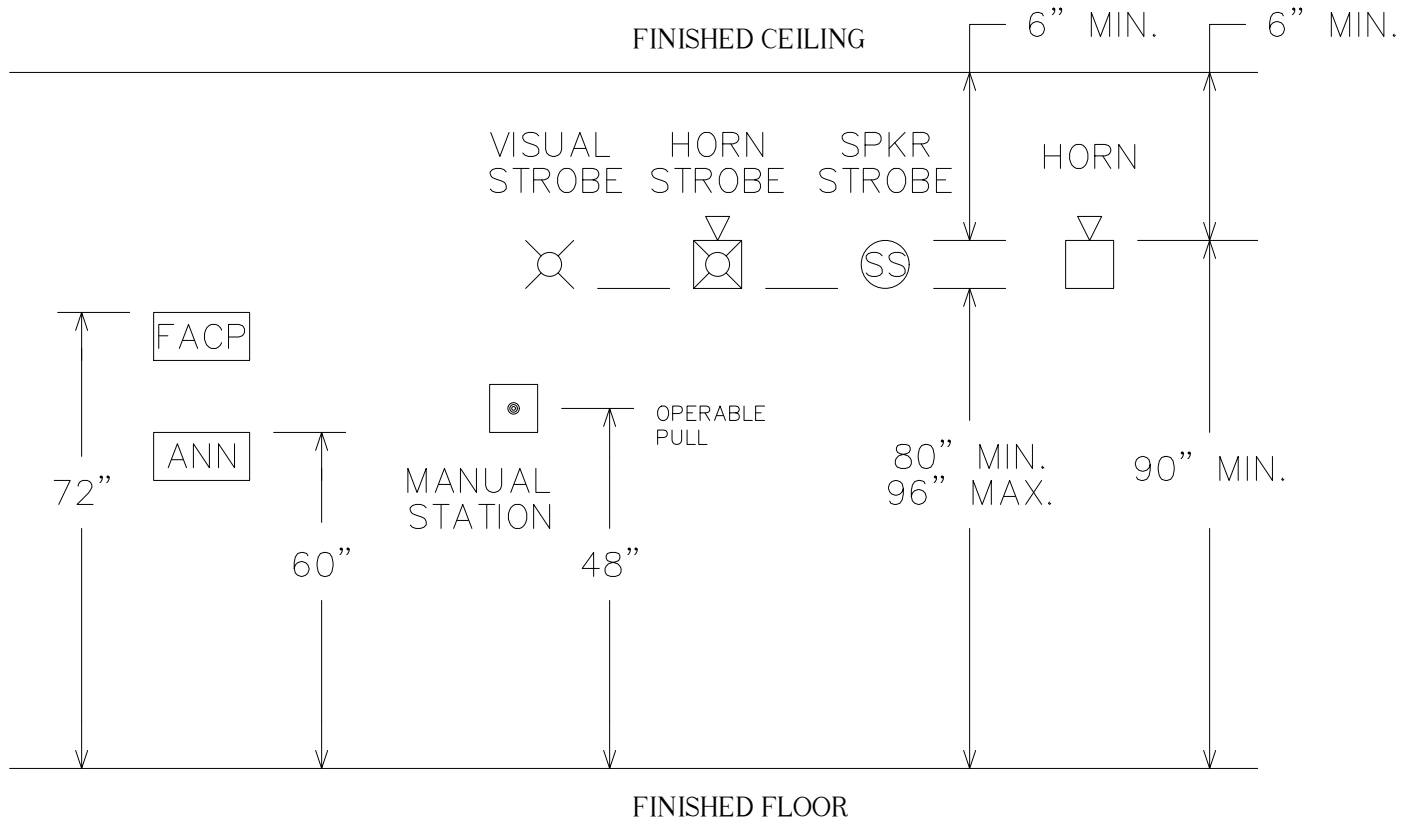
- APPLICABLE CODES:
INTERNATIONAL FIRE CODE, 2021 EDITION WITH
STANDARDS & AMENDMENTS – WAC 51–54A
INTERNATIONAL BUILDING CODE, 2021 EDITION
WASHINGTON STATE FIRE CODE, 2021 EDITION, CH. 9
NFPA 72, NATIONAL FIRE ALARM CODE, 2022 EDITION
NFPA 70, NATIONAL ELECTRICAL CODE, 2023 EDITION
- WITNESS OF FINAL FIRE ALARM TEST BY LOCAL FIRE
AUTHORITY AND PROJECT INSPECTOR.
- WIRE TYPE & SIZE:
A = 16/2 SOLID, TYPE FPLP FOR INITIATING CIRCUITS
WCW 1402PFA–RED–BLUE, RED JACKET, BLUE STRIPE
B = 14/2 SOLID, TYPE FPLP FOR NOTIFICATION CIRCUITS
WCW 1402PFA–RED–YLW, RED JACKET, YELLOW STRIPE
- UNDERGROUND AND EXTERIOR CONDUITS TO HAVE
WATER–TIGHT FITTINGS AND WIRES TO BE APPROVED
FOR WET LOCATIONS.
- AUDIBLE SIGNALS SHALL BE AT LEAST 15dBA ABOVE
AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN
75dBA AT 10FT. OR MORE THAN 120dBA AT THE
MINIMUM HEARING DISTANCE FROM THE DEVICE.
- AUDIBLE DEVICES SHALL SOUND A TEMPORAL 3 PATTERN.
- VISUAL DEVICE SHOULD NOT EXCEED (2) FLASHES PER
SECOND & SHOULD NOT BE SLOWER THAN (1) FLASH
EVERY SECOND.
- ALL VISUAL DEVICES SHALL FLASH IN SYNCHRONIZATION.
- FIRE ALARM CONTRACTOR SHALL PROVIDE A RECORD
OF COMPLETION TO THE INSPECTOR OF RECORD AFTER
COMPLETION OF OPERATIONAL ACCEPTANCE TESTS.
- ALL NOTIFICATION DEVICES ARE 15cd UNLESS OTHERWISE
SPECIFIED.
- FIRE ALARM CONTRACTOR SHALL PROVIDE A RED BREAKER
LOCK FOR THE FIRE ALARM PANEL BREAKER.

QTY:

LEGEND:

1		FIRE ALARM CONTROL PANEL, SILENT KNIGHT 6700
1		MESH RADIO COMMUNICATOR, AES 7707P–88–ULP
1		KITCHEN HOOD SYSTEM, BY OTHERS
1		SURGE SUPPRESSION, SPACE AGE E120V–GT
1		DUAL MONITOR MODULE, SILENT KNIGHT SK–MONITOR–2
7		SINGLE MONITOR MODULE, SILENT KNIGHT SK–MONITOR
1		SMOKE DETECTOR, SILENT KNIGHT SK–PHOTO W/B300–6
1		MANUAL STATION, SILENT KNIGHT SK–PULL–DA
1		WATERFLOW SWITCH, PROVIDED BY SPRINKLER CONTRACTOR
1		TAMPER SWITCH, PROVIDED BY SPRINKLER CONTRACTOR
1		POST INDICATING VALVE, PROVIDED BY SPRINKLER CONTR.
1		BACKFLOW PREVENTER, PROVIDED BY SPRINKLER
4		VISUAL STROBE, CEILING MOUNT, SYSTEM SENSOR SCRL
4		HORN STROBE, CEILING MOUNT, SYSTEM SENSOR PC2RL
1		HORN STROBE, WEATHERPROOF, SILENT KNIGHT P2RK
1		BELL, 24VDC, 10", SYSTEM SENSOR SSM24–10
		END OF LINE DEVICE, SILENT KNIGHT, 4.7K

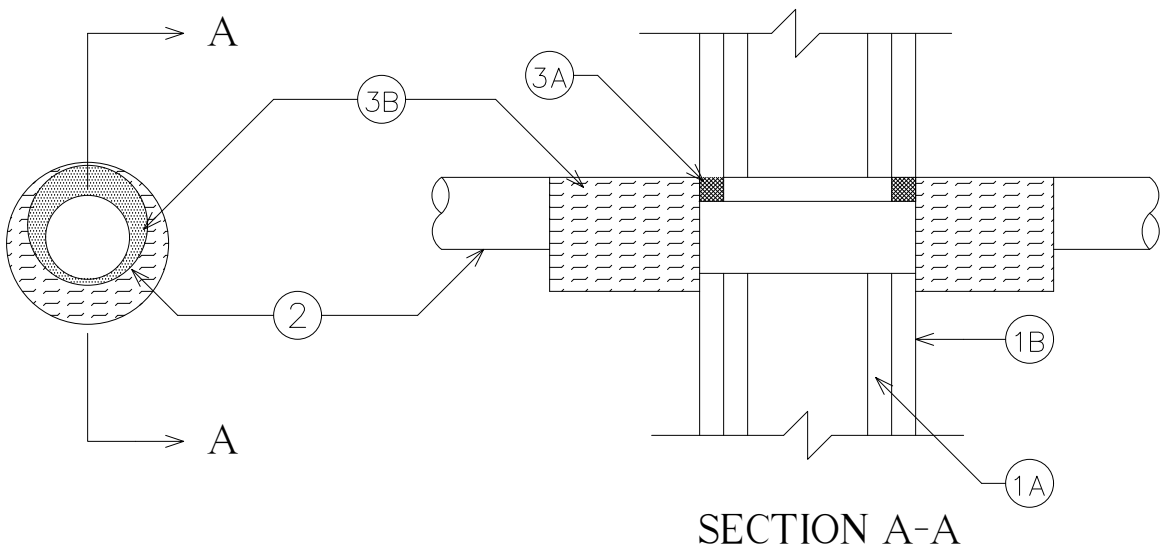
DEVICE ELEVATION DETAIL



THROUGH PENETRATION DETAIL PER U.L. #W-L-1323

SYSTEM NO. W-L-1323
F RATING – 2 HR.

T RATINGS – 1 1/4 & 2 HR. (SEE ITEM 2)



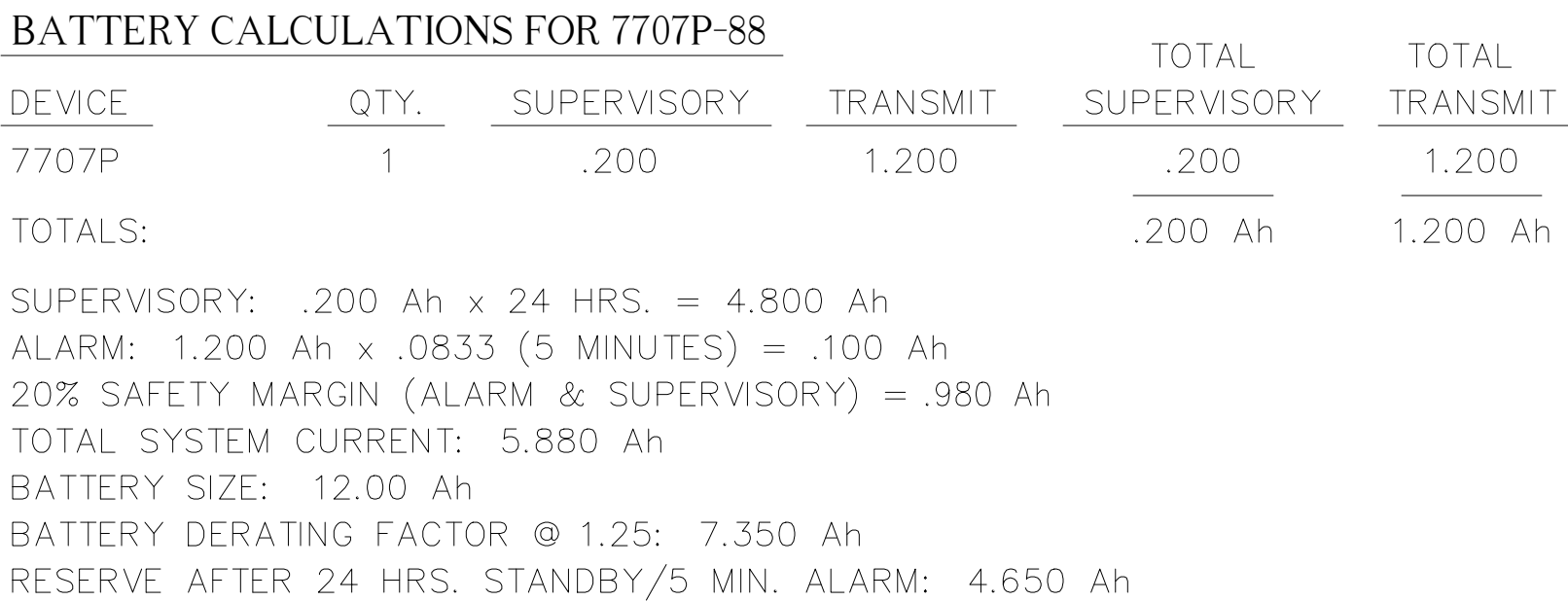
- WALL ASSEMBLY – THE 2 HR FIRE RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES.
 - STUDS – WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 3–1/2 IN. WIDE AND SPACED MAX. 24 IN. OC.
 - GYPSUM BOARD * – TWO LAYERS OF NOM 5/8 IN. THICK GYPSUM BOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IS 12–3/4 IN.
- THROUGH PENETRANT – ONE METALLIC PIPE OR TUBING INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN OPENING. ANNULAR SPACE BETWEEN PENETRANT AND PERIPHERY OF OPENING SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX 2 IN. PENETRANT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF PENETRANTS MAY BE USED:
 - STEEL PIPE – NOM 10 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
 - IRON PIPE – NOM 10 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
 - COPPER TUBING – NOM 4 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
 - COPPER PIPE – NOM 4 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.THE HOURLY T RATING IS 2 HR FOR PENETRANTS A AND B. THE HOURLY RATING IS 1–1/4 HR FOR PENETRANTS C AND D.
- FIRESTOP SYSTEM – THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:
 - FILL, VOID OR CAVITY MATERIALS * – CAULK, SEALANT OR PUTTY – MIN 5/8 IN. THICKNESS OF CAULK, SEALANT OR PUTTY APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL.3M COMPANY – CP 25WB+ CAULK, FB–3000 WT SEALANT, MP+ STIX PUTTY.
 - DUCT WRAP MATERIAL * – NOM 2 IN. THICK DUCT WRAP TIGHTLY WRAPPED AROUND PENETRANT, BUTTED TO WALL AND EXTENDING 24 IN. BEYOND BOTH SURFACES OF WALL. LONGITUDINAL SEAMS SEALED WITH FOIL TAPE.3M COMPANY – FIRE BARRIER DUCT WRAP 20A.
* BEARING THE UL CLASSIFICATION MARKING

DATE: 21 July 2025
DRAWN: Jere Thompson
APPROVED: Scott Gehlhausen
SCALE: NONE

Brimstone
Fire Safety Management LLC
Post Office Box 1508 Woodinville, WA 98072
License # EC BRIMSF59028L

McDONALD'S RESTAURANT
731 SHAW ROAD PUYALLUP, WA 98372
NEW FIRE ALARM SYSTEM
COVER SHEET

SHEET
FA-01



SUPERVISORY: 169 Ah x 24 HOURS = 4,056 Ah
ALARM: 1.234 Ah x .0833 (5 MINUTES) = .103 Ah
20% SAFETY MARGIN (ALARM & SUPERVISORY) = .832 Ah
TOTAL SYSTEM CURRENT: 4.991 Ah
BATTERY SIZE: 8.00 Ah
BATTERY DERATING FACTOR @ 1.25: 6.239 Ah
RESERVE AFTER 24 HRS. STANDBY/10 MIN. ALARM: 1.761 Ah

FROM ALARM RELAY NO 

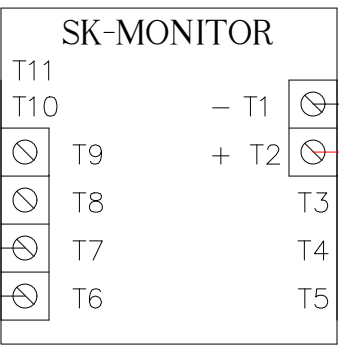
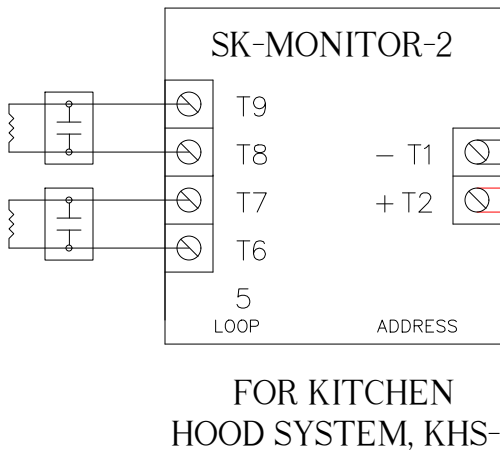
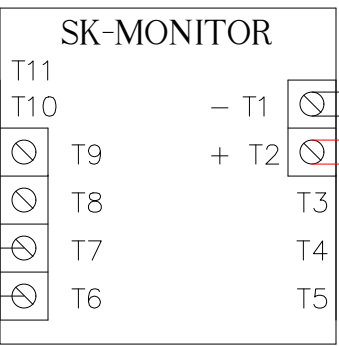
FROM ALARM RELAY COM 

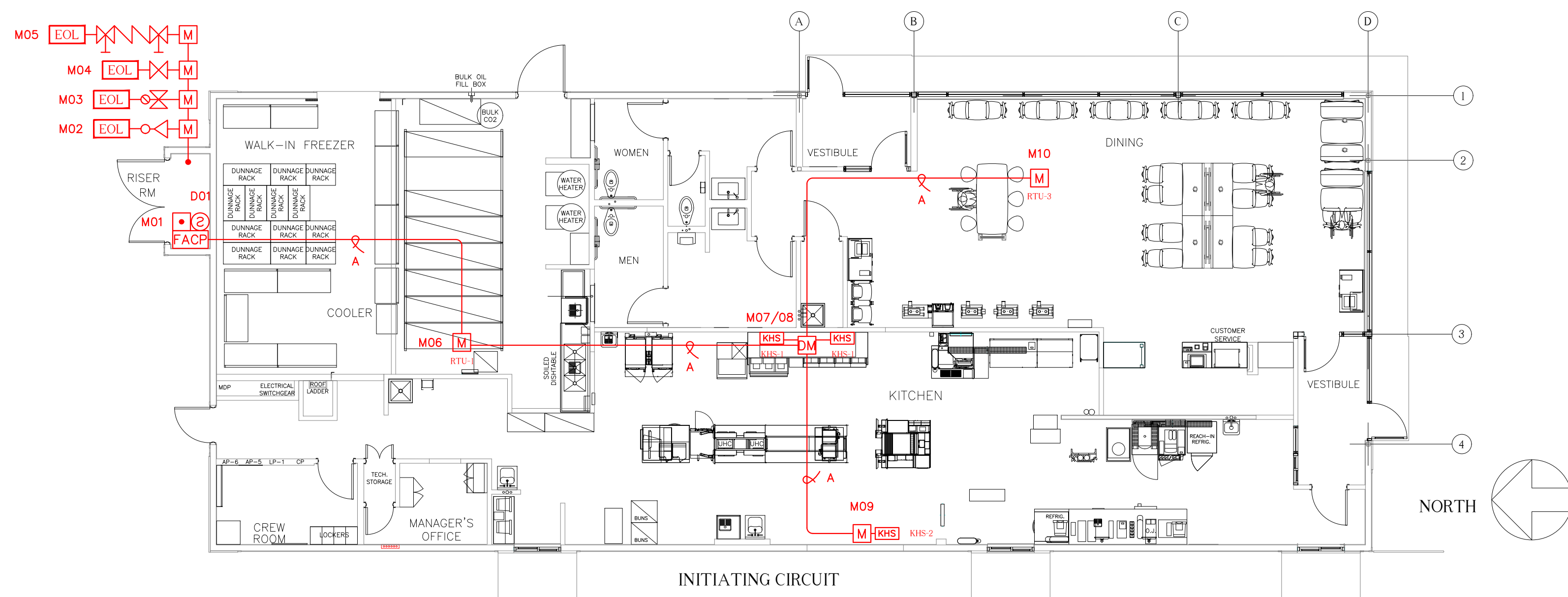
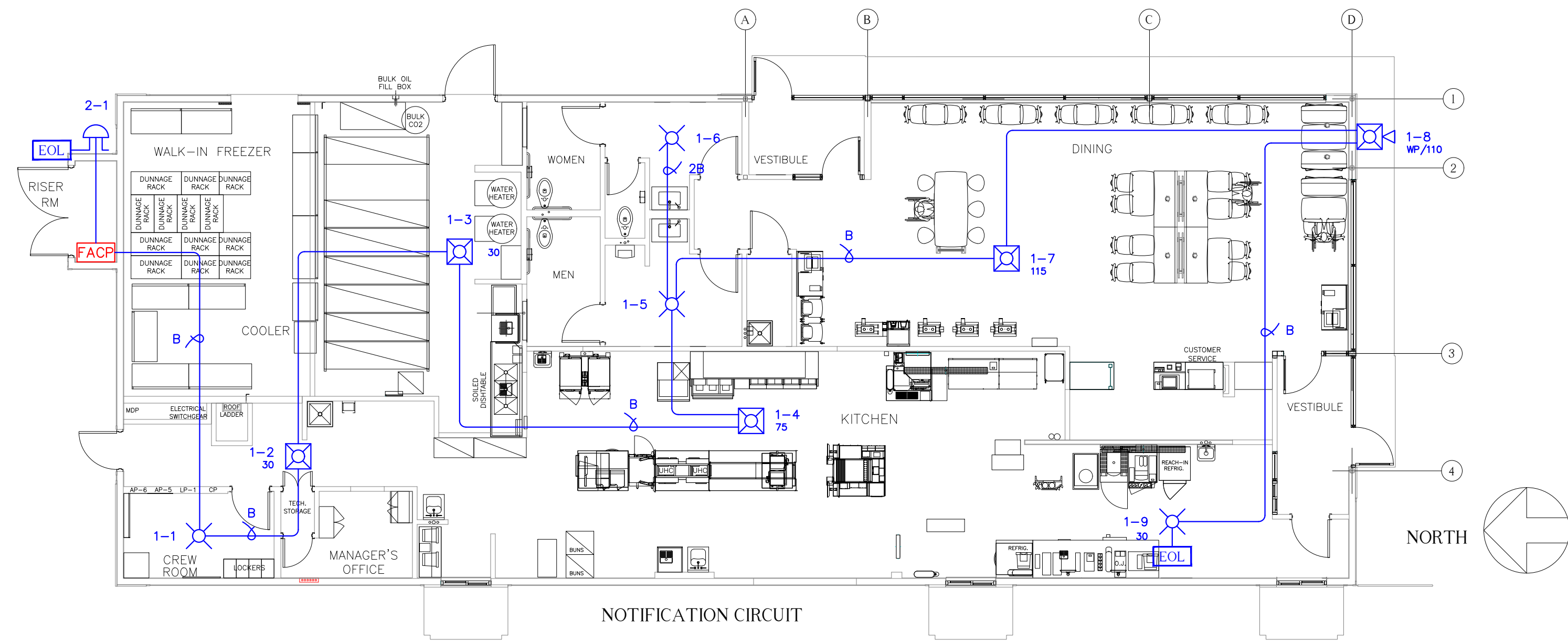
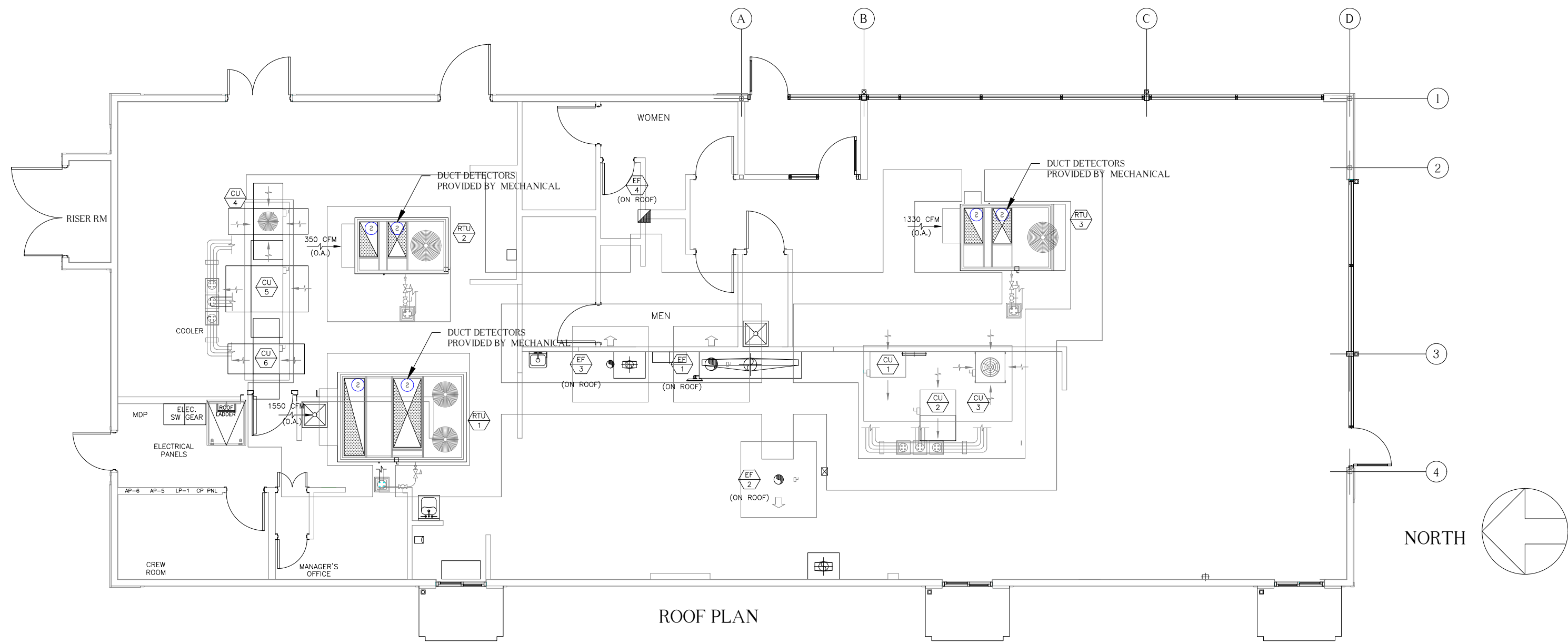
FROM SUPV RELAY NO 

FROM SUPV RELAY COM 

FROM TRBL RELAY COM 

FROM TRBL RELAY NO 



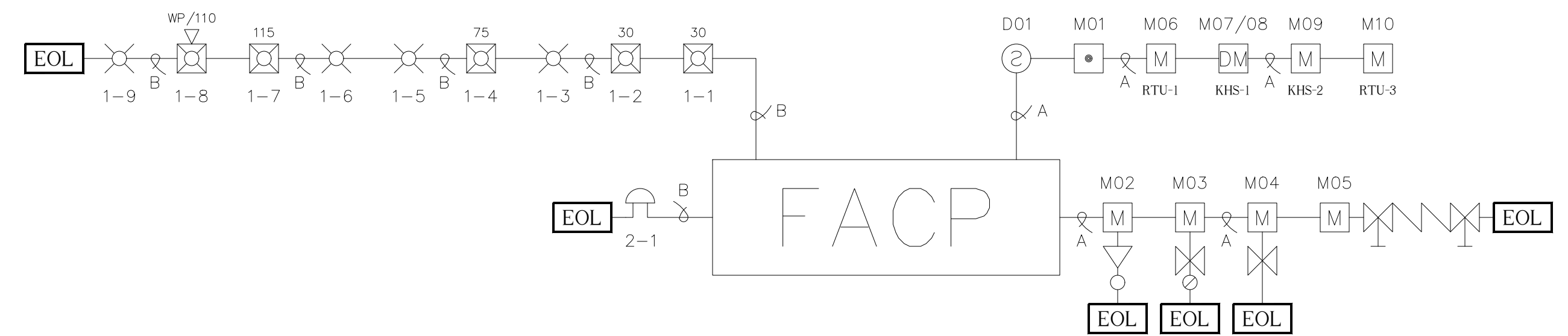


NOTIFICATION APPLIANCE CIRCUIT #1 FIRST FLOOR

WIRE SIZE	WIRE RESISTANCE
14 AWG	.0025 OHMS PER FOOT
$.848 \times .0025 \times 572 = 1.21$ VOLTS DROPPED	
$1.21 / 20.4$ (VOLTS) = .059	
$.059 \times 100$ (PERCENT) = 5.9	
5.9 PERCENT VOLTAGE DROP	
VOLTAGE AT LAST DEVICE: 19.19	

NOTIFICATION APPLIANCE CIRCUIT #2 WATERFLOW BELL

WIRE SIZE	WIRE RESISTANCE
14 AWG	.0025 OHMS PER FOOT
$.031 \times .0025 \times 26 = .002$ VOLTS DROPPED	
$.002 / 20.4$ (VOLTS) = .0001	
$.0001 \times 100$ (PERCENT) = .01	
.01 PERCENT VOLTAGE DROP	
VOLTAGE AT LAST DEVICE: 20.4	



FIRE ALARM RISER DIAGRAM