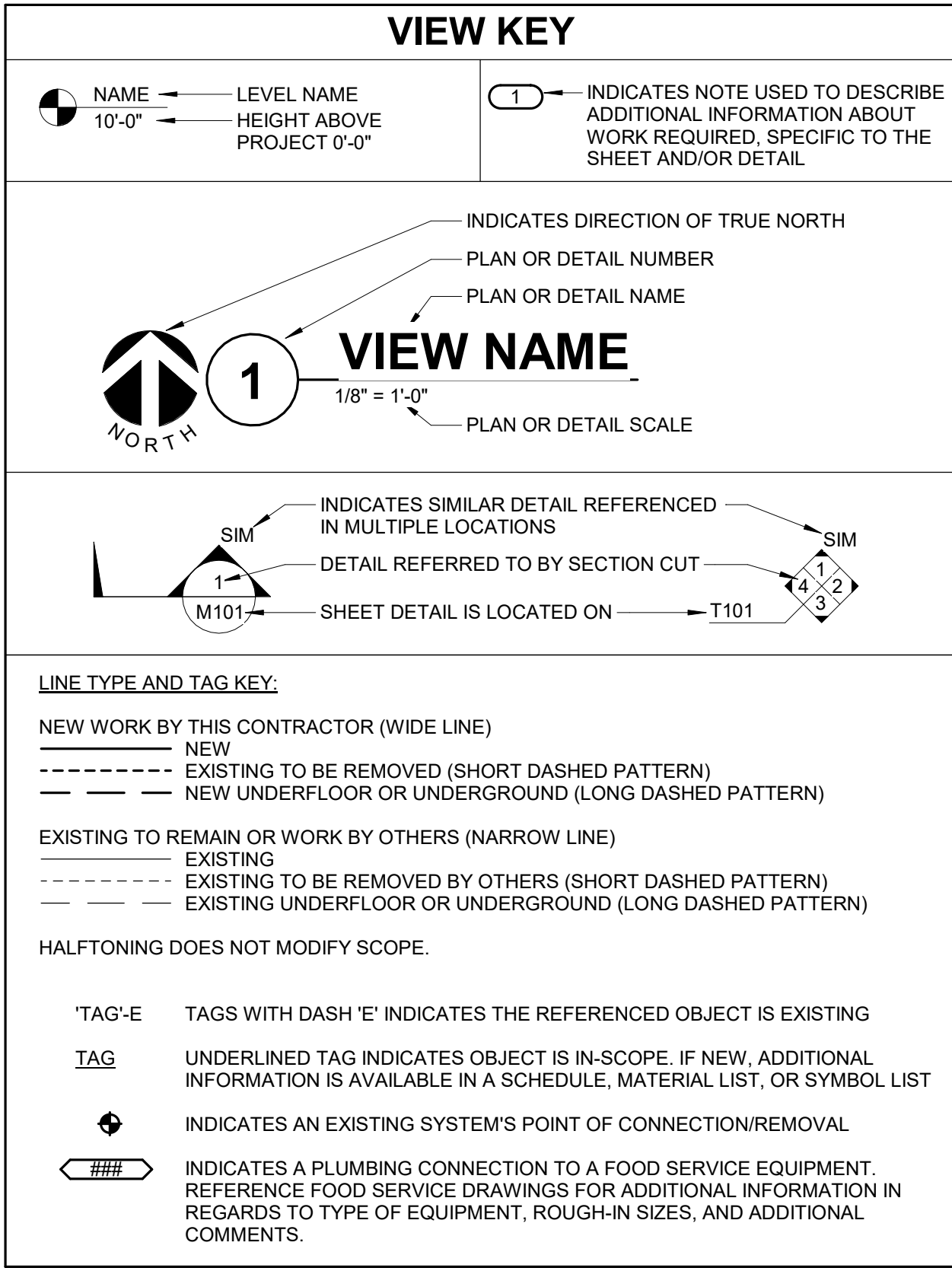




APPLICABLE CODES	
CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS.	
BUILDING CODE:	IBC 2015 EDITION
FIRE CODE:	IFC 2015 EDITION
PLUMBING CODE:	UPC 2021 EDITION
MECHANICAL CODE:	IMC 2021 EDITION
ELECTRICAL CODE:	NFPA 70 (NEC) 2020 EDITION
LIFE SAFETY CODE:	NFPA 101 2021 EDITION
ENERGY CONSERVATION CODE:	IECC 2012
HEALTH DEPARTMENT CODE:	CURRENT EDITION
LOCAL BUILDING CODE:	CURRENT EDITION

CONTRACTOR ABBREVIATION KEY	
ABBR:	DESCRIPTION:
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
S.C.	SECURITY CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR

MECHANICAL ABBREVIATION KEY	
ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
C	COMMON
CO	CLEANOUT
CFSD	CONTROL/FIRE/SMOKE DAMPER
DPG (0-2")	DIFFERENTIAL PRESSURE GAUGE (RANGE)
DPS	DIFFERENTIAL PRESSURE SWITCH
EA	EXHAUST/RELIEF AIR
ECFSD	EXISTING CONTROL FIRE SMOKE DAMPER
EFD	EXISTING FIRE DAMPER
EFSD	EXISTING FIRE SMOKE DAMPER
EP	ELECTRICAL TO PNEUMATIC VALVE
ESD	EXISTING SMOKE DAMPER
FD	FIRE DAMPER
FB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FSD	FIRE/SMOKE DAMPER
MA	MIXED AIR
MV	MIXING VALVE
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
OA	OUTSIDE AIR
PS	PRESSURE SWITCH
RA	RETURN AIR
SA	SUPPLY AIR
SCCR	SHORT CIRCUIT CURRENT RATING
SD	SMOKE DAMPER
TAB	TERMINAL AIR BOX
TD	TRANSFER DUCT
TYP	TYPICAL
UC-1	DOOR UNDERCUT BY OTHERS (1" TYPICAL)
UON	UNLESS OTHERWISE NOTES

CONTACT PERSONS:	
DESCRIPTION:	PERSON:
PROJECT MANAGER	MIKE MCCARTY
MECHANICAL	MIKE MCCARTY
ELECTRICAL	KRISTEN SPINA
TECHNOLOGY	MIKE MCCARTY

MECHANICAL SYMBOL LIST	
NOT ALL SYMBOLS MAY APPLY.	
SYMBOL:	DESCRIPTION:
DPP	DRAIN
HG	REFRIGERANT HOT GAS
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
LIQ	REFRIGERANT LIQUID
SUC	REFRIGERANT SUCTION
PIPE CAP	PIPE CAP
PIPE DOWN	PIPE DOWN
PIPE UP OR UP/DOWN	PIPE UP OR UP/DOWN
PITCH PIPE IN DIRECTION	PITCH PIPE IN DIRECTION
DIRECTION OF FLOW IN PIPE	DIRECTION OF FLOW IN PIPE
SHUTOFF VALVE NORMALLY OPEN	SHUTOFF VALVE NORMALLY OPEN
DIFFERENTIAL PRESSURE SENSOR	DIFFERENTIAL PRESSURE SENSOR
STATIC SWITCH	STATIC SWITCH
DIRECTION OF AIR FLOW	DIRECTION OF AIR FLOW
FLEXIBLE DUCT	FLEXIBLE DUCT
MANUAL VOLUME DAMPER	MANUAL VOLUME DAMPER
RISE IN DIRECTION OF AIR FLOW	RISE IN DIRECTION OF AIR FLOW
DROP IN DIRECTION OF AIR FLOW	DROP IN DIRECTION OF AIR FLOW
DUCT CAP	DUCT CAP
DUCT DOWN	DUCT DOWN
DUCT UP	DUCT UP
SUPPLY/OUTSIDE AIR DUCT SECTION	SUPPLY/OUTSIDE AIR DUCT SECTION
RETURN AIR DUCT SECTION	RETURN AIR DUCT SECTION
EXHAUST/RELIEF AIR DUCT SECTION	EXHAUST/RELIEF AIR DUCT SECTION
4-WAY DIFFUSER WITH BLANKOFF IN ONE DIRECTION	4-WAY DIFFUSER WITH BLANKOFF IN ONE DIRECTION
AIR TERMINAL PROPERTIES SYMBOL NECK SIZE/CFM	AIR TERMINAL PROPERTIES SYMBOL NECK SIZE/CFM
TERMINAL AIR BOX W/REHEAT COIL (REFER TO SCHEDULE)	TERMINAL AIR BOX W/REHEAT COIL (REFER TO SCHEDULE)
FAN POWERED TERMINAL AIR BOX W/REHEAT COIL (REFER TO SCHEDULE)	FAN POWERED TERMINAL AIR BOX W/REHEAT COIL (REFER TO SCHEDULE)
OPPOSED BLADE DAMPER (REFER TO SCHEDULE)	OPPOSED BLADE DAMPER (REFER TO SCHEDULE)
PARALLEL BLADE DAMPER (REFER TO SCHEDULE)	PARALLEL BLADE DAMPER (REFER TO SCHEDULE)
DIFFERENTIAL PRESSURE SENSOR	DIFFERENTIAL PRESSURE SENSOR
HUMIDISTAT SENSOR	HUMIDISTAT / SENSOR
PRESSURE SENSOR/MONITOR	PRESSURE SENSOR/MONITOR
PRESSURE SENSOR (DUCT MOUNTED)	PRESSURE SENSOR (DUCT MOUNTED)
THERMOSTAT/SENSOR TYPE 1 (SENSOR ONLY)	THERMOSTAT/SENSOR TYPE 1 (SENSOR ONLY)
TEMPERATURE SENSOR	TEMPERATURE SENSOR
THERMOSTAT/SENSOR WITH HEAVY DUTY ENCLOSURE	THERMOSTAT/SENSOR WITH HEAVY DUTY ENCLOSURE
TEMPERATURE SENSOR WITH WELL	TEMPERATURE SENSOR WITH WELL
THERMOMETER WITH WELL (DIAL TYPE)	THERMOMETER WITH WELL (DIAL TYPE)
THERMOMETER WITH WELL (FILLED TYPE)	THERMOMETER WITH WELL (FILLED TYPE)
AVERAGING TEMPERATURE SENSOR	AVERAGING TEMPERATURE SENSOR
LOW LIMIT TEMPERATURE SWITCH	LOW LIMIT TEMPERATURE SWITCH
PROBE TEMPERATURE SENSOR	PROBE TEMPERATURE SENSOR
ANALOG INPUT	DIGITAL INPUT
ANALOG OUTPUT	DIGITAL OUTPUT
DUCT FLOW METER	HUMIDISTAT SENSOR
DUCT SMOKE DETECTOR	HUMIDISTAT / SENSOR
HEATING/ COOLING COIL	FILTER
MANUAL MOTOR STARTER W/THERMAL OVERLOAD	TERMINAL AIR BOX W/ REHEAT
FAN	OCCUPANCY SENSOR
MOTOR	SENSOR
CONTACTOR	ACTUATOR
PUMP	DIFFERENTIAL PRESSURE SWITCH
	CURRENT SWITCH
	NORMALL CLOSED CONTACT
	NORMALLY OPEN CONTACT
	OPPOSED BLADE DAMPER
	PARALLEL BLADE DAMPER

MECHANICAL RENOVATION NOTES:

- THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION, PIPING AND TEMPERATURE CONTROL.
- EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
 - NOT ALL EXISTING DUCTWORK AND PIPING IS SHOWN. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY ENGINEER OF ANY CONFLICTS WITH NEW WORK.
 - FIELD VERIFY THE AVAILABLE CLEARANCES FOR DUCTWORK AND PIPING BEFORE FABRICATION. RISES AND DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.
 - EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF THEIR WORK AND SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO THEIR AREA OF WORK.
 - EACH CONTRACTOR SHALL CUT AND PATCH ROOFS, WALLS, AND FLOORS ASSOCIATED WITH THEIR WORK.
 - THIS CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILINGS, CEILING TILES, AND CEILING GRIDS ASSOCIATED WITH AREAS OF WORK REQUIRED BY THEIR WORK.
 - WHERE EXISTING MECHANICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING, OR DUCTWORK TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, PIPING, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING MECHANICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.
 - PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. MAINTAIN ACCESS TO EXISTING MECHANICAL INSTALLATIONS THAT REMAIN ACTIVE.
 - OBTAIN PERMISSION FROM OWNER BEFORE SHUTTING DOWN ANY SYSTEM FOR ANY REASON. MAINTAIN SERVICE TO ALL COMPONENTS THAT ARE TO REMAIN UNTIL NEW SYSTEMS ARE INSTALLED.
 - MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR THE IN AND SWITCHOVER. DRAIN SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER BEFORE PARTIALLY OR COMPLETELY DRAINING SYSTEM. MAKE CHANGEOVER TO NEW SYSTEMS WITH MINIMUM OUTAGE.
 - DISCONNECT AND REMOVE MECHANICAL DEVICES AND EQUIPMENT SERVING EQUIPMENT THAT HAS BEEN REMOVED.

TEMPERATURE CONTROL GENERAL NOTES:

- REFER TO EQUIPMENT SCHEDULES TO CROSS REFERENCE WHICH CONTROL DIAGRAMS APPLY TO WHICH ITEMS OF EQUIPMENT. REFER TO TERMINAL AIR BOX (TAB) SCHEDULES FOR TEMP SENSOR REQUIREMENTS FOR EACH TAB.
- EACH D.I., D.O., A.I. AND A.O. POINT SHOWN FOR ALL CONTROL DIAGRAMS SHALL BE DISCRETE FROM ALL OTHER POINTS EXCEPT AS SPECIFICALLY NOTED.
- ALL WIRING, CONTROL COMPONENTS, DEVICES AND PROGRAMMING SHOWN ON THESE CONTROL DRAWINGS SHALL BE PROVIDED BY THE TCC UNLESS SPECIFICALLY NOTED OTHERWISE.
- TEMPERATURE CONTROL CABLING, CONDUIT, BOXES, IDENTIFICATION: REFER TO THE SPECIFICATIONS FOR A COMPLETE LIST OF REQUIREMENTS. THE FOLLOWING SCHEDULE IS PROVIDED AS A CONVENIENCE. REFER TO SECTION 23 09 00 AND DIV 26 FOR ADDITIONAL DETAILED REQUIREMENTS.
 - A. CABLE/WIRE JACKET COLOR: BLUE
 - B. CONDUIT BOX COLOR ABOVE FINISHED CEILINGS AND UNFINISHED SPACES WITHOUT CEILINGS: BLUE
 - C. CONDUIT BOX COLOR IN SPACES WITH EXPOSED FINISHED STRUCTURE: BLUE
 - D. CABLE/WIRE INSTALLATION: IN CONDUIT WHEN CONCEALED IN WALLS AND OTHER ASSEMBLIES. PLENUM-RATED CABLE SHALL BE USED ABOVE FINISHED ACCESSIBLE CEILINGS, INDEPENDENTLY SUPPORTED FROM OTHER SYSTEM. CABLE/WIRE EVERY 4 FT WITH BRIDAL RINGS AND CABLE SADDLES. ALL CABLING SHALL BE IN CONDUIT IN SPACES WITH EXPOSED FINISHED STRUCTURE.
- ALL ACTUATORS SHALL BE OF THE ELECTRICAL TYPE FOR THIS PROJECT UNLESS AN ACTUATOR IS SPECIFICALLY INDICATED ON THE DRAWINGS OR SPECIFICATIONS TO BE PNEUMATIC.
- ALL MODULATING DAMPER AND VALVE ACTUATORS SHOWN WITH POSITION FEEDBACK SHALL HAVE THE VALVE POSITION DISPLAYED ON GRAPHICAL SCREEN ADJACENT TO THE DAMPER/VALVE COMMAND SIGNAL. DISPLAYED VALVE POSITION SHALL BE FROM THE FEEDBACK DEVICE/CIRCUIT (OUTPUT SIGNAL FROM THE FMCS TO THE ACTUATOR IS NOT ACCEPTABLE).
- MODULATING SIGNALS SHALL BE DISPLAYED AS % OPEN (SIGNALS DISPLAYED AS % CLOSED ARE NOT ACCEPTABLE).
- PRESSURE TRANSMITTERS WHOSE SIGNAL IS UTILIZED FOR MAINTAINING DUCT STATIC PRESSURE SHALL BE WIRED DIRECTLY TO THE CONTROLLER THAT MODULATES FAN SPEED. SIGNAL SHALL BE COMPLETELY INDEPENDENT OF THE FMCS NETWORK.
- ALL CONTROL COMPONENTS SUCH AS RELAYS, SWITCHES, DDC CONTROLLERS, ETC SHALL BE MOUNTED IN STEEL ENCLOSURES WITH STEEL MOUNTING BACKPLATES PER SPECIFICATION 23 09 00.
- EACH CONTROL PANEL SHALL HAVE A LAMINATED COPY OF THE APPLICABLE SEQUENCE OF OPERATION AND CONTROL DIAGRAM INDICATING THE POINTS, COMPONENTS AND OPERATION OF EQUIPMENT ASSOCIATED WITH EACH PANEL. REFER TO SECTION 23 09 00 FOR ADDITIONAL REQUIREMENTS.
- TCC SHALL EXTEND CONTROL SIGNAL FROM ADDRESSABLE RELAY DEVICE SERVING EACH AIR HANDLING UNIT. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS. TCC SHALL EXTEND AND TERMINATE WIRING AS REQUIRED FOR EQUIPMENT SHUTDOWN.
- TCC SHALL PROVIDE POWER SUPPLIES FOR ALL 24VAC POWER REQUIREMENTS TO INCLUDE, BUT NOT LIMITED TO, APPLICATION SPECIFIC: TERMINAL AIR BOX CONTROLLERS, DAMPER AND VALVE ACTUATORS, BUILDING PRESSURE SENSORS, AND OTHER CONTROL COMPONENTS AND DEVICES. REFER TO CONTROLS SPECIFICATIONS FOR POWER SUPPLY REQUIREMENTS. REFER TO MECHANICAL FLOOR PLANS FOR POWER SUPPLY LOCATIONS. PROVIDE LOW VOLTAGE WIRING FROM POWER SUPPLIES TO ALL CONTROLLERS, MONITORS, COMPONENTS AND DEVICES REQUIRING 24 VAC POWER. ADDITIONAL POWER SUPPLIES NOT SHOWN AND REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM SHALL BE PROVIDED BY THE TEMPERATURE CONTROL CONTRACTOR. THE TEMPERATURE CONTROL CONTRACTOR SHALL PROVIDE FINANCIAL PROVISIONS WITHIN THEIR BID FOR THE ELECTRICAL CONTRACTOR TO PROVIDE BRANCH POWER TO THE ADDITIONAL POWER SUPPLIES. COORDINATE THE LOCATION OF ADDITIONAL POWER SUPPLY CABINET WITH THE ELECTRICAL CONTRACTOR.
- TCC SHALL PROVIDE CONDUIT RUNS AS REQUIRED FOR OUTDOOR EQUIPMENT AND FOR EQUIPMENT INSTALLED REMOTELY FROM THE MAIN BUILDING THAT IS BEING MONITORED OR CONTROLLED BY THE FMCS.
- ELEMENT LENGTHS FOR BOTH MIXED AIR TEMP SENSORS AND LOW LIMIT TEMP SWITCHES SHALL BE MINIMUM 1 LINEAR FOOT PER SQUARE FOOT OF COIL SURFACE AREA. PROVIDE MULTIPLE SENSORS AND SWITCHES AS NEEDED TO ACHIEVE REQUIRED ELEMENT LENGTHS. LOCATE RESET SWITCHES MAX 6'-6" ABOVE ADJACENT STANDING SURFACE (E.G. ROOF, PLATFORM OR FLOOR) SO THE RESET SWITCH CAN BE CYCLED WITHOUT THE NEED FOR A LADDER.
- TO PREVENT GENERATOR OVERLOADING, TCC SHALL PROGRAM A STAGGERED START TIME FOR ALL MECHANICAL EQUIPMENT THAT IS CONTROLLED BY FMCS TO INCLUDE, BUT NOT LIMITED TO, AIR HANDLERS, CONDENSING UNITS AND, EXHAUST FANS. THE FIRST EQUIPMENT SHALL START 2 MINUTES (ADJ.) FROM THE TIME THE FMCS RECEIVES THE SIGNAL THAT THE TRANSFER SWITCH CHANGED TO EMERGENCY POWER SOURCE WITH ALL EQUIPMENT BEING ENERGIZED WITHIN A 20 MINUTE (ADJ.) TIME SPAN. COORDINATE ORDER OF EQUIPMENT STAGING WITH OWNER'S REPRESENTATIVE.
- CONTROL DIAGRAMS ARE SCHEMATIC IN NATURE AND DO NOT SHOW ALL REQUIRED CONTROL DEVICES AND COMPONENTS. REFER TO FLOOR PLANS, FLOW DIAGRAMS AND DETAILS FOR ADDITIONAL CONTROL DEVICES, COMPONENTS AND REQUIREMENTS NOT SHOWN ON THESE CONTROL DRAWINGS.
- TCC SHALL PROVIDE ALL CONTROL COMPONENTS AND ACCESSORIES AS REQUIRED FOR EQUIPMENT TO BE CONTROLLED AS DESCRIBED IN THE SEQUENCE OF OPERATION REGARDLESS OF WHETHER ALL CONTROL COMPONENTS OR POINTS ARE SHOWN IN THE ASSOCIATED CONTROL DIAGRAM.
- COORDINATE DDC CONTROL PANEL EMERGENCY POWER SUPPLY REQUIREMENT WITH ELECTRICAL CONTRACTOR. ALL CONTROLS ASSOCIATED WITH MECHANICAL SYSTEM REQUIRING EMERGENCY POWER SHALL BE CONNECTED TO THE EMERGENCY POWER SYSTEM.

PIPING GENERAL NOTES:

- PIPE DRAIN LINES FROM EQUIPMENT TO NEAREST FLOOR DRAIN.
- INSTALL ALL REFRIGERANT LIQUID AND SUCTION PIPING SIZED PER EQUIPMENT MANUFACTURER RECOMMENDATIONS.

VENTILATION GENERAL NOTES:

- UNLESS NOTED OTHERWISE, THE SIZE OF EACH BRANCH DUCT TO A TERMINAL AIR BOX (TAB) SHALL MATCH THE INLET SIZE UNLESS THE BRANCH IS GREATER THAN 6 FEET IN LENGTH, IN WHICH CASE THE BRANCH DUCT SHALL BE SIZED AT A PRESSURE DROP OF 0.07W.C. PER 100' OF DUCTWORK.
- UNLESS NOTED OTHERWISE, THE SIZE OF EACH BRANCH DUCT TO AN AIR TERMINAL SHALL MATCH THE INLET SIZE.
- ALIGN TEMPERATURE SENSORS WITH LIGHT SWITCHES AND WHEN IN CLOSE PROXIMITY TO EACH OTHER.
- PROVIDE ACCESS DOORS AT ALL DUCT MOUNTED EQUIPMENT.
- REFER TO 6M4.1 FOR DUCT BRANCH CONNECTIONS DETAIL.
- ALL RADIUS ELBOWS SHALL BE TYPE RE1 WITHOUT VANES (CENTER RADIUS R/W=1.0), EXCEPTION: RADIUS ELBOWS LABELED "RE3" SHALL BE TYPE RE3 WITH VANES (CENTER RADIUS R/W=6). REFER TO SPECIFICATIONS AND DETAIL 6M4.2 FOR ADDITIONAL REQUIREMENTS.
- REFER TO 4M4.2 FOR FLEX DUCT CONNECTION (STRAIGHT/WRAPPE) DETAIL.
- REFER TO 5M4.2 FOR TRAPEZE HANGER DUCT WRAP VAPOR SEAL DETAIL.

MECHANICAL GENERAL NOTES:

- THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION, PIPING AND TEMPERATURE CONTROL.
- DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
 - DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
 - COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
 - REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
 - ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
 - EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
 - REFER TO ARCHITECTURAL, REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIOVISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
 - EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
 - IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE DRY WALL CONTRACTOR FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE DRY WALL CONTRACTOR OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
 - SEAL ALL FLOOR, WALL, AND ROOF PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE. PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
 - CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
 - WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
 - EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
 - DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
 - MAINTAIN A MINIMUM WORKING CLEARANCE OF 3'-0" IN FRONT OF ALL ELECTRICAL EQUIPMENT REQUIRING MAINTENANCE, INSPECTION, AND TESTING INCLUDING BUT NOT LIMITED TO PANELS, DISTRIBUTION PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, EQUIPMENT DISCONNECTS AND STARTERS.
 - MAINTAIN THE DEDICATED ELECTRICAL EQUIPMENT SPACE DEFINED BY THE WIDTH / DEPTH OF ELECTRICAL EQUIPMENT MEASURED FROM THE FLOOR TO A HEIGHT 6'-0" ABOVE THE EQUIPMENT OR THE STRUCTURAL CEILING, WHICHEVER IS LOWER. SYSTEMS FOREIGN TO THE ELECTRICAL DISTRIBUTION SYSTEM ARE NOT ALLOWED IN THE DEDICATED ELECTRICAL SPACE INCLUDING, DUCTWORK, PIPING, ETC.
 - PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
 - DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

MECHANICAL DESIGN CONDITIONS:	
DESIGN CONDITIONS:	BASED ON WEATHER DATA FOR: (CLARINDA, IA)
SUMMER:	91°F DRY BULB, 73°F WET BULB
WINTER:	-10°F DRY BULB
TYPICAL ROOM SETPOINTS:	
KITCHEN SUMMER DESIGN:	80°F DRY BULB, 60% RELATIVE HUMIDITY
LAUNDRY, OFFICES, STORAGE SUMMER DESIGN:	72°F DRY BULB, 60% RELATIVE HUMIDITY
WINTER DESIGN:	68°F DRY BULB, NO HUMIDITY REQUIREMENT

MECHANICAL SHEET INDEX	
M0.0	MECHANICAL COVERSHEET
MD1.1	LEVEL 01 DEMOLITION PLAN - MECHANICAL
M1.1	LEVEL 01 PLAN - AREA A - MECHANICAL
M1.2	LEVEL 01 PLAN - AREA B - MECHANICAL
M1.3	LEVEL 02 PLAN - AREA A - MECHANICAL
M1.4	LEVEL 02 PLAN - AREA B - MECHANICAL
M3.0	ENLARGED PLAN - MECHANICAL
M4.1	MECHANICAL DETAILS
M4.2	MECHANICAL DETAILS
M4.3	MECHANICAL DETAILS
M5.1	CONTROL DIAGRAMS
M5.2	CONTROL DIAGRAMS
M5.3	CONTROL DIAGRAMS
M6.1	MECHANICAL SCHEDULES
M6.2	MECHANICAL SCHEDULES
GRAND TOTAL: 15	



www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2008 IMEG CORP.

0 1 2 3
FEET SCALE IN INCHES PROJECT #21007888.00



14225 UNIVERSITY AVENUE, SUITE 110
WALUKE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT OF CORRECTIONS

CLARINDA CORRECTIONAL FACILITY - KITCHEN & LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA 51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

REVIEWED: DAVING

SHEET TITLE

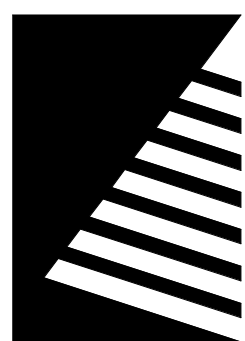
MECHANICAL COVERSHEET

SHEET NUMBER:

M0.0

PROJECT NO.: 0240202.00

RF8922300-02



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

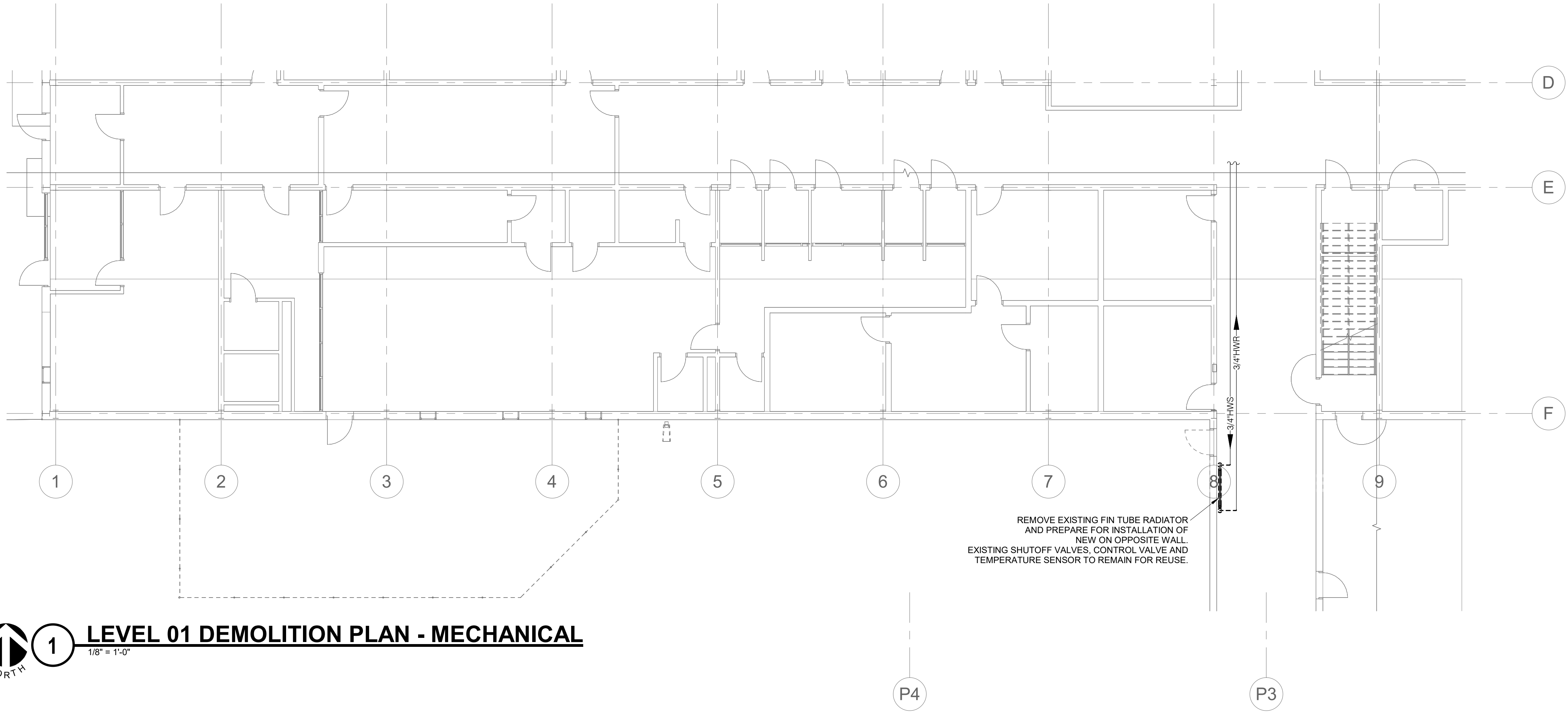
DATE: 02/09/2024
DESIGNED: MIKMCC
DRAWN: MIKMCC
REVIEWED: DAVING

SHEET TITLE:
LEVEL 01
DEMOLITION PLAN -
MECHANICAL

SHEET NUMBER:

MD1.1

PROJECT NO.: 0240202.00
RFB922300-02



1 LEVEL 01 DEMOLITION PLAN - MECHANICAL
1/8" = 1'-0"

IMEG 2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9000 F: 515.334.9008
www.imegcorp.com

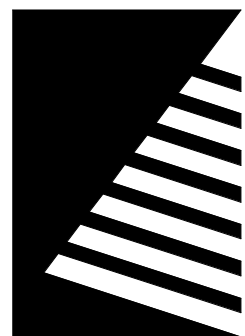
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



RFB922300-0

00000000000000000000000000000000



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WAUKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

REVIEWED: DAVING

SHEET TITLE:

LEVEL 01 PLAN -
AREA B -
MECHANICAL

SHEET NUMBER:

M1.2

PROJECT NO.: 0240202.00

RFB922300-02

- KEYNOTES: C #
1. CONNECT 8" Ø EXHAUST DUCT TO ROTATING RACK OVEN AND ROUTE UP TO EXHAUST FAN ON ROOF ABOVE.
 2. 12"x12" EA DN TO KITCHEN HOOD RISER.
 3. CONNECT EXHAUST DUCT TO DISHWASHER DUCT RISER.
 4. CONNECT EXHAUST DUCT TO DISHWASHER EXHAUST HOOD RISER.
 5. ROUTE 4" ALUMINUM DRYER EXHAUST DUCT FROM DRYER UP TO ROOF. TERMINATE WITH DRYER VENT PER DETAIL 9/M.1.
 6. TYPICAL DIFFUSERS REFERS TO ALL DIFFUSERS SHOWN NORTH TO SOUTH IN COLUMN.
 7. BALANCE DIFFUSER(S)/GRILLE(S) TO LISTED CFM WHEN THE ASSOCIATED FAN POWERED TAB IS AT THE MAXIMUM SCHEDULED HEATING PRIMARY AIRFLOW PLUS TAB FAN CFM.
 8. INSTALL ONE SUPPLY GRILLE HIGH AND ONE SUPPLY GRILLE LOW TO ALLOW CIRCULATION OF AIR IN PLUMBING CHASE ON OUTSIDE WALL. COORDINATE GRILLE LOCATION WITH CMU BLOCKS. BOTTOM GRILLE SHALL BE INSTALLED WITH CENTER AT 12" AFF AND TOP GRILLE SHALL BE INSTALLED WITH CENTER AT 92" AFF. COORDINATE GRILLE LOCATIONS WITH ALL WALL MOUNTED ITEMS.

IMEG
www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00

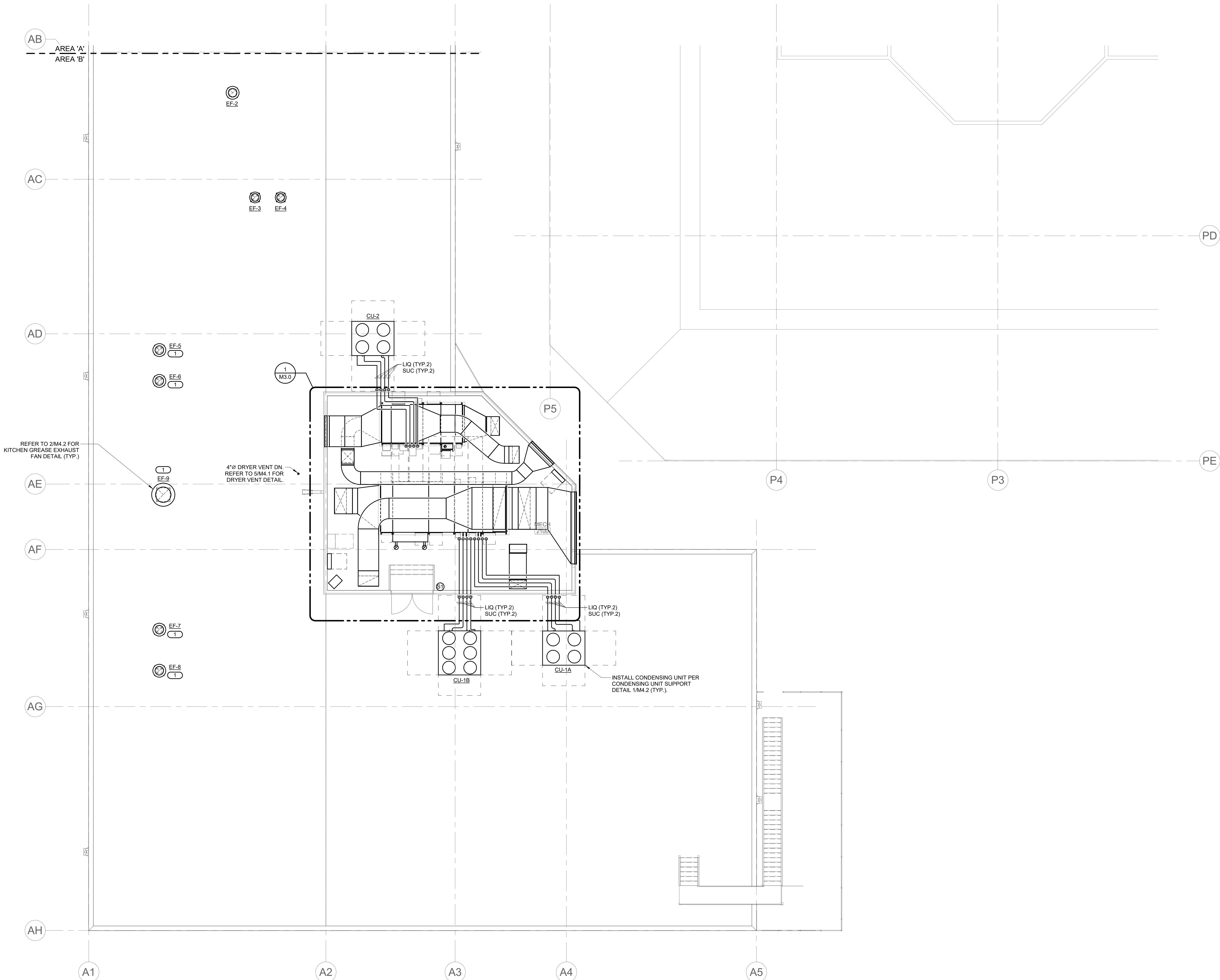


1 LEVEL 01 PLAN - AREA B - MECHANICAL

1/8" = 1'-0"

CONNECT GENERATOR TO FMCS FOR
MONITORING PER CONTROL DIAGRAM
9/M.5.1. REFER TO E0.2 FOR LOCATION.

CONNECT MUFFIN MONSTER/SEWAGE
GRINDER TO FMCS FOR MONITORING
PER CONTROL DIAGRAM 10/M.5.1.
REFER TO CIVIL PLAN C401 FOR
LOCATION.



KEYNOTES: (C #)
1. LOCATE FAN 10FT MINIMUM FROM ROOF EDGE
SO RAILING IS NOT REQUIRED.

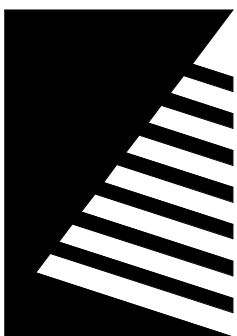


1 LEVEL 02 PLAN - AREA B - MECHANICAL
1/8" = 1'-0"

IMEG
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9000 F: 515.334.9008

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

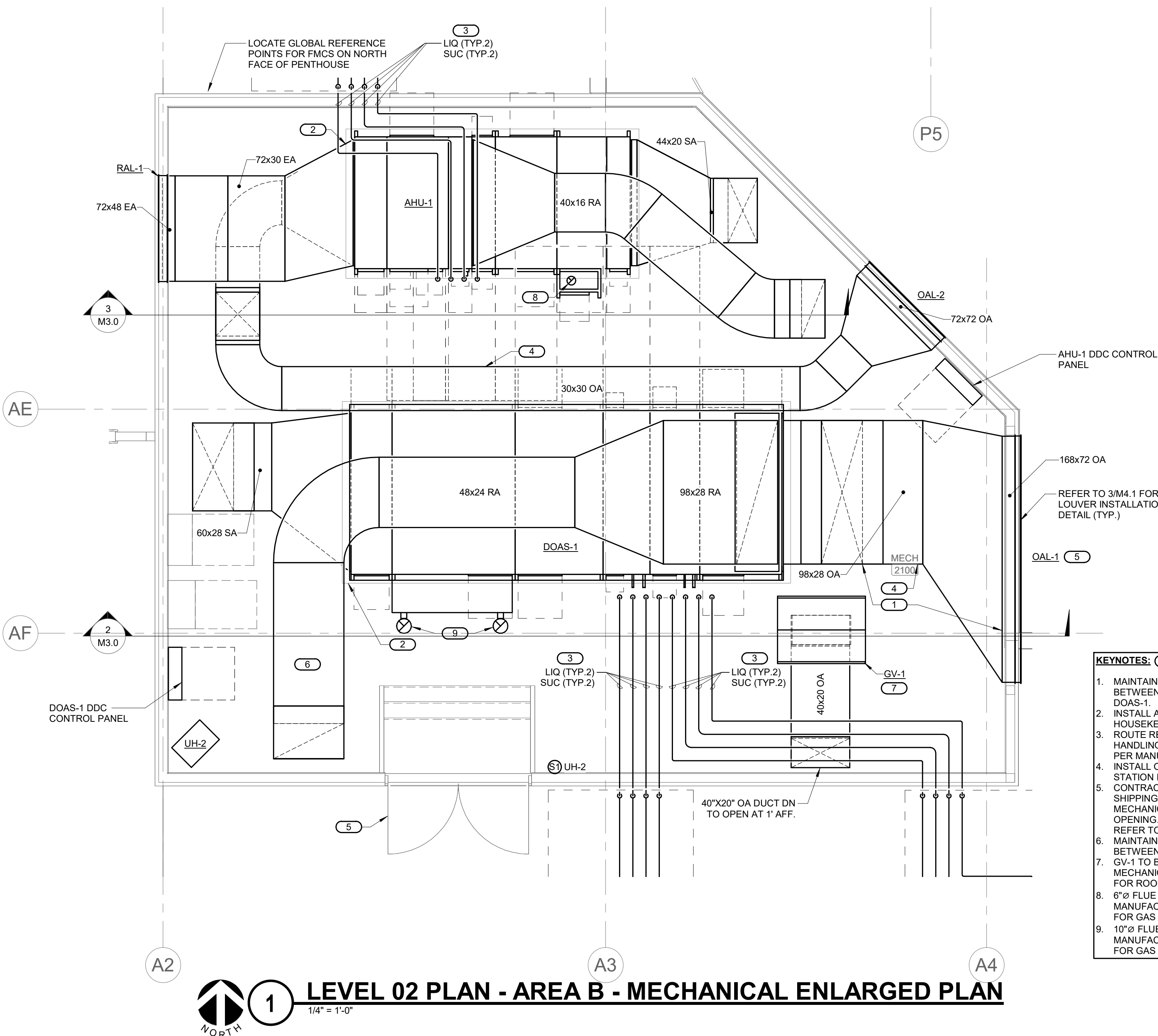
DATE: 02/09/2024
DESIGNED: MIKMCC
DRAWN: MIKMCC
REVIEWED: DAVING

SHEET TITLE:
**LEVEL 02 PLAN -
AREA B -
MECHANICAL**

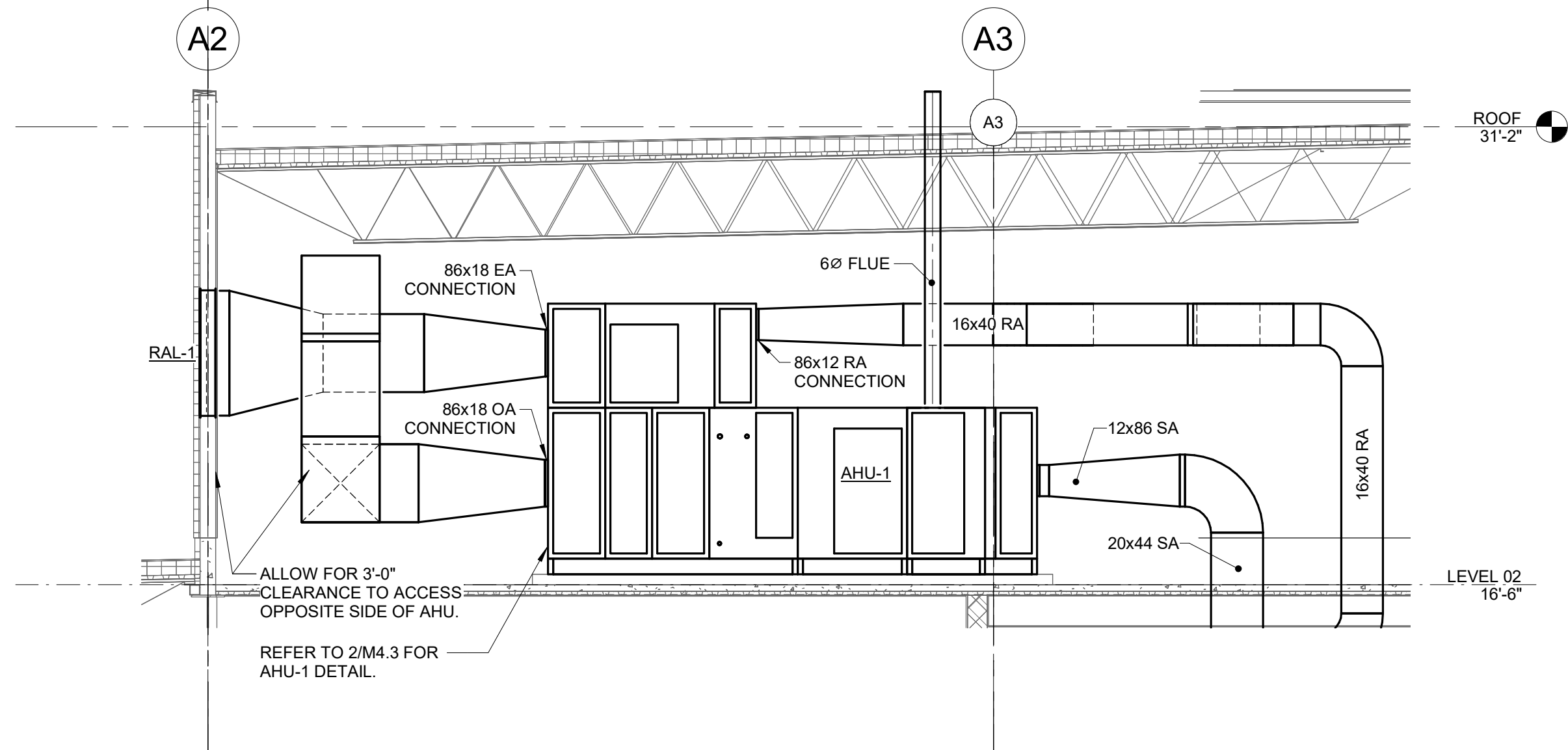
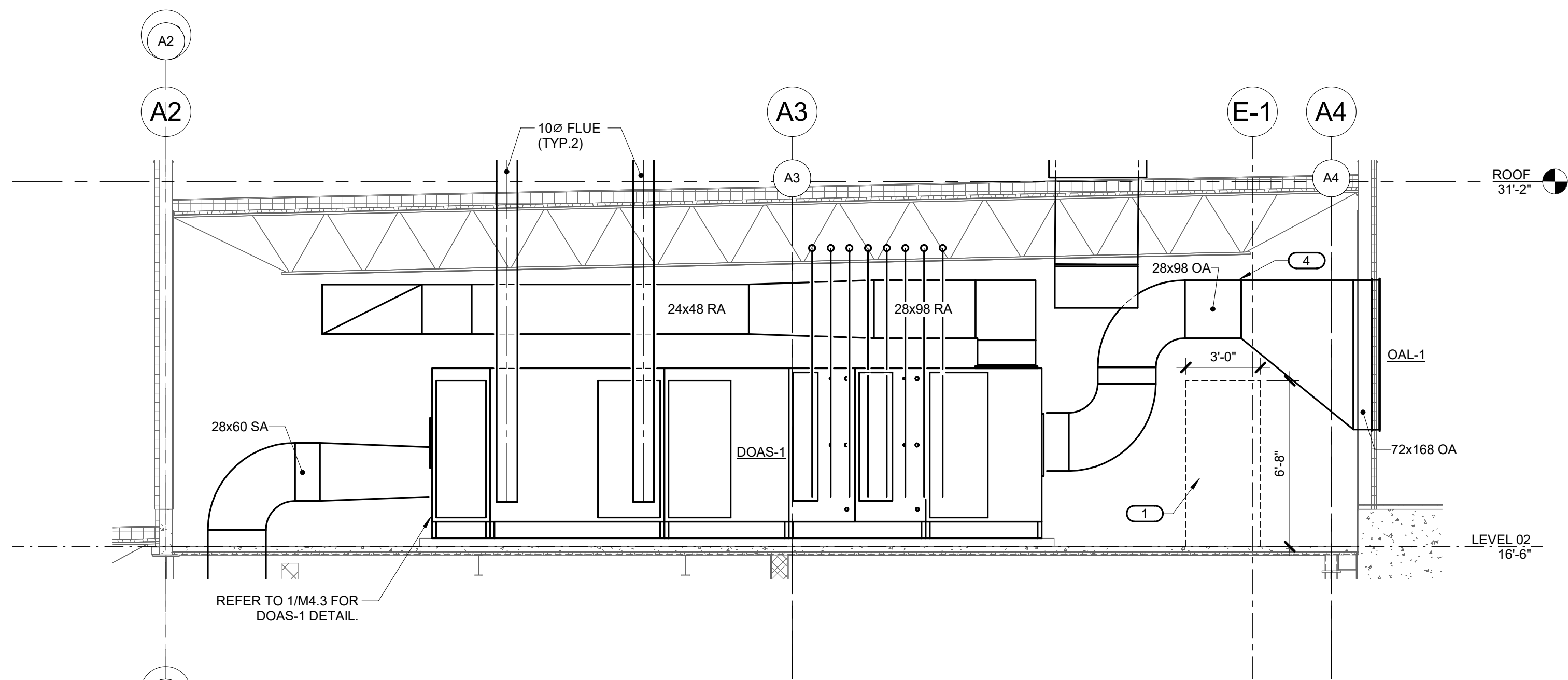
SHEET NUMBER:

M1.4

PROJECT NO.: 0240202.00
RFB922300-02



- KEYNOTES: (1)
1. MAINTAIN A 36"x80" MINIMUM CLEAR PATHWAY BETWEEN LOUVER AND VERTICAL DUCT AT DOAS-1.
 2. INSTALL AHU-1 AND DOAS-1 ON A 4" HOUSEKEEPING PAD.
 3. ROUTE REFRIGERANT PIPING FROM AIR HANDLING UNIT/DOAS TO CONDENSING UNIT PER MANUFACTURER RECOMMENDATIONS.
 4. INSTALL OUTSIDE AIR FLOW MEASURING STATION IN STRAIGHT SECTION OF DUCTWORK.
 5. CONTRACTOR TO FIT ALL EQUIPMENT AND SHIPPING SPLITS THROUGH EITHER THE MAIN MECHANICAL ROOM DOORS OR OAL-1 OPENING. FOR THE LOUVER OPENING SIZE, REFER TO THE ARCHITECTURAL PLANS.
 6. MAINTAIN 36"x80" MINIMUM CLEAR PATHWAY BETWEEN RETURN DUCT AND FLOOR.
 7. GV-1 TO BE LOCATED ON ROOF OF MECHANICAL PENTHOUSE. REFER TO 3/M4.2 FOR ROOF SUPPORT - FANHOOD CURB DETAIL.
 8. 6" FLUE VENT UP THRU ROOF TO MANUFACTURER'S VENT KIT. REFER TO 4/M4.1 FOR GAS VENT THRU ROOF DETAIL.
 9. 10" FLUE VENT UP THRU ROOF TO MANUFACTURER'S VENT KIT. REFER TO 4/M4.1 FOR GAS VENT THRU ROOF DETAIL. (TYP.2)



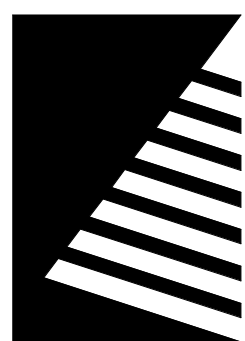
IMEG

www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9000 F: 515.334.9008

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

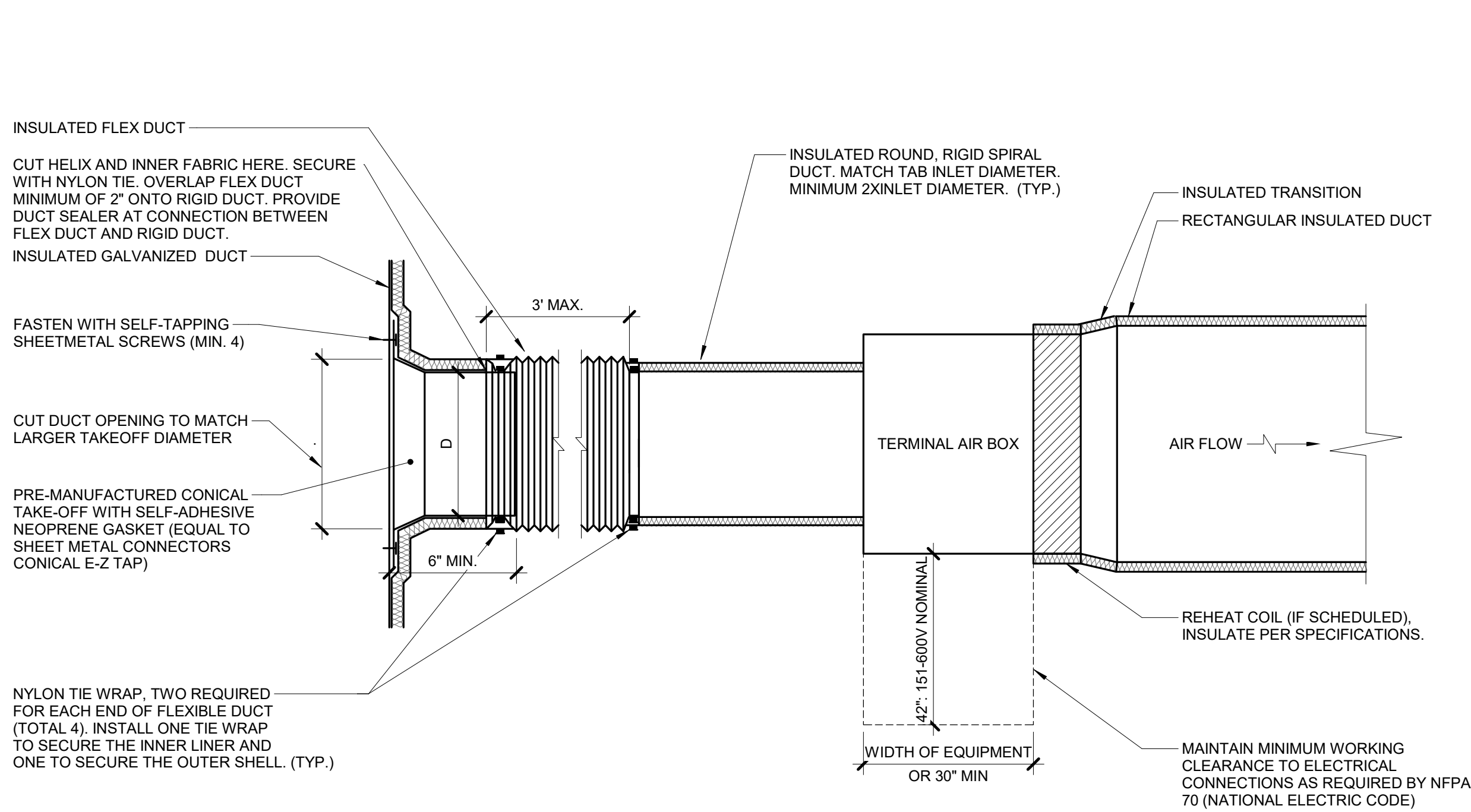
REVIEWED: DAVING

SHEET TITLE:
**ENLARGED PLAN -
MECHANICAL**

SHEET NUMBER:

M3.0

PROJECT NO.: 0240202.00
RFB922300-02

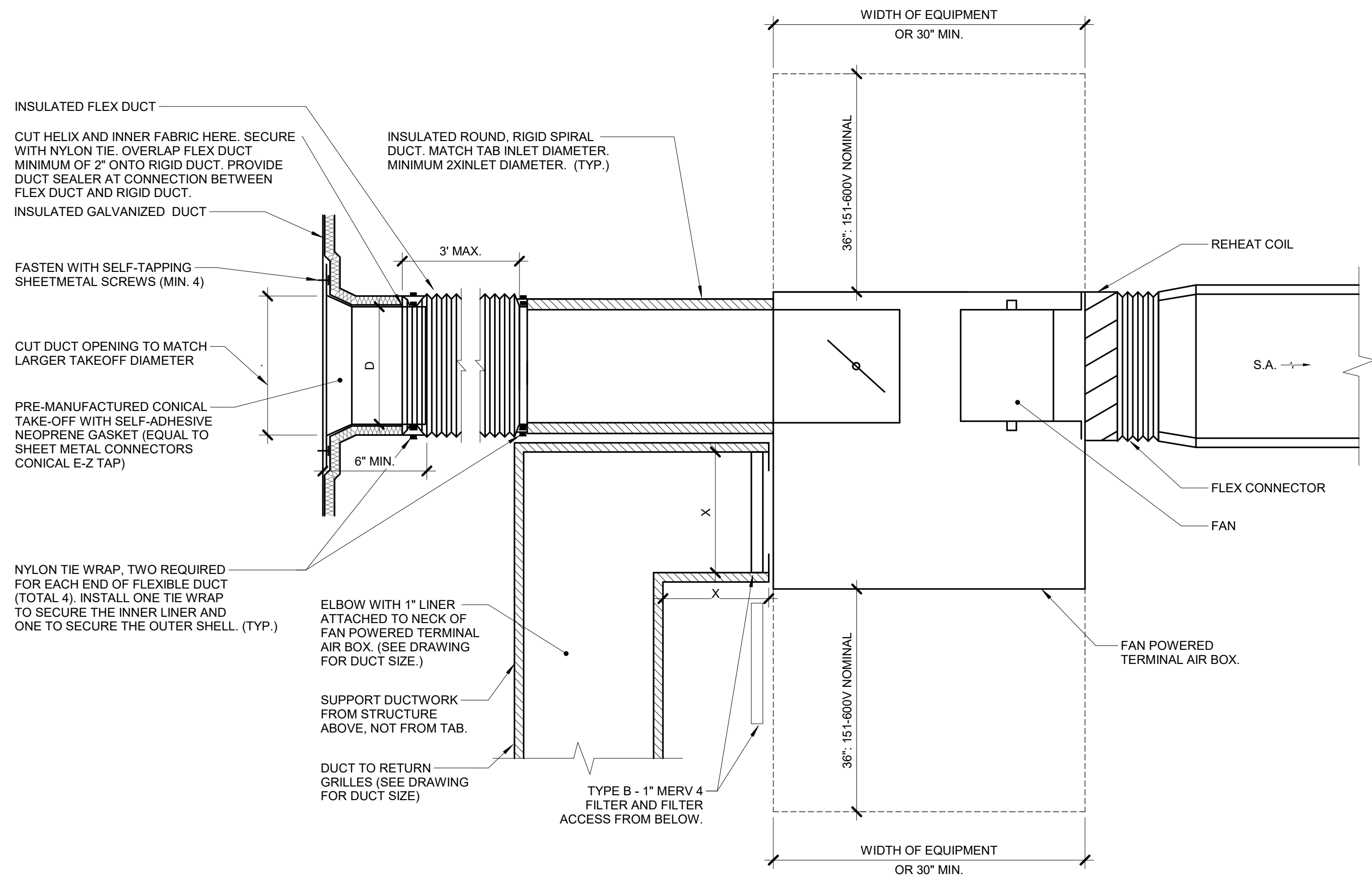


1 TERMINAL AIR BOX - SINGLE DUCT - WRAPPED

NO SCALE

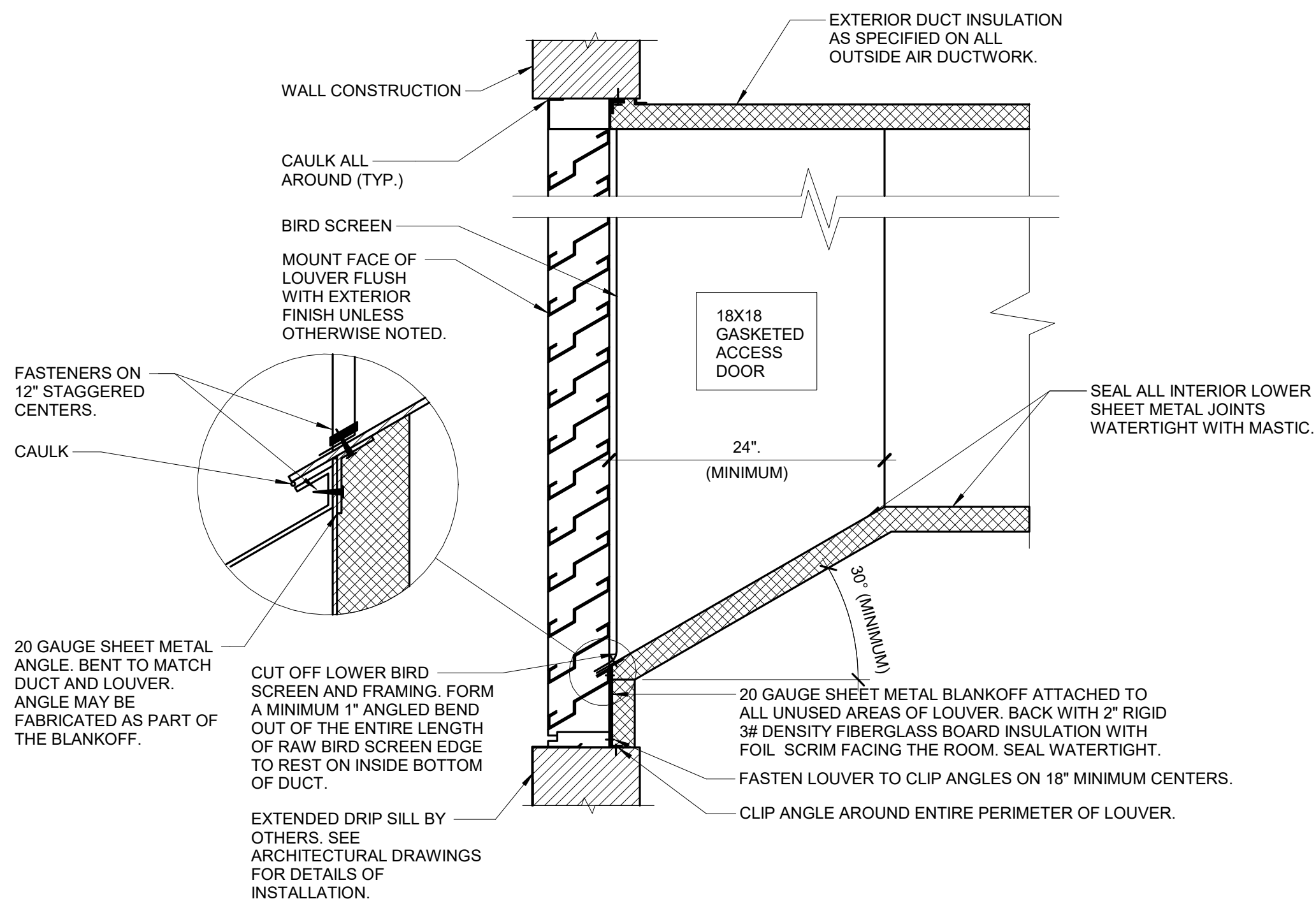
NOTES:

- THIS DETAIL APPLIES ONLY TO TAPS OFF WRAPPED DUCTS.
- THIS DETAIL APPLIES TO TERMINAL AIR BOXES WITH ROUND INLETS AND RECTANGULAR OUTLETS.
- DUCT LEADING TO TAB INLET MUST BE STRAIGHT FOR 1.5 DIAMETER UPSTREAM.
- MAINTAIN VAPOR BARRIER FROM MAIN TO BRANCH DUCT.



2 TERMINAL AIR BOX - FAN POWERED SERIES - WRAPPED

NO SCALE

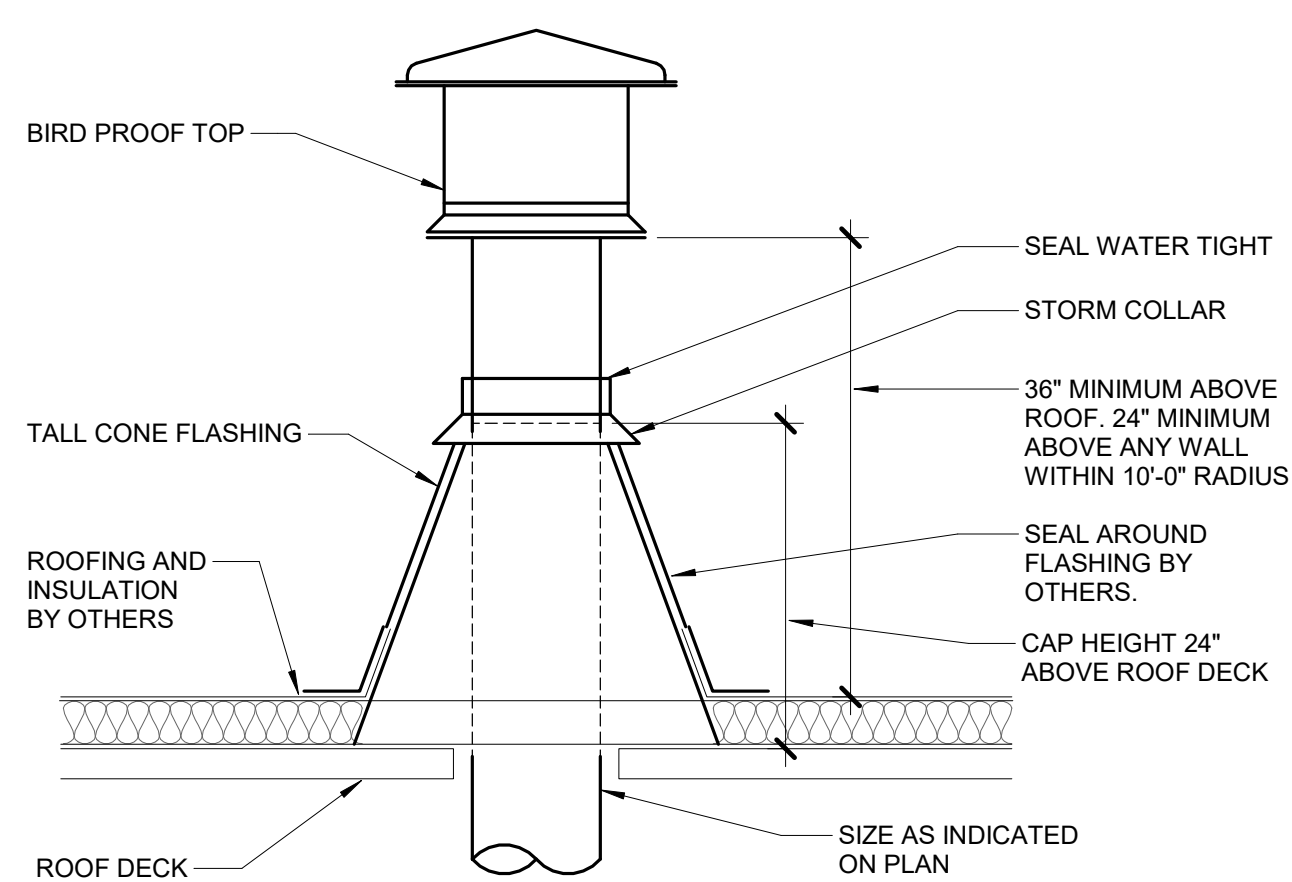


3 LOUVER INSTALLATION DETAIL

NO SCALE

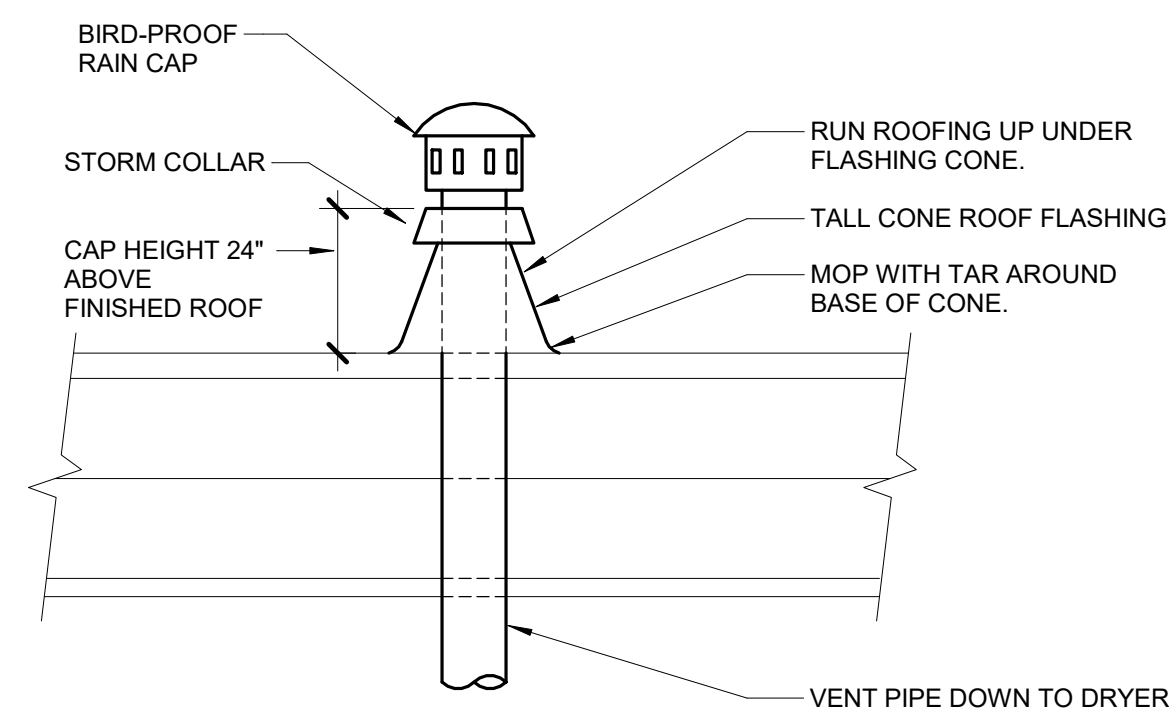
NOTES:

- SEAL ALL JOINTS ON BOTTOM INTERIOR SURFACE OF DUCT WITHIN 6'-0" OF THE LOUVER WATER TIGHT.
- MOUNT BOTTOM OF INTAKE LOUVERS AT LEAST 40" ABOVE GRADE OR ROOF ELEVATION TO MINIMIZE CHANCES OF SNOW DRIFTING INTO THE LOUVER.
- CAULK SHEETMETAL SCREWS WHERE THEY PENETRATE METAL.



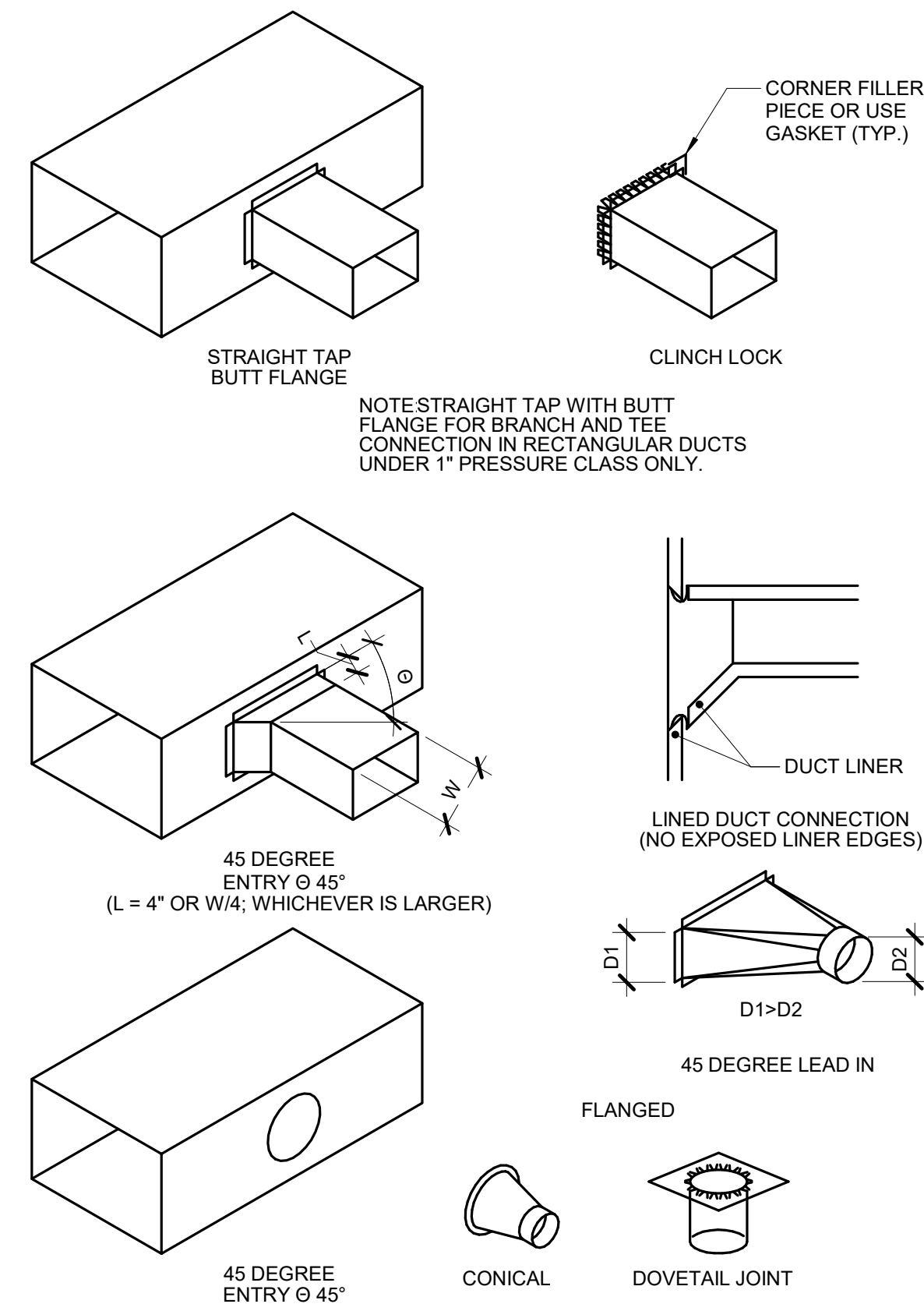
4 GAS VENT THRU ROOF (MEMBRANE ROOF)

NO SCALE



5 DRYER VENT DETAIL

NO SCALE



6 BRANCH CONNECTIONS

NO SCALE

NOTES:

- DO NOT USE CONNECTIONS WITH SCOOPS.
- FIT ALL CONNECTIONS TO AVOID VISIBLE OPENINGS AND SECURE THEM SUITABLY FOR THE PRESSURE CLASS.
- ADDITIONAL MECHANICAL FASTENERS ARE REQUIRED FOR 4"W.G. AND OVER.
- SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

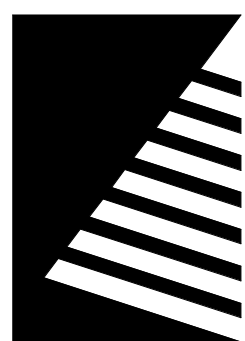
IMEG

www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

2882 100TH STREET
DES MOINES, IA 50322
P: 515.334.9000 F: 515.334.9908

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WAUKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

REVIEWED: DAVING

SHEET TITLE:

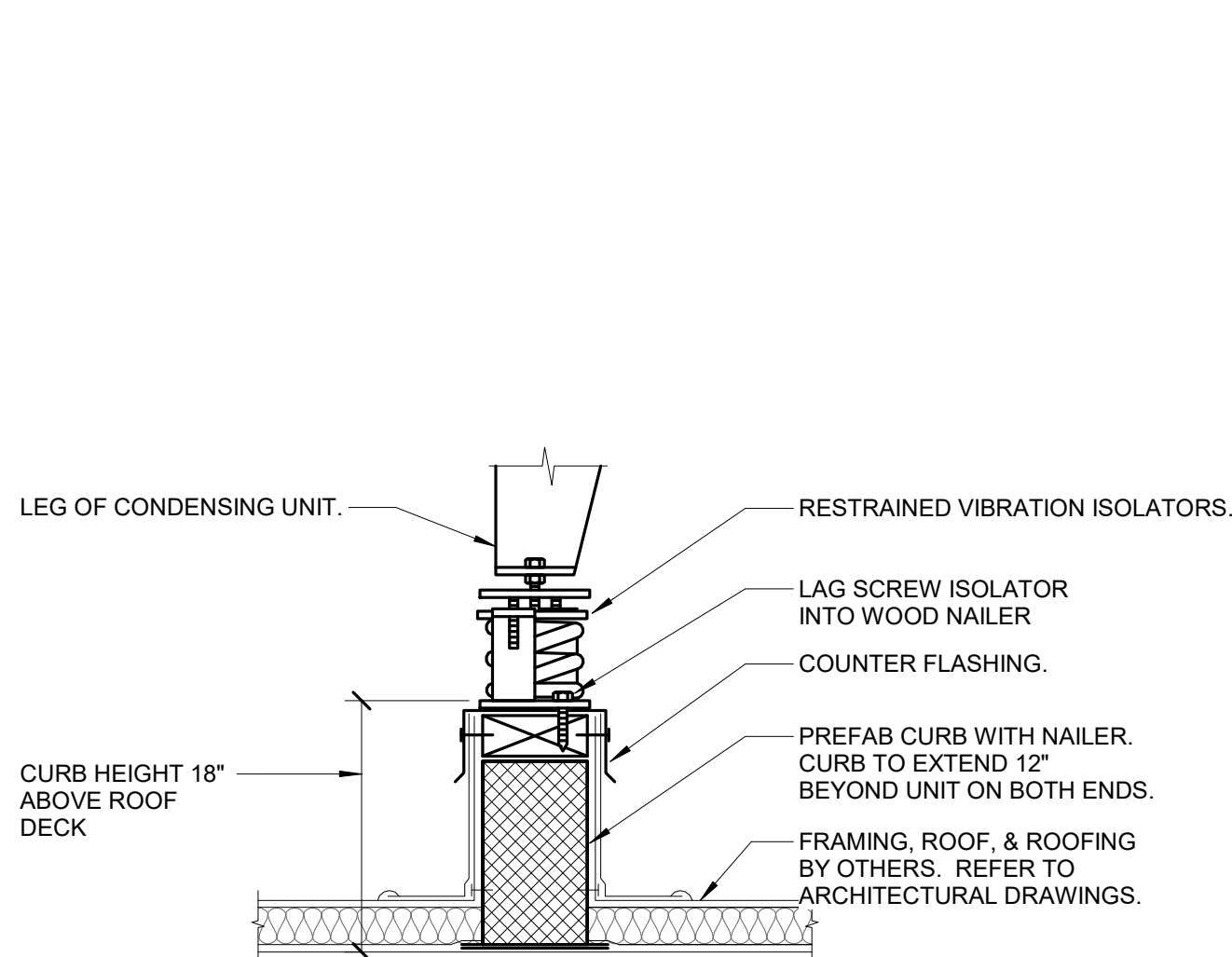
**MECHANICAL
DETAILS**

SHEET NUMBER:

M4.1

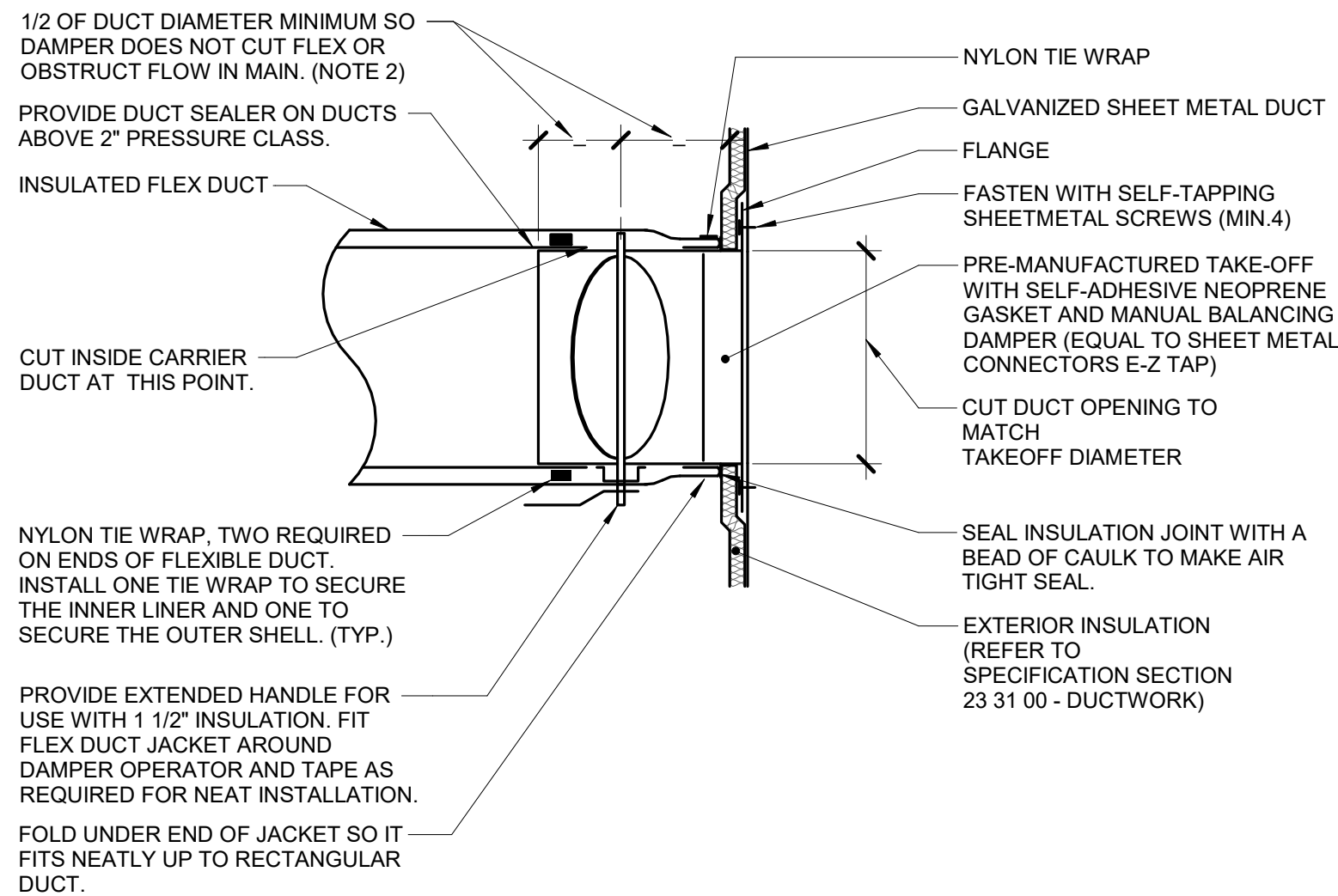
PROJECT NO.: 0240202.00

RF8922300-02



CONDENSING UNIT SUPPORT (MEMBRANE ROOF)

1
NO SCALE

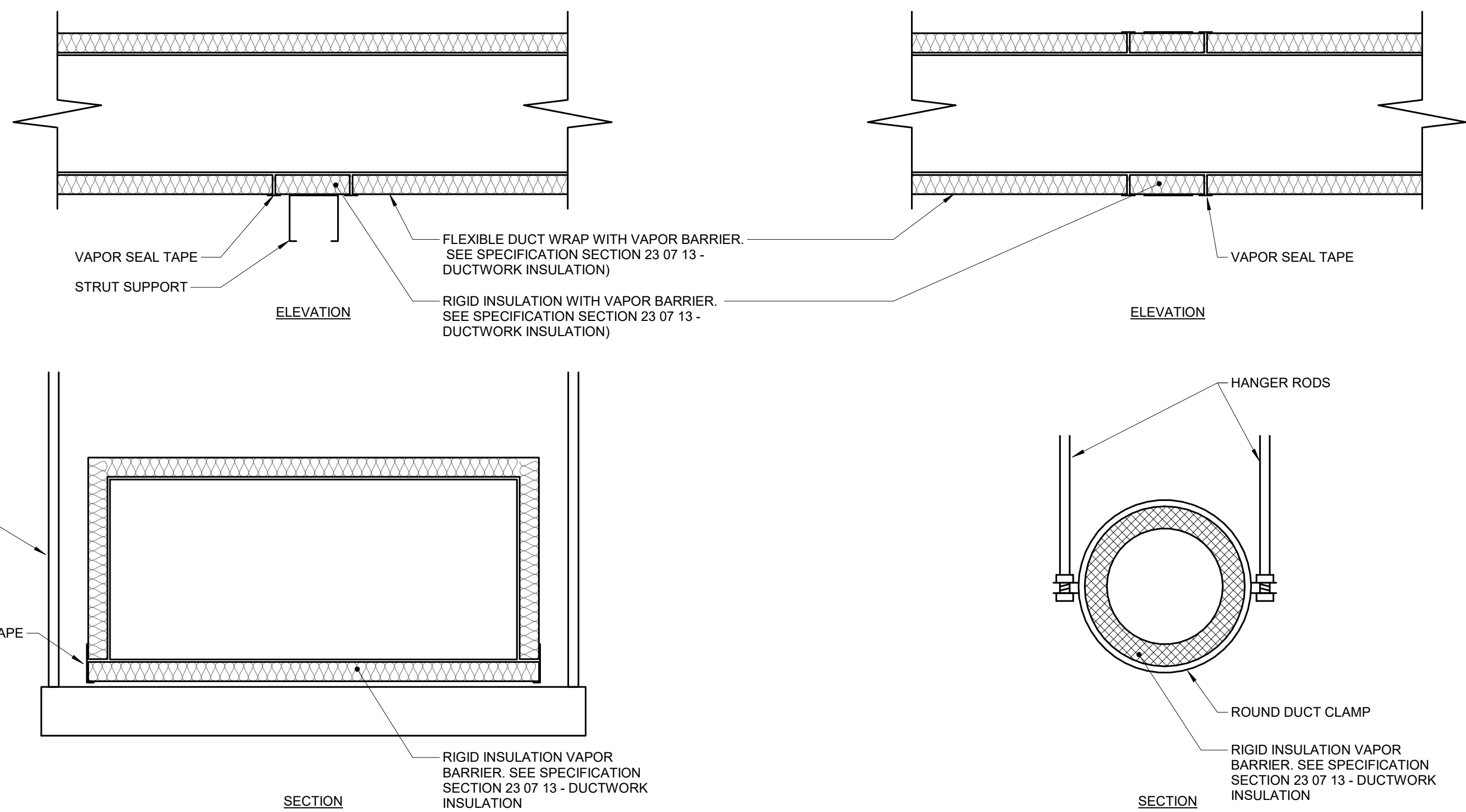


FLEX DUCT CONNECTION (STRAIGHT/WRAPPED)

NO SCALE

NOTES:

- THIS DETAIL APPLIES ONLY TO TAPS OFF UNLINED DUCTS.
- MANUFACTURED TAP/DAMPER COMBINATIONS WITH LESS THAN 1/2 DUCT DIAMETER SPACING BETWEEN THE MAIN DUCT AND THE DAMPER SHAFT ARE ACCEPTABLE ONLY IF THE DAMPER SHAFT IS INSTALLED PARALLEL TO THE AIR FLOW IN THE MAIN DUCT.

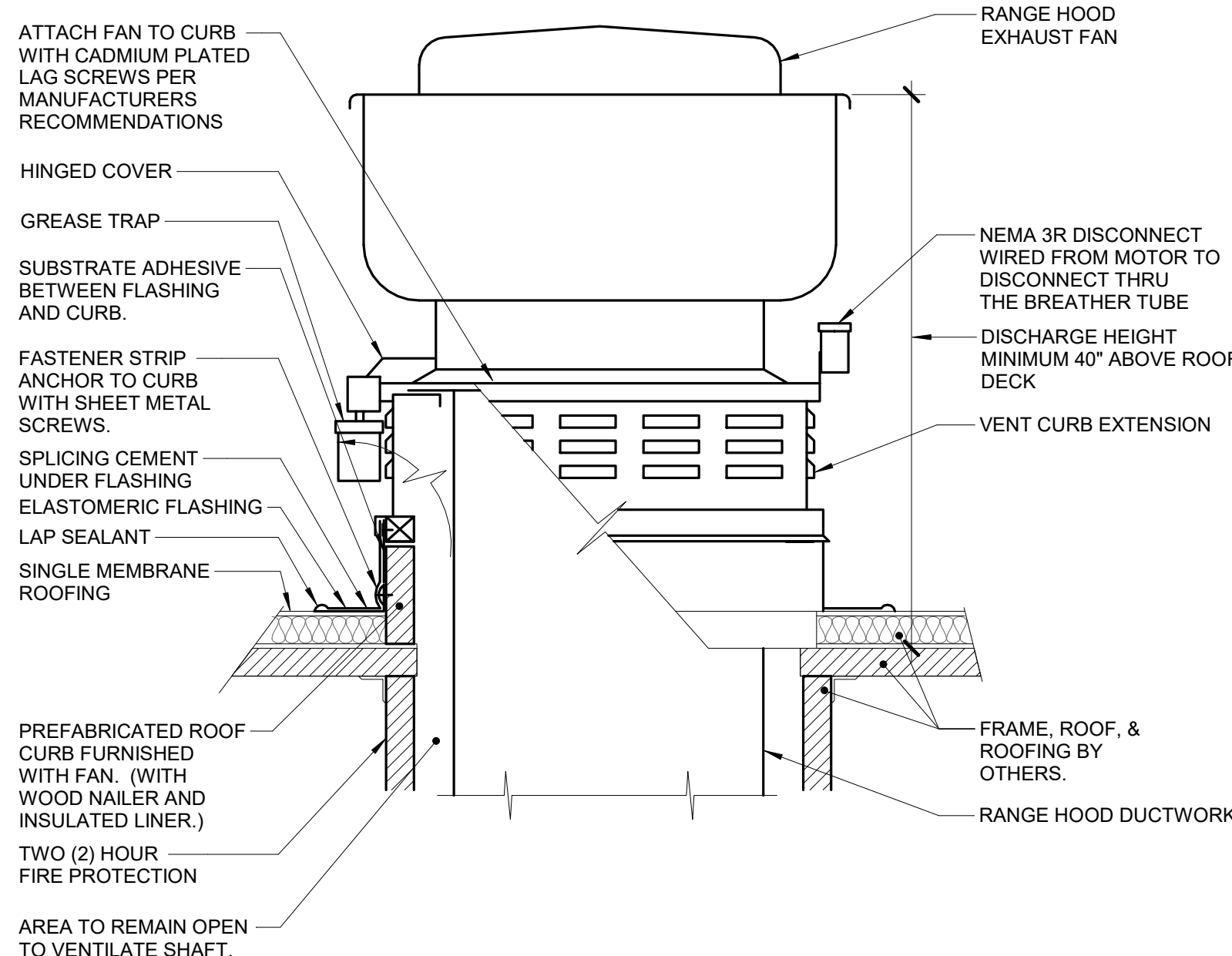


TRAPEZE HANGER DUCT WRAP VAPOR SEAL

NO SCALE

NOTES:

- DETAIL FOR USE WHERE DUCTS REQUIRE TRAPEZE OR DOUBLE ROD HANGERS (3/8" DIA. OR EQUIVALENT)

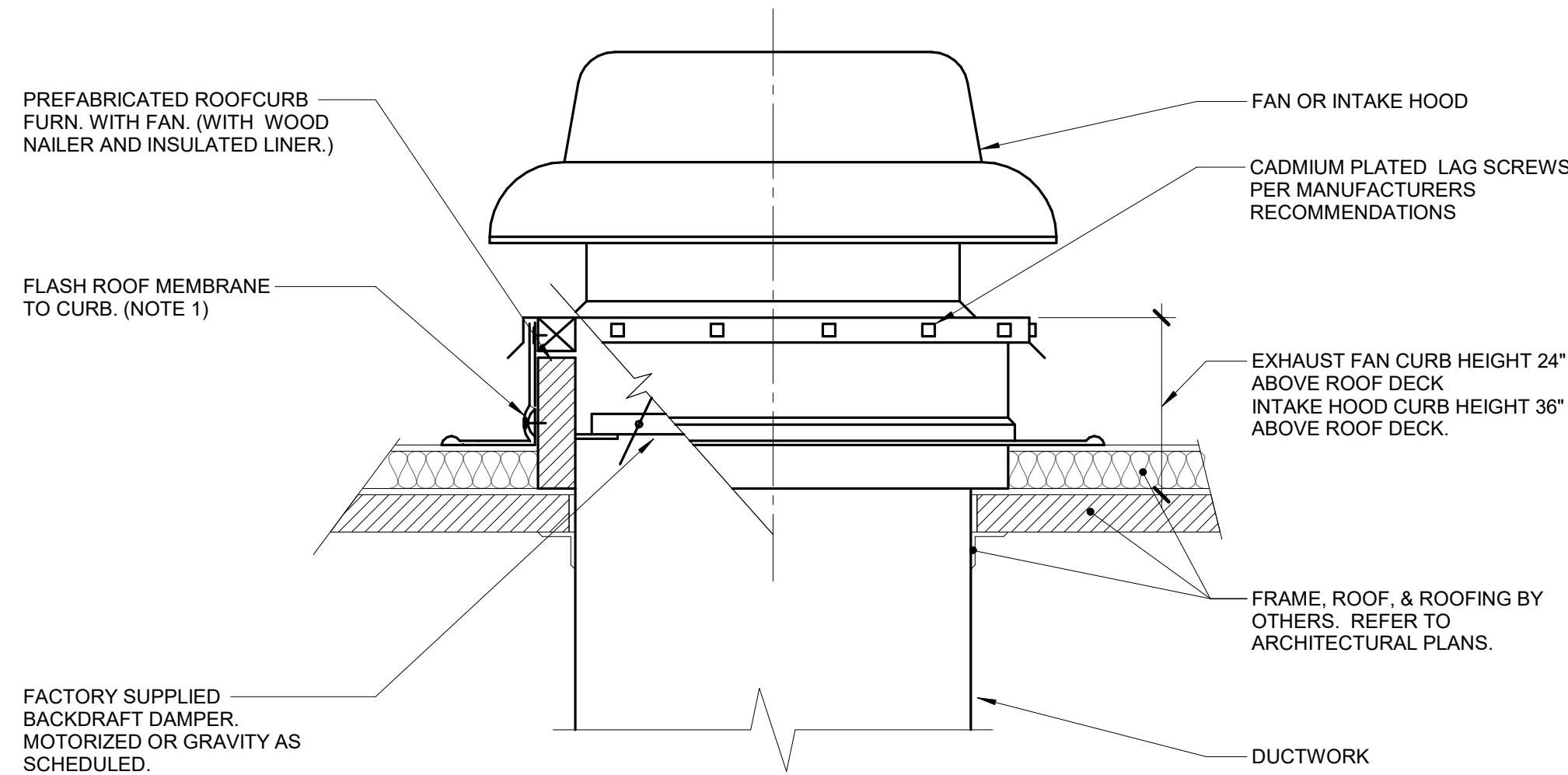


FAN - KITCHEN GREASE EXHAUST FAN

NO SCALE

NOTES:

- ALL ROOF FLASHING SHALL BE PER ROOFING MANUFACTURERS RECOMMENDATIONS.

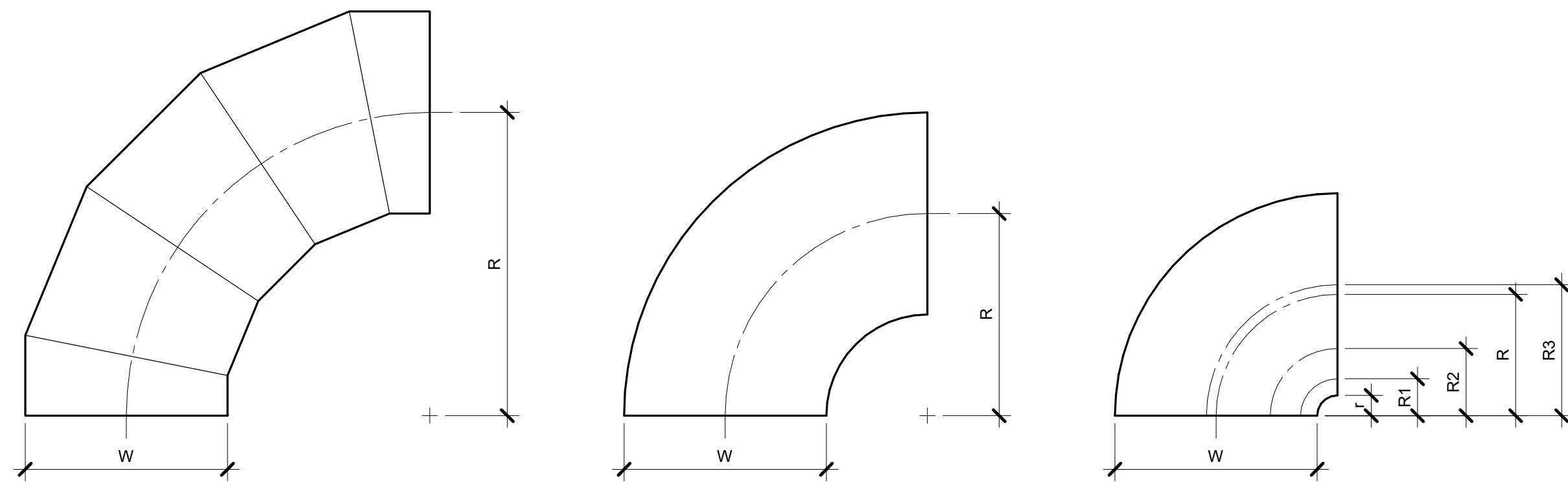


ROOF SUPPORT - FAN/HOOD CURB

NO SCALE

NOTES:

- ALL ROOF FLASHING SHALL BE PER ROOFING MANUFACTURERS RECOMMENDATIONS.

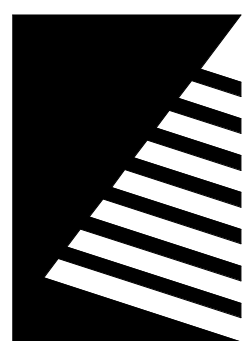
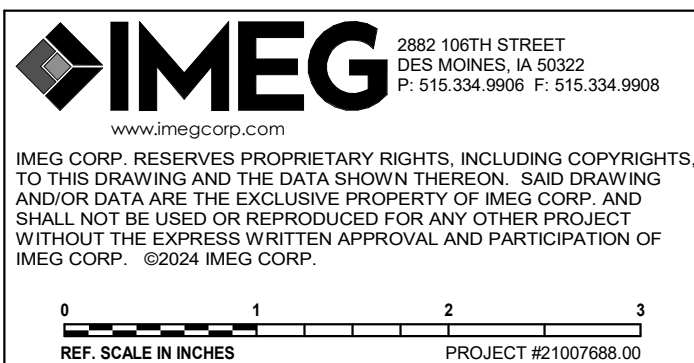


ELBOW CONSTRUCTION

NO SCALE

NOTES:

- BEAD, CROSSBREAK, AND REINFORCE FLAT SURFACES AS IN STRAIGHT DUCT.
- REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- DEFAULT ELBOW SHALL BE TYPE 'RE1'.
- ELBOW TYPES SHALL BE INSTALLED AS SHOWN AND NOT BE SUBSTITUTED WITHOUT PERMISSION. EXCEPTION: RE1 OR RE3 MAY BE SUBSTITUTED FOR RE2.



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

REVIEWED: DAVING

SHEET TITLE:

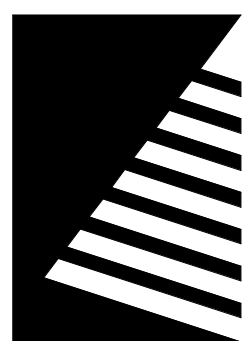
MECHANICAL
DETAILS

SHEET NUMBER:

M4.2

PROJECT NO.: 0240202.00

RF8922300-02



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

REVIEWED: DAVING

SHEET TITLE:

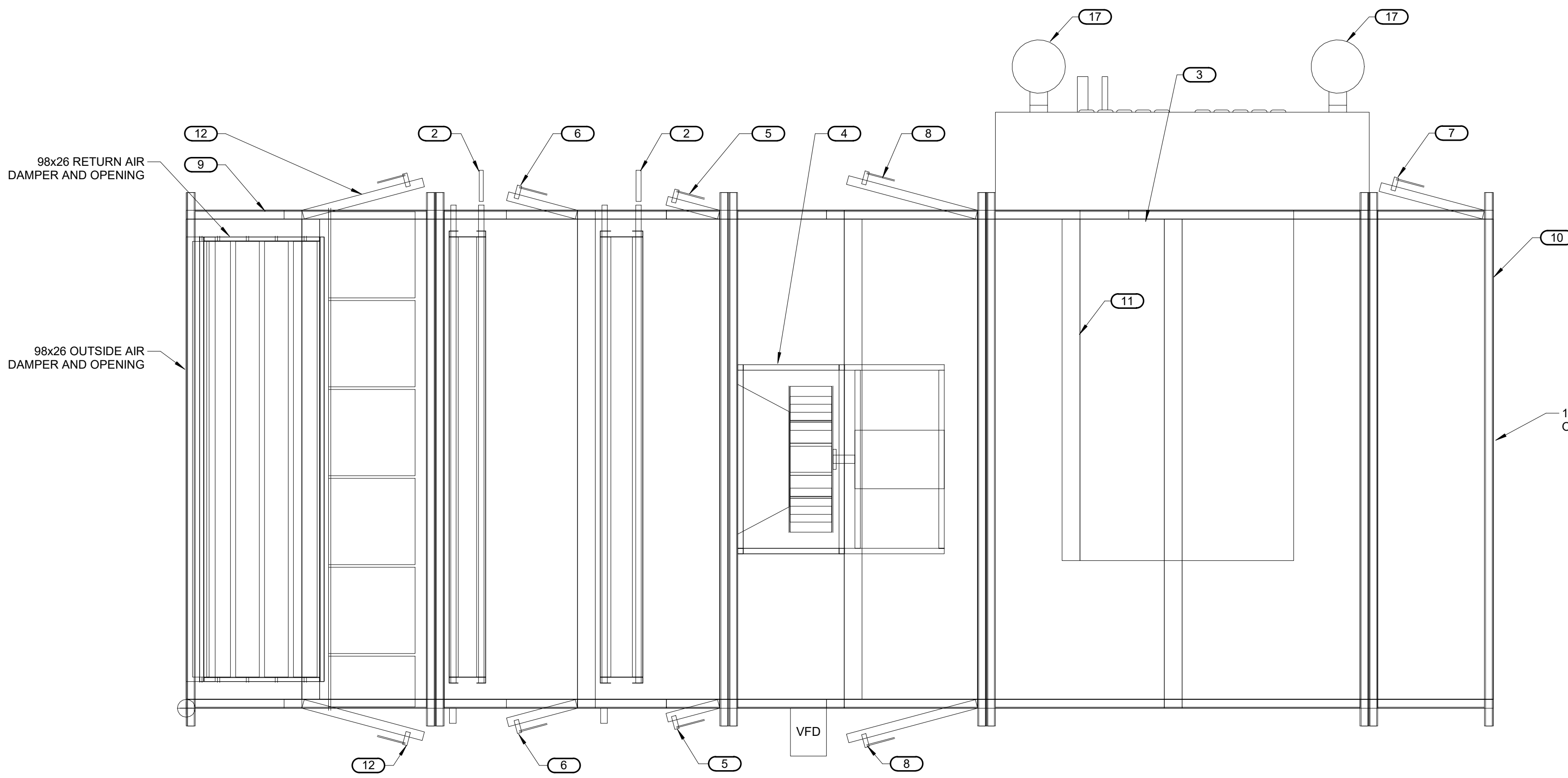
MECHANICAL
DETAILS

SHEET NUMBER:

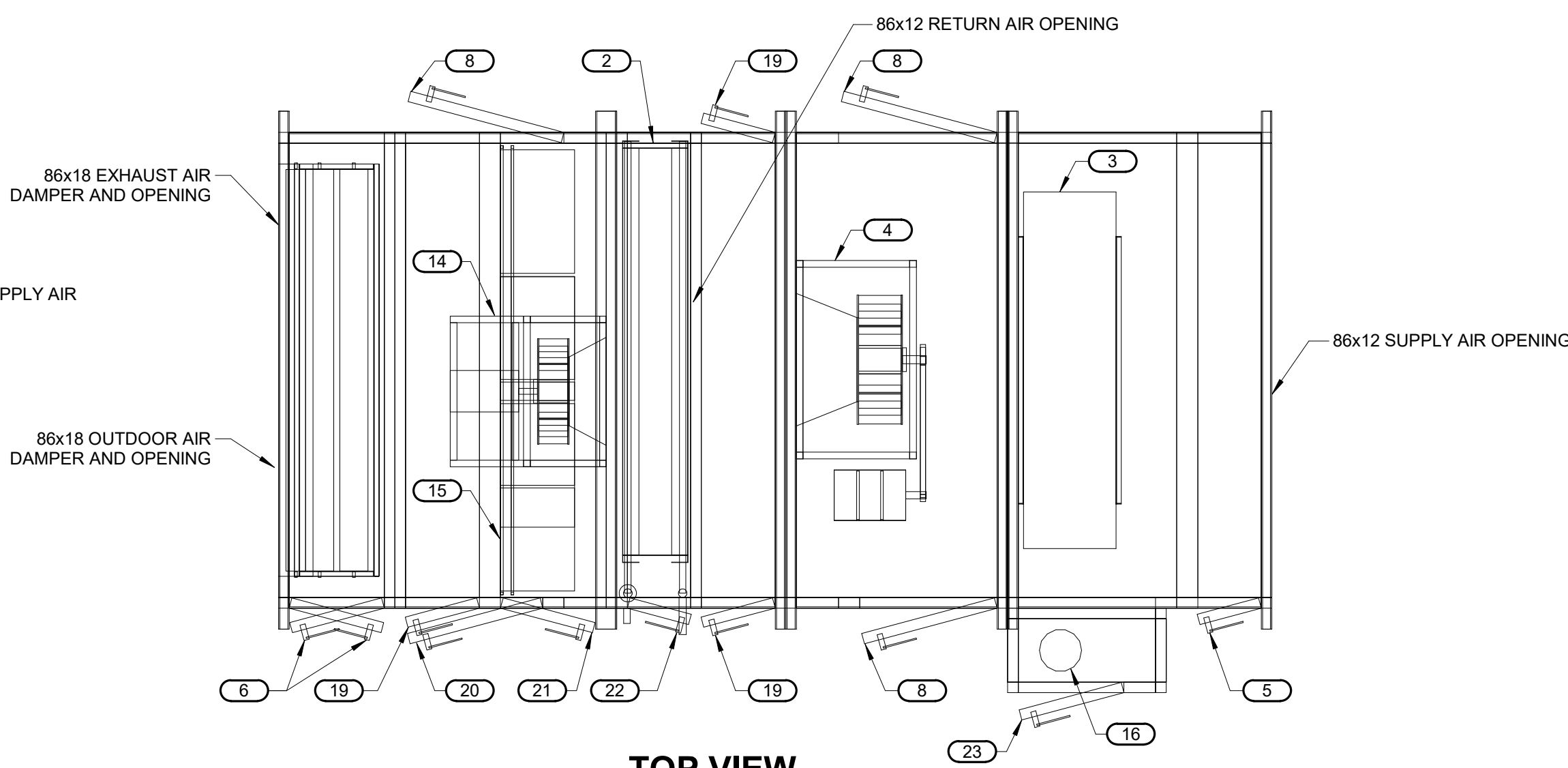
M4.3

PROJECT NO.: 0240202.00
RFB922300-02

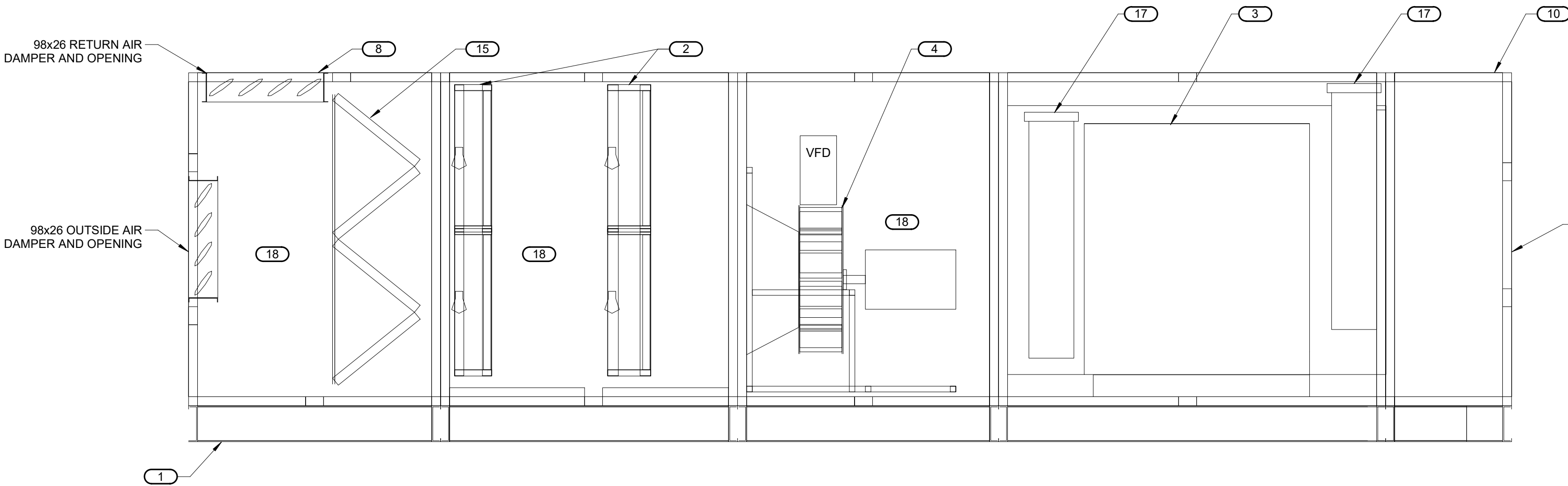
- KEYNOTES: **1** **2**
- 8" BASERAL
 - DX COOLING COIL
 - INDIRECT FIRED NATURAL GAS HEATING COIL
 - CENTRIFUGAL PLENUM SUPPLY FAN
 - ACCESS DOOR, MINIMUM WIDTH OF 12"
 - ACCESS DOOR, MINIMUM WIDTH OF 16"
 - ACCESS DOOR, MINIMUM WIDTH OF 24"
 - ACCESS DOOR, MINIMUM WIDTH OF 30" OR LARGER IF REQUIRED FOR FAN ACCESS AND MOTOR REMOVAL
 - MIXING BOX WITH ANGLED FILTER SECTION, MERV 8 FILTERS
 - DISCHARGE PLENUM
 - DAMPERS OVER THE SINGLE STAGE HEATING COIL SECTIONS (QUANTITY: 3)
 - NO COIL OVER MODULATING COIL
 - ACCESS DOOR, MINIMUM WIDTH OF 28" OR LARGER IF REQUIRED FOR FILTER REMOVAL
 - VERTICAL ECONOMIZER SECTION
 - CENTRIFUGAL PLENUM RETURN FAN
 - MERV 8 FILTER RACK
 - 6"Ø STAINLESS STEEL FLUE
 - 10"Ø STAINLESS STEEL FLUE
 - MODULE TO CONTAIN LED MARINE LIGHTS
 - ACCESS DOOR, MINIMUM WIDTH OF 14"
 - ACCESS DOOR, MINIMUM WIDTH OF 28" OR LARGER IF REQUIRED FOR FAN ACCESS AND MOTOR REMOVAL
 - ACCESS DOOR, MINIMUM WIDTH OF 18" OR LARGER IF REQUIRED FOR FILTER REMOVAL
 - ACCESS DOOR, MINIMUM WIDTH OF 10"
 - ACCESS DOOR, MINIMUM WIDTH OF 20"



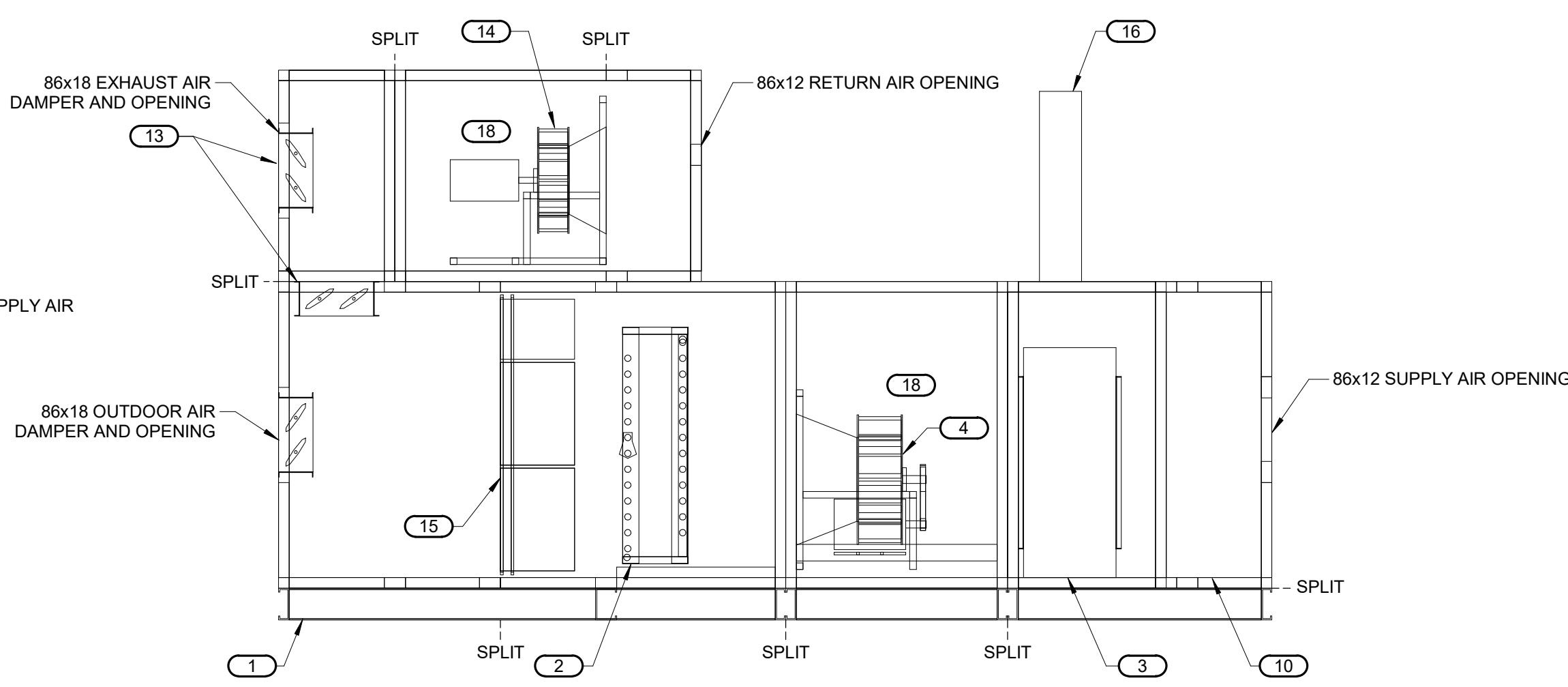
TOP VIEW



TOP VIEW



PROFILE VIEW



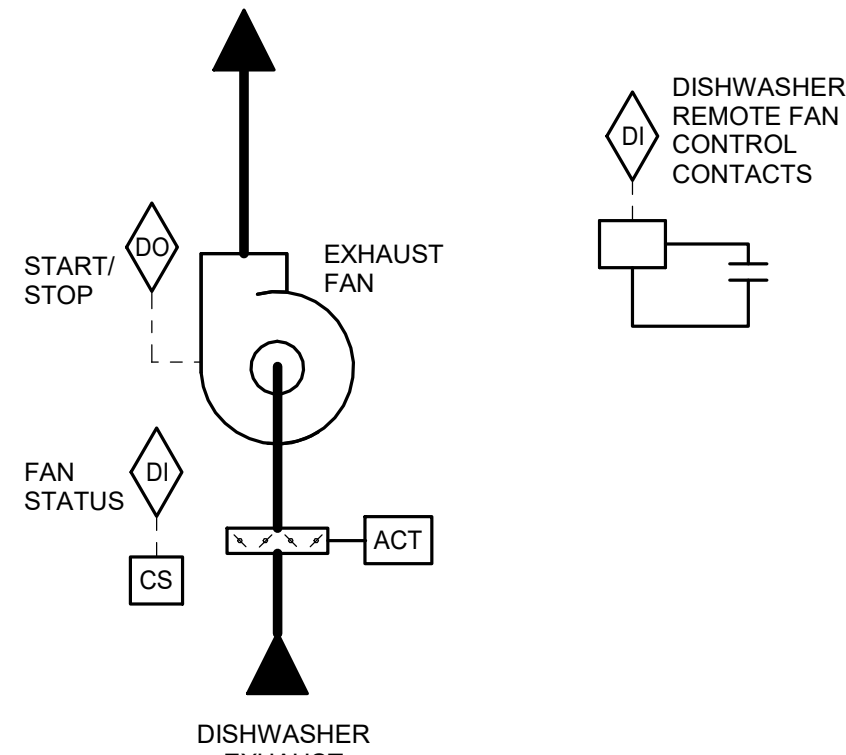
PROFILE VIEW

1 DOAS-1 DETAIL
NO SCALE

2 AHU-1 DETAIL
NO SCALE

IMEG
2882 100TH STREET
DES MOINES, IA 50322
P: 515.334.9000 F: 515.334.9008
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



SEQUENCE OF OPERATION:
FMCS SHALL MONITOR CONTACTS THAT ARE PART OF THE DISHWASHER CONTROLS TO DETERMINE WHEN THE DISHWASHER CONTROLS ARE CALLING FOR REMOTE EXHAUST FAN START/STOP COMMANDS. WHEN THE DISHWASHER CONTROLS CALL FOR REMOTE FAN START, FMCS SHALL ENERGIZE DISHWASHER EXHAUST FAN. WHEN DISHWASHER CONTROLS CALL FOR REMOTE FAN STOP, FMCS SHALL DE-ENERGIZE DISHWASHER EXHAUST FAN AFTER 30 MINUTES (ADJ.) TO ALLOW DUCTWORK TO DRY.

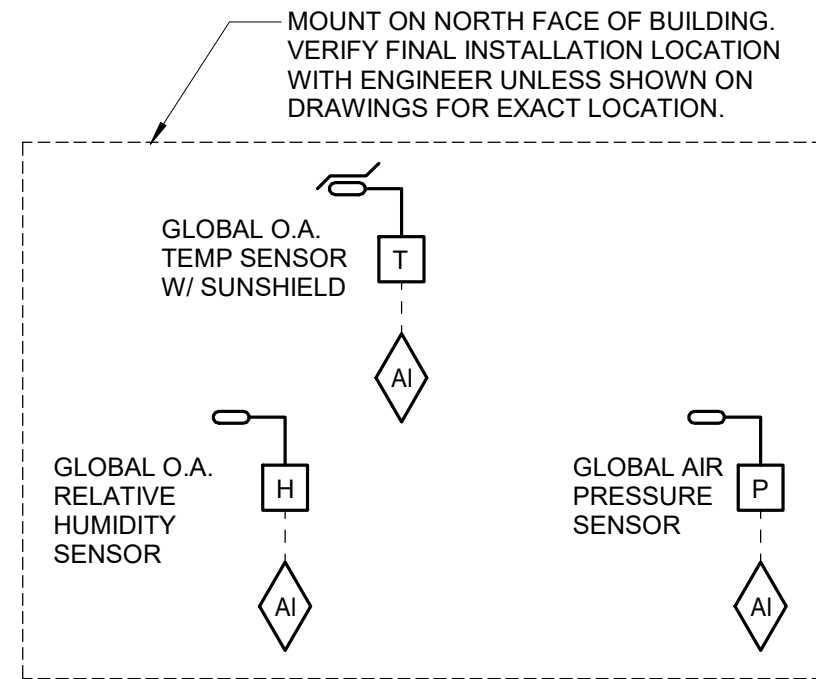
2-POSITION DAMPER SHALL FULLY OPEN WHEN FAN IS ENERGIZED. WHEN FAN IS DE-ENERGIZED, 2-POSITION DAMPER SHALL FULLY CLOSE.

EXHAUST FAN MAY ALSO BE ENABLED/DISABLE PER DOAS-1 CONTROL. SEQUENCE, COMMAND FROM DOAS-1 SEQUENCE MAY NOT DISABLE FAN IF DISHWASHER CONTROLS ARE CALLING FOR FAN TO RUN.

ALARMS, INTERLOCKS AND SAFETIES:
AN ALARM SHALL BE GENERATED AT THE FMCS OPERATOR WORKSTATION IN THE EVENT THE FMCS COMMANDS THE EXHAUST FAN TO OPERATE AND THE CURRENT SENSING RELAY DETECTS INSUFFICIENT CURRENT DRAW.

1 DISHWASHER FAN CONTROL - FAN(EF-2)

NO SCALE



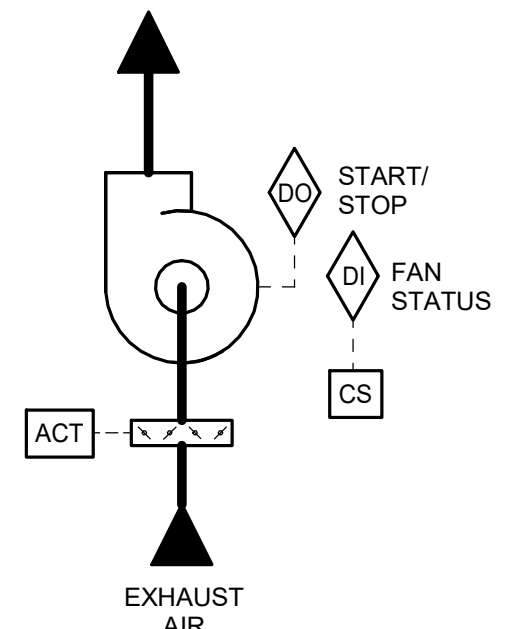
SEQUENCE OF OPERATION:
PROVIDE GLOBAL O.A. DRY-BULB TEMPERATURE, OUTSIDE AIR REFERENCE PRESSURE, AND RELATIVE HUMIDITY TRANSMITTERS.

OUTSIDE AIR PRESSURE SHALL BE INSTALLED ON ALL FOUR SIDES OF THE BUILDING AND PIPED WITH EQUAL LENGTHS OF 1/4" TUBING TO A PIPE MANIFOLD. PIPING BY TCC. LOCATIONS TO BE DETERMINED PER MANUFACTURER'S RECOMMENDATIONS AND ENGINEER'S APPROVAL. TCC SHALL PRIME AND PAINT THE DEVICE ENCLOSURE.

GLOBAL SENSORS SHALL CONTINUOUSLY UPDATE FMCS FOR USE IN CONTROLLING MECHANICAL EQUIPMENT AS REQUIRED IN SEQUENCES OF OPERATION.

2 GLOBAL REFERENCE POINTS

NO SCALE



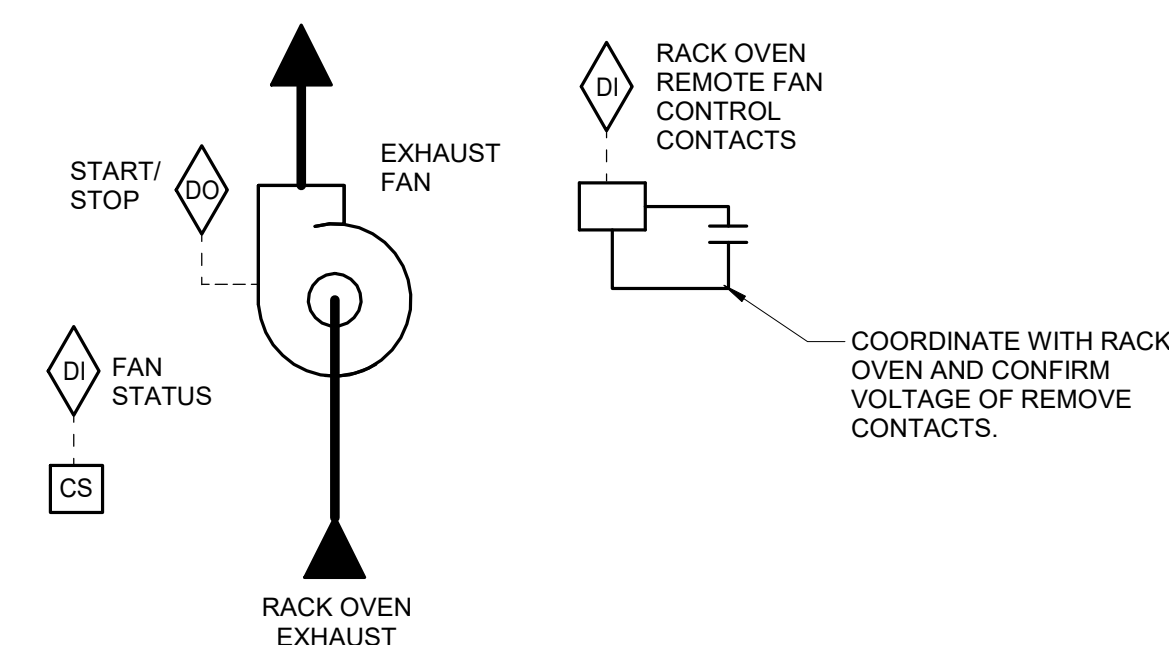
SEQUENCE OF OPERATION:
EXHAUST FAN SHALL BE INTERLOCKED TO RUN CONTINUOUSLY WHEN RESPECTIVE AHU IS OPERATING.

2-POSITION DAMPER SHALL FULLY OPEN WHEN FAN IS ENERGIZED. WHEN FAN IS DE-ENERGIZED, 2-POSITION DAMPER SHALL FULLY CLOSE.

ALARMS, INTERLOCKS AND SAFETIES:
AN ALARM SHALL BE GENERATED AT THE FMCS OPERATOR WORKSTATION IN THE EVENT THE FMCS COMMANDS THE EXHAUST FAN TO OPERATE AND THE CURRENT SENSING RELAY DETECTS INSUFFICIENT CURRENT DRAW.

5 EXHAUST FAN CONTROL - AHU INTERLOCK - FAN (EF-1, EF-3)

NO SCALE



SEQUENCE OF OPERATION:
FMCS SHALL MONITOR CONTACTS THAT ARE PART OF THE RACK OVEN CONTROLS TO DETERMINE WHEN THE RACK OVEN CONTROLS ARE CALLING FOR REMOTE EXHAUST FAN START/STOP COMMANDS.

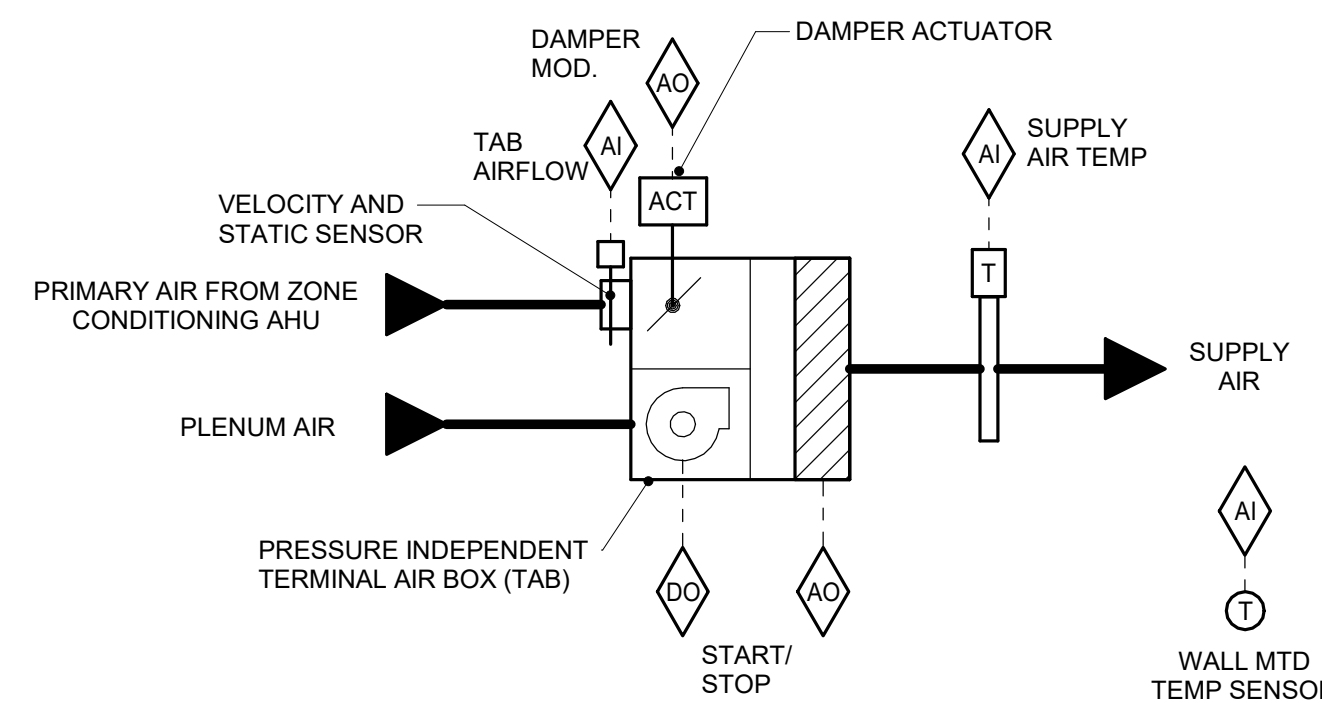
WHEN THE RACK OVEN CONTROLS CALL FOR REMOTE FAN START, FMCS SHALL ENERGIZE RACK OVEN EXHAUST FAN. WHEN RACK OVEN CONTROLS CALL FOR REMOTE FAN STOP, FMCS SHALL DE-ENERGIZE DISHWASHER EXHAUST FAN.

EXHAUST FAN MAY ALSO BE ENABLED/DISABLE PER DOAS-1 CONTROL. SEQUENCE, COMMAND FROM DOAS-1 SEQUENCE MAY NOT DISABLE FAN IF DISHWASHER CONTROLS ARE CALLING FOR FAN TO RUN.

ALARMS, INTERLOCKS AND SAFETIES:
AN ALARM SHALL BE GENERATED AT THE FMCS OPERATOR WORKSTATION IN THE EVENT THE FMCS COMMANDS THE EXHAUST FAN TO OPERATE AND THE CURRENT SENSING RELAY DETECTS INSUFFICIENT CURRENT DRAW.

8 RACK OVEN FAN CONTROL - FAN (EF-5, EF-6, EF-7, EF-8)

NO SCALE



SEQUENCE OF OPERATION:

- FMCS TAB CONTROLLER SHALL MODULATE THE TAB DAMPER, TAB ELECTRIC REHEAT COIL, AND FAN, TO MAINTAIN SPACE TEMPERATURE OF 72°F (ADJ.) WITH 5°F (ADJ.) DEAD BAND BASED ON A SIGNAL FROM A WALL MOUNTED TEMPERATURE SENSOR. SEE DRAWINGS FOR TEMPERATURE SENSOR REQUIREMENTS. SPACES WITH ADJUSTABLE THERMOSTATS WILL ALLOW A +/- 3°F (ADJ.) OFFSET FROM THE DDC SETPOINT.
- AT FULL COOLING, THE TAB SHALL BE OPEN TO MAXIMUM CFM POSITION. THE REHEAT COIL SHALL BE DE-ENERGIZED AND THE SUPPLY FAN SHALL BE OFF.
- UPON A FALL IN SPACE TEMPERATURE, THE TAB SHALL MODULATE CLOSED UNTIL SPACE SETPOINT IS MAINTAINED, OR UNTIL IT REACHES ITS MINIMUM SCHEDULED CFM POSITION PER THE TAB SCHEDULE. THE REHEAT COIL SHALL BE DE-ENERGIZED AND THE SUPPLY FAN SHALL BE OFF.
- UPON A FURTHER FALL IN SPACE TEMPERATURE THE SUPPLY FAN SHALL BE ENERGIZED. THE REHEAT COIL SHALL REMAIN DE-ENERGIZED AND THE TAB DAMPER SHALL REMAIN AT MINIMUM SCHEDULED CFM POSITION PER THE TAB SCHEDULE.
- ON A FURTHER REDUCTION THE REHEAT COIL SHALL BE ENERGIZED AND MODULATE TO MAINTAIN SPACE SETPOINT.
- THE FMCS SHALL UTILIZE OUTPUT FROM ALL TERMINAL AIR BOX POSITIONS TO RESET THE SUPPLY DUCT DIFFERENTIAL STATIC PRESSURE.

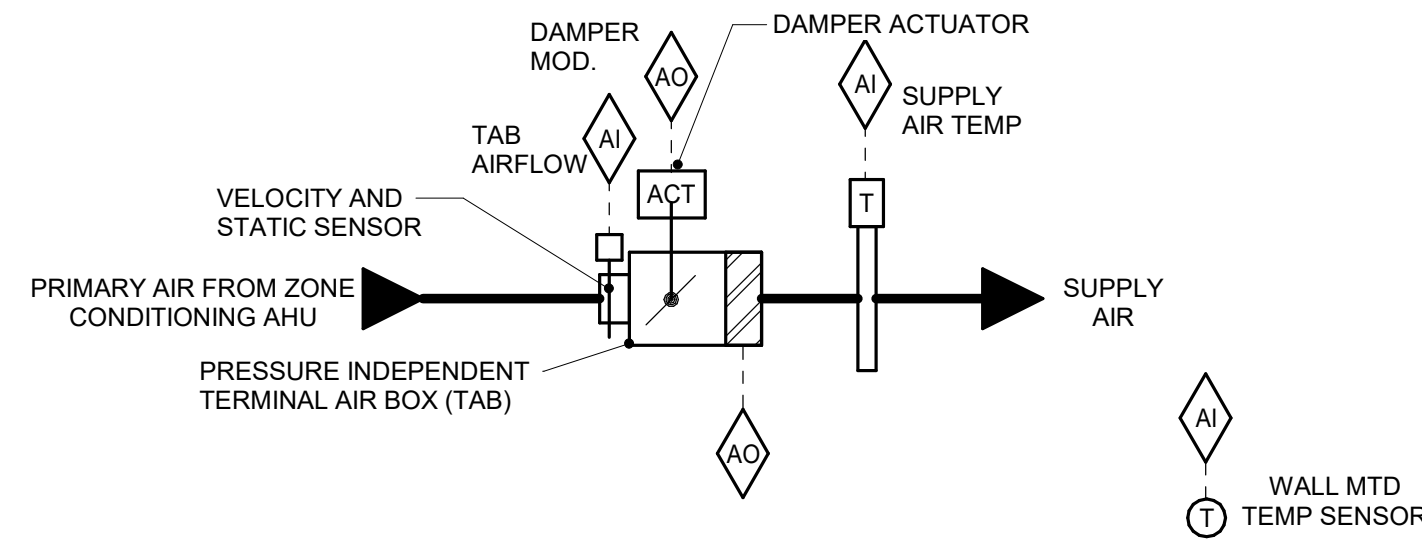
UNOCCUPIED MODE:
UPON A FALL IN SPACE TEMPERATURE BELOW UNOCCUPIED SETPOINT, THE PARALLEL FAN MOTOR SHALL BE ENERGIZED AND THE ELECTRIC REHEAT SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE.

ALARMS, INTERLOCKS & SAFETIES:

- SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE SPACE TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE OR BELOW SETPOINT.
- IF THE AIR FLOW SWITCH DOES NOT PROVE OPERATION, AN ALARM SHALL BE SENT TO THE OPERATOR INTERFACE.
- IF THE HIGH TEMPERATURE SAFETY DEVICE EXCEEDS MANUFACTURER'S SETPOINT, AN ALARM SHALL BE SENT TO THE OPERATOR INTERFACE.
- WHEN FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION AT THE AHU SERVING FAN POWERED BOXES, ALL FAN POWERED BOX SUPPLY FANS SHALL STOP.

TAB CONTROL PARALLEL FAN POWERED - W/ ELECTRIC REHEAT - TAB-FP

NO SCALE



SEQUENCE OF OPERATION:

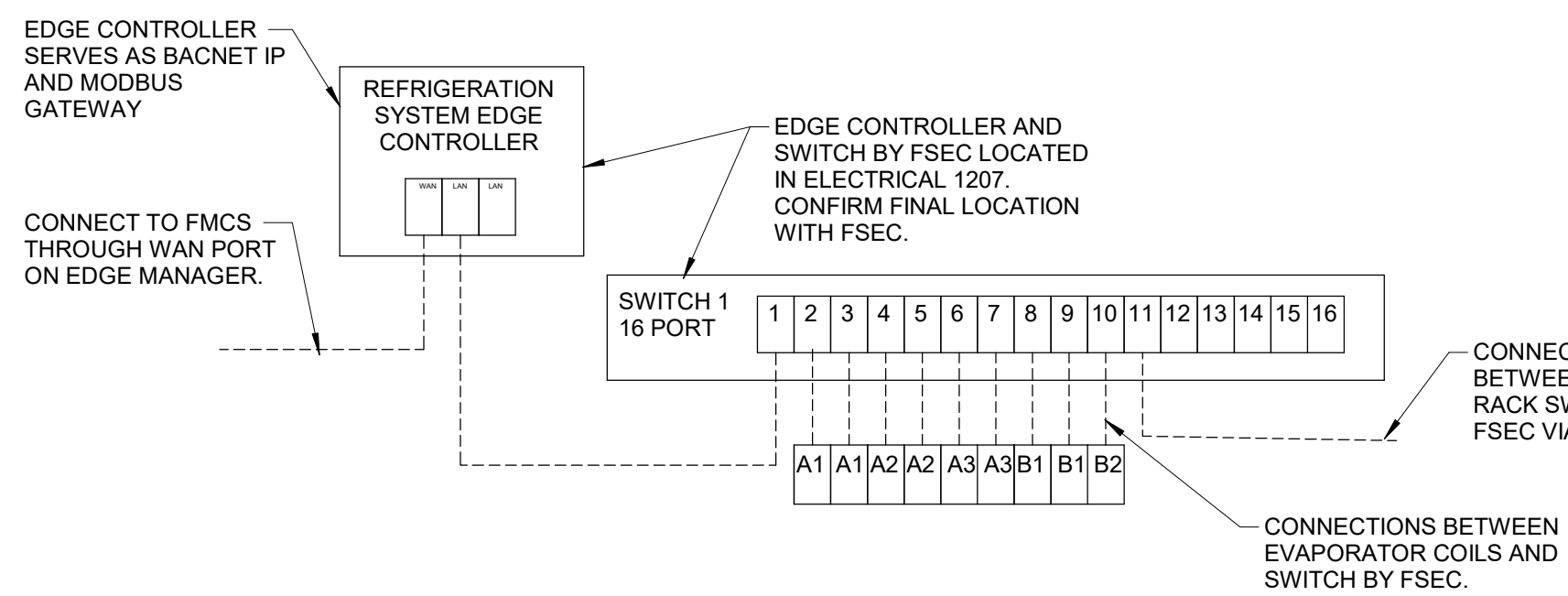
- FMCS TAB CONTROLLER SHALL MODULATE THE TAB DAMPER AND TAB ELECTRIC REHEAT COIL, TO MAINTAIN SPACE TEMPERATURE OF 72°F (ADJ.) WITH 5°F (ADJ.) DEAD BAND BASED ON A SIGNAL FROM A WALL MOUNTED TEMPERATURE SENSOR. SEE DRAWINGS FOR TEMPERATURE SENSOR REQUIREMENTS. SPACES WITH ADJUSTABLE THERMOSTATS WILL ALLOW A +/- 3°F (ADJ.) OFFSET FROM THE DDC SETPOINT.
- AT FULL COOLING, THE TAB SHALL BE OPEN TO MAXIMUM CFM POSITION. THE REHEAT COIL SHALL BE DE-ENERGIZED.
- UPON A FALL IN SPACE TEMPERATURE, THE TAB SHALL MODULATE CLOSED UNTIL SPACE SETPOINT IS MAINTAINED, OR UNTIL IT REACHES ITS MINIMUM SCHEDULED CFM POSITION PER THE TAB SCHEDULE. THE REHEAT COIL SHALL REMAIN DE-ENERGIZED.
- UPON A FURTHER FALL IN SPACE TEMPERATURE, THE ELECTRIC REHEAT COIL AND TAB SHALL MODULATE OPEN IN UNISON TO MAINTAIN SPACE SETPOINT UNTIL TAB AIR FLOW REACHES ITS MAXIMUM HEATING SETTING.
- THE FMCS SHALL UTILIZE OUTPUT FROM ALL TERMINAL AIR BOX POSITIONS TO RESET THE SUPPLY DUCT DIFFERENTIAL STATIC PRESSURE.

ALARMS, INTERLOCKS & SAFETIES:

- SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE SPACE TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE OR BELOW SETPOINT.
- IF THE HIGH TEMPERATURE SAFETY DEVICE EXCEEDS MANUFACTURER'S SETPOINT, AN ALARM SHALL BE SENT TO THE OPERATOR INTERFACE.

4 TAB CONTROL W/ ELECTRIC REHEAT - TAB-RH

NO SCALE



SEQUENCE OF OPERATION:
FMCS SHALL MONITOR AND GRAPHICALLY DISPLAY ALL AVAILABLE INFORMATION FROM THE EDGE CONTROLLER AT THE OPERATOR WORKSTATION.

AT A MINIMUM, THE FOLLOWING POINTS SHALL BE MONITORED AND ALARM FOR THE COMPRESSORS:

- *EXTERNAL ALARM
- *DISCHARGE PRESSURE SENSOR
- *DISCHARGE TEMPERATURE
- *SUCTION PRESSURE SENSOR
- *SUCTION TEMPERATURE
- *HIGH DISCHARGE PRESSURE

AT A MINIMUM, THE FOLLOWING POINTS SHALL BE MONITORED AND ALARM FOR EACH EVAPORATOR:

- *SUCTION PRESSURE SENSOR
- *HIGH SUPERHEAT
- *DEFROST TURN ON TIME
- *HIGH AIR TEMPERATURE
- *SUCTION SENSOR
- *AIR TEMPERATURE SENSOR
- *EXCESSIVE DEFROST
- *LOW AIR TEMPERATURE
- *COIL SENSOR
- *COMMUNICATION ALARM

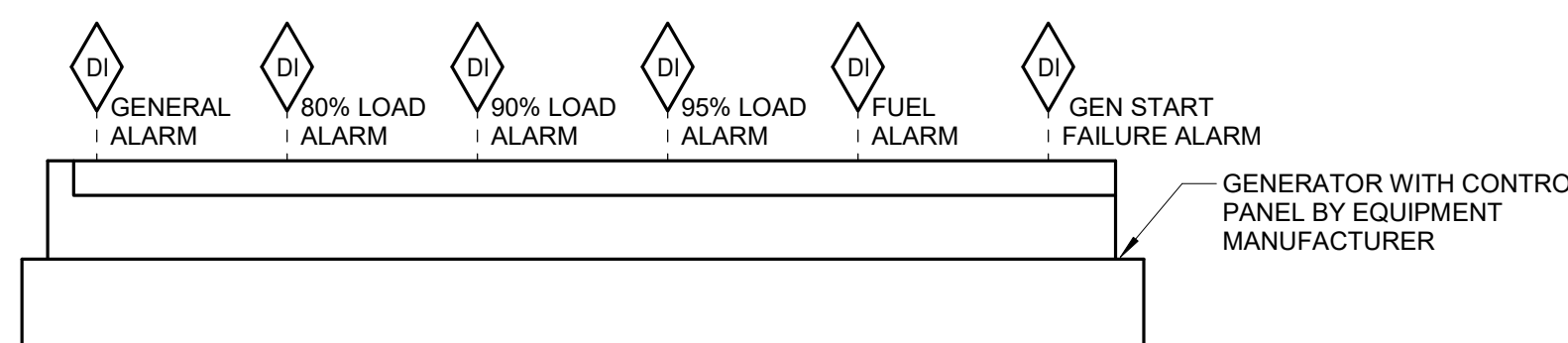
PROVIDE ALARMS FOR EACH COOLER AND FREEZER TO SEND A TEXT, EMAIL OR CALL OUT IF THE COOLER OR FREEZER TEMPERATURE EXCEEDS THE SPECIFIED MAXIMUM SETPOINT.

DDC FMCS SHALL MONITOR THE FOLLOWING POINTS ON 10 MINUTE (ADJ.) INTERVALS WITHIN A SINGLE TREND. THE TREND SHALL RUN FOR A 100-DAY (ADJ.) DURATION AT WHICH POINT THE NEWEST VALUES SHALL AUTOMATICALLY OVERWRITE THE OLDEST VALUES:

- * DATE
- * TIME
- * WALK-IN PRODUCE REFRIGERATOR TEMPERATURE [°F]
- * WALK-IN PRODUCE REFRIGERATOR TEMPERATURE SETPOINT [°F]
- * MEAT AND DAIRY WALK-IN REFRIGERATOR TEMPERATURE [°F]
- * MEAT AND DAIRY WALK-IN REFRIGERATOR TEMPERATURE SETPOINT [°F]
- * WALK-IN TEMPERING TEMPERATURE [°F]
- * WALK-IN TEMPERING TEMPERATURE SETPOINT [°F]
- * WALK-IN FREEZER TEMPERATURE [°F]
- * WALK-IN FREEZER TEMPERATURE SETPOINT [°F]
- * WALK-IN FREEZER TEMPERATURE SETPOINT [°F]
- * BAKERY FREEZER TEMPERATURE [°F]
- * BAKERY FREEZER TEMPERATURE SETPOINT [°F]
- * BAKERY REFRIGERATOR TEMPERATURE [°F]
- * BAKERY REFRIGERATOR TEMPERATURE SETPOINT [°F]

7 REFRIGERATION SYSTEM CONTROLS

NO SCALE



SEQUENCE OF OPERATION:
OPERATION OF GENERATOR SHALL BE CONTROLLED BY MANUFACTURER'S SUPPLIED CONTROL PANEL.

FMCS SHALL MONITOR THE ALARM CONTACT PROVIDED WITH EACH CONTROL. AN ALARM AT ANY CONTROL PANEL SHALL ALSO BE INDICATED AT THE OPERATOR WORKSTATION.

FMCS SHALL MONITOR THE 80% LOAD ALARM, 90% LOAD ALARM AND 95% LOAD ALARM.

UPON LOSS OF NORMAL POWER AND ACTIVATION OF THE GENERATOR, AFTER A 5 MINUTE DELAY (ADJ.), THE FMCS SHALL ALLOW THE FOLLOWING EQUIPMENT TO OPERATE AT 100% OF THEIR FULL LOAD MAXIMUM AMP DRAW. THE EQUIPMENT SHALL BE STAGED ON AT 30 SECOND INTERVALS TO PREVENT THE GENERATOR FROM OVERLOADING.

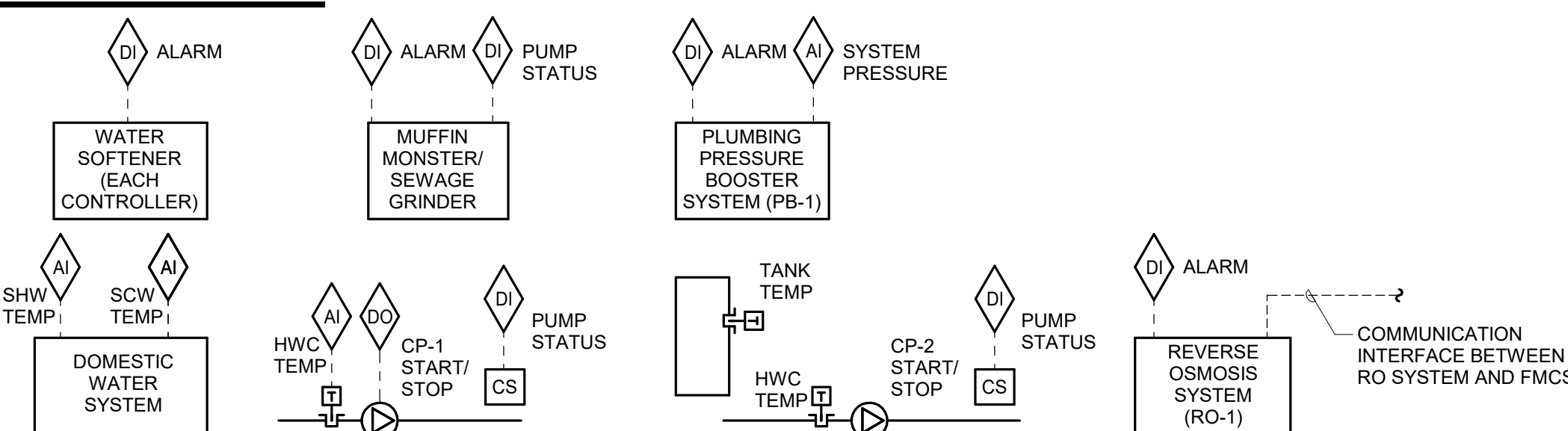
- DOAS-1
- EF-3 & E-9
- AHU-1
- EF-4, EF-5, EF-6, EF-7, EF-8
- TERMINAL AIR BOXES AND FAN POWERED TERMINAL AIR BOXES (SEE SCHEDULES)
- CU-1A
- CU-1B
- CU-2
- CABINET HEATERS
- UNIT HEATERS

IF OUTSIDE AIR TEMPERATURE IS ABOVE 55°F (ADJ.), ALL UNIT HEATERS AND CABINET HEATERS SHALL BE LOCKED OUT AND NOT ENABLED WHEN GENERATOR IS IN OPERATION. IF OUTSIDE AIR TEMPERATURE IS BELOW 55°F (ADJ.), THE CONDENSING UNITS (CU-1A, CU-1B & CU-2) SHALL BE LOCKED OUT NOT NOT ENABLED WHEN GENERATOR IS IN OPERATION.

IF FMCS RECEIVES AN 80% LOAD ALARM, THE FMCS SHALL LIMIT CU-1B FROM OPERATING MORE THAN 4 STAGES OF COOLING. IF FMCS RECEIVES A 90% LOAD ALARM, THE FMCS SHALL LIMIT CU-1B FROM OPERATING MORE THAN 2 STAGES OF COOLING AND LIMIT CU-2 FROM OPERATING MORE THAN 2 STAGES OF COOLING AND SHALL ALSO DISABLE UNIT HEATERS AND CABINET HEATERS. IF FMCS RECEIVES A 95% LOAD ALARM, THE FMCS SHALL START DISABLING COOLING STAGES ON CU-1B, CU-2 AND THEN CU-1A IN THAT ORDER. CONTINUE TO DISABLE UNTIL LOAD DROPS BELOW 90%. IF LOAD DOES NOT DROP BELOW 90%, DISABLE THE HEATING ON THE TERMINAL AIR BOXES AND FAN POWERED TERMINAL AIR BOXES.

9 GENERATOR MONITORING CONTROLS

NO SCALE



SEQUENCE OF OPERATION:
OPERATION OF THE WATER SOFTENER, MUFFIN MONSTER/SEWAGE GRINDER AND PLUMBING PRESSURE BOOSTER SYSTEM SHALL BE CONTROLLED BY MANUFACTURER'S SUPPLIED CONTROL PANELS OR CONTROLLERS.

FMCS SHALL MONITOR ALL ALARM CONTACTS PROVIDED WITH EACH WATER SOFTENER CONTROLLER AND DISPLAY AT OPERATOR WORKSTATION.

FMCS SHALL MONITOR ALL STATUS CONTACTS PROVIDED WITH EACH MUFFIN MONSTER/SEWAGE GRINDER CONTROL AND DISPLAY AT OPERATOR WORKSTATION.

FMCS SHALL MONITOR SYSTEM PRESSURE AND ALARM OF PRESSURE BOOSTER AND DISPLAY AT THE OPERATOR WORKSTATION.

FMCS SHALL MONITOR REVERSE OSMOSIS SYSTEM ALARM AND DISPLAY AT THE OPERATOR WORKSTATION. FMCS SHALL CONNECT TO COMMUNICATION INTERFACE AT REVERSE OSMOSIS SYSTEM AND BRING IN ANY ADDITIONAL INFORMATION AVAILABLE FOR MONITORING.

FMCS SHALL MONITOR THE DOMESTIC WATER SYSTEM TEMPERATURES WHERE NOTED ON THE DOMESTIC WATER FLOW DIAGRAM AND DISPLAY THEM ON THE OPERATOR WORKSTATION.

FMCS SHALL MONITOR THE TEMPERATURE AT THE 140°F CIRCULATION PUMP (CP-1). THE CIRCULATION PUMP SHALL TURN ON WHEN THE TEMPERATURE FALLS BELOW 132°F (ADJ.) AND SHALL TURN OFF WHEN THE TEMPERATURE RISES ABOVE 137°F (ADJ.).

FMCS SHALL MONITOR THE TANK TEMPERATURE AND THE HWC TEMP AT CIRCULATION PUMP (CP-2). THE CIRCULATION PUMP SHALL OPERATE WHENEVER THE WATER HEATERS ARE IN OPERATION AND SHALL TURN ON WHEN THE TANK TEMPERATURE DROPS BELOW 137°F (ADJ.) AND SHALL TURN OFF WHEN THE TANK TEMPERATURE RISES ABOVE 142°F (ADJ.).

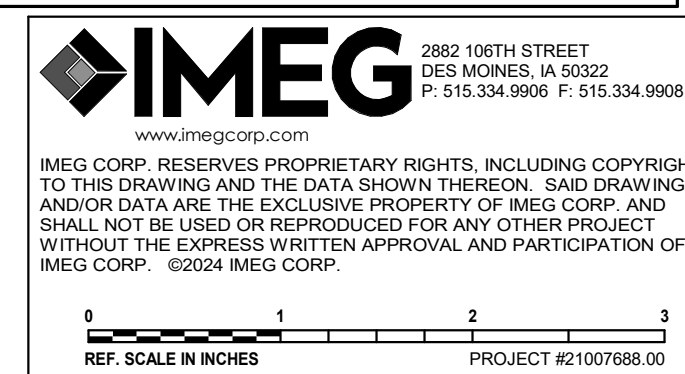
FMCS SHALL MONITOR THE

ALARMS, INTERLOCKS & SAFETIES:
FMCS SHALL TIE INTO BACNET CONTROLLER AND INDICATE AN ALARM TO THE FMCS OPERATOR WORKSTATION IN THE EVENT THE FOLLOWING OCCUR:

- *ANY WATER HEATER INDICATES AN ALARM CONDITION.
- *ANY HOT WATER CIRCULATION PUMP INDICATES AN ALARM CONDITION.
- *THE LEAVING HOT WATER TEMPERATURE IS ABOVE 145°F (ADJ.) OR BELOW 135°F (ADJ.) FOR MORE THAN 5 MINUTES (ADJ.)
- *ANY ALARMS INDICATED AT THE WATER HEATER CONTROLLERS.
- *ANY ALARMS INDICATED AT THE MUFFIN MONSTER/SEWAGE GRINDER CONTROLLER.
- *ANY ALARMS INDICATED AT THE PRESSURE BOOSTER SYSTEM CONTROLLER.

10 MISCELLANEOUS CONTROLS

NO SCALE



BID SET

PROJECT: STATE OF IOWA - DEPARTMENT OF CORRECTIONS

CLARINDA CORRECTIONAL FACILITY - KITCHEN & LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA 51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

REVIEWED: DAVING

SHEET TITLE:

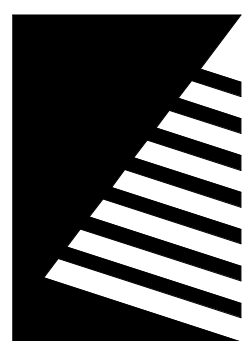
CONTROL DIAGRAMS

SHEET NUMBER:

M5.1

PROJECT NO.: 0240202.00

RF8922300-02



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

REVIEWED: DAVING

SHEET TITLE:

CONTROL DIAGRAMS

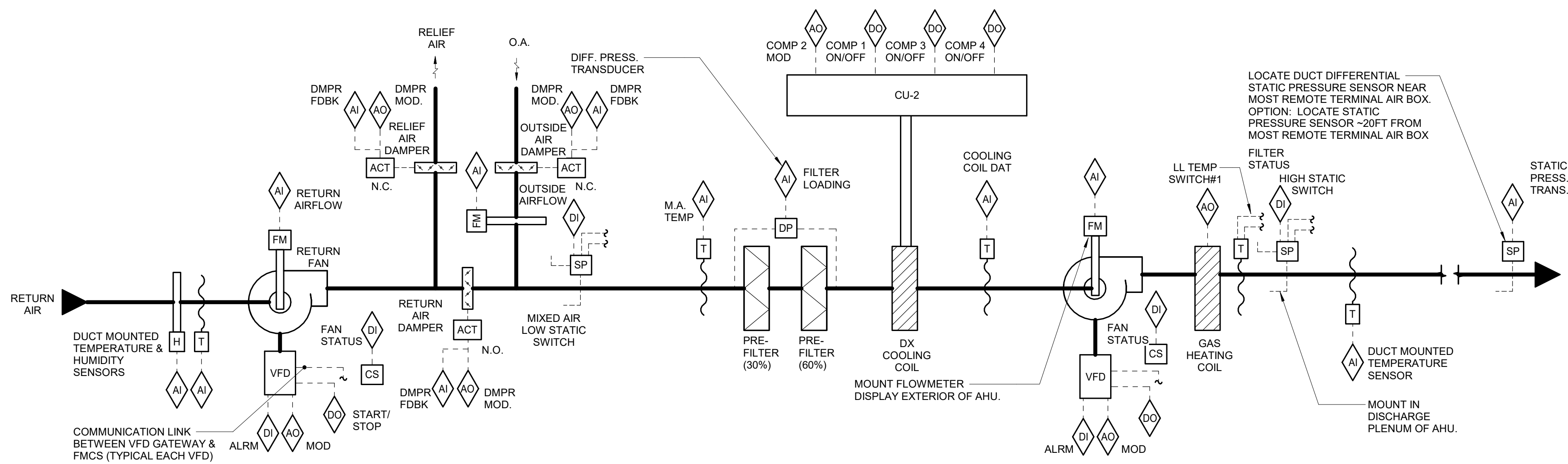
SHEET NUMBER:

M5.2

PROJECT NO.:

0240202.00

RFB922300-02



AHU REPORT GENERATION:
DDC FMCS SHALL MONITOR THE FOLLOWING POINTS ON 10 MINUTE (ADJ.) INTERVALS WITHIN A SINGLE TREND. THE TREND SHALL RUN FOR A 100-DAY (ADJ.) DURATION AT WHICH POINT THE NEWEST VALUES SHALL AUTOMATICALLY OVERWRITE THE OLDEST VALUES.

- DATE
- TIME
- GLOBAL OUTSIDE AIR TEMP [°F]
- GLOBAL OUTSIDE AIR HUMIDITY [%RH]
- SUPPLY AIRFLOW [CFM]
- SUPPLY AIR TEMP (SAT) [°F]
- SUPPLY AIR TEMP SETPOINT [°F]
- RETURN AIRFLOW [CFM]
- RETURN AIR TEMP (RAT) [°F]
- RETURN AIR RELATIVE HUMIDITY [%]
- OUTSIDE AIRFLOW [CFM]
- MIXED AIR TEMP [°F]
- COOLING COIL DISCHARGE AIR TEMP [°F]
- FILTER LOADING (STATUS)
- HEATING COIL SIGNAL [% FULL HEATING]
- COMPRESSOR 2 SIGNAL [% FULL COOLING]
- COMPRESSOR 1 SIGNAL [ENABLED/DISABLED]
- COMPRESSOR 3 SIGNAL [ENABLED/DISABLED]
- COMPRESSOR 4 SIGNAL [ENABLED/DISABLED]
- SUPPLY DUCT STATIC PRESSURE SETPOINT [INCHES W.G.]
- SUPPLY DUCT STATIC PRESSURE [INCHES W.G.]
- SUPPLY FAN VFD OUTPUT [% FULL SPEED]
- RETURN FAN VFD OUTPUT [% FULL SPEED]
- OUTSIDE AIR DAMPER POSITION [% OPEN]
- RETURN AIR DAMPER POSITION [% OPEN]
- RELIEF AIR DAMPER POSITION [% OPEN]

THIS INFORMATION SHALL BE ACCESSIBLE TO VIEW IN GRAPHICAL FORM ON THE FMCS OPERATOR WORKSTATION.

ONCE PER MONTH, THE DDC FMCS SHALL RECORD THE LARGEST AHU AIRFLOW WHICH OCCURRED DURING THAT MONTH. THE DATE, TIME, OUTSIDE AIR TEMP (AND ALL OTHER VALUES LISTED ABOVE) THAT COINCIDED WITH THAT EVENT SHALL ALSO BE RECORDED. THIS INFORMATION SHALL BE STORED TO A MEMORY LOCATION ON THE FMCS OPERATOR WORKSTATION THAT IS MAINTAINED (NOT AUTOMATICALLY OVERWRITTEN).

AIR HANDLER REPORT GENERATION

TYPICAL FOR AHU-1

RETURN FAN AIRFLOW SCHEDULE				
SYSTEM	SUPPLY CFM	EXHAUST FANS	PRESSURIZATION CFM	REMARKS
AHU-1	7,000	EF-1	0	NOTES 1,2,3

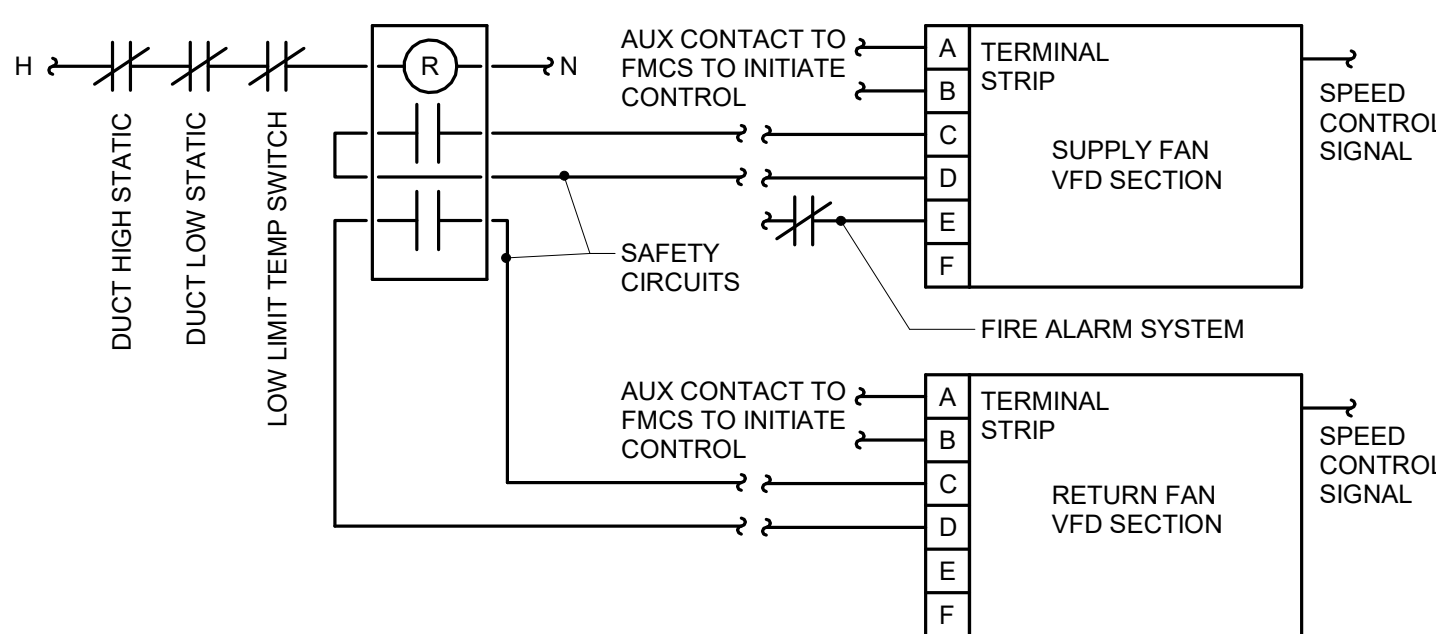
NOTES:

1. RETURN FAN AIRFLOW SETPOINT SHALL BE THE SUPPLY FAN AIRFLOW (AS MEASURED BY THE AFMS) MINUS THE SUM OF THE EXHAUST FAN AIRFLOW MINUS THE PRESSURIZATION CFM.
2. FMCS SHALL DETERMINE THE OPERATIONAL STATUS OF EACH EXHAUST FAN VIA THE CURRENT SENSING RELAY TO DETERMINE WHETHER THE CFM ASSOCIATED WITH THAT FAN SHOULD BE INCLUDED IN THE RETURN FAN AIRFLOW CALCULATION.
3. EXHAUST FAN AIRFLOWS SHALL NOT BE THE CFM INDICATED ON THE FAN SCHEDULE, BUT SHALL BE THE AIRFLOW INDICATED IN THE FINAL TAB REPORT.

FAN INTERLOCK SCHEDULE		
SYSTEM	INTERLOCKED EXHAUST FANS	REMARKS
AHU-1	EF-8	NOTE 1

NOTES:

1. INTERLOCK EXHAUST FAN OPERATION THROUGH THE FMCS WITH RESPECTIVE AHU IN ACCORDANCE WITH AHU SEQUENCE OF OPERATION.



SUPPLY & RETURN FAN VFD CONTROL

CONNECT FIRE ALARM TO AHU START/STOP CIRCUIT SO FIRE ALARM CAN SHUT DOWN AND SO AHU CAN AUTOMATICALLY RESTART AFTER A FIRE ALARM TEST

SEQUENCE OF OPERATION:

WHEN AHU IS INDEXED TO RUN, THE FOLLOWING SHALL OCCUR:

- AFTER A 30 SECOND DELAY (ADJ.) TO ALLOW FOR OPENING OF DAMPERS, SUPPLY FAN SHALL BE ENABLED TO RUN.
- WHEN THE SUPPLY FAN HAS STARTED THE RETURN FAN AND INTERLOCKED EXHAUST FANS SHALL START AS SHOWN IN THE FAN INTERLOCK SCHEDULE.

SUPPLY FAN OPERATION:

FMCS SHALL MODULATE SIGNAL TO SUPPLY FAN VFD TO MAINTAIN DUCT STATIC PRESSURE AS MEASURED BY STATIC PRESSURE TRANSMITTER NEAR THE END OF THE CRITICAL DUCT BRANCH.

RETURN FAN OPERATION:

RETURN FAN SHALL BE INDEXED TO RUN WHENEVER THE SUPPLY FAN IS INDEXED TO RUN. FMCS SHALL MODULATE SIGNAL TO RETURN FAN VFD AS REQUIRED TO MAINTAIN THE AIRFLOW OFFSET AS INDICATED IN THE RETURN FAN AIRFLOW SCHEDULE.

STATIC PRESSURE RESET:

FMCS SHALL RESET SUPPLY DUCT STATIC PRESSURE SETPOINT BELOW THE MAXIMUM SETPOINT AS REQUIRED TO MAINTAIN AT LEAST ONE SUPPLY TAB DAMPER 90% (ADJ.) OPEN. FMCS SHALL MONITOR ALL SUPPLY TERMINAL AIR BOX POSITIONS TO RESET THE SUPPLY DUCT DIFFERENTIAL STATIC PRESSURE.

DISCHARGE AIR TEMPERATURE SETPOINT:

DISCHARGE AIR SET POINT SHALL BE 55°F (ADJ.).

DISCHARGE AIR TEMPERATURE RESET:

RESET DISCHARGE AIR TEMPERATURE BASED ON THE ZONE WITH THE GREATEST CALL FOR COOLING. RESET THE TEMPERATURE AS FOLLOWS:

- WHEN WORST CASE TAB IS LESS THAN 90% (ADJ.) OPEN FOR TEN MINUTES (ADJ.) THEN THE DISCHARGE AIR TEMPERATURE SHALL INCREASE BY 1°F (ADJ.). THIS SHALL CONTINUE UNTIL AHU MAXIMUM DISCHARGE AIR TEMPERATURE OF 60°F (ADJ.) IS ACHIEVED.
- WHEN WORST CASE TAB IS MORE THAN 90% OPEN FOR TEN MINUTES (ADJ.) THEN THE DISCHARGE AIR TEMPERATURE SHALL DROP BY 1°F (ADJ.). THIS SHALL CONTINUE UNTIL AHU MINIMUM DISCHARGE AIR TEMPERATURE OF 55°F (ADJ.) IS ACHIEVED.
- THE MAXIMUM ALLOWABLE RETURN AIR HUMIDITY SETPOINT SHALL BE 60% (ADJ.). IF RETURN AIR HUMIDITY IS GREATER THAN SETPOINT, RESET DISCHARGE AIR TEMPERATURE TO 55°F UNTIL RETURN AIR HUMIDITY IS 5% LESS THAN MAXIMUM SETPOINT FOR 10 MINUTES (ADJ.).

STATIC PRESSURE AND DISCHARGE AIR TEMPERATURE RESET PRIORITY:

RESET THE DISCHARGE AIR TEMPERATURE PRIOR TO RESETTING THE DUCTWORK STATIC PRESSURE SETPOINT. ONCE THE MAXIMUM SUPPLY TEMPERATURE IS REACHED THEN THE SYSTEM SHALL ENABLE THE STATIC PRESSURE RESET.

VENTILATION AIR CONTROL:

WHENEVER THE AIR HANDLING UNIT IS IN OCCUPIED MODE, THE OUTSIDE AIR DAMPER SHALL BE FULLY OPEN. THE RETURN AIR AND RELIEF AIR DAMPER SHALL MODULATE IN OPPOSITION TO MAINTAIN THE MINIMUM OUTSIDE AIR FLOW RATE, OR TO SATISFY THE ECONOMIZER DISCHARGE AIR SEQUENCE.

COOLING COIL OPERATION:

WHEN IN MINIMUM OUTSIDE AIR MODE, FMCS SHALL STAGE ON/OFF COMPRESSORS AND MODULATE THE DIGITAL SCROLL COMPRESSOR TO MAINTAIN DISCHARGE AIR TEMPERATURE. THE DIGITAL SCROLL COMPRESSOR (COMPRESSOR 2) SHALL BE ENABLED FIRST AND THE SPEED MODULATED TO MAINTAIN DISCHARGE AIR TEMPERATURE. IF SETPOINT CANNOT BE MAINTAINED AFTER 5 MINUTES (ADJ.) OR RUN TIME, REDUCE THE DIGITAL SCROLL COMPRESSOR TO MINIMUM AND THEN ENABLE COMPRESSOR 1. THE DIGITAL SCROLL COMPRESSOR SHALL CONTINUE TO MODULATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. ENABLE COMPRESSOR 3 AND COMPRESSOR 4 ON AS NEEDED TO MAINTAIN SPACE TEMPERATURE SETPOINT. THE OPPOSITE SHALL OCCUR IF DISCHARGE AIR TEMPERATURE IS BELOW SETPOINT.

FMCS SHALL ROTATE THE LEAD COMPRESSOR ON A WEEKLY BASIS TO ALLOW MORE EVEN RUN TIMES ON COMPRESSORS. THE DIGITAL SCROLL COMPRESSOR SHALL ALWAYS BE THE FIRST COMPRESSOR ON BUT THE SECOND COMPRESSOR ON SHALL BE ROTATED.

THE MINIMUM OFF TIME FOR A STAGE OF COOLING SHALL BE 5 MINUTES (ADJ.). THE MINIMUM ON TIME FOR A STAGE SHALL BE 5 MINUTES (ADJ.). COORDINATE FINAL MINIMUM ON AND MINIMUM OFF TIMES OF STAGES WITH CONDENSING UNIT MANUFACTURER. THE MINIMUM ON/OFF TIME FOR THE DIGITAL SCROLL COMPRESSOR MAY BE DIFFERENT AND SHALL BE PROGRAMMED SEPARATELY IF REQUIRED.

WHEN IN ECONOMIZER MODE, FMCS SHALL NOT ENABLE DX COOLING UNLESS RETURN AIR DAMPER IS 5% (ADJ.) OPEN AND RELIEF AIR DAMPER IS 95% (ADJ.) OPEN.

GAS HEATING COIL OPERATION:

GAS HEATING COIL CONTROLS SHALL BE ENABLED WHENEVER OUTSIDE AIR TEMP DROPS BELOW 50°F (ADJ.). GAS HEATING COIL CONTROLS SHALL BE DISABLED WHEN OUTSIDE AIR TEMP RISES ABOVE 54°F (ADJ.).

FMCS SHALL MODULATE GAS HEATING AS REQUIRED TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT.

ECONOMIZER OPERATION:

WHEN THE OUTSIDE AIR DRY BULB TEMPERATURE IS LESS THAN THE RETURN AIR DRY BULB TEMPERATURE THE FMCS SHALL ENABLE ECONOMIZER CONTROLS. WHEN OUTSIDE AIR DRY BULB TEMPERATURE IS GREATER THAN THE RETURN AIR DRY BULB TEMPERATURE FOR 10 MINUTES THE FMCS SHALL DISABLE ECONOMIZER CONTROLS AND SHALL RETURN THE UNIT TO MINIMUM OUTSIDE AIR MODE. ONCE ECONOMIZER CONTROLS HAVE BEEN ENABLED OR DISABLED, THE UNIT SHALL CONTINUE TO OPERATE IN THAT MODE FOR A MINIMUM OF 10 MINUTES (ADJ.) BEFORE BEING ALLOWED TO SWITCH BACK (TO PREVENT SHORT CYCLING).

IN ECONOMIZER MODE THE FMCS SHALL MODULATE THE RETURN AND RELIEF DAMPERS AS REQUIRED TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT.

ALARMS, INTERLOCKS, AND SAFETIES:

WHEN FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION, AHU SHALL BE SHUTDOWN.

THE FOLLOWING CONDITIONS SHALL SHUTDOWN THE AHU AND SHALL INDICATE AN ALARM CONDITION AT THE FMCS WORKSTATION:

- LOW STATIC PRESSURE SWITCH INDICATES MIXED AIR PRESSURE LESS THAN THE SPECIFIED DUCT PRESSURE CLASS OF THE OUTSIDE AIR DUCTWORK.
- HIGH STATIC PRESSURE SWITCH INDICATES SUPPLY DUCT STATIC PRESSURE GREATER THAN THE SPECIFIED DUCT PRESSURE CLASS.
- SHOULD ANY ONE FOOT SECTION OF THE MANUAL RESET LOW LIMIT TEMPERATURE SWITCH #1 SENSE AIR TEMP <34°F (ADJ.); IF MULTIPLE FREEZE STATS ARE REQUIRED, WIRE ALL TO A COMMON RESET SWITCH.

THE FOLLOWING CONDITIONS SHALL INDICATE AN ALARM AT THE FMCS, HOWEVER AHU SHALL CONTINUE TO OPERATE:

- DIFFERENTIAL PRESSURE TRANSDUCER ACROSS FILTER BANK EXCEEDS 1.6 INCHES W.G. (ADJ.)
- SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 5°F (ADJ.) ABOVE OR BELOW SETPOINT.

IN THE EVENT SUPPLY FAN IS NOT RUNNING (AS INDICATED BY THE CURRENT SENSING RELAYS) RETURN AIR FAN SHALL BE DE-ENERGIZED.

WHENEVER AHU IS SHUTDOWN THE FOLLOWING SHALL OCCUR:

- THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL FULLY CLOSE.
- RETURN AIR DAMPER SHALL FULLY OPEN.
- GAS HEATING SHALL BE DISABLED.
- CONDENSING UNITS SHALL BE DISABLED.
- SUPPLY FAN AND RETURN FAN VFDs SHALL BE DE-ENERGIZED.
- INTERLOCKED EXHAUST FANS SHALL BE DE-ENERGIZED.

UNOCCUPIED MODE:

PROVIDE TIME OF DAY SCHEDULE TO ALLOW AHU TO ENTER UNOCCUPIED MODE PER SCHEDULE. COORDINATE SCHEDULE WITH OWNER.

- THE SUPPLY AND RETURN FANS SHALL CONTINUE RUNNING, WHEN USING CONSTANT VOLUME OFFSET FOR RETURN AIR FAN CONTROL, THE OFFSET SHALL GO TO ZERO AND THE SUPPLY FAN SHALL BE LIMITED TO THE MAXIMUM RETURN AIR FAN FLOW.
- THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN. ECONOMIZER CYCLE SHALL TAKE PRECEDENCE OVER DAMPER POSITION.
- ALL SPACE TEMPERATURES SHALL BE ALLOWED TO VARY +/- 10°F (ADJ.) FROM OCCUPIED SETPOINT.

HEATING OPTIMUM START-UP:

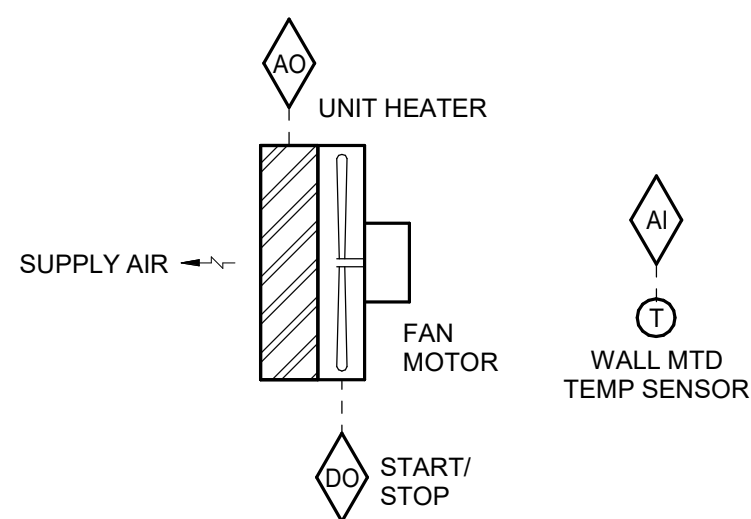
- THIS CYCLE SHALL OVERRIDE THE UNOCCUPIED CYCLE. IF THE SYSTEM WAS OPERATING AS A RESULT OF THE UNOCCUPIED CYCLE, THE SYSTEM SHALL CONTINUE TO OPERATE. THE DDC SYSTEM SHALL DETERMINE THE MINIMUM RUNTIME TO WARM THE SPACES TO THEIR SETPOINT WHEN THE COMPUTED START TIME IS REACHED. THE AIR HANDLING UNIT DISCHARGE AIR TEMPERATURE SHALL BE MAINTAINED AT A SETPOINT OF 85°F (ADJ.). THE SYSTEM SHALL CONTINUE TO OPERATE IN THIS MODE UNTIL ALL TEMPERATURES EXCEED A SETPOINT OF 88°F (ADJ.). AT THAT TIME, THE DDC SYSTEM SHALL SWITCH TO OCCUPIED CONTROL.

COOLING OPTIMUM START-UP:

- THIS CYCLE SHALL OVERRIDE THE UNOCCUPIED CYCLE. IF THE SYSTEM WAS OPERATING AS A RESULT OF THE UNOCCUPIED CYCLE, THE SYSTEM SHALL CONTINUE TO OPERATE. THE DDC SYSTEM SHALL DETERMINE THE MINIMUM RUNTIME TO COOL THE SPACES TO THEIR SETPOINT WHEN THE COMPUTED START TIME IS REACHED. THE AIR HANDLING UNIT DISCHARGE AIR TEMPERATURE SHALL BE MAINTAINED AT A SETPOINT OF 55°F (ADJ.). THE SYSTEM SHALL CONTINUE TO OPERATE IN THIS MODE UNTIL ALL TEMPERATURES ARE LESS THAN A SETPOINT OF 75°F (ADJ.). AT THAT TIME, THE DDC SYSTEM SHALL SWITCH TO OCCUPIED CONTROL.

GRAPHICAL DISPLAY:

DISPLAY THE GLOBAL OUTSIDE AIR TEMPERATURE AND HUMIDITY ON AHU GRAPHIC PAGE.



SEQUENCE OF OPERATION:

WHEN THE OUTDOOR AIR TEMPERATURE IS ABOVE 40°F (ADJ.), TEMPERATURE SENSOR SHALL ENERGIZE FAN AND ELECTRIC COIL TO MAINTAIN A SPACE TEMPERATURE OF 70°F (ADJ.). WHEN SPACE TEMPERATURE IS SATISFIED THE FAN SHALL TURN OFF.

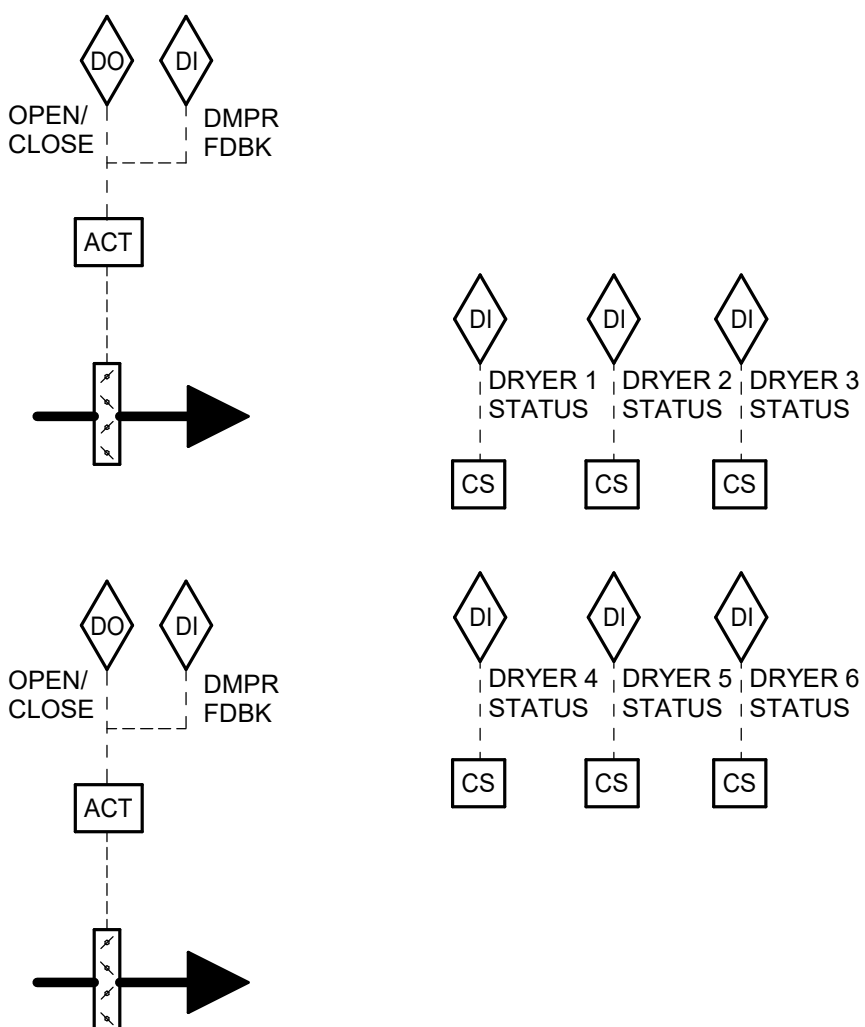
WHEN THE OUTDOOR AIR TEMPERATURE IS BELOW 40°F (ADJ.), TEMPERATURE SENSOR SHALL ENERGIZE THE ELECTRIC COIL TO MAINTAIN A SPACE TEMPERATURE OF 70°F (ADJ.) AND THE UNIT FAN SHALL RUN CONTINUOUSLY.

ALARMS, INTERLOCKS & SAFETIES:

SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF SPACE TEMPERATURE FALLS 10°F (ADJ.) BELOW SETPOINT.

2 UNIT HEATER CONTROL - ELECTRIC

NO SCALE



SEQUENCE OF OPERATION:

PROVIDE A CURRENT STATUS SWITCH TO MONITOR THE POWER OF ALL DRYERS OR CONNECT TO AUXILIARY CONTACTS ON DRYER OR STARTER IF AVAILABLE TO MONITOR POWER DRAW.

WHENEVER ANY OF THE DRYERS ARE ON, THE OUTSIDE AIR DAMPER SHALL OPEN TO ALLOW MAKEUP AIR FOR THE DRYERS.

PROVIDE A GRAPHIC DISPLAY AT THE FMCS SHOWING THE STATUS OF EACH DRYER AS WELL AS THE STATUS OF EACH OUTSIDE AIR DAMPER.

ALARMS, INTERLOCKS AND SAFETIES:

MONITOR THE DAMPER FEEDBACK AND SEND AN ALARM TO THE FMCS IF THE DAMPER IS COMMANDED OPEN AND STATUS DOES NOT PROVE OPEN OR IF COMMANDED CLOSED AND THE DAMPER DOES NOT PROVE CLOSED.

3 DRYER OUTSIDE AIR DAMPER CONTROL

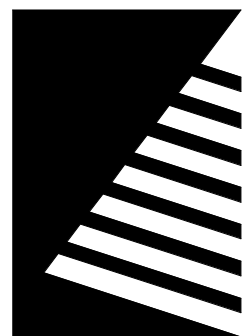
NO SCALE

IMEG

www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2004 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES

FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA CORRECTIONAL FACILITY - KITCHEN & LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

REVIEWED: DAVING

SHEET TITLE:

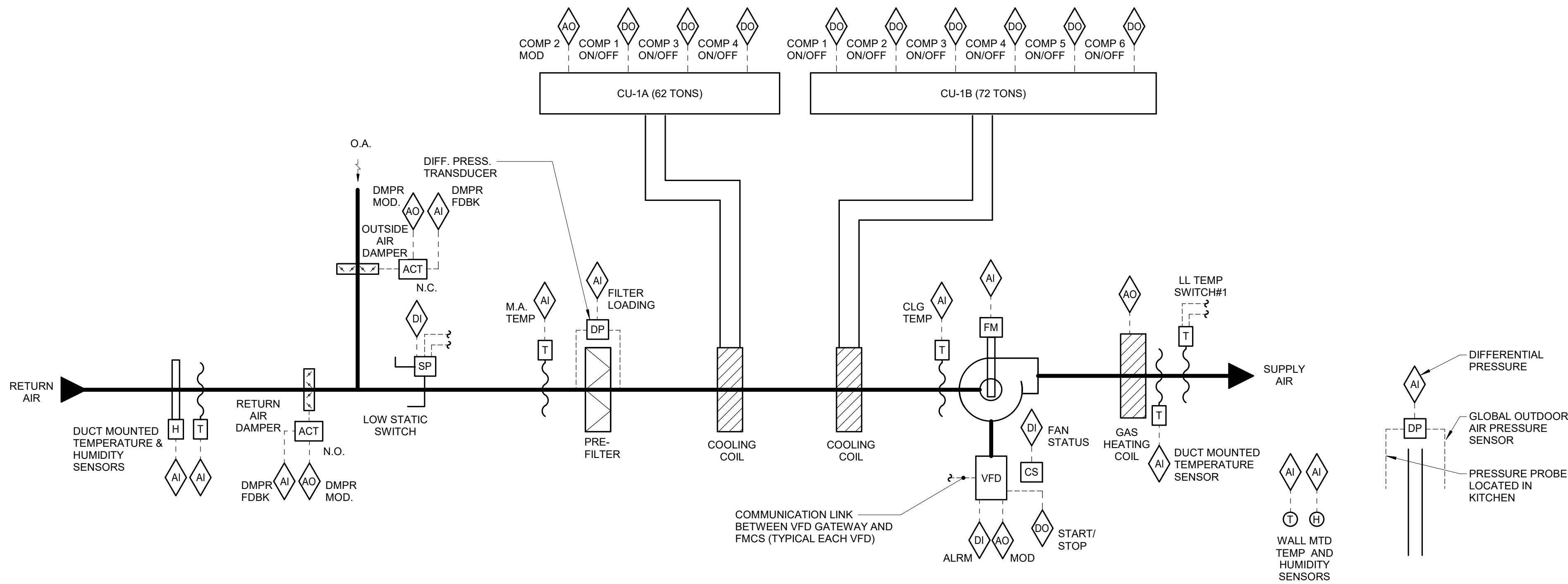
CONTROL DIAGRAMS

SHEET NUMBER:

M5.3

PROJECT NO.: 0240202.00

RF8922300-02



AHU REPORT GENERATION:
DDC FMCS SHALL MONITOR THE FOLLOWING POINTS ON 10 MINUTE (ADJ.) INTERVALS WITHIN A SINGLE TREND. THE TREND SHALL RUN FOR A 14-DAY (ADJ.) DURATION AT WHICH POINT THE NEWEST VALUES SHALL AUTOMATICALLY OVERWRITE THE OLDEST VALUES:

- DATE
- TIME
- GLOBAL OUTSIDE AIR TEMP [°F]
- GLOBAL OUTSIDE AIR HUMIDITY [%RH]
- SUPPLY AIR FLOW [CFM]
- SUPPLY AIR TEMP (SAT) [°F]
- ROOM AIR TEMP SETPOINT [°F]
- ROOM AIR RELATIVE HUMIDITY SETPOINT [%]
- ROOM AIR RELATIVE HUMIDITY [%]
- RETURN AIR RELATIVE HUMIDITY [%]
- COOLING AIR TEMP [°F]
- MIXED AIR TEMP [°F]
- PRE-FILTER LOADING [STATUS]
- HEATING COIL SIGNAL [% FULL HEATING]
- CU-1A COMPRESSOR 2 SIGNAL [% FULL COOLING]
- CU-1A COMPRESSOR 1 SIGNAL [ENABLED/DISABLED]
- CU-1A COMPRESSOR 3 SIGNAL [ENABLED/DISABLED]
- CU-1A COMPRESSOR 4 SIGNAL [ENABLED/DISABLED]
- CU-1B COMPRESSOR 1 SIGNAL [ENABLED/DISABLED]
- CU-1B COMPRESSOR 2 SIGNAL [ENABLED/DISABLED]
- CU-1B COMPRESSOR 3 SIGNAL [ENABLED/DISABLED]
- CU-1B COMPRESSOR 4 SIGNAL [ENABLED/DISABLED]
- CU-1B COMPRESSOR 5 SIGNAL [ENABLED/DISABLED]
- CU-1B COMPRESSOR 6 SIGNAL [ENABLED/DISABLED]
- SUPPLY FAN VFD OUTPUT [% FULL SPEED]
- OUTSIDE AIR DAMPER POSITION [% OPEN]
- RETURN AIR DAMPER POSITION [% OPEN]

THIS INFORMATION SHALL BE ACCESSIBLE TO VIEW IN EITHER TABULAR OR GRAPHICAL FORM ON THE FMCS OPERATOR WORKSTATION.

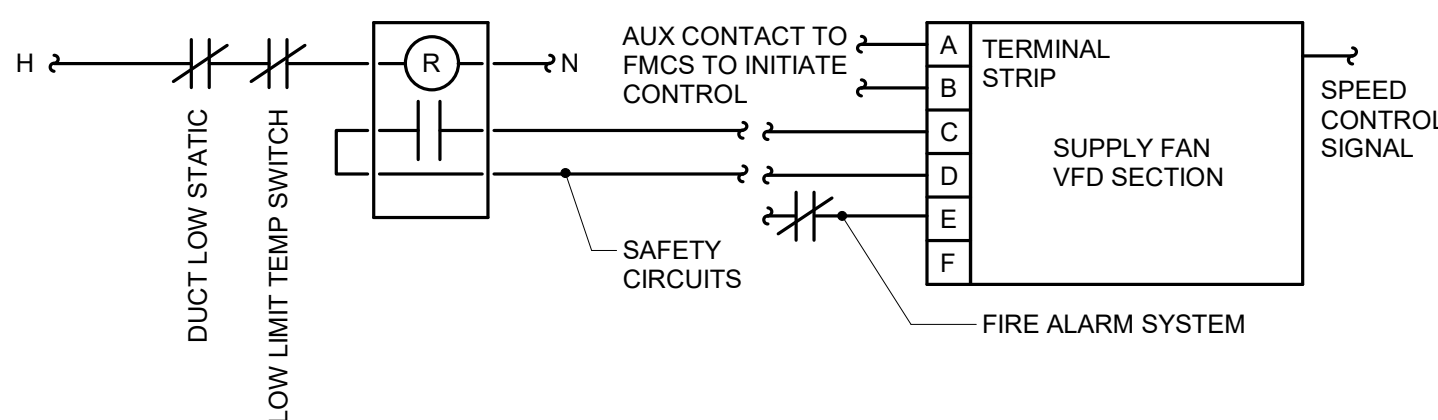
ONCE PER MONTH, THE DDC FMCS SHALL RECORD THE LARGEST AHU AIRFLOW WHICH OCCURRED DURING THAT MONTH, THE DATE, TIME, OUTSIDE AIR TEMP (AND ALL OTHER VALUES LISTED ABOVE) THAT COINCIDED WITH THAT EVENT SHALL ALSO BE RECORDED. THIS INFORMATION SHALL BE STORED TO A MEMORY LOCATION ON THE FMCS OPERATOR WORKSTATION THAT IS MAINTAINED (NOT AUTOMATICALLY OVERWRITTEN).

AIR HANDLER REPORT GENERATION

FAN INTERLOCK SCHEDULE		
SYSTEM	INTERLOCKED EXHAUST FANS	REMARKS
DOAS-1	EF-3, EF-9	NOTE 1

NOTES:

- INTERLOCK EXHAUST FAN OPERATION THROUGH THE FMCS WITH RESPECTIVE AHU IN ACCORDANCE WITH AHU SEQUENCE OF OPERATION.



SUPPLY FAN VFD CONTROL

CONNECT FIRE ALARM TO AHU START/STOP CIRCUIT SO FIRE ALARM CAN SHUT DOWN AND SO AHU CAN AUTOMATICALLY RESTART AFTER A FIRE ALARM TEST

SEQUENCE OF OPERATION:

WHEN AHU IS INDEXED TO RUN, THE FOLLOWING SHALL OCCUR:

- WHEN THE SUPPLY FAN HAS STARTED THE INTERLOCKED EXHAUST FANS SHALL START AS SHOWN IN THE FAN INTERLOCK SCHEDULE.

SUPPLY FAN AND TEMPERATURE CONTROL OPERATION:

THE FMCS WILL MODULATE THE SUPPLY FAN TO MAINTAIN THE KITCHEN SPACE AT A SLIGHT POSITIVE PRESSURE SETPOINT RELATIVE TO THE EXTERIOR OF 0.01" (ADJ.) TO ACCOMMODATE THE QUANTITY OF EXHAUST FANS IN OPERATION AND THE MAIN KITCHEN HOOD EXHAUST FAN AIR FLOW WHICH IS DEPENDENT ON DEMAND CONTROLLED VENTILATION. THE FMCS WILL MODULATE THE SUPPLY FAN, STAGE/MODULATE DX COOLING, AND MODULATE HEATING SIGNAL TO ACHIEVE THE ROOM TEMPERATURE OF 80°F (ADJ.) DURING COOLING AND 88°F (ADJ.) DURING HEATING WITH 5°F (ADJ.) DEAD BAND BASED ON A SIGNAL FROM A WALL MOUNTED TEMPERATURE SENSOR. SEE DRAWINGS FOR TEMPERATURE SENSOR REQUIREMENTS.

- ON STARTUP OF THE AHU, THE OUTSIDE AIR DAMPER SHALL BE FULLY OPEN AND THE RETURN AIR DAMPER SHALL BE FULLY CLOSED.
- THE SUPPLY FAN SPEED SHALL BE MODULATED TO MAINTAIN SPACE PRESSURE SETPOINT.
- KITCHEN EXHAUST FANS WILL BE CONTROLLED BY THE CONTROL SEQUENCES NOTED IN OTHER AREAS OF THE DRAWINGS. KITCHEN EXHAUST FANS MAY BE OVERRIDDEN TO PROVIDE ECONOMIZER COOLING AS STATED IN THIS CONTROL SEQUENCE SECTION.
- THE COOLING COILS OR HEATING COIL SIGNAL SHALL MODULATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT TO MAINTAIN SPACE TEMPERATURE SETPOINT.

IF THE DISCHARGE AIR TEMPERATURE SETPOINT IS AT LOWER OR UPPER LIMIT AND SPACE TEMPERATURE CAN NOT BE MET:

- RETURN AIR DAMPER SHALL MODULATE OPEN 5%(ADJ.) AND THE SUPPLY FAN SPEED SHALL STILL MAINTAIN SPACE PRESSURE SETPOINT. THE DISCHARGE AIR TEMPERATURE SETPOINT SHALL REMAIN AT IT'S LOWER OR UPPER LIMIT.
- IF AFTER 3 MINUTES (ADJ.) THE SPACE TEMPERATURE SETPOINT STILL CANNOT BE MAINTAINED, MODULATE OPEN RETURN AIR DAMPER ANOTHER 5% (ADJ.) AND ALLOW SUPPLY FAN SPEED TO MAINTAIN SPACE PRESSURE SETPOINT. THE DISCHARGE AIR TEMPERATURE SETPOINT SHALL REMAIN AT IT'S LOWER OR UPPER LIMIT.
- CONTINUE PROCESS UNTIL SPACE TEMPERATURE IS MET.
- THE GOAL IS MAINTAIN CONSTANT DISCHARGE AIR TEMPERATURE AND RAMP UP THE SUPPLY FAN AIR FLOW AS NEEDED TO MAINTAIN TEMPERATURE SETPOINT.

DISCHARGE AIR TEMPERATURE:

THE DISCHARGE SHALL BE BETWEEN 55°F (ADJ.) AND 95°F (ADJ.) TO MAINTAIN ROOM TEMPERATURE SETPOINT.

VENTILATION AIR CONTROL:

WHENEVER THE AIR HANDLING UNIT IS OPERATING, THE OUTSIDE AIR DAMPER SHALL BE FULLY OPEN. THE RETURN AIR DAMPER SHALL BE CLOSED AND MODULATE AS NOTED IN OTHER AREAS OF SEQUENCE TO MAINTAIN SPACE TEMPERATURE SETPOINT OR TO SATISFY THE ECONOMIZER CONTROL SEQUENCE.

COOLING COIL CONTROLS:

WHEN IN MINIMUM OUTSIDE AIR MODE,

FMCS SHALL STAGE ON/OFF COMPRESSORS AND MODULATE THE DIGITAL SCROLL COMPRESSOR TO MAINTAIN DISCHARGE AIR TEMPERATURE. THE DIGITAL SCROLL COMPRESSOR SHALL BE ENABLED FIRST AND THE SPEED MODULATED TO MAINTAIN DISCHARGE AIR TEMPERATURE. THE DISCHARGE AIR TEMPERATURE SHALL BE MODULATED TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. CONTINUE TO ENABLE COMPRESSORS AS NEEDED TO MAINTAIN SPACE TEMPERATURE SETPOINT AS NOTED BELOW. THE OPPOSITE SHALL OCCUR IF DISCHARGE AIR TEMPERATURE IS BELOW SETPOINT.

- CU-1A - DIGITAL SCROLL (COMP 2)
- CU-1B - COMP 1
- CU-1A - COMP 1
- CU-1B - COMP 2
- CU-1A - COMP 3
- CU-1B - COMP 3
- CU-1A - COMP 4
- CU-1B - COMP 4
- CU-1B - COMP 5
- CU-1B - COMP 6

FMCS SHALL ROTATE THE LEAD COMPRESSOR ON A WEEKLY BASIS TO ALLOW MORE EVEN RUN TIMES ON COMPRESSORS. THE DIGITAL SCROLL COMPRESSOR SHALL ALWAYS BE THE FIRST COMPRESSOR ON BUT THE SECOND COMPRESSOR ON SHALL BE ROTATED.

THE MINIMUM OFF TIME FOR A STAGE OF COOLING SHALL BE 5 MINUTES (ADJ.). THE MINIMUM ON TIME FOR A STAGE SHALL BE 5 MINUTES (ADJ.). COORDINATE FINAL MINIMUM ON AND MINIMUM OFF TIMES OF STAGES WITH CONDENSING UNIT MANUFACTURER. THE MINIMUM ON/OFF TIME FOR THE DIGITAL SCROLL COMPRESSOR MAY BE DIFFERENT AND SHALL BE PROGRAMMED SEPARATELY IF REQUIRED.

WHEN IN ECONOMIZER MODE, FMCS SHALL NOT ENABLE DX COOLING UNLESS RETURN AIR DAMPER IS 5% (ADJ.) OPEN AND RELIEF AIR DAMPER IS 95% (ADJ.) OPEN.

HEATING COIL CONTROLS:

FMCS SHALL MODULATE HEATING COIL OUTPUT AS TO MAINTAIN DISCHARGE AIR TEMPERATURE CONTROL. IF DISCHARGE AIR TEMPERATURE IS LESS THAN SETPOINT, INCREASE HEATING COIL OUTPUT. THE OPPOSITE SHALL OCCUR IF DISCHARGE AIR TEMPERATURE IS HIGHER THAN SETPOINT. HEATING COIL MANUFACTURER PROVIDED CONTROLLER SHALL OPEN/CLOSE BURNER DAMPERS BASED ON HEATING COIL OUTPUT FROM FMCS. HEATING COIL SHALL NOT BE ENABLED WHEN COOLING COIL IS ENABLED UNLESS IN DEHUMIDIFICATION MODE.

DEHUMIDIFICATION CONTROLS:

IF SPACE HUMIDITY EXCEEDS 60% RH (ADJ.), DEHUMIDIFICATION CONTROLS SHALL BE ENABLED. DURING DEHUMIDIFICATION MODE, THE COOLING COIL DISCHARGE TEMPERATURE SHALL BE SET TO 55°F (ADJ.) AND THE HEATING COIL OUTPUT SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT. THIS SHALL OCCUR UNTIL THE SPACE HUMIDITY DROPS BELOW 55% RH (ADJ.) AT WHICH TIME THE DEHUMIDIFICATION MODE SHALL BE DISABLED.

ECONOMIZER OPERATION:

ECONOMIZER MODE #1: IF COOLING IS ENABLED, THE UNIT IS 100% OUTSIDE AIR, AND THE OUTSIDE AIR DRY BULB TEMPERATURE IS LESS THAN THE SPACE AIR DRY BULB TEMPERATURE THE FMCS SHALL ENABLE ECONOMIZER CONTROLS. WHEN THE OUTSIDE AIR DRY BULB TEMPERATURE IS GREATER THAN THE SPACE AIR DRY BULB TEMPERATURE FOR 10 MINUTES THE FMCS SHALL DISABLE ECONOMIZER CONTROLS AND SHALL RETURN TO NORMAL MODE. ONCE ECONOMIZER CONTROLS HAVE BEEN ENABLED OR DISABLED, THE UNIT SHALL CONTINUE TO OPERATE IN THAT MODE FOR A MINIMUM OF 10 MINUTES (ADJ.) BEFORE BEING ALLOWED TO SWITCH BACK (TO PREVENT SHORT CYCLING).

ECONOMIZER MODE #2: IF COOLING IS ENABLED, THE UNIT IS NOT IN 100% OUTSIDE AIR, AND THE OUTSIDE AIR DRY BULB TEMPERATURE IS LESS THAN THE RETURN AIR DRY BULB TEMPERATURE THE FMCS SHALL ENABLE ECONOMIZER CONTROLS. WHEN OUTSIDE AIR DRY BULB TEMPERATURE IS GREATER THAN THE RETURN AIR DRY BULB TEMPERATURE FOR 10 MINUTES THE FMCS SHALL DISABLE ECONOMIZER CONTROLS AND SHALL RETURN THE UNIT TO MINIMUM OUTSIDE AIR MODE. ONCE ECONOMIZER CONTROLS HAVE BEEN ENABLED OR DISABLED, THE UNIT SHALL CONTINUE TO OPERATE IN THAT MODE FOR A MINIMUM OF 10 MINUTES (ADJ.) BEFORE BEING ALLOWED TO SWITCH BACK (TO PREVENT SHORT CYCLING).

IN ECONOMIZER MODE THE FMCS SHALL MODULATE THE RETURN AIR DAMPER CLOSED AND THE OUTSIDE AIR DAMPER OPEN AS REQUIRED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AND MAINTAIN SPACE TEMPERATURE SETPOINT. IF OR WHEN UNIT IS OPERATING WITH 100% OUTSIDE AIR, THE EXHAUST AIR FLOW IN THE KITCHEN SHALL BE INCREASED.

- THE FIRST STAGE OF ECONOMIZER IS TO RAMP UP THE SPEED ON EF-9 TO MAINTAIN SPACE PRESSURE WITH THE SUPPLY FAN AND RELIEF DAMPERS AS REQUIRED TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT.
- THE NEXT STAGE OF ECONOMIZER IS TO TURN ON EF-2 UNLESS ALREADY IN OPERATION.
- THE NEXT STAGE OF ECONOMIZER IS TO TURN ON EF-5 UNLESS ALREADY IN OPERATION.
- THE NEXT STAGE OF ECONOMIZER IS TO TURN ON EF-6 UNLESS ALREADY IN OPERATION.
- THE NEXT STAGE OF ECONOMIZER IS TO TURN ON EF-7 UNLESS ALREADY IN OPERATION.
- THE NEXT STAGE OF ECONOMIZER IS TO TURN ON EF-8 UNLESS ALREADY IN OPERATION.

ALLOW FOR A 5 MINUTE (ADJ.) TIME DELAY BETWEEN ENABLING ADDITIONAL FANS TO ALLOW FOR THE SUPPLY FAN SPEED TO RAMP UP AND MAINTAIN SPACE PRESSURE SETPOINT. ONCE FANS HAVE BEEN ENABLED OR DISABLED, THEY SHALL CONTINUE TO OPERATE IN THAT MODE A MINIMUM OF 10 MINUTES (ADJ.) BEFORE BEING ALLOWED TO SWITCH BACK (TO PREVENT SHORT CYCLING) UNLESS FAN IS COMMANDED ON BY ITS LOCAL CONTROLLER AT THE KITCHEN EQUIPMENT.

ALARMS, INTERLOCKS, AND SAFETIES:

WHEN FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION, AHU SHALL BE SHUTDOWN.

THE FOLLOWING CONDITIONS SHALL SHUTDOWN THE AHU AND SHALL INDICATE AN ALARM CONDITION AT THE FMCS WORKSTATION:

- LOW STATIC PRESSURE SWITCH INDICATES RETURN DUCT PRESSURE LESS THAN THE SPECIFIED DUCT PRESSURE CLASS.
- LOW STATIC PRESSURE SWITCH INDICATES MIXED AIR PRESSURE LESS THAN THE SPECIFIED DUCT PRESSURE CLASS OF THE OUTSIDE AIR DUCTWORK.
- HIGH STATIC PRESSURE SWITCH INDICATES SUPPLY DUCT STATIC PRESSURE GREATER THAN THE SPECIFIED DUCT PRESSURE CLASS.
- SHOULD ANY ONE FOOT SECTION OF THE MANUAL RESET LOW LIMIT TEMPERATURE SWITCH #1 SENSE AIR TEMP <34°F (ADJ.).

THE FOLLOWING CONDITIONS SHALL INDICATE AN ALARM AT THE FMCS, HOWEVER AHU SHALL CONTINUE TO OPERATE:

- AN ALARM IS INDICATED AT SUPPLY FAN VFD.
- DIFFERENTIAL PRESSURE TRANSDUCER ACROSS PRE-FILTER BANK EXCEEDS 0.8 INCHES W.G. (ADJ.)
- SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE SPACE TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE OR BELOW SETPOINT.

WHENEVER AHU IS SHUTDOWN THE FOLLOWING SHALL OCCUR:

- THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE.
- RETURN AIR DAMPER SHALL FULLY OPEN.
- GAS HEATING SHALL BE DISABLED.
- CONDENSING UNITS SHALL BE DISABLED.
- SUPPLY FAN VFD SHALL BE DE-ENERGIZED.
- INTERLOCKED EXHAUST FANS SHALL BE DE-ENERGIZED.

UNOCCUPIED MODE:

PROVIDE TIME OF DAY SCHEDULE TO ALLOW DOAS-1 TO ENTER UNOCCUPIED MODE PER SCHEDULE. COORDINATE SCHEDULE WITH OWNER.

- THE SUPPLY SHALL CONTINUE RUNNING.
- THE OUTSIDE AIR SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN. ECONOMIZER CYCLE SHALL TAKE PRECEDENCE OVER DAMPER POSITION.
- ALL SPACE TEMPERATURES SHALL BE ALLOWED TO VARY +/- 10°F (ADJ.) FROM OCCUPIED SETPOINT.

HEATING OPTIMUM START-UP:

- THIS CYCLE SHALL OVERRIDE THE UNOCCUPIED CYCLE. IF THE SYSTEM WAS OPERATING AS A RESULT OF THE UNOCCUPIED CYCLE, THE SYSTEM SHALL CONTINUE TO OPERATE. THE DDC SYSTEM SHALL DETERMINE THE MINIMUM RUNTIME TO WARM THE SPACES TO THEIR SETPOINT WHEN THE COMPUTED START TIME IS REACHED. THE AIR HANDLING UNIT DISCHARGE AIR TEMPERATURE SHALL BE MAINTAINED AT A SETPOINT OF 85°F (ADJ.). THE SYSTEM SHALL CONTINUE TO OPERATE IN THIS MODE UNTIL ALL TEMPERATURES EXCEED A SETPOINT OF 88°F (ADJ.) AT THAT TIME, THE DDC SYSTEM SHALL SWITCH TO OCCUPIED CONTROL.

COOLING OPTIMUM START-UP:

- THIS CYCLE SHALL OVERRIDE THE UNOCCUPIED CYCLE. IF THE SYSTEM WAS OPERATING AS A RESULT OF THE UNOCCUPIED CYCLE, THE SYSTEM SHALL CONTINUE TO OPERATE. THE DDC SYSTEM SHALL DETERMINE THE MINIMUM RUNTIME TO COOL THE SPACES TO THEIR SETPOINT WHEN THE COMPUTED START TIME IS REACHED. THE AIR HANDLING UNIT DISCHARGE AIR TEMPERATURE SHALL BE MAINTAINED AT A SETPOINT OF 55°F (ADJ.). THE SYSTEM SHALL CONTINUE TO OPERATE IN THIS MODE UNTIL ALL TEMPERATURES ARE LESS THAN A SETPOINT OF 75°F (ADJ.) AT THAT TIME, THE DDC SYSTEM SHALL SWITCH TO OCCUPIED CONTROL.

GRAPHICAL DISPLAY:

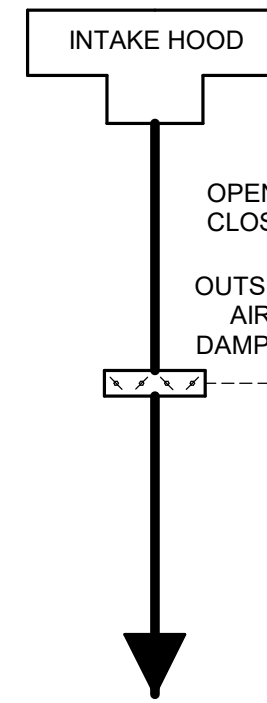
DISPLAY THE GLOBAL OUTSIDE AIR TEMPERATURE AND HUMIDITY ON AHU GRAPHIC PAGE.

1 AIR HANDLING UNIT CONTROL - DOAS-1

NO SCALE

2 GREASE EXHAUST FAN CONTROL - (EF-9)

NO SCALE



SEQUENCE OF OPERATION:

FMCS SHALL INTERLOCK COMBUSTION AIR DAMPER WITH DOAS-1 AND AHU-1 HEATING COMMANDS. FMCS SHALL OPEN DAMPER AND PROVIDE OPEN BY DAMPER END SWITCHES PRIOR TO ENABLING THE HEATING COMMAND AT DOAS-1 AND AHU-1. WHEN HEATING IS DISABLED IN BOTH DOAS-1 AND AHU-1, THE DAMPER SHALL CLOSE.

PROVIDE GRAPHIC THAT ALLOWS USER TO COMMAND DAMPER OPEN OR CLOSED.

ALARMS, INTERLOCKS AND SAFETIES:

- AN ALARM SHALL BE GENERATED AT THE FMCS OPERATOR WORKSTATION IN THE EVENT THE FMCS COMMANDS THE DAMPER OPEN BUT THE DAMPER END SWITCH DOES NOT PROVE OPEN WITHIN 5 MINUTES (ADJ.).
- AN ALARM SHALL BE GENERATED AT THE FMCS OPERATOR WORKSTATION IN THE EVENT THE FMCS COMMANDS THE DAMPER CLOSED BUT THE DAMPER END SWITCH DOES NOT PROVE CLOSED WITHIN 5 MINUTES (ADJ.).

3 COMBUSTION AIR DAMPER CONTROL

NO SCALE

IMEG

www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2004 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00

AIR HANDLING SCHEDULE

NOTES:
1.PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13.
2.EC SHALL PROVIDE 120V POWER CONNECTION FOR HEATER AND A SECOND 120V POWER CONNECTION FOR THE LIGHTS.
3.FAN SELECTION SHALL BE BASED ON DIRTY FILTER PRESSURE DROP AS NOTED IN SCHEDULE.

TAG NAME	AREA SERVED	SUPPLY FAN (NOTE 1)							RETURN FAN (NOTE 1)							MINIMUM OUTSIDE AIR CFM	ELECTRICAL										HEATING - NATURAL GAS			
		CFM TOTAL	MIN. CFM	EXT. S.P.	TYPE	RPM (NOTE D)	BHP (NOTE E)	MHP (NOTE E)	CFM TOTAL	MIN. CFM	EXT. S.P.	TYPE	RPM (NOTE D)	BHP (NOTE E)	MHP (NOTE E)		NO. OF POWER CONNECTIONS	VOLTAGE	PHASES	DISCONNECT(S)		CONTROLLER STARTER(S)		SCCR	NO. OF AUXILIARY CONNECTIONS (NOTE 2)	THIS REQUIRES EMERGENCY POWER		MINIMUM EFFICIENCY AFUE (%)	MINIMUM OUTPUT MBH	TURN DOWNSTEPS
AHU-1	KITCHEN/LAUNDRY	7000	2900	2.0	PLENUM	1549	6.3	7.5	5060	960	0.8	PLENUM	1647	1.5	3	1940	2	480	3	EC	NA	EC	NA	10000	2	Yes	80	171	5:1	8

SCHEDULE GENERAL NOTES:

A. DISCONNECT AND CONTROLLER STARTER FURNISHED AND INSTALLED BY:
MFR = MANUFACTURER
EC = ELECTRICAL CONTRACTOR.
MC = FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR.
MFR/EC = FURNISHED LOOSE BY MANUFACTURER INSTALLED BY ELECTRICAL CONTRACTOR.

B. DISCONNECT TYPE:
F = FUSED
NF = NON-FUSED

C. CONTROLLER STARTER TYPE:
FV = FULL VOLTAGE
WYE = WYE-DELTA
SS = SOLID STATE (SOFT START)
MS = MANUAL STARTER
VFD = VARIABLE FREQUENCY DRIVE

D. FAN RPM SHALL NOT EXCEED 110% OF SCHEDULED VALUE, WITH THE SCHEDULED WHEEL TYPE. SUBSTITUTION OF BI OR BIA FANS FOR FC IS ACCEPTABLE IF EFFICIENCY IS NOT LOWER.

E. NO EQUIPMENT SHALL BE SELECTED ABOVE 90% OF MOTOR NAME PLATE RATING.

F. MUST BE WITHIN +/- 10% OF SCHEDULED RPM.

G. CURB TYPE:
MFR = STANDARD CURB BY MANUFACTURER
SAC = SOUND ATTENUATOR CURB

AIR HANDLING SCHEDULE - CONT.

TAG NAME	COOLING COIL										FILTER (NOTE 3)						MAX. DIMENSIONS			WEIGHT	MANUFACTURER	MODEL	NOTES	
	LAT DB °F	EAT WB °F	LAT DB °F	LAT WB °F	TOTAL MBH	MAX. A.P.D. IN. W.C.	REFRIGERANT	CIRCUITING	CFM	PRE-FILTER			FINAL-FILTER			LENGTH	WIDTH	HEIGHT						
										TYPE	FACE VELOCITY	PRESSURE DROP	TYPE	FACE VELOCITY	PRESSURE DROP									
AHU-1	80.6	67.7	52.8	51.5	344	0.4	R-410A	INTERVIEWED	7000	MERV 8	253	0.6	0.1	MERV 13	253	1.0	0.1	188"	110"	98"	6265	DAIKIN APPLIED	CAH	

FAN SCHEDULE

NOTES:
1. PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13.
2. CONDENSATE HOOD PRESSURE DROP IS 0.25" W.C. CONFIRM FINAL HOOD AIR FLOW AND PRESSURE DROP PRIOR TO SUBMITTING FAN. IF MANUFACTURER OTHER THAN BASIS OF DESIGN IS USED, THE FAN SELECTION MAY NEED TO BE REVISED.
3. RACK OVEN HOOD PRESSURE DROP IS 0.3" W.C. CONFIRM FINAL HOOD AIR FLOW AND PRESSURE DROP PRIOR TO SUBMITTING FAN. IF MANUFACTURER OTHER THAN BASIS OF DESIGN IS USED, THE FAN SELECTION MAY NEED TO BE REVISED.
4. GREASE HOOD PRESSURE DROP IS 1.2" W.C. CONFIRM FINAL HOOD AIR FLOW AND PRESSURE DROP PRIOR TO SUBMITTING FAN. IF MANUFACTURER OTHER THAN BASIS OF DESIGN IS USED, THE FAN SELECTION MAY NEED TO BE REVISED.

TAG NAME	AREA SERVED	CFM	S.P. IN. W.C.	FAN RPM (NOTE F)	DRIVE TYPE	MAX. AMCA SONES	BACKDRAFT DAMPER TYPE	CURB TYPE (NOTE G)	ELECTRICAL (NOTE 1)										THIS REQUIRES EMERGENCY POWER	WEIGHT	MANUFACTURER	MODEL	NOTES
									DISCONNECT				CONTROLLER/ STARTER										
									BHP	MHP	VOLTAGE	PHASES	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)	SCCR						
EF-1	LAUNDRY	1380	0.50	1235	BELT	10.2	MOTORIZED	MFR	0.25	0.33	120	1	MFR	NF	TCC	FV	5000	No	60	GREENHECK	GB		
EF-2	ITEM #190/#195 - DISHWASHER/CONDENSATE HOOD	2700	0.80	1239	BELT	15.5	MOTORIZED	MFR	0.79	1	480	3	EC	NF	EC	FV	5000	Yes	84	GREENHECK	CUBE	NOTE 2	
EF-3	GENERAL KITCHEN EXHAUST	1200	0.75	1290	BELT	10.4	MOTORIZED	MFR	0.28	0.33	120	1	MFR	NF	TCC	FV	5000	Yes	60	GREENHECK	GB		
EF-4	CHEMICAL STORAGE	870	0.50	1378	BELT	7.6	MOTORIZED	MFR	0.18	0.25	120	1	MFR	NF	TCC	FV	5000	Yes	51	GREENHECK	GB		
EF-5	ITEM #87 - EXISTING RACK OVEN	800	0.90	1586	BELT	9.1	NONE	MFR	0.25	0.33	120	1	MFR	NF	TCC	FV	5000	Yes	64	GREENHECK	CUBE	NOTE 3	
EF-6	ITEM #87 - EXISTING RACK OVEN	800	0.90	1586	BELT	9.1	NONE	MFR	0.25	0.33	120	1	MFR	NF	TCC	FV	5000	Yes	64	GREENHECK	CUBE	NOTE 3	
EF-7	ITEM #163 - FUTURE RACK OVEN	800	0.90	1586	BELT	9.1	NONE	MFR	0.25	0.33	120	1	MFR	NF	TCC	FV	5000	Yes	64	GREENHECK	CUBE	NOTE 3	
EF-8	ITEM #163 - FUTURE RACK OVEN	800	0.90	1586	BELT	9.1	NONE	MFR	0.25	0.33	120	1	MFR	NF	TCC	FV	5000	Yes	64	GREENHECK	CUBE	NOTE 3	
EF-9	ITEM 148 - GREASE HOOD	9955	2.30	814	BELT	25	NONE	MFR	6.47	7.5	480	3	MFR	NF	EC	VFD	5000	Yes	347	GREENHECK	CUBE	NOTE 4	

MOTOR OPERATED DAMPER SCHEDULE

NOTES:
1.COORDINATE DAMPER ACTUATOR LOCATION AND MOUNTING REQUIREMENTS WITH TEMPERATURE CONTROL CONTRACTOR.

TAG NAME	AREA SERVED	SIZE		CFM	BLADE CONFIGURATION	BLADE ORIENTATION	INSULATED	ACTUATOR TYPE (NOTE 1)	ACTUATOR STYLE	POWER FAILURE POSITION	POSITIVE POSITION FEEDBACK REQUIRED	THIS REQUIRES EMERGENCY POWER	NOTES
		WIDTH	HEIGHT										
MOD-4	DRYER CHASE	120	48	0	OPPOSED	HORIZONTAL	Yes	ELECTRIC	TWO POSITION	NORMALLY CLOSED (NC)	Yes	No	
MOD-5	DRYER CHASE	120	48	0	OPPOSED	HORIZONTAL	Yes	ELECTRIC	TWO POSITION	NORMALLY CLOSED (NC)	Yes	No	

LOUVER SCHEDULE

NOTES:
1.FINISH TYPES: TYPE 4 - BAKED EPOXY FINISH ON PRIME COATED METAL. STANDARD COLOR - SELECTION BY ARCHITECT.

TAG NAME	AREA SERVED	CFM	SIZE (INCHES)		FREE AREA VELOCITY	S.P. IN. W.C.	FINISH (NOTE 1)	MANUFACTURER	MODEL	NOTES
			WIDTH	HEIGHT						
OAL-1	DOAS-1	17000	168	72	420	0.04	TYPE 4	RUSKIN	ELF375	
OAL-2	AHU-1	7000	72	72	390	0.04	TYPE 4	RUSKIN	ELF375	
OAL-4	DRYER CHASE	8400	120	60	300	0.03	TYPE 4	RUSKIN	ELF375	
OAL-5	DRYER CHASE	8400	120	60	300	0.03	TYPE 4	RUSKIN	ELF375	
RAL-1	AHU-1	5060	72	48	420	0.04	TYPE 4	RUSKIN	ELF375	

AIR TERMINAL SCHEDULE

NOTES:
1.CONTRACTOR SHALL DETERMINE PROPER BORDER TYPE TO MATCH CEILING CONSTRUCTION.
2.REFER TO DRAWINGS FOR NECK SIZE. ALL BRANCH DUCTWORK TO AIR TERMINALS SHALL BE NECK SIZE UNLESS NOTED OTHERWISE.

TAG NAME	FACE SIZE (IN.) (NOTE 2)	TYPE	BORDER (NOTE 1)	MATERIAL	FINISH	VOLUME DAMPER REQUIRED	MANUFACTURER	MODEL	NOTES
EG-1	INLET +2	35 DEGREE DEFLECTION	1 1/4"	ALUMINUM	WHITE	NO	TITUS	350F	
EG-2	24x24	PERFORATED FACE	LAY-IN	ALUMINUM	WHITE	NO	TITUS	PAR	
RG-1	INLET +2	35 DEGREE DEFLECTION	1 1/4"	ALUMINUM	WHITE	NO	TITUS	350F	
RG-2	24x24	PERFORATED FACE	LAY-IN	ALUMINUM	WHITE	NO	TITUS	PAR	DUCTED RETURN
SD-1	24x24	PANEL FACE	LAY-IN	ALUMINUM	WHITE	NO	TITUS	OMNI	FLUSH FACE PANEL
SD-2	24x24	PERFORATED FACE	LAY-IN	ALUMINUM	WHITE	NO	TITUS	PAR	PERFORATED FACE SUPPLY
SG-1	INLET +2	DOUBLE DEFLECTION	1 1/4"	ALUMINUM	WHITE	NO	TITUS	300F	FRONT BLADES VERTICAL UNLESS NOTED OTHERWISE
SG-2	INLET +2	PERFORATED FACE	1 1/4"	STAINLESS STEEL	WHITE	NO	TITUS	SG-PR	MAXIMUM SECURITY PERFORATE FACE GRILLE

DEDICATED OUTDOOR AIR UNIT

NOTES:
1. PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13.
2.LAT LISTED IS AT LEAVING SIDE OF COOLING COIL.
3.EC SHALL PROVIDE 120V POWER CONNECTION FOR HEATER AND A SECOND 120V POWER CONNECTION FOR LIGHTS.
4.COOLING COIL CIRCUITING SHALL BE INTERTWINED.
5.UNIT TO BE CAPABLE OF TURNING DOWN TO SCHEDULED MINIMUM CFM. BASIS OF DESIGN ACHIEVES THIS WITH A MODULATING HEATER AND THREE STAGED SLAVE HEATERS WITH DAMPERS. DAMPERS TO OPERATE BASED ON SLAVE HEATERS CALL FOR HEAT.

TAG NAME	AREA SERVED	SUPPLY FAN										HEATING COIL - NATURAL GAS					COOLING COIL #1- DX (NOTES 2, 4)					COOLING COIL #2 - DX (NOTES 2, 4)					FILTER		ELECTRICAL (NOTE 1)					SCCR	THIS REQUIRES EMERGENCY POWER	MAX. DIMENSIONS				MANUFACTURER	MODEL	NOTES									
		NO. OF FANS	CFM TOTAL	MIN. CFM (NOTE 5)	EXT. S.P.	TYPE	RPM (NOTE D)	BHP EACH (NOTE E)	MHP EACH (NOTE E)	EAT °F	LAT °F	INPUT MBH	OUTPUT MBH	TURNDOWN	MAX. A.P.D. IN. W.C.	GAS SUPPLY PRESSURE (W.C.)	EAT °F DB	LAT °F WB	MAX. LAT °F DB	LAT °F WB	SENSIBLE MBH	TOTAL MBH	MAX. A.P.D. IN. W.C.	TYPE	VELOCITY	PRESSURE DROP DIRTY/CLEAN	NO. OF POWER CONNECTIONS	VOLTAGE	PHASES	FLA	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)			TYPE (NOTE C)	NO. OF AUXILIARY CONNECTIONS (NOTE 3)	LENGTH	WIDTH				HEIGHT	WEIGHT							
DOAS-1	KITCHEN	1	17500	6200	1.30	PLENUM	1186	13.5	20	-10.0	62.0	1943.0	1555	20:1	0.1	8.00	91.0	76.3	72.4	66.9	355	647	0.3	72.4	66.7	54.4	53.8	345	697	0.8	MERV 8	249	110.09	1	480	3	27	EC	VFD	EC	VFD	1	10,000 A	Yes	294	112	74	10282	DAIKIN APPLIED	CAH	

CONDENSING UNIT SCHEDULE

NOTES:
1. REFER TO SPECIFICATION SECTION 23 62 13 FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE A MINIMUM OF FOUR COMPRESSORS WITH AT LEAST ONE COMPRESSOR BEING A DIGITAL SCROLL COMPRESSOR TO ALLOW FOR MODULATION PLUS STAGING ON OF COMPRESSORS.
3. PROVIDE A MINIMUM OF SIX COMPRESSORS. COMPRESSOR CAN BE ON/OFF AND DO NOT NEED TO MODULATE.
4. UNIT REQUIRES 120V/1PH POWER CONNECTION FOR CONVENIENCE RECEPTACLE PROVIDED BY THE MANUFACTURER. E.C. SHALL PROVIDE POWER FOR THIS CIRCUIT.

TAG NAME	AREA SERVED		NOMINAL DESIGN TONS	REFRIGERANT	SATURATED SUCTION °F	AMBIENT TEMP °F	MIN. AMBIENT TEMP °F	NUMBER OF COMPRESSORS	NUMBER OF STAGES	NUMBER OF CIRCUITS	EER AT AHRI	EER AT AHRI	NUMBER OF FANS	MAXIMUM ALLOWABLE SOUND POWER IN DB RE 10" 1" WATTS OCTAVE BAND CENTER FREQUENCY										NO. OF POWER CONNECTIONS	VOLTAGE	PHASES	MCA	MOCP	DISCONNECT		CONTROLLER/ STARTER		THIS REQUIRES EMERGENCY POWER	MAX. DIMENSIONS (INCHES)			WEIGHT	VIBRATION ISOLATION		MANUFACTURER	MODEL (NOTE 1)	NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
														125	250	500	1000	2000	4000	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	SCCR						LENGTH	WIDTH	HEIGHT	OPERATING		TYPE	DEFL.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

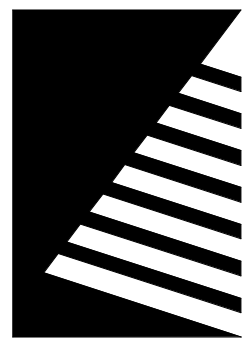


www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS. TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2004 IMEG CORP.

0123
INCHES

0123
FEET

PROJECT #21007888.00



Farnsworth
GROUP

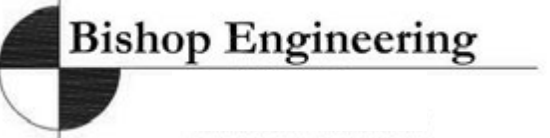
14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists



RIPPE ASSOCIATES

FOODSERVICE DESIGN + CONSULTING



ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: MIKMCC

DRAWN: MIKMCC

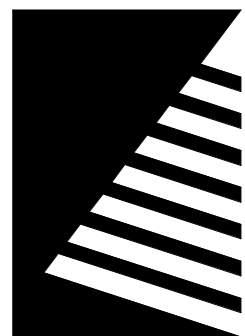
REVIEWED: DAVING

SHEET TITLE:
MECHANICAL
SCHEDULES

SHEET NUMBER:

M6.1

PROJECT NO.: 0240202.00
RFB922300-02



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com

Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

TERMINAL AIR BOX SCHEDULE - FAN POWERED WITH ELECTRIC REHEAT

NOTES:
1.NEITHER RADIATED NOR DISCHARGE SOUND LEVELS SHALL EXCEED NC 35 AT 1.5" INLET STATIC PRESSURE WHEN TESTED PER AHRI STANDARD 885-2008 USING 5/8" 20-LB DENSITY MINERAL FIBER CEILING TILE.
2.TOTAL AIR PRESSURE DROP OF TAB AND REHEAT COIL SHALL NOT EXCEED 0.50" WC.
3.REFER TO 3/M5.1 FOR DESCRIPTION OF CONTROL TYPE.
4.SENSOR TYPES: 1 - SENSOR ONLY, 2 - SENSOR WITH ADJUSTMENT, 3 - SENSOR WITH OVERRIDE, 4 - SENSOR WITH ADJUSTMENT AND OVERRIDE.
5.PROVIDE TYPE B FILTER ON FAN INLET PER 23 40 00.

TAG	AREA SERVED	CONFIGURATION	MINIMUM INLET SIZE (IN.) DIA.	CFM			FAN			HEATING COIL				ELECTRICAL							CONTROL TYPE (NOTE 3)	SENSOR TYPE (NOTE 4)	MANUFACTURER	MODEL (NOTES 1, 2)	NOTES
				COOLING MAX.	MIN.	HEATING PRIMARY AIRFLOW	CFM	S.P. IN. W.C.	HP	EAT °F	LAT °F	NUMBER OF STAGES	KW	VOLTAGE	PHASES	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/ STARTER BY (NOTE A)	SCCR	THIS REQUIRES EMERGENCY POWER					
FTAB-1	CORRIDOR	PARALLEL, COIL AT DISCHARGE	10"	1010	305	305	1970	0.4	0.75	55	107	SCR	25	480	3	MFR	NF	MFR	5000	Yes	TAB-FP	TYPE 1	TITUS	DTQP	NOTES 1, 2
FTAB-2	STAFF BREAK RM	PARALLEL, COIL AT DISCHARGE	8"	235	260	260	210	0.4	0.17	55	97.6	SCR	5	480	3	MFR	NF	MFR	5000	Yes	TAB-FP	TYPE 1	TITUS	DTQP	NOTES 1, 2
FTAB-3	CORRIDOR	PARALLEL, COIL AT DISCHARGE	6"	310	80	95	810	0.4	0.25	55	95.6	SCR	6.5	480	3	MFR	NF	MFR	5000	Yes	TAB-FP	TYPE 1	TITUS	DTQP	NOTES 1, 2
FTAB-4	INGREDIENT ASSEMBLY	PARALLEL, COIL AT DISCHARGE	12"	970	290	290	1700	0.4	0.75	55	95.9	SCR	15	480	3	MFR	NF	MFR	5000	Yes	TAB-FP	TYPE 1	TITUS	DTQP	NOTES 1, 2

TERMINAL AIR BOX SCHEDULE - SINGLE DUCT ELECTRIC REHEAT

NOTES:
1.NEITHER RADIATED NOR DISCHARGE SOUND LEVELS SHALL EXCEED NC 35 AT 1.5" INLET STATIC PRESSURE WHEN TESTED PER AHRI STANDARD 885-2008 USING 5/8" 20-LB DENSITY MINERAL FIBER CEILING TILE.
2.TOTAL AIR PRESSURE DROP OF TAB AND REHEAT COIL SHALL NOT EXCEED 0.50" WC.
3.REFER TO 4/M5.1 FOR DESCRIPTION OF CONTROL TYPE.
4.SENSOR TYPES: 1 - SENSOR ONLY, 2 - SENSOR WITH ADJUSTMENT, 3 - SENSOR WITH OVERRIDE, 4 - SENSOR WITH ADJUSTMENT AND OVERRIDE.

TAG NAME	AREA SERVED	MINIMUM INLET SIZE (IN.) DIA.	CFM		HEATING COIL					ELECTRICAL				SCCR	THIS REQUIRES EMERGENCY POWER	CONTROL TYPE (NOTE 3)	SENSOR TYPE (NOTE 4)	MANUFACTURER	MODEL (NOTES 1, 2)	NOTES
			COOLING MAX.	HEATING MAX.	MIN.	EAT °F	LAT °F	NUMBER OF STAGES	KW	VOLTAGE	PHASE	DISCONNECT								
												BY (NOTE A)	TYPE (NOTE B)							
TAB-1	LAUNDRY	14"	1865	1110	1110	55.0	94.9	SCR	14	480	3	MFR	NF	5000	No	TAB-RH	TYPE 1	TITUS	DESV	NOTES 1, 2
TAB-2	ELECTRICAL	14"	1920	325	325	55.0	98.8	SCR	4.5	480	3	MFR	NF	5000	Yes	TAB-RH	TYPE 1	TITUS	DESV	NOTES 1, 2
TAB-3	DIRECTOR OFFICE	6"	220	70	70	55.0	76.1	SCR	0.5	208	1	MFR	NF	5000	Yes	TAB-RH	TYPE 1	TITUS	DESV	NOTES 1, 2
TAB-4	SUPERVISOR OFFICE	6"	385	105	80	55.0	82.5	SCR	1	208	1	MFR	NF	5000	Yes	TAB-RH	TYPE 1	TITUS	DESV	NOTES 1, 2

UNIT HEATER SCHEDULE - ELECTRIC

NOTES:
1.REFER TO 2/M5.2 FOR ELECTRIC UNIT HEATER CONTROL.

TAG NAME	AREA SERVED	CONFIGURATION	CFM	HP	HEATING ELEMENT			ELECTRICAL				SCCR	THIS REQUIRES EMERGENCY POWER	MAX. DIMENSIONS			WEIGHT	MANUFACTURER	MODEL	NOTES
					NUMBER OF STAGES	KW	VOLTAGE	PHASES	DISCONNECT BY (NOTE A)	TYPE (NOTE B)	CONTROLLER/ STARTER BY (NOTE A)			LENGTH	WIDTH	HEIGHT				
UH-1	MECHANICAL	HORIZONTAL	830	0.07	1	10	480	3	MFR	NF	MFR	5000	Yes	22"	17"	21"	67	MODINE	HER	NOTE 1
UH-2	MECHANICAL	HORIZONTAL	1300	0.07	1	25	480	3	MFR	NF	MFR	5000	Yes	27"	19"	24"	98	MODINE	HER	NOTE 1

ARCHITECTURAL ELECTRICAL WALL HEATER SCHEDULE

NOTES:
1.COORDINATE COLOR SELECTION WITH ARCHITECT. REFER TO ARCHITECTURAL ELECTRIC WALL HEATERS IN 23 82 00 FOR SPECIFICATION.

TAG NAME	AREA SERVED	CONFIGURATION	NOMINAL CFM	HEATING ELEMENT			ELECTRICAL				SCCR	THIS REQUIRES EMERGENCY POWER	MAX. DIMENSIONS			MANUFACTURER	MODEL	NOTES
				NUMBER OF STAGES	KW	VOLTAGE	PHASES	DISCONNECT BY (NOTE A)	TYPE (NOTE B)	CONTROLLER/ STARTER BY (NOTE A)			WIDTH	DEPTH	HEIGHT			
CAB-1	RESTROOM	ARCHITECTURAL WALL RECESSED	100	1	1.5	120	1	MFR	NF	MFR	5000	Yes	16"	5"	20"	BERKO	FRC	NOTES 1, 2
CAB-2	RESTROOM	ARCHITECTURAL WALL RECESSED	100	1	1.5	120	1	MFR	NF	MFR	5000	No	16"	5"	20"	BERKO	FRC	NOTES 1, 2
CAB-3	JANITOR	ARCHITECTURAL WALL RECESSED	100	1	1.5	120	1	MFR	NF	MFR	5000	Yes	16"	5"	20"	BERKO	FRC	NOTES 1, 2

PIPE INSULATION SCHEDULE (HYDRONIC)

GENERAL NOTES:
1. REFER TO THE SPECIFICATIONS FOR TYPE DESCRIPTIONS AND JACKETING REQUIREMENTS. VALUES LISTED BELOW ARE BASED ON ASHRAE / IECC REQUIREMENTS.
2. TYPE A INSULATION IS NOT ALLOWED IN NOISE SENSITIVE SPACES (SUCH AS MECHANICAL ROOMS, EXTERIOR, ATTICS, ETC) ON PIPE SYSTEMS WITH FLUID TEMPERATURES BELOW 60 DEG. F.
3. TYPE B INSULATION GREATER THAN 1" THICK SHALL BE INSTALLED USING MULTIPLE LAYERS OF 3/4" OR 1" WITH STAGGERED SEAMS.
4. TYPE E IS NOT ALLOWED IN RETURN AIR PLENUMS, UNLESS LISTED AND LABELED AS 25/50 RATED PER ASTM E84/UL723
5. PROVIDE RIGID INSERT AT HANGERS, EITHER PRE-MANUFACTURED COUPLINGS OR TYPE C, D,(HOT PIPE ONLY), E (WHERE ALLOWED BY CODE) OR F INSULATION. SEE SPEC FOR MORE DETAILS.

PIPE SYSTEM	INSULATION TYPE AND THICKNESS PER NOMINAL PIPE OR TUBE SIZE			NOTES
	< 1"	1" TO < 1.5"	1.5" TO < 4"	
DPP - DRAIN - PIPING	A 0.5", B 0.5", E 0.5"	A 0.5", B 0.5", E 0.5"	A 1", B 1", E 1"	APPLY INSULATION ONLY TO LOW TEMP DRAINS (55 DEG AND LOWER IE: COOLING COIL CONDENSATE, ICE MACHINE DRAINS, ETC.)
HG - REFRIGERANT HOT GAS	A 1", B 1", E 1"	A 1", B 1", E 1"	A 1.5", E 1"	
HW/R - HEATING WATER RETURN	A 1.5"	A 1.5"	A 2"	
HWS - HEATING WATER SUPPLY	A 1.5"	A 1.5"	A 2"	
LIO - REFRIGERANT LIQUID	B 0.5", F 0.5"	B 0.5", F 0.5"	B 1", E 1", F 1"	
MISC RELIEF VENTS, INTAKES, AND DISCHARGES	A 0.5", B 0.5	A 0.5", B 0.5	A 1", B 1", E 1"	APPLY INSULATION ONLY WITHIN 10' OF EXTERIOR PENETRATION ON COMPRESSOR INTAKES, VACUUM DISCHARGES, VENT/RELIEF LINES, ETC.
REFRIGERATION PIPING - VRF, SPLIT SYSTEMS	REFER TO EQPT. SPEC	REFER TO EQPT. SPEC	REFER TO EQPT. SPEC	
SUC - REFRIGERANT SUCTION	B 0.5", F 0.5"	B 0.5", F 0.5"	B 1", E 1", F 1"	

RADIATION SCHEDULE

NOTES:
1.REUSE EXISTING CONTROL VALVE AND TEMPERATURE SENSOR.

TAG NAME	AREA SERVED	MBH	GPM	MAT'L	LENGTH FT.	ELEMENT			NUMBER OF ROWS	FINS PER FOOT	CABINET			AVERAGE WATER TEMP °F	MANUFACTURER	MODEL	NOTES
						PIPE SIZE	FIN HEIGHT	FIN WIDTH			LENGTH	HEIGHT	DEPTH				
FTR-1	HALL 1067	7.8	1.0	ALUMINUM	3'-6"	3/4"	4 1/4"	4 1/4"	3	48	4' - 0"	2' - 0"	0' - 5 1/2"	172	RITTLING	S-SP5	NOTE 1

DUCT SILENCER SCHEDULE

NOTES:
1.PRESSURE DROP VALUES LISTED ARE PER ASTM E477-99 TEST PROCEDURE AND DO NOT INCLUDE SYSTEM EFFECTS.
2.WITH FIBERGLASS CLOTH SEPARATING MEDIA FROM AIRSTREAM.
3.SILENCER SHALL BE CONSTRUCTED TO KEEP THE BREAKOUT NOISE CONTRIBUTION TO THE AFFECTED ROOM BELOW 40 dba. SILENCER SHALL BE FACTORY MANUFACTURED AND ALL EXPOSED SURFACES SHALL BE SHEETMETAL (EXCEPT FOR SPECIFIED EXTERNAL DUCT INSULATION FOR UNITS THAT DO REQUIRE DUAL-WALL CONSTRUCTION.)

TAG NAME	AREA SERVED	CFM	VELOCITY	MAX. S.P. DROP IN. W.C. (NOTE 1)	ACOUSTICAL PERFORMANCE AT +1000 FPM																DIMENSIONS (INCHES)			MANUFACTURER	MODEL	NOTES
					MINIMUM DYNAMIC INSERTION LOSS IN DB								MAXIMUM ALLOWABLE GENERATED NOISE IN DB RE 10-12" WATTS								LENGTH	WIDTH	HEIGHT			
					OCTAVE BAND CENTER FREQUENCY								OCTAVE BAND CENTER FREQUENCY													
					63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000						
DS-1	AHU-1 SUPPLY	7000	1145	0.14	0	0	18	16	14	12	10	6	60	50	35	50	40	45	40	50	60	44	20	PRICE	RH60/SE	NOTES 2 & 3
DS-2	DOAS-1 SUPPLY	17500	1500	0.15	0	7	13	23	24	23	17	13	50	55	50	50	55	45	50	50	48	60	28	PRICE	RH48/2D	NOTES 2 & 3

HOOD & LOUVERED PENTHOUSE SCHEDULE

TAG NAME	AREA SERVED	THROAT SIZE		FREE AREA (FT²)	CONFIGURATION	DAMPER TYPE	CURB TYPE	MAX. DIMENSIONS			WEIGHT	MANUFACTURER	MODEL	NOTES
		WIDTH	LENGTH					LENGTH	WIDTH	HEIGHT				
GV-1	MECHANICAL	20	40	6	GRAVITY HOOD	MOTORIZED	MFR	63"	44"	28"	98	GREENHECK	FGI	



www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

2882 100TH STREET
DES MOINES, IA 50322
P: 515.334.9008 F: 515.334.9008

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00

PROJECT NO.: 0240202.00
RFB922300-02

ELECTRICAL SYMBOL LIST			
SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	IBT	26 05 26	INTERSYSTEM BONDING TERMINATION
	ECONN	26 05 33	ELECTRICAL CONNECTION
	JB	26 05 33	JUNCTION BOX
	FB# or PT#	26 27 26	FLOOR BOX or POKE THROUGH
	DEM	26 09 13	ENERGY METER
	DPM	26 09 13 / 26 24 13	DIGITAL POWER METER
	EEM	26 09 13	EXTERNAL ENERGY METER
	PQM	26 09 13	POWER QUALITY METER
	CPC	26 09 16	CONTROL POWER CABINET
	EPO	26 09 16	EMERGENCY STOP / POWER OFF (N.C. AND N.O CONTACT)
	ES	26 09 16	EMERGENCY STOP, N.C. CONTACT
	FA-LA	26 09 16	LAMP ANNUNCIATOR
	PB	26 09 16	MOMENTARY PUSHBUTTON OPERATOR
	PANEL-###	26 24 16	PANELBOARD - SURFACE MOUNT
	MX-#MS-# CB-#CS-#	26 24 19	MANUAL SWITCH / STARTER / COMBINATION STARTER/ CIRCUIT BREAKER. REFER TO DISC/STA SCHEDULE
	TR-#DTR-#	26 22 00	TRANSFORMER. REFER TO TRANSFORMER SCHEDULE
	DS-#FDS-#DSS-#	26 28 16	DISCONNECT. REFER TO DISC/STA SCHEDULE
	MD-SD-#	26 28 16	MOBILE DIAGNOSTICS SERVICE DISCONNECT. REFER TO DISC/STA SCHEDULE
	GANN-#	26 32 13	GENERATOR ANNUNCIATOR
	DB	ARCH	DOOR BELL
	HD	ARCH	HAND DRYER
	PP	ARCH	PUSH PAD

ELECTRICAL SYMBOL LIST			
SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	REC-DUP	26 27 26	DUPLEX RECEPTACLE, 125V
	REC-DUP-GFI	26 27 26	DUPLEX GFI RECEPTACLE, 125V
	REC-DUP-WP	26 27 26	DUPLEX GFI WEATHERPROOF RECEPTACLE, 125V
	REC-DUP-XP	26 27 26	DUPLEX RECEPTACLE, EXPLOSION PROOF, 125V
	REC-USB	26 27 26	DUPLEX RECEPTACLE, USB CHARGING
	REC-SIM-550R	26 27 26	SIMPLEX RECEPTACLE, 125V
	REC-SIM-550R	26 27 26	RECEPTACLE, 125V
	REC-SIM-550R	26 27 26	RECEPTACLE, 125V, 50A, 125V
	REC-SIM-620R	26 27 26	RECEPTACLE, 6-20R, 250V
	REC-SIM-630R	26 27 26	RECEPTACLE, 6-30R, 250V
	REC-SIM-650R	26 27 26	RECEPTACLE, 6-50R, 250V
	REC-SIM-720R	26 27 26	RECEPTACLE, 7-20R, 277V
	REC-SIM-730R	26 27 26	RECEPTACLE, 7-30R, 277V
	REC-SIM-750R	26 27 26	RECEPTACLE, 7-50R, 277V
	REC-SIM-1420R	26 27 26	RECEPTACLE, 14-20R, 125/250V
	REC-SIM-1430R	26 27 26	RECEPTACLE, 14-30R, 125/250V
	REC-SIM-1450R	26 27 26	RECEPTACLE, 14-50R, 125/250V
	REC-SIM-1460R	26 27 26	RECEPTACLE, 14-60R, 125/250V
	REC-SIM-1520R	26 27 26	RECEPTACLE, 15-20R, 250V, 3PH
	REC-SIM-1530R	26 27 26	RECEPTACLE, 15-30R, 250V, 3PH
	REC-SIM-1550R	26 27 26	RECEPTACLE, 15-50R, 250V, 3PH
	REC-SIM-1560R	26 27 26	RECEPTACLE, 15-60R, 250V, 3PH
	REC-SIM-1520R	26 27 26	RECEPTACLE, 15-20R, 125V
	REC-SIM-XP	26 27 26	RECEPTACLE, EXPLOSION PROOF, 125V
	REC-QUAD	26 27 26	QUAD RECEPTACLE, 125V
	REC-QUAD-GFI	26 27 26	QUAD GFI RECEPTACLE, 125V
	REC-QUAD-USB	26 27 26	QUAD RECEPTACLE, USB 125V
	REC-QUAD-WP	26 27 26	QUAD GFI WEATHERPROOF RECEPTACLE, 125V
	REC-PED	26 05 33	RECEPTACLE - PEDESTAL STYLE
	REC-PED-QUAD	26 05 33	RECEPTACLE - PEDESTAL STYLE
	REC-Zh	26 27 26	IEC PIN and SLEEVE RECEPTACLE, 600V
	PPH	26 27 23	POWER POLE

ELECTRICAL ABBREVIATION KEY	
ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
C	CONDUIT
GFI	GROUND FAULT INTERRUPTER
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
SV	SOLENOID VALVE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED

LUMINAIRE SYMBOL KEY	
SYMBOL:	DESCRIPTION:
	NORMAL BRANCH LUMINAIRE
	EMERGENCY BRANCH LUMINAIRE UNSWITCHED FOR NIGHT LIGHT, UNLESS NOTED 'SE'

CONTACT PERSONS:	
DESCRIPTION:	PERSON:
PROJECT MANAGER	MIKE MCCARTY
MECHANICAL	MIKE MCCARTY
ELECTRICAL	KRISTEN SPINA
TECHNOLOGY	MIKE MCCARTY

ELECTRICAL SYMBOL LIST			
SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	SW-1P	26 09 33	SWITCH - SINGLE POLE
	SW-DLED	26 09 33	DIMMER - LED
	SW-LSPC	26 09 33	PHOTOCELL
	SW-OC-D	26 09 33	OCCUPANCY SENSOR - DUAL TECHNOLOGY
	SW-OC-P-O	26 09 33	SWITCH - OCCUPANCY SENSOR WALL SWITCH
	SW-OC-P-P	26 09 33	OCCUPANCY SENSOR - PASSIVE INFRARED 360 DEGREE COVERAGE
	SW-OC-U	26 09 33	OCCUPANCY SENSOR - ULTRASONIC 360 DEGREE COVERAGE
	SW-OC-U-A	26 09 33	OCCUPANCY SENSOR - ULTRASONIC TWO SIDED CORRIDOR COVERAGE
	SW	26 09 33	WALL CONTROL STATION
	TC#	26 09 33	TIME SWITCH

ELECTRICAL SYMBOL LIST			
SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
			LINEAR LUMINAIRES
			TROFFER
			WALL SCONCE LUMINAIRE
			DOWNLIGHT LUMINAIRE
			AIMABLE OR WALL WASH LUMINAIRE
			INDUSTRIAL LUMINAIRE
			WALL BRACKET LUMINAIRE
			POLE MOUNTED LUMINAIRE
			SINGLE FACE EXIT SIGN
			DOUBLE FACE EXIT SIGN
			WALL/CEILING EMERGENCY EXIT SIGN
			EMERGENCY UNIT

VIEW KEY	
	NAME 10'-0" →
	LEVEL NAME → 10'-0"
	HEIGHT ABOVE PROJECT 0'-0"
	INDICATES DIRECTION OF TRUE NORTH
	PLAN OR DETAIL NUMBER
	PLAN OR DETAIL NAME
	VIEW NAME 1/8" = 1'-0"
	PLAN OR DETAIL SCALE
	INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS
	DETAIL REFERRED TO BY SECTION CUT
	SHEET DETAIL IS LOCATED ON
	LINE TYPE AND TAG KEY: NEW WORK BY THIS CONTRACTOR (WIDE LINE) ----- EXISTING TO BE REMOVED (SHORT DASHED PATTERN) --- NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN) EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE) ----- EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN) --- EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)
	HALF-TONING DOES NOT MODIFY SCOPE.

CONTRACTOR ABBREVIATION KEY	
ABBR:	DESCRIPTION:
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
S.C.	SECURITY CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR

APPLICABLE CODES	
CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS.	
BUILDING CODE:	IBC 2015 EDITION
FIRE CODE:	IFC 2015 EDITION
PLUMBING CODE:	UPC 2021 EDITION
MECHANICAL CODE:	IMC 2021 EDITION
ELECTRICAL CODE:	NFPA 70 (NEC) 2020 EDITION
LIFE SAFETY CODE:	NFPA 101 2012 EDITION
ENERGY CONSERVATION CODE:	IECC 2012
HEALTH DEPARTMENT CODE:	CURRENT EDITION
LOCAL BUILDING CODE:	CURRENT EDITION

ELECTRICAL EQUIPMENT TAGS		
TAG:	DESCRIPTION:	RELATED SPECIFICATION
ATS-#	AUTOMATIC TRANSFER SWITCH. REFER TO TRANSFER SWITCH SCHEDULE	26 36 00
C-#	GENERAL PURPOSE CONTACTOR	26 28 21
CB-#	CORD REEL	26 27 26
DP-#	DISTRIBUTION PANEL	26 24 16
DT-#	GENERATOR DAY TANK	26 32 13
DIR-#	TRANSFORMER - DISTRIBUTION TYPE REFER TO TRANSFORMER SCHEDULE	26 12 19 26 12 13 26 12 16 26 12 21
GCC-#	TEMP. GENERATOR/LOAD BANK CONNECTION CABINET	26 32 13
GCP-#	GENERATOR CONTROL PANEL	26 32 13
GEN-#	GENERATOR	26 32 13
GPS-#	GENERATOR PARALLELING AND DISTRIBUTION SWITCHBOARD	26 34 14 26 24 14 26 13 35
GANN-#	GENERATOR REMOTE RADIATOR	26 32 13
HH-#	HANDHOLE	26 05 33
HT-#	HEAT TAPE	26 05 17
INV-#	LIGHTING INVERTER	26 52 00
M-#	METER DISTRIBUTION CENTER	26 20 00
MC-#	EXTERIOR MOUNTED METERING CABINET	26 20 00
MH-#	MANHOLE	26 05 37
MX-#	MANUAL SWITCH, REFER TO DISCONNECT AND STARTER SCHEDULE	26 24 19
RA-ATS-#	REMOTE ANNUNCIATOR FOR ATS	26 36 00
REFS-#	REMOTE FUEL FILL STATION	26 32 13
SB-#	SWITCHBOARD	26 24 13
SC-#	SECTIONALIZING CABINET	26 13 14
SC-#	SWITCHGEAR	26 23 00
SM-#	SNOW MELT CONTROL PANEL	26 05 17
SMS-#	PAVEMENT MOUNTED DEICING CONTROLLER	26 05 17
SPD-#	SURGE PROTECTION DEVICE	26 43 00
UPS-#	UNINTERRUPTIBLE POWER SUPPLY	26 33 53
US-#	UNIT SUBSTATION	26 11 00
VFD-#	VARIABLE FREQUENCY DRIVE - REFER TO VFD SCHEDULE	26 29 23

CONDUIT INSTALLATION SCHEDULE

THE FOLLOWING SCHEDULE SHALL BE ADHERED TO UNLESS THEY CONSTITUTE A VIOLATION OF APPLICABLE CODES OR ARE NOTED OTHERWISE ON THE DRAWINGS. THE INSTALLATION OF RMC CONDUIT WILL BE PERMITTED IN PLACE OF ALL CONDUIT SPECIFIED IN THIS SCHEDULE. REFER TO CONDUIT AND BOXES SPECIFICATION 26 05 33 FOR ADDITIONAL INFORMATION.

INSTALLATION TYPE	RMC	IMC	EMT	RTRC	PVC COATED RMC	PVC	PVC CONCRETE ENCASED	HDPE	ASR
FEEDERS: SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS, MOTOR CONTROL CENTERS, ETC.		X	X						
BRANCH CIRCUITS: LIGHTING, RECEPTACLES, CONTROLS, ETC.		X	X						
MECHANICAL EQUIPMENT FEEDERS: PUMPS, CHILLERS, AIR HANDLING UNITS, ETC.		X	X						
FLOOR MOUNTED EQUIPMENT FEEDERS: PUMPS, ETC. (INCLUDE NO MORE THAN 6 FEET OF LFMC TO PUMP)		X	X						
CONTROLS (LIGHTING, POWER, BUILDING AUTOMATION, ETC.)		X	X						
FINISHED SPACES / CONCEALED			X						
WET AND DAMP LOCATIONS: (CONDUIT, BOXES, FITTINGS, INSTALLED AND EQUIPPED TO PREVENT WATER ENTRY)	X			X					
CORROSIVE LOCATIONS				X	X				
ELEVATED CONCRETE SLABS (ABOVE GRADE)	X								
INTERIOR LOCATIONS: CONCEALED			X						
INTERIOR LOCATIONS: EXPOSED		X	X						
INTERIOR LOCATIONS: EXISTING WALLS AND EXPOSED INSTALLATION (FINISHED SPACES)			X						X
UNDERGROUND / SLABS ON GRADE (IN OR UNDER SLABS ON GRADE)									
WITHIN 5' FROM THE PERIMETER OF THE BUILDING	X					X			
WITHIN 5' FROM THE PERIMETER OF THE BUILDING WHEN PASSING THROUGH THE PERIMETER OF THE BUILDING FOUNDATION:	X			X			X		
UNDERGROUND SITE CONDUITS:									
WITHIN 5' FROM THE PERIMETER OF A BUILDING FOUNDATION	X		X				X		
5' OR GREATER FROM THE PERIMETER OF A BUILDING FOUNDATION	X		X			X			
UNDER ROADS, DRIVES, AND VEHICLE TRAVELED WAYS. WHEN HDPE DIRECTIONAL BORING IS ALLOWED: PROVIDE PRESSURIZED					X	X		X	
DUCTBANKS (REFER TO DUCTBANK DETAILS WHEN APPLICABLE)									
REINFORCING SHALL CONSIST OF ONE-HALF INCH DEFORMED BARS SPACED 12 INCHES ON CENTER, PARALLELING THE DUCTS ON BOTTOM, WITH ONE-HALF INCH DEFORMED TIE BARS SPACED TWELVE INCHES ON CENTERS.									X
BARS SHALL OVERLAP 40 DIAMETERS AND SHALL EXTEND 5' BEYOND ROADS, DRIVES, TRAVELED WAYS, ETC.									X
PROVIDE MINIMUM 3" CONCRETE COVER ON ALL SIDES OF REINFORCING.									X
ENTIRE DUCTBANK SHALL BE INSTALLED ON PRECAST CONCRETE PAVERS ON 3' CENTERS.									X
HAZARDOUS (CLASSIFIED LOCATIONS AS DEFINED BY THE NATIONAL ELECTRICAL CODE): COMPLETE WITH SCREWED FITTINGS AND CONDUIT SEALS	X								
FIRE RATED ASSEMBLIES: FIRE RATED ASSEMBLIES LISTED WITH PHENOLIC RTRC RACEWAY			X						
DEFINITIONS:									
CONCRETE ENCASEMENT: CONDUIT WITH A MINIMUM OF 3" THICKNESS BETWEEN THE SURFACE OF THE CONCRETE AND THE NEAREST CONDUIT. CONCRETE TO BE DOWELED INTO THE FOUNDATION.									

ELECTRICAL RENOVATION NOTES:

THESE NOTES APPLY TO ALL ELECTRICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, LIGHTING, POWER, AND SYSTEMS.

- EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
- NOT ALL EXISTING EQUIPMENT, LUMINAIRES, AND CONDUIT ARE SHOWN. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS WITH NEW WORK BEFORE STARTING WORK.
- EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF THEIR WORK AND SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO THEIR AREA OF WORK.
- EACH CONTRACTOR SHALL CUT AND PATCH ROOFS, WALLS, AND FLOORS ASSOCIATED WITH THEIR WORK.
- THE TRADE CONTRACTORS ARE RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILINGS, CEILING TILES, AND CEILING GRIDS ASSOCIATED WITH AREAS OF WORK BY ALL CONTRACTORS. NOTIFY THE TRADE CONTRACTORS OF AFFECTED AREAS PRIOR TO BIDDING.
- WHERE EXISTING ELECTRICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING, OR DUCTWORK TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, CONDUIT, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING ELECTRICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.

ELECTRICAL PHASING NOTES:

THESE NOTES APPLY TO ALL ELECTRICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, LIGHTING, POWER, AND SYSTEMS.

- REFER TO [ARCHITECTURAL] DRAWINGS FOR GENERAL DESCRIPTION OF PHASES. REFER TO [CONSTRUCTION MANAGER'S/GENERAL CONTRACTOR'S/ARCHITECT'S] INSTRUCTIONS FOR MORE DETAILS AND PHASING SCHEDULES AND FOR CONCURRENT WORK.
- MECHANICAL, ELECTRICAL AND TECHNOLOGY DRAWINGS DEPICT THE INTENT OF THE FINAL DESIGN. THE MECHANICAL, ELECTRICAL, AND TECHNOLOGY DRAWINGS DO NOT DEPICT THE MEANS AND METHODS TO MEET THE REQUIREMENTS OF THE PHASING CRITERIA.
- REVIEW PROJECT PHASING PLANS TO COORDINATE DEMOLITION WORK, OUTAGES, ETC. WITH AFFECTED ADJACENT AREAS.
- PROVIDE TEMPORARY LIGHTING, POWER, SYSTEMS, ETC. AS NEEDED TO MAINTAIN SERVICE TO ALL AREAS DURING ALL PHASES OF PROJECT.
- INSTALL TEMPORARY LIGHTING, CIRCUITS, ETC. AS NECESSARY TO KEEP ALL OCCUPIED SPACES OPERATIONAL THROUGHOUT ALL PHASES OF THE PROJECT.
- PHASE DEMOLITION WORK TO MINIMIZE DOWNTIME.

ELECTRICAL GENERAL NOTES:

- (L###) INDICATES THE LIGHTING SEQUENCE OF OPERATION FOR THE SPACE. REFER TO THE LIGHTING SEQUENCE OF OPERATION MATRIX ON SHEET E6.2
- OUT INDICATES LUMINAIRE IS UNSWITCHED FOR NIGHT LIGHT
- 'SE' INDICATES LUMINAIRE IS SWITCHED/CONTROLLED DURING NORMAL OPERATION AND OPERATES FROM EMERGENCY CIRCUIT UPON LOSS OF POWER
- SHALL LUMINAIRE/DEVICE INDICATES LUMINAIRE OR DEVICE IS CONNECTED TO AN EMERGENCY CIRCUIT
- REFER TO SHEET E-6.2 FOR LUMINAIRE SCHEDULE.
- VACANCY/OCCUPANCY SENSOR (LAYEST) SENSORS ARE SHOWN ON THE PLANS FOR DESIGN INTENT AND MAY NOT REPRESENT EVERY DEVICE. PROVIDE MANUFACTURER SPECIFIC FLOOR PLAN LAYOUTS SHOWING LOCATION, ORIENTATION, AND COVERAGE AREA OF EACH CONTROL DEVICE, SENSOR, AND CONTROLLER INTERFACE. AREAS REQUIRING MULTIPLE SENSOR DEVICES FOR APPROPRIATE COVERAGE, SUBMIT SPECIFIC MANUFACTURER-APPROVED SENSOR LAYOUT AS AN OVERLAY DIRECTLY ON THE PROJECT DRAWINGS, EITHER IN PRINT OR APPROVED ELECTRONIC FORM.

LUMINAIRE KEY:

F1 = FIXTURE TAG

F = CIRCUIT NUMBER

a = SWITCH DESIGNATION

NL = SUBSCRIPT (IF APPLICABLE)

Z = ZONE DESIGNATION

DEVICE KEY:

A = MOUNTING (IF APPLICABLE)

1 = CIRCUIT NUMBER

ELECTRICAL MOUNTING SUBSCRIPT KEY:

A MOUNT AT +6" TO CENTERLINE ABOVE COUNTER OR BACKSPLASH

C MOUNT AT CEILING

H MOUNT ORIENTED HORIZONTALLY

L MOUNT IN CASEWORK

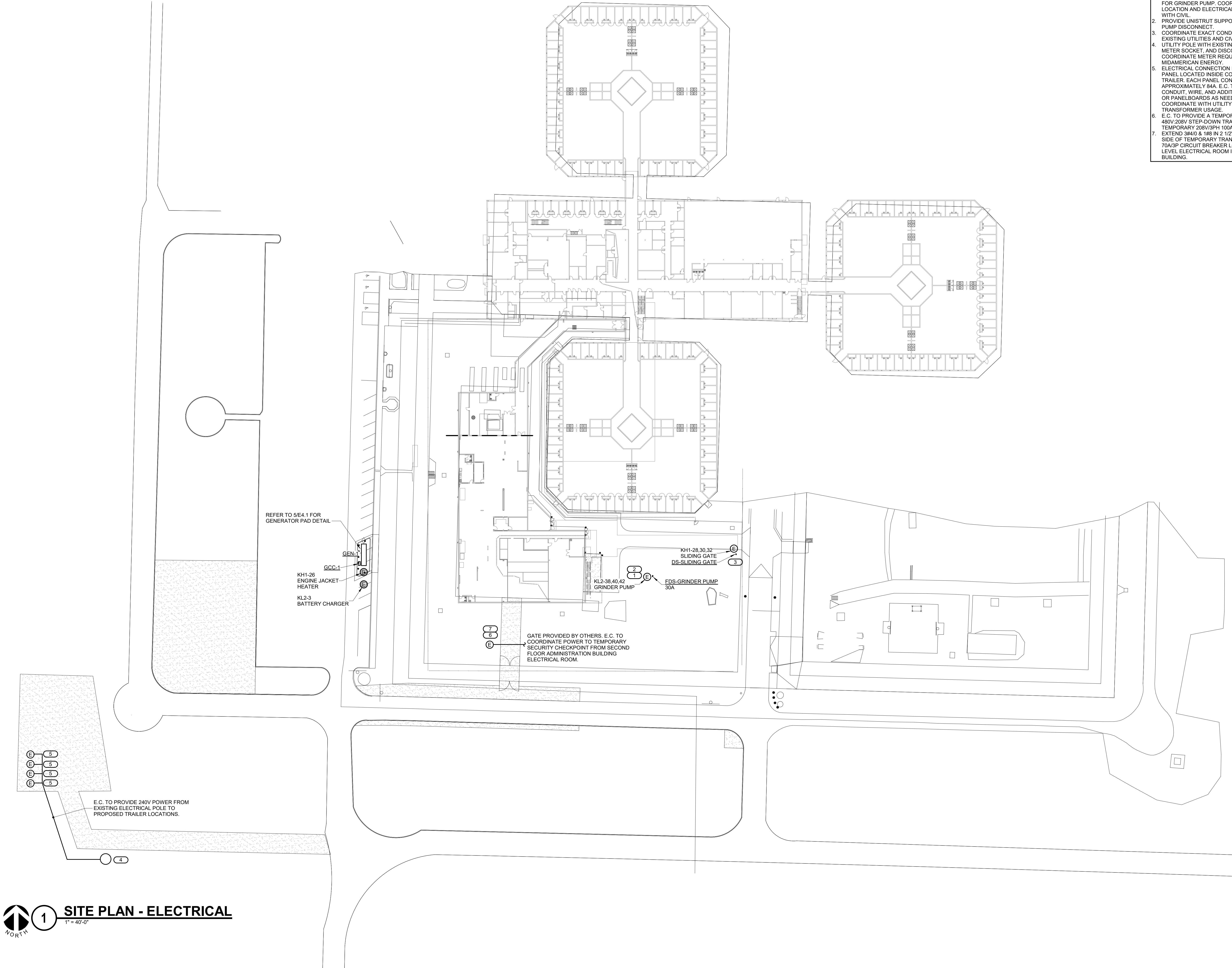
M MOUNT IN MODULAR FURNITURE

R MOUNT IN SURFACE RACEWAY

EW C ELECTRIC WATER COOLER

ELECTRICAL INSTALLATION NOTES:

- THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO THE ADA GUIDELINES FOR ALL CONFIGURATION DETAILS ON THIS PAGE FOR ADDITIONAL INFORMATION.
- CIRCUIT NUMBERS ARE SHOWN FOR CIRCUIT IDENTIFICATION. CIRCUITING SHALL AGREE WITH NUMBERING ON THE ELECTRICAL PANEL PROVIDED. COMMON NEUTRALS MAY NOT BE USED FOR BRANCH CIRCUITS. BALANCE THE LOAD ON PANEL AS EVENLY AS POSSIBLE BETWEEN EACH PHASE.
- EMERGENCY BRANCH WIRING FOR FEEDERS AND BRANCH CIRCUITS SHALL BE ROUTED IN SEPARATE RACEWAY, JUNCTION BOXES, PULL BOXES, AND CABINETS. WIRING FOR EACH BRANCH SHALL BE INDEPENDENT FROM OTHER BRANCHES, INCLUDING THE NORMAL BRANCH.
- FLUSH MOUNT ALL LIGHTING CONTROL DEVICES AT +42" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. DEVICES MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED.
- FLUSH MOUNT ALL DUPLEX RECEPTACLES AND TECHNOLOGY OUTLETS AT +18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. RECEPTACLES AND OUTLETS MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED. MOUNT EXTERIOR LOCATED RECEPTACLES WITH WHILE-IN-USE COVERS AT +20" FROM FINISHED GRADE (CENTER DIMENSIONS) TO MAINTAIN INSTALLATION ADA COMPLIANCE.
- ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO DIVISION 7 FOR ADDITIONAL INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
- CONNECTION FOR ELECTRIC WATER COOLERS (EWC) SHALL BE A JUNCTION BOX CONCEALED BEHIND WATER COOLER ACCESS PLATE OR BE A GFI RECEPTACLE LOCATED DIRECTLY BELOW AND CENTERED ON EWC. CONTRACTOR SHALL VERIFY TYPE OF EWC TO BE INSTALLED.
- MOUNT ALL FIRE ALARM PULL STATIONS AT +42" FROM FLOOR (CENTERLINE DIMENSION) EXCEPT WHERE OTHERWISE NOTED.
- INSTALL ALL WALL MOUNTED FIRE ALARM NOTIFICATION DEVICES AT 90" ABOVE FINISHED FLOOR OR 6" BELOW THE CEILING, WHICHEVER IS LOWER, EXCEPT WHERE OTHERWISE NOTED. HEIGHT SHALL BE MEASURED TO THE TOP OF THE DEVICE.
- CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL CEILING MOUNTED DEVICES AND EQUIPMENT WITH LUMINAIRES, SPRINKLER, AND CEILING DIFFUSERS. CENTER ALL



1 SITE PLAN - ELECTRICAL
1" = 40'-0"

- SHEET NOTES:**
- COORDINATE ROUTING OF ALL NEW CONDUITS AND CONDUCTORS WITH CIVIL CONTRACTOR AND CIVIL DRAWINGS PRIOR TO ROUGH-IN.
- KEYNOTES:**
- E.C. TO PROVIDE AND INSTALL ALL CONDUIT AND WIRING FOR CONTROLS AND ALARMS FOR GRINDER PUMP. COORDINATE EXACT LOCATION AND ELECTRICAL REQUIREMENTS WITH CIVIL.
 - PROVIDE UNISTRUT SUPPORT FOR GRINDER PUMP DISCONNECT.
 - COORDINATE EXACT CONDUIT ROUTING WITH EXISTING UTILITIES AND CIVIL.
 - UTILITY POLE WITH EXISTING TRANSFORMER, METER SOCKET, AND DISCONNECT SWITCH. COORDINATE METER REQUIREMENTS WITH MIDAMERICAN ENERGY.
 - ELECTRICAL CONNECTION FOR ELECTRICAL PANEL LOCATED INSIDE CONSTRUCTION TRAILER. EACH PANEL CONNECTED LOAD IS APPROXIMATELY 84A. E.C. TO PROVIDE CONDUIT, WIRE, AND ADDITIONAL BREAKERS OR PANELBOARDS AS NEEDED. E.C. TO COORDINATE WITH UTILITY COMPANY FOR TRANSFORMER USAGE.
 - E.C. TO PROVIDE A TEMPORARY 30KVA 480V/208V STEP-DOWN TRANSFORMER AND TEMPORARY 208V/3PH 100A PANELBOARD. EXTEND 3/4"Ø & 1/2" IN 2 1/2" C. TO PRIMARY SIDE OF TEMPORARY TRANSFORMER FROM 70A/3P CIRCUIT BREAKER LOCATED IN SECOND LEVEL ELECTRICAL ROOM IN ADMINISTRATION BUILDING.

IMEG
2882 100TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908
www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00

Farnsworth GROUP
14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com
www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:		
#	DATE:	DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT OF CORRECTIONS

CLARINDA CORRECTIONAL FACILITY - KITCHEN & LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA 51632

DATE:	02/09/2024
DESIGNED:	KRISPI
DRAWN:	ADDULR
REVIEWED:	ISASTO

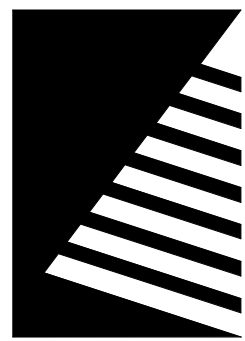
SITE PLAN - ELECTRICAL

E0.2

PROJECT NO.: 0240202.00
RFB922300-02

KEYNOTES: (#)

1. DISCONNECT AND REMOVE EXISTING
FIXTURES AS NECESSARY, STORE FOR
REINSTALLATION.



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:

DATE: DESCRIPTION:

BID SET

PROJECT:

STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

SHEET TITLE:

DEMOLITION PLAN -
ELECTRICAL

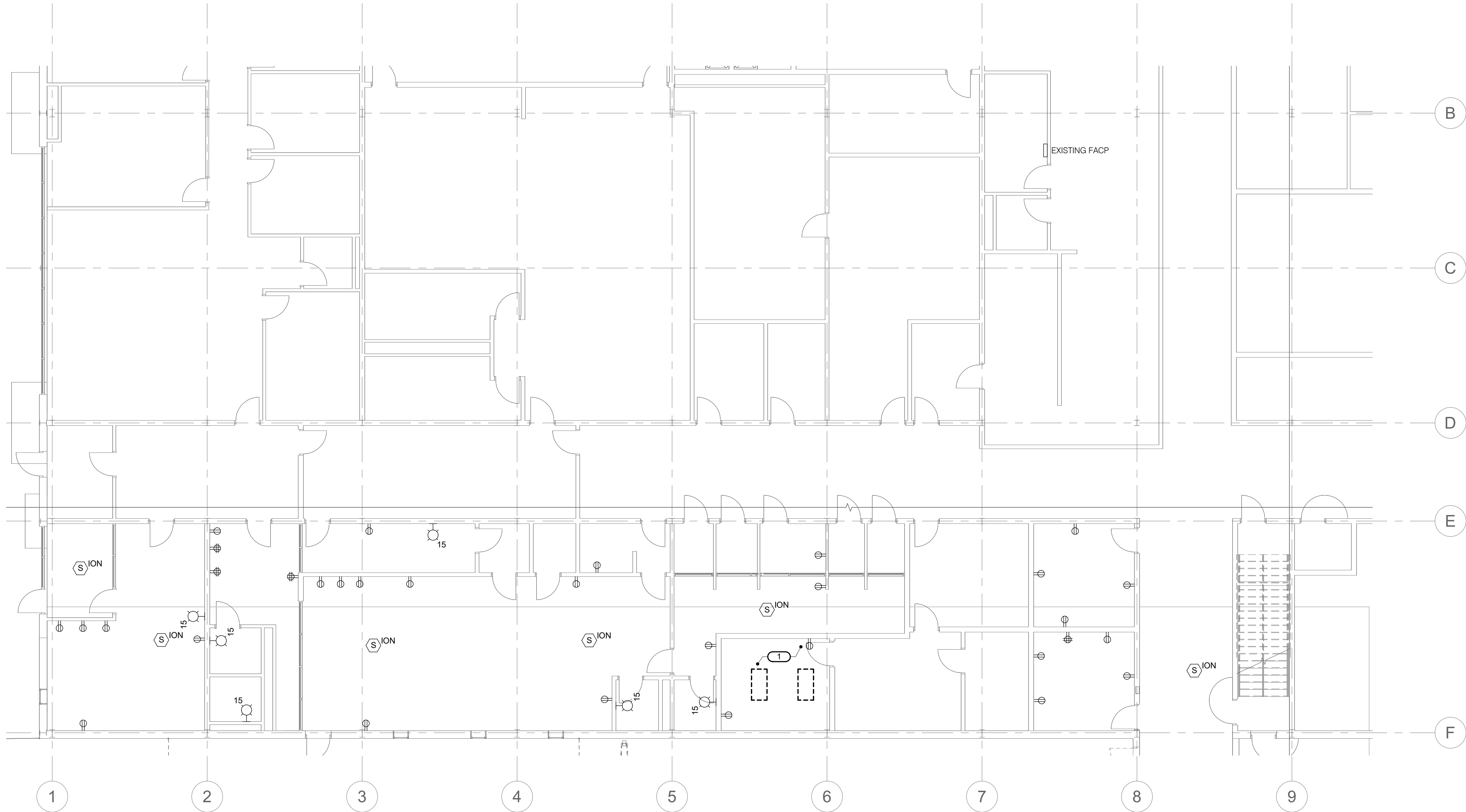
SHEET NUMBER:

ED1.1

PROJECT NO.:

0240202.00

RFB922300-02



1 LEVEL 01 DEMOLITION PLAN - ELECTRICAL

1/8" = 1'-0"



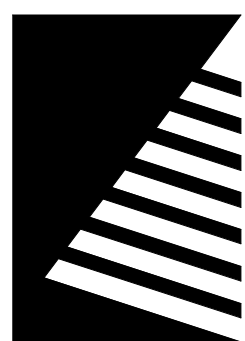
2882 10TH STREET
DES MOINES, IA 50322

P: 515.334.9900 F: 515.334.9908

www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS,
TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING
AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND
SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT
WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF
IMEG CORP. ©2024 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

SHEET TITLE:

LEVEL 01 PLAN -
AREA A - LIGHTING

SHEET NUMBER:

E1.1

PROJECT NO.: 0240202.00
RFB922300-02

KEYNOTES: #

1. EXTEND #10 THWN CONDUCTORS TO EXISTING LIGHTING CIRCUIT E20. CONNECT TO EXISTING LIGHTING CONTROL.S. EXISTING CIRCUIT INFORMATION BASED ON EXISTING DRAWINGS. FIELD VERIFY EXISTING CIRCUITING PRIOR TO INSTALLATION.
2. EXTEND #10 THWN CONDUCTORS TO EXISTING LIGHTING CIRCUIT E22. CONNECT TO EXISTING LIGHTING CONTROL.S. EXISTING CIRCUIT INFORMATION BASED ON EXISTING DRAWINGS. FIELD VERIFY EXISTING CIRCUITING PRIOR TO INSTALLATION.
3. LIGHTING CONTROLS FOR THIS AREA ARE SHOWN IN SUPERVISOR OFFICE ROOM IN AREA B.
4. REINSTALL EXISTING FIXTURES BACK INTO LOCATION.



1 LEVEL 01 PLAN - AREA A - LIGHTING

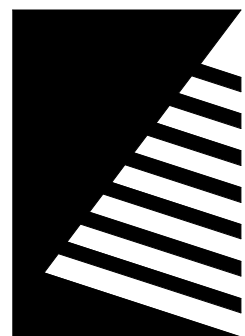
1/8" = 1'-0"

IMEG

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908

www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024
DESIGNED: KRISPI
DRAWN: ADDULR
REVIEWED: ISASTO

SHEET TITLE:
LEVEL 02 PLAN -
AREA B - LIGHTING

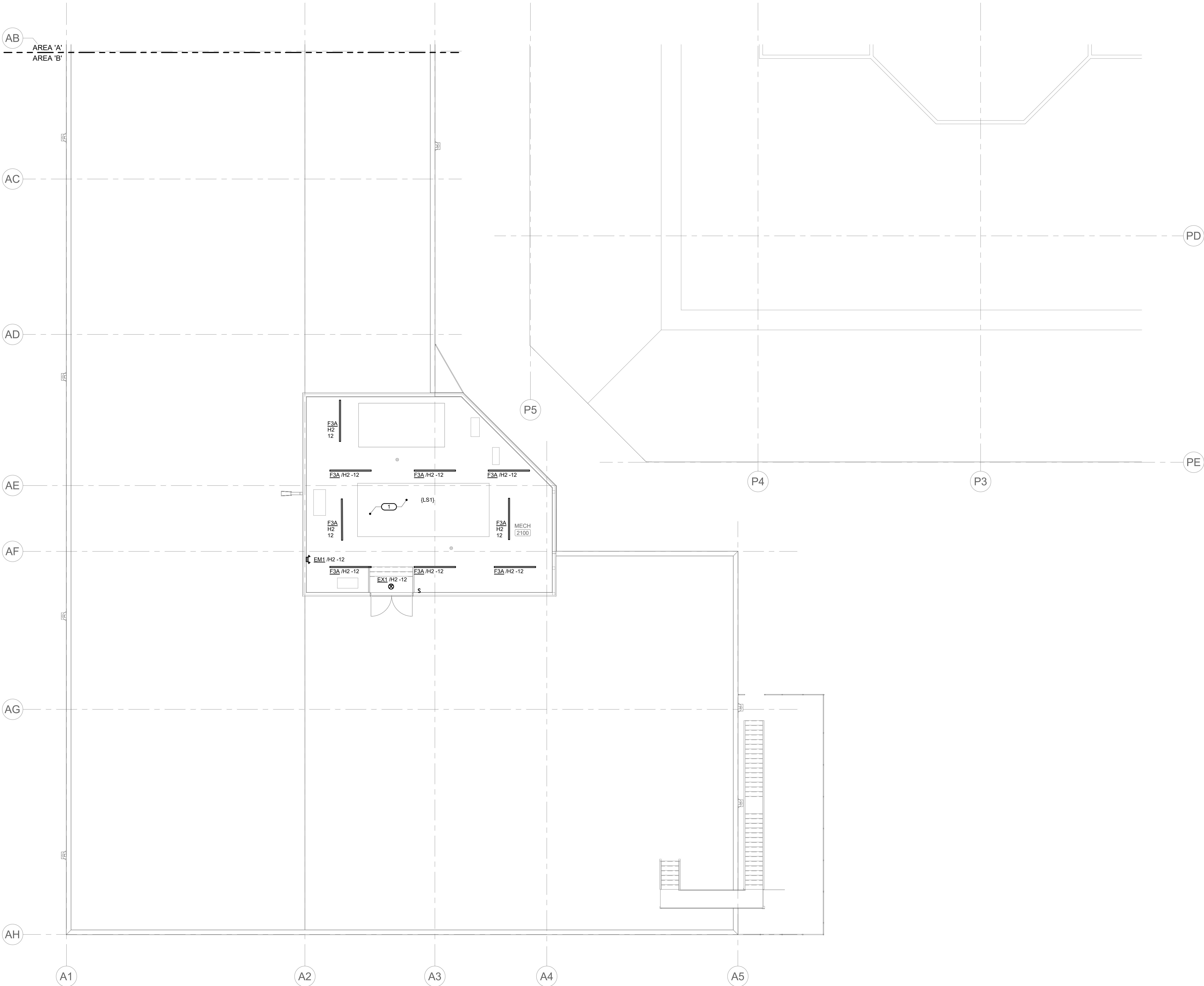
SHEET NUMBER:

E1.3

PROJECT NO.: 0240202.00
RFB922300-02

KEYNOTES: (P)

1. FIELD VERIFY LIGHTING LOCATIONS WITH
SUPPLIED EQUIPMENT.



1

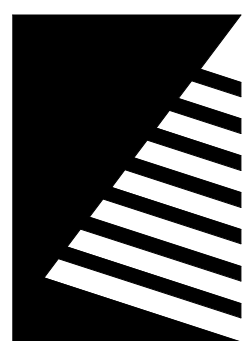
LEVEL 02 PLAN - AREA B - LIGHTING

1/8" = 1'-0"

IMEG

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS,
TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING
AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND
SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT
WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF
IMEG CORP. ©2024 IMEG CORP.

REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

SHEET TITLE:

LEVEL 01 PLAN -
AREA A - POWER

SHEET NUMBER:

E1.4

PROJECT NO.: 0240202.00
RFB922300-02

KEYNOTES: 2

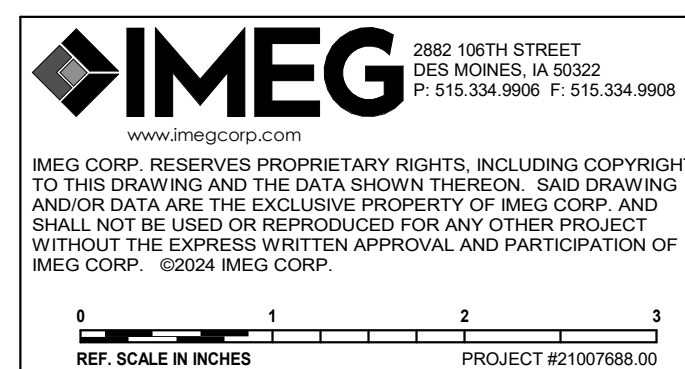
1. DISCONNECT, CONTROLLER/STARTER PROVIDED BY EQUIPMENT MANUFACTURER, INSTALLED BY E.C.
2. PROVIDE 60-CIRCUIT, SINGLE-TUB PANELBOARD.



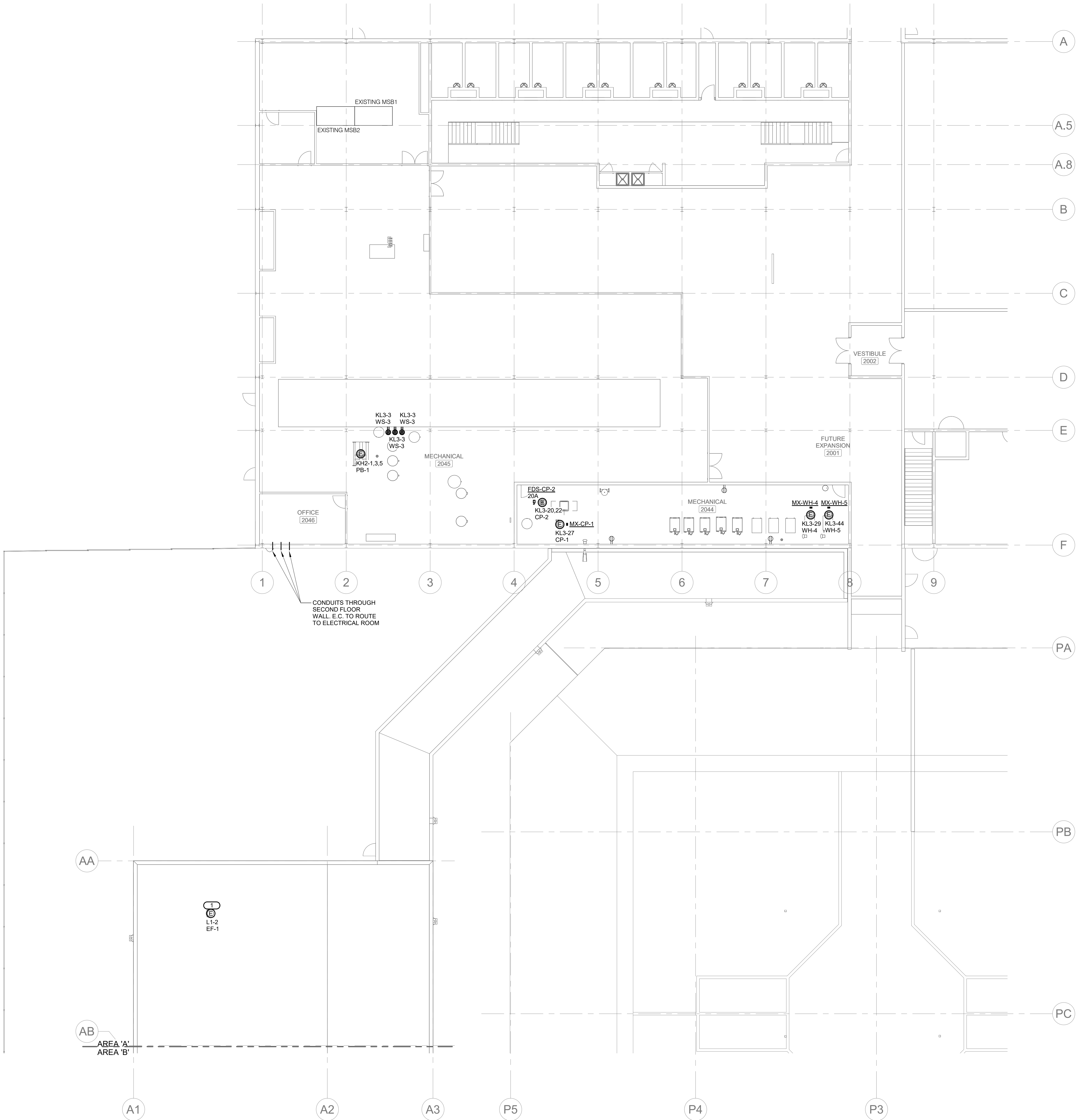
1

LEVEL 01 PLAN - AREA A - POWER

1/8" = 1'-0"



2/8/2024 10:23:48 AM



1

LEVEL 02 PLAN - AREA A - POWER

3/32" = 1'-0"

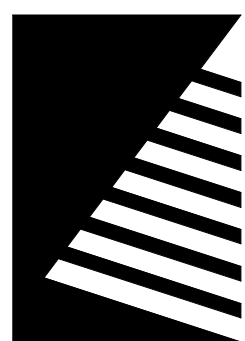
KEYNOTES: 2

1. DISCONNECT, CONTROLLER/STARTER PROVIDED BY EQUIPMENT MANUFACTURER, INSTALLED BY E.C.



2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

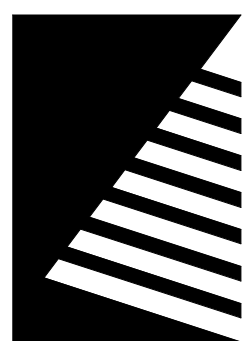
SHEET TITLE:

LEVEL 02 PLAN -
AREA A - POWER

SHEET NUMBER:

E1.5

PROJECT NO.: 0240202.00
RFB922300-02



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WAUKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpf

IMEG

Bishop Engineering

ISSUE
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

SHEET TITLE:

**LEVEL 01 PLAN -
AREA B - POWER**

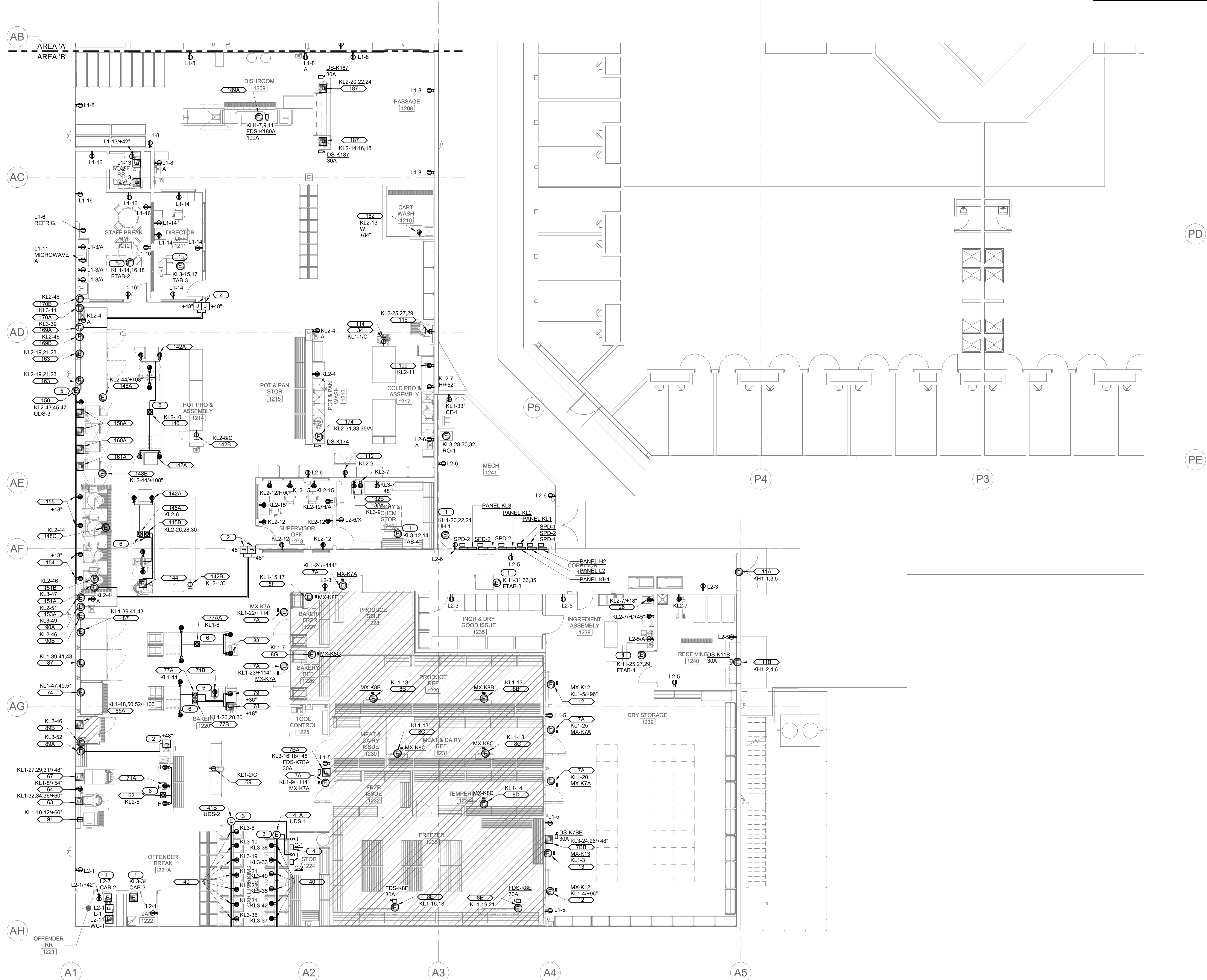
SHEET NUMBER:

E1.6

PROJECT NO.: 0240202.00

RFB922300-02

- KEYNOTES:**
1. DISCONNECT, CONTROLLER/STARTER PROVIDED BY EQUIPMENT MANUFACTURER, INSTALLED BY E.C.
 2. EMPTY J-BOX AT 48" A.F.F. FOR REMOTE MANUAL PULL STATION.
 3. PROVIDE EACH BRANCH CIRCUIT WIRING AS SHOWN TO THE UPS TERMINAL BLOCKS AND GROUND TERMINAL LUG.
 4. REFER TO DETAIL SEE 1 AND 6/E4.1 FOR CONTACTOR DETAIL.
 5. E.C. TO MAKE FINAL CONNECTIONS FROM UPS TO EQUIPMENT AS REQUIRED. REFER TO FSE103, FSE104, AND FSE105 FOR MORE INFORMATION.
 6. CONDUIT STUBBED UP THROUGH CURB.

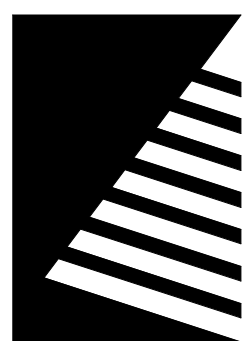


1 LEVEL 01 PLAN - AREA B - POWER
1/8" = 1'-0"



IMEG CORP. 2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

SHEET TITLE:

LEVEL 01 PLAN -
AREA A - SYSTEMS

SHEET NUMBER:

E1.8

PROJECT NO.: 0240202.00

RFB922300-02

SHEET NOTES:
1. PROVIDE STAINLESS STEEL BASKETS FOR ALL
DEVICES LOCATED IN AREAS WHERE
OFFENDERS HAVE ACCESS TO DETER DEVICE
TAMPERING.



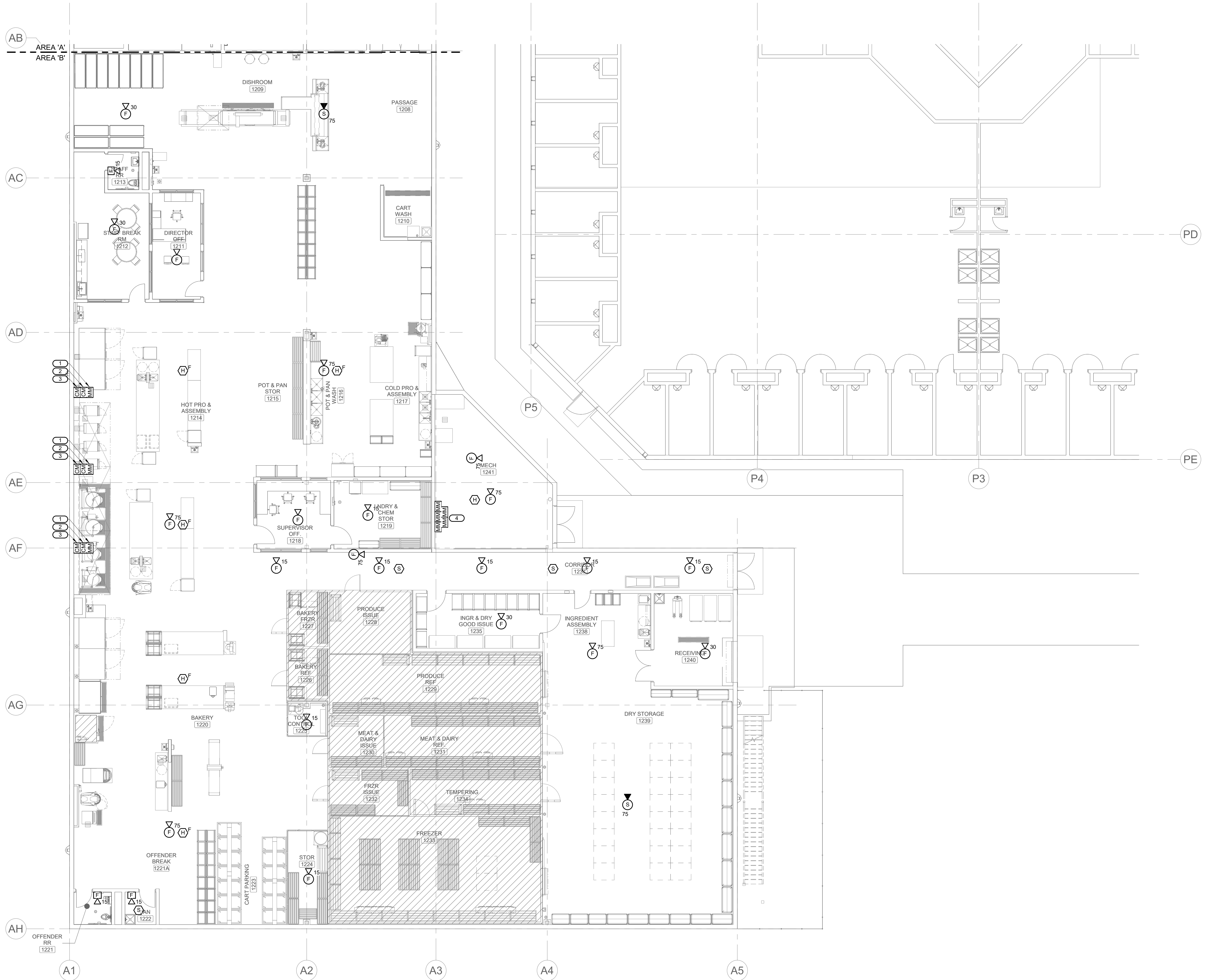
1

LEVEL 01 PLAN - AREA A - SYSTEMS

1/8" = 1'-0"

IMEG
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS,
TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING
AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND
SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT
WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF
IMEG CORP. ©2024 IMEG CORP.

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9006 F: 515.334.9008
PROJECT #21007888.00



- SHEET NOTES:**
1. PROVIDE STAINLESS STEEL BASKETS FOR ALL DEVICES LOCATED IN AREAS WHERE OFFENDERS HAVE ACCESS TO DETER DEVICE TAMPERING.
- KEYNOTES: (#)**
1. MONITOR MODULE FOR HOOD SUPPRESSION SYSTEM.
 2. CONTROL MODULE FOR KITCHEN EQUIPMENT SHUNT TRIP.
 3. CONTROL MODULE FOR HVAC SHUTDOWN.
 4. MONITOR MODULES FOR FIXED TEMPERATURE HEAT DETECTORS.

1 LEVEL 01 PLAN - AREA B - SYSTEMS
1/8" = 1'-0"

IMEG
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00

Farnsworth GROUP
14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT OF CORRECTIONS

CLARINDA CORRECTIONAL FACILITY - KITCHEN & LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA 51632

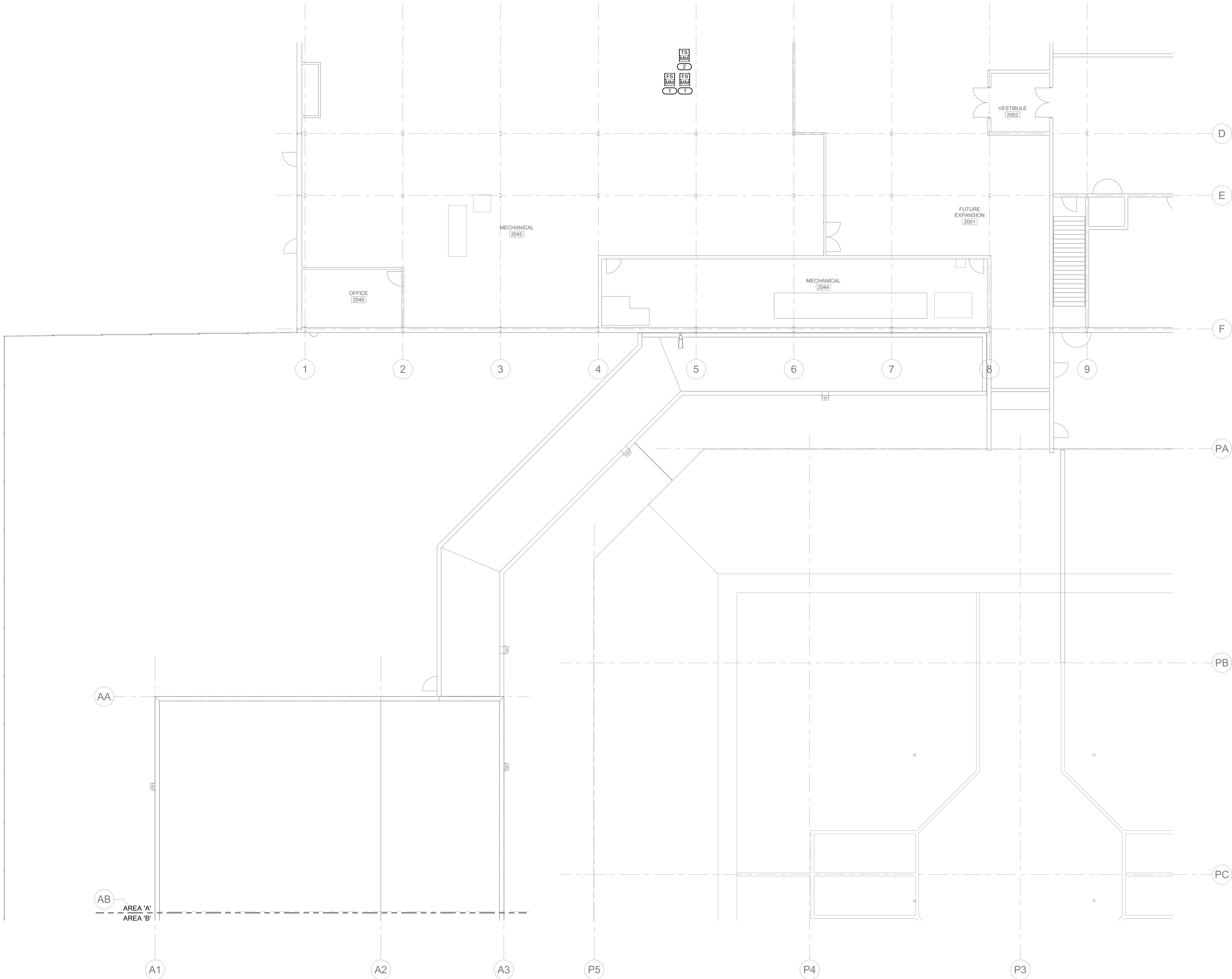
DATE: 02/09/2024
DESIGNED: KRISPI
DRAWN: ADDULR
REVIEWED: ISASTO

SHEET TITLE:
LEVEL 01 PLAN - AREA B - SYSTEMS

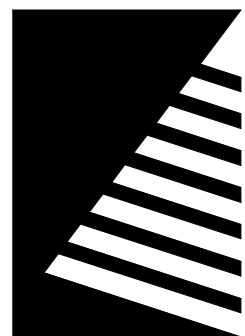
SHEET NUMBER:

E1.9

PROJECT NO.: 0240202.00
RFB922300-02



- KEYNOTES: **#**
1. MONITOR MODULE FOR SPRINKLER SYSTEM FLOW SWITCH
 2. MONITOR MODULE FOR SPRINKLER SYSTEM MONITOR TAMPER SWITCH



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

SHEET TITLE:
**LEVEL 02 PLAN -
AREA A - SYSTEMS**

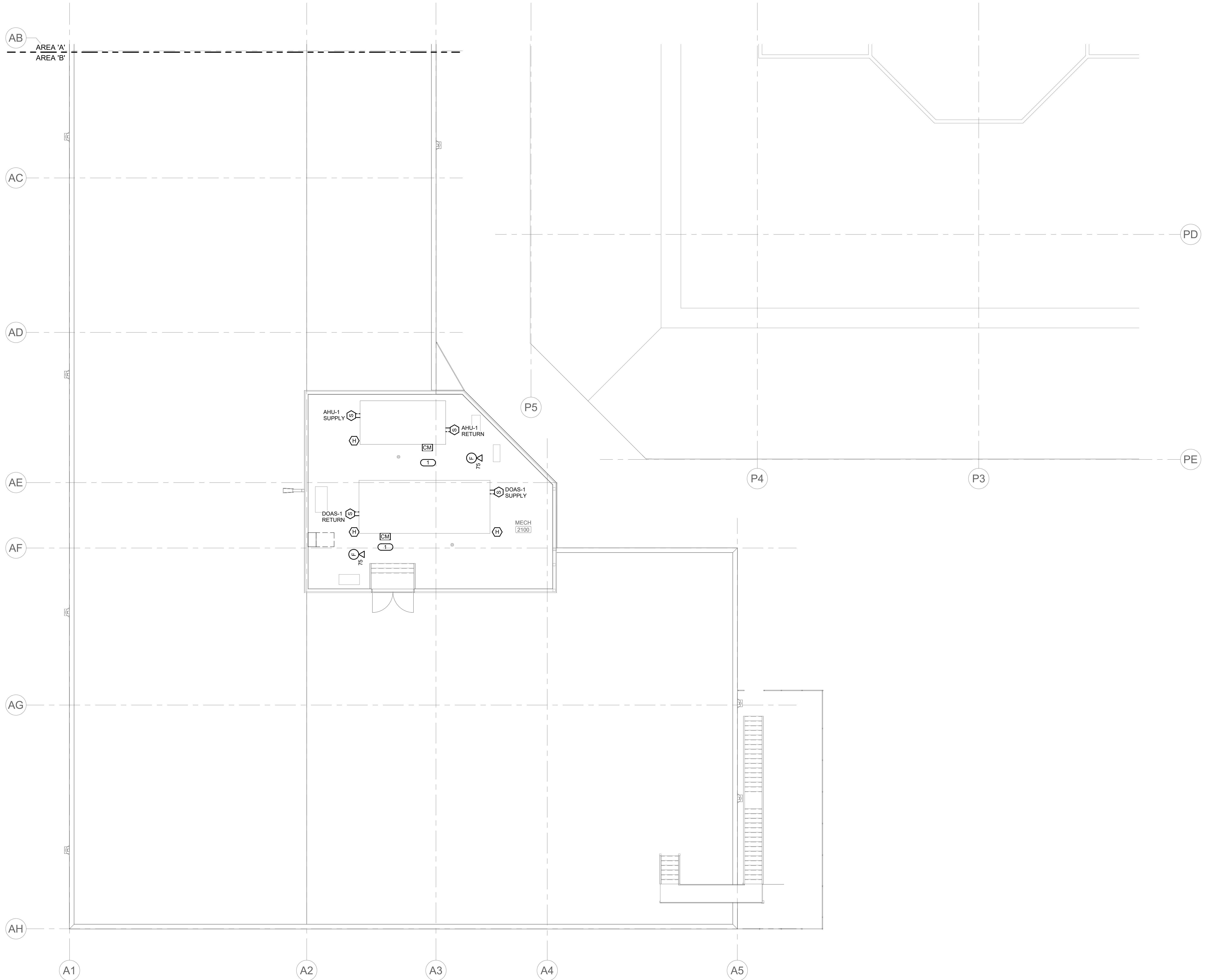
SHEET NUMBER:

E1.10

PROJECT NO.: 0240202.00
RFB922300-02

1 LEVEL 02 PLAN - AREA A - SYSTEMS
1/8" = 1'-0"

IMEG
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.
2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908
REF. SCALE IN INCHES PROJECT #21007888.00



- SHEET NOTES:**
1. PROVIDE STAINLESS STEEL BASKETS FOR ALL DEVICES LOCATED IN AREAS WHERE OFFENDERS HAVE ACCESS TO DETER DEVICE TAMPERING.
- KEYNOTES:** (#)
1. CONTROL MODULE FOR UNIT SHUTDOWN.

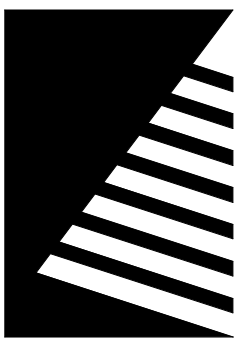


1 **LEVEL 02 PLAN - AREA B - SYSTEMS**
1/8" = 1'-0"

IMEG
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908

REF. SCALE IN INCHES 0 1 2 3
PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024
DESIGNED: KRISPI
DRAWN: ADDULR
REVIEWED: ISASTO

SHEET TITLE:
**LEVEL 02 PLAN -
AREA B - SYSTEMS**

SHEET NUMBER:

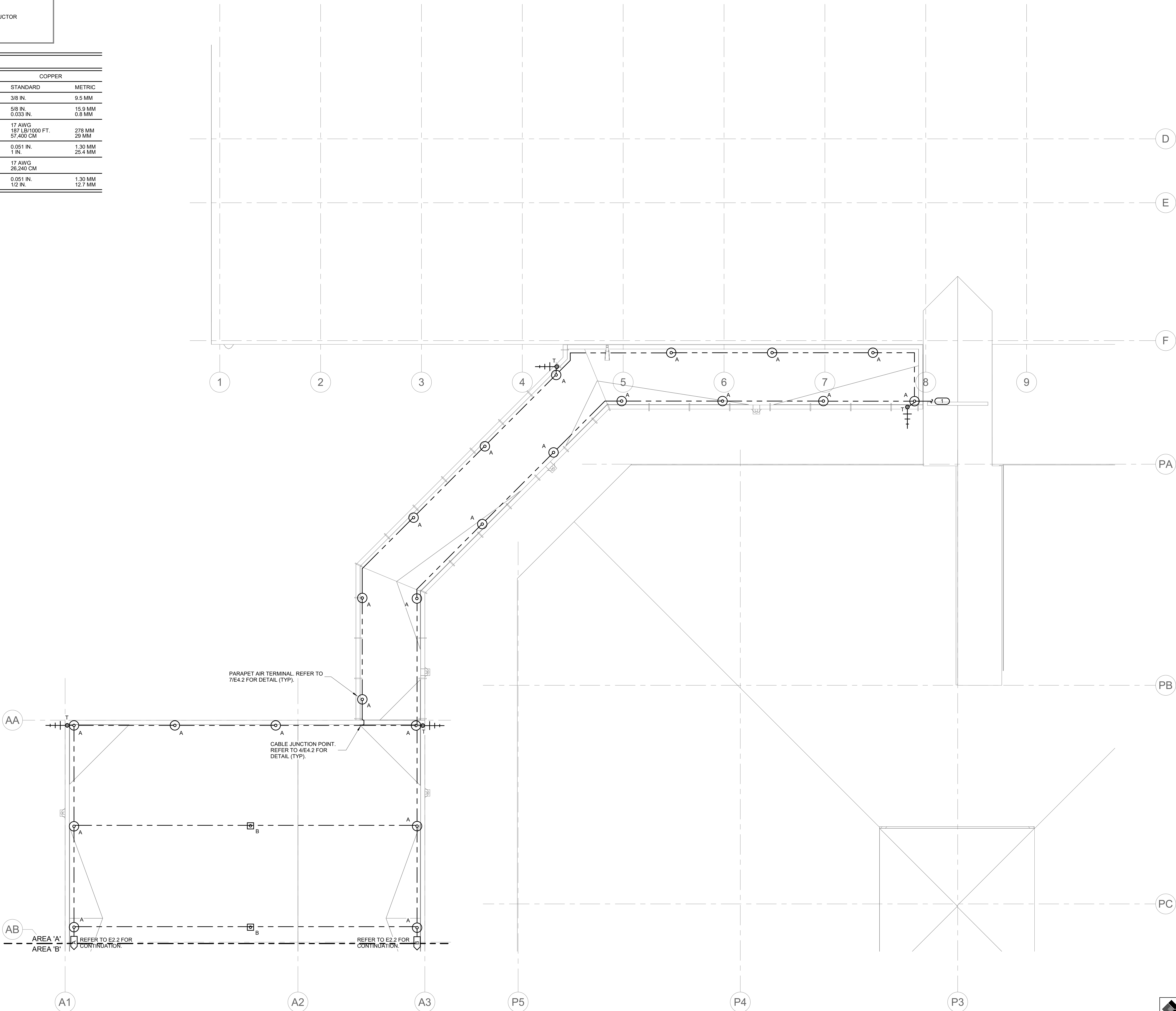
E1.11

PROJECT NO.: 0240202.00
RFB922300-02

LIGHTNING PROTECTION SYMBOL KEY	
SYMBOL:	DESCRIPTION:
	AIR TERMINAL, PARAPET MOUNTED SUBSCRIPT 'A'=18" ABOVE SURFACE, 'A1'=12" ABOVE SURFACE
	AIR TERMINAL, FLAT ROOF
	AIR TERMINAL, EQUIPMENT MOUNTED
	LIGHTNING PROTECTION THROUGH PENETRATION
	EXPOSED DOWN CONDUCTOR
	EXPOSED GROUND ROD AND DOWN CONDUCTOR
	LIGHTNING PROTECTION CONDUCTOR

CLASS 1 MATERIAL REQUIREMENTS			
TYPE OF CONDUCTOR		COPPER	
		STANDARD	METRIC
AIR TERMINAL, SOLID	MIN. DIAMETER	3/8 IN.	9.5 MM
AIR TERMINAL, TUBULAR	MIN. DIAMETER MIN. WALL THICKNESS	5/8 IN. 0.033 IN.	15.9 MM 0.8 MM
MAIN CONDUCTOR, CABLE	MIN. SIZE EA. STRAND WGT. PER LENGTH CROSS SECT. AREA	17 AWG 187 LB/1000 FT. 57,400 CM	278 MM 29 MM
MAIN CONDUCTOR, SOLID STRIP	THICKNESS WIDTH	0.051 IN. 1 IN.	1.30 MM 25.4 MM
BONDING CONDUCTOR, CABLE (SOLID OR STRANDED)	MIN. SIZE EA. STRAND CROSS SECT. AREA	17 AWG 26,240 CM	
BONDING CONDUCTOR, SOLID STRIP	THICKNESS WIDTH	0.051 IN. 1/2 IN.	1.30 MM 12.7 MM

SHEET NOTES:	
1.	REFER TO E4.2 FOR LIGHTNING PROTECTION DETAILS.
KEYNOTES: (#)	
1.	EXTEND AND CONNECT TO EXISTING LIGHTNING PROTECTION SYSTEM.



1 ROOF PLAN - AREA A - POWER
1/8" = 1'-0"

www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00

Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

Bishop Engineering

ISSUE:	DATE:	DESCRIPTION:
#		

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE:	02/09/2024
DESIGNED:	KRISPI
DRAWN:	ADDULR
REVIEWED:	ISASTO

SHEET TITLE:
**ROOF PLAN - AREA A
- POWER**

SHEET NUMBER:

E2.1

PROJECT NO.: 0240202.00
RFB922300-02

SHEET NOTES:
1. REFER TO E2.1 FOR LIGHTNING PROTECTION
SYMBOL KEY AND MATERIAL LIST
2. REFER TO E4.2 FOR LIGHTNING PROTECTION
DETAILS

Farnsworth
GROUP
14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

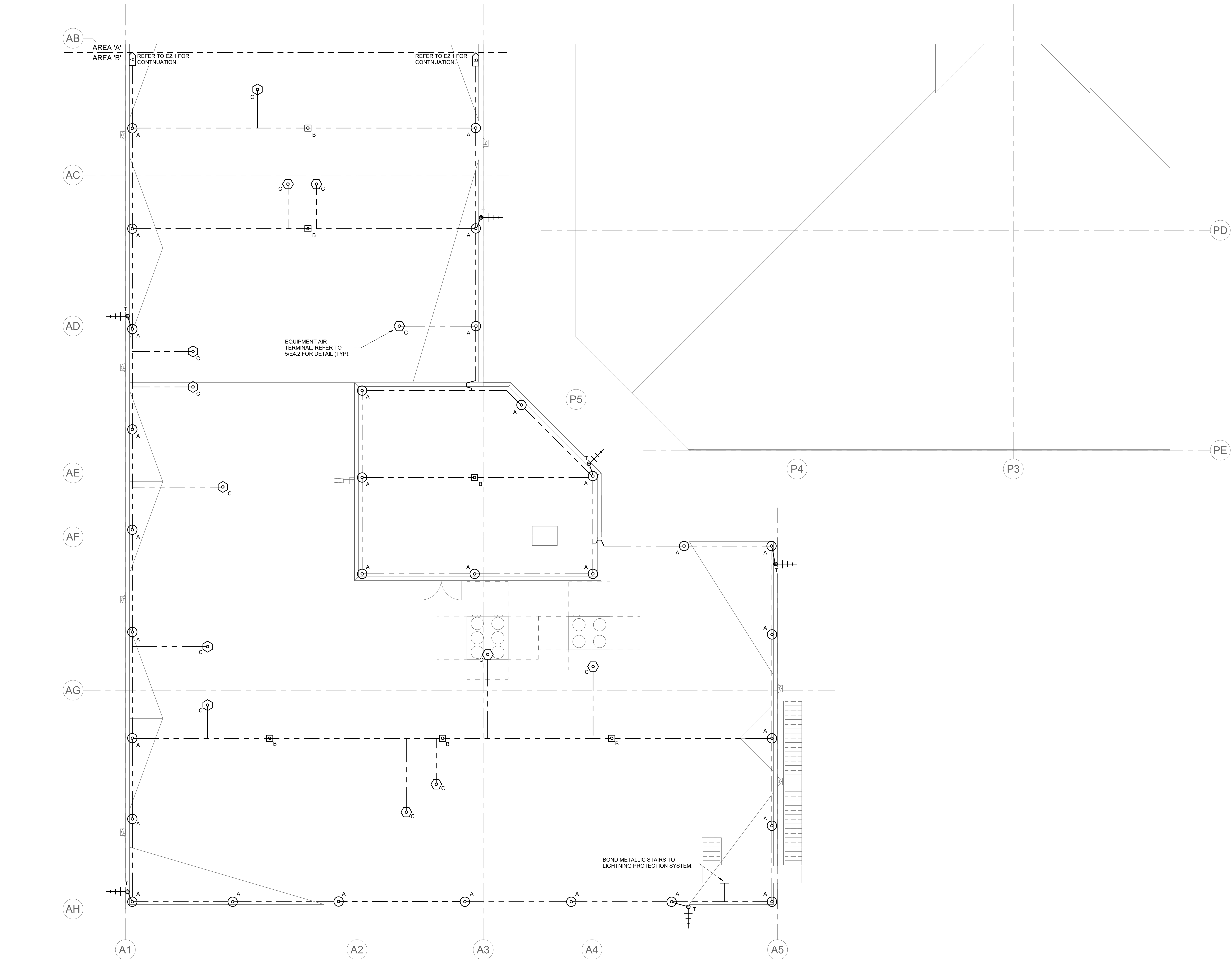
DATE: 02/09/2024
DESIGNED: KRISPI
DRAWN: ADDULR
REVIEWED: ISASTO

SHEET TITLE:
**ROOF PLAN - AREA B
- POWER**

SHEET NUMBER:

E2.2

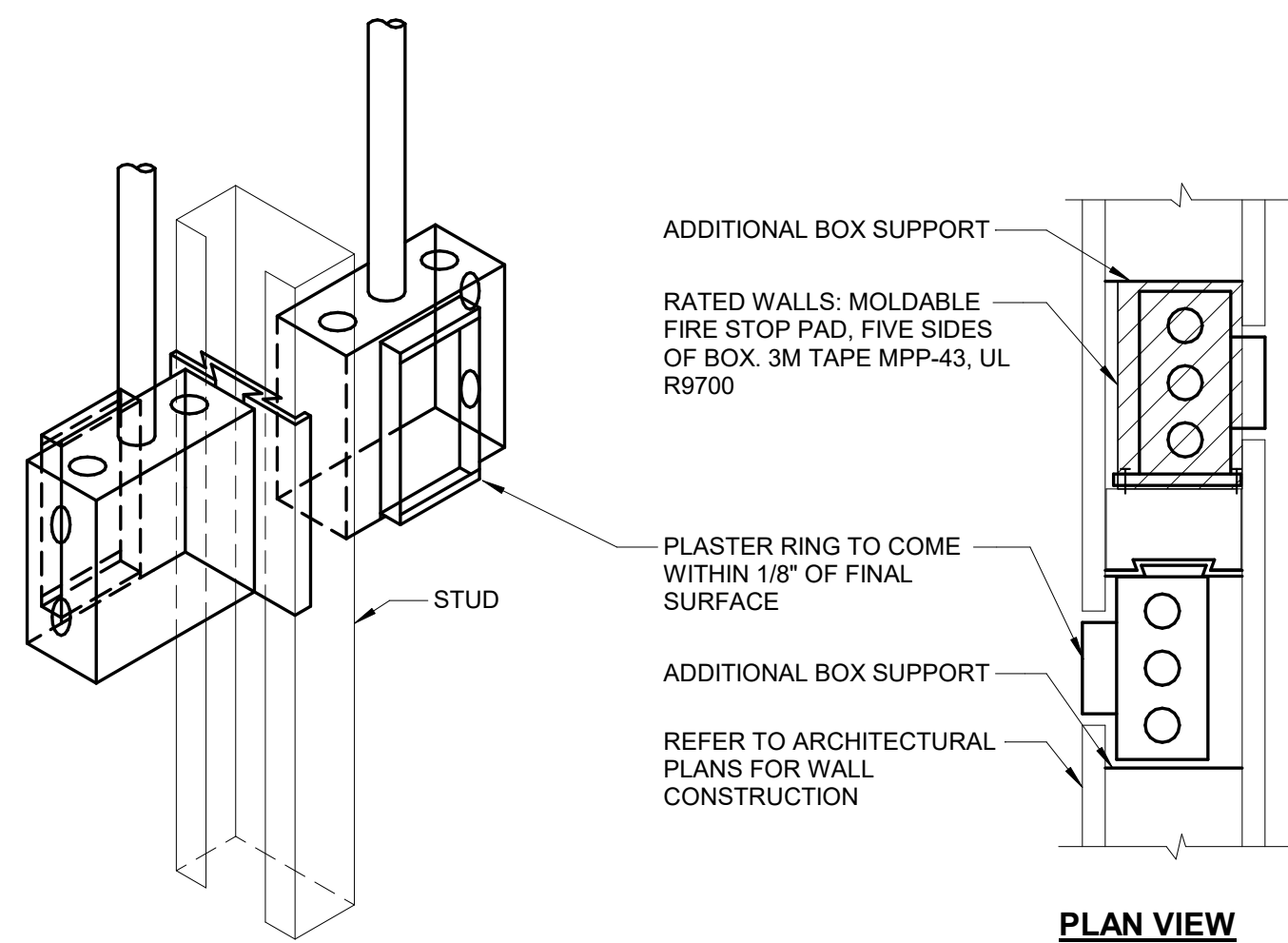
PROJECT NO.: 0240202.00
RFB922300-02



1 ROOF PLAN - AREA B - POWER
1/8" = 1'-0"

IMEG
2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS,
TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING
AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND
SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT
WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF
IMEG CORP. ©2024 IMEG CORP.

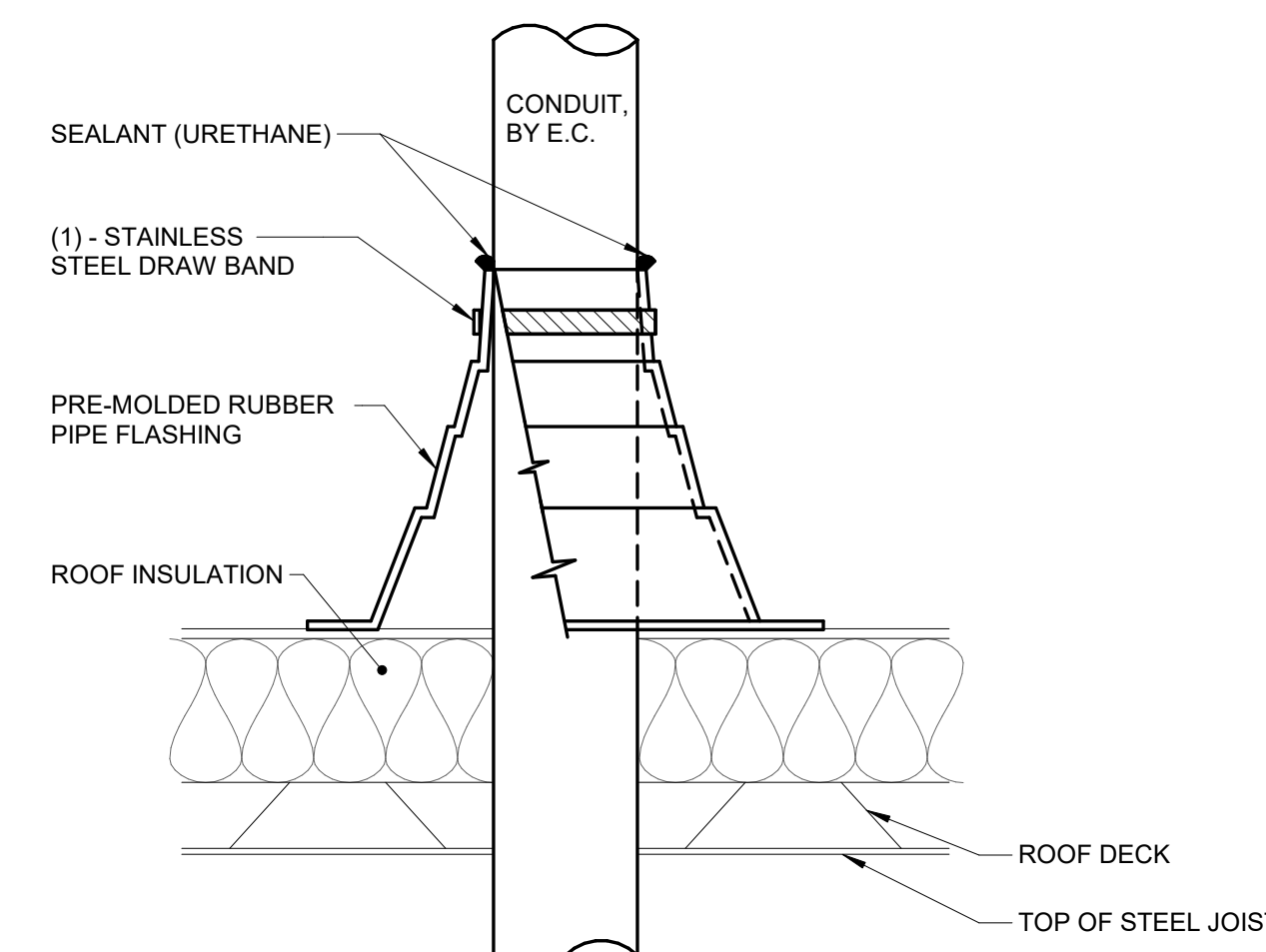
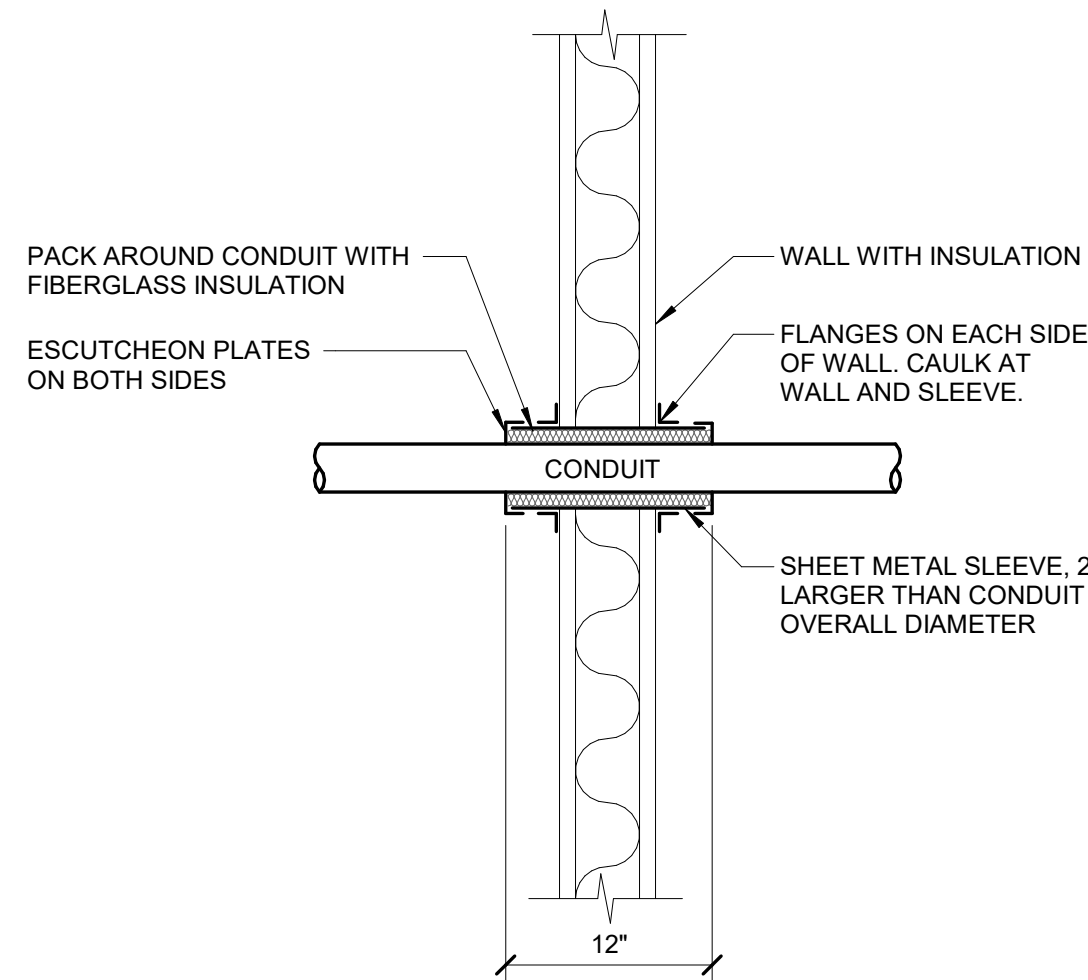
2/9/2024 9:33:14 AM



NOTES:

1. HORIZONTAL CONDUIT CONNECTION BETWEEN BOXES LESS THAN 2'-0\"/>

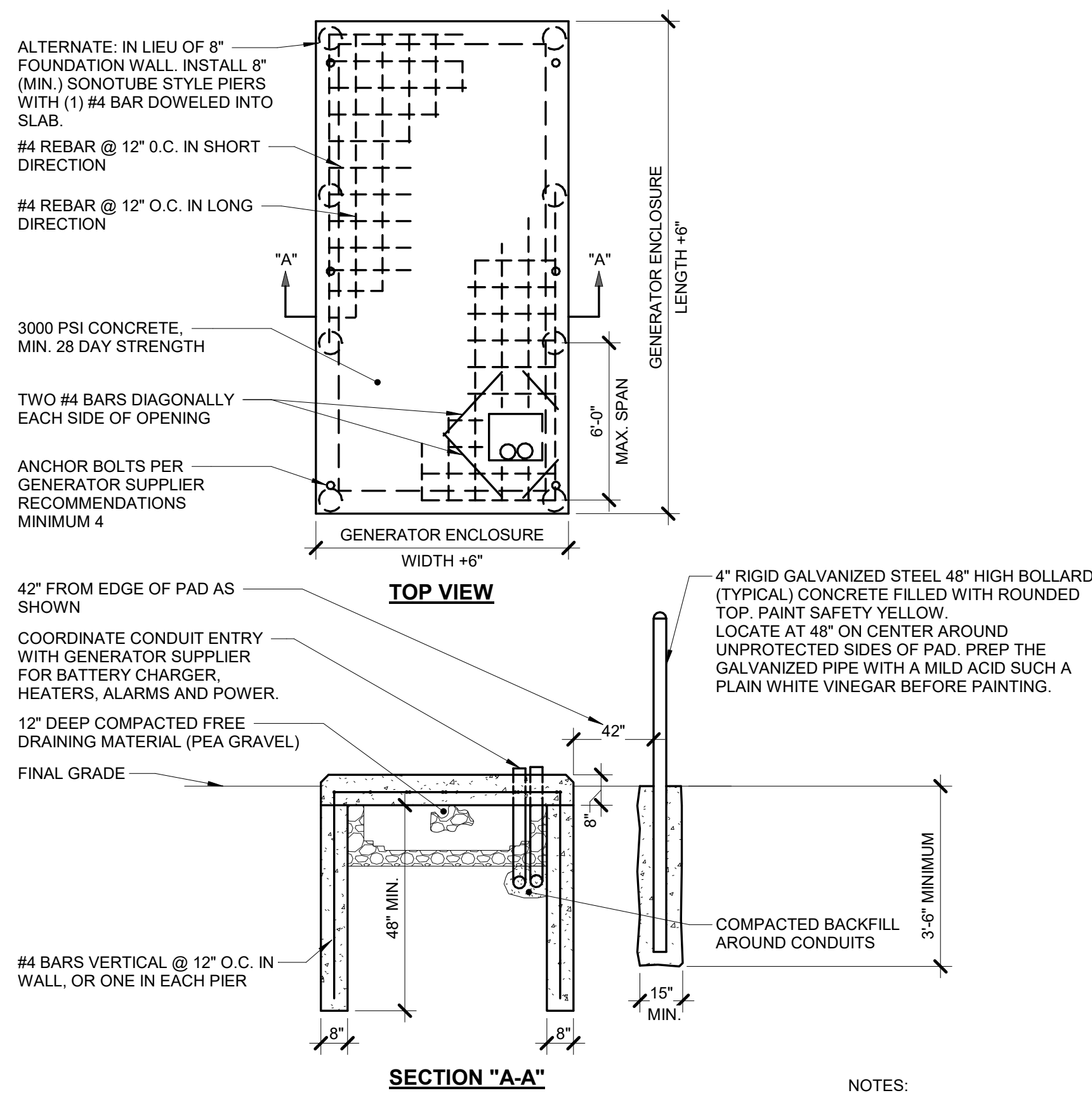
1 SIDE BY SIDE DEVICE OPENINGS
NO SCALE



NOTES:

1. CONDUIT SHALL BE SUPPORTED WITHIN 24 INCHES ABOVE AND BELOW ROOF.
2. VERIFY FINAL REQUIREMENTS WITH GENERAL CONTRACTOR (G.C.) AND ROOFING INSTALLER PRIOR TO INSTALLATION.

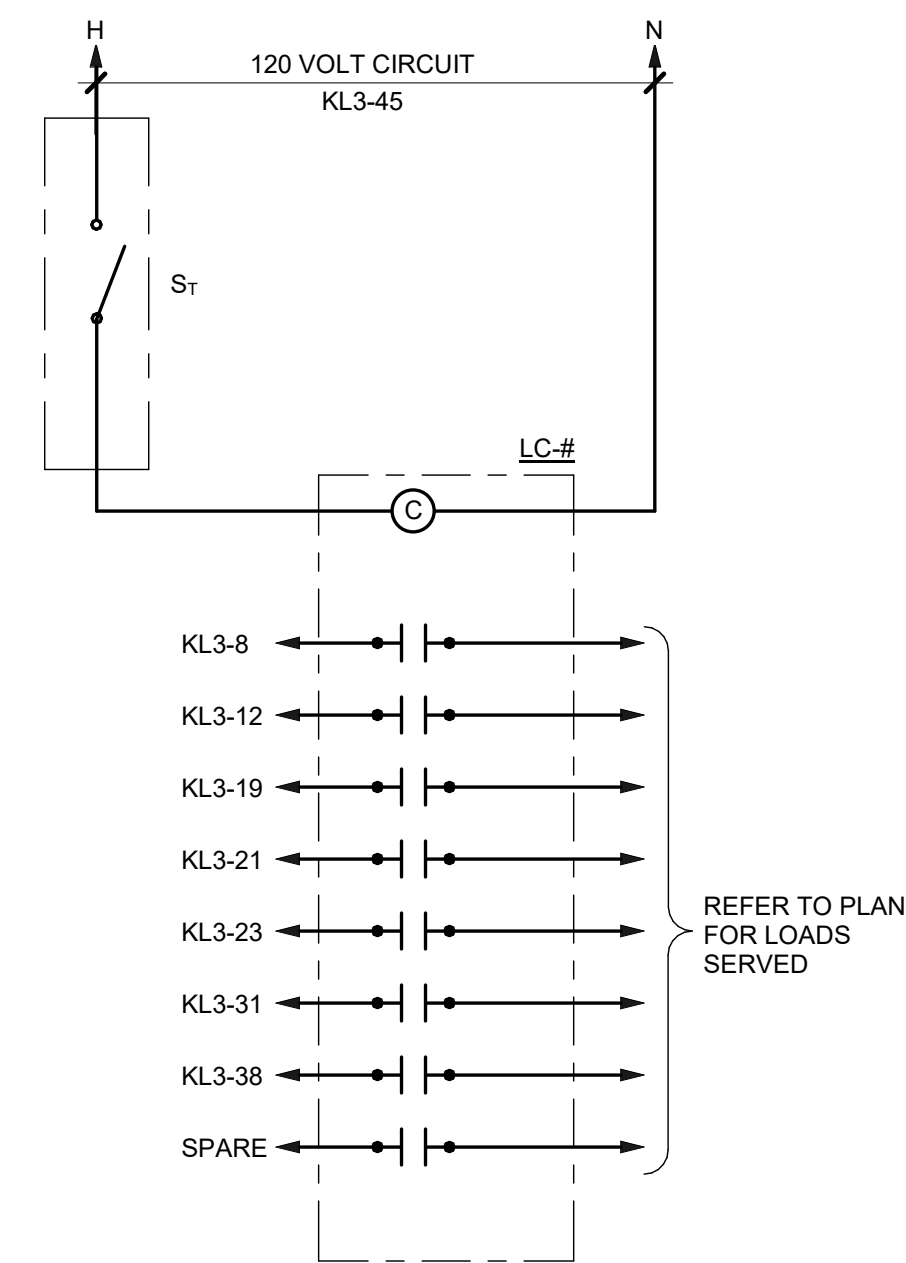
3 CONDUIT ROOF PENETRATION
NO SCALE



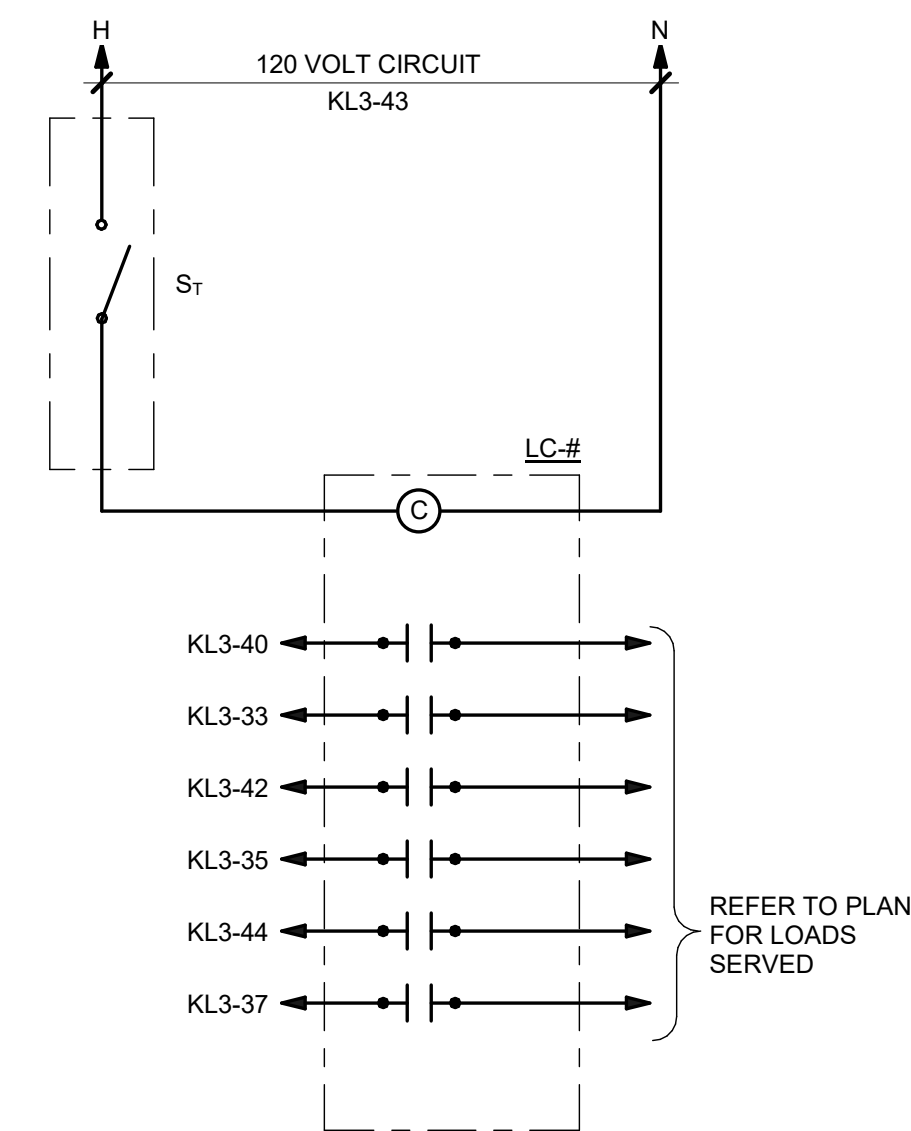
NOTES:

1. COORDINATE PAD DIMENSIONS WITH GENERATOR SUPPLIER PRIOR TO START OF CONSTRUCTION.

4 GENERATOR PAD DETAIL
NO SCALE



5 CONTACTOR DETAIL C-1
NO SCALE

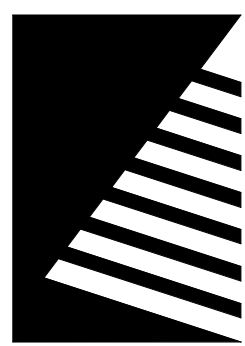


6 CONTACTOR DETAIL C-2
NO SCALE

IMEG
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2004 IMEG CORP.

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE
DATE DESCRIPTION

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT OF CORRECTIONS

CLARINDA CORRECTIONAL FACILITY - KITCHEN & LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA 51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

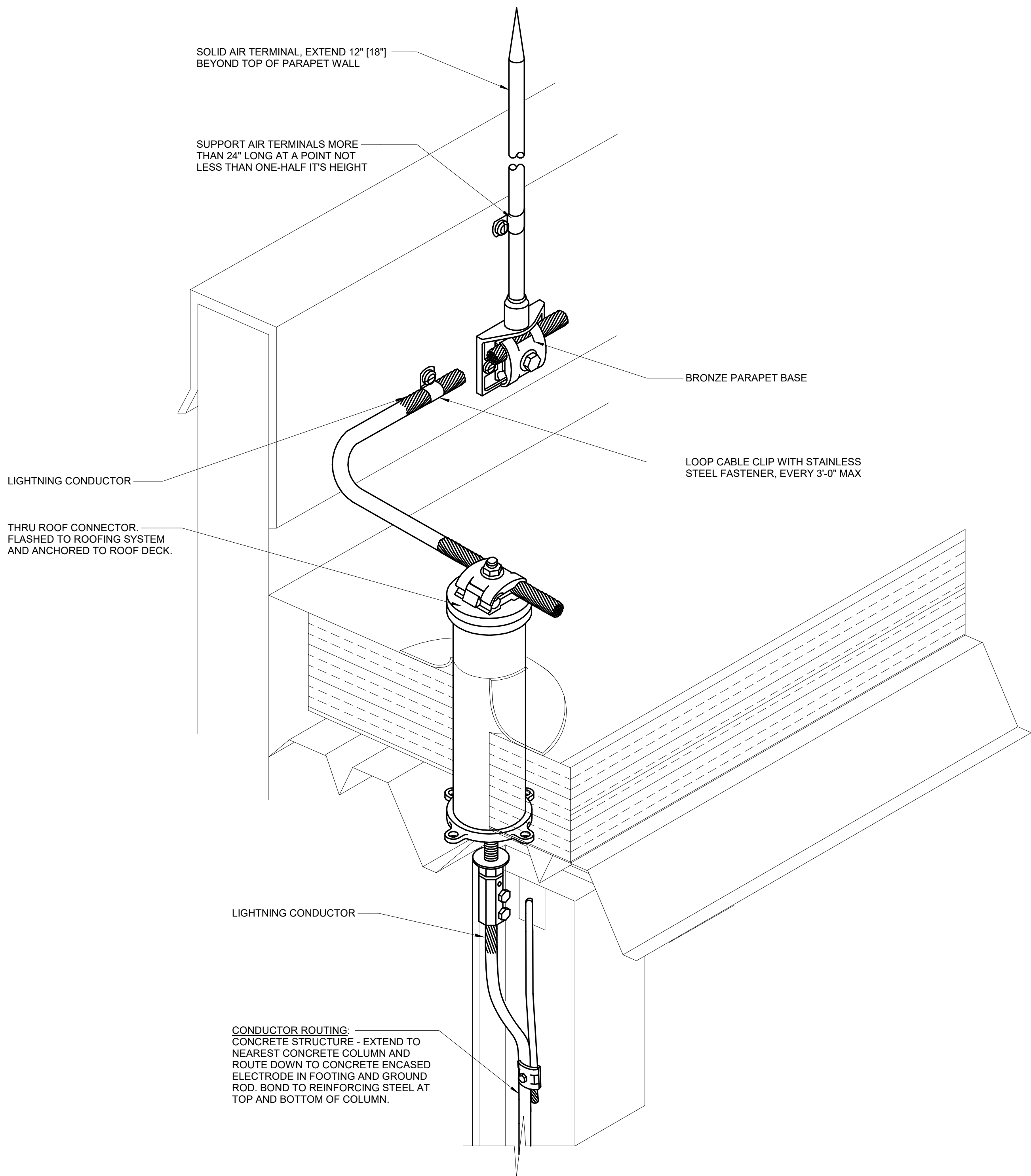
SHEET TITLE:

ELECTRICAL DETAILS

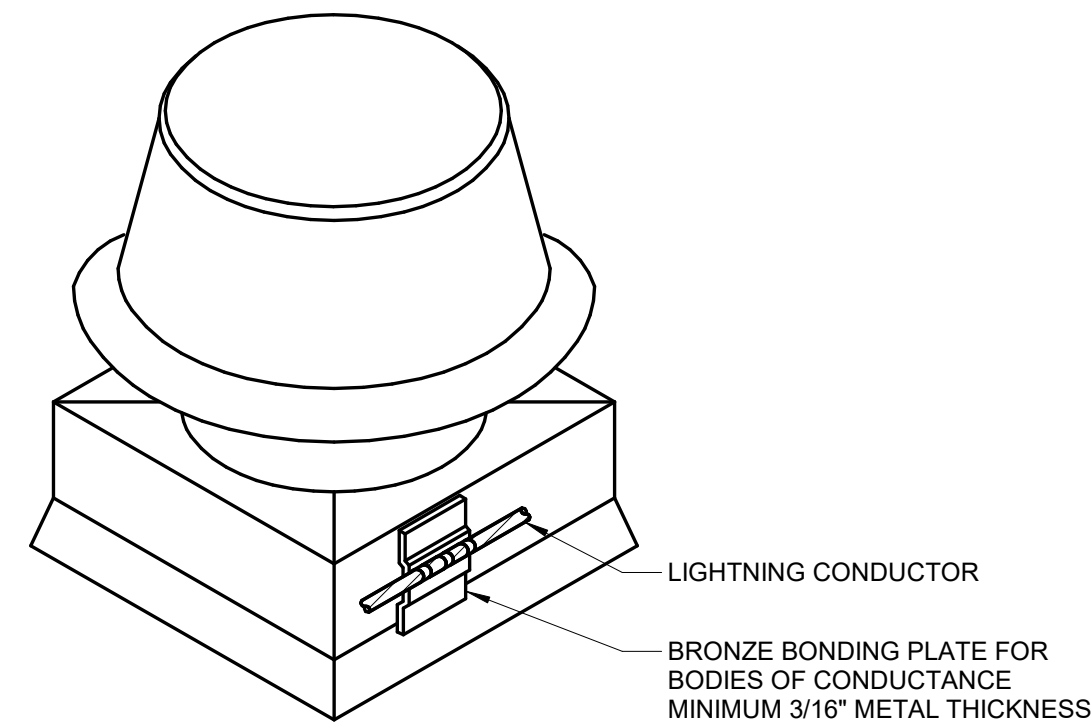
SHEET NUMBER:

E4.1

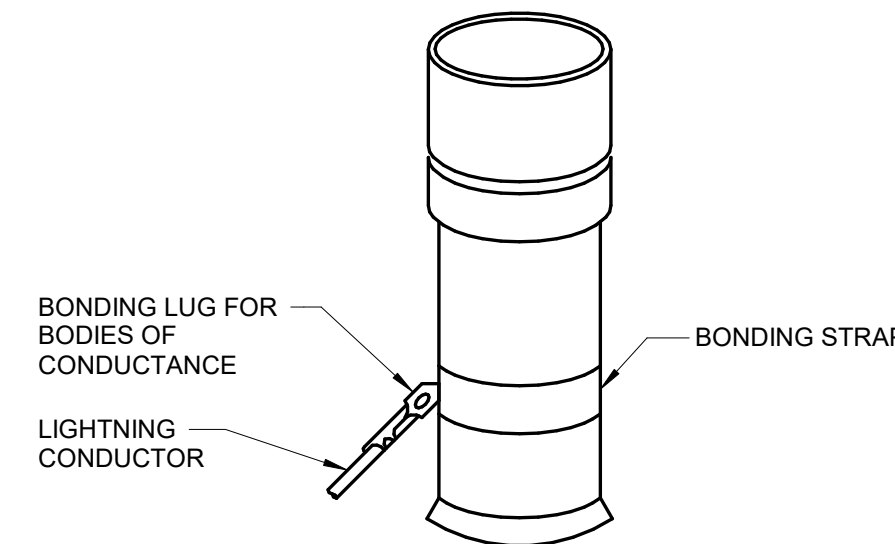
PROJECT NO.: 0240202.00
RFB922300-02



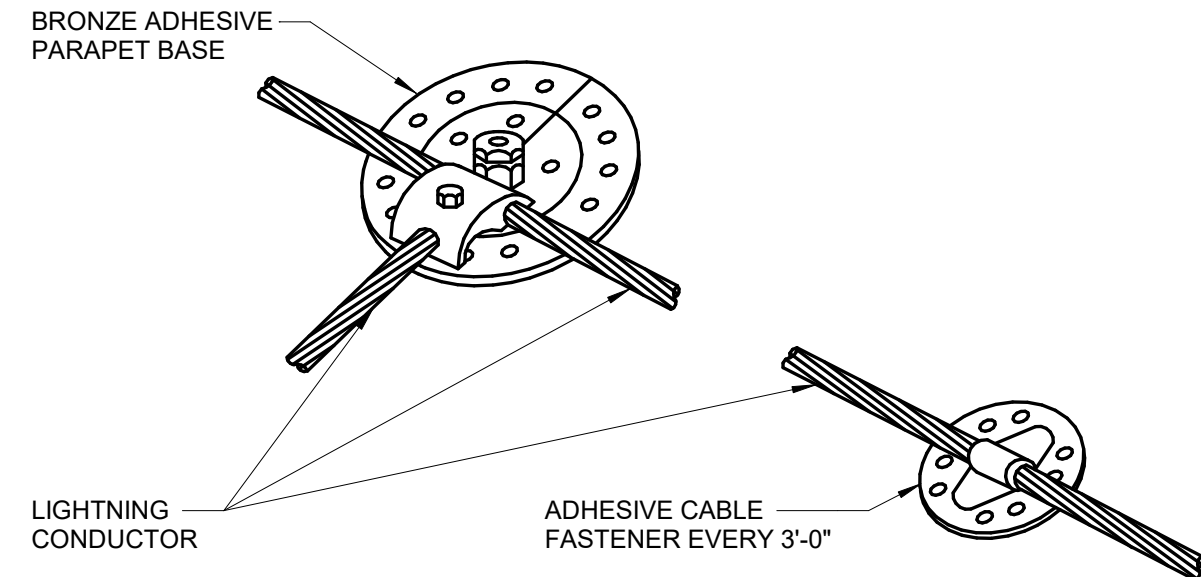
1 COLUMN CONNECTOR GROUND DETAIL
NO SCALE



2 BONDING FOR METAL BODIES
NO SCALE

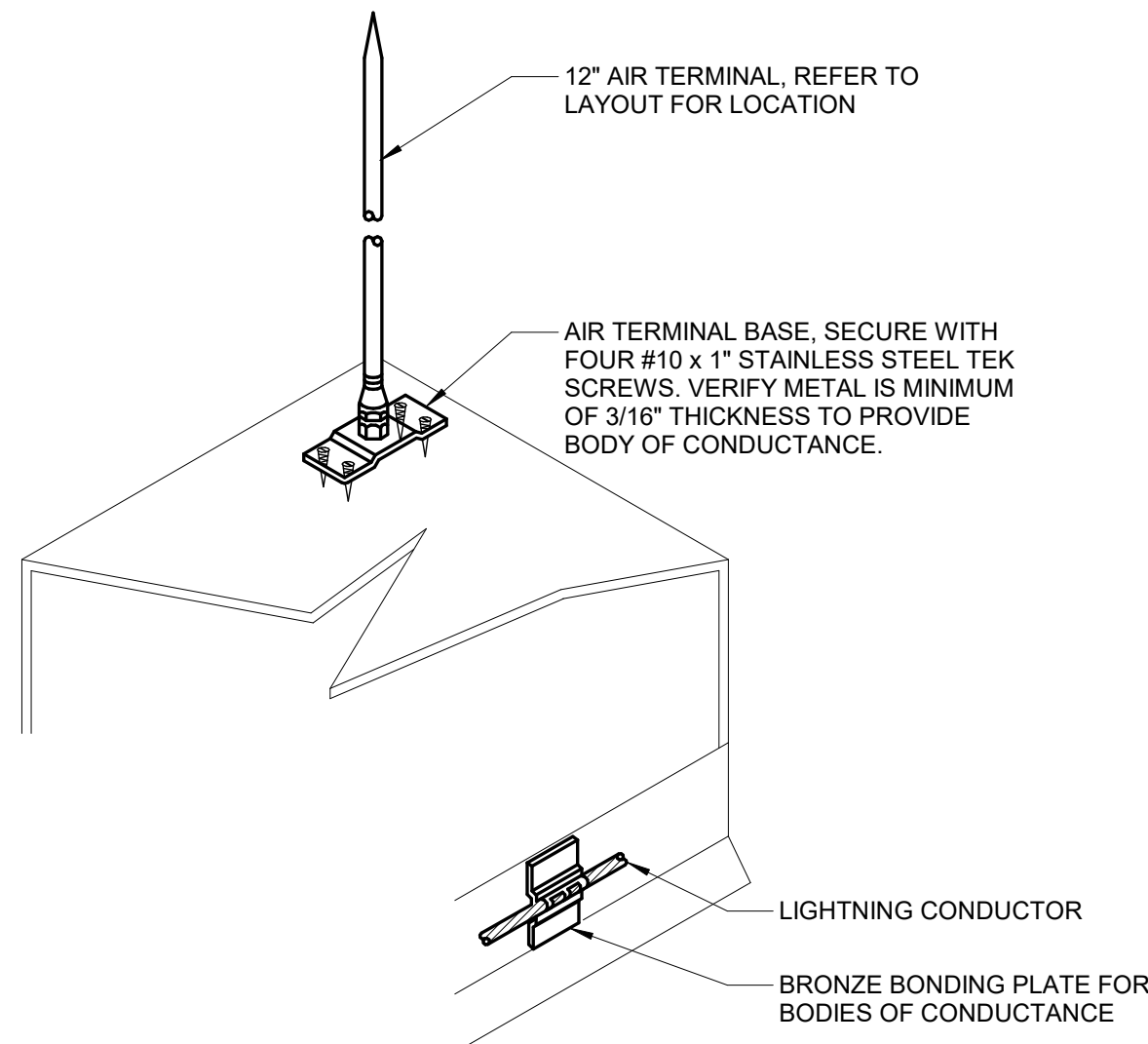


3 BONDING FOR PLUMBING VENTS
NO SCALE

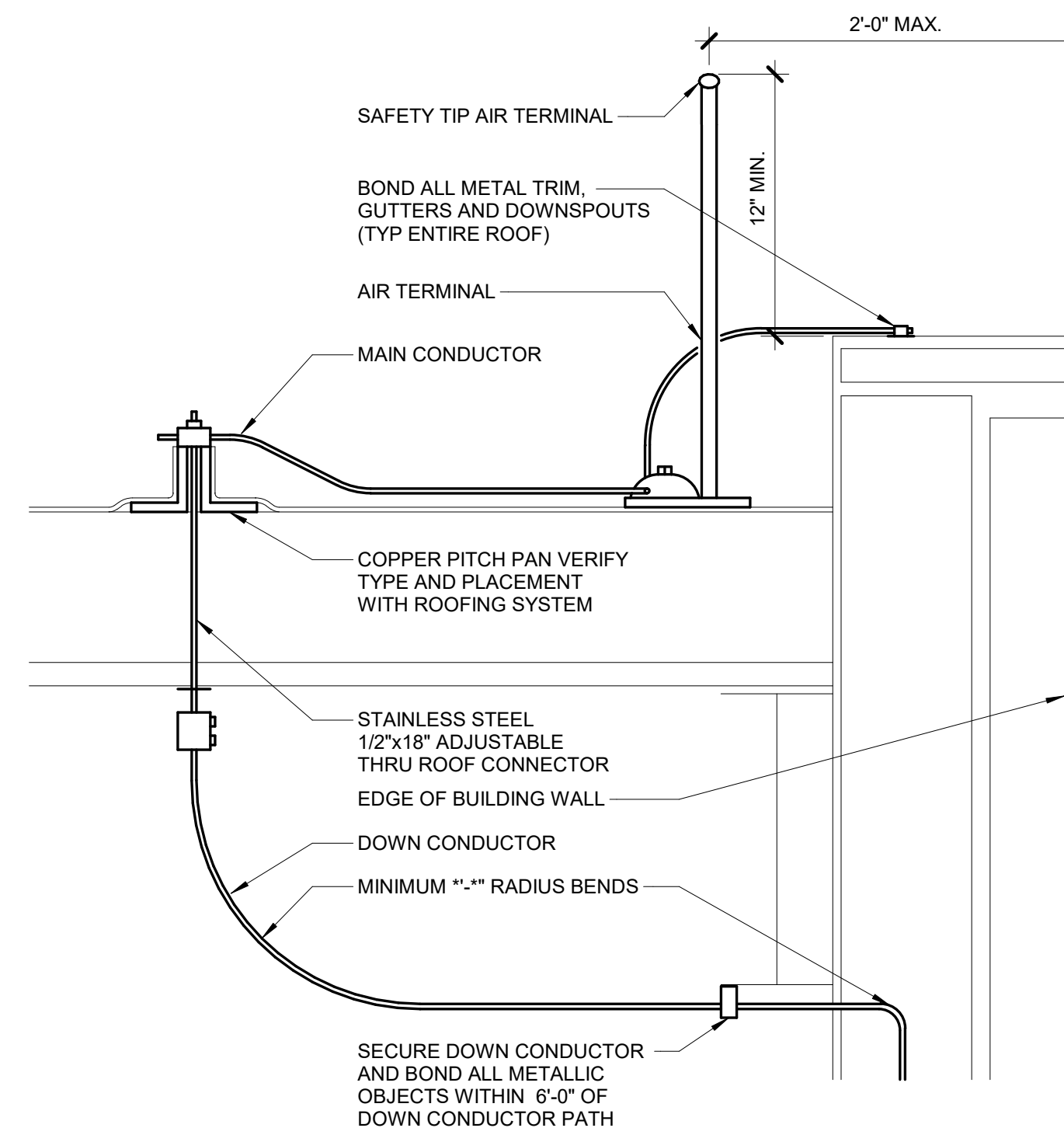


NOTES:
1. E.C. SHALL VERIFY COMPATIBILITY OF ADHESIVE WITH ROOFING SYSTEM MANUFACTURER PRIOR TO INSTALLATION.

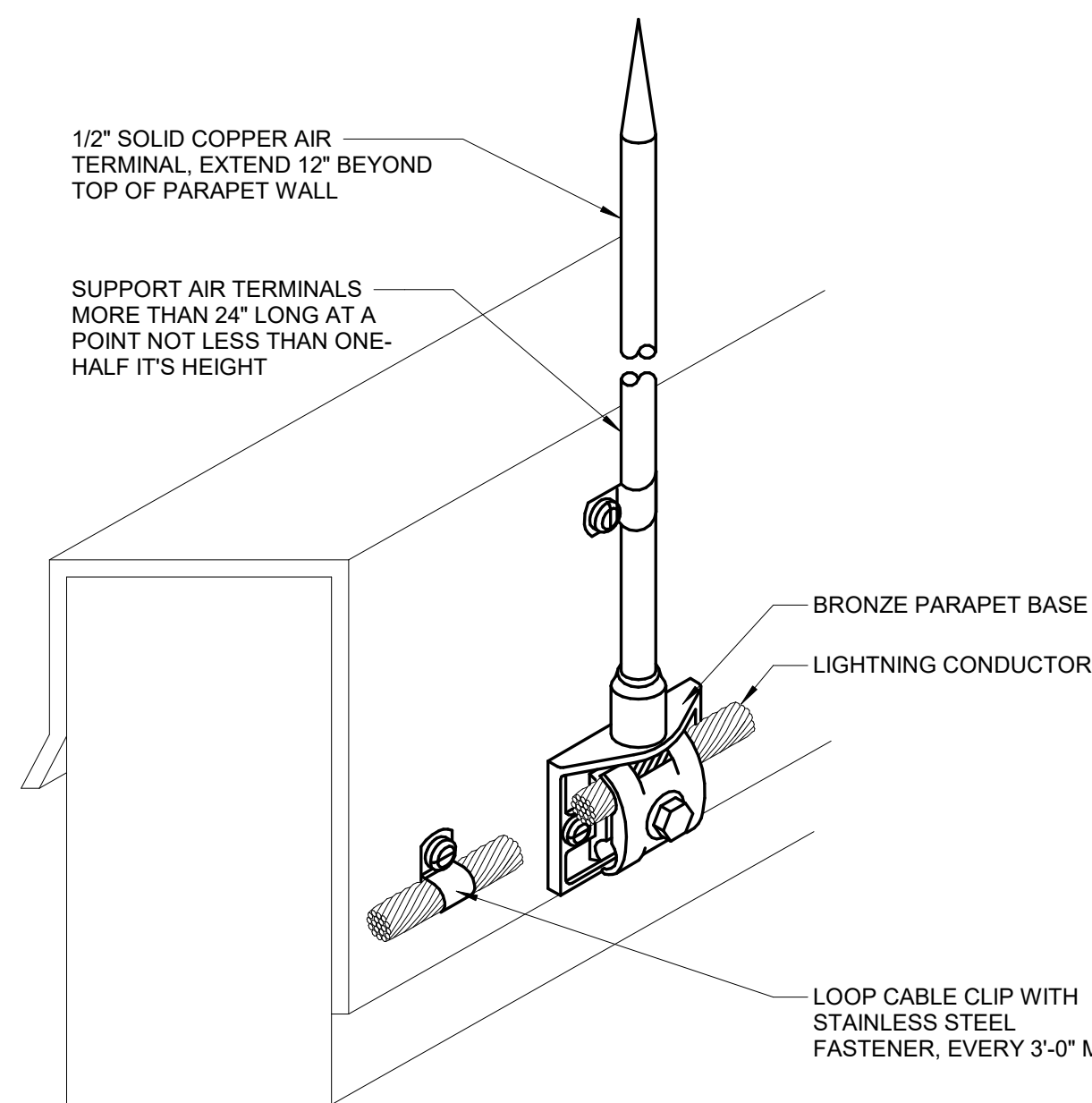
4 CABLE JUNCTION POINT
NO SCALE



5 EQUIPMENT AIR TERMINAL
NO SCALE



6 PERIMETER AIR TERMINAL DETAIL
NO SCALE

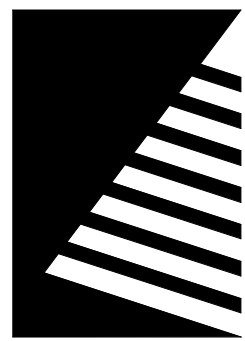


7 PARAPET AIR TERMINAL DETAIL
NO SCALE

IMEG
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908

REF. SCALE IN INCHES
PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

SHEET TITLE:

ELECTRICAL DETAILS

SHEET NUMBER:

E4.2

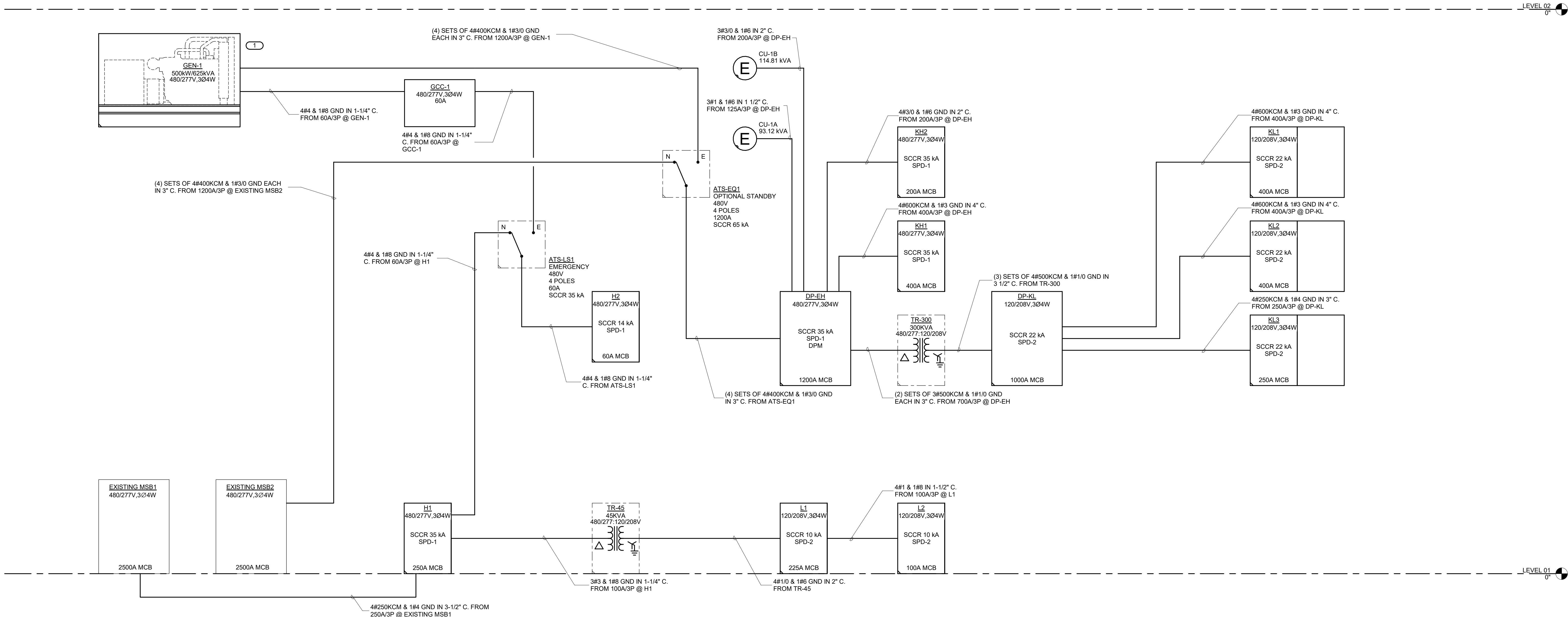
PROJECT NO.: 0240202.00
RFB922300-02

ELECTRICAL - RISER DIAGRAM NOTES:

- THE RISER DIAGRAM IS INTENDED TO CONVEY THE COMPONENTS OF THE ELECTRICAL DISTRIBUTION SYSTEM. REFER TO ELECTRICAL DRAWINGS, DETAILS, DISTRIBUTION / PANEL / EQUIPMENT / EQUIPMENT CONNECTION SCHEDULES, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SHORT CIRCUIT CURRENT RATINGS (SCCR) FOR EQUIPMENT ARE MINIMUM REQUIREMENTS FOR BUSS BRACING AND DEVICE RATING. ALL EQUIPMENT SHALL BE FULLY RATED UNLESS SPECIFICALLY NOTED AS SERIES RATED.
- TRANSFER SWITCHES (SCCR) RATINGS ARE INTENDED AS WITHSTAND AND CLOSE RATINGS (WCR).
- THE BASIS OF DESIGN: THE CONTRACTOR SHALL BE RESPONSIBLE FOR DERATING AND SIZING CONDUCTORS AND CONDUITS TO EQUAL OR EXCEED AMPACITY OF THE BASIS OF DESIGN CIRCUITS WHEN ALTERNATIVE METHODS OR MATERIALS OTHER THAN THE BASIS OF DESIGN ARE APPLIED.
 - RACEWAY: EMT UNLESS OTHERWISE NOTED
 - FEEDER CHARACTERISTICS: ALL CURRENT CARRYING CONDUCTORS SHALL BE COPPER UNLESS NOTED OTHERWISE. CONDUCTOR SIZES ARE BASED ON AMERICAN WIRE GAUGE AWG AND KCMIL THOUSANDS OF CIRCULAR MIL. REFER TO SPECIFICATION SECTION 25 05 13 WIRE AND CABLE FOR ADDITIONAL INFORMATION
 - GROUNDING AND BONDING CONDUCTORS SHALL BE COPPER.
 - CONDUCTORS (MOTORS): COPPER
 - [AL] INDICATES ALUMINUM CONDUCTOR
 - [BLANK] OR [CU] INDICATES COPPER CONDUCTOR
 - [CI] INDICATES CIRCUIT INTEGRITY CIRCUIT. FEEDER ROUTED OUTSIDE BUILDING OR 2 HOUR FIRE RATED
- PROVIDE GROUNDING ELECTRODE AND BONDING SYSTEM PER CODE REQUIREMENTS. PROVIDE THE FOLLOWING MINIMUM CONNECTIONS AND COMPONENTS. REFER TO SPECIFICATION SECTION 25 05 26 GROUNDING AND BONDING AND DETAILS WHEN APPLICABLE.
 - ELECTRICAL GROUND FIELD
 - CONCRETE ENCASED UFER GROUND
 - METALLIC WATER MAIN
 - BUILDING STEEL, EFFECTIVELY GROUNDED
 - INTERSYSTEM BONDING TERMINAL [BT]
 - GROUND RING ENCIRCLING STRUCTURE
- DRY TYPE TRANSFORMER AND SEPARATELY DERIVED SYSTEMS. PROVIDE GROUNDING ELECTRODE CONDUCTOR FOR SEPARATELY DERIVED SYSTEM. ROUTE TO STRUCTURAL BUILDING STEEL WHEN AVAILABLE. OTHERWISE ROUTE TO MAIN GROUNDING ELECTRODE SYSTEM.
- PROVIDE 0.2 GEDNEY OR EQUAL GROUND BUSHING FOR ALL SERVICE AND FEEDER RACEWAYS BONDED TO GROUND BUS WITH CONDUCTOR SIZED TO MAXIMUM FEEDER GROUND CAPACITY.
- CONDUCTORS AND GROUND SIZES ON THE LINE AND LOAD SIDES OF ALL DISCONNECT SWITCHES SHALL BE IDENTICAL UNLESS NOTED OTHERWISE.
- REFER TO COVER SHEET FOR ADDITIONAL EQUIPMENT TAG INFORMATION (SPD-#, M-#, ETC).
- REFER TO GROUNDING ELECTRODE SYSTEM AND BONDING DETAILS
 - EGC - EQUIPMENT GROUNDING CONDUCTOR
 - GEC - GROUNDING ELECTRODE CONDUCTOR
 - SSBJ - SUPPLY SIDE BONDING JUMPER
- CIRCUIT BREAKER CHARACTERISTICS AND ACCESSORIES:
 - [CB] INDICATES CIRCUIT BREAKER
 - [FU] INDICATES FUSED SWITCH
 - [NF] INDICATES NON-FUSED SWITCH
 - [MCO] INDICATES MAIN LUG ONLY
 - [MCB] INDICATES MAIN CIRCUIT BREAKER
 - [MCCB] INDICATES MOLDED CASE CIRCUIT BREAKER
 - [LSIG] INDICATES FEATURES PROVIDED WITH SOLID STATE CIRCUIT BREAKER (LONG TIME (WIDELAY), SHORT TIME (WIDELAY), INSTANTANEOUS, GROUND FAULT)
 - [LSIA] INDICATES FEATURES PROVIDED WITH SOLID STATE CIRCUIT BREAKER (LONG TIME (WIDELAY), SHORT TIME (WIDELAY), INSTANTANEOUS, GROUND FAULT ALARM (NO GROUND FAULT TRIP))
 - [GFR] INDICATES GROUND FAULT RELAY
 - [AER] INDICATES ARC ENERGY REDUCTION SYSTEM
 - [100% RATED] INDICATES INSULATED CASE BREAKER RATED FOR FULL CONTINUOUS CAPACITY OF CIRCUIT BREAKER NAMEPLATE
 - [DRAW] INDICATES DRAWOUT DEVICES
 - [LOCK] INDICATES PADLOCK HASP
 - [RED] INDICATES RED HANDLE
 - [SHUNT] INDICATES SHUNT TRIP BREAKER
 - [KIRK] INDICATES KIRK KEY

ELECTRICAL DISTRIBUTION SCHEDULE NOTES:

- BRANCH PANEL KEY:
 - *A = ARC FAULT CIRCUIT INTERRUPT
 - *G = GROUND FAULT CIRCUIT INTERRUPT
 - *I = ISOLATED GROUND
 - *M = BRANCH CIRCUIT MONITOR
 - *P = PADLOCK HASP
 - *R = RED HANDLE
 - *S = SHUNT TRIP
 - *NB = NEW BREAKER
 - *RB = REPLACE EXISTING BREAKER WITH NEW BREAKER
 - *EB = EXISTING BREAKER



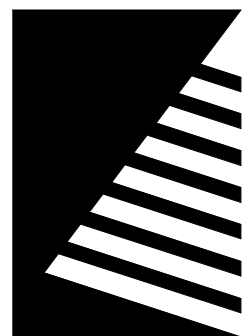
3 RISER DIAGRAM
NO SCALE

1 TRANSFORMER WIRING DETAIL
NO SCALE

2 GENERATOR GROUNDING DETAIL
NO SCALE

KEYNOTES: (#)

- COORDINATE GENERATOR CONTROL POINTS TO BMS WITH MECHANICAL CONTROLS. BMS TO LOAD SHED MECHANICAL EQUIPMENT AS NEEDED TO PREVENT OVERLOADING GENERATOR.



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE
DATE DESCRIPTION

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

SHEET TITLE:

ELECTRICAL
DIAGRAMS

SHEET NUMBER:

E5.1

PROJECT NO.: 0240202.00

RF8922300-02

IMEG

www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

2882 2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9006 F: 515.334.9008

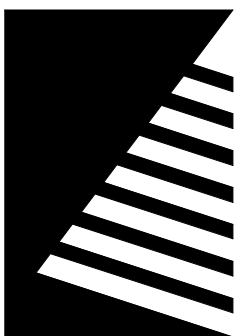
0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00

DISCONNECT AND STARTER SCHEDULE

NOTE: ALL DISCONNECTS (EXCEPT MANUAL STARTERS) SHALL BE HEAVY DUTY TYPE.											
DISCONNECT TYPE:				ACCESSORIES & OPTIONS							
FU - FUSED				SA - STANDARD ACCESSORIES (INCLUDES * ITEMS)				PF - PHASE LOSS PROTECTION (5 HP OR GREATER, 3 PHASE MOTOR)			
NF - NON-FUSED				*CT - CONTROL TRANSFORMER, FUSED 120V				TO - MELTING THERMAL OVERLOADS (1 PHASE)			
CB - CIRCUIT BREAKER				*EO - ELECTRONIC OVERLOAD (3 PHASE MOTORS)				TS - 2 SPEED SELECTOR SWITCH IN DOOR			
				*HA - HAND-OFF-AUTO IN DOOR				GP - GREEN (OFF) PILOT LIGHT IN DOOR			
STARTER TYPE:				*RP - RED (RUN) PILOT LIGHT IN DOOR				FA - 4-CONVERTIBLE AUXILIARY CONTACTS			
FV - FULL VOLTAGE				*TA - TWO CONVERTIBLE AUXILIARY CONTACTS				EI - ELECTRICAL INTERLOCK (2)N.O. & (2)N.C.			
YD - WYE - DELTA				S/N - INSULATED NEUTRAL ASSEMBLY				SS - START-STOP PUSHBUTTON IN DOOR			
RE - REVERSING								HL - HANDLE PADLOCK HASP			
TW - 2 SPEED, 2 WINDING											
SW - 2 SPEED, 1 WINDING											
RV - REDUCED VOLTAGE AUTOXFMR											
SS - SOLID STATE											
MS - MANUAL STARTER											
MX - MANUAL SWITCH											
FS - FUSED SWITCH											
AMS-ASSEMBLED MOTOR STARTER											
ITEM	DISCONNECT TYPE & RATING			VOLTAGE	POLES	STARTER		ENCLOSURE	REQUIRED ACCESSORIES & OPTIONS	APPROVED MANUFACTURERS	COMMENTS
	TYPE	RATING	TRIP RATING			NEMA SIZE	TYPE				
MX-AC-1		30 A		120 V	1	0	MX	NEMA 4X		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-WH-5		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-WH-4		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-CP-1		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K12		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K7A		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K7A		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K13		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K12		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K8D		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K8C		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K8C		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K8B		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K8B		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K8F		30 A		208 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K8G		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K7A		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K7A		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K7A		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
MX-K7A		30 A		120 V	1	0	MX	NEMA 1		SQUARE D 2510 KG1 EATON TYPE B2 GENERAL ELECTRIC TYPE TC SIEMENS TYPE MMS	
FDS-CP-2	FU	20 A	30 A	208 V	3			NEMA 3R		SQUARE D 3110 H321RB EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF	
FDS-GRINDER PUMP	FU	30 A		208 V	3			NEMA 4X		SQUARE D 3110 H323N EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF	
FDS-K7BA	FU	30 A	30 A	208 V	3			NEMA 1		SQUARE D 3110 H323N EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF	
FDS-K8E	FU	30 A	30 A	208 V	3			NEMA 1		SQUARE D 3110 H323N EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF	
FDS-K8E	FU	30 A	30 A	208 V	3			NEMA 1		SQUARE D 3110 H323N EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF	
FDS-K189A	FU	100 A	100 A	480 V	3			NEMA 4X		SQUARE D 3110 H363RB EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF	
FDS-K85B	FU	100 A	100 A	208 V	3			NEMA 3R		SQUARE D 3110 H323RB EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF	
FDS-K8A	FU	200 A	200 A	208 V	3			NEMA 3R		SQUARE D 3110 H324RB EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF	

DISCONNECT AND STARTER SCHEDULE

NOTE: ALL DISCONNECTS (EXCEPT MANUAL STARTERS) SHALL BE HEAVY DUTY TYPE.											
DISCONNECT TYPE:			ACCESSORIES & OPTIONS								
FU - FUSED			SA - STANDARD ACCESSORIES (INCLUDES * ITEMS)			PF - PHASE LOSS PROTECTION (5 HP OR GREATER, 3 PHASE MOTOR)					
NF - NON-FUSED			*CT - CONTROL TRANSFORMER, FUSED 120V			TO - MELTING THERMAL OVERLOADS (1 PHASE)					
CB - CIRCUIT BREAKER			*EO - ELECTRONIC OVERLOAD (3 PHASE MOTORS)			TS - 2 SPEED SELECTOR SWITCH IN DOOR					
			*HA - HAND-OFF-AUTO IN DOOR			GP - GREEN (OFF) PILOT LIGHT IN DOOR					
STARTER TYPE:			*RP - RED (RUN) PILOT LIGHT IN DOOR			FA - 4-CONVERTIBLE AUXILIARY CONTACTS					
FV - FULL VOLTAGE			*TA - TWO CONVERTIBLE AUXILIARY CONTACTS			EI - ELECTRICAL INTERLOCK (2)N.O. & (2)N.C.					
YD - WYE - DELTA			S/N - INSULATED NEUTRAL ASSEMBLY			SS - START-STOP PUSHBUTTON IN DOOR					
RE - REVERSING						HL - HANDLE PADLOCK HASP					
TW - 2 SPEED, 2 WINDING											
SW - 2 SPEED, 1 WINDING											
RV - REDUCED VOLTAGE AUTOXFMR											
SS - SOLID STATE											
MS - MANUAL STARTER											
MX - MANUAL SWITCH											
FS - FUSED SWITCH											
AMS-ASSEMBLED MOTOR STARTER											
ITEM	DISCONNECT TYPE & RATING		VOLTAGE	POLES	STARTER		ENCLOSURE	REQUIRED ACCESSORIES & OPTIONS	APPROVED MANUFACTURERS	COMMENTS	
	TYPE	RATING			TRIP RATING	NEMA SIZE					TYPE
DS-DRYER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-DRYER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-DRYER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-DRYER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-DRYER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-DRYER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-DRYER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-WASHER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-WASHER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-WASHER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-WASHER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-WASHER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-WASHER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-WASHER	NF	30 A		480 V	3		NEMA 1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-K7BB	NF	30 A	30 A	208 V	3		NEMA 1		SQUARE D 3110 H323N EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF		
DS-K11B	NF	30 A	30 A	480 V	3		NEMA 3R		SQUARE D 3110 HU361RB EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-K174	NF	30 A	30 A	208 V	3		NEMA 4X		SQUARE D 3110 H323N EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF		
DS-K187	NF	30 A	30 A	208 V	3		NEMA 4X		SQUARE D 3110 H323N EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF		
DS-K187	NF	30 A	30 A	208 V	3		NEMA 4X		SQUARE D 3110 H323N EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF		
DS-EF-9	NF	30 A		480 V	3		NEMA 3R		SQUARE D 3110 HU361RB EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
DS-SLIDING GATE	NF	30 A		480 V	3		NEMA 3R		SQUARE D 3110 HU361RB EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF		
CS-AHU-1 RETURN	NF	30 A		480 V	3	1	FV	NEMA 1	SA	SQUARE D 8538 SCG11 EATON TYPE ECN GENERAL ELECTRIC CR308 SIEMENS CLASS 17 FRANKLIN CONTROL SAS1-32P-G32-40	
CS-AHU-1 SUPPLY	NF	30 A		480 V	3	1	FV	NEMA 1	SA	SQUARE D 8538 SCG11 EATON TYPE ECN GENERAL ELECTRIC CR308 SIEMENS CLASS 17 FRANKLIN CONTROL SAS1-32P-G32-40	
CS-EF-2	NF	30 A		480 V	3	1	FV	NEMA 3R	SA	SQUARE D 8538 SCG11 EATON TYPE ECN GENERAL ELECTRIC CR308 SIEMENS CLASS 17 FRANKLIN CONTROL SAS1-32P-G32-40	



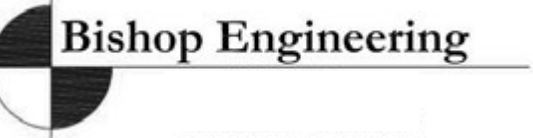
Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALUKE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff



ISSUE
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: KRISPI

DRAWN: ADDULR

REVIEWED: ISASTO

SHEET TITLE:

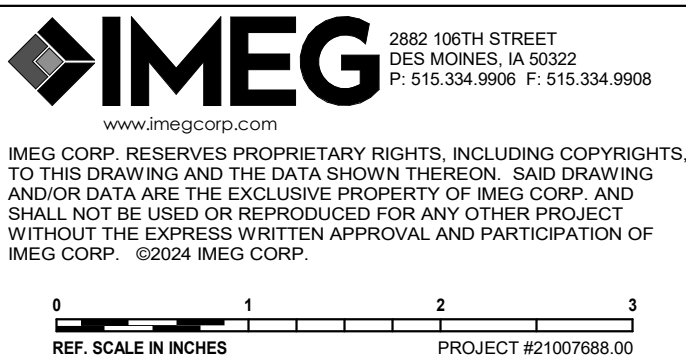
ELECTRICAL
SCHEDULES

SHEET NUMBER:

E6.2

PROJECT NO.: 0240202.00

RFB922300-02



LIGHTING CONTROL SEQUENCE DESCRIPTION:	
PLAN ID	NOTES: 1. (L##) DENOTES THE LIGHTING SEQUENCE OF OPERATIONS FOR THIS SPACE. 2. a = SWITCH DESIGNATION FOR LIGHTING CONTROL.
(LS1)	Sequence: Switched lights are controlled in this space. ON: The lights turn on using switches. OFF: The lights turn off using switches.
(LS2)	Sequence: Switched lights are controlled in this space. ON: The lights are turn on by occupancy sensor. OFF: The lights turn off using a wall controller. After the space has been vacant for 30 minutes, the lights will automatically turn off.
(LD1)	Sequence: Dimmed lights are controlled in this space. ON: The lights turned on using a wall control. ADJUST: The dimming luminaires are raised / lowered using a controller. OFF: The lights turn off using a wall controller. After the space has been vacant for 15 minutes, the lights will automatically turn off.

LED LUMINAIRE SCHEDULE																
(DESC) DOOR:				DISTRIBUTION:				BEAMWIDTH:				(L/L) LENS/LOUVER:				
FA - FLAT ALUMINUM				II - ANSI/IES TYPE 2 DISTRIBUTION				NSP - VERY NARROW SPOT				K19 - KSH19 .156" ACRYLIC				
FS - FLAT STEEL				III - ANSI/IES TYPE 3 DISTRIBUTION				SP - SPOT				A - .125"ACRYLIC				
RA - REGRESSED ALUMINUM				IV - ANSI/IES TYPE 4 DISTRIBUTION				MD - MEDIUM				B - BAFFLE/LOUVER				
RS - REGRESSED STEEL				V - ANSI/IES TYPE 5 DISTRIBUTION				WD - WIDE				C - CLEAR ALZAK				
FINISH:								VWD - VERY WIDE				F - FROSTED ACRYLIC				
PAF - PAINT AFTER FABRICATION								WW - WALL WASH				G - TEMPERED GLASS				
CFA - COLOR-FINISH SELECTION BY ARCHITECT												K - KSH12 .125" ACRYLIC				
(MTO)...				RE - RECESSED								(WATT) PER: FIX - FIXTURE, FT - FOOT, LAMP				
CL - CEILING SURFACE				SP - SUSPENDED								(TYPE) LED				
CV - COVE				SU - SURFACE								LED - LIGHT EMITTING DIODE				
FR - FLANGED RECESSED				UC - UNDER CABINET								TLED - TUBULAR LED LAMP				
P - PERIMETER				WL - WALL								OLED - ORGANIC LED				
PL - POLE				O - OTHER (SEE DESCRIPTION)								DLED - DYNAMIC TUNABLE LED				
(TYPE) DRIVER:																
0-10V - 0-10V DIMMING				EB - ELECTRONIC				HL - HIGH/LOW (100%/50%) STEP DIM				MV - MULTI-VOLTAGE ELECTRONIC				
DAU - DIGITAL ADDRESSABLE				ELV - ELECTRONIC LOW VOLTAGE				LINE - LINE VOLTAGE DIMMING				REM - REMOTE				
DMX - DIGITAL MULTIPLEX				EM - EMERGENCY BATTERY				ML - MULTI-LEVEL SWITCHING				O - OTHER (SEE DESCRIPTION)				
CATALOG NUMBER SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. THE COMPLETE DESCRIPTION AND THE SPECIFICATION SHALL BE COORDINATED WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN.																
VERIFY AND COORDINATE ALL CEILING TYPES WITH LUMINAIRE MOUNTING AND TRIM REQUIREMENTS PRIOR TO THE RELEASE OF THE LUMINAIRE ORDER.																
CONFIRM ALL COLORS AND FINISHES OF ALL LUMINAIRE COMPONENTS WITH ARCHITECT AND INTERIOR DESIGNER PRIOR TO THE RELEASE OF THE LUMINAIRE ORDER.																
UNLESS INDICATED ON LIGHTING PLANS OR BELOW, REFER TO ARCHITECTURAL AND INTERIOR DESIGN ELEVATIONS, SECTIONS AND DETAILS FOR ALL SUSPENDED AND WALL MOUNTED LUMINAIRE MOUNTING HEIGHTS.																
REFER TO SPECIFICATION SECTIONS LED LIGHTING 26.51.19 AND EMERGENCY LIGHTING INVERTER 26.52.15 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.																
INTERIOR CORRELATED COLOR TEMPERATURE 4000K, COLOR RENDERING INDEX (CRI) AT OR ABOVE 85, UNLESS NOTED OTHERWISE.																
ITEM	DESCRIPTION			L/L	MTG	DIMENSIONS			WATT		LED		DRIVER		APPROVED MANUFACTURER / SERIES	
						L	W	H	DIA	MAX ANSI	PER	TYPE	QTY	DELIVERED LUMENS (MIN)		
E1	RECESSED CONVERTIBLE LUMINAIRE, TIG WELDED HOUSING, TIGC POLYESTER POWDER COAT FINISH, LISTED FOR DAMP LOCATION, HIGH ABUSE, PRISON-GRADE, FULL LENGTH CONCEALED INTERNAL PIANO HINGE, COORDINATE CEILING TYPE WITH ARCHITECTURAL RCP.			O	RE	48"	24"	4.87"	N/A	46	FIX	LED	1	4642	MV	0-10V KENALL RMCD-4-TG-0-45L40K-277-2/9-1 NEWSTAR LIGHTING FAIL-SAFE LC DOANE OR ENGINEER PRE-APPROVED EQUIVALENT
E1A	SAME AS F1 BUT WITH HIGHER LUMEN PACKAGE.			O	RE	48"	24"	4.87"	N/A	74	FIX	LED	1	7412	MV	0-10V KENALL RMCD-4-TG-0-67L40K-277-2/9-1 NEWSTAR LIGHTING FAIL-SAFE LC DOANE OR ENGINEER PRE-APPROVED EQUIVALENT
E2	RECESSED CONVERTIBLE LUMINAIRE, TIG WELDED HOUSING, TIGC POLYESTER POWDER COAT FINISH, LISTED FOR DAMP LOCATION, HIGH ABUSE, PRISON-GRADE.			O	RE	24"	24"	4.87"	N/A	74	FIX	LED	1	6649	MV	0-10V KENALL RMCD-2-TG-0-67L40K-277-2/9-1 NEWSTAR LIGHTING FAIL-SAFE LC DOANE OR ENGINEER PRE-APPROVED EQUIVALENT
E2A	SAME AS F2 BUT WITH LOWER LUMEN PACKAGE.			O	RE	24"	24"	4.87"	N/A	46	FIX	LED	1	4164	MV	0-10V KENALL RMCD-2-TG-0-45L40K-277-2/9-1 NEWSTAR LIGHTING FAIL-SAFE LC DOANE OR ENGINEER PRE-APPROVED EQUIVALENT
E3	SURFACE MOUNT LUMINAIRE, 22 GAUGE STEEL CONSTRUCTION, POLYCARBONATE END CAPS, ACRYLIC LENS, LISTED FOR DAMP LOCATIONS.			O	SU	48"	2.6"	3.1"	N/A	31	FIX	LED	1	4000	MV	EB CREE L54 LITHONIA CSS SERIES ALBEAD AL03 SERIES METALUX SLSTP SERIES OR ENGINEER PRE-APPROVED EQUIVALENT
E3A	SIMILAR TO F3 WITH DIFFERENT LENGTH.			O	SU	96"	2.6"	3.1"	N/A	64	FIX	LED	1	8000	MV	0-10V CREE L58 LITHONIA CSS SERIES ALBEAD AL03 SERIES METALUX SLSTP SERIES OR ENGINEER PRE-APPROVED EQUIVALENT
E4	6" LED DOWNLIGHT, THERMALLY PROTECTED HOUSING, FINISH SELECT BY ARCHITECT, LISTED FOR DAMP LOCATIONS.			O	RE	N/A	N/A	6.29"	6"	17	FIX	LED	1	1500	MV	EB FOCAL POINT FLC6D GOTHAM EVO6 SERIES PRESCOLITE LTR-4RD OR ENGINEER PRE-APPROVED EQUIVALENT
E4A	SAME AS F4 BUT WITH HIGHER LUMEN PACKAGE.			O	RE	N/A	N/A	6.29"	6"	36	FIX	LED	2	3000	MV	EB FOCAL POINT FLC6D GOTHAM EVO6 SERIES PRESCOLITE LTR-4RD OR ENGINEER PRE-APPROVED EQUIVALENT
W1	WALL PACK, GLASS LENS, DIE-CAST ALUMINUM HOUSING, GASKETED, VISUAL COMFORT FORWARD THROW DISTRIBUTION, ZERO UPLIGHT, IP65 RATED, SUITABLE FOR OPERATION IN TEMPERATURES BETWEEN -30 DEGREE CELSIUS AND 40 DEGREE CELSIUS, FINISH SELECTION BY ARCHITECT.			G	WL	17"	10"	8.1/2"	N/A	25	FIX	LED	1	3000	MV	EM ACUTY LITHONIA WST LED CREE XSP SERIES SIGNIFY GARDCO 10 IL LITHONIA ARC1 SERIES OR ENGINEER PRE-APPROVED EQUIVALENT
W2	HIGH ABUSE WALL PACK, HIGH IMPACT RESISTANT, UV STABILIZED INJECTION MOLDED POLYCARBONATE, MARINE GRADE ALUMINUM DRIVER HOUSING, FULL CUT OFF, TYPE 2 DISTRIBUTION, 3000K CCT.			O	WL	15"	12"	9"	N/A	28	FIX	LED	1	2823	MV	EB KENALL FN15-2-7-XXX-24L-30K7-DV OR ENGINEER PRE-APPROVED EQUIVALENT
EM1	EMERGENCY UNIT, TWO ADJUSTABLE LED HEADS, WHITE THERMOPLASTIC HOUSING, SELF TEST & DIAGNOSTICS OF INVERTER AND LAMPS.			O	WL	11"	3 1/2"	7 1/2"	N/A	3	FIX	LED	2	3 WATT LED	277V	EM HUBBELL DUAL-LITE EYHC ACUTY LITHONIA ELMAL EELP EX004-LED ISOLITE BUG SERIES OR ENGINEER PRE-APPROVED EQUIVALENT
EX1	SINGLE-FACE EXIT SIGN, FOR HIGH ABUSE AND CORRECTIONAL FACILITY ENVIRONMENTS, ONE PIECE DIE FORMED 14-GAUGE GRADE MATERIAL HOUSING AND DOOR WITH HARDEN SECURITY SCREW FASTENERS, TIGC POLYESTER POWDER COAT PAINT.			O	CL WL SP	12"	1 1/2"	10"	N/A	3	FIX	LED	1	3 WATT LED.	277V	EM KENALL MMEX SERIES NEWSTAR 620 SERIES LC DOANE XTL SERIES OR ENGINEER PRE-APPROVED EQUIVALENT
EX2	DOUBLE-FACE EXIT SIGN, FOR HIGH ABUSE AND CORRECTIONAL FACILITY ENVIRONMENTS, ONE PIECE DIE FORMED 14-GAUGE GRADE MATERIAL HOUSING AND DOOR WITH HARDEN SECURITY SCREW FASTENERS, TIGC POLYESTER POWDER COAT PAINT.			O	CL WL SP	12"	2 1/2"	10"	N/A	3	FIX	LED	1	3 WATT LED.	277V	EM KENALL MMEX SERIES NEWSTAR 620 SERIES LC DOANE XTL SERIES OR ENGINEER PRE-APPROVED EQUIVALENT



www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

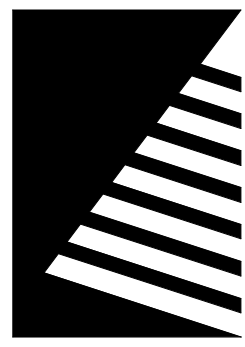
2882 100TH STREET
DES MOINES, IA 50322
P: 515.334.9906 F: 515.334.9908

01"=1'-0"

0 1 2 3
FEET

PROJECT #21007888.00

2/8/2024 10:33:21 AM



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com

Engineers | Architects | Surveyors | Scientists

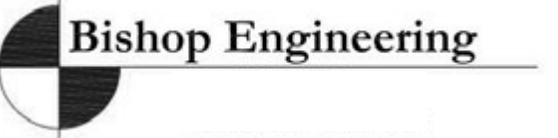


RIPPE ASSOCIATES

FOODSERVICE DESIGN + CONSULTING







ISSUE:

#	DATE:	DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE:	02/09/2024
DESIGNED:	KRISPI
DRAWN:	ADDULR
REVIEWED:	ISASTO

SHEET TITLE:
ELECTRICAL
SCHEDULES

SHEET NUMBER:

E6.3

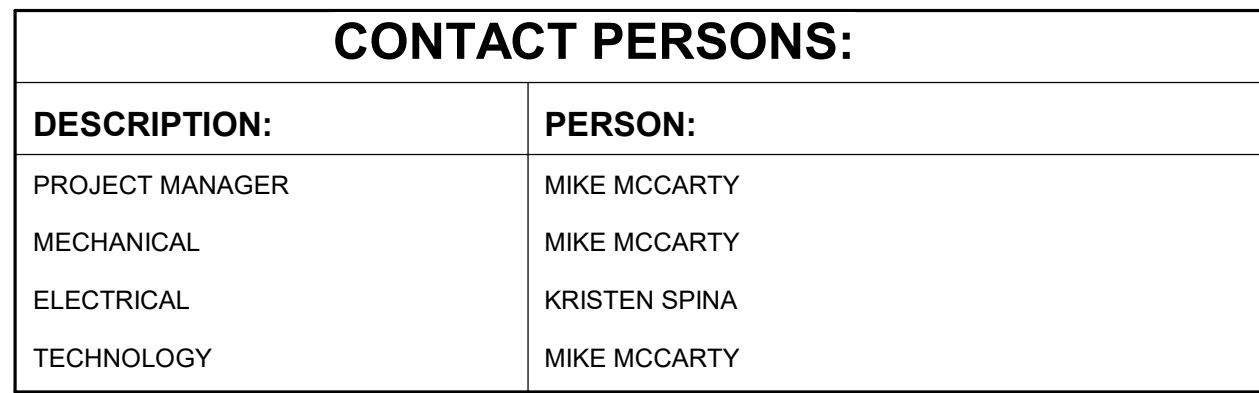
PROJECT NO.: 0240202.00
RFB922300-02

PANEL KL3															MAIN: 250 A MCB VOLTS: 120/208 Wye PHASE: 3 WIRE: 4 SCCR: 22 kA ISC UNKNOWN 0.00 kA											
MOUNTING: SURFACE ENCLOSURE: NEMA PB 1 FED FROM: 250 A/3P @ DP-KL LOCATION: MECH 1241 SPD: SPD-2										SOLID NEUTRAL GROUND BUS																
NOTES:																										
K E Y	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE	H	N	G	A	B	C	WIRE SIZE	G	N	H	P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	K E Y						
	1	CU-1 OUTLET	20 A	1	12	12	12		0	0		12	12	1	20 A			CU-1A, CU-1B OUTLETS	2							
	3	RECEPS	20 A	1	12	12	12			0.54	1.6		12	12	1	20 A		EF-3	4							
	5	EF-4	15 A	1	12	12	12						0.86	1.8	12	12	1	20 A	#40 (THRU #41B)	6	H					
	7	132B & RECEP	15 A	1	12	12	12		1.23	1.7					12	12	1	20 A	TEMP. CNT. PANEL, DOAS OUTLET	8						
	9	132A	20 A	1	12	12	12				1.9	1.8			12	12	1	20 A	#40 (THRU #41B)	10	H					
	11	TEMP. CNT. PANEL, AHU OUTLET	20 A	1	12	12	12					1.7	0.5		12	12	2	15 A	TAB-4	12						
	13	EF-7	15 A	1	12	12	12		1.13	0.5										14	--					
	15	TAB-3	15 A	2	12	12	12				0.25	0.28			10	10	2	30 A	#7BA	16						
--	17	--	--	--	--	--	--	--				0.25	0.28	--	--	--	--	--	--	18	--					
H	19	#40 (THRU #41B)	20 A	1	12	12	12		1.8	0.95					12	12	2	20 A	CP-2	20						
H	21	#40 (THRU #41B)	20 A	1	12	12	12				1.8	0.95								22	--					
H	23	#40 (THRU #41B)	20 A	1	12	12	12					1.8	1.68	10	10	2	25 A	#7BB	24							
	25	EF-8	15 A	1	12	12	12		1.13	1.68					--	--	--	--	--	26	--					
	27	CP-1	20 A	1	12	12	12			1.13	0.9			12	12	3	20 A	RO-1	28							
	29	WH-4	20 A	1	12	12	12					1.5	0.9	--	--	--	--	--		30	--					
H	31	#40 (THRU #41B)	20 A	1	12	12	12		1.8	0.9				--	--	--	--	--		32	--					
H	33	#40 (THRU #41A)	20 A	1	12	12	12				1.8	1.5			12	12	1	20 A	CAB-3	34						
H	35	#40 (THRU #41A)	20 A	1	12	12	12					1.8	1.8		12	12	1	20 A	#40 (THRU #41B)	36	H					
H	37	#40 (THRU #41A)	20 A	1	12	12	12		1.8	1.8				12	12	1	20 A	#40 (THRU #41A)	38	H						
	39	#169A (SERVES (1) #163)	20 A	1	12	12	12				1.92	1.8			12	12	1	20 A	#40 (THRU #41A)	40	H					
	41	#170A (SERVES (1) #163)	20 A	1	12	12	12					1.92	1.8	12	12	1	20 A	#40 (THRU #41A)	42	H						
	43	CONTACTOR 2	20 A	1					0	1.5					12	12	1	20 A	WH-5	44						
	45	CONTACTOR 1	20 A	1						0	0				--	--	--	--	SPARE	46	--					
	47	#151A (SERVES #148A,B,C)	20 A	1	12	12	12					1.92	0		--	--	--	--	SPARE	48	--					
	49	#90A (SERVES (1) #87)	20 A	1	12	12	12		1.92	0					--	--	--	--	SPARE	50	--					
	--	51	SPARE	20 A	1	--	--	--		0	1.92			12	12	1	20 A	#89 (SERVES (1) #87)	52	S						
	--	53	SPARE	20 A	1	--	--	--			0	0			--	--	--	--	SHUNT TRIP	54	--					
	--	55	SPACE	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	SPACE	56	--					
	--	57	SPACE	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	SPACE	58	--					
	--	59	SPACE	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	SPACE	60	--					
Total Load:									19.84 kVA																	
Total Amps:									165.34																	
LOAD SUMMARY																										
LOAD CLASSIFICATION										CONNECTED LOAD					DEMAND FACTOR					ESTIMATED DEMAND						
HVAC										10.724 kVA					100.00%					10.724 kVA						
Kitchen Equip.										15.73 kVA					78.38%					12.33 kVA						
Power										22.644 kVA					100.00%					22.644 kVA						
Receptacles										11.34 kVA					94.09%					10.67 kVA						

DISTRIBUTION PANEL DP-EH										MAIN: 1,200 A MCB	
ENCLOSURE: NEMA PB 1			SOLID NEUTRAL GROUND BUS				VOLTS: 480/277 Wye			PHASE: 3	
FED FROM: 1,000 A/3P @ ATS-EQ1							WIRE: 4			SCCR: 35 kA	
LOCATION: ELEC. 1207							SPD: SPD-1			ISC UNKNOWN 0 A	
METER: DPM											
NOTES:											
CKT	LOAD DESCRIPTION		LOAD	POLES	FRAME	TRIP	TYPE	ACC.	WIRE AND RACEWAY		CIRCUIT KEY
1	TR-300		279.92 kVA	3	800 A	700 A			(2) SETS OF 3#250KCM & 1#2 GND EACH IN 2"		
2	PANEL KH1		251.05 kVA	3	600 A	400 A			4#600KCM & 1#3 GND IN 4" C.		
3	PANEL KH2		96.95 kVA	3	250 A	200 A			4#30 & 1#6 GND IN 2" C.		
4	CU-1A		93.12 kVA	3	250 A	125 A			3#1 & 1#6 GND IN 1 1/2" C.		
5	CU-1B		114.81 kVA	3	250 A	200 A			3#30 & 1#6 GND IN 2" C.		
6											
7											
8											
9											
10											
11											
12											
LOAD SUMMARY (INCLUDES ALL TUBS IN THIS PANEL)											
LOAD CLASSIFICATION			CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND		TOTALS*				
HVAC			425.192 kVA	100.00%	425.192 kVA		TOTAL CONNECTED LOAD:		835.85 kVA		
Kitchen Equip.			289.217 kVA	83.00%	240.056 kVA		TOTAL ESTIMATED DEMAND LOAD:		782.274 kVA		
Power			102.606 kVA	100.00%	102.606 kVA		TOTAL CONNECTED AMPS:		1005.38 A		
Receptacles			18.84 kVA	76.54%	14.42 kVA		TOTAL ESTIMATED DEMAND AMPS:		940.9 A		
*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.											
CIRCUIT KEY NOTES:											

PANEL H1														MAIN: 250 A MCB					
ENCLOSURE: NEMA PB 1				SOLID NEUTRAL GROUND BUS										VOLTS: 480/277 Wye					
FED FROM: 200 A/3P @														PHASE: 3					
LOCATION: ELEC. 1207														WIRE: 4					
SPD: SPD-1														SCCR: 35 kA					
ISC UNKNOWN 0.00 kA																			
NOTES: SINGLE-TUB PANELBOARD																			
K E Y	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H N G	A	B	C	WIRE SIZE G N H	P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	K E Y					
--	1	TAB-1	25 A	3	10 10 10	4.67	1.25		12 12 12	3	20 A	WASHER	2	--					
--	3	--	--	--	--	--	4.67	1.25	--	--	--	--	4	--					
--	5	--	--	--	--	--	--	4.67	1.25	--	--	--	6	--					
--	7	DRYER	20 A	3	12 12 12	1.83	1.25		12 12 12	3	20 A	WASHER	8	--					
--	9	--	--	--	--	--	1.83	1.25	--	--	--	--	10	--					
--	11	--	--	--	--	--	--	1.83	1.25	--	--	--	12	--					
--	13	DRYER	20 A	3	12 12 12	1.83	1.83		12 12 12	3	20 A	DRYER	14	--					
--	15	--	--	--	--	--	1.83	1.83	--	--	--	--	16	--					
--	17	--	--	--	--	--	--	1.83	1.83	--	--	--	18	--					
--	19	DRYER	20 A	3	12 12 12	1.83	1.83		12 12 12	3	20 A	DRYER	20	--					
--	21	--	--	--	--	--	1.83	1.83	--	--	--	--	22	--					
--	23	--	--	--	--	--	--	1.83	1.83	--	--	--	24	--					
--	25	WASHER	20 A	3	12 12 12	1.25	1.83		12 12 12	3	20 A	DRYER	26	--					
--	27	--	--	--	--	--	1.25	1.83	--	--	--	--	28	--					
--	29	--	--	--	--	--	--	1.25	1.83	--	--	--	30	--					
--	31	WASHER	20 A	3	12 12 12	1.25	1.25		12 12 12	3	20 A	WASHER	32	--					
--	33	--	--	--	--	--	1.25	1.25	--	--	--	--	34	--					
--	35	--	--	--	--	--	--	1.25	1.25	--	--	--	36	--					
--	37	WASHER	20 A	3	12 12 12	1.25	0		--	--	3	20 A	SPARE	38	--				
--	39	--	--	--	--	--	1.25	0	--	--	--	--	40	--					
--	41	--	--	--	--	--	--	1.25	0	--	--	--	42	--					
--	43	SPARE	20 A	3	--	0	0		--	--	3	20 A	SPARE	44	--				
--	45	--	--	--	--	--	0	0	--	--	--	--	46	--					
--	47	--	--	--	--	--	--	--	--	--	--	--	48	--					
--	49	TR-45	100 A	3	3 3 8	8.28	0		0	0	--	1	20 A	SPARE	50	--			
--	51	--	--	--	--	--	6.82	0	--	--	--	1	20 A	SPARE	52	--			
--	53	--	--	--	--	--	--	5.58	0	--	--	1	20 A	SPARE	54	--			
--	55	PANEL H2	60 A	3	4 4 8	3.96	0		10 6 3	60 A	SPD-1		56	--					
--	57	--	--	--	--	--	3.6	0	--	--	--	--	58	--					
--	59	--	--	--	--	--	--	3.78	0	--	--	--	60	--					
Total Load:						35.40 kVA	33.57 kVA	32.51 kVA											
Total Amps:						128.38	121.80	117.35											
LOAD SUMMARY																			
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND		TOTALS*													
HVAC		19.73 kVA	100.00%	19.73 kVA		TOTAL CONNECTED LOAD: 101.48 kVA													
Lighting		11.34 kVA	100.00%	11.34 kVA		TOTAL ESTIMATED DEMAND LOAD: 99.005 kVA													
Power		55.465 kVA	100.00%	55.465 kVA		TOTAL CONNECTED AMPS: 122.06 A													
Receptacles		14.94 kVA	83.47%	12.47 kVA		TOTAL ESTIMATED DEMAND AMPS: 119.1 A													
*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.																			
CIRCUIT KEY NOTES:																			

PANEL H2														MAIN: 60 A MCB						
ENCLOSURE: NEMA PB 1			SOLID NEUTRAL GROUND BUS			VOLTS: 480/277 Wye			PHASE: 3											
FED FROM: 60 A/3P @ H1						WIRE: 4			SCCR: 14 KA											
LOCATION: MECH 1241						SPD: SPD-1			ISC UNKNOWN 0.00 KA											
NOTES:																				
K E Y	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H N G	A	B	C	WIRE SIZE G N H	P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	K E Y						
	1	LIGHTING - NL (N. KITCHEN)	20 A	1	12 12 12	0.21	0.65			12 12 12	1	20 A	LIGHTING (BREAK/OFFICE)	2						
	3	LIGHTING - NL (LAUNDRY)	20 A	1	12 12 12			0.15	0.56	12 12 12	1	20 A	LIGHTING (N. HALL)	4						
	5	LIGHTING - NL (N. HALL)	20 A	1	12 12 12				0.36	1.31	12 12 12	1	20 A	LIGHTING (N. KITCHEN)	6					
	7	LIGHTING - NL (HALL/MAIN...)	20 A	1	12 12 12	0.92	1.97			12 12 12	1	20 A	LIGHTING (MID KITCHEN)	8						
	9	LIGHTING (LAUNDRY)	20 A	1	12 12 12			0.9	1.99	12 12 12	1	20 A	LIGHTING (S. KITCHEN)	10						
	11	LIGHTING (MECH/IE. HALL)	20 A	1	12 12 12				2.1	0	12 12 12	1	20 A	LIGHTING (TOP MECH)	12					
	--	13	SPARE	20 A	1	--	--	0	0.21	--	--	1	20 A	LIGHTING (DRYER CHASE)	14	--				
	--	15	SPARE	20 A	1	--	--		0	0	--	--	1	20 A	SPARE	16	--			
	--	17	SPARE	20 A	1	--	--			0	0	--	--	1	20 A	SPARE	18	--		
	--	19	SPARE	20 A	1	--	--	0	0			--	--	1	20 A	SPARE	20	--		
	--	21	SPARE	20 A	1	--	--			0	0	--	--	1	20 A	SPARE	22	--		
	--	23	SPARE	20 A	1	--	--				0	0	--	--	1	20 A	SPARE	24	--	
	--	25	SPARE	20 A	1	--	--	0	0			--	--	1	20 A	SPARE	26	--		
	--	27	SPARE	20 A	1	--	--			0	0	--	--	1	20 A	SPARE	28	--		
	--	29	SPARE	20 A	1	--	--				0	0	--	--	1	20 A	SPARE	30	--	
	--	31	SPARE	20 A	1	--	--	0	0			--	--	1	20 A	SPARE	32	--		
	--	33	SPARE	20 A	1	--	--				0	0	--	--	1	20 A	SPARE	34	--	
	--	35	SPARE	20 A	1	--	--					0	0	--	--	1	20 A	SPARE	36	--
	--	37	SPD-1	60 A	3	6 6 10	0	--	--	--	1	--	SPACE	38	--					
	--	39	--	--	--	--	--		0	--	--	1	--	SPACE	40	--				
	--	41	--	--	--	--	--			0	--	1	--	SPACE	42	--				
Total Load:						3.96 kVA	3.60 kVA	3.78 kVA												



GENERAL NOTES:

1. ALL SYMBOLS AND ABBREVIATIONS LISTED MAY NOT BE APPLICABLE TO THIS PROJECT. REFER TO THE TECHNOLOGY EQUIPMENT SCHEDULE FOR MORE COMPLETE DESCRIPTION AND ITEMS.
2. ALL SYMBOLS AND ABBREVIATIONS REFER TO TECHNOLOGY SHEETS ONLY AS DEFINED ON KEY SHEET INDEX. REFER TO THE GENERAL TECHNOLOGY NOTES FOR ADDITIONAL INFORMATION.
3. ALL SYMBOLS LISTED ABOVE ARE FOR REFERENCE ONLY. REFER TO PLANS AND LINE TYPE KEY FOR NOTATION. EXISTING TO REMAIN AND TO BE REMOVED ITEMS FOR ADDITIONAL INFORMATION.
4. REFER TO RISERS ON SHEET T5.1.

TECHNOLOGY SYMBOL NOTATIONS:

1. INDICATES DOR CONTROL BY EXISTING SYSTEM OWNER. SECURITY VENDOR ACCURATE CONTROLS. INFO. REFER TO TECHNOLOGY EQUIPMENT SCHEDULE AND CONTROLLED SECURITY SCHEME (CSS) TYPE SCHEDULE ON T6.1 FOR ADDITIONAL INFORMATION.
2. "CF" INDICATES INFORMATION OUTLET FAN/FAIR CONFIGURATION. REFER TO KEY POSITION OUTLET SCHEDULE ON T6.1 FOR ADDITIONAL INFORMATION.
3. SYMBOL INDICATES LOCATION OF OWNER PROVIDED AND INSTALLED CAMERA. PROVIDE DATA CABLEING ONLY. REFER TO FIBER AND COPPER RISER FOR ADDITIONAL INFORMATION.

TECHNOLOGY ABBREVIATION KEY	
ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFC	BELOW FINISHED CEILING
C	CONDUIT
DE	DELAYED EGRESS
DPDT	DOUBLE POLE DOUBLE THROW
FOV	FIELD OF VIEW
J-BOX	JUNCTION BOX
POE	POWER OVER ETHERNET
PTZ	PAN TILT ZOOM
SIM	SIMILAR
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
+H	MOUNTING HEIGHT ABOVE FINISHED FLOOR
EF-#	ENTRANCE FACILITY
MC-#	MAIN CROSS-CONNECT
TR-#	TELECOMMUNICATIONS ROOM

SUGGESTED MATRIX OF RESPONSIBILITY NOTES

1. LOCATIONS OF TELECOMMUNICATIONS ROUGH-INS SHALL BE INDICATED BY THE INFORMATION OUTLET SYMBOLS ON THE DRAWINGS. REFER TO THE TECHNOLOGY SYMBOL LIST FOR INFORMATION.
2. BASED ON THE INHERENT DIFFERENCES IN PRODUCTS FROM VARIOUS MANUFACTURERS, ALL REQUIRED EQUIPMENT MAY NOT BE SHOWN ON THE DRAWINGS FOR ALL ACCEPTABLE MANUFACTURERS.
3. INCLUDES BOXES AND CONDUIT REQUIRED FOR THE TECHNOLOGY SYSTEMS INSTALLATION. THE E.C. SHALL BASE THE BID ON THE BASIS OF DESIGN SHOWN ON THE CONTRACT DOCUMENTS.
4. ALL CHANGES TO THE SLEEVES, BACKBOXES, CONDUITS, AND POWER REQUIRED BECAUSE OF THE C.C.'S CHOICE OF AN ALTERNATE ACCEPTABLE MANUFACTURER OR FROM SYSTEM CONFIGURATIONS THAT ARE LEFT TO THE CHOICE OF THE CONTRACTOR SHALL BE INCLUDED IN THE T.C.'S BID. THIS BID SHALL INCLUDE INSTALLATION BY A LICENSED ELECTRICIAN.
5. UNLESS TRADE RULES DICTATE OTHERWISE.
6. FURNISHED AS PART OF THE EQUIPMENT WHEN POSSIBLE, OR FURNISHED TO THE E.C. FOR INSTALLATION IN THE FIELD.
7. INCLUDES ALL CONDUCTORS, GROUND BARS, AND TERMINATIONS FOR THE COMPLETE BONDING SYSTEM REQUIRED BY THE SPECIFICATIONS.
8. REFER TO THE CONTRACT DRAWINGS FOR LOCATIONS OF PANELS AND SWITCHBOARDS SHOWN IN THE TECHNOLOGY BONDING RISER DIAGRAM AND TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.

TELECOM ROOM REFERENCES			
TELECOM ROOM	DETAIL / SHEET REFERENCE	FLOOR PLAN REFERENCE	ARCH ROOM NUMBER
MC-1	EXISTING	T1.1	1042
TR-1	T1.1	T1.1	1207

1. CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, ABOVE CEILING, IN FLOOR SLAB, ETC. UNLESS OTHERWISE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS. CONDUIT IN HALLWAYS, STAIRWAYS AND STORAGE ROOMS WITHOUT CEILINGS MAY BE EXPOSED ON BUILDING STRUCTURE.
2. BOXES LOCATED ON OPPOSITE SIDES OF NON-RATED WALLS SHALL BE OFFSET A MINIMUM OF 6" HORIZONTALLY. BOXES ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE SEPARATED BY A MINIMUM OF 24" HORIZONTALLY. ALL BOXES SHALL BE PROPERLY SEaled AND BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
3. VERIFY ALL FURNITURE, MODULAR FURNITURE, AND EQUIPMENT LOCATIONS WITH THE ARCHITECT/ENGINEER PRIOR TO INSTALLATION. IF NECESSARY, MAKE ANNOTATIONS TO MAKE THE ACTUAL TELECOMMUNICATIONS INSTALLATION, ADJUST OUTLETS OR CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
4. TELECOMMUNICATIONS EQUIPMENT SHALL BE INSTALLED TO ALLOW ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT, ALL MOUNTING OF TELECOMMUNICATION DEVICES ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
5. TELECOMMUNICATIONS EQUIPMENT SHALL BE INSTALLED TO ALLOW ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT, ALL MOUNTING OF TELECOMMUNICATION DEVICES ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
6. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUNDED TO THE EQUIPMENT GROUND.
7. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E84 STANDARDS FOR FIRE TESTS OF PENETRATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL TESTS AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO THE WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.

TECHNOLOGY SHEET INDEX	
T0.0	TECHNOLOGY COVERSHEET
T1.1	LEVEL 01 PLAN - AREA A - TECHNOLOGY
T1.2	LEVEL 01 PLAN - AREA B - TECHNOLOGY
T1.3	LEVEL 02 PLAN - AREA B - TECHNOLOGY
T4.1	TECHNOLOGY DETAILS
T5.1	TECHNOLOGY DIAGRAMS
T6.1	TECHNOLOGY SCHEDULES
GRAND TOTAL: 7	


Bishop Engineering

ISSUE:	
#	DATE: DESCRIPTION:

BID SET

PROJECT: STATE OF IOWA - DEPARTMENT OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: DAMDEE

DRAWN: VIRPAT

REVIEWED: PHINIE

SHEET TITLE:

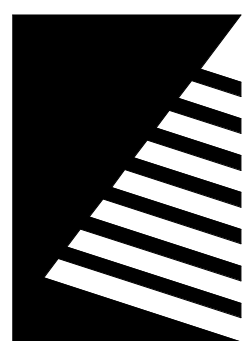
TECHNOLOGY COVERSHEET

SHEET NUMBER: _____

T0.0

PROJECT NO.: 0240202.00

RFB922300-02



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: DAMDEE

DRAWN: VIRPAT

REVIEWED: PHINIE

SHEET TITLE:

LEVEL 01 PLAN -
AREA A -
TECHNOLOGY

SHEET NUMBER:

T1.1

PROJECT NO.:

0240202.00

RFB922300-02

GENERAL NOTES:

1. ALL NEW DATA AND CCTV CABLING ROUTES TO TR-1 ON THIS SHEET.
2. ALL NEW PAGING AND ACCESS CONTROL CABLING ROUTES TO MC-1 ON THIS SHEET.

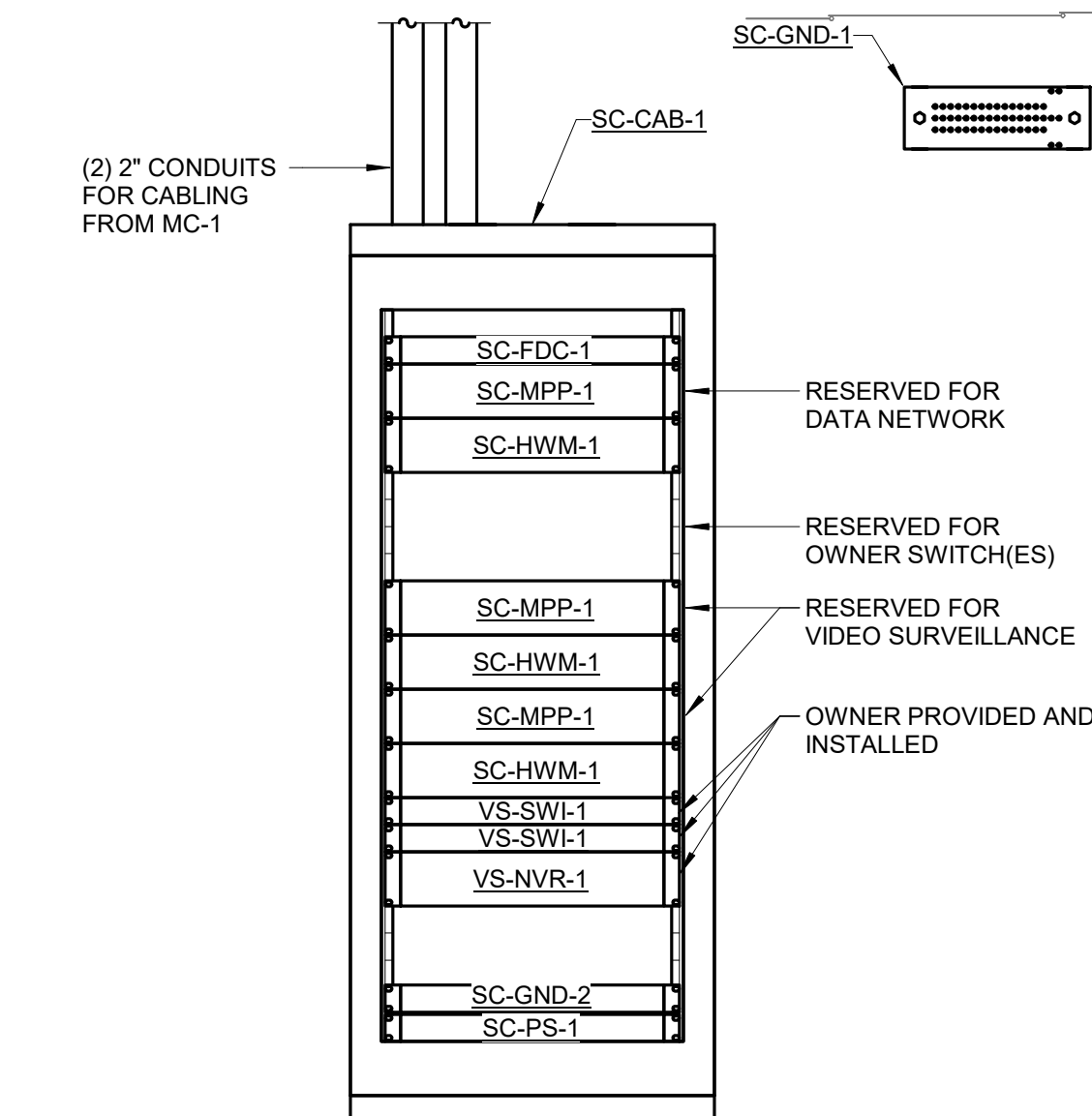
KEYNOTES:

1. DATA FOR FOODSERVICE REFRIGERATION EQUIPMENT. VERIFY EXACT LOCATION AND TERMINATION WITH FOODSERVICE VENDOR PRIOR TO ROUGH-IN.
2. ELECTRONIC HOLD OPEN AT FIRE WALL DOOR, REFER TO ELECTRICAL.



2 ENLARGED PLAN - TELECOM ROOM TR-1

1/4" = 1'-0"



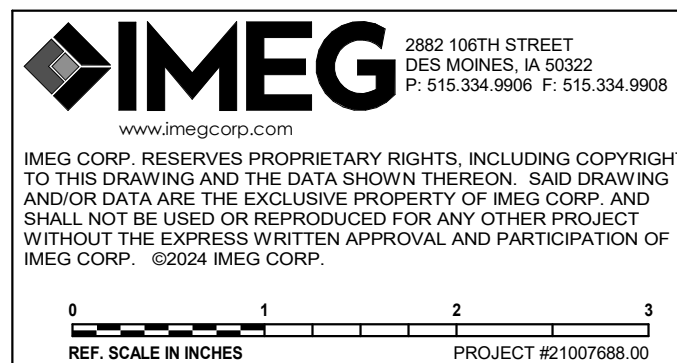
3 ELEVATION - TELECOM ROOM TR-1

1" = 1'-0"



1 LEVEL 01 PLAN - AREA A - TECHNOLOGY

1/8" = 1'-0"



- GENERAL NOTES:**
1. ALL NEW DATA AND CCTV CABLING ROUTES TO TR-1, REFER TO T1.1.
 2. ALL NEW PAGING AND ACCESS CONTROL CABLING ROUTES TO MC-1, REFER TO T1.1.
- KEYNOTES:** (A)
1. DATA FOR FOODSERVICE REFRIGERATION EQUIPMENT. VERIFY EXACT LOCATION AND TERMINATION WITH FOODSERVICE VENDOR PRIOR TO ROUGH-IN.

Farnsworth GROUP
14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: DAMDEE

DRAWN: VIRPAT

REVIEWED: PHINIE

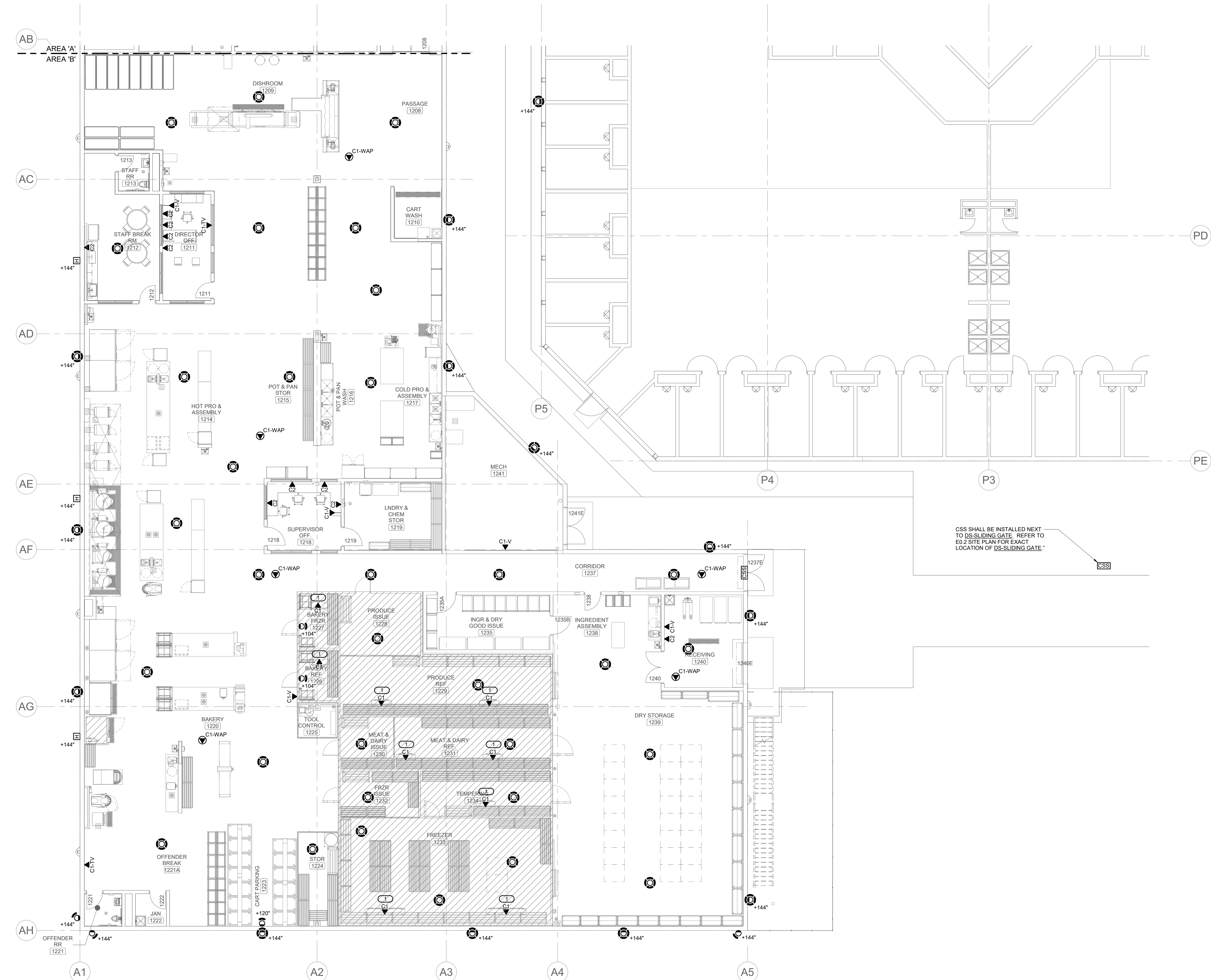
SHEET TITLE:

**LEVEL 01 PLAN -
AREA B -
TECHNOLOGY**

SHEET NUMBER:

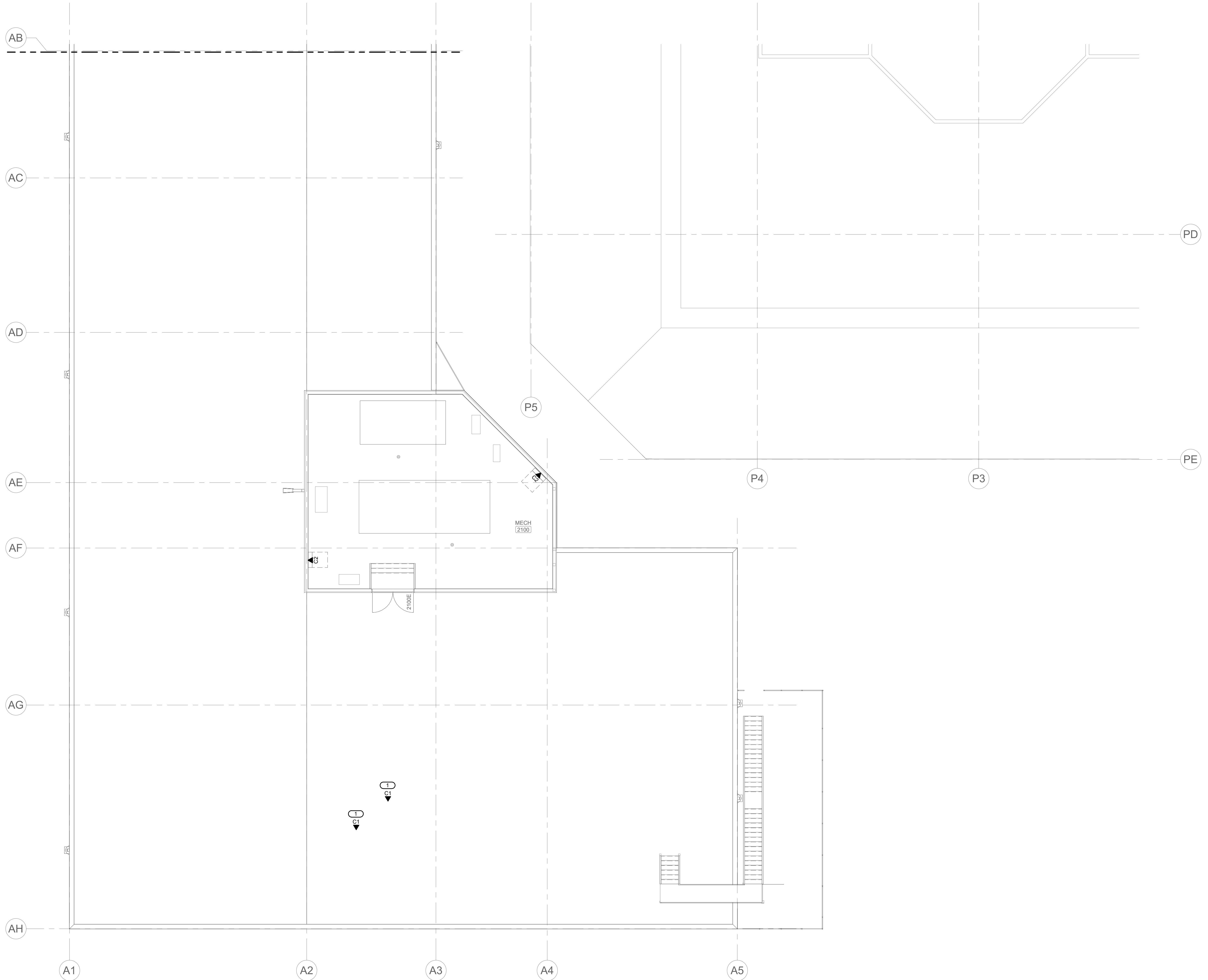
T1.2

PROJECT NO.: 0240202.00
RFB922300-02



1 LEVEL 01 PLAN - AREA B - TECHNOLOGY
1/8" = 1'-0"

IMEG
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.



GENERAL NOTES:

1. ALL NEW DATA AND CCTV CABLING ROUTES TO TR-1, REFER TO T1.1.

KEYNOTES: (E)

1. DATA FOR FOODSERVICE REFRIGERATION EQUIPMENT ON ROOF. VERIFY EXACT LOCATION AND TERMINATION WITH FOODSERVICE VENDOR PRIOR TO ROUGH-IN.

Farnsworth GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024
DESIGNED: DAMDEE
DRAWN: VIRPAT
REVIEWED: PHINIE

SHEET TITLE:
**LEVEL 02 PLAN -
AREA B -
TECHNOLOGY**

SHEET NUMBER:

T1.3

PROJECT NO.: 0240202.00
RFB922300-02



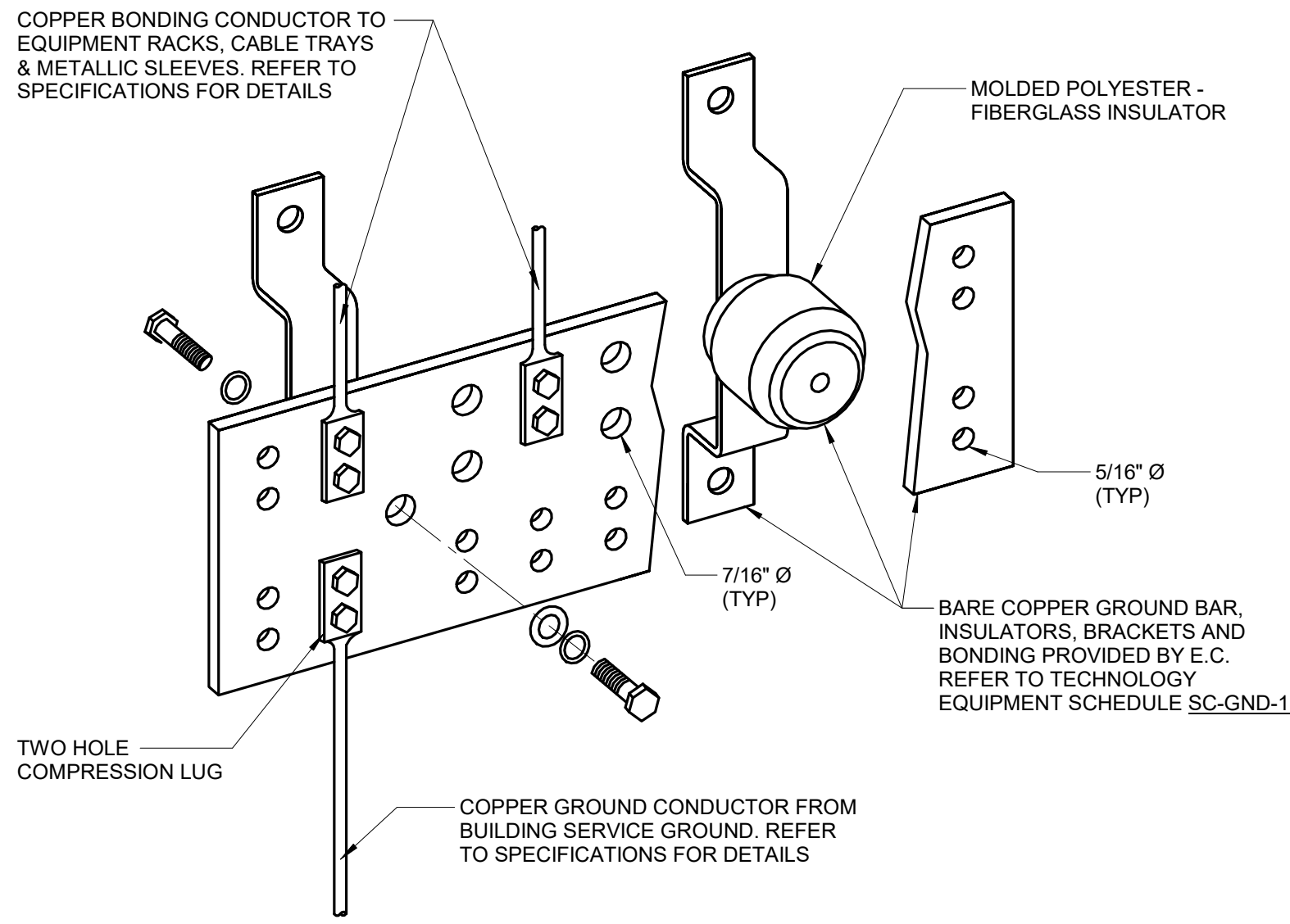
1

LEVEL 02 PLAN - AREA B - TECHNOLOGY

1/8" = 1'-0"

IMEG
www.imegcorp.com
IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00

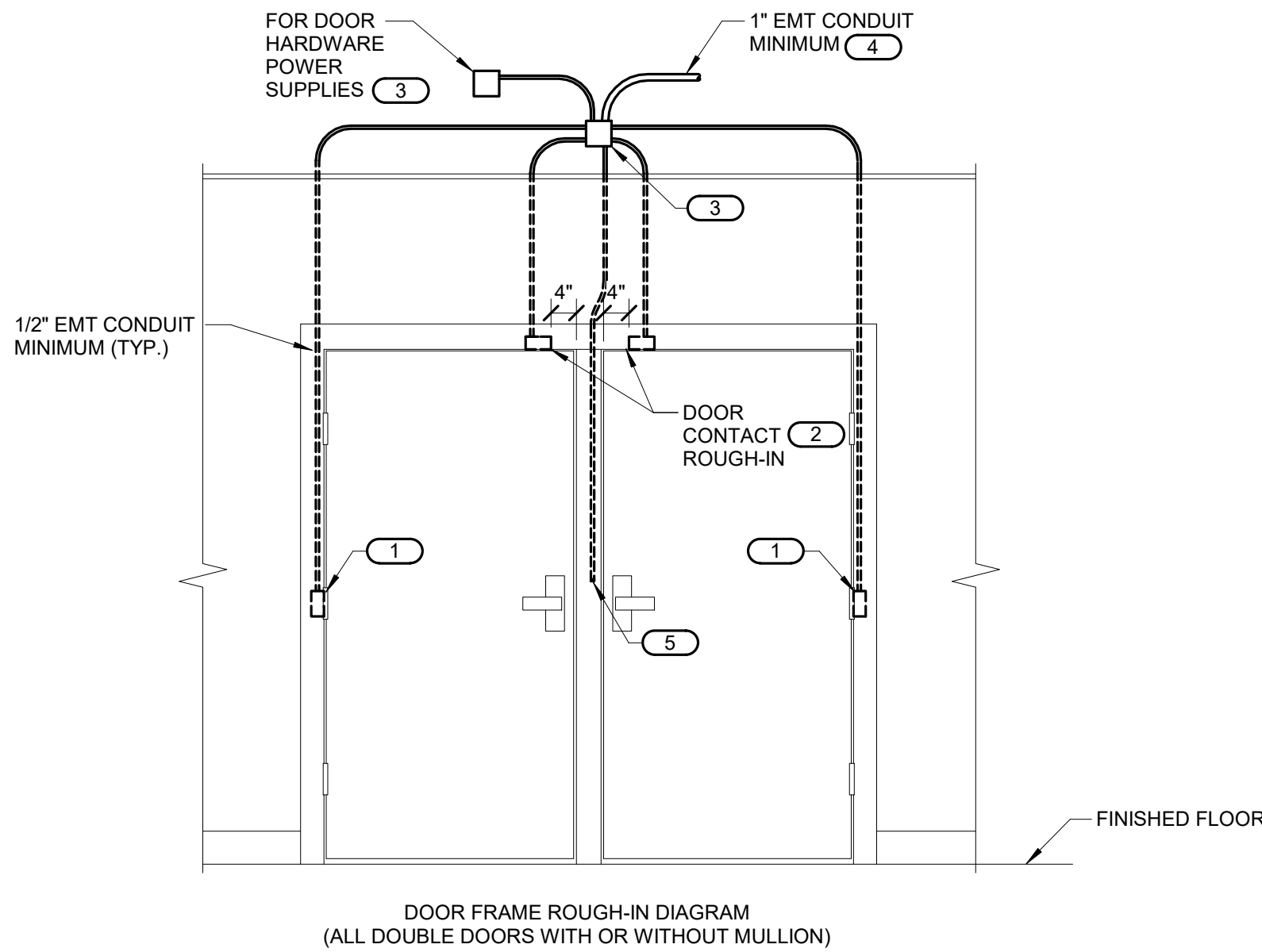


1 BONDING BUS BAR DETAIL

NO SCALE

NOTES:

1. REFER TO TECHNOLOGY EQUIPMENT SCHEDULE SC-GND-1 FOR WIDTH REQUIREMENTS.
2. REFER TO 1/T 5.1 FOR TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.



3 CONTROLLED SECURITY SCHEME DOOR ROUGH-IN DETAIL

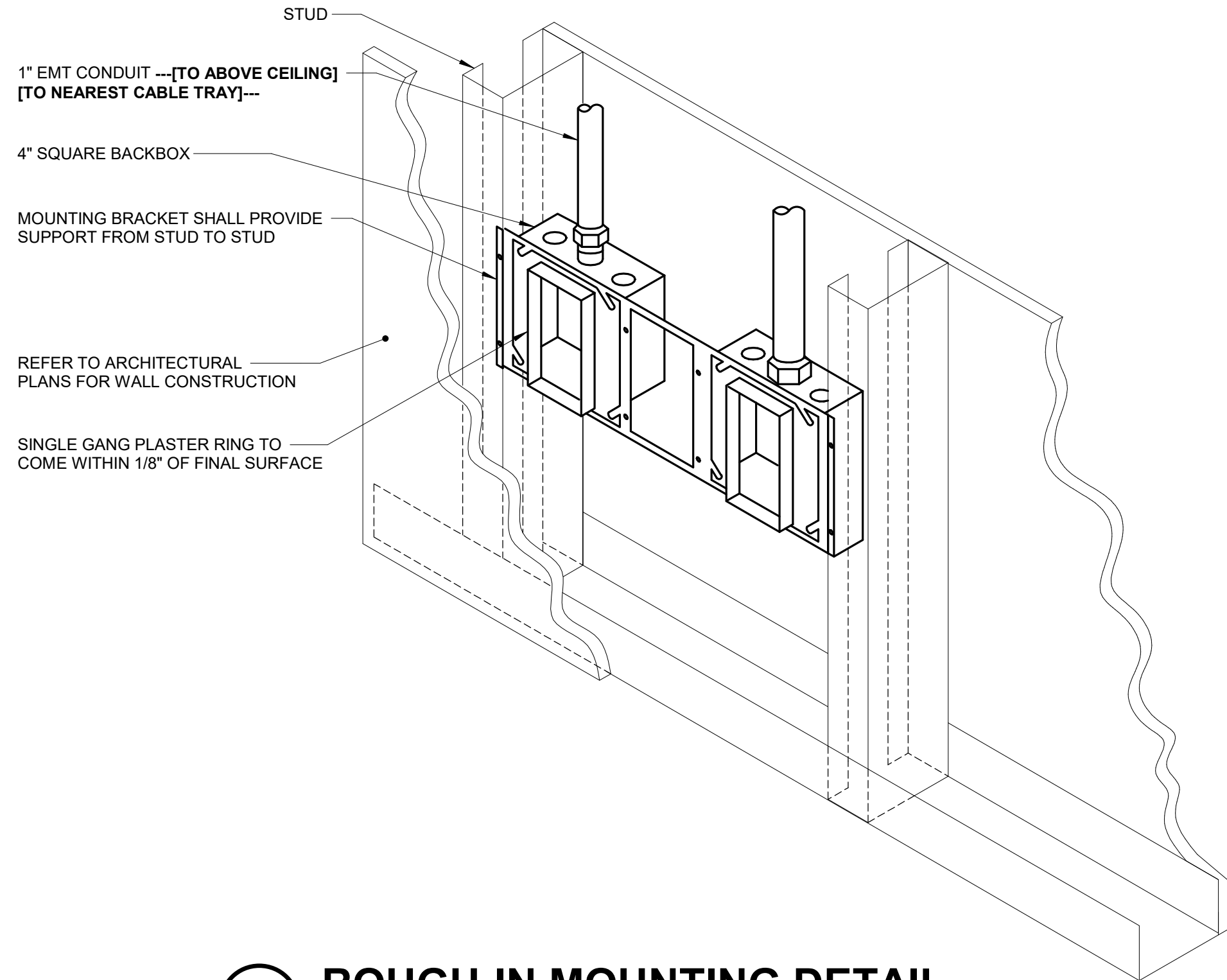
NO SCALE

NOTES:

1. CONFIGURATIONS SHOWN IN THE DETAIL ABOVE ARE DIAGRAMMATIC, INTENDED TO DESCRIBE THE CONTROLLED SECURITY SCHEME ROUGH-IN REQUIREMENTS OF THE DOORS. DETAILS ABOVE MAY NOT ACCURATELY REPRESENT DOOR SIZE, DOOR SWING, DOOR HARDWARE, OR DOOR FUNCTIONALITY. REFER TO ARCHITECTURAL DOOR HARDWARE SCHEDULE, DOOR HARDWARE GROUPS AND DOOR HARDWARE SPECIFICATIONS FOR COMPLETE INFORMATION. MIRROR THE DETAIL AS REQUIRED.
2. THE ELECTRICAL OR SECURITY CONTRACTOR SHALL NOT MODIFY ANY FIRE RATED DOOR AND/OR DOOR FRAME. REFER TO THE ARCHITECTURAL DOOR SCHEDULE, DOOR HARDWARE SCHEDULE, AND DOOR HARDWARE SPECIFICATION FOR ADDITIONAL INFORMATION. MODIFICATION TO ANY FIRE RATED DOOR AND/OR FRAME WILL REQUIRE A RE-CERTIFICATION OF THE DOOR AND FRAME WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
3. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR ALL CONTROLLED SECURITY SCHEME ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
4. REFER TO SECTION 28 13 00 FOR CABLING REQUIREMENTS AND THE CONTROLLED SECURITY SCHEME SCHEDULE ON T6.1 FOR ADDITIONAL INFORMATION.
5. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC. REFER TO THE SUGGESTED MATRIX OF SCOPE RESPONSIBILITY FOR ADDITIONAL INFORMATION.

KEYNOTES: (#)

1. PROVIDE JUNCTION BOXES IN THE DOOR FRAME WHERE SHOWN ON THIS DETAIL. COORDINATE INSTALLATION WITH ON-SITE DOOR FRAME INSTALLATION CONTRACTOR.
2. ALL DOOR POSITION SWITCHES ARE REQUIRED TO BE RECESSED UNLESS OTHERWISE NOTED. ELECTRIC HINGE MONITORS ARE NOT AN ACCEPTABLE REPLACEMENT FOR THE RECESSED DOOR POSITION SWITCH.
3. MOUNT A MINIMUM 4" SQUARE 2-1/8" DEEP JUNCTION BOX WITH BLANK COVER PLATE ON THE SECURE SIDE OF THE DOOR ABOVE ACCESSIBLE CEILING. INSTALLING CONTRACTOR SHALL SIZE THE JUNCTION BOXES PER SYSTEM INSTALLATION REQUIREMENTS AND APPLICABLE CODES. MAINTAIN ACCESS TO THE JUNCTION BOX.
4. CONDUIT SHALL ROUTE A MINIMUM OF 12" FROM THE JUNCTION BOX.
5. CONDUIT INSTALLED IN PERMANENT MULLIONS ONLY. REFER TO THE ARCHITECTURAL DOOR SCHEDULE AND DOOR HARDWARE GROUPS FOR LOCATIONS THAT REQUIRE THIS ROUGH-IN. PROVIDE A NYLON BUSHING ON THE CONDUIT END.



2 ROUGH-IN MOUNTING DETAIL

NO SCALE

NOTES:

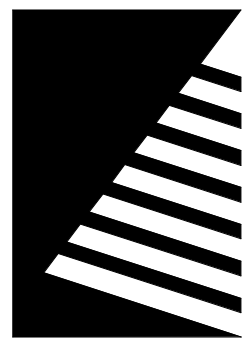
1. REFER TO FLOOR PLANS FOR STANDARD MOUNTING HEIGHT.
2. THE INTENT OF THE DETAIL IS TO ENSURE DEVICE ROUGH-INS ARE ALIGNED, SOLIDLY MOUNTED AND THE SURFACE OF THE TRIM IS EITHER FLUSH WITH THE WALL SURFACE OR WITHIN 1/8" OF THE WALL SURFACE. JUNCTION BOXES LARGER THAN 4" SQUARE SHALL BE MOUNTED IN A MANNER THAT IS SIMILAR TO THE SYSTEM NOTED ABOVE OR ACHIEVES THE SAME RESULTS.
3. PLASTER RINGS DEPTH SHALL BE 1/8" DEEPER THAN THE GYP BOARD.
4. MOUNTING BRACKET FOR 2 1/2" OR 3 1/2" STUDS SHALL BE CADDY #H23, OR B-LINE B84-4. FOR MULTIPLE BOXES BETWEEN STUDS, BRACKET SHALL BE CADDY #RBS16/#RBS24 OR B-LINE B86-# OR B8F# FLOOR MOUNT SUPPORT WITH BBFC.

2882 10TH STREET
DES MOINES, IA 50322
P: 515.334.9908 F: 515.334.9908

www.imegcorp.com

IMEG CORP. RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREIN. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF IMEG CORP. AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF IMEG CORP. ©2024 IMEG CORP.

0 1 2 3
REF. SCALE IN INCHES PROJECT #21007888.00



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WAUKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: DAMDEE

DRAWN: VIRPAT

REVIEWED: PHINIE

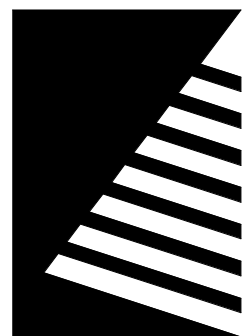
SHEET TITLE:

TECHNOLOGY
DETAILS

SHEET NUMBER:

T4.1

PROJECT NO.: 0240202.00
RFB922300-02



Farnsworth
GROUP

14225 UNIVERSITY AVENUE, SUITE 110
WALKEE, IOWA 50263
(515) 225-3469 / info@f-w.com

www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

kpff

IMEG

Bishop Engineering

ISSUE:
DATE: DESCRIPTION:

BID SET

PROJECT:
STATE OF IOWA - DEPARTMENT
OF CORRECTIONS

CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION

2000 N 16TH ST, CLARINDA, IA
51632

DATE: 02/09/2024

DESIGNED: DAMDEE

DRAWN: VIRPAT

REVIEWED: PHINIE

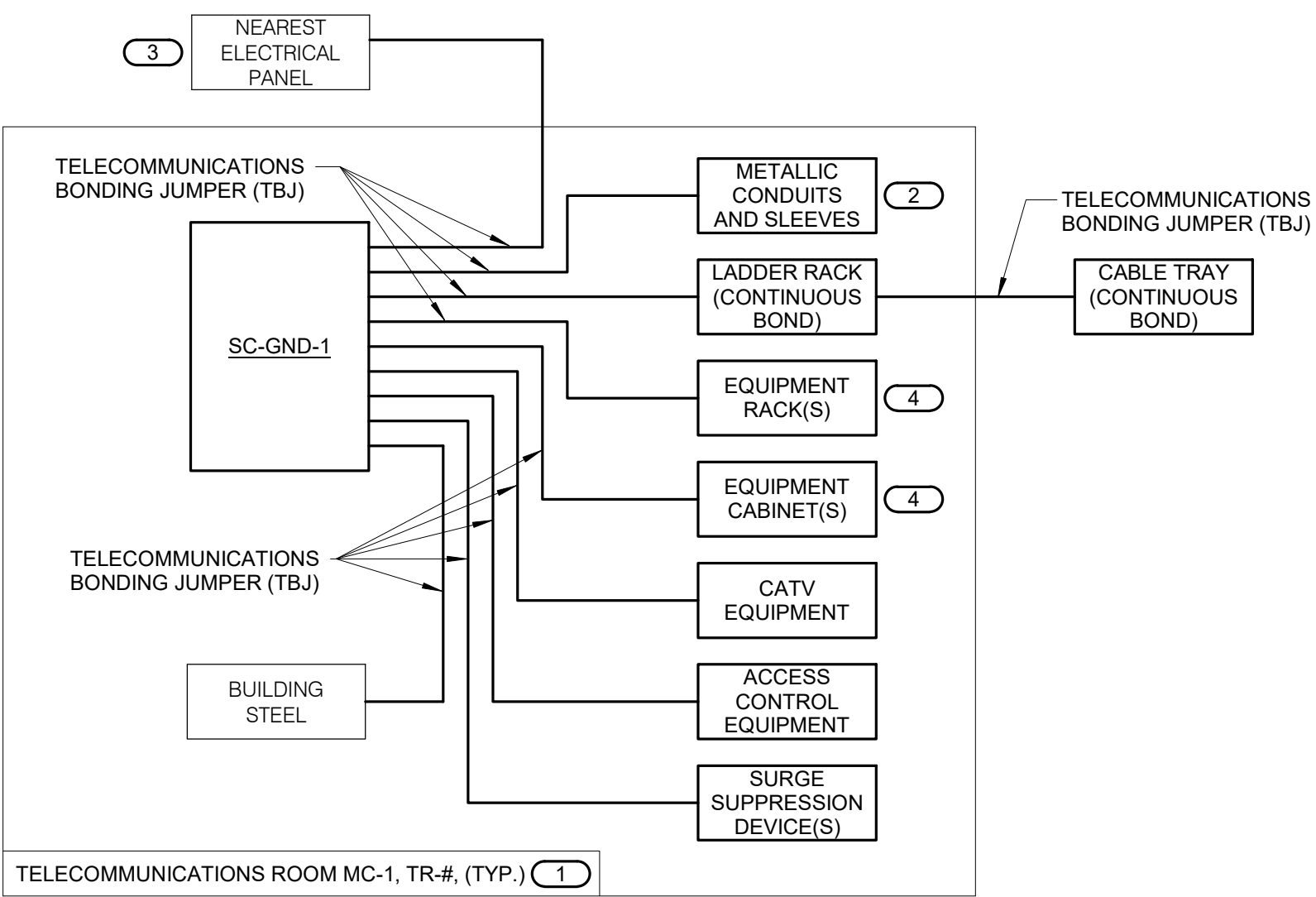
SHEET TITLE:

TECHNOLOGY
DIAGRAMS

SHEET NUMBER:

T5.1

PROJECT NO.: 0240202.00
RFB922300-02



1 TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM

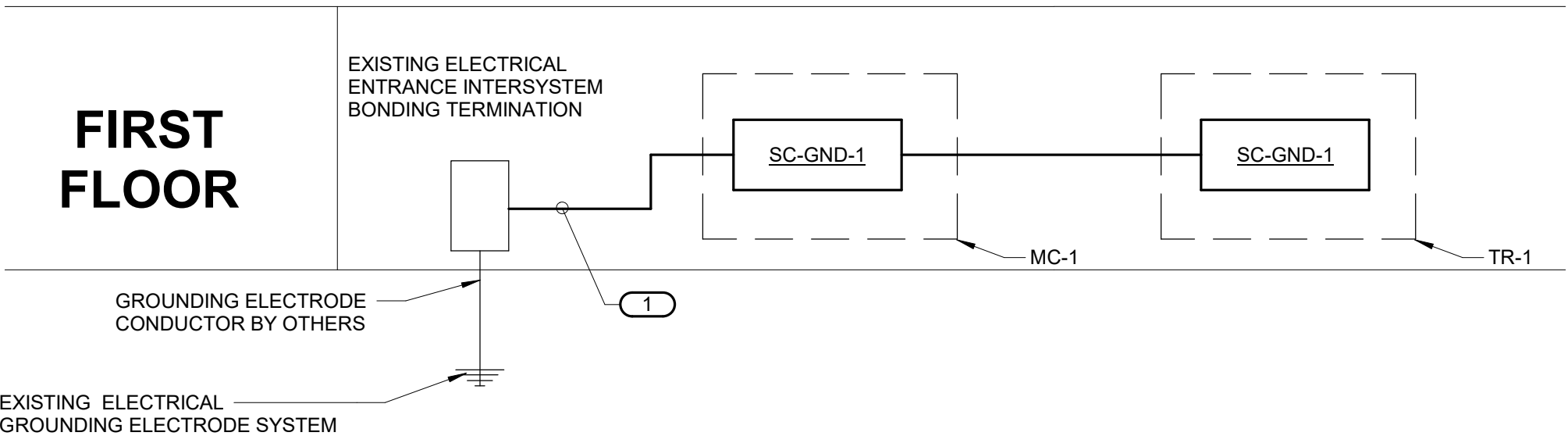
NO SCALE

NOTES:

- THIS FLOW DIAGRAM IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS FLOW DIAGRAM IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CONDUCTOR TYPE. ALL CONNECTIONS AND SYSTEM DEVICES SHOWN ARE TYPICAL AND NOT REPRESENTATIVE OF ACTUAL PROJECT QUANTITIES. REFER TO FLOOR PLANS AND ENLARGED FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF DEVICES AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ALL CONDUCTORS IN THE TECHNOLOGY BONDING SYSTEM SHALL BE MINIMUM SIZE OF 3/0 AWG PLENUM RATED COPPER (GREEN OR MARKED WITH A DISTINCTIVE GREEN COLOR) UNLESS CONDUCTOR LENGTH IS LESS THAN 66 FEET. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING CRITERIA FOR CONDUCTORS LESS THAN 66 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ALL BONDING CONDUCTORS AND BONDING JUMPERS SHALL BE CONNECTED BY COMPRESSION LUGS, EXOTHERMIC WELDING, OR IRREVERSIBLE COMPRESSION CONNECTORS. SOLDER IS NOT AN ACCEPTABLE MEANS OF CONNECTION. SHEET METAL SCREWS SHALL NOT BE USED TO CONNECT COMMUNICATIONS BONDING CONDUCTORS TO EQUIPMENT. WHERE NECESSARY, REMOVE PAINT AND/OR USE PAINT-PIERCING WASHERS TO PROVIDE PROPER ELECTRICAL BOND AT ALL CONNECTIONS.
- REFER TO 1/74.1 FOR BONDING BUS BAR DETAIL AND ADDITIONAL INFORMATION AND REQUIREMENTS FOR SC-GND-1.

KEYNOTES:

- REFER TO TELECOM ROOM REFERENCES SCHEDULE ON COVERSHEET FOR TELECOMMUNICATIONS ROOM NUMBER AND LOCATION INFORMATION.
- INCLUDES HORIZONTAL AND VERTICAL CONDUIT SLEEVES FOR TECHNOLOGY CABLING.
- REFER TO THE ELECTRICAL DRAWING FOR LOCATION.
- PROVIDE SC-GND-2 RACK MOUNT TELECOMMUNICATIONS BONDING BUSBAR AT EACH EQUIPMENT RACK.



2 TECHNOLOGY BONDING RISER DIAGRAM

NO SCALE

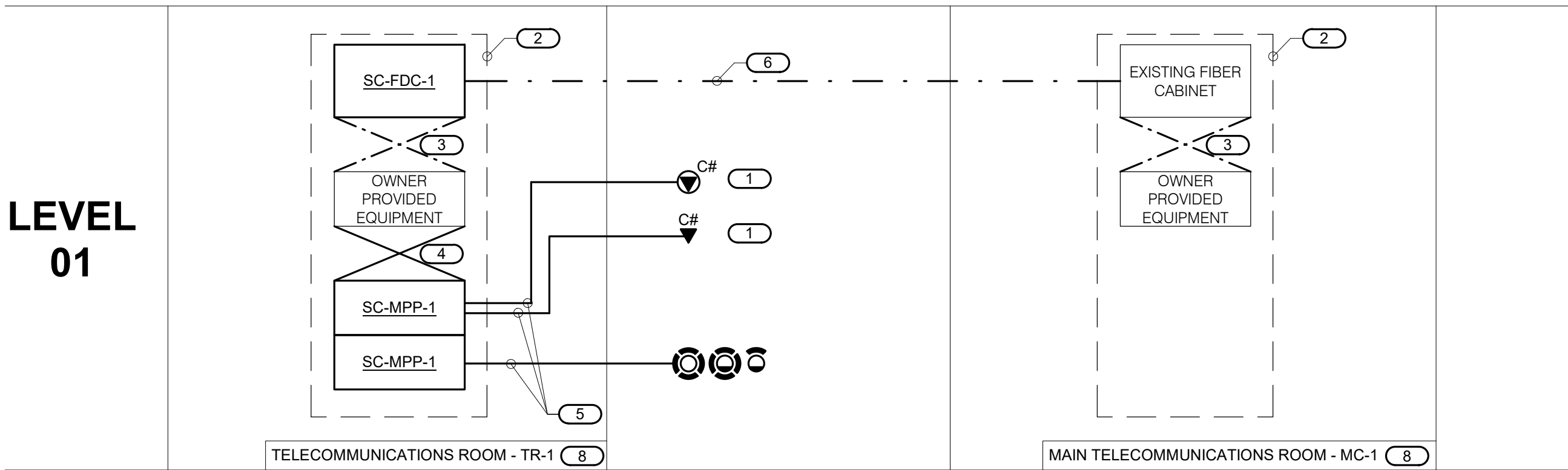
NOTES:

- THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CONDUCTOR TYPE. ALL CONNECTIONS AND SYSTEM DEVICES SHOWN ARE TYPICAL AND NOT REPRESENTATIVE OF ACTUAL PROJECT QUANTITIES. REFER TO FLOOR PLANS AND ENLARGED FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF DEVICES AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ALL CONDUCTORS IN THE TECHNOLOGY BONDING SYSTEM SHALL BE MINIMUM SIZE OF 3/0 AWG PLENUM RATED COPPER (GREEN OR MARKED WITH A DISTINCTIVE GREEN COLOR) UNLESS CONDUCTOR LENGTH IS LESS THAN 66 FEET. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING CRITERIA FOR CONDUCTORS LESS THAN 66 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ALL BONDING CONDUCTORS AND BONDING JUMPERS SHALL BE CONNECTED BY COMPRESSION LUGS, EXOTHERMIC WELDING, OR IRREVERSIBLE COMPRESSION CONNECTORS. SOLDER IS NOT AN ACCEPTABLE MEANS OF CONNECTION. SHEET METAL SCREWS SHALL NOT BE USED TO CONNECT COMMUNICATIONS BONDING CONDUCTORS TO EQUIPMENT. WHERE NECESSARY, REMOVE PAINT AND/OR USE PAINT-PIERCING WASHERS TO PROVIDE PROPER ELECTRICAL BOND AT ALL CONNECTIONS.

KEYNOTES:

- BONDING CONDUCTOR FOR TELECOMMUNICATIONS (BCT). BCT SHALL BE THE SAME SIZE AS THE TBB OR LARGER. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING REQUIREMENTS.

BONDING CONDUCTOR SIZING SCHEDULE	
CONDUCTOR LENGTH IN FEET	MINIMUM ACCEPTABLE SIZE - AWG
LESS THAN 13'	6
14' - 20'	4
21' - 26'	3
27' - 33'	2
34' - 41'	1
42' - 52'	1/0
53' - 66'	2/0
GREATER THAN 66'	3/0



3 FIBER AND COPPER RISER DIAGRAM

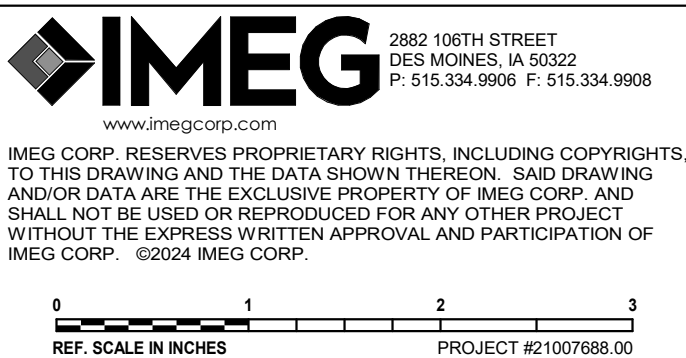
NO SCALE

NOTES:

- THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS SHOWN. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION(S), LOCATIONS AND CABLE TYPE. ALL INFORMATION OUTLETS ARE TYPICAL OF THE OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- REFER TO FLOOR PLANS FOR QUANTITY OF CABLES AND JACKS TO BE INSTALLED AT EACH INFORMATION OUTLET.

KEYNOTES: (#)

- C# INDICATES VOICE/DATA FACEPLATE CONFIGURATION. REFER TO THE INFORMATION OUTLET SCHEDULE ON T6.1 FOR ADDITIONAL INFORMATION. REFER TO SPECIFICATIONS SECTION 27.15.00 FOR ADDITIONAL INFORMATION.
- RACK OR CABINET AS DEFINED ON THE TELECOM ROOM LAYOUT. REFER TO THE TELECOM ROOM REFERENCES MATRIX ON THE COVERPAGE FOR LOCATION.
- REFER TO SPECIFICATIONS FOR FIBER PATCH CORD REQUIREMENTS.
- RJ-45 TO RJ-45 CATEGORY 6 UTP PATCH CORDS. REFER TO SPECIFICATIONS.
- 4-PAIR, CATEGORY 6 UNSHIELDED TWISTED PAIR CABLE. REFER TO SPECIFICATIONS.
- 12 STRAND MM FIBER OPTIC CABLE.
- NOT USED.
- REFER TO COVERPAGE AND FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.





www.f-w.com
Engineers | Architects | Surveyors | Scientists

RIPPE ASSOCIATES
FOODSERVICE DESIGN + CONSULTING

[illegible]

PROJECT: STATE OF IOWA - DEPARTMENT OF CORRECTIONS

**CLARINDA
CORRECTIONAL
FACILITY - KITCHEN &
LAUNDRY ADDITION**

DATE: 02/09/2024

DESIGNED: DAMDEE

DRAWN: VIRPAT

SHEET TITLE

TECHNOLOGY SCHEDULES

SHEET NUMBER:

T6.1

PROJECT NO.: 0240202.0

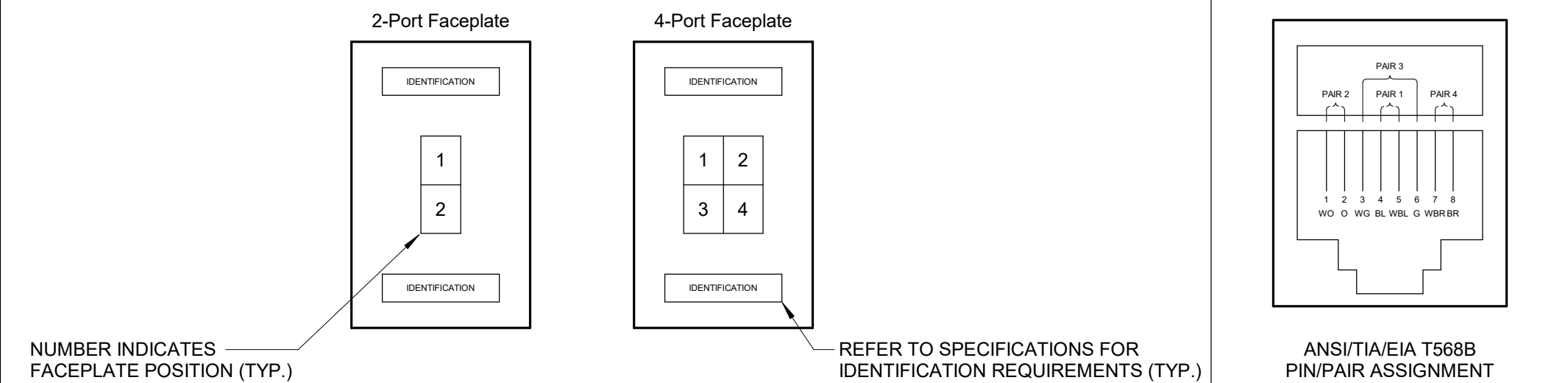
RFB922300-0

GENERAL NOTES:

1. ELECTRONIC DOOR HARDWARE SUCH AS ELECTRIC STRIKES, ELECTRIC LATCH RETRACTION, ETC. SHALL BE PROVIDED AND INSTALLED BY OTHERS
2. REFER TO SPECIFICATIONS SECTIONS 08 71 00 AND 11 19 00 FOR DOOR HARDWARE SETS AS IT RELATES TO THIS SCHEDULE.

[illegible]

SINGLE GANG WALL PLATES



- NOTES:**
1. PROVIDE REMOVABLE BLANK INSERT(S) FOR ALL UNUSED PORTS.
 2. REFER TO SPECIFICATIONS SECTION 27 05 53 FOR ADDITIONAL INFORMATION ON LABELING REQUIREMENTS.

- SCHEDULE NOTES:
1. LOCATION OF FUTURE OR OWNER PROVIDED WIRELESS ACCESS POINT. PROVIDE A 20' SLACK COIL AT THE NEAREST CABLE TRUNK. PROVIDE A 20' SLACK COIL AT THE NEAREST CABLE TRUNK FOR POSSIBLE RELOCATION AFTER WIRELESS SURVEY.
 2. ROUTE RG6 CABLE TO MC-1, TERMINATE AND COIL FOR CONNECTION BY OWNER.
 3. VERIFY EXACT HEIGHT AND LOCATION OF OWNER PHONE PRIOR TO ROUGH-IN.

CONFIGURATION	FACEPLATE PORTS	FACEPLATE PORT IDENTIFICATION						NOTES
		POSITION 1 JACK TYPE	POSITION 2 JACK TYPE	POSITION 3 JACK TYPE	POSITION 4 JACK TYPE	POSITION 5 JACK TYPE	POSITION 6 JACK TYPE	
C1	2	DATA	BLANK					
C1-TV	2	TV	BLANK					2.
C1-V	2	DATA	BLANK					3.
C1-WAP	2	DATA	BLANK					1.
C2	4	DATA	DATA	BLANK	BLANK			

THE EQUIPMENT LIST ABBREVIATIONS AND THE TECHNOLOGY EQUIPMENT SCHEDULE ARE FOR THE CONVENIENCE OF THE CONTRACTOR. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF QUANTITIES AND SHALL FURNISH ALL MATERIAL REQUIRED, WHETHER SPECIFIED OR NOT, TO PRODUCE A SATISFACTORY WORKING SYSTEM.

CATALOG NUMBERS ARE NOT TO BE CONSIDERED COMPLETE BUT ARE GIVEN ONLY TO AID THE CONTRACTOR IN THE SEARCH FOR MATERIAL. NO MATERIAL SHALL BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. EACH CONTRACTOR SHALL FIRST READ THE COMPLETE DESCRIPTION OF THE MATERIAL ON THESE DRAWINGS AND SPECIFICATIONS. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN. "STANDARD COLOR" INDICATES FACTORY FINISH AVAILABLE AT NO ADDITIONAL CHARGE.

CATALOG NUMBERS ARE NOT TO BE CONSIDERED COMPLETE BUT ARE GIVEN ONLY TO AID THE CONTRACTOR IN THE SEARCH FOR MATERIAL. NO MATERIAL SHALL BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. EACH CONTRACTOR SHALL FIRST READ THE COMPLETE DESCRIPTION OF THE MATERIAL ON THESE DRAWINGS AND SPECIFICATIONS. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN. "STANDARD COLOR" INDICATES FACTORY FINISH AVAILABLE AT NO ADDITIONAL CHARGE.

APPROVAL LIST ABBREVIATION	EQUIPMENT LIST DESCRIPTION	MANUFACTURER AND MODEL
PA-H1-W	COMMERCIAL PAGING HORN, 70W SELECTABLE TRANSFORMER, 15 W POWER HANDLING, MOUNT AT HEIGHT SHOWN ON PLANS. PROVIDE NEW PAGING CABLING WITH PAGING HORN TO NEAREST EXISTING PAGING CHANNEL. REFER TO SECTION 27.13 FOR ADDITIONAL INFORMATION. ROUGH-IN A SINGLE GANGL BOX WITH (1) 3/4" CONDUIT TO NEAREST CABLEING PATHWAY.	ATLAS AP-117
SC-CAB-1	WALL MOUNT CABINET, THREE-PART SWING OUT DESIGN, UL LISTED 300LB LOAD RATING, 24" DEPTH, 48" HEIGHT WITH 26 RU MINIMUM RACK SPACES, SOLID METAL DOOR. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.	PREAPPROVED EQUAL CHATSWORTH 11840-748
SC-FDC-1	OPTICAL FIBER DISTRIBUTION CABINET, RACK MOUNT, 48 FIBER MAXIMUM CAPACITY, FRONT LOCKING DOOR, SLIDE OUT RAILS TO FACILITATE FRONT ACCESS, JUMPER TROUGHS IN CONNECTOR PANELS TO REDUCE MOUNTING SPACE. REQUIRES (1) 19" X 1.75" RACK MOUNTING SPACE.	PREAPPROVED EQUAL CORNING CCH-01U
SC-GND-1	WALL-MOUNT GROUND BAR, 4" X 1/2" X 12" X 1/4" D COPPER, ELECTRICALLY ISOLATED BY INSULATORS INTEGRAL TO MOUNTING BRACKETS, COPPER GROUND BARS WITH A SINGLE RACK PLASTER RING, INSTALL A 1" EMT CONDUIT TO NEAREST CABLEING PATHWAY UNLESS OTHERWISE NOTED, PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED PORTS. REFER TO SPECIFICATION SECTION 27.15 FOR ADDITIONAL INFORMATION.	CHATSWORTH 10822-012
SC-GND-2	RACK MOUNTING GROUND BAR, REFER TO SECTION 27.0526 FOR RACK MOUNT GROUND BAR REQUIREMENTS	PREAPPROVED EQUAL
SC-HWM-1	HORIZONTAL WIRE MANAGEMENT, SINGLE-SIDED, 3.59" x 19" W x 8.2" D, PROVIDE WITH COVER, REQUIRES (2) 1.75" MOUNTING SPACES.	CHATSWORTH 3541-E02
SC-IO-C	INFORMATION OUTLET, CEILING MOUNT, 2-PORT COVERPLATE. REFER TO INFORMATION OUTLET SCHEDULE ON THIS SHEET FOR PORT AND PIN CONFIGURATION INFORMATION.	PREAPPROVED EQUAL COVERPLATE/JACK HUBBELL JPH46JK
SC-IO-W	INFORMATION OUTLET, WALL MOUNT, 2 OR 4-PORT COVERPLATE. REFER TO INFORMATION OUTLET SCHEDULE ON THIS SHEET FOR PORT AND PIN CONFIGURATION INFORMATION.	PREAPPROVED EQUAL COVERPLATE/JACK HUBBELL JPH46JK
SC-MPP-1	MODULAR PATCH PANEL, 48 MODULAR RJ-45 TERMINATIONS, MOUNTS DIRECTLY TO EIA/TIA STANDARD 19" UNLASED RACK, PORT IDENTIFICATION NUMBERS PROVIDED WITH COLOR CODING AND LABEL, HOLDER KITS, UL LISTED, REQUIRES (2) 1.75" MOUNTING SPACES. REFER TO 3/715.1 FOR FIBER AND COPPER RISER DIAGRAM.	PREAPPROVED EQUAL HUBBELL HPJ48
SC-PS-1	RACKMOUNT POWER STRIP AND SURGE SUPPRESSION, 20A POWER CAPACITY, REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.	PREAPPROVED EQUAL FURMAN PL-PRO
VS-CM-1	VIDEO SURVEILLANCE CAMERA PROVIDED AND INSTALLED BY OWNER. PROVIDE DATA CABLEING FOR CAMERA. PROVIDE 15 SLACK COIL AND TERMINATED ON RJ-45 PLUS, RJ-45 PLUS SHALL BE HUBBELL S/P8 OR PREAPPROVED EQUAL. REFER TO FIBER AND COPPER RISER DIAGRAM AND SECTION 27.15 FOR ADDITIONAL INFORMATION. ROUGH-IN 4" SQUARE GANGL BOX WITH A SINGLE GANGL PLASTER RING, INSTALL A 1" EMT CONDUIT TO NEAREST CABLE PATHWAY. ADDITIONAL INFORMATION IN DESCRIPTION FOR REFERENCE ONLY. ADDITIONAL INFORMATION IN MANUFACTURER AND MODEL NUMBER FOR REFERENCE ONLY. COMMERCIAL DOME CAMERA, CEILING MOUNT, FISHEYE INDOOR/OUTDOOR VANDALPROOF HOUSING, REFER TO FLOOR PLANS FOR LOCATIONS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.	PREAPPROVED EQUAL PELCO IMF62-1ERS
VS-CM-2	VIDEO SURVEILLANCE CAMERA PROVIDED AND INSTALLED BY OWNER. PROVIDE DATA CABLEING FOR CAMERA. PROVIDE 15 SLACK COIL AND TERMINATED ON RJ-45 PLUS, RJ-45 PLUS SHALL BE HUBBELL S/P8 OR PREAPPROVED EQUAL. REFER TO FIBER AND COPPER RISER DIAGRAM AND SECTION 27.15 FOR ADDITIONAL INFORMATION. ROUGH-IN 4" SQUARE GANGL BOX WITH A SINGLE GANGL PLASTER RING, INSTALL A 1" EMT CONDUIT TO NEAREST CABLE PATHWAY. ADDITIONAL INFORMATION IN DESCRIPTION FOR REFERENCE ONLY. ADDITIONAL INFORMATION IN MANUFACTURER AND MODEL NUMBER FOR REFERENCE ONLY. COMMERCIAL DOME CAMERA, WALL MOUNT, FISHEYE INDOOR/OUTDOOR VANDALPROOF HOUSING, REFER TO FLOOR PLANS FOR HEIGHTS AND LOCATIONS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.	PREAPPROVED EQUAL PELCO IMF62-1ERS
VS-CM-3	VIDEO SURVEILLANCE CAMERA PROVIDED AND INSTALLED BY OWNER. PROVIDE DATA CABLEING FOR CAMERA. PROVIDE 15 SLACK COIL AND TERMINATED ON RJ-45 PLUS, RJ-45 PLUS SHALL BE HUBBELL S/P8 OR PREAPPROVED EQUAL. REFER TO FIBER AND COPPER RISER DIAGRAM AND SECTION 27.15 FOR ADDITIONAL INFORMATION. ROUGH-IN 4" SQUARE GANGL BOX WITH A SINGLE GANGL PLASTER RING, INSTALL A 1" EMT CONDUIT TO NEAREST CABLE PATHWAY. ADDITIONAL INFORMATION IN DESCRIPTION FOR REFERENCE ONLY. ADDITIONAL INFORMATION IN MANUFACTURER AND MODEL NUMBER FOR REFERENCE ONLY. COMMERCIAL DOME CAMERA, WALL MOUNT, FISHEYE INDOOR/OUTDOOR INFRARED VANDALPROOF HOUSING, REFER TO FLOOR PLANS FOR HEIGHTS AND LOCATIONS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.	PREAPPROVED EQUAL PELCO IM6332-1ERS
VS-NVR-1	VIDEO SURVEILLANCE EQUIPMENT PROVIDED AND INSTALLED BY OWNER. ADDITIONAL INFORMATION IN DESCRIPTION AND THE MANUFACTURER AND MODEL NUMBER FOR REFERENCE ONLY. COMMERCIAL SURVEILLANCE DVR, APPLIANCE, RACK MOUNT, 24TB RAID 5 CONFIGURATION, REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.	PREAPPROVED EQUAL XPCC P2 24 ST
VS-SWI-1	VIDEO SURVEILLANCE EQUIPMENT PROVIDED AND INSTALLED BY OWNER. ADDITIONAL INFORMATION IN DESCRIPTION AND THE MANUFACTURER AND MODEL NUMBER FOR REFERENCE ONLY. COMMERCIAL MANAGED SWITCH, LAYER 3 SUPPORT, 48 PORT, 4 SFP PARTIAL PoE+ 4X1G UPLINK, 370W PoE BUDGET, RACKMOUNT.	PREAPPROVED EQUAL CISCO C9200L-DNA-E
		PREAPPROVED EQUAL

