REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

Fulton, Missouri

OWNER: STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

PROJECT MANAGEMENT: OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DESIGNER: HENDERSON ENGINEERS

PROJECT NUMBER: C2406-01

SITE NUMBER: 7010
FACILITY NUMBER: 9327010027

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A100	OVERALL SITE PLAN
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A111	LEVEL 1 PLANS & BUILDING ELEVATIONS
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A202	LEVEL 2 RCP - BUILDING L AND M
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MD101.Bc	HVAC - LEVEL 1 DEMO PLAN - BUILDING B - AREA C
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MD101.L	HVAC - LEVEL 1 DEMO PLAN - BUILDING L
MD101.N	HVAC - LEVEL 1 DEMO PLAN - BUILDING N HOUSING UNIT 8
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M101.Bc	HVAC - LEVEL 1 PLAN - BUILDING B - AREA C
M101.D	HVAC - LEVEL 1 PLAN - BUILDING D
M101.L	HVAC - LEVEL 1 PLAN - BUILDING L
M101.N	HVAC - LEVEL 1 PLAN - BUILDING N HOUSING UNIT 8

Sheet List

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M102.D	HVAC - LEVEL 2 PLAN - BUILDING D
M102.L	HVAC - LEVEL 2 PLAN - BUILDING L
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M103.D	MECHANICAL ROOF PLAN - BUILDING D
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P101	PLUMBING SITE PLAN - SOUTH
P102	PLUMBING SITE PLAN - NORTH
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P103.D	PLUMBING ROOF PLAN - BUILDING D
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E001	ELECTRICAL GENERAL NOTES
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ED201.Bc	POWER - LEVEL 1 DEMO PLAN - BUILDING B - AREA C
ED201.D	POWER - LEVEL 1 DEMO PLAN - BUILDING D
ED201.L	POWER - LEVEL 1 DEMO PLAN - BUILDING L
ED301.N	EQUIPMENT CONNECTION - LEVEL 1 DEMO PLAN - BUILDING N
E102.D	LIGHTING - LEVEL 2 PLAN - BUILDING D
E102.L	LIGHTING - LEVEL 2 PLAN - BUILDING L
E201.Bb	POWER - LEVEL 1 PLAN - BUILDING B - AREA B

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E201.Bc	POWER - LEVEL 1 PLAN - BUILDING B - AREA C
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E210	POWER PLAN - UNIQUE CONDITIONS
E301.D	EQUIPMENT CONNECTION - LEVEL 1 - BLDG D
E301.L	EQUIPMENT CONNECTION - LEVEL 1 - BLDG L
E301.N	EQUIPMENT CONNECTION - LEVEL 1 - BLDG N
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E800	ELECTRICAL MEDIUM-VOLTAGE ONELINE
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E806	ELECTRICAL CALCULATIONS
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FA000	FIRE ALARM GENERAL NOTES AND LEGEND
FA100	FIRE ALARM SITE PLAN
FAD101.Aa	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING A - AREA A
FAD101.Ab	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING A - AREA B
FAD101.Ba	FIRE ALARM DEMOLITION- LEVEL 1 - BUILDING B - AREA A
FAD101.Bb	FIRE ALARM DEMOLITION- LEVEL 1 - BUILDING B - AREA B
FAD101.Bc	FIRE ALARM DEMOLITION- LEVEL 1 - BUILDING B - AREA C
FAD101.C	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING C
FAD101.D	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING D

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FAD101.HU	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING HU-17
FAD101.I	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING I
FAD101.J	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING J
FAD101.L	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING L
FAD101.N	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING N
FAD101.O	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING O
FAD101.P	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING P
FAD102.D	FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING D
FAD102.L	FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING L
FAD102.N	FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING N
FA101.Aa	FIRE ALARM PLAN - LEVEL 1 - BUILDING A - AREA A
FA101.Ab	FIRE ALARM PLAN - LEVEL 1 - BUILDING A - AREA B
FA101.Ba	FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA A
FA101.Bb	FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA B
FA101.Bc	FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA C
FA101.C	FIRE ALARM PLAN - LEVEL 1 - BUILDING C
FA101.D	FIRE ALARM PLAN - LEVEL 1 - BUILDING D
FA101.HU	FIRE ALARM PLAN - LEVEL 1 - BUILDING HU-17
FA101.I	FIRE ALARM PLAN - LEVEL 1 - BUILDING I
FA101.J	FIRE ALARM PLAN - LEVEL 1 - BUILDING J
FA101.L	FIRE ALARM PLAN - LEVEL 1 - BUILDING L
FA101.N	FIRE ALARM PLAN - LEVEL 1 - BUILDING N
FA101.O	FIRE ALARM PLAN - LEVEL 1 - BUILDING O
FA101.P	FIRE ALARM PLAN - LEVEL 1 - BUILDING P
FA102.D	FIRE ALARM PLAN - LEVEL 2 - BUILDING D
FA102.L	FIRE ALARM PLAN - LEVEL 2 - BUILDING L
FA102.N	FIRE ALARM PLAN - LEVEL 2 - BUILDING N
FA500	FIRE ALARM DETAILS

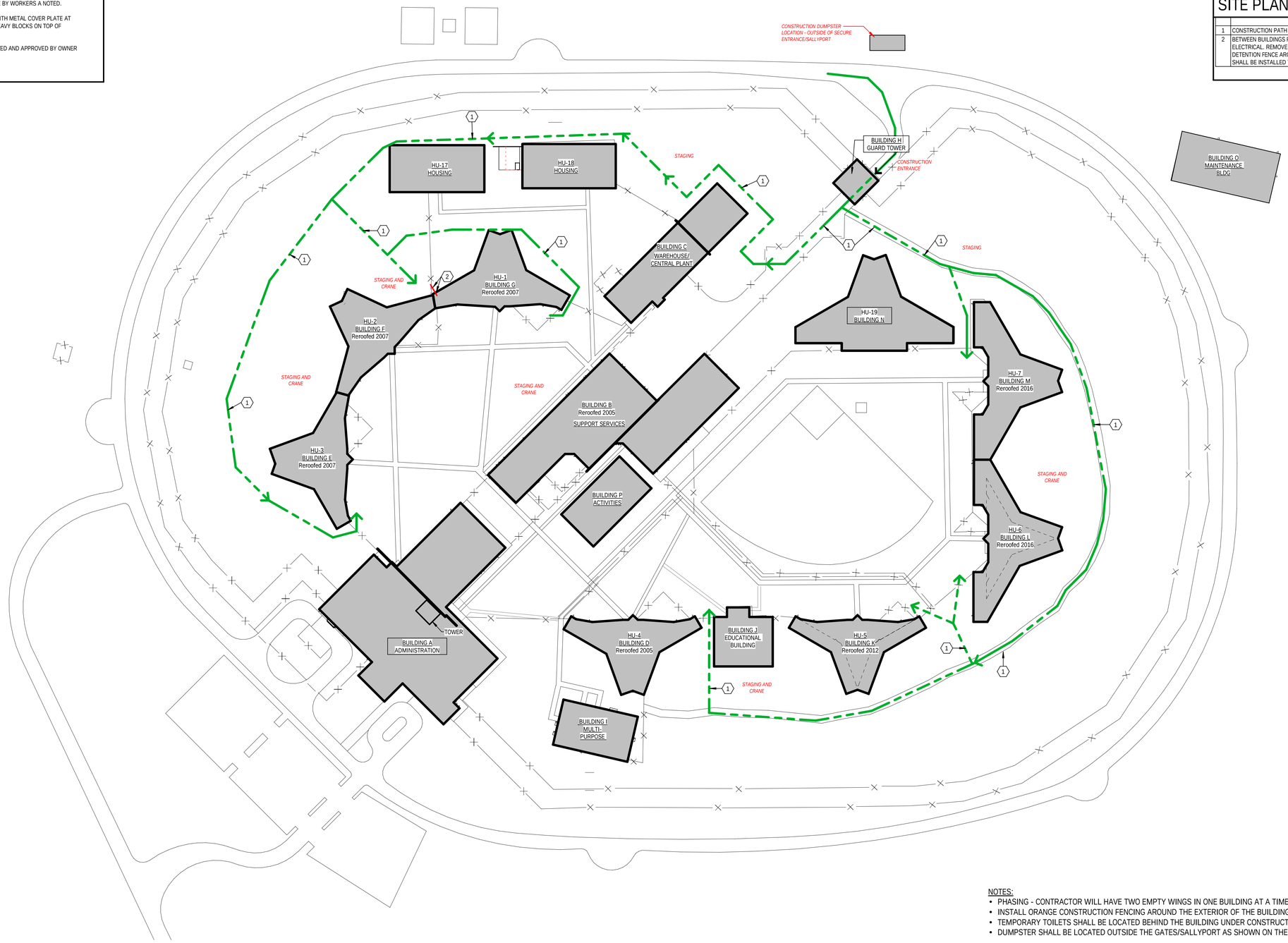
Grand total: 118

SHEET NUMBER:

G000

GENERAL NOTES - SITE PLAN

1. SEED AND STRAW AREAS DISTURBED BY GRADING AND/OR CONSTRUCTION, UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL COORDINATE ALL SITE AND UTILITY WORK.
3. CONTRACTOR SHALL COORDINATE SITE PHASING, STAGING, ETC., WITH OWNER, PRIOR TO MOBILIZATION.
4. CONTRACTOR SHALL ERECT CONSTRUCTION FENCING ENCOMPASSING THE AREA OF THE WORK IMMEDIATELY UPON MOBILIZATION. FENCING SHALL BE LOCKABLE AFTER WORK HOURS. COORDINATE WITH OWNER PRIOR TO MOBILIZATION.
5. CONTRACTOR SHALL PROVIDE CONSTRUCTION DUMPSTER AND TEMPORARY TOILET FACILITIES FOR USE BY WORKERS A NOTED.
6. OPEN TRENCHES SHALL BE COVERED WITH METAL COVER PLATE AT THE END OF EACH WORK DAY. PLACE HEAVY BLOCKS ON TOP OF PLATES.
7. CONSTRUCTION PHASING TO BE REVIEWED AND APPROVED BY OWNER AND CONTRACTOR.



NOTES:
- PHASING - CONTRACTOR WILL HAVE TWO EMPTY WINGS IN ONE BUILDING AT A TIME TO WORK IN.
- INSTALL ORANGE CONSTRUCTION FENCING AROUND THE EXTERIOR OF THE BUILDING WHERE WORK IS OCCURRING
- TEMPORARY TOILETS SHALL BE LOCATED BEHIND THE BUILDING UNDER CONSTRUCTION.
- DUMPSTER SHALL BE LOCATED OUTSIDE THE GATES/SALLYPORT AS SHOWN ON THE SITE PLAN

A2 Overall Site Plan
1" = 80'-0" |

SITE PLAN LEGEND

XX——XX CONSTRUCTION FENCE

CONSTRUCTION ACCESS PATH

SITE PLAN KEY NOTES

1	CONSTRUCTION PATH AND ACCESS
2	BETWEEN BUILDINGS F & G, INSTALL A NEW ELECTRICAL PANEL, RE: ELECTRICAL. REMOVE AND RELOCATE A PORTION OF THE EXISTING DETENTION FENCE AROUND THE NEW ELECTRICAL PANEL. FENCING SHALL BE INSTALLED TIGHT AGAINST THE BUILDING.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI JOE MUDRELL CANTRELL NUMBER A-6475 REGISTERED ARCHITECT

Joe Cantrell, Architect 08/28/2026
License #A-6475

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1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

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DATE:
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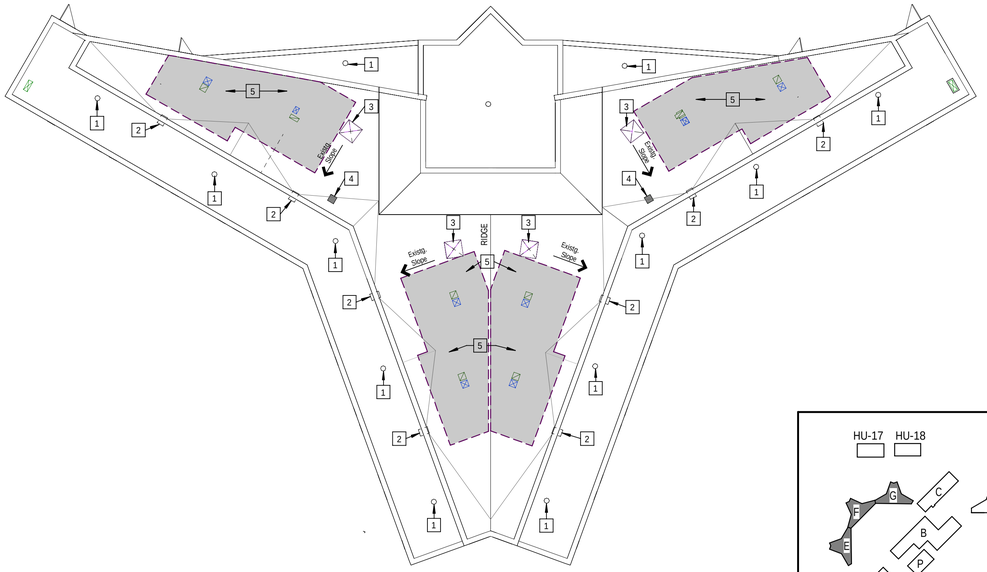
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

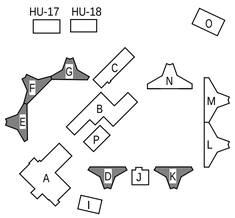
SHEET TITLE:
Overall Site Plan

SHEET NUMBER:
A100



D5 03 - Building D - Roof Demolition
1/16" = 1'-0" |

Buildings D, E, F, G and K are identical.
The scope shown on this drawing will also be required for Buildings E, F, G and K



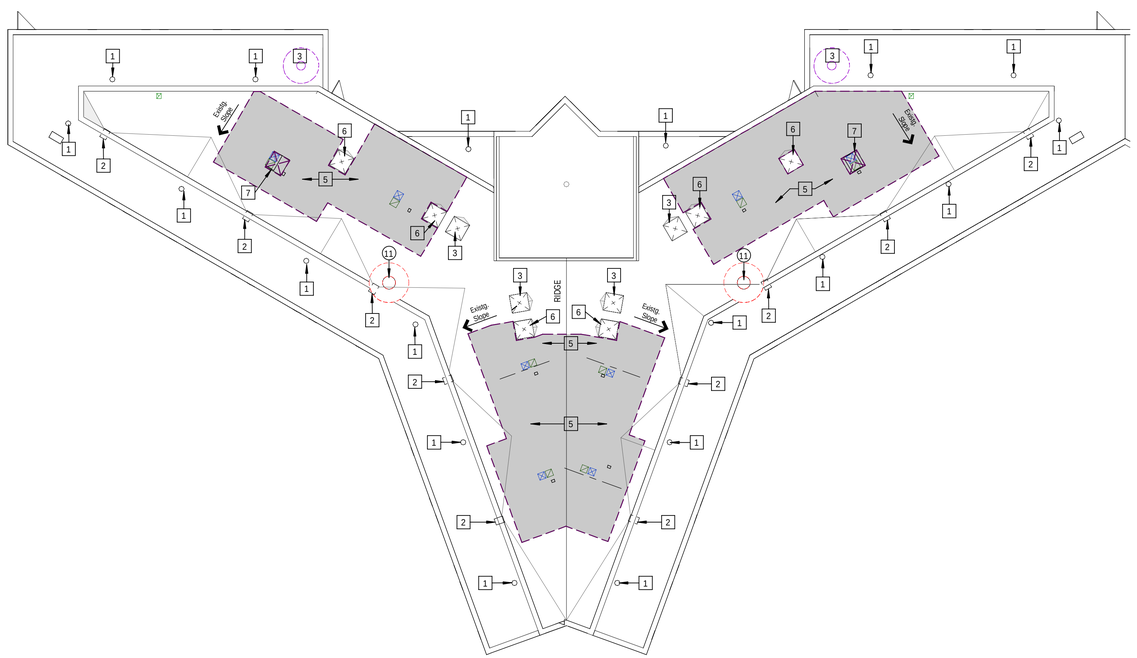
Key Plan Buildings D, E, F, G and K
NTS

GENERAL DEMOLITION NOTES

1. CONTRACTOR SHALL CONTACT DESIGNATED OWNER'S REPRESENTATIVE DAILY TO PROVIDE ACTIVITIES AND SHUTDOWN REPORTS. ALL SITE AND BUILDING USE SHALL BE COORDINATED IN ADVANCE WITH THE OWNER.
2. MEP DEMOLITION SHALL BE PER THEIR ASSOCIATED DRAWINGS.
3. ALL MEP SYSTEMS TO SURROUNDING SPACES SHALL BE MAINTAINED, UNLESS COORDINATED IN ADVANCE WITH THE OWNER.
4. CONTRACTOR SHALL MEET WITH OWNER'S REPRESENTIVE PRIOR TO BEGINNING ANY WORK TO SET MINIMUM PROCEDURES FOR DUST CONTAINMENT.
5. ALL EXISTING WALL AND CEILING MOUNTED CLOCKS, EQUIPMENT, MONITORS, SIGNAGE, ACCESSORIES, ETC... WITHIN AREA OF THE WORK SHALL BE REMOVED AND RE-INSTALLED AS INDICATED IN THE DRAWINGS, OR SALVAGED BACK TO THE OWNER, UNLESS DIRECTED OTHERWISE BY THE OWNER.
6. WHERE REMOVAL OF EXISTING WALLS, EQUIPMENT, ETC... DISRUPTS OR DISTURBS EXISTING ELECTRICAL, MECHANICAL OR PLUMBING SERVICES TO AREAS NOT DESIGNATED AS CONSTRUCTION AREAS, THE CONTRACTOR SHALL PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO INSURE UNINTERRUPTED SERVICE TO SAID AREAS.
7. CONTRACTOR IS TO REMOVE COMPLETELY ANY EXISTING CONSTRUCTION WHICH CONFLICTS WITH THE INTENT OF THE NEW CONSTRUCTION.
8. OWNER WILL BE RESPONSIBLE FOR REMOVING AND STORING ITEMS SUCH AS FURNITURE, PLAQUES, MOVEABLE EQUIPMENT, ETC...
9. REFER TO MEP AND STRUCTURAL DRAWINGS FOR ADDITIONAL DEMOLITION WORK.
10. ITEMS BEING REMOVED REMAIN THE PROPERTY OF THE OWNER. CONSULT WITH THE OWNER TO DETERMINE THEIR PROPER REUSE, STORAGE, OR DISPOSAL.

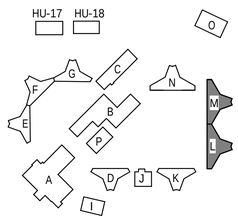
DEMOLITION NOTES

1	EXISTING ROOF DRAINS TO REMAIN. DO NOT BLOCK
2	EXISTING SCUPPER TO REMAIN. DO NOT BLOCK
3	EXISTING MECHANICAL FAN TO BE ABANDONED IN PLACE, RE: MECH.
4	DEMOLISH EXHAUST FAN. CURB AND SECURITY BARS TO REMAIN, RE: MECH.
5	REMOVE AREA OF SINGLE-PLY ROOFING, COVERBOARD AND INSULATION DOWN TO ROOF DECK TO INSTALL STRUCTURAL BEAMS, BRACES AND CHANNELS WHICH WILL SUPPORT NEW RTU'S. REFER TO MECH. AND STRUCTURAL
6	EXISTING SKYLIGHT TO REMAIN
7	EXISTING MECHANICAL FAN TO BE REMOVED. OPENING SHALL BE USED FOR NEW RTU DUCTWORK, RE: MECH.



A2 03 - Building L - Roof Demolition
1/16" = 1'-0" |

Buildings L and M are identical.
The scope shown on this drawing will also be required for Buildings M



Key Plan Buildings L and M
NTS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
JOE MUDDELL CANTRELL
NUMBER A-6475
REGISTERED ARCHITECT

Joe Cantrell, Architect
License #A-6475
08/28/2026

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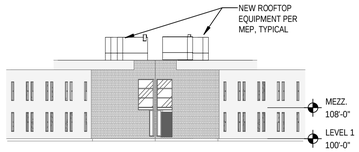
CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

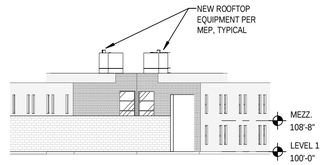
SHEET TITLE:
Roof Demolition Plans

SHEET NUMBER:
AD101

3 OF 118 SHEETS
08/28/2026



D7 Building L - Partial South Elevation
1" = 20'-0" | A10/A110

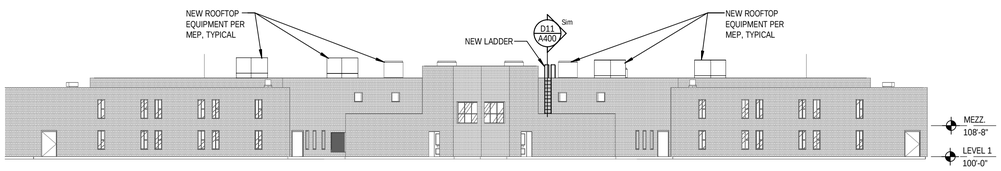


D5 Building D - Partial South Elevation
1" = 20'-0" | A5/A110

GENERAL SECURITY NOTES

ALL INMATE ACCESSIBLE AREAS SHALL BE CONSTRUCTED BY THE FOLLOWING STANDARDS:

1. ALL MASONRY SHALL BE CONSTRUCTED AS SECURITY WALLS, GROUTED FULL WITH #4 BAR IN EACH CMU CELL TO 10'-0" ABOVE INMATE ACCESSIBLE AREA, UNO.
2. ALL CAULKING SHALL BE PICK-PROOF SEALANT, UNO.
3. ANY GAP WHICH IS LARGER THAN THE THICKNESS OF A CREDIT CARD SHALL RECEIVE PICK-PROOF SEALANT.
4. ANY PENETRATION IN A WALL OR FLOOR GREATER THAN 6" IN ANY DIRECTION SHALL HAVE SECURITY BARS. REFER TO MEP FOR SECURITY BAR DETAILS AT DUCT PENETRATIONS. FOR OTHER OPENINGS, REFER TO DETAIL A10/A200.
5. ALL WELDS SHALL BE GROUND SMOOTH.
6. ANY ROUGH OR SHARP SURFACE SHALL BE LEVELED TO THE ADJACENT SURFACE.
7. ANY GYPSUM BOARD WITHIN SECURE PERIMETER SHALL BE ABUSE-RESISTANT.
8. GYPSUM BOARD PARTITIONS AND CEILING SOFFITS WITHIN SECURE PERIMETER SHALL BE REINFORCED WITH SECURITY MESH.
9. SPRINKLER HEADS SHALL BE INSTITUTIONAL TYPE WHERE NOTED ON FIRE PROTECTION DRAWINGS.
10. ANY PIPES EXPOSED TO INMATES SHALL BE COVERED WITH 18 GAUGE GALV. STEEL SECURITY PIPE ENCLOSURE. THE COVER SHALL HAVE A SNAP-LOCK INTERFACE W/ CLIPS.



C10 Building L - North Elevation
1" = 20'-0" | A10/A110

Buildings L and M are similar.
The scope shown on this drawing
will also be required for Building M

C5 Building D - North Elevation
1" = 20'-0" | A5/A110

Buildings D, E, F, G and K are similar.
The scope shown on this drawing will also be
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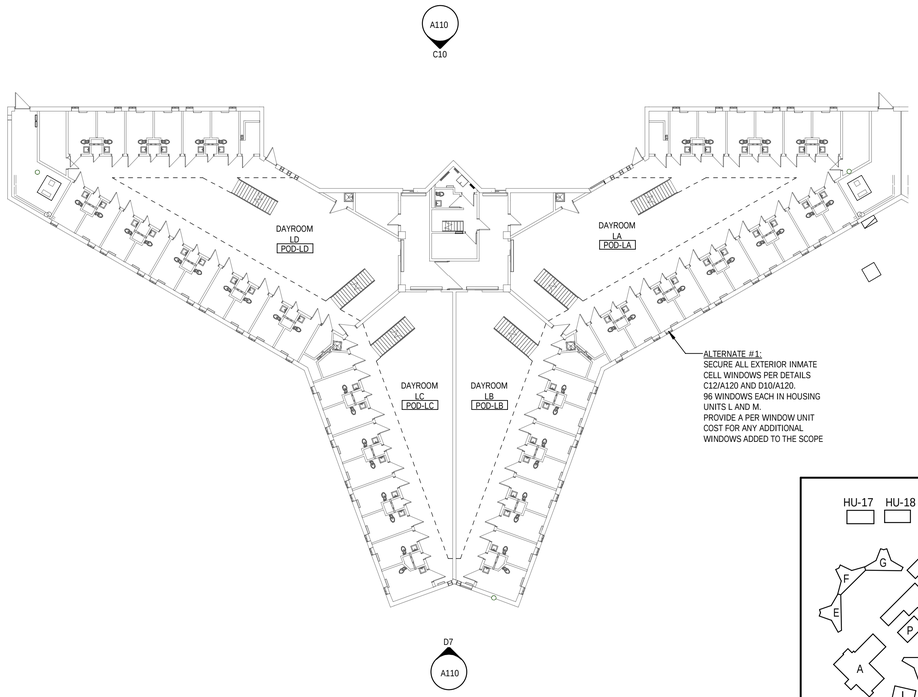

A10 01 - Building L - Level 1
1" = 20'-0"

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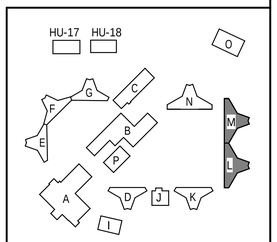
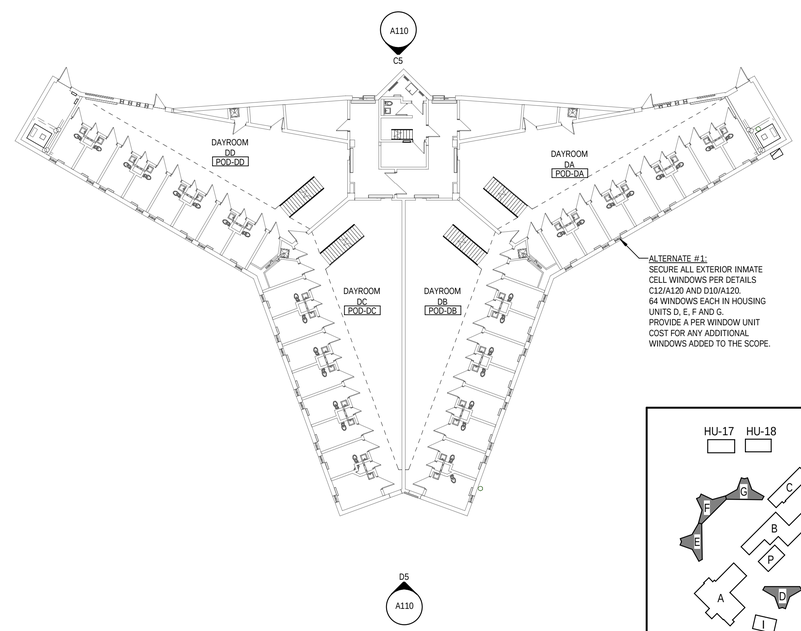
will also be required for Building M



Key Plan Buildings L and M
NTS



A5 01 - Building D - Level 1
1" = 20'-0"

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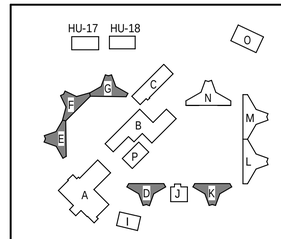

Key Plan Buildings D, E, F, G and K
NTS

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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Level 1 Plans & Building Elevations

SHEET NUMBER:
A110

08/28/2026

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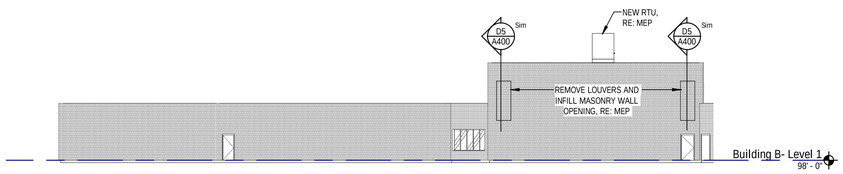
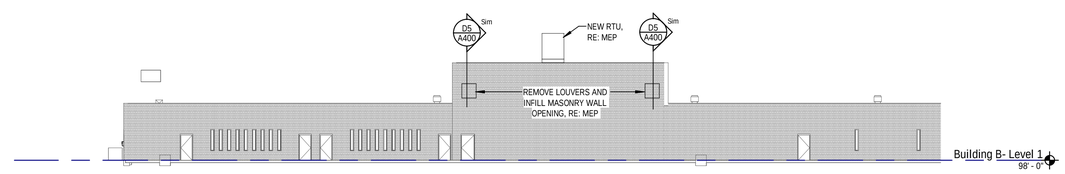


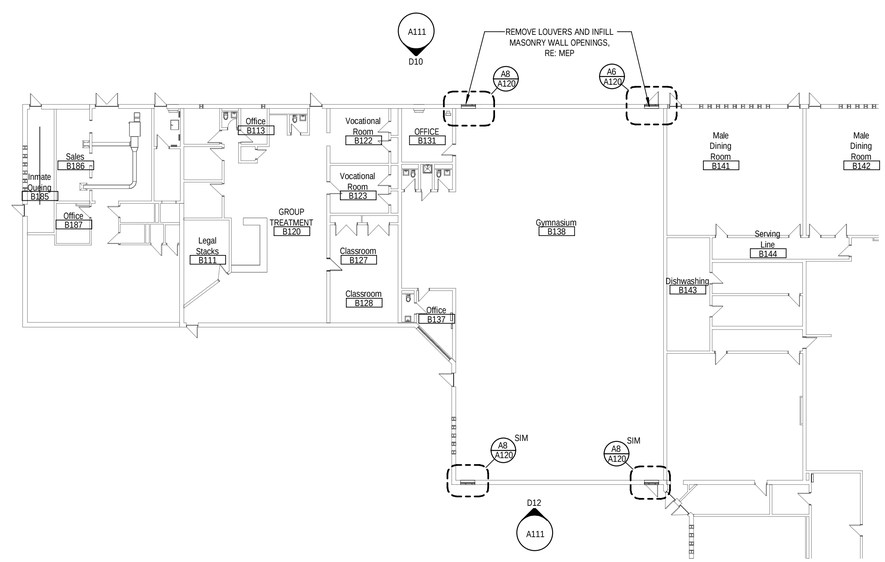
D12 Building B - South Elevation
1" = 20'-0" |A10/A111

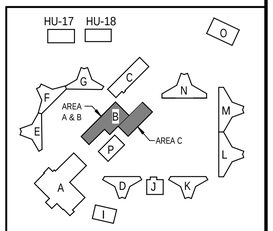
20' 10' 0' 20'



D10 Building B - North Elevation
1" = 20'-0" |A10/A111

20' 10' 0' 20'





Key Plan Building B
NTS

A101 - Building B - Level 1 - Area A
1" = 20'-0" |

20' 10' 0' 20'

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
JOE MUSSELL
CANTRELL
NUMBER
A-8475
REGISTERED ARCHITECT

08/28/2026

HENDERSON ENGINEERS

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

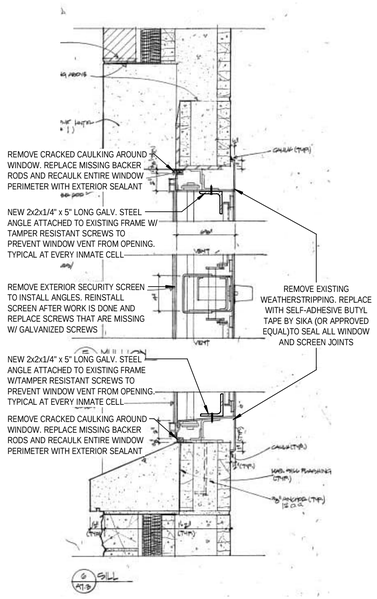
SHEET TITLE:
Level 1 Plan & Building Elevation - Building B

SHEET NUMBER:
A111

5 OF 118 SHEETS
08/28/2026

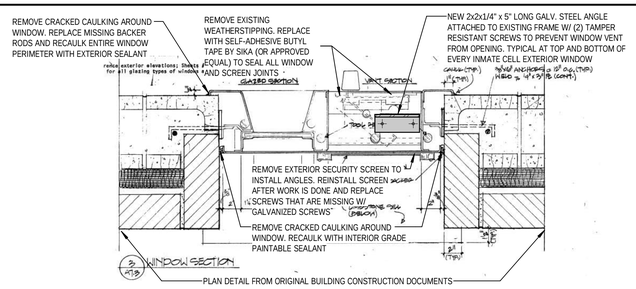
Interior at Inmate Cell Window

Exterior at Inmate Cell Window



*WORK ON CELL WINDOWS IS ALTERNATE #1

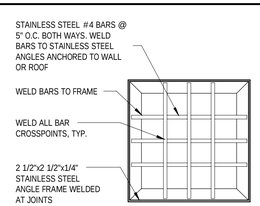
D10 WINDOW SECTION @ CELL
N.T.S.



*WORK ON CELL WINDOWS IS ALTERNATE #1

C12 WINDOW PLAN @ CELL
N.T.S.

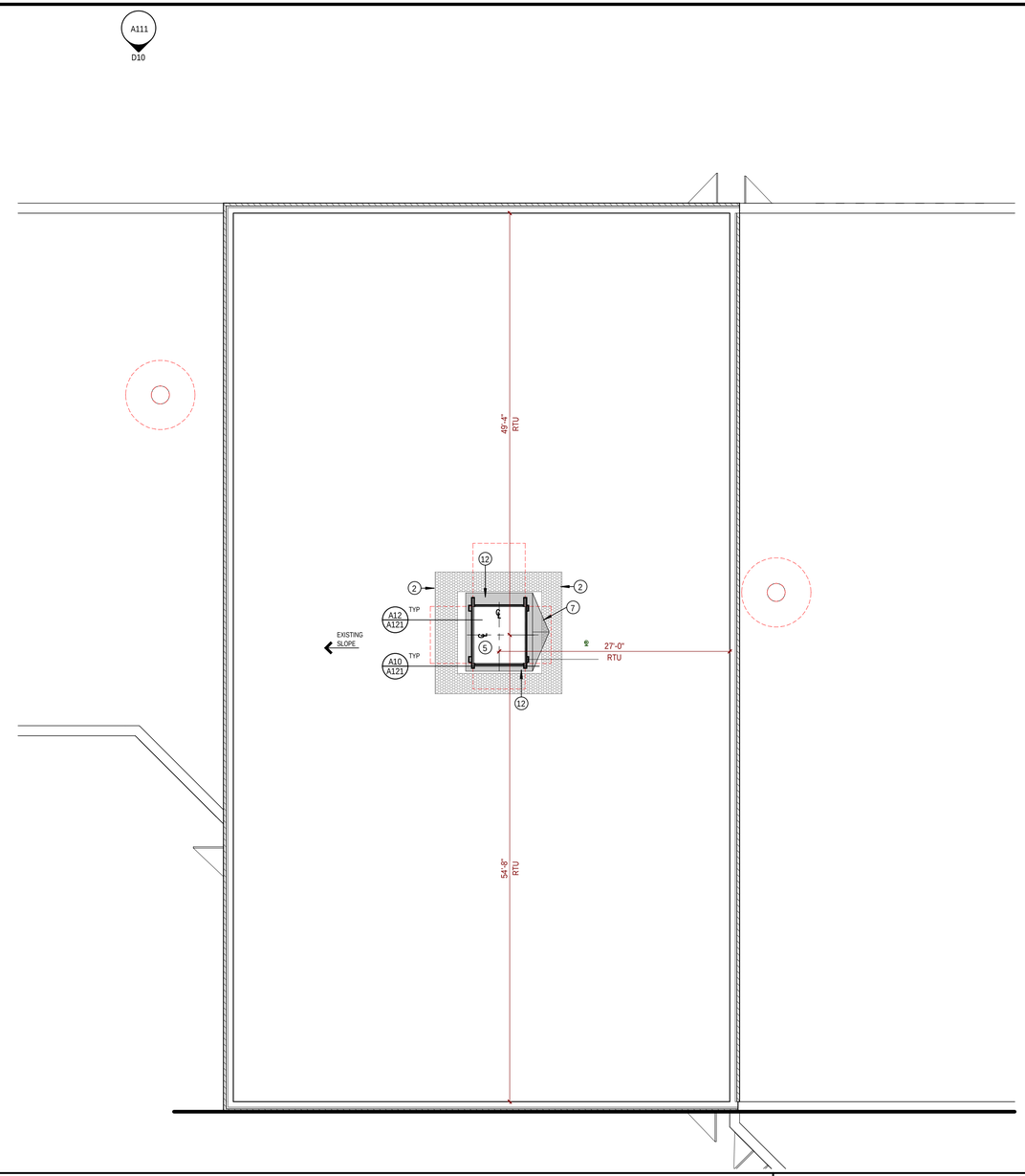
ALTERNATE #1 - PROVIDE COST PER WINDOW FOR IMPROVEMENTS TO EVERY INMATE CELL WINDOW AT ALL HOUSING UNIT BUILDINGS (7 BUILDINGS TOTAL)



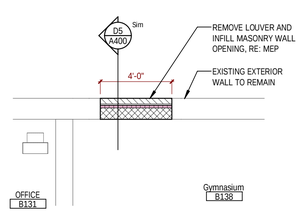
ELEVATION

NOTE:
SECURITY BARS ARE TO BE INSTALLED AT EACH INTERIOR, EXTERIOR WALL, ROOF, FLOOR & DUCT OPENING GREATER THAN 6" IN EITHER DIRECTION. FINAL CONNECTION FOR ANY DUCTWORK TO THE SECURITY BAR FRAME WILL BE BY DIVISION NO. 23.
AT EXTERIOR OPENINGS ALL BARS, ANGLES AND FASTENERS SHALL BE STAINLESS STEEL

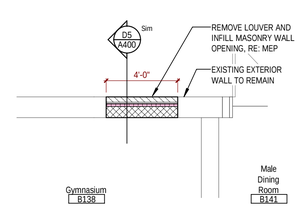
A10 SECURITY BARS
1" = 1'-0" |



B8 03 - Building B - Roof
1/8" = 1'-0" |



A8 01 - BUILDING B - GYM - NW
1/4" = 1'-0" |A10/A111



A6 01 - BUILDING B - GYM - NE
1/4" = 1'-0" |A10/A111

Building B Existing Roof:
- Manufacturer: Firestone
- Warranty began 6-2-2005
- 15-year Warranty (roof out of warranty)
- SBS Modified Bitumen membrane roof system
- 1/2" Coverboard
- Iso Board adhered to steel deck
- Gypsum board on steel deck

PLAN SYMBOLS LEGEND

WALKWAY PROTECTION MATS

TAPERED INSULATION CRICKET: SLOPE 1/2" IN 12" AT SURFACE

DIRECTION OF ROOF SLOPE

ROOF PLAN KEYNOTES

1	GUARD REQUIRED IF MECHANICAL EQUIPMENT OR WALKWAYS ARE WITHIN 10' SETBACK
2	WALKWAY PROTECTION MATS
3	42" HIGH SAFETY RAIL NEXT TO PARAPET. BASIS OF DESIGN: ACCU-FIT MOBILE RAIL, SAFETY YELLOW, TRADITIONAL STRAIGHT SERIES, 22" DIAMETER BASE
4	EXISTING SCUPPER TO REMAIN
5	ROOF TOP UNIT, RE: MEP
6	EXISTING EXHAUST FAN TO BE ABANDONED IN PLACE, RE: MEP
7	INSTALL NEW TAPERED INSULATION CRICKET AT NEW ROOF TOP EQUIPMENT. SLOPE 1/2" PER FOOT
8	MODIFY EXISTING CRICKET AROUND NEW ROOF TOP EQUIPMENT TO DRAIN TO EXISTING SCUPPERS. SLOPE 1/2" PER FOOT
9	EXISTING SKYLIGHT TO REMAIN
10	EXISTING ROOF DRAINS TO REMAIN. DO NOT BLOCK
11	EXISTING MECHANICAL EQUIPMENT REMOVED FROM ROOF SHALL BE CAPPED AND INSULATED PER MEP. PROVIDE SECURITY BARS INSTALLED ON BOTTOM OF ROOF DECK IF NONE EXIST, RE: MEP
12	BUILT-UP ROOFING AND INSULATION AROUND EQUIPMENT ROOFTOP BEAMS

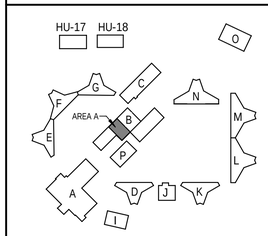
GENERAL SECURITY NOTES

ALL INMATE ACCESSIBLE AREAS SHALL BE CONSTRUCTED BY THE FOLLOWING STANDARDS:

1. ALL MASONRY SHALL BE CONSTRUCTED AS SECURITY WALLS, GROUTED FULL WITH #4 BAR IN EACH CMU CELL TO 10'-0" ABOVE INMATE ACCESSIBLE AREA, UNO.
2. ALL CAULKING SHALL BE PICK-PROOF SEALANT, UNO.
3. ANY GAP WHICH IS LARGER THAN THE THICKNESS OF A CREDIT CARD SHALL RECEIVE PICK-PROOF SEALANT.
4. ANY PENETRATION IN A WALL OR FLOOR GREATER THAN 6" IN ANY DIRECTION SHALL HAVE SECURITY BARS. REFER TO MEP FOR SECURITY BAR DETAILS AT DUCT PENETRATIONS. FOR OTHER OPENINGS, REFER TO DETAIL A10/A200.
5. ALL WELDS SHALL BE GROUND SMOOTH.
6. ANY ROUGH OR SHARP SURFACE SHALL BE LEVELED TO THE ADJACENT SURFACE.
7. ANY GYPSUM BOARD WITHIN SECURE PERIMETER SHALL BE ABUSE-RESISTANT.
8. GYPSUM BOARD PARTITIONS AND CEILING SOFFITS WITHIN SECURE PERIMETER SHALL BE REINFORCED WITH SECURITY MESH.
9. SPRINKLER HEADS SHALL BE INSTITUTIONAL TYPE WHERE NOTED ON FIRE PROTECTION DRAWINGS.
10. ANY PIPES EXPOSED TO INMATES SHALL BE COVERED WITH 18 GAUGE GALV. STEEL SECURITY PIPE ENCLOSURE. THE COVER SHALL HAVE A SNAP-LOCK INTERFACE W/ CLIPS.

GENERAL ROOF PLAN NOTES

1. PATCH AND REPAIR EXISTING ROOFING THAT IS REMOVED AND/OR DAMAGED FOR NEW WORK, INCLUDING WORK PERFORMED BY OTHER TRADES, WITH ROOFING MATERIALS THAT MATCH THE EXISTING SYSTEM IDENTIFIED ON THE ROOF OR DESCRIPTION ON SHEET.
2. FLASH ALL CURB, PIPING AND OTHER PENETRATIONS PER ROOFING MANUFACTURER'S STANDARD DETAILS.
3. PROVIDE POSITIVE DRAINAGE AROUND AND AWAY FROM ALL ROOFTOP EQUIPMENT AND ROOF PENETRATIONS.
4. REFER TO MEP DRAWINGS FOR LOCATION OF PLUMBING VENTS.
5. MAINTAIN MINIMUM 1/4" PER FOOT SLOPE FOR POSITIVE DRAINAGE ON ALL ROOFS
6. POSITION OF ROOF TOP AIR HANDLERS AND ACCOMPANYING DUCT PENETRATIONS THROUGH ROOF DECK ARE PRELIMINARY ONLY AND SUBJECT TO FINAL AIR HANDLER SELECTION. FINAL CONFIGURATION WILL BE ADJUSTED PER AIR HANDLER SHOP DRAWINGS AS REVIEWED AND APPROVED BY ARCHITECT, STRUCTURAL AND MECHANICAL ENGINEERS. MODIFICATIONS TO STRUCTURAL STEEL AS A RESULT OF SHOP DRAWING APPROVAL SHOULD BE ANTICIPATED. NO ADDITIONAL EXPENSES OR INCREASED IN COST OF THE WORK WILL BE ALLOWED AS A RESULT OF THIS EFFORT.



Key Plan Building B
NTS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

Joe Cantrell, Architect 08/28/2026
License #A-6475

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

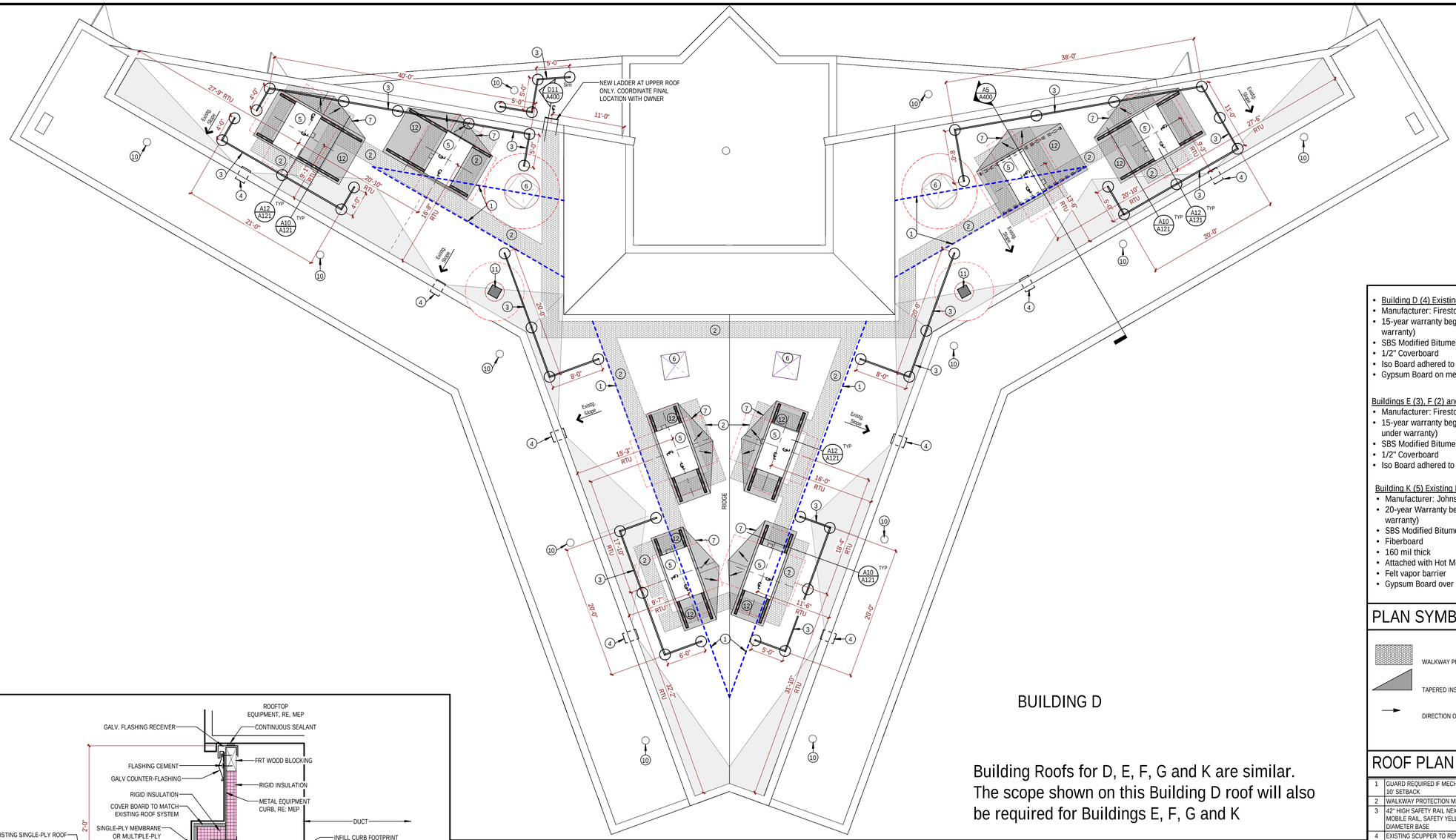
PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Roof Plan - Building B and Details

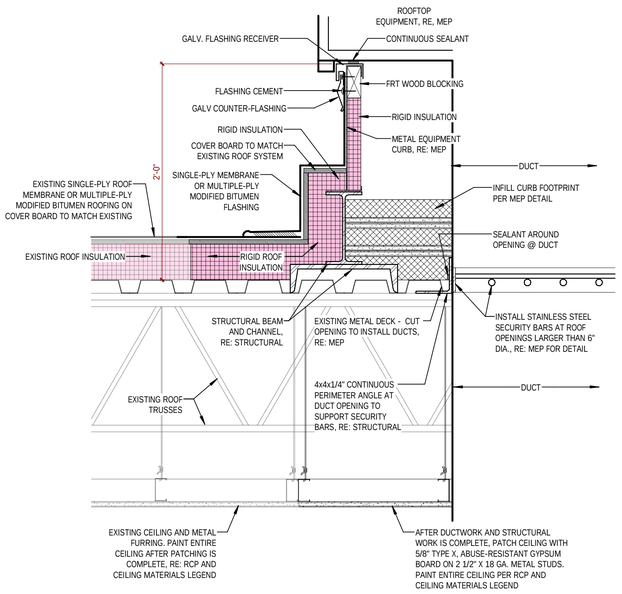
SHEET NUMBER:
A120



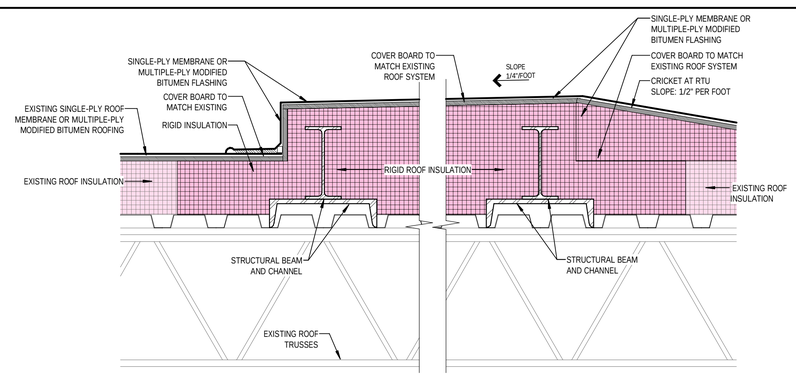
BUILDING D

Building Roofs for D, E, F, G and K are similar.
The scope shown on this Building D roof will also be required for Buildings E, F, G and K

B10 03 - Building D - Roof
1/8" = 1'-0"



A12 SECTION @ EQUIP CURB
1 1/2" = 1'-0" | B8/A120



A10 SECTION @ ROOF TOP BEAMS
1 1/2" = 1'-0" | B8/A120

GENERAL ROOF PLAN NOTES

1. PATCH AND REPAIR EXISTING ROOFING THAT IS REMOVED AND/OR DAMAGED FOR NEW WORK, INCLUDING WORK PERFORMED BY OTHER TRADES, WITH ROOFING MATERIALS THAT MATCH THE EXISTING SYSTEM IDENTIFIED ON THE ROOF OR DESCRIPTION ON SHEET.
2. FLASH ALL CURB, PIPING AND OTHER PENETRATIONS PER ROOFING MANUFACTURER'S STANDARD DETAILS.
3. PROVIDE POSITIVE DRAINAGE AROUND AND AWAY FROM ALL ROOFTOP EQUIPMENT AND ROOF PENETRATIONS.
4. REFER TO MEP DRAWINGS FOR LOCATION OF PLUMBING VENTS.
5. MAINTAIN MINIMUM 1/4" PER FOOT SLOPE FOR POSITIVE DRAINAGE ON ALL ROOFS
6. POSITION OF ROOF TOP AIR HANDLERS AND ACCOMPANYING DUCT PENETRATIONS THROUGH ROOF DECK ARE PRELIMINARY ONLY AND SUBJECT TO FINAL AIR HANDLER SELECTION. FINAL CONFIGURATION WILL BE ADJUSTED PER AIR HANDLER SHOP DRAWINGS AS REVIEWED AND APPROVED BY ARCHITECT, STRUCTURAL AND MECHANICAL ENGINEERS. MODIFICATIONS TO STRUCTURAL STEEL AS A RESULT OF SHOP DRAWING APPROVAL SHOULD BE ANTICIPATED. NO ADDITIONAL EXPENSES OR INCREASED IN COST OF THE WORK WILL BE ALLOWED AS A RESULT OF THIS EFFORT.

- Building D (4) Existing Roof:
- Manufacturer: Firestone
- 15-year warranty began 6-2-2005 (no longer under warranty)
- SBS Modified Bitumen roof system
- 1/2" Coverboard
- Iso Board adhered to steel deck
- Gypsum Board on metal deck

Buildings E (3), F (2) and G (1) Existing Roof:
- Manufacturer: Firestone
- 15-year warranty began on 9-11-2006 (no longer under warranty)
- SBS Modified Bitumen roof system
- 1/2" Coverboard
- Iso Board adhered to steel deck

Building K (5) Existing Roof:
- Manufacturer: Johns Manville
- 20-year Warranty began on 11-19-2012 (still under warranty)
- SBS Modified Bitumen roof
- Fiberboard
- 160 mil thick
- Attached with Hot Mop
- Felt vapor barrier
- Gypsum Board over metal deck

PLAN SYMBOLS LEGEND

WALKWAY PROTECTION MATS

TAPERED INSULATION CRICKET: SLOPE 1/2" IN 12" AT SURFACE

DIRECTION OF ROOF SLOPE

ROOF PLAN KEYNOTES

1	GUARD REQUIRED IF MECHANICAL EQUIPMENT OR WALKWAYS ARE WITHIN 10' SETBACK
2	WALKWAY PROTECTION MATS
3	42" HIGH SAFETY RAIL NEXT TO PARAPET. BASIS OF DESIGN: ACCU-FIT MOBILE RAIL, SAFETY YELLOW, TRADITIONAL STRAIGHT SERIES, 22" DIAMETER BASE
4	EXISTING SCUPPER TO REMAIN
5	ROOF TOP UNIT, RE: MEP
6	EXISTING EXHAUST FAN TO BE ABANDONED IN PLACE, RE: MEP
7	INSTALL NEW TAPERED INSULATION CRICKET AT NEW ROOF TOP EQUIPMENT. SLOPE 1/2" PER FOOT
8	MODIFY EXISTING CRICKET AROUND NEW ROOF TOP EQUIPMENT TO DRAIN TO EXISTING SCUPPERS. SLOPE 1/2" PER FOOT
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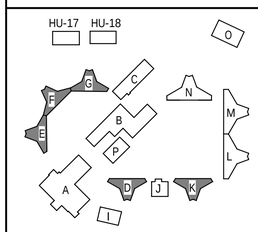
11	EXISTING MECHANICAL EQUIPMENT REMOVED FROM ROOF SHALL BE CAPPED AND INSULATED PER MEP. PROVIDE SECURITY BARS INSTALLED ON BOTTOM OF ROOF DECK IF NONE EXIST, RE: MEP
12	BUILT-UP ROOFING AND INSULATION AROUND EQUIPMENT ROOFTOP BEAMS



Key Plan Buildings D, E, F, G and K
NTS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI JOE MUDRELL CANTRELL NUMBER A-6475 REGISTERED ARCHITECT

Joe Cantrell, Architect 08/28/2026
License # A-6475

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TEL FAX
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

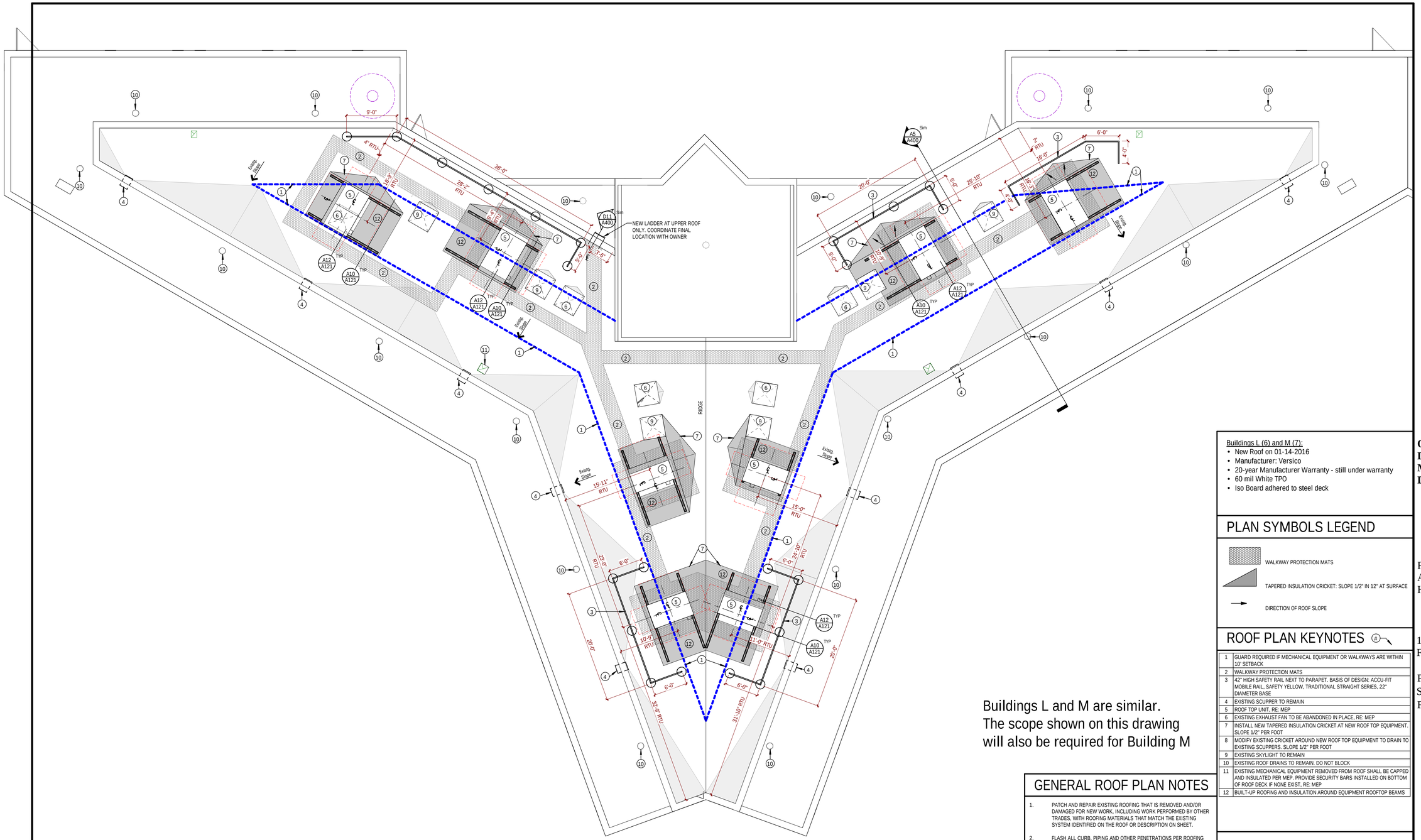
PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Roof Plan - Building D

SHEET NUMBER:
A121



Buildings L and M are similar.
The scope shown on this drawing
will also be required for Building M

Buildings L (6) and M (7):
- New Roof on 01-14-2016
- Manufacturer: Versico
- 20-year Manufacturer Warranty - still under warranty
- 60 mil White TPO
- Iso Board adhered to steel deck

PLAN SYMBOLS LEGEND

- WALKWAY PROTECTION MATS
- TAPERED INSULATION CRICKET: SLOPE 1/2" IN 12" AT SURFACE
- DIRECTION OF ROOF SLOPE

ROOF PLAN KEYNOTES

1	GUARD REQUIRED IF MECHANICAL EQUIPMENT OR WALKWAYS ARE WITHIN 10' SETBACK
2	WALKWAY PROTECTION MATS
3	42" HIGH SAFETY RAIL NEXT TO PARAPET. BASIS OF DESIGN: ACCU-FIT MOBILE RAIL, SAFETY YELLOW, TRADITIONAL STRAIGHT SERIES, 22" DIAMETER BASE
4	EXISTING SCUPPER TO REMAIN
5	ROOF TOP UNIT, RE: MEP
6	EXISTING EXHAUST FAN TO BE ABANDONED IN PLACE, RE: MEP
7	INSTALL NEW TAPERED INSULATION CRICKET AT NEW ROOF TOP EQUIPMENT. SLOPE 1/2" PER FOOT
8	MODIFY EXISTING CRICKET AROUND NEW ROOF TOP EQUIPMENT TO DRAIN TO EXISTING SCUPPERS. SLOPE 1/2" PER FOOT
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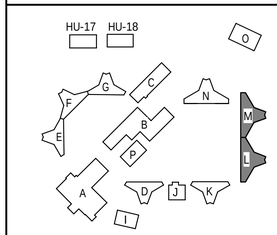
11	EXISTING MECHANICAL EQUIPMENT REMOVED FROM ROOF SHALL BE CAPPED AND INSULATED PER MEP. PROVIDE SECURITY BARS INSTALLED ON BOTTOM OF ROOF DECK IF NONE EXIST, RE: MEP
12	BUILT-UP ROOFING AND INSULATION AROUND EQUIPMENT ROOFTOP BEAMS

GENERAL ROOF PLAN NOTES

1. PATCH AND REPAIR EXISTING ROOFING THAT IS REMOVED AND/OR DAMAGED FOR NEW WORK, INCLUDING WORK PERFORMED BY OTHER TRADES, WITH ROOFING MATERIALS THAT MATCH THE EXISTING SYSTEM IDENTIFIED ON THE ROOF OR DESCRIPTION ON SHEET.
2. FLASH ALL CURB, PIPING AND OTHER PENETRATIONS PER ROOFING MANUFACTURER'S STANDARD DETAILS.
3. PROVIDE POSITIVE DRAINAGE AROUND AND AWAY FROM ALL ROOFTOP EQUIPMENT AND ROOF PENETRATIONS.
4. REFER TO MEP DRAWINGS FOR LOCATION OF PLUMBING VENTS.
5. MAINTAIN MINIMUM 1/4" PER FOOT SLOPE FOR POSITIVE DRAINAGE ON ALL ROOFS
6. POSITION OF ROOF TOP AIR HANDLERS AND ACCOMPANYING DUCT PENETRATIONS THROUGH ROOF DECK ARE PRELIMINARY ONLY AND SUBJECT TO FINAL AIR HANDLER SELECTION. FINAL CONFIGURATION WILL BE ADJUSTED PER AIR HANDLER SHOP DRAWINGS AS REVIEWED AND APPROVED BY ARCHITECT, STRUCTURAL AND MECHANICAL ENGINEERS. MODIFICATIONS TO STRUCTURAL STEEL AS A RESULT OF SHOP DRAWING APPROVAL SHOULD BE ANTICIPATED. NO ADDITIONAL EXPENSES OR INCREASED IN COST OF THE WORK WILL BE ALLOWED AS A RESULT OF THIS EFFORT.



Key Plan Buildings L and M
NTS

A6 03 - Building L - Roof
1/8" = 1'-0"

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

Joe Cantrell, Architect 08/28/2026
License #A-6475

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

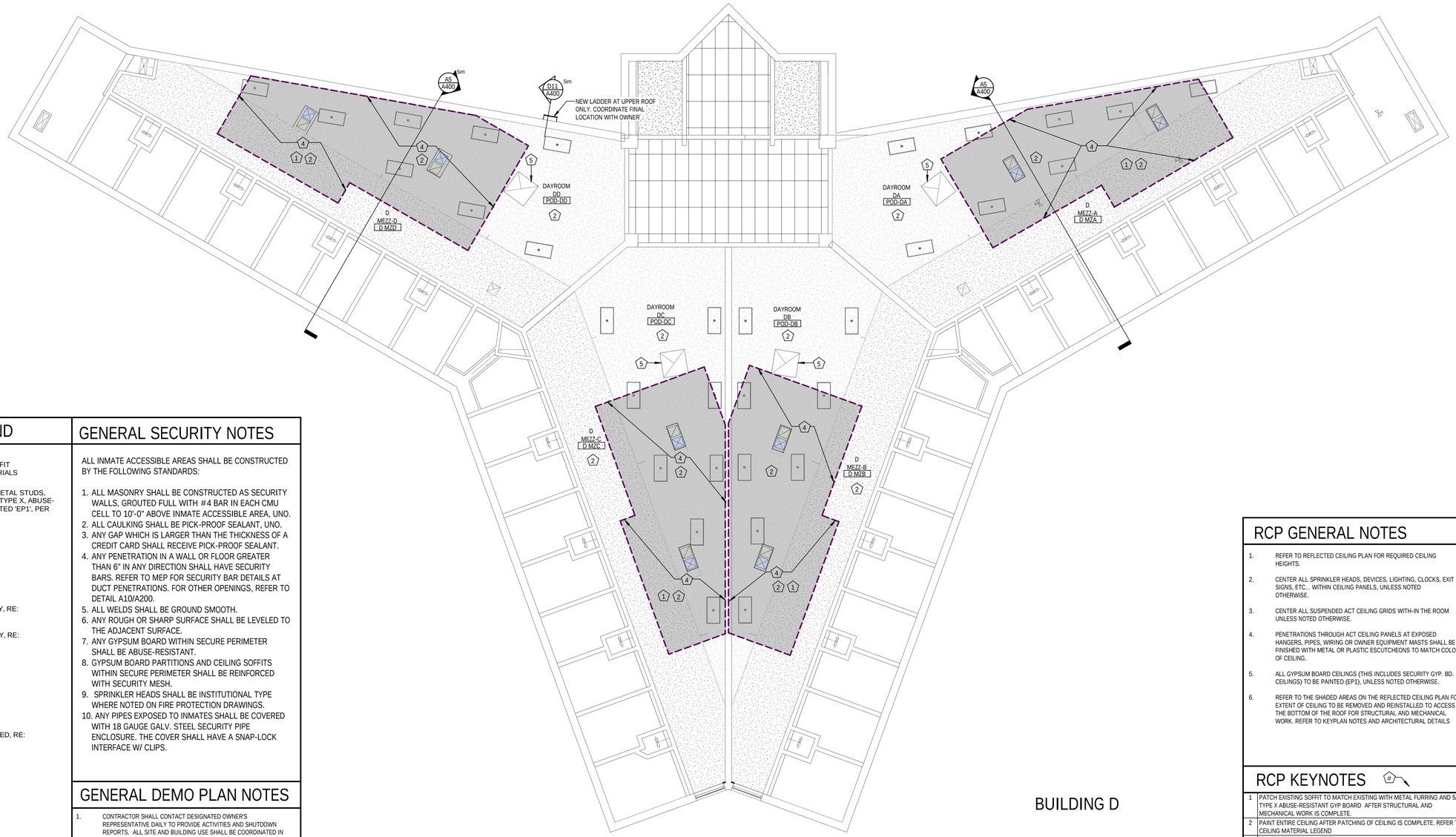
PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Roof Plan - Building L

SHEET NUMBER:
A122



BUILDING D

RCP SYMBOLS LEGEND

- GB: GYP BD CEILING / SOFFIT (PAINTED 'EP1', PER MATERIALS
- GB: SECURITY CEILING - METAL STUDS, SECURITY MESH, AND 5/8" TYPE X, ABUSE-RESISTANT GYP. BD. (PAINTED 'EP1', PER
- CEILING ACCESS
- DIFFUSER - RETURN, RE:
- DIFFUSER - SUPPLY, RE:
- LINEAR DIFFUSER - SUPPLY, RE:
- ROUND DIFFUSER - SUPPLY, RE:
- 2' x 2' LIGHT FIXTURE, RE:
- 2' x 4' LIGHT FIXTURE, RE:
- 1' x 4' LIGHT FIXTURE, RE:
- CORNER MTD. SECURITY LED, RE:
- CAN LIGHT, RE:
- LINEAR LIGHT, RE:
- CEILING MOUNTED
- MOISTURE RESISTANT

GENERAL SECURITY NOTES

ALL INMATE ACCESSIBLE AREAS SHALL BE CONSTRUCTED BY THE FOLLOWING STANDARDS:

1. ALL MASONRY SHALL BE CONSTRUCTED AS SECURITY WALLS, GROUTED FULL WITH #4 BAR IN EACH CMU CELL TO 10'-0" ABOVE INMATE ACCESSIBLE AREA, UNO.
2. ALL CAULKING SHALL BE PICK-PROOF SEALANT, UNO.
3. ANY GAP WHICH IS LARGER THAN THE THICKNESS OF A CREDIT CARD SHALL RECEIVE PICK-PROOF SEALANT.
4. ANY PENETRATION IN A WALL OR FLOOR GREATER THAN 6" IN ANY DIRECTION SHALL HAVE SECURITY BARS. REFER TO MEP FOR SECURITY BAR DETAILS AT DUCT PENETRATIONS. FOR OTHER OPENINGS, REFER TO DETAIL A10/A200.
5. ALL WELDS SHALL BE GROUND SMOOTH.
6. ANY ROUGH OR SHARP SURFACE SHALL BE LEVELED TO THE ADJACENT SURFACE.
7. ANY GYPSUM BOARD WITHIN SECURE PERIMETER SHALL BE ABUSE-RESISTANT.
8. GYPSUM BOARD PARTITIONS AND CEILING SOFFITS WITHIN SECURE PERIMETER SHALL BE REINFORCED WITH SECURITY MESH.
9. SPRINKLER HEADS SHALL BE INSTITUTIONAL TYPE WHERE NOTED ON FIRE PROTECTION DRAWINGS.
10. ANY PIPES EXPOSED TO INMATES SHALL BE COVERED WITH 18 GAUGE GALV. STEEL SECURITY PIPE ENCLOSURE. THE COVER SHALL HAVE A SNAP-LOCK INTERFACE W/ CLIPS.

GENERAL DEMO PLAN NOTES

1. CONTRACTOR SHALL CONTACT DESIGNATED OWNER'S REPRESENTATIVE DAILY TO PROVIDE ACTIVITIES AND SHUTDOWN REPORTS. ALL SITE AND BUILDING USE SHALL BE COORDINATED IN ADVANCE WITH THE OWNER.
2. MEP DEMOLITION SHALL BE PER THEIR ASSOCIATED DRAWINGS.
3. ALL MEP SYSTEMS TO SURROUNDING SPACES SHALL BE MAINTAINED, UNLESS COORDINATED IN ADVANCE WITH THE OWNER.
4. CONTRACTOR SHALL MEET WITH OWNER'S REPRESENTIVE PRIOR TO BEGINNING ANY WORK TO SET MINIMUM PROCEDURES FOR DUST CONTAINMENT.
5. ALL EXISTING WALL AND CEILING MOUNTED CLOCKS, EQUIPMENT, MONITORS, SIGNAGE, ACCESSORIES, ETC... WITHIN AREA OF THE WORK SHALL BE REMOVED AND RE-INSTALLED AS INDICATED IN THE DRAWINGS, OR SALVAGED BACK TO THE OWNER, UNLESS DIRECTED OTHERWISE BY THE OWNER.
6. WHERE REMOVAL OF EXISTING WALLS, EQUIPMENT, ETC... DISRUPTS OR DISTURBS EXISTING ELECTRICAL, MECHANICAL OR PLUMBING SERVICES TO AREAS NOT DESIGNATED AS CONSTRUCTION AREAS, THE CONTRACTOR SHALL PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO INSURE UNINTERRUPTED SERVICE TO SAID AREAS.
7. CONTRACTOR IS TO REMOVE COMPLETELY ANY EXISTING CONSTRUCTION WHICH CONFLICTS WITH THE INTENT OF THE NEW CONSTRUCTION.
8. OWNER WILL BE RESPONSIBLE FOR REMOVING AND STORING ITEMS SUCH AS FURNITURE, PLAQUES, MOVEABLE EQUIPMENT, ETC...
9. REFER TO MEP AND STRUCTURAL DRAWINGS FOR ADDITIONAL DEMOLITION WORK.
10. ITEMS BEING REMOVED REMAIN THE PROPERTY OF THE OWNER. CONSULT WITH THE OWNER TO DETERMINE THEIR PROPER REUSE, STORAGE, OR DISPOSAL.

MATERIALS LEGEND - CEILINGS

MATERIAL	CODE	MANUFACTURER	MODEL/ PATTERN	COLOR	SIZE	NOTES
CEILING						
GYPSUM BOARD	GB	SEE DRAWINGS, DETAILS & SPECIFICATIONS				
PAINT						
PAINT *NOTE: INSTANCES WHERE EPOXY PAINT (EP#) VERSIONS OF THESE COLORS ARE NEEDED. RE: SPEC FOR MORE INFORMATION*	EP1	SHERWIN WILLIAMS	REFERENCE INTERIOR EPOXY COATINGS SPEC SECTION 099656	MATCH EXISTING/ADJACENT. SUBMIT COLORS TO ARCHITECT FOR SELECTION	--	PAINT ALL GYPSUM BD CEILINGS (EXISTING AND NEW) THIS COLOR
OTHER ABBREVIATIONS						
EXISTING TO REMAIN	ETR					
PATCH TO MATCH	PTM					
OPEN TO STRUCTURE	OTS					

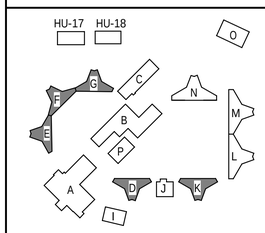
Buildings D, E, F, G, and K are similar.
The scope shown on Building D ceiling plan will also be required for Buildings E, F, G and K

RCP GENERAL NOTES

1. REFER TO REFLECTED CEILING PLAN FOR REQUIRED CEILING HEIGHTS.
2. CENTER ALL SPRINKLER HEADS, DEVICES, LIGHTING, CLOCKS, EXIT SIGNS, ETC... WITHIN CEILING PANELS, UNLESS NOTED OTHERWISE.
3. CENTER ALL SUSPENDED ACT CEILING GRIDS WITH-IN THE ROOM UNLESS NOTED OTHERWISE.
4. PENETRATIONS THROUGH ACT CEILING PANELS AT EXPOSED HANGERS, PIPES, WIRING OR OWNER EQUIPMENT MASTS SHALL BE FINISHED WITH METAL OR PLASTIC ESCUTCHEONS TO MATCH COLOR OF CEILING.
5. ALL GYPSUM BOARD CEILINGS (THIS INCLUDES SECURITY GYP. BD. CEILINGS) TO BE PAINTED (EP1), UNLESS NOTED OTHERWISE.
6. REFER TO THE SHADED AREAS ON THE REFLECTED CEILING PLAN FOR EXTENT OF CEILING TO BE REMOVED AND REINSTALLED TO ACCESS THE BOTTOM OF THE ROOF FOR STRUCTURAL AND MECHANICAL WORK. REFER TO KEYPLAN NOTES AND ARCHITECTURAL DETAILS

RCP KEYNOTES

1	PATCH EXISTING SOFFIT TO MATCH EXISTING WITH METAL FURRING AND 5/8" TYPE X ABUSE-RESISTANT GYP BOARD AFTER STRUCTURAL AND MECHANICAL WORK IS COMPLETE.
2	PAINT ENTIRE CEILING AFTER PATCHING OF CEILING IS COMPLETE. REFER TO CEILING MATERIAL LEGEND
3	EXISTING SKLIGHT TO REMAIN
4	TO ACCESS THE BOTTOM OF THE ROOF TO INSTALL STEEL BEAMS AND DUCTWORK, NEATLY REMOVE PORTIONS OF THE GYP. BOARD CEILING AND METAL FURRING. AFTER DUCTWORK AND STRUCTURAL WORK IS COMPLETE, PATCH CEILING WITH METAL FURRING AND 5/8" TYPE X, ABUSE-RESISTANT GYPSUM BOARD. REFER TO A12/A121
5	EXISTING VENTILATION FAN, RE: MECH.



Key Plan Buildings D, E, F, G and K
NTS

A1 02 - RCP Building D Level 2
1/8" = 1'-0" |

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
JOE MUSSELL CANTRELL
NUMBER A-6475
REGISTERED ARCHITECT

Joe Cantrell, Architect 08/28/2026
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

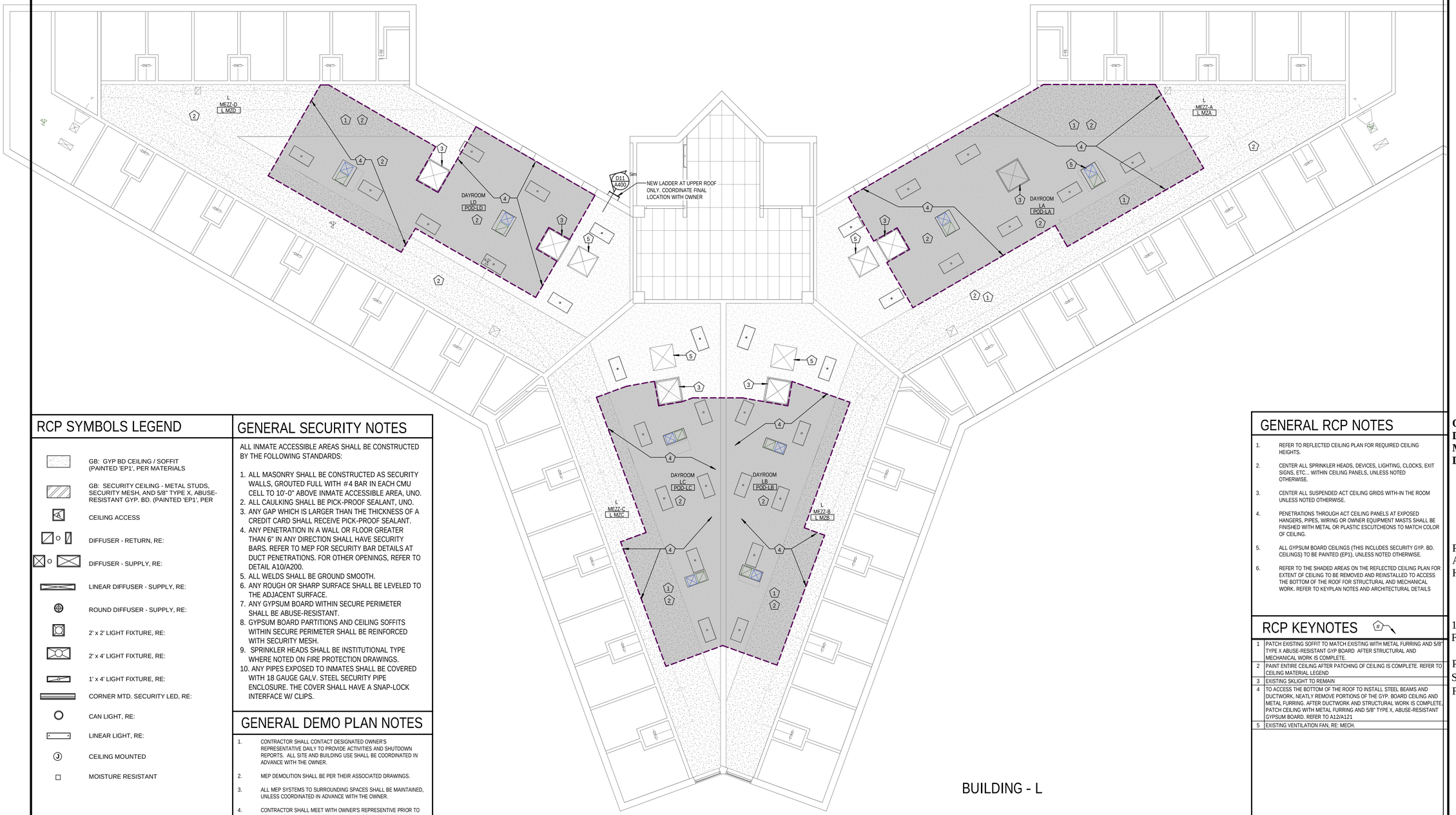
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Level 2 RCP - Building D

SHEET NUMBER:
A201

9 OF 118 SHEETS
08/28/2026



BUILDING - L

RCP SYMBOLS LEGEND

- GB: GYP BD CEILING / SOFFIT (PAINTED 'EP1', PER MATERIALS
- GB: SECURITY CEILING - METAL STUDS, SECURITY MESH, AND 5/8" TYPE X, ABUSE-RESISTANT GYP. BD. (PAINTED 'EP1', PER
- CEILING ACCESS
- DIFFUSER - RETURN, RE:
- DIFFUSER - SUPPLY, RE:
- LINEAR DIFFUSER - SUPPLY, RE:
- ROUND DIFFUSER - SUPPLY, RE:
- 2' x 2' LIGHT FIXTURE, RE:
- 2' x 4' LIGHT FIXTURE, RE:
- 1' x 4' LIGHT FIXTURE, RE:
- CORNER MTD. SECURITY LED, RE:
- CAN LIGHT, RE:
- LINEAR LIGHT, RE:
- CEILING MOUNTED
- MOISTURE RESISTANT

GENERAL SECURITY NOTES

ALL INMATE ACCESSIBLE AREAS SHALL BE CONSTRUCTED BY THE FOLLOWING STANDARDS:

1. ALL MASONRY SHALL BE CONSTRUCTED AS SECURITY WALLS, GROUTED FULL WITH #4 BAR IN EACH CMU CELL TO 10'-0" ABOVE INMATE ACCESSIBLE AREA, UNO.
2. ALL CAULKING SHALL BE PICK-PROOF SEALANT, UNO.
3. ANY GAP WHICH IS LARGER THAN THE THICKNESS OF A CREDIT CARD SHALL RECEIVE PICK-PROOF SEALANT.
4. ANY PENETRATION IN A WALL OR FLOOR GREATER THAN 6" IN ANY DIRECTION SHALL HAVE SECURITY BARS. REFER TO MEP FOR SECURITY BAR DETAILS AT DUCT PENETRATIONS. FOR OTHER OPENINGS, REFER TO DETAIL A10/A200.
5. ALL WELDS SHALL BE GROUND SMOOTH.
6. ANY ROUGH OR SHARP SURFACE SHALL BE LEVELED TO THE ADJACENT SURFACE.
7. ANY GYPSUM BOARD WITHIN SECURE PERIMETER SHALL BE ABUSE-RESISTANT.
8. GYPSUM BOARD PARTITIONS AND CEILING SOFFITS WITHIN SECURE PERIMETER SHALL BE REINFORCED WITH SECURITY MESH.
9. SPRINKLER HEADS SHALL BE INSTITUTIONAL TYPE WHERE NOTED ON FIRE PROTECTION DRAWINGS.
10. ANY PIPES EXPOSED TO INMATES SHALL BE COVERED WITH 18 GAUGE GALV. STEEL SECURITY PIPE ENCLOSURE. THE COVER SHALL HAVE A SNAP-LOCK INTERFACE W/ CLIPS.

GENERAL DEMO PLAN NOTES

1. CONTRACTOR SHALL CONTACT DESIGNATED OWNER'S REPRESENTATIVE DAILY TO PROVIDE ACTIVITIES AND SHUTDOWN REPORTS. ALL SITE AND BUILDING USE SHALL BE COORDINATED IN ADVANCE WITH THE OWNER.
2. MEP DEMOLITION SHALL BE PER THEIR ASSOCIATED DRAWINGS.
3. ALL MEP SYSTEMS TO SURROUNDING SPACES SHALL BE MAINTAINED, UNLESS COORDINATED IN ADVANCE WITH THE OWNER.
4. CONTRACTOR SHALL MEET WITH OWNER'S REPRESENTIVE PRIOR TO BEGINNING ANY WORK TO SET MINIMUM PROCEDURES FOR DUST CONTAINMENT.
5. ALL EXISTING WALL AND CEILING MOUNTED CLOCKS, EQUIPMENT, MONITORS, SIGNAGE, ACCESSORIES, ETC... WITHIN AREA OF THE WORK SHALL BE REMOVED AND RE-INSTALLED AS INDICATED IN THE DRAWINGS, OR SALVAGED BACK TO THE OWNER, UNLESS DIRECTED OTHERWISE BY THE OWNER.
6. WHERE REMOVAL OF EXISTING WALLS, EQUIPMENT, ETC... DISRUPTS OR DISTURBS EXISTING ELECTRICAL, MECHANICAL OR PLUMBING SERVICES TO AREAS NOT DESIGNATED AS CONSTRUCTION AREAS, THE CONTRACTOR SHALL PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO INSURE UNINTERRUPTED SERVICE TO SAID AREAS.
7. CONTRACTOR IS TO REMOVE COMPLETELY ANY EXISTING CONSTRUCTION WHICH CONFLICTS WITH THE INTENT OF THE NEW CONSTRUCTION.
8. OWNER WILL BE RESPONSIBLE FOR REMOVING AND STORING ITEMS SUCH AS FURNITURE, PLAQUES, MOVEABLE EQUIPMENT, ETC...
9. REFER TO MEP AND STRUCTURAL DRAWINGS FOR ADDITIONAL DEMOLITION WORK.
10. ITEMS BEING REMOVED REMAIN THE PROPERTY OF THE OWNER. CONSULT WITH THE OWNER TO DETERMINE THEIR PROPER REUSE, STORAGE, OR DISPOSAL.

MATERIALS LEGEND - CEILINGS

See Legend on A201 for information

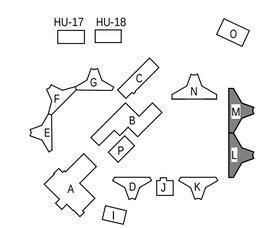
Buildings L and M are similar.
The scope shown on this drawing will also be required for Building M

GENERAL RCP NOTES

1. REFER TO REFLECTED CEILING PLAN FOR REQUIRED CEILING HEIGHTS.
2. CENTER ALL SPRINKLER HEADS, DEVICES, LIGHTING, CLOCKS, EXIT SIGNS, ETC... WITHIN CEILING PANELS, UNLESS NOTED OTHERWISE.
3. CENTER ALL SUSPENDED ACT CEILING GRIDS WITH-IN THE ROOM UNLESS NOTED OTHERWISE.
4. PENETRATIONS THROUGH ACT CEILING PANELS AT EXPOSED HANGERS, PIPES, WIRING OR OWNER EQUIPMENT MASTS SHALL BE FINISHED WITH METAL OR PLASTIC ESCUTCHEONS TO MATCH COLOR OF CEILING.
5. ALL GYPSUM BOARD CEILINGS (THIS INCLUDES SECURITY GYP. BD. CEILINGS) TO BE PAINTED (EP1), UNLESS NOTED OTHERWISE.
6. REFER TO THE SHADED AREAS ON THE REFLECTED CEILING PLAN FOR EXTENT OF CEILING TO BE REMOVED AND REINSTALLED TO ACCESS THE BOTTOM OF THE ROOF FOR STRUCTURAL AND MECHANICAL WORK. REFER TO KEYPLAN NOTES AND ARCHITECTURAL DETAILS

RCP KEYNOTES

1	PATCH EXISTING SOFFIT TO MATCH EXISTING WITH METAL FURRING AND 5/8" TYPE X ABUSE-RESISTANT GYP BOARD AFTER STRUCTURAL AND MECHANICAL WORK IS COMPLETE.
2	PAINT ENTIRE CEILING AFTER PATCHING OF CEILING IS COMPLETE. REFER TO CEILING MATERIAL LEGEND
3	EXISTING SKLIGHT TO REMAIN
4	TO ACCESS THE BOTTOM OF THE ROOF TO INSTALL STEEL BEAMS AND DUCTWORK, NEATLY REMOVE PORTIONS OF THE GYP. BOARD CEILING AND METAL FURRING. AFTER DUCTWORK AND STRUCTURAL WORK IS COMPLETE. PATCH CEILING WITH METAL FURRING AND 5/8" TYPE X, ABUSE-RESISTANT GYPSUM BOARD. REFER TO A12/A121
5	EXISTING VENTILATION FAN, RE: MECH.



Key Plan Buildings L and M
NTS

A202 - RCP Building L Level 2
1/8" = 1'-0"

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

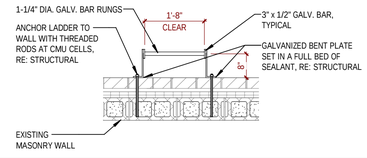
PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

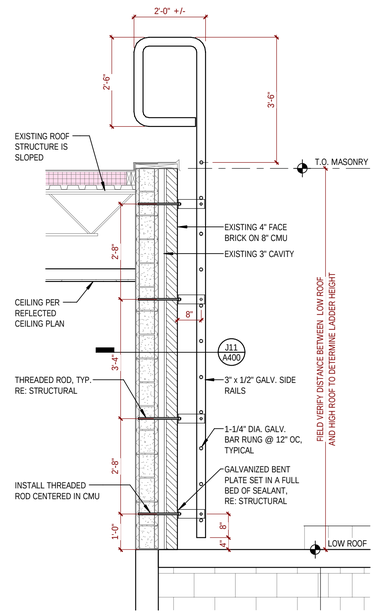
SHEET TITLE:
Level 2 RCP - Building L

SHEET NUMBER:
A202



J11 Ladder Plan
1/2" = 1'-0" |D11/A400

ADD ONE LADDER FROM THE LOW ROOF TO HIGH ROOF AT BUILDINGS D, E, F, G, K, L, and M. COORDINATE FINAL LOCATION WITH OWNER



D11 LADDER SECTION
1/2" = 1'-0" |C5/A110

ADD ONE LADDER FROM THE LOW ROOF TO HIGH ROOF AT BUILDINGS D, E, F, G, K, L, and M. COORDINATE FINAL LOCATION WITH OWNER

MATERIALS LEGEND

MATERIAL	CODE	MANUFACTURER	MODEL/ PATTERN	COLOR	SIZE	NOTES
FLOORING						
EXISTING TO REMAIN						
BASE						
EXISTING TO REMAIN						
WALLS & MISC. SURFACES						
PAINT	EP1	SEE SPECS	--	MATCH EXISTING	--	TOUCH-UP PAINT FOR EXISTING INTERIOR WALLS THAT ARE DAMAGED DUE TO NEW CONSTRUCTION
NOTE: INSTANCES WHERE EPOXY PAINT (EP#) VERSIONS OF THESE COLORS ARE NEEDED. RE: SPEC FOR MORE INFORMATION	P2	SEE SPECS	--	MATCH ADJACENT WALL COLOR	--	
	P3	SEE SPECS	--	TBD	--	EXTERIOR PAINT
OTHER ABBREVIATIONS						
EXISTING TO REMAIN	ETR					
NO FINISH	NF					
PATCH TO MATCH	PTM					

GENERAL SECURITY NOTES

ALL INMATE ACCESSIBLE AREAS SHALL BE CONSTRUCTED BY THE FOLLOWING STANDARDS:

1. ALL MASONRY SHALL BE CONSTRUCTED AS SECURITY WALLS, GROUTED FULL WITH #4 BAR IN EACH CMU CELL TO 10'-0" ABOVE INMATE ACCESSIBLE AREA, UNO.
2. ALL CAULKING SHALL BE PICK-PROOF SEALANT, UNO.
3. ANY GAP WHICH IS LARGER THAN THE THICKNESS OF A CREDIT CARD SHALL RECEIVE PICK-PROOF SEALANT.
4. ANY PENETRATION IN A WALL OR FLOOR GREATER THAN 6" IN ANY DIRECTION SHALL HAVE SECURITY BARS. REFER TO MEP FOR SECURITY BAR DETAILS AT DUCT PENETRATIONS. FOR OTHER OPENINGS, REFER TO DETAIL A10/A200.
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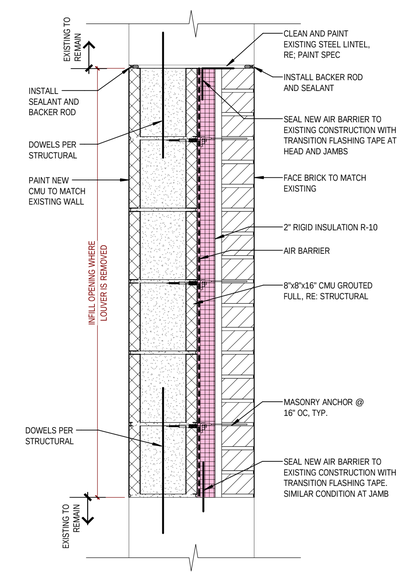
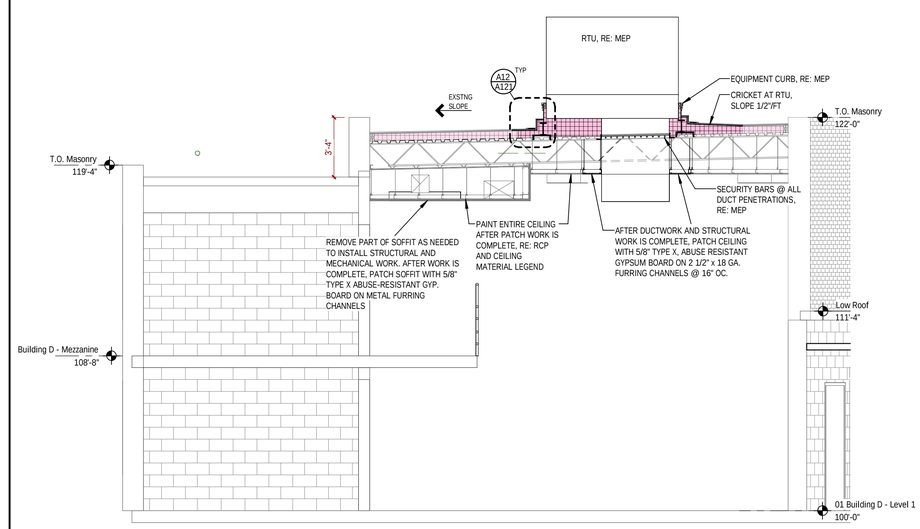
8. GYPSUM BOARD PARTITIONS AND CEILING SOFFITS WITHIN SECURE PERIMETER SHALL BE REINFORCED WITH SECURITY MESH.
9. SPRINKLER HEADS SHALL BE INSTITUTIONAL TYPE WHERE NOTED ON FIRE PROTECTION DRAWINGS.
10. ANY PIPES EXPOSED TO INMATES SHALL BE COVERED WITH 18 GAUGE GALV. STEEL SECURITY PIPE ENCLOSURE. THE COVER SHALL HAVE A SNAP-LOCK INTERFACE W/ CLIPS.



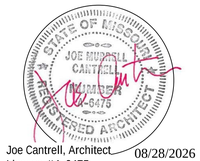
D5 LOUVER INFILL SECTION
1 1/2" = 1'-0" |D10/A111



A5 BUILDING SECTION
1/4" = 1'-0" | 1/A115b

NOTE: EXISTING 1-HOUR ROOF ASSEMBLY SHALL BE MAINTAINED. ANY NEW PENETRATIONS SHALL BE PATCHED WITH 5/8" TYPE X GYPSUM BOARD AND FIRE CAULK AND FIRE SAFING. INSTALL TYPE 5/8" TYPE X, ABUSE RESISTANT GYPSUM BOARD WHERE NOTED. U.L. #P225

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR



Joe Cantrell, Architect
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08/28/2026

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: JR
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Building Sections & Details

SHEET NUMBER:
A400

GENERAL NOTES

I. DESIGN CRITERIA

A. GENERAL BUILDING CODE

1. THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE INTERNATIONAL EXISTING BUILDING CODE 2015 WITH CITY OF FULTON AMENDMENTS. DOCUMENTS ARE BASED UPON ALTERATIONS OF THE EXISTING STRUCTURE.
   A. ALTERATIONS ARE BASED ON THE PRESCRIPTIVE COMPLIANCE METHOD.

B. LIVE LOADS

1. DESIGN ROOF LIVE LOADS: 20 PSF

C. WIND LOADS

1. WIND PRESSURES ARE BASED ON THE PROVISIONS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-10 AND THE FOLLOWING CRITERIA:
   A. BASIC DESIGN WIND SPEED (V): 120 MPH (3 SECOND GUST)
   B. NOMINAL DESIGN WIND SPEED (VASD): 93 MPH (3-SECOND GUST)
   C. WIND EXPOSURE CATEGORY: C
   D. INTERNAL PRESSURE COEFFICIENT (GCPI): **+0.18/-0.18**
2. WIND PRESSURES USED FOR THE DESIGN OF ROOFTOP EQUIPMENT ARE SHOWN IN THE FOLLOWING TABLE:

LOAD TYPE	WIND LOAD (PSF)
LATERAL	±56.2
UPLIFT	44.4

NOTES:
A. PRESSURES ACT NORMAL TO THE SURFACE. POSITIVE PRESSURES ACT TOWARDS THE SURFACE AND NEGATIVE PRESSURES ACT AWAY FROM THE SURFACE.

D. SNOW LOADS

1. SNOW LOADS ARE BASED ON THE AMERICAN SOCIETY OF CIVIL ENGINEERS, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-10 AND THE FOLLOWING CRITERIA:
   A. GROUND SNOW LOAD (PG): 20 PSF
   B. SNOW EXPOSURE FACTOR (CE): 0.9
   C. THERMAL FACTOR (CT): 1.0
   D. SNOW LOAD IMPORTANCE FACTOR (I): 1.1

E. SEISMIC DESIGN CRITERIA

1. THE STRUCTURE AND COMPONENTS OF THE BUILDING HAVE BEEN DESIGNED IN ACCORDANCE WITH AFOREMENTIONED BUILDING CODE WITH THE FOLLOWING CRITERIA:
   A. SEISMIC IMPORTANCE FACTOR, I: 1.25
   B. 0.2 SEC. SPECTRAL ACCELERATION (SS): 0.193G
   C. 1 SEC. SPECTRAL ACCELERATION (S1): 0.103G
   D. SITE CLASS: D
   E. SITE COEFFICIENT, SHORT PERIOD (FA): 1.6
   F. SITE COEFFICIENT, 1 SEC. PERIOD (FV): 2.387
   G. 0.2 SEC SPECTRAL RESPONSE COEFF. (SDS): 0.206G
   H. 1 SEC SPECTRAL RESPONSE COEFF. (SD1): 0.164G
   I. SEISMIC DESIGN CATEGORY: C
2. NONSTRUCTURAL COMPONENTS, STRUCTURAL COMPONENTS ENGINEERED AS PART OF DEFERRED SUBMITTALS, AND CONNECTIONS OF THOSE COMPONENTS TO THE PRIMARY STRUCTURE SHALL BE DESIGNED IN ACCORDANCE WITH THE AFOREMENTIONED BUILDING CODE, THE GENERAL SEISMIC CRITERIA LISTED ABOVE, AND THE REQUIREMENTS OF ASCE 7-10, SECTION 12.11 AND CHAPTER 13 AS APPROPRIATE.
   A. DESIGN OF SUCH COMPONENTS, INCLUDING EGRESS STAIRS AND GLASS COMPONENTS OF WALL SYSTEMS, SHALL ACCOMMODATE ANTICIPATED SEISMIC MOVEMENTS OF THE PRIMARY STRUCTURE PER PROCEDURES OF ASCE 7-10 CHAPTER 13.

F. HANDRAILS AND GUARDS

1. THE HANDRAIL ASSEMBLIES AND GUARDS SHALL BE DESIGNED FOR 50 PLF OR A CONCENTRATED LOAD OF 200 POUNDS AT ANY POINT APPLIED IN ANY DIRECTION AT THE TOP AND TO TRANSFER THIS LOAD THROUGH THE SUPPORTS TO THE STRUCTURE. THESE LOADS NEED NOT BE ASSUMED TO ACT CONCURRENTLY.

II. NON-DESTRUCTIVE EVALUATION

A. ITEMS EMBEDDED IN CONCRETE STRUCTURES

1. ITEMS EMBEDDED IN CONCRETE STRUCTURES SHALL NOT BE DAMAGED DURING REPAIR WORK OR INSTALLATION OF NEW MEMBERS REQUIRING POST-INSTALLED ANCHORS. EMBEDDED ITEMS MAY INCLUDE MILD REINFORCEMENT, DOWELS, EMBEDDED CONNECTIONS, ELECTRICAL CONDUITS, PLUMBING, ETC.
2. ITEMS EMBEDDED IN CONCRETE SHALL BE LOCATED BY NON-DESTRUCTIVE EVALUATION PRIOR TO PERFORMING ANY WORK. CONTRACTOR SHALL MARK ON THE STRUCTURE THE LOCATION OF EMBEDDED ITEMS AND PROVIDE A REPORT TO THE ENGINEER.
3. CONTRACTOR SHALL NOT START FABRICATION OF NEW MEMBERS UNTIL ITEMS EMBEDDED IN CONCRETE HAVE BEEN LOCATED. CONTACT ENGINEER IF EXISTING EMBEDDED ITEMS INTERFERE WITH LOCATION OF POST-INSTALLED ANCHORS SPECIFIED IN DRAWINGS.
4. ENGINEER MAY REQUIRE A PARTICULAR NON-DESTRUCTIVE EVALUATION METHOD FOR THE LOCATION OF EMBEDDED ITEMS.

III. REINFORCED CONCRETE

A. CLASSES OF CONCRETE

1. ALL CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE "CLASSES OF CONCRETE MATRIX" BELOW, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

CLASSES OF CONCRETE MATRIX

LOCATION	COMP STRENGTH, PSI	TYPE	EXPOSURE CLASS	MAX W/C RATIO	AIR CON-TENT	MAX AGG. SIZE (IN)
ALL	4,500	NWC	F1,S2,W2,C1	0.45	5%	3/4

B. REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE ASTM A 615 GRADE 60 UNLESS NOTED OTHERWISE ON THE DRAWINGS OR IN THESE NOTES.

C. REINFORCING STEEL COVERAGE

1. FOR CONCRETE CAST AGAINST SOIL USE A MINIMUM OF 3 INCH CLEAR COVER FOR THE REINFORCEMENT COVER. STRUCTURAL MEMBERS NOT SPECIFIED IN THE DETAILS SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS. THE REINFORCING STEEL DETAILER SHALL ADJUST REINFORCING STEEL CAGE SIZES AT INTERSECTING STRUCTURAL MEMBERS AS REQUIRED TO ALLOW CLEARANCE FOR INTERSECTING REINFORCING BAR LAYERS WITH MINIMUM SPECIFIED COVER.

III. CONCRETE MASONRY

A. SCOPE

1. CONCRETE MASONRY TO BE USED TO INFILL EXISTING WALL OPENINGS AT REMOVED LOUVERS AS INDICATED IN ARCHITECTURAL DRAWINGS.

B. CONCRETE MASONRY ASSEMBLY STRENGTH

1. NET AREA COMPRESSIVE DESIGN STRENGTH OF CONCRETE MASONRY ASSEMBLY (F'M): 2,000 PSI

C. CONCRETE MASONRY UNITS

1. COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS (BASED ON NET AREA): 2,000 PSI MINIMUM.
2. UNLESS NOTED OTHERWISE, CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT (125PCF OR GREATER).
3. UNITS SHALL CONFORM TO ASTM C 55 OR ASTM C 90 AND SAMPLED IN ACCORDANCE WITH ASTM C 140.

D. MORTAR

1. USE ONLY PORTLAND CEMENT/LIME, TYPE M OR S, MORTAR CONFORMING TO ASTM C 270.

E. GROUT

1. MIX DESIGNS:
   A. GROUT SHALL BE PROPORTIONED PER ASCE C 476. MINIMUM COMPRESSIVE STRENGTH OF GROUT SHALL BE EQUAL TO F'M BUT NOT LESS THAN 2,000 PSI.
   B. FOR FILLING SPACES 4" OR LARGER IN BOTH HORIZONTAL DIRECTIONS, USE COARSE GROUT. FOR FILLING SPACES LESS THAN 4" IN ONE OR BOTH HORIZONTAL DIRECTIONS, USE FINE GROUT.
   C. USE 3,000 PSI NORMALWEIGHT CONCRETE FOR FILLING SPACES 10" AND LARGER IN BOTH DIRECTIONS.
   D. FOR ANY GROUT WITH DESIGN STRENGTH GREATER THAN 2,000 PSI, MIX DESIGN SUBMITTALS SHALL INCLUDE THE RESULTS OF THE TESTS PERFORMED IN ACCORDANCE WITH ASTM C 1019.
   E. SLUMP RANGE AT POINT OF FINAL DISCHARGE: 8" TO 11".
   F. THE USE OF AIR ENTRAINING ADMIXTURES IS NOT PERMITTED.
2. EXTENTS OF GROUTING:
   ALL MASONRY WALLS ARE TO BE FULLY GROUTED

F. MINIMUM REINFORCEMENT FOR CONCRETE MASONRY UNITS

1. REINFORCING STEEL IN CONCRETE MASONRY CONSTRUCTION: ASTM A 615, GRADE 60.
2. PROVIDE VERTICAL REINFORCEMENT IN ALL CELLS OF CONCRETE MASONRY UNITS (FULLY EMBEDDED IN GROUT)

G. REINFORCING STEEL COVERAGE

1. COVER TO REINFORCING STEEL WITHIN MASONRY ELEMENTS SHALL NOT BE LESS THAN THE FOLLOWING:
   A. EXPOSED TO EARTH OR WEATHER: 2" (#6 AND LARGER BARS), 1 1/2" (#5 AND SMALLER BARS).
   B. NOT EXPOSED TO EARTH OR WEATHER: 1 1/2"
   C. LONGITUDINAL WIRES OF JOINT REINFORCEMENT SHALL BE FULLY EMBEDDED IN MORTAR OR GROUT WITH A MINIMUM COVER OF 5/8" WHEN EXPOSED TO EARTH AND WEATHER AND 1/2" WHEN NOT EXPOSED TO EARTH OR WEATHER.

IV. STRUCTURAL STEEL

A. MATERIAL

1. HOT ROLLED STRUCTURAL MEMBERS: ALL HOT ROLLED STEEL PLATES, SHAPES, SHEET PILING, AND BARS SHALL BE NEW STEEL CONFORMING TO ASTM SPECIFICATION A6.
2. ASTM SPECIFICATION AND GRADE: CLEARLY MARK THE GRADE OF STEEL ON EACH PIECE, WITH A DISTINGUISHING MARK VISIBLE FROM FLOOR SURFACES, FOR THE PURPOSE OF FIELD INSPECTION OF PROPER GRADE OF STEEL. UNLESS NOTED OTHERWISE ON THE DRAWINGS, STRUCTURAL STEEL SHALL BE AS FOLLOWS:
   A. W- AND WT-SHAPES: ASTM A 992.
   B. C-SHAPES: ASTM A 36.
   C. L-SHAPES: ASTM A 36.
   D. ROUND HSS: ASTM A 500, GRADE C (FY=50 KSI).
   E. RECTANGULAR HSS: ASTM A 500, GRADE C (FY=50 KSI).
   F. STEEL PIPES: ASTM A 53 (TYPES E OR S), GRADE B.
   G. BASE PLATES: ASTM A 36 (UNLESS NOTED OTHERWISE ON THE DRAWINGS).
   H. EDGE ANGLES, BENT PLATES, ANGLE HANGERS, AND ANGLE KICKERS: ASTM A 36.

C. STRUCTURAL BOLTS AND THREADED FASTENERS

1. A 325 BOLTS: ALL BOLTS IN STRUCTURAL CONNECTIONS SHALL CONFORM TO ASTM A 325 TYPE 1, UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

D. WELDING

1. UNLESS NOTED OTHERWISE, ELECTRODES FOR WELDING SHALL CONFORM TO E70XX (SMAW), F7XX-EXXX (SAW), ER70S-X (GMAW), OR E7XT-X (FCAW).
2. ELECTRODES FOR GRADE 60 OR GRADE 65 MATERIAL SHALL CONFORM TO E80XX (SMAW), F8XX-EXX-XX (SAW), ER80S-X (GMAW), OR E8XT-X (FCAW).

E. CORROSION RESISTANCE

1. GALVANIZED FINISH: ALL STEEL SHAPES, PLATES, ANGLES, BOLTS, ANCHOR RODS, NUTS, WASHERS AND OTHER EXPOSED STEEL SHALL BE HOT DIP GALVANIZED PER ASTM A123.
2. ALL FIELD WELDS AND PENETRATIONS IN ZINC COATING SHALL BE PAINTED IN THE FIELD WITH ZRC GALVALITE REPAIR PAINT OR ENGINEER APPROVED EQUAL.

F. GROUT

1. GROUT BELOW STRUCTURAL STEEL BASE PLATES SHALL BE NON-METALLIC, NON-SHRINK GROUT WITH A MINIMUM STRENGTH OF 6,000 PSI WHEN BEARING ON 3,000 PSI CONCRETE OR LESS, A STRENGTH OF 8,000 PSI WHEN BEARING ON CONCRETE BETWEEN 3,000 AND 4,000 PSI, AND, UNLESS NOTED OTHERWISE ON THE DRAWINGS, A STRENGTH OF 8,000 PSI WHEN BEARING ON CONCRETE GREATER THAN 4,000 PSI.

V. SPECIAL INSPECTIONS

A. STATEMENT OF SPECIAL INSPECTIONS

1. SPECIAL INSPECTION IS REQUIRED FOR THE ITEMS LISTED BELOW. REFER TO GENERAL NOTES PART "STRUCTURAL TESTING AND INSPECTIONS" FOR TYPE AND EXTENT OF EACH SPECIAL INSPECTION AND TEST. GENERAL NOTES PART "STRUCTURAL TESTING AND INSPECTIONS" ALSO INDICATES WHETHER CONTINUOUS OR PERIODIC INSPECTION IS REQUIRED FOR THE ITEMS LISTED BELOW.

B. THE OWNER'S TESTING AGENCY SHALL PROVIDE SPECIAL INSPECTION SERVICES IN ACCORDANCE WITH THE REFERENCED BUILDING CODE FOR THE FOLLOWING ITEMS.

1. STEEL CONSTRUCTION:
   A. ALL FIELD WELDING
   B. HIGH-STRENGTH BOLTING
   C. STRUCTURAL STEEL AND BOLTING
   D. WELDING OF STRUCTURAL STEEL
2. CONCRETE CONSTRUCTION:
   A. POST-INSTALLED ANCHORS

VI. STRUCTURAL TESTING AND INSPECTIONS

A. GENERAL

1. THE OWNER SHALL ENGAGE A TESTING AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS IN ACCORDANCE WITH THE REFERENCED BUILDING CODE AND PREPARE TESTING INSPECTION REPORTS.
   A. RE-INSPECTION OF WORK SHALL BE AT CONTRACTOR'S EXPENSE. COST OF RE-INSPECTION SHALL BE PAID FOR BY THE OWNER. THESE COSTS SHALL BE REIMBURSED TO THE OWNER BY THE CONTRACTOR.
2. SPECIAL INSPECTIONS: THE TESTING AGENCY SHALL SERVE AS A SPECIAL INSPECTOR TO PROVIDE SPECIAL INSPECTION SERVICES, AS LEGALLY REQUIRED BY THE REFERENCED BUILDING CODE FOR THE ITEMS LISTED IN SECTION "SPECIAL INSPECTIONS."

B. CONTRACT OBLIGATIONS:

1. CONTRACTOR RESPONSIBILITY: THE CONTRACTOR SHALL PROVIDE THE OWNER'S TESTING AGENCY WITH THE FOLLOWING:
   A. THE CONTRACTOR SHALL PROVIDE TO THE TESTING AGENCY CERTIFICATES AND REPRESENTATIVE SAMPLES OF MATERIALS PROPOSED FOR USE IN THE WORK IN QUANTITIES SUFFICIENT FOR ACCURATE TESTING AS SPECIFIED
   B. DOCUMENTATION OF WELDERS CERTIFICATION TO PERFORM THE INDICATED WORK AND THE APPLICABLE WPS DOCUMENTATION AS INDICATED ABOVE.
   C. PROPER FACILITIES, INCLUDING SCAFFOLDING, TEMPORARY WORK PLATFORMS, HOISTING FACILITIES, CASUAL LABOR, ETC, FOR INSPECTION OF WORK IN THE MILLS, SHOP, AND FIELD.
2. OWNER'S TESTING AGENCY RESPONSIBILITY: THE TESTING AGENCY SHALL SAMPLE AND TEST MATERIALS AS THEY ARE BEING INSTALLED FOR COMPLIANCE WITH SPECIFIED ACCEPTANCE CRITERIA. THE TESTING AGENCY WILL REPORT AND INTERPRET THE TEST RESULTS. THE TESTING AGENCY SHALL MONITOR AND REPORT ON THE INSTALLATION OF CONSTRUCTION WORK AND SHALL PERFORM TESTS ON THE COMPLETED CONSTRUCTION AS REQUIRED TO INDICATE CONTRACTOR'S COMPLIANCE WITH THE VARIOUS PROJECT REQUIREMENTS.
   A. THE TESTING AGENCY SHALL MEET THE BASIC REQUIREMENTS OF ASTM E329 AND SHALL SUBMIT TO THE OWNER, ARCHITECT, AND ENGINEER EVIDENCE OF CURRENT ACCREDITATION FROM THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION, THE AASHTO ACCREDITATION PROGRAM OR THE "NIST" NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM.
   B. THE TESTING AGENCY SHALL BE AN APPROVED AGENCY BY THE BUILDING OFFICIAL OF THE CITY WHEREIN THE PROJECT IS LOCATED TO PERFORM SPECIAL INSPECTIONS AND OTHER TESTS AND INSPECTIONS AS OUTLINED IN THE APPLICABLE BUILDING CODE.
   C. THE INSPECTION BY THE TESTING AGENCY OF THE WELDER'S WORK SHALL BE IN SEQUENCE, TIMELY, AND PERFORMED IN SUCH A MANNER SO THAT CORRECTIONS CAN BE MADE WITHOUT DELAYING THE PROGRESS OF THE WORK. INSPECTIONS OF THE WELDER'S WORK SHALL BE PERFORMED BY CERTIFIED WELDING INSPECTORS IN ACCORDANCE WITH AWS D1.1 SECTION 6.1.4 FOR VISUAL WELD INSPECTION AND AWS D1.1, SECTION 6.14.6 FOR NONDESTRUCTIVE EXAMINATION. QUALIFIED TECHNICIANS WITH A MINIMUM OF TWO YEARS' EXPERIENCE IN STRUCTURAL STEEL TESTING AND INSPECTION.
   D. INSPECTIONS OF STRUCTURAL STEEL AND BOLTED CONNECTIONS SHALL BE PERFORMED BY QUALIFIED TECHNICIANS WITH A MINIMUM OF TWO YEAR'S EXPERIENCE IN STRUCTURAL STEEL TESTING AND INSPECTION.
   E. THE TESTING AGENCY SHALL PROVIDE REPORTS OF ALL TESTING AND INSPECTIONS. ALL REPORTS SHALL INDICATE TYPES AND LOCATIONS OF ALL DEFECTS FOUND DURING INSPECTION, THE MEASURES REQUIRED AND PERFORMED TO CORRECT SUCH DEFECTS, STATEMENTS OF FINAL APPROVAL OF ALL WELDING OF FIELD CONNECTIONS, AND OTHER FABRICATION AND ERECTION DATA PERTINENT TO THE SAFE AND PROPER WELDING OF FIELD CONNECTIONS.
3. REJECTION OF MATERIAL OR WORKMANSHIP: THE OWNER, ENGINEER, AND TESTING AGENCY RESERVE THE RIGHT TO REJECT ANY MATERIAL OR WORKMANSHIP NOT IN CONFORMANCE WITH THE CONTRACT DOCUMENTS AT ANY TIME DURING THE PROGRESS OF THE WORK. HOWEVER, THIS PROVISION DOES NOT ALLOW WAIVING THE OBLIGATION FOR TIMELY, IN SEQUENCE INSPECTIONS.

C. INSPECTION OF REINFORCEMENT STEEL PLACEMENT: THE TESTING AGENCY SHALL MAKE THE FOLLOWING INSPECTIONS OF REINFORCEMENT STEEL PLACEMENT:

1. INSPECTION FREQUENCY: PROVIDE PERIODIC INSPECTION OF REINFORCING STEEL PLACEMENT. INSPECT 100% OF REINFORCEMENT BEFORE EACH CONCRETE PLACEMENT TO VERIFY THE INFORMATION NOTED BELOW.
   A. REINFORCEMENT HAS CORRECT SIZE, SPACING, AND PROPER COVER.
   B. SUFFICIENT SPACING BETWEEN REINFORCEMENT FOR CONCRETE PLACEMENT.
   C. REINFORCEMENT IS PROPERLY SUPPORTED AND BRACED TO FORMWORK TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT.
   D. DOWEL REINFORCEMENT IS OF PROPER SIZE, AT PROPER SPACING, AND HAS PROPER LAP LENGTH AND EMBEDMENT LENGTH.
   E. PROPER HOOKS ARE PROVIDED AT BAR ENDS AS DETAILED.

D. INSPECTION AND TESTING OF FIELD MIXED CONCRETE: THE TESTING AGENCY SHALL MAKE THE FOLLOWING INSPECTIONS AND TESTING OF CONCRETE:

1. INSPECTION FREQUENCY: PROVIDE PERIODIC INSPECTION OF CONCRETE FIELD MIXING AND PLACEMENT.
2. INSPECTIONS PRIOR TO CONCRETE PLACING
   A. ENSURE SUPPLEMENTAL REINFORCEMENT STEEL PLACEMENT AND FORMWORK HAS BEEN INSPECTED.
   B. REINFORCEMENT HAS CORRECT SIZE AND PROPER COVER.
   C. ENSURE SURFACES INDICATED TO BE INTENTIONALLY ROUGHENED HAVE THE PROPER SURFACES ROUGHNESS AMPLITUDE.
3. ON-SITE CONCRETE INSPECTION
   A. VERIFY THAT THE CONTRACTOR IS FOLLOWING APPROPRIATE CONCRETING PRACTICES CONSISTENT WITH ANY EXTREME ENVIRONMENTAL CONDITIONS AT THE POINT OF PLACEMENT IN THE STRUCTURE.
   B. INSPECT FIELD MIXING OF CONCRETE TO VERIFY THAT THE PROPER CONCRETE MIX, WATER CONTENT, AGGREGATE EXTENSION, THAT IT IS MEETING JOB REQUIREMENTS, AND IS BEING PLACED AT THE PROPER LOCATION. REPORT CONCRETE NOT MEETING THE SPECIFIED REQUIREMENTS AND IMMEDIATELY NOTIFY THE CONTRACTOR, ENGINEER, AND OWNER.
   C. INSPECT PLASTIC CONCRETE UPON COMPLETION OF MIXING TO VERIFY PROPER BATCHING. OBSERVE MIX CONSISTENCY AND ADDING OF WATER AS REQUIRED TO ACHIEVE TARGET SLUMPS/FLOWS IN MIX DESIGNS. RECORD THE AMOUNT OF WATER ADDED AND NOTE IF IT EXCEEDS THAT ALLOWED IN THE MIX DESIGN. THE RESPONSIBILITY FOR ADDING WATER TO THE MIX AT THE JOB SITE SHALL REST ONLY WITH THE CONTRACTOR'S DESIGNATED REPRESENTATIVE. THE CONTRACTOR IS RESPONSIBLE THAT ALL CONCRETE PLACED IN THE FIELD IS IN CONFORMANCE TO THE CONTRACT DOCUMENTS.
4. ON-SITE CONCRETE MATERIAL TESTING
   A. PERFORM TESTS TO DETERMINE SLUMP FOR NON-SELF-CONSOLIDATING CONCRETE, FLOW FOR SELF-CONSOLIDATING CONCRETE, CONCRETE TEMPERATURE, UNIT WEIGHT, AND AIR ENTRAINMENT AS SPECIFIED BELOW. THE SLUMP TESTS SHALL BE MADE ON CONCRETE TAKEN FROM THE SAME LOCATION FROM WHICH THE CONCRETE FOR THE TEST CYLINDERS IS OBTAINED.
   B. RECORD INFORMATION FOR CONCRETE TEST REPORTS AS SPECIFIED BELOW.
   C. PREPARE CONCRETE TEST CYLINDERS FOR COMPRESSION TESTING.
   D. PICK UP AND TRANSPORT TO LABORATORY, CYLINDERS CAST THE PREVIOUS DAY.
5. CONCRETE TEST SPECIMENS: THE TESTING AGENCY SHALL MOLD AND TEST CONCRETE TEST SPECIMENS AS DESCRIBED BELOW.
   A. SPECIMEN MOLDING AND TESTING: CUBES FOR STRENGTH TESTS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31 AND TESTED IN ACCORDANCE WITH ASTM C109. CUBES SHALL BE 2-INCH X 2-INCH X 2-INCH.
   B. FIELD SAMPLES: FIELD SAMPLES FOR STRENGTH TESTS SHALL BE TAKEN IN ACCORDANCE WITH ASTM C172.
   C. FREQUENCY OF TESTING: TAKE A MINIMUM OF 6 CUBES PER EACH 10 CUBIC FEET FOR CONCRETE PLACED OR FRACTION FOR EACH REPAIR MORTAR PLACE IN ANY ONE DAY.
   D. THE SPECIMENS SHALL BE NUMBERED, DATED, AND THE POINT OF CONCRETE PLACEMENT IN THE BUILDING RECORDED.
   E. FOR CONCRETE SPECIFIED ON THE DRAWINGS TO REACH THE REQUIRED STRENGTH AT 28 DAYS, BREAK THREE SPECIMENS OF THE SET AT SEVEN DAYS AND THREE SPECIMENS AT 28 DAYS.
   F. SPECIMEN STORAGE BOX: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A PROTECTED CONCRETE SPECIMEN WOODEN STORAGE BOX AT A POINT ON THE JOB SITE MUTUALLY AGREEABLE WITH THE TESTING AGENCY FOR THE PURPOSE OF STORING CONCRETE SPECIMENS UNTIL THEY ARE TRANSPORTED TO THE LABORATORY. THE BOX SHALL BE CONSTRUCTED AND EQUIPPED TO MAINTAIN THE ENVIRONMENT
   SPECIFIED FOR INITIAL CURING IN ASTM C31.
   G. TRANSPORTING SPECIMENS: THE OWNER'S TESTING AGENCY SHALL BE RESPONSIBLE FOR TRANSPORTING THE SPECIMENS TO THE LABORATORY IN A PROTECTED ENVIRONMENT SUCH THAT NO DAMAGE OR ILL EFFECT WILL OCCUR TO THE CONCRETE SPECIMENS INCLUDING LOSS OF MOISTURE, FREEZING TEMPERATURES OR JARRING.
   H. INFORMATION ON CONCRETE TEST REPORTS: THE OWNER'S TESTING AGENCY SHALL MAKE AND DISTRIBUTE CONCRETE TEST REPORTS AFTER EACH JOB SPECIMEN IS BROKEN. SUCH REPORTS SHALL INDICATE.
      1) ACCURATE LOCATION OF PLACEMENT IN THE STRUCTURE.
      2) STRENGTH REQUIREMENT.
      3) DATE SPECIMENS MADE AND BROKEN.
      4) TECHNICIAN MAKING SPECIMENS.
      5) CONCRETE TEMPERATURE AT PLACING (ASTM C1064).
      6) AIR TEMPERATURE AT POINT OF PLACEMENT IN THE STRUCTURE
      7) AMOUNT OF WATER ADDED AND WHETHER OR NOT IT EXCEEDS THE AMOUNT ALLOWED BY THE MIX DESIGN.
      8) SLUMP (ASTM C143) OR FLOW (ASTM C1611).
      9) UNIT WEIGHT (ASTM C138).
      10) AIR CONTENT (ASTM C231 OR C 173, C 173 ONLY FOR LIGHT-WEIGHTCONCRETE).
      11) SPECIMEN COMPRESSIVE STRENGTHS WITH TYPE OF FAILURE IF CONCRETE DOES NOT MEET SPECIFICATION REQUIREMENTS. SEVEN DAY BREAKS ARE TO BE FLAGGED IF THEY ARE LESS THAN 60% OF THE REQUIRED 28 DAY STRENGTH. 28 DAY BREAKS ARE TO BE FLAGGED IF EITHER SPECIMEN FAILS TO MEET SPECIFICATION REQUIREMENTS.
   I. EVALUATION AND ACCEPTANCE OF CONCRETE: CONCRETE ACCEPTANCE SHALL BE GOVERNED BY ACI 318-11 SECTION 5.6.3.3 BASED ON THE 28 DAY COMPRESSIVE STRENGTH AS COMPARED TO THE MANUFACTURER'S PUBLISHED COMPRESSIVE STRENGTH VALUES FORM ASTM C109.
   J. INVESTIGATION OF LOW STRENGTH CONCRETE TEST RESULTS: THE CONTRACTOR SHALL REIMBURSE THE OWNER FOR THE COSTS OF INVESTIGATIONS OF LOW STRENGTH CONCRETE. REFER TO ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, FOR THE INVESTIGATIONS THAT MAY BE REQUIRED BY THE ENGINEER. THE OWNER'S TESTING AGENCY WILL CONDUCT THESE INVESTIGATIONS.
   K. CAUSES FOR REJECTION OF CONCRETE: THE CONTRACTOR SHALL REJECT CONCRETE DELIVERED TO THE SITE FOR ANY OF THE FOLLOWING REASONS:
      1) WRONG CLASS OF CONCRETE.
      2) ENVIRONMENTAL CONDITIONS: ENVIRONMENTAL CONDITION LIMITS SHALL BE AS FOLLOWS UNLESS APPROPRIATE PROVISIONS IN CONCRETING PRACTICES HAVE BEEN MADE FOR COLD OR HOT WEATHER.
      3) CONCRETE WITH TEMPERATURES EXCEEDING 95°F SHALL NOT BE PLACED IN THE STRUCTURE.
      4) EXCESSIVE AGE: CONCRETE SHALL BE DISCHARGED WITHIN 90 MINUTES OF FIELD MIXING OR THE MANUFACTURE INDICATED WORKING TIME LIMIT IF LESS THAN 90 MINUTES, OR BEFORE IT BEGINS TO SET IF SOONER THAN 90 MINUTES UNLESS APPROVED BY THE TESTING AGENCY JOB INSPECTOR OR OTHER DULY APPOINTED REPRESENTATIVE.
E. INSPECTION AND TESTING OF MASONRY CONSTRUCTION: THE TESTING AGENCY SHALL PERFORM TESTING AND INSPECTIONS AS OUTLINED AND AT THE INTERVAL REQUIRED BY ACI 530.1-11, TABLE 4 – LEVEL B QUALITY ASSURANCE:
   1. INSPECTION FREQUENCY: PROVIDE PERIODIC INSPECTION OF THE FOLLOWING ITEMS:

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
KYLE RICHARD DOMINISSE
NUMBER PE-2009006622
PROFESSIONAL ENGINEER

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO; E-556D
EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: AN
CHECKED BY: RCV
DESIGNED BY: KD

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
S000

GENERAL NOTES

A. VERIFY CONSTRUCTION IS IN COMPLIANCE WITH THE LATEST REVIEWED SUBMITTALS AND CONSTRUCTION DOCUMENTS.
B. INSPECT TEMPORARY BRACING FOR NEW MASONRY CONSTRUCTION.
C. INSPECT MASONRY UNITS, MORTAR, AND GROUT MATERIALS.
D. VERIFY PROPORTIONING OF SITE-PREPARED MORTAR.
E. INSPECT MORTAR PLACEMENT, PLACEMENT THICKNESS, AND ALIGNMENT.
F. INSPECT REINFORCEMENT PLACEMENT, GRADE, TYPE, SIZE, COVER, HOOKS, LAPS, AND ANCHORAGE. VERIFY 100% OF REINFORCEMENT PRIOR TO GROUTING.
G. PRIOR TO GROUTING INSPECT THE SPACES TO BE GROUTED, PLACEMENT OF REINFORCEMENT AND CONNECTORS, PROPORTIONING OF SITE-PREPARED GROUT AND CONSTRUCTION OF MORTAR JOINTS.

I. INSPECTION OF STRUCTURAL STEEL AND BOLTING: THE TESTING AGENCY SHALL MAKE THE FOLLOWING INSPECTIONS OF STRUCTURAL STEEL AND BOLTING:

1. INSPECTION FREQUENCY: PROVIDE PERIODIC INSPECTION OF STRUCTURAL STEEL AND BOLTING. VERIFY INITIAL INSTALLATION OF STRUCTURAL STEEL AND BOLTING IN ACCORDANCE WITH THE REQUIREMENTS STATED BELOW. PERIODICALLY INSPECT STRUCTURAL STEEL AND BOLTING AFTER THE INITIAL VERIFICATION. PROVIDE FINAL INSPECTION AFTER ALL STRUCTURAL STEEL AND BOLTING HAS BEEN INSTALLED.
2. VERIFY THAT THE FABRICATOR'S FABRICATION AND QUALITY CONTROL PROCEDURES PROVIDE A SOUND BASIS FOR INSPECTION CONTROL OF WORKMANSHIP AND OF THE ABILITY TO CONFORM TO CONSTRUCTION DOCUMENTS AND INDUSTRY STANDARDS. REVIEW THE PROCEDURES FOR COMPLETENESS AND ADEQUACY RELATIVE TO CODE REQUIREMENTS FOR THE FABRICATOR'S FINISHED PRODUCT.
3. CHECK STRUCTURAL STEEL AS RECEIVED IN THE FIELD FOR POSSIBLE SHIPPING DAMAGE, WORKMANSHIP, AND IDENTIFICATION MARKING TO CONFORM TO AISC 360 FOR STRUCTURAL STEEL AND SPECIFIED ASTM STANDARDS FOR OTHER STEEL.
4. PERIODICALLY INSPECT THE STEEL FRAME FOR SUCH ITEMS AS BRACING AND STIFFENING DETAILS, MEMBER LOCATIONS, AND JOINT DETAILS AT EACH CONNECTION FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS.
5. ENDEAVOR TO GUARD THE OWNER AGAINST THE CONTRACTOR CUTTING, GRINDING, REAMING, OR MAKING ANY OTHER FIELD MODIFICATION TO STRUCTURAL STEEL WITHOUT THE PRIOR APPROVAL OF THE ENGINEER. REPORT ANY NOTED UNAUTHORIZED MODIFICATIONS TO THE OWNER AND ENGINEER.

J. INSPECTION AND TESTING OF WELDING FOR STRUCTURAL STEEL: THE TESTING AGENCY SHALL MAKE THE FOLLOWING INSPECTIONS AND TESTS OF THE WELDS, WELDING PROCESSES, AND WELDING MATERIALS:

1. APPROVE WELDING PROCEDURE SPECIFICATIONS SUBMITTED BY THE CONTRACTOR. APPROVE ANY CHANGES SUBMITTED BY THE CONTRACTOR TO ANY WPS THAT HAS ALREADY BEEN APPROVED. OBTAIN THE WELDING PROCEDURE QUALIFICATION RECORD (WPQR) FOR EACH SUCCESSFUL WPS QUALIFICATION.
2. VERIFY WELDER QUALIFICATIONS EITHER BY CERTIFICATION AND/OR BY RETESTING. OBTAIN WELDER CERTIFICATES.
3. VERIFY WELDING ELECTRODES TO BE USED AND OTHER WELDING CONSUMABLES AS THE JOB PROGRESSES.
4. CHECK JOINT PREPARATION.
5. REVIEW WELDING SEQUENCE.
6. ALL WELDS SHALL BE 100% VISUALLY INSPECTED. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL WELDING SHALL BE CONSIDERED STATICALLY LOADED NONTUBULAR CONNECTIONS.
7. NONDESTRUCTIVE EXAMINATION, IF REQUIRED, CONDUCTED IN ACCORDANCE WITH THE SPECIFIC REQUIREMENTS FOR THE ITEM BEING EXAMINED INCLUDING ULTRASONIC (UT) OR MAGNETIC PARTICLE (MT). NONDESTRUCTIVE INSPECTION PROCEDURES SHALL CONFORM TO AWS D1.1.
8. FILLET WELDS: MT TEST A MINIMUM OF 10% OF THE LENGTH OF EACH FILLET WELD EXCEEDING 5/16". THE FOLLOWING TESTING REGIMEN IS NOT REQUIRED BY SPECIAL INSPECTION. THOUGH RECOMMENDED, IT MAY BE DELETED WITHOUT VIOLATING CODE REQUIREMENTS IF SO DESIRED BY THE OWNER. PERIODIC MT TESTING OF REPRESENTATIVE FILLET WELDS 5/16" AND LESS BUT NEED NOT EXCEED 10% OF ALL SUCH WELDS, EXCEPT AS REQUIRED FOR HIGH REJECTION RATES AS INDICATED IN THE FOLLOWING PARAGRAPH. INCREASE MT TESTING RATE FOR WELDERS HAVING A HIGH REJECTION RATE AS REQUIRED TO ENSURE ACCEPTABLE WELDS.
9. MARK FOR REMEDIATION ANY AREA NOT MEETING CONTRACT DOCUMENT REQUIREMENTS. CORRECTION OF REJECTED WELDS SHALL BE MADE IN ACCORDANCE WITH AWS D1.1.
10. RE-EXAMINE ALL REWORKED AREAS AND INTERPRET, RECORD, AND REPORT THE RESULTS OF EXAMINATIONS OF REWORKED WELDS.
11. VERIFY THAT QUALITY OF WELDS MEET THE REQUIREMENTS OF AWS D1.1.
12. THE COSTS OF REWORKING ALL DEFECTIVE WELDS AND THE COSTS OF RETESTING BY THE TESTING AGENCY PROVIDING SERVICES FOR THE OWNER SHALL BE BORNE BY THE CONTRACTOR.

J. INSPECTION AND PROCESS MONITORING OF HIGH-STRENGTH BOLTING: THE TESTING AGENCY SHALL PERFORM THE FOLLOWING INSPECTIONS FOR CONNECTIONS JOINED WITH HIGH-STRENGTH BOLTS. BOLTING PERFORMED IN THE SHOP MAY BE INSPECTED IN THE FIELD UNLESS CONTINUOUS MONITORING OF THE BOLTING OPERATION IS SPECIFIED HEREIN:

1. OBSERVE PRE-INSTALLATION VERIFICATION TESTING OF THE PRE-TENSIONING METHOD TO BE USED IN ACCORDANCE WITH THE REQUIREMENTS OF THE "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS".
2. CHECK DAILY THE CALIBRATION OF IMPACT WRENCHES USED IN FIELD BOLTED CONNECTIONS.
3. INSPECT BOLT INSTALLATION FOR 100% OF HIGH STRENGTH BOLTED CONNECTIONS ACCORDING TO INSPECTION PROCEDURES OUTLINED IN "AISC HIGH-STRENGTH BOLTING".
4. PERIODIC MONITORING: ALL BEARING TYPE JOINTS AND BOLT INSTALLATION METHODS SHALL BE MONITORED ON A PERIODIC BASIS.
5. HIGH-STRENGTH BOLT TESTING: THE TESTING AGENCY SHALL PERFORM THE ARBITRATION TESTING FOR CONNECTIONS JOINED WITH HIGH-STRENGTH BOLTS ACCORDING TO PROCEDURES OUTLINED IN THE "AISC HIGH-STRENGTH BOLTING" WHEN A DISAGREEMENT EXISTS BETWEEN THE TESTING AGENCY AND THE FABRICATOR AS TO THE MINIMUM TENSION OF INSTALLED BOLTS THAT HAVE BEEN INSPECTED.

K. INSPECTION OF POST-INSTALLED ANCHOR, BOLTS, AND REINFORCING BARS INSTALLED IN HARDENED CONCRETE: THE TESTING AGENCY OR MANUFACTURE SHALL MAKE THE FOLLOWING INSPECTIONS OF POST-INSTALLED ANCHOR INSTALLATIONS IN ACCORDANCE WITH THE PUBLISHED, CURRENTLY VALID, EVALUATION SERVICE REPORT (ESR) FOR EACH ANCHOR PRODUCT. INSPECTIONS SHALL BE PERFORMED AT THE FREQUENCY REQUIRED BY THE ESR.

1. INSPECTION FREQUENCY:
   A. CONTINUOUS INSPECTION: REQUIRED FOR ALL HORIZONTAL AND UPWARDLY INCLINED ADHESIVE ANCHORS AND REINFORCEMENT. VERIFY INSTALLATION OF ALL POST-INSTALLED ANCHORS IN CONCRETE IN ACCORDANCE WITH THE REQUIREMENTS STATED BELOW FOR EACH TYPE OF ANCHOR.
   B. PERIODIC INSPECTION: REQUIRED FOR ALL DOWNWARDLY INCLINED ADHESIVE ANCHORS AND REINFORCEMENT. VERIFY INITIAL INSTALLATION OF POST-INSTALLED ANCHORS IN CONCRETE FOR EACH INDIVIDUAL INSTALLER WITH EACH INDIVIDUAL ANCHOR PRODUCT IN ACCORDANCE WITH THE REQUIREMENTS STATED BELOW FOR EACH TYPE OF ANCHOR. PERIODICALLY INSPECT ANCHOR INSTALLATION AFTER THE INITIAL VERIFICATION.
2. GENERAL ANCHORS INSPECTION REQUIREMENTS: VERIFY THAT THE ANCHOR IS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, ESR REPORT SPECIAL INSPECTION REQUIREMENTS, AS WELL AS THE FOLLOWING DESIGN REQUIREMENTS.
   A. ANCHOR MANUFACTURER AND PRODUCT, INCLUDING MATERIAL, IS IN ACCORDANCE WITH DESIGN DRAWINGS OR APPROVED SUBSTITUTION.
   B. ANCHOR DIAMETER, LENGTH, AND INSTALLED EMBEDMENT DEPTH.
   C. DRILL BIT TYPE AND DIAMETER.
   D. ANCHOR LOCATION, EDGE DISTANCE, AND SPACING.
   E. HOLE DIAMETER, DEPTH, CLEANING PROCEDURE, AND CLEANLINESS.
   F. ANCHOR MAXIMUM TIGHTENING TORQUE.
   G. CONCRETE TYPE, CONCRETE STRENGTH, AND CONCRETE THICKNESS ARE IN ACCORDANCE WITH DESIGN DRAWINGS.
3. ADHESIVE ANCHORS INSPECTION REQUIREMENTS: IN ADDITION TO THE REQUIREMENTS FOR GENERAL ANCHORS INSPECTIONS, VERIFY ADHESIVE IDENTIFICATION AND EXPIRATION DATE.

L. TESTING FOR POST-INSTALLED ANCHORS, BOLTS, AND REINFORCING BARS INSTALLED IN HARDENED CONCRETE: WHEN REQUIRED BY THE ESR REPORT THE TESTING AGENCY OR MANUFACTURER SHALL PERFORM THE FOLLOWING TESTING OF POST-INSTALLED ANCHORS, BOLTS, DOWELS, OR REINFORCING BARS.

1. EVALUATE THE EFFECTIVENESS OF POST INSTALLED ANCHORS, BOLTS, DOWELS, OR REINFORCING BARS BY CONDUCTING FIELD PROOF TESTS. THE LOAD TEST METHOD SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
2. FIELD PROOF TEST 10% OF THE EPOXY EMBEDDED ANCHORS, BOLTS, DOWELS, OR REINFORCING BARS, WITH A MINIMUM OF TWO TESTS.
3. THE ENGINEER MAY ELECT TO INCREASE OR DECREASE THE NUMBER OF TESTS DEPENDING UPON THE OUTCOME OF THE TESTS.
4. THE PROOF LOAD SHALL BE 85% OF THE THEORETICAL ULTIMATE STRENGTH OF THE ANCHORS, BOLTS, DOWELS, OR REINFORCING BARS OR AS OTHERWISE DETERMINED BY THE ENGINEER.
5. PROOF LOAD TESTED VALUE SHALL BE DEFINED BY THE FOLLOWING FAILURE MODES.
   A. FOR NON-EPOXY BONDED ANCHORS ANY SLIP AT THE STEEL/CONCRETE INTERFACE BEFORE THE ANCHOR YIELDS SHALL BE CONSIDERED TO BE A FAILURE.
   B. FOR EPOXY BONDED OR EPOXY GROUTED BOLTS, DOWELS OR BARS, ANY SLIP OF THE EMBEDDED BOLT, DOWEL OR BAR WITHIN THE EPOXY GROUT MATERIAL, OR SLIP AT THE EPOXY/CONCRETE INTERFACE BEFORE THE BOLT, DOWEL OR BAR YIELDS SHALL BE CONSIDERED TO BE A FAILURE OF THE GROUTED ITEM.
6. THE COST OF ANY REPAIRS FAILING TO MEET THE PROOF LOAD AND ALL ADDITIONAL TESTS DEEMED NECESSARY BY THE ENGINEER SHALL BE BORNE BY THE CONTRACTOR.
7. AT THE ENGINEER'S DISCRETION, THE CONTRACTOR MAY BE REQUIRED TO PROOF TEST APPROVED SUBSTITUTION ANCHOR EVEN IF THE ESR REPORT DOES NOT REQUIRE PROOF TESTING. ENGINEER WILL PROVIDE PROOF TEST LOAD IF REQUIRED.

VII. SUBMITTALS

A. SUBMITTAL LIST AND SCHEDULE

1. THE CONTRACTOR SHALL PREPARE A DETAILED LIST AND SCHEDULE OF ALL SUBMITTAL ITEMS TO BE SENT TO THE STRUCTURAL ENGINEER PRIOR TO THE START OF CONSTRUCTION. THIS LIST SHALL BE UPDATED AND REVISED AND KEPT CURRENT AS THE JOB PROGRESSES. THE SUBMITTAL LIST SHALL BE ORGANIZED AS SHOWN BELOW:
   A. SHOP DRAWINGS
   B. PRODUCT TECHNICAL DATA
   C. PRODUCT MSDS/SDS
   D. CERTIFICATES, REPORTS, AND OTHER LITERATURE

B. SUBMITTALS TO BE PROVIDED TO STRUCTURAL ENGINEER

1. PRODUCT SUBMITTALS: IN ADDITION TO THE SUBMITTALS REQUIRED BY THE PROJECT SPECIFICATIONS, THE FOLLOWING SUBMITTALS SHALL BE PROVIDED:
   A. EPOXY COATING SYSTEM FOR STRUCTURAL STEEL.
   B. WELDER CERTIFICATIONS.
   C. WELDING PROCEDURE.
   D. WELD ELECTRODES AND FILLER METALS.
   E. BOLTS, RODS, NUTS, WASHERS AND ASSOCIATED COMPONENTS.
2. SUBMITTAL REQUIREMENTS:
   A. ALL SHOP DRAWINGS MUST BE REVIEWED AND ELECTRONICALLY STAMPED BY THE CONTRACTOR PRIOR TO SUBMITTAL.
   B. CONTRACTOR SHALL PROVIDE THE SUBMITTAL IN ELECTRONIC PORTABLE DOCUMENT FORMAT (PDF) PER THE SPECIFICATIONS.
   C. THE OMISSION FROM THE SHOP DRAWINGS OF ANY MATERIALS REQUIRED BY THE CONTRACT DOCUMENTS TO BE FURNISHED SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING AND INSTALLING SUCH MATERIALS, REGARDLESS OF WHETHER THE SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED.

C. REPRODUCTION

1. THE USE OF ELECTRONIC FILES OR REPRODUCTIONS OF THESE CONTRACT DOCUMENTS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES THEIR ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT, AND OBLIGATES THEMSELVES TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREON.

VIII. MISCELLANEOUS

A. CONTRACT DOCUMENTS

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS, FABRICATION OF ANY STRUCTURAL MEMBERS, AND ERECTION IN THE FIELD.
2. CONTRACTOR SHALL FULLY AND PROPERLY IMPLEMENT THE ENGINEERING CONTROLS, WORK PRACTICES, AND RESPIRATORY PROTECTION AGAINST TOXIC AND HAZARDOUS SUBSTANCES INCLUDING RESPIRABLE CRYSTALLINE SILICA ACCORDING TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA 1926.1153. WALTER P MOORE DOES NOT HAVE CONTROL OVER, CHARGE OF, OR RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, NOR SHALL WALTER P MOORE BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
3. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE ALTERATION MADE TO THE STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE.
4. OPENINGS THROUGH FLOORS, ROOFS, AND WALLS FOR DUCTS, PIPING, AND/OR CONDUIT SHALL BE COORDINATED BY THE CONTRACTOR. CONTRACTOR SHALL VERIFY SIZES AND LOCATIONS OF HOLES AND OPENINGS WITH THE MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DRAWINGS AND THE RESPECTIVE SUBCONTRACTORS.
5. REFER TO DRAWINGS OF EXISTING FACILITY (OTHER THAN STRUCTURAL DRAWINGS) FOR COMPLETE INFORMATION INCLUDING: EXPANSION JOINT SYSTEMS, PREVIOUS REPAIRS PERFORMED IN THE FACILITY, LOCATION AND SIZE OF STRUCTURAL MEMBERS (BEAMS, COLUMNS, WALLS, ETC.), SLAB THICKNESS, AND OTHER INFORMATION RELEVANT TO THE PROJECT.
6. WHERE MEMBER LOCATIONS ARE NOT SPECIFICALLY DIMENSIONED, MEMBERS ARE EITHER LOCATED ON COLUMNS LINES OR ARE EQUALLY SPACED BETWEEN LOCATED MEMBERS.
7. IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SHOWN OR SPECIFIED IN SIMILAR CONDITIONS.

B. DRAWING CONFLICTS

1. THE CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND REPORT ANY DISCREPANCY BETWEEN EACH SET OF DRAWINGS AND WITHIN EACH SET OF DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBERS.

C. CONFLICTS IN STRUCTURAL REQUIREMENTS

1. WHERE CONFLICT EXISTS AMONG THE VARIOUS PARTS OF THE STRUCTURAL CONTRACT DOCUMENTS, STRUCTURAL DRAWINGS, GENERAL NOTES, AND SPECIFICATIONS, THE STRICTEST REQUIREMENTS, AS INDICATED BY THE ENGINEER, SHALL GOVERN.

D. EXISTING CONDITIONS

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE EXISTING BUILDING AT THE JOB SITE AND REPORT ANY DISCREPANCIES FROM ASSUMED CONDITIONS SHOWN ON THE DRAWINGS TO ENGINEER PRIOR TO THE FABRICATION AND ERECTION OF ANY MEMBERS. EXISTING DIMENSIONS SHOWN ON THE DRAWINGS ARE FOR GENERAL REFERENCE ONLY AND SHOULD NOT BE USED FOR FINAL CONSTRUCTION OR DETAILING.
2. EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS WAS OBTAINED FROM EXISTING CONSTRUCTION DOCUMENTS AND LIMITED SITE OBSERVATION. THESE DRAWINGS OF EXISTING CONSTRUCTION ARE AVAILABLE FOR CONTRACTOR USE AND SHALL BE REFERENCED FOR FAMILIARIZATION WITH EXISTING CONDITIONS. HOWEVER, THE AVAILABLE DRAWINGS OF EXISTING CONSTRUCTION ARE NOT NECESSARILY COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR BEING KNOWLEDGEABLE ON INFORMATION PRESENTED IN AVAILABLE DRAWINGS AND SHALL FIELD VERIFY ALL PERTINENT INFORMATION.
3. DEMOLITION, CUTTING, DRILLING, ETC. OF EXISTING WORK SHALL BE PERFORMED WITH GREAT CARE SO AS NOT TO JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE EXISTING BUILDING. IF ANY ARCHITECTURAL, STRUCTURAL, OR MEP MEMBERS NOT DESIGNATED FOR REMOVAL INTERFERE WITH THE NEW WORK, THE OWNER SHALL BE NOTIFIED IMMEDIATELY AND APPROVAL OBTAINED PRIOR TO REMOVAL OF THOSE MEMBERS.
4. THE CONTRACTOR SHALL SAFELY SHORE EXISTING CONSTRUCTION WHEREVER EXISTING SUPPORTS ARE REMOVED TO ALLOW THE INSTALLATION OF NEW WORK. ALL SHORING METHODS AND SEQUENCING OF DEMOLITION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR'S ENGINEER.
5. THE CONTRACTOR SHALL PERFORM A SURVEY TO LOCATE ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION AND TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN IN SERVICE. EXISTING CIVIL, MECHANICAL, ELECTRICAL, PLUMBING, AND EMERGENCY PROTECTION SYSTEM SERVICING ANY AREAS OUTSIDE THE WORK AREA ARE TO BE MAINTAINED IN OPERABLE CONDITION THROUGHOUT THE DURATION OF WORK. CONTRACTOR SHALL MAKE NECESSARY TEMPORARY CONNECTIONS TO MAINTAIN EXISTING UTILITIES IN SERVICE DURING THE WORK. TEMPORARY, LOCALIZED INTERRUPTION OF THESE SYSTEMS SHALL REQUIRE APPROVAL BY THE OWNER.
6. THE CONTRACTOR SHALL PROVIDE DUST, ODOR, AND NOISE PROTECTION, AND SAFETY MEASURES AS NECESSARY FOR THE DURATION OF CONSTRUCTION. PROVIDE ALL MEASURES NECESSARY TO PROTECT THE EXISTING STRUCTURE, BUILDING INTERIOR, VEHICLES, FACILITY PATRONS, AND OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT LIMITED TO TEMPORARY BRACING, SHORING, FORMWORK, PROTECTIVE ENCLOSURES, AND TRAFFIC CONTROLS.
7. THE CONTRACTOR SHALL PERFORM A PRE-CONSTRUCTION CONDITION SURVEY TO DOCUMENT SITE CONDITIONS PRIOR TO START OF WORK. SUBMIT SURVEY TO OWNER AND THE ENGINEER. DOCUMENT LOCATION AND CONDITION OF ANY CONSTRUCTION DESIGNATED FOR REMOVAL AND RE-INSTALLATION.
8. THE CONTRACTOR SHALL REPAIR ALL DAMAGE CAUSED DURING CONSTRUCTION WITH SIMILAR MATERIALS AND WORKMANSHIP TO RESTORE CONDITIONS TO LEVELS ACCEPTABLE TO THE OWNER.

G. RESPONSIBILITY OF THE CONTRACTOR FOR CONSTRUCTION LOADS

1. THE CONTRACTOR SHALL NOT OVERLOAD THE STRUCTURE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING THE ADEQUACY OF THE STRUCTURE TO SUPPORT ANY APPLIED CONSTRUCTION LOADS, INCLUDING THOSE DUE TO CONSTRUCTION VEHICLES OR EQUIPMENT, MATERIAL HANDLING OR STORAGE, SHORING OR RESHORING, OR ANY OTHER CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL SUBMIT CALCULATIONS SIGNED AND SEALED BY AN ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED VERIFYING THE ADEQUACY OF THE STRUCTURE FOR ANY PROPOSED CONSTRUCTION LOADS THAT ARE IN EXCESS OF THE STATED DESIGN LOADS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE TO DESIGN OR CHECK THE STRUCTURE FOR LOADS APPLIED TO THE STRUCTURE FOR ANY CONSTRUCTION ACTIVITY.

H. CONTRACTOR SUBSTITUTIONS

1. ANY MATERIALS OR PRODUCTS SUBMITTED FOR APPROVAL THAT ARE DIFFERENT FROM THE MATERIAL OR PRODUCTS SPECIFIED IN THE STRUCTURAL CONTRACT DOCUMENTS WILL BE CONSIDERED FOR APPROVAL ONLY IF THE FOLLOWING CRITERIA ARE SATISFIED:
   A. A COST SAVINGS TO THE OWNER IS DOCUMENTED AND SUBMITTED WITH THE REQUEST.
   B. THE MATERIAL OR PRODUCT HAS BEEN APPROVED BY THE INTERNATIONAL CODE COUNCIL (ICC) AND THE ICC REPORT IS SUBMITTED WITH THE REQUEST.
      1) THE ICC ESR THAT IS SUBMITTED MUST REFERENCE THE BUILDING CODE UNDER WHICH THE PROJECT IS PERMITTED.
      2) ICC REPORTS THAT HAVE BEEN DISCONTINUED AT THE TIME OF PRODUCT INSTALLATION WILL NOT BE ACCEPTED.
2. SUBMITTALS NOT SATISFYING THE ABOVE CRITERIA WILL NOT BE CONSIDERED.

I. THE STRUCTURAL ENGINEER'S ROLE DURING CONSTRUCTION

1. THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

J. MAINTENANCE STATEMENT

1. ALL STRUCTURES REQUIRE PERIODIC MAINTENANCE TO EXTEND LIFESPAN AND TO ENSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. A PLANNED PROGRAM OF MAINTENANCE SHALL BE ESTABLISHED BY THE BUILDING OWNER. THIS PROGRAM SHALL INCLUDE ITEMS SUCH AS BUT NOT LIMITED TO PAINTING OF STRUCTURAL STEEL, PROTECTIVE COATING FOR CONCRETE, REPLACEMENT OF FAILED SEALANTS, CAULKED JOINTS, EXPANSION JOINTS, CONTROL JOINTS, REPAIR OF SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF EXPOSED STRUCTURAL ELEMENTS EXPOSED TO A SALT ENVIRONMENT OR OTHER HARSH CHEMICALS.

M. CONSTRUCTION SAFEGUARDS

1. CONSTRUCTION SAFEGUARDS GOVERNING SAFETY DURING CONSTRUCTION, THE PROTECTION OF ADJACENT PUBLIC AND PRIVATE PROPERTIES, PROTECTION OF BUILDING OCCUPANTS, AND PROTECTION OF PEOPLE ADJACENT TO THE CONSTRUCTION AREA SHALL BE PER REQUIREMENTS OF THE BUILDING CODE AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION OVER THE LOCATION OF THE WORK.

IX. DRAWING INTERPRETATION

A. DRAWING VIEWS LABELED AS "TYPICAL"

1. PARTIAL PLANS, ELEVATIONS, SECTIONS, DETAILS, OR SCHEDULES LABELED WITH "TYPICAL" AT THE BEGINNING OF THEIR TITLE SHALL APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY SHOWN. THE APPLICABILITY OF THE CONTENT OF THESE VIEWS TO LOCATIONS ON THE PLAN CAN BE DETERMINED FROM THE TITLE OF THE VIEWS. SUCH VIEWS SHALL APPLY WHETHER OR NOT THEY ARE KEYED IN AT EACH LOCATION. DECISIONS REGARDING APPLICABILITY OF THESE "TYPICAL" VIEWS SHALL BE DETERMINED BY THE STRUCTURAL ENGINEER.

B. STRUCTURAL ABBREVIATIONS, SYMBOLS, AND NOTATIONS

@	AT
&	AND
#	NUMBER
Ø	ROUND, DIAMETER
'	FT
"	IN.
(E)	EXISTING
(N)	NEW
ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE FOR STEEL CONTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BLDG	BUILDING
BOT	BOTTOM
CBC	CALIFORNIA BUILDING CODE
CJ	CONTROL JOINT
CL	CENTER LINE
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CSP	CONCRETE SURFACE PROFILE
CWB	CANADIAN WELDING BUREAU
CY	CUBIC YARD
DN	DOWN
EA	EACH
ELEV	ELEVATION
ENGR	ENGINEER
EJ	EXPANSION JOINT
EW	EACH WAY
EXIST	EXISTING
F'C	SPECIFIED CONCRETE COMPRESSIVE STRENGTH
FT	FT
FV	FIELD VERIFY
FY	YIELD STRENGTH
FU	ULTIMATE STRENGTH
GALV	GALVANIZED
GEN	GENERAL
GYP	GYPSUM
HORZ	HORIZONTAL
ICC	INTERNATIONAL CODE COUNCIL
ICRI	INTERNATIONAL CONCRETE REPAIR INSTITUTE
IN	INCH
INFO	INFORMATION
KIPS	1000 POUNDS FORCE
KSI	KIPS PER SQUARE IN.
LLV	LONG LEG VERTICAL
LLH	LONG LEG HORIZONTAL
LWC	LIGHTWEIGHT CONCRETE
L	LENGTH
LBF	POUNDS FORCE
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
MSD	MATERIAL SAFETY DATA
MSDS	MATERIAL SAFETY DATA SHEET
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OZ	OUNCE
PLF	POUNDS PER LINER FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE IN.
QTY	QUANTITY
REINF	REINFORCEMENT
REQD	REQUIRED
SHT	SHEET
SIM	SIMILAR
SPA	SPACING
STD	STANDARD
SLS	AISC STANDARD LONG SLOT,
SSL	AISC STANDARD SHORT SLOT
SSMA	STEEL STUD MANUFACTURERS ASSOCIATION
TI	TASK ITEM
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL, TOP OF SLAB
TYP	TYPICAL
VERT	VERTICAL
WT	WEIGHT

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

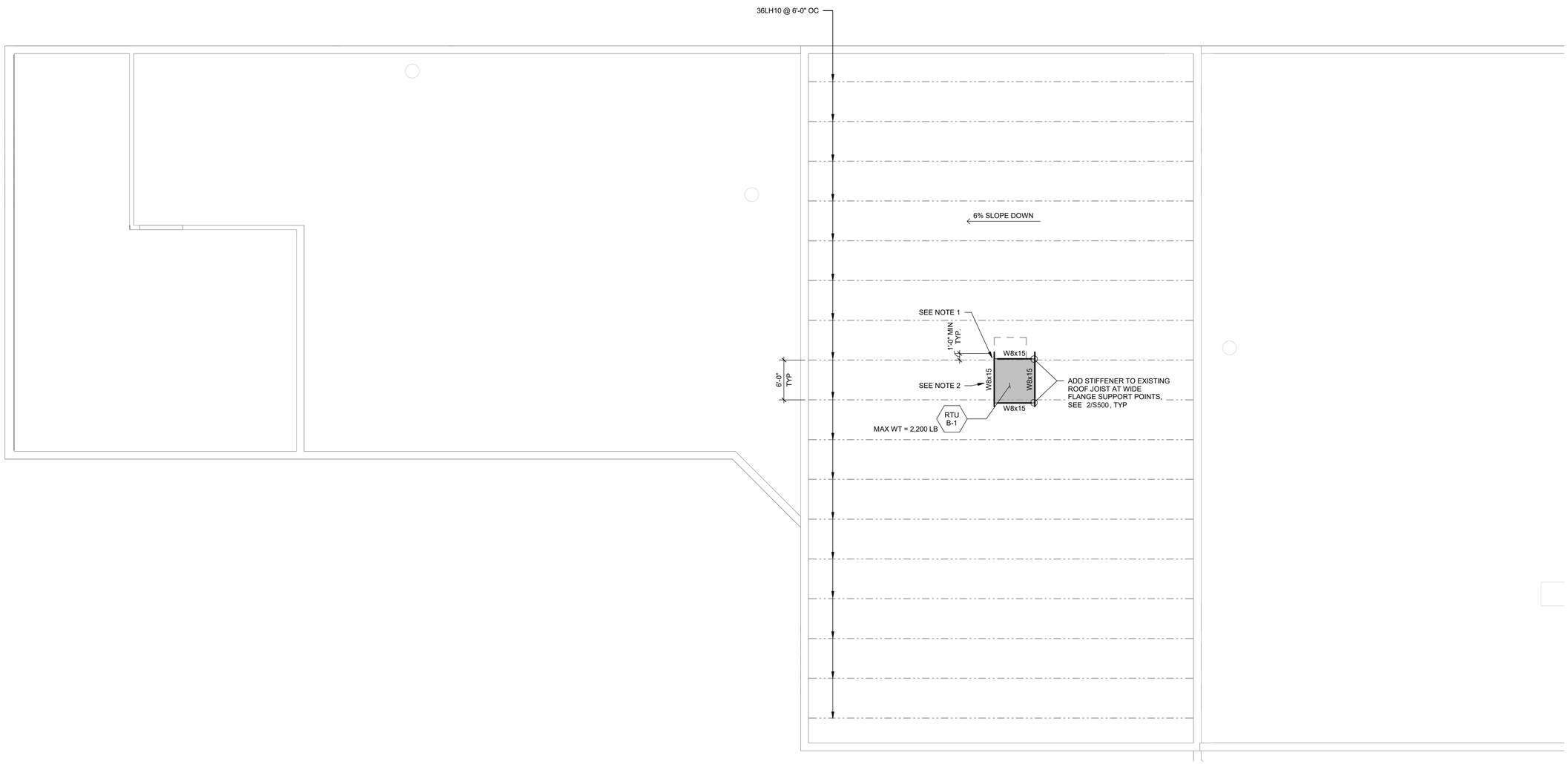
PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: AN
CHECKED BY: RCV
DESIGNED BY: KD

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
S001

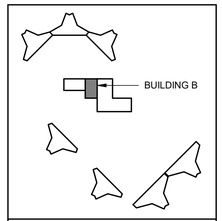


NOTES:
1. PROVIDE NESTED CHANNEL WITH FLANGES DOWN AT DECK FLUTES BELOW WIDE FLANGE BEAMS SUPPORTING EQUIPMENT, SEE DETAIL 6/S500 .
2. SLOPED CURB MATCHING ROOF SLOPE TO BE PROVIDED.

N

1 MECHANICAL ROOF PLAN - BUILDING B - AREA A

1/8" = 1'-0"



KEY PLAN
N.T.S.

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ROOF PLAN - BUILDING B - AREA A

SHEET NUMBER:
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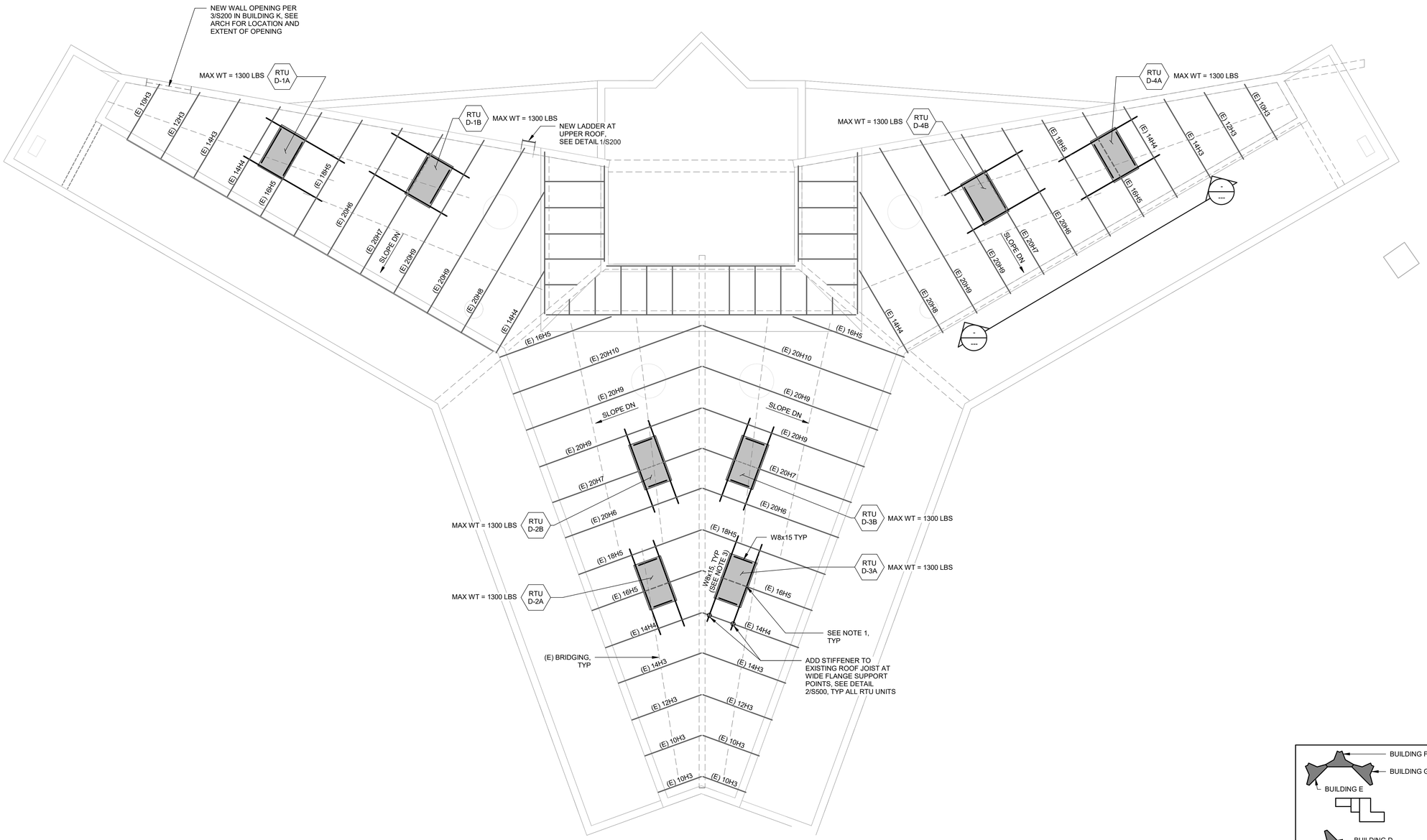
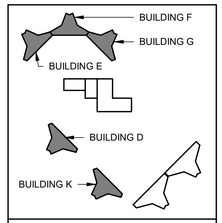


NOTES:
1. PROVIDE NESTED CHANNEL WITH FLANGES DOWN AT DECK FLUTES BELOW WIDE FLANGE BEAMS SUPPORTING EQUIPMENT, SEE DETAIL 6/S500, TYPICAL ALL RTU UNITS.
2. EXTEND WIDE FLANGE BEAMS SUPPORTING EQUIPMENT AND NESTED CHANNEL WITH FLANGES DOWN (SEE DETAIL 6/S500) 12" BEYOND SUPPORT ROOF JOISTS AT EACH END.
3. EQUIPMENT LOCATIONS MAY BE ADJUSTED TO MINIMIZE REQUIRED WEB STIFFENERS PER DETAIL 2/S500. CONTRACTOR TO FIELD VERIFY REQUIRED ADJUSTMENTS FOR REVIEW BY THE DESIGN TEAM.
4. ALL ADDED STEEL MUST BE HOT DIP GALVANIZED.
5. WIDE FLANGE BEAMS SUPPORTING HVAC EQUIPMENT MAY EXTEND UP TO 12" BEYOND CENTERLINE OF SUPPORTING ROOF JOIST AT EACH END. IF MORE DISTANCE IS REQUIRED TO SUPPORT THE EDGES OF THE EQUIPMENT, THE WIDE FLANGE BEAM SHALL BE EXTENDED TO THE NEXT ROOF JOIST

1 ROOF PLAN - BUILDING TYPE D (D, E, F, G & K)
1/8" = 1'-0"



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ROOF PLAN - BUILDING D

SHEET NUMBER:
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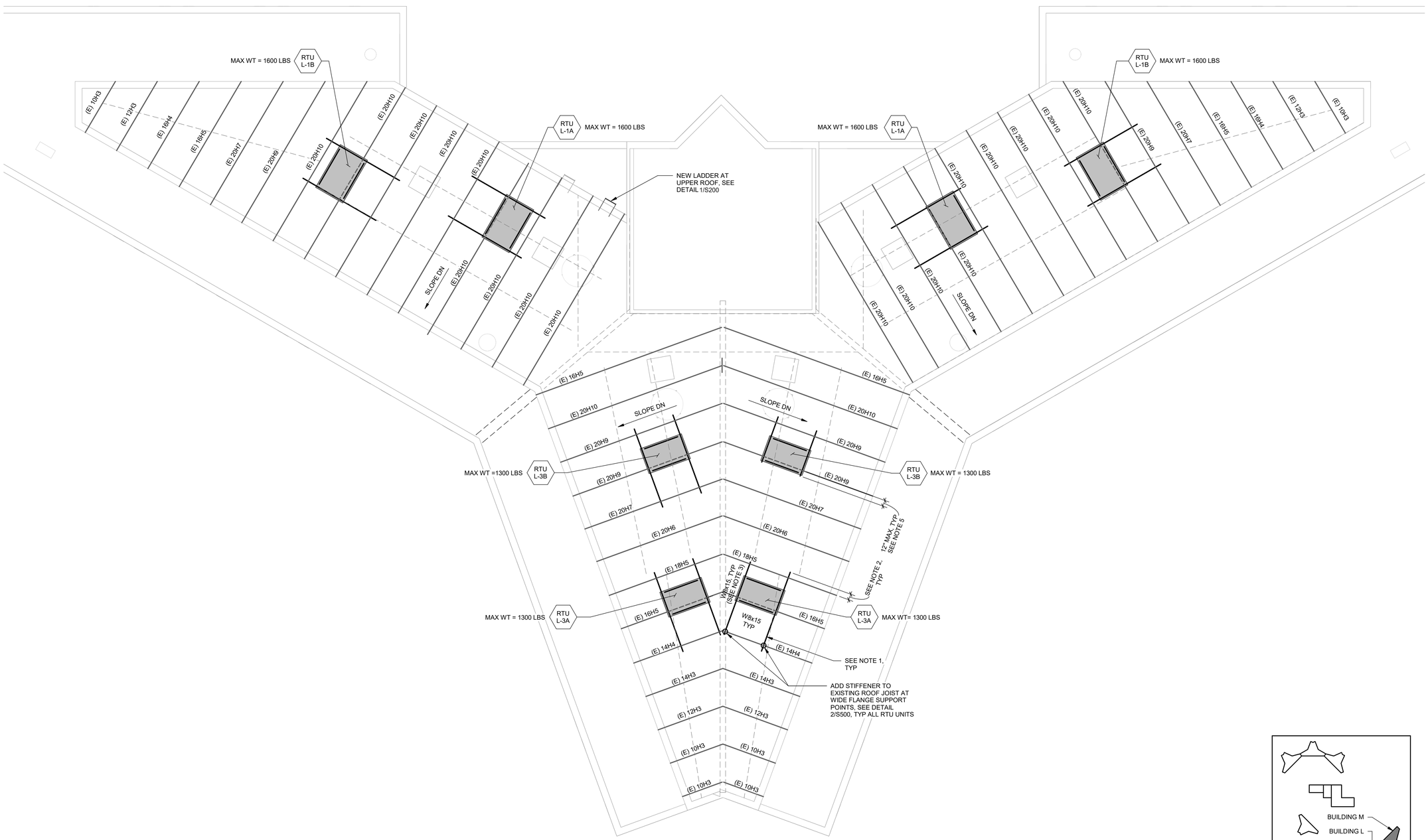

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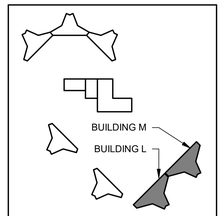
3. EQUIPMENT LOCATIONS MAY BE ADJUSTED TO MINIMIZE REQUIRED WEB STIFFENERS PER DETAIL 2/S500. CONTRACTOR TO FIELD VERIFY REQUIRED ADJUSTMENTS FOR REVIEW BY THE DESIGN TEAM.
4. ALL ADDED STEEL MUST BE HOT DIP GALVANIZED.
5. WIDE FLANGE BEAMS SUPPORTING HVAC EQUIPMENT MAY EXTEND UP TO 12" BEYOND CENTERLINE OF SUPPORTING ROOF JOIST AT EACH END. IF MORE DISTANCE IS REQUIRED TO SUPPORT THE EDGES OF THE EQUIPMENT, THE WIDE FLANGE BEAM SHALL BE EXTENDED TO THE NEXT ROOF JOIST

1 ROOF PLAN - BUILDING TYPE L (L & M)

1/8" = 1'-0"



KEY PLAN
N.T.S.

N

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
KYLE RICHARD DOMINISSE
NUMBER
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EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

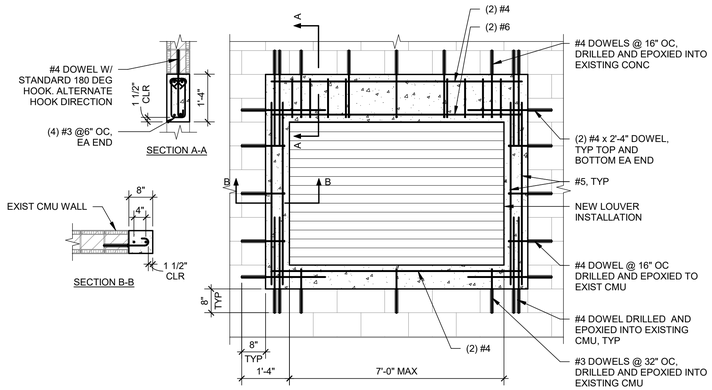
PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: AN
CHECKED BY: RCV
DESIGNED BY: KD

SHEET TITLE:
ROOF PLAN - BUILDING L

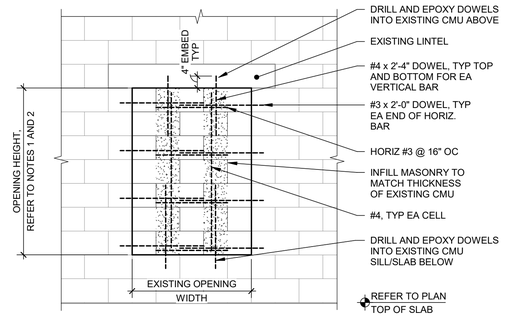
SHEET NUMBER:
S102L



NOTES:
1. USE HILTI HY-270 (ICC ESR-4143) ADHESIVE ANCHOR SYSTEM.
2. LOUVER DIMENSION PER ARCHITECHTURAL.
3. CONTRACTOR TO SCAN EXISTING CONCRETE AND CMU PRIOR TO DRILLING AND AVOID DAMAGING EXISTING REINFORCEMENT INSIDE THE WALL.

3 TYPICAL OPENING INFILL AT EXISTING WALL

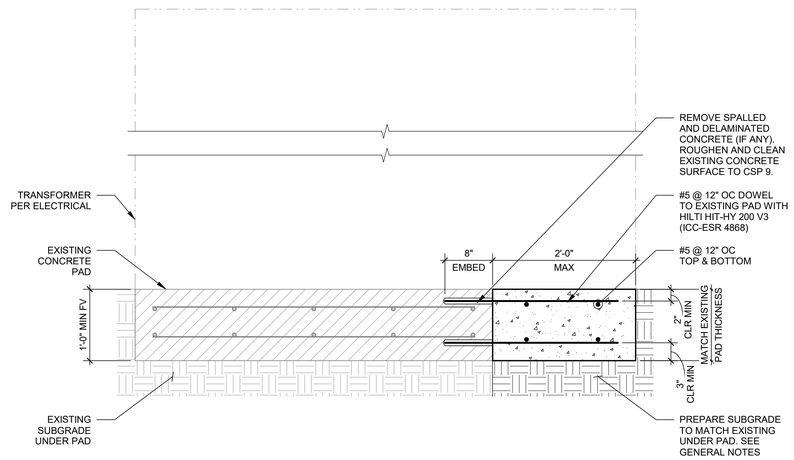
NO SCALE



NOTE:
1. USE HILTI HY-270 (ICC ESR- 4143) ADHESIVE ANCHOR SYSTEM.

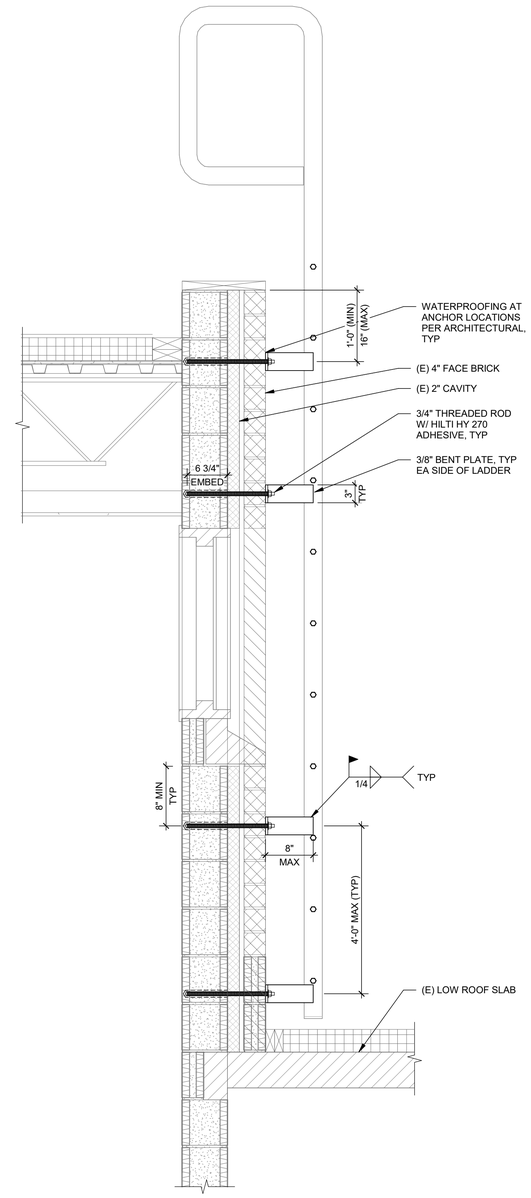
2 TYPICAL OPENING INFILL AT EXISTING WALL

NO SCALE



4 TYPICAL EQUIPMENT PAD EXTENSION

NO SCALE



NOTES:
1. CONTRACTOR SHALL LOCATE ITEMS EMBEDDED IN CMU BY NON-DESTRUCTIVE EVALUATION PRIOR TO PERFORMING ANY WORK. ITEMS EMBEDED IN MASONRY SHALL NOT BE DAMAGED DURING REPAIR WORK OR INSTALLATION OF POST-INSTALLED ANCHORS. EMBEDDED ITEMS MAY INCLUDE MILD REINFORCEMENT, DOWELS, EMBEDDED CONNECTIONS, ELECTRICAL CONDUITS, PLUMBING, ETC.
2. POST INSTALLED ANCHORS SHALL BE POSITIONED AT LEAST 1" CLEAR FROM ANY EMBEDDED REINFORCEMENT IN THE CMU WALL.

1 ROOF ACCESS LADDER SECTION

1" = 1'-0"

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DESIGNED BY: KD

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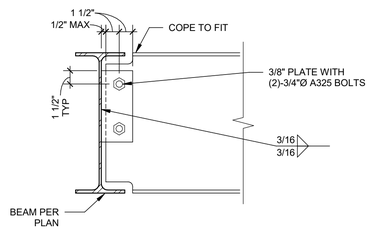
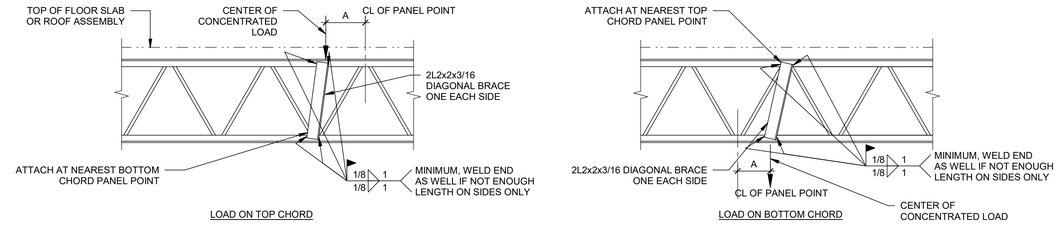
STRUCTURAL DETAILS

SHEET NUMBER:
S200





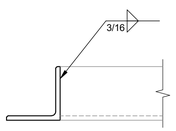
NOTES:
1. DIAGONAL BRACE IS NOT REQUIRED FOR "A" LESS THAN THREE INCHES.
2. PROVIDE DIAGONAL BRACE AT LOCATION OF CONCENTRATED LOADS SUCH AS PARTITIONS, HEAVY PIPES, MECHANICAL UNITS, HEAVY LIGHTS AND ANY OTHER CONCENTRATED LOADS AND AS NOTED ELSEWHERE IN THE STRUCTURAL DRAWINGS. LOADS MUST BE APPLIED CONCENTRICALLY TO JOIST BOTTOM CHORD.

3 TYPICAL DETAIL - SHEAR TAB - W-SECTION TO W-SECTION

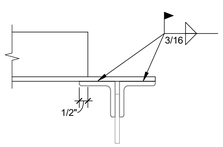
NO SCALE

2 TYPICAL JOIST STIFFENING FOR CONCENTRATED LOADS

NO SCALE



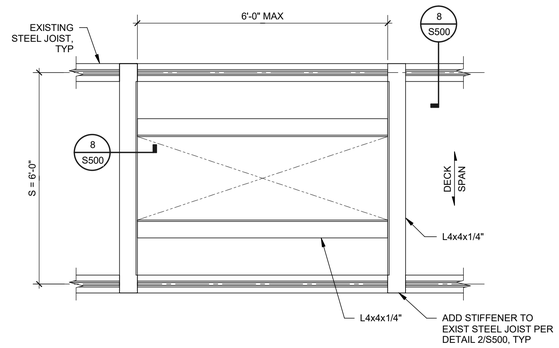
ANGLE TO ANGLE CONNECTION



ANGLE TO JOIST CONNECTION

8 TYPICAL ROOF OPENING FRAME CONNECTIONS

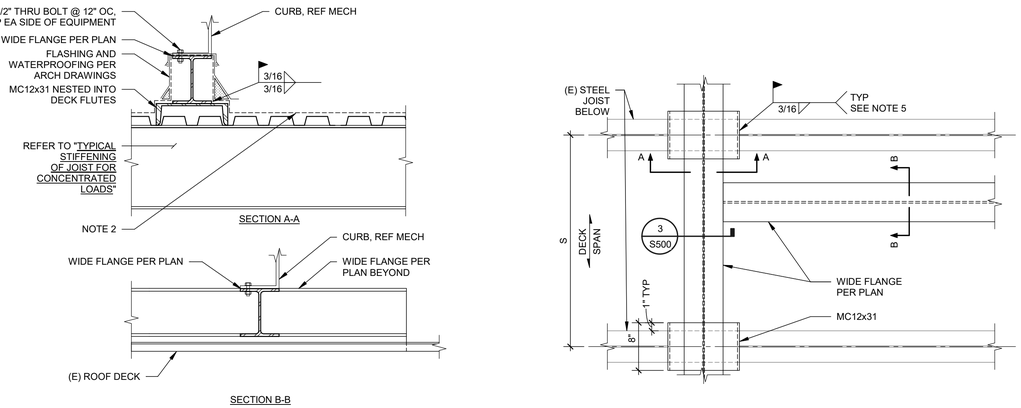
NO SCALE



NOTES:
1. COORDINATE OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. ROOF DECK SHALL BE CONTINUOUS OVER FRAMED OPENINGS. DO NOT CUT OPENINGS UNTIL IMMEDIATELY BEFORE THEY ARE NEEDED.
3. VERIFY FRAMING WITH ENGINEER WHERE DIMENSIONS EXCEED MAXIMUM DIMENSIONS SHOWN IN THIS DETAIL.

7 TYPICAL FRAMED ROOF OPENING

NO SCALE



NOTES:
1. COORDINATE MECHANICAL UNIT LOCATIONS AND CURB SUPPORT REQUIREMENTS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. ROOF DECK SHALL BE CONTINUOUS UNDER CHANNEL FRAMED OPENINGS.
3. IF STEEL BEAM PRESENT UNDER MECHANICAL CURB, CHANNEL SUPPORTS NOT REQUIRED.
4. FLASHING AND WATERPROOFING PER ARCHITECTURAL.
5. WELD NESTED MC CHANNEL TO TOP CHORD OF EXISTING JOIST BELOW.

6 TYPICAL MECHANICAL UNIT SUPPORT OVER STEEL ROOF DECK

NO SCALE

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DRAWN BY: AN
CHECKED BY: RCV
DESIGNED BY: KD

SHEET TITLE:
FRAMING DETAILS

SHEET NUMBER:
S500

GENERAL NEW NOTES:

1. PRIOR TO SUBMITTING BID, REVIEW THE GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
2. PROVIDE SEISMIC RESTRAINTS AS NEEDED FOR THE MECHANICAL SYSTEMS IN THE PROJECT BASED ON THE SEISMIC ANALYSIS REQUIRED BY THE SPECIFICATIONS.
3. EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
4. COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
5. WHERE SHUTDOWN OF EXISTING SYSTEMS IS REQUIRED DURING NEW WORK, COORDINATE SHUTDOWN TIME AND DURATION WITH THE OWNER TO MINIMIZE DOWNTIME. NOTIFY OWNER SEVEN (7) DAYS PRIOR TO INTERRUPTION OF SERVICE.
6. DURING INSTALLATION OF NEW WORK, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. REPAIR DAMAGE CAUSED DURING CONSTRUCTION AT NO EXTRA COST TO THE OWNER.
7. PROVIDE TEMPORARY BARRIERS TO CONTAIN DUST AND DEBRIS RESULTING FROM THE PERFORMANCE OF THE WORK TO THE AREA WHERE WORK IS BEING PERFORMED.
8. ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY DIVISION 23 UNLESS OTHERWISE NOTED.
9. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.
10. REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.
11. COORDINATE LOCATION OF ROOF MOUNTED HVAC EQUIPMENT AND ROOF PENETRATIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
12. INDOOR AIR QUALITY MEASURES: PROTECT INSIDE OF (INSTALLED AND DELIVERED) DUCTWORK AND HVAC UNITS FROM EXPOSURE TO DUST, DIRT, PAINT AND MOISTURE. REPLACE INSULATION THAT HAS BECOME WET AT ANY TIME DURING CONSTRUCTION, DRYING THE INSULATION IS NOT ACCEPTABLE. SEAL ANY TEARS OR JOINTS OF INTERNAL FIBERGLASS INSULATION. REMOVE DEBRIS FROM CEILING/RETURN AIR PLENUM INCLUDING DUST. AN INDEPENDENT, PROFESSIONAL DUCT CLEANING COMPANY SHALL VACUUM CLEAN ANY DUCTWORK CONNECTED TO HVAC UNITS THAT WERE OPERATED DURING THE CONSTRUCTION PERIOD AFTER NEW FILTERS ARE INSTALLED AND PRIOR TO TURNING SYSTEM OVER TO THE OWNER. THE INTERNAL SURFACES AND ASSOCIATED COILS OF ANY HVAC UNITS THAT WERE OPERATED SHALL ALSO BE CLEANED.
13. INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.
14. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
15. COORDINATE LOCATION OF EQUIPMENT SUPPORTS WITH LOCATION OF EQUIPMENT ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT AND/OR FILTER REPLACEMENT.
16. SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
17. FOR HYDRONIC, STEAM AND STEAM CONDENSATE PIPING TO EQUIPMENT, MINIMUM ACCEPTABLE SIZE FOR STEEL AND COPPER PIPE IS 3/4 INCH. USE THIS CRITERIA WHERE PIPE SIZES ARE NOT SHOWN ON PLAN.
18. DRAIN, FLUSH, AND REFILL ALL PIPING SYSTEMS NECESSARY TO PERFORM THE WORK. REFERENCE SPECIFICATIONS FOR FLUSHING PERFORMANCE REQUIREMENTS AND SUBMIT FLUSHING PLAN TO ENGINEER FOR REVIEW. PROVIDE CHEMICAL TREATMENT FOR ALL PIPING SYSTEMS AFTER FLUSHING AND REFILLING THE SYSTEM.
19. COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL AND DUCT INSTALLATION REQUIREMENTS.
20. ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.
21. DUCTWORK CROSSING FIRE RATED WALLS OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL.
22. PROVIDE FIRE OR FIRE/SMOKE DAMPERS, AS APPLICABLE, IN DUCTWORK AT CEILINGS AND WALLS AT LOCATIONS SHOWN ON THE PLANS. FIRE AND FIRE/SMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE. COORDINATE SLEEVE LENGTH WITH REQUIREMENTS OF INSTALLED LOCATION.
23. PROVIDE DUCT ACCESS PANELS OR DOORS FOR ACCESS TO FIRE AND FIRE/SMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 10" BY 10" AND SHALL BE INSTALLED WITHIN 12" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE IS TOO SMALL FOR A 10" BY 10" ACCESS DOOR.
24. PROVIDE A MANUAL BALANCING DAMPER IN EACH DUCT TAKEOFF FROM SUPPLY, RETURN, OUTDOOR AND EXHAUST AIR DUCTS.
25. PROVIDE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES. PROVIDE WITH INTEGRAL MANUAL BALANCING DAMPER AND LOCKING QUADRANT WHERE INDICATED ON PLANS.
26. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
27. REFER TO SPECIFICATIONS FOR DUCTWORK AND PIPING INSULATION REQUIREMENTS. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS, INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
28. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORTED TO AVOID SHARP BENDS AND SAGGING. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
29. RIGIDLY SUSPEND UNIT HEATER FROM STRUCTURE WITH SUPPORTING ANGLES AND ALL-THREAD HANGING RODS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
30. PROVIDE EQUIPMENT VENTS AND FLUES PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND EQUIPMENT SPECIFICATIONS. KEEP PENETRATIONS THROUGH ROOF A MINIMUM OF 10'-0" FROM HVAC EQUIPMENT FRESH AIR INLETS AND 2'-0" FROM ROOF PARAPETS.
31. PROVIDE WALL MOUNTED LOUVERS AND DAMPERS WITH SUITABLE MOUNTING FRAME TO MATCH WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL DRAWINGS.
32. PROVIDE A NEW SET OF AIR FILTERS IN UNITS PRIOR TO TESTING, ADJUSTING AND BALANCING AND BEFORE TURNING SYSTEM(S) OVER TO OWNER.
33. FIELD VERIFY THAT THE EXISTING EQUIPMENT INCLUDING ACCESSORIES BEING REUSED FOR THIS PROJECT IS NOT DAMAGED AND IS IN GOOD WORKING ORDER. REPORT ANY DEFICIENCIES TO THE OWNER OR ARCHITECT. SUBMIT TO THE OWNER AND ARCHITECT A WRITTEN REPORT DESCRIBING TESTS PERFORMED TO VERIFY OPERATION AND RESULTS OF THE TESTS.
34. CLEAN EXISTING EQUIPMENT AND EQUIPMENT COMPONENTS BEING REUSED FOR THIS PROJECT. PROVIDE NEW FILTERS FOR EXISTING AIR HANDLING EQUIPMENT PRIOR TO STARTUP OF EQUIPMENT. NEW FILTERS SHALL BE COMPATIBLE WITH THE EXISTING EQUIPMENT AND EQUAL IN PERFORMANCE TO THE EXISTING FILTERS AT NEW CONDITION UNLESS OTHERWISE NOTED. CLEAN STRAINERS IN PIPING SYSTEMS PRIOR TO STARTING PUMPS.
35. CLEAN THE EXTERIOR OF EXISTING COILS TO BE REUSED FOR THIS PROJECT. VACUUM BRUSH THE COIL IN THE DIRECTION OF THE FINS AND CLEAN THE COILS WITH COIL CLEANING FLUID. COMB ANY FINS BENT TO PROVIDE A STRAIGHT SURFACE FOR AIRFLOW.
36. LUBRICATE EXISTING EQUIPMENT BEING REUSED FOR THIS PROJECT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. OBTAIN INSTRUCTIONS FROM MANUFACTURER IF THEY ARE NOT AVAILABLE AT THE SITE.
37. FULLY CHARGE EXISTING REFRIGERANT SYSTEMS BEING REUSED FOR THIS PROJECT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. CHARGE SYSTEMS WITH NEW REFRIGERANT MATCHING EXISTING.

MECHANICAL SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED. V3.02

STANDARD MOUNTING HEIGHT

THERMOSTATS (USER ADJUSTABLE) (TOP OF DEVICE)	46"
CONTROLS (TOP OF DEVICE)	46"

INSTALL DEVICES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ABOVE OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS ARE AFF OR AFG TO TOP OF THE DEVICE UNO. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ANNOTATION

- 1 — MECHANICAL PLAN NOTE CALLOUT
- CU 1 — MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
- CONNECTION POINT OF NEW WORK TO EXISTING
- 1 M1 — DETAIL REFERENCE. UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
- 1 M1 — SECTION CUT DESIGNATION
- DEDICATED EQUIPMENT ACCESS TILE
- ACCESS PANEL

ABBREVIATIONS

A/C	AIR CONDITIONING
ACC	AIR COOLED CHILLER
ACCU	AIR COOLED CONDENSING UNIT
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
AWG	AMERICAN WIRE GAUGE
B	BOILER
BAS	BUILDING AUTOMATION SYSTEM
BB	BACKBONE
BD	BACKDRAFT DAMPER
BD	BLOWDOWN
BFC	BELOW FINISHED CEILING
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BFP	BOILER FEED PUMP
BHP	BRAKE HORSEPOWER
BI	BINARY INPUT
BO	BINARY OUTPUT
BOD	BOTTOM OF DUCT
BOS	BOTTOM OF STRUCTURE
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CLG	COOLING
CP	CONDENSATE PUMP
CPT	CONTROL POWER TRANSFORMER
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CRU	COMPUTER ROOM UNIT
CT	COOLING TOWER
CV	CONTROL VALVE
CWP	CONDENSER WATER PUMP
CU	CONDENSING UNIT
CHWP	CHILLED WATER PUMP
DB	DECIBELS
DBA	DECIBEL AVERAGE
DDC	DIRECT DIGITAL CONTROL
DI	DIGITAL INPUT
DISC	DISCONNECT
DN	DOWN
DS	DUCT SILENCER
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ED	EXHAUST DUCT
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
EFF	EFFICIENCY
EMS	ENERGY MANAGEMENT SYSTEM
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
FCU	FAN COIL UNIT
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FF	FINISHED FLOOR
FPI	FINS PER INCH
FPM	FEET PER MINUTE
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HTG	HEATING
HWP	HEATING WATER PUMP
IN WC	INCHES OF WATER COLUMN
L	LOUVER
LAT	LEAVING AIR TEMPERATURE
LDB	LEAVING DRY BULB
LP	LOW PRESSURE
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MD	MOTORIZED DAMPER
MFR	MANUFACTURER
MIN	MINIMUM
N/A	NOT APPLICABLE
N/C	NORMALLY CLOSED
N/O	NORMALLY OPEN
NOM	NOMINAL
NC	NOISE CRITERIA
NF	NON-FUSED
NIC	NOT IN CONTRACT
OA	OUTSIDE AIR
PICV	PRESSURE INDEP. CONTROL VALVE
PROVIDE	FURNISH AND INSTALL
QTY	QUANTITY
RA	RETURN AIR
RC	ROOM CRITERIA
RD	RETURN DUCT
REA	RELIEF AIR
RF	RETURN FAN
RFR	REFRIGERANT
RH	RELATIVE HUMIDITY
RH	ROOF HOOD
RPM	REVOLUTIONS PER MINUTE
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SCP	STEAM CONDENSATE PUMP
SD	SMOKE DUCT DETECTOR
SD	SUPPLY DUCT
SF	SUPPLY FAN
SH	SENSIBLE HEAT CAPACITY
SOW	SCOPE OF WORK
SP	STATIC PRESSURE
ST	STEAM TRAP
STM	STEAM
TBD	TO BE DETERMINED
TC/C	TEMPERATURE CONTROLS CONTRACTOR
TCP	TEMPERATURE CONTROL PANEL
TF	TRANSFER FAN
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TH	TOTAL HEAT CAPACITY
TSP	TOTAL STATIC PRESSURE
TT	TEMPERATURE TRANSMITTAL
TYP	TYPICAL
U/F	UNDERFLOOR
U/G	UNDERGROUND
U/S	UNDERSLAB
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
VRF	VARIABLE REFRIGERANT FLOW
VRV	VARIABLE REFRIGERANT VOLUME
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN
WPD	WATER PRESSURE DROP
XP	EXPLOSION PROOF

HVAC DUCTWORK AND ACCESSORIES

- DUCTWORK/EQUIPMENT TO BE REMOVED OR RELOCATED
- EXISTING DUCTWORK/EQUIPMENT TO REMAIN
- LINEAR SLOT DIFFUSER
- INSULATED FLEXIBLE DUCT (MAX. 5'-0" LONG)
- BRANCH DUCT WITH 45° RECTANGLE-ROUND BRANCH FITTING AND MANUAL VOLUME DAMPER
- ELBOW WITH TURNING VANES
- BRANCH DUCT WITH BELL-MOUTH FITTING & MANUAL VOLUME CONTROL DAMPER
- DUCT UP
- DUCT DOWN
- EA — EXHAUST AIR
- GEA — EXHAUST AIR - GREASE
- OA — OUTSIDE AIR
- REA — RELIEF AIR
- RA — RETURN AIR
- XEA — SPECIAL EXHAUST
- SA — SUPPLY AIR
- EQUIPMENT WITH FLEXIBLE DUCT CONNECTION
- 10" (NECK SIZE) CSD-1 (TYPE) 300 CFM (CFM OF SUPPLY DIFFUSER OR REGISTER)
- 24x24 (NECK SIZE) CEG-1 (TYPE) 800 CFM (CFM OF EXHAUST GRILLE)
- EQUIPMENT ACCESS TILE (IN ACT CEILINGS)
- ACCESS PANEL (IN GYPSUM)
- MANUAL VOLUME DAMPER
- SQUARE TO ROUND TRANSITION
- RD — DUCT MOUNTED SMOKE DETECTOR (SD=SUPPLY/RD=RETURN)
- XX" Ø — ROUND DUCT TAG INDICATING DIAMETER
- XX" x XX" — RECTANGULAR DUCT TAG INDICATING INTERNAL DUCT DIMENSIONS.
- XX" / XX" θ — FLAT OVAL DUCT TAG INDICATING INTERNAL DUCT DIMENSIONS
- # — RISER DESIGNATION
- FD — FIRE DAMPER
- FSD — FIRE SMOKE DAMPER
- SD — SMOKE DAMPER
- VD — VOLUME DAMPER
- MD — MOTORIZED DAMPER
- BD — BACKDRAFT DAMPER

ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE DIMENSIONS. REFER TO DUCTWORK SPECIFICATIONS FOR DUCTWORK INSULATION AND LINER INFORMATION.

HVAC CONTROL DEVICES

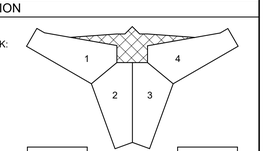
- H — HUMIDISTAT
- T — THERMOSTAT
- CO — CARBON MONOXIDE SENSOR
- CO2 — CARBON DIOXIDE SENSOR
- DP — DIFFERENTIAL PRESSURE SENSOR
- FS — FLOW SWITCH
- HS — HUMIDITY SENSOR
- PS — PULL STATION
- RT — REMOTE TESTING STATION WITH INDICATING LIGHT
- SP — STATIC PRESSURE
- TS — TEMPERATURE SENSOR

PIPING SYMBOLS

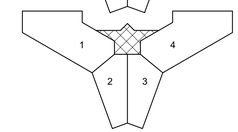
- DIRECTION OF FLOW
- CONTROL VALVE
- THREE-WAY CONTROL VALVE
- SHUTOFF VALVE
- CHECK VALVE
- BALANCING VALVE WITH PRESSURE PORTS
- TRIPLE DUTY VALVE WITH PRESSURE PORTS
- STRAINER
- STRAINER WITH BLOWOFF
- RELIEF / SAFETY VALVE
- SOLENOID VALVE
- PRESSURE REDUCING VALVE
- GAS PRESSURE REGULATOR
- THERMOSTATIC MIXING VALVE
- PA — PIPE ANCHOR
- EXPANSION JOINT
- PIPE GUIDE
- PIPING SUPPORT
- F & T TRAP
- BUCKET TRAP
- THERMOSTATIC TRAP
- BACKFLOW PREVENTER
- PRESSURE GAUGE
- THERMOMETER
- PRESSURE AND TEMPERATURE TEST PLUG
- UNION
- FLANGE CONNECTION
- VACUUM RELIEF VALVE
- AV — AUTOMATIC AIR VENT
- MV — MANUAL AIR VENT
- PRESSURE / VACUUM SWITCH
- CLEANOUT
- CAP
- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN
- ELBOW UP WITH SHUT-OFF VALVE (SOV)
- ELBOW DOWN WITH SHUT-OFF VALVE (SOV)
- TEE UP WITH SHUT-OFF VALVE (SOV)
- TEE DOWN WITH SHUT-OFF VALVE (SOV)
- REDUCER
- RECIRCULATION PUMP
- P-TRAP
- GAS COCK
- TOP BEAM CLAMP
- TRAPEZE HANGER
- FLEXIBLE CONNECTION

QUADRANT NOTATION

BUILDINGS D, E, F, G, K:



BUILDINGS L, M:



PIPING LINETYPES

- EXISTING PIPING TO BE REMOVED OR RELOCATED
- EXISTING PIPING TO REMAIN
- CD — CONDENSATE DRAIN (CD)
- ACD — AUXILIARY CONDENSATE DRAIN (ACD)
- NPW — NON-POTABLE WATER (NPW)
- BFW — BOILER FEED WATER (BFW)
- HPS — HIGH PRESSURE STEAM SUPPLY (HPS)
- HPC — HIGH PRESSURE STEAM CONDENSATE (HPC)
- LPS — LOW PRESSURE STEAM SUPPLY (LPS)
- LPC — LOW PRESSURE STEAM CONDENSATE (LPC)
- CPD — CONDENSATE PUMP DISCHARGE (CPD)
- HWS — HEATING HOT WATER SUPPLY (HWS)
- HWR — HEATING HOT WATER RETURN (HWR)
- CHWS — CHILLED WATER SUPPLY (CHWS)
- CHWR — CHILLED WATER RETURN (CHWR)
- RL — REFRIGERANT LIQUID (RL)
- RD — REFRIGERANT DISCHARGE (HOT GAS) (RD)
- RS — REFRIGERANT SUCTION (RS)
- RDB — REFRIGERANT DISCHARGE BYPASS (RDB)
- RV — REFRIGERANT VENT (RV)

HATCHING LEGEND

- ENLARGED PLAN
- NOT IN SCOPE (NIS)

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING	NEW
DEMOLISH	FUTURE

GENERAL DEMOLITION NOTES:

1. COORDINATE ALL DEMOLITION WITH WHAT IS SHOWN ON ARCHITECTURAL PLANS. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
2. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER OR OWNER, AS DEFINED IN BID DOCUMENTS, OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
3. OWNER RETAINS RIGHTS OF SALVAGE FOR EQUIPMENT AND FIXTURES TO BE REMOVED. COORDINATE WITH OWNER THE EQUIPMENT AND FIXTURES TO BE SALVAGED AND THE LOCATION FOR STORAGE. AVOID DAMAGE TO SALVAGED EQUIPMENT, FIXTURES AND DEVICES DURING DEMOLITION WORK AND DURING TRANSPORT TO OWNER 'S DESIGNATED STORAGE LOCATION.
4. REMOVE ITEMS SHOWN HEAVY-LINED DASHED, AND/OR NOTED TO BE REMOVED.
5. AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN FOR NEW INSTALLATION. REPAIR DAMAGE CAUSED DURING WORK AT NO EXTRA COST TO THE OWNER.
6. SEAL PENETRATIONS THROUGH FLOORS, WALLS, CEILINGS AND ROOFS WHERE MECHANICAL COMPONENTS ARE REMOVED AND WHERE THE EXISTING PENETRATION IS NOT USED FOR THE NEW INSTALLATION. REPAIR DAMAGED SURFACES TO MATCH ADJACENT AREAS OR AS INDICATED ON THE ARCHITECTURAL DRAWINGS.
7. REMOVE HANGERS AND SUPPORTS WHERE DUCTWORK, PIPING AND/OR EQUIPMENT ARE REMOVED AND THE EXISTING HANGERS AND SUPPORTS ARE NOT USED FOR THE NEW INSTALLATION.
8. INSTALL PERMANENT CAPS WHERE DUCTWORK AND PIPING IS REMOVED AND THE EXISTING TAPS ARE NOT USED FOR THE NEW INSTALLATION. WHERE DUCTWORK AND PIPING ARE REMOVED AND THE EXISTING TAPS WILL BE USED FOR THE NEW INSTALLATION, INSTALL TEMPORARY CAPS TO PROTECT THE INTERIOR SURFACES UNTIL NEW DUCTWORK AND PIPING ARE INSTALLED.
9. INSPECT EXISTING EQUIPMENT TO REMAIN TO VERIFY THAT EQUIPMENT IS OPERATING PROPERLY. NOTIFY OWNER OF DAMAGED AND/OR MALFUNCTIONING COMPONENTS.
10. WHERE SHUTDOWN OF EXISTING SYSTEMS IS REQUIRED DURING DEMOLITION, COORDINATE SHUTDOWN TIME AND DURATION WITH OWNER TO MINIMIZE DOWNTIME. NOTIFY OWNER SEVEN (7) DAYS PRIOR TO INTERRUPTION OF SERVICE.
11. CEASE WORK AND IMMEDIATELY NOTIFY THE OWNER SHOULD ANY HAZARDOUS MATERIALS BE ENCOUNTERED DURING THE PERFORMANCE OF THE WORK.
12. REMOVAL, RECOVERY, RECYCLING, AND DISPOSAL OF REFRIGERANT, CONTAINED IN ANY EQUIPMENT TO BE REMOVED, SHALL BE PERFORMED IN STRICT ACCORDANCE WITH CURRENT EPA GUIDELINES.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

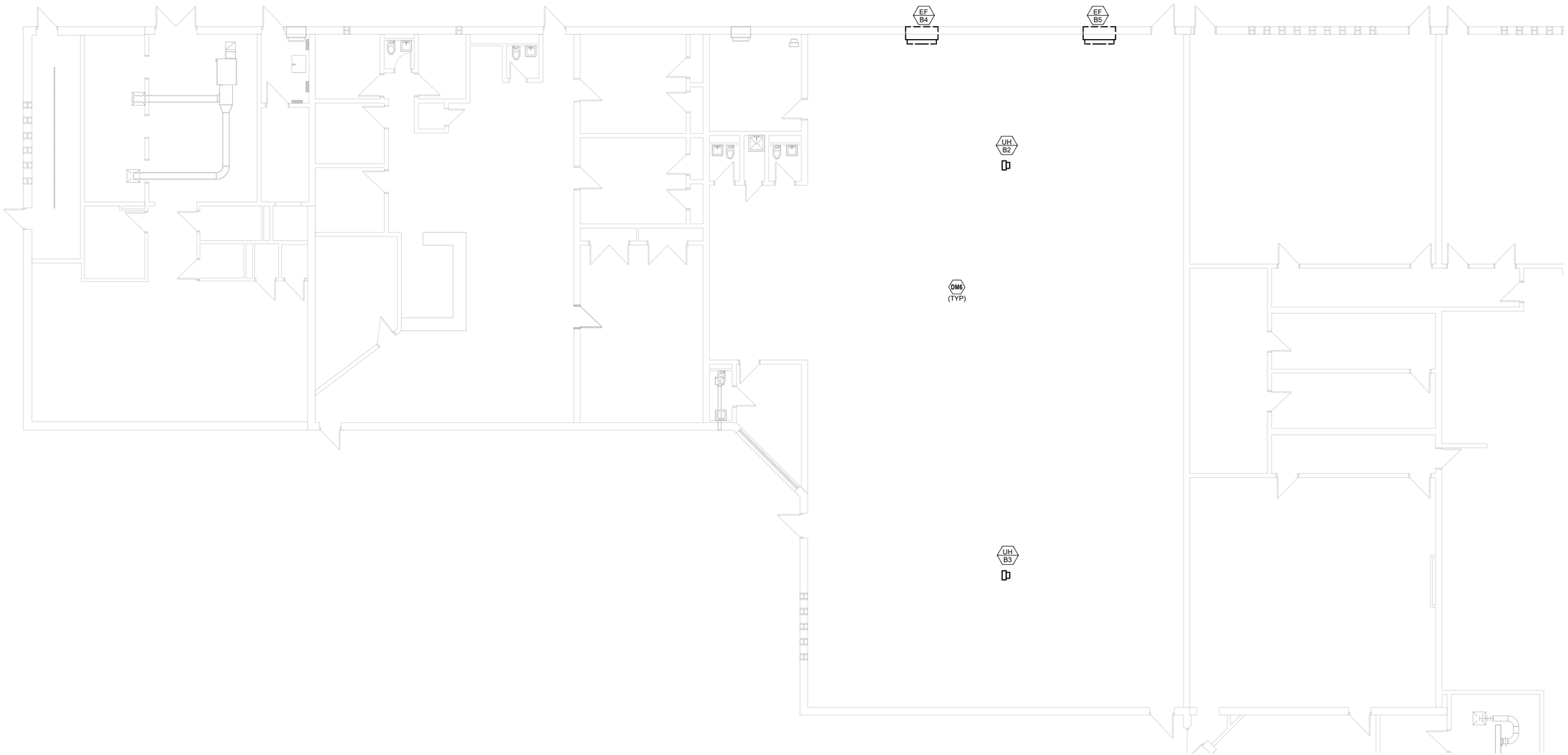
SHEET TITLE:
MECHANICAL GENERAL NOTES AND LEGEND

SHEET NUMBER:
M000

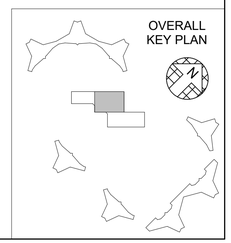
KELLEY P. CRAMM

MECHANICAL DEMOLITION PLAN NOTES:

DM6 REMOVE EXISTING UNIT HEATERS AND SIDEWALL FANS IN THIS ROOM.



1 HVAC - LEVEL 1 DEMO PLAN - BUILDING B - AREA B
1/8" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
KELLEY P. CRAMM
NUMBER
E-22323
PROFESSIONAL ENGINEER

8/27/2026

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CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:

HVAC - LEVEL 1 DEMO PLAN - BLDG B - AREA B

SHEET NUMBER:

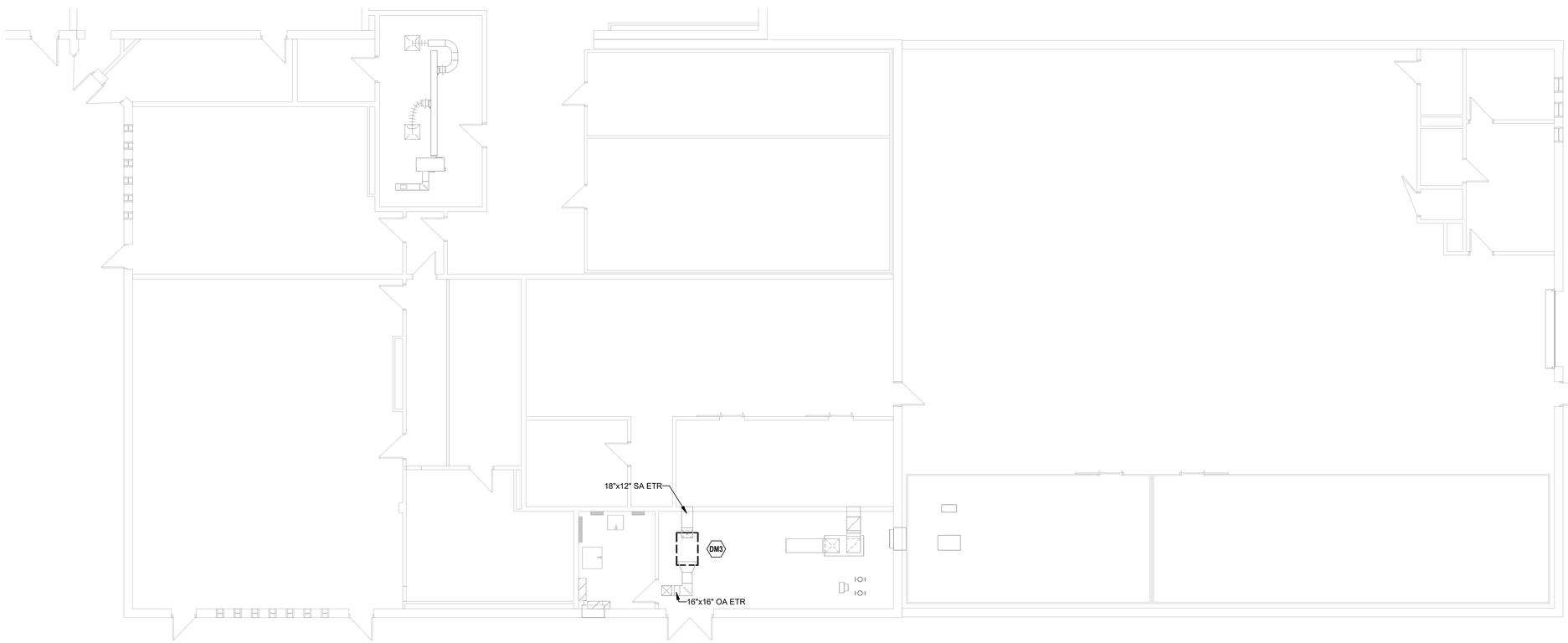
MD101.Bb

20 OF 118 SHEETS
08/28/2026

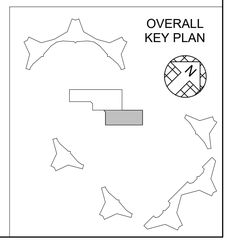
KELLEY P. CRAMM

MECHANICAL DEMOLITION PLAN NOTES:

DM3 ALTERNATE #3 - HVAC EQUIPMENT ONE FOR ONE REPLACEMENT. REMOVE EXISTING MAKEUP AIR UNIT. REMOVE DUCTWORK AND HEATING HOT WATER PIPING AS REQUIRED TO ACCOMMODATE CONNECTION TO REPLACEMENT UNIT.



1 HVAC - LEVEL 1 DEMO PLAN - BUILDING B - AREA C
1/8" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
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8/27/2026

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DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
HVAC - LEVEL 1 DEMO PLAN - BUILDING B - AREA C

SHEET NUMBER:
MD101.Bc

KELLEY P. CRAMM

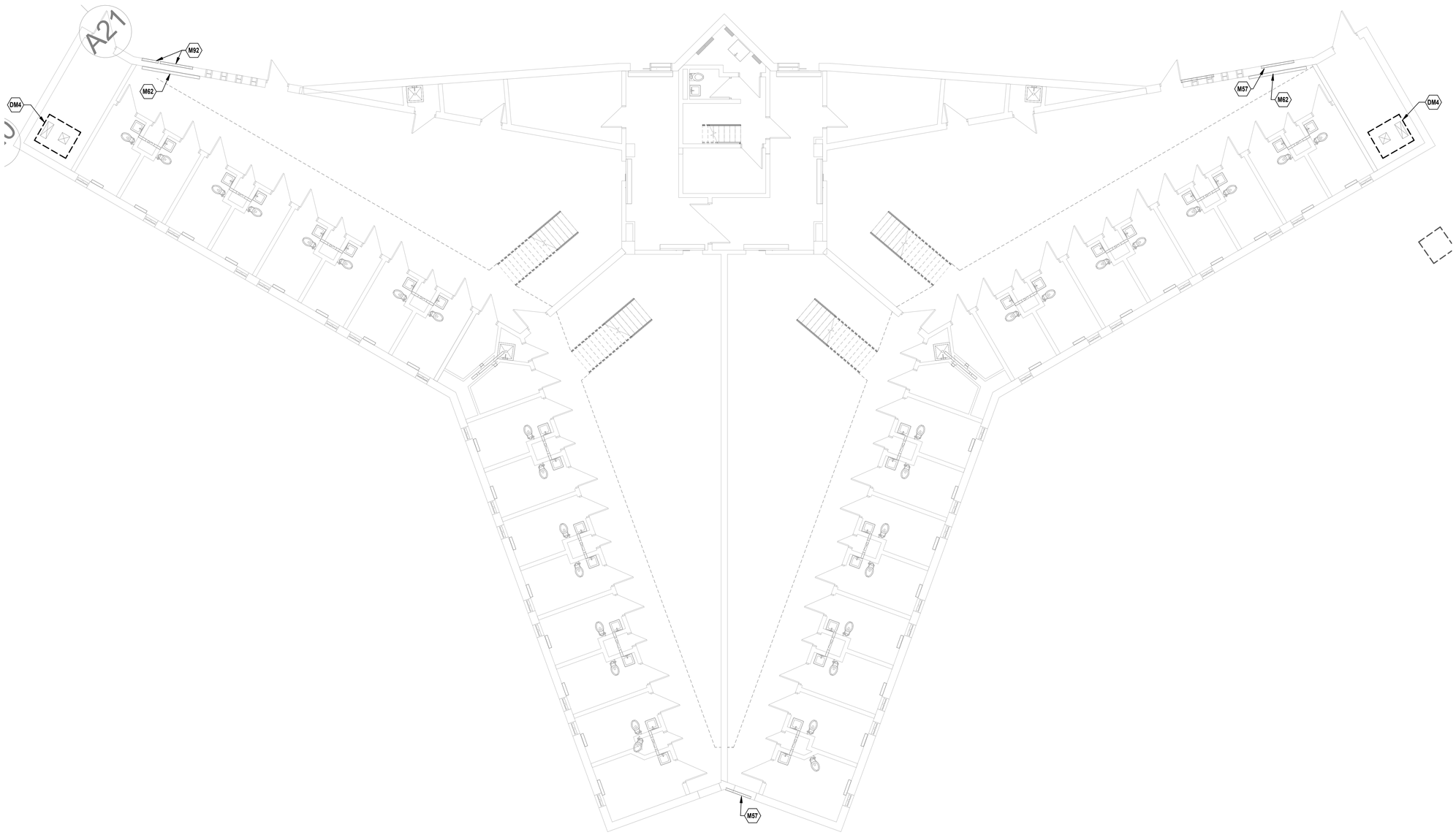
BUILDINGS D,E,F,G,K ARE SIMILAR. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED ON BUILDINGS E,F,G,K WITH DISCREPANCIES NOTED.

MECHANICAL PLAN NOTES:

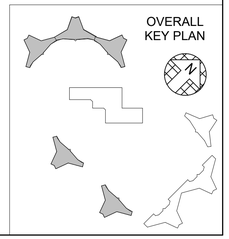
M57 EXISTING LOUVER TO REMAIN.
M62 EXISTING TO REMAIN BASEBOARD HEATERS.
M92 EXISTING LOUVER TO REMAIN FOR BUILDINGS D, E, F & G. BUILDING K DOES NOT HAVE A LOUVER HERE.

MECHANICAL DEMOLITION PLAN NOTES:

DM4 ALTERNATE #4 - REMOVE EXISTING HEATING AND VENTILATION UNIT. REMOVE DUCTWORK AND HEATING HOT WATER PIPING AS FAR BACK AS REQUIRED TO ACCOMMODATE CONNECTION TO REPLACEMENT UNIT.



1 HVAC - LEVEL 1 DEMO PLAN - BUILDING D
1/8" = 1'-0"



STATE OF MISSOURI
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CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
HVAC - LEVEL 1 DEMO PLAN - BUILDING D

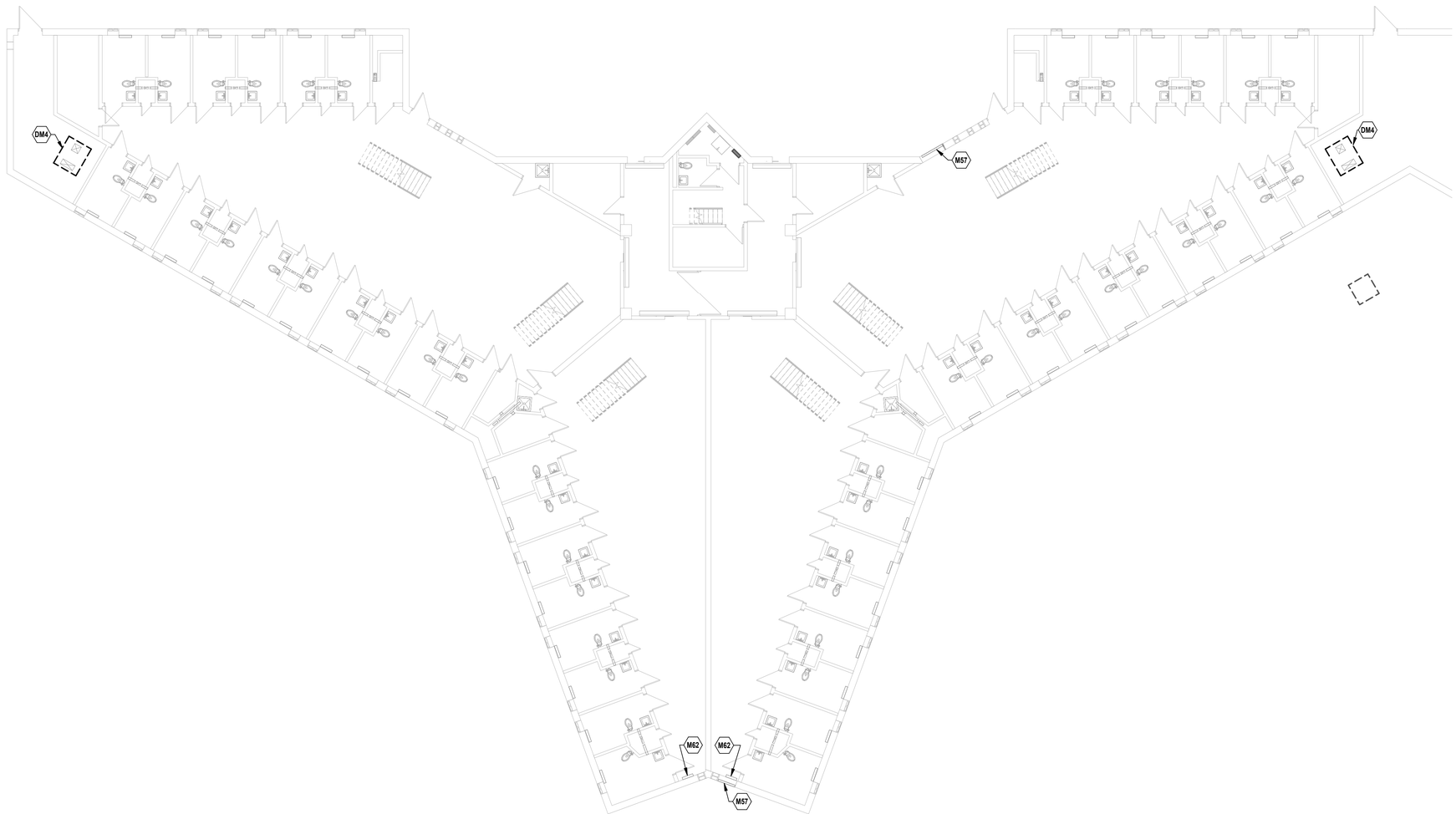
SHEET NUMBER:
MD101.D

KELLEY P. CRAMM

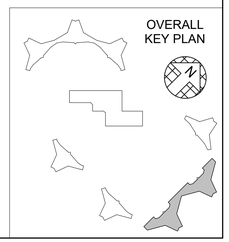
BUILDINGS L,M ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED IN BUILDING M.

MECHANICAL DEMOLITION PLAN NOTES:

DM4 ALTERNATE #4 - REMOVE EXISTING HEATING AND VENTILATION UNIT. REMOVE DUCTWORK AND HEATING HOT WATER PIPING AS FAR BACK AS REQUIRED TO ACCOMMODATE CONNECTION TO REPLACEMENT UNIT.



1 HVAC - LEVEL 1 DEMO PLAN - BUILDING L
3/32" = 1'-0"



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DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

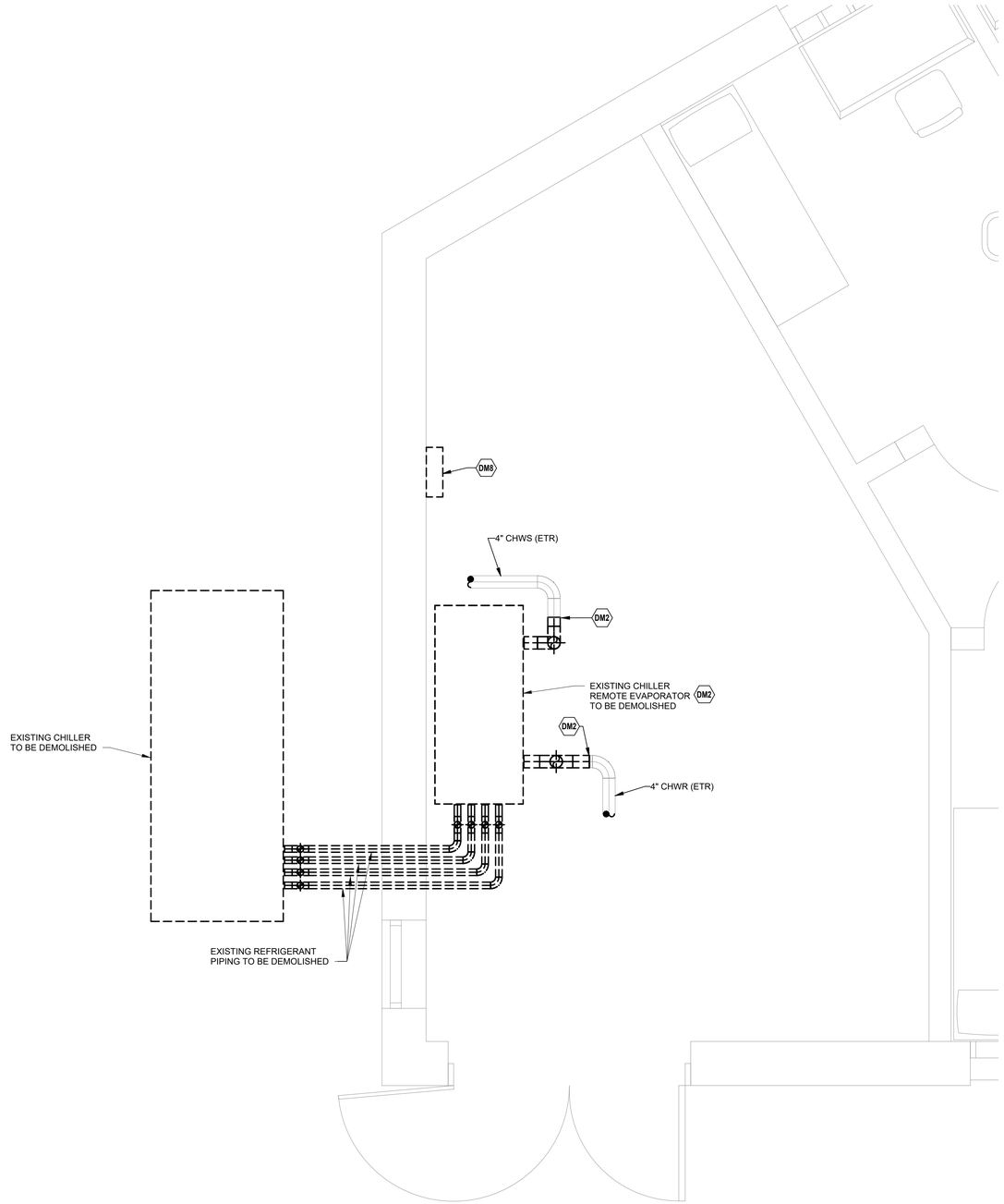
SHEET TITLE:

HVAC - LEVEL 1 DEMO PLAN - BUILDING L

SHEET NUMBER:

MD101.L

KELLEY P. CRAMM



1 HVAC - LEVEL 1 DEMO PLAN - BUILDING N CHILLER HOUSING UNIT 8
1/2" = 1'-0"

MECHANICAL DEMOLITION PLAN NOTES:

DM2 ALTERNATE #2 - CHILLER AND EVAPORATOR ONE-FOR-ONE REPLACEMENT. REMOVE EXISTING CHILLER, REMOTE EVAPORATOR, REFRIGERANT PIPING, AND REFRIGERANT MONITORING SYSTEM. DISCONNECT AND REMOVE CHILLED WATER PIPING FROM EVAPORATOR AS REQUIRED TO PREPARE FOR CONNECTIONS TO REPLACEMENT UNIT. RETAIN HOUSEKEEPING PADS SERVING CHILLER AND REMOTE EVAPORATOR FOR REUSE WITH REPLACEMENT UNITS.

DM8 ALTERNATE #2 - CHILLER AND EVAPORATOR ONE-FOR-ONE REPLACEMENT. REMOVE EXISTING REFRIGERANT MONITORING SYSTEM.

8/27/2026

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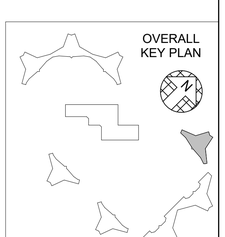
CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:

HVAC - LEVEL 1 DEMO PLAN - BUILDING N HOUSING UNIT 8



SHEET NUMBER:

MD101.N

KELLEY P. CRAMM

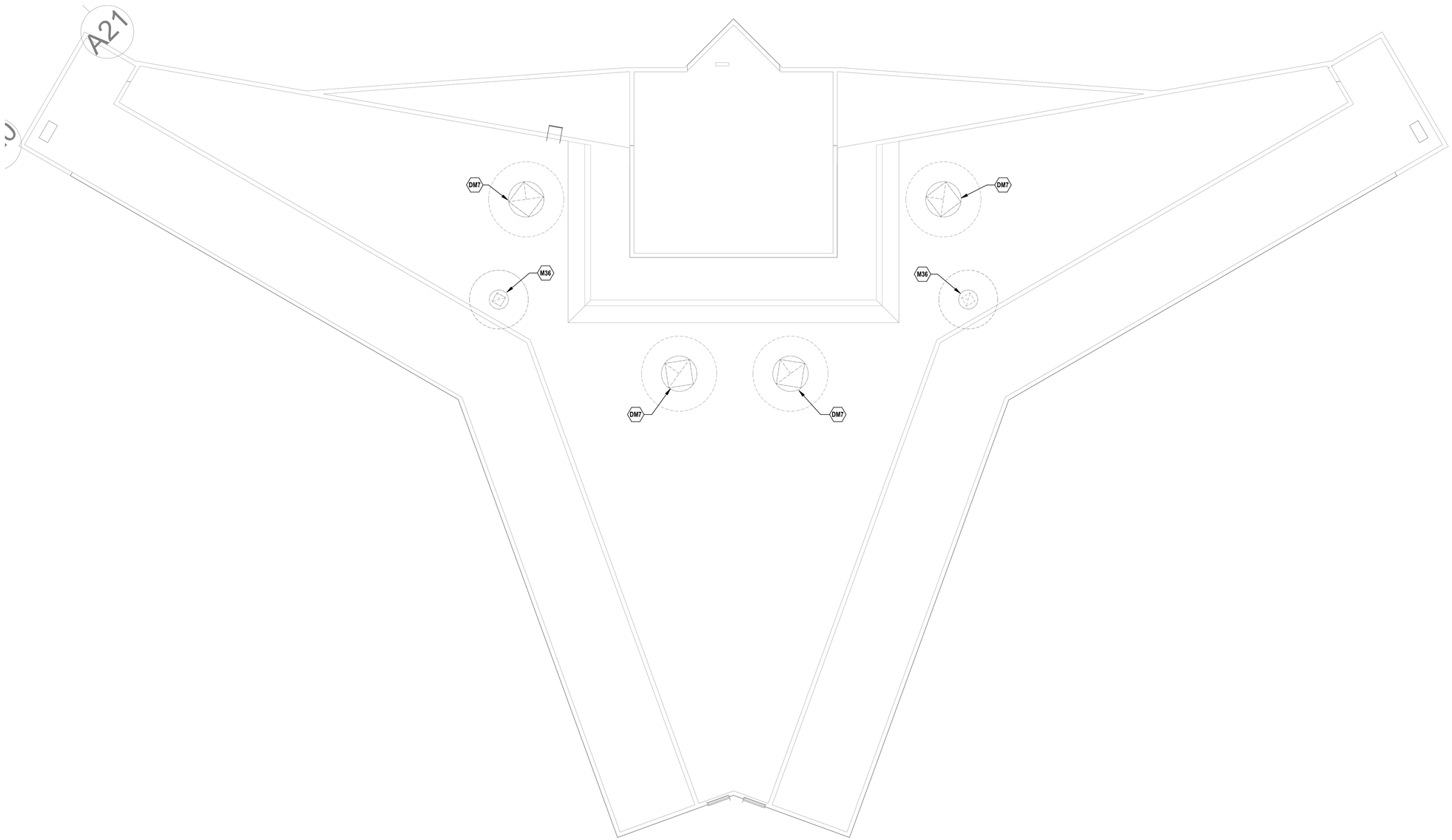
BUILDINGS D,E,F,G,K ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED ON BUILDINGS E,F,G,K

MECHANICAL PLAN NOTES:

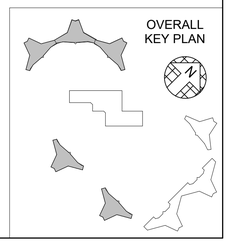
M36 EXISTING EXHAUST FAN TO REMAIN.

MECHANICAL DEMOLITION PLAN NOTES:

DM7 EXISTING VENTILATION FAN TO BE ABANDONED IN PLACE AND LOCKED OUT OF SERVICE ALONG WITH ASSOCIATED MOTORIZED DAMPERS AT THE FAN AND INTAKE LOUVER(S). DAMPERS SHALL BE LOCKED OUT IN THE CLOSED POSITION.



1 MECHANICAL ROOF DEMO PLAN - BUILDING D
1/8" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
KELLEY P. CRAMM
NUMBER
E-22323
LICENSED PROFESSIONAL ENGINEER

8/27/2026

KELLEY P. CRAMM
LICENSE # E-022323

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
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WWW.HENDERSONENGINEERS.COM

2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:

HVAC - ROOF DEMO PLAN - BUILDING D

SHEET NUMBER:

MD103.D

KELLEY P. CRAMM

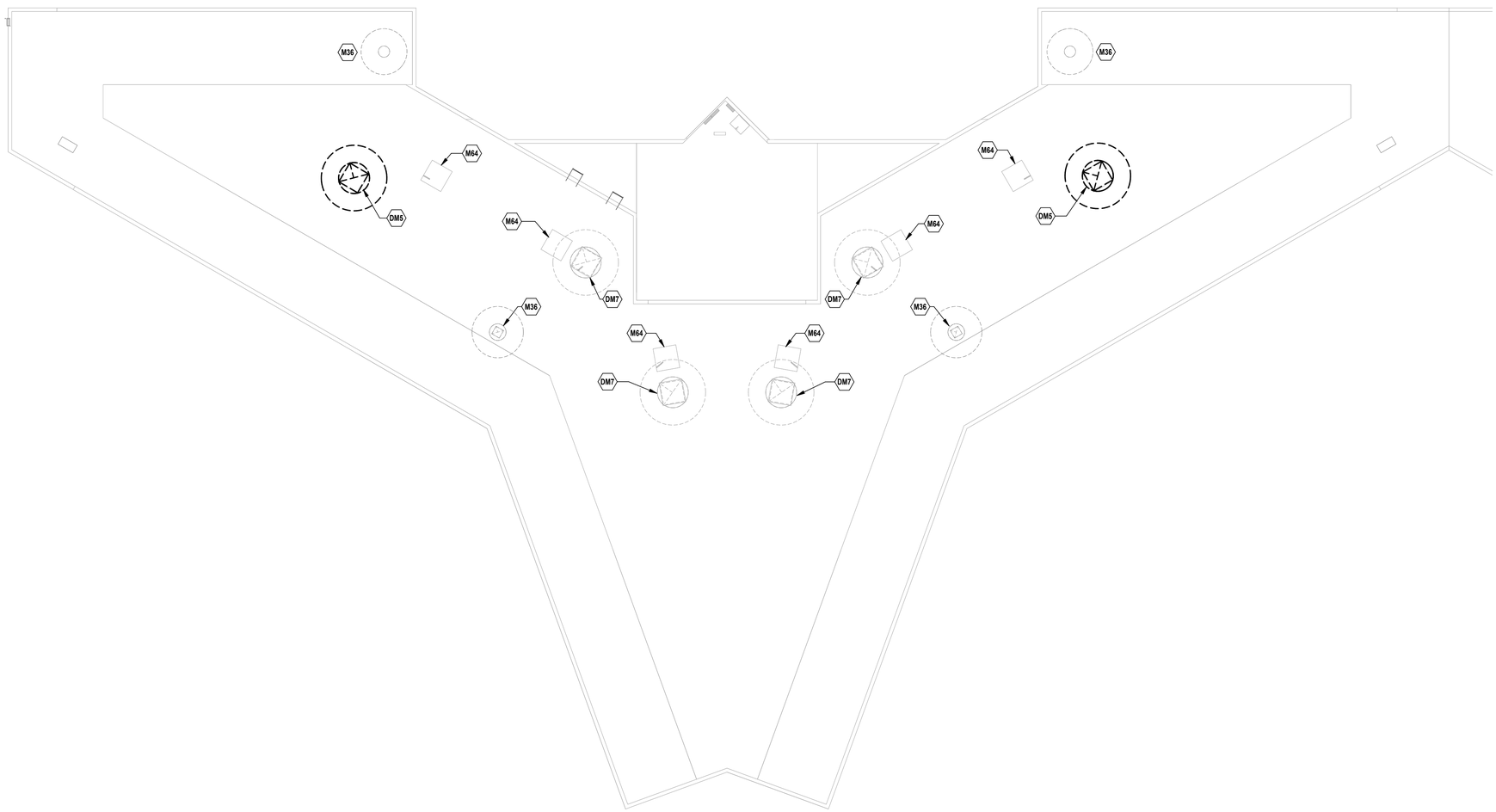
BUILDINGS L,M ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED IN BUILDING M.

MECHANICAL PLAN NOTES:

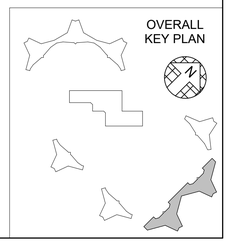
M36 EXISTING EXHAUST FAN TO REMAIN.
M64 EXISTING SKYLIGHT TO REMAIN.

MECHANICAL DEMOLITION PLAN NOTES:

DM5 REMOVE EXISTING VENTILATION FAN AND ASSOCIATED DUCTWORK. EXISTING ROOF OPENING TO BE REUSED IN NEW WORK.
DM7 EXISTING VENTILATION FAN TO BE ABANDONED IN PLACE AND LOCKED OUT OF SERVICE ALONG WITH ASSOCIATED MOTORIZED DAMPERS AT THE FAN AND INTAKE LOUVER(S). DAMPERS SHALL BE LOCKED OUT IN THE CLOSED POSITION.



1 MECHANICAL ROOF DEMO PLAN - BUILDING L
3/32" = 1'-0"



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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

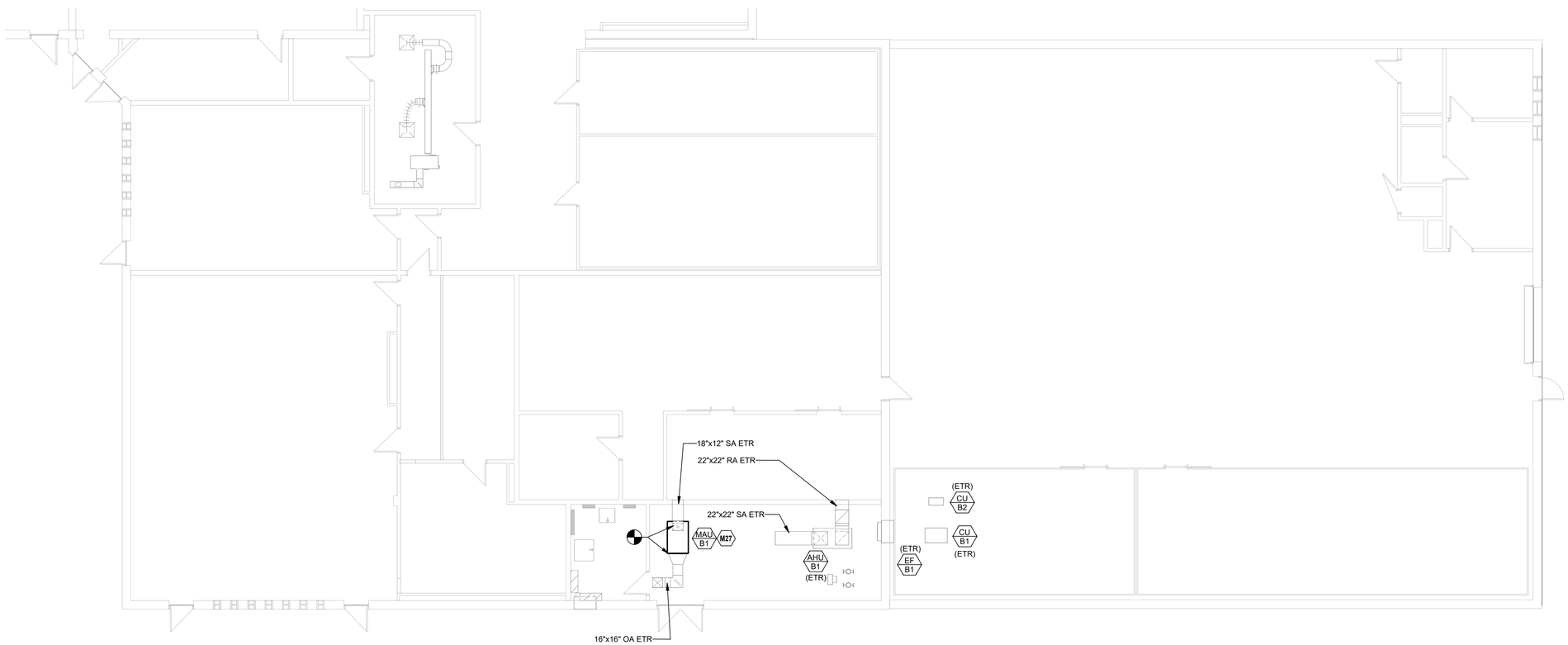
SHEET TITLE:
HVAC - ROOF DEMO PLAN - BUILDING L

SHEET NUMBER:
MD103.L

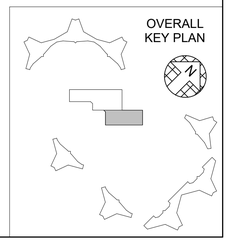
KELLEY P. CRAMM

MECHANICAL PLAN NOTES:

M27 ALTERNATE #3 - HVAC EQUIPMENT ONE FOR ONE REPLACEMENT. INSTALL NEW MAKEUP AIR UNIT AND CONNECT TO EXISTING DUCTWORK AND HEATING HOT WATER PIPING AS REQUIRED. EXTEND HOUSEKEEPING PAD AS REQUIRED.



1 HVAC - LEVEL 1 PLAN - BUILDING B - AREA C
1/8" = 1'-0"



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CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
HVAC - LEVEL 1 PLAN - BUILDING B - AREA C

SHEET NUMBER:
M101.Bc

KELLEY P. CRAMM

BUILDINGS D,E,F,G,K ARE SIMILAR. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED ON BUILDINGS E,F,G,K WITH DISCREPANCIES NOTED.

MECHANICAL PLAN NOTES:

M16 FURNISH AND INSTALL BAS CONTROL PANEL FOR ALL MECHANICAL EQUIPMENT. BAS CONTROL PANEL SHALL BE ON EMERGENCY POWER.

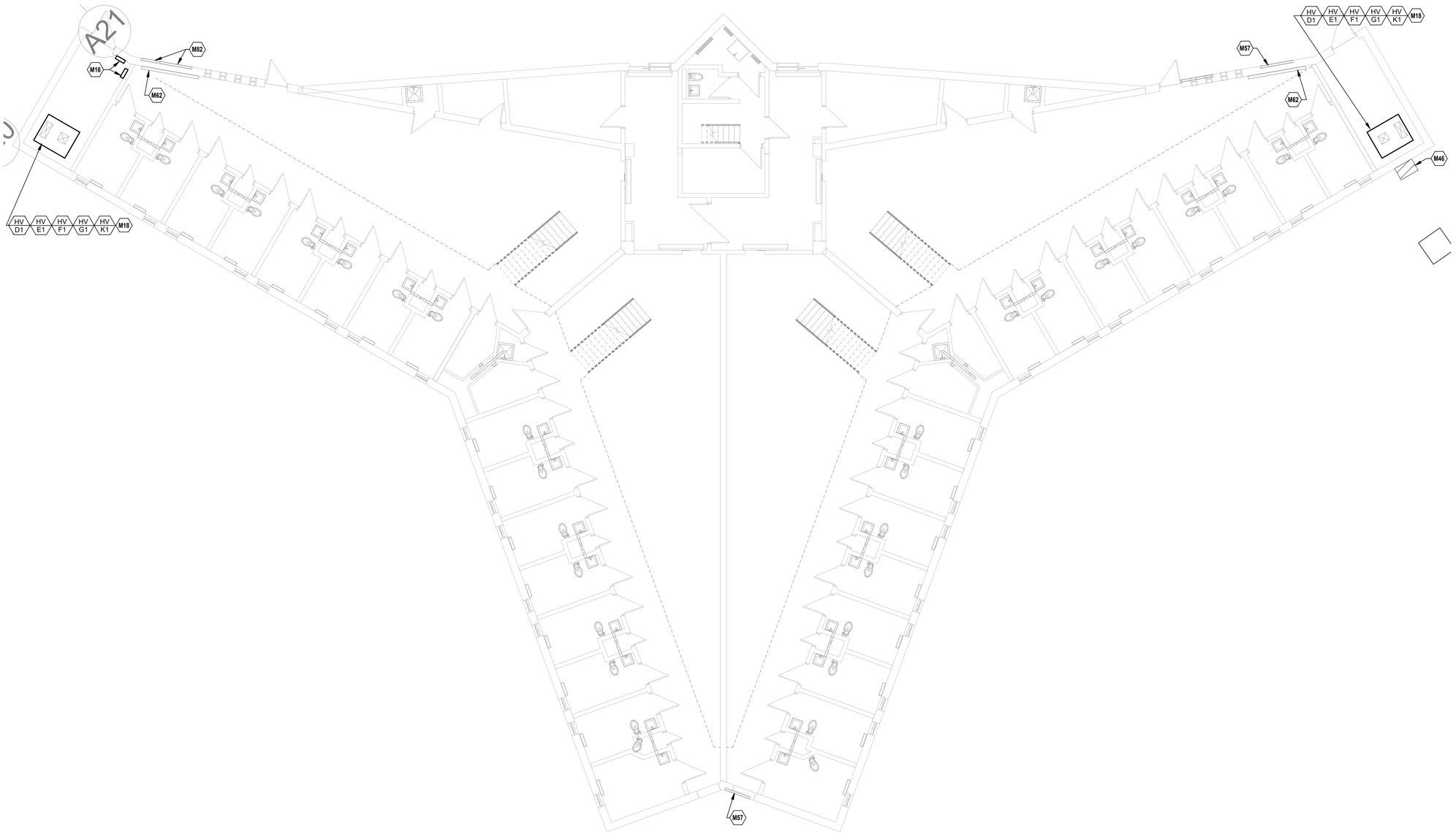
M18 ALTERNATE #4 - INSTALL NEW WORK HEATING AND VENTILATION UNIT AND CONNECT TO EXISTING DUCTWORK. EXTEND HOUSEKEEPING PAD AS REQUIRED.

M46 PROVIDE CONTROL WIRING TO COMMUNICATE WITH ELECTRIC METER FOR ELECTRICITY METERING (RE: ELECTRICAL AND M600 MECHANICAL CONTROLS).

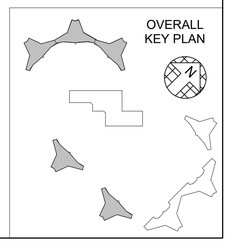
M57 EXISTING LOUVER TO REMAIN.

M62 EXISTING TO REMAIN BASEBOARD HEATERS.

M82 EXISTING LOUVER TO REMAIN IN BUILDINGS D, E, F & G.



1 HVAC - LEVEL 1 PLAN - BUILDING D
1/8" = 1'-0"



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CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
HVAC - LEVEL 1 PLAN - BUILDING D

SHEET NUMBER:
M101.D

KELLEY P. CRAMM

BUILDINGS L,M ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED IN BUILDING M.

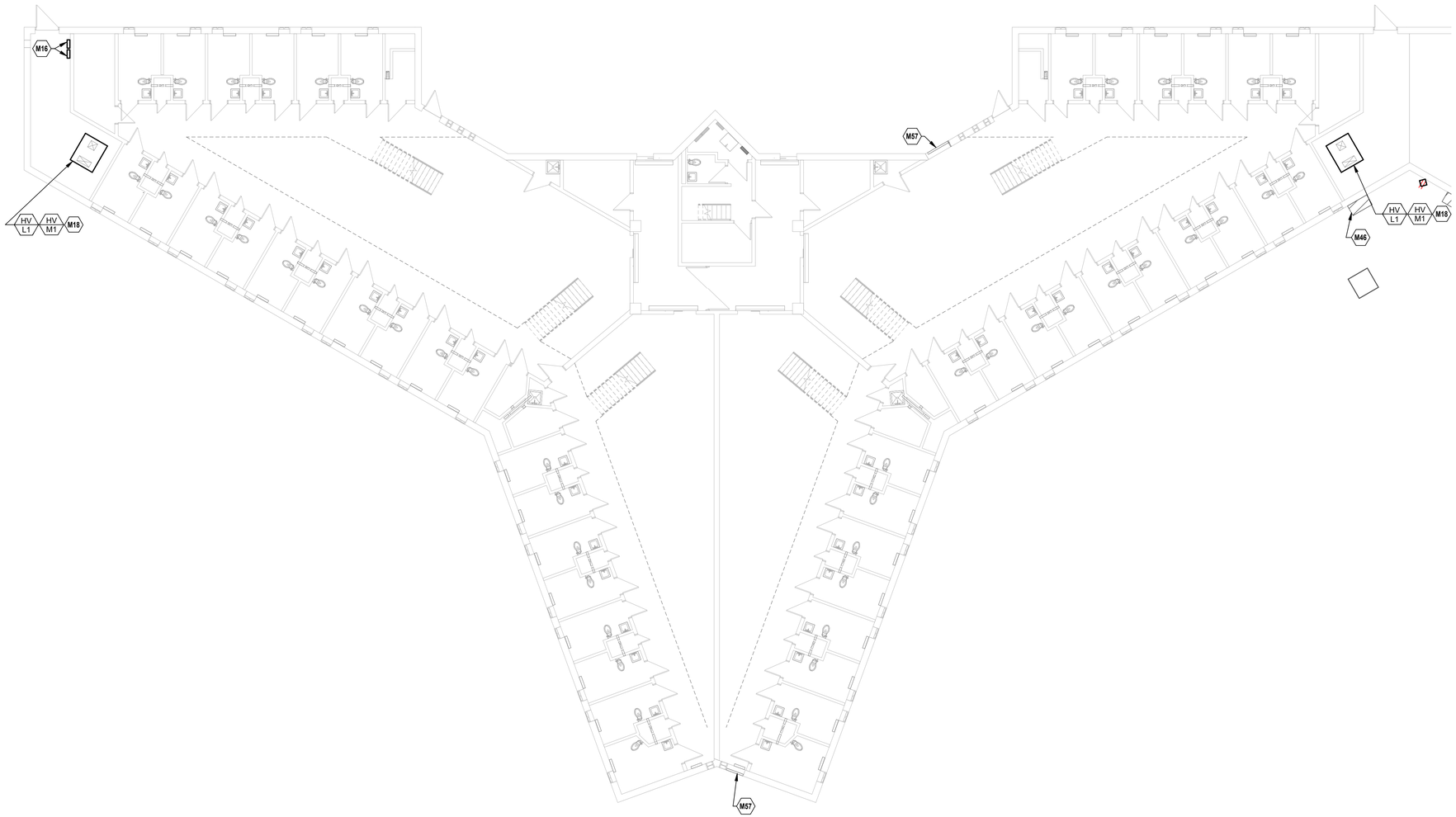
MECHANICAL PLAN NOTES:

M16 FURNISH AND INSTALL BAS CONTROL PANEL FOR ALL MECHANICAL EQUIPMENT. BAS CONTROL PANEL SHALL BE ON EMERGENCY POWER.

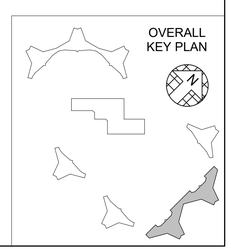
M18 ALTERNATE #4 - INSTALL NEW WORK HEATING AND VENTILATION UNIT AND CONNECT TO EXISTING DUCTWORK. EXTEND HOUSEKEEPING PAD AS REQUIRED.

M46 PROVIDE CONTROL WIRING TO COMMUNICATE WITH ELECTRIC METER FOR ELECTRICITY METERING (RE: ELECTRICAL AND M600 MECHANICAL CONTROLS).

M57 EXISTING LOUVER TO REMAIN.



1 HVAC - LEVEL 1 PLAN - BUILDING L
3/32" = 1'-0"



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DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
HVAC - LEVEL 1 PLAN - BUILDING L

SHEET NUMBER:
M101.L

KELLEY P. CRAMM

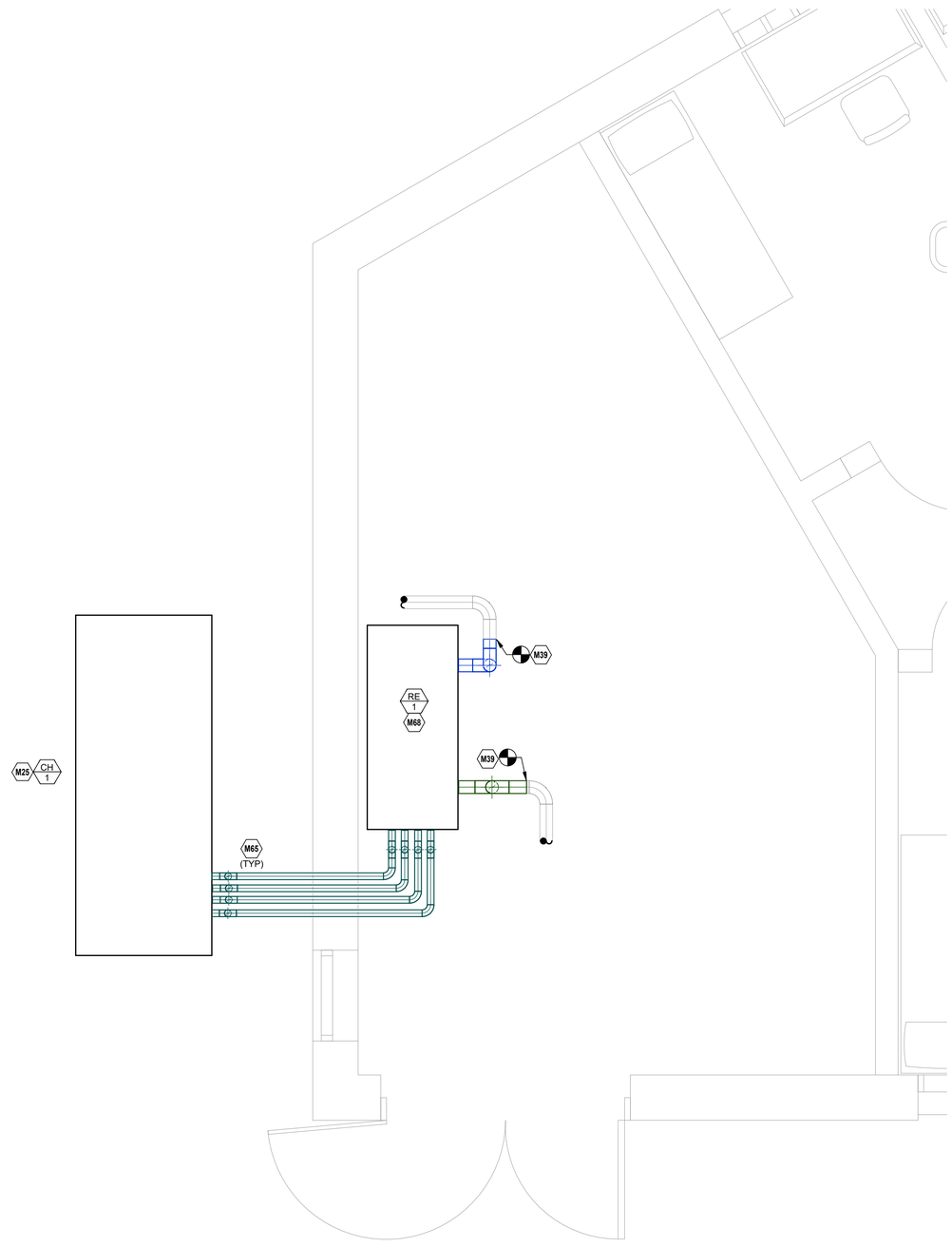
MECHANICAL PLAN NOTES:

M25 ALTERNATE #2 - CHILLER AND REMOTE EVAPORATOR ONE-FOR-ONE REPLACEMENT. INSTALL NEW CHILLER UNIT WITH REFRIGERANT PIPING TO REMOTE EVAPORATOR. REFER TO MANUFACTURER'S REQUIREMENTS FOR SIZING AND INSTALLATION INSTRUCTIONS. EXTEND HOUSEKEEPING PADS AS REQUIRED.

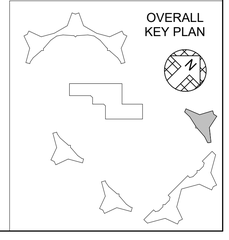
M39 ALTERNATE #2 - CHILLER AND REMOTE EVAPORATOR ONE-FOR-ONE REPLACEMENT. INSTALL NEW PIPING CONNECTIONS FROM THE UNIT AND CONNECT TO EXISTING CHILLED WATER PIPING.

M65 ALTERNATE #2 - CHILLER AND REMOTE EVAPORATOR ONE-FOR-ONE REPLACEMENT. SIZE REFRIGERANT PIPING ACCORDING TO MANUFACTURER'S REQUIREMENTS.

M68 ALTERNATE #2 - CHILLER AND REMOTE EVAPORATOR ONE-FOR-ONE REPLACEMENT. REMOTE EVAPORATOR TO BE INSTALLED BELOW THE CONDENSER. REFER TO MANUFACTURER'S INSTALLATION REQUIREMENTS. EXTEND HOUSEKEEPING PAD AS REQUIRED.



1 HVAC - LEVEL 1 PLAN - BUILDING N CHILLER HOUSING UNIT 8
1/2" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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E-22323
REGISTERED PROFESSIONAL ENGINEER

8/27/2026

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LICENSE # E-022323

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REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

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FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
HVAC - LEVEL 1 PLAN - BUILDING N HOUSING UNIT 8

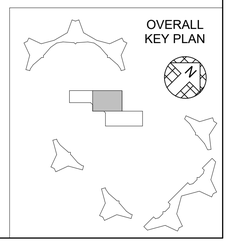
SHEET NUMBER:
M101.N

KELLEY P. CRAMM

MECHANICAL PLAN NOTES:

M43 PROVIDE TEMPERATURE SENSOR AND HUMIDITY SENSOR INSIDE RETURN AIR DUCT ACCESSIBLE FROM RETURN GRILLE.

1 HVAC - LEVEL 2 PLAN - BUILDING B - AREA B
1/8" = 1'-0"



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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
HVAC - LEVEL 2 PLAN - BUILDING B - AREA B

SHEET NUMBER:
M102.Bb

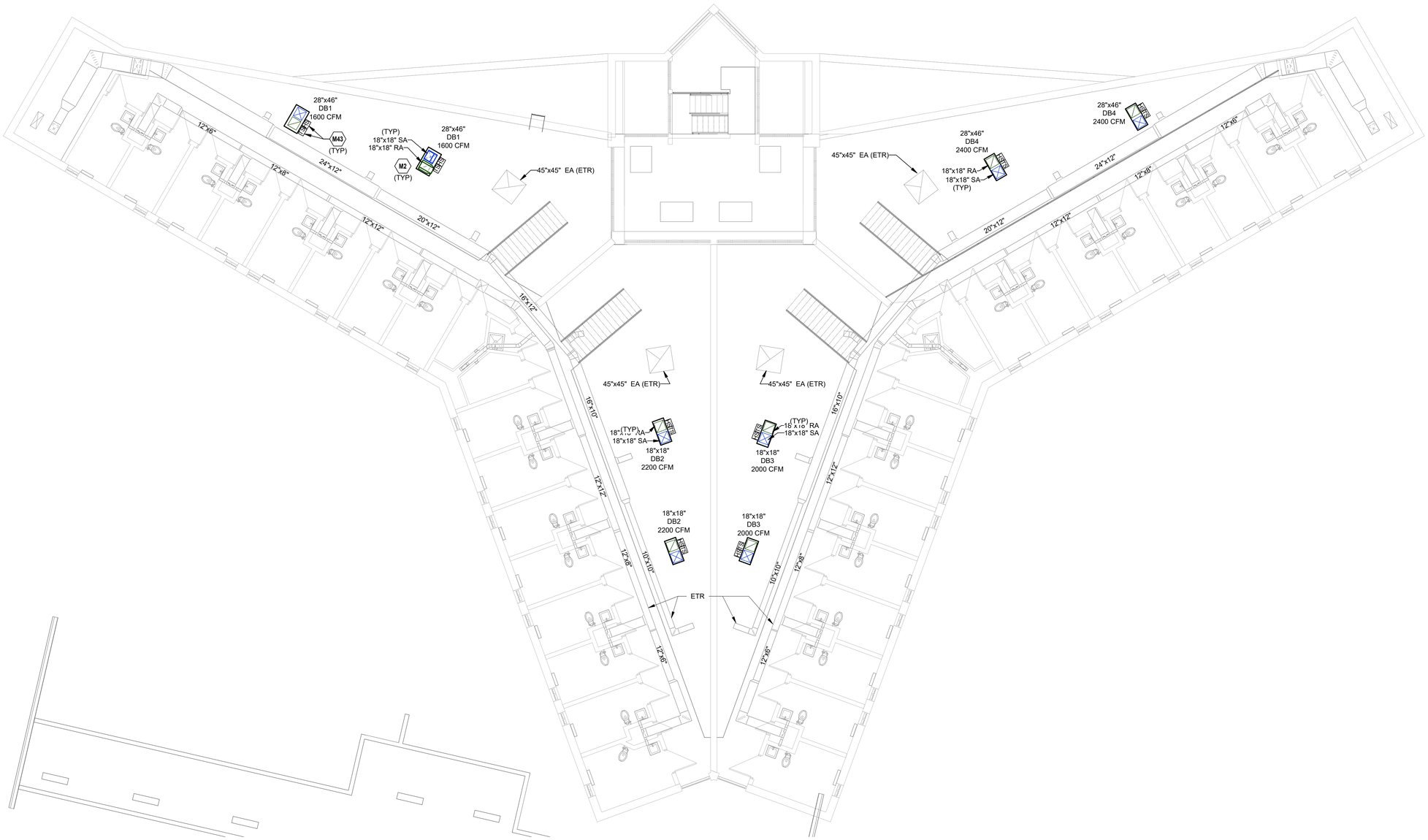
KELLEY P. CRAMM

BUILDINGS D,E,F,G,K ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED ON BUILDINGS E,F,G,K

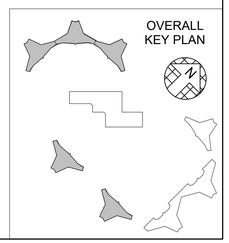
MECHANICAL PLAN NOTES:

M2 ROUTE DUCT UP TO UNIT ON ROOF. PROVIDE TRANSITION AS REQUIRED TO MATCH UNIT CONNECTION SIZE.

M43 PROVIDE TEMPERATURE SENSOR AND HUMIDITY SENSOR INSIDE RETURN AIR DUCT ACCESSIBLE FROM RETURN GRILLE.



1 HVAC - LEVEL 2 PLAN - BUILDING D
1/8" = 1'-0"



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CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
HVAC - LEVEL 2 PLAN - BUILDING D

SHEET NUMBER:
M102.D

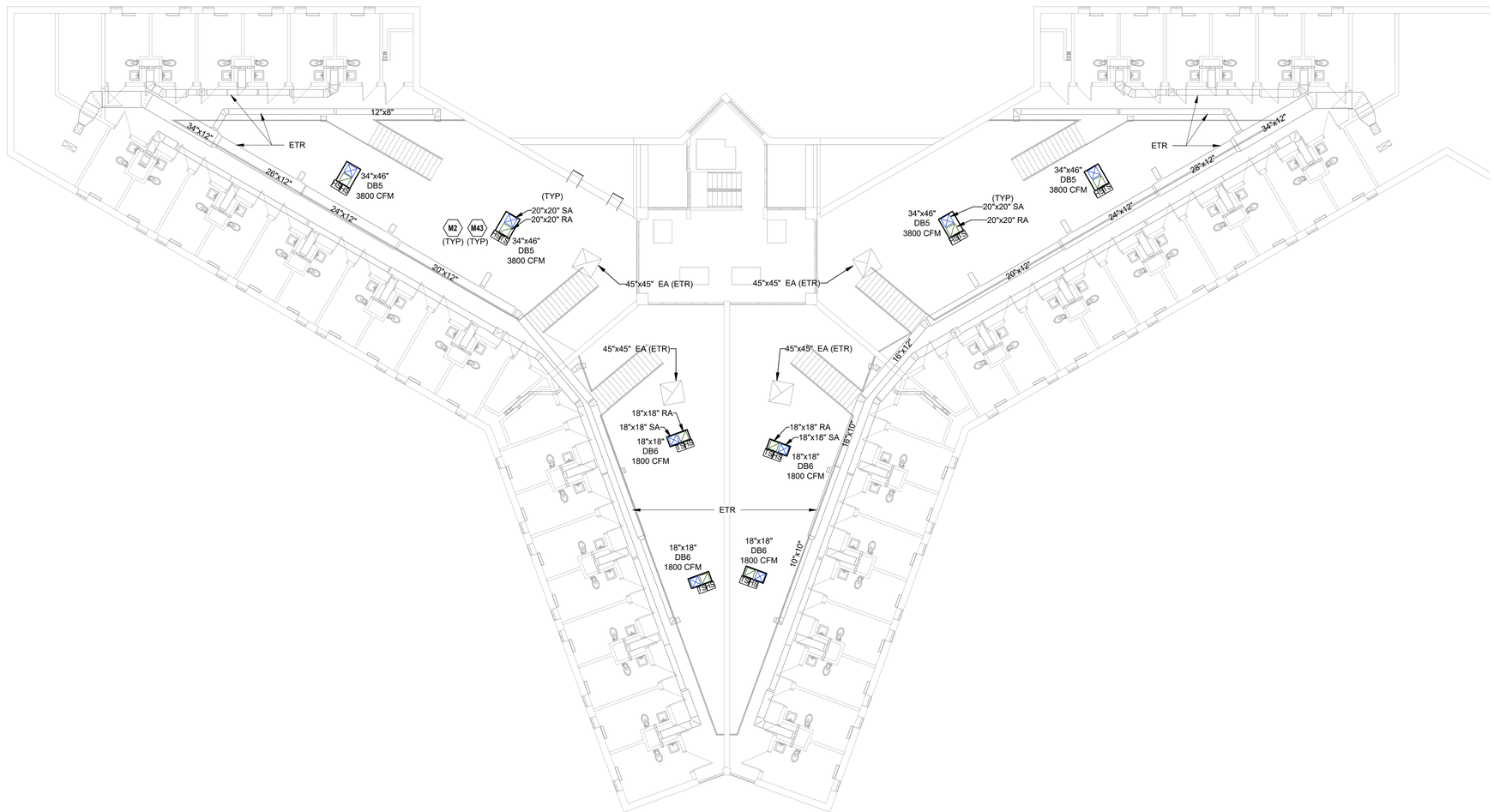
KELLEY P. CRAMM

BUILDINGS L,M ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED IN BUILDING M.

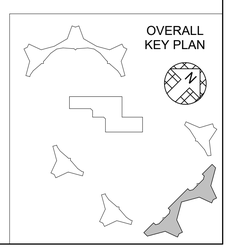
MECHANICAL PLAN NOTES:

M2 ROUTE DUCT UP TO UNIT ON ROOF. PROVIDE TRANSITION AS REQUIRED TO MATCH UNIT CONNECTION SIZE.

M43 PROVIDE TEMPERATURE SENSOR AND HUMIDITY SENSOR INSIDE RETURN AIR DUCT ACCESSIBLE FROM RETURN GRILLE.



1 HVAC - LEVEL 2 PLAN - BUILDING L
3/32" = 1'-0"



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CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

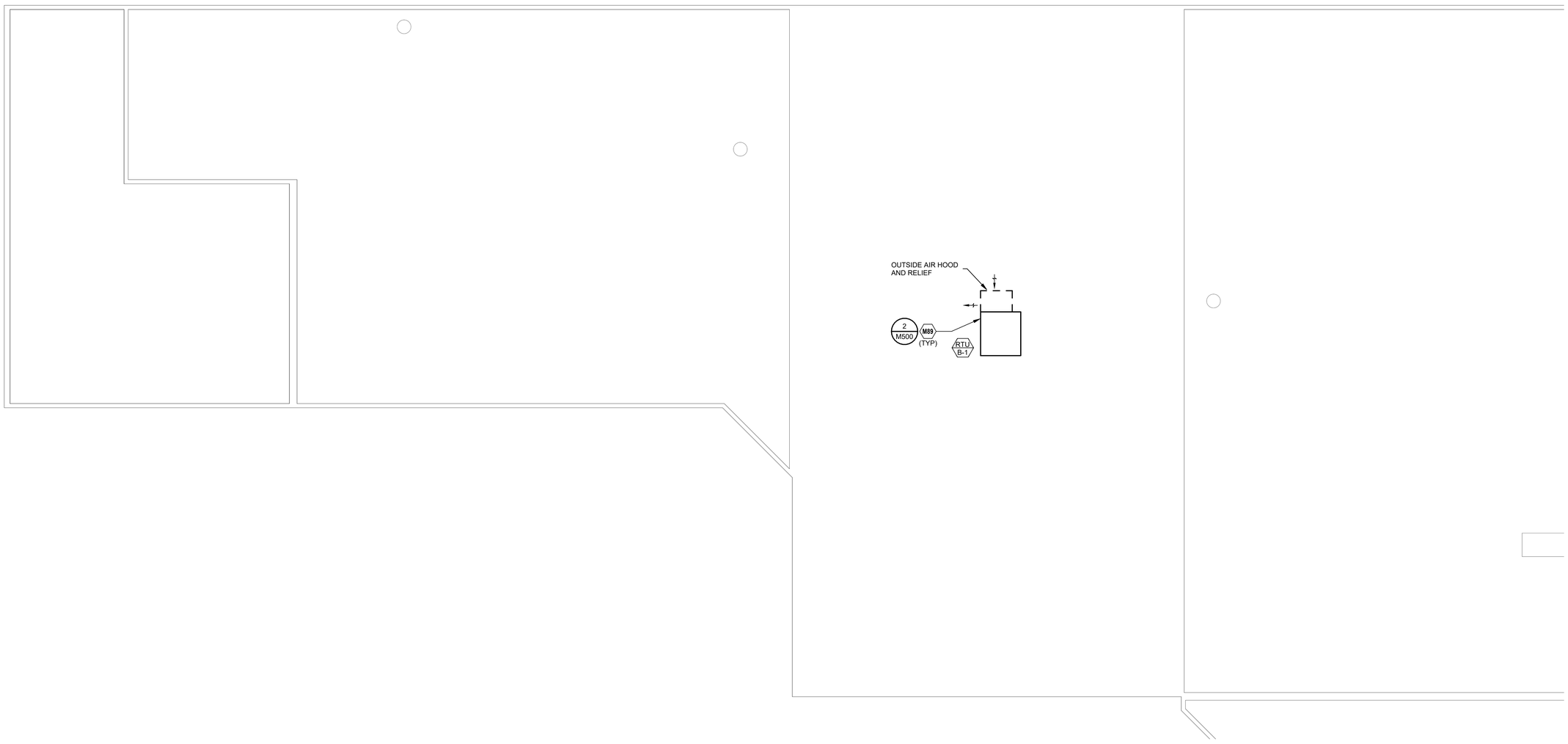
SHEET TITLE:
HVAC - LEVEL 2 PLAN - BUILDING L

SHEET NUMBER:
M102.L

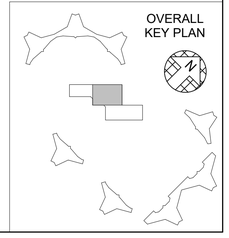
KELLEY P. CRAMM

MECHANICAL PLAN NOTES:

M89 PROVIDE SECURITY BARS PER DETAIL 2 ON SHEET M500 IN ALL DUCT PENETRATIONS THROUGH ROOF TO ALL RTUS. SEE DETAILS FOR ADDITIONAL INFORMATION.



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



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KELLEY P. CRAMM
LICENSE # E-022323

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 **FAX** 913.742.5001
WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
MECHANICAL ROOF PLAN - BUILDING B - AREA B

SHEET NUMBER:
M103.Bb

KELLEY P. CRAMM

BUILDINGS D,E,F,G,K ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED ON BUILDINGS E,F,G,K

MECHANICAL PLAN NOTES:

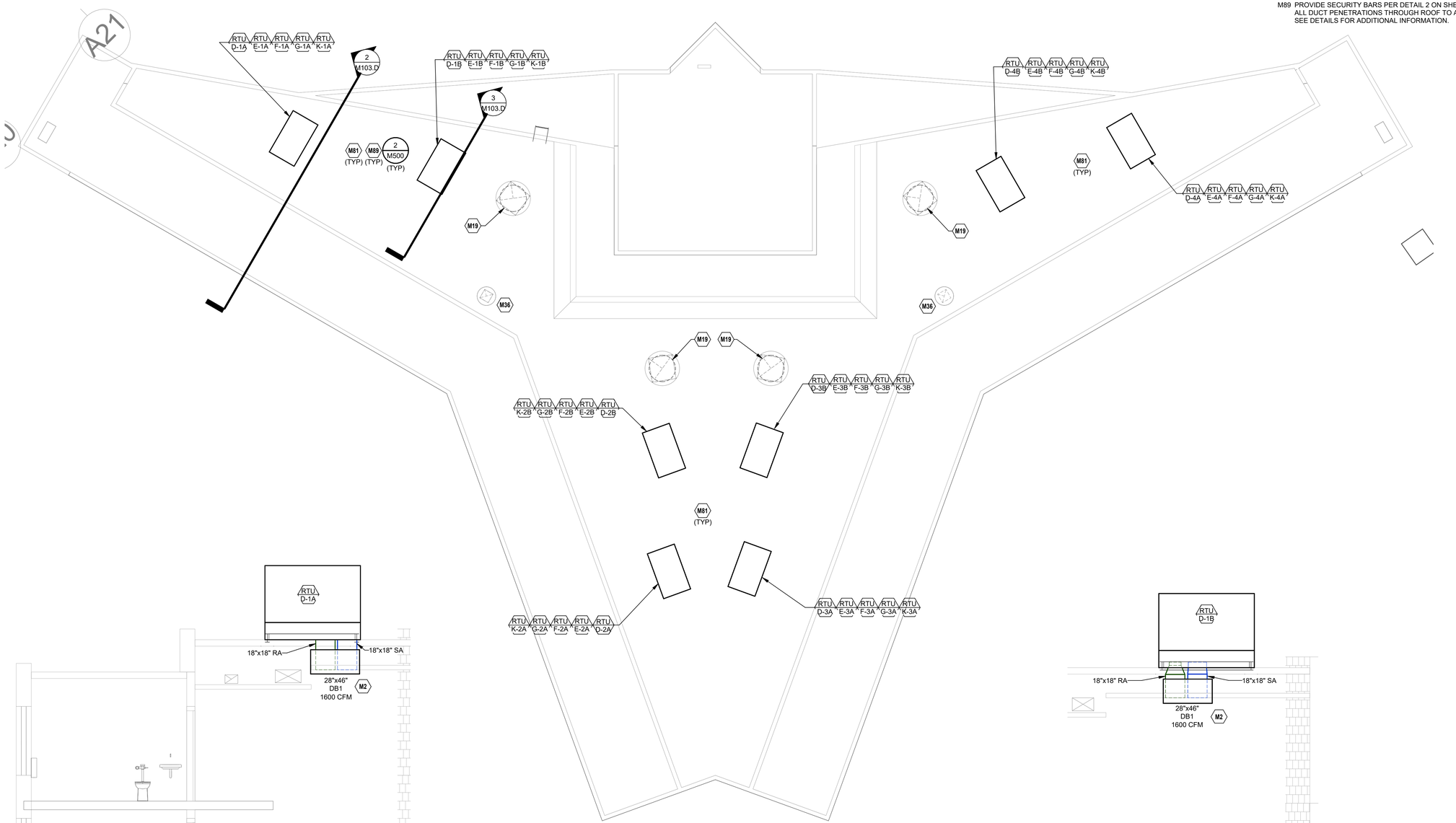
M2 ROUTE DUCT UP TO UNIT ON ROOF. PROVIDE TRANSITION AS REQUIRED TO MATCH UNIT CONNECTION SIZE.

M19 EXISTING VENTILATION FAN TO BE ABANDONED IN PLACE AND LOCKED OUT OF SERVICE ALONG WITH ASSOCIATED MOTORIZED DAMPERS AT THE FAN AND INTAKE LOUVER(S). DAMPERS SHALL BE LOCKED OUT IN THE CLOSED POSITION.

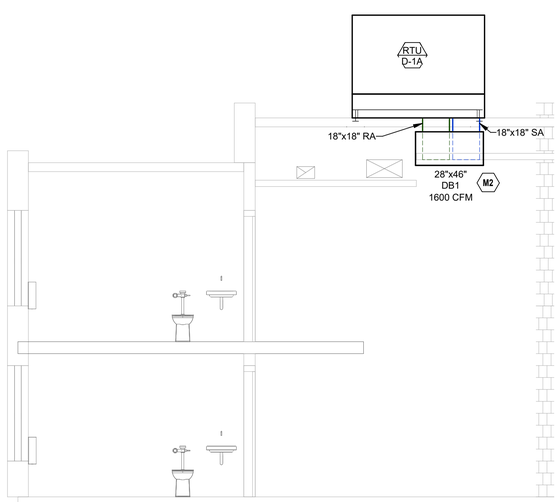
M36 EXISTING EXHAUST FAN TO REMAIN.

M81 COORDINATE LOCATION OF ROOFTOP UNITS WITH FIELD VERIFIED LOCATION OF JOIST PEAKS TO LOCATE EDGE OF RTU CURB ON TOP OF JOIST PEAKS. COORDINATE ROOFTOP UNIT AND DUCT DROP POSITIONS WITH STRUCTURAL AND ARCHITECTURAL DISCIPLINES. COORDINATE WITH EXISTING CONDITIONS WITHIN FORMER SOFFIT TO AVOID PLACING RTU IN A POSITION THAT CAUSES DUCT CONFLICTS.

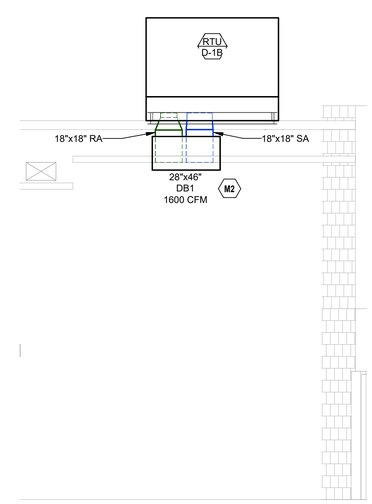
M89 PROVIDE SECURITY BARS PER DETAIL 2 ON SHEET M500 IN ALL DUCT PENETRATIONS THROUGH ROOF TO ALL RTUS. SEE DETAILS FOR ADDITIONAL INFORMATION.



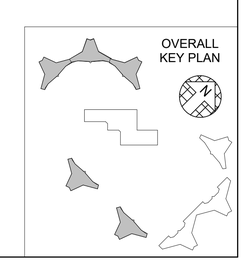
1 MECHANICAL ROOF PLAN - BUILDING D
1/8" = 1'-0"



2 BUILDING D CELLS RTU SECTION
1/4" = 1'-0"



3 BUILDING D DAYROOM RTU SECTION
1/4" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
MECHANICAL ROOF PLAN - BUILDING D

SHEET NUMBER:
M103.D

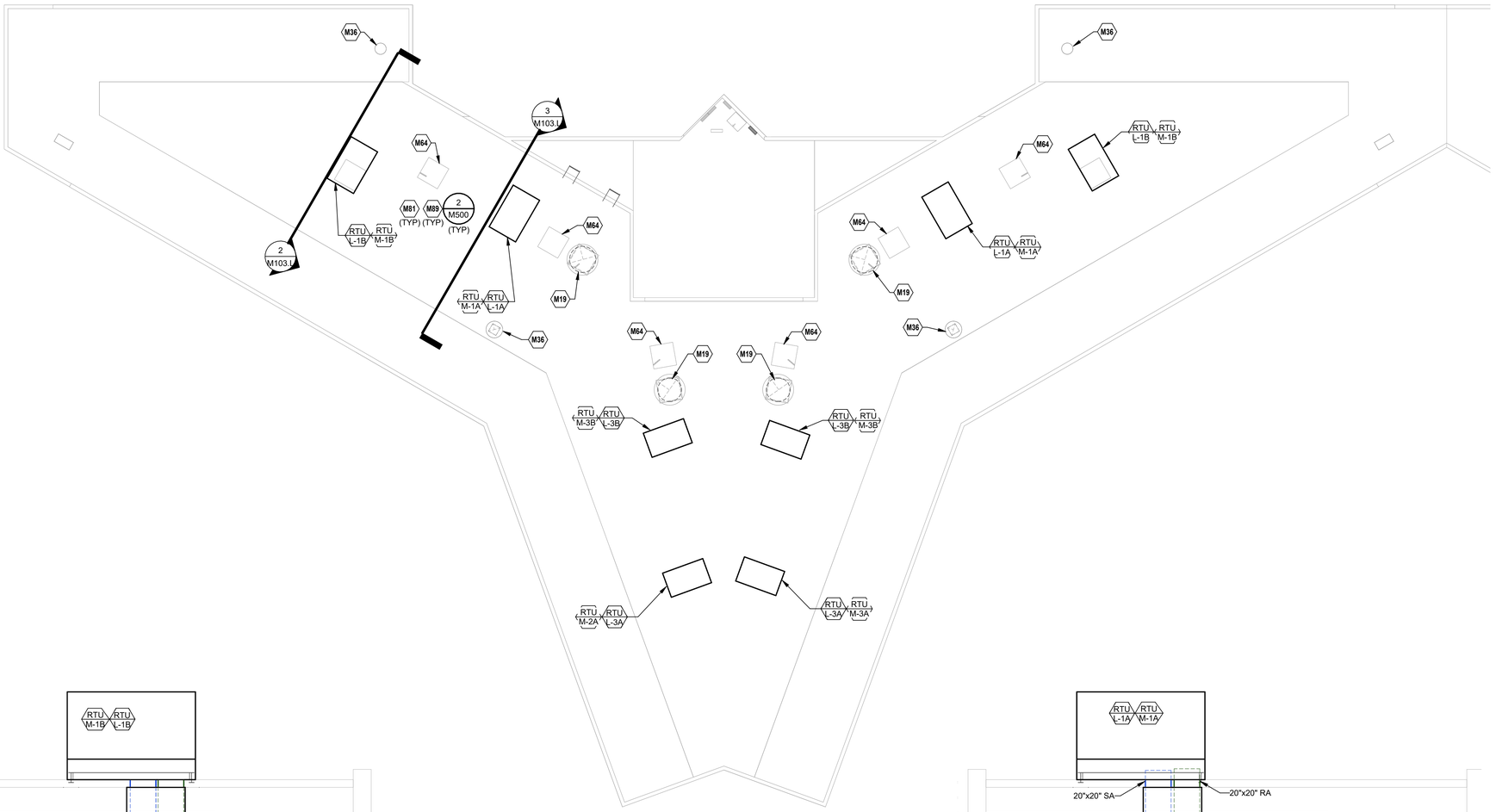
35 OF 118 SHEETS
08/28/2026

KELLEY P. CRAMM

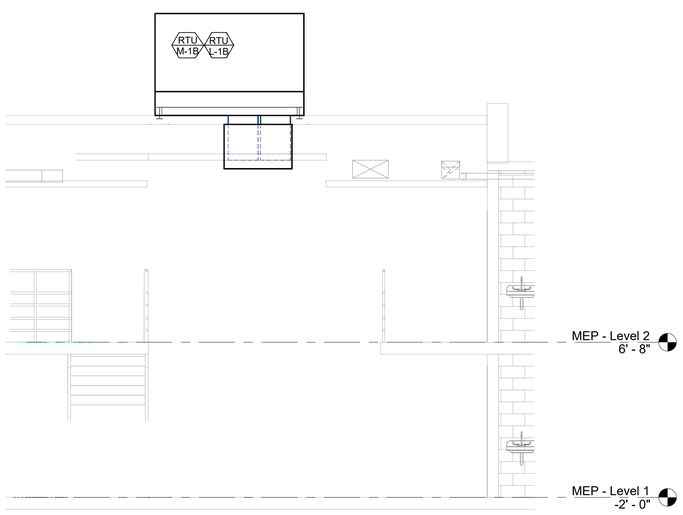
BUILDINGS L,M ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED IN BUILDING M.

MECHANICAL PLAN NOTES:

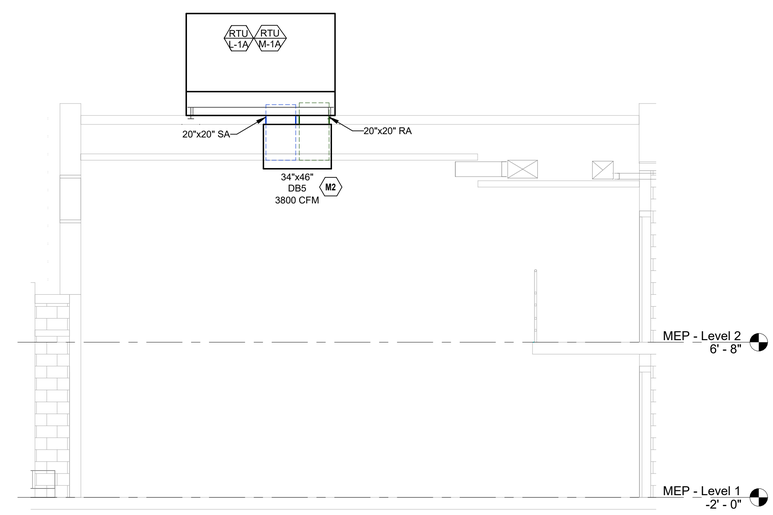
- M2 ROUTE DUCT UP TO UNIT ON ROOF. PROVIDE TRANSITION AS REQUIRED TO MATCH UNIT CONNECTION SIZE.
- M19 EXISTING VENTILATION FAN TO BE ABANDONED IN PLACE AND LOCKED OUT OF SERVICE ALONG WITH ASSOCIATED MOTORIZED DAMPERS AT THE FAN AND INTAKE LOUVER(S). DAMPERS SHALL BE LOCKED OUT IN THE CLOSED POSITION.
- M36 EXISTING EXHAUST FAN TO REMAIN.
- M64 EXISTING SKYLIGHT TO REMAIN.
- M81 COORDINATE LOCATION OF ROOFTOP UNITS WITH FIELD VERIFIED LOCATION OF JOIST PEAKS TO LOCATE EDGE OF RTU CURB ON TOP OF JOIST PEAKS. COORDINATE ROOFTOP UNIT AND DUCT DROP POSITIONS WITH STRUCTURAL AND ARCHITECTURAL DISCIPLINES. COORDINATE WITH EXISTING CONDITIONS WITHIN FORMER SOFFIT TO AVOID PLACING RTU IN A POSITION THAT CAUSES DUCT CONFLICTS.
- M89 PROVIDE SECURITY BARS PER DETAIL 2 ON SHEET M500 IN ALL DUCT PENETRATIONS THROUGH ROOF TO ALL RTUS. SEE DETAILS FOR ADDITIONAL INFORMATION.



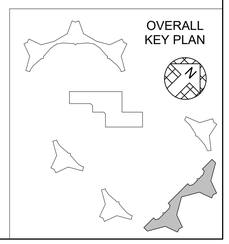
1 MECHANICAL ROOF PLAN - BUILDING L
3/32" = 1'-0"



2 BUILDING L CELLS RTU SECTION
1/4" = 1'-0"



3 BUILDING L DAYROOM RTU SECTION
1/4" = 1'-0"



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CAD DWG FILE:
DRAWN BY: N. Temporale
CHECKED BY: J. Helgerson
DESIGNED BY: M. Mizell, N. Temporale

SHEET TITLE:
MECHANICAL ROOF PLAN - BUILDING L

SHEET NUMBER:
M103.L

KELLEY P. CRAMM

ROOFTOP UNIT SCHEDULE (DX COOLING, NATURAL GAS HEAT)

					SUPPLY FAN						COOLING COIL										GAS FIRED HEAT EXCHANGER										ELECTRICAL					
														EAT		LAT		MIN EFF																		
MARK	MANUFACTURER	MODEL	NOMINAL TONS	UNIT TYPE	FAN TYPE	CFM	ESP (IN)	BHP	NOM HP	VFD (Y/N)	REFR TYPE	TH (MBH)	SH (MBH)	(°F DB)	(°F WB)	(°F DB)	(°F WB)	(EER)	(IEER)	MIN NO STAGES	MAX VEL (FPM)	MIN OUT (MBH)	NOM INPUT (MBH)	MIN EFF (%)	EAT (°F DB)	LAT (°F DB)	MIN NO STAGES	MAX VEL (FPM)	HOT GAS REHEAT (MBH)	MIN OA (CFM)	ABS MIN OA (CFM)	V/PH	MCA	MOCP	DISC TYPE	WEIGHT (LBS)	NOTES
RTU B-1	TRANE	VR-300-15J-J-G0	15.0	SZVAV	PLENUM	3100	0.5	0.91	1.50	No	R32	176.6	111.7	89.4	72.5	53.8	53.7	10.8	20	MODULATING	550	243.0	300.0	80	19.0	95.0	STAGED	500	117.7	2260	1360	480/3	39	60	NF	2100	A-T
RTU D-1A	TRANE	YSK102A3SBL	8.5	SZVAV	PLENUM	2600	0.5	0.73	3.00	No	R-454B	110.2	65.5	80.0	69.6	56.5	56.2	11	15.1	3	220	97.2	120.0	80	40.0	72.9	STAGED	500	40.9	0		208/3	58	70	NF	1250	A-T, V
RTU D-1B	TRANE	YSK102A3SBL	8.5	SZVAV	PLENUM	2600	0.5	0.73	3.00	No	R-454B	110.2	65.5	80.0	69.6	56.5	56.2	11	15.1	3	220	97.2	120.0	80	40.0	72.9	STAGED	500	40.9	0		208/3	58	70	NF	1250	A-T, V
RTU D-2A	TRANE	YSK072A3SBL	6.0	SZVAV	PLENUM	2000	0.5	0.46	3.00	No	R-454B	82.4	49.8	80.0	69.6	56.7	56.7	11	15.1	3	200	64.8	80.0	80	40.0	72.9	STAGED	500	33.8	0		208/3	44	50	NF	1200	A-T, V
RTU D-2B	TRANE	YSK072A3SBL	6.0	SZVAV	PLENUM	2000	0.5	0.46	3.00	No	R-454B	82.4	49.8	80.0	69.6	56.7	56.7	11	15.1	3	200	64.8	80.0	80	40.0	72.9	STAGED	500	33.8	0		208/3	44	50	NF	1200	A-T, V
RTU D-3A	TRANE	YSK072A3SBL	6.0	SZVAV	PLENUM	2200	0.5	0.54	3.00	No	R-454B	83.7	52.2	80.0	69.6	57.8	57.7	11	15.1	3	180	64.8	80.0	80	40.0	72.9	STAGED	500	36.3	0		208/3	44	50	NF	1200	A-T, V
RTU D-3B	TRANE	YSK072A3SBL	6.0	SZVAV	PLENUM	2200	0.5	0.54	3.00	No	R-454B	83.7	52.2	80.0	69.6	57.8	57.7	11	15.1	3	180	64.8	80.0	80	40.0	72.9	STAGED	500	36.3	0		208/3	44	50	NF	1200	A-T, V
RTU D-4A	TRANE	YSK090A3SBL	7.5	SZVAV	PLENUM	2400	0.5	0.63	3.00	No	R-454B	92.7	57.0	80.0	69.6	57.8	57.5	11	15.1	3	220	97.2	120.0	80	40.0	72.9	STAGED	500	40.8	0		208/3	49	60	NF	1250	A-T, V
RTU D-4B	TRANE	YSK090A3SBL	7.5	SZVAV	PLENUM	2400	0.5	0.63	3.00	No	R-454B	92.7	57.0	80.0	69.6	57.8	57.5	11	15.1	3	220	97.2	120.0	80	40.0	72.9	STAGED	500	40.8	0		208/3	49	60	NF	1250	A-T, V
RTU L-1A	TRANE	YSK150A3SBH	12.5	SZVAV	PLENUM	3800	0.5	1.38	4.60	No	R-454B	145.6	86.9	80.0	69.6	57.1	56.7	10.8	14.5	3	160	202.5	250.0	80	40.0	88.8	STAGED	500	79.5	0		208/3	73	100	NF	1550	A-T, W
RTU L-1B	TRANE	YSK150A3SBH	12.5	SZVAV	PLENUM	3800	0.5	1.38	4.60	No	R-454B	145.6	86.9	80.0	69.6	57.1	56.7	10.8	14.5	3	160	202.5	250.0	80	40.0	88.8	STAGED	500	79.5	0		208/3	73	100	NF	1550	A-T, W
RTU L-3A	TRANE	YSK072A3SBL	6.0	SZVAV	PLENUM	1800	0.5	0.39	3.00	No	R-454B	80.7	47.4	80.0	69.6	55.4	55.4	11	15.1	3	160	64.8	80.0	80	40.0	72.9	STAGED	500	31.2	0		208/3	44	50	NF	1200	A-T, W
RTU L-3B	TRANE	YSK072A3SBL	6.0	SZVAV	PLENUM	1800	0.5	0.39	3.00	No	R-454B	80.7	47.4	80.0	69.6	55.4	55.4	11	15.1	3	160	64.8	80.0	80	40.0	72.9	STAGED	500	31.2	0		208/3	44	50	NF	1200	A-T, W

MODEL NUMBERS AND NOMINAL TONS LISTED SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER, MODEL NUMBERS, OR NOMINAL TONS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. REFER TO SHEET M600 FOR PACKAGED SINGLE-ZONE ROOFTOP UNIT CONTROL MATRICES.
B. EQUIPMENT SIZED FOR 100°F AMBIENT TEMPERATURE.
C. PROVIDE 4" MERV 13, EFFICIENT PLEATED THROWAWAY AIR FILTERS.
D. PROVIDE FACTORY MOUNTED FUSED DISCONNECT INSTALLED ON SERVICE SIDE OF UNIT. FUSED DISCONNECT SHALL HAVE MINIMUM SCCR RATING OF 10 KAIC. SCCR SHALL BE MARKED ON THE EQUIPMENT NAMEPLATE IN ACCORDANCE WITH NEC.
E. STARTERS FOR ALL MOTORS SHALL BE FURNISHED INTEGRAL WITH UNIT.
F. PROVIDE ELECTRONICALLY COMMUTATED MOTOR TO FACILITATE MODULATING FAN SPEED CONTROL. BASIS-OF-DESIGN SYSTEM IS BASED ON ELECTRONICALLY COMMUTATED MOTORS.
G. PROVIDE SINGLE POINT POWER CONNECTION.
H. COORDINATE SIZE OF CONDUCTOR TERMINATION LUGS WITH CONDUCTOR SIZES SHOWN ON ELECTRICAL DRAWINGS.
J. PROVIDE 125 VAC, 20 AMP DUPLEX CONVENIENCE RECEPTACLE MOUNTED TO UNIT READY FOR FIELD WIRING WITH A COVER UL LISTED FOR WET AND DAMPER LOCATIONS WHEN IN USE.
K. SPECIFIED FAN ESP ACCOUNTS FOR DUCT LOSSES EXTERNAL TO UNIT.
L. PROVIDE MOTOR HORSEPOWER TO OVERCOME INTERNAL UNIT STATIC PRESSURE DROP PLUS SPECIFIED EXTERNAL STATIC PRESSURE DROP. NOMINAL MOTOR HP SHALL BE NO LARGER THAN THE FIRST AVAILABLE NOMINAL MOTOR SIZE GREATER THAN THE REQUIRED BHP.
M. PROVIDE INSULATED ROOF CURB WITH MINIMUM HEIGHT REQUIRED TO MAINTAIN BOTTOM OF EQUIPMENT A MINIMUM OF 24 INCHES ABOVE FINISHED ROOF SURFACE. PROVIDE SLOPED CURB IF NEEDED TO MATCH ROOF SLOPE. COORDINATE WITH ROOF INSULATION THICKNESS AND ROOF TAPER AT INSTALLED LOCATION. COORDINATE CURB TYPE WITH DRAWINGS.
N. SCHEDULED WEIGHT IS THE MAXIMUM ALLOWABLE OPERATING WEIGHT OF THE EQUIPMENT.
P. COOLING COIL LAT IS LEAVING AIR TEMPERATURE OF COIL.
Q. PROVIDE GUARDS TO PROTECT CONDENSER COIL FROM HAIL OR OTHER DAMAGE.
R. PROVIDE HEATER TO MEET OR EXCEED SCHEDULED MINIMUM MBH OUTPUT. NOMINAL INPUT IS BASED ON LISTED MANUFACTURER'S STANDARD PRODUCT. COORDINATE EQUIPMENT GAS LOAD WITH PLUMBING CONTRACTOR IF DIFFERENT FROM THAT SCHEDULED. MEET MINIMUM EFFICIENCY SCHEDULED.
S. PROVIDE MODULATING HOT GAS REHEAT COIL.
T. PROVIDE RTU WITH PACKAGED CONTROLLERS WITH BACNET INTERFACE. RTU'S NOT ASSOCIATED WITH ALTERNATE #1 SHALL BE BAS CONNECTED. RTU ASSOCIATED WITH ALTERNATE #1 SHALL BE CAPABLE OF FUTURE INTEGRATION INTO BAS SYSTEM AND BE CAPABLE OF ALL REQUIRED CONTROL SEQUENCES WITHOUT BAS INTEGRATION.
U. ALTERNATE #1 - GYMNASIUM HVAC UPGRADE.
V. ALL BUILDING D RTU SELECTIONS AND LOCATIONS TO BE THE SAME FOR BUILDINGS E,F,G,K.
W. ALL BUILDING L RTU SELECTIONS AND LOCATIONS TO BE THE SAME FOR BUILDING M.

GRILLE, REGISTER AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	SERVICE	MODEL	CONSTRUCTION TYPE	FACE TYPE	MOUNTING LOCATION	FACE SIZE (IN)	MAX NC	MAX PRESS DROP (IN W.C.)	NOTES
DB1	RUSKIN	SUPPLY & RETURN	90-530-20SQB	ALUMINUM	CONCENTRIC DROP BOX	DUCT	46"x22"	25	0.25	ALL
DB2	RUSKIN	SUPPLY & RETURN	90-530-18SQPB	ALUMINUM	CONCENTRIC DROP BOX	DUCT	46"x22"	25	0.25	ALL
DB3	RUSKIN	SUPPLY & RETURN	90-530-18SQPB	ALUMINUM	CONCENTRIC DROP BOX	DUCT	46"x28"	25	0.25	ALL
DB4	RUSKIN	SUPPLY & RETURN	90-530-20SQB	ALUMINUM	CONCENTRIC DROP BOX	DUCT	46"x22"	25	0.25	ALL
DB5	RUSKIN	SUPPLY & RETURN	90-530-22PB	ALUMINUM	CONCENTRIC DROP BOX	DUCT	46"x28"	25	0.20	ALL
DB6	RUSKIN	SUPPLY & RETURN	90-530-18SQPB	ALUMINUM	CONCENTRIC DROP BOX	DUCT	46"x22"	25	0.25	ALL
DB7	RUSKIN	SUPPLY & RETURN	90-530-20SQB	ALUMINUM	CONCENTRIC DROP BOX	DUCT	46"x22"	25	0.25	ALL

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. NECK SIZE SHOWN ON DRAWINGS. PROVIDE BRANCH DUCT TO MATCH NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
B. BAKED ENAMEL FINISH, WHITE TO MATCH CEILING COLOR.
C. FRAME TYPE TO MATCH CEILING/WALL CONSTRUCTION, COORDINATE WITH ARCHITECTURAL REFLECTED CEILING/WALL PLAN.

ALTERNATE #3 - MAKEUP AIR UNIT SCHEDULE (HYDRONIC HEAT)

					SUPPLY FAN					HEATING COIL								ELECTRICAL			
MARK	MANUFACTURER	MODEL	AREA SERVED	UNIT TYPE	FAN TYPE	CFM	ESP (IN)	BHP	NOM HP	MIN OUT (MBH)	HTG EAT (°F DB)	LAT (°F DB)	HTG EWT (°F)	HTG LWT (°F)	HTG FLOW	MAX HTG WPD (FT)	HTG ROW/FPI	V/PH	DISC TYPE	WEIGHT (LBS)	NOTES
MAU B1	TRANE	UCCA	BUILDING B KITCHEN	MAKEUP AIR	PLENUM	1400	1.5	1.05	2.00	122.47	4	85.0	190	162.0	8.7	10.00	2/9	460 V / 3PH	NF	380	ALL

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. EQUIPMENT PROVIDED BY DIVISION 23.
C. PROVIDE FACTORY MOUNTED DISCONNECT INSTALLED ON SERVICE SIDE OF UNIT.
D. PROVIDE FACTORY MOUNTED STARTER.
E. PROVIDE UNIT WITH SINGLE POINT ELECTRICAL CONNECTION.
F. SPECIFIED FAN ESP ACCOUNTS FOR DUCT LOSSES EXTERNAL TO UNIT. FILTER LOSS IS AT A MAXIMUM OF 400 FPM FACE VELOCITY.
G. PROVIDE MOTOR HORSEPOWER TO OVERCOME INTERNAL UNIT STATIC PRESSURE DROP PLUS SPECIFIED EXTERNAL STATIC PRESSURE DROP. NOMINAL MOTOR HP SHALL BE NO LARGER THAN THE FIRST AVAILABLE NOMINAL MOTOR SIZE GREATER THAN THE REQUIRED BHP.
H. SCHEDULED WEIGHT IS THE MAXIMUM ALLOWABLE OPERATING WEIGHT OF THE EQUIPMENT.
J. PROVIDE HEATER TO MEET OR EXCEED SCHEDULED MINIMUM MBH OUTPUT. NOMINAL INPUT IS BASED ON LISTED MANUFACTURER'S STANDARD PRODUCT. COORDINATE EQUIPMENT GAS LOAD WITH PLUMBING CONTRACTOR IF DIFFERENT FROM THAT SCHEDULED. MEET MINIMUM EFFICIENCY SCHEDULED.
K. MAKE UP AIR UNIT DESIGNED FOR ELEVATION OF 900 FEET ABOVE SEA LEVEL.
L. PROVIDE UNIT WITH HORIZONTAL SUPPLY AIR DUCT DISCHARGE.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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LICENSE # E-022323

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CAD DWG FILE:
DRAWN BY: E. Warden
CHECKED BY: J. Pummill
DESIGNED BY: M. Mizell, E. Warden

SHEET TITLE:
MECHANICAL SCHEDULES

SHEET NUMBER:
M400

KELLEY P. CRAMM

ALTERNATE #4 - HEATING VENTILATING UNITS (NATURAL GAS HEATING)

				SUPPLY FAN						GAS FIRED HEAT EXCHANGER						ELECTRICAL			
MARK	MANUFACTURER	MODEL	UNIT TYPE	FAN TYPE	DESIGN CFM	ESP (IN)	BHP	NOM HP	VFD (Y/N)	MIN OUT (MBH)	NOM INPUT (MBH)	MIN EFF (%)	EAT (°F DB)	LAT (°F DB)	MIN NO STAGES	V/PH	DISC TYPE	WEIGHT (LBS)	NOTES
HV D1	TITAN AIR	TAH-112 FC	100% OA	FC DWDI	2500	0.60	0.70	1.00	No	243.0	300.0	81	4.0	93.0	5	480 V / 3PH	NF	3005	ALL
HV L1	TITAN AIR	TAH-112 FC	100% OA	FC DWDI	3630	0.75	1.30	2.00	No	324.0	400.0	81	4.0	87.0	5	480 V / 3PH	NF	3005	ALL

MODEL NUMBERS AND NOMINAL TONS LISTED SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER, MODEL NUMBERS, OR NOMINAL TONS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. REFER TO HEATING AND VENTILATION UNIT CONTROL MATRIX FOR ADDITIONAL UNIT FEATURES, COMPONENTS, MODULES, ACCESSORIES, AND CONTROLS THAT SHALL BE PROVIDED WITH THE EQUIPMENT.
B. PROVIDE 2" MERV 8, EFFICIENT PLEATED THROWAWAY AIR FILTERS.
C. PROVIDE FACTORY MOUNTED DISCONNECT INSTALLED ON SERVICE SIDE OF UNIT.
D. STARTERS FOR ALL MOTORS SHALL BE FURNISHED INTEGRAL WITH UNIT.
E. PROVIDE SINGLE POINT POWER CONNECTION.
F. COORDINATE SIZE OF CONDUCTOR TERMINATION LUGS WITH CONDUCTOR SIZES SHOWN ON ELECTRICAL DRAWINGS.
G. PROVIDE 125 VAC, 20 AMP DUPLEX CONVENIENCE RECEPTACLE MOUNTED TO UNIT READY FOR FIELD WIRING WITH A COVER UL LISTED FOR WET AND DAMPER LOCATIONS WHEN IN USE.
H. SPECIFIED FAN ESP ACCOUNTS FOR DUCT LOSSES EXTERNAL TO UNIT.
J. PROVIDE MOTOR HORSEPOWER TO OVERCOME INTERNAL UNIT STATIC PRESSURE DROP PLUS SPECIFIED EXTERNAL STATIC PRESSURE DROP. NOMINAL MOTOR HP SHALL BE NO LARGER THAN THE FIRST AVAILABLE NOMINAL MOTOR SIZE GREATER THAN THE REQUIRED BHP.
K. SCHEDULED WEIGHT IS THE MAXIMUM ALLOWABLE OPERATING WEIGHT OF THE EQUIPMENT.
L. PROVIDE HEATER TO MEET OR EXCEED SCHEDULED MINIMUM MBH OUTPUT. NOMINAL INPUT IS BASED ON LISTED MANUFACTURER'S STANDARD PRODUCT. COORDINATE EQUIPMENT GAS LOAD WITH PLUMBING CONTRACTOR IF DIFFERENT FROM THAT SCHEDULED. MEET MINIMUM EFFICIENCY SCHEDULED.
M. SELECT EQUIPMENT FOR ELEVATION OF 900 FEET ABOVE SEA LEVEL.
N. PROVIDE EQUIPMENT WITH MINIMUM SCCR RATING OF 5 KAIC. SCCR SHALL BE MARKED ON THE NAMEPLATE IN ACCORDANCE WITH NEC.

ALTERNATE #2 - CHILLER SCHEDULE (AIR-COOLED)

				MIN EFF			EVAPORATOR						CONDENSER			ELECTRICAL					
MARK	MANUFACTURER	MODEL	CAP (TONS)	(EER-FL)	(EER-IPLV)	REFR TYPE	DESIGN GPM	MIN GPM	EWT (°F)	LWT (°F)	MAX WPD (FT)	MAX WORKING PRESS (PSIG)	AMB TEMP (°F)	NO OF COMPRESSORS	NO OF CIRCUITS	V/PH	VFD (Y/N)	MCA	MOCP	WEIGHT (LBS)	NOTES
CH 1	TRANE	CGAM	78.7	10.2	18.08	R-454B	188	118	54	44	13.3	150.00	95	4	2	460 V / 3PH	Yes	163	200	5700	ALL

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. PROVIDE FACTORY MOUNTED STARTERS AND DISCONNECT SWITCH.
B. COORDINATE SIZE OF CONDUCTOR TERMINATION LUGS WITH CONDUCTOR SIZES SHOWN ON ELECTRICAL DRAWINGS.
C. EVAPORATOR BASED ON FOULING FACTOR OF 0.0001.
D. PROVIDE CRANKCASE HEATER AND LOW AMBIENT CONTROL TO 0 F.
E. EQUIPMENT SIZED FOR 95°F AMBIENT TEMPERATURE.
F. PROVIDE FLOW OR DIFFERENTIAL PRESSURE SWITCH FOR FIELD INSTALLATION.
G. PROVIDE CONDENSER COIL HAIL GUARDS.
H. SELECT EQUIPMENT FOR ELEVATION OF 900 FEET ABOVE SEA LEVEL.
J. SCHEDULED MINIMUM EFFICIENCY IS AT AHRI CONDITIONS.
K. PROVIDE REMOTE EVAPORATOR ON FACTORY SKID. REMOTE EVAPORATOR IS DENOTED RE-1 IN PLAN VIEW (REF: 1/M101.N).

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
KELLEY P. CRAMM
NUMBER
E-22323
REGISTERED PROFESSIONAL ENGINEER

8/27/2026

KELLEY P. CRAMM
LICENSE # E-022323

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

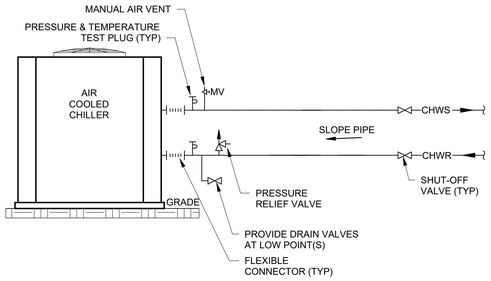
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: E. Warden
CHECKED BY: J. Pummill
DESIGNED BY: M. Mizell, E. Warden

SHEET TITLE:
MECHANICAL SCHEDULES

SHEET NUMBER:
M401

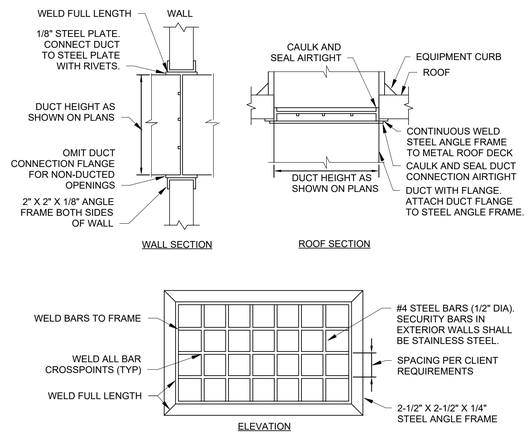
KELLEY P. CRAMM



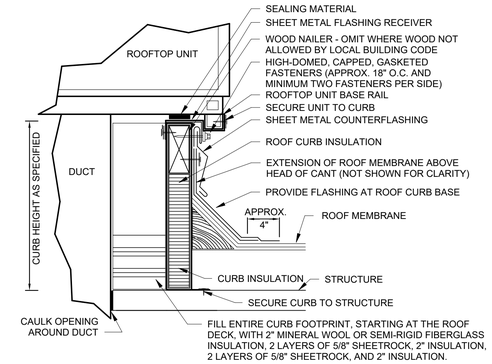
NOTES:

1. SUPPORT UNIT PER SPECIFICATIONS.
2. WHEN TAPPED INTO TOP OF MAINS, AIR VENT REQUIRED.
3. CONNECTION LOCATIONS ARE SCHEMATIC AND MAY VARY BASED ON MANUFACTURER AND MODEL.
4. PIPE PRESSURE RELIEF VALVE DISCHARGE TO APPROVED LOCATION.

③ AIR-COOLED CHILLER PIPING DETAIL
NTS



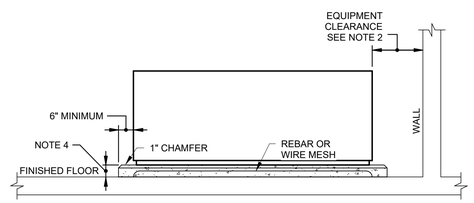
② SECURITY BARS IN DUCT PENETRATION DETAIL
NTS



NOTES:

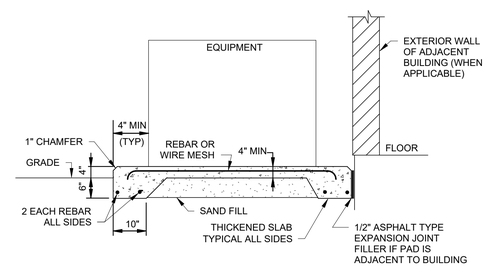
1. CUT METAL DECKING TO ALLOW CURB INSTALLATION ON STEEL FRAMING. AFTER CURB IS SET IN PLACE, TRIM REMAINING METAL DECKING AND INSTALL WITHIN CURB. TACK WELD DECKING TO SUPPORT STEEL. DO NOT WELD INTERIOR DECKING TO ROOF CURB. PROVIDE ADDITIONAL CROSS FRAMING TO SUPPORT INTERIOR DECKING AND FILL MATERIAL AS REQUIRED.
2. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR ROOF CURBS, ANCHORING AND SEISMIC/WIND RESISTANCE.

① ROOF CURB DETAIL
NTS



NOTES:
1. POUR SLAB FLAT WITH NO VALLEYS.
2. MINIMUM CLEARANCE AROUND EQUIPMENT, ALL SIDES, PER MANUFACTURER.
3. DIMENSIONS SHOWN ARE MINIMUM ACCEPTABLE; REVISE AS REQUIRED FOR EQUIPMENT BEING PROVIDED.
4. COORDINATE PAD HEIGHT WITH SPECIFICATIONS. WHEN APPLICABLE, COORDINATE PAD HEIGHT WITH CONDENSATE DRAIN TRAP DEPTH +1" CLEARANCE. ABSOLUTE MINIMUM PAD HEIGHT IS 3-1/2" WHEN NOT OTHERWISE SPECIFIED.

⑤ INTERIOR EQUIPMENT PAD DETAIL
NTS



NOTES:
1. SLOPE SLAB A MINIMUM OF 1/16"/FOOT IN ONE DIRECTION (AWAY FROM BUILDING) FOR DRAINAGE.
2. PROVIDE MINIMUM CLEARANCE AROUND EQUIPMENT, ALL SIDES, PER MANUFACTURER.
3. DIMENSIONS SHOWN ARE MINIMUM ACCEPTABLE; REVISE AS REQUIRED FOR EQUIPMENT BEING PROVIDED.
4. WHERE WALL DOES NOT EXIST, INSTALL EQUIPMENT IN CENTER OF PAD AND ENCLOSE AS SHOWN ON ARCHITECTURAL DRAWINGS.

④ EXTERIOR EQUIPMENT PAD DETAIL
NTS

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REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

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FULTON, MO 65251

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SITE # 7010
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CAD DWG FILE:
DRAWN BY: E. Warden
CHECKED BY: J. Pummill
DESIGNED BY: M. Mizell, E. Warden

SHEET TITLE:
MECHANICAL DETAILS

SHEET NUMBER:
M500

KELLEY P. CRAMM

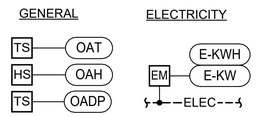
PROJECT DESIGN CONDITIONS

CLIMATE CONDITONS			REFERENCE
WEATHER STATION:			2021 ASHRAE
CLIMATE ZONE:			
ASHRAE HEATING:	99.6%		
DESIGN HEATING CONDITIONS:	3.2	°F DB	
ASHRAE COOLING:	0.4%		
DESIGN COOLING CONDITIONS:	94.7	°F DB	75.7 °F WB

BUILDING OPERATING HOURS:	
MONDAY - FRIDAY	24/7
SATURDAY	24/7
SUNDAY	24/7
HOLIDAY	24/7

SPACE / UNIT DESCRIPTION	SET POINTS									SPACE OPERATING HOURS OCCUPIED / UNOCCUPIED			NOTES
	COOLING / DE-HUMIDIFICATION			HEATING	HUMIDIFICATION		ZONE VENTILATION RESET			DAYS OF THE WEEK			
	OCC °F	MAX RH %	MIN RH %	OCC °F	MIN RH %	MAX RH %	CONTROL METHOD	BASE PPM	MAXIMUM PPM	M-F	SAT	SUN	
DAYROOMS/JAIL SPACES	80	60%	NA	65	NA	NA	NA	NA	NA	24/7	24/7	24/7	B-D

NOTES:
B. ZONE LEVEL SET POINT CONDITIONS SHALL BE AS SCHEDULED UNLESS OTHERWISE SCHEDULED OR NOTED ON THE DRAWINGS FOR ROOM SPECIFIC SPACE CONDITIONS.
C ZONE LEVEL OCCUPANCY HOUR SCHEDULE SHALL BE PER BUILDING OPERATING HOURS UNLESS OTHERWISE SCHEDULED.
D. ZONE LEVEL CONTROLS SHALL BE CAPABLE OF OPERATING WITH INDEPENDENT OCCUPANCY SCHEDULES.



1 GLOBAL POINTS MONITORING
NTS

POINTS LIST - GLOBAL BUILDING MONITORING

POINT ID	DESCRIPTION	POINT TYPE	UNITS	ACCURACY	TRENDING INTERVAL	ENERGY DASHBOARD DISPLAY	STATUS ALARM	ALARM RANGE	NOTES
BUILDING SENSORS									
OAT	OUTSIDE AIR DRY BULB TEMPERATURE	AI	°F	SPEC	15 MIN.	X			
OAH	OUTSIDE AIR RELATIVE HUMIDITY	AI	%	SPEC	15 MIN.	X			
OADP	OUTSIDE AIR DEWPOINT	AI	°F		15 MIN.				C
ELECTRICITY METERING									
E-KW	ELECTRIC DEMAND	AV	KW	±1.0%	15 MIN.	X			E
E-KW-P	ELECTRIC PEAK HISTORICAL DEMAND	AV	KW		15 MIN.				F
E-KWH	ELECTRIC CONSUMPTION	AI	KWH	±1.0%	15 MIN.	X			E
E-KWH-P	ELECTRIC KWH PER RATE PERIOD	AV	KWH		15 MIN.	X			G

NOTES:
A. INITIAL SETPOINT SHALL BE 0.05 IN. W.G. COORDINATE FINAL SETPOINT AT BUILDING STARTUP.
B. APPLY A MOVING TIME AVERAGE TO BUILDING DIFFERENTIAL PRESSURE USING A SLIDING 5-MINUTE WINDOW TO REDUCE DAMPER AND FAN CONTROL FLUCTUATIONS.
C. PERFORM PSYCHROMETRIC CALCULATION TO OBTAIN VALUE BASED ON OUTSIDE AIR DRY BULB TEMPERATURE (OAT) AND OUTSIDE AIR RELATIVE HUMIDITY (OAH).
E. POINT SHALL BE OBTAINED FROM METER WITH ONBOARD WEB INTERFACE (RE: ELECTRICAL).
F. TREND HISTORICAL PEAK FOR A MINIMUM PERIOD OF 12 MONTHS.
G. COORDINATE WITH THE OWNER REGARDING THE TIME PERIOD USED TO CALCULATE THE CONSUMPTION PER PERIOD.

HEATING AND VENTILATION UNIT CONTROL MATRIX

CONTROL FEATURE	UNITS	HV D1 & HV L1 SETPOINT OR Y/N	POINT TYPE INTERFACE WITH DDC (READ/WRITE)	NOTES
BUILDING AUTOMATION SYSTEM (BAS)				
BAS MONITORING AND MANAGEMENT INTERFACE		Y	BACNET	A
SETPOINTS				
DEAD BAND - MINIMUM HEATING AND COOLING TEMPERATURE SETPOINT DIFFERENCE	°F	5		
HEATING - SETPOINT	°F	65	READ/WRITE	
PROGRAMMED CONTROL FEATURES				
REMOTE TEMPERATURE SENSOR		Y	READ	B
REMOTE HUMIDITY SENSOR		Y		B
EQUIPMENT ACCESSORIES AND CONTROL MODULES				
OUTSIDE AIR DAMPER - MOTOR OPERATED (MODULATING)		Y	READ POSITION	L
RELIEF - BAROMETRIC DAMPER		Y		
HEATING COIL (NATURAL GAS)		Y	READ STATUS	M
SUPPLY FAN CONTROL METHODS				
ON CONTINUOUSLY		Y		
CONSTANT VOLUME FAN CONTROL		Y	READ STATUS	
SAFETIES, INTERLOCKS, AND ALARMS				
GAS VALVE SAFETY		Y	READ	F
FIRE ALARM CONTROL PANEL - SAFETY SHUTDOWN INTERLOCK		Y	READ	

EQUIPMENT MANUFACTURER SHALL PROVIDE CONTROL PANEL(S), INTERNAL WIRING, TEMPERATURE SENSOR(S), HUMIDITY SENSOR(S), AND/OR CO2 SENSOR(S) WHERE SHOWN ON THE DRAWINGS AND AS REQUIRED TO FACILITATE THE SCHEDULED CONTROL MODULES AND SEQUENCES OF OPERATION. EACH UNIT SHALL CONTROL BASED ON ITS OWN INTERNAL SAFETIES, TIME DELAYS, AND SEQUENCES UNLESS NOTED OTHERWISE. COORDINATE WITH OWNER FINAL BUILDING AND EQUIPMENT SCHEDULES DURING STARTUP. REFERENCE DIVISION SPECIFICATIONS FOR INDIVIDUAL DEVICE REQUIREMENTS. ALL EXTERNAL CONTROL WIRING SHALL BE BY DIVISION 23 CONTRACTOR.

NOTES:
A. PROVIDE UNIT WITH FACTORY MOUNTED DDC CONTROLS AND INTEGRATE INTO THE BAS. BAS SHALL PROVIDE REMOTE SETPOINT ADJUSTMENT, SCHEDULING, AND MONITORING OF THE POINTS LISTED IN THE SCHEDULE FOR EACH UNIT.
B. EQUIPMENT MANUFACTURER SHALL PROVIDE DEVICE.
F. DEVICE SHALL BE FACTORY MOUNTED AND PRE-WIRED FOR OPERATION SUBJECT TO THE ONBOARD CONTROLLER.
L. EQUIPMENT MANUFACTURER SHALL PROVIDE MODULATING DAMPER AND CONTROLS CAPABLE OF ADJUSTING THE DAMPER POSITION TO MAINTAIN THE SCHEDULED OUTSIDE AIR ON THE DRAWINGS ACROSS ALL FAN SPEEDS. DIV. 23 CONTRACTOR SHALL PROGRAM MULTIPLE DAMPER POSITION SETPOINTS IN THE FIELD DURING TESTING AND BALANCING TO MAINTAIN MINIMUM VENTILATION WHEN NOT IN ECONOMIZER.
M. UNITARY CONTROLLER SHALL MODULATE AND/OR CYCLE SUPPLY FAN SPEED SETTING AND COIL CAPACITY STAGES SUBJECT TO THE INTERNAL SAFETIES AND SEQUENCES TO MAINTAIN SCHEDULED SETPOINTS.

SZCV ROOFTOP UNIT CONTROL MATRIX

CONTROL FEATURE	UNITS	RTUs D/E/F/G/K/L/M 1-4B SETPOINT OR Y/N	POINT TYPE INTERFACE WITH DDC (READ/WRITE)	NOTES
BUILDING AUTOMATION SYSTEM (BAS)				
BAS MONITORING AND MANAGEMENT INTERFACE		Y	BACNET	A
SETPOINTS				
COOLING - SETPOINT	°F	80	READ/WRITE	
DEAD BAND - MINIMUM HEATING AND COOLING TEMPERATURE SETPOINT DIFFERENCE	°F	5		
HEATING - SETPOINT	°F	65	READ/WRITE	
DEHUMIDIFICATION SETPOINT - HUMIDITY SENSOR FEEDBACK	% RH	60%	READ/WRITE	B
PROGRAMMED CONTROL FEATURES				
REMOTE TEMPERATURE SENSOR		Y	READ	B
REMOTE HUMIDITY SENSOR		Y		B
EQUIPMENT ACCESSORIES AND CONTROL MODULES				
OUTSIDE AIR DAMPER - MOTOR OPERATED (MODULATING) - RTU B-1 ONLY		Y	READ POSITION	L
RELIEF - BAROMETRIC DAMPER - RTU B-1 ONLY		Y		
COOLING COIL (DX - STAGED)		Y	READ STATUS	M
DEHUMIDIFICATION - HOT GAS REHEAT		Y	READ STATUS	O
HEATING COIL (NATURAL GAS)		Y	READ STATUS	M
SUPPLY FAN CONTROL METHODS				
ON CONTINUOUSLY		Y		
CONSTANT VOLUME FAN CONTROL		Y	READ STATUS	
SAFETIES, INTERLOCKS, AND ALARMS				
GAS VALVE SAFETY		Y	READ	F
LOW LIMIT FREEZESTAT - FREEZE PROTECTION SAFETY SHUTDOWN		Y	READ	F
FIRE ALARM CONTROL PANEL - SAFETY SHUTDOWN INTERLOCK		Y	READ	
REFRIGERANT LEAK DETECTION ALARM		Y	READ	F

EQUIPMENT MANUFACTURER SHALL PROVIDE CONTROL PANEL(S), INTERNAL WIRING, TEMPERATURE SENSOR(S), HUMIDITY SENSOR(S), AND/OR CO2 SENSOR(S) WHERE SHOWN ON THE DRAWINGS AND AS REQUIRED TO FACILITATE THE SCHEDULED CONTROL MODULES AND SEQUENCES OF OPERATION. EACH UNIT SHALL CONTROL BASED ON ITS OWN INTERNAL SAFETIES, TIME DELAYS, AND SEQUENCES UNLESS NOTED OTHERWISE. COORDINATE WITH OWNER FINAL BUILDING AND EQUIPMENT SCHEDULES DURING STARTUP. REFERENCE DIVISION SPECIFICATIONS FOR INDIVIDUAL DEVICE REQUIREMENTS. ALL EXTERNAL CONTROL WIRING SHALL BE BY DIVISION 23 CONTRACTOR.

NOTES:
A. PROVIDE UNIT WITH FACTORY MOUNTED DDC CONTROLS AND INTEGRATE INTO THE BAS. BAS SHALL PROVIDE REMOTE SETPOINT ADJUSTMENT, SCHEDULING, AND MONITORING OF THE POINTS LISTED IN THE SCHEDULE FOR EACH UNIT.
B. EQUIPMENT MANUFACTURER SHALL PROVIDE DEVICE.
F. DEVICE SHALL BE FACTORY MOUNTED AND PRE-WIRED FOR OPERATION SUBJECT TO THE ONBOARD CONTROLLER.
L. EQUIPMENT MANUFACTURER SHALL PROVIDE MODULATING DAMPER AND CONTROLS CAPABLE OF ADJUSTING THE DAMPER POSITION TO MAINTAIN THE SCHEDULED OUTSIDE AIR ON THE DRAWINGS ACROSS ALL FAN SPEEDS. DIV. 23 CONTRACTOR SHALL PROGRAM MULTIPLE DAMPER POSITION SETPOINTS IN THE FIELD DURING TESTING AND BALANCING TO MAINTAIN MINIMUM VENTILATION WHEN NOT IN ECONOMIZER.
M. UNITARY CONTROLLER SHALL MODULATE AND/OR CYCLE SUPPLY FAN SPEED SETTING AND COIL CAPACITY STAGES SUBJECT TO THE INTERNAL SAFETIES AND SEQUENCES TO MAINTAIN SCHEDULED SETPOINTS.
O. DEHUMIDIFICATION SEQUENCE SHALL BE BASED ON ZONE AIR HUMIDITY.

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DRAWN BY: E. Warden
CHECKED BY: J. Pummill
DESIGNED BY: M. Mizell, E. Warden

SHEET TITLE:
MECHANICAL CONTROLS

SHEET NUMBER:
M600

KELLEY P. CRAMM

GENERAL NOTES:

1. PROVIDE A CONSTRUCTION RECORD SET OF "AS-BUILT" DOCUMENTS TO THE OWNER'S CONSTRUCTION MANAGER REFLECTING ANY VARIANCES OF INSTALLED PIPING LOCATIONS OR EQUIPMENT CONTRARY TO THE CONSTRUCTION DOCUMENTS, REFER TO SPECIFICATIONS.
2. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY OWNER'S CONSTRUCTION MANAGER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
3. PROVIDE TO THE OWNER'S CONSTRUCTION MANAGER A COPY OF INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS, REFER TO SPECIFICATIONS.
4. PLANS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.
5. VERIFY SIZE, LOCATION AND DEPTH OF UTILITIES AT POINTS OF CONNECTION BEFORE START OF PIPING INSTALLATION.
6. DO NOT SCALE FLOOR PLANS FOR EXACT HORIZONTAL LOCATION OF PIPE ROUTING.
7. INSTALL CONCEALED PIPING TIGHT TO THE STRUCTURE AND AS HIGH AS POSSIBLE.
8. VALVES SHALL BE LINE SIZE UNLESS OTHERWISE NOTED.
9. INSTALL EXPOSED PIPING, WHERE NECESSARY, IN FINISHED AREAS TIGHT TO THE STRUCTURE, WALL OR CEILING AND AS HIGH AS POSSIBLE. INSTALL PIPING PARALLEL AND / OR PERPENDICULAR TO WALLS.
10. COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
11. COORDINATE PIPING INSTALLATION WITH STRUCTURAL GRADE BEAMS, FOOTINGS, COLUMN PIERS, ETC. SLEEVE PIPING THROUGH GRADE BEAMS, FOOTING, ETC. WHERE REQUIRED AND AS NOTED ON PLANS. COORDINATE SLEEVE INSTALLATIONS WITH THE ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR AND GENERAL CONTRACTOR BEFORE CONCRETE IS INSTALLED.
12. COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT INSTALL PIPING OVER ELECTRICAL PANELS.
13. PAINT EXPOSED OUTDOOR GAS PIPING USING RUST INHIBITOR PAINT. COORDINATE PAINT AND COLOR WITH THE ARCHITECT AND / OR OWNER.
14. COORDINATE ALL ROOF PENETRATIONS WITH OTHER TRADES. MAINTAIN 10 ' MINIMUM CLEARANCE FROM ALL AIR INTAKES. MAINTAIN 2' CLEARANCE FROM ALL OTHER EQUIPMENT.
15. VERIFY EXISTING EQUIPMENT, INCLUDING ACCESSORIES, IS NOT DAMAGED AND IS IN GOOD WORKING ORDER. REPORT ANY DEFICIENCIES TO THE OWNER'S CONSTRUCTION MANAGER.
16. PROVIDE SEISMIC RESTRAINTS AS NEEDED FOR THE MECHANICAL SYSTEMS IN THE PROJECT BASED ON THE SEISMIC ANALYSIS REQUIRED BY THE SPECIFICATIONS.
17. INSTALL OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT AND PIPING FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
18. SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
19. EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

PLUMBING SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED. V2.02

INSTALL PLUMBING FIXTURES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE ARCHITECTURAL DRAWINGS OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS. FINAL APPROVAL OF LOCATIONS BY ARCHITECT. MOUNTING HEIGHTS LISTED ABOVE, OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS, ARE AFF, UNO. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ANNOTATION

- 1 — PLUMBING PLAN NOTE CALLOUT
- 1 — PLUMBING EQUIPMENT DESIGNATION. (CONTRACTOR FURNISHED AND INSTALLED). REFER TO PLUMBING FIXTURE OR EQUIPMENT SCHEDULES
- 1 — EQUIPMENT DESIGNATION (OWNER FURNISHED, CONTRACTOR INSTALLED)
- CU 1 — MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
- CONNECTION POINT OF NEW WORK TO EXISTING
- 1 P1 — DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
- 1 P1 — SECTION CUT DESIGNATION
- DEDICATED EQUIPMENT ACCESS TILE
- ACCESS PANEL

ABBREVIATIONS

ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
BAS	BUILDING AUTOMATION SYSTEM
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
BTU	BRITISH THERMAL UNIT
CP	CONDENSATE PUMP
CPVC	CHLORINATED POLYVINYL CHLORIDE
CU	COPPER
DI	DUCTILE IRON
DN	DOWN
DFU	DRAINAGE FIXTURE UNIT
DS	DOWNSPOUT
(E)	EXISTING
EMS	ENERGY MANAGEMENT SYSTEM
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
FD	FLOOR DRAIN
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FF	FINISHED FLOOR
FL	FLOW LINE
FLA	FULL LOAD AMPS
FLR	FLOOR
GPM	GALLONS PER MINUTE
HD	HEAD, HUB DRAIN
HZ	HERTZ
IE	INVERT ELEVATION
IN WC	INCHES OF WATER COLUMN
JB	JUNCTION BOX
J-BOX	JUNCTION BOX
KW	KILOWATT
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MH	MANHOLE
MIN	MINIMUM
N/C	NORMALLY CLOSED
N/O	NORMALLY OPEN
NIC	NOT IN CONTRACT
ORD	OVERFLOW ROOF DRAIN
PDI	PLUMBING DRAINAGE INSTITUTE
PH/Ø	PHASE
PRV	PRESSURE REDUCING VALVE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RPM	REVOLUTIONS PER MINUTE
RTU	ROOFTOP UNIT
SF	SQUARE FEET
SP	SUMP
SS	STAINLESS STEEL SANITARY SEWER, SOIL STACK
TDH	TOTAL DYNAMIC HEAD
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES, INC.
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
VCP	VITRIFIED CLAY PIPE
VFD	VARIABLE FREQUENCY DRIVE
VS	VENT STACK
VTR	VENT THROUGH ROOF
W/	WITH
W/O	WITHOUT
WC	WATER COLUMN
WS	WASTE STACK
WSFU	WATER SUPPLY FIXTURE UNIT
WVS	WASTE VENT STACK

PIPING SYMBOLS

- OXYGEN OUTLET
- NITROUS OXIDE OUTLET
- MEDICAL AIR OUTLET
- NITROGEN OUTLET
- MEDICAL VACUUM INLET
- FLOOR SINK (FS), SIZE & TYPE
- FLOOR DRAIN (FD), SIZE & TYPE
- ROOF DRAIN (RD), SIZE & TYPE
- BALL VALVE
- CONTROL VALVE
- SHUTOFF VALVE
- CHECK VALVE
- BALANCING VALVE WITH PRESSURE PORTS
- WATER METER
- STRAINER
- STRAINER WITH BLOWOFF
- RELIEF/SAFETY VALVE
- SOLENOID VALVE
- PRESSURE REDUCING VALVE
- GAS PRESSURE REGULATOR
- THERMOSTATIC MIXING VALVE
- PA — PIPE ANCHOR
- EXPANSION JOINT
- BACKFLOW PREVENTER
- PRESSURE GAUGE
- THERMOMETER
- UNION
- FLANGE CONNECTION
- HOSE BIBB (HB)
- NON-FREEZING WALL HYDRANT (NW)
- MANUAL / AUTOMATIC AIR VENT OR VACUUM RELIEF VALVE
- PRESSURE / VACUUM SWITCH
- CLEANOUT
- CAP
- WALL CLEANOUT (WCO)
- FLOOR CLEANOUT (FCO)
- EXTERIOR CLEANOUT (ECO)
- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN
- ELBOW UP WITH SHUT-OFF VALVE (SOV)
- ELBOW DOWN WITH SHUT-OFF VALVE (SOV)
- TEE UP WITH SHUT-OFF VALVE (SOV)
- TEE DOWN WITH SHUT OFF VALVE (SOV)
- "A" — WATER HAMMER ARRESTER (WHA) WITH PDI SIZES, (A, B, C, D, & E)
- RECIRCULATION PUMP
- P-TRAP
- GAS COCK
- TRAP PRIMER
- TRAP PRIMER WITH DISTRIBUTION UNIT

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING	NEW
DEMOLISH	FUTURE

PIPING LINETYPES

CW	DOMESTIC COLD WATER (CW)
SCW	SOFTENED COLD WATER (SCW)
HW	DOMESTIC HOT WATER (HW)
HWR	DOMESTIC HOT WATER RECIRC. (HWR)
140°	DOMESTIC HOT WATER (140°)
T	TRAP PRIMER LINE (T)
S	SOIL PIPING - ABOVE FLOOR (S)
S	SOIL PIPING - BELOW FLOOR (S)
W	WASTE PIPING - ABOVE FLOOR (W)
W	WASTE PIPING - BELOW FLOOR (W)
GW	GREASE WASTE - ABOVE FLOOR (GW)
GW	GREASE WASTE - BELOW FLOOR (GW)
CGWV	COMBINATION GREASE WASTE AND VENT (CGWV)
CWV	COMBINATION WASTE AND VENT (CWV)
ST	STORM DRAIN - ABOVE FLOOR (ST)
ST	STORM DRAIN - BELOW FLOOR (ST)
OST	OVERFLOW STORM DRAIN - ABOVE FLOOR (OST)
VBG	VENT BELOW GRADE (VBG)
VBF	VENT BELOW FLOOR (VBF)
ID	INDIRECT DRAIN (ID)
CDH	CONDENSATE DRAIN - HIGH EFFICIENCY RTU (CDH)
CD	CONDENSATE DRAIN (CD)
ACD	AUXILIARY CONDENSATE DRAIN (ACD)
SPD	SUMP OR SEWAGE PUMP DISCHARGE (SPD)
G	NATURAL GAS (G)
G	NATURAL GAS ON ROOF (G)
MPG	MEDIUM PRESSURE NATURAL GAS (MPG)
MPG	MEDIUM PRESSURE NATURAL GAS ON ROOF (MPG)
NPW	NON-POTABLE WATER (NPW)
LPG	LIQUEFIED PETROLEUM GAS (LPG)
WS	WATER SERVICE (WS)
DFP	FIRE PROTECTION SPRINKLER DRY (DFP)
FP	FIRE PROTECTION SPRINKLER WET (FP)
DSP	FIRE PROTECTION STANDPIPE DRY (DSP)
WSP	FIRE PROTECTION STANDPIPE WET (WSP)
PD	CONDENSATE PUMP DISCHARGE (PD)
V	VENT PIPING (V)
AW	ACID WASTE - ABOVE FLOOR (AW)
AW	ACID WASTE - BELOW FLOOR (AW)
AV	ACID VENT (AV)
GWS	GRAY WATER (GWS)
CA	COMPRESSED AIR (CA)
MA	MEDICAL AIR (MA)
MV	MEDICAL VACUUM (VE)
HE	HELIUM (HE)
IA	INSTRUMENT AIR (IA)
IV	INSTRUMENT VACUUM (IV)
N2	NITROGEN (N2)
N2O	NITROUS OXIDE (N20)
O2	OXYGEN (O2)
EV	EVAC/WAGD (EV)
CO2	CARBON DIOXIDE (CO2)
AI	MEDICAL AIR INTAKE (AI)
VE	MEDICAL VACUUM EXHAUST (VE)
DA	DENTAL AIR (DA)
DV	DENTAL VACUUM (DV)
FW1	FILTERED WATER (FW1)
FW2	FILTERED WATER W/ SCALE INHIBITOR (FW2)
RO	REVERSE OSMOSIS (RO)
ROR	REVERSE OSMOSIS REMINERALIZATION (ROR)

HATCHING LEGEND

- ENLARGED PLAN
- NOT IN SCOPE (NIS)

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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8/27/2026

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MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: S Santos
CHECKED BY: S Young
DESIGNED BY: S Santos

SHEET TITLE:
PLUMBING GENERAL NOTES AND LEGEND

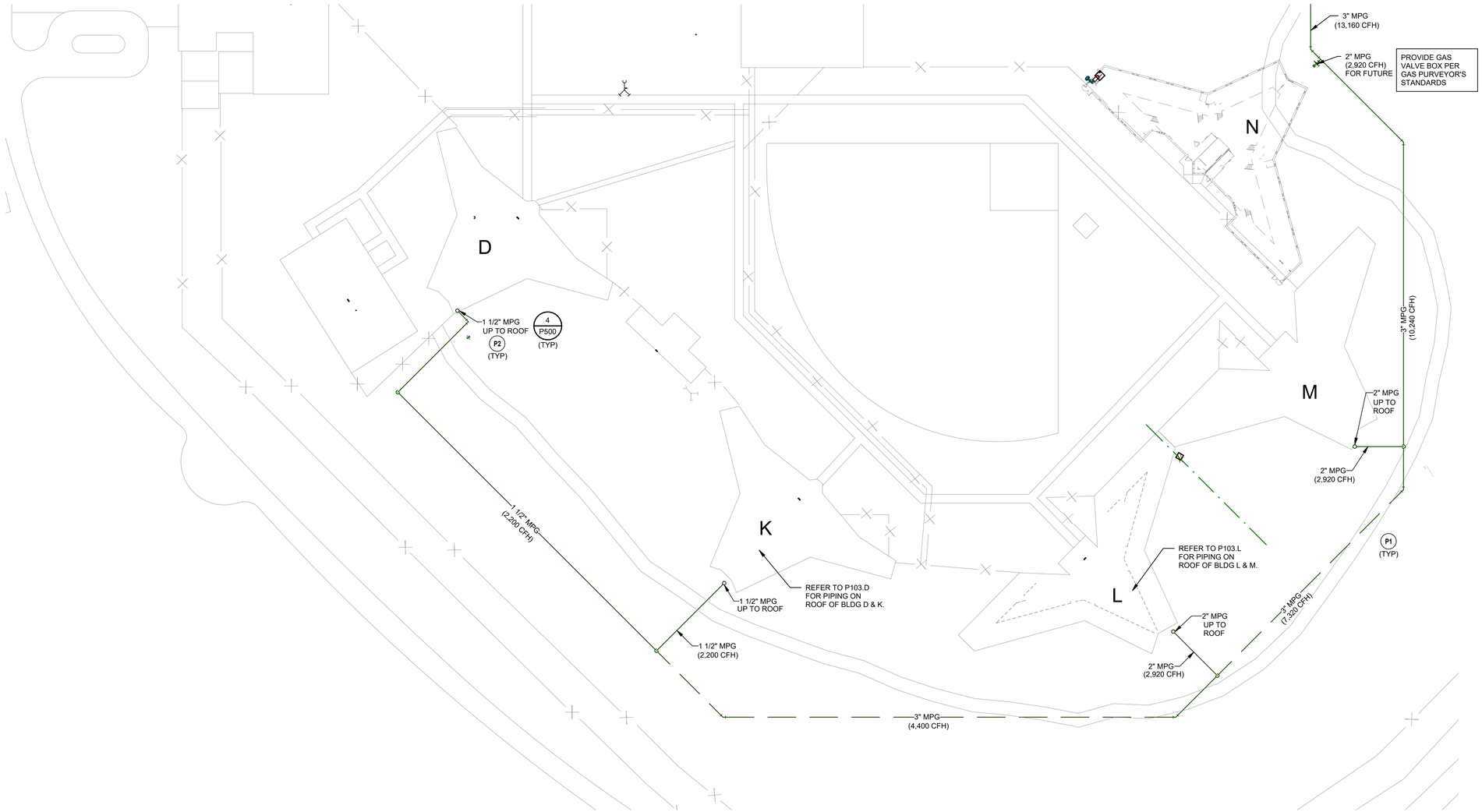
SHEET NUMBER:
P000

KELLEY P. CRAMM

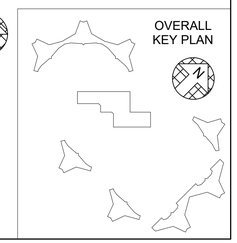
PLUMBING PLAN NOTES:

P1 GAS PIPING TO BE ROUTED BELOW GRADE AROUND SITE. CONTRACTOR MUST LOCATE AND COORDINATE ALL EXISTING BELOW GRADE UTILITIES PRIOR TO CONSTRUCTION.

P2 PIPE SHOWN TO ROOF OF BUILDING IS A GENERAL LOCATION. ACTUAL ROUTING MAY VARY BASED ON EXISTING SITE UTILITIES AND BUILDING STRUCTURE. CONTRACTOR TO COORDINATE FINAL LOCATION WITH OWNER AND GENERAL CONTRACTOR. PROVIDE MAZE BARBED TAPE, OR APPROVED EQUIVALENT, FOR ENTIRE LENGTH OF VERTICAL PIPE ROUTED UP EXTERIOR FACE OF BUILDING.



1 PLUMBING SITE PLAN - SOUTH
1" = 50'-0"



STATE OF MISSOURI
MIKE KEHOE,
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DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: S Santos
CHECKED BY: S Young
DESIGNED BY: S Santos

SHEET TITLE:
PLUMBING SITE PLAN - SOUTH

SHEET NUMBER:
P101

42 OF 118 SHEETS
08/28/2026

KELLEY P. CRAMM

PLUMBING PLAN NOTES:

P1 GAS PIPING TO BE ROUTED BELOW GRADE AROUND SITE. CONTRACTOR MUST LOCATE AND COORDINATE ALL EXISTING BELOW GRADE UTILITIES PRIOR TO CONSTRUCTION.

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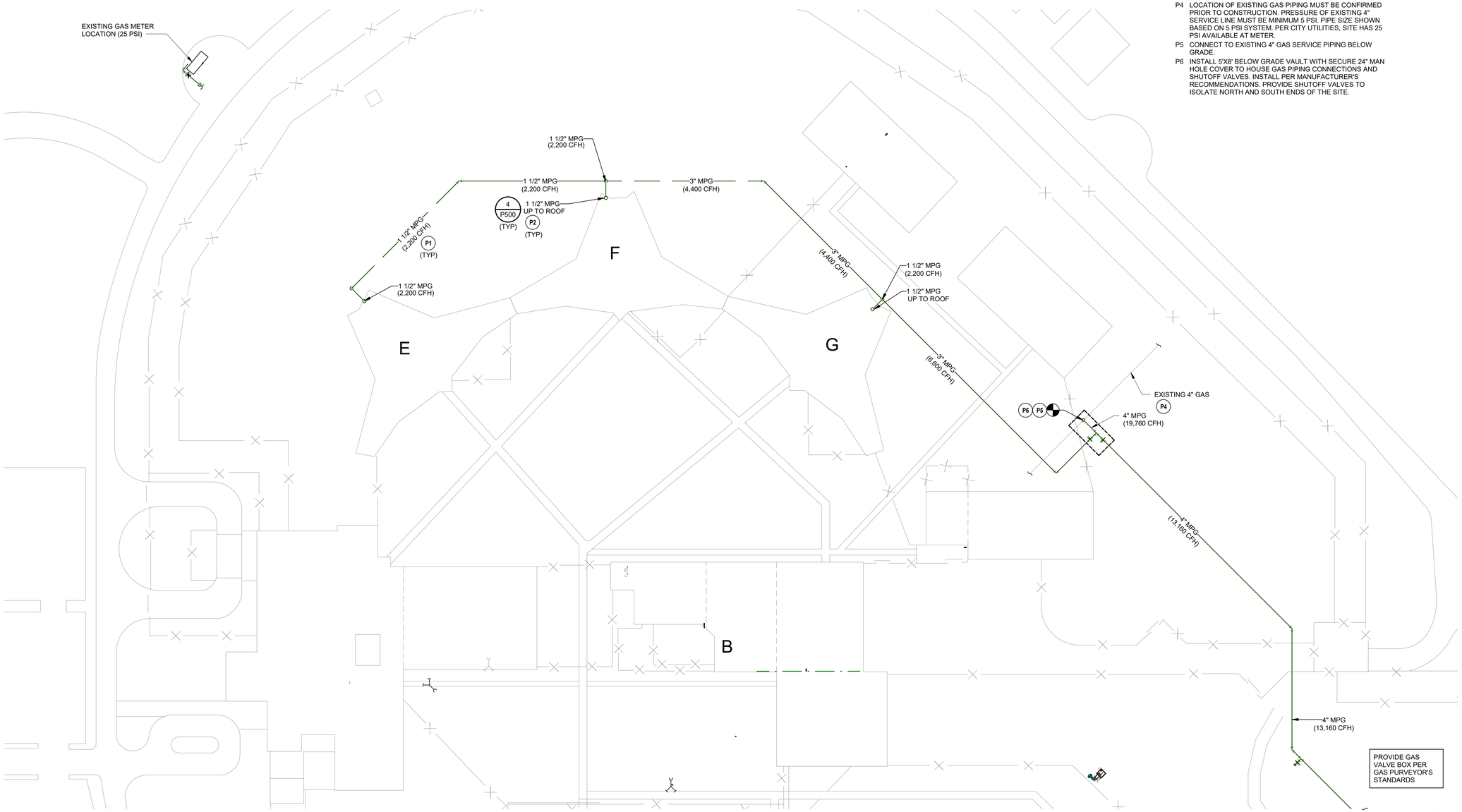
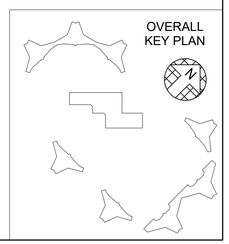
P4 LOCATION OF EXISTING GAS PIPING MUST BE CONFIRMED PRIOR TO CONSTRUCTION. PRESSURE OF EXISTING 4" SERVICE LINE MUST BE MINIMUM 5 PSI. PIPE SIZE SHOWN BASED ON 5 PSI SYSTEM. PER CITY UTILITIES, SITE HAS 25 PSI AVAILABLE AT METER.

P5 CONNECT TO EXISTING 4" GAS SERVICE PIPING BELOW GRADE.

P6 INSTALL 5'X8' BELOW GRADE VAULT WITH SECURE 24" MAN HOLE COVER TO HOUSE GAS PIPING CONNECTIONS AND SHUTOFF VALVES. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE SHUTOFF VALVES TO ISOLATE NORTH AND SOUTH ENDS OF THE SITE.



1 PLUMBING SITE PLAN - NORTH
1" = 50'-0"



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FULTON, MO 65251

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SITE # 7010
FACILITY # 9327010027

REVISION:
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REVISION:
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REVISION:
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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: S Santos
CHECKED BY: S Young
DESIGNED BY: S Santos

SHEET TITLE:
PLUMBING SITE PLAN - NORTH

SHEET NUMBER:
P102

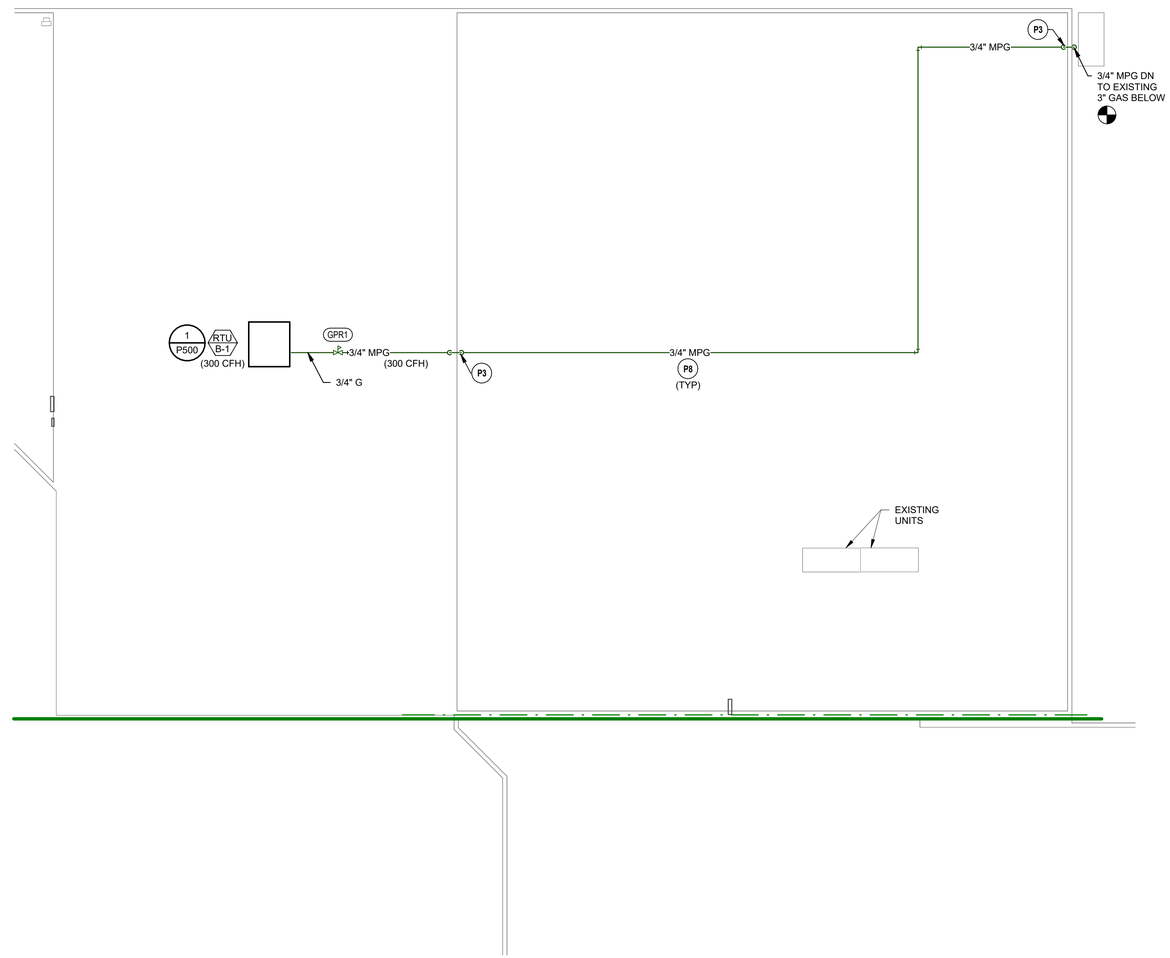
43 OF 118 SHEETS
08/28/2026

KELLEY P. CRAMM

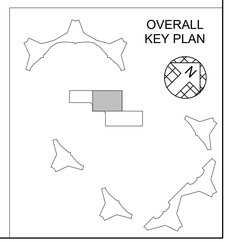
PLUMBING PLAN NOTES:

P3 ROUTE GAS PIPING UP AND OVER PARAPET AS REQUIRED.

P8 SUPPORT GAS PIPING ON ROOF WITH PRE-ENGINNERED ROOF PIPE SUPPORTS. REFER TO SPECIFICATIONS FOR MORE INFORMATION. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.



1 PLUMBING ROOF PLAN - BUILDING B
3/32" = 1'-0"



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CAD DWG FILE:
DRAWN BY: S Santos
CHECKED BY: S Young
DESIGNED BY: S Santos

SHEET TITLE:
PLUMBING ROOF PLAN - BUILDING B

SHEET NUMBER:
P103.B

KELLEY P. CRAMM

PLUMBING PLAN NOTES:

P2 PIPE SHOWN TO ROOF OF BUILDING IS A GENERAL LOCATION. ACTUAL ROUTING MAY VARY BASED ON EXISTING SITE UTILITIES AND BUILDING STRUCTURE. CONTRACTOR TO COORDINATE FINAL LOCATION WITH OWNER AND GENERAL CONTRACTOR. PROVIDE MAZE BARBED TAPE, OR APPROVED EQUIVALENT, FOR ENTIRE LENGTH OF VERTICAL PIPE ROUTED UP EXTERIOR FACE OF BUILDING.

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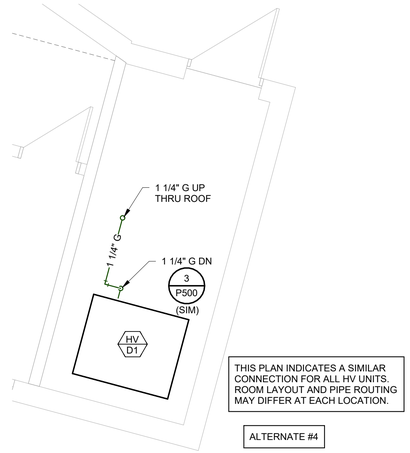
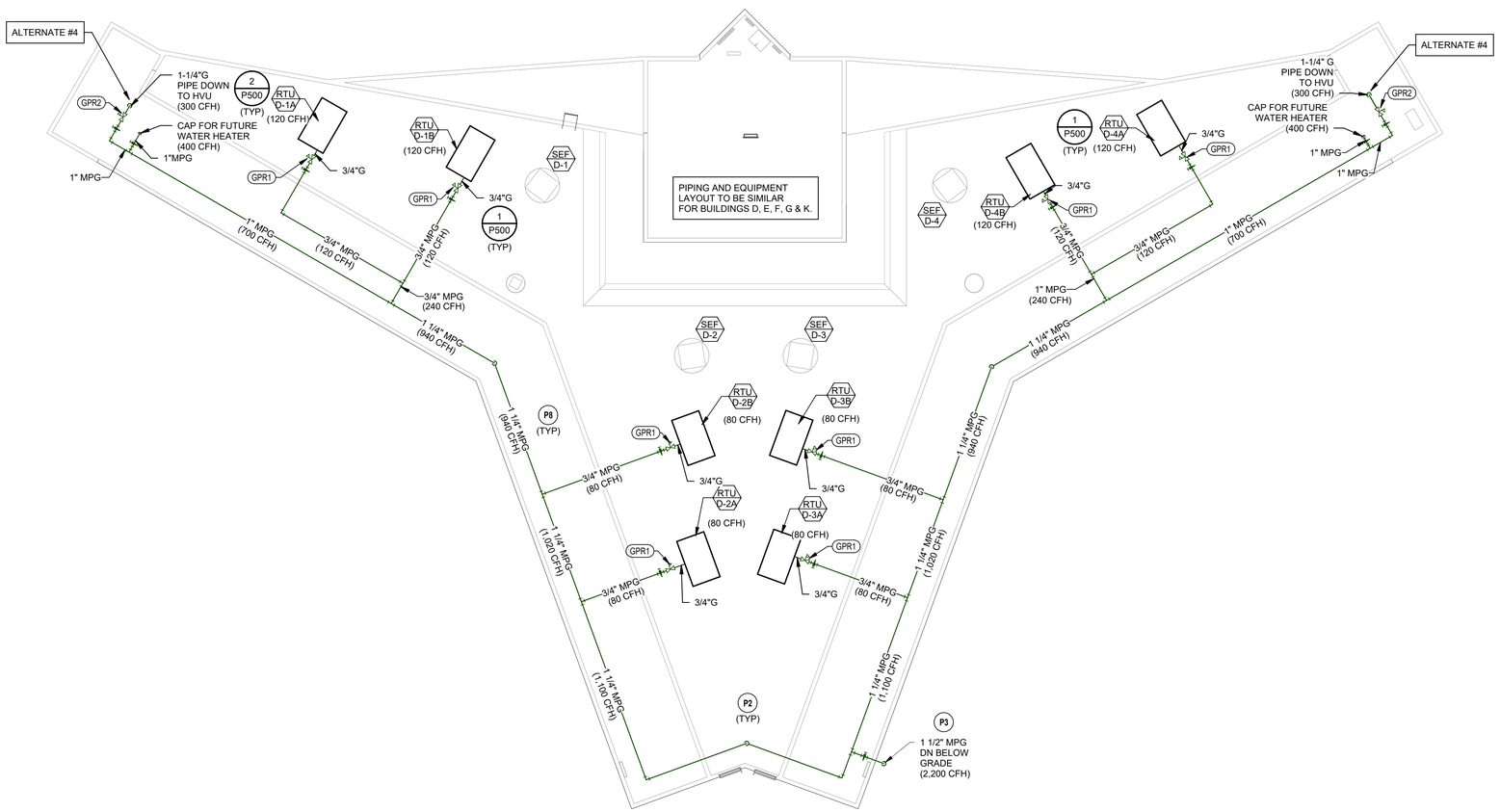
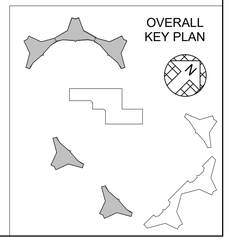


2 PLUMBING - ENLARGED LEVEL 1 TYPICAL PLAN
1/4" = 1'-0"



1 PLUMBING ROOF PLAN - BUILDING D
3/32" = 1'-0"



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SITE # 7010
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CAD DWG FILE:
DRAWN BY: S Santos
CHECKED BY: S Young
DESIGNED BY: S Santos

SHEET TITLE:
PLUMBING ROOF PLAN - BUILDING D

SHEET NUMBER:
P103.D

KELLEY P. CRAMM

PLUMBING PLAN NOTES:

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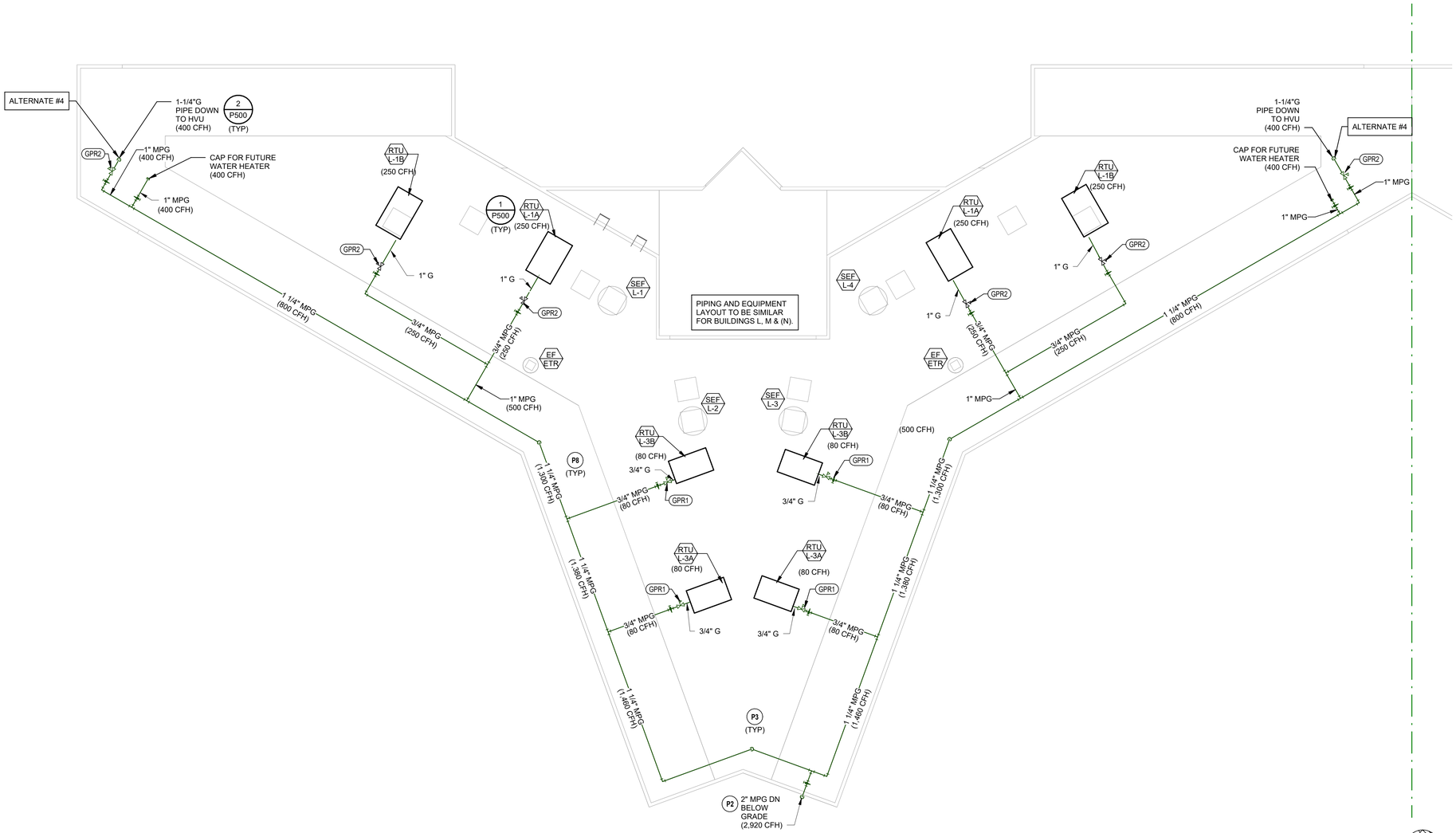
P3 ROUTE GAS PIPING UP AND OVER PARAPET AS REQUIRED.

P8 SUPPORT GAS PIPING ON ROOF WITH PRE-ENGINNERED ROOF PIPE SUPPORTS. REFER TO SPECIFICATIONS FOR MORE INFORMATION. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.



1 PLUMBING ROOF PLAN - BUILDING L
3/32" = 1'-0"

STATE OF MISSOURI
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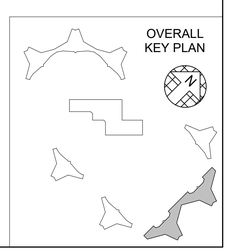
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: S Santos
CHECKED BY: S Young
DESIGNED BY: S Santos

SHEET TITLE:
PLUMBING ROOF PLAN - BUILDING L



SHEET NUMBER:
P103.L

KELLEY P. CRAMM

MEDIUM PRESSURE GAS PIPE SIZING CHART

PIPE SIZE	LOAD (CFH)
1/2"	239
3/4"	478
1"	862
1-1/4"	1,494
1-1/2"	2,476
2"	4,054
3"	11,216
4"	21,680
6"	59,800
8"	119,439
10"	212,850
12"(SDR 11.5)	341,398
FOR SDR 11 PE GAS PIPE	
SPECIFIC GRAVITY OF GAS =	0.60
UPSTREAM PRESSURE (PSI) =	5
DOWNSTREAM PRESSURE (PSI) =	1.5
PRESSURE LOSS (PSI) =	3.5
TOTAL DEVELOPED LENGTH (FEET) =	1750
BASED ON NFPA 54 EQUATION 4-2	

MEDIUM PRESSURE GAS PIPE SIZING CHART

PIPE SIZE	LOAD (CFH)
1/2"	205
3/4"	428
1"	806
1-1/4"	1,655
1-1/2"	2,480
2"	4,776
2-1/2"	7,611
3"	13,456
4"	27,445
5"	49,653
6"	80,399
8"	165,190
10"	300,029
12"	474,983
FOR SCHEDULE 40 STEEL PIPE	
SPECIFIC GRAVITY OF GAS =	0.60
UPSTREAM PRESSURE (PSI) =	5
DOWNSTREAM PRESSURE (PSI) =	1.5
PRESSURE LOSS (PSI) =	3.5
TOTAL DEVELOPED LENGTH (FEET) =	1745
BASED ON NFPA 54 EQUATION 4-2	

TOTAL DEVELOPED PIPE SIZING CHART

PIPE SIZE	LOAD (CFH)
1/2"	73
3/4"	152
1"	287
1-1/4"	588
1-1/2"	881
2"	1,697
2-1/2"	2,705
3"	4,782
4"	9,755
5"	17,648
6"	28,576
8"	58,712
10"	106,637
12"	168,820
FOR SCHEDULE 40 STEEL PIPE OPERATING PRESSURE OF 7"WC WITH A PRESSURE DROP OF 0.5"WC	
TOTAL DEVELOPED LENGTH (FEET) =	30
BASED ON NFPA 54 EQUATION 4-1	

GAS PRESSURE REGULATOR SCHEDULE FOR 5 PSI SYSTEMS

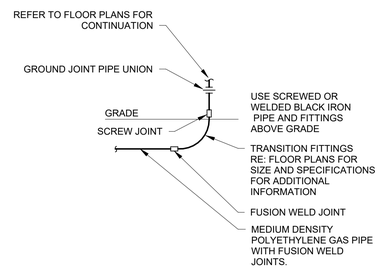
MARK	MANUFACTURER	MODEL	VALVE TYPE	VALVE BODY SIZE (INCHES)	MAX. FLOW RATE (CFH)	INLET PRESSURE (PSI)	OUTLET PRESSURE (WATER COLUMN)	SERVICE	NOTES
GPR1	PIETRO-FIORENTINI	31052OPD	C	3/4"	946	5.0	7"	REFER TO PLANS	A, B, D, E, F, G, H, I & J
GPR2	PIETRO-FIORENTINI	31053OPD	C	1"	1,270	5.0	7"	REFER TO PLANS	A, B, D, E, F, G, H, I & J
GPR3	PIETRO-FIORENTINI	31153OPD	C	1-1/4"	5,311	5.0	7"	REFER TO PLANS	A, B, D, E, F, G, H, I & J

NOTES:

A. C = SELF CONTAINED "DIRECT ACTING" DIAPHRAGM TYPE WITH INTERNAL VENT LIMITER
B. DROOP = 1" WATER COLUMN MAXIMUM
C. DROOP = 2" WATER COLUMN MAXIMUM
D. 65# ALUMINUM BODY, SCREWED CONNECTIONS AND OVERPRESSURE PROTECTION TO 25 PSI
E. MAXIMUM FLOW RATE SCHEDULED, MATCH BODY SIZE AND MAXIMUM FLOW RATE TO EQUIPMENT FLOW RATE. REFER TO EQUIPMENT SHOP DRAWINGS FOR EXACT LOADS.
F. LISTED TO MEET ANSI Z21.80 / CSA 6.22 WITH CSA LISTING STAMP ON REGULATOR BODY
G. GAS PRESSURE REGULATOR INLET PRESSURE = OPERATING PRESSURE - DESIGN FRICTION LOSS
H. 5 PSI MAXIMUM INLET PRESSURE AND 1.5 PSI MINIMUM INLET PRESSURE
I. PROVIDE WITH SEPARATE OVERPRESSURE PROTECTION DEVICE (OPD)
J. PROVIDE EXTERNAL VENT LIMITER WITH OFFSETTING FITTING TO AVOID FREEZ-UP'S (WHERE APPROVED BY LOCAL AUTHORITIES) FOR INDOOR INSTALLATION AND INSTALL PER SPECIFICATIONS. INSTALL OUTDOORS PER...

PLUMBING PIPE MATERIAL SCHEDULE

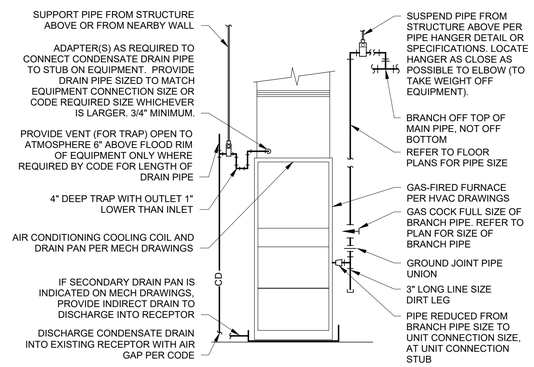
PIPING SYSTEM	ABBREVIATION	PIPING MATERIAL
NATURAL GAS (ABOVE GRADE & ON ROOF)	G	SCHEDULE 40 BLACK STEEL
NATURAL GAS (BELOW GRADE)	G	APPROVED 'PE' PIPE FOR GAS
REFER TO SPECIFICATIONS FOR FITTINGS, INSTALLATION REQUIREMENTS AND FURTHER INFORMATION		



PIPING ARRANGMENT SHOW IS SCHEMATIC. ADJUST TO SUIT FILED CONDITIONS. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

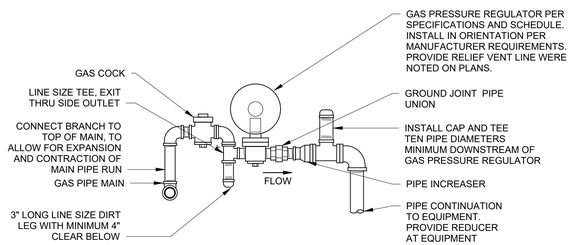
v1.01

4 NATURAL GAS ENTRY
12" = 1'-0"



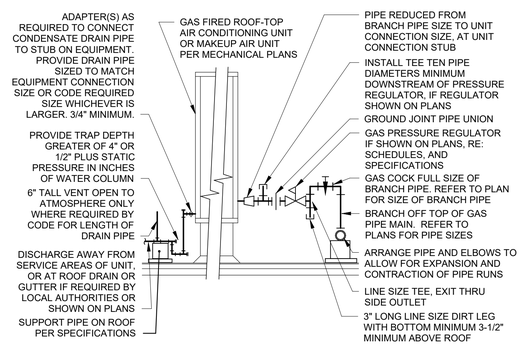
ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. PROVIDE CONNECTIONS SHOWN IN EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. VERIFY CONNECTION LOCATIONS BEFORE INSTALLING PIPE RUNS. REFER TO SPECIFICATIONS FOR PIPE AND FITTING MATERIALS AND INSTALLATION. PROVIDE DIELECTRIC UNION IF CONNECTING DISSIMILAR METALS. FOR PIPE SIZE(S) REFER TO FLOOR PLANS, OR CODE REQUIREMENTS FOR HVAC UNIT TONNAGE. PROVIDE GAS COCK, UNION AND DIRT LEG SAME SIZE AS BRANCH PIPE. SLOPE CONDENSATE PIPE AS MUCH AS POSSIBLE TOWARD DISCHARGE, 2% MINIMUM. PROVIDE CLEANOUTS IN ENDS AND TURNS OF PIPE PER LOCAL CODE REQUIREMENTS: ADAPTER WITH THREADED CLEANOUT PLUG.

3 GAS FURNACE CONNECTIONS
NTS



REFER TO PLANS FOR PIPE SIZE(S). ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. PROVIDE CONNECTIONS SHOWN IN EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. VERIFY CONNECTION LOCATIONS BEFORE INSTALL PIPE RUNS. REFER TO SPECIFICATIONS FOR PIPE AND FITTING MATERIALS AND INSTALLATION. PROVIDE GAS COCK, UNION AND DIRT LEG SAME SIZE AS BRANCH PIPE.

2 GAS PRESSURE REGULATOR
NTS



ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. PROVIDE CONNECTIONS SHOWN IN EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. VERIFY CONNECTION LOCATIONS BEFORE INSTALLING PIPE RUNS. REFER TO SPECIFICATIONS FOR PIPE AND FITTING MATERIALS AND INSTALLATION. PROVIDE DIELECTRIC UNION IF CONNECTING DISSIMILAR METALS. FOR PIPE SIZE(S) REFER TO FLOOR PLANS, OR CODE REQUIREMENTS FOR HVAC UNIT TONNAGE. PROVIDE GAS COCK, UNION AND DIRT LEG SAME SIZE AS BRANCH PIPE. SLOPE CONDENSATE PIPE AS MUCH AS POSSIBLE TOWARD DISCHARGE, 2% MINIMUM. PROVIDE CLEANOUTS IN ENDS AND TURNS OF PIPE PER LOCAL CODE REQUIREMENTS: ADAPTER WITH THREADED CLEANOUT PLUG. PROVIDE MINIMUM 6" CLEARANCE TO ROOF UNDER PIPES.

1 CONNECTIONS TO ROOF-TOP UNIT
NTS

TOTAL CONNECTED GAS LOAD

NEW MECHANICAL EQUIPMENT		
EQUIPMENT DESIGNATION	BUILDING LOCATION	CFH
RTU B-1	BLDG B	300
RTU D-1A	BLDG D	120
RTU D-1B	BLDG D	120
RTU D-2A	BLDG D	80
RTU D-2B	BLDG D	80
RTU D-3A	BLDG D	80
RTU D-3B	BLDG D	80
RTU D-4A	BLDG D	120
RTU D-4B	BLDG D	120
HVU D-1	BLDG D	300
HVU D-2	BLDG D	300
RTU E-1A	BLDG E	120
RTU E-1B	BLDG E	120
RTU E-2A	BLDG E	80
RTU E-2B	BLDG E	80
RTU E-3A	BLDG E	80
RTU E-3B	BLDG E	80
RTU E-4A	BLDG E	120
RTU E-4B	BLDG E	120
HVU E-1	BLDG E	300
HVU E-2	BLDG E	300
RTU F-1A	BLDG F	120
RTU F-1B	BLDG F	120
RTU F-2A	BLDG F	80
RTU F-2B	BLDG F	80
RTU F-3A	BLDG F	80
RTU F-3B	BLDG F	80
RTU F-4A	BLDG F	120
RTU F-4B	BLDG F	120
HVU F-1	BLDG F	300
HVU F-2	BLDG F	300
RTU G-1A	BLDG G	120
RTU G-1B	BLDG G	120
RTU G-2A	BLDG G	80
RTU G-2B	BLDG G	80
RTU G-3A	BLDG G	80
RTU G-3B	BLDG G	80
RTU G-4A	BLDG G	120
RTU G-4B	BLDG G	120
HVU G-1	BLDG G	300
HVU G-2	BLDG G	300
RTU K-1A	BLDG K	120
RTU K-1B	BLDG K	120
RTU K-2A	BLDG K	80
RTU K-2B	BLDG K	80
RTU K-3A	BLDG K	80
RTU K-3B	BLDG K	80
RTU K-4A	BLDG K	120
RTU K-4B	BLDG K	120
HVU K-1	BLDG K	300
HVU K-2	BLDG K	300
RTU L-1A	BLDG L	250
RTU L-1B	BLDG L	250
RTU L-2A	BLDG L	80
RTU L-2B	BLDG L	80
RTU L-3A	BLDG L	80
RTU L-3B	BLDG L	80
RTU L-4A	BLDG L	250
RTU L-4B	BLDG L	250
HVU L-1	BLDG L	400
HVU L-2	BLDG L	400
RTU M-1A	BLDG M	250
RTU M-1B	BLDG M	250
RTU M-2A	BLDG M	80
RTU M-2B	BLDG M	80
RTU M-3A	BLDG M	80
RTU M-3B	BLDG M	80
RTU M-4A	BLDG M	250
RTU M-4B	BLDG M	250
HVU M-1	BLDG M	400
HVU M-2	BLDG M	400
	TOTAL =	11540
FUTURE EQUIPMENT		
EQUIPMENT DESIGNATION	DESCRIPTION	CFH
WH 1&2	BLDG D	400
WH 1&2	BLDG E	400
WH 1&2	BLDG F	400
WH 1&2	BLDG G	400
WH 1&2	BLDG K	400
WH 1&2	BLDG L	400
WH 1&2	BLDG M	400
	TOTAL =	2800
	TOTAL CONNECTED LOAD =	14340
NATURAL GAS SYSTEM OPERATING PRESSURE:		5 PSI
NATURAL GAS SYSTEM SIZED WITH TOTAL DEVELOPED LENGTH FROM GAS METER TO MOST REMOTE PIECE OF EQUIPMENT:		1745 FEET
SYSTEM DESIGN PRESSURE DROP:		1 PSI

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

KELLEY P. CRAMM
LICENSE # E-022323
8/27/2026

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
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WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: S Santos
CHECKED BY: S Young
DESIGNED BY: S Santos

SHEET TITLE:
PLUMBING DETAILS AND SCHEDULES

SHEET NUMBER:
P500

KELLEY P. CRAMM

Sheet List - Electrical

Sheet Number	Sheet Name
E000	ELECTRICAL LEGEND
E001	ELECTRICAL GENERAL NOTES
E100	ELECTRICAL PLAN - OVERALL
E102.D	LIGHTING - LEVEL 2 PLAN - BUILDING D
E102.L	LIGHTING - LEVEL 2 PLAN - BUILDING L
E201.Bb	POWER - LEVEL 1 PLAN - BUILDING B - AREA B
E201.Bc	POWER - LEVEL 1 PLAN - BUILDING B - AREA C
E201.D	POWER - LEVEL 1 PLAN - BUILDING D
E201.L	POWER - LEVEL 1 PLAN - BUILDING L
E210	POWER PLAN - UNIQUE CONDITIONS
E301.D	EQUIPMENT CONNECTION - LEVEL 1 - BLDG D
E301.L	EQUIPMENT CONNECTION - LEVEL 1 - BLDG L
E301.N	EQUIPMENT CONNECTION - LEVEL 1 - BLDG N
E303.D	EQUIPMENT CONNECTION ROOF PLAN - BUILDING D
E303.L	EQUIPMENT CONNECTION ROOF PLAN - BUILDING L
E600	PANELBOARD SCHEDULES
E601	PANELBOARD SCHEDULES
E602	PANELBOARD SCHEDULES
E603	PANELBOARD SCHEDULES
E800	ELECTRICAL MEDIUM-VOLTAGE ONELINE
E801	ELECTRICAL LINE-VOLTAGE ONELINES
E802	ELECTRICAL LINE-VOLTAGE ONELINES
E803	ELECTRICAL EMERGENCY ONELINE
E804	ELECTRICAL LINE-VOLTAGE ONELINES
E805	ELECTRICAL CALCULATIONS
E806	ELECTRICAL CALCULATIONS
E900	ELECTRICAL DETAILS
ED102.D	LIGHTING - LEVEL 2 DEMO PLAN - BUILDING D
ED102.L	LIGHTING - LEVEL 2 DEMO PLAN - BUILDING L
ED201.Bb	POWER - LEVEL 1 DEMO PLAN - BUILDING B - AREA B
ED201.Bc	POWER - LEVEL 1 DEMO PLAN - BUILDING B - AREA C
ED201.D	POWER - LEVEL 1 DEMO PLAN - BUILDING D
ED201.L	POWER - LEVEL 1 DEMO PLAN - BUILDING L
ED301.N	EQUIPMENT CONNECTION - LEVEL 1 DEMO PLAN - BUILDING N

Grand total: 34

ELECTRICAL SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED. V4.02

STANDARD MOUNTING HEIGHTS

AUDIBLE APPLIANCE (CENTERLINE)	84"
ALARM (TOP OF DEVICE)	46"
ANNUNCIATOR PANEL (TOP OF DISPLAY)	60"
CONTROLS (TOP OF DEVICE)	46"
DATA WALL OUTLET	SAME AS ADJACENT DEVICE, UNO
EXIT SIGN (WALL MOUNTED)	92"
FIRE ALARM ANNUNCIATOR PANEL (TOP OF DISPLAY)	60"
FIRE ALARM BELL (EXTERIOR) (CENTERLINE)	120"
FIRE ALARM CONTROL PANEL/UNIT (TOP OF DISPLAY)	60"
INTERCOM (TOP OF DEVICE)	46"
PULL STATION (TOP OF DEVICE)	46"
RECEPTACLE (BOTTOM OF DEVICE)	16"
RECEPTACLE (ABOVE COUNTER)	+6" ABOVE BACKSPLASH/COUNTER, 40" MAX
RECEPTACLE (CLOCK) (CENTERLINE)	84"
RECEPTACLE (EQUIPMENT ROOMS) (TOP OF DEVICE)	46"
RECEPTACLE (EXTERIOR)	24"
RECEPTACLE (GARAGES)	24"
REMOTE INDICATING LIGHT (EQUIPMENT ROOMS) (TOP OF DEVICE)	46"
REMOTE INDICATING LIGHT (FINISHED AREAS)	CEILING
SAFETY SWITCH (TOP OF DEVICE)	46"
STARTER (TOP OF DEVICE)	46"
SWITCH (TOP OF DEVICE)	46"
TELEPHONE WALL OUTLET (TOP OF DEVICE)	46"
TELECOMMUNICATIONS BACKBOARD	6"
TELEVISION OUTLET	REFER TO DRAWINGS
VISIBLE APPLIANCE (CENTERLINE)	84"

INSTALL DEVICES/OUTLET BOXES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ABOVE, OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS, ARE AFF OR AFG TO BOTTOM OF DEVICE, UNO. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ABBREVIATIONS

AF	AMPERE FUSE SIZE
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AS	AMPERE SWITCH SIZE
AT	AMPERE TRIP SETTING
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO VISUAL
BAS	BUILDING AUTOMATION SYSTEM
BESS	BATTERY ENERGY STORAGE SYSTEM
BKR	BREAKER
C	CONDUIT
CAT	CATEGORY
CATV	CABLE TELEVISION SYSTEM
CCTV	CLOSED CIRCUIT TELEVISION
CD	CANDELA
CKT	CIRCUIT
CODE	APPLICABLE CODE ADOPTED BY JURISDICTION
CT	CURRENT TRANSFORMER
CTR	CENTER
CTRL	CONTROL/CONTROLLED
CVD	CUMULATIVE VOLTAGE DROP
D/DEMO	DEMOLITION
DPDT	DOUBLE-POLE, DOUBLE-THROW
DPST	DOUBLE-POLE, SINGLE-THROW
E/ETR/EX	EXISTING TO REMAIN
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
ELV	ELECTRONIC LOW-VOLTAGE
ERMS	ENERGY-REDUCING MAINTENANCE SWITCH
EV	ELECTRIC VEHICLE
EWC	ELECTRIC WATER COOLER
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FCA	FAULT CURRENT AMPS AVAILABLE
FCU	FAN COIL UNIT
FF	FINISHED FLOOR
FLA	FULL LOAD AMPS
FLR	FLOOR
GC	GENERAL CONTRACTOR
GEC	GROUNDING ELECTRODE CONDUCTOR
GES	GROUNDING ELECTRODE SYSTEM
GFR	GROUND FAULT RELAY
G	GROUND
IG	ISOLATED GROUND
ISC	SHORT CIRCUIT CURRENT
JB/J-BOX	JUNCTION BOX
LF	LINEAR FEET
LRA	LOCKED ROTOR AMPS
LTG/LTS	LIGHTING/LIGHTS
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MLV	MAGNETIC LOW-VOLTAGE
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NIS	NOT IN SCOPE
NF	NON-FUSED
NL	NIGHT LIGHT (24HR ON)
NRTL	NATIONALLY RECOGNIZED TESTING LABORATORY (CSA, ETL, NSF, UL)
NTS	NOT TO SCALE
OS	OCCUPANCY SENSOR
P	POLE
PART	PARTIAL CIRCUIT
PH/Ø	PHASE
PNL	PANEL
PNLBD	PANELBOARD
PROVIDE	FURNISH AND INSTALL
PT	POTENTIAL TRANSFORMER
PV	PHOTOVOLTAIC
QTY	QUANTITY
R/REL	RELOCATE
RCPT	RECEPTACLE
RLA	RUNNING LOAD AMPS
RTU	ROOFTOP UNIT
SCCR	SHORT-CIRCUIT CURRENT RATING
SD	SMOKE DUCT DETECTOR
SF	SQUARE FEET
SPDT	SINGLE-POLE, DOUBLE-THROW
SPST	SINGLE-POLE, SINGLE-THROW
SSBJ	SUPPLY-SIDE BONDING JUMPER
ST	SHUNT TRIP
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TBD	TO BE DETERMINED
TGB	TELECOMMUNICATIONS GROUND BUS BAR
TL	TWISTLOCK
TMGB	TELECOMMUNICATIONS MAIN GROUND BUS BAR
TX/XFMR	TRANSFORMER
TYP	TYPICAL
U/F	UNDERFLOOR
U/G	UNDERGROUND
U/S	UNDERSLAB
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
VD	VOLTAGE DROP
VFD	VARIABLE FREQUENCY DRIVE
VS	VACANCY SENSOR
W	WIRE
W/	WITH
WP	WEATHER PROOF
WR	WEATHER RESISTANT
WT	WATERTIGHT
XP	EXPLOSION PROOF

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING
DEMOLISH
NEW
FUTURE

* APPLIES TO COLOR PLOTS ONLY

ANNOTATION

- XX### — PLAN NOTE CALLOUT
- 1 — MECHANICAL OR FIRE PROTECTION PLAN NOTE CALLOUT
- 1 — PLUMBING PLAN NOTE CALLOUT
- 1 — ELECTRICAL OR FIRE ALARM PLAN NOTE CALLOUT
- 1 — TECHNOLOGY PLAN NOTE CALLOUT
- 1 — PLUMBING EQUIPMENT DESIGNATION. (CONTRACTOR FURNISHED AND INSTALLED, UNO). REFER TO PLUMBING FIXTURE OR EQUIPMENT SCHEDULES
- 1 — EQUIPMENT DESIGNATION (OWNER FURNISHED, CONTRACTOR INSTALLED, UNO)
- CU 1 — MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED, UNO)
- CONNECTION POINT OF NEW WORK TO EXISTING
- 1 E1 — DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
- 1 E1 — SECTION CUT DESIGNATION
- DEDICATED EQUIPMENT ACCESS TILE
- ACCESS PANEL

CIRCUITING & WIRING

- 7 5 3 / OR P1-3,5,7 / [R#] P1 — HOMERUN TO PANELBOARD. INFORMATION AT ARROWS ARE CIRCUIT NUMBERS AND PANELBOARD FOR TERMINATION. REFER TO PANELBOARD SCHEDULES FOR BRANCH CIRCUIT CONDUCTOR SIZES.
- INDICATES RELAY NUMBER
- CIRCUIT CONTINUATION OR PARTIAL CIRCUIT
- CONDUIT CONCEALED
- EM — CONDUIT CONCEALED (EMERGENCY)
- CONDUIT IN/UNDER FLOOR/GROUND CONSTRUCTION
- EXPOSED CONDUIT
- EM — EXPOSED CONDUIT (EMERGENCY)
- FLEXIBLE CONDUIT
- LOW VOLTAGE CABLE (NOT ROUTED IN CONDUIT)
- CONDUIT TURNING DOWN
- CONDUIT TURNING UP
- CONNECTION POINT OR EQUIPMENT TERMINATION
- EQUIPMENT TERMINATION

BRANCH CIRCUIT CONDUCTOR TABLE

WHERE TICK MARKS ARE NOT SHOWN, THE FOLLOWING SHALL GOVERN:

# OF POLES	HOT (PHASE)*	NEUTRAL (GROUNDED)**	GROUNDING***
1P	(1)	(1) UNO	(1)
2P	(2)	(1) UNO	(1)
3P	(3)	(1) UNO	(1)

* PROVIDE ADDITIONAL CONDUCTORS THROUGH ENTIRE CIRCUIT (SWITCHED, UNSWITCHED/EM, ETC.) AS INDICATED THROUGHOUT CONSTRUCTION DOCUMENTS AND AS REQUIRED FOR A COMPLETE AND WORKING SYSTEM.

** REFER TO SPECIFICATIONS FOR LIMITATIONS ON SHARING NEUTRAL (GROUNDED) CONDUCTORS. DO NOT CIRCUIT AS A MULTI-WIRE BRANCH CIRCUIT, UNO.

*** PROVIDE ADDITIONAL ISOLATED GROUNDING CONDUCTORS WHERE INDICATED.

REFER TO SPECIFICATIONS, PLANS, NOTES, WIRING AND CONTROL DIAGRAMS FOR ADDITIONAL CIRCUITING REQUIREMENTS.

HATCHING LEGEND

ENLARGED PLAN

NOT IN SCOPE (NIS)

LIGHTING

- A / a / [OS] — LIGHT FIXTURE
  - a = LOWER CASE LETTER IS SWITCH IDENTIFIER
  - A = UPPER CASE LETTER INDICATES LIGHT FIXTURE TYPE
  - [OS] = INTEGRAL OCCUPANCY SENSOR
  - = WALL MOUNT
  - = ARROW INDICATED AIMING DIRECTION
- LIGHT FIXTURE CIRCUITED AS A NIGHT LIGHT (NL)
- EMERGENCY LIGHT FIXTURE WITH EMERGENCY LIGHTING BATTERY PACK OR CONNECTED TO EMERGENCY SOURCE
- NIGHT LIGHT/EMERGENCY LIGHT FIXTURE WITH EMERGENCY BATTERY PACK OR CONNECTED TO EMERGENCY SOURCE
- LIGHT FIXTURE WITH DUAL BALLASTS CIRCUITED SEPARATELY (SHADING IMPLIES EMERGENCY LIGHT FIXTURE)
- [#] — LIGHTING TRACK (# INDICATES RELAY NUMBER)
- MIRROR LIGHTS
- EXTERIOR PARKING LOT LIGHT FIXTURE
- EXTERIOR PEDESTRIAN POST TOP LIGHT FIXTURE
- EXTERIOR LIT BOLLARD LIGHT
- EXIT SIGN - CEILING / WALL MOUNTED, ARROWS AS INDICATED, FACE HATCHED
- EMERGENCY LIGHTING UNIT EQUIPMENT WITH BATTERY PACK - CEILING/WALL MOUNTED
- AFEA (AREA FOR EVACUATION ASSISTANCE) SIGN - CEILING/WALL MOUNTED, ARROWS AS INDICATED

REFER TO LIGHT FIXTURE SCHEDULE FOR MORE INFORMATION

POWER EQUIPMENT

- ELECTRICAL PANELBOARD (SURFACE OR FLUSH MOUNT)
- ELECTRICAL CABINET (SURFACE OR FLUSH MOUNT), TYPE AS NOTED
- PLYWOOD TERMINAL BOARD FOR TELEPHONE SYSTEM, UNO. SIZE AS NOTED
- ELECTRICAL EQUIPMENT ON HOUSEKEEPING PAD
- FRONT — TRANSFORMER
- 200/3/150/3R — DISCONNECT SWITCH,
  - 200/3/150/3R = AMPERES/POLE/FUSE/NEMA ENCLOSURE RATING
  - CB = CIRCUIT BREAKER (200/3/CB)
  - FM = FACTORY FURNISHED AND MOUNTED
  - NF = NON-FUSED
  - OL = SIZE INDICATED ON ONE-LINE DIAGRAM
  - NO VALUE FOR NEMA ENCLOSURE = NEMA 1
- 30/3/15/1/3R — COMBINATION DISCONNECT (SAFETY) SWITCH AND MOTOR STARTER,
  - 30/3/15/1/3R = AMPERES/POLE/FUSE/NEMA STARTER SIZE/NEMA ENCLOSURE RATING
  - CB= CIRCUIT BREAKER (30/3/CB/1)
  - FM = FACTORY FURNISHED AND MOUNTED
  - NF= NON-FUSED
  - NO VALUE FOR NEMA ENCLOSURE = NEMA 1
- 2 — MAGNETIC MOTOR STARTER, NEMA SIZE AS NOTED. 3-POLE, UNO
- VFD — VARIABLE FREQUENCY DRIVE
- INDICATING LIGHT
- EMERGENCY POWER OFF BUTTON
- STOP-START PUSH BUTTON CONTROL STATION
- HAND-OFF-AUTO PUSH BUTTON CONTROL STATION
- MUSHROOM-TYPE PUSH BUTTON
- OVERHEAD PADDLE FAN

BOXES, LIGHTING CONTROL & WIRING DEVICES

$# / $ 30/3/3R — SWITCH LETTER DESIGNATIONS AS FOLLOWS:
- BLANK = SINGLE POLE
- 2 = TWO POLE
- 3 = THREE-WAY
- 4 = FOUR-WAY
- D = DIMMER
- F = FAN SPEED CONTROL
- FH = FRACTIONAL HORSEPOWER MANUAL CONTROLLER
- FM = FACTORY FURNISHED AND MOUNTED
- IH = INTEGRAL HORSEPOWER MANUAL CONTROLLER
- K = KEYED
- LV# = LOW VOLTAGE / DIGITAL
- M = MANUAL MOTOR STARTER DISCONNECT
- OS# = OCCUPANCY SENSOR
- P = SPST PILOT LIGHT
- WP = WEATHER PROOF
- 30/3/3R = AMPERES/POLES/NEMA ENCLOSURE RATING
- # = REFER TO LIGHTING CONTROL DEVICE SCHEDULE

- ALC — AUTOMATIC LOAD CONTROL RELAY
- BTS — BRANCH CIRCUIT TRANSFER SWITCH
- CEILING / WALL MOUNTED OCCUPANCY SENSOR (# INDICATES TYPE PER SCHEDULE)
  - CORNER 90 DEGREE SENSING
  - ONE-DIRECTION SENSING, CEILING/WALL MOUNT
  - CEILING MOUNT, TWO-DIRECTION SENSING
  - CEILING MOUNT, FOUR-DIRECTION SENSING
- C# — CONTACTOR (SIZE, COIL VOLTAGE AND NUMBER OF POLES AS INDICATED)
- CL## — TRACK-MOUNTED CURRENT LIMITER (## INDICATES AMPERAGE)
- DR — DAYLIGHT SENSOR (# INDICATES TYPE PER SCHEDULE)
- LC — LIGHTING CONTROLS PROCESSOR AND/OR EQUIPMENT
- P# — POWER PACK (# INDICATES TYPE PER SCHEDULE)
- PS# — PHOTOELECTRIC SWITCH
- R## — ROOM CONTROLLER (# INDICATES TYPE PER SCHEDULE)
- TS# — TIME SWITCH
- SIMPLEX RECEPTACLE - NEMA 5-20R, UNO
- DUPLEX RECEPTACLE - NEMA 5-20R, UNO
- DOUBLE DUPLEX RECEPTACLE - NEMA 5-20R, UNO
- SPECIAL RECEPTACLE - NEMA TYPE AS NOTED
- TWIST-LOCK TYPE RECEPTACLE
- G — BLANK FACE GFCI FEED THROUGH DEVICE
- GFCI OR — GFCI TYPE RECEPTACLE*
- AUTOMATICALLY CONTROLLED SIMPLEX RECEPTACLE
- SPLIT-WIRED DUPLEX RECEPTACLE*, HALF AUTOMATICALLY CONTROLLED
- AUTOMATICALLY CONTROLLED DUPLEX RECEPTACLE*
- DOUBLE DUPLEX RECEPTACLE WITH ONE DUPLEX AUTOMATICALLY CONTROLLED
- DOUBLE DUPLEX RECEPTACLE WITH BOTH DUPLEXES AUTOMATICALLY CONTROLLED
- EM OR — EMERGENCY RECEPTACLE*
- RECEPTACLE INSTALLED ABOVE COUNTER OR BACKSPLASH*
- RECEPTACLE INSTALLED IN CEILING*
- RECEPTACLE INSTALLED VIA DROP CORD*
- H OR — RECEPTACLE INSTALLED IN HORIZONTAL ORIENTATION*
- # — ADDITIONAL RECEPTACLE LETTER DESIGNATIONS AS FOLLOWS:
  - CH = CLOCK HANGER TYPE
  - G = RCPT PROTECTED BY GFCI CIRCUIT BREAKER OR UPSTREAM GFCI DEVICE
  - IG = ISOLATED GROUND
  - S = MANUALLY SWITCHED
  - SP / TVSS = SURGE PROTECTION
  - TR = TAMPER RESISTANT
  - TV = TELEVISION
  - USB = USB/DUPLEX
  - WP = WEATHER PROOF COVER
  - WR = WEATHER RESISTANT
- MULTI-OUTLET ASSEMBLY
- TELEPHONE OUTLET
- DATA OUTLET
- MULTI-SERVICE OUTLET; TELEPHONE AND DATA
  - ABOVE COUNTER, TYP
  - WALL, TYP
- A — MULTI-SERVICE POWER POLE WITH TELEPHONE, DATA AND POWER OUTLETS A = TYPE, REFER TO PLANS, SCHEDULES AND SPECIFICATIONS
- A — FLOOR BOX WITH TELEPHONE, DATA AND/OR POWER OUTLETS A = TYPE, REFER TO PLANS, SCHEDULES AND SPECIFICATIONS
- A — POKE THROUGH, A = TYPE, REFER TO PLANS, SCHEDULES AND SPECIFICATIONS
- THERMOSTAT
- J — JUNCTION/OUTLET BOX. MOUNTING AS NOTED OR DETAILED

* SYMBOL DEMONSTRATED WITH DUPLEX RECEPTACLE, WHEN USED IN COMBINATION WITH OTHER DEVICES MEANING IS SIMILAR FOR THOSE DEVICE TYPES.

REFER TO LIGHTING CONTROL DEVICE SCHEDULE FOR MORE INFORMATION.

ELECTRICAL ONE-LINE & RISER DIAGRAM

- ##A 3P — SWITCH (RATING AND POLES AS INDICATED)
- ##A 3P ##AT #### — DRAWOUT CIRCUIT BREAKER (RATINGS, POLES, TRIP SIZE AND BREAKER TYPE AS INDICATED)
- ##AS 3P ##AF #### — FUSED SWITCH (RATING, POLES, FUSE SIZE AND TYPE AS INDICATED)
- ##AS 3P ##AF #### ##AT NEMA# NEMA# — COMBINATION FUSED SWITCH/STARTER (RATING, POLES, FUSE SIZE, FUSE TYPE, NEMA STARTER SIZE, NEMA ENCLOSURE TYPE AS INDICATED)
- ##A 3P ##AT #### — CIRCUIT BREAKER (RATING, POLES, TRIP SIZE AND BREAKER TYPE AS INDICATED)
- ##A 3P ##AT #### ##AT NEMA# NEMA# — COMBINATION CIRCUIT BREAKER/STARTER (RATING, POLES, TRIP SIZE, BREAKER TYPE, NEMA STARTER SIZE, NEMA ENCLOSURE TYPE AS INDICATED)
- LSIG — CIRCUIT BREAKER TRIP FUNCTIONS
  - L = LONG TIME
  - S = SHORT TIME
  - I = INSTANTANEOUS
  - G = GROUND FAULT
- PANELBOARD, SINGLE OR MULTI-SECTION (REFER TO SCHEDULES)
- ISOLATED POWER PANELBOARD W/ INTEGRAL TRANSFORMER (REFER TO SCHEDULES)
- TX# — TRANSFORMER (TYPE AND RATINGS AS INDICATED)
- TX# — SHIELDED TRANSFORMER (TYPE AND RATINGS AS INDICATED)
- ATS# ##A — TRANSFER SWITCH (RATINGS AS INDICATED)
  - ATS = AUTOMATIC TRANSFER SWITCH
  - MTS = MANUAL TRANSFER SWITCH
  - NTS = NON-AUTOMATIC TRANSFER SWITCH
- ATS# (W/BYPASS) ##A — TRANSFER SWITCH WITH BYPASS (RATINGS AS INDICATED)
- ##KW GENERATOR 480Y/277V, 3Ø, 4W ##A, 3P M/G — GENERATOR (RATINGS AS INDICATED)
  - INDICATES CONNECTION TO GROUNDING ELECTRODE SYSTEM IF GENERATOR IS CONNECTED AS A SEPARATELY DERIVED SOURCE
- MDP SWITCHBOARD ELEC ROOM ### AMPS 480Y/277V 3Ø 4W — SWITCHGEAR, SWITCHBOARD AND/OR DISTRIBUTION PANELBOARD (TYPE, RATING, DEVICES AND ACCESSORIES AS INDICATED)
- AS — AMMETER SWITCH
- VS — VOLTMETER SWITCH
- AM — AMMETER (RANGE AS SPECIFIED OR REQUIRED)
- VM — VOLTMETER (RANGE AS SPECIFIED OR REQUIRED)
- DIGITAL VM AM — COMBINATION DIGITAL VOLT METER/AMMETER
- UTILITY METER M — UTILITY METER (AS REQUIRED BY UTILITY)
- WH D 15 — WATT-HOUR METER, "D" DENOTES DEMAND REGISTER, "15" DENOTES MINUTES OF DEMAND INTERVAL
- CURRENT TRANSFORMER RATING AS SPECIFIED OR REQUIRED
- POTENTIAL TRANSFORMER RATING AS SPECIFIED OR REQUIRED
- ### — CIRCUIT/EQUIPMENT IDENTIFICATION (REFER TO SCHEDULE)
- ERMS — ENERGY-REDUCING MAINTENANCE SWITCH
- GFR — GROUND FAULT RELAY
- PFR — PHASE FAILURE RELAY
- PRM — PHASE ROTATION MONITOR
- R — RELAY
- KK# — KIRK-KEY INTERLOCK (# INDICATES KEY PAIR)
- ST — SHUNT TRIP
- SPD — SURGE-PROTECTIVE DEVICE
- VFD — VARIABLE FREQUENCY DEVICE
- GROUND CONNECTION
- GROUND CONNECTION WITH TEST WELL
- GROUND ROD
- LIGHTNING ARRESTER
- CAPACITOR
- CONTACT (OPEN OR CLOSED)
- HEATER
- HP — MOTOR
- ## — BLOCK LOAD KW OR KVA
- ×F# ×FP# — FAULT POINT REFERENCED IN SHORT CIRCUIT CURRENT AND VOLTAGE DROP SPREADSHEET

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI — NATHAN W. STOSS — NUMBER PE-2023044638 — PROFESSIONAL ENGINEER
8/27/2026
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL LEGEND

SHEET NUMBER:
E000

NATHAN W. STOSS

APPLICABLE ELECTRICAL CODES:

NOTE: PROJECT IS DESIGNED IN COMPLIANCE WITH THE FOLLOWING CODES. THIS IS NOT AN EXHAUSTIVE LIST. PROJECT SHALL COMPLY WITH ALL APPLICABLE CODES, STANDARDS AND LOCAL REQUIREMENTS. REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

ELECTRICAL CODE: **2017 NATIONAL ELECTRICAL CODE, (NFPA 70)**
BUILDING CODE: **2015 INTERNATIONAL BUILDING CODE**
ENERGY CODE: **2015 INTERNATIONAL ENERGY CONSERVATION CODE**

GENERAL ELECTRICAL DEMOLITION NOTES:

1. THE ELECTRICAL DRAWINGS INDICATE EXISTING ELECTRICAL ITEMS TO BE REMOVED. THE DRAWINGS ARE INTENDED TO INDICATE THE SCOPE OF WORK REQUIRED AND DO NOT INDICATED EVERY BOX, CONDUIT, OR WIRE THAT MUST BE REMOVED. CONTRACTOR SHALL INFORM THEMSELVES OF THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED CONCERNING THE SITE OF THE WORK, THE OBSTACLES WHICH MAY BE ENCOUNTERED, THE DEMOLITION, AND TEMPORARY REMOVAL AND REINSTALLATION REQUIRED TO PROVIDE ACCESS TO THE WORK, AND ALL OTHER RELEVANT MATTERS CONCERNING THE WORK TO BE PERFORMED.
2. THE EXISTING CONDITIONS INDICATED IN THESE DRAWINGS ARE TAKEN FROM THE BEST INFORMATION AVAILABLE FROM VISUAL SITE INSPECTIONS AND EXISTING DRAWINGS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND THE INTENT OF THE WORK PRIOR TO BEGINNING WORK.
3. CONTRACTOR SHALL REPAIR ALL DAMAGE TO EXISTING BUILDING, FIXTURES, AND FINISHED CAUSED BY CONTRACTOR DURING THE PERFORMANCE OF THE WORK. REPAIRS SHALL BE PERFORMED BY A QUALIFIED TRADESMEN AND SHALL BE COMPLETED IN A MANNER ACCEPTABLE TO THE OWNER.
4. REMOVAL OF CONDUITS SHALL INCLUDE REMOVAL OF HANGERS, SUPPORTS, AND ASSOCIATED MISCELLANEOUS MATERIALS.
5. ALL PIPING, TUBING, CONDUITS, ETC. MADE OBSOLETE, BY WORK UNDER THIS CONTRACT, EXPOSED OR IN CONFLICT WITH NEW WORK, ARE TO BE REMOVED. REPAIR ALL HOLES IN WALLS, FLOORS, AND CEILING TO MATCH EXISTING CONDITIONS AND MAINTAIN FIRE/SMOKE RATINGS.
6. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO PERFORM ALL SELECTIVE DEMOLITION NECESSARY TO PERFORM THE WORK SHOWN ON THE DRAWINGS EXCEPT WHERE SAID DEMOLITION IS SHOWN ON THE ARCHITECTURAL DRAWINGS TO BE PERFORMED BY THE GENERAL CONTRACTOR.
7. SHOULD ACTUAL CONDITIONS DEVIATE SUBSTANTIALLY FROM THOSE INDICATED ON THE DRAWING, CONTRACTOR SHALL NOTIFY ENGINEER AND REQUEST INSTRUCTIONS.
8. OWNER SHALL HAVE THE RIGHT TO SALVAGE ANY AND ALL MATERIALS AND EQUIPMENT OR PORTION THEREOF. ALL REMOVED EQUIPMENT MATERIALS NOT RETAINED BY THE OWNER SHALL BE CONSIDERED PROPERTY OF THE CONTRACTOR AND SHALL BE PROMPTLY REMOVED FROM THE OWNER 'S PROPERTY AND LEGALLY DISPOSED OF. OWNER ASSUMES NO RESPONSIBILITY FOR CONDITION OF EQUIPMENT OR MATERIALS TO BE DEMOLISHED.
9. WHERE DEMOLITION WORK INTERRUPTS ELECTRICAL CONTINUITY OF CIRCUITS THAT ARE TO REMAIN IN USE, PROVIDE NECESSARY DEVICES AND RELATED CIRCUITRY TO MAINTAIN ELECTRICAL CONTINUITY IN ACCORDANCE WITH OWNER REQUIREMENTS. MAINTAIN FIRE RATING OF ALL FLOOR/WALL/CEILINGS THAT ARE RATED..
10. COORDINATE DISCONNECTION OF POWER TO EQUIPMENT BEING DEMOLISHED/ REMOVED/ RELOCATED WITH OWNER AND OTHER TRADES PRIOR TO THE START OF WORK. COORDINATE ANY NECESSARY POWER OUTAGES WITH OWNER AND MAKE EVERY ATTEMPT TO MINIMIZE DISRUPTION TO FACILITY OPERATIONS. REQUESTS FOR ELECTRICAL SHUTDOWNS SHALL BE BROUGHT IN WRITING TO THE ATTENTION OF THE OWNER AT LEAST 14 DAYS IN ADVANCE. SHUTDOWNS SHALL NOT BE PERFORMED WITHOUT WRITTEN APPROVAL FROM THE OWNER. IN ADDITION, ANY POWER OUTAGE LONGER THAN 12 HOURS, OR EXTENDING BEYOND DAYLIGHT HOURS, WILL REQUIRE CONTRACTOR TO PROVIDE BACKUP POWER VIA TEMPORARY PORTABLE GENERATOR OR OTHER APPROVED MEANS. ANY POWER DISRUPTION IMPACTING HOUSING UNITS MUST BE COMPLETED DURING DAYLIGHT HOURS.

GENERAL ELECTRICAL NOTES:

1. THIS IS AN EXISTING FACILITY UNDERGOING RENOVATION. PRIOR TO SUBMITTING A BID, VERIFY THE CONDITIONS WHICH INVOLVE THIS WORK. BY THE ACT OF SUBMITTING A BID, THE CONTRACTOR HAS DEEMED TO HAVE MADE REASONABLE ALLOWANCES FOR SITE EXAMINATIONS, SITE CONDITIONS, AND INCLUDED ALL COSTS IN THEIR PROPOSAL. FAILURE TO VERIFY THESE CONDITIONS WILL NOT BE CONSIDERED A BASIS FOR THE GRANTING OF ADDITIONAL COMPENSATION.
2. READ THE SPECIFICATIONS AND REVIEW DRAWINGS OF ALL DIVISIONS OF WORK. COORDINATE THIS WORK WITH ALL OTHER DIVISIONS OF WORK AND ALL SUBCONTRACTORS. PROVIDE ALL SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.
3. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS, AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY NOTED IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY THE ENGINEER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
4. THE DRAWINGS REPRESENT THE BEST INFORMATION AVAILABLE TO THE ENGINEER. ALL DIMENSIONS AND SIZES SHALL BE FIELD VERIFIED. DO NOT SCALE FROM THE DRAWINGS. SMALL DEVIATIONS SHALL BE RECONCILED DURING THE PERFORMANCE OF THE WORK.
5. FURNISH A COPY OF INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS TO THE ENGINEER.
6. INSTALLATION SHALL COMPLY WITH LEGALLY CONSTITUTED CODES AND THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
7. DRAWINGS AND SPECIFICATIONS GOVERN, WHERE THEY EXCEED CODE REQUIREMENTS.
8. COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS, INCLUDING BUT NOT LIMITED TO, REQUIREMENTS ASSOCIATED WITH NON-BASIS OF DESIGN EQUIPMENT.
9. FIELD VERIFY EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL HVAC AND PLUMBING EQUIPMENT WITH OTHER TRADE CONTRACTORS PRIOR TO ORDERING RELATED ELECTRICAL EQUIPMENT.
10. CONTRACTOR SHALL PROVIDE FINALIZED PANELBOARD SCHEDULES AT COMPLETION OF PROJECT WITH OWNER PROVIDED ROOM NAMES/NUMBERS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
11. CIRCUIT NUMBERS ARE SHOWN FOR CIRCUIT IDENTIFICATION. CIRCUITING SHALL AGREE WITH NUMBER ON THE PANEL PROVIDED. COMMON NEUTRALS MAY NOT BE USED FOR BRANCH CIRCUITS. BALANCE THE LOAD ON PANEL AS EVENLY AS POSSIBLE BETWEEN EACH PHASE.
12. PROVIDE A CONSTRUCTION RECORD SET OF "AS-BUILT" DOCUMENTS TO THE ENGINEER REFLECTING ANY VARIANCES OF INSTALLED PIPING, EQUIPMENT DEVICES, ETC LOCATIONS CONTRARY TO THE CONSTRUCTION DOCUMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
13. ALL EXPOSED CONDUIT AND BOXES WITHIN FINISHED SPACES THAT HAVE EXPOSED CEILINGS SHALL BE PAINTED TO MATCH SURROUNDING CEILING AND STRUCTURE. PROVIDE CONDUIT PARALLEL TO STRUCTURAL LINES IN A NEAT MANNER FOR ALL AREAS WITH EXPOSED CEILINGS.
14. WHERE DEVICES ARE MOUNTED RECESSED IN CMU WALLS, ROUTE CONDUIT CONCEALED WITHIN INTERIOR OPENINGS WITHIN CMU WALL. COORDINATE WITH GENERAL CONTRACTOR PRIOR TO ROUGH-IN.
15. ALL JUNCTION BOXES SHALL BE RIGIDLY ATTACHED TO STRUCTURE OR MILLWORK.
16. CONDUIT AND BOX ROUGH-IN FOR ADJACENT FIRE ALARM, TEMPERATURE CONTROLS, RECEPTACLES, LIGHTING CONTROL DEVICES, ETC, ON THE SAME WALL, SHALL BE PROVIDED IN A MANNER TO WHICH DEVICES ALIGN VERTICALLY ON SAME WALL. COORDINATE WITH OTHER TRADES.
17. COORDINATE CONDUIT PENETRATIONS THROUGH EXISTING WALLS AND SURFACES WITH STRUCTURAL ENGINEER PRIOR TO ANY CORING.
18. WHERE SPARE CONDUIT(S) ARE INDICATED FOR FUTURE USE, PROVIDE PULL STRINGS IN CONDUIT(S) AND PROTECTIVE BUSHINGS AT OPENINGS. CAP CONDUITS WHERE LOCATED BELOW GRADE OR EXPOSED TO THE ELEMENTS.
19. REFER TO MECHANICAL EQUIPMENT SCHEDULES FOR ELECTRICAL SCOPE OF WORK, IN ADDITION TO WORK SHOWN ON ELECTRICAL DRAWINGS.
20. PROVIDE RECESSED CONDUIT AND OUTLET BOXES FOR ALL HVAC CONTROL LOCATIONS. PROVIDE CONDUIT FOR ALL CONTROLS WIRING LOCATED IN SPACES WITH EXPOSED CEILINGS. REFER TO MECHANICAL DOCUMENTS AND SCHEDULES FOR ALL DEVICE LOCATIONS. COORDINATE WORK WITH MECHANICAL CONTRACTOR.
21. PROVIDE ALL MISCELLANEOUS STEEL REQUIRED FOR THE PROPER INSTALLATION OF ELECTRICAL EQUIPMENT AND SYSTEMS.
22. REFER TO SPECIFICATIONS AND DETAILS FOR APPROVED CABLE AND RACEWAY INSTALLATION. NON-COMPLIANT INSTALLATIONS OF CABLE AND RACEWAY WILL NOT BE ACCEPTED AND WILL BE REQUIRED TO BE BROUGHT TO COMPLIANCE AT NO COST TO THE OWNER, PRIOR TO COMPLETION OF WORK.
23. ALL NEW AND EXISTING ELECTRICAL EQUIPMENT ALTERED UNDER THIS PROJECT SHALL BE VACUUM CLEANED OF ANY DEBRIS. ALL OPENINGS REMAINING SHALL BE SEALED WITH THE PROPER DEVICE (IE. KNOCKOUT BLANKS, BREAKER BLANKS, ETC) LISTED AND APPROVED FOR USE.
24. NO WORK SHALL BE PERFORMED PRIOR TO REVIEW AND APPROVAL OF ALL REQUIRED SHOP DRAWINGS, PRODUCT MATERIALS, AND EQUIPMENT SUBMITTALS. ANY WORK INSTALLED PRIOR TO MEETING THESE REQUIREMENTS SHALL BE DONE SO AT THE SOLE RISK OF THIS CONTRACTOR.
25. PROVIDE UPDATED TYPED PANEL DIRECTORIES TO REFLECT WORK PERFORMED UNDER THIS CONTRACT.
26. COORDINATE SCHEDULE FOR ALL ROOF WORK AND ROOF ACCESS PROCEDURES WITH ON SITE PERSONNEL PRIOR TO ACCESSING ANY SECURED AREAS.
27. COORDINATE REQUIREMENTS FOR SITE ACCESS AND MATERIAL STAGING WITH OWNER PRIOR TO BID.
28. ELECTRICAL SYSTEMS SHUTDOWNS SHALL NOT OCCUR OR EXDEND BEYOND DAYLIGHT HOURS. PROVIDE OWNER WITH DETAILED METHOD OF PROCEDURE FOR ALL POWER DISRUPTIONS INCLUDING CONTINGENCY PLANS AND BACK-OUT PROCEDURES. DO NOT PROCEED WITH ANY POWER DISRUPTIONS WITHOUT WRITTEN APPROVAL FROM OWNER.
29. ALL CONDUITS AND BACKBOXES WITHIN OCCUPIED AREAS SHALL BE RECESSED WITHIN WALLS AND CEILINGS. EXACT ROUTING OF ANY EXPOSED RACEWAY OR CONDUITS SHALL BE COORDIANTED WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.

GENERAL ELECTRICAL POWER NOTES:

1. ALL CIRCUITRY SHALL BE #12 AWG IN 1/2" CONDUIT, MINIMUM, UNLESS OTHERWISE NOTED.
2. TYPE MC CABLE MAY NOT BE USED.
3. PROVIDE A SEPARATE CODE SIZED GREEN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS AND RACEWAYS CONTAINING LINE VOLTAGE CIRCUITS. FOR ALL 20A CIRCUITS, EQUIPMENT GROUNDING CONDUCTOR SHALL MATCH PHASE CONDUCTOR SIZE. FOR CIRCUITS UPSIZED DUE TO VOLTAGE DROP, INCREASE EQUIPMENT GROUNDING CONDUCTOR SIZE PER NEC 2017 250.122.B.
4. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL PANELBOARD INSTALLATION REQUIREMENTS AND IDENTIFICATION.
5. PROVIDE A NEUTRAL CONDUCTOR TO THREE-PHASE EQUIPMENT WHEREVER REQUIRED.
6. ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH A CONCRETE HOUSEKEEPING PAD. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
7. GROUND AND NEUTRAL CONDUCTORS SHALL NOT BE SHARED UNLESS SPECIFICALLY NOTED ON PLANS.
8. REFER TO VARIABLE FREQUENCY DRIVE (VFD) INSTALLATION INSTRUCTIONS FOR POWER AND CONTROL WIRING REQUIREMENTS. PVC CONDUIT SHALL NOT BE USED FOR VFD WIRING. PROVIDE SPECIAL POWER VFD SHIELDED CABLE OR INDIVIDUAL STEEL CONDUIT RUNS WITH POWER CONDUCTORS AND GROUNDING CONDUCTOR TO EACH MOTOR. CONTROL WIRING SHALL BE ROUTED IN A SEPARATE CONDUIT AND SEPARATED FROM MOTOR WIRING BY A MINIMUM OF 3 FEET PER MANUFACTURER 'S INSTRUCTION.
9. ALL GFCI PROTECTED CIRCUITS SHALL HAVE INDIVIDUAL AND DEDICATED NEUTRALS.
10. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWING SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN SUBMITTALS AND ELECTRICAL DRAWINGS.

GENERAL ELECTRICAL LIGHTING NOTES:

1. PROVIDE ALL MOUNTING AND SUPPORT HARDWARE FOR LIGHT FIXTURES TO MEET SPECIFIED MOUNTING.
2. VERIFY AND COORDINATE ROUGH-IN REQUIREMENTS, LOCATIONS, AND MOUNTING HEIGHTS FOR ALL LIGHTING EQUIPMENT BEFORE PROVIDING ROUGH-IN.

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DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
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PROJECT # C2406-01
SITE # 7010
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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

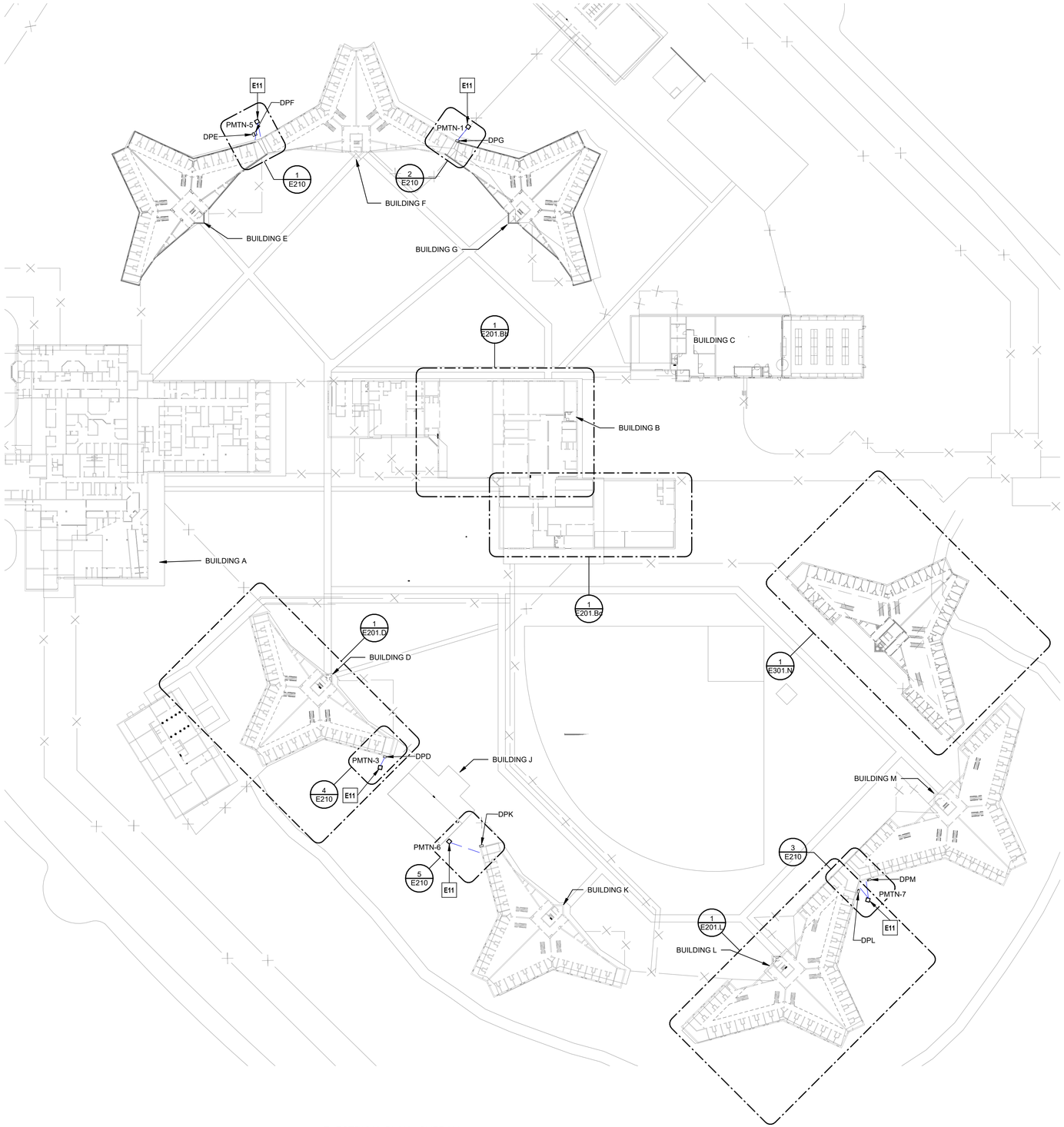
SHEET TITLE:
ELECTRICAL GENERAL NOTES

SHEET NUMBER:
E001

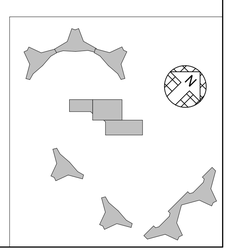
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

E11 EXTEND EXISTING TRANSFORMER PAD AS NEEDED AND REPLACE PAD MOUNT TRANSFORMER IN PLACE. PROVIDE EXTERIOR DISTRIBUTION BOARDS TO REFEED BUILDING. REFER TO SHEET E210 FOR MORE INFORMATION ON THE UNIQUE CONDITIONS OF EACH BUILDING.



1 ELECTRICAL PLAN - OVERALL
1" = 60'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER

8/27/2026

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LICENSE # PE-2023044638

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WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

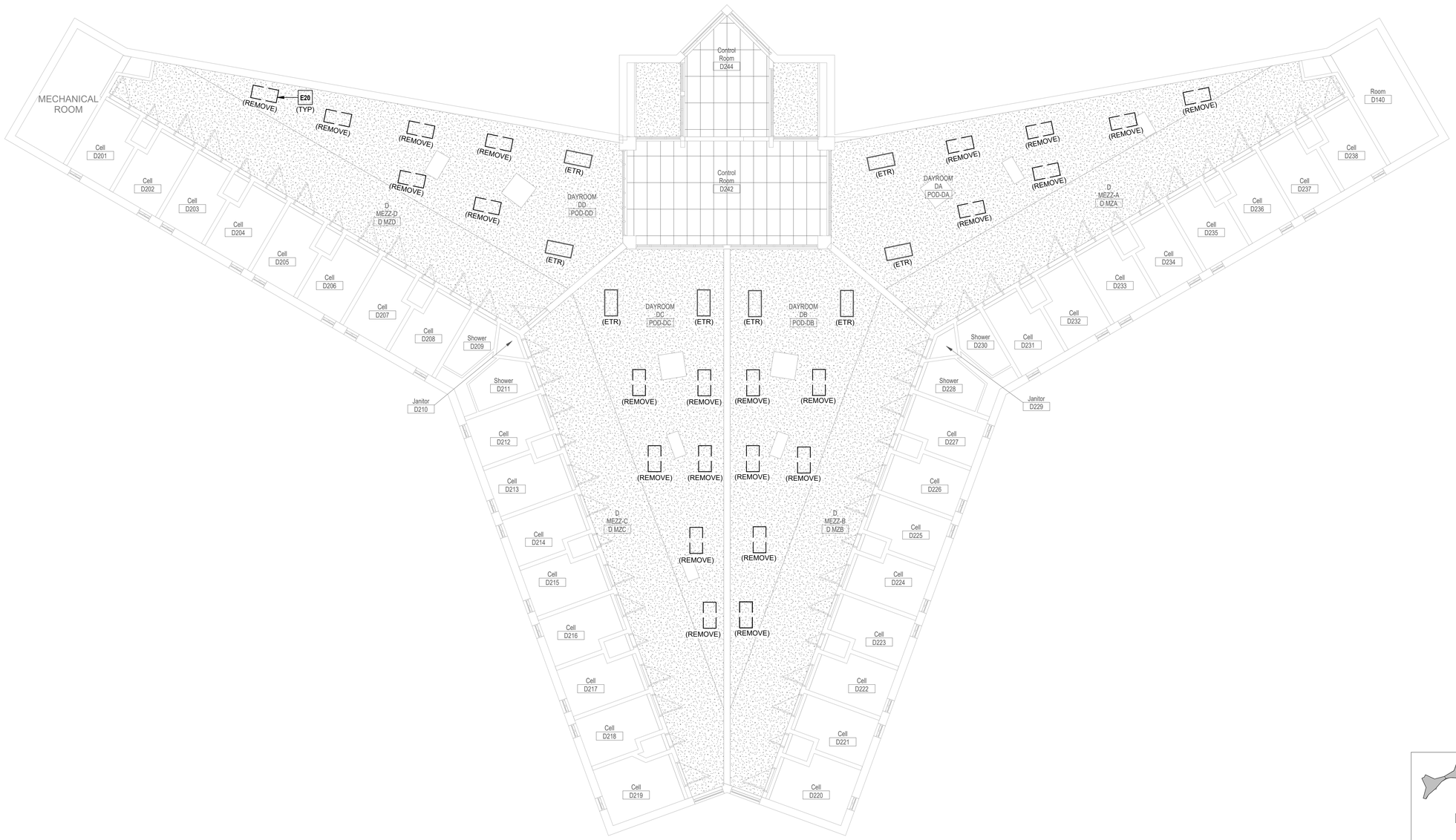
SHEET TITLE:
ELECTRICAL PLAN - OVERALL

SHEET NUMBER:
E100

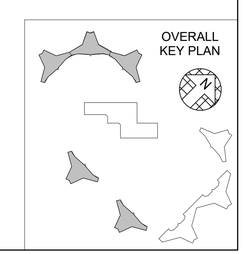
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

E20 REMOVE EXISTING CORRECTIONS RATED SURFACE MOUNTED LIGHT FIXTURES AND PROTECT THE EXISTING FIXTURE AND LIGHTING CIRCUIT FROM DAMAGE DURING THE CEILING REMOVAL PROCESS. COORDINATE DEMOLITION AND REMOVAL OF EXISTING CEILING AND LIGHT FIXTURES WITH ARCHITECTURAL DRAWINGS AND OTHER TRADES PRIOR TO START OF WORK. ONCE THE NEW CEILING INSTALLATION IS COMPLETE, CONTRACTOR SHALL RE-INSTALL EXISTING SURFACE MOUNTED LIGHT FIXTURE. REFER TO NEW WORK PLANS FOR MORE INFORMATION.



1 LIGHTING - LEVEL 2 DEMO PLAN - BUILDING D - TYP. OF BUILDINGS E,F,G,&K
1/8" = 1'-0"



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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

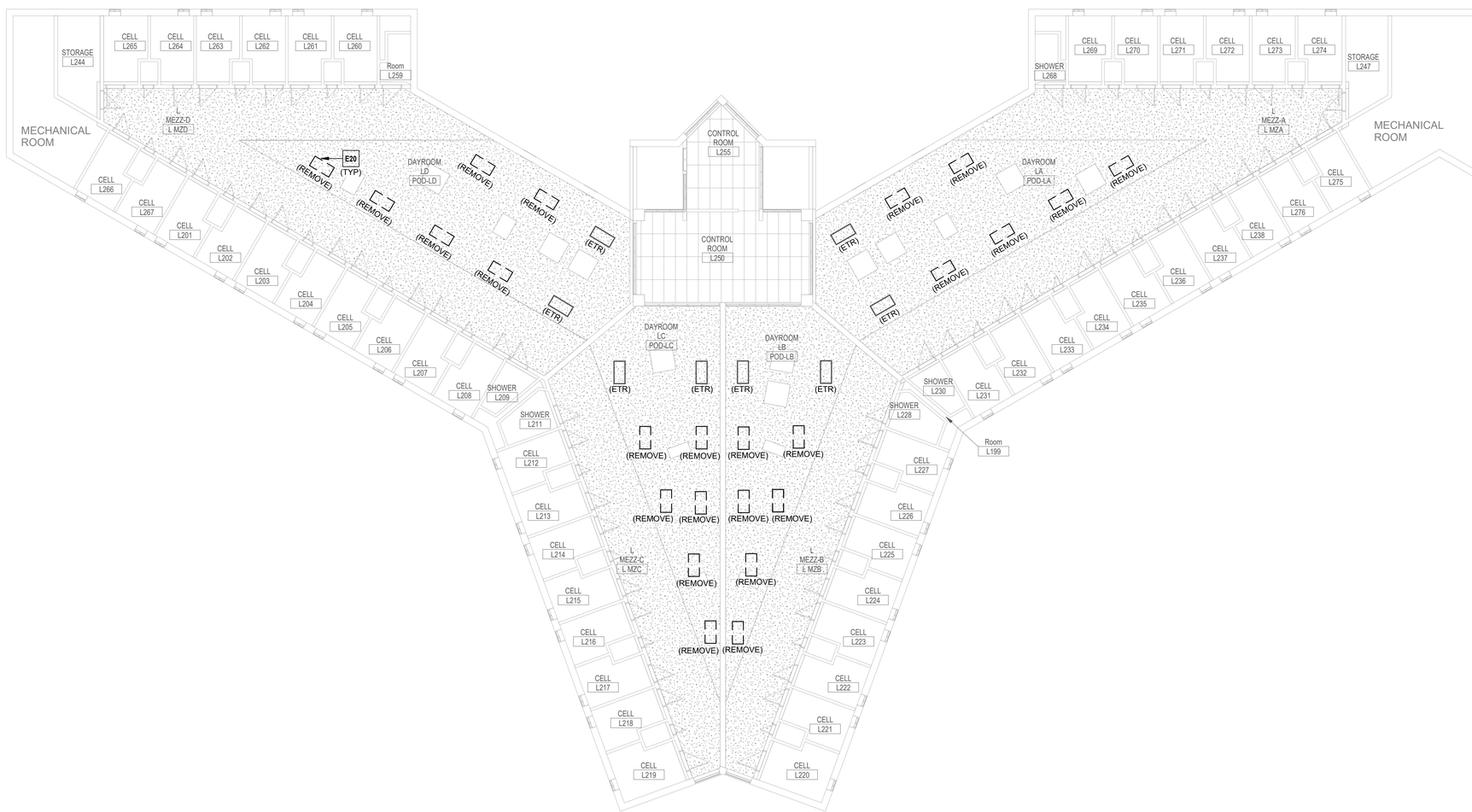
SHEET TITLE:
LIGHTING - LEVEL 2 DEMO PLAN - BUILDING D

SHEET NUMBER:
ED102.D

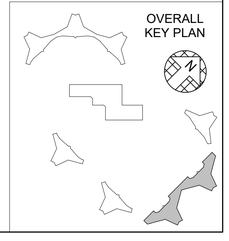
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

E20 REMOVE EXISTING CORRECTIONS RATED SURFACE MOUNTED LIGHT FIXTURES AND PROTECT THE EXISTING FIXTURE AND LIGHTING CIRCUIT FROM DAMAGE DURING THE CEILING REMOVAL PROCESS. COORDINATE DEMOLITION AND REMOVAL OF EXISTING CEILING AND LIGHT FIXTURES WITH ARCHITECTURAL DRAWINGS AND OTHER TRADES PRIOR TO START OF WORK. ONCE THE NEW CEILING INSTALLATION IS COMPLETE, CONTRACTOR SHALL RE-INSTALL EXISTING SURFACE MOUNTED LIGHT FIXTURE. REFER TO NEW WORK PLANS FOR MORE INFORMATION.



1 LIGHTING - LEVEL 2 DEMO PLAN - BUILDING L - TYP. OF BUILDING M
3/32" = 1'-0"



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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

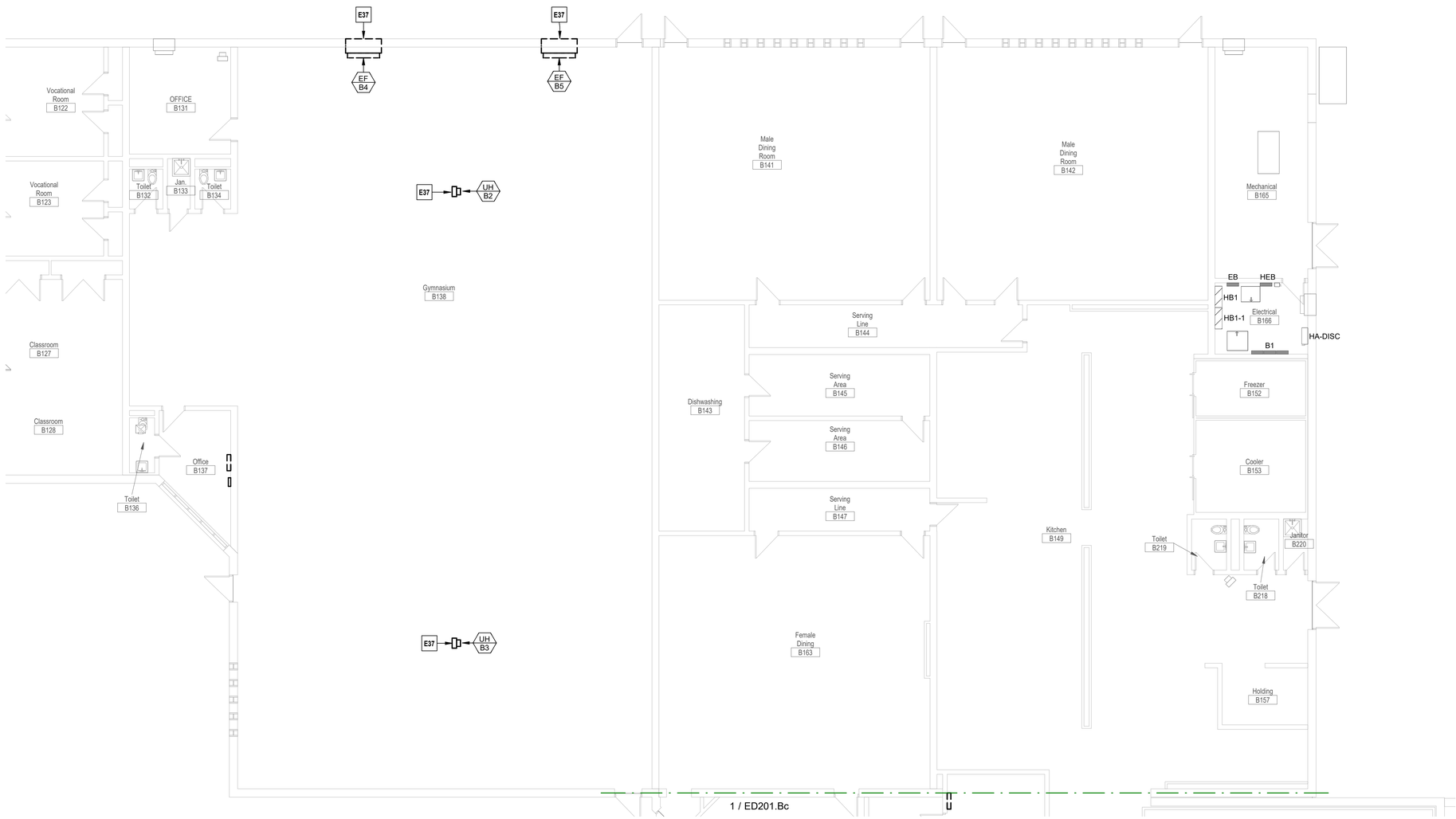
SHEET TITLE:
LIGHTING - LEVEL 2 DEMO PLAN - BUILDING L

SHEET NUMBER:
ED102.L

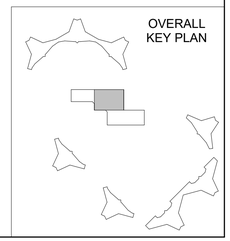
NATHAN W. STOSS

☐ **ELECTRICAL PLAN NOTES:**

E37 REMOVE ELECTRICAL CONNECTION TO HVAC EQUIPMENT BEING REMOVED BACK TO PANELBOARD OR LAST DEVICE ON CIRCUIT TO REMAIN FOR REUSE.



1 POWER DEMO - LEVEL 1 - BUILDING B - AREA B
1/8" = 1'-0"



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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:

POWER - LEVEL 1 DEMO PLAN - BUILDING B - AREA B

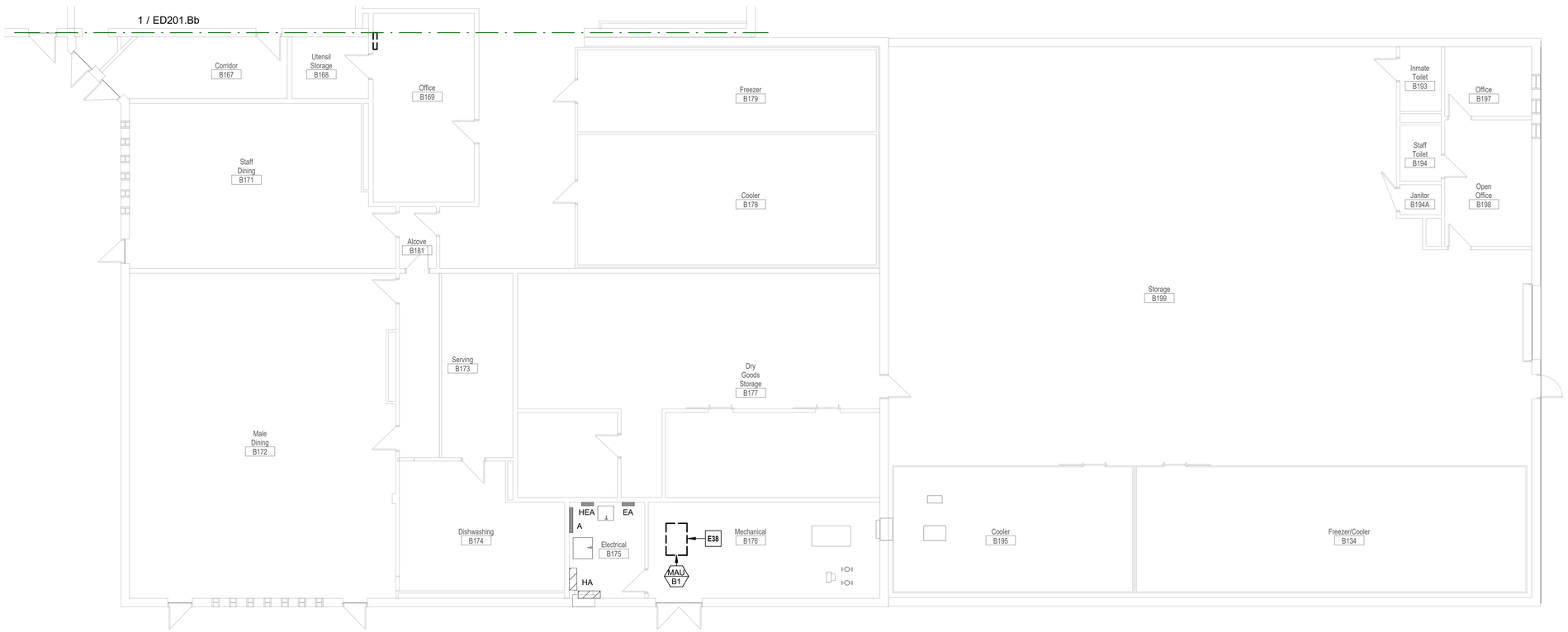
SHEET NUMBER:

ED201.Bb

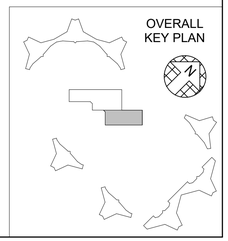
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

E38 ALTERNATE #3: REMOVE ELECTRICAL CONNECTION TO HVAC EQUIPMENT BEING REPLACED AS REQUIRED FOR NEW INSTALLATION. COORDINATE EXACT REQUIREMENTS WITH NEW WORK PRIOR TO BID.



1 POWER DEMO - LEVEL 1 - BUILDING B - AREA C
1/8" = 1'-0"



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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
POWER - LEVEL 1 DEMO PLAN - BUILDING B - AREA C

SHEET NUMBER:
ED201.Bc

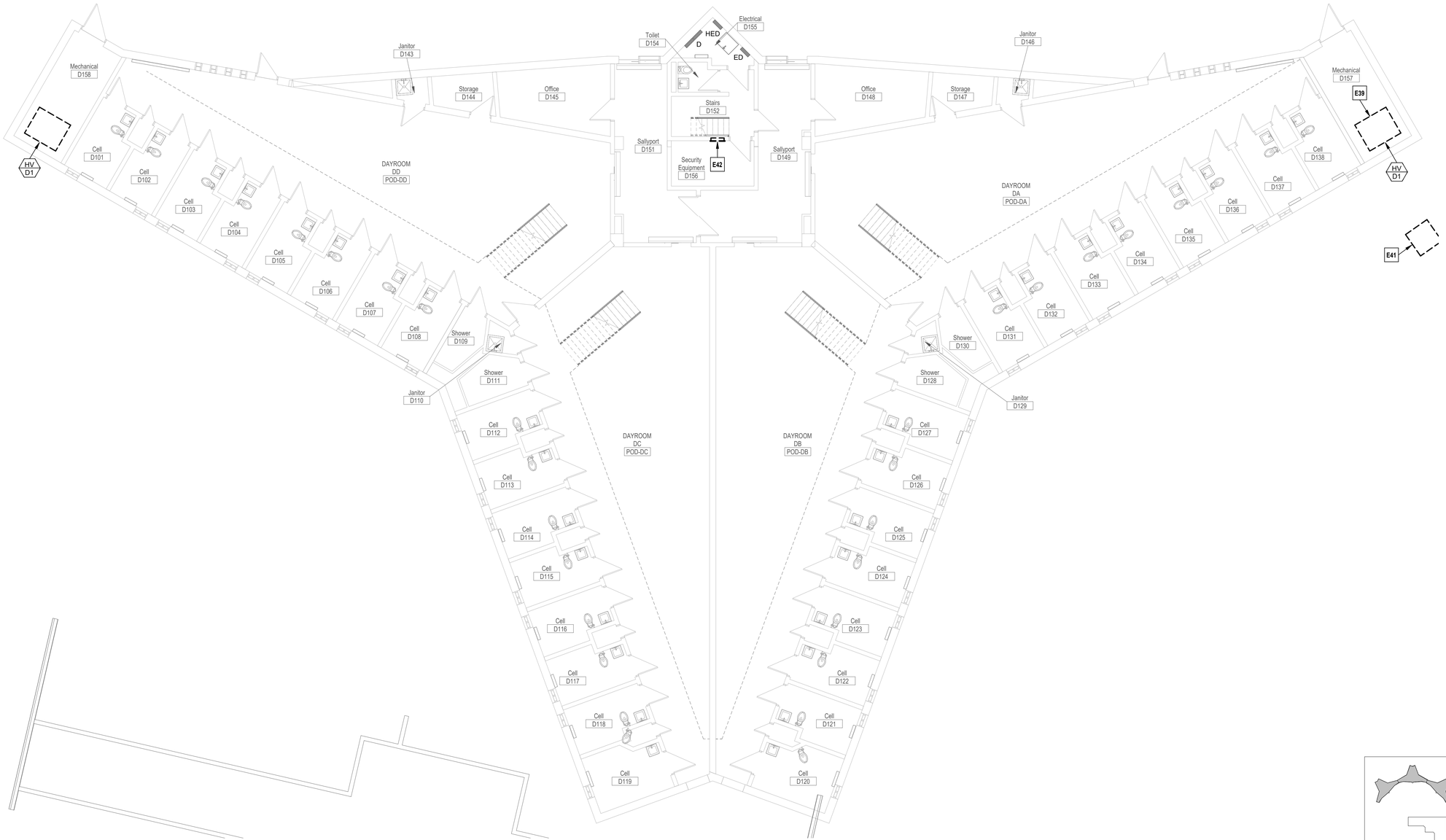
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

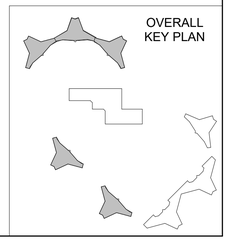
E39 ALTERNATE #4: REMOVE ELECTRICAL CONNECTION TO HVAC EQUIPMENT BEING REPLACED AS NEEDED FOR NEW INSTALLATION. COORDINATE EXACT REQUIREMENTS WITH NEW WORK PRIOR TO BID.

E41 REMOVE EXISTING PAD MOUNT TRANSFORMER TO ALLOW FOR REPLACEMENT. COORDINATE EXACT REQUIREMENTS WITH NEW WORK PRIOR TO BID.

E42 DISCONNECT EXISTING FIRE ALARM CONTROL PANEL AND RECONNECT EXISTING CIRCUIT TO REPLACEMENT PANEL. COORDINATE ANY DISRUPTION TO FIRE ALARM SYSTEM WITH FIRE ALARM CONTRACTOR AND OWNER PRIOR TO STARTING WORK. REFER TO FA SHEETS FOR LOCATIONS OF ADDITIONAL PANEL REPLACEMENTS, AND COORDINATE EXACT REQUIREMENTS WITH FIRE ALARM CONTRACTOR PRIOR TO BID.



1 POWER DEMO - LEVEL 1 - BUILDING D
1/8" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
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8/27/2026

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REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
POWER - LEVEL 1 DEMO PLAN - BUILDING D

SHEET NUMBER:
ED201.D

NATHAN W. STOSS

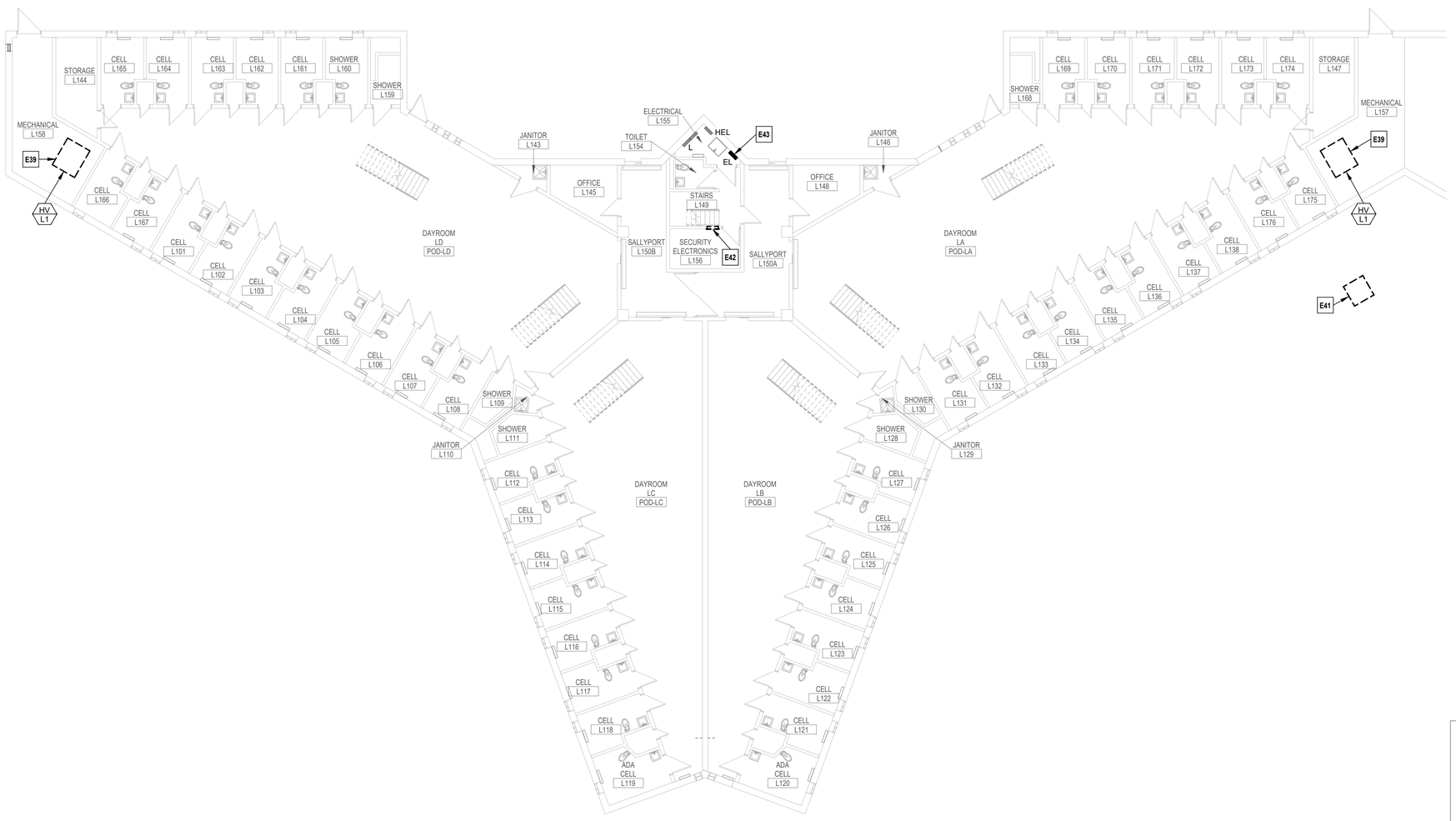
ELECTRICAL PLAN NOTES:

E39 ALTERNATE #4: REMOVE ELECTRICAL CONNECTION TO HVAC EQUIPMENT BEING REPLACED AS NEEDED FOR NEW INSTALLATION. COORDINATE EXACT REQUIREMENTS WITH NEW WORK PRIOR TO BID.

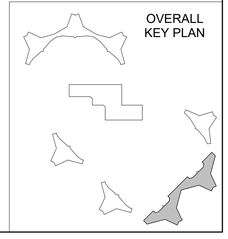
E41 REMOVE EXISTING PAD MOUNT TRANSFORMER TO ALLOW FOR REPLACEMENT. COORDINATE EXACT REQUIREMENTS WITH NEW WORK PRIOR TO BID.

E42 DISCONNECT EXISTING FIRE ALARM CONTROL PANEL AND RECONNECT EXISTING CIRCUIT TO REPLACEMENT PANEL. COORDINATE ANY DISRUPTION TO FIRE ALARM SYSTEM WITH FIRE ALARM CONTRACTOR AND OWNER PRIOR TO STARTING WORK. REFER TO FA SHEETS FOR LOCATIONS OF ADDITIONAL PANEL REPLACEMENTS, AND COORDINATE EXACT REQUIREMENTS WITH FIRE ALARM CONTRACTOR PRIOR TO BID.

E43 REMOVE PANELBOARDS 'EL' AND 'EM' TO BE REPLACED WITH LARGER PANELS. REFER TO NEW WORK PLANS FOR MORE INFORMATION.



1 POWER DEMO - LEVEL 1 - BUILDING L - TYP. OF BUILDING M
3/32" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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8/27/2026

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REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

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SITE # 7010
FACILITY # 9327010027

REVISION:
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REVISION:
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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

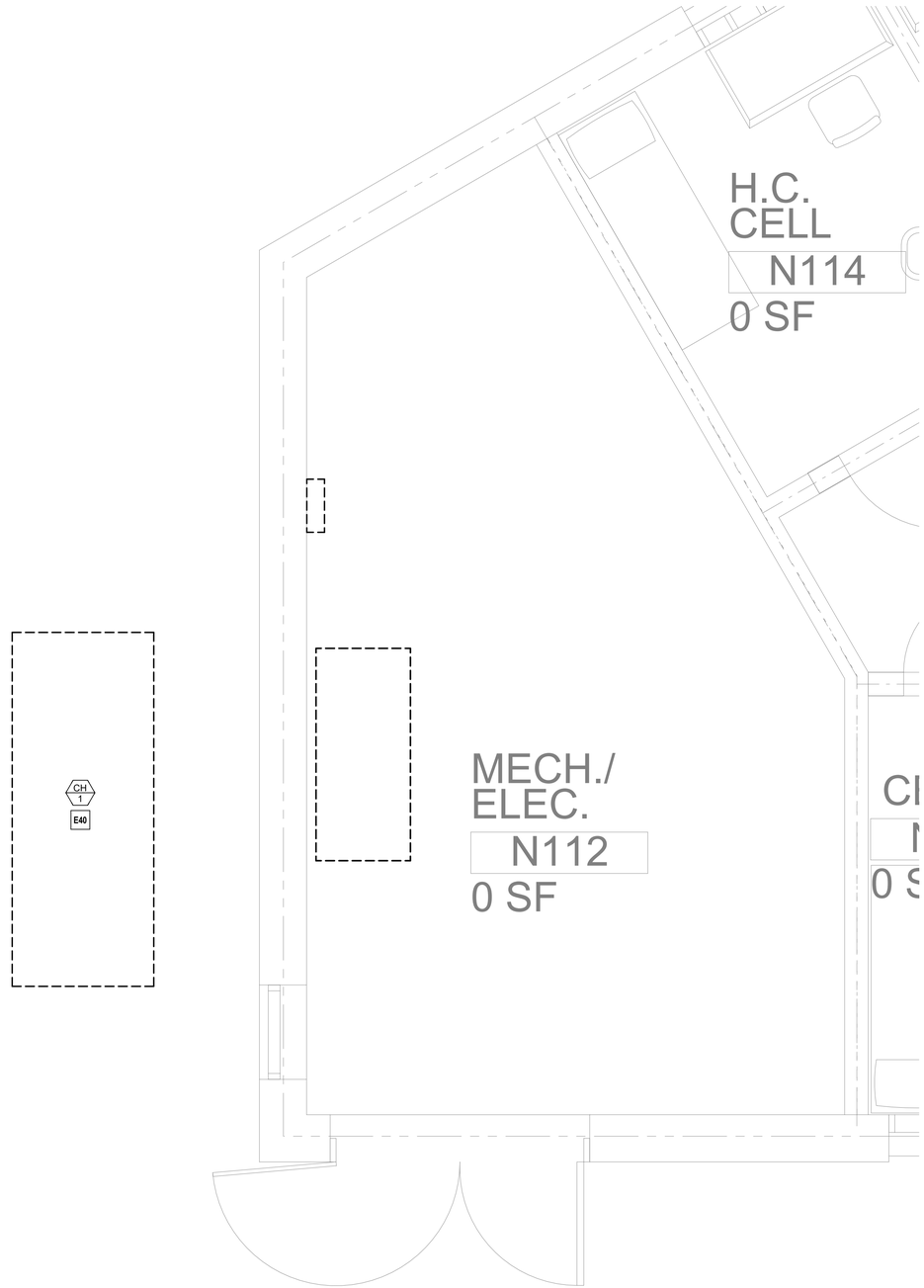
SHEET TITLE:
POWER - LEVEL 1 DEMO PLAN - BUILDING L

SHEET NUMBER:
ED201.L

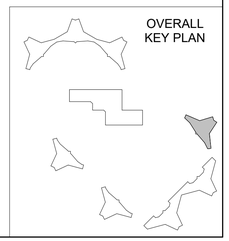
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

E40 ALTERNATE #2: REMOVE ELECTRICAL CONNECTION TO HVAC EQUIPMENT BEING REPLACED AS REQUIRED FOR NEW INSTALLATION. COORDINATE EXACT REQUIREMENTS WITH NEW WORK PRIOR TO BID.



1 EQUIPMENT CONNECTION DEMO - LEVEL 1 - CHILLER BUILDING N
1/2" = 1'-0"



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REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
EQUIPMENT CONNECTION - LEVEL 1 DEMO PLAN - BUILDING N

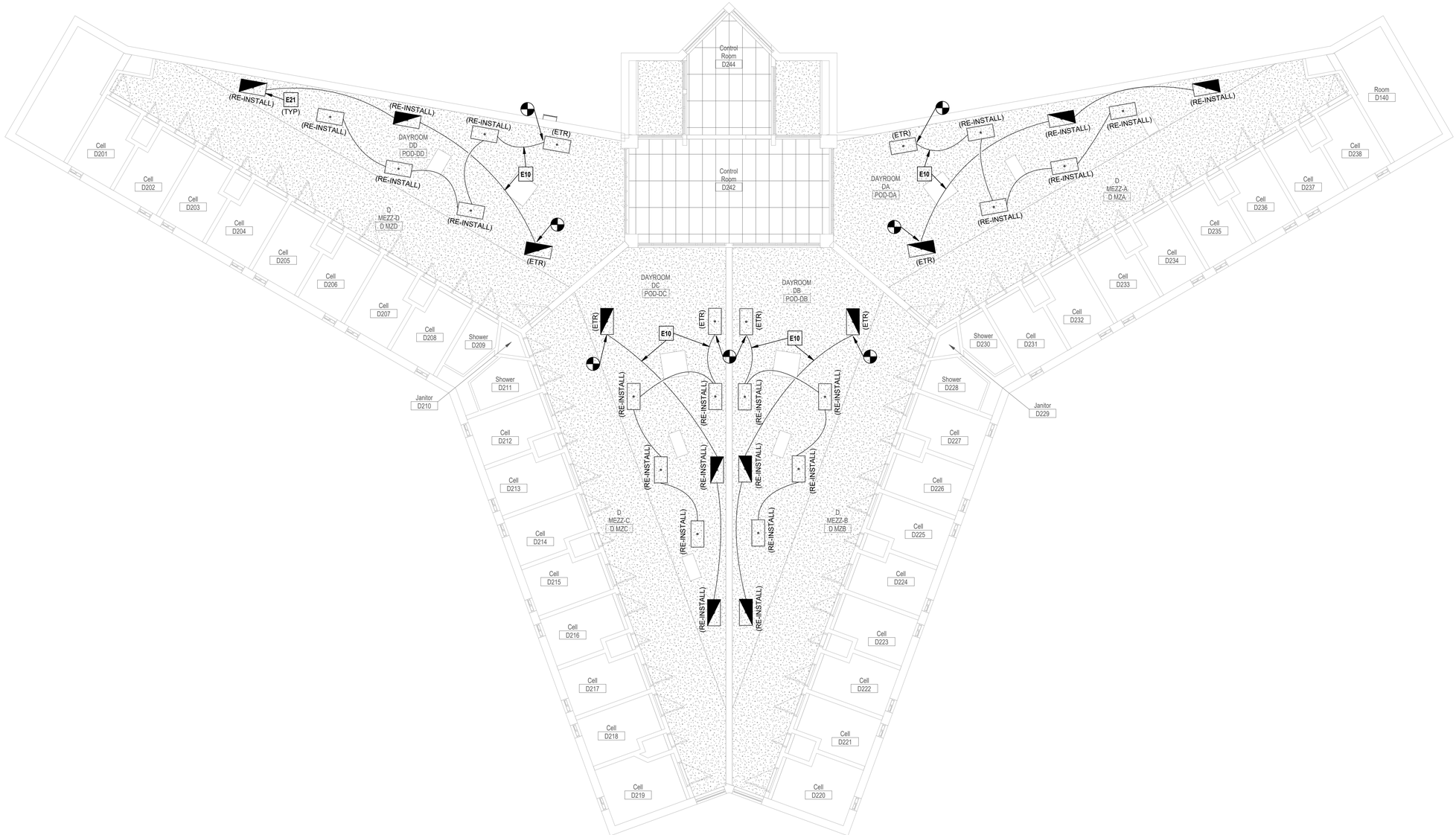
SHEET NUMBER:
ED301.N

NATHAN W. STOSS

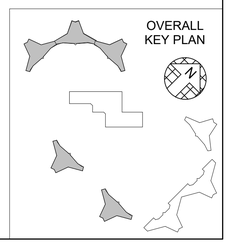
ELECTRICAL PLAN NOTES:

E10 EXTEND EXISTING LIGHTING CIRCUIT AS NEEDED TO CONNECT LIGHT FIXTURES TO EXISTING 120V LIGHTING CONTROLS SERVING THIS AREA. COORDINATE WITH OTHER TRADES PRIOR TO START OF WORK.

E21 RE-INSTALL EXISTING CORRECTIONS RATED SURFACE MOUNTED LIGHT FIXTURE IN SIMALAR LOCATION. CLEAN AND RE-LAMP ALL FIXTURES TO ACHIEVE A UNIFORM LIGHT LEVEL. COORDINATE WITH OTHER TRADES PRIOR TO START OF WORK.



1 LIGHTING - LEVEL 2 PLAN - BUILDING D - TYP. OF BUILDINGS E,F,G,&K
1/8" = 1'-0"



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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
LIGHTING - LEVEL 2 PLAN - BUILDING D

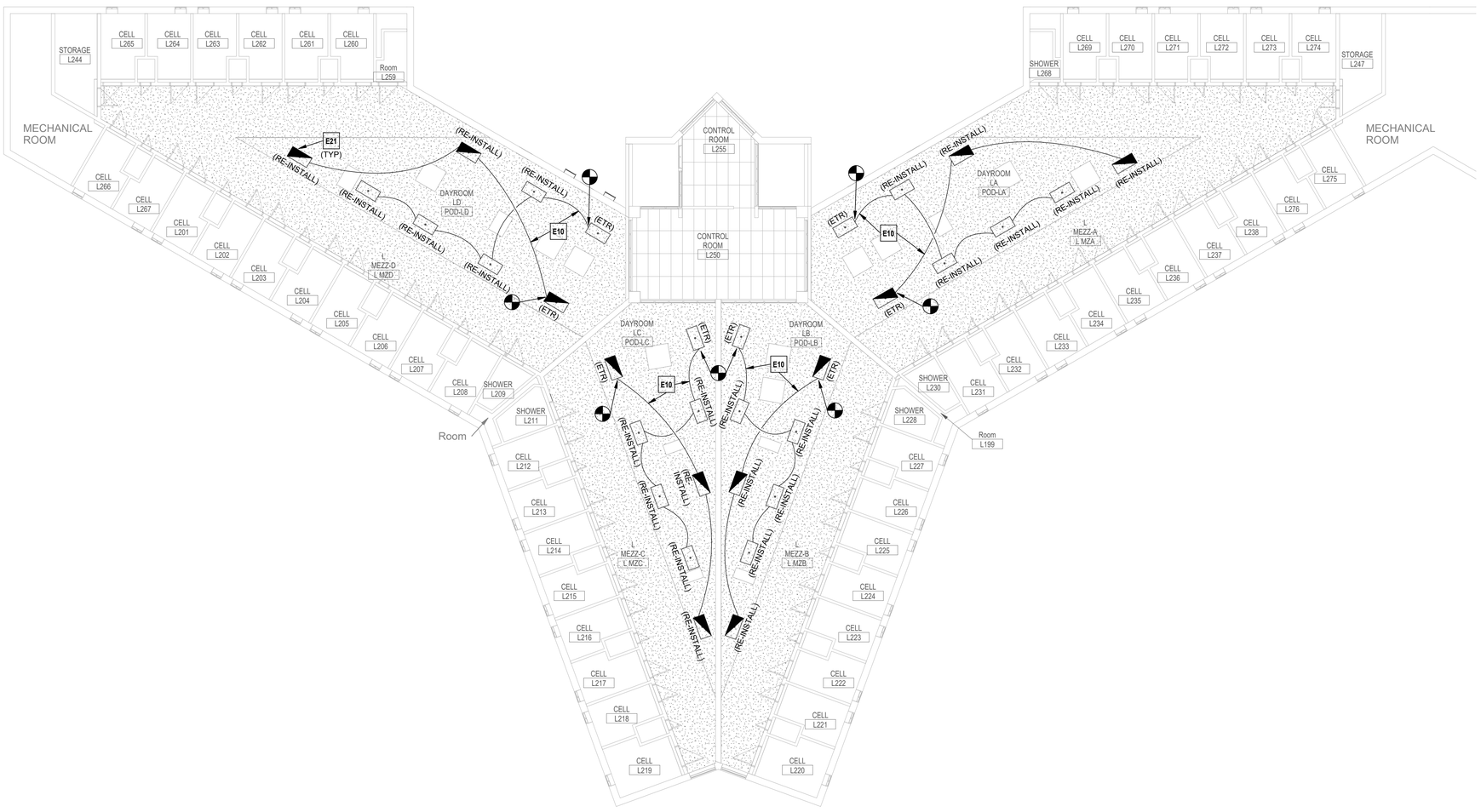
SHEET NUMBER:
E102.D

NATHAN W. STOSS

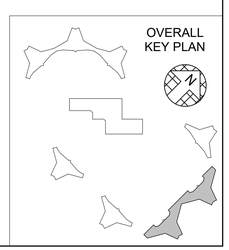
ELECTRICAL PLAN NOTES:

E10 EXTEND EXISTING LIGHTING CIRCUIT AS NEEDED TO CONNECT LIGHT FIXTURES TO EXISTING 120V LIGHTING CONTROLS SERVING THIS AREA. COORDINATE WITH OTHER TRADES PRIOR TO START OF WORK.

E21 RE-INSTALL EXISTING CORRECTIONS RATED SURFACE MOUNTED LIGHT FIXTURE IN SIMALAR LOCATION. CLEAN AND RE-LAMP ALL FIXTURES TO ACHIEVE A UNIFORM LIGHT LEVEL. COORDINATE WITH OTHER TRADES PRIOR TO START OF WORK.



1 LIGHTING - LEVEL 2 PLAN - BUILDING L - TYP. OF BUILDING M
3/32" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER

8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

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WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
LIGHTING - LEVEL 2 PLAN - BUILDING L

SHEET NUMBER:
E102.L

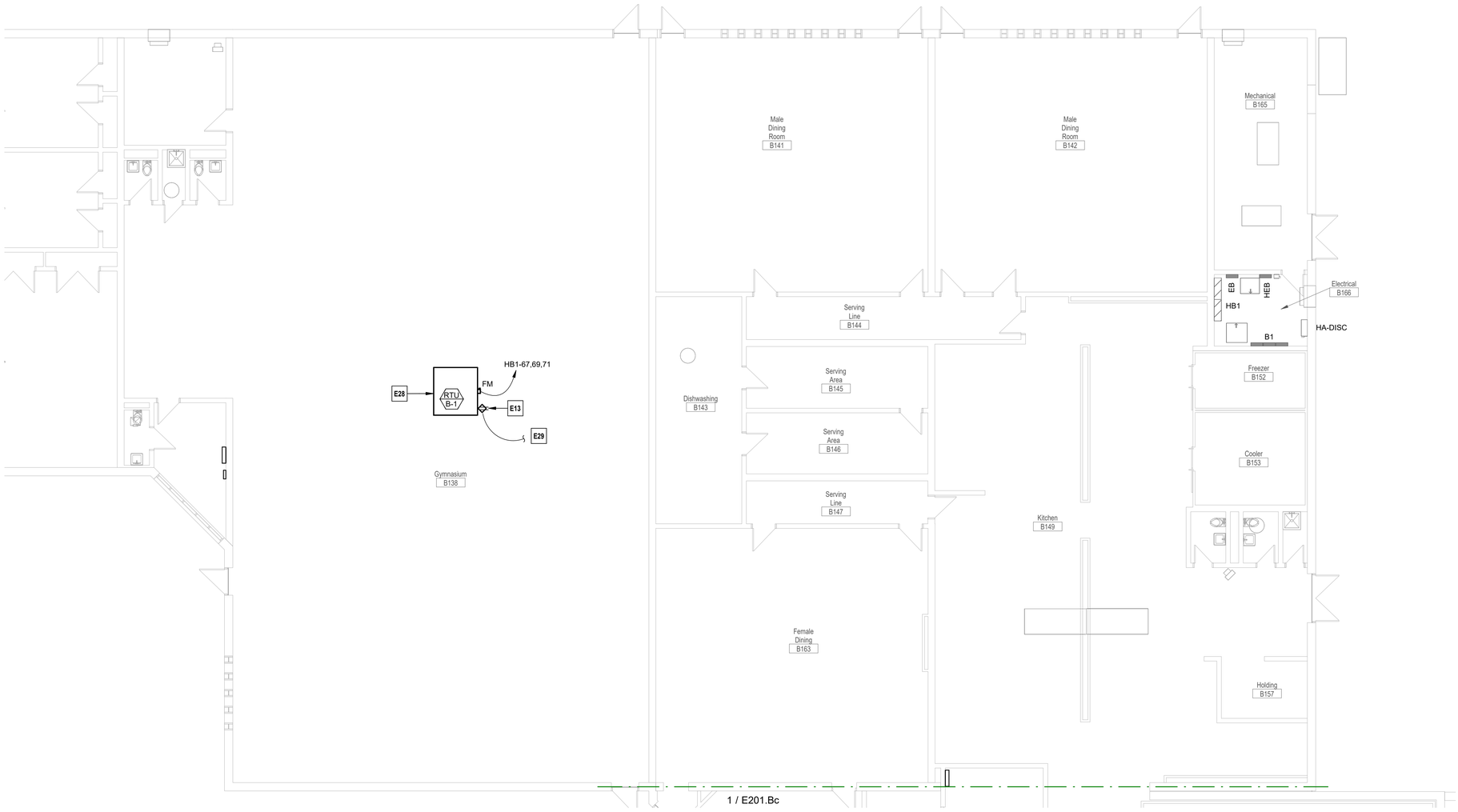
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

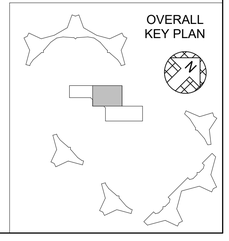
E13 PROVIDE POWER CONNECTION TO CONVENIENCE RECEPTACLE PRE-INSTALLED ON ROOFTOP UNIT BY MANUFACTURER. COORDINATE FINAL LOCATION AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.

E28 PROVIDE NEW CONNECTION TO HVAC UNIT ON ROOF WITH INTEGRAL FACTORY DISCONNECT AND SERVICE RECEPTACLE.

E29 CONNECT NEW SERVICE RECEPTACLE TO NEAREST EXISTING 120V CONVENIENCE RECEPTACLE CIRCUIT.



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



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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

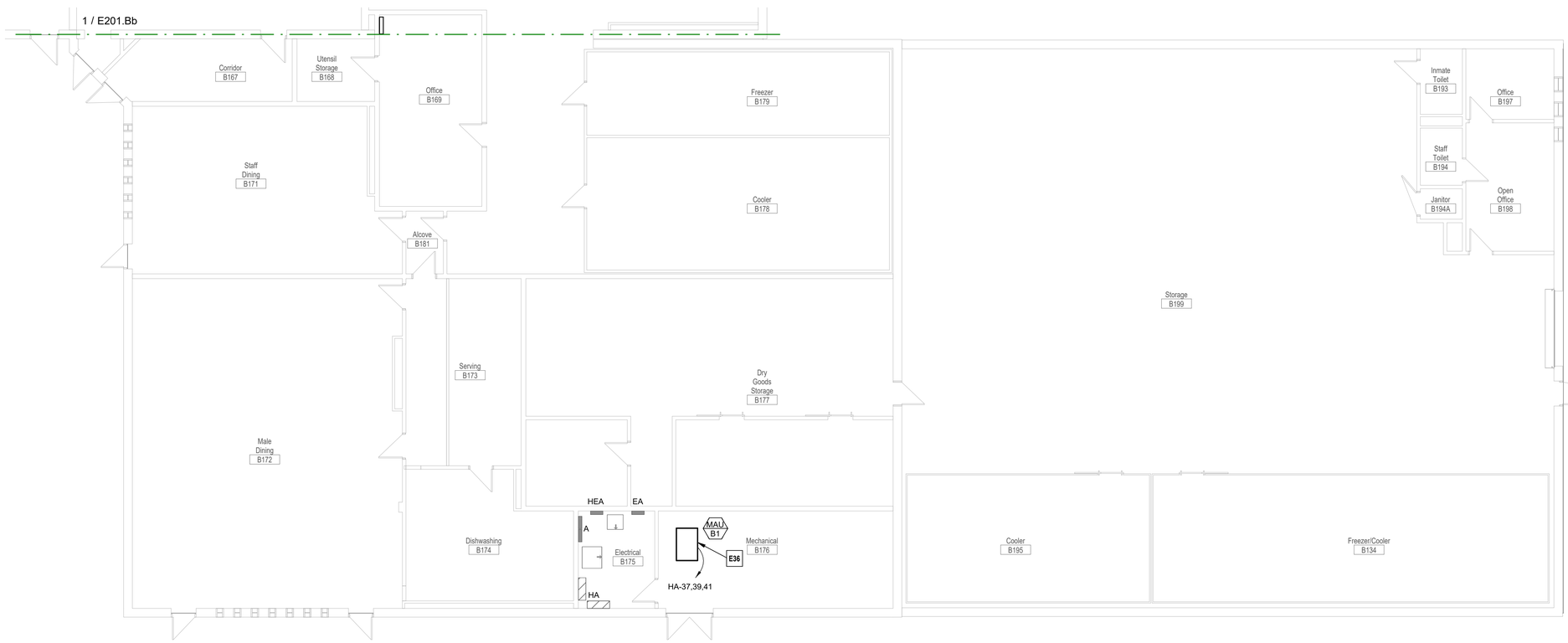
SHEET TITLE:
POWER - LEVEL 1 PLAN - BUILDING B - AREA B

SHEET NUMBER:
E201.Bb

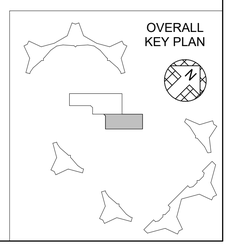
NATHAN W. STOSS

☐ **ELECTRICAL PLAN NOTES:**

E36 ALTERNATE #3: PROVIDE NEW CONNECTION TO FACTORY DISCONNECT PROVIDED WITH REPLACEMENT HVAC UNIT. EXISTING CONDUIT MAY BE REUSED IF IN LIKE NEW CONDITION.



1 EQUIPMENT CONNECTION - LEVEL 1 PLAN - BUILDING B - AREA C
1/8" = 1'-0"



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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
POWER - LEVEL 1 PLAN - BUILDING B - AREA C

SHEET NUMBER:
E201.Bc

NATHAN W. STOSS

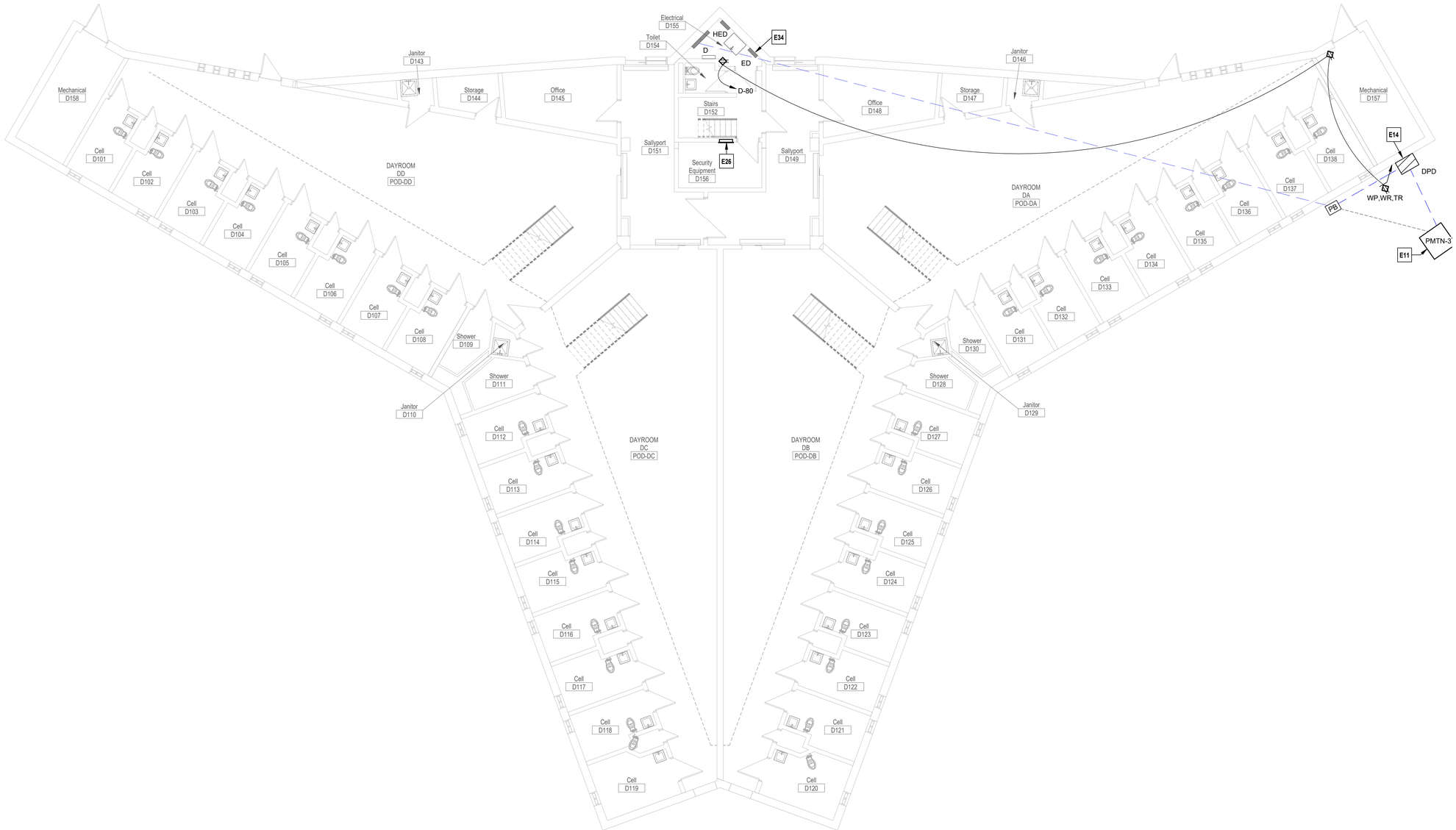
ELECTRICAL PLAN NOTES:

E11 EXTEND EXISTING TRANSFORMER PAD AS NEEDED AND REPLACE PAD MOUNT TRANSFORMER IN PLACE. PROVIDE EXTERIOR DISTRIBUTION BOARDS TO REFEED BUILDING. REFER TO SHEET E210 FOR MORE INFORMATION ON THE UNIQUE CONDITIONS OF EACH BUILDING.

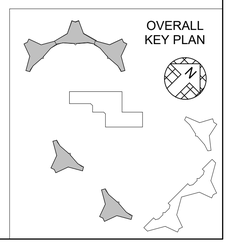
E14 PROVIDE NEW EXTERIOR WALL PENETRATIONS AS NEEDED TO ROUTE NEW CONNECTIONS WITHIN EXISTING MECHANICAL ROOM AND UP TO STRUCTURE. DO NOT ROUTE CONDUITS TO ROOF ON EXTERIOR OF BUILDING. PROVIDE 1" CONDUIT WITH PULL STRING TO BAS PANEL FOR MONITORING CONNECTION TO PANELBOARD METERING. COORDINATE EXACT CONDUIT ROUTING AND LOCATION OF NEW PANEL WITH EXISTING OBSTRUCTIONS TO ALLOW FOR EXTERIOR WALL PENETRATIONS TO BE DIRECTLY BEHIND NEW PANEL.

E26 RECONNECT NEW FIRE ALARM CONTROL PANEL TO EXISTING CIRCUIT. COORDINATE EXACT REQUIREMENTS WITH FIRE ALARM CONTRACTOR PRIOR TO BID.

E34 REPLACE EXISTING PANELBOARD 'EK' LOCATED IN BUILDING 'K' AND RECONNECT EXISTING CIRCUITS TO NEW PANEL. REFER TO PANELBOARD SCHEDULES FOR MORE INFORMATION.



1 POWER - LEVEL 1 PLAN - BUILDING D - TYP. OF BUILDINGS E,F,G,&K
1/8" = 1'-0"



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FACILITY # 9327010027

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REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
POWER - LEVEL 1 PLAN - BUILDING D

SHEET NUMBER:
E201.D

NATHAN W. STOSS

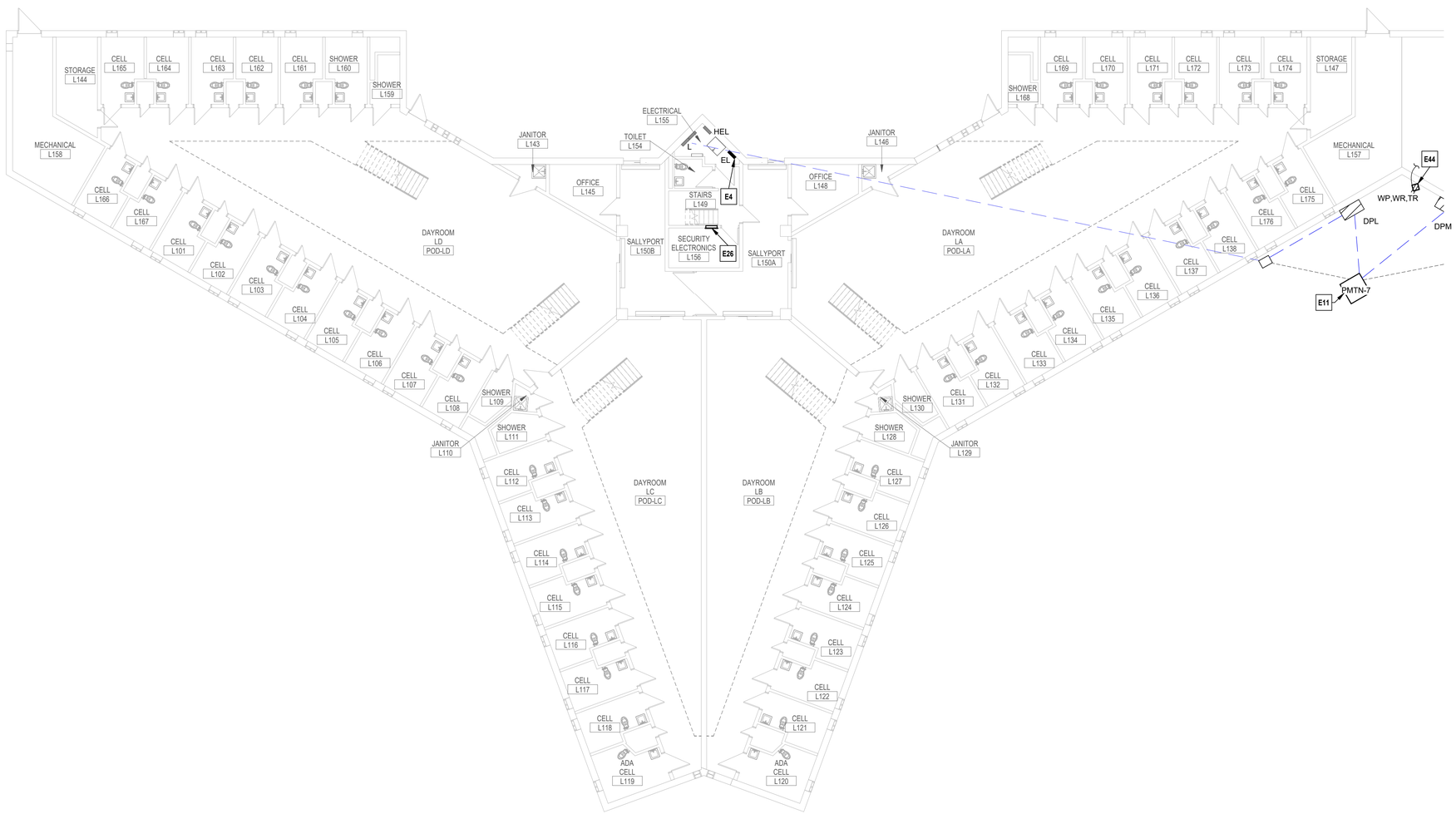
ELECTRICAL PLAN NOTES:

E4 REPLACE EXISTING PANELBOARDS 'EL' AND 'EM' LOCATED IN BUILDINGS 'L' & 'M' AND RECONNECT EXISTING CIRCUITS TO NEW PANELS. REFER TO PANELBOARD SCHEDULES FOR MORE INFORMATION.

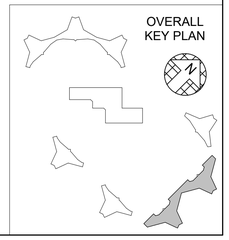
E11 EXTEND EXISTING TRANSFORMER PAD AS NEEDED AND REPLACE PAD MOUNT TRANSFORMER IN PLACE. PROVIDE EXTERIOR DISTRIBUTION BOARDS TO REFEED BUILDING. REFER TO SHEET E210 FOR MORE INFORMATION ON THE UNIQUE CONDITIONS OF EACH BUILDING.

E26 RECONNECT NEW FIRE ALARM CONTROL PANEL TO EXISTING CIRCUIT. COORDINATE EXACT REQUIREMENTS WITH FIRE ALARM CONTRACTOR PRIOR TO BID.

E44 PROVIDE NEW WEATHERPROOF WHILE IN USE RECEPTACLE ON EXTERIOR WALL AND CONNECT TO EXISTING GENERAL RECEPTACLE CIRCUIT SERVING ADJACENT MECHANICAL ROOM.



1 POWER - LEVEL 1 PLAN - BUILDING L - TYP. OF BUILDING M
3/32" = 1'-0"



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REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

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SITE # 7010
FACILITY # 9327010027

REVISION:
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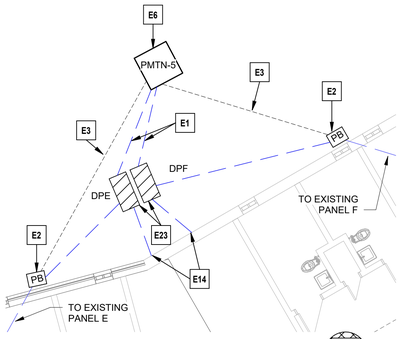
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

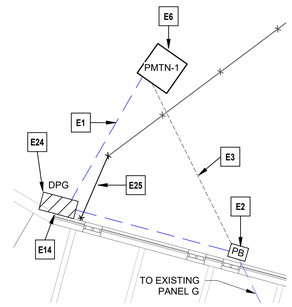
SHEET TITLE:
POWER - LEVEL 1 PLAN - BUILDING L

SHEET NUMBER:
E201.L

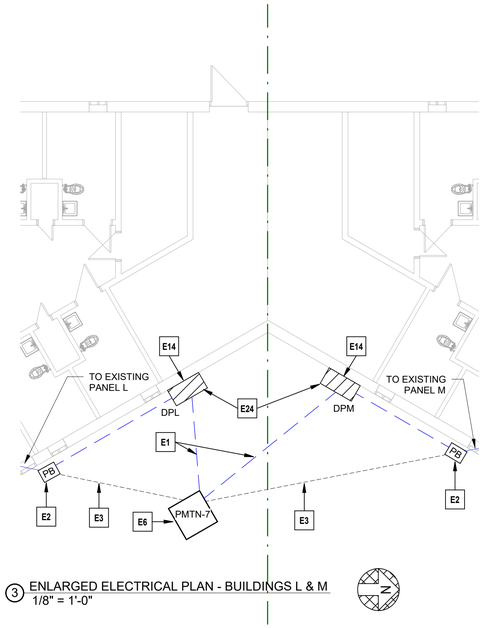
NATHAN W. STOSS



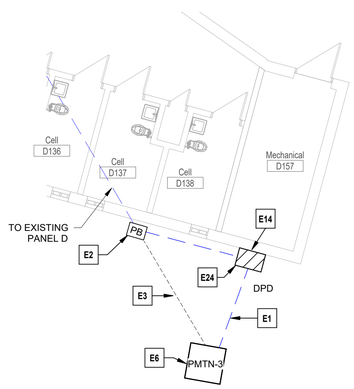
1 ENLARGED ELECTRICAL PLAN - BUILDINGS E & F
1/8" = 1'-0"



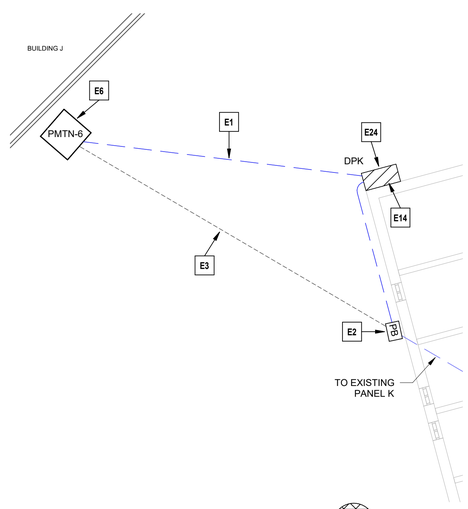
2 ENLARGED ELECTRICAL PLAN - BUILDING G
1/8" = 1'-0"



3 ENLARGED ELECTRICAL PLAN - BUILDINGS L & M
1/8" = 1'-0"



4 ENLARGED ELECTRICAL PLAN - BUILDING D
1/8" = 1'-0"



5 ENLARGED ELECTRICAL PLAN - BUILDING K
1/8" = 1'-0"

ELECTRICAL PLAN NOTES:

E1 PROVIDE NEW UNDERGROUND CONNECTION FROM REPLACED PAD MOUNTED TRANSFORMER TO NEW EXTERIOR DISTRIBUTION PANEL. INVESTIGATE PROPOSED ROUTE FOR OBSTRUCTIONS PRIOR TO ANY UNDERGROUND WORK. REMOVE UNUSED EXISTING UNDERGROUND CONDUITS AS NEEDED TO

E2 PROVIDE NEW IN-GRADE PULL BOX AND INTERCEPT EXISTING UNDERGROUND CONDUIT. REUSE EXISTING CONDUIT PATHWAY BELOW FLOOR SLAB TO PROVIDE NEW CONNECTION TO EXISTING PANEL IN ELECTRICAL ROOM. INVESTIGATE PROPOSED CONDUIT ROUTE FOR OBSTRUCTIONS PRIOR TO ANY UNDERGROUND WORK.

E3 ABANDON UNUSED PORTION OF EXISTING UNDERGROUND CONDUIT. CUT AND REMOVE EXISTING FEEDERS NO LONGER BEING USED.

E6 PROVIDE CONCRETE PAD EXTENSION AS NEEDED TO ACCOMMODATE REPLACEMENT TRANSFORMER PRIOR TO REMOVAL OF THE EXISTING TRANSFORMER. REFER TO STRUCTURAL SHEETS FOR MORE INFORMATION. PROVIDE NEW TRANSFORMER IN SAME LOCATION AND RECONNECT TO EXISTING MEDIUM VOLTAGE LOOP. PROTECT EXISTING CONDUITS AND CONDUCTORS DURING THE REPLACEMENT PROCESS. STAGE WORK TO LIMIT DOWNTIME TO A SINGLE TRANSFORMER AT A TIME AND COORDINATE OUTAGE SCHEDULES TO CO-INSIDE WITH OTHER WORK BEING PERFORMED IN EFFECTED BUILDINGS.

E14 PROVIDE NEW EXTERIOR WALL PENETRATIONS AS NEEDED TO ROUTE NEW CONNECTIONS WITHIN EXISTING MECHANICAL ROOM AND UP TO STRUCTURE. DO NOT ROUTE CONDUITS TO ROOF ON EXTERIOR OF BUILDING. PROVIDE 1" CONDUIT WITH PULL STRING TO BAS PANEL FOR MONITORING CONNECTION TO PANELBOARD METERING. COORDINATE EXACT CONDUIT ROUTING AND LOCATION OF NEW PANEL WITH EXISTING OBSTRUCTIONS TO ALLOW FOR EXTERIOR WALL PENETRATIONS TO BE DIRECTLY BEHIND NEW PANEL.

E23 PROVIDE CONCRETE BASE AND FREE STANDING UNISTRUT FRAME AS NEEDED TO SUPPORT NEW EXTERIOR DISTRIBUTION PANEL(S) APART FROM BUILDING. COORDINATE EXACT LOCATION OF PANELS WITH OWNER AND ENGINEER PRIOR TO ANY UNDERGROUND WORK. PROVIDE UNDERGROUND CONDUITS WITH 'LB' FITTINGS LOW ON EXTERIOR WALL FOR CONNECTION TO NEW BUILDING LOADS.

E24 PROVIDE NEW DISTRIBUTION PANEL ON EXTERIOR WALL. COORDINATE EXACT LOCATION OF PANEL WITH OWNER AND ENGINEER PRIOR TO ANY UNDERGROUND WORK.

E25 RELOCATE EXISTING BARRIER AND FENCE TO ALLOW FOR NEW PANEL. COORDINATE EXACT REQUIREMENTS WITH OWNER PRIOR TO BID.

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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
POWER PLAN - UNIQUE CONDITIONS

SHEET NUMBER:
E210

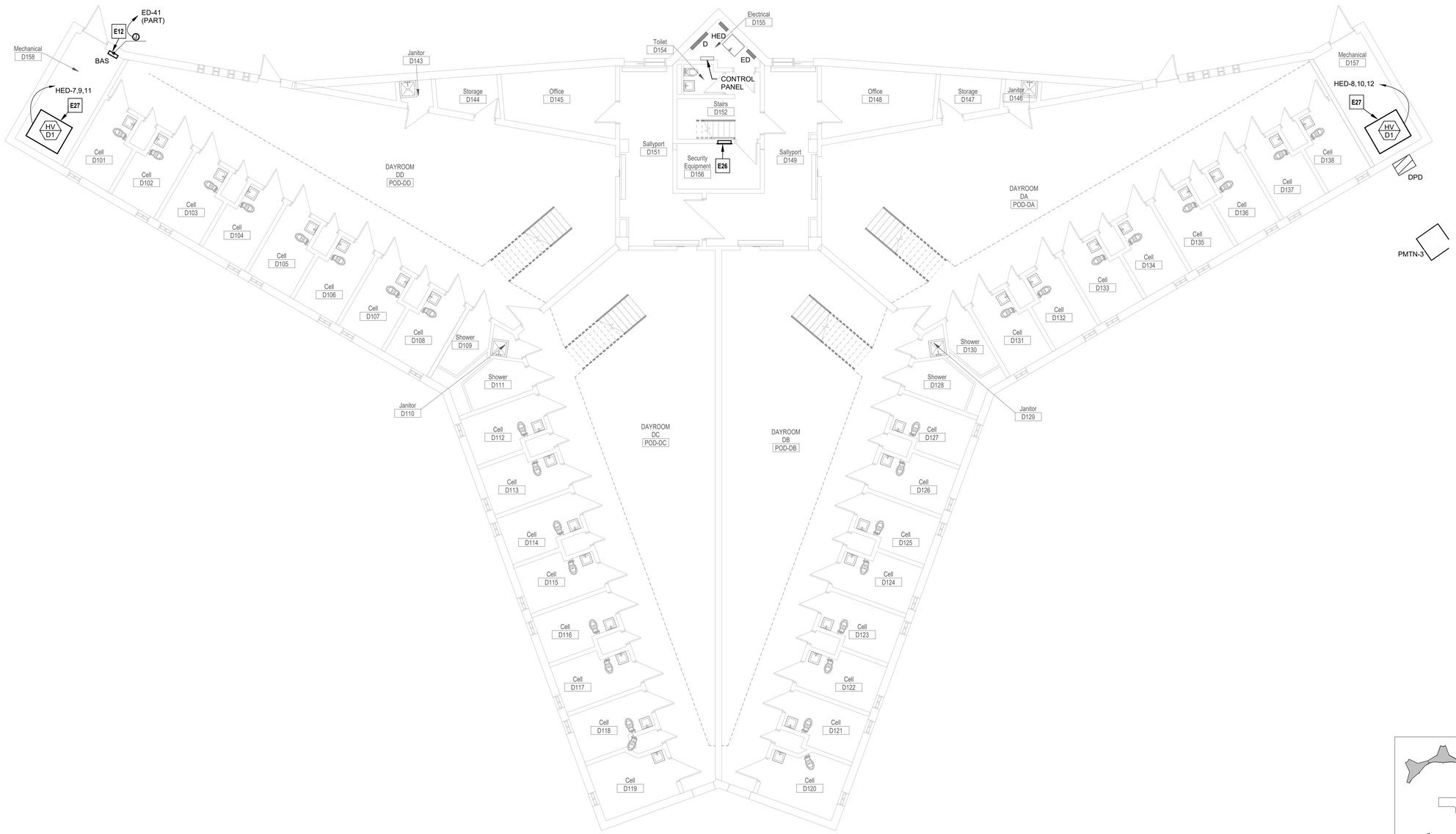
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

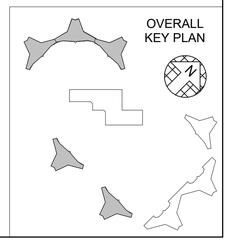
E12 BAS SYSTEM CONTROL PANEL. PROVIDE DATA AND POWER CONNECTION. COORDINATE LOCATION AND REQUIREMENTS WITH CONTROLS CONTRACTOR AND MECHANICAL SHEETS PRIOR TO ROUGH-IN.

E26 RECONNECT NEW FIRE ALARM CONTROL PANEL TO EXISTING CIRCUIT. COORDINATE EXACT REQUIREMENTS WITH FIRE ALARM CONTRACTOR PRIOR TO BID.

E27 ALTERNATE #4: PROVIDE NEW CONNECTION TO FACTORY DISCONNECT INTEGRAL TO REPLACEMENT HVAC UNIT. EXISTING CONDUIT PATHWAY MAY BE REUSED IF IN LIKE NEW CONDITION.



1 EQUIPMENT CONNECTION - LVL 1 PLAN - BLDG. D - TYP. OF BLDGS. E,F,G,&K
1/8" = 1'-0"



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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
EQUIPMENT CONNECTION - LEVEL 1 - BLDG D

SHEET NUMBER:
E301.D

NATHAN W. STOSS

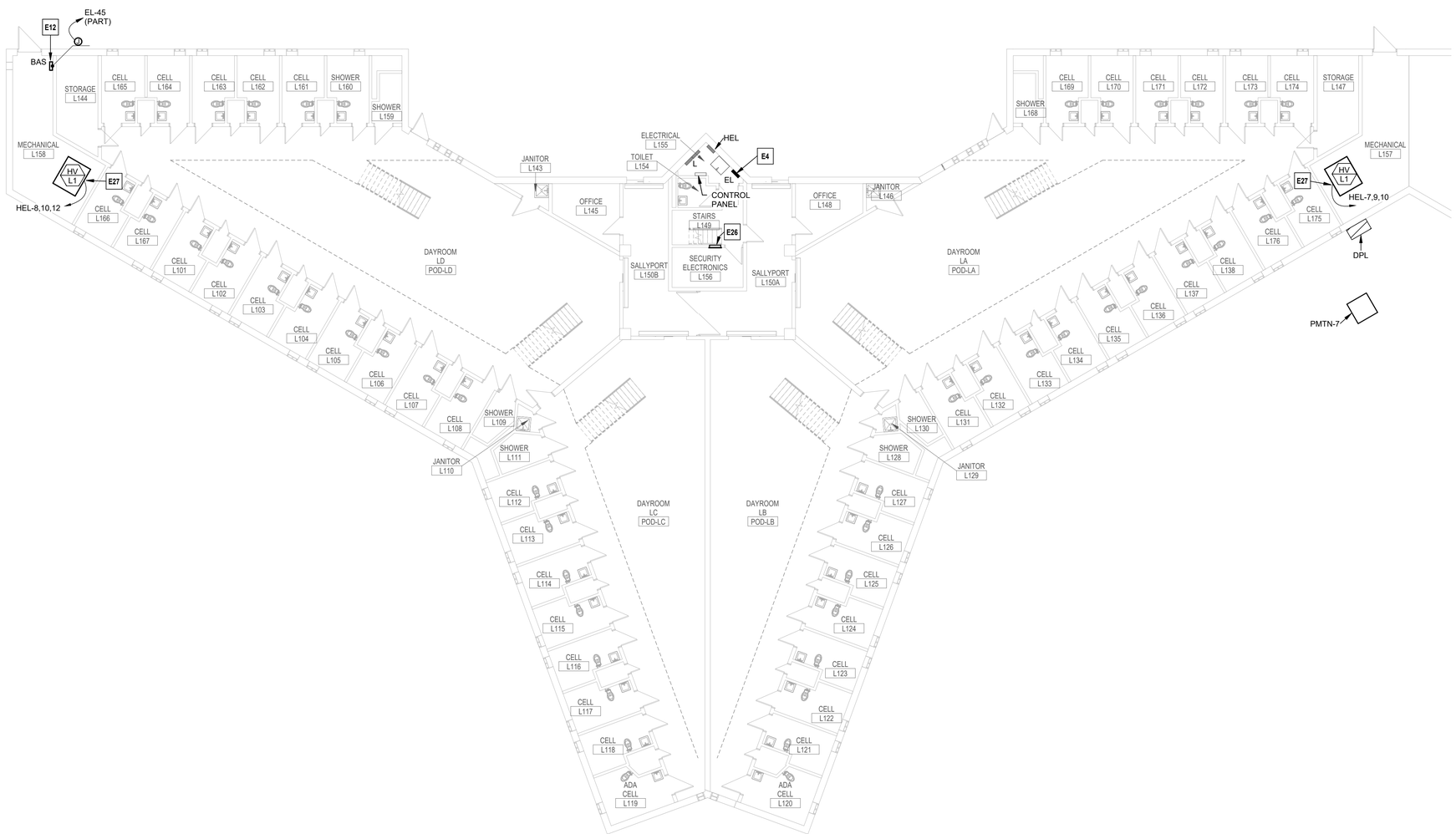
ELECTRICAL PLAN NOTES:

E4 REPLACE EXISTING PANELBOARDS 'EL' AND 'EM' LOCATED IN BUILDINGS 'L' & 'M' AND RECONNECT EXISTING CIRCUITS TO NEW PANELS. REFER TO PANELBOARD SCHEDULES FOR MORE INFORMATION.

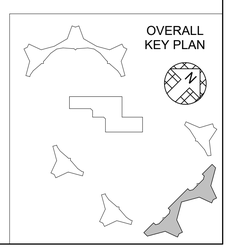
E12 BAS SYSTEM CONTROL PANEL. PROVIDE DATA AND POWER CONNECTION. COORDINATE LOCATION AND REQUIREMENTS WITH CONTROLS CONTRACTOR AND MECHANICAL SHEETS PRIOR TO ROUGH-IN.

E26 RECONNECT NEW FIRE ALARM CONTROL PANEL TO EXISTING CIRCUIT. COORDINATE EXACT REQUIREMENTS WITH FIRE ALARM CONTRACTOR PRIOR TO BID.

E27 ALTERNATE #4: PROVIDE NEW CONNECTION TO FACTORY DISCONNECT INTEGRAL TO REPLACEMENT HVAC UNIT. EXISTING CONDUIT PATHWAY MAY BE REUSED IF IN LIKE NEW CONDITION.



1 EQUIPMENT CONNECTION - LEVEL 1 PLAN - BLDG. L - TYP. OF BLDG. M
3/32" = 1'-0"



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CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
EQUIPMENT CONNECTION - LEVEL 1 - BLDG L

SHEET NUMBER:
E301.L

NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

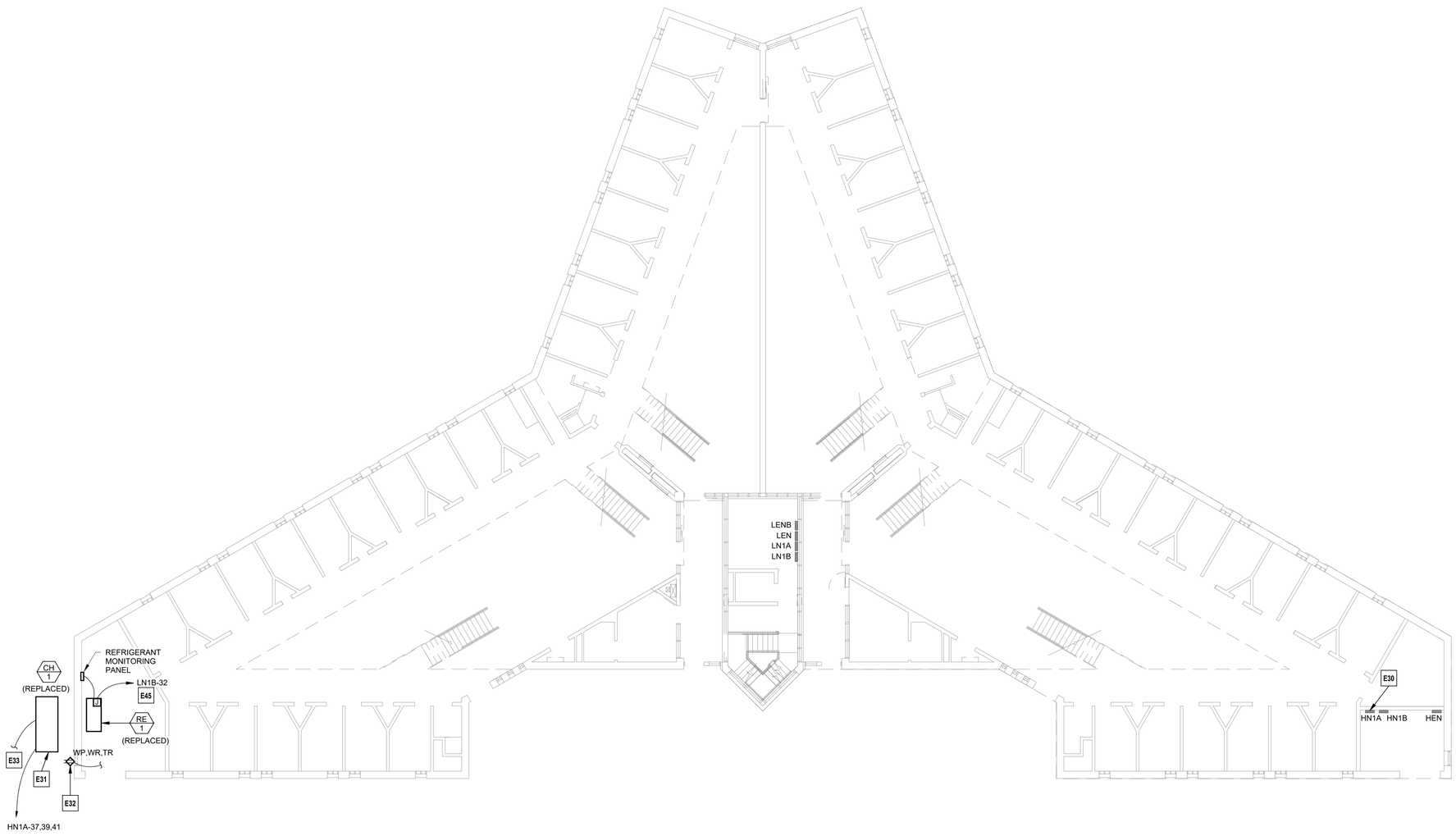
E30 ALTERNATE #2: FIELD VERIFY EXISTING BREAKER SIZE SERVING CHILLER PRIOR TO BID AND PROVIDE NEW BREAKER AS NEEDED TO MATCH REQUIREMENTS OF REPLACEMENT CHILLER.

E31 ALTERNATE #2: PROVIDE NEW CONNECTION TO FACTORY DISCONNECT PROVIDED WITH REPLACEMENT HVAC UNIT. EXISTING CONDUIT MAY BE REUSED IF IN LIKE NEW CONDITION.

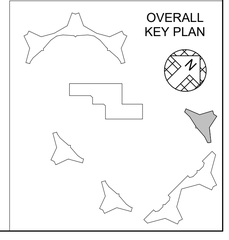
E32 ALTERNATE #2: PROVIDE NEW WEATHERPROOF WHILE IN USE RECEPTACLE ON EXTERIOR WALL AND CONNECT TO EXISTING GENERAL RECEPTACLE CIRCUIT SERVING ADJACENT MECHANICAL ROOM.

E33 ALTERNATE #2: RECONNECT EXISTING 120V CIRCUIT SERVING EVAP-HEAT ON REMOVED CHILLER TO NEW CHILLER.

E45 ALTERNATE #2: PROVIDE NEW 120V POWER CONNECTION TO REMOTE CHILLER EVAPORATOR CONTROL PANEL AND REFRIGERANT MONITORING PANEL AS INDICATED.



1 EQUIPMENT CONNECTION - LEVEL 1 PLAN - BUILDING N
3/32" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER

8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 **FAX** 913.742.5001
WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

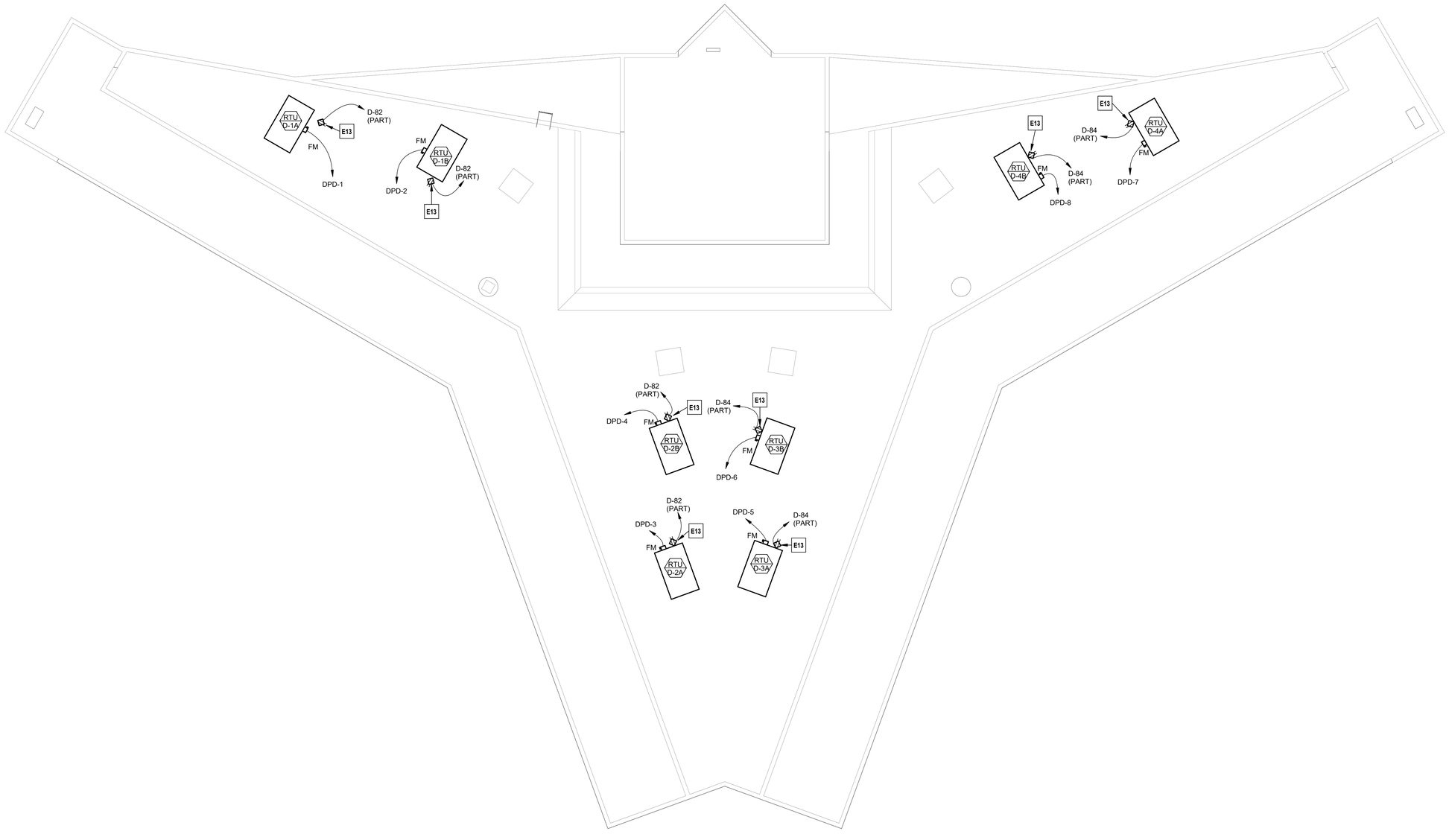
SHEET TITLE:
EQUIPMENT CONNECTION - LEVEL 1 - BLDG N

SHEET NUMBER:
E301.N

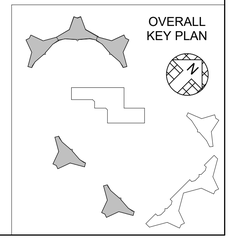
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

E13 PROVIDE POWER CONNECTION TO CONVENIENCE RECEPTACLE PRE-INSTALLED ON ROOFTOP UNIT BY MANUFACTURER. COORDINATE FINAL LOCATION AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.



1 EQUIP CONNECTION ROOF PLAN - BLDG D - TYP. OF BUILDINGS E,F,G,&K
1/8" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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PROFESSIONAL ENGINEER

8/27/2026

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OFFICE OF ADMINISTRATION
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DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

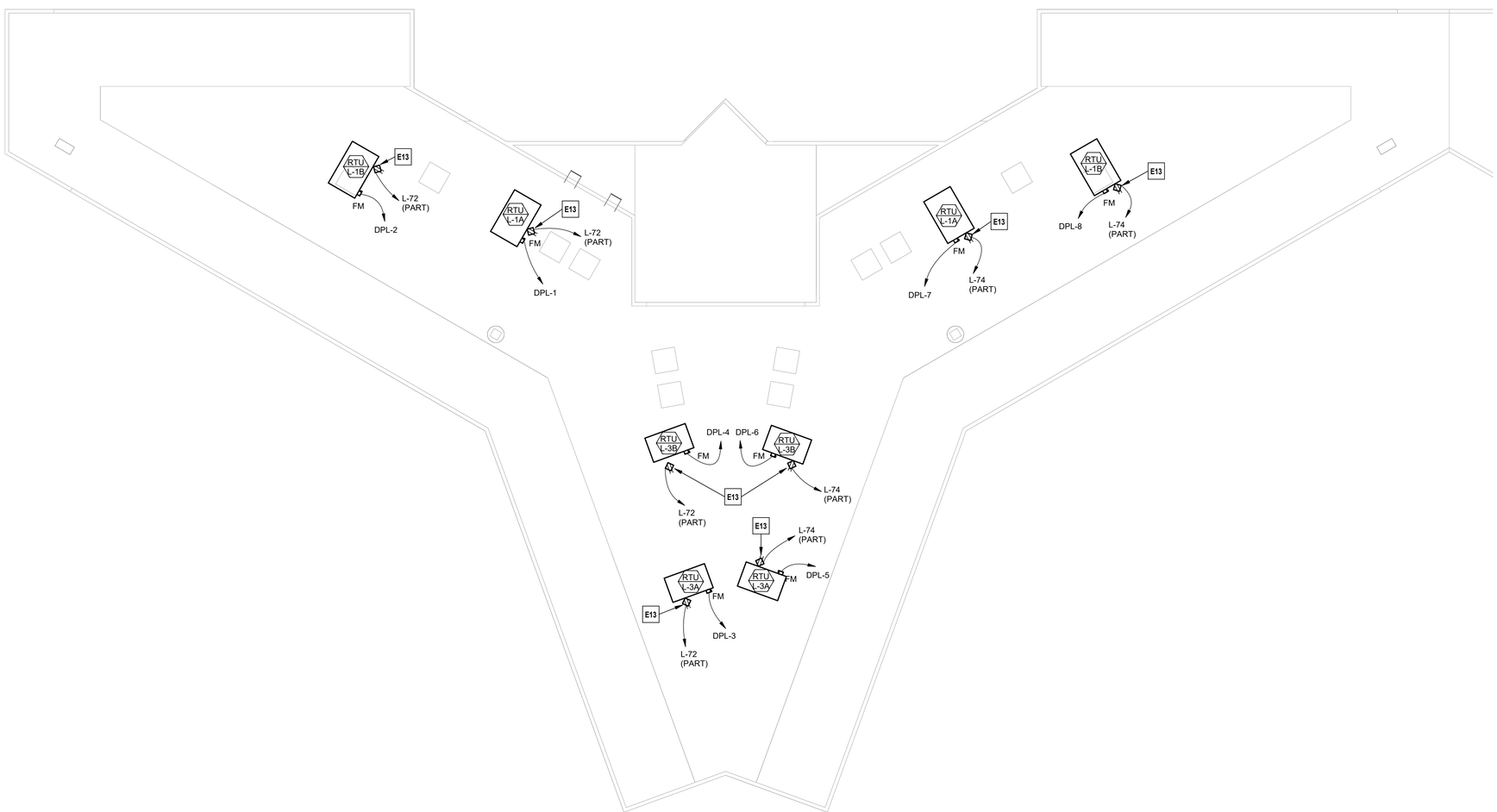
SHEET TITLE:
EQUIPMENT CONNECTION ROOF PLAN - BUILDING D

SHEET NUMBER:
E303.D

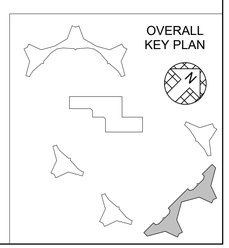
NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

E13 PROVIDE POWER CONNECTION TO CONVENIENCE RECEPTACLE PRE-INSTALLED ON ROOFTOP UNIT BY MANUFACTURER. COORDINATE FINAL LOCATION AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.



1 ELECTRICAL ROOF PLAN - BUILDING L - TYP. OF BUILDING M
3/32" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER
PE-2023044638
PROFESSIONAL ENGINEER

8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

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OFFICE OF ADMINISTRATION
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DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
EQUIPMENT CONNECTION ROOF PLAN - BUILDING L

SHEET NUMBER:
E303.L

NATHAN W. STOSS

PANELBOARD: EK (DEMO)

BUS AMPS: 150A
MAIN SIZE/TYPE: 150A MCB
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: **HEK VIA 45KVA XFMR**
AIC RATING: 10000; FULLY RATED
MOUNTING: SURFACE
SERVES: 120V EMERG. LOAD HOUSING UNIT
LOCATION: HOUSING UNIT K ELECTRICAL ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	CONTROL ROOM LGTS.	1,350			EX	20	1	1	20	EX	1,000			EXISTING LOAD	2	EX
EX	3	CONTROL ROOM LGTS.		900		EX	20	1	1	20	EX		1,000		EXISTING LOAD	4	EX
EX	5	EXISTING LOAD			1,000	EX	20	1	1	20	EX			1,000	EXISTING LOAD	6	EX
EX	7	EXISTING LOAD	1,000			EX	20	1	1	20	EX	1,150			SALLYPORT LIGHTS	8	EX
EX	9	DAYROOM 1,2 LGTS		1,200		EX	20	1	1	20	EX		900		PUMP P-K1	10	EX
EX	11	DAYROOM 3,4 LGTS			1,200	EX	20	1	1	20	EX			900	PUMP P-K1	12	EX
EX	13	EF-K1 (A)	400			EX	25	1	1	20	EX	900			PUMP P-K1	14	EX
EX	15	EF-K1 (B)		400		EX	25	1	1	20	EX		900		PUMP P-K1	16	EX
EX	17	GRAPHIC PANEL			1,800	EX	20	1	1	20	EX			900	PUMP P-K1	18	EX
EX	19	GRAPHIC PANEL	1,800			EX	20	1	1	20	EX	900			PUMP P-K1	20	EX
EX	21	LOCKING PANELS A		1,800		EX	20	1	1	20	EX		1,000		FACP	22	EX
EX	23	LOCKING PANELS B			1,800	EX	20	1	1	20	EX			200	MULTIPLEX PANEL	24	EX
EX	25	LOCKING PANELS C	1,800			EX	20	1	1	20	EX	100			TEL. BACKBOARD	26	EX
EX	27	LOCKING PANELS D		1,800		EX	20	1	1	20	EX		200		P.A/INTERCOM	28	EX
EX	29	TV			1,200	EX	20	1	1	20	EX			500	HWP-1	30	EX
EX	31	HVAC CONTROL PANEL	400			EX	20	1	1	20	EX	1,200			HWP-1	32	EX
EX	33	HVAC CONTROL PANEL		1,200		EX	20	1	1	20	EX		1,200		P.C. CABINET	34	EX
EX	35	CONTROL RM RECPT			1,200	EX	20	1	1	20	EX			1,200	EXISTING LOAD	36	EX
EX	37	EXISTING LOAD	1,000			EX	20	1	1	20	EX	1,000			EXISTING LOAD	38	EX
EX	39	RTHU-1		12,800		EX	70	2	2	70	EX		5,800		RTHU-1 (HEAT)	40	EX
	41				12,800									5,800		42	
		SUBTOTAL	7,750	20,100	21,000							6,250	11,000	10,500	SUBTOTAL		

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
TOTAL PHASE A - VA	14,000	COOLING	[C]		1.00	REFRIG	[F]		1.00
AMPS	117	HEATING	[H]		0	SIGNAGE	[S]		1.25
TOTAL PHASE B - VA	31,100	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
AMPS	259	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	76,600	1.00
TOTAL PHASE C - VA	31,500	MOTORS	[M]		1.00	LRG MOTOR			1.25
AMPS	263	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
TOTAL PNLBD - VA	76,600	MISC EQUIP	[Z]		1.00	LTG TRACK			1.00
AMPS	213								

TOTAL DEMAND	
76,600	VA
213	A

PANELBOARD NOTES

PANELBOARD: EL,EM (DEMO)

BUS AMPS: 250A
MAIN SIZE/TYPE: 250A MCB
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: **HEL, HEM VIA 75KVA XFMR**
AIC RATING: 10000; FULLY RATED
MOUNTING: SURFACE
SERVES: 120V EMERG. LOAD HOUSING UNIT
LOCATION: HOUSING UNIT L,M ELECTRICAL ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	CONTROL RM. LIGHTS	1,350			EX	20	1	1	20	EX	1,000			WALWAY LTS-C DAYROOM	2	EX
EX	3	CONTROL RM. LIGHTS		900		EX	20	1	1	20	EX		1,000		WALWAY LTS-D DAYROOM	4	EX
EX	5	WALKWAY LTS-A DAYROOM			1,000	EX	20	1	1	20	EX			1,200	WALWAY LTS-D DAYROOM	6	EX
EX	7	WALKWAY LTS-B DAYROOM	1,000			EX	20	1	1	20	EX	1,150			SALLYPORT LIGHTS	8	EX
EX	9	WALKWAY LTS-C DAYROOM		1,000		EX	20	1					900			10	
EX	11	P.C. CABINET			1,000	EX	20	1	3	20	EX			900	PUMP P-1	12	EX
EX	13	EF-1 (B)	1,700			EX	25	1				900				14	
EX	15	EF - 2,3		400		EX	20	1					900			16	EX
EX	17	P.C. CABINET			1,800	EX	20	1	3	20	EX			900	PUMP P-1	18	EX
EX	19	P.C. CABINET	1,800			EX	20	1				900				20	EX
EX	21	P.C. CABINET		1,800		EX	20	1	1	20	EX		1,000		P.C. CABINET	22	EX
EX	23	P.C. CABINET			1,800	EX	20	1	1	20	EX			200	P.C. CABINET	24	EX
EX	25	P.C. CABINET	1,800			EX	20	1	1	20	EX	100			P.C. CABINET	26	EX
EX	27	P.C. CABINET		1,800		EX	20	1	1	20	EX		200		P.A./INC, TELEPHONE	28	EX
EX	29	TV. FACP			1,200	EX	20	1	1	25	EX			1,700	EF-1 (A)	30	EX
EX	31	DAYROOM A,B LTS	1,200			EX	20	1	1	20	EX	400			EF-2,3	32	EX
EX	33	DAYROOM C,D LTS		1,200		EX	20	1	1	20	EX		1,200		CONTROL RM RECEPTS	34	EX
EX	35	HVAC CONTROL PANEL			1,200	EX	20	1	1	20	EX			500	HWP-1	36	EX
EX	37	HVAC CONTROL PANEL	1,000			EX	20	1	1	20	EX	500			HWP-1	38	EX
EX	39	RTHU-1		12,800		EX	70	2	2	70	EX		5,800		RTHU-1 (HEAT)	40	EX
	41				12,800									5,800		42	
		SUBTOTAL	9,850	19,900	20,800							4,950	11,000	11,200	SUBTOTAL		

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
TOTAL PHASE A - VA	14,800	COOLING	[C]		1.00	REFRIG	[F]		1.00
AMPS	123	HEATING	[H]		0	SIGNAGE	[S]		1.25
TOTAL PHASE B - VA	30,900	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
AMPS	258	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	77,700	1.00
TOTAL PHASE C - VA	32,000	MOTORS	[M]		1.00	LRG MOTOR			1.25
AMPS	267	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
TOTAL PNLBD - VA	77,700	MISC EQUIP	[Z]		1.00	LTG TRACK			1.00
AMPS	216								

TOTAL DEMAND	
77,700	VA
216	A

PANELBOARD NOTES

PANELBOARD LEGEND

ABBREVIATIONS V1.01

AF	ARC FAULT CIRCUIT INTERRUPTER.
C#	CIRCUIT VIA CONTACTOR #.
CL	CIRCUIT VIA CURRENT LIMITING DEVICE.
D	DISCONNECT CIRCUITRY FOR REMOVED LOAD, UPDATE CIRCUIT DIRECTORY TO SPARE AND TURN OFF.
EM	EMERGENCY LIGHTING HANDLE-ON CLAMP.
EX	EXISTING.
F	FUTURE LOAD; NOTE AS SPARE AND TURN OFF.
FA	RED/HANDLE-ON CLAMP.
GF	GROUND-FAULT CIRCUIT INTERRUPTER TYPE CIRCUIT BREAKER (5 mA).
GFEP	GROUND FAULT EQUIPMENT PROTECTION BREAKER (30 mA).
HT	PROVIDE HANDLE-TIE FOR MULTI-WIRE BRANCH CIRCUIT PER CODE.
IG	ISOLATED GROUND CIRCUIT.
L#	LIGHTING CONTROL SCHEME NUMBER.
LCK	HANDLE PADLOCKABLE-OFF DEVICE.
LO	HANDLE-ON CLAMP.
N	PROVIDE NEW CIRCUIT BREAKER.
OL	REFER TO ELECTRICAL ONE-LINE/RISER DIAGRAM.
PS	POWER-SWITCHING CIRCUIT BREAKER.
PSE	EMERGENCY POWER-SWITCHING CIRCUIT BREAKER.
R	REUSE EXISTING CIRCUIT BREAKER FOR NEW/REVISED LOAD.
RC	RECONNECT EXISTING CIRCUIT TO NEW PANELBOARD
RP	CIRCUIT VIA RELAY PANEL.
ST	SHUNT TRIP CIRCUIT BREAKER.
V	VERIFY EXISTING LOAD AND UPDATE DIRECTORY, IF UNUSED, NOTE AS SPARE AND TURN OFF.
VD	BRANCH CIRCUITRY HAS BEEN UPSIZED TO REDUCE VOLTAGE DROP. ADJUST GROUND WIRE SIZE PER CODE. PROVIDE LUG ADAPTORS IF REQUIRED.
Z	CORRECT/REPAIR EXISTING HAZARD TO MAKE CODE COMPLIANT INSTALLATION.

NOT ALL ABBREVIATIONS ARE USED.

PANELBOARD: EK (NEW)

BUS AMPS: 150A
MAIN SIZE/TYPE: 150A MCB
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: **HEK VIA 45KVA XFMR**
AIC RATING: 10000; FULLY RATED
MOUNTING: SURFACE
SERVES: 120V EMERG. LOAD HOUSING UNIT
LOCATION: HOUSING UNIT K ELECTRICAL ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
RC	1	CONTROL ROOM LGTS.	1,350			EX	20	1	1	20	EX	1,000			EXISTING LOAD	2	RC
RC	3	CONTROL ROOM LGTS.		900		EX	20	1	1	20	EX		1,000		EXISTING LOAD	4	RC
RC	5	EXISTING LOAD			1,000	EX	20	1	1	20	EX			1,000	EXISTING LOAD	6	RC
RC	7	EXISTING LOAD	1,000			EX	20	1	1	20	EX	1,150			SALLYPORT LIGHTS	8	RC
RC	9	DAYROOM 1,2 LGTS		1,200		EX	20	1	1	20	EX		900		PUMP P-K1	10	RC
RC	11	DAYROOM 3,4 LGTS			1,200	EX	20	1	1	20	EX			900	PUMP P-K1	12	RC
RC	13	EF-K1 (A)	400			EX	25	1	1	20	EX	900			PUMP P-K1	14	RC
RC	15	EF-K1 (B)		400		EX	25	1	1	20	EX		900		PUMP P-K1	16	RC
RC	17	GRAPHIC PANEL			1,800	EX	20	1	1	20	EX			900	PUMP P-K1	18	RC
RC	19	GRAPHIC PANEL	1,800			EX	20	1	1	20	EX	900			PUMP P-K1	20	RC
RC	21	LOCKING PANELS A		1,800		EX	20	1	1	20	EX		1,000		FACP	22	RC
RC	23	LOCKING PANELS B			1,800	EX	20	1	1	20	EX			200	MULTIPLEX PANEL	24	RC
RC	25	LOCKING PANELS C	1,800			EX	20	1	1	20	EX	100			TEL. BACKBOARD	26	RC
RC	27	LOCKING PANELS D		1,800		EX	20	1	1	20	EX		200		P.A/INTERCOM	28	RC
RC	29	TV			1,200	EX	20	1	1	20	EX			500	HWP-1	30	RC
RC	31	HVAC CONTROL PANEL	400			EX	20	1	1	20	EX	1,200			HWP-1	32	RC
RC	33	HVAC CONTROL PANEL		1,200		EX	20	1	1	20	EX		1,200		P.C. CABINET	34	RC
RC	35	CONTROL RM RECPT			1,200	EX	20	1	1	20	EX			1,200	EXISTING LOAD	36	RC
RC	37	EXISTING LOAD	1,000			EX	20	1	1	20	EX	1,000			EXISTING LOAD	38	RC
RC	39	RTHU-1		12,800		EX	70	2	2	70	EX		5,800		RTHU-1 (HEAT)	40	RC
	41				12,800									5,800		42	
	43	SPARE					20	1	1						SPACE	44	
	45	PWR - BAS PANEL		360		12	15	1	1						SPACE	46	
	47	SPARE					20	1	1						SPACE	48	
	49	SPARE					20	1								50	
	51	SPARE					20	1	3	60					SPD	52	
	53	SPARE					20	1								54	
		SUBTOTAL	7,750	20,460	21,000							6,250	11,000	10,500	SUBTOTAL		

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
TOTAL PHASE A - VA	14,000	COOLING	[C]		1.00	REFRIG	[F]		1.00
AMPS	117	HEATING	[H]		0	SIGNAGE	[S]		1.25
TOTAL PHASE B - VA	31,460	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
AMPS	262	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	76,600	1.00
TOTAL PHASE C - VA	31,500	MOTORS	[M]		1.00	LRG MOTOR			1.25
AMPS	263	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
TOTAL PNLBD - VA	76,960	MISC EQUIP	[Z]	360	1.00	LTG TRACK			1.00
AMPS	214								

TOTAL DEMAND	
76,960	VA
214	A

PANELBOARD NOTES

PANELBOARD: EL,EM (NEW)

BUS AMPS: 250A
MAIN SIZE/TYPE: 250A MCB
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: **HEL, HEM VIA 75KVA XFMR**
AIC RATING: 10000; FULLY RATED
MOUNTING: SURFACE
SERVES: 120V EMERG. LOAD HOUSING UNIT
LOCATION: HOUSING UNIT L,M ELECTRICAL ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
RC	1	CONTROL RM. LIGHTS	1,350			EX	20	1	1	20	EX	1,000			WALWAY LTS-C DAYROOM	2	RC
RC	3	CONTROL RM. LIGHTS		900		EX	20	1	1	20	EX		1,000		WALWAY LTS-D DAYROOM	4	RC
RC	5	WALKWAY LTS-A DAYROOM			1,000	EX	20	1	1	20	EX			1,200	WALWAY LTS-D DAYROOM	6	RC
RC	7	WALKWAY LTS-B DAYROOM	1,000			EX	20	1	1	20	EX	1,150			SALLYPORT LIGHTS	8	RC
RC	9	WALKWAY LTS-C DAYROOM		1,000		EX	20	1								10	
RC	11	P.C. CABINET			1,000	EX	20	1	3	20	EX			900	PUMP P-1	12	RC
RC	13	EF-1 (B)	1,700			EX	25	1				900				14	
RC	15	EF - 2,3		400		EX	20	1					900			16	RC
RC	17	P.C. CABINET			1,800	EX	20	1	3	20	EX			900	PUMP P-1	18	RC
RC	19	P.C. CABINET	1,800			EX	20	1				900				20	RC
RC	21	P.C. CABINET		1,800		EX	20	1	1	20	EX		1,000		P.C. CABINET	22	RC
RC	23	P.C. CABINET			1,800	EX	20	1	1	20	EX			200	P.C. CABINET	24	RC
RC	25	P.C. CABINET	1,800			EX	20	1	1	20	EX	100			P.C. CABINET	26	RC
RC	27	P.C. CABINET		1,800		EX	20	1	1	20	EX		200		P.A./INC, TELEPHONE	28	RC
RC	29	TV. FACP			1,200	EX	20	1	1	25	EX			1,700	EF-1 (A)	30	RC
RC	31	DAYROOM A,B LTS	1,200			EX	20	1	1	20	EX	400			EF-2,3	32	RC
RC	33	DAYROOM C,D LTS		1,200		EX	20	1	1	20	EX		1,200		CONTROL RM RECEPTS	34	RC
RC	35	HVAC CONTROL PANEL			1,200	EX	20	1	1	20	EX			500	HWP-1	36	RC
RC	37	HVAC CONTROL PANEL	1,000			EX	20	1	1	20	EX	500			HWP-1	38	RC
RC	39	RTHU-1		12,800		EX	70	2	2	70	EX		5,800		RTHU-1 (HEAT)	40	RC
	41				12,800									5,800		42	
	43	SPARE					20	1	1	20					SPARE	44	
FA	45	BAS & FIRE FIGHTER PANELS		360		12	15	1	1	20					SPARE	46	
	47	SPARE					20	1	1	20					SPARE	48	
	49	SPARE					20	1								50	
	51	SPARE					20	1	3	60					SPD	52	
	53	SPARE					20	1								54	
		SUBTOTAL	9,850	20,260	20,800							4,950	11,000	11,200	SUBTOTAL		

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
TOTAL PHASE A - VA	14,800	COOLING	[C]		1.00	REFRIG	[F]		1.00
AMPS	123	HEATING	[H]		0	SIGNAGE	[S]		1.25
TOTAL PHASE B - VA	31,260	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
AMPS	261	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	77,700	1.00
TOTAL PHASE C - VA	32,000	MOTORS	[M]		1.00	LRG MOTOR			1.25
AMPS	267	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
TOTAL PNLBD - VA	78,060	MISC EQUIP	[Z]	360	1.00	LTG TRACK			1.00
AMPS	217								

TOTAL DEMAND	
78,060	VA
217	A

PANELBOARD NOTES

EK
EL/EM

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION
AND DIAGNOSTIC CENTER
HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
PANELBOARD
SCHEDULES

SHEET NUMBER:
E600

NATHAN W. STOSS

PANELBOARD: D,E,F,G (ETR)

BUS AMPS: 150A
MAIN SIZE/TYPE: 150A MCB
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: DP-D, E, F, G
AIC RATING: 10000; FULLY RATED
MOUNTING: SURFACE
SERVES: BLDGS D, E, F, G
LOCATION: BLDGS D,E,F,G ELECTRICAL ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	2	EX
EX	3	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	4	EX
EX	5	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	6	EX
EX	7	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	8	EX
EX	9	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	10	EX
EX	11	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	12	EX
EX	13	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	14	EX
EX	15	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	16	EX
EX	17	EXISTING LOAD			1,800	EX	50	2	2	50	EX			1,800	EXISTING LOAD	18	EX
EX	19		1,800									1,800				20	
EX	21	EXISTING LOAD		1,800		EX	50	2	2	50	EX		1,800		EXISTING LOAD	22	EX
EX	23				1,800									1,800		24	
EX	25	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	26	EX
EX	27	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	28	EX
EX	29	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	30	EX
EX	31	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	32	EX
EX	33	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	34	EX
EX	35	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	36	EX
EX	37	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	38	EX
EX	39	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	40	EX
EX	41	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	42	EX
		SECTION: 2															
	43		600									600				44	
EX	45	EXISTING LOAD		600		EX	30	3	3	30	EX		600		EXISTING LOAD	46	EX
	47				600									600		48	
	49		600									600				50	
EX	51	EXISTING LOAD		600		EX	30	3	3	30	EX		600		EXISTING LOAD	52	EX
	53				600									600		54	
EX	55	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	56	EX
EX	57	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	58	EX
EX	59	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	60	EX
EX	61	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	62	EX
EX	63	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	64	EX
EX	65	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	66	EX
EX	67	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	68	EX
	69	SPACE						1	1						SPACE	70	
	71	SPACE						1	1						SPACE	72	
	73	SPACE						1	1						SPACE	74	
	75	SPACE						1	1						SPACE	76	
	77	SPACE						1	1						SPACE	78	
	79	SPACE						1	1	20	12	540			**ELEC & MECH RM RECEPT**	80	N
	81	SPACE						1	1	20	12		720		**RTU SERVICE RECEPT 1**	82	N
	83	SPACE						1	1	20	12			720	**RTU SERVICE RECEPT 2**	84	N
		SUBTOTAL	8,400	7,800	9,000							8,940	8,520	9,720	SUBTOTAL		

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF	
TOTAL PHASE A - VA	17,340	COOLING	[C]		1.00	REFRIG	[F]		1.00	
AMPS	145	HEATING	[H]		0	SIGNAGE	[S]		1.25	
TOTAL PHASE B - VA	16,320	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00	
AMPS	136	RECEPTACLES	[R]	1,980	1.0/.5	EXISTING	[E]	51,000	1.00	
TOTAL PHASE C - VA	18,720	MOTORS	[M]		1.00	LRG MOTOR			1.25	TOTAL DEMAND
AMPS	156	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25	52,980 VA
TOTAL PNLBD - VA	52,380	MISC EQUIP	[Z]		1.00	LTG TRACK			1.00	147 A
AMPS	145									

PANELBOARD NOTES

FEED THRU CONNECTION: #1/0

PANELBOARD: K (ETR)

BUS AMPS: 225A
MAIN SIZE/TYPE: 175A MCB
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: DP-K
AIC RATING: 10000; FULLY RATED
MOUNTING: SURFACE
SERVES: BLDGS K
LOCATION: BLDG K ELECTRICAL ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	2	EX
EX	3	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	4	EX
EX	5	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	6	EX
EX	7	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	8	EX
EX	9	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	10	EX
EX	11	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	12	EX
EX	13	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	14	EX
EX	15	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	16	EX
EX	17	EXISTING LOAD			1,800	EX	50	2	2	50	EX			1,800	EXISTING LOAD	18	EX
	19		1,800									1,800				20	
EX	21	EXISTING LOAD		1,800		EX	50	2	2	50	EX		1,800		EXISTING LOAD	22	EX
	23				1,800									1,800		24	
EX	25	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	26	EX
EX	27	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	28	EX
EX	29	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	30	EX
EX	31	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	32	EX
EX	33	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	34	EX
EX	35	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	36	EX
EX	37	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	38	EX
EX	39	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	40	EX
EX	41	EXISTING LOAD			1,000	EX	20	1	1	20	EX			600	EXISTING LOAD	42	EX
		SECTION: 2															
	43		600									600				44	
EX	45	EXISTING LOAD		600		EX	20	3	3	20	EX		600		EXISTING LOAD	46	EX
	47				600									600		48	
	49		600									600				50	
EX	51	EXISTING LOAD		600		EX	20	3	3	20	EX		600		EXISTING LOAD	52	EX
	53				600									600		54	
EX	55	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	56	EX
EX	57	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	58	EX
EX	59	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	60	EX
EX	61	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	62	EX
EX	63	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	64	EX
EX	65	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	66	EX
EX	67	EXISTING LOAD	600			EX	20	1	1	20	EX	600			EXISTING LOAD	68	EX
EX	69	EXISTING LOAD		600		EX	20	1	1	20	EX		600		EXISTING LOAD	70	EX
EX	71	EXISTING LOAD			600	EX	20	1	1	20	EX			600	EXISTING LOAD	72	EX
	73	SPACE						1	1						SPACE	74	
	75	SPACE						1	1						SPACE	76	
	77	SPACE						1	1						SPACE	78	
	79	SPACE						1	1						SPACE	80	
	81	SPACE						1	1	20	12		720		**RTU SERVICE RECEPT 1**	82	N
	83	SPACE						1	1	20	12			720	**RTU SERVICE RECEPT 2**	84	N
		SUBTOTAL	8,400	8,400	10,000							8,400	9,120	10,320	SUBTOTAL		

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF	
TOTAL PHASE A - VA	16,800	COOLING	[C]		1.00	REFRIG	[F]		1.00	
AMPS	140	HEATING	[H]		0	SIGNAGE	[S]		1.25	
TOTAL PHASE B - VA	17,520	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00	
AMPS	146	RECEPTACLES	[R]	1,440	1.0/.5	EXISTING	[E]	53,800	1.00	
TOTAL PHASE C - VA	20,320	MOTORS	[M]		1.00	LRG MOTOR			1.25	TOTAL DEMAND
AMPS	169	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25	55,240 VA
TOTAL PNLBD - VA	54,640	MISC EQUIP	[Z]		1.00	LTG TRACK			1.00	153 A
AMPS	152									

PANELBOARD NOTES

FEED THRU CONNECTION: #4/0

PANELBOARD: ED,EE,EF,EG (ETR)

BUS AMPS: 150A
MAIN SIZE/TYPE: 150A MCB
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: HED, HEE, HEF VIA 45KVA XFMR
AIC RATING: 10000; FULLY RATED
MOUNTING: SURFACE
SERVES: 120V EMERG. LOAD HOUSING UNIT
LOCATION: HOUSING UNIT D,E,F,G ELECTRICAL ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	CONTROL ROOM LIGHTS	1,350			EX	20	1	1	20	EX	1,000			LIGHTS	2	EX
EX	3	CONTROL ROOM LIGHTS		900		EX	20	1	1	20	EX		1,000		LIGHTS	4	EX
EX	5	LIGHTS			1,000	EX	20	1	1	20	EX			1,200	DAYROOM LIGHTS	6	EX
EX	7	LIGHTS	1,000			EX	20	1	1	20	EX	1,150			LIGHTS	8	EX
EX	9	RTHU-1		12,800		EX	60	2	1	20	EX		600		CIRC. PUMP (A)	10	EX
	11				12,800				1	20	EX			700	CIRC. PUMP (B)	12	EX
EX	13	EF-D1 (A)	400			EX	25	1	1	20	EX	700			EXISTING LOAD	14	EX
EX	15	EF-D1 (B)		400		EX	25	1					600			16	EX
EX	17	P.C.CAB			1,800	EX	20	1	3	20	EX			600	EXISTING LOAD	18	EX
EX	19	P.C.CAB	1,800			EX	20	1				600				20	EX
EX	21	P.C.CAB		1,800		EX	20	1	1	20	EX		1,000		FACP	22	EX
EX	23	P.C.CAB			1,800	EX	20	1	1	20	EX			200	EXISTING LOAD	24	EX
EX	25	P.C.CAB	1,800			EX	20	1	1	20	EX	100			TEL BACKGROUND	26	EX
EX	27	P.C.CAB		1,800		EX	20	1	1	20	EX		200		P.A./INTERCOM	28	EX
EX	29	TV			1,200	EX	20	1	1	20	EX			1,200	DAYROOM LIGHTS	30	EX
EX	31	LIGHTS	400			EX	20	1	1	20	EX	1,200			DAYROOM LIGHTS	32	EX
EX	33	EXISTING LOAD		1,200		EX	20	1	1	20	EX		1,200		DAYROOM LIGHTS	34	EX
EX	35	EXISTING LOAD			1,200	EX	20	1	1	20	EX			1,200	WATCH TOUR	36	EX
EX	37	EXISTING LOAD	1,200			EX	20	1	2	70	EX	5,800			RTHU-1 (HEAT)	38	EX
EX	39	EXISTING LOAD		900		EX	20	1					5,800			40	
N	41	**PWR - BAS PANEL**			**360**	**12**	**15**	**1**	1						SPACE	42	
		SUBTOTAL	7,950	19,800	20,160							10,550	10,400	5,100	SUBTOTAL		

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF	
TOTAL PHASE A - VA	18,500	COOLING	[C]		1.00	REFRIG	[F]		1.00	
AMPS	154	HEATING	[H]		0	SIGNAGE	[S]		1.25	
TOTAL PHASE B - VA	30,200	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00	
AMPS	252	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	73,600	1.00	
TOTAL PHASE C - VA	25,260	MOTORS	[M]		1.00	LRG MOTOR			1.25	TOTAL DEMAND
AMPS	211	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25	73,960 VA
TOTAL PNLBD - VA	73,960	MISC EQUIP	[Z]	360	1.00	LTG TRACK			1.00	205 A
AMPS	205									

PANELBOARD NOTES

PANELBOARD: HED,HEE,HEF,HEG,HEK (ETR)

BUS AMPS: 125A
MAIN SIZE/TYPE: 125A MCB
VOLTS/PHASE: 480Y/277V, 3PH, 4W
SECTION: 1

FED FROM: SB1
AIC RATING: 14000; FULLY RATED
MOUNTING: SURFACE
SERVES: 480V GENERATOR HOUSING UNIT LOADS
LOCATION: HOUSING UNITS D,E,F,G ELEC ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	PERIMETER QTZ. LIGHTS	3,000			EX	20	1	1	20	EX	3,000			PERIMETER QTZ. LIGHTS	2	EX
EX	3	PERIMETER QTZ. LIGHTS		3,000		EX	20	1	1	20	EX		3,000		PERIMETER QTZ. LIGHTS	4	EX
EX	5	PERIMETER QTZ. LIGHTS			3,000	EX	20	1	1	20	EX			3,000	PERIMETER QTZ. LIGHTS	6	EX
	7		**998**									**998**				8	
R	9	**HV-1 (B)**		**998**		**12**	20	3	3	20	**12**		**998**		**HV-1 (A)**	10	R
	11	**(ALT #4)**			**998**									**998**	**(ALT #4)**	12	
	13		5,000						1	20	EX	600			WALL PACK LIGHTS	14	EX
EX	15	TRANSFORMER T-13		5,000		EX	80	3	1	20	EX		3,000		EXISTING LOAD	16	EX
	17				5,000				1	20	EX			3,000	EXISTING LOAD	18	EX
EX	19	EXISTING LOAD	3,000			EX	20	1	1	20	EX	3,000			EXISTING LOAD	20	EX
EX	21	EXISTING LOAD		3,000		EX	20	1	1	20	EX		3,000		EXISTING LOAD	22	EX
EX	23	SPACE						1	1						SPACE	24	EX
EX	25	SPACE						1								26	
EX	27	SPACE						1	3	125	EX				MAIN	28	EX
EX	29	SPACE						1								30	
		SUBTOTAL	11,998	11,998	8,998							7,598	9,998	6,998	SUBTOTAL		

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF	
TOTAL PHASE A - VA	19,596	COOLING	[C]		1.00	REFRIG	[F]		1.00	
AMPS	71	HEATING	[H]		0	SIGNAGE	[S]		1.25	
TOTAL PHASE B - VA	21,996	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00	
AMPS	79	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	51,600	1.00	
TOTAL PHASE C - VA	15,996	MOTORS	[M]		1.00	LRG MOTOR			1.25	TOTAL DEMAND
AMPS	58	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25	57,588 VA
TOTAL PNLBD - VA	57,588	MISC EQUIP	[Z]	5,988	1.00	LTG TRACK			1.00	69 A
AMPS	69									

PANELBOARD NOTES

D/E/F/G	K
ED/EE/EF/EG	HED/HEE/HEF/HEG

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
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MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION
AND DIAGNOSTIC CENTER
HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
PANELBOARD
SCHEDULES

SHEET NUMBER:
E601

NATHAN W. STOSS

PANELBOARD: HEL (ETR)

BUS AMPS: 150A
MAIN SIZE/TYPE: 150A MCB
VOLTS/PHASE: 480Y/277V, 3PH, 4W
SECTION: 1

FED FROM: SB1
AIC RATING: 14000; FULLY RATED
MOUNTING: SURFACE
SERVES: 480V GENERATOR HOUSING UNIT LOADS
LOCATION: HOUSING UNIT L ELEC ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	BALL FIELD LIGHTS	2,700			EX	20	2	2	20	EX	2,700			BALL FIELD LIGHTS	2	EX
	3			2,700									2,700			4	
EX	5	EXISTING LOAD			1,000	EX	20	1	1	20	EX			1,000	EXISTING LOAD	6	EX
	7		1,357									1,357				8	
R	9	HV-1 (B)		1,357		12	20	3	3	20	12		1,357		HV-1 (A)	10	R
	11	(ALT #4)			1,357									1,357	(ALT #4)	12	
	13		20,000						1	20	EX	600			WALL PACK LIGHTS	14	EX
EX	15	TRANSFORMER T-3		20,000		EX	100	3	2	20	EX		2,700		BALL FIELD LIGHTS	16	EX
	17				20,000									2,700		18	
EX	19	BALL FIELD	2,250			EX	20	1	2	20	EX	2,900			BALL FIELD LIGHTS	20	EX
EX	21	BALL FIELD		2,250		EX	20	1					2,900			22	
EX	23	BALL FIELD			2,250	EX	20	1	2	20	EX			2,700	BALL FIELD LIGHTS	24	EX
EX	25	BALL FIELD	2,250			EX	20	1				2,700				26	
EX	27	BALL FIELD		2,250		EX	20	1	2	20	EX		2,700		BALL FIELD LIGHTS	28	EX
EX	29	BALL FIELD			2,250	EX	20	1						2,700		30	
		SUBTOTAL	28,557	28,557	26,857							10,257	12,357	10,457	SUBTOTAL		

TOTAL PHASE A - VA	38,814	LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
AMPS	140	COOLING	[C]		1.00	REFRIG	[F]		1.00
TOTAL PHASE B - VA	40,914	HEATING	[H]		0	SIGNAGE	[S]		1.25
AMPS	148	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
TOTAL PHASE C - VA	37,314	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	115,500	1.00
AMPS	135	MOTORS	[M]		1.00	LRG MOTOR			1.25
TOTAL PNLBD - VA	117,042	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
AMPS	141	MISC EQUIP	[Z]	8,142	1.00	LTG TRACK			1.00

TOTAL DEMAND: 123,642 VA; 149 A

PANELBOARD NOTES

LOAD ADDED IS EQUAL TO OR LESS THAN LOAD REMOVED.

PANELBOARD: HEM (ETR)

BUS AMPS: 150A
MAIN SIZE/TYPE: 150A MCB
VOLTS/PHASE: 480Y/277V, 3PH, 4W
SECTION: 1

FED FROM: SB1
AIC RATING: 14000; FULLY RATED
MOUNTING: SURFACE
SERVES: 480V GENERATOR HOUSING UNIT LOADS
LOCATION: HOUSING UNIT M ELEC ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	PERIMETER QTZ. LIGHTS	3,000			EX	20	1	1	20	EX	3,000			PERIMETER QTZ. LIGHTS	2	EX
EX	3	PERIMETER QTZ. LIGHTS		3,000		EX	20	1	1	20	EX		3,000		PERIMETER QTZ. LIGHTS	4	EX
EX	5	PERIMETER QTZ. LIGHTS			3,000	EX	20	1	1	20	EX			3,000	PERIMETER QTZ. LIGHTS	6	EX
	7		1,357									1,357				8	
R	9	HV-1 (B)		1,357		12	20	3	3	20	12		1,357		HV-1 (A)	10	R
	11	(ALT #4)			1,357									1,357	(ALT #4)	12	
	13		1,400						1	20	EX	600			WALL PACK LIGHTS	14	EX
EX	15	TRANSFORMER T-5		2,000		EX	100	3	1	20	EX		3,000		PERIMETER QTZ. LIGHTS	16	EX
	17				2,000				1	20	EX			3,000	PERIMETER LIGHTS	18	EX
EX	19	EXISTING LOAD	2,000			EX	20	1	1	20	EX	3,000			PERIMETER LIGHTS	20	EX
EX	21	EXISTING LOAD		3,000		EX	20	1	1	20	EX		3,000		EXISTING LOAD	22	EX
EX	23	EXISTING LOAD			3,000	EX	20	1	1	20					SPARE	24	EX
EX	25	SPARE					20	1	1	20					SPARE	26	EX
EX	27	SPACE						1	1						SPACE	28	EX
EX	29	SPACE						1	1						SPACE	30	EX
		SUBTOTAL	7,757	9,357	9,357							7,957	10,357	7,357	SUBTOTAL		

TOTAL PHASE A - VA	15,714	LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
AMPS	57	COOLING	[C]		1.00	REFRIG	[F]		1.00
TOTAL PHASE B - VA	19,714	HEATING	[H]		0	SIGNAGE	[S]		1.25
AMPS	71	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
TOTAL PHASE C - VA	16,714	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	44,000	1.00
AMPS	60	MOTORS	[M]		1.00	LRG MOTOR			1.25
TOTAL PNLBD - VA	52,142	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
AMPS	63	MISC EQUIP	[Z]	8,142	1.00	LTG TRACK			1.00

TOTAL DEMAND: 52,142 VA; 63 A

PANELBOARD NOTES

PANELBOARD: HB1 (ETR)

BUS AMPS: 600A
MAIN SIZE/TYPE: 600A MCB
VOLTS/PHASE: 480Y/277V, 3PH, 4W
SECTION: 1

FED FROM: PAD MOUNTED TRANSFORMER
AIC RATING: 14000; FULLY RATED
MOUNTING: SURFACE
SERVES: GYM
LOCATION: ELECTRICAL ROOM, ROOM #: B166

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS
SE RATED; BONDED N-G

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	EX. GYM LIGHTS	1,200			EX	20	1	1	20	EX	1,200			EXISTING LOAD	2	EX
EX	3	EX. GYM LIGHTS		1,200		EX	20	1	1	20	EX		1,200		EXISTING LOAD	4	EX
EX	5	EX. GYM LIGHTS			1,200	EX	20	1	1	20	EX			1,200	EXISTING LOAD	6	EX
	7															8	
EX	9	SPARE					20	3	3	20					SPARE	10	EX
	11															12	
	13											2,500			EXISTING	14	
EX	15	SPARE					40	3	3	20	EX		2,500		GARBAGE DISPOSAL	16	EX
	17													2,500		18	
	19											2,500			EXISTING	20	
EX	21	SPARE					60	3	3	20	EX		2,500		BOILER PUMP	22	EX
	23													2,500		24	
	25	EXISTING	6,000									12,000			EXISTING	26	
EX	27	KITCHEN ROOF TOP		6,000		EX	40	3	3	90	EX		12,000		OVEN #4	28	EX
	29				6,000									12,000		30	
	31		4,000									12,000				32	
EX	33	EXISTING LOAD		4,000		EX	30	3	3	90	EX		12,000		EXISTING LOAD	34	EX
	35				4,000									12,000		36	
	37	EXISTING	2,500									12,000			EXISTING	38	
EX	39	RF-BI		2,500		EX	20	3	3	90	EX		12,000		OVEN #5	40	EX
	41				2,500									12,000		42	
		SECTION: 2															
	43	EXISTING	6,000									6,000			EXISTING	44	
EX	45	OVEN #1		6,000		EX	40	3	3	40	EX		6,000		OVEN #2	46	EX
	47				6,000									6,000		48	
	49	EXISTING	6,000									4,000				50	
EX	51	OVEN #3		6,000		EX	40	3	3	30	EX		4,000		EXISTING LOAD	52	EX
	53				6,000									4,000		54	
EX	55	EQUIPPED SPACE						1	1						EQUIPPED SPACE	56	EX
EX	57	EQUIPPED SPACE						1	1						EQUIPPED SPACE	58	EX
EX	59	SPARE					20	1	1	20					SPARE	60	EX
	61	EXISTING	5,000									2,500			EXISTING	62	
EX	63	HOBART MIXER		5,000		EX	35	3	3	20	EX		2,500		DISH DRYER	64	EX
	65				5,000									2,500		66	
	67		18,623									9,000				68	
N	69	RTU B-1 (GYM)		18,623		4	60	3	3	60	EX		9,000		EXISTING LOAD	70	EX
	71				18,623									9,000		72	
	73											13,900			EXISTING	74	
EX	75	SPARE					20	3	3	100	EX		16,200		PANEL HB2	76	EX
	77													16,500		78	
	79											2,500			EXISTING	80	
EX	81	SPARE					20	3	3	20	EX		2,500		DISHWASHER	82	EX
	83													2,500		84	
	85		10,000						1						EQUIPPED SPACE	86	EX
EX	87	EXISTING LOAD		10,000		EX	XX	3	1						EQUIPPED SPACE	88	EX
	89				10,000				1						EQUIPPED SPACE	90	EX
		SUBTOTAL	59,323	59,323	59,323							80,100	82,400	82,700	SUBTOTAL		

TOTAL PHASE A - VA	139,423	LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
AMPS	503	COOLING	[C]	28,766	1.00	REFRIG	[F]		1.00
TOTAL PHASE B - VA	141,723	HEATING	[H]		0	SIGNAGE	[S]		1.25
AMPS	512	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
TOTAL PHASE C - VA	142,023	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	367,300	1.00
AMPS	513	MOTORS	[M]	24,293	1.00	LRG MTR: 2HP		2,810	1.25
TOTAL PNLBD - VA	423,169	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
AMPS	509	MISC EQUIP	[Z]		1.00	LTG TRACK			1.00

TOTAL DEMAND: 423,872 VA; 510 A

PANELBOARD NOTES

FEED THRU CONNECTION: (2) Sets of 350kcmil

PANELBOARD: HA (ETR)

BUS AMPS: 600A
MAIN SIZE/TYPE: MLO
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: PMTN-2
AIC RATING: 14000; FULLY RATED
MOUNTING: SURFACE
SERVES: KITCHEN POWER
LOCATION: BLDG B, KITCHEN ELEC ROOM

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	LGTS-DINNING	3,100			EX	20	1								2	
EX	3	LGTS-STOR. MECH		3,900		EX	20	1	3	30	EX				SPARE	4	EX
EX	5	LGTS-KITHEN			3,200	EX	20	1								6	
	7											7,000				8	
EX	9	SPARE				EX	35	3	3	35	EX		7,000		DISHWASHER MOTOR	10	EX
	11													7,000		12	
	13		15,000													14	
EX	15	BOOSTER HEATER		15,000		EX	70	3	3	30	EX				SPARE	16	EX
	17				15,000											18	
	19		1,700													20	
EX	21	DISHWASHER DRYER		1,700		EX	20	3	3	20	EX				SPARE	22	EX
	23				17,000											24	
	25															26	
EX	27	SPARE				EX	20	3	3	25	EX				SPARE	28	EX
	29															30	
		SECTION: 2															
	31		5,000									11,300				32	
EX	33	HA-2		5,000		EX	25	3	3	60	EX		11,300		CU-B1 A/C	34	EX
	35				5,000									11,300		36	
	37		333									6,000				38	
N	39	MAU-B1		333		12	15	3	3	30	EX		6,000		SPARE	40	EX
	41	(ALT #3)			333									6,000		42	
	43		1,900									1,900				44	
EX	45	KITCHEN HOODS		1,900		EX	20	3	3	20	EX		1,900		KITCHEN HOOD	46	EX
	47				1,900									1,900		48	
	49		25,000													50	
EX	51	TI-75 KVA PANEL A		25,000		EX	125	3	3	50	EX				SPARE	52	EX
	53				25,000											54	
EX	55	COFFEE POT	1,000			EX	20	1	1	20	EX				SPARE	56	EX
EX	57	SPARE				EX	20	1	1	20	EX				SPARE	58	EX
EX	59	CHARGER			2,500	EX	30	2	1	20	EX				SPARE	60	EX
EX	61		2,500						1	20	EX				SPARE	62	EX
EX	63	LTG WAREHOUSE		1,000		EX	20	1	1	20	EX				SPACE	64	EX
EX	65	LTG OFFICE			1,000	EX	20	1	1	20	EX				SPACE	66	EX
	67		937									11,300				68	
EX	69	AHU-B1		937		EX	15	3	3	60	EX		11,300		CU-B1	70	EX
	71				937									11,300		72	
		SUBTOTAL	56,470	54,770	71,870							37,500	37,500	37,500	SUBTOTAL		

TOTAL PHASE A - VA	93,970	LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
AMPS	783	COOLING	[C]		1.00	REFRIG	[F]		1.00
TOTAL PHASE B - VA	92,270	HEATING	[H]		0	SIGNAGE	[S]		1.25
AMPS	769	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
TOTAL PHASE C - VA	109,370	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	294,611	1.00
AMPS	911	MOTORS	[M]	999	1.00	LRG MOTOR			1.25
TOTAL PNLBD - VA	295,610	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
AMPS	821	MISC EQUIP	[Z]		1.00	LTG TRACK			1.00

TOTAL DEMAND: 295,610 VA; 821 A

PANELBOARD NOTES

LOAD ADDED IS EQUAL TO OR LESS THAN LOAD REMOVED.

FEED THRU CONNECTION: (2) Sets of 350kcmil

HEL	HEM
HB1	HA

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
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REBID - FULTON RECEPTION
AND DIAGNOSTIC CENTER
HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
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REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
PANELBOARD
SCHEDULES

SHEET NUMBER:
E602

NATHAN W. STOSS

PANELBOARD: HN1A (ETR)

BUS AMPS: 400A
MAIN SIZE/TYPE: 400A MCB
VOLTS/PHASE: 480Y/277V, 3PH, 4W
SECTION: 1

FED FROM: **PMTN-8**
AIC RATING: 14000; FULLY RATED
MOUNTING: SURFACE
SERVES: BUILBING N PWR
LOCATION: BLDG-N ELEC RM, ROOM #: N148

LINE-SIDE LUGS: MECHANICAL EQUIPMENT GROUND BUS
SUB FEED LUGS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	SPARE					20	1	1	20	EX	1,388			SW CELL LTG	2	EX
EX	3	DAYROOM LTG		3,540		EX	20	1	1	20	EX		2,464		SW CELL LTG	4	EX
EX	5	DAYROOM LTG			3,540	EX	20	1	1	20	EX			1,926	NW CELL LTG	6	EX
EX	7	MECH/STORAGE RM LTG	1,127			EX	20	1	1	20	EX	2,464			SE CELL LTG	8	EX
EX	9	REC AREA FLOODS		1,860		EX	20	1	1	20	EX		1,388		SE CELL LTG	10	EX
EX	11	MECH/STORAGE DOOR L			1,317	EX	20	1	1	20	EX			1,926	NE CELL LTG	12	EX
	13		5,820									5,820				14	
EX	15	AHU-N1		5,820		EX	30	3	3	30	EX		5,820		AHU-N2	16	EX
	17				5,820									5,820		18	
	19		1,330									1,330				20	
EX	21	HWP-N1		1,330		EX	15	3	3	15	EX		1,330		CWP-N1	22	EX
	23				1,330									1,330		24	
	25		1,330						1	20					SPARE	26	
EX	27	CWP-N2		1,330		EX	15	3	1	20					SPARE	28	
	29				1,330				1	20					SPARE	30	
	31		1,330						1	20					SPARE	32	
EX	33	HWP-N2		1,330		EX	15	3	1	20					SPARE	34	
	35				1,330				1	20					SPARE	36	
	37		42,179									31,072				38	
R	39	ACC-N1		42,179		4/0	200	3	3	200	EX		31,072		XFRMR TLN1	40	EX
	41	(ALT #2)			42,179									31,072		42	
		SUBTOTAL	53,116	57,389	56,846							42,074	42,074	42,074	SUBTOTAL		

TOTAL PHASE A - VA	95,190	LOAD	CONN. VA	DF	LOAD	CONN. VA	DF		
AMPS	344	COOLING [C]	109,743	1.00	REFRIG [F]		1.00		
TOTAL PHASE B - VA	99,463	HEATING [H]	7,980	0	SIGNAGE [S]		1.25		
AMPS	359	LIGHTING [L]	40,400	1.25	KITCHEN [K]		1.00		
TOTAL PHASE C - VA	98,920	RECEPTACLES [R]		1.0/.5	EXISTING [E]	110,676	1.00		
AMPS	357	MOTORS [M]	4,017	1.00	LRG MTR: 3HP	3,963	1.25	TOTAL DEMAND	
TOTAL PNLBD - VA	293,573	SUPP HEAT [U]		1.00	SHOW WND [W]		1.25	296,684 VA	
AMPS	353	MISC EQUIP [Z]	16,794	1.00	LTG TRACK		1.00	357 A	

PANELBOARD NOTES

PANELBOARD: LN1B (ETR)

BUS AMPS: 400A
MAIN SIZE/TYPE: MLO
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: **LN1A**
AIC RATING: 10000; FULLY RATED
MOUNTING: SURFACE
SERVES: BUILDING N GENERAL POWER
LOCATION: BUILDING N UPS ROOM

LINE-SIDE LUGS: MECHANICAL EQUIPMENT GROUND BUS

	CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.	
EX	1	N161 WELDING RECPT				EX	50	2	1	20	EX				N208 RECEPTS	2	EX
	3								1	20	EX				N148, 239 RECEPTS	4	EX
EX	5	HWG-1				EX	20	1	1	20	EX				N200 RECEPTS	6	EX
EX	7	GWH-1				EX	20	1	1	20	EX				AHU-N3	8	EX
EX	9	DCP-2				EX	15	2	2	15	EX				EF-N1	10	EX
	11															12	
EX	13	EF-N3				EX	15	1	2	15	EX				EF-N2	14	EX
EX	15	EF-N4				EX	15	1								16	
EX	17	EF-N9				EX	15	1	1	15	EX				EF-N11	18	EX
EX	19	EF-N10				EX	15	1	1	15	EX				EF-N12	20	EX
EX	21	HWP-N3				EX	20	1	1	20	EX				UNIT HEATERS - WEST	22	EX
EX	23	EF-N13				EX	15	1	1	20	EX				UNIT HEATERS - EAST	24	EX
EX	25	EF-N14				EX	15	1	1	15	EX				CUH-N1, CUH-N2	26	EX
EX	27	EF-N15				EX	15	1	1	20	EX				CONTROL RM. REFRIG.	28	EX
EX	29	EF-N16				EX	15	1	1	20	EX				RECEPT CONTROL ROOM	30	EX
EX	31	MECH CONTROL SYSTEM				EX	20	1	1	15	12				CHILR CTRL & FRIG MON (ALT #2)	32	N
EX	33	SPARE					20	1	1						EQUIPPED SPACE	34	EX
EX	35	SPARE					20	1	1						EQUIPPED SPACE	36	EX
EX	37	SPARE					20	1	1						EQUIPPED SPACE	38	EX
EX	39	SPARE					20	1	1						EQUIPPED SPACE	40	EX
EX	41	SPARE					20	1	1						EQUIPPED SPACE	42	EX
		SUBTOTAL													SUBTOTAL		

TOTAL PHASE A - VA		LOAD	CONN. VA	DF	LOAD	CONN. VA	DF		
AMPS		COOLING [C]		1.00	REFRIG [F]		1.00		
TOTAL PHASE B - VA		HEATING [H]		0	SIGNAGE [S]		1.25		
AMPS		LIGHTING [L]		1.25	KITCHEN [K]		1.00		
TOTAL PHASE C - VA		RECEPTACLES [R]		1.0/.5	EXISTING [E]		1.00		
AMPS		MOTORS [M]		1.00	LRG MOTOR		1.25	TOTAL DEMAND	
TOTAL PNLBD - VA		SUPP HEAT [U]		1.00	SHOW WND [W]		1.25		
AMPS		MISC EQUIP [Z]		1.00	LTG TRACK		1.00		

PANELBOARD NOTES

	HN1A
	LN1B

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

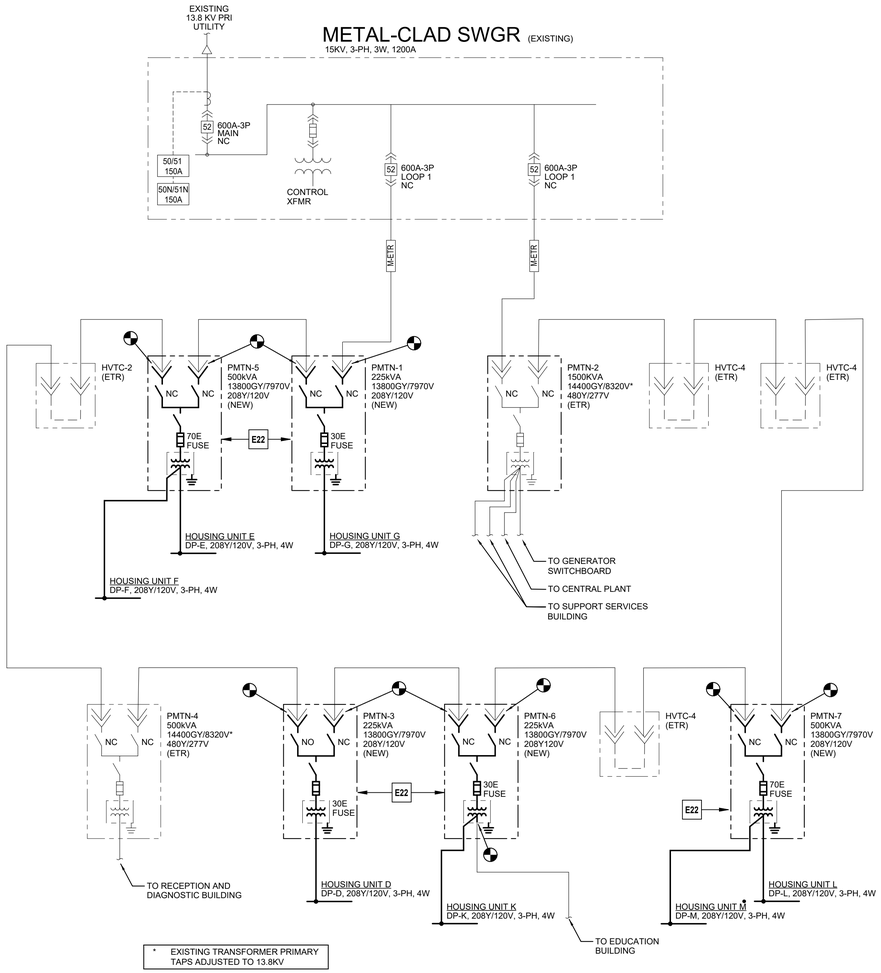
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
PANELBOARD SCHEDULES

SHEET NUMBER:
E603

NATHAN W. STOSS



1 ELECTRICAL MV ONELINE
NTS

ONE-LINE DIAGRAM GENERAL NOTES:

1. THE INFORMATION SHOWN IN THE SHORT-CIRCUIT AND VOLTAGE DROP CALCULATION SCHEDULE(S) ARE SHOWN FOR CALCULATION PURPOSES ONLY. CONTRACTOR SHALL NOT USE THE CONDUIT TYPES, CONDUCTOR TYPES, SIZES, QUANTITIES OR LENGTHS FOR TAKEOFFS OR BIDDING PURPOSES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN THIS SCHEDULE AND OTHER PORTIONS OF THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL NOTIFY ENGINEER OF AS-BUILT CONDITIONS THAT CONSTITUTE A CHANGE FROM WHAT IS SHOWN BELOW; THIS INCLUDES CONDUCTOR LENGTHS DIFFERING BY MORE THAN 10%.
2. REFER TO THE SHORT-CIRCUIT AND VOLTAGE DROP CALCULATIONS TABLES ON SHEETS E805 & E806. AVAILABLE FAULT CURRENT INFORMATION IS LISTED UNDER THE "FAULT CURRENT" COLUMN. VOLTAGE DROP VALUES ARE LISTED UNDER THE "CUMULATIVE VOLTAGE DROP" COLUMN. THE AIC/SCCR RATING OF THE EQUIPMENT SHALL NOT BE LESS THAN THE AVAILABLE 3-PHASE SYMMETRICAL FAULT CURRENT + 10%. ALL SERIES RATED EQUIPMENT SHALL BE PROPERLY LISTED AND LABELED PER CODE.
3. FEEDER NUMBER DESIGNATIONS PRECEDED BY "V" INDICATE THAT THE CONDUCTORS ARE UP-SIZED DUE TO VOLT-DROP CONSIDERATIONS. EQUIPMENT GROUND WIRE SHALL BE INCREASED IN SIZE PER CODE. PROVIDE LUG ADAPTERS AS NEEDED IN ORDER TO PROPERLY LAND CONDUCTORS AT TERMINATION(S).
4. FEEDER SIZES ARE BASED ON COPPER (CU) THHN/THWN-2 INSULATION, UNLESS NOTED OTHERWISE. ALL CONDUCTOR SIZES ARE BASED ON 75 DEG C RATED TERMINATIONS, UNLESS NOTED OTHERWISE. CONDUIT SIZES SHOWN ARE APPROPRIATE FOR SCHEDULE 40 PVC, EMT, GRS, IMC AND RMC; ADJUST SIZE AS NEEDED FOR OTHER RACEWAY TYPES. FOR ANY OTHER CONDITIONS MODIFY SIZES PER CODE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. INSTALL FEEDERS OVERHEAD AS HIGH AS PRACTICABLE AND ORTHOGONALLY ALONG BUILDING STRUCTURE, UNLESS NOTED OTHERWISE. COORDINATE FINAL ROUTING WITH OTHER TRADES.
6. PROVIDE CIRCUIT BREAKER FRAME SIZE AND TERMINATIONS FOR CONDUCTORS SHOWN. TRIP UNIT MODULE RATING SHALL NOT EXCEED RATING SHOWN.
7. CIRCUIT BREAKERS RATED 1200A OR HIGHER SHALL HAVE APPROPRIATE DOCUMENTATION AND METHOD TO REDUCE CLEARING TIME IN ORDER TO REDUCE ARC FLASH ENERGY PER CODE. PROVIDE ELECTRONIC TRIP UNIT WITH INSTANTANEOUS TRIP AND ENERGY-REDUCING MAINTENANCE SWITCH WITH LOCAL STATUS INDICATOR FOR COMPLIANCE, UNLESS NOTED OTHERWISE. PROVIDE PROVISIONS TO INTERFACE WITH OWNER ALARM/MONITORING SYSTEM TO INDICATE STATUS.
8. FUSES RATED 1200A OR HIGHER SHALL HAVE APPROPRIATE DOCUMENTATION AND METHOD TO REDUCE CLEARING TIME IN ORDER TO REDUCE ARC FLASH ENERGY PER CODE. FUSES SHALL HAVE A CLEARING TIME OF .07 SECONDS OR LESS AT THE AVAILABLE ARCING CURRENT, OR ONE OF THE ALTERNATIVE, CODE ALLOWED MEANS SHALL BE PROVIDED TO REDUCE THE AVAILABLE ARCING CURRENT. REFER TO THE ONE-LINE DIAGRAM AND SPECIFICATIONS FOR MORE INFORMATION.
9. PROVIDE PERMANENT LABELS ON FRONT OF ELECTRICAL EQUIPMENT ENCLOSURES PER SPECIFICATIONS, INDUSTRY STANDARDS, AND LOCAL REQUIREMENTS.

☐ **ELECTRICAL PLAN NOTES:**

E22 REPLACE EXISTING PAD MOUNTED TRANSFORMER IN SAME LOCATION. RECONNECT EXISTING MEDIUM VOLTAGE LINES AND CONNECT TO NEW DISTRIBUTION PANEL. REFER TO ENLARGED PLANS FOR MORE INFORMATION.

ELECTRICAL UTILITY CONTACT NOTE:

UTILITY COMPANY: **CITY OF FULTON ELECTRIC UTILITY**
UTILITY CONTACT: **PAT CRAIGHEAD**
PHONE: **(573) 592-3170**
EMAIL: **UTILITIES@FULTONMO.GOV**

ONE-LINE DIAGRAM GENERAL NOTES: (CONT'D)

10. COORDINATE WORK WITH PHASING AND SCHEDULE TO PROPERLY STAGE TRANSITION TO PROVIDE POWER TO EXISTING, NEW AND TEMPORARY LOADS. MONITOR LOADS ON DISTRIBUTION SYSTEM TO MAKE SURE SHIFTING OF LOADS DOES NOT OVERLOAD ELECTRICAL EQUIPMENT.
11. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXISTING AIC/SCCR RATING OF EACH PANELBOARD/SWITCHBOARD. ALL NEW AND EXISTING OVER-CURRENT PROTECTION DEVICES (CIRCUIT BREAKERS AND FUSES) MUST HAVE AN AIC/SCCR RATING EXCEEDING THE AVAILABLE FAULT CURRENT AT THAT POINT IN THE SYSTEM. NOTIFY THE OWNER AND THE ENGINEER IF THE EXISTING EQUIPMENT DOES NOT COMPLY WITH THIS REQUIREMENT.
12. VERIFY THE INTEGRITY OF THE EXISTING GROUNDING ELECTRODE SYSTEM AND THAT THE NEUTRAL AND GROUND ARE PROPERLY BONDED TOGETHER AT THE POINT OF SERVICE ENTRANCE. NOTIFY THE OWNER AND THE ENGINEER OF ANY EXISTING DEFICIENCIES.
13. VACUUM CLEAN ALL NEW AND EXISTING ELECTRICAL EQUIPMENT ALTERED UNDER THIS PROJECT TO REMOVE FOREIGN DEBRIS AND DUST. ALL OPENINGS SHALL BE SEALED PER CODE; PROVIDE LISTED KNOCKOUT PLUGS AND CIRCUIT BREAKER BLANKS AS NEEDED.
14. AS APPLICABLE, OBTAIN THE FOLLOWING INFORMATION IN REGARD TO THE EXISTING ELECTRICAL SERVICE AND DISTRIBUTION SYSTEM AND REPORT FINDINGS TO THE ENGINEER FOR ANALYSIS PRIOR TO BEGINNING CONSTRUCTION:
    A. AVAILABLE FAULT CURRENT DELIVERED BY THE UTILITY COMPANY AT THE POINT OF SERVICE.

FAULT CURRENT GENERAL NOTE (ESTIMATED VALUE):

THE MAXIMUM AVAILABLE 3-PHASE SYMMETRICAL FAULT CURRENT AT THE PAD MOUNTED TRANSFORMER SECONDARY/POINT OF SERVICE COULD NOT BE DETERMINED AT THE TIME OF THIS SUBMITTAL. THE ESTIMATED WORST CASE VALUE IS BASED ON AN INFINITE BUS CALCULATION AT THE PAD MOUNTED TRANSFORMER. CONTRACTOR SHALL VERIFY ACTUAL UTILITY FAULT CURRENT CONTRIBUTION AND FIELD VERIFY TRANSFORMER IMPEDANCE. NOTIFY ENGINEER IF ACTUAL IMPEDANCE IS LESS THAN THE ESTIMATED VALUE BELOW. ESTIMATED AVAILABLE FAULT CURRENT IS BASED ON THE FOLLOWING

ESTIMATED AVAILABLE FAULT CURRENT AT TRANSFORMER SECONDARY

TRANSFORMER	SECONDARY VOLTAGE	SIZE	ESTIMATED IMPEDANCE	ESIMATED FAULT CURRENT AT SECONDARY
PMNT-1 (BUILDING G)	208Y/120V - 3 phase	225 KVA	1.3 %Z	48,041 A
PMNT-3 (BUILDING D)	208Y/120V - 3 phase	225. KVA	1.3 %Z	48,041 A
PMNT-5 (BUILDINGS E&F)	208Y/120V - 3 phase	500. KVA	3.8 %Z	36,523 A
PMNT-6 (BUILDINGS K&J)	208Y/120V - 3 phase	225. KVA	1.3 %Z	48,041 A
PMNT-7 (BUILDINGS L&M)	208Y/120V - 3 phase	500. KVA	3.8 %Z	36,523 A
PMNT-2 (GENERATOR PWR)	480Y/277V - 3 phase	1500. KVA	* 5.7 %Z	31,653 A

* EXISTING TRANSFORMER IMPEDANCE VERIFIED IN FIELD INVESTIGATION

ARC FLASH STUDY GENERAL NOTE:

CONTRACTOR SHALL PROVIDE OVERCURRENT PROTECTIVE DEVICE STUDIES TO VERIFY AVAILABLE FAULT CURRENT AND DOCUMENT ARC-FLASH HAZARDS FOR NEW AND REPLACED EQUIPMENT. PROVIDE ALL NECESSARY AS-BUILT INFORMATION REQUIRED FOR COMPLETION OF THE STUDIES TO THE ENGINEER DOING THE STUDY. PROVIDE SUBMITTALS INDICATED WITHIN THE SPECIFICATIONS TO OWNER AND ARCHITECT/ENGINEER TO CONFIRM STUDIES HAVE BEEN COMPLETED. CONTRACTOR SHALL INCLUDE THE COST FOR THIS WORK IN THEIR BID. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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8/27/2026

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OFFICE OF ADMINISTRATION
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DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL MEDIUM-VOLTAGE ONELINE

SHEET NUMBER:
E800

NATHAN W. STOSS

☐ ELECTRICAL PLAN NOTES:

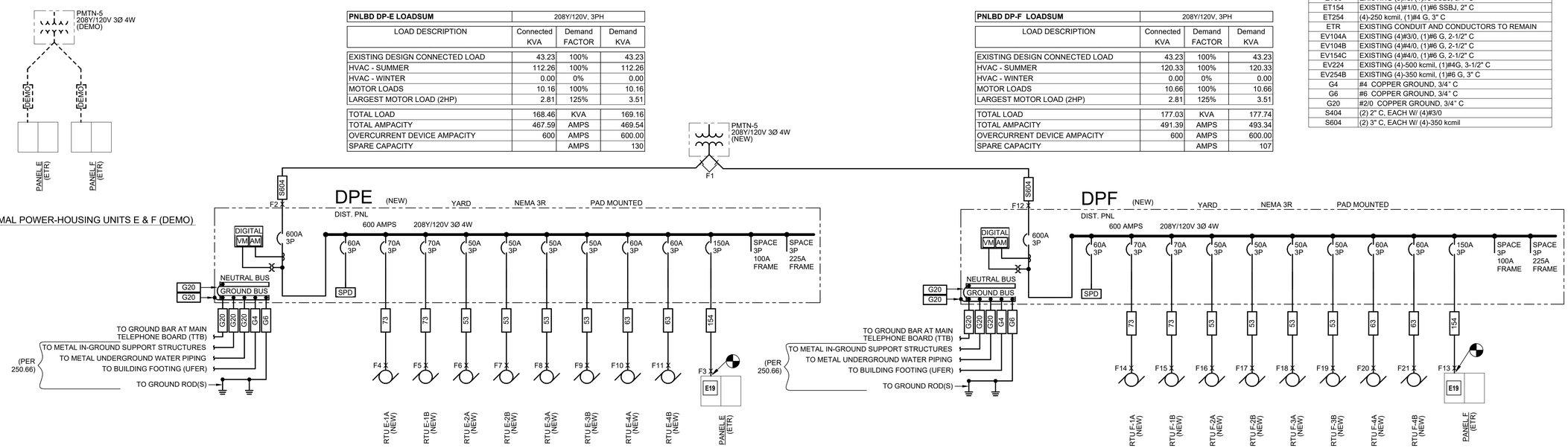
E19 EXISTING PANELBOARD, PREVIOUSLY POWERED BY THE UTILITY TRANSFORMER, TO BE FED FROM THE NEW EXTERIOR SERVICE ENTRANCE DISTRIBUTION BOARD. CONTRACTOR SHALL DISCONNECT THE NEUTRAL-TO-GROUND BOND AT THIS PANELBOARD AS REQUIRED BY THE NEC. THE NEUTRAL-TO-GROUND BOND SHALL BE SET AT THE NEW EXTERIOR SERVICE ENTRANCE DISTRIBUTION BOARD.

FDR FEEDER SCHEDULE:

FEEDER TAG	FEEDER DESCRIPTION
53	(3)#8, (1)#10 G, 3/4" C
54	(4)#8, (1)#10 G, 3/4" C
63	(3)#6, (1)#10 G, 3/4" C
73	(3)#4, (1)#8 G, 1" C
83	(3)#4, (1)#8 G, 1" C
84	(4)#4, (1)#8 G, 1-1/4" C
94	(4)#3, (1)#8 G, 1-1/4" C
103	(3)#3, (1)#8 G, 1" C
104	(4)#3, (1)#8 G, 1-1/4" C
154	(4)#1/0, (1)#6 G, 1-1/2" C
174	(4)#2/0, (1)#6 G, 2" C
254	(4)-250 kcmil, (1)#4 G, 2-1/2" C
DEMO	REMOVE EXISTING CONDUCTORS AND CONDUIT UNO.
E33	EXISTING (3)#10, (1)#10 G, 1/2" C
E54	(4)#8, (1)#10 G, 1" C
E83	EXISTING (3)#4, (1)#8 G, 1-1/4" C
E123	(3)#1, (1)#6 G, 1-1/2" C
E224	EXISTING (4)#4/0, (1)#4G, 2-1/2" C
E1204	EXISTING (4) 3" C, EACH W/ (4)-350 kcmil, (1)#3/0 G
ES1004	EXISTING (3) 3-1/2" C, EACH W/ (4)-500 kcmil
ET53	EXISTING (3)#8, (1)#8 SSBJ, 3/4" C
ET154	EXISTING (4)#1/0, (1)#6 SSBJ, 2" C
ET254	(4)-250 kcmil, (1)#4 G, 3" C
ETR	EXISTING CONDUIT AND CONDUCTORS TO REMAIN
EV104A	EXISTING (4)#3/0, (1)#6 G, 2-1/2" C
EV104B	EXISTING (4)#4/0, (1)#6 G, 2-1/2" C
EV154C	EXISTING (4)#4/0, (1)#6 G, 2-1/2" C
EV224	EXISTING (4)-500 kcmil, (1)#4G, 3-1/2" C
EV254B	EXISTING (4)-350 kcmil, (1)#6 G, 3" C
G4	#4 COPPER GROUND, 3/4" C
G6	#6 COPPER GROUND, 3/4" C
G20	#2/0 COPPER GROUND, 3/4" C
S404	(2) 2" C, EACH W/ (4)#3/0
S604	(2) 3" C, EACH W/ (4)-350 kcmil

PNLBD DP-E LOADSUM	208Y/120V, 3PH		
LOAD DESCRIPTION	Connected KVA	Demand FACTOR	Demand KVA
EXISTING DESIGN CONNECTED LOAD	43.23	100%	43.23
HVAC - SUMMER	112.26	100%	112.26
HVAC - WINTER	0.00	0%	0.00
MOTOR LOADS	10.16	100%	10.16
LARGEST MOTOR LOAD (2HP)	2.81	125%	3.51
TOTAL LOAD	168.46	KVA	169.16
TOTAL AMPACITY	467.59	AMPS	469.54
OVERCURRENT DEVICE AMPACITY	600	AMPS	600.00
SPARE CAPACITY		AMPS	130

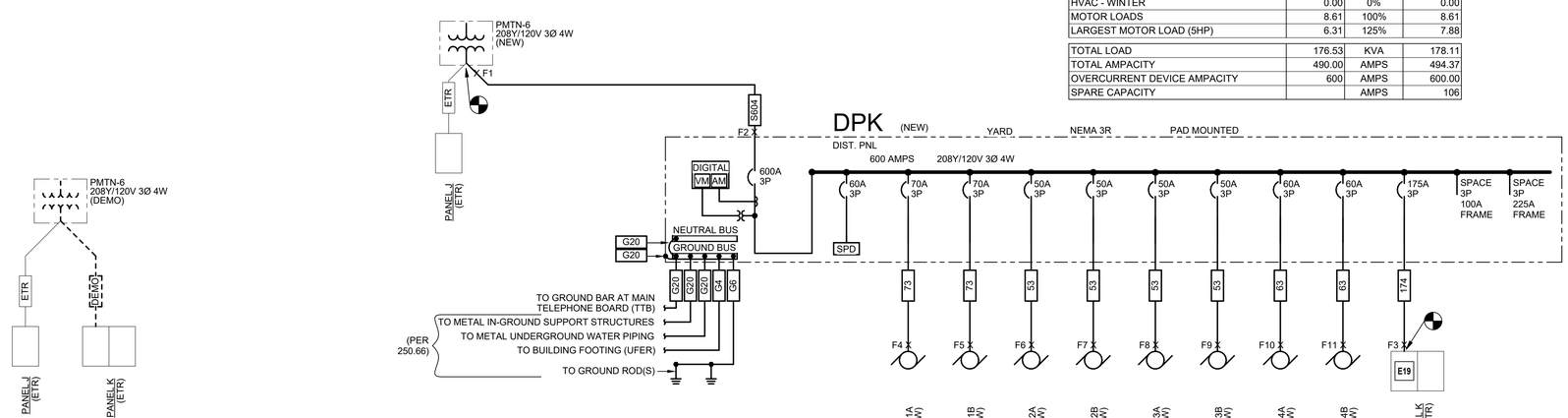
PNLBD DP-F LOADSUM	208Y/120V, 3PH		
LOAD DESCRIPTION	Connected KVA	Demand FACTOR	Demand KVA
EXISTING DESIGN CONNECTED LOAD	43.23	100%	43.23
HVAC - SUMMER	120.33	100%	120.33
HVAC - WINTER	0.00	0%	0.00
MOTOR LOADS	10.66	100%	10.66
LARGEST MOTOR LOAD (2HP)	2.81	125%	3.51
TOTAL LOAD	177.03	KVA	177.74
TOTAL AMPACITY	491.39	AMPS	493.34
OVERCURRENT DEVICE AMPACITY	600	AMPS	600.00
SPARE CAPACITY		AMPS	107



1 NORMAL POWER-HOUSING UNITS E & F (DEMO)
NTS

2 NORMAL POWER-HOUSING UNIT E & F
NTS

PNLBD DP-K LOADSUM	208Y/120V, 3PH		
LOAD DESCRIPTION	Connected KVA	Demand FACTOR	Demand KVA
EXISTING DESIGN CONNECTED LOAD	50.40	100%	50.40
HVAC - SUMMER	111.21	100%	111.21
HVAC - WINTER	0.00	0%	0.00
MOTOR LOADS	8.61	100%	8.61
LARGEST MOTOR LOAD (5HP)	6.31	125%	7.88
TOTAL LOAD	176.53	KVA	178.11
TOTAL AMPACITY	490.00	AMPS	494.37
OVERCURRENT DEVICE AMPACITY	600	AMPS	600.00
SPARE CAPACITY		AMPS	106



3 NORMAL POWER-EDUCATION BLDG & HOUSING UNIT K (DEMO)
NTS

4 NORMAL POWER-EDUCATION BLDG & HOUSING UNIT K
NTS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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NATHAN W. STOSS
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8/27/2026

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OFFICE OF ADMINISTRATION
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DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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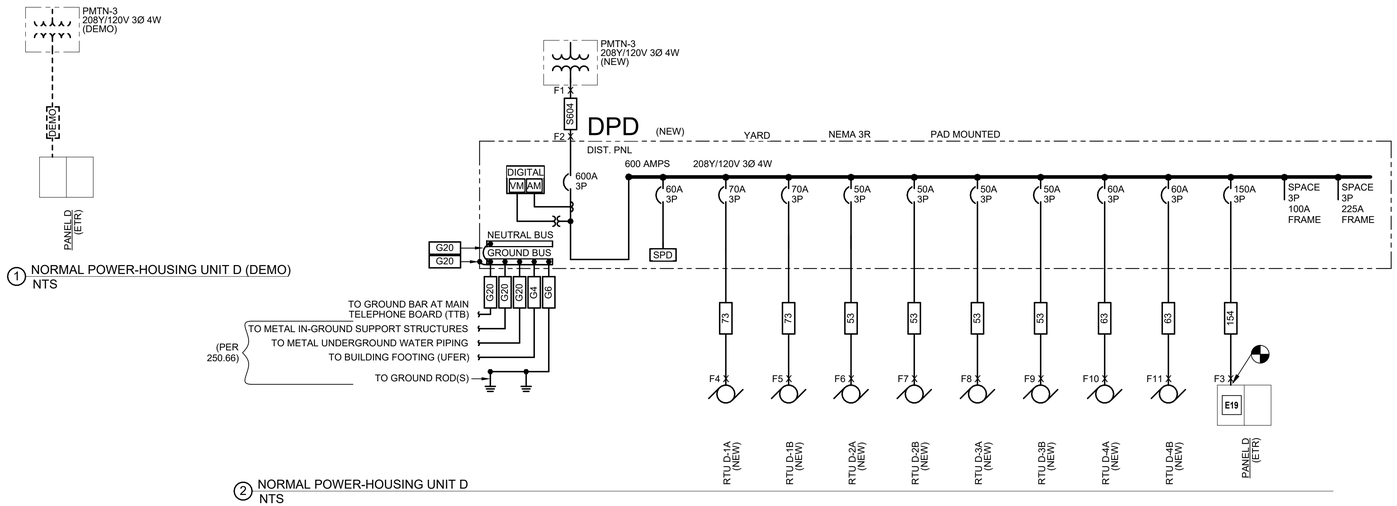
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL LINE-VOLTAGE ONELINES

SHEET NUMBER:
E801

NATHAN W. STOSS



1 NORMAL POWER-HOUSING UNIT D (DEMO)
NTS

2 NORMAL POWER-HOUSING UNIT D
NTS

PNLBD DP-D LOADSUM	208Y/120V, 3PH		
LOAD DESCRIPTION	Connected KVA	Demand FACTOR	Demand KVA
EXISTING DESIGN CONNECTED LOAD	50.40	100%	50.40
HVAC - SUMMER	108.15	100%	108.15
HVAC - WINTER	0.00	0%	0.00
MOTOR LOADS	9.51	100%	9.51
LARGEST MOTOR LOAD (3HP)	3.96	125%	4.95
TOTAL LOAD	173.83	KVA	174.82
TOTAL AMPACITY	482.49	AMPS	485.24
OVERCURRENT DEVICE AMPACITY	600	AMPS	600.00
SPARE CAPACITY		AMPS	115

PNLBD DP-G LOADSUM	208Y/120V, 3PH		
LOAD DESCRIPTION	Connected KVA	Demand FACTOR	Demand KVA
EXISTING DESIGN CONNECTED LOAD	43.23	100%	43.23
HVAC - SUMMER	123.64	100%	123.64
HVAC - WINTER	0.00	0%	0.00
MOTOR LOADS	10.56	100%	10.56
LARGEST MOTOR LOAD (5HP)	6.31	125%	7.88
TOTAL LOAD	183.73	KVA	185.31
TOTAL AMPACITY	509.99	AMPS	514.37
OVERCURRENT DEVICE AMPACITY	600	AMPS	600.00
SPARE CAPACITY		AMPS	86

ELECTRICAL PLAN NOTES:

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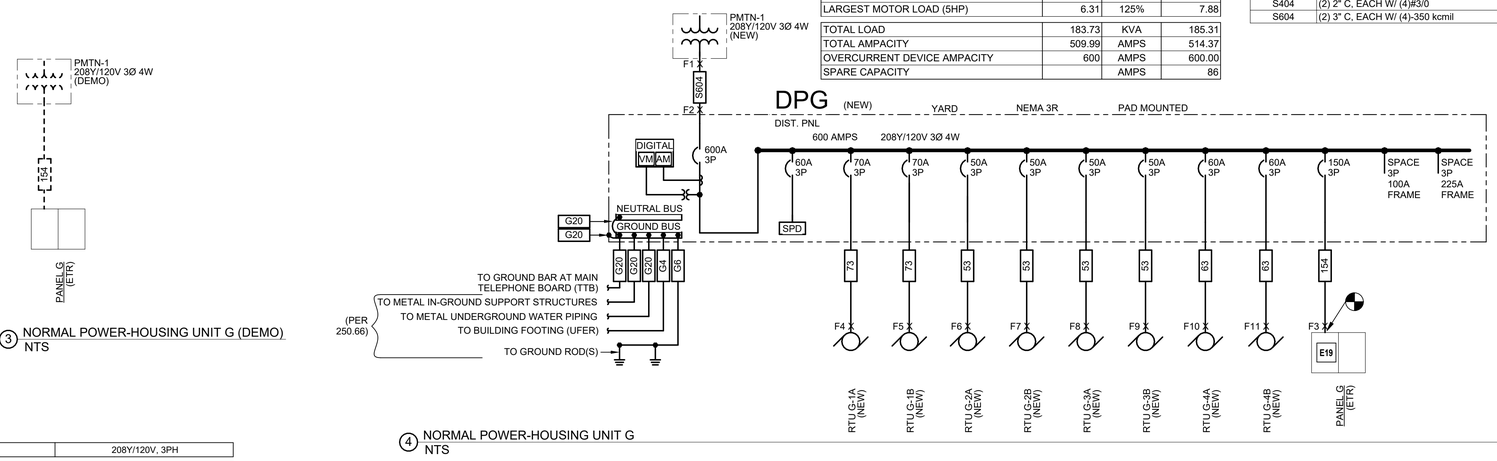
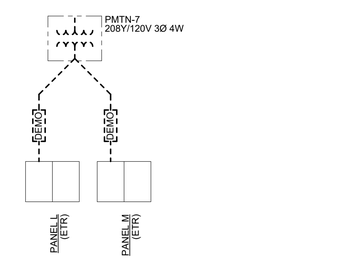
FDR **FEEDER SCHEDULE:**

FEEDER TAG	FEEDER DESCRIPTION
53	(3)#8, (1)#10 G, 3/4" C
54	(4)#8, (1)#10 G, 3/4" C
63	(3)#6, (1)#10 G, 3/4" C
73	(3)#4, (1)#8 G, 1" C
83	(3)#4, (1)#8 G, 1" C
84	(4)#4, (1)#8 G, 1-1/4" C
94	(4)#3, (1)#8 G, 1-1/4" C
103	(3)#3, (1)#8 G, 1" C
104	(4)#3, (1)#8 G, 1-1/4" C
154	(4)#1/0, (1)#6 G, 1-1/2" C
174	(4)#2/0, (1)#6 G, 2" C
254	(4)-250 kcmil, (1)#4 G, 2-1/2" C
DEMO	REMOVE EXISTING CONDUCTORS AND CONDUIT UNO.
E33	EXISTING (3)#10, (1)#10 G, 1/2" C
E54	(4)#8, (1)#10 G, 1" C
E83	EXISTING (3)#4, (1)#8 G, 1-1/4" C
E123	(3)#1, (1)#6 G, 1-1/2" C
E224	EXISTING (4)#4/0, (1)#4G, 2-1/2" C
E1204	EXISTING (4) 3" C, EACH W/ (4)-350 kcmil, (1)#3/0 G
ES1004	EXISTING (3) 3-1/2" C, EACH W/ (4)-500 kcmil
ET53	EXISTING (3)#8, (1)#8 SSBJ, 3/4" C
ET154	EXISTING (4)#1/0, (1)#6 SSBJ, 2" C
ET254	(4)-250 kcmil, (1)#4 G, 3" C
ETR	EXISTING CONDUIT AND CONDUCTORS TO REMAIN
EV104A	EXISTING (4)#3/0, (1)#6 G, 2-1/2" C
EV104B	EXISTING (4)#4/0, (1)#6 G, 2-1/2" C
EV154C	EXISTING (4)#4/0, (1)#6 G, 2-1/2" C
EV224	EXISTING (4)-500 kcmil, (1)#4G, 3-1/2" C
EV254B	EXISTING (4)-350 kcmil, (1)#6 G, 3" C
G4	#4 COPPER GROUND, 3/4" C
G6	#6 COPPER GROUND, 3/4" C
G20	#2/0 COPPER GROUND, 3/4" C
S404	(2) 2" C, EACH W/ (4)#3/0
S604	(2) 3" C, EACH W/ (4)-350 kcmil



3 NORMAL POWER-HOUSING UNIT G (DEMO)
NTS

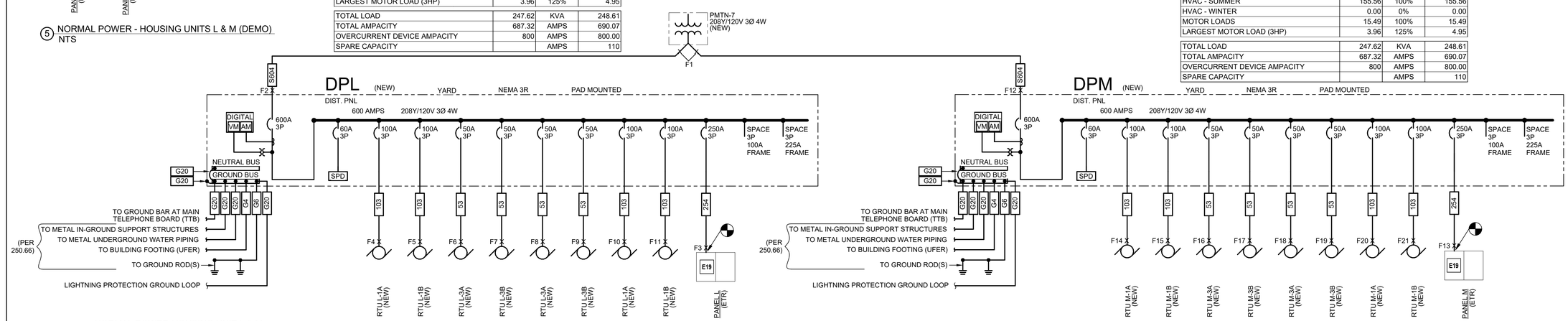
4 NORMAL POWER-HOUSING UNIT G
NTS



5 NORMAL POWER - HOUSING UNITS L & M (DEMO)
NTS

PNLBD DP-L LOADSUM	208Y/120V, 3PH		
LOAD DESCRIPTION	Connected KVA	Demand FACTOR	Demand KVA
EXISTING DESIGN CONNECTED LOAD	70.80	100%	70.80
HVAC - SUMMER	155.56	100%	155.56
HVAC - WINTER	0.00	0%	0.00
MOTOR LOADS	15.49	100%	15.49
LARGEST MOTOR LOAD (3HP)	3.96	125%	4.95
TOTAL LOAD	247.62	KVA	248.61
TOTAL AMPACITY	687.32	AMPS	690.07
OVERCURRENT DEVICE AMPACITY	800	AMPS	800.00
SPARE CAPACITY		AMPS	110

PNLBD DP-M LOADSUM	208Y/120V, 3PH		
LOAD DESCRIPTION	Connected KVA	Demand FACTOR	Demand KVA
EXISTING DESIGN CONNECTED LOAD	70.80	100%	70.80
HVAC - SUMMER	155.56	100%	155.56
HVAC - WINTER	0.00	0%	0.00
MOTOR LOADS	15.49	100%	15.49
LARGEST MOTOR LOAD (3HP)	3.96	125%	4.95
TOTAL LOAD	247.62	KVA	248.61
TOTAL AMPACITY	687.32	AMPS	690.07
OVERCURRENT DEVICE AMPACITY	800	AMPS	800.00
SPARE CAPACITY		AMPS	110



6 NORMAL POWER-HOUSING UNIT L & M
NTS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL LINE-VOLTAGE ONELINES

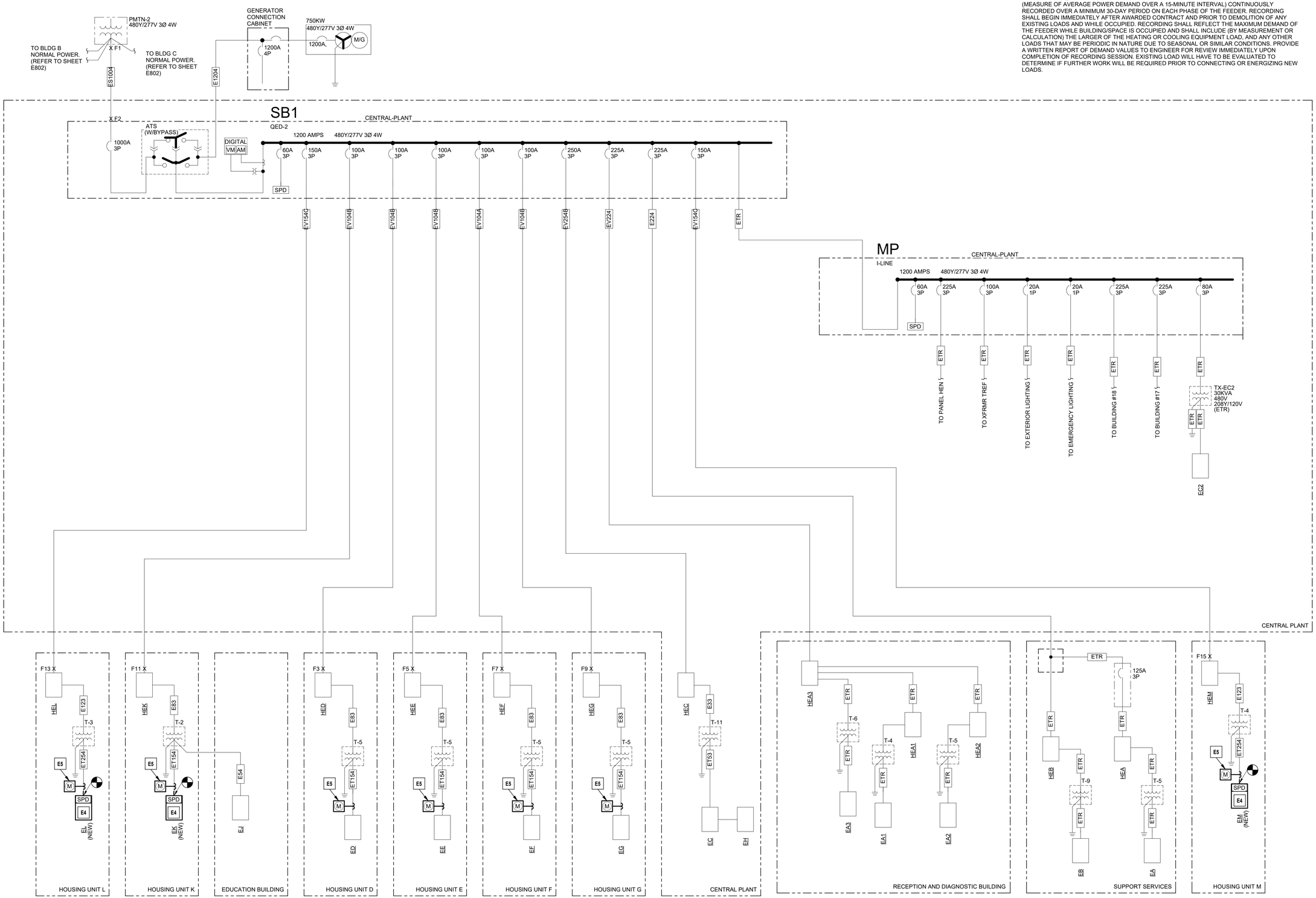
SHEET NUMBER:
E802

NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

E4 REPLACE EXISTING PANELBOARDS 'EL' AND 'EM' LOCATED IN BUILDINGS 'L' & 'M' AND RECONNECT EXISTING CIRCUITS TO NEW PANELS. REFER TO PANELBOARD SCHEDULES FOR MORE INFORMATION.

E5 PER NEC 220.87, PROVIDE A CONTINUOUS POWER METER RECORDING OF THE MAXIMUM DEMAND (MEASURE OF AVERAGE POWER DEMAND OVER A 15-MINUTE INTERVAL) CONTINUOUSLY RECORDED OVER A MINIMUM 30-DAY PERIOD ON EACH PHASE OF THE FEEDER. RECORDING SHALL BEGIN IMMEDIATELY AFTER AWARDED CONTRACT AND PRIOR TO DEMOLITION OF ANY EXISTING LOADS AND WHILE OCCUPIED. RECORDING SHALL REFLECT THE MAXIMUM DEMAND OF THE FEEDER WHILE BUILDING/SPACE IS OCCUPIED AND SHALL INCLUDE (BY MEASUREMENT OR CALCULATION) THE LARGER OF THE HEATING OR COOLING EQUIPMENT LOAD, AND ANY OTHER LOADS THAT MAY BE PERIODIC IN NATURE DUE TO SEASONAL OR SIMILAR CONDITIONS. PROVIDE A WRITTEN REPORT OF DEMAND VALUES TO ENGINEER FOR REVIEW IMMEDIATELY UPON COMPLETION OF RECORDING SESSION. EXISTING LOAD WILL HAVE TO BE EVALUATED TO DETERMINE IF FURTHER WORK WILL BE REQUIRED PRIOR TO CONNECTING OR ENERGIZING NEW LOADS.



1 EMERGENCY POWER DISTRIBUTION
NTS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

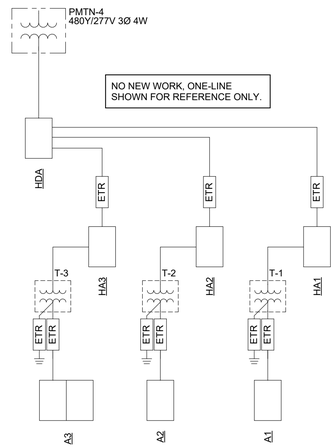
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

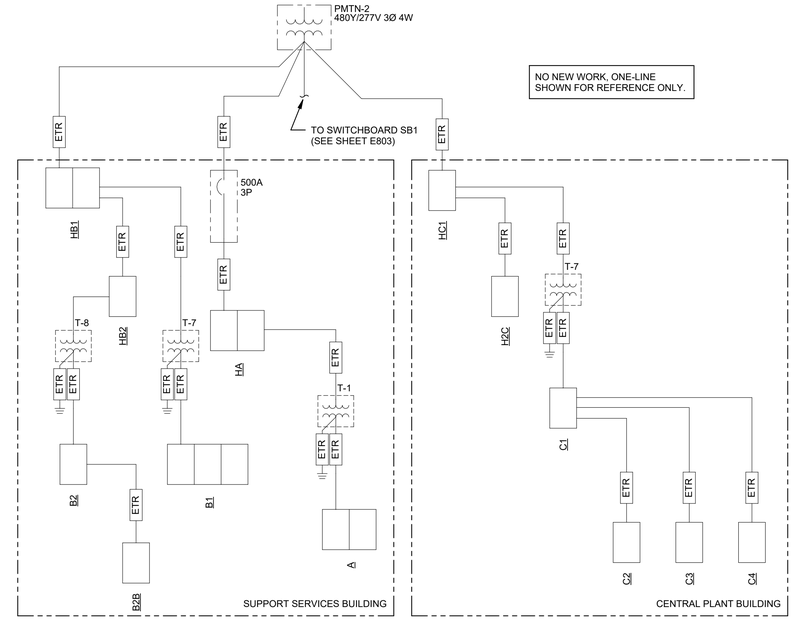
SHEET TITLE:
ELECTRICAL EMERGENCY ONELINE

SHEET NUMBER:
E803

NATHAN W. STOSS



1 NORMAL POWER-DIAGNOSTIC BUILDING
NTS



2 NORMAL POWER CENTRAL PLANT & SUPPORT SERVICES BUILDINGS
NTS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER

8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 **FAX** 913.742.5001
WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL LINE-VOLTAGE ONELINES

SHEET NUMBER:
E804

NATHAN W. STOSS

Short-Circuit and Voltage Drop Calculations

Version 2.13

Distances are for calculation purposes only and shall not be used for contractor takeoffs nor bidding - Contractor shall notify Engineer of any field condition that results in a change of 10% or greater circuit distance

The following calculations are based on the "Point-by-Point" method where:
ISC (2) = ISC(1) x M(1) M= 1/(1+f)
ISC (1) = short circuit current at fault point 1
ISC (2) = short circuit current at fault point 2

Feeder: f (3Ø) = 1.732 x L x Isc / C x E
Feeder: f (1Ø)= 2 x L x Isc / C x E

XFMR: f (3Ø) = IP(sca)x Vp x 1.73 x %Z / 100,000 x KVA
XFMR: f (1Ø)= IP(sca)x Vp x %Z / 100,000 x KVA

IS(sca)= Vp x M x IP(sca) / Vs

VOLTAGE DROP (3Ø):
%VD = ((R x cos(arccos(pf)) + X x sin (arccos(pf))) x L/# x I x 1.73) / E
VOLTAGE DROP (1Ø):
%VD = ((R x cos(arccos(pf)) + X x sin(arccos(pf))) x 2 x L/# x I) / E

E = Line to line volts
IP = Primary short circuit current
Vp = Primary voltage
IS= Secondary short circuit current
Vs= Secondary voltage
L = Length of circuit
C = "C" Factor from Bussman table where "C" = 1 / impedance per linear foot

%VD CUM = Cumulative Voltage Drop from Fault Point 1 to Fault Point #
R = resistance in ohms per LF
X = reactances in ohms per LF

Feeder Types: NM - Non Magnetic Conduit, M - Magnetic Conduit, FB - Feeder Busway, PB - Plug-in Busway, TX - Transformer

System Voltage: 208Y/120V - 3 phase

Date of Calculations: 04/18/2025

Fault Point (F#)	Bus/Feeder Description	Source (Fault Point)	Phase	Source Isc (amps)	Feeder: Conduit Type/ TX	Feeder: Material	Feeder: Quantity of Parallel Sets and Bus/ Phase & Neutral Size	Conductor 'C' Value	Busway 'C' Value	L-L Voltage (E)	Circuit Length (L)	Load Power Factor (pf)	Circuit Load (Amperage)	Conductor: Resistance (R)	Conductor: Reactance (X)	Conductor: Arccos (pf) (Radians)	Transformer: Type	Transformer: Degree Rise	Transformer: kVA	Transformer: New Xfmr Z	Transformer: Existing Xfmr Z	Transformer: Secondary Voltage	Transformer: Tap Setting	f	M	Fault Current (amps)	Voltage Drop (%VD)	Cumulative Voltage Drop (%VD)	Fault Point (F#)
1	Utility Service Point	48,041 at the secondary of the utility transformer																						Source Isc + 6X Motor Contribution =		49,481			1
	Motor Contribution	240 The connected full load motor amps (includes compressors) on the system																											
2	Distribution Panel 'DP-D'	1	3	49,481	NM	CU	2 Set(s) of 350 kcmil	22737	--	208	15	0.9	480	0.000038	0.000040	0.451027								0.136	0.88	43,561	-0.15%	-0.15%	2
3	Panelboard 'D' (ETR)	2	3	43,561	M	CU	1 Set(s) of 1/0 AWG	8925	--	208	110	0.9	120	0.000120	0.000055	0.451027								4.471	0.18	7,963	-1.45%	-1.61%	3
4	RTU D-1A	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	190	0.85	47	0.000310	0.000060	0.554811								18.108	0.05	2,280	-2.18%	-2.33%	4
5	RTU D-2A	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	155	0.85	34	0.000780	0.000065	0.554811								36.111	0.03	1,174	-3.09%	-3.24%	5
6	RTU D-3A	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								33.781	0.03	1,252	-2.89%	-3.04%	6
7	RTU D-4A	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	73	0.85	39	0.000310	0.000060	0.554811								6.957	0.13	5,474	-0.69%	-0.85%	7
8	RTU D-1B	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	175	0.85	47	0.000310	0.000060	0.554811								16.679	0.06	2,464	-2.00%	-2.16%	8
9	RTU D-2B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	34	0.000780	0.000065	0.554811								38.440	0.03	1,104	-3.29%	-3.44%	9
10	RTU D-3B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								33.781	0.03	1,252	-2.89%	-3.04%	10
11	RTU D-4B	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	110	0.85	39	0.000310	0.000060	0.554811								10.484	0.09	3,793	-1.04%	-1.20%	11

Short-Circuit and Voltage Drop Calculations

Version 2.13

Distances are for calculation purposes only and shall not be used for contractor takeoffs nor bidding - Contractor shall notify Engineer of any field condition that results in a change of 10% or greater circuit distance

The following calculations are based on the "Point-by-Point" method where:
ISC (2) = ISC(1) x M(1) M= 1/(1+f)
ISC (1) = short circuit current at fault point 1
ISC (2) = short circuit current at fault point 2

Feeder: f (3Ø) = 1.732 x L x Isc / C x E
Feeder: f (1Ø)= 2 x L x Isc / C x E

XFMR: f (3Ø) = IP(sca)x Vp x 1.73 x %Z / 100,000 x KVA
XFMR: f (1Ø)= IP(sca)x Vp x %Z / 100,000 x KVA

IS(sca)= Vp x M x IP(sca) / Vs

VOLTAGE DROP (3Ø):
%VD = ((R x cos(arccos(pf)) + X x sin (arccos(pf))) x L/# x I x 1.73) / E
VOLTAGE DROP (1Ø):
%VD = ((R x cos(arccos(pf)) + X x sin(arccos(pf))) x 2 x L/# x I) / E

E = Line to line volts
IP = Primary short circuit current
Vp = Primary voltage
IS= Secondary short circuit current
Vs= Secondary voltage
L = Length of circuit
C = "C" Factor from Bussman table where "C" = 1 / impedance per linear foot

%VD CUM = Cumulative Voltage Drop from Fault Point 1 to Fault Point #
R = resistance in ohms per LF
X = reactances in ohms per LF

Feeder Types: NM - Non Magnetic Conduit, M - Magnetic Conduit, FB - Feeder Busway, PB - Plug-in Busway, TX - Transformer

System Voltage: 208Y/120V - 3 phase

Date of Calculations: 04/18/2025

Fault Point (F#)	Bus/Feeder Description	Source (Fault Point)	Phase	Source Isc (amps)	Feeder: Conduit Type/ TX	Feeder: Material	Feeder: Quantity of Parallel Sets and Bus/ Phase & Neutral Size	Conductor 'C' Value	Busway 'C' Value	L-L Voltage (E)	Circuit Length (L)	Load Power Factor (pf)	Circuit Load (Amperage)	Conductor: Resistance (R)	Conductor: Reactance (X)	Conductor: Arccos (pf) (Radians)	Transformer: Type	Transformer: Degree Rise	Transformer: kVA	Transformer: New Xfmr Z	Transformer: Existing Xfmr Z	Transformer: Secondary Voltage	Transformer: Tap Setting	f	M	Fault Current (amps)	Voltage Drop (%VD)	Cumulative Voltage Drop (%VD)	Fault Point (F#)
1	Utility Service Point	36,523 at the secondary of the utility transformer																						Source Isc + 6X Motor Contribution =		37,963			1
	Motor Contribution	240 The connected full load motor amps (includes compressors) on the system																											
2	Distribution Panel 'DP-E'	1	3	37,963	NM	CU	2 Set(s) of 350 kcmil	22737	--	208	15	0.9	480	0.000038	0.000040	0.451027								0.104	0.91	34,378	-0.15%	-0.15%	2
3	Panelboard 'E' (ETR)	2	3	34,378	M	CU	1 Set(s) of 1/0 AWG	8925	--	208	110	0.9	120	0.000120	0.000055	0.451027								3.528	0.22	7,592	-1.45%	-1.61%	3
4	RTU E-1A	2	3	34,378	M	CU	1 Set(s) of 4 AWG	3806	--	208	190	0.85	47	0.000310	0.000060	0.554811								14.291	0.07	2,248	-2.18%	-2.33%	4
5	RTU E-2A	2	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	155	0.85	34	0.000780	0.000065	0.554811								28.498	0.03	1,165	-3.09%	-3.24%	5
6	RTU E-3A	2	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								26.660	0.04	1,243	-2.89%	-3.04%	6
7	RTU E-4A	2	3	34,378	M	CU	1 Set(s) of 4 AWG	3806	--	208	80	0.85	39	0.000310	0.000060	0.554811								6.017	0.14	4,899	-0.76%	-0.91%	7
8	RTU E-1B	2	3	34,378	M	CU	1 Set(s) of 4 AWG	3806	--	208	175	0.85	47	0.000310	0.000060	0.554811								13.163	0.07	2,427	-2.00%	-2.16%	8
9	RTU E-2B	2	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	34	0.000780	0.000065	0.554811								30.337	0.03	1,097	-3.29%	-3.44%	9
10	RTU E-3B	2	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								26.660	0.04	1,243	-2.89%	-3.04%	10
11	RTU E-4B	2	3	34,378	M	CU	1 Set(s) of 4 AWG	3806	--	208	110	0.85	39	0.000310	0.000060	0.554811								8.274	0.11	3,707	-1.04%	-1.20%	11
12	Disbution Panel 'DP-F'	1	3	37,963	NM	CU	2 Set(s) of 350 kcmil	22737	--	208	15	0.9	480	0.000038	0.000040	0.451027								0.104	0.91	34,378	-0.15%	-0.15%	12
13	Panelboard 'F' (ETR)	12	3	34,378	M	CU	1 Set(s) of 1/0 AWG	8925	--	208	110	0.9	120	0.000120	0.000055	0.451027								3.528	0.22	7,592	-1.45%	-1.61%	13
14	RTU F-1A	12	3	34,378	M	CU	1 Set(s) of 4 AWG	3806	--	208	190	0.85	47	0.000310	0.000060	0.554811								14.291	0.07	2,248	-2.18%	-2.33%	14
15	RTU F-2A	12	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	155	0.85	34	0.000780	0.000065	0.554811								28.498	0.03	1,165	-3.09%	-3.24%	15
16	RTU F-3A	12	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								26.660	0.04	1,243	-2.89%	-3.04%	16
17	RTU F-4A	12	3	34,378	M	CU	1 Set(s) of 4 AWG	3806	--	208	80	0.85	39	0.000310	0.000060	0.554811								6.017	0.14	4,899	-0.76%	-0.91%	17
18	RTU F-1B	12	3	34,378	M	CU	1 Set(s) of 4 AWG	3806	--	208	175	0.85	47	0.000310	0.000060	0.554811								13.163	0.07	2,427	-2.00%	-2.16%	18
19	RTU F-2B	12	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	34	0.000780	0.000065	0.554811								30.337	0.03	1,097	-3.29%	-3.44%	19
20	RTU F-3B	12	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								26.660	0.04	1,243	-2.89%	-3.04%	20
21	RTU F-4B	12	3	34,378	M	CU	1 Set(s) of 4 AWG	3806	--	208	110	0.85	39	0.000310	0.000060	0.554811								8.274	0.11	3,707	-1.04%	-1.20%	21

Short-Circuit and Voltage Drop Calculations

Version 2.13

Distances are for calculation purposes only and shall not be used for contractor takeoffs nor bidding - Contractor shall notify Engineer of any field condition that results in a change of 10% or greater circuit distance

The following calculations are based on the "Point-by-Point" method where:
ISC (2) = ISC(1) x M(1) M= 1/(1+f)
ISC (1) = short circuit current at fault point 1
ISC (2) = short circuit current at fault point 2

Feeder: f (3Ø) = 1.732 x L x Isc / C x E
Feeder: f (1Ø)= 2 x L x Isc / C x E

XFMR: f (3Ø) = IP(sca)x Vp x 1.73 x %Z / 100,000 x KVA
XFMR: f (1Ø)= IP(sca)x Vp x %Z / 100,000 x KVA

IS(sca)= Vp x M x IP(sca) / Vs

VOLTAGE DROP (3Ø):
%VD = ((R x cos(arccos(pf)) + X x sin (arccos(pf))) x L/# x I x 1.73) / E
VOLTAGE DROP (1Ø):
%VD = ((R x cos(arccos(pf)) + X x sin(arccos(pf))) x 2 x L/# x I) / E

E = Line to line volts
IP = Primary short circuit current
Vp = Primary voltage
IS= Secondary short circuit current
Vs= Secondary voltage
L = Length of circuit
C = "C" Factor from Bussman table where "C" = 1 / impedance per linear foot

%VD CUM = Cumulative Voltage Drop from Fault Point 1 to Fault Point #
R = resistance in ohms per LF
X = reactances in ohms per LF

Feeder Types: NM - Non Magnetic Conduit, M - Magnetic Conduit, FB - Feeder Busway, PB - Plug-in Busway, TX - Transformer

System Voltage: 208Y/120V - 3 phase

Date of Calculations: 04/18/2025

Fault Point (F#)	Bus/Feeder Description	Source (Fault Point)	Phase	Source Isc (amps)	Feeder: Conduit Type/ TX	Feeder: Material	Feeder: Quantity of Parallel Sets and Bus/ Phase & Neutral Size	Conductor 'C' Value	Busway 'C' Value	L-L Voltage (E)	Circuit Length (L)	Load Power Factor (pf)	Circuit Load (Amperage)	Conductor: Resistance (R)	Conductor: Reactance (X)	Conductor: Arccos (pf) (Radians)	Transformer: Type	Transformer: Degree Rise	Transformer: kVA	Transformer: New Xfmr Z	Transformer: Existing Xfmr Z	Transformer: Secondary Voltage	Transformer: Tap Setting	f	M	Fault Current (amps)	Voltage Drop (%VD)	Cumulative Voltage Drop (%VD)	Fault Point (F#)
1	Utility Service Point	48,041 at the secondary of the utility transformer																						Source Isc + 6X Motor Contribution =		49,481			1
	Motor Contribution	240 The connected full load motor amps (includes compressors) on the system																											
2	Distribution Panel 'DP-G'	1	3	49,481	NM	CU	2 Set(s) of 350 kcmil	22737	--	208	15	0.9	480	0.000038	0.000040	0.451027								0.136	0.88	43,561	-0.15%	-0.15%	2
3	Panelboard 'G' (ETR)	2	3	43,561	M	CU	1 Set(s) of 1/0 AWG	8925	--	208	110	0.9	120	0.000120	0.000055	0.451027								4.471	0.18	7,963	-1.45%	-1.61%	3
4	RTU G-1A	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	190	0.85	47	0.000310	0.000060	0.554811								18.108	0.05	2,280	-2.18%	-2.33%	4
5	RTU G-2A	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	155	0.85	34	0.000780	0.000065	0.554811								36.111	0.03	1,174	-3.09%	-3.24%	5
6	RTU G-3A	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								33.781	0.03	1,252	-2.89%	-3.04%	6
7	RTU G-4A	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	83	0.85	39	0.000310	0.000060	0.554811								7.910	0.11	4,889	-0.79%	-0.94%	7
8	RTU G-1B	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	175	0.85	47	0.000310	0.000060	0.554811								16.679	0.06	2,464	-2.00%	-2.16%	8
9	RTU G-2B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	34	0.000780	0.000065	0.554811								38.440	0.03	1,104	-3.29%	-3.44%	9
10	RTU G-3B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								33.781	0.03	1,252	-2.89%	-3.04%	10
11	RTU G-4B	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	110	0.85	39	0.000310	0.000060	0.554811								10.484	0.09	3,793	-1.04%	-1.20%	11

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI NATHAN W. STOSS NUMBER PE-2023044638 PROFESSIONAL ENGINEER

8/27/2026

NATHAN W. STOSS
LICENSE # PE-2023044638

HENDERSON ENGINEERS
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MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL CALCULATIONS

SHEET NUMBER:
E805

NATHAN W. STOSS

Short-Circuit and Voltage Drop Calculations

Version 2.13

Distances are for calculation purposes only and shall not be used for contractor takeoffs nor bidding - Contractor shall notify Engineer of any field condition that results in a change of 10% or greater circuit distance

The following calculations are based on the "Point-by-Point" method where:

ISC (2) = ISC(1) x M(1) M= 1/(1+f)

ISC (1) = short circuit current at fault point 1

ISC (2) = short circuit current at fault point 2

Feeder: f (3Ø) = 1.732 x L x Isc / C x E

Feeder: f (1Ø)= 2 x L x Isc / C x E

XFMR: f (3Ø) = IP(sca)x Vp x 1.73 x %Z / 100,000 x KVA

XFMR: f (1Ø)= IP(sca)x Vp x %Z / 100,000 x KVA

IS(sca)= Vp x M x IP(sca) / Vs

VOLTAGE DROP (3Ø):
%VD = ((R x cos(arccos(pf)) + X x sin (arccos(pf))) x L/# x I x 1.73) / E

VOLTAGE DROP (1Ø):
%VD = ((R x cos(arccos(pf)) + X x sin(arccos(pf))) x 2 x L/# x I) / E

E = Line to line volts
IP = Primary short circuit current
Vp = Primary voltage
IS= Secondary short circuit current
Vs= Secondary voltage
L = Length of circuit
C = "C" Factor from Bussman table where "C" = 1 / impedance per linear foot

%VD CUM = Cumulative Voltage Drop from Fault Point 1 to Fault Point #
R = resistance in ohms per LF
X = reactances in ohms per LF

Feeder Types: NM - Non Magnetic Conduit, M - Magnetic Conduit, FB - Feeder Busway, PB - Plug-in Busway, TX - Transformer

System Voltage: 208Y/120V - 3 phase

Date of Calculations: 04/18/2025

Fault Point (F#)	Bus/Feeder Description	Source (Fault Point)	Phase	Source Isc (amps)	Feeder: Conduit Type/ TX	Feeder: Material	Feeder: Quantity of Parallel Sets and Bus Phase & Neutral Size	Conductor 'C' Value	Busway 'C' Value	L-L Voltage (E)	Circuit Length (L)	Load Power Factor (pf)	Circuit Load (Amperage)	Conductor: Resistance (R)	Conductor: Reactance (X)	Conductor: Arccos (pf) (Radians)	Transformer: Type	Transformer: Degree Rise	Transformer: kVA	Transformer: New Xfmr Z	Transformer: Existing Xfmr Z	Transformer: Secondary Voltage	Transformer: Tap Setting	f	M	Fault Current (amps)	Voltage Drop (%VD)	Cumulative Voltage Drop (%VD)	Fault Point (F#)
1	Utility Service Point			48,041 at the secondary of the utility transformer																						Source Isc + 6X Motor Contribution =		49,481			1
	Motor Contribution			240 The connected full load motor amps (includes compressors) on the system																									
2	Distribution Panel 'DP-K'	1	3	49,481	NM	CU	2 Set(s) of 350 kcmil	22737	--	208	15	0.9	480	0.000038	0.000040	0.451027								0.136	0.88	43,561	-0.15%	-0.15%	2
3	Panelboard 'K' (ETR)	2	3	43,561	M	CU	1 Set(s) of 2/0 AWG	10755	--	208	110	0.9	140	0.000100	0.000054	0.451027								3.710	0.21	9,249	-1.46%	-1.61%	3
4	RTU K-1A	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	190	0.85	47	0.000310	0.000060	0.554811								18.108	0.05	2,280	-2.18%	-2.33%	4
5	RTU K-2A	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	155	0.85	34	0.000780	0.000065	0.554811								36.111	0.03	1,174	-3.09%	-3.24%	5
6	RTU K-3A	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								33.781	0.03	1,252	-2.89%	-3.04%	6
7	RTU K-4A	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	83	0.85	39	0.000310	0.000060	0.554811								7.910	0.11	4,889	-0.79%	-0.94%	7
8	RTU K-1B	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	175	0.85	47	0.000310	0.000060	0.554811								16.679	0.06	2,464	-2.00%	-2.16%	8
9	RTU K-2B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	34	0.000780	0.000065	0.554811								38.440	0.03	1,104	-3.29%	-3.44%	9
10	RTU K-3B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	34	0.000780	0.000065	0.554811								33.781	0.03	1,252	-2.89%	-3.04%	10
11	RTU K-4B	2	3	43,561	M	CU	1 Set(s) of 4 AWG	3806	--	208	110	0.85	39	0.000310	0.000060	0.554811								10.484	0.09	3,793	-1.04%	-1.20%	11

Short-Circuit and Voltage Drop Calculations

Version 2.13

Distances are for calculation purposes only and shall not be used for contractor takeoffs nor bidding - Contractor shall notify Engineer of any field condition that results in a change of 10% or greater circuit distance

The following calculations are based on the "Point-by-Point" method where:

ISC (2) = ISC(1) x M(1) M= 1/(1+f)

ISC (1) = short circuit current at fault point 1

ISC (2) = short circuit current at fault point 2

Feeder: f (3Ø) = 1.732 x L x Isc / C x E

Feeder: f (1Ø)= 2 x L x Isc / C x E

XFMR: f (3Ø) = IP(sca)x Vp x 1.73 x %Z / 100,000 x KVA

XFMR: f (1Ø)= IP(sca)x Vp x %Z / 100,000 x KVA

IS(sca)= Vp x M x IP(sca) / Vs

VOLTAGE DROP (3Ø):
%VD = ((R x cos(arccos(pf)) + X x sin (arccos(pf))) x L/# x I x 1.73) / E

VOLTAGE DROP (1Ø):
%VD = ((R x cos(arccos(pf)) + X x sin(arccos(pf))) x 2 x L/# x I) / E

E = Line to line volts
IP = Primary short circuit current
Vp = Primary voltage
IS= Secondary short circuit current
Vs= Secondary voltage
L = Length of circuit
C = "C" Factor from Bussman table where "C" = 1 / impedance per linear foot

%VD CUM = Cumulative Voltage Drop from Fault Point 1 to Fault Point #
R = resistance in ohms per LF
X = reactances in ohms per LF

Feeder Types: NM - Non Magnetic Conduit, M - Magnetic Conduit, FB - Feeder Busway, PB - Plug-in Busway, TX - Transformer

System Voltage: 208Y/120V - 3 phase

Date of Calculations: 04/18/2025

Fault Point (F#)	Bus/Feeder Description	Source (Fault Point)	Phase	Source Isc (amps)	Feeder: Conduit Type/ TX	Feeder: Material	Feeder: Quantity of Parallel Sets and Bus Phase & Neutral Size	Conductor 'C' Value	Busway 'C' Value	L-L Voltage (E)	Circuit Length (L)	Load Power Factor (pf)	Circuit Load (Amperage)	Conductor: Resistance (R)	Conductor: Reactance (X)	Conductor: Arccos (pf) (Radians)	Transformer: Type	Transformer: Degree Rise	Transformer: kVA	Transformer: New Xfmr Z	Transformer: Existing Xfmr Z	Transformer: Secondary Voltage	Transformer: Tap Setting	f	M	Fault Current (amps)	Voltage Drop (%VD)	Cumulative Voltage Drop (%VD)	Fault Point (F#)
1	Utility Service Point			36,523 at the secondary of the utility transformer																						Source Isc + 6X Motor Contribution =		38,443			1
	Motor Contribution			320 The connected full load motor amps (includes compressors) on the system																									
2	Distribution Panel 'DP-L'	1	3	38,443	NM	CU	2 Set(s) of 350 kcmil	22737	--	208	15	0.9	640	0.000038	0.000040	0.451027								0.106	0.90	34,771	-0.21%	-0.21%	2
3	Panelboard 'L' (ETR)	2	3	34,771	M	CU	1 Set(s) of 250 kcmil	16483	--	208	128	0.9	200	0.000054	0.000052	0.451027								2.248	0.31	10,704	-1.52%	-1.73%	3
4	RTU L-1A	2	3	34,771	M	CU	1 Set(s) of 3 AWG	4774	--	208	210	0.85	60	0.000250	0.000059	0.554811								12.737	0.07	2,531	-2.54%	-2.75%	4
5	RTU L-2A	2	3	34,771	M	CU	1 Set(s) of 8 AWG	1557	--	208	170	0.85	34	0.000780	0.000065	0.554811								31.614	0.03	1,066	-3.39%	-3.59%	5
6	RTU L-3A	2	3	34,771	M	CU	1 Set(s) of 8 AWG	1557	--	208	160	0.85	34	0.000780	0.000065	0.554811								29.754	0.03	1,131	-3.19%	-3.39%	6
7	RTU L-4A	2	3	34,771	M	CU	1 Set(s) of 3 AWG	4774	--	208	100	0.85	60	0.000250	0.000059	0.554811								6.065	0.14	4,922	-1.21%	-1.42%	7
8	RTU L-1B	2	3	34,771	M	CU	1 Set(s) of 3 AWG	4774	--	208	195	0.85	60	0.000250	0.000059	0.554811								11.827	0.08	2,711	-2.36%	-2.56%	8
9	RTU L-2B	2	3	34,771	M	CU	1 Set(s) of 8 AWG	1557	--	208	185	0.85	34	0.000780	0.000065	0.554811								34.403	0.03	982	-3.68%	-3.89%	9
10	RTU L-3B	2	3	34,771	M	CU	1 Set(s) of 8 AWG	1557	--	208	162	0.85	34	0.000780	0.000065	0.554811								30.126	0.03	1,117	-3.23%	-3.43%	10
11	RTU L-4B	2	3	34,771	M	CU	1 Set(s) of 3 AWG	4774	--	208	110	0.85	60	0.000250	0.000059	0.554811								6.672	0.13	4,532	-1.33%	-1.54%	11
12	Distribution Panel 'DP-M'	1	3	38,443	NM	CU	2 Set(s) of 350 kcmil	22737	--	208	15	0.9	640	0.000038	0.000040	0.451027								0.106	0.90	34,771	-0.21%	-0.21%	12
13	Panelboard 'M' (ETR)	12	3	34,771	M	CU	1 Set(s) of 250 kcmil	16483	--	208	128	0.9	200	0.000054	0.000052	0.451027								2.248	0.31	10,704	-1.52%	-1.73%	13
14	RTU M-1A	12	3	34,771	M	CU	1 Set(s) of 1/0 AWG	8925	--	208	210	0.85	60	0.000120	0.000055	0.554811								6.813	0.13	4,451	-1.37%	-1.57%	14
15	RTU M-2A	12	3	34,771	M	CU	1 Set(s) of 8 AWG	1557	--	208	170	0.85	34	0.000780	0.000065	0.554811								31.614	0.03	1,066	-3.39%	-3.59%	15
16	RTU M-3A	12	3	34,771	M	CU	1 Set(s) of 8 AWG	1557	--	208	160	0.85	34	0.000780	0.000065	0.554811								29.754	0.03	1,131	-3.19%	-3.39%	16
17	RTU M-4A	12	3	34,771	M	CU	1 Set(s) of 3 AWG	4774	--	208	100	0.85	60	0.000250	0.000059	0.554811								6.065	0.14	4,922	-1.21%	-1.42%	17
18	RTU M-1B	12	3	34,771	M	CU	1 Set(s) of 3 AWG	4774	--	208	195	0.85	60	0.000250	0.000059	0.554811								11.827	0.08	2,711	-2.36%	-2.56%	18
19	RTU M-2B	12	3	34,771	M	CU	1 Set(s) of 8 AWG	1557	--	208	185	0.85	34	0.000780	0.000065	0.554811								34.403	0.03	982	-3.68%	-3.89%	19
20	RTU M-3B	12	3	34,771	M	CU	1 Set(s) of 8 AWG	1557	--	208	162	0.85	34	0.000780	0.000065	0.554811								30.126	0.03	1,117	-3.23%	-3.43%	20
21	RTU M-4B	12	3	34,771	M	CU	1 Set(s) of 3 AWG	4774	--	208	110	0.85	60	0.000250	0.000059	0.554811								6.672	0.13	4,532	-1.33%	-1.54%	21

Short-Circuit and Voltage Drop Calculations

Version 2.13

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The following calculations are based on the "Point-by-Point" method where:

ISC (2) = ISC(1) x M(1) M= 1/(1+f)

ISC (1) = short circuit current at fault point 1

ISC (2) = short circuit current at fault point 2

Feeder: f (3Ø) = 1.732 x L x Isc / C x E

Feeder: f (1Ø)= 2 x L x Isc / C x E

XFMR: f (3Ø) = IP(sca)x Vp x 1.73 x %Z / 100,000 x KVA

XFMR: f (1Ø)= IP(sca)x Vp x %Z / 100,000 x KVA

IS(sca)= Vp x M x IP(sca) / Vs

VOLTAGE DROP (3Ø):
%VD = ((R x cos(arccos(pf)) + X x sin (arccos(pf))) x L/# x I x 1.73) / E

VOLTAGE DROP (1Ø):
%VD = ((R x cos(arccos(pf)) + X x sin(arccos(pf))) x 2 x L/# x I) / E

E = Line to line volts
IP = Primary short circuit current
Vp = Primary voltage
IS= Secondary short circuit current
Vs= Secondary voltage
L = Length of circuit
C = "C" Factor from Bussman table where "C" = 1 / impedance per linear foot

%VD CUM = Cumulative Voltage Drop from Fault Point 1 to Fault Point #
R = resistance in ohms per LF
X = reactances in ohms per LF

Feeder Types: NM - Non Magnetic Conduit, M - Magnetic Conduit, FB - Feeder Busway, PB - Plug-in Busway, TX - Transformer

System Voltage: 480Y/277V - 3 phase

Date of Calculations: 04/18/2025

Fault Point (F#)	Bus/Feeder Description	Source (Fault Point)	Phase	Source Isc (amps)	Feeder: Conduit Type/ TX	Feeder: Material	Feeder: Quantity of Parallel Sets and Bus Phase & Neutral Size	Conductor 'C' Value	Busway 'C' Value	L-L Voltage (E)	Circuit Length (L)	Load Power Factor (pf)	Circuit Load (Amperage)	Conductor: Resistance (R)	Conductor: Reactance (X)	Conductor: Arccos (pf) (Radians)	Transformer: Type	Transformer: Degree Rise	Transformer: kVA	Transformer: New Xfmr Z	Transformer: Existing Xfmr Z	Transformer: Secondary Voltage	Transformer: Tap Setting	f	M	Fault Current (amps)	Voltage Drop (%VD)	Cumulative Voltage Drop (%VD)	Fault Point (F#)
1	Utility Service Point			31,653 at the secondary of the utility transformer																						Source Isc + 6X Motor Contribution =		34,053			1
	Motor Contribution			400 The connected full load motor amps (includes compressors) on the system																									
2	Distribution Board 'SB1'(ETR)	1	3	34,053	NM	CU	3 Set(s) of 500 kcmil	26706	--	480	50	0.9	800	0.000027	0.000039	0.451027								0.077	0.93	31,628	-0.20%	-0.20%	2
3	Panelboard 'HED' (ETR)	2	3	31,628	NM	CU	1 Set(s) of 4/0 AWG	16673	--	480	520	0.9	80	0.000062	0.000041	0.451027								3.559	0.22	6,937	-1.11%	-1.30%	3
4	SEF D-1, D-2, D-3, D-4	3	1	6,937	M	CU	1 Set(s) of 10 AWG	981	--	277	250	0.8	6	0.001200	0.000063	0.643501								12.764	0.07	504	-1.08%	-2.39%	4
5	Panelboard 'HEE' (ETR)	2	3	31,628	NM	CU	1 Set(s) of 4/0 AWG	16673	--	480	530	0.9	80	0.000062	0.000041	0.451027								3.628	0.22	6,834	-1.13%	-1.33%	5
6	SEF E-1, E-2, E-3, E-4	5	1	6,834	M	CU	1 Set(s) of 10 AWG	981	--	277	250	0.8	6	0.001200	0.000063	0.643501								12.575	0.07	503	-1.08%	-2.41%	6
7	Panelboard 'HEF' (ETR)	2	3	31,628	NM	CU	1 Set(s) of 3/0 AWG	13923	--	480	400	0.9	80	0.000077	0.000042	0.451027								3.279	0.23	7,392	-1.01%	-1.21%	7
8	SEF F-1, F-2, F-3, F-4	7	1	7,392	M	CU	1 Set(s) of 10 AWG	981	--	277	250	0.8	6	0.001200	0.000063	0.643501								13.601	0.07	506	-1.08%	-2.29%	8
9	Panelboard 'HEG' (ETR)	2	3	31,628	NM	CU	1 Set(s) of 4/0 AWG	16673	--	480	230	0.9	80	0.000062	0.000041	0.451027								1.574	0.39	12,286	-0.49%	-0.69%	9
10	SEF G-1, G-2, G-3, G-4	9	1	12,286	M	CU	1 Set(s) of 10 AWG	981	--	277	250	0.8	6	0.001200	0.000063	0.643501								22.606	0.04	520	-1.08%	-1.77%	10
11	Panelboard 'HEK' (ETR)	2	3	31,628	NM	CU	1 Set(s) of 4/0 AWG	16673	--	480	650	0.9	97	0.000062	0.000041	0.451027								4.449	0.18	5,804	-1.68%	-1.87%	11
12	SEF K-1, K-2, K-3, K-4	11	1	5,804	M	CU	1 Set(s) of 10 AWG	981	--	277	250	0.8	6	0.001200	0.000063	0.643501								10.680	0.09	497	-1.08%	-2.96%	12
13	Panelboard 'HEL' (ETR)	2	3	31,628	NM	CU	1 Set(s) of 4/0 AWG	16673	--	480	700	0.9	120	0.000062	0.000041	0.451027								4.791	0.17	5,461	-2.23%	-2.43%	13
14	SEF L-1, L-2, L-3, L-4	13	1	5,461	M	CU	1 Set(s) of 10 AWG	981	--	277	300	0.8	6	0.001200	0.000063	0.643501								12.058	0.08	418	-1.30%	-3.73%	14
15	Panelboard 'HEM' (ETR)	2	3	31,628	NM	CU	1 Set(s) of 4/0 AWG	16673	--	480	580	0.9	120	0.000062	0.000041	0.451027								3.970	0.20	6,364	-1.85%	-2.05%	15
16	SEF M-1, M-2, M-3, M-4	15	1	6,364	M	CU	1 Set(s) of 10 AWG	981	--	277	300	0.8	6	0.001200	0.000063	0.643501								14.051	0.07	423	-1.30%	-3.35%	16

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI NATHAN W. STOSS NUMBER PE-2023044638 PROFESSIONAL ENGINEER
8/27/2026
NATHAN W. STOSS
LICENSE # PE-2023044638

HENDERSON ENGINEERS
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MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

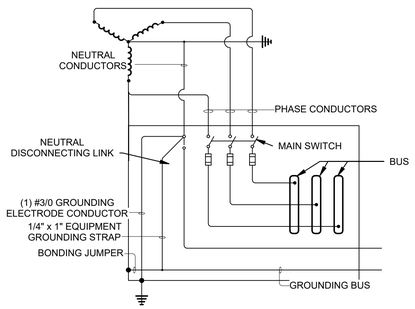
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

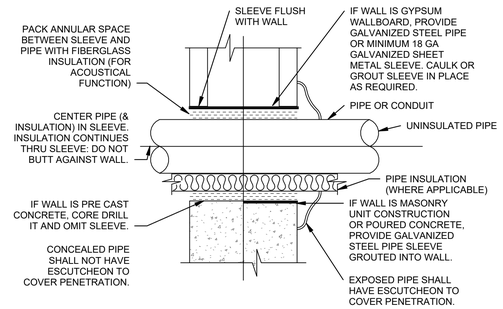
SHEET TITLE:
ELECTRICAL CALCULATIONS

SHEET NUMBER:
E806

NATHAN W. STOSS

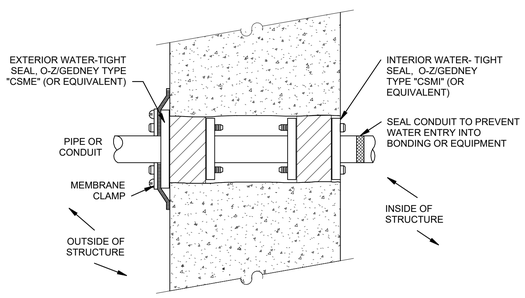


1 SERVICE ENTRANCE GROUNDING DIAGRAM
NTS

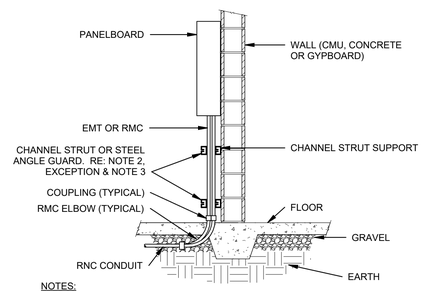


REFER TO ARCHITECTURAL DRAWINGS FOR WALL LOCATIONS.
REFER TO SPECIFICATIONS FOR ALTERNATIVE INSTALLATIONS.
COORDINATE REQUIREMENTS WITH GENERAL CONTRACTOR.

2 CONDUIT PENETRATION THRU NON-FIREWALL
NTS



3 CONDUIT THROUGH EXISTING EXTERIOR WALL
NTS

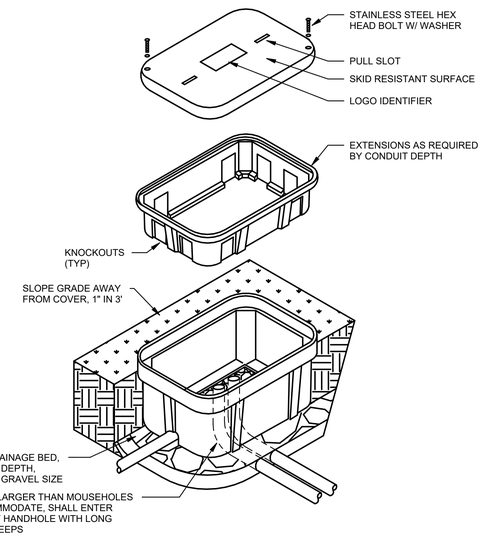


NOTES:

1. CONDUITS TURNED UP EXPOSED SHALL HAVE AN RMC ELBOW THROUGH THE SLAB. PROTECT THE ENTIRE ELBOW WITH RNC COATING OR MASTIC UP THROUGH THE TOP OF THE SLAB.
2. EXCEPTION: IN LIEU OF RMC ELBOW, CONTRACTOR MAY USE RNC ELBOWS IF A CHANNEL STRUT OR STEEL ANGLE GUARD IS PROVIDED. GUARD SHALL STAND OFF THE WALL INDEPENDENT OF THE CONDUIT.

   IN AREAS WITH VEHICULAR ACCESS, USE GALVANIZED RMC ELBOWS AND A STEEL GUARD.
3. APPLIES TO ALL STUB-UP LOCATIONS UNLESS NOTED OTHERWISE ON PLANS.

4 CONDUIT STUB-UP AT WALLS
NTS



5 EXTERIOR HANDHOLE DETAIL
NTS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER:
E900

NATHAN W. STOSS

FIRE ALARM SCOPE OF WORK:

1. FIRE ALARM SCOPE OF WORK INCLUDES THE DEMOLITION OF THE EXISTING SIMPLEX FIRE ALARM SYSTEM FROM THE ENTIRE CAMPUS.
2. CONTRACTOR TO PROVIDE A NEW, NETWORKED, POTTER BRAND FIRE ALARM SYSTEM THROUGHOUT THE CAMPUS INCLUDING THE PROVISION OF A MASTER WORKSTATION WITHIN BUILDING A.
3. COMPLETE FIRE ALARM SYSTEMS SHALL BE PROVIDED WITHIN BUILDINGS A, B, C. D, E, F, G, HU-17, HU-18, I, J, K, L, M, N, O, AND P.

FIRE ALARM GENERAL DEMOLITION NOTES:

1. COORDINATE ALL DEMOLITION WITH WHAT IS SHOWN ON ARCHITECTURAL PLANS. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
2. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
3. PRIOR TO SUBMITTING BID, REVIEW GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER OR OWNER, AS DEFINED IN BID DOCUMENTS, OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID. ADDITIONAL COMPENSATION WILL NOT BE PAID FOR LACK OF SUCH DETERMINATION, FAMILIARIZATION, AND/OR ALLOWANCE.
4. EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT “AS-BUILT” CONDITIONS. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
5. OWNER RETAINS RIGHTS OF SALVAGE FOR EQUIPMENT AND FIXTURES TO BE REMOVED. COORDINATE WITH THE OWNER THE EQUIPMENT AND FIXTURES TO BE SALVAGED AND THE LOCATION FOR STORAGE. AVOID DAMAGE TO EQUIPMENT DURING DEMOLITION WORK AND DURING TRANSPORT TO OWNER’S DESIGNATED STORAGE LOCATION. PROPERLY DISPOSE OF MATERIALS THAT ARE REMOVED AND ARE NOT REQUESTED TO BE SALVAGED BY THE OWNER.
6. REMOVE ITEMS SHOWN HEAVY LINED AND/OR CROSSHATCHED AND/OR NOTED TO BE REMOVED.
7. EQUIPMENT TO BE REMOVED SHALL BE KEPT FOR REINSTALLATION DURING THE CONSTRUCTION PHASE WHEN POSSIBLE AND/OR INDICATED ON THE DRAWINGS. AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN FOR NEW INSTALLATION. REPAIR ANY DAMAGE CAUSED DURING WORK AT NO EXTRA COST TO THE OWNER.
8. SEAL PENETRATIONS THROUGH FLOORS, WALLS, CEILINGS AND ROOFS WHERE COMPONENTS ARE REMOVED AND WHERE THE EXISTING PENETRATION IS NOT USED FOR THE NEW INSTALLATION. REPAIR DAMAGED SURFACES TO MATCH ADJACENT AREAS OR AS INDICATED ON THE ARCHITECTURAL DRAWINGS.
9. PERFORM ALL WORK ACCORDING TO THE PHASING SCHEDULE FOR THIS PROJECT. PROVIDE ALL TEMPORARY DESIGN AND/OR CONFIGURATIONS THAT MEET APPLICABLE CODE REQUIREMENTS AS NECESSARY TO CONFORM TO THE REQUIRED CONSTRUCTION PHASING OF THE PROJECT.
10. ONLY THE PORTIONS OF THE BUILDING AFFECTED BY THE SCOPE OF THE PROJECT HAVE BEEN SHOWN. INFORMATION SHOWN AS EXISTING TO REMAIN IS NOT BEING MODIFIED AS A PART OF THIS PROJECT.
11. ALL WORK SHALL BE PERFORMED SO AS TO NOT INTERRUPT SERVICE. THE CONTRACTOR SHALL PROPERLY NOTIFY THE BUILDING OWNER, LANDLORD, THE LEASER AND ADJACENT TENANTS AS APPLICABLE A MINIMUM OF 48 HOURS IN ADVANCE BEFORE PROCEEDING WITH THIS WORK.
12. REMOVE ALL UNUSED AND DEMOLISHED EQUIPMENT AND ASSOCIATED MATERIALS FROM SITE. ABANDONING UNUSED PORTIONS WILL NOT BE ACCEPTABLE.
13. SYSTEM(S) NOT ASSOCIATED WITH THE DEMOLITION SHALL BE LEFT IN SERVICE AS APPLICABLE.
14. INSPECT EXISTING EQUIPMENT TO REMAIN TO VERIFY THAT EQUIPMENT IS OPERATING PROPERLY. NOTIFY OWNER OF DAMAGED AND/OR MALFUNCTIONING COMPONENTS.
15. ALL SYSTEMS TO BE LEFT IN SERVICE PRIOR TO THE END OF EACH WORKDAY.

FIRE ALARM GENERAL NOTES:

1. PRIOR TO SUBMITTING BID, REVIEW THE GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
2. SYSTEM DESIGN, INSTALLATION AND MATERIALS SHALL BE IN ACCORDANCE WITH APPLICABLE NFPA STANDARDS. SYSTEM SHALL ALSO MEET ALL APPLICABLE BUILDING CODES, FIRE CODES AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND INSURANCE CARRIER. VERIFY REQUIREMENTS PRIOR TO BID SUBMITTAL.
3. INFORMATION ON CONTRACT DOCUMENTS IS GENERAL INFORMATION AND FOR BID PURPOSES ONLY. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE FINAL SYSTEM DESIGN AND LAYOUT OF ALL COMPONENTS, COORDINATION WITH ALL OTHER TRADES, AND SYSTEM CALCULATIONS REQUIRED FOR APPROVAL BY THE AUTHORITY HAVING JURISDICTION, ENGINEER, AND OWNER’S INSURER.
4. DEVIATIONS FROM ENGINEER’S DESIGN WILL NOT BE CONSIDERED UNLESS A FORMALLY SUBMITTED RFI IS RECEIVED AND APPROVED.
5. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND LABOR REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM AS INDICATED IN THE DRAWINGS AND SPECIFICATIONS.
6. WHERE EXISTING SYSTEMS ARE PRESENT, CONTRACTOR SHALL MODIFY, RELOCATE AND/OR PROVIDE ADDITIONAL EQUIPMENT AS REQUIRED FOR SCOPE OF WORK AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. COORDINATE WITH WALLS, CEILINGS, LIGHTS, DIFFUSERS, STRUCTURE, OBSTRUCTIONS, ETC. IN AREAS AFFECTED BY SCOPE OF WORK. NEW EQUIPMENT SHALL BE COMPATIBLE WITH EXISTING SYSTEMS. CONTRACTOR SHALL REMOVE ALL ABANDONED EQUIPMENT, COORDINATE SYSTEM MODIFICATIONS TO MINIMIZE SYSTEM IMPAIRMENT, AND PROVIDE FIRE WATCH AND/OR INTERIM FIRE PROTECTION MEASURES WHERE REQUIRED BY THE AUTHORITY HAVING JURISDICTION, INSURANCE CARRIER OR OWNER.
7. PROVIDE ADDITIONAL MATERIALS AND LABOR REQUIRED DUE TO LACK OF COORDINATION OR TO MEET AUTHORITY HAVING JURISDICTION AND INSURANCE CARRIER REQUIREMENTS AT NO ADDITIONAL COST TO THE OWNER.
8. FORWARD COMPLETED CERTIFICATE OF COMPLETION AND CONTRACTOR MATERIAL TEST CERTIFICATES TO THE OWNER.
9. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

FIRE ALARM SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED. V2.07

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	NIC	NOT IN CONTRACT
AFG	ABOVE FINISHED GRADE	OC	ON CENTER
CD	CANDELA	PIV	POST INDICATOR VALVE
DI	DUCTILE IRON	PROVIDE	FURNISH AND INSTALL
ESFR	EARLY SUPPRESSION FAST RESPONSE	PRV	PRESSURE REDUCING VALVE
ETR	EXISTING TO REMAIN	RD	RETURN DUCT
FHC	FIRE HOSE CABINET	REV	REVISION
FP	FIRE PROTECTION	SD	SUPPLY DUCT
GC	CONTRACTOR	SF	SQUARE FEET
GPM	GALLONS PER MINUTE	TYP	TYPICAL
JB/J-BOX	JUNCTION BOX	UNO	UNLESS NOTES OTHERWISE
MAX	MAXIMUM	V	VOLT(S)
MIN	MINIMUM	W	WATTS
N/A	NOT APPLICABLE	WP	WEATHERPROOF

ANNOTATION

- 1 — FIRE ALARM PLAN NOTE CALLOUT
- CONNECTION POINT OF NEW WORK TO EXISTING
- 1 / F1 — DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
- 1 / F1 — SECTION CUT DESIGNATION
- DEDICATED EQUIPMENT ACCESS TILE
- ACCESS PANEL

STANDARD MOUNTING HEIGHTS

AUDIBLE APPLIANCE (TOP OF APPLIANCE)	90"
FIRE ALARM ANNUNCIATOR PANEL (TOP OF DISPLAY)	60"
FIRE ALARM BELL (EXTERIOR) (CENTERLINE)	120"
FIRE ALARM CONTROL PANEL/UNIT (TOP OF DISPLAY)	60"
PULL STATION (TOP OF DEVICE)	46"
VISIBLE APPLIANCE (CENTERLINE)	84"

INSTALL DEVICES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ABOVE, OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS, ARE AFF OR AFG TO TOP OF DEVICE. UNO. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

FIRE ALARM

- FFSCP — FIRE FIGHTER SMOKE CONTROL PANEL
- FACP — RECESSED FIRE ALARM CONTROL PANEL/UNIT
- FAAP — FIRE ALARM ANNUNCIATOR PANEL
- FAAP — RECESSED FIRE ALARM ANNUNCIATOR PANEL
- AMP — AMPLIFIER PANEL
- RPS — REMOTE POWER SUPPLY
- RT — REMOTE TEST STATION WITH INDICATING LIGHT
- RL — REMOTE INDICATING LIGHT
- PS — PRESSURE SWITCH LOW/HIGH
- FS — WATERFLOW ALARM SWITCH
- VT — CONTROL VALVE TAMPER SWITCH
- DH — MAGNETIC DOOR HOLD OPEN DEVICE
- CM — CONTROL MODULE
- MM — MONITOR MODULE
- K — FIRE DEPARTMENT KEY BOX
- PULL STATION
- F — FIREFIGHTER'S PHONE JACK
- HEAT DETECTOR (E INDICATES ELEVATOR RECALL)
- SMOKE DETECTOR (E INDICATES ELEVATOR RECALL)
- SINGLE STATION SMOKE DETECTOR
- PROJECTED BEAM SMOKE DETECTOR
- RD — DUCT MOUNTED SMOKE DETECTOR (SD=SUPPLY/RD=RETURN)
- CO — CARBON MONOXIDE DETECTOR
- AREA OF REFUGE 2-WAY COMMUNICATION SYSTEM
- F #W — WALL MOUNTED AUDIBLE NOTIFICATION APPLIANCE #W INDICATES WATTAGE (VOICE EVACUATION SYSTEMS ONLY)
- ## — WALL MOUNTED VISIBLE NOTIFICATION APPLIANCE ## INDICATES CANDELA
- #W ## — WALL MOUNTED AUDIBLE/VISIBLE NOTIFICATION APPLIANCE ## INDICATES CANDELA #W INDICATES WATTAGE (VOICE EVACUATION SYSTEMS ONLY)
- F #W — CEILING MOUNTED AUDIBLE NOTIFICATION APPLIANCE #W INDICATES WATTAGE (VOICE EVACUATION SYSTEMS ONLY)
- ## — CEILING MOUNTED VISIBLE NOTIFICATION APPLIANCE ## INDICATES CANDELA
- #W ## — CEILING MOUNTED AUDIBLE/VISIBLE NOTIFICATION APPLIANCE ## INDICATES CANDELA #W INDICATES WATTAGE (VOICE EVACUATION SYSTEMS ONLY)
- END OF LINE RESISTOR
- ABORT SWITCH
- BELL

HATCHING LEGEND

- ENLARGED PLAN
- NOT IN SCOPE (NIS)

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING		NEW	
DEMOLISH		FUTURE	

SHEET LIST - FIRE ALARM

SHEET NUMBER	SHEET NAME
FA000	FIRE ALARM GENERAL NOTES AND LEGEND
FA100	FIRE ALARM SITE PLAN
FA101.Aa	FIRE ALARM PLAN - LEVEL 1 - BUILDING A - AREA A
FA101.Ab	FIRE ALARM PLAN - LEVEL 1 - BUILDING A - AREA B
FA101.Ba	FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA A
FA101.Bb	FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA B
FA101.Bc	FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA C
FA101.C	FIRE ALARM PLAN - LEVEL 1 - BUILDING C
FA101.D	FIRE ALARM PLAN - LEVEL 1 - BUILDING D
FA101.HU	FIRE ALARM PLAN - LEVEL 1 - BUILDING HU-17
FA101.I	FIRE ALARM PLAN - LEVEL 1 - BUILDING I
FA101.J	FIRE ALARM PLAN - LEVEL 1 - BUILDING J
FA101.L	FIRE ALARM PLAN - LEVEL 1 - BUILDING L
FA101.N	FIRE ALARM PLAN - LEVEL 1 - BUILDING N
FA101.O	FIRE ALARM PLAN - LEVEL 1 - BUILDING O
FA101.P	FIRE ALARM PLAN - LEVEL 1 - BUILDING P
FA102.D	FIRE ALARM PLAN - LEVEL 2 - BUILDING D
FA102.L	FIRE ALARM PLAN - LEVEL 2 - BUILDING L
FA102.N	FIRE ALARM PLAN - LEVEL 2 - BUILDING N
FA500	FIRE ALARM DETAILS
FAD101.Aa	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING A - AREA A
FAD101.Ab	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING A - AREA B
FAD101.Ba	FIRE ALARM DEMOLITION- LEVEL 1 - BUILDING B - AREA A
FAD101.Bb	FIRE ALARM DEMOLITION- LEVEL 1 - BUILDING B - AREA B
FAD101.Bc	FIRE ALARM DEMOLITION- LEVEL 1 - BUILDING B - AREA C
FAD101.C	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING C
FAD101.D	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING D
FAD101.HU	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING HU-17
FAD101.I	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING I
FAD101.J	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING J
FAD101.L	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING L
FAD101.N	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING N
FAD101.O	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING O
FAD101.P	FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING P
FAD102.D	FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING D
FAD102.L	FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING L
FAD102.N	FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING N

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI · CHRISTOPHER J. CULP · NUMBER PE-2013037646 · PROFESSIONAL ENGINEER

8/28/2026
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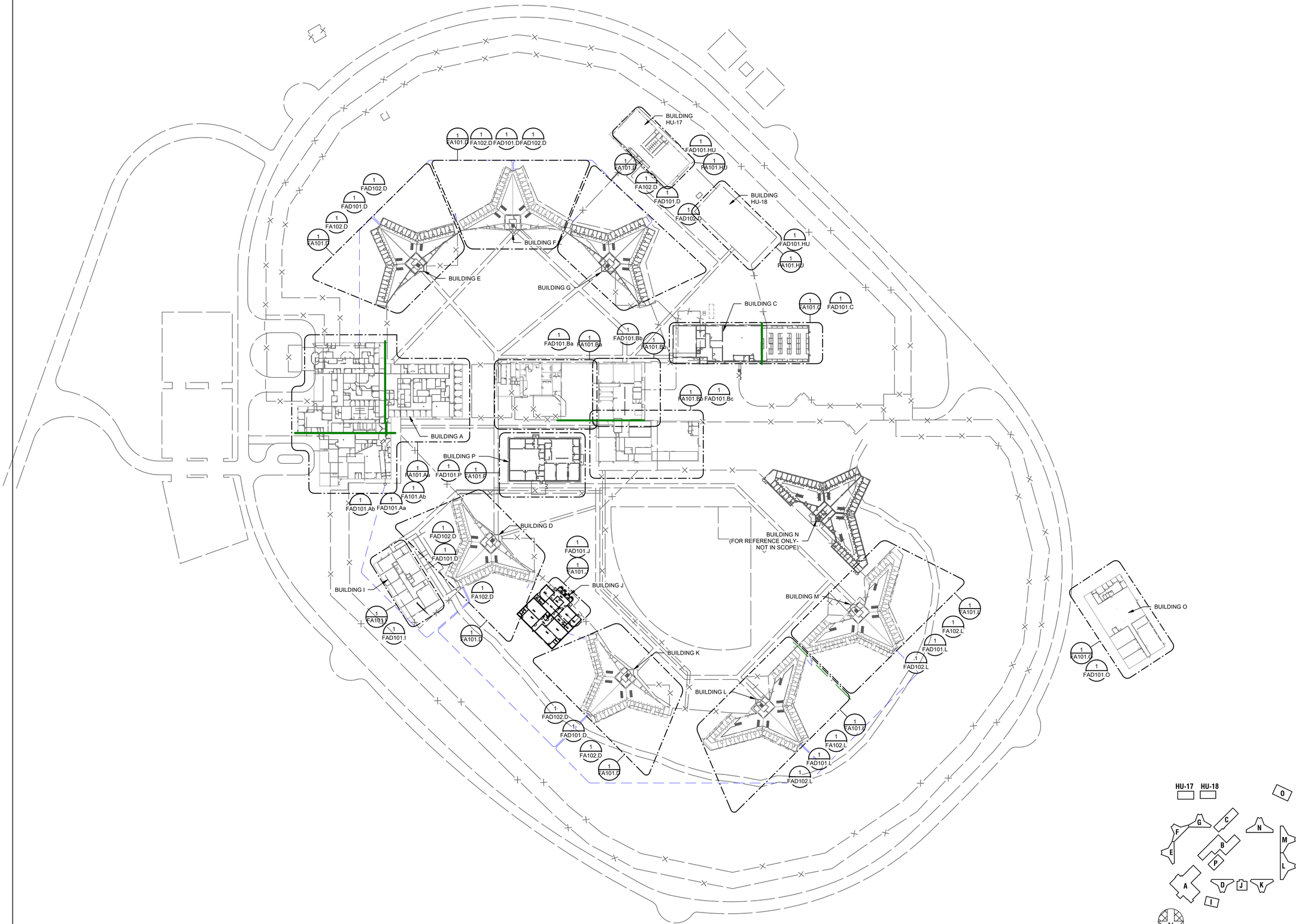
CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE ALARM GENERAL NOTES AND LEGEND

SHEET NUMBER:
FA000

CHRISTOPHER J. CULP



1 FIRE ALARM SITE PLAN
1" = 80'-0"

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CHECKED BY: AMJ
DESIGNED BY: IJR

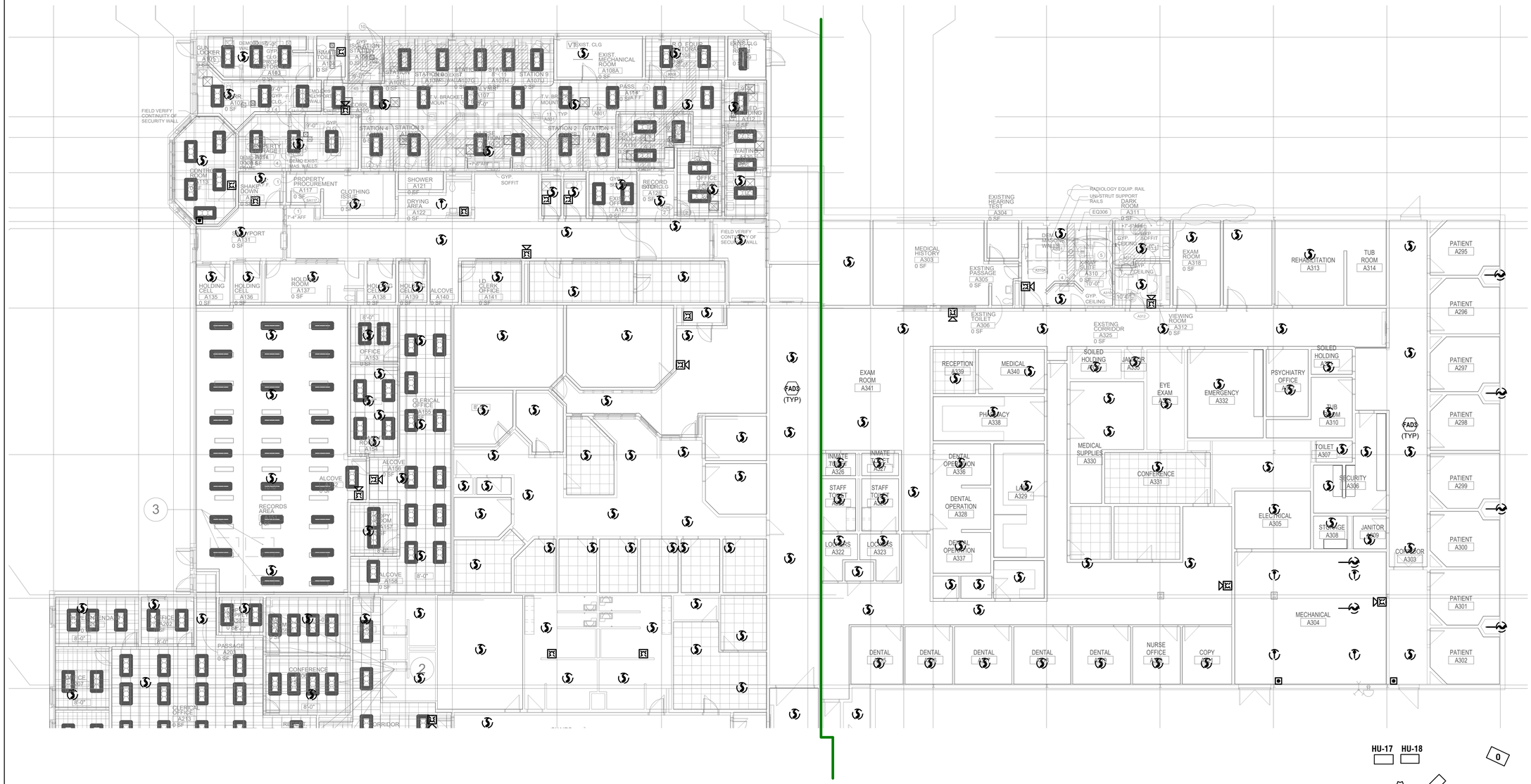
SHEET TITLE:
FIRE ALARM SITE PLAN

SHEET NUMBER:
FA100

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

FAD3 REMOVE AND REINSTALL ALL EXISTING CAGES OVER NEW DETECTORS.



1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING A - AREA A
3/32" = 1'-0"

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DRAWN BY: BC
CHECKED BY: AMJ
DESIGNED BY: BC

SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING A - AREA A

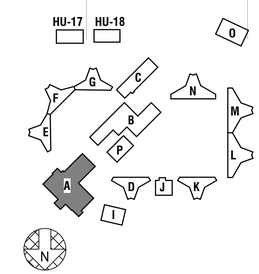
SHEET NUMBER:
FAD101.Aa

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING A - AREA B
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: BC
CHECKED BY: AMJ
DESIGNED BY: BC

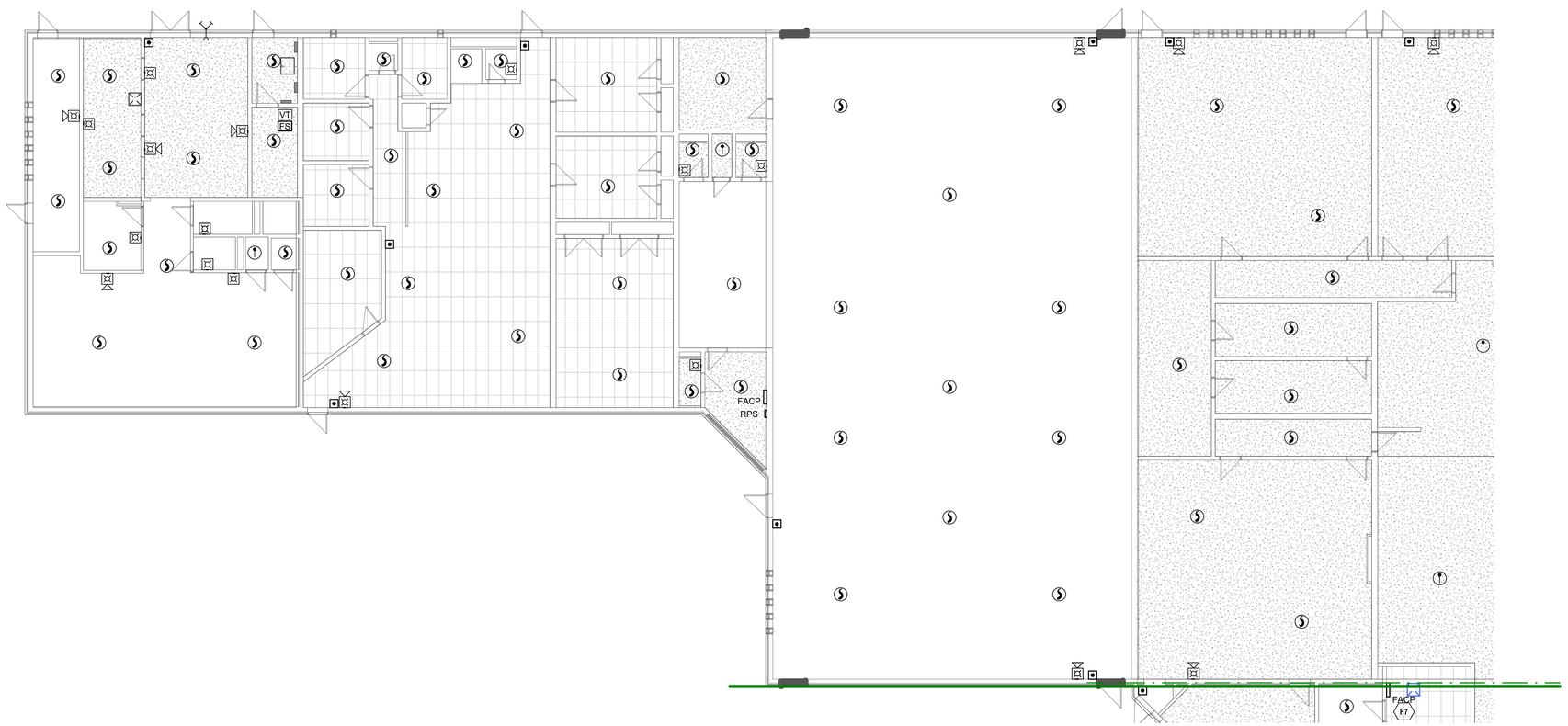
SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING A - AREA B

SHEET NUMBER:
FAD101.Ab

CHRISTOPHER J. CULP

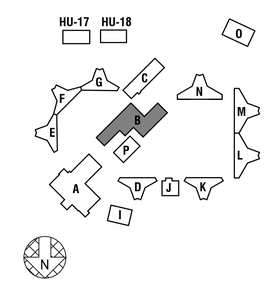
FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.



1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING B - AREA A
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
CHRISTOPHER J. CULP
NUMBER PE-2013037646
PROFESSIONAL ENGINEER

8/28/2026

CHRISTOPHER J. CULP
LICENSE # PE-2013037646

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SHEET TITLE:
FIRE ALARM DEMOLITION- LEVEL 1 - BUILDING B - AREA A

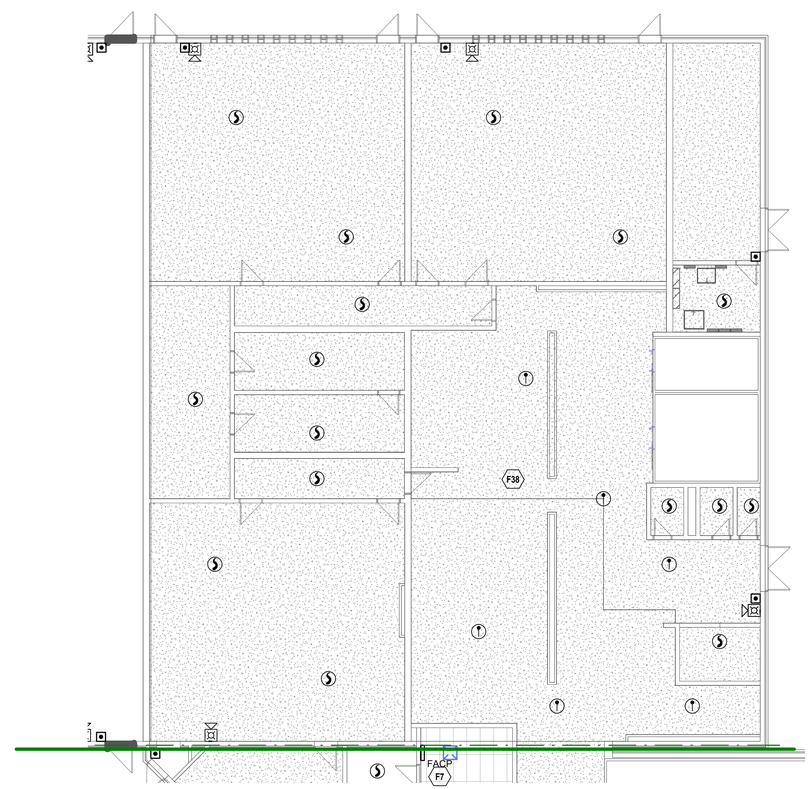
SHEET NUMBER:
FAD101.Ba

CHRISTOPHER J. CULP

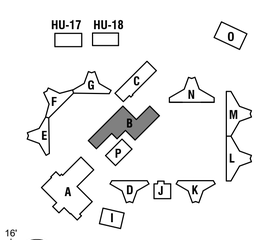
FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

F38 PROVIDE EQUIPMENT AND CONNECTION(S) REQUIRED TO MONITOR KITCHEN HOOD SUPPRESSION SYSTEM(S).



1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING B - AREA B
3/32" = 1'-0"



0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"

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DESIGNED BY: BC

SHEET TITLE:
FIRE ALARM DEMOLITION- LEVEL 1 - BUILDING B - AREA B

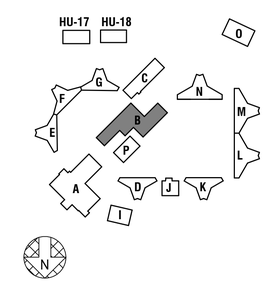
SHEET NUMBER:
FAD101.Bb

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING B - AREA C
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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CHECKED BY: AMJ
DESIGNED BY: BC

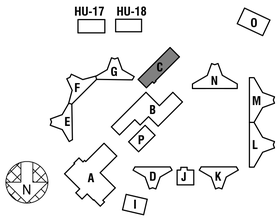
SHEET TITLE:
FIRE ALARM
DEMOLITION- LEVEL 1 -
BUILDING B - AREA C

SHEET NUMBER:
FAD101.Bc

CHRISTOPHER J. CULP

1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING C
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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DRAWN BY: BC
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DESIGNED BY: BC

SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING C

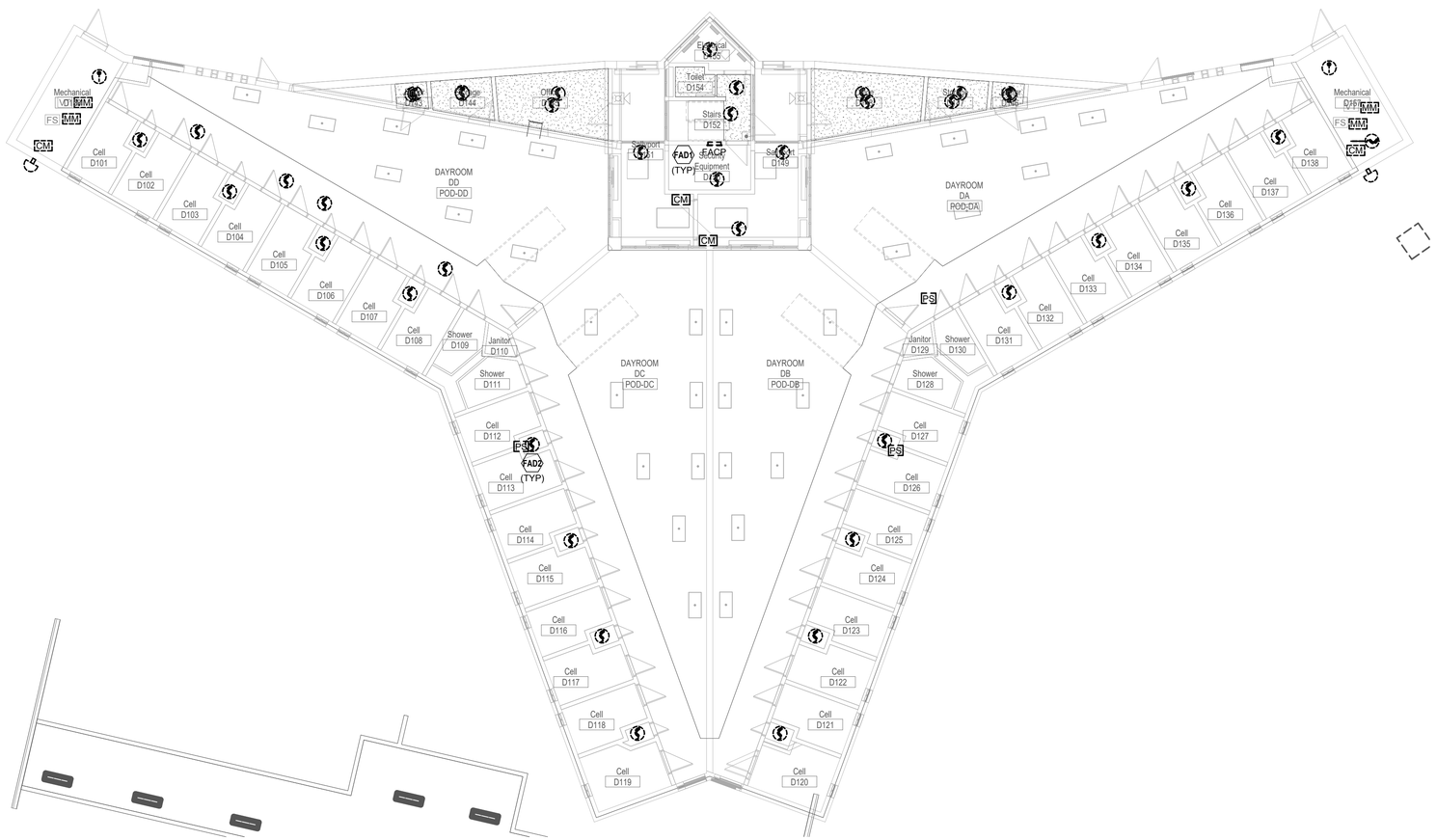
SHEET NUMBER:
FAD101.C

CHRISTOPHER J. CULP

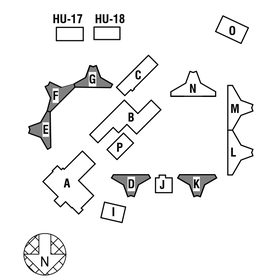
FIRE ALARM DEMOLITION PLAN NOTES:

FAD1 FIRE ALARM SYSTEM AS-BUILTS WERE NOT AVAILABLE AT THE TIME OF DESIGN. EXISTING CONDITIONS WERE TAKEN FROM SITE VISITS AND MAY NOT REFLECT EXACT AS-BUILT CONDITIONS. CONTRACTOR SHALL PROVIDE ALL MATERIAL AND LABOR NEEDED FOR COMPLETE DEMOLITION OF EXISTING FIRE ALARM SYSTEM.

FAD2 CHASE SMOKE DETECTORS TO BE REMOVED. ONE PER CELL ON THIS LEVEL.



1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDINGS D,E,F,G,K
3/32" = 1'-0"



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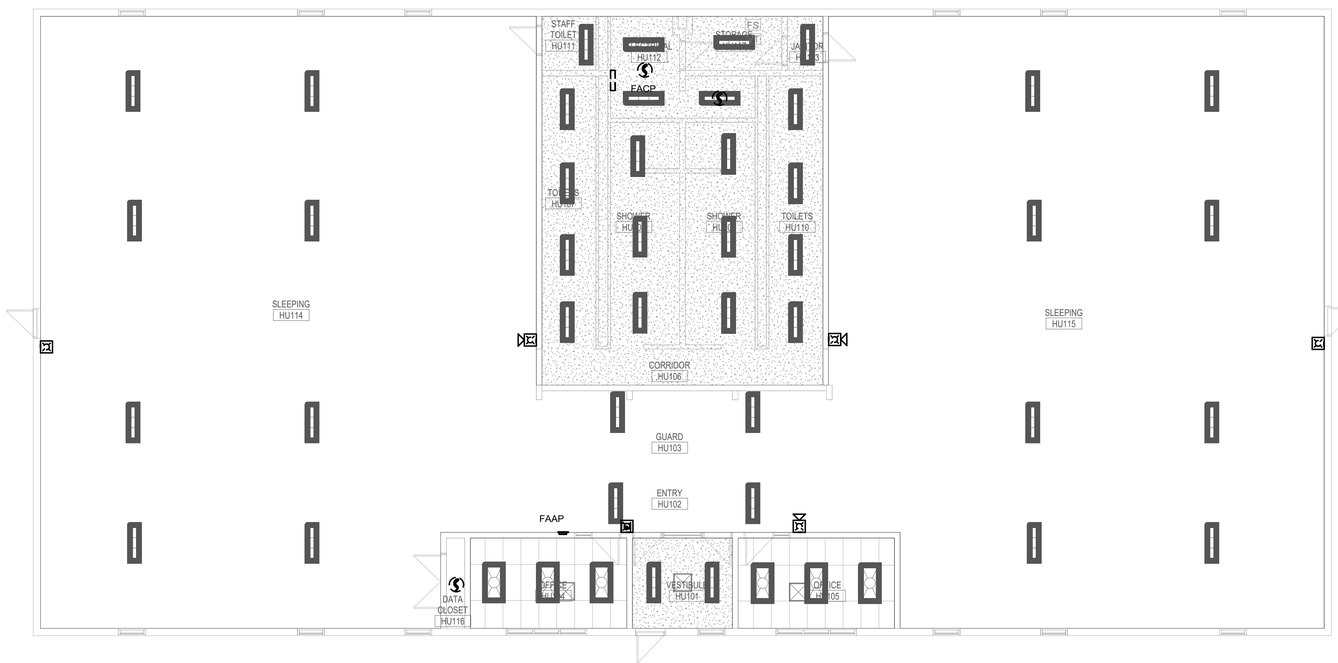
CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING D

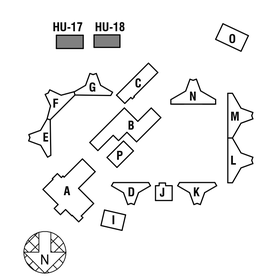
SHEET NUMBER:
FAD101.D

CHRISTOPHER J. CULP



1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING HU-17, HU-18
1/8" = 1'-0"

0 4' 8' 12'
SCALE: 1/8"=1'-0"



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CAD DWG FILE:
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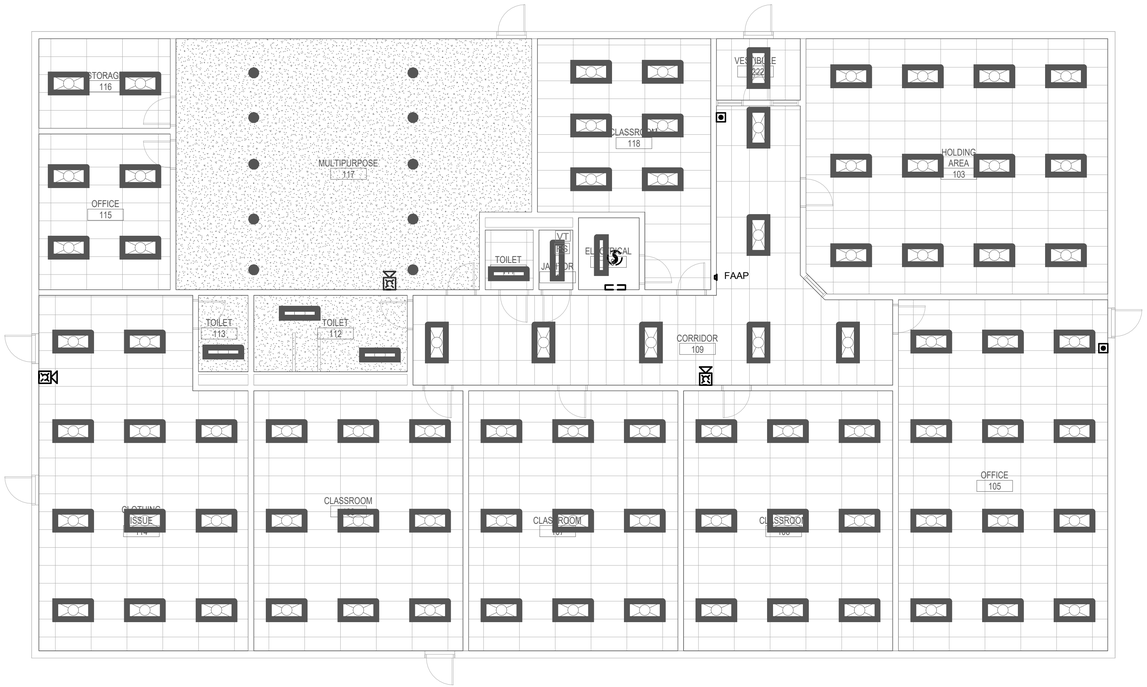
SHEET TITLE:
FIRE ALARM
DEMOLITION - LEVEL 1
- BUILDING HU-17

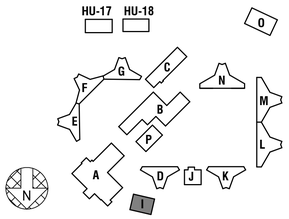
SHEET NUMBER:
FAD101.HU

CHRISTOPHER J. CULP



1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING I
1/8" = 1'-0"

0 4' 8' 12'
SCALE: 1/8"=1'-0"



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DESIGNED BY: BC

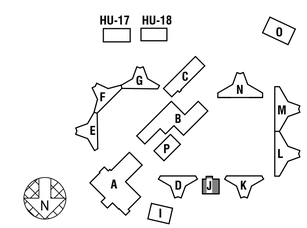
SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING I

SHEET NUMBER:
FAD101.I

CHRISTOPHER J. CULP

1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING J
1/8" = 1'-0"

0 4' 8' 12'
SCALE: 1/8"=1'-0"



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FIRE ALARM
DEMOLITION - LEVEL 1
- BUILDING J

SHEET NUMBER:
FAD101.J

CHRISTOPHER J. CULP

FIRE ALARM DEMOLITION PLAN NOTES:

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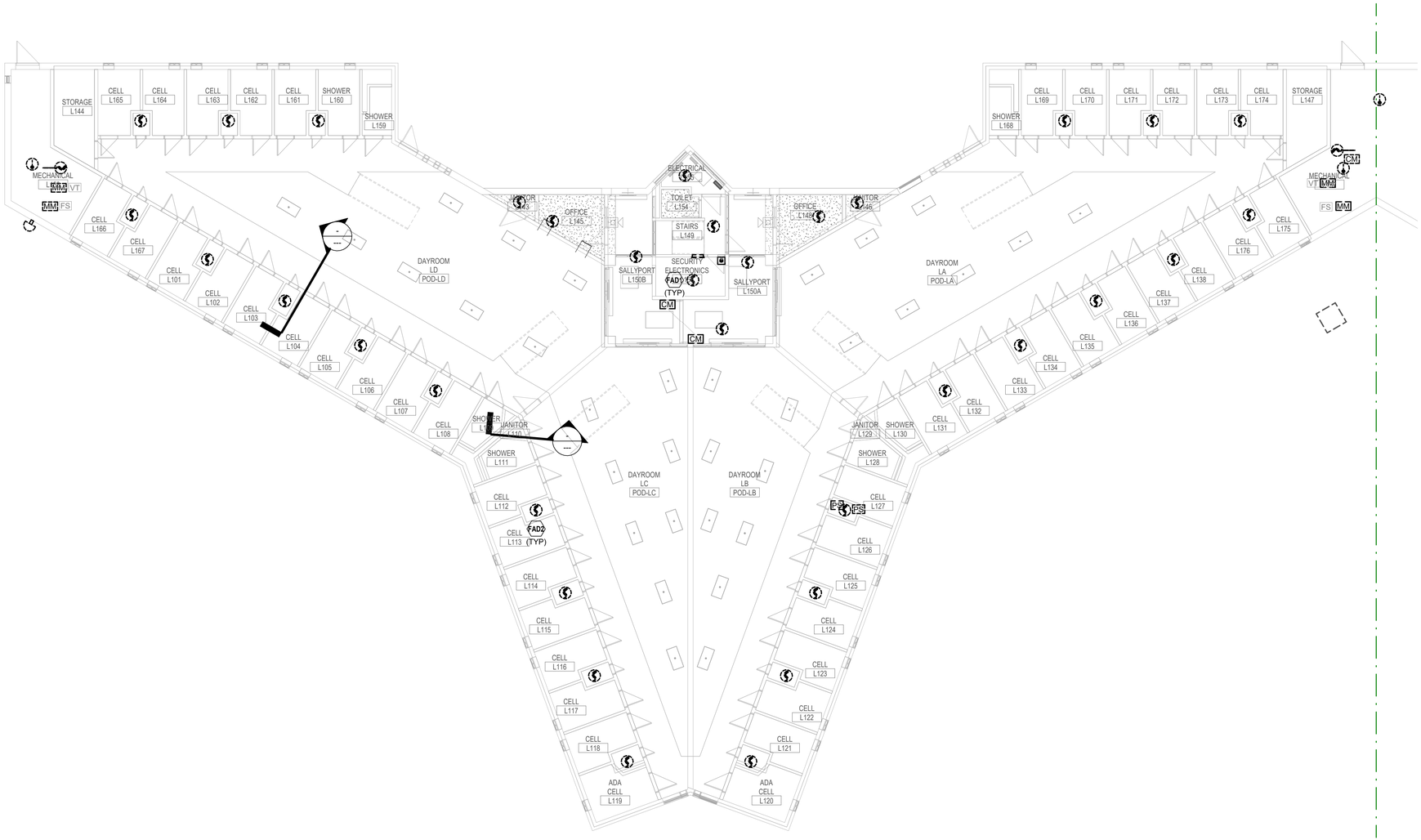
FAD 2 CHASE SMOKE DETECTORS TO BE REMOVED. ONE PER CELL ON THIS LEVEL.



1 FIRE ALARM DEMOLITION - LEVEL 1 - BLDGS. L & M
3/32" = 1'-0"

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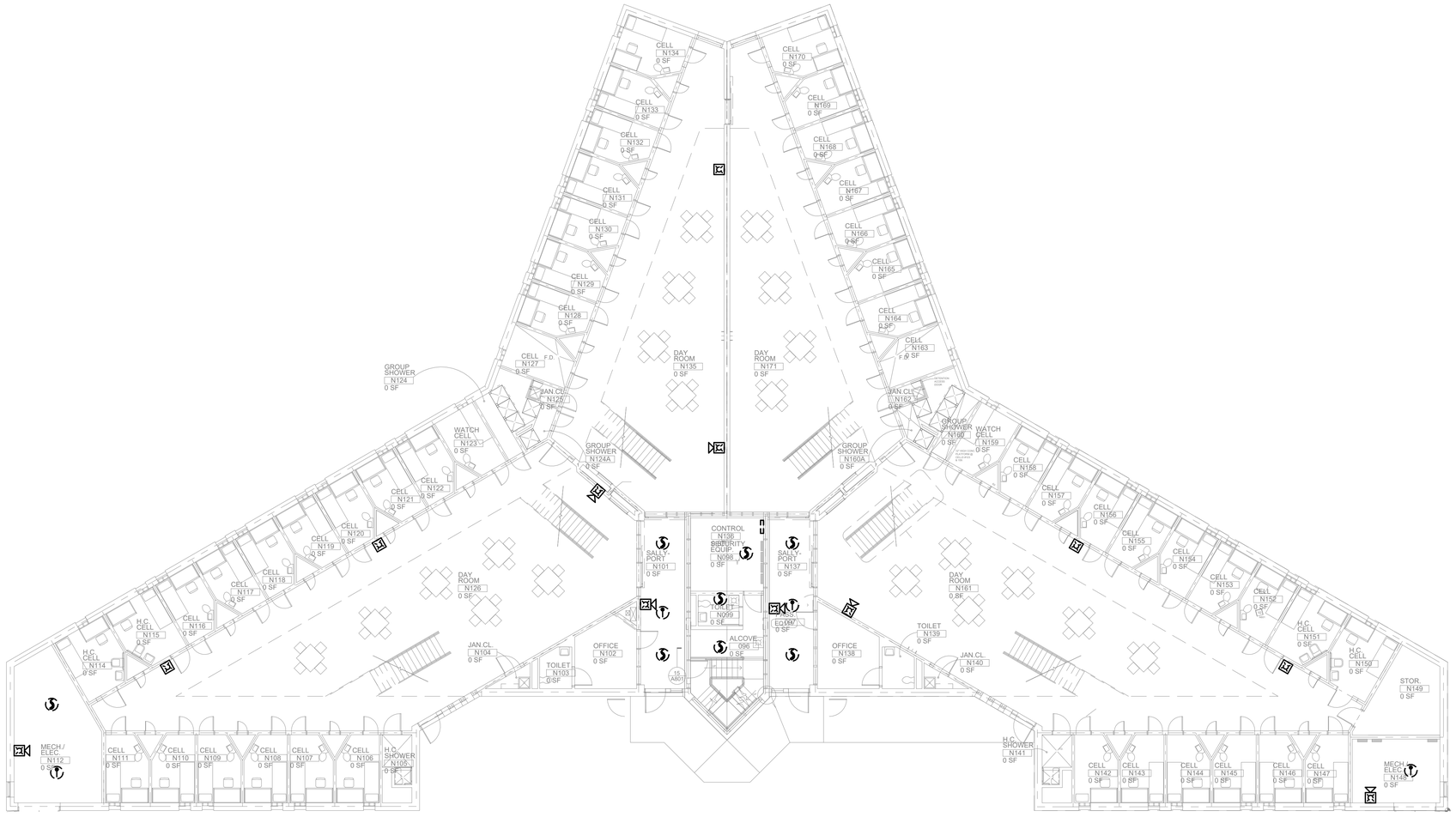
SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING L

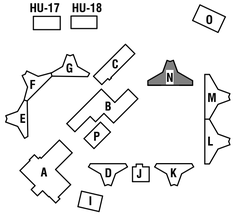
SHEET NUMBER:
FAD101.L

CHRISTOPHER J. CULP



1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING N
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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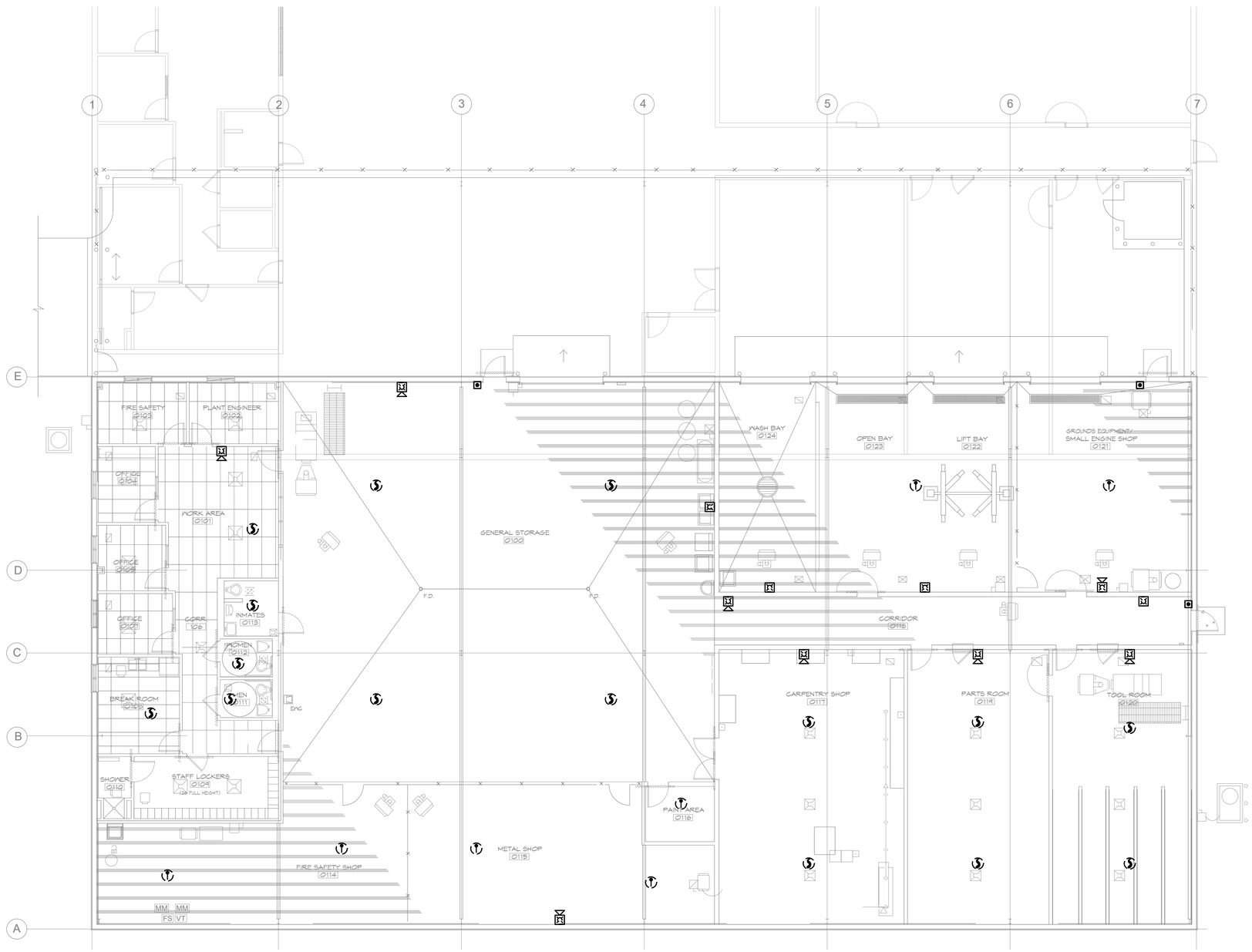
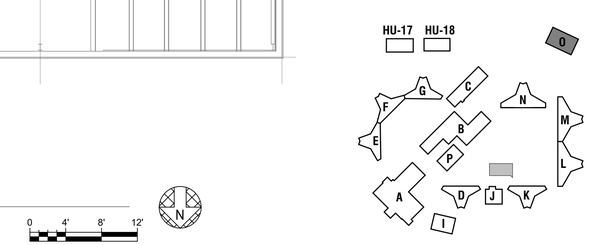
FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING N

SHEET NUMBER:
FAD101.N

CHRISTOPHER J. CULP



1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING O
1/8" = 1'-0"



0 4' 8' 12'
SCALE: 1/8"=1'-0"

N

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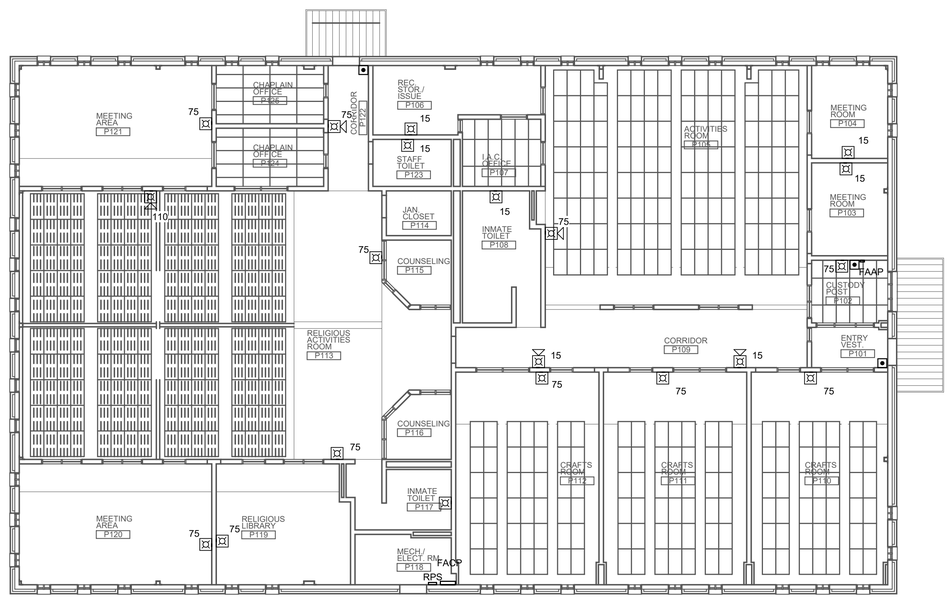
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: BC
CHECKED BY: AMJ
DESIGNED BY: BC

SHEET TITLE:
FIRE ALARM
DEMOLITION - LEVEL 1
- BUILDING O

SHEET NUMBER:
FAD101.O

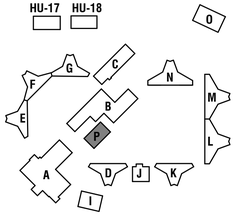
CHRISTOPHER J. CULP



1 FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING P
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"

N



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
CHRISTOPHER J. CULP
NUMBER
PE-2013037646
PROFESSIONAL ENGINEER

8/28/2026

CHRISTOPHER J. CULP
LICENSE # PE-2013037646

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
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WWW.HENDERSONENGINEERS.COM

2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: BC
CHECKED BY: AMJ
DESIGNED BY: BC

SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 1 - BUILDING P

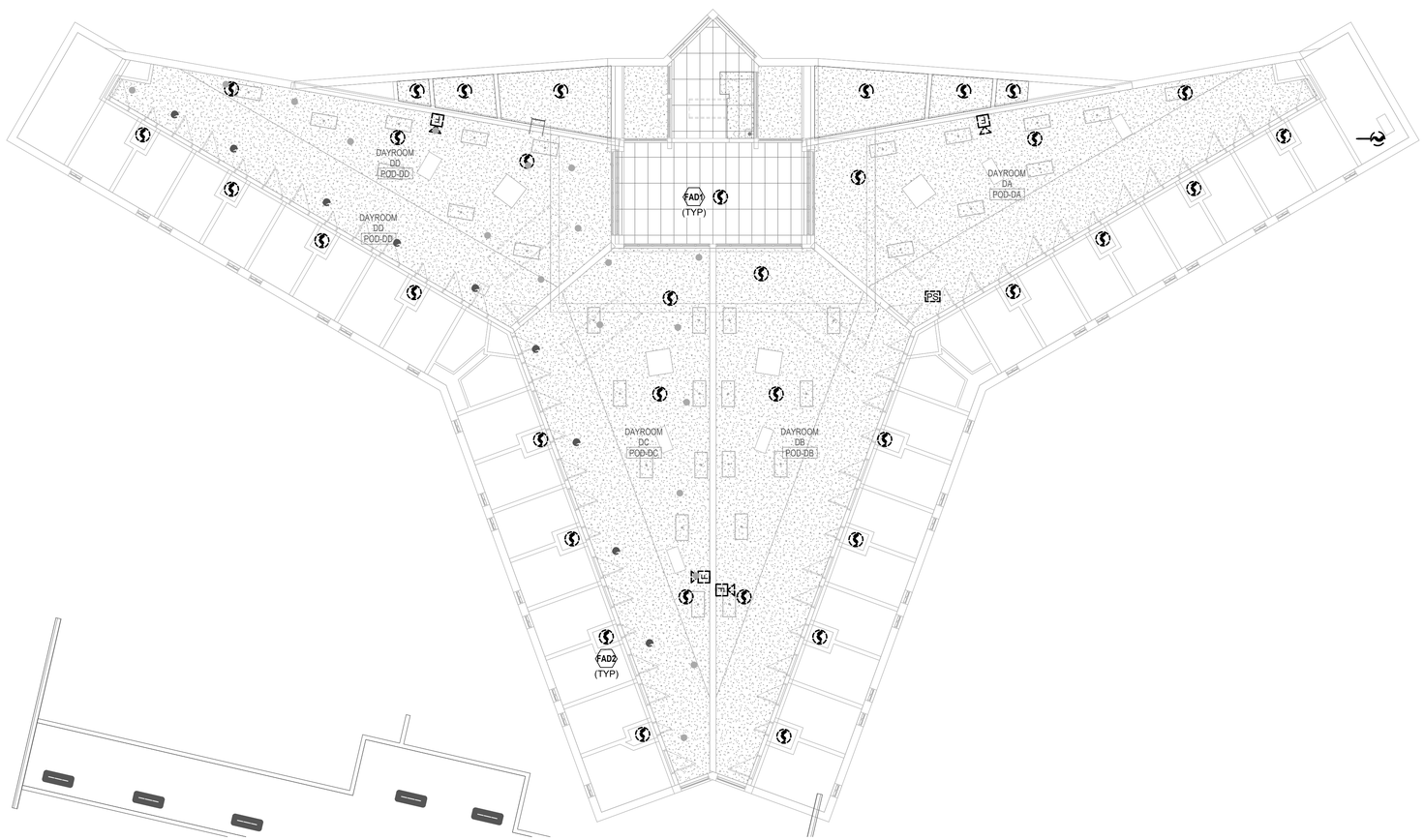
SHEET NUMBER:
FAD101.P

CHRISTOPHER J. CULP

FIRE ALARM DEMOLITION PLAN NOTES:

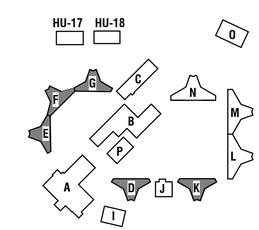
FAD1 FIRE ALARM SYSTEM AS-BUILTS WERE NOT AVAILABLE AT THE TIME OF DESIGN. EXISTING CONDITIONS WERE TAKEN FROM SITE VISITS AND MAY NOT REFLECT EXACT AS-BUILT CONDITIONS. CONTRACTOR SHALL PROVIDE ALL MATERIAL AND LABOR NEEDED FOR COMPLETE DEMOLITION OF EXISTING FIRE ALARM SYSTEM.

FAD2 CHASE SMOKE DETECTORS TO BE REMOVED. ONE PER CELL ON THIS LEVEL.



1 FIRE ALARM DEMOLITION - LEVEL 2 - BUILDINGS D,E,F,G,K
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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REVISION:
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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING D

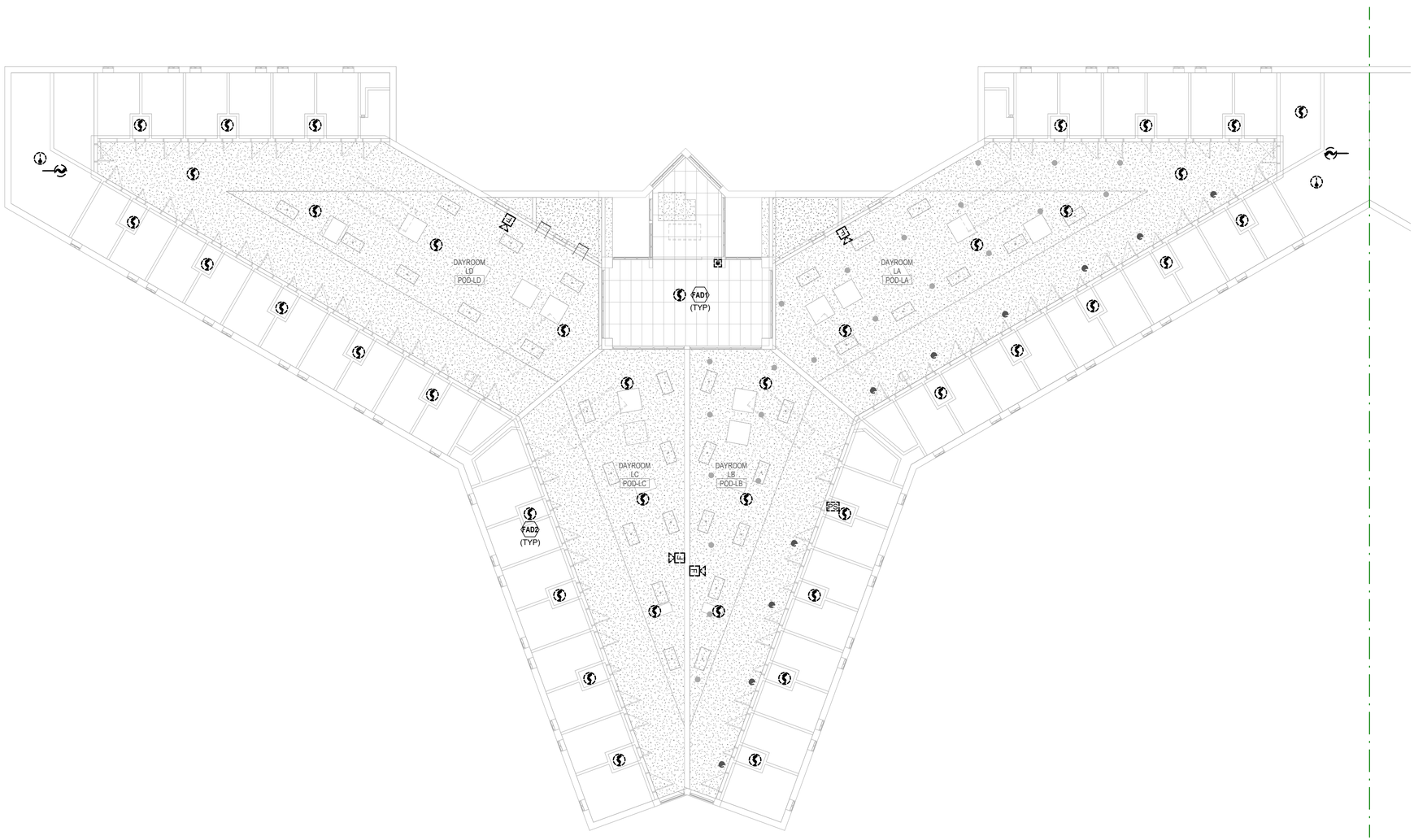
SHEET NUMBER:
FAD102.D

CHRISTOPHER J. CULP

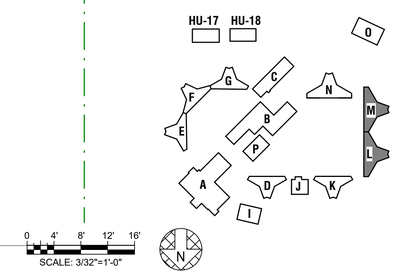
FIRE ALARM DEMOLITION PLAN NOTES:

FAD 1 FIRE ALARM SYSTEM AS-BUILTS WERE NOT AVAILABLE AT THE TIME OF DESIGN. EXISTING CONDITIONS WERE TAKEN FROM SITE VISITS AND MAY NOT REFLECT EXACT AS-BUILT CONDITIONS. CONTRACTOR SHALL PROVIDE ALL MATERIAL AND LABOR NEEDED FOR COMPLETE DEMOLITION OF EXISTING FIRE ALARM SYSTEM.

FAD 2 CHASE SMOKE DETECTORS TO BE REMOVED. ONE PER CELL ON THIS LEVEL.



1 FIRE ALARM DEMOLITION - LEVEL 2 - BUILDINGS L & M
3/32" = 1'-0"



0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"

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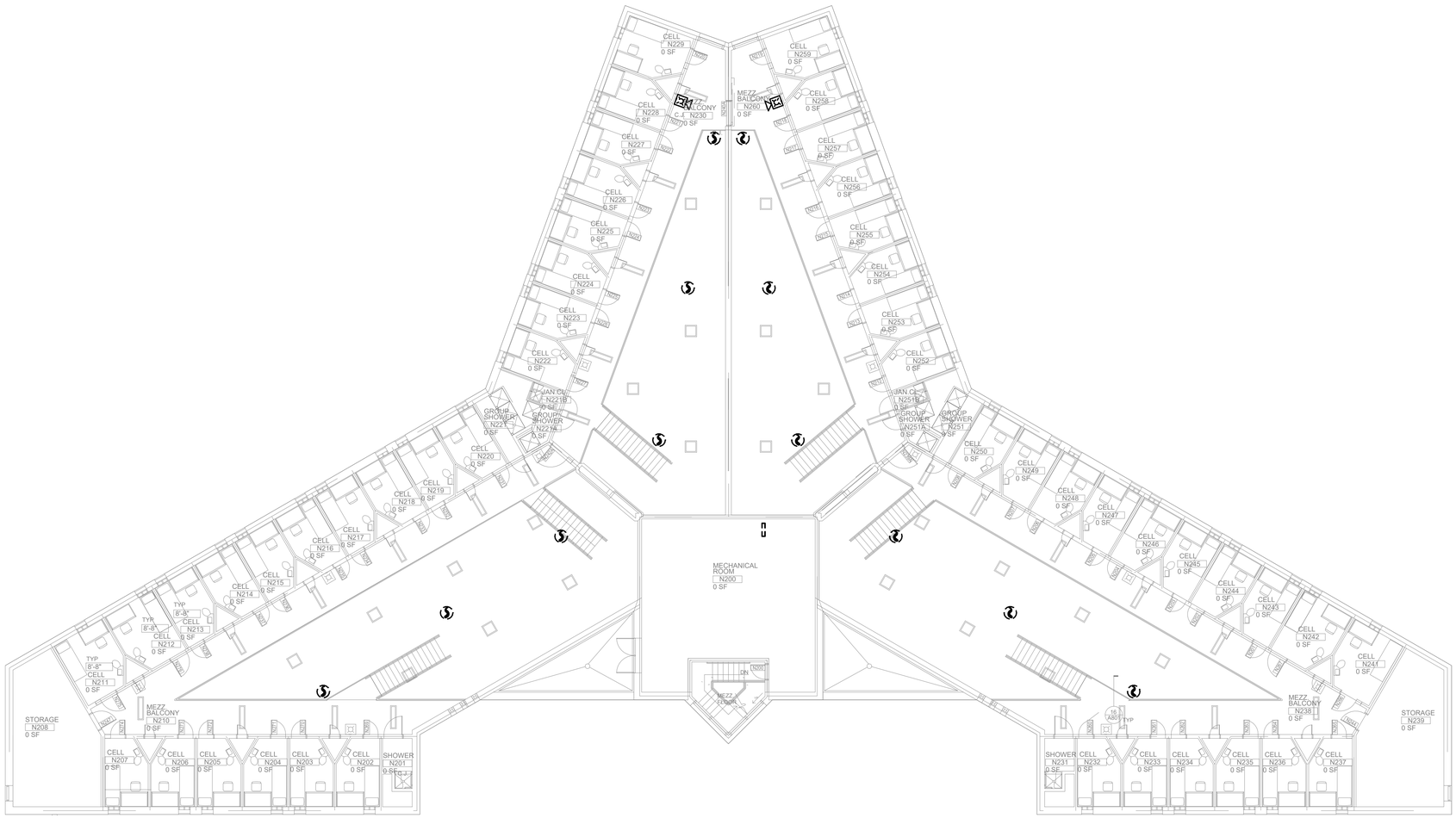
CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING L

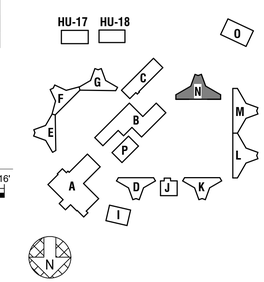
SHEET NUMBER:
FAD102.L

CHRISTOPHER J. CULP



1 FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING N
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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DESIGNED BY: BC

SHEET TITLE:
FIRE ALARM DEMOLITION - LEVEL 2 - BUILDING N

SHEET NUMBER:
FAD102.N

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

F28 PROVIDE DUCT MOUNTED SMOKE DETECTOR FOR FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT SHUTDOWN. INSTALL DETECTOR PER MANUFACTURER'S RECOMMENDATIONS. REFER TO MECHANICAL SHEETS FOR EQUIPMENT AND DUCTWORK LAYOUT AND DETAILS.

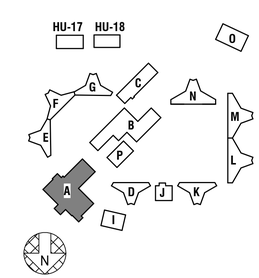
F31 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION ON WALL AT 48" AFF. LABEL FOR EQUIPMENT SERVED.

F32 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION IN CEILING. LABEL FOR EQUIPMENT SERVED.

F120 REMOVE AND REINSTALL ALL EXISTING CAGES OVER NEW DETECTORS. NEW CAGES ARE NOT REQUIRED OVER NON PROTECTED DETECTORS.

1 FIRE ALARM PLAN - LEVEL 1 - BUILDING A - AREA A
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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CAD DWG FILE:
DRAWN BY: BC
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DESIGNED BY: BC

SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING A - AREA A

SHEET NUMBER:
FA101.Aa

101 OF 118 SHEETS
08/28/2026

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

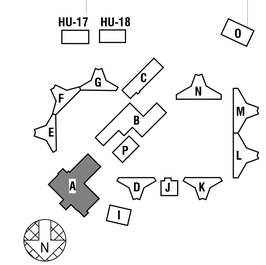
F28 PROVIDE DUCT MOUNTED SMOKE DETECTOR FOR FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT SHUTDOWN. INSTALL DETECTOR PER MANUFACTURER'S RECOMMENDATIONS. REFER TO MECHANICAL SHEETS FOR EQUIPMENT AND DUCTWORK LAYOUT AND DETAILS.

F31 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION ON WALL AT 48" AFF. LABEL FOR EQUIPMENT SERVED.

F32 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION IN CEILING. LABEL FOR EQUIPMENT SERVED.

1 FIRE ALARM PLAN - LEVEL 1 - BUILDING A - AREA B
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



STATE OF MISSOURI
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SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING A - AREA B

SHEET NUMBER:
FA101.Ab

CHRISTOPHER J. CULP

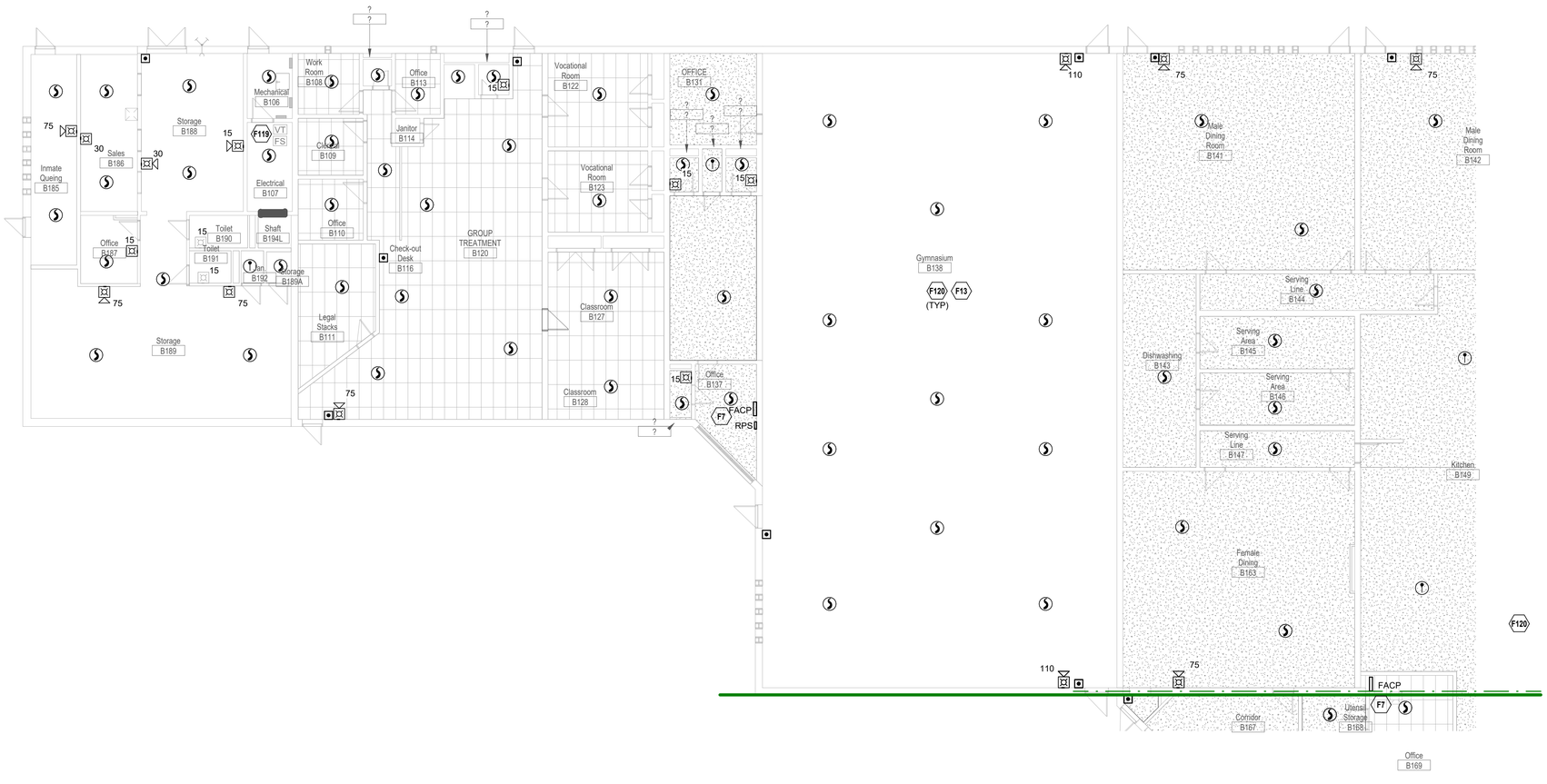
FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

F13 MOUNT APPLIANCE AT BOTTOM OF JOIST ELEVATION. REFER TO SPECIFICATIONS FOR CONDUIT ROUTING IN OPEN AREAS.

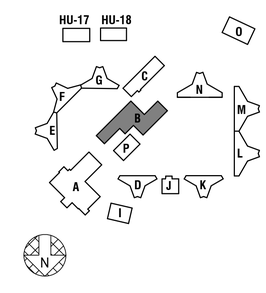
F119 CONNECT FIRE SPRINKLER MONITORING DEVICES TO FIRE ALARM SYSTEM. COORDINATE QUANTITY AND LOCATION OF DEVICES WITH FIRE PROTECTION SYSTEMS.

F120 REMOVE AND REINSTALL ALL EXISTING CAGES OVER NEW DETECTORS. NEW CAGES ARE NOT REQUIRED OVER NON PROTECTED DETECTORS.



1 FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA A
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA A

SHEET NUMBER:
FA101.Ba

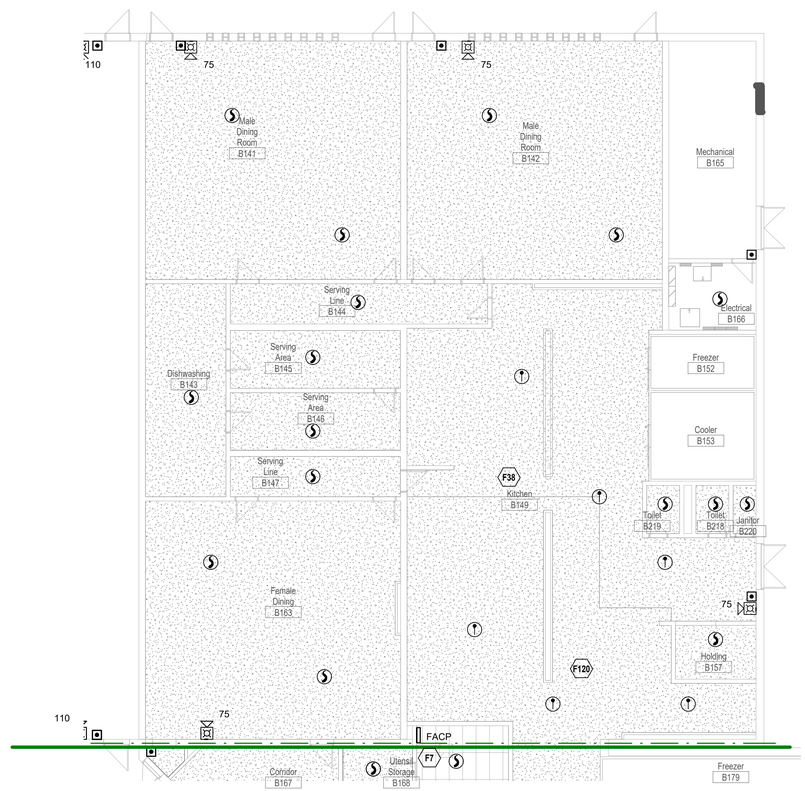
CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

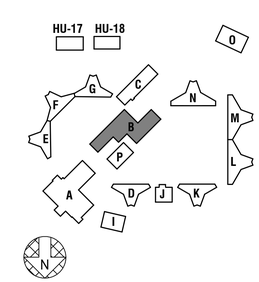
F38 PROVIDE EQUIPMENT AND CONNECTION(S) REQUIRED TO MONITOR KITCHEN HOOD SUPPRESSION SYSTEM(S).

F120 REMOVE AND REINSTALL ALL EXISTING CAGES OVER NEW DETECTORS. NEW CAGES ARE NOT REQUIRED OVER NON PROTECTED DETECTORS.



1 FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA B
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA B

SHEET NUMBER:
FA101.Bb

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

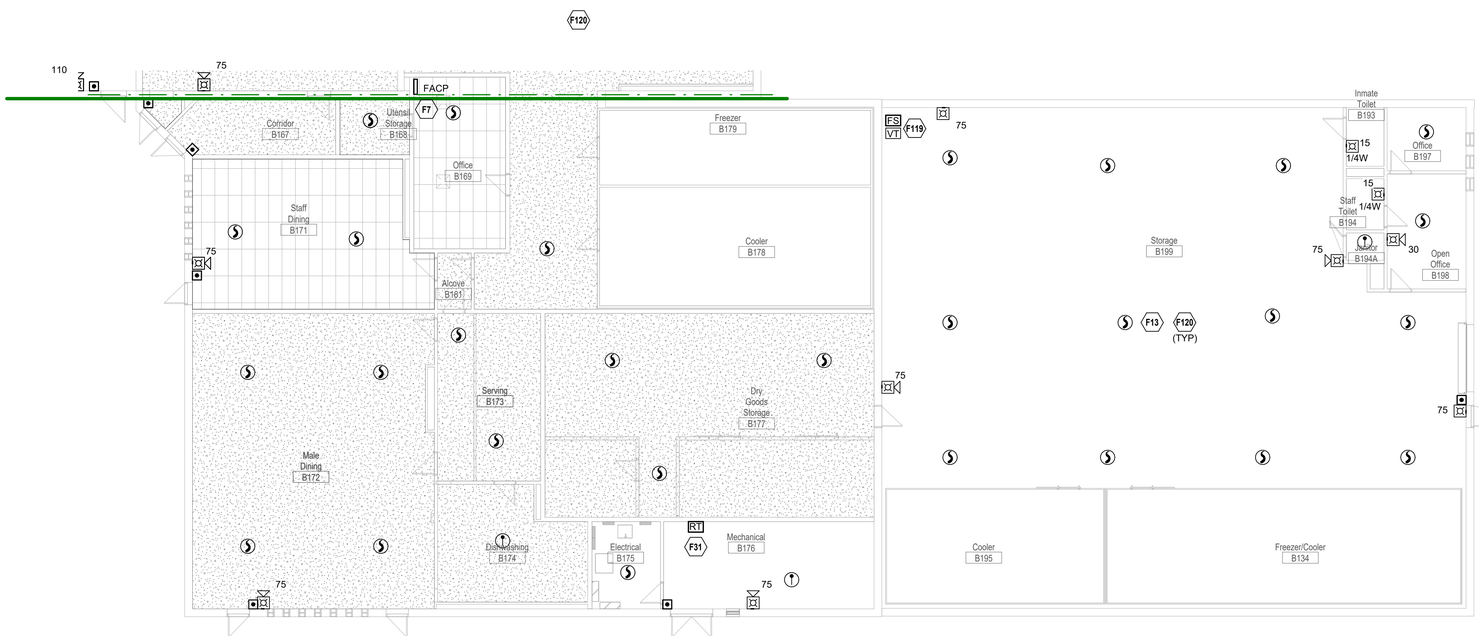
F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

F13 MOUNT APPLIANCE AT BOTTOM OF JOIST ELEVATION. REFER TO SPECIFICATIONS FOR CONDUIT ROUTING IN OPEN AREAS.

F31 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION ON WALL AT 48" AFF. LABEL FOR EQUIPMENT SERVED.

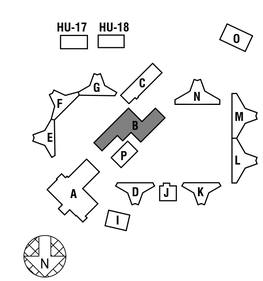
F119 CONNECT FIRE SPRINKLER MONITORING DEVICES TO FIRE ALARM SYSTEM. COORDINATE QUANTITY AND LOCATION OF DEVICES WITH FIRE PROTECTION SYSTEMS.

F120 REMOVE AND REINSTALL ALL EXISTING CAGES OVER NEW DETECTORS. NEW CAGES ARE NOT REQUIRED OVER NON PROTECTED DETECTORS.



1 FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA C
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING B - AREA C

SHEET NUMBER:
FA101.Bc

105 OF 118 SHEETS
08/28/2026

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

F13 MOUNT APPLIANCE AT BOTTOM OF JOIST ELEVATION. REFER TO SPECIFICATIONS FOR CONDUIT ROUTING IN OPEN AREAS.

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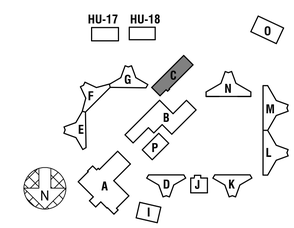
F120 REMOVE AND REINSTALL ALL EXISTING CAGES OVER NEW DETECTORS. NEW CAGES ARE NOT REQUIRED OVER NON PROTECTED DETECTORS.

F121 DETECTION AND NOTIFICATION TO BE INSTALLED BELOW MEZZANINE

1 FIRE ALARM PLAN - LEVEL 1 - BUILDING C
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
CHRISTOPHER J. CULP
NUMBER PE-2013037646
PROFESSIONAL ENGINEER

8/28/2026

CHRISTOPHER J. CULP
LICENSE # PE-2013037646

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2450001658
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2026

OFFICE OF ADMINISTRATION
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DESIGN AND CONSTRUCTION

REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: BC
CHECKED BY: AMJ
DESIGNED BY: BC

SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING C

SHEET NUMBER:
FA101.C

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

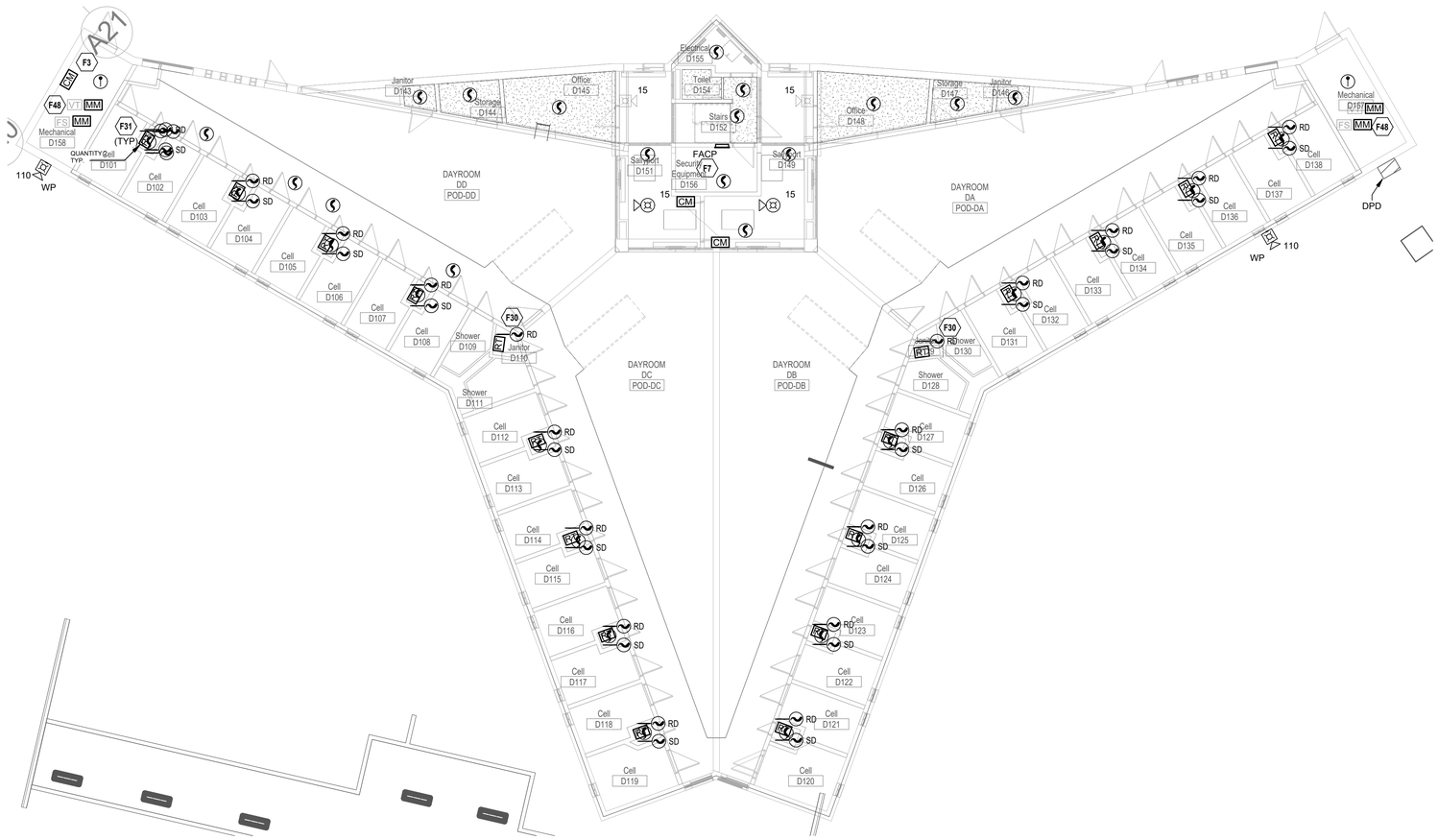
F3 PROVIDE CONNECTIONS TO SEND SIGNAL FROM FIRE ALARM TO BAS TO ACTIVATE SMOKE CONTROL SYSTEM.

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

F30 PROVIDE DUCT-MOUNTED SMOKE DETECTOR FOR FIRE/SMOKE DAMPER ACTIVATION. DETECTOR SHALL BE INSTALLED WITHIN 5 FEET OF DAMPER PER NFPA 72. REFER TO MECHANICAL SHEETS FOR EXACT LOCATION OF DAMPERS. THE DETECTOR SELECTED SHALL BE SUITABLE FOR THE AIRFLOW PRESENT IN THE DUCT.

F31 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION ON WALL AT 48" AFF. LABEL FOR EQUIPMENT SERVED.

F48 FIRE SPRINKLER MONITORING DEVICES ARE EXISTING TO REMAIN. CONNECT VALVE TAMPER SUPERVISORY SWITCH FOR STANDPIPE CONTROL VALVE TO FIRE ALARM SYSTEM. COORDINATE QUANTITY AND LOCATION OF DEVICES WITH SPRINKLER SYSTEM.



1 TYPICAL FIRE ALARM PLAN - BUILDINGS D, E, F, G, K - LEVEL 1
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"

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ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING D

SHEET NUMBER:
FA101.D

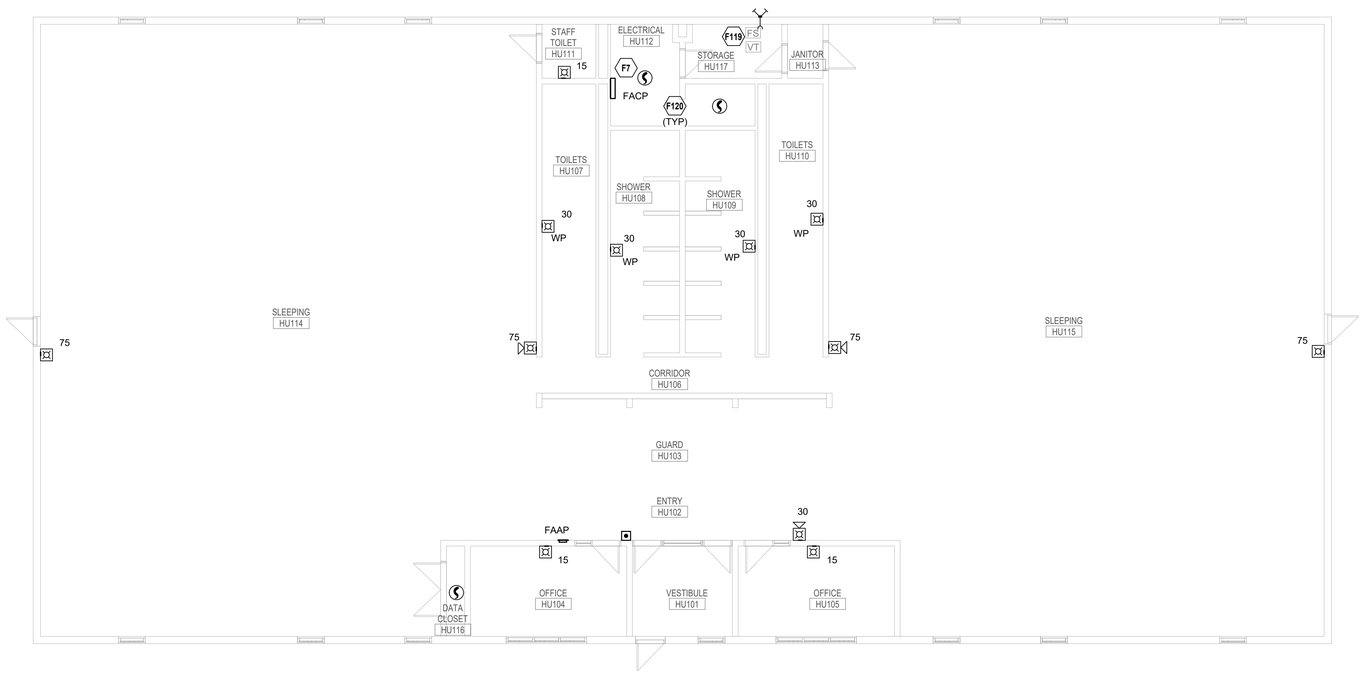
CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

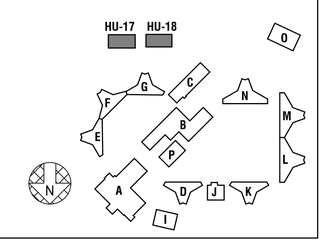
F119 CONNECT FIRE SPRINKLER MONITORING DEVICES TO FIRE ALARM SYSTEM. COORDINATE QUANTITY AND LOCATION OF DEVICES WITH FIRE PROTECTION SYSTEMS.

F120 REMOVE AND REINSTALL ALL EXISTING CAGES OVER NEW DETECTORS. NEW CAGES ARE NOT REQUIRED OVER NON PROTECTED DETECTORS.



1 FIRE ALARM PLAN - LEVEL 1 - BUILDING HU-17, HU-18
1/8" = 1'-0"

0 4' 8' 12'
SCALE: 1/8"=1'-0"



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SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING HU-17

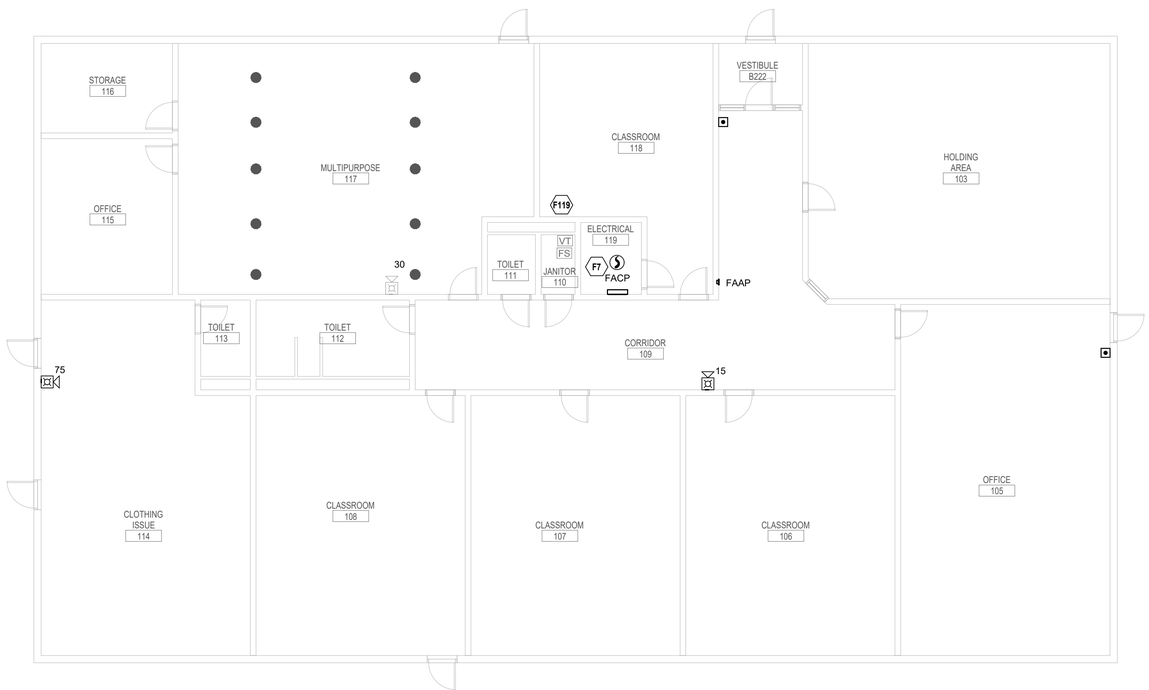
SHEET NUMBER:
FA101.HU

CHRISTOPHER J. CULP

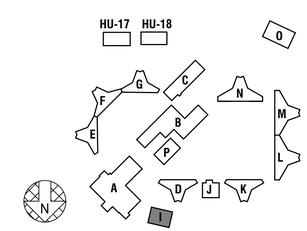
FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

F11 9 CONNECT FIRE SPRINKLER MONITORING DEVICES TO FIRE ALARM SYSTEM. COORDINATE QUANTITY AND LOCATION OF DEVICES WITH FIRE PROTECTION SYSTEMS.



1 FIRE ALARM - LEVEL 1 - BUILDING I
1/8" = 1'-0"



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SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING I

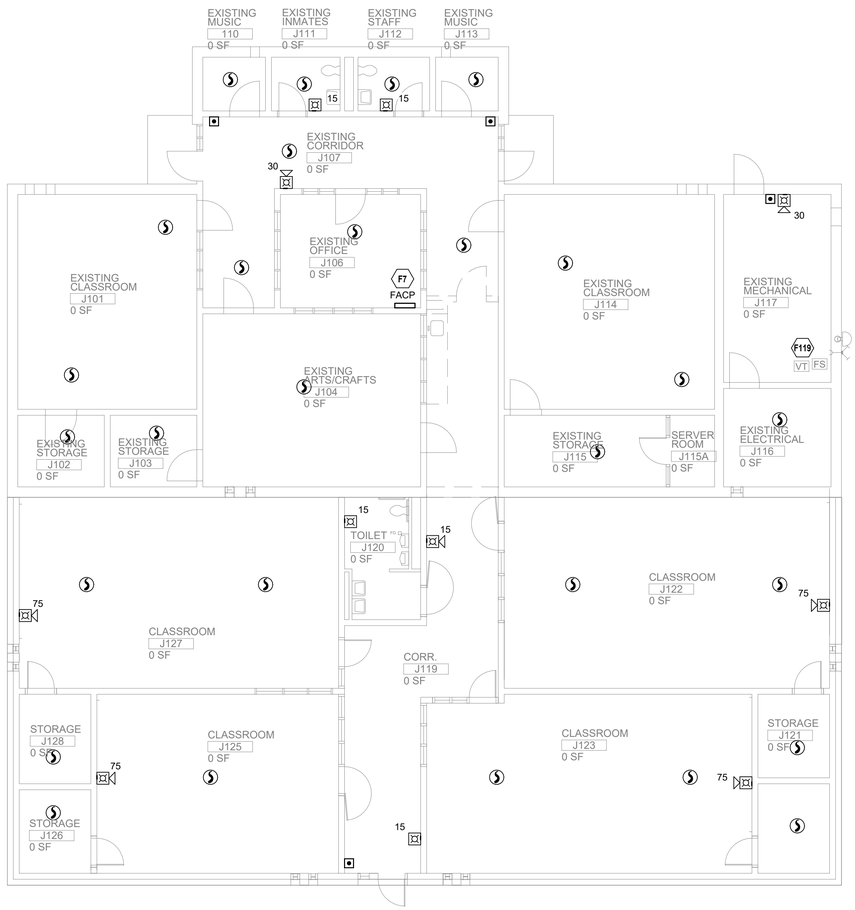
SHEET NUMBER:
FA101.I

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

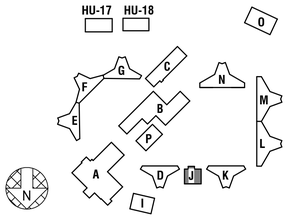
F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

F119 CONNECT FIRE SPRINKLER MONITORING DEVICES TO FIRE ALARM SYSTEM. COORDINATE QUANTITY AND LOCATION OF DEVICES WITH FIRE PROTECTION SYSTEMS.



1 FIRE ALARM - LEVEL 1 - BUILDING J
1/8" = 1'-0"

0 4' 8' 12'
SCALE: 1/8"=1'-0"



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SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING J

SHEET NUMBER:
FA101.J

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

F3 PROVIDE CONNECTIONS TO SEND SIGNAL FROM FIRE ALARM TO BAS TO ACTIVATE SMOKE CONTROL SYSTEM.

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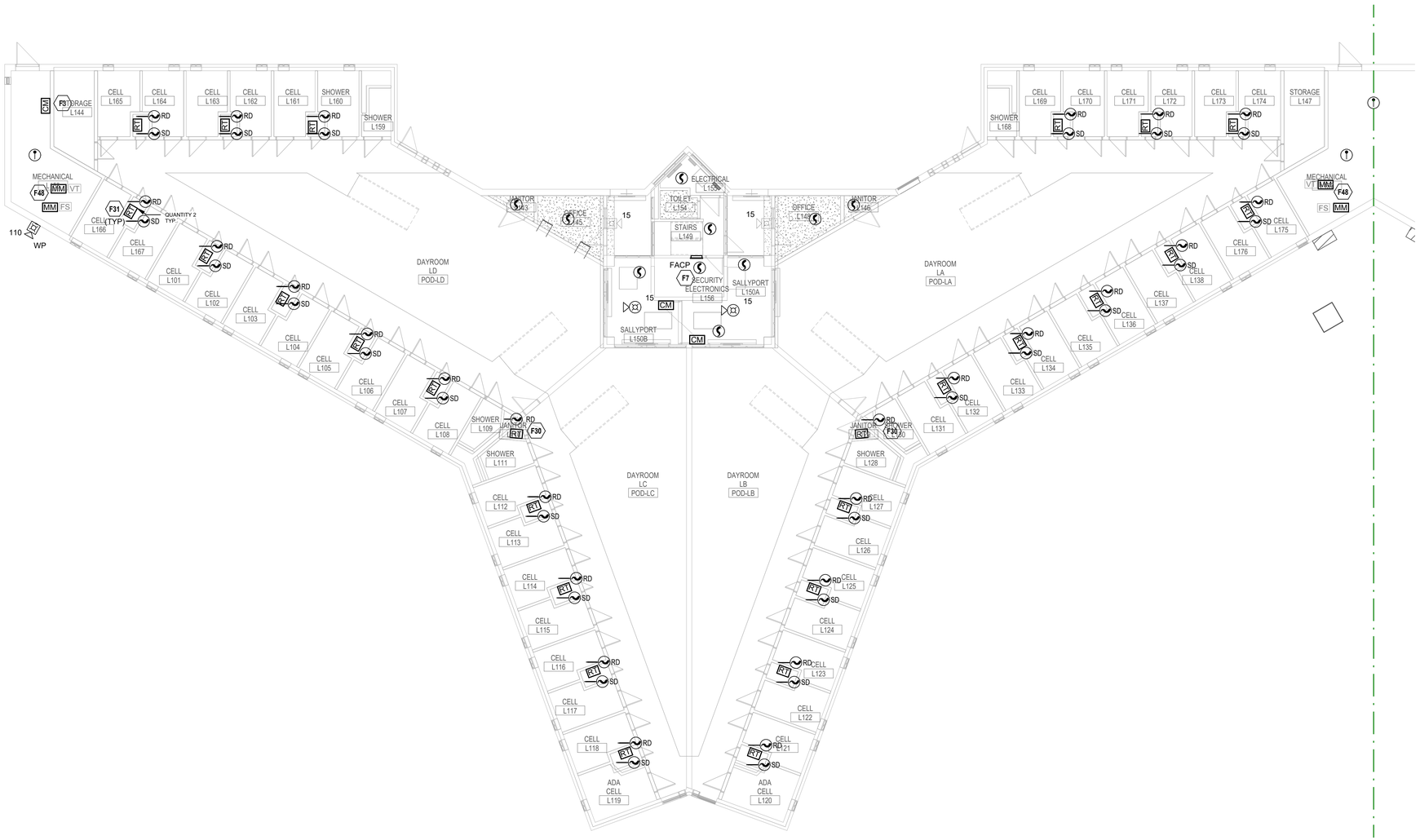
F31 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION ON WALL AT 48" AFF. LABEL FOR EQUIPMENT SERVED.

F48 FIRE SPRINKLER MONITORING DEVICES ARE EXISTING TO REMAIN. CONNECT VALVE TAMPER SUPERVISORY SWITCH FOR STANDPIPE CONTROL VALVE TO FIRE ALARM SYSTEM. COORDINATE QUANTITY AND LOCATION OF DEVICES WITH SPRINKLER SYSTEM.



1 TYPICAL FIRE ALARM PLAN - BUILDINGS L & M - LEVEL 1
3/32" = 1'-0"

STATE OF MISSOURI
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FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

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CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

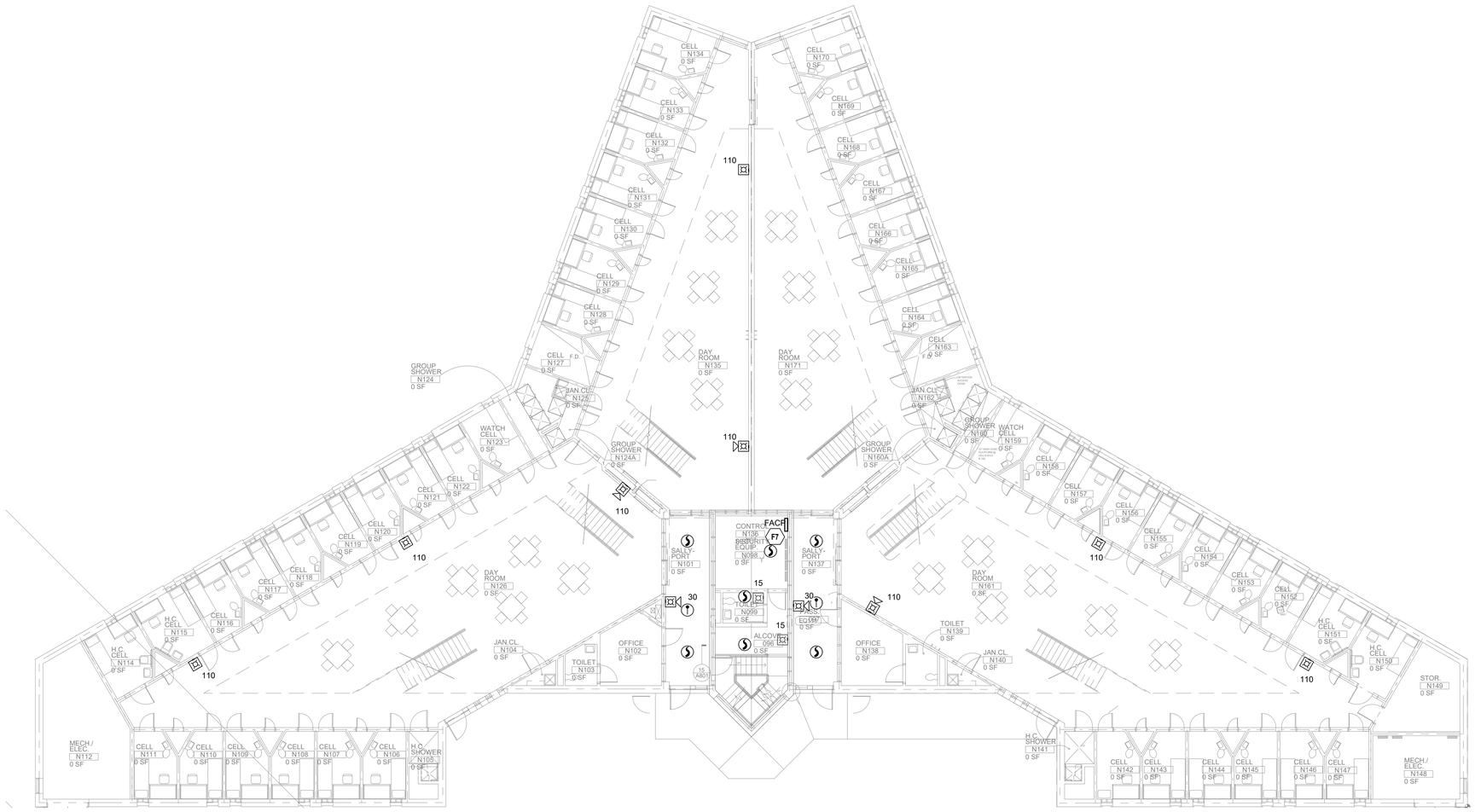
SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING L

SHEET NUMBER:
FA101.L

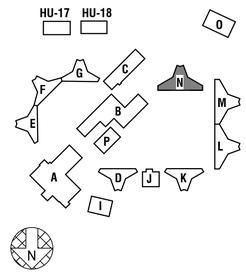
CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.



1 FIRE ALARM - LEVEL 1 - BUILDING N
3/32" = 1'-0"



0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"

STATE OF MISSOURI
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CAD DWG FILE:
DRAWN BY: BC
CHECKED BY: AMJ
DESIGNED BY: BC

SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING N

SHEET NUMBER:
FA101.N

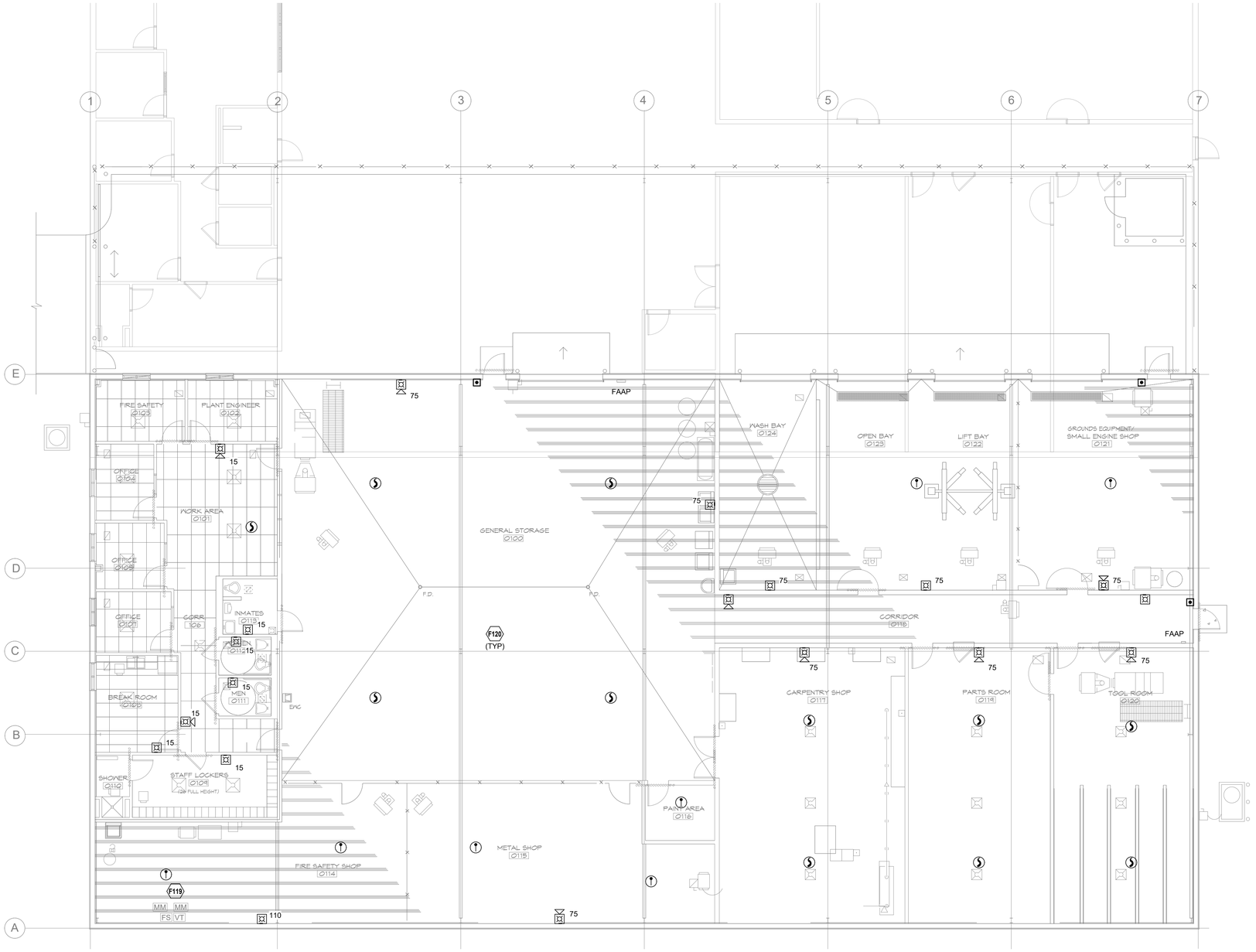
112 OF 118 SHEETS
08/28/2026

CHRISTOPHER J. CULP

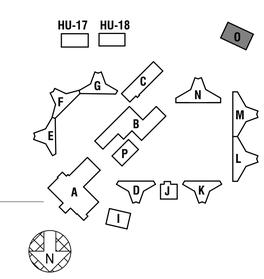
FIRE ALARM PLAN NOTES:

F11 9 CONNECT FIRE SPRINKLER MONITORING DEVICES TO FIRE ALARM SYSTEM. COORDINATE QUANTITY AND LOCATION OF DEVICES WITH FIRE PROTECTION SYSTEMS.

F12 0 REMOVE AND REINSTALL ALL EXISTING CAGES OVER NEW DETECTORS. NEW CAGES ARE NOT REQUIRED OVER NON PROTECTED DETECTORS.



1 FIRE ALARM PLAN - LEVEL 1 - BUILDING O
1/8" = 1'-0"



0 4' 8' 12'
SCALE: 1/8"=1'-0"

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SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING O

SHEET NUMBER:
FA101.O

CHRISTOPHER J. CULP

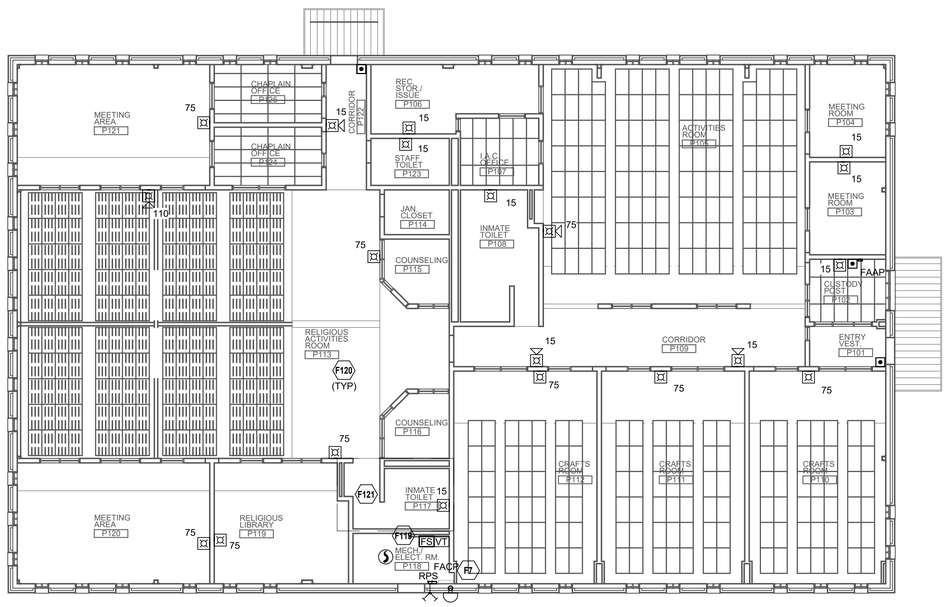
FIRE ALARM PLAN NOTES:

F7 PROVIDE NEW FIRE ALARM CONTROL PANEL. PROVIDE A SMOKE DETECTOR ABOVE THE PANEL IN ACCORDANCE WITH NFPA 72.

F119 CONNECT FIRE SPRINKLER MONITORING DEVICES TO FIRE ALARM SYSTEM. COORDINATE QUANTITY AND LOCATION OF DEVICES WITH FIRE PROTECTION SYSTEMS.

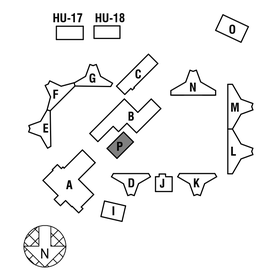
F120 REMOVE AND REINSTALL ALL EXISTING CAGES OVER NEW DETECTORS. NEW CAGES ARE NOT REQUIRED OVER NON PROTECTED DETECTORS.

F121 DETECTION AND NOTIFICATION TO BE INSTALLED BELOW MEZZANINE



1 FIRE ALARM PLAN - LEVEL 1 - BUILDING P
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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SHEET TITLE:
FIRE ALARM PLAN - LEVEL 1 - BUILDING P

SHEET NUMBER:
FA101.P

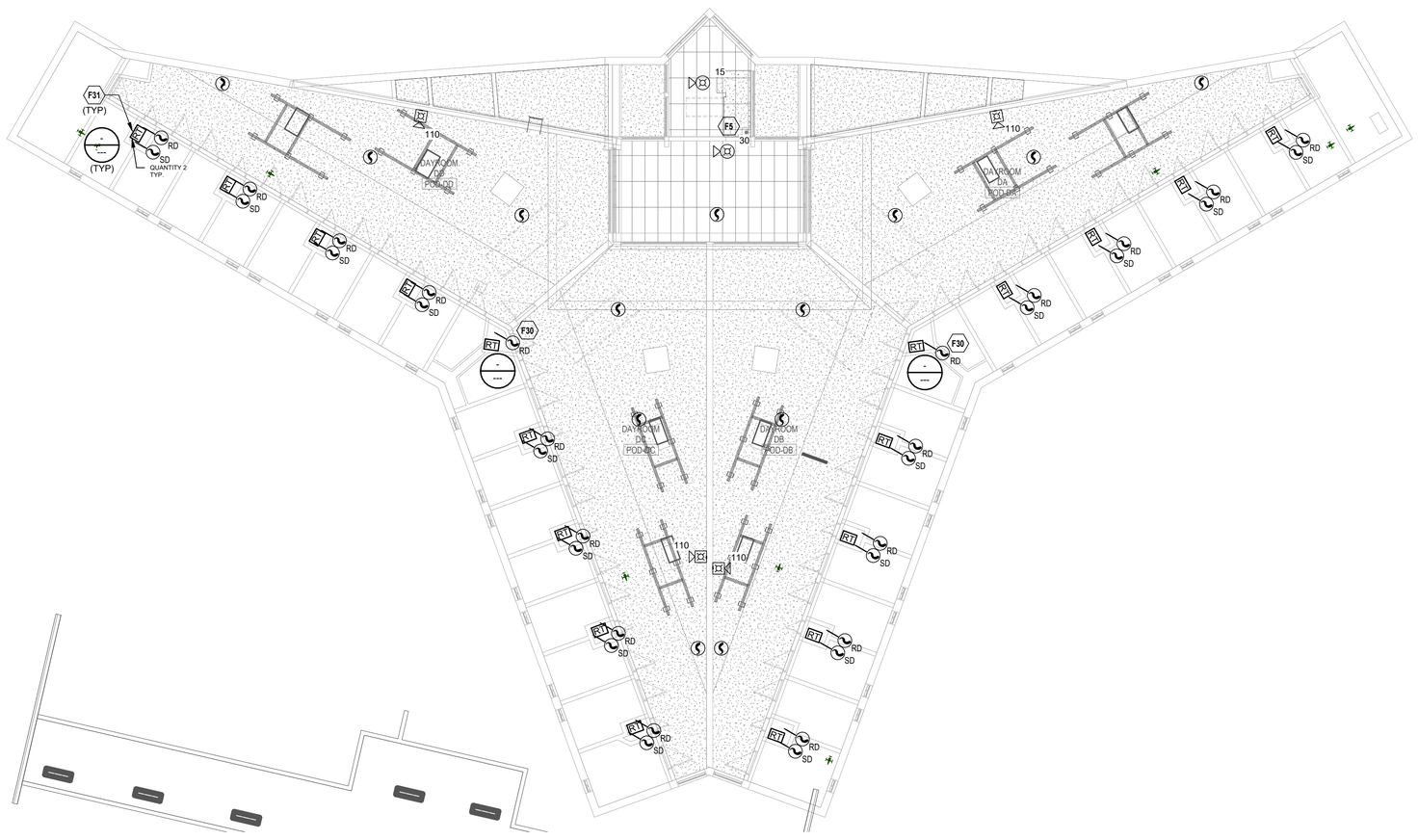
CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

F5 PROVIDE LISTED TAMPER RESISTANT PULL STATION COVER WITH INTEGRAL BATTERY POWERED ALARM.

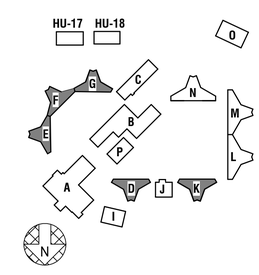
F30 PROVIDE DUCT-MOUNTED SMOKE DETECTOR FOR FIRE/SMOKE DAMPER ACTIVATION. DETECTOR SHALL BE INSTALLED WITHIN 5 FEET OF DAMPER PER NFPA 72. REFER TO MECHANICAL SHEETS FOR EXACT LOCATION OF DAMPERS. THE DETECTOR SELECTED SHALL BE SUITABLE FOR THE AIRFLOW PRESENT IN THE DUCT.

F31 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION ON WALL AT 48" AFF. LABEL FOR EQUIPMENT SERVED.



1 TYPICAL FIRE ALARM PLAN - BUILDINGS D, E, F, G, K - LEVEL 2
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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REBID - FULTON RECEPTION AND DIAGNOSTIC CENTER HVAC IMPROVEMENTS

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
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DATE:
REVISION:
DATE:
ISSUE DATE: 08/28/2026

CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE ALARM PLAN - LEVEL 2 - BUILDING D

SHEET NUMBER:
FA102.D

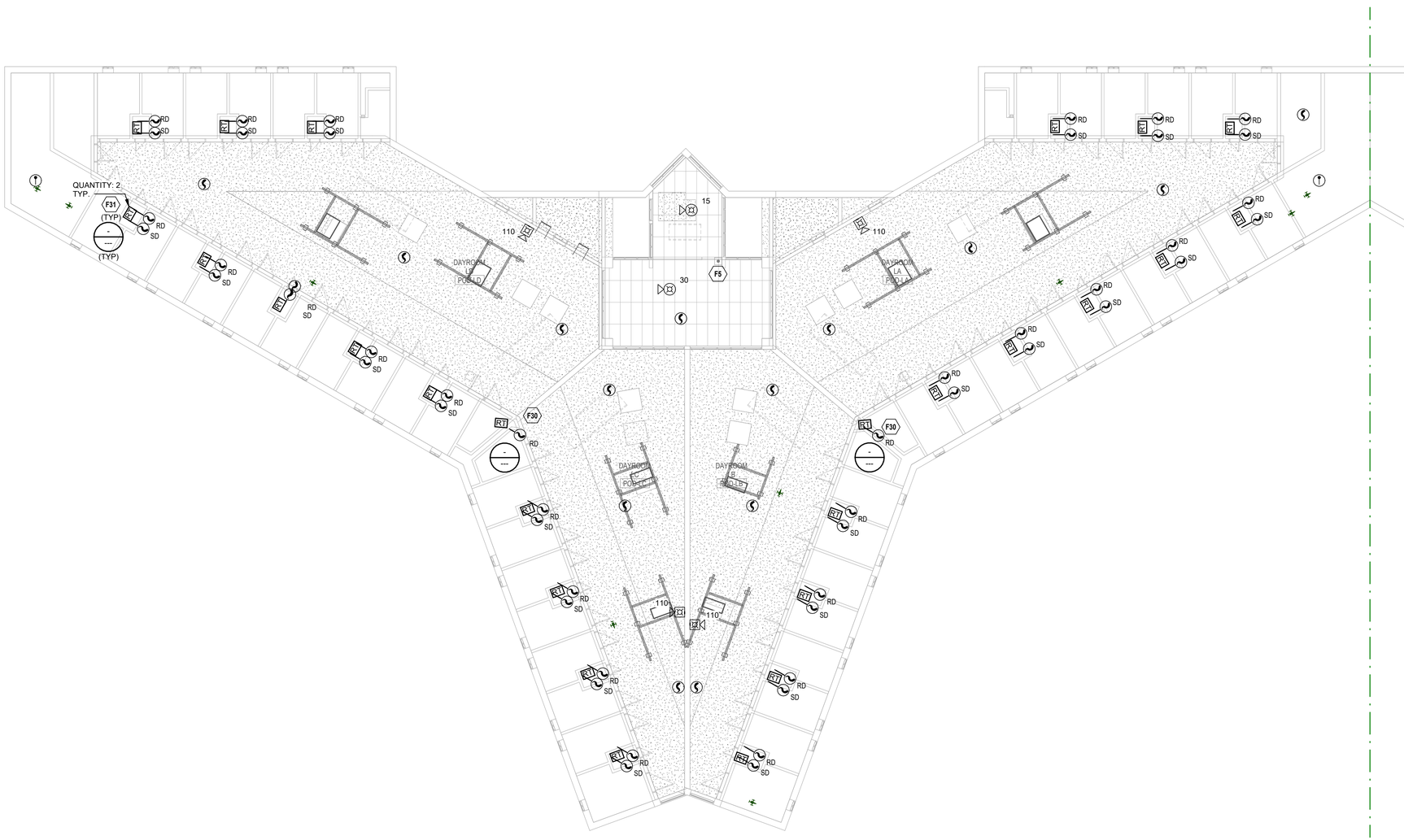
CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

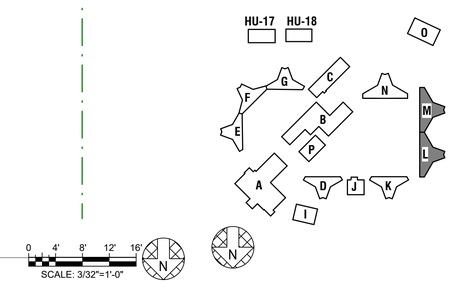
F5 PROVIDE LISTED TAMPER RESISTANT PULL STATION COVER WITH INTEGRAL BATTERY POWERED ALARM.

F30 PROVIDE DUCT-MOUNTED SMOKE DETECTOR FOR FIRE/SMOKE DAMPER ACTIVATION. DETECTOR SHALL BE INSTALLED WITHIN 5 FEET OF DAMPER PER NFPA 72. REFER TO MECHANICAL SHEETS FOR EXACT LOCATION OF DAMPERS. THE DETECTOR SELECTED SHALL BE SUITABLE FOR THE AIRFLOW PRESENT IN THE DUCT.

F31 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION ON WALL AT 48" AFF. LABEL FOR EQUIPMENT SERVED.



1 TYPICAL FIRE ALARM PLAN - BUILDINGS L & M - LEVEL 2
3/32" = 1'-0"



0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
CHRISTOPHER J. CULP
NUMBER
PE-2013037646
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8/28/2026

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FIRE ALARM PLAN - LEVEL 2 - BUILDING L

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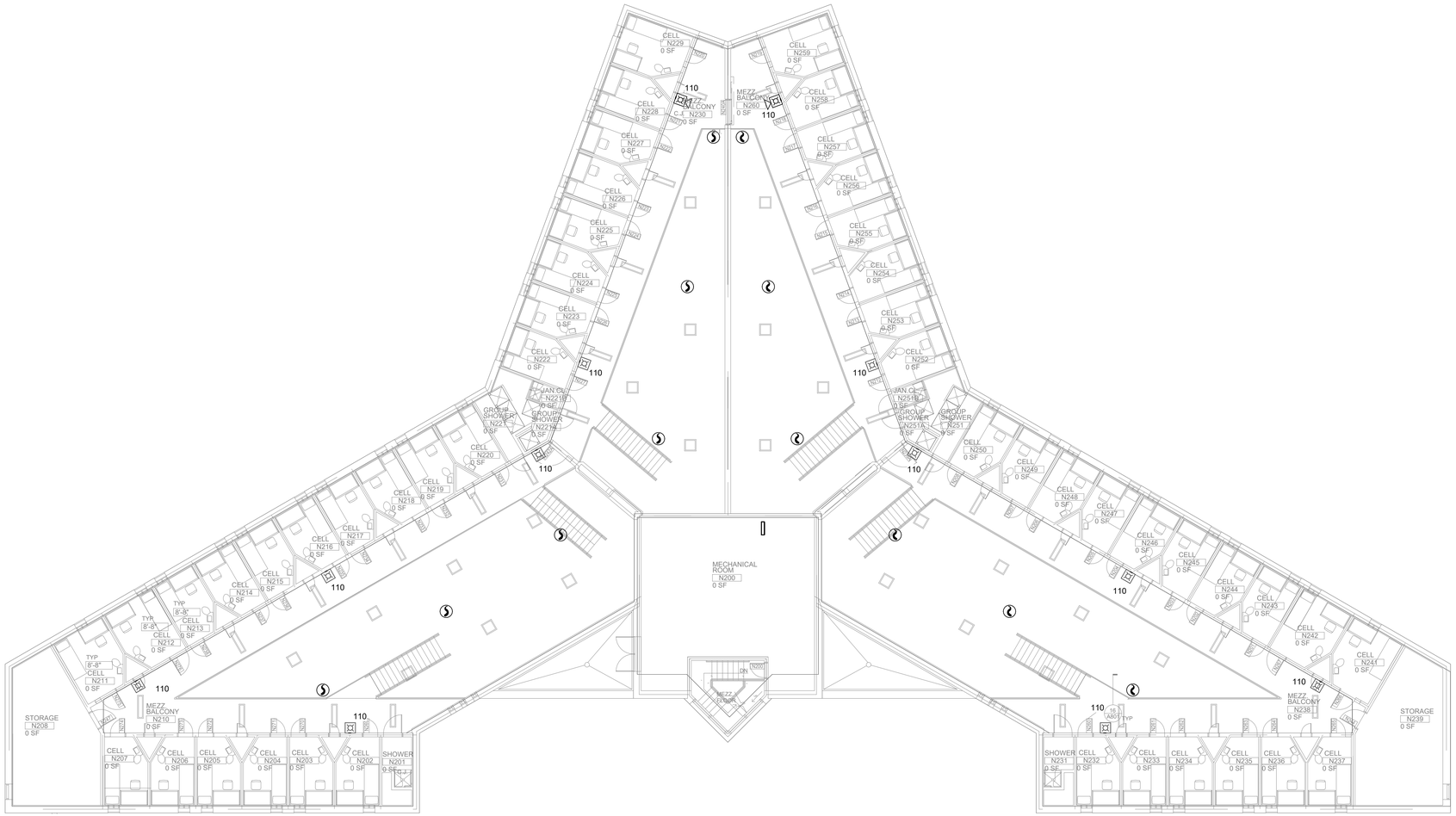
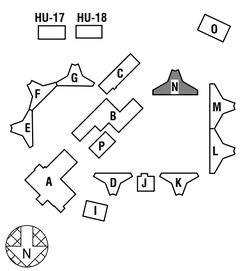


1 FIRE ALARM - LEVEL 2 RCP - BUILDING N
3/32" = 1'-0"

0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



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FIRE ALARM PLAN - LEVEL 2 - BUILDING N

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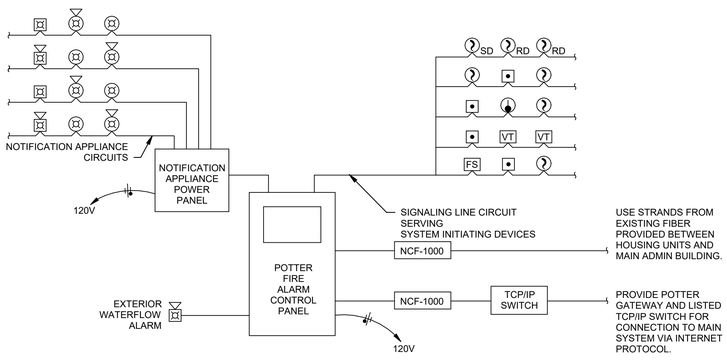
FA102.N

CHRISTOPHER J. CULP

SYSTEM INPUTS	ALARM	SUPERVISORY	TROUBLE	REPORT TO FIRE ALARM CONTROL PANEL	SIGNAL SUPERVISING STATION	ACTIVATE GENERAL FIRE ALARM AUDIBLE/VISIBLE NOTIFICATION APPLIANCES	ACTIVATE TONAL NOTIFICATION APPLIANCE	SHUTDOWN ASSOCIATED FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT AND DAMPER(S)	SHUTDOWN ALL FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT FOR AFFECTED AVAE SYSTEM	SHUTDOWN ALL SUPERVISED FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT	CLOSE ASSOCIATED SMOKE DAMPER	INITIATE CONTACTS TO BUILDING MANAGEMENT SYSTEM FOR SMOKE EXHAUST
SIGNALING LINE OR NOTIFICATION APPLIANCE CIRCUIT - OPEN			●	●	●							
SIGNALING LINE OR NOTIFICATION APPLIANCE CIRCUIT - SHORT			●	●	●							
SIGNALING LINE OR NOTIFICATION APPLIANCE CIRCUIT - GROUND			●	●	●							
FIRE ALARM CONTROL PANEL LOSS OF POWER			●		●							
MANUAL PULL STATION	●			●	●	●				●		●
SMOKE DETECTOR - SPOT TYPE	●			●	●	●				●	●	●
SMOKE DETECTOR - DUCT MOUNTED		●		●	●			●	●		●	
HEAT DETECTOR - SPOT TYPE	●			●	●	●				●		●
WATERFLOW ALARM SWITCH	●			●	●	●	●			●		●
VALVE TAMPER SWITCH		●		●	●							

CONTRACTOR TO PROVIDE ALL NECESSARY EQUIPMENT AND CONNECTIONS REQUIRED TO ACCOMPLISH THE FUNCTIONS INDICATED, AT MINIMUM. SEQUENCE OF OPERATIONS INDICATED IS SCHEMATIC. MODIFY TO SUIT CONDITIONS AND MEET APPLICABLE CODE REQUIREMENTS.

2 FIRE ALARM SEQUENCE OF OPERATIONS
NTS

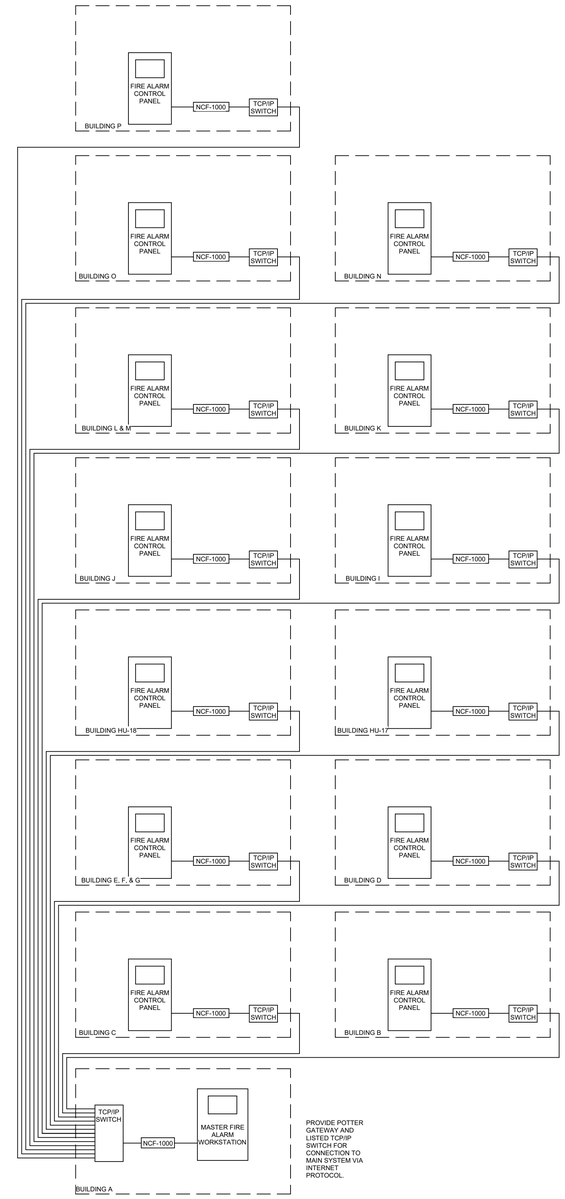


RISER DIAGRAM IS SCHEMATIC IN NATURE. NOT ALL DEVICES ARE SHOWN. REFER TO PLANS FOR EQUIPMENT QUANTITIES AND LOCATIONS.

DUCT DETECTORS MAY HAVE INTEGRAL RELAYS FOR AIR HANDLING UNIT SHUT-DOWN AND FIRE/SMOKE DAMPER CONTROL. WIRING FOR THIS FUNCTION HAS NOT BEEN SHOWN. COORDINATE WITH MECHANICAL SYSTEM INSTALLER.

REFER TO PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

3 FIRE ALARM RISER DIAGRAM - ADDRESSABLE SYSTEM (NON-VOICE)
12" = 1'-0"



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1 FIRE ALARM RISER DIAGRAM - ADDRESSABLE SYSTEM (NON-VOICE)
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SHEET TITLE:
FIRE ALARM DETAILS

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