HVAC IMPROVEMENTS
FULTON RECEPTION AND DIAGNOSTIC CENTER
Fulton, Missouri

SHEET LIST

G000	COVER SHEET	M000	MECHANICAL GENERAL NOTES AND LEGEND	M400	MECHANICAL SCHEDULES	E102.D	LIGHTING - LEVEL 2 PLAN - BUILDING D	E802	ELECTRICAL LINE-VOLTAGE ONELINES
A100	OVERALL SITE PLAN	MD101.Ba	HVAC - LEVEL 1 DEMO PLAN - BLDG B - AREA A	M401	MECHANICAL SCHEDULES	E102.L	LIGHTING - LEVEL 2 PLAN - BUILDING L	E803	ELECTRICAL EMERGENCY ONELINE
A110	LEVEL 1 PLANS & BUILDING ELEVATIONS	MD101.D	HVAC - LEVEL 1 DEMO PLAN - BUILDING D	M500	MECHANICAL DETAILS	E201.D	POWER - LEVEL 1 PLAN - BUILDING D	E804	ELECTRICAL LINE-VOLTAGE ONELINES
A111	LEVEL 1 PLANS & BUILDING ELEVATIONS	MD101.L	HVAC - LEVEL 1 DEMO PLAN - BUILDING L	M501	MECHANICAL DETAILS	E201.L	POWER - LEVEL 1 PLAN - BUILDING L	E805	ELECTRICAL CALCULATIONS
A120	ROOF PLAN BUILDING B AND DETAILS	MD102.D	HVAC - LEVEL 2 DEMO PLAN - BUILDING D	M600	MECHANICAL CONTROLS	E203.Bb	ELECTRICAL ROOF PLAN - BUILDING B - AREA A	E806	ELECTRICAL CALCULATIONS
A121	ROOF PLANS - BUILDING D, E, F AND G	MD102.L	HVAC - LEVEL 2 DEMO PLAN - BUILDING L	P000	PLUMBING GENERAL NOTES AND LEGEND	E203.D	ELECTRICAL ROOF PLAN - BUILDING D	E900	ELECTRICAL DETAILS
A122	ROOF PLANS - BUILDING L AND M	MD103.D	HVAC - ROOF DEMO PLAN - BUILDING D	P101	PLUMBING SITE PLAN - SOUTH	E203.L	ELECTRICAL ROOF PLAN - BUILDING L	FA000	FIRE ALARM GENERAL NOTES AND LEGEND
A201	LEVEL 2 RCP - BUILDING D	MD103.L	HVAC - ROOF DEMO PLAN - BUILDING L	P102	PLUMBING SITE PLAN - NORTH	E210	POWER PLAN - UNIQUE CONDITIONS	FAD101.D	FIRE ALARM LEVEL 1 DEMO PLAN - BUILDING D
A202	LEVEL 2 RCP - BUILDING L	M101.Ba	HVAC - LEVEL 1 PLAN - BLDG B - AREA A	P103.B	PLUMBING ROOF PLAN - BUILDING B	E301.D	EQUIPMENT CONNECTION - LEVEL 1 - BLDG D	FAD101.L	FIRE ALARM LEVEL 1 DEMO PLAN - BUILDING L
A400	BUILDING SECTIONS & DETAILS	M101.D	HVAC - LEVEL 1 PLAN - BUILDING D	P103.D	PLUMBING ROOF PLAN - BUILDING D	E301.L	EQUIPMENT CONNECTION - LEVEL 1 - BLDG L	FAD102.D	FIRE ALARM LEVEL 2 DEMO PLAN - BUILDING D
S000	GENERAL NOTES	M101.L	HVAC - LEVEL 1 PLAN - BUILDING L	P103.L	PLUMBING ROOF PLAN - BUILDING L	E302.D	EQUIPMENT CONNECTION - LEVEL 2 - BLDG D	FAD102.L	FIRE ALARM LEVEL 2 DEMO PLAN - BUILDING L
S001	GENERAL NOTES	M102.Ba	HVAC - LEVEL 2 PLAN - BUILDING B - AREA A	P500	PLUMBING DETAILS AND SCHEDULES	E302.L	EQUIPMENT CONNECTION - LEVEL 2 - BLDG L	FA100	FIRE ALARM SITE PLAN
S101	ROOF PLAN - BUILDING B - AREA A	M102.D	HVAC - LEVEL PLAN - BUILDING D	E000	ELECTRICAL LEGEND	E600	PANELBOARD SCHEDULES	FA101.D	FIRE ALARM LEVEL 1 PLAN - BUILDING D
S102D	ROOF PLAN - BUILDING D	M102.L	HVAC - LEVEL 2 PLAN - BUILDING L	E001	ELECTRICAL GENERAL NOTES	E601	PANELBOARD SCHEDULES	FA101.L	FIRE ALARM LEVEL 1 PLAN - BUILDING L
S102L	ROOF PLAN - BUILDING L	M103.Ba	MECHANICAL ROOF PLAN - BUILDING B - AREA A	ED102.D	LIGHTING - LEVEL 2 DEMO PLAN - BUILDING D	E602	PANELBOARD SCHEDULES	FA102.D	FIRE ALARM LEVEL 2 PLAN - BUILDING D
S200	SECTION	M103.D	MECHANICAL ROOF PLAN - BUILDING D	ED102.L	LIGHTING - LEVEL 2 DEMO PLAN - BUILDING L	E800	ELECTRICAL MEDIUM-VOLTAGE ONELINE	FA102.L	FIRE ALARM LEVEL 2 PLAN - BUILDING L
S500	FRAMING DETAILS	M103.L	MECHANICAL ROOF PLAN - BUILDING L	E100	ELECTRICAL PLAN - OVERALL	E801	ELECTRICAL LINE-VOLTAGE ONELINES	FA500	FIRE ALARM DETAILS
								FS000	FIRE SPRINKLER GENERAL NOTES AND LEGEND
								FS100	FIRE SPRINKLER SITE PLAN
								FS102.D	FIRE SPRINKLER LEVEL 2 PLAN - BUILDING D
								FS102.L	FIRE SPRINKLER LEVEL 2 PLAN - BUILDING L
								FSD102.D	FIRE SPRINKLER LEVEL 2 DEMO PLAN - BUILDING D
								FSD102.L	FIRE SPRINKLER LEVEL 2 DEMO PLAN - BUILDING L

OWNER: STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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

DESIGNER: HENDERSON ENGINEERS

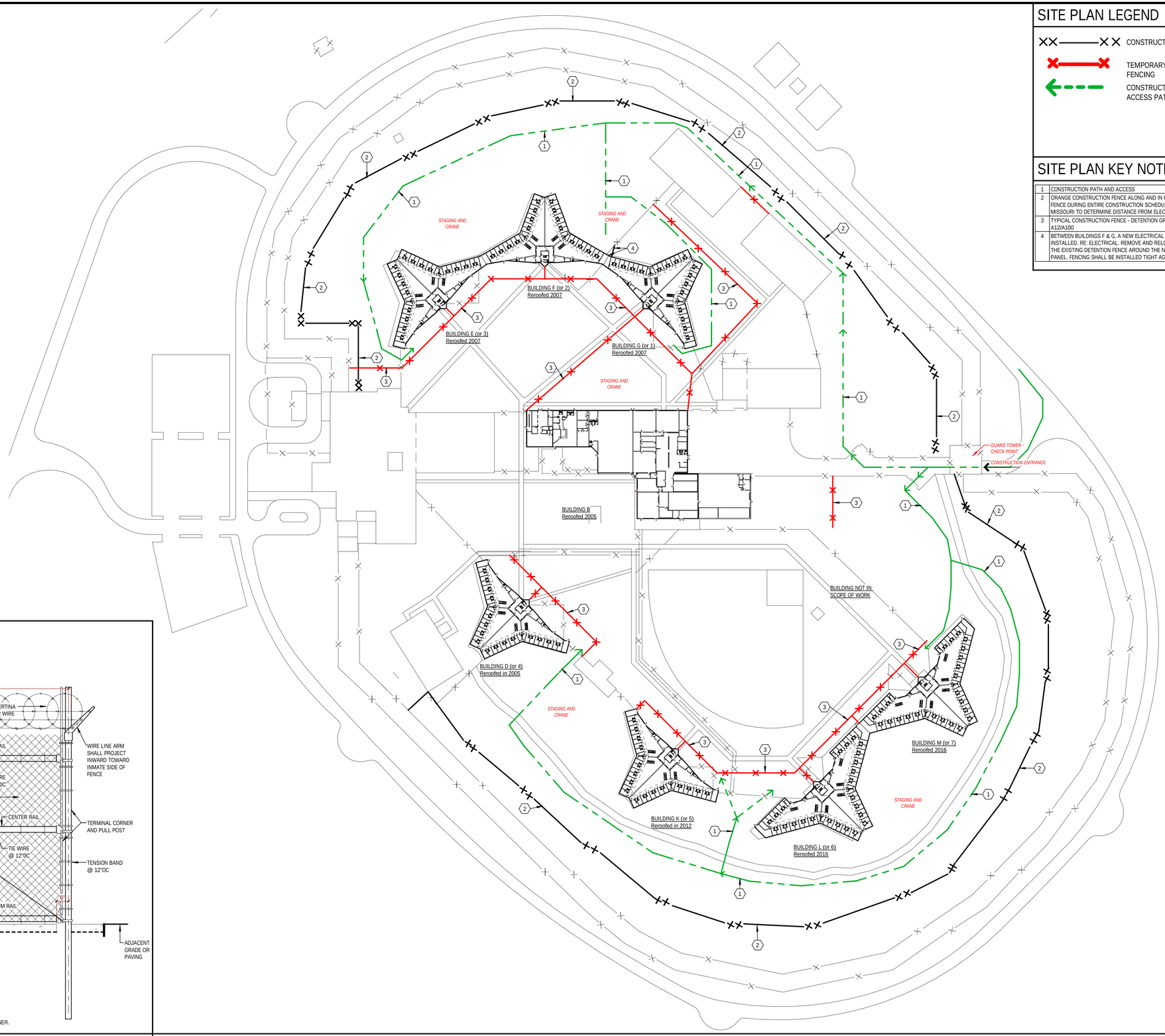
PROJECT NUMBER: C2406-01

SITE NUMBER: 7010
FACILITY NUMBER: 9327010027

SHEET NUMBER:
G000
1 OF 91 SHEETS

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, WITHIN THE CONSTRUCTION FENCING AREA.
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.
8. TEMPORARY DETENTION FENCING LENGTH AND LOCATION TO BE DETERMINED AFTER PHASING PLAN APPROVAL.

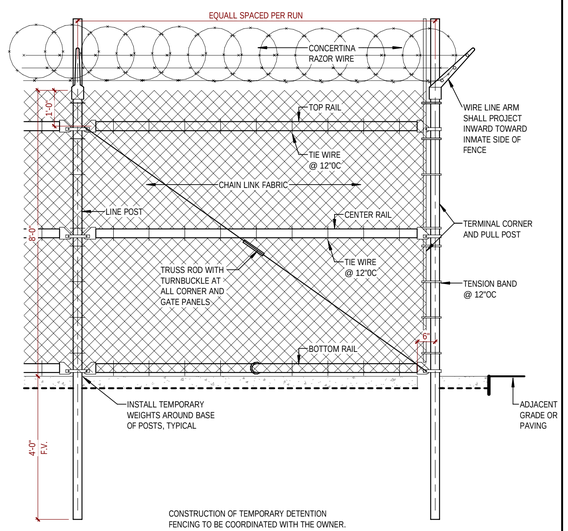


SITE PLAN LEGEND

- CONSTRUCTION FENCE
- TEMPORARY DETENTION FENCING
- CONSTRUCTION ACCESS PATH

SITE PLAN KEY NOTES

1	CONSTRUCTION PATH AND ACCESS
2	ORANGE CONSTRUCTION FENCE ALONG AND IN FRONT OF ELECTRIC FENCE DURING ENTIRE CONSTRUCTION SCHEDULE. STATE OF MISSOURI TO DETERMINE DISTANCE FROM ELECTRIC FENCE.
3	TYPICAL CONSTRUCTION FENCE - DETENTION GRADE, RE: DETAIL A12/A100
4	BETWEEN BUILDINGS F & G, A NEW ELECTRICAL PANEL WILL BE INSTALLED. 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.



CONSTRUCTION OF TEMPORARY DETENTION FENCING TO BE COORDINATED WITH THE OWNER.

A12 TEMPORARY DETENTION FENCING
1/2" = 1'-0" |

A2 OVERALL SITE PLAN
1" = 80'-0" |

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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

Joe Cantrell, Architect
License # A-6475

HENDERSON ENGINEERS

TEL FAX
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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1391 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

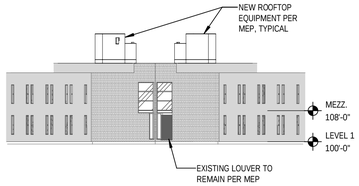
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

CAD DWG FILE:
DRAWN BY: J Ralph
CHECKED BY:
DESIGNED BY:

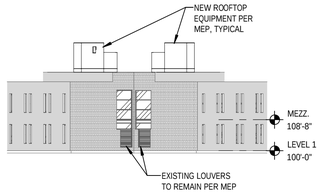
SHEET TITLE:
Overall Site Plan

SHEET NUMBER:
A100

2 OF 91 SHEETS
09/26/2025



D7 BUILDING L - PARTIAL SOUTH ELEVATION
1" = 20'-0" | A10/A110

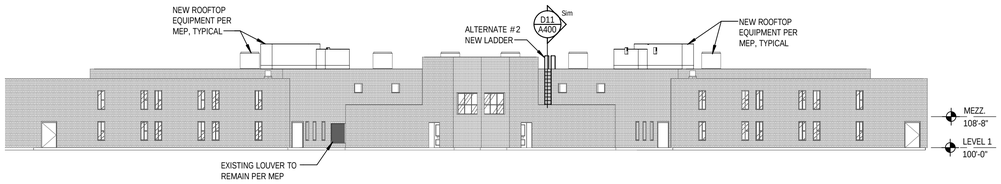


D5 BUILDING D - PARTIAL SOUTH ELEVATION
1" = 20'-0" | A5/A110

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 BURGLAR BARS. REFER TO BURGLAR BAR DETAILS.
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.

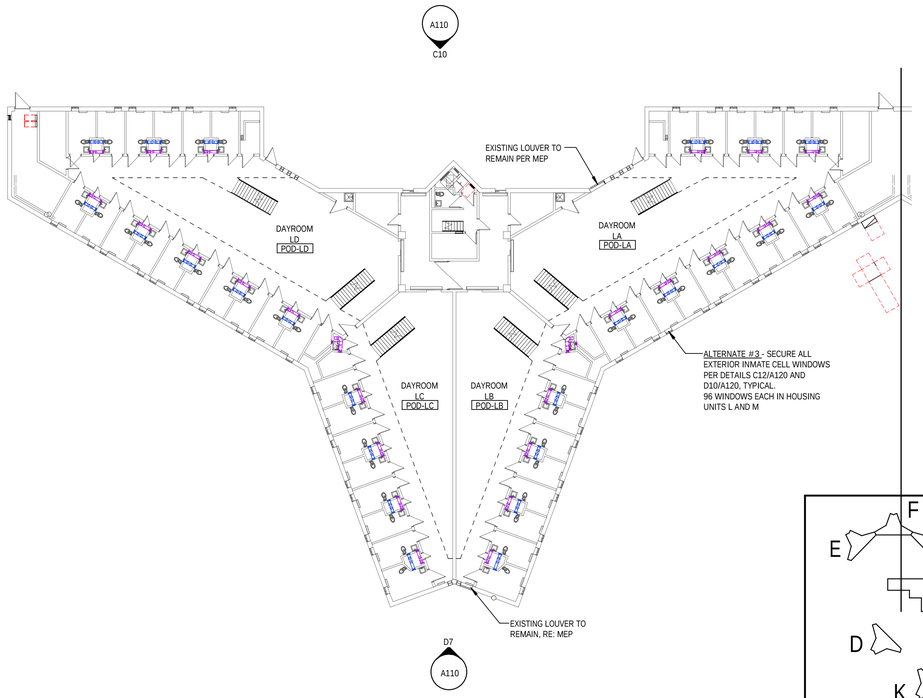


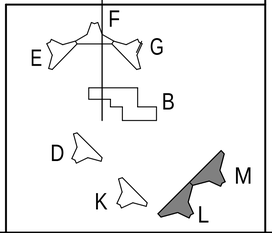
C10 BUILDING L - NORTH ELEVATION
1" = 20'-0" | A10/A110

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

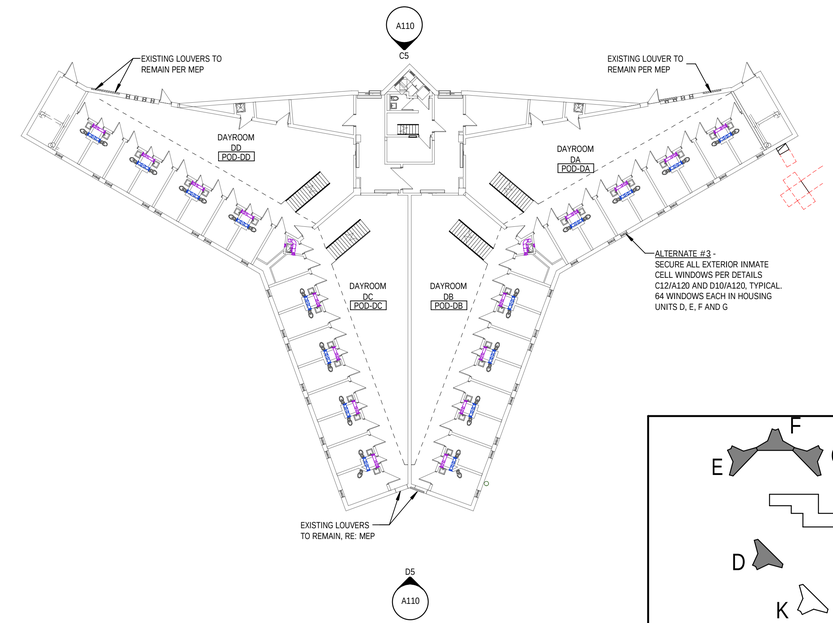


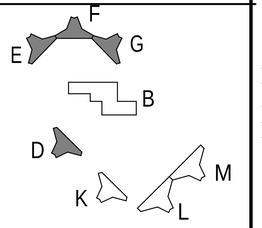


Key Plan Buildings L and M
NTS

A10 01 - BUILDING L - LEVEL 1
1" = 20'-0"

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





Key Plan Buildings D, E, F and G
NTS

A5 01 - BUILDING D - LEVEL 1
1" = 20'-0"

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

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

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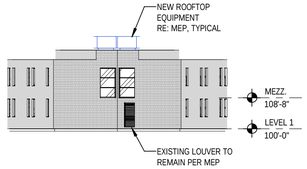
ISSUE DATE: 09/26/2025

CAD DWG FILE:
DRAWN BY: J Ralph
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Level 1 Plans & Building Elevations

SHEET NUMBER:
A110



E5 BUILDING K - PARTIAL SOUTH ELEVATION
1" = 20'-0" |A5/A111

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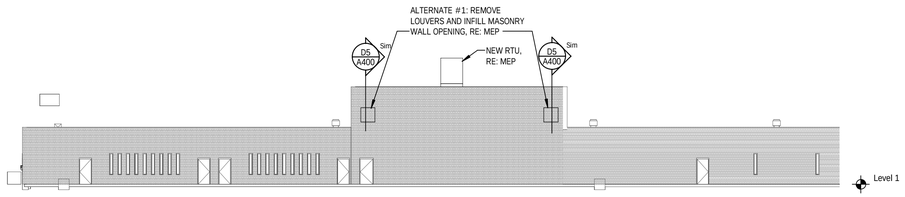
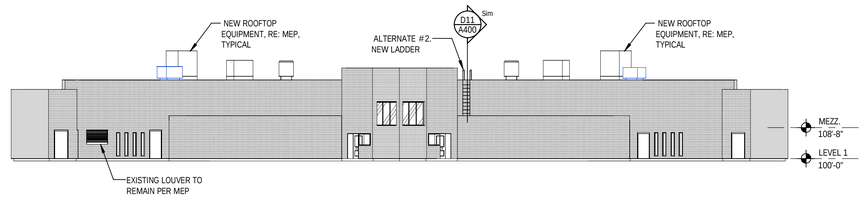
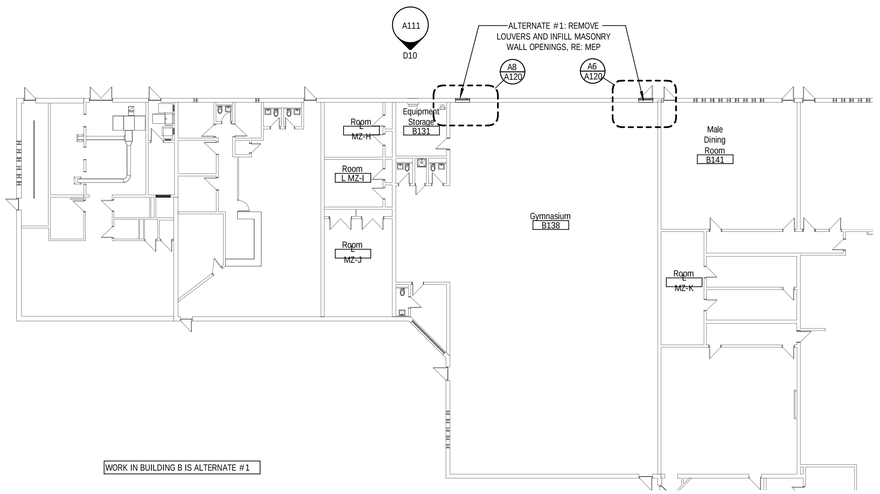
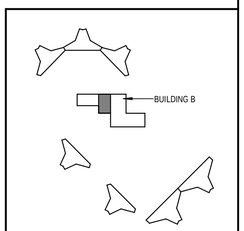


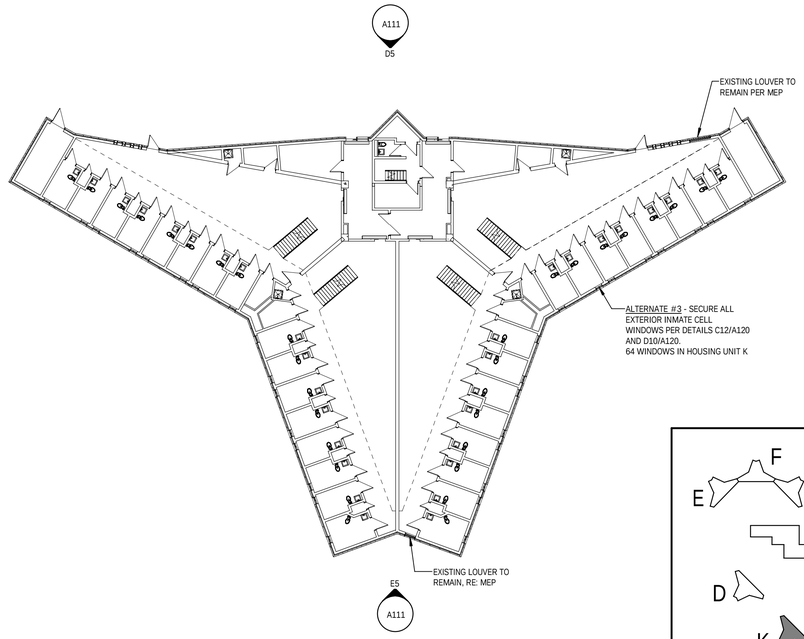
D10 BUILDING B - NORTH ELEVATION
1" = 20'-0" |A10/A111

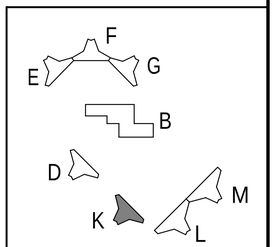


D5 BUILDING K - NORTH ELEVATION
1" = 20'-0" |A5/A111









A10 01 - BUILDING B - LEVEL 1 - AREA A
1" = 20'-0" |

Key Plan Building B
NTS

A5 01 - BUILDING K - LEVEL 1
1" = 20'-0" |

Key Plan Building K
NTS

STATE OF MISSOURI
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CAD DWG FILE:
DRAWN BY: J Ralph
CHECKED BY:
DESIGNED BY:

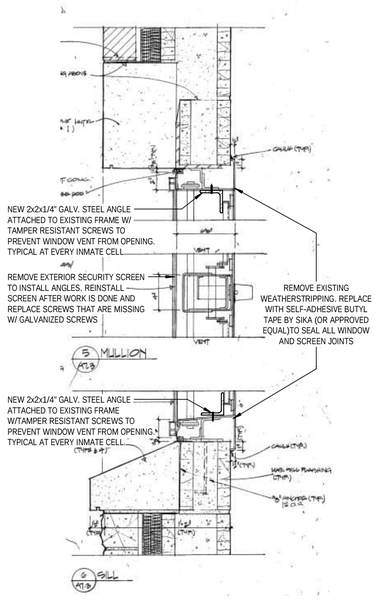
SHEET TITLE:
Level 1 Plans & Building Elevations

SHEET NUMBER:
A111

4 OF 91 SHEETS
09/26/2025

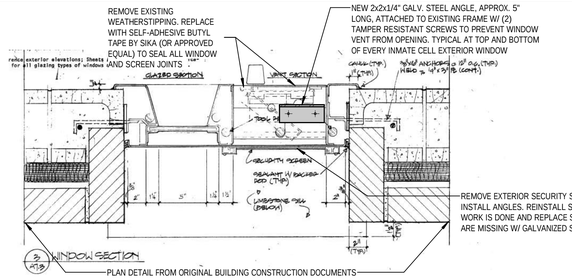
Interior at Inmate Cell Window

Exterior at Inmate Cell Window



*WORK ON CELL WINDOWS IS ALTERNATE #3

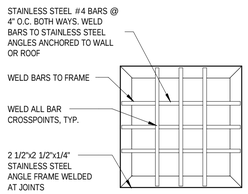
D10 WINDOW SECTION @ CELL
N.T.S.



*WORK ON CELL WINDOWS IS ALTERNATE #3

C12 WINDOW PLAN @ CELL
N.T.S.

ALTERNATE #3 - PROVIDE COST PER WINDOW FOR IMPROVEMENTS TO EVERY INMATE CELL WINDOW AT ALL HOUSING UNIT BUILDINGS (7 BUILDINGS TOTAL)

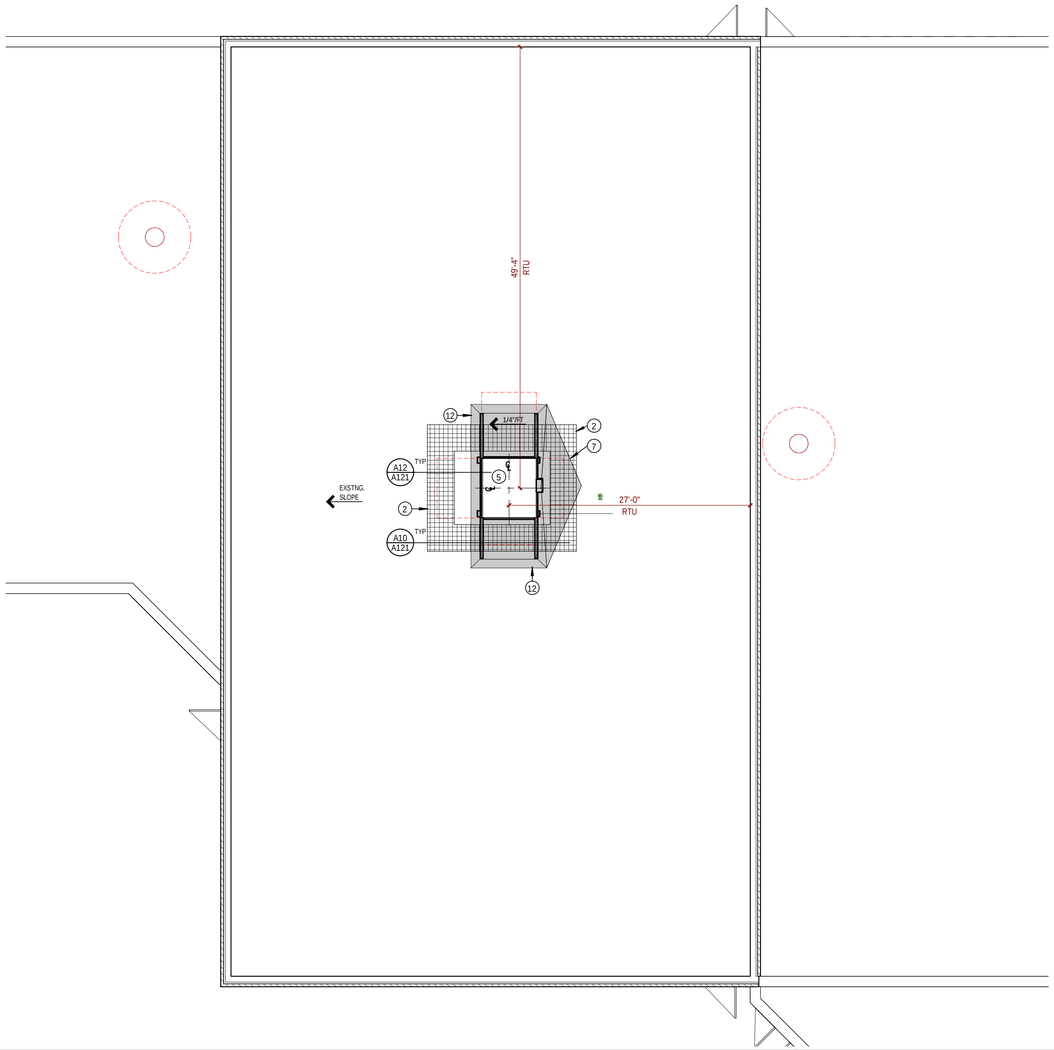


ELEVATION

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 SMALL OPENINGS: ONE ANCHOR PER SIDE MINIMUM. AT EXTERIOR OPENINGS ALL BARS, ANGLES AND FASTENERS SHALL BE STAINLESS STEEL

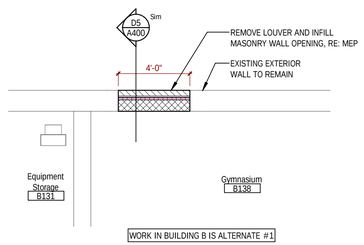
A10 SECURITY BARS
1" = 1'-0" |

A111
D10



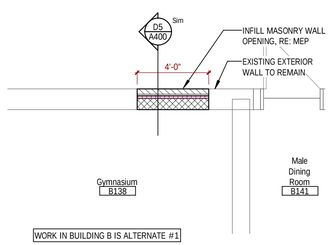
B803 - BUILDING B - ROOF
1/8" = 1'-0" |

WORK AT BUILDING B IS ALTERNATE #1



WORK IN BUILDING B IS ALTERNATE #1

A801 - BUILDING B - GYM - NW
1/4" = 1'-0" |A10/A111



WORK IN BUILDING B IS ALTERNATE #1

A601 - 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, 5' RETURN AT ENDS
4	EXISTING SCUPPER TO REMAIN
5	ROOF TOP UNIT, RE: MEP
6	EXISTING EXHAUST FAN TO REMAIN, 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 SHALL BE CAPPED AND INSULATED PER MEP. OPENINGS LARGER THAN 6" DIAMETER SHALL HAVE BURGLAR BARS INSTALLED ON BOTTOM OF ROOF DECK. RE: MEP
12	BUILT-UP ROOFING AND INSULATION AROUND EQUIPMENT ROOFTOP BEAMS

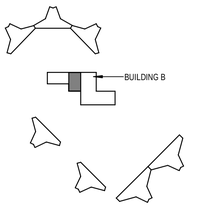
GENERAL SECURITY NOTES

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 BURGLAR BARS. REFER TO BURGLAR BAR DETAILS.
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

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

Joe Cantrell, Architect
License # A-6475

HENDERSON ENGINEERS

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DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

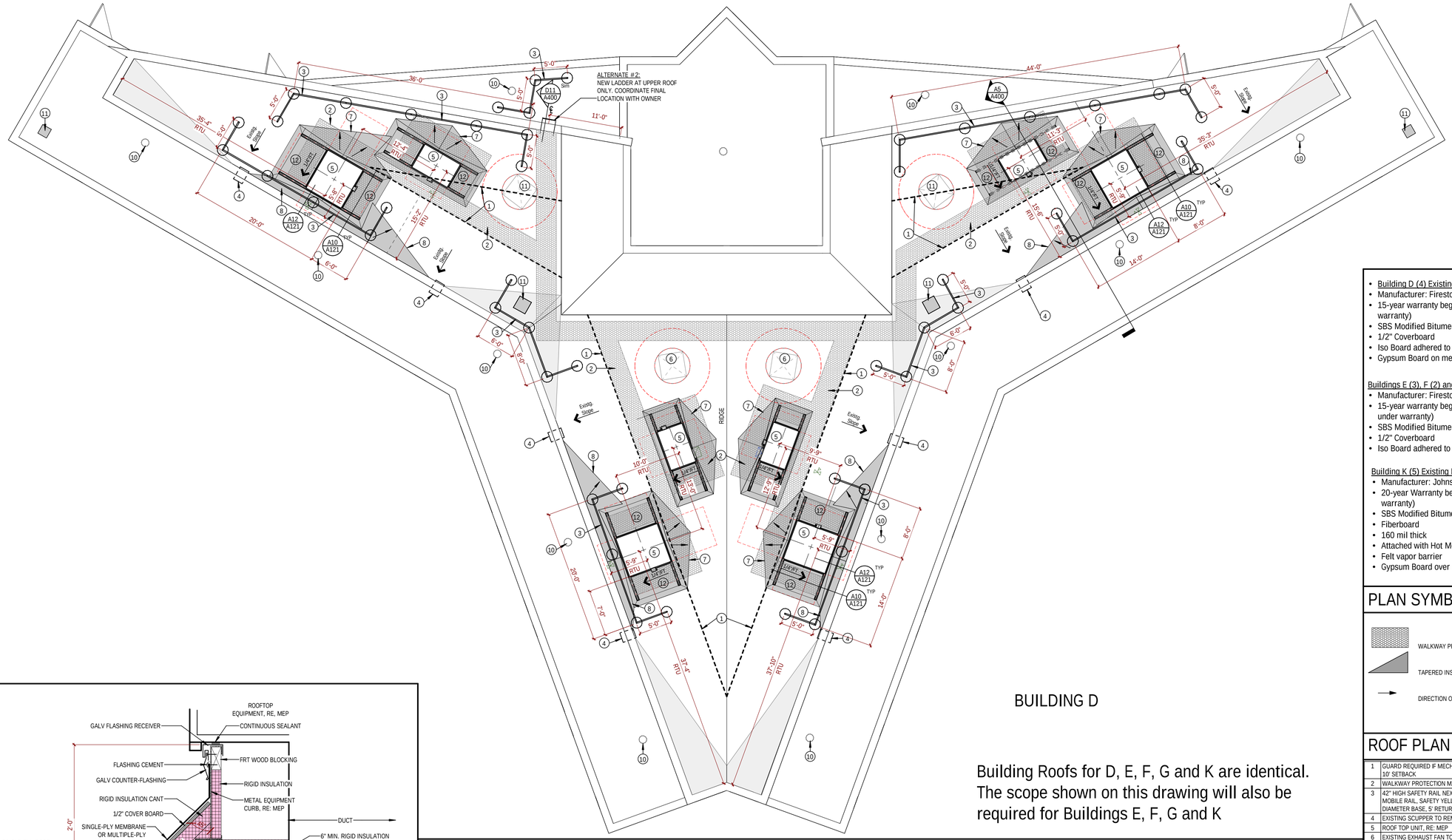
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

CAD DWG FILE:
DRAWN BY: J Ralph
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Roof Plan Building B and Details

SHEET NUMBER:
A120

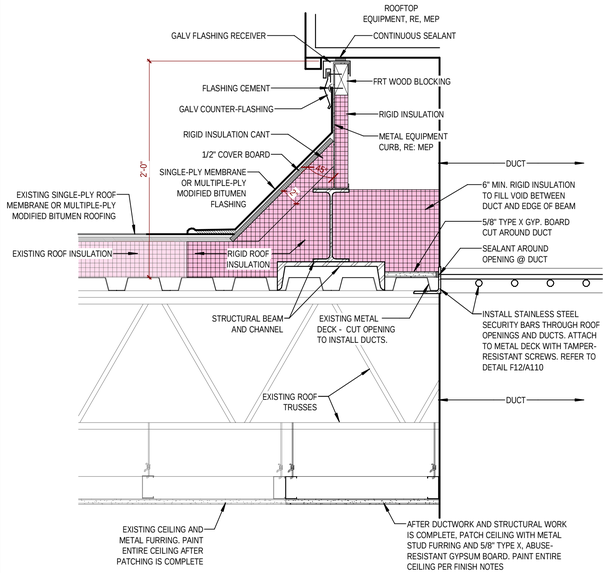
5 OF 90 SHEETS
09/26/2025



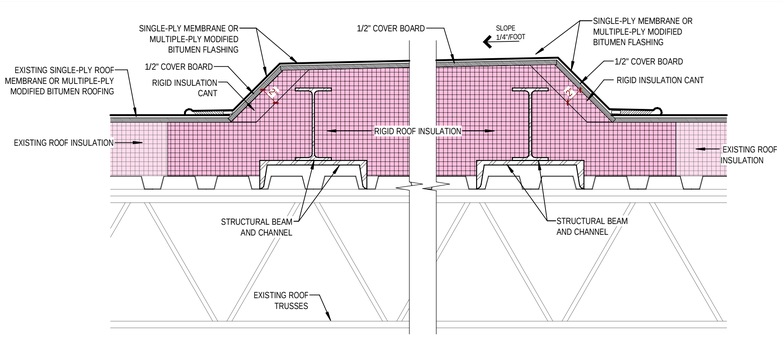
BUILDING D

Building Roofs for 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

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, 5' RETURN AT ENDS
4	EXISTING SCUPPER TO REMAIN
5	ROOF TOP UNIT, RE: MEP
6	EXISTING EXHAUST FAN TO REMAIN, RE: MEP
7	INSTALL NEW TAPERED INSULATION CRICKET AT NEW ROOF TOP EQUIPMENT. SLOPE 1/2" PER FOOT
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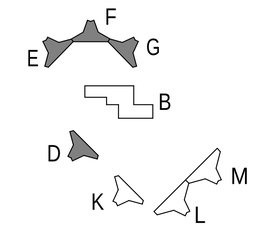
9	EXISTING SKYLIGHT TO REMAIN
10	EXISTING ROOF DRAINS TO REMAIN. DO NOT BLOCK
11	EXISTING MECHANICAL EQUIPMENT REMOVED SHALL BE CAPPED AND INSULATED PER MEP. OPENINGS LARGER THAN 6" DIAMETER SHALL HAVE BURGLAR BARS INSTALLED ON BOTTOM OF ROOF DECK, RE: MEP
12	BUILT-UP ROOFING AND INSULATION AROUND EQUIPMENT ROOFTOP BEAMS



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

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
JOE MICHAEL CANTRELL
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Joe Cantrell, Architect
License #A-6475

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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1391 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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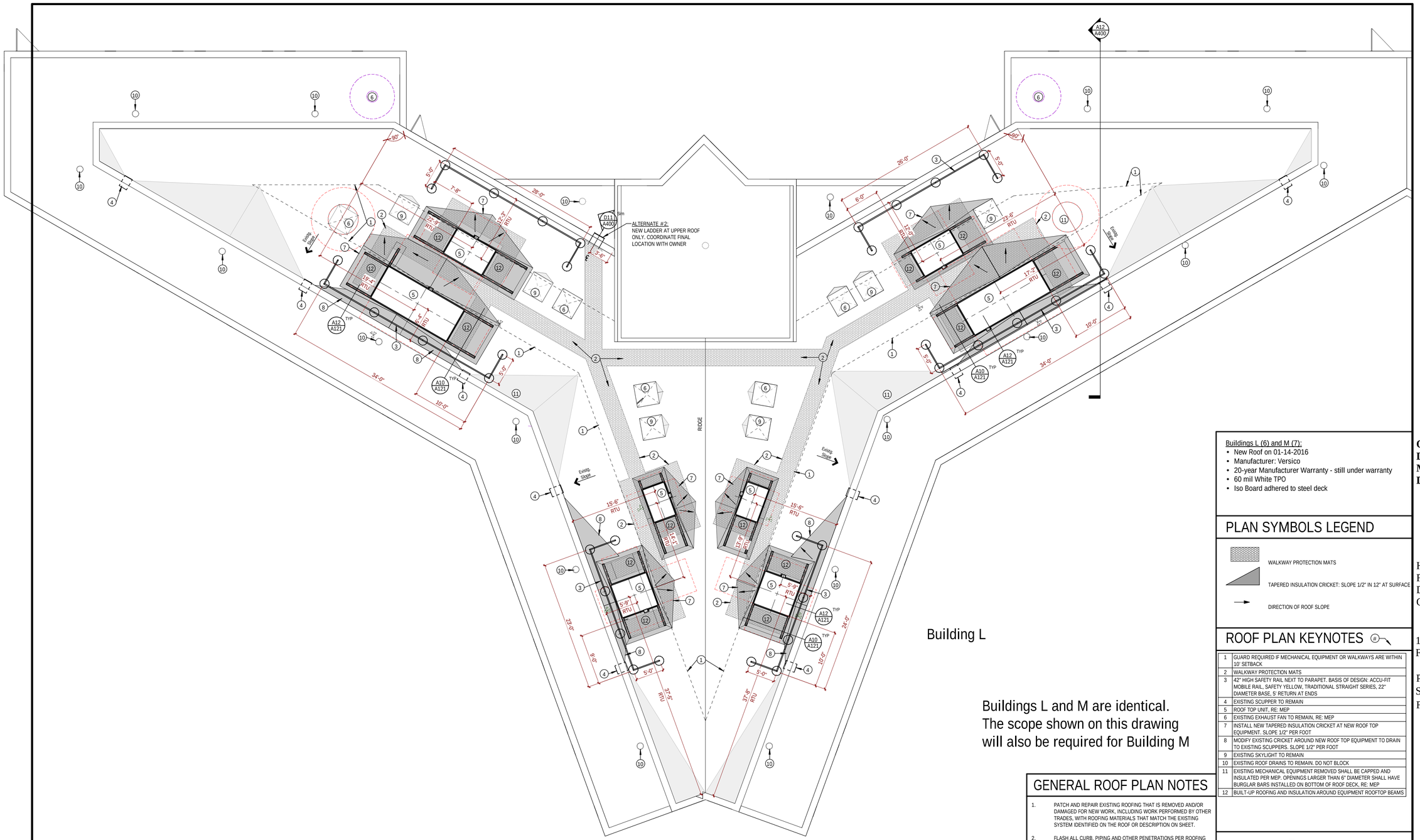
ISSUE DATE: 09/26/2025

CAD DWG FILE:
DRAWN BY: J Ralph
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Roof Plans - Buildings D, E, F and G

SHEET NUMBER:
A121

6 OF 91 SHEETS
09/26/2025



Building L

Buildings L and M are identical.
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, 5' RETURN AT ENDS
4	EXISTING SCUPPER TO REMAIN
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7	INSTALL NEW TAPERED INSULATION CRICKET AT NEW ROOF TOP EQUIPMENT. SLOPE 1/2" PER FOOT
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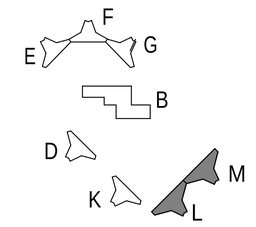
12	BUILT-UP ROOFING AND INSULATION AROUND EQUIPMENT ROOFTOP BEAMS

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

A603 - BUILDING L - ROOF
1/8" = 1'-0" |

PLAN NORTH

TRUE NORTH

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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

Joe Cantrell, Architect
License # A-6475

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FULTON, MO 65251

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SITE # 7010
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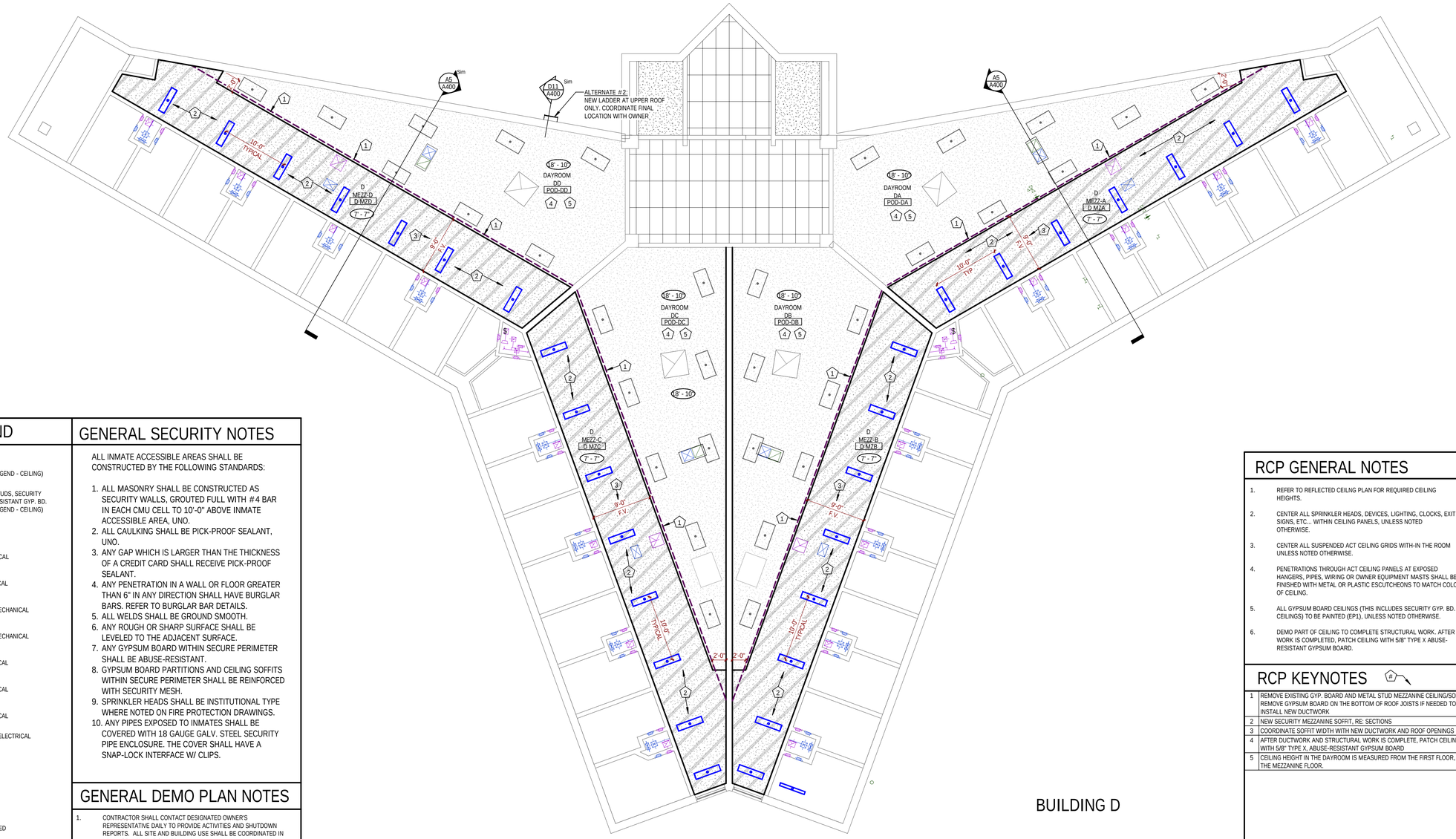
ISSUE DATE: 09/26/2025

CAD DWG FILE:
DRAWN BY: J Ralph
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Roof Plans - Buildings L and M

SHEET NUMBER:
A122

7 OF 91 SHEETS
09/26/2025



BUILDING D

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

RCP SYMBOLS LEGEND

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

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 BURGLAR BARS. REFER TO BURGLAR BAR DETAILS.
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. ALL ABANDONED EQUIPMENT AND SYSTEMS NOT SPECIFICALLY NOTED IN MEP DRAWINGS SHALL BE REMOVED.
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, SIGNAGES, 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 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

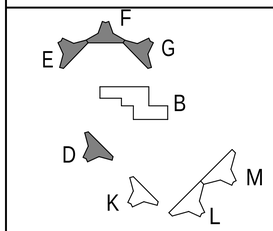
MATERIAL	CODE	MANUFACTURER	MODEL/ PATTERN	COLOR	SIZE	NOTES
CEILING						
GYPSUM BOARD	GB	SEE DRAWINGS, DETAILS & SPECIFICATIONS				
PAINT						
PAINT *NOTE: INSTANCES WHERE EPOXY PAINT (EP.H.) VERSIONS OF THESE COLORS ARE NEEDED. RE: SPEC FOR MORE INFORMATION*	EP4	SHERWIN WILLIAMS	SEE SPECS	MATCH EXISTING/ADJACENT	--	PAINT ALL GYPSUM BD CEILINGS (EXISTING AND NEW) THIS COLOR
OTHER ABBREVIATIONS						
EXISTING TO REMAIN	ETR					
PATCH TO MATCH	PTM					
OPEN TO STRUCTURE	OTS					

RCP GENERAL NOTES

1. REFER TO REFLECTED CEILNG 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. DEMO PART OF CEILING TO COMPLETE STRUCTURAL WORK. AFTER WORK IS COMPLETED, PATCH CEILING WITH 5/8" TYPE X ABUSE-RESISTANT GYPSUM BOARD.

RCP KEYNOTES

1	REMOVE EXISTING GYP. BOARD AND METAL STUD MEZZANINE CEILING/SOFFIT. REMOVE GYPSUM BOARD ON THE BOTTOM OF ROOF JOISTS IF NEEDED TO INSTALL NEW DUCTWORK
2	NEW SECURITY MEZZANINE SOFFIT, RE: SECTIONS
3	COORDINATE SOFFIT WIDTH WITH NEW DUCTWORK AND ROOF OPENINGS
4	AFTER DUCTWORK AND STRUCTURAL WORK IS COMPLETE, PATCH CEILING WITH 5/8" TYPE X, ABUSE-RESISTANT GYPSUM BOARD
5	CEILING HEIGHT IN THE DAYROOM IS MEASURED FROM THE FIRST FLOOR, NOT THE MEZZANINE FLOOR.



A102 - RCP Building D Level 2
1/8" = 1'-0"

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

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
JOE MURRELL CANTRELL
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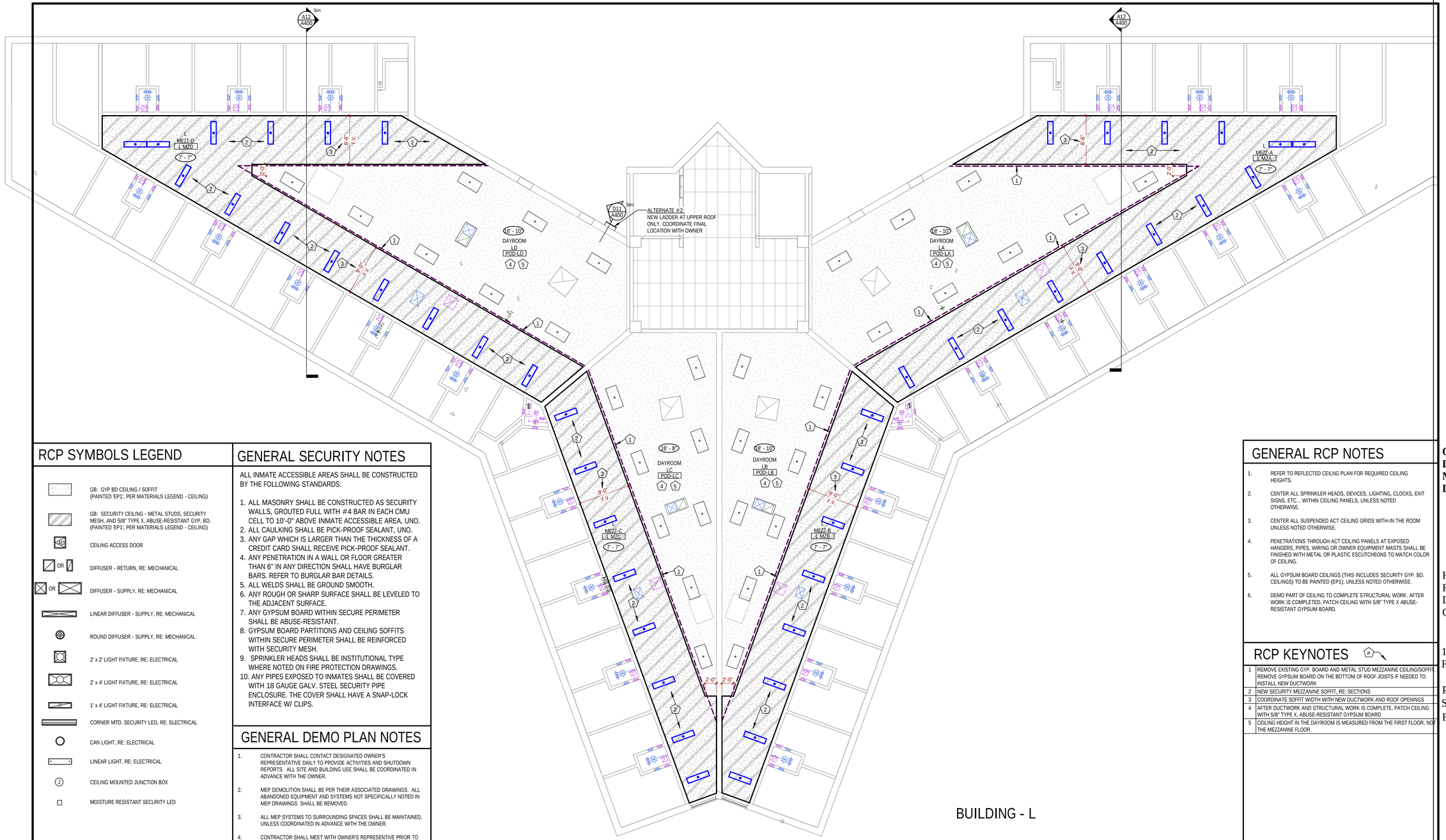
CAD DWG FILE:
DRAWN BY: J Ralph
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Level 2 RCP - Building D

SHEET NUMBER:
A201

8 OF 91 SHEETS
09/26/2025



RCP SYMBOLS LEGEND

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

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 BURGLAR BARS. REFER TO BURGLAR BAR DETAILS.
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. ALL ABANDONED EQUIPMENT AND SYSTEMS NOT SPECIFICALLY NOTED IN MEP DRAWINGS SHALL BE REMOVED.
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, SIGNAGES, 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 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

GENERAL RCP NOTES

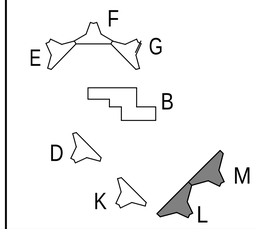
1. REFER TO REFLECTED CEILING PLAN FOR REQUIRED CEILING HEIGHTS.
2. CENTER ALL SPRINKLER HEADS, DEVICES, LIGHTING, CLOCKS, EXIT SIGNS, ETC... WITHIN CEILING PANELS, UNLESS NOTED OTHERWISE.
3. CENTER ALL SUSPENDED ACT CEILING GRIDS WITH-IN THE ROOM UNLESS NOTED OTHERWISE.
4. PENETRATIONS THROUGH ACT CEILING 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. DEMO PART OF CEILING TO COMPLETE STRUCTURAL WORK. AFTER WORK IS COMPLETED, PATCH CEILING WITH 5/8" TYPE X ABUSE-RESISTANT GYPSUM BOARD.

RCP KEYNOTES

1	REMOVE EXISTING GYP. BOARD AND METAL STUD MEZZANINE CEILING/SOFFIT. REMOVE GYPSUM BOARD ON THE BOTTOM OF ROOF JOISTS IF NEEDED TO INSTALL NEW DUCTWORK
2	NEW SECURITY MEZZANINE SOFFIT, RE: SECTIONS
3	COORDINATE SOFFIT WIDTH WITH NEW DUCTWORK AND ROOF OPENINGS
4	AFTER DUCTWORK AND STRUCTURAL WORK IS COMPLETE, PATCH CEILING WITH 5/8" TYPE X, ABUSE-RESISTANT GYPSUM BOARD
5	CEILING HEIGHT IN THE DAYROOM IS MEASURED FROM THE FIRST FLOOR, NOT THE MEZZANINE FLOOR.

BUILDING - L

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



A202 02 - RCP Building L Level 2
1/8" = 1'-0"

Key Plan Buildings L and M
NTS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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

Joe Cantrell, Architect
License # A-6475

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1391 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

CAD DWG FILE:
DRAWN BY: J Ralph
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Level 2 RCP - Building L

SHEET NUMBER:
A202

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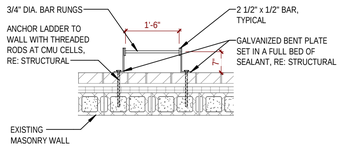
09/26/2025

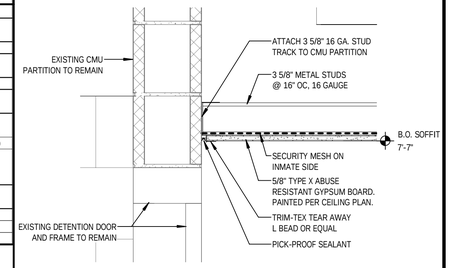


J11 Ladder Plan
1/2" = 1'-0" | D11/A400

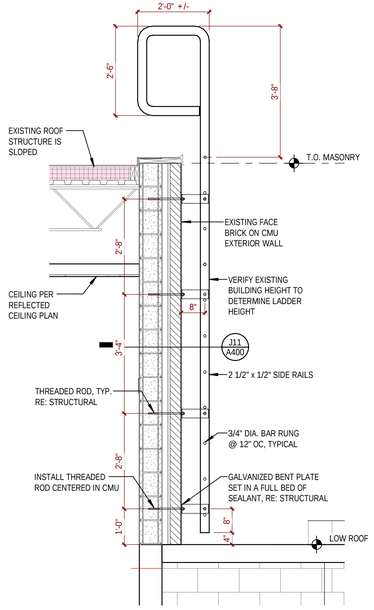
ALTERNATE #2 - ADD ONE LADDER FROM THE LOW ROOF TO HIGH ROOF AT BUILDINGS D, E, F, G, K, L, and M. COORDINATE FINAL LOCATION WITH OWNER

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	--	PAINT FOR NEW INTERIOR LOUVERS, RE: D12/A400
	P3	SEE SPECS	--	TBD	--	EXTERIOR PAINT
OTHER ABBREVIATIONS						
EXISTING TO REMAIN	ETR					
NO FINISH	NF					
PATCH TO MATCH	PTM					



H3 DAYROOM SOFFIT AT PARTITION
1 1/2" = 1'-0" | A5/A400



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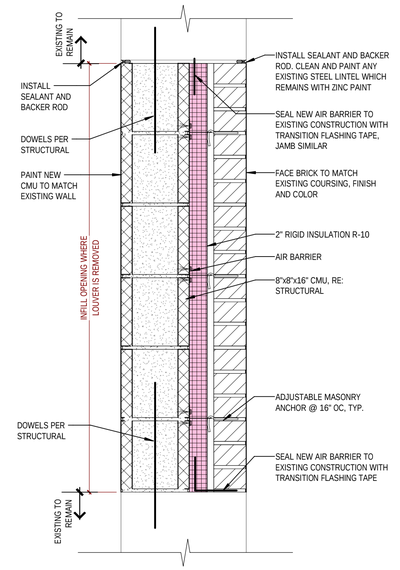
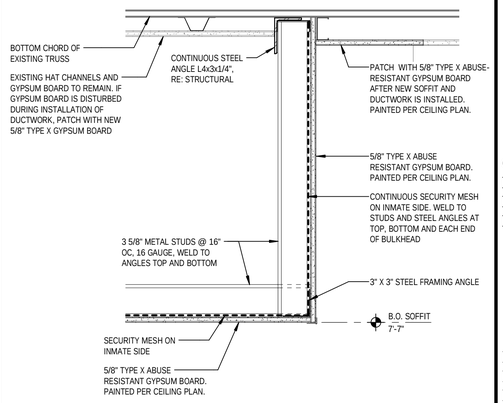


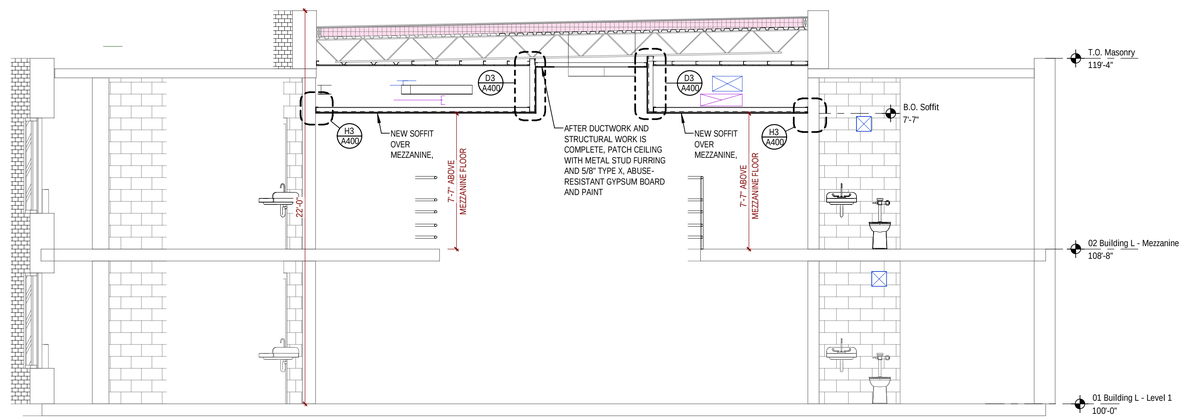


D11 LADDER SECTION
1/2" = 1'-0" | C5/A110

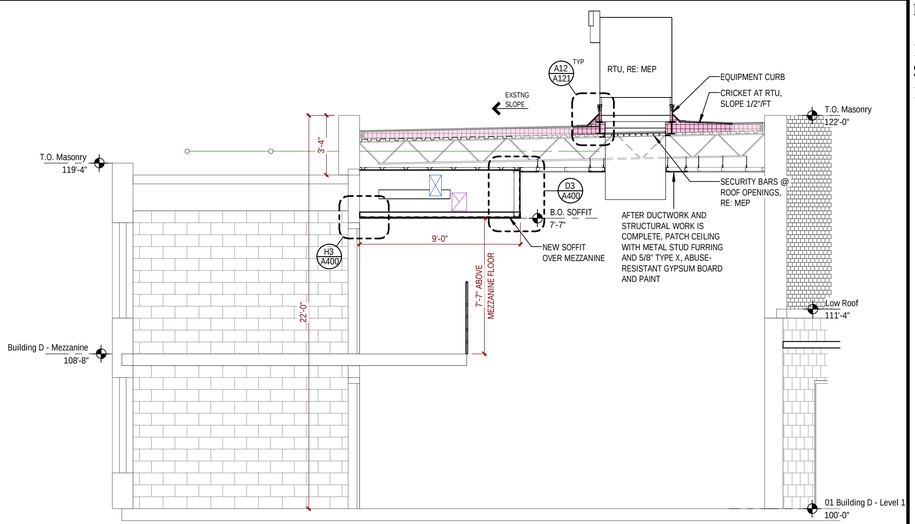
ALTERNATE #2 - ADD ONE LADDER FROM THE LOW ROOF TO HIGH ROOF AT BUILDINGS D, E, F, G, K, L, and M. COORDINATE FINAL LOCATION WITH OWNER

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

D3 DAYROOM SOFFIT
1 1/2" = 1'-0" | A5/A400



A12 BUILDING L SECTION - NE
1/4" = 1'-0" | A6/A122



A5 BUILDING C SECTION - SE
1/4" = 1'-0" | B10/A121

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

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

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OFFICE OF ADMINISTRATION
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DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1391 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

CAD DWG FILE:
DRAWN BY: J Ralph
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
Building Sections & Details

SHEET NUMBER:
A400

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09/26/2025

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 CONTENT	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.

IV. 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.

III. 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.

IV. 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

V. 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
JOYCE 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

walter p moore
Walter P Moore and Associates, Inc.
1100 Walnut Street, Suite 1825
Kansas City, Missouri 64106
816.701.2100

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
S000

11 OF 91 SHEETS
09/26/2025

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.
11. RE-EXAMINE ALL REWORKED AREAS AND INTERPRET, RECORD, AND REPORT THE RESULTS OF EXAMINATIONS OF REWORKED WELDS.
12. VERIFY THAT QUALITY OF WELDS MEET THE REQUIREMENTS OF AWS D1.1.
13. 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.

VI. 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.

VII. 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.

VII. 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

STATE OF MISSOURI
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OFFICE OF ADMINISTRATION
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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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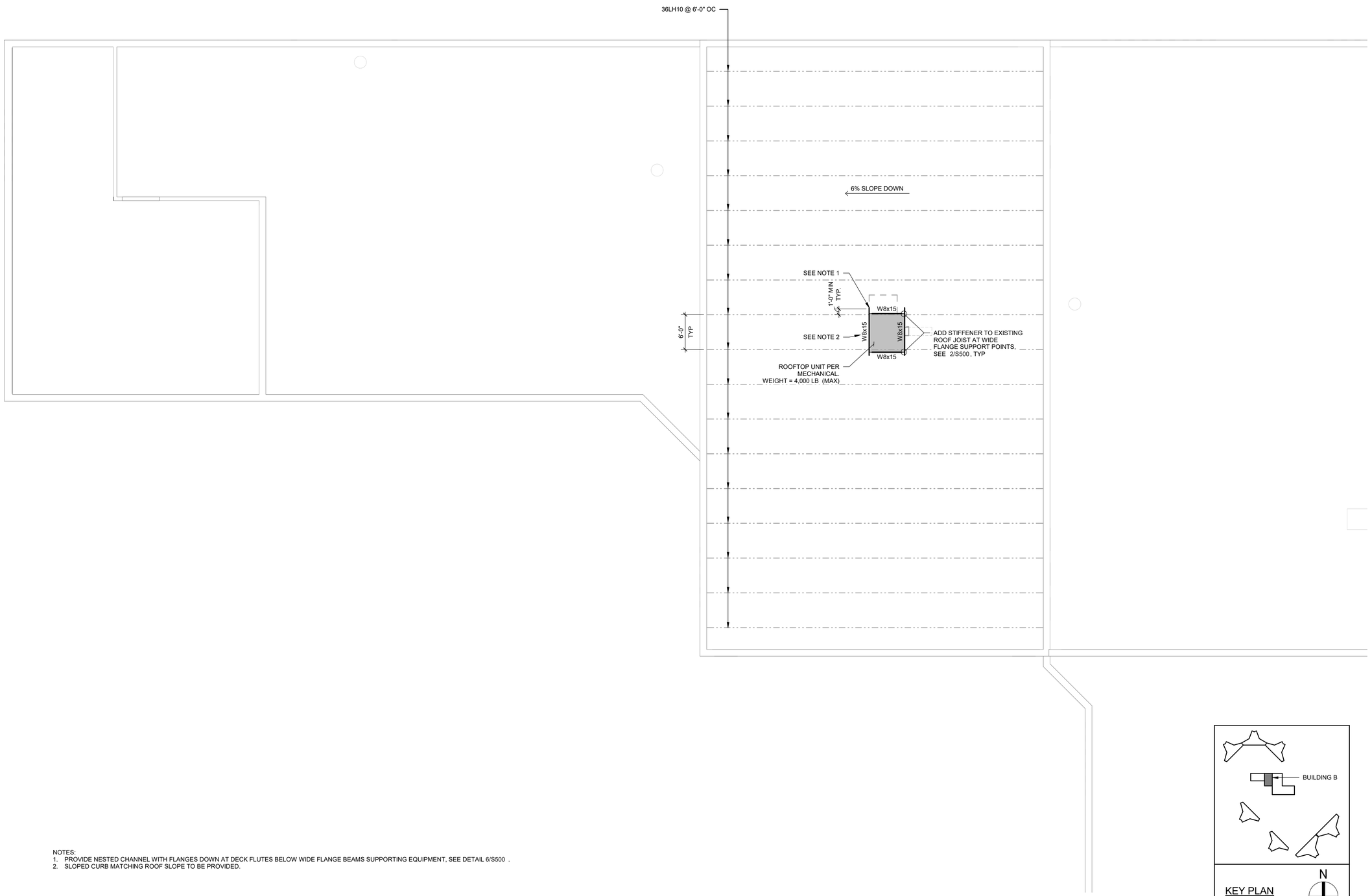
CHECKED BY: RCV
DESIGNED BY: KD

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
S001

12 OF 91 SHEETS
09/26/2025



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.

N

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

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FULTON, MO 65251

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FACILITY # 9327010027

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CHECKED BY: RCV
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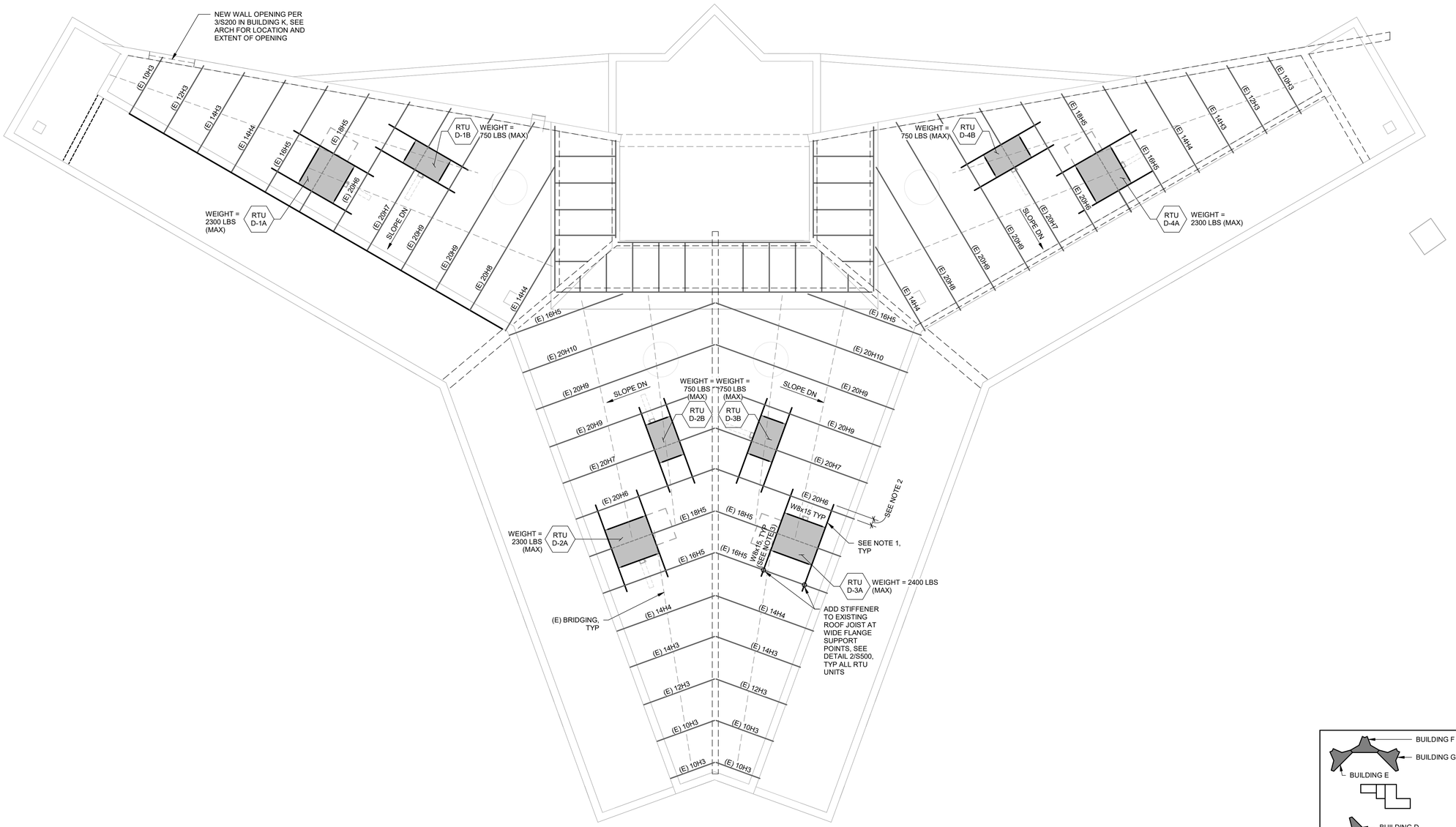
SHEET TITLE:
ROOF PLAN - BUILDING B - AREA A

SHEET NUMBER:
S101

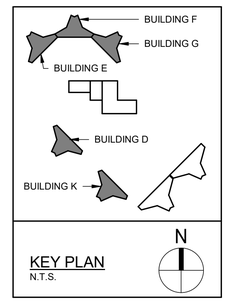
13 OF 91 SHEETS
09/26/2025



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. STEEL MEMBERS SUPPORTING THE LONG SIDE OF THE EQUIPMENT SHALL SPAN 3 EXISTING ROOF JOISTS (MINIMUM).
4. 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.
5. ALL ADDED STEEL MUST BE HOT DIP GALVANIZED.

1 ROOF PLAN - BUILDING TYPE D (D, E, F, G & K)

1/8" = 1'-0"



KEY PLAN
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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

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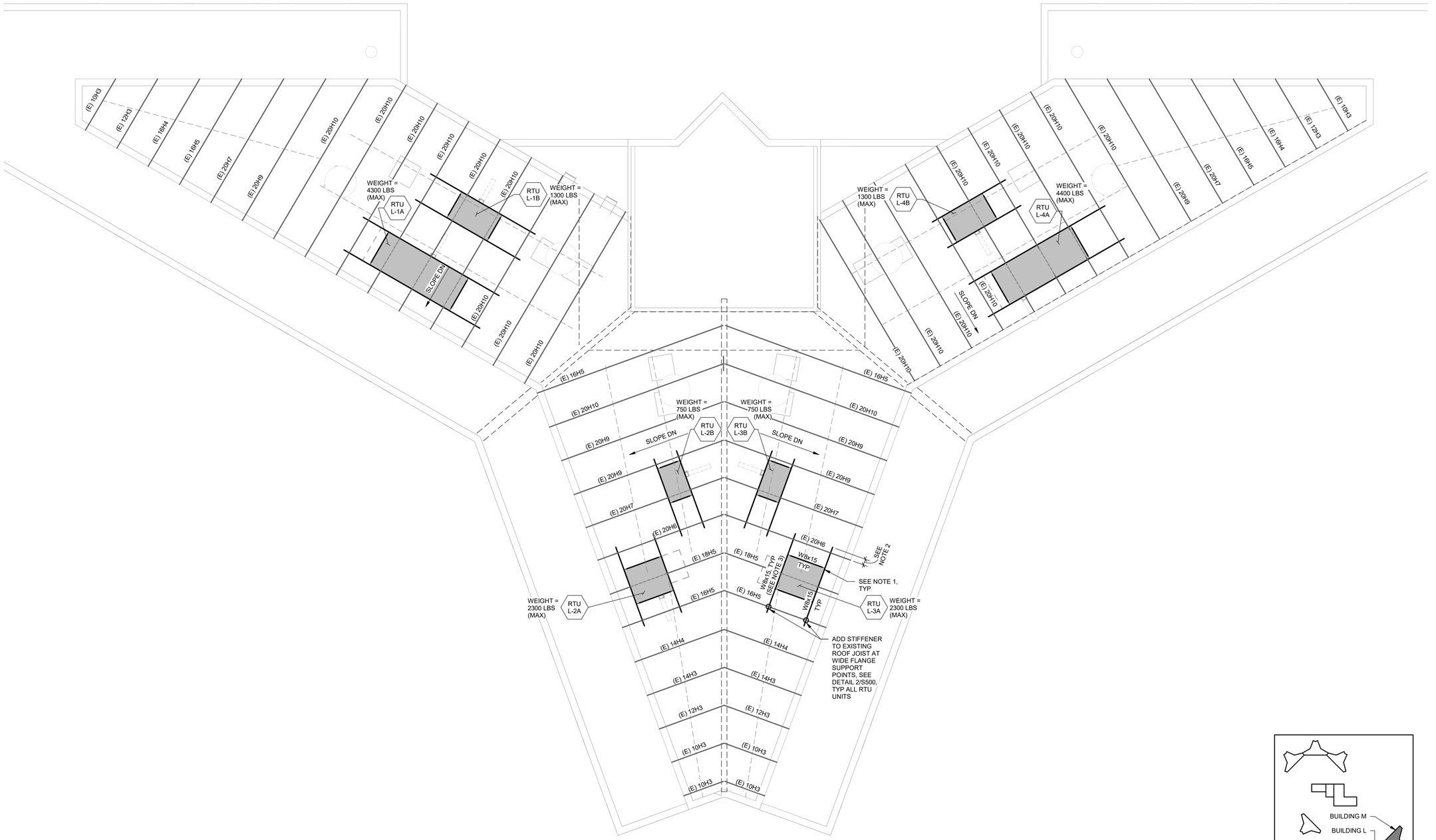
DRAWN BY: AN
CHECKED BY: RCV
DESIGNED BY: KD

SHEET TITLE:
ROOF PLAN - BUILDING D

SHEET NUMBER:
S102D

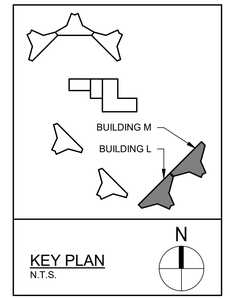
14 OF 91 SHEETS
09/26/2025



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. STEEL MEMBERS SUPPORTING THE LONG SIDE OF THE EQUIPMENT SHALL SPAN 3 EXISTING ROOF JOISTS (MINIMUM).
4. 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.
5. ALL ADDED STEEL MUST BE HOT DIP GALVANIZED.

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

1/8" = 1'-0"



KEY PLAN
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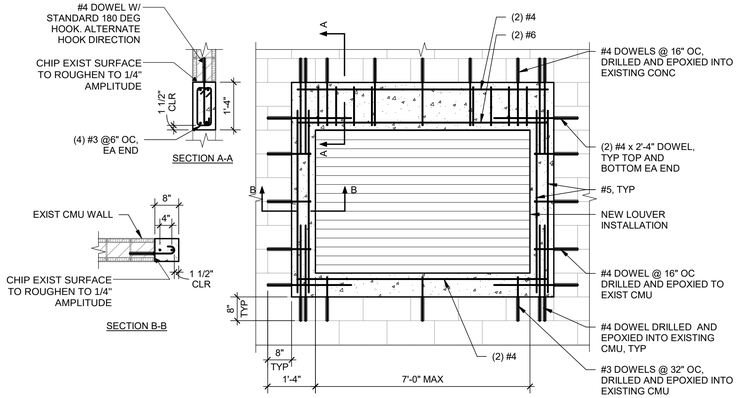
ROOF PLAN - BUILDING L

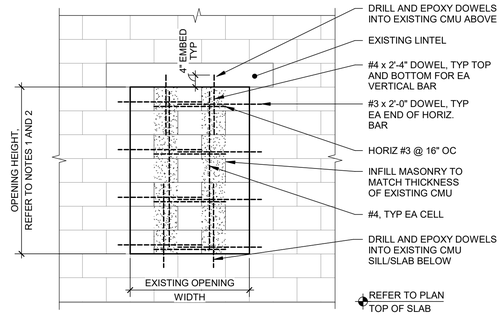
SHEET NUMBER:
S102L



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

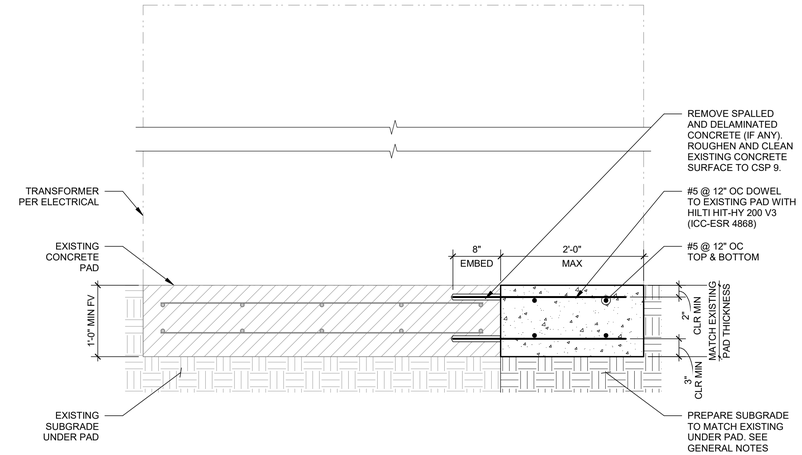
NO SCALE



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

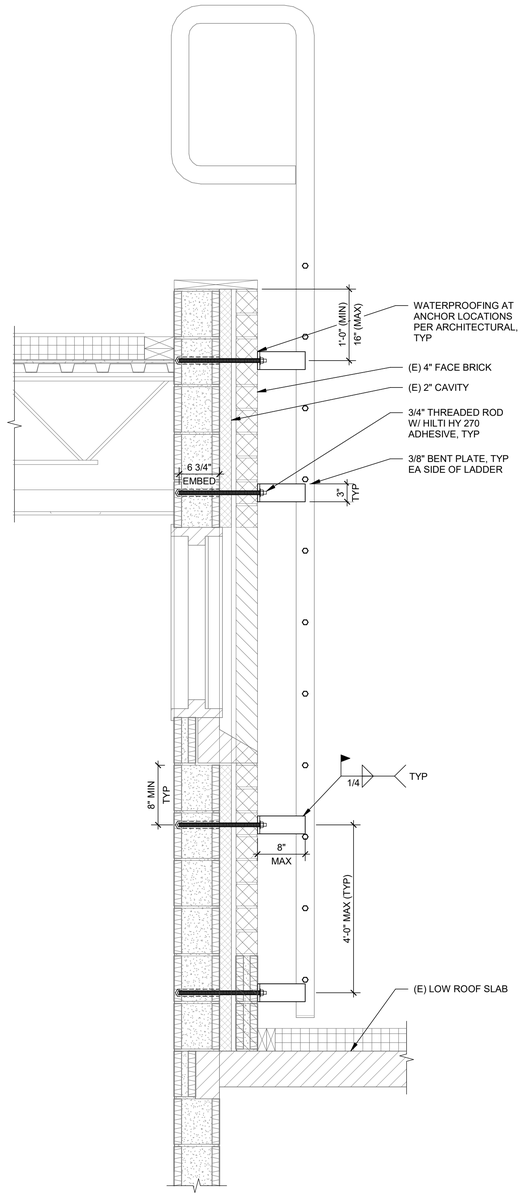
2 TYPICAL OPENING INFILL AT EXISTING WALL

NO SCALE



4 TYPICAL NEW LOUVER OPENING IN EXISTING CMU WALL

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 SECTION

1" = 1'-0"

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
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TEL 913.742.5000 **FAX** 913.742.5001
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

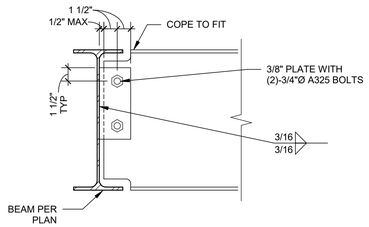
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
SECTION

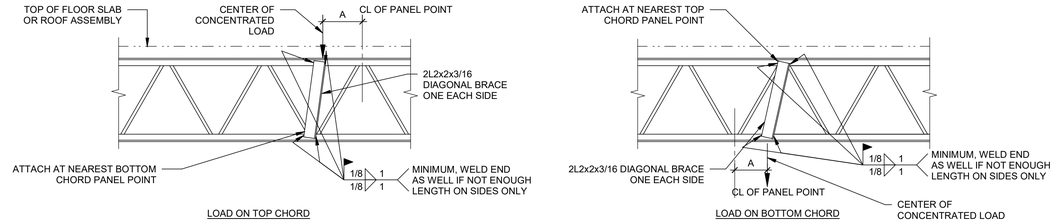
SHEET NUMBER:
S200

16 OF 91 SHEETS
09/26/2025



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

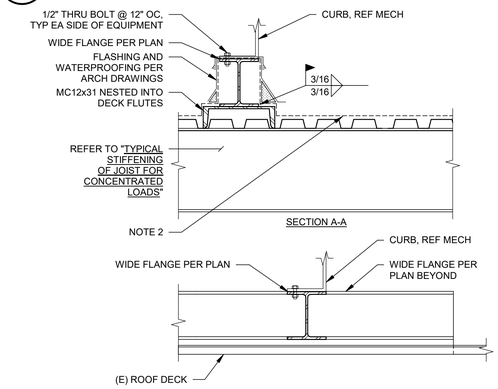
NO SCALE

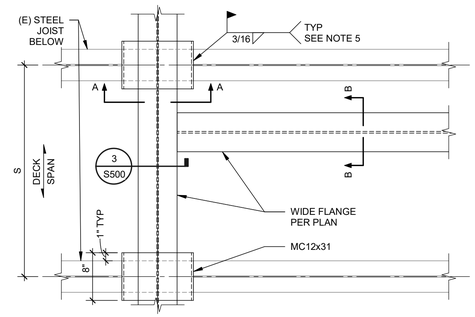


NOTES:
1. DIAGONAL BRACE IS NOT REQUIRED FOR "A" LESS THAN THREE INCHES.
2. PROVIDE DIAGONAL BRACE AT LOCATION OF CONCENTRATED LOADS SUCH AS PARTITIONS, HEAVY PIPES, MECHANICAL UNITS, HEAVY LIGHTS AND ANY OTHER CONCENTRATED LOADS AND AS NOTED ELSEWHERE IN THE STRUCTURAL DRAWINGS. LOADS MUST BE APPLIED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

2 TYPICAL JOIST STIFFENING FOR CONCENTRATED LOADS

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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HVAC IMPROVEMENTS -
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1393 ROUTE O
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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 FO 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. PAINT PORTIONS OF DUCTWORK AND INSULATION THAT ARE EXPOSED TO VIEW BY THE INSTALLATION OF DIFFUSERS, REGISTERS, AND GRILLES IN CEILINGS OR WALLS FLAT BLACK. PORTIONS INCLUDE BOTH THE INTERIOR OF UNLINED DUCTWORK AND THE EXTERIOR OF DUCTWORK AND INSULATION.
22. DUCTWORK CROSSING FIRE RATED WALLS OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL.
23. 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.
24. 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.
25. LOCATE AND SET THERMOSTATS AND HUMIDISTATS AT LOCATIONS SHOWN ON PLANS. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. DEVICE MOUNTING HEIGHT SHALL MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON PLANS. PROVIDE INSULATED BACKING FOR THERMOSTATS MOUNTED ON EXTERIOR BUILDING WALLS. INSTALL WIRING IN CONDUIT PROVIDED BY DIVISION 26. AT A MINIMUM, PROVIDE CONDUIT IN THE WALL FROM THE JUNCTION BOX TO 6" ABOVE THE CEILING.
26. COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH PRESENTATION BOARDS, DISPLAY CABINETS, SHELVES OR OTHER COMPONENTS SHOWN ON THE ARCHITECTURAL DRAWINGS THAT ARE TO BE INSTALLED UNDER OTHER DIVISIONS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.
27. PROVIDE A MANUAL BALANCING DAMPER IN EACH DUCT TAKEOFF FROM SUPPLY, RETURN, OUTDOOR AND EXHAUST AIR DUCTS.
28. 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.
29. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
30. 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.
31. 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.
32. RIGIDLY SUSPEND UNIT HEATER FROM STRUCTURE WITH SUPPORTING ANGLES AND ALL-THREAD HANGING RODS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
33. 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.
34. PROVIDE WALL MOUNTED LOUVERS AND DAMPERS WITH SUITABLE MOUNTING FRAME TO MATCH WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL DRAWINGS.
35. PROVIDE A NEW SET OF AIR FILTERS IN UNITS PRIOR TO TESTING, ADJUSTING AND BALANCING AND BEFORE TURNING SYSTEM(S) OVER TO OWNER.
36. 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.
37. 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.
38. 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.
39. 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.
40. FULLY CHARGE EXISTING REFRIGERANT SYSTEMS BEING REUSED FOR THIS PROJECT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. CHARGE SYSTEMS WITH NEW REFRIGERANT MATCHING EXISTING.
41. TEMPORARY INSTALLATIONS OF INFECTION CONTROL MEASURES DURING CONSTRUCTION SHALL BE COORDINATED WITH THE FACILITY'S INFECTION CONTROL STAFF. PRIOR TO CONSTRUCTION PROVIDE ALL REQUIRED TEMPORARY INSTALLATIONS, INCLUDING DETAILS OF THE INFECTION CONTROL MEASURES SUCH AS TEMPORARY BARRIERS AND MEMBRANES, PORTABLE EXHAUST FANS AND TEMPORARY DUCTWORK. TEMPORARY INSTALLATIONS MUST NOT HAVE A NEGATIVE IMPACT ON EXISTING SYSTEMS NOR CAUSE UNSAFE CONDITIONS. TEMPORARY INSTALLATIONS SHALL MAINTAIN ADEQUATE EGRESS AND SHALL NOT OBSTRUCT EXISTING EXITS, CREATE A FIRE HAZARD OR REDUCE REQUIRED FIRE RESISTANCE. TEMPORARY VENTILATION SYSTEMS SHALL NOT CAUSE THE AIR BALANCE OF ADJACENT ROOMS OR SPACES TO BE IMPACTED OR ALTER THE PERFORMANCE OF PERMANENT BUILDING VENTILATION SYSTEMS. AIRFLOW MEASUREMENTS SHALL BE TAKEN TO VERIFY ADJACENT ROOMS OR SPACES ARE NOT IMPACTED.

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

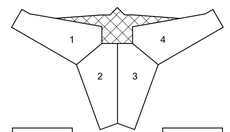
- H — HUMIDISTAT
- T — THERMOSTAT
- CO — CARBON MONOXIDE SENSOR
- CO2 — CARBON DIOXIDE SENSOR
- DP — DIFFERENTIAL PRESSURE SENSOR
- FS — FLOW SWITCH
- HS — HUMIDITY SENSOR
- PS — PULL STATION
- RT — REMOTE TESTING STATION WITH INDICATING LIGHT
- SP — STATIC PRESSURE
- TS — TEMPERATURE SENSOR

PIPING SYMBOLS

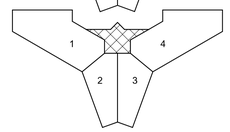
- DIRECTION OF FLOW
- CONTROL VALVE
- THREE-WAY CONTROL VALVE
- SHUTOFF VALVE
- CHECK VALVE
- BALANCING VALVE WITH PRESSURE PORTS
- TRIPLE DUTY VALVE WITH PRESSURE PORTS
- STRAINER
- STRAINER WITH BLOWOFF
- RELIEF / SAFETY VALVE
- SOLENOID VALVE
- PRESSURE REDUCING VALVE
- GAS PRESSURE REGULATOR
- THERMOSTATIC 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

KELLEY P. CRAMM
NUMBER E-22323
REGISTERED PROFESSIONAL ENGINEER
9/26/2025

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION: DATE:
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REVISION: DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
MECHANICAL GENERAL NOTES AND LEGEND

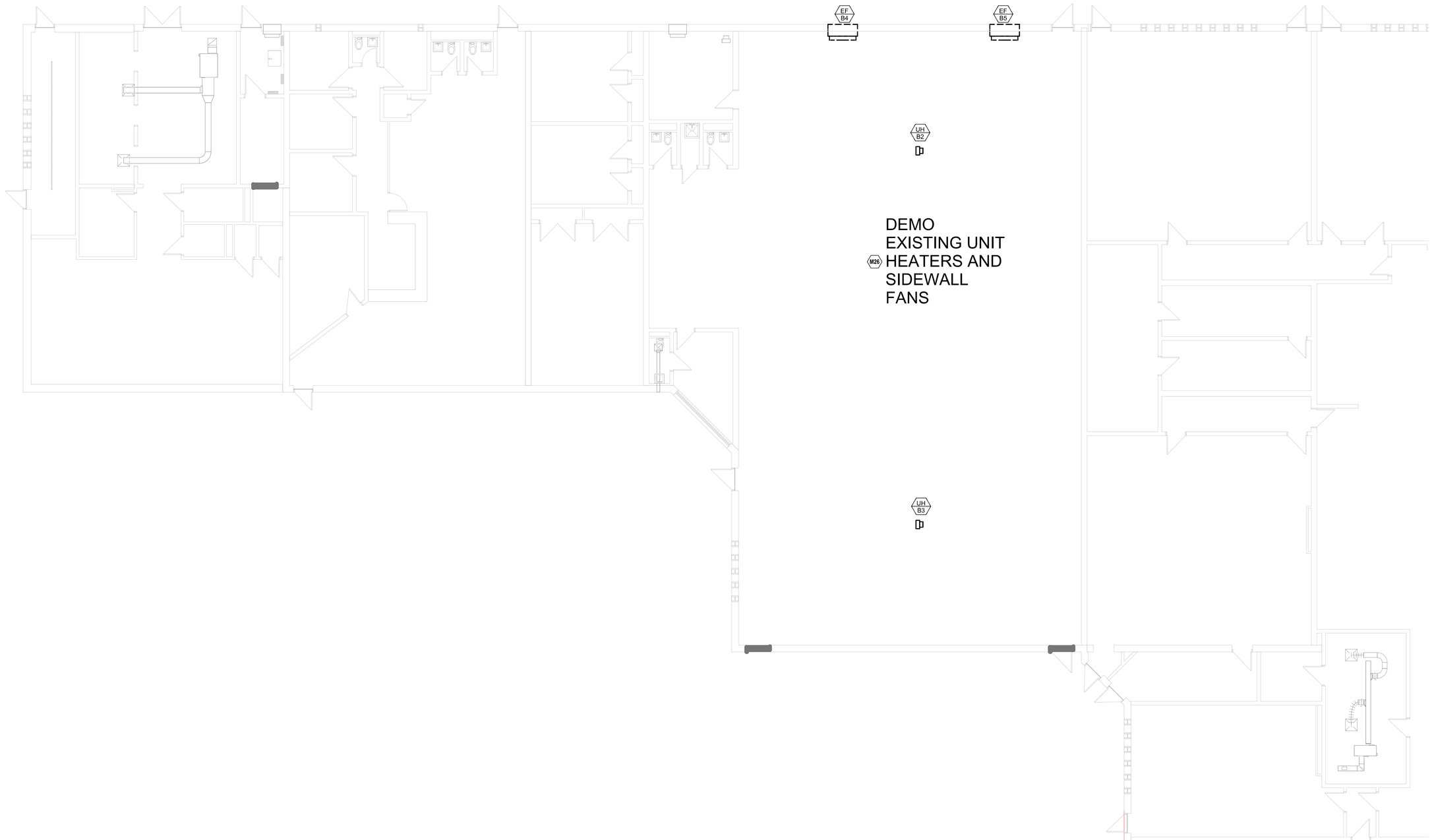
SHEET NUMBER:
M000

18 OF 91 SHEETS
09/26/2025

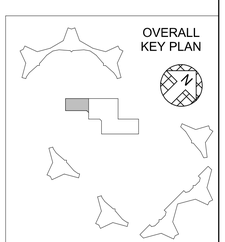
KELLEY P. CRAMM

MECHANICAL PLAN NOTES:

M26 ALTERNATE #1 - GYMNASIUM HVAC UPGRADE.



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



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E-022323
9/26/2025

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

SHEET TITLE:

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

SHEET NUMBER:

MD101.Ba

19 OF 91 SHEETS
09/26/2025

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 DEMOLITION PLAN NOTES:

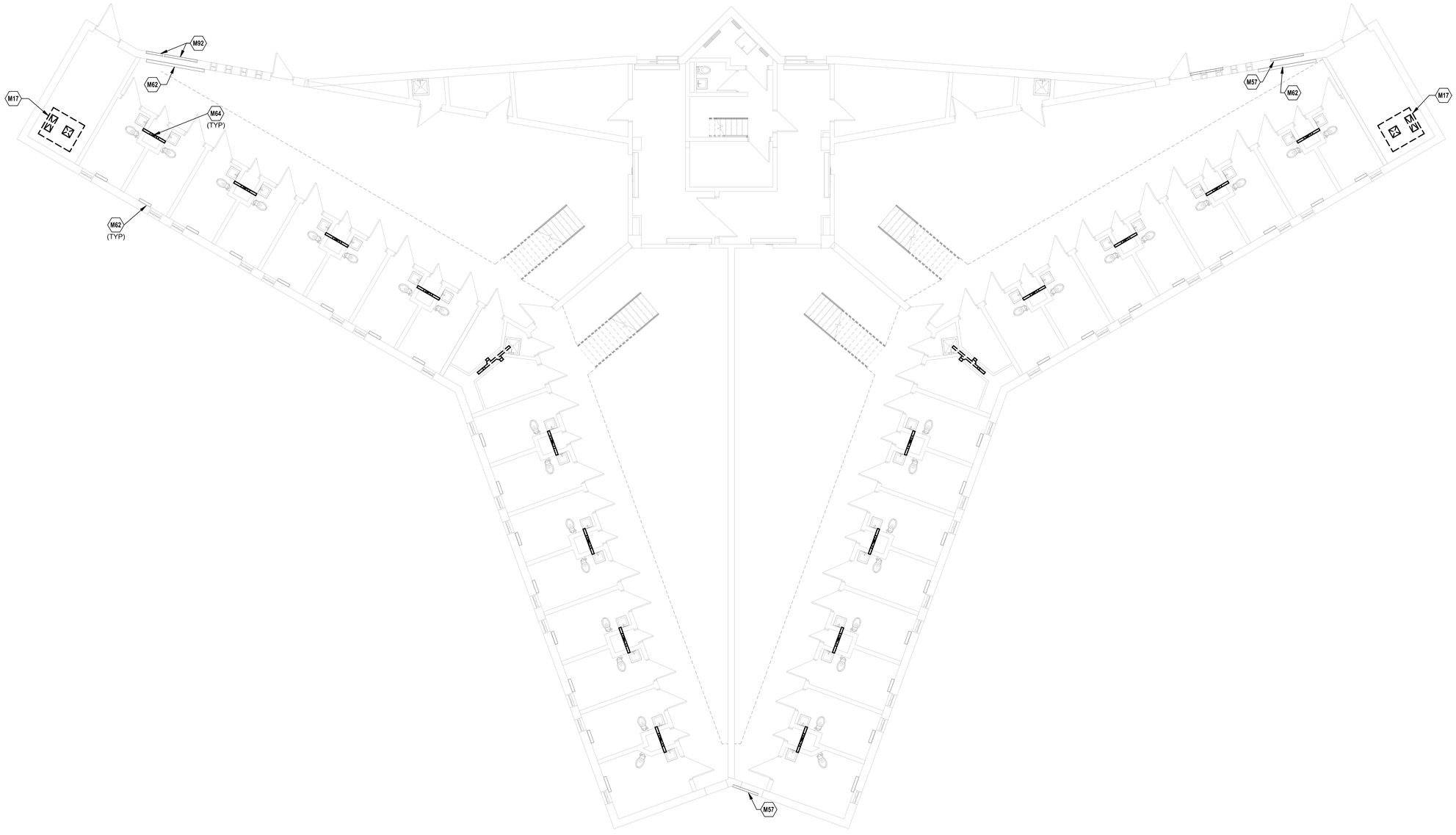
M17 DEMOLISH EXISTING FLOOR MOUNTED HVAC UNIT, ALL OUTSIDE AIR DUCTWORK, AND SUPPLY DUCTWORK SHOWN ON THIS SHEET. SEE SHEET MD102.D FOR ADDITIONAL DEMO WORK.

M57 EXISTING LOUVER TO REMAIN.

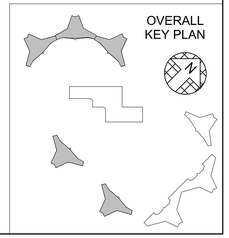
M62 EXISTING TO REMAIN BASEBOARD HEATERS.

M64 DEMOLISH ALL EXISTING EXHAUST DUCTWORK SHOWN ON THIS SHEET. SEE SHEET MD102.D FOR ADDITIONAL DEMO WORK.

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



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



STATE OF MISSOURI
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GOVERNOR

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REGISTERED PROFESSIONAL ENGINEER

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MO. CORPORATE NO: E-556D
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OFFICE OF ADMINISTRATION
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HVAC IMPROVEMENTS -
FULTON RECEPTION AND
DIAGONSTIC
CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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DATE:
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DATE:
ISSUE DATE: 09/26/2025

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

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

SHEET NUMBER:
MD101.D

20 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

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

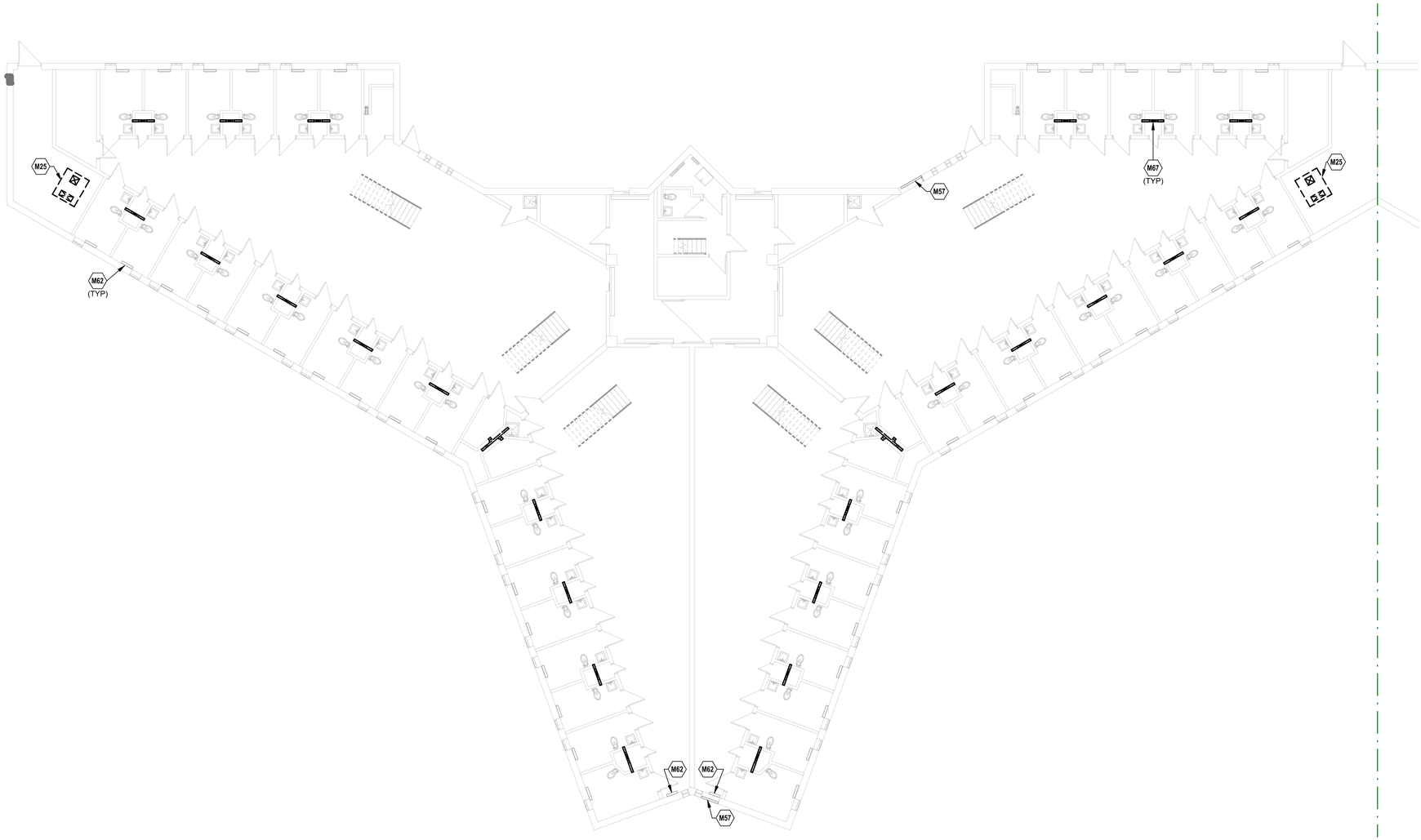
MECHANICAL DEMOLITION PLAN NOTES:

M25 DEMOLISH EXISTING FLOOR MOUNTED HVAC UNIT, ALL OUTSIDE AIR DUCTWORK, AND SUPPLY DUCTWORK SHOWN ON THIS SHEET. SEE SHEET MD102.L FOR ADDITIONAL DEMO WORK.

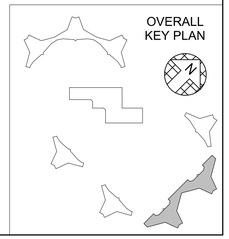
M57 EXISTING LOUVER TO REMAIN.

M62 EXISTING TO REMAIN BASEBOARD HEATERS.

M67 DEMOLISH ALL EXISTING EXHAUST DUCTWORK SHOWN ON THIS SHEET UNLESS OTHERWISE NOTED. SEE SHEET MD102.L FOR ADDITIONAL DEMO WORK.



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



STATE OF MISSOURI
MIKE KEHOE,
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REGISTERED PROFESSIONAL ENGINEER
STATE OF MISSOURI

9/26/2025

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HVAC IMPROVEMENTS -
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1393 ROUTE O
FULTON, MO 65251

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SITE # 7010
FACILITY # 9327010027

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REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

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

SHEET NUMBER:
MD101.L

21 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

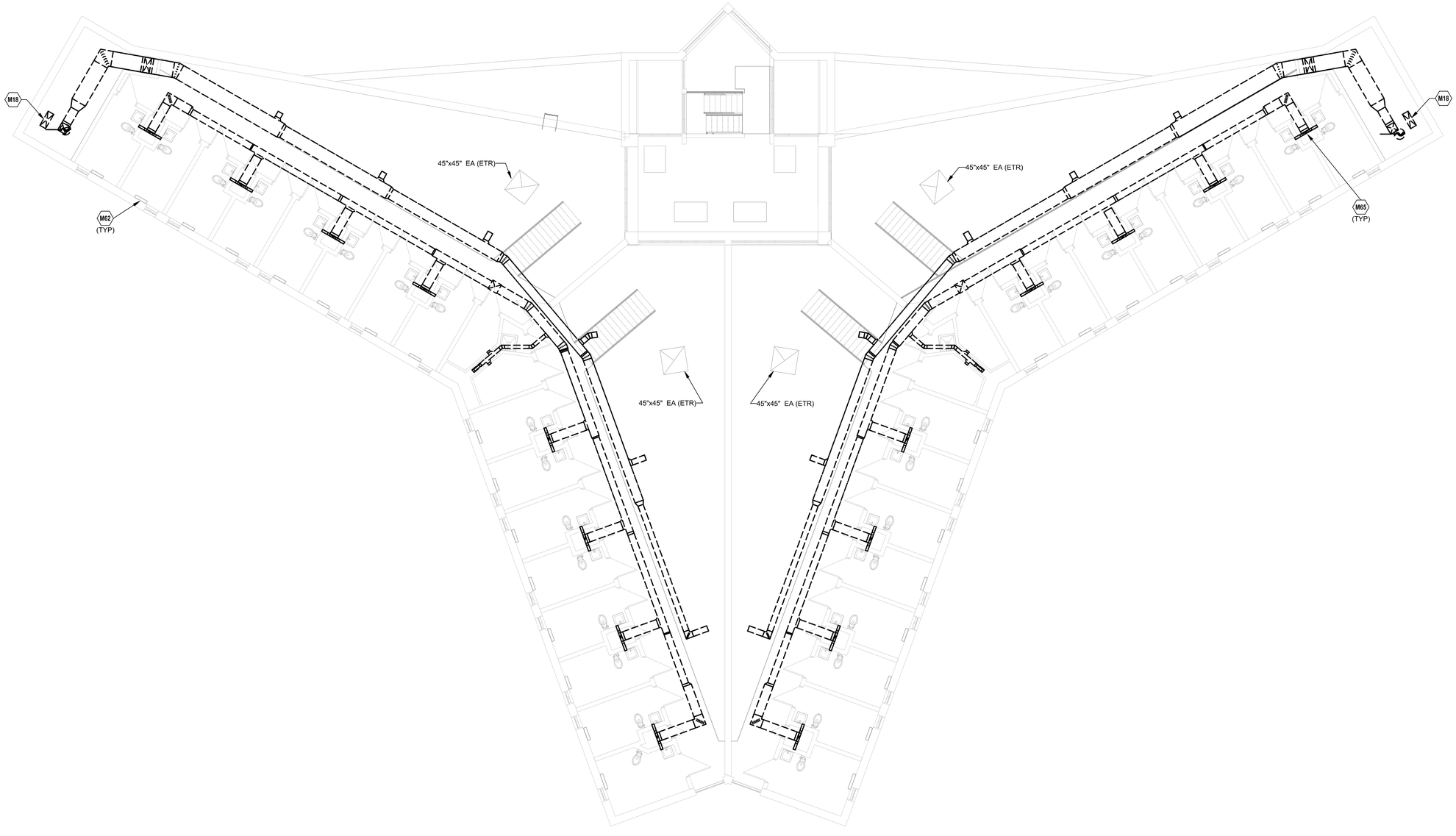
MECHANICAL DEMOLITION PLAN NOTES:

M18 DEMOLISH ALL EXISTING SUPPLY AND OUTSIDE AIR DUCTWORK ASSOCIATED WITH EXISTING HVAC UNIT.

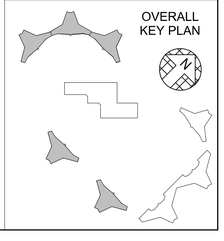
M62 EXISTING TO REMAIN BASEBOARD HEATERS.

M65 DEMOLISH ALL EXISTING GENERAL EXHAUST DUCTWORK SHOWN ON THIS SHEET UNLESS OTHERWISE NOTED.

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



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



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

KELLEY P. CRAMM
E-022323
REGISTERED PROFESSIONAL ENGINEER

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

SHEET TITLE:

HVAC - LEVEL 2 DEMO PLAN - BUILDING D

SHEET NUMBER:

MD102.D

22 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

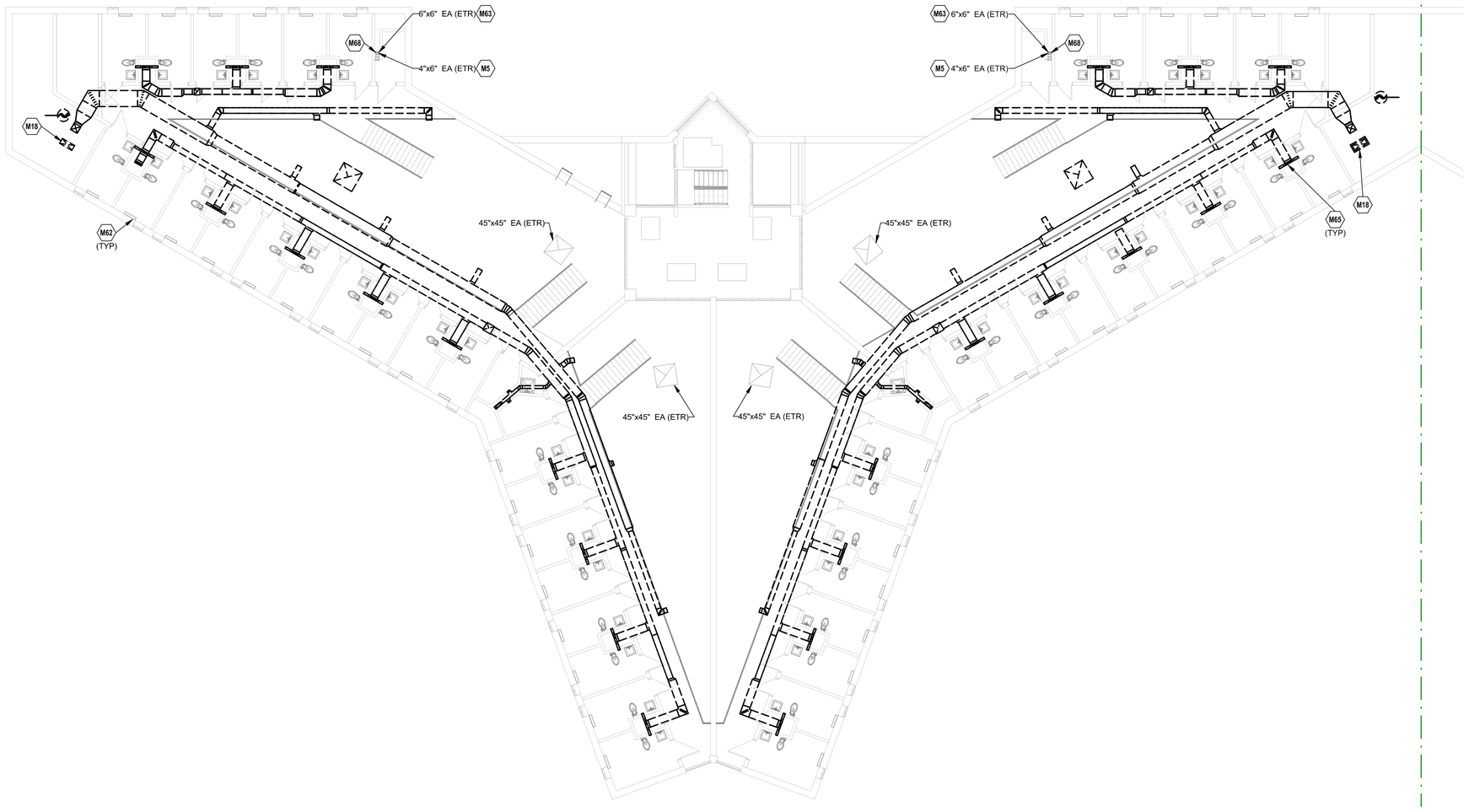
BUILDINGS L,M ARE IDENTICAL, ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED IN BUILDING M.

MECHANICAL DEMOLITION PLAN NOTES:

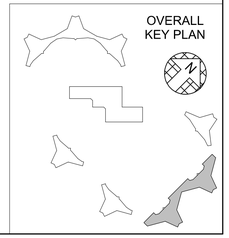
M5 DUCT DOWN TO FLOOR BELOW.
M18 DEMOLISH ALL EXISTING SUPPLY AND OUTSIDE AIR DUCTWORK ASSOCIATED WITH EXISTING HVAC UNIT.
M62 EXISTING TO REMAIN BASEBOARD HEATERS.
M63 DUCT UP TO EXISTING EXHAUST FAN ON ROOF ABOVE.
M65 DEMOLISH ALL EXISTING GENERAL EXHAUST DUCTWORK SHOWN ON THIS SHEET UNLESS OTHERWISE NOTED.

MECHANICAL DEMOLITION PLAN NOTES:

M68 SHOWER EXHAUST DUCTWORK EXISTING TO REMAIN.



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



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

KELLEY P. CRAMM
NOTARY PUBLIC - NOTARY SEAL - STATE OF MISSOURI
E-022323
9/26/2025

KELLEY P. CRAMM
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OFFICE OF ADMINISTRATION
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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
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REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

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

SHEET NUMBER:
MD102.L

23 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

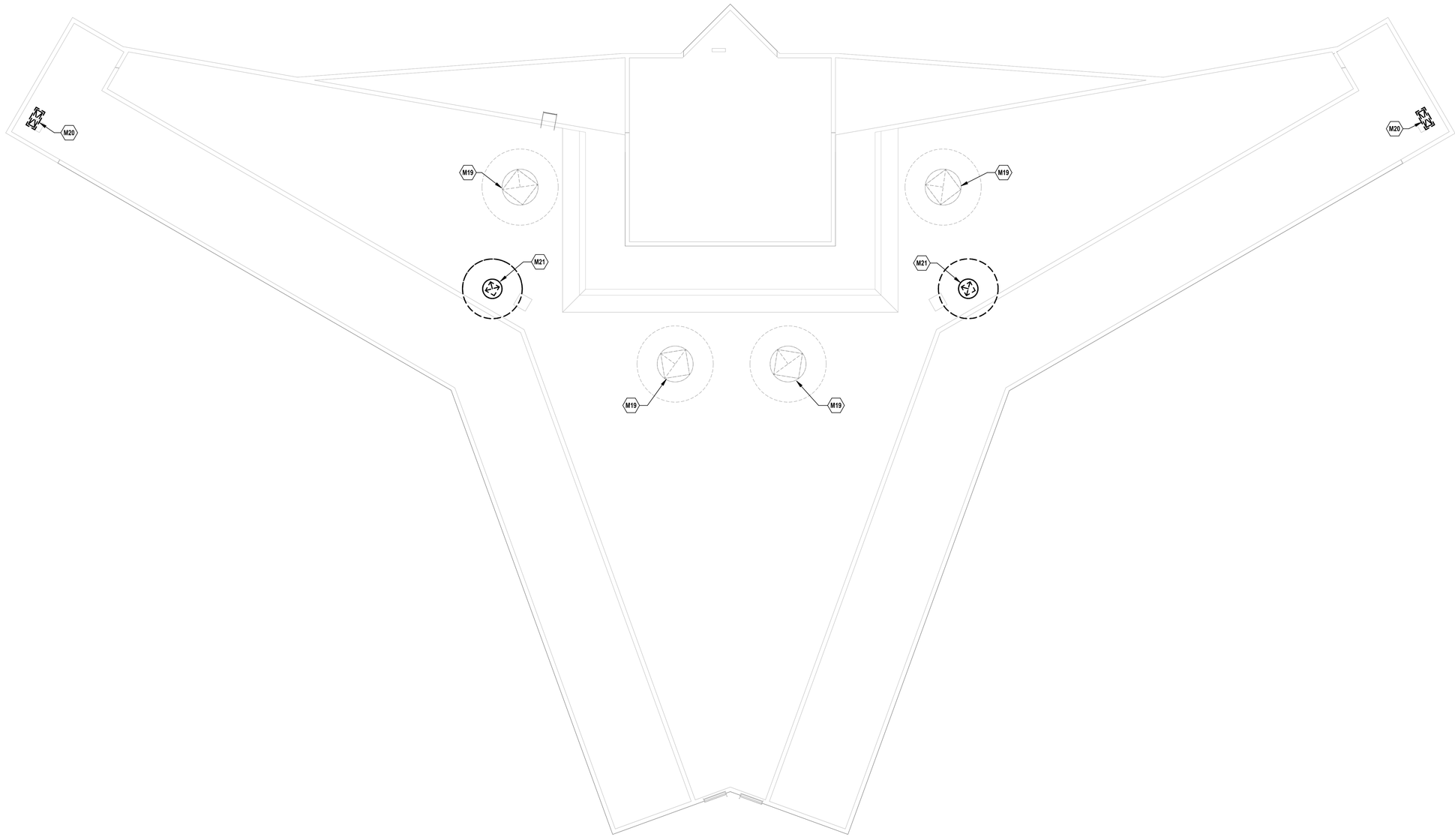
BUILDINGS D,E,F,G,K ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED ON BUILDINGS E,F,G,K

MECHANICAL DEMOLITION PLAN NOTES:

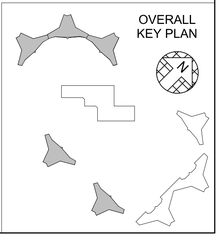
M19 EXISTING EXHAUST FAN TO BE ABANDONED IN PLACE AND LOCKED OUT OF SERVICE ALONG WITH ASSOCIATED MOTORIZED DAMPERS AT THE FAN AND INTAKE LOUVER(S). DAMPERS SHALL BE LOCKED OUT IN THE CLOSED POSITION.

M20 DEMOLISH EXISTING INTAKE HOOD AND ALL ASSOCIATED DUCTWORK. RETAIN ROOF CURB AND SECURITY BARS. PROVIDE INSULATED SHEET METAL CURB CAP. PROVIDE NEW SECURITY BARS PER DETAIL 4 ON SHEET M500 AT ROOF DECK IF NONE EXIST.

M21 DEMOLISH EXISTING EXHAUST FAN AND ALL ASSOCIATED DUCTWORK. RETAIN ROOF CURB AND SECURITY BARS. PROVIDE INSULATED SHEET METAL CURB CAP. PROVIDE NEW SECURITY BARS PER DETAIL 4 ON SHEET M500 AT ROOF DECK IF NONE EXIST.



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



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

9/26/2025

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

SHEET TITLE:

HVAC - ROOF DEMO PLAN - BUILDING D

SHEET NUMBER:

MD103.D

24 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

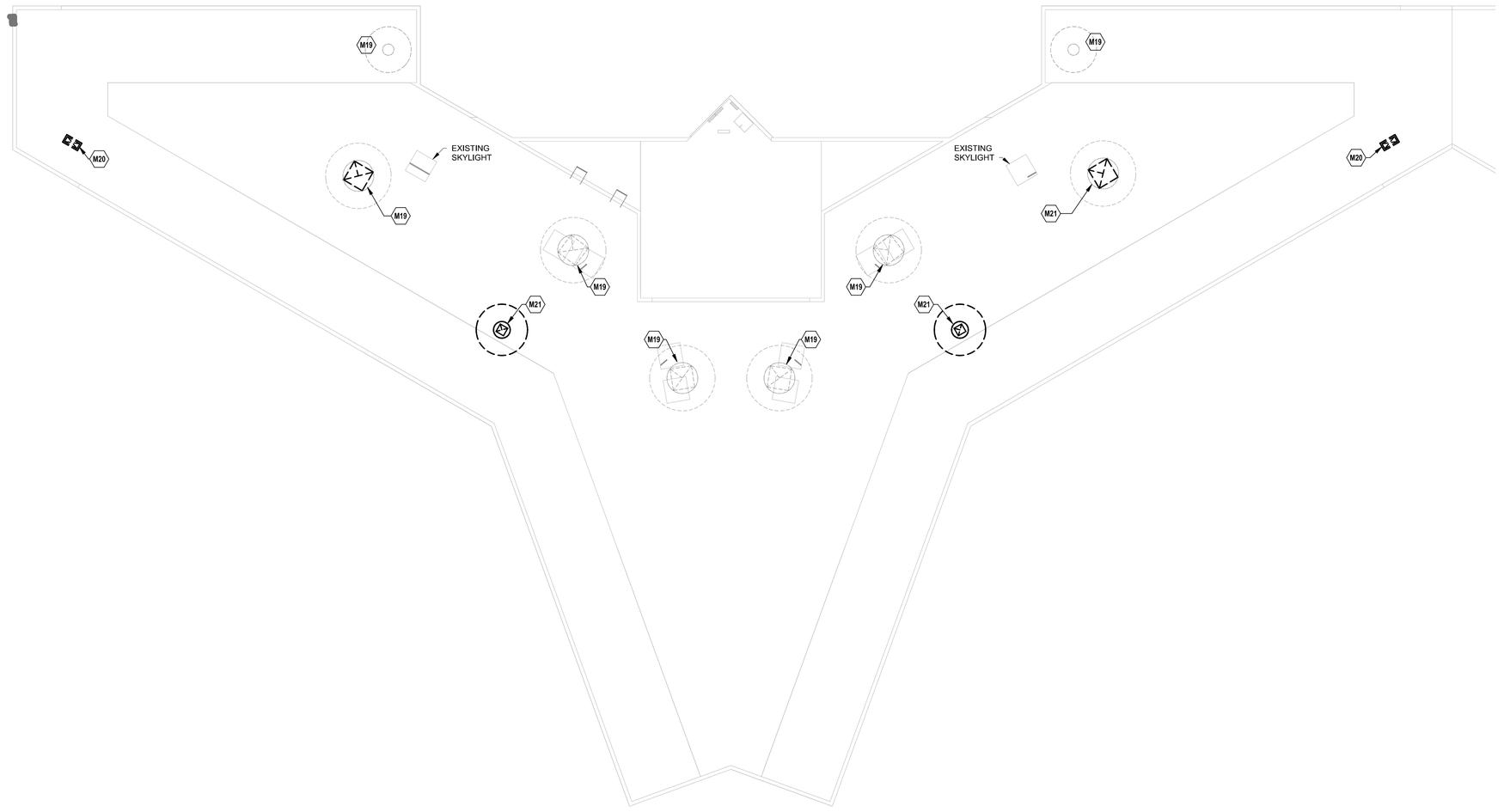
BUILDINGS L,M ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED IN BUILDING M.

MECHANICAL DEMOLITION PLAN NOTES:

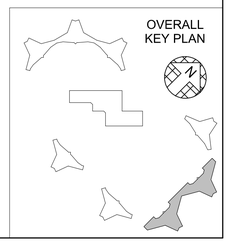
M19 EXISTING EXHAUST FAN TO BE ABANDONED IN PLACE AND LOCKED OUT OF SERVICE ALONG WITH ASSOCIATED MOTORIZED DAMPERS AT THE FAN AND INTAKE LOUVER(S). DAMPERS SHALL BE LOCKED OUT IN THE CLOSED POSITION.

M20 DEMOLISH EXISTING INTAKE HOOD AND ALL ASSOCIATED DUCTWORK. RETAIN ROOF CURB AND SECURITY BARS. PROVIDE INSULATED SHEET METAL CURB CAP. PROVIDE NEW SECURITY BARS PER DETAIL 4 ON SHEET M500 AT ROOF DECK IF NONE EXIST.

M21 DEMOLISH EXISTING EXHAUST FAN AND ALL ASSOCIATED DUCTWORK. RETAIN ROOF CURB AND SECURITY BARS. PROVIDE INSULATED SHEET METAL CURB CAP. PROVIDE NEW SECURITY BARS PER DETAIL 4 ON SHEET M500 AT ROOF DECK IF NONE EXIST.



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



STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI KELLEY P. CRAMM E-022323 REGISTERED PROFESSIONAL ENGINEER

9/26/2025

KELLEY P. CRAMM
LICENSE # E-022323

HENDERSON ENGINEERS
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WWW.HENDERSONENGINEERS.COM

2450001658
MO. CORPORATE NO: E-556D
EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:

ISSUE DATE: 09/26/2025

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

SHEET TITLE:

HVAC - ROOF DEMO PLAN - BUILDING L

SHEET NUMBER:

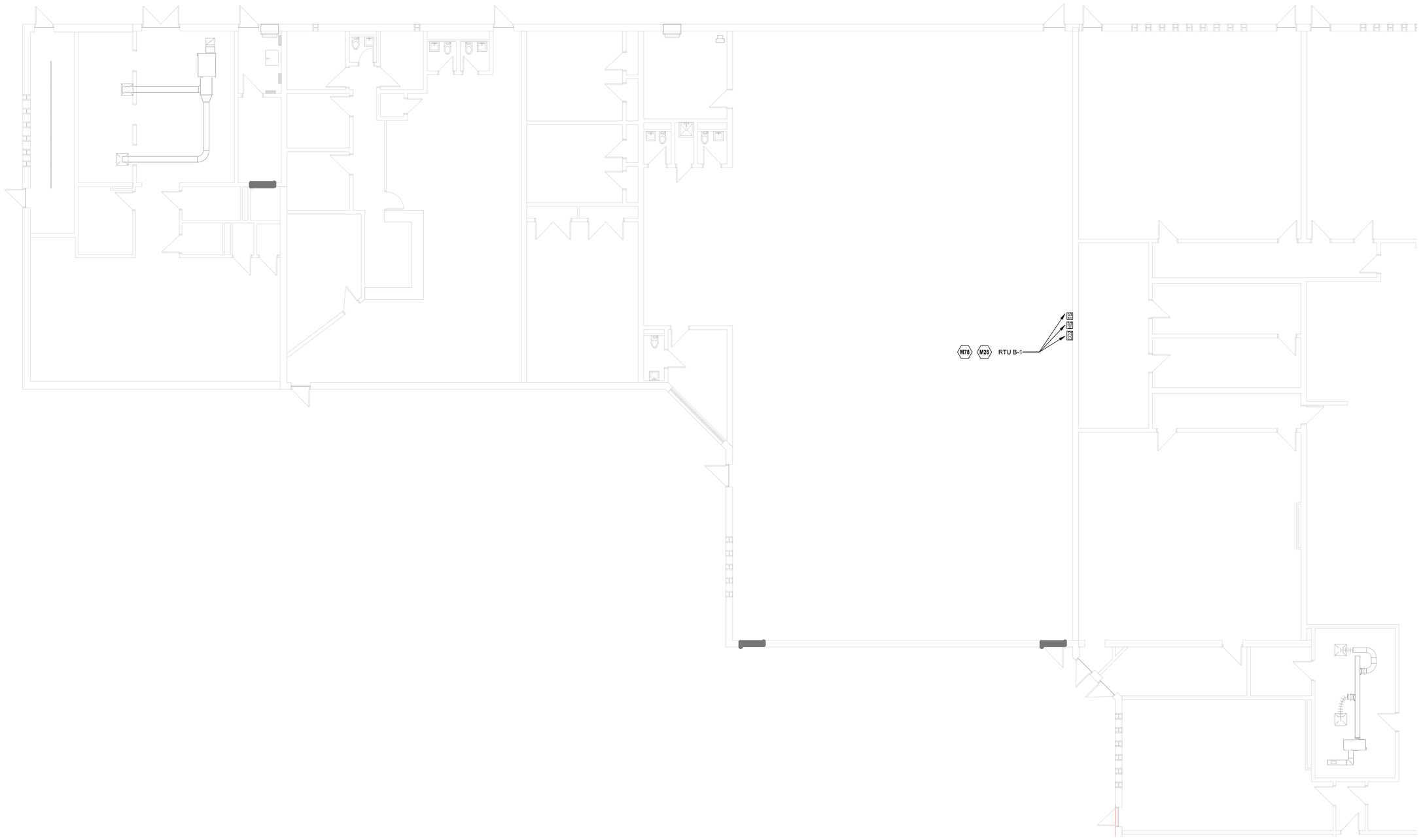
MD103.L

25 OF 91 SHEETS
09/26/2025

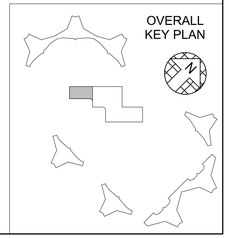
KELLEY P. CRAMM

MECHANICAL PLAN NOTES:

M26 ALTERNATE #1 - GYMNASIUM HVAC UPGRADE.
M78 PROVIDE SENSORS WITH LOCKING SECURITY COVER.



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



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

KELLEY P. CRAMM
NOTARY PUBLIC - STATE OF MISSOURI
E-022323

9/26/2025

KELLEY P. CRAMM
LICENSE # E-022323

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HVAC IMPROVEMENTS -
FULTON RECEPTION AND
DIAGONSTIC
CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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REVISION:
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REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

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

SHEET NUMBER:
M101.Ba

26 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

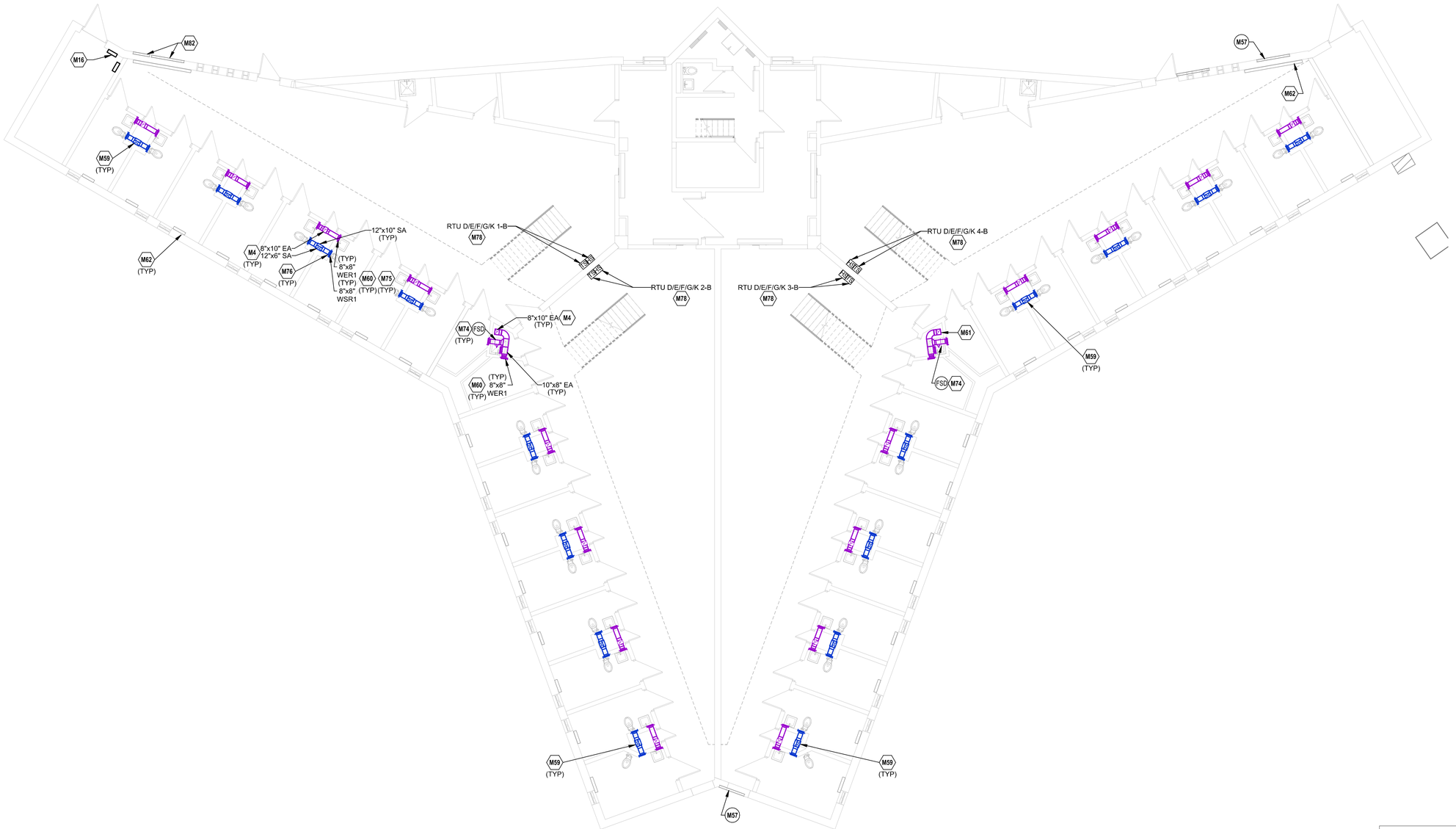
BUILDINGS D,E,F,G,K ARE SIMILAR. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED ON BUILDINGS E,F,G,K WITH DISCREPANCIES NOTED.

MECHANICAL PLAN NOTES:

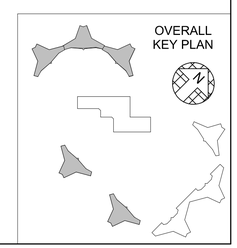
- M4 DUCT UP TO FLOOR ABOVE.
- M16 FURNISH AND INSTALL BAS CONTROL PANEL FOR ALL MECHANICAL EQUIPMENT IN THIS BUILDING. BAS CONTROL PANEL SHALL BE ON EMERGENCY POWER.
- M57 EXISTING LOUVER TO REMAIN.
- M59 REFER TO TYPICAL TAGGING ON PLANS AND DETAILS 2 & 3 ON SHEET M5.01 FOR CELL CHASE DUCT DETAILS (TYP ALL CELL CHASES).
- M60 REFER TO SCHEDULES ON SHEET M402 FOR AIRFLOWS OF EACH ROOM WITHIN EACH BUILDING.
- M61 REFER TO TYPICAL TAGGING ON PLANS AND DETAIL 1 ON SHEET M5.01 FOR ALL SHOWER CHASE DUCT DETAILS (TYP ALL SHOWER CHASES).
- M62 EXISTING TO REMAIN BASEBOARD HEATERS.
- M74 COMBINATION FIRE SMOKE DAMPERS SHALL BE 120V.
- M75 INSTALL SUPPLY GRILLE VERTICALLY SUCH THAT DEFLECTION BARS POINT SUPPLY AIRFLOW HORIZONTALLY AWAY FROM ADJACENT EXHAUST GRILLE.

MECHANICAL PLAN NOTES:

- M76 ADJUST GRILLE LOCATIONS AS REQUIRED TO ACCOMMODATE LOCATION OF EXISTING PIPING. LOCATE SUPPLY GRILLES AS FAR FROM EXHAUST AS POSSIBLE. DUCT SIZES MAY BE CHANGED AS REQUIRED PROVIDED FREE AREA OF DUCT IS UNCHANGED.
- M78 PROVIDE SENSORS WITH LOCKING SECURITY COVER.
- 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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9/26/2025

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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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ISSUE DATE: 09/26/2025

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

SHEET TITLE:
HVAC - LEVEL 1 PLAN - BUILDING D

SHEET NUMBER:
M101.D

27 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

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

MECHANICAL PLAN NOTES:

M4 DUCT UP TO FLOOR ABOVE.
M16 FURNISH AND INSTALL BAS CONTROL PANEL FOR ALL MECHANICAL EQUIPMENT IN THIS BUILDING. BAS CONTROL PANEL SHALL BE ON EMERGENCY POWER.
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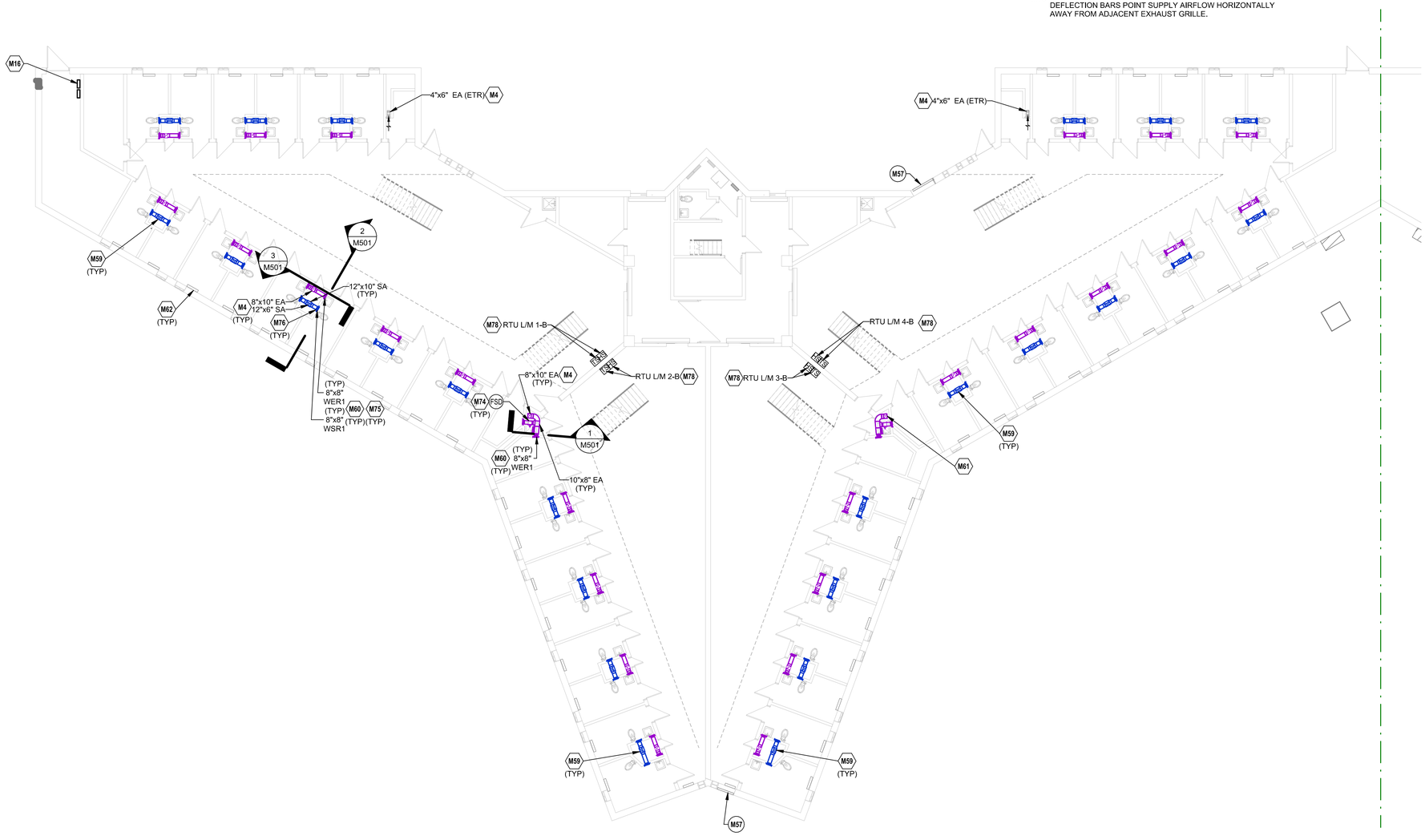
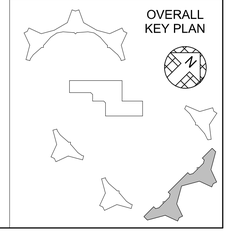
M78 PROVIDE SENSORS WITH LOCKING SECURITY COVER.



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



STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

KELLEY P. CRAMM
LICENSE # E-022323
9/26/2025

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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
HVAC - LEVEL 1 PLAN - BUILDING L

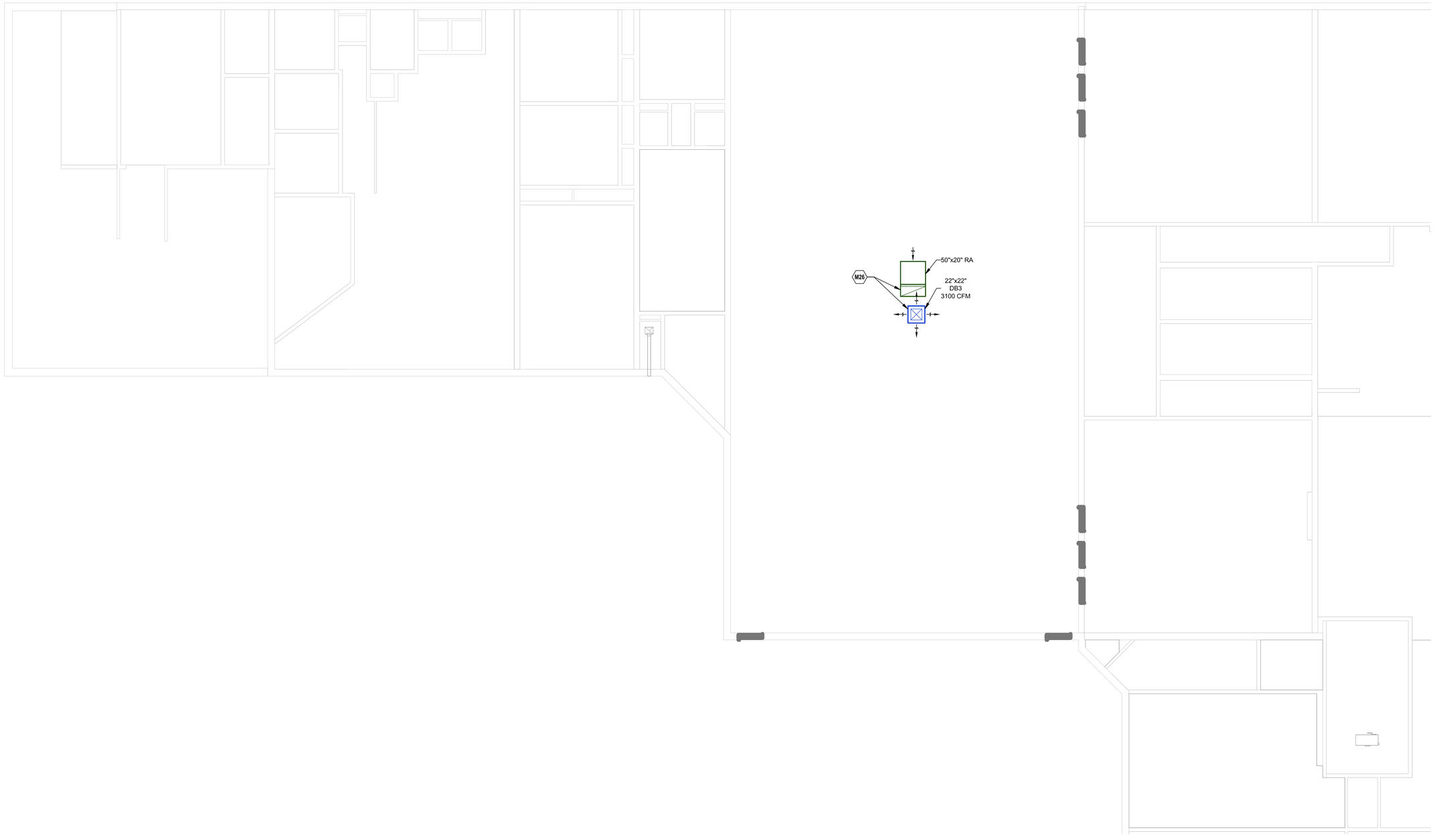
SHEET NUMBER:
M101.L

28 OF 91 SHEETS
09/26/2025

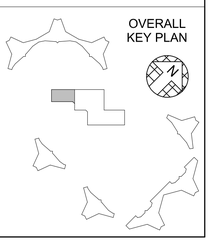
KELLEY P. CRAMM

MECHANICAL PLAN NOTES:

M26 ALTERNATE #1 - GYMNASIUM HVAC UPGRADE.



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



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FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

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ISSUE DATE: 09/26/2025

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

SHEET TITLE:

HVAC - LEVEL 2 PLAN - BUILDING B - AREA A

SHEET NUMBER:

M102.Ba

29 OF 91 SHEETS
09/26/2025

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.
- M5 DUCT DOWN TO FLOOR BELOW.
- M59 REFER TO TYPICAL TAGGING ON PLANS AND DETAILS 2 & 3 ON SHEET M5.01 FOR CELL CHASE DUCT DETAILS (TYP ALL CELL CHASES).
- M60 REFER TO SCHEDULES ON SHEET M402 FOR AIRFLOWS OF EACH ROOM WITHIN EACH BUILDING.
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- M62 EXISTING TO REMAIN BASEBOARD HEATERS.

MECHANICAL PLAN NOTES:

- M70 PROVIDE ONE SIDED TRANSITIONS FOR ALL HEIGHT TRANSITIONS IN EXHAUST MAIN DUCTWORK SO THAT THE BOTTOM ELEVATION OF EXHAUST MAINS REMAIN CONSTANT.
- M74 COMBINATION FIRE SMOKE DAMPERS SHALL BE 120V.
- M75 INSTALL SUPPLY GRILLE VERTICALLY SUCH THAT DEFLECTION BARS POINT SUPPLY AIRFLOW HORIZONTALLY AWAY FROM ADJACENT EXHAUST GRILLE.
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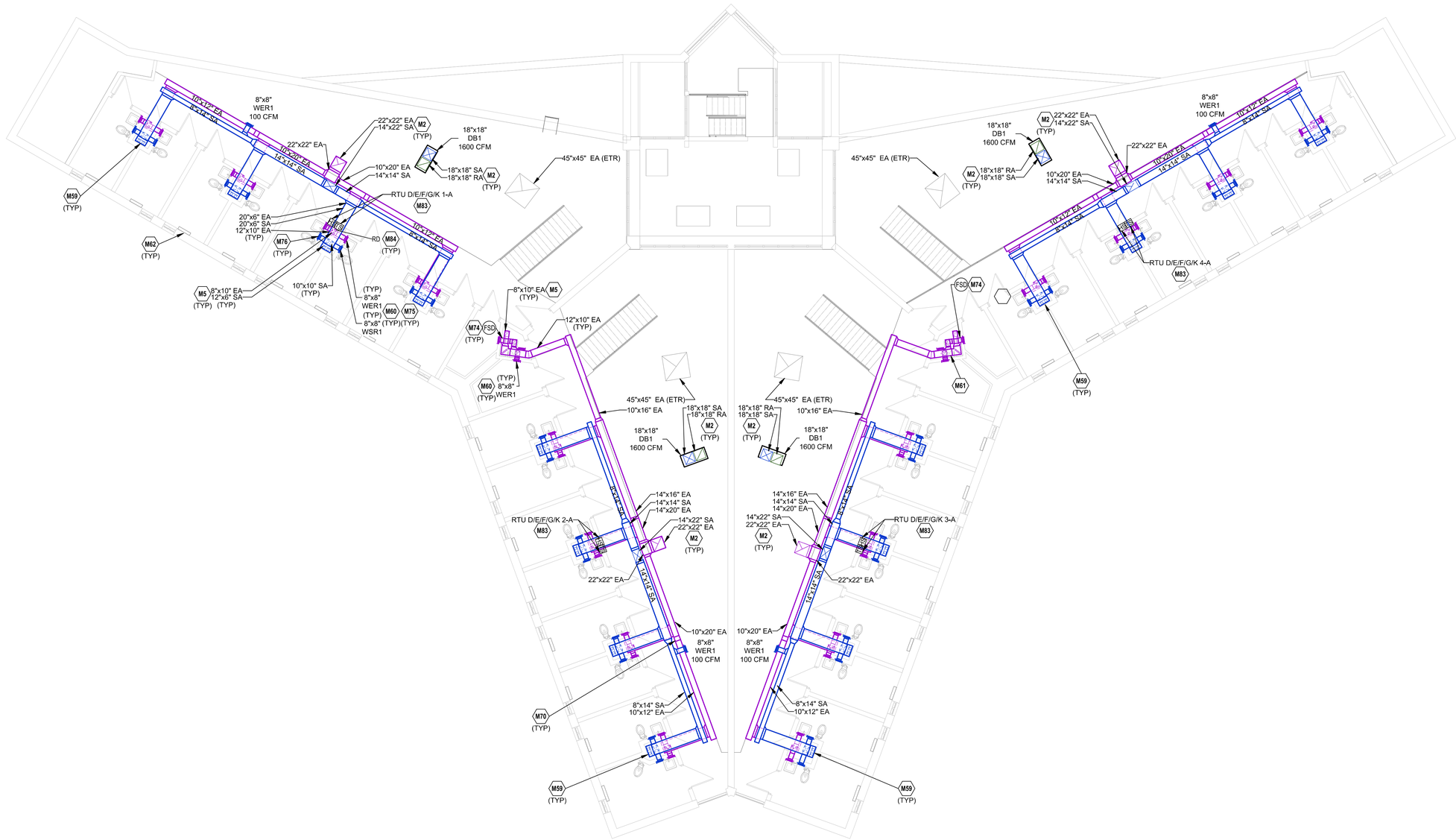
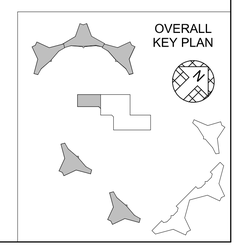
- M83 DUCT HUMIDITY AND TEMPERATURE SENSOR LOCATED WITHIN EXHAUST DUCT WITHIN CHASE. PROVIDE A SINGLE DUCT HUMIDITY SENSOR AND DUCT TEMPERATURE SENSOR PER RTU. DO NOT PROVIDE HUMIDITY AND TEMPERATURE SENSORS WITHIN EVERY CHASE.
- M84 DUCT SMOKE DETECTOR BY DIV. 28 (RE: FIRE ALARM DRAWINGS) IN EXHAUST RISER ABOVE EACH SET OF EXHAUST TAPS WITHIN CELL CHASES. EVERY CELL CHASE SHALL BE PROVIDED WITH 2 DUCT SMOKE DETECTORS TOTAL. BOTH DETECTORS SHALL BE LOCATED ON LEVEL 2. REFER TO DETAILS 2&3 ON SHEET M501 FOR MORE INFORMATION.



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



STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI KELLEY P. CRAMM E-022323 REGISTERED PROFESSIONAL ENGINEER

9/26/2025

KELLEY P. CRAMM
LICENSE # E-022323

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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
HVAC - LEVEL 2 PLAN - BUILDING D

SHEET NUMBER:
M102.D

30 OF 91 SHEETS
09/26/2025

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.
M5 DUCT DOWN TO FLOOR BELOW.
M59 REFER TO TYPICAL TAGGING ON PLANS AND DETAILS 2 & 3 ON SHEET M5.01 FOR CELL CHASE DUCT DETAILS (TYP ALL CELL CHASES).
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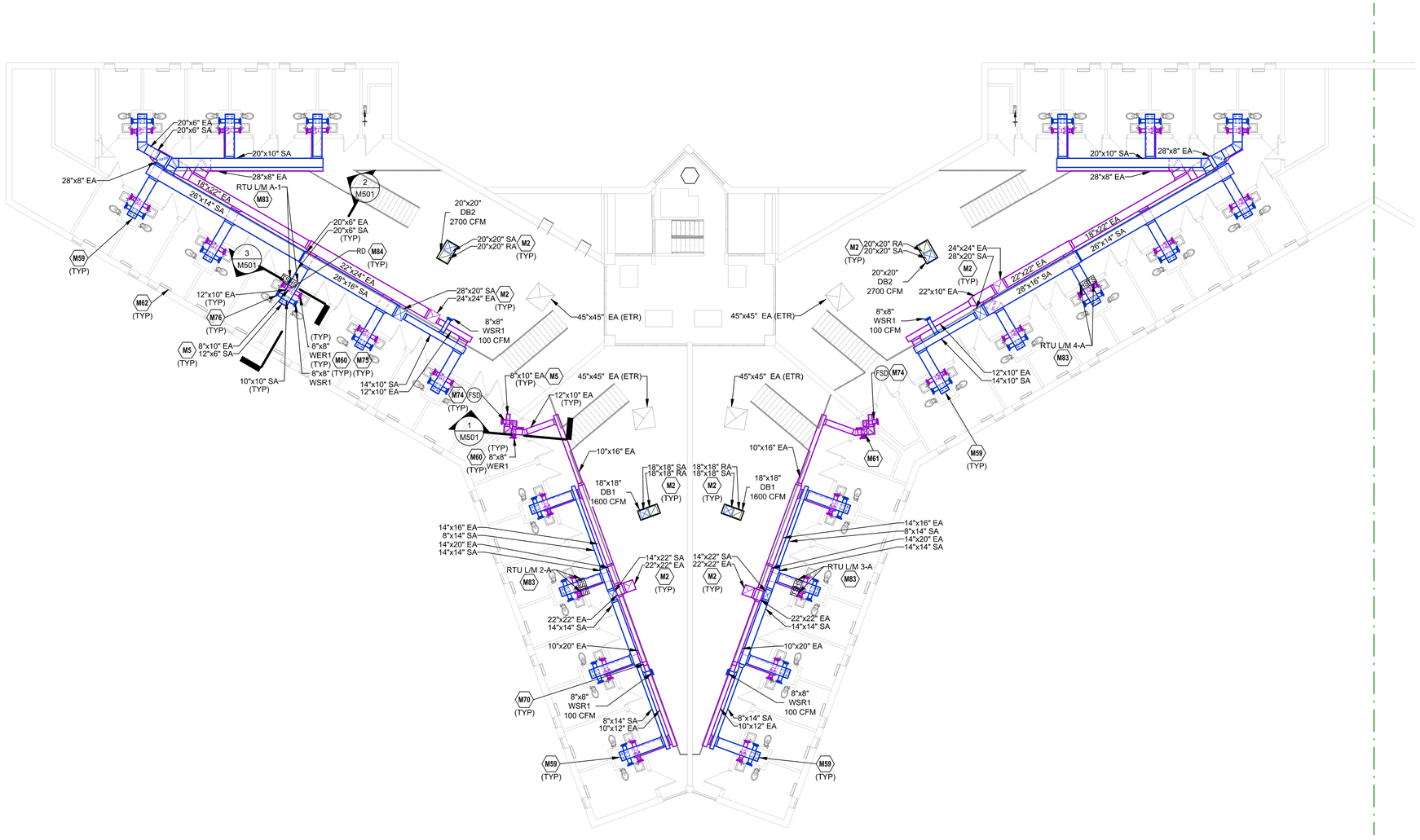

1 HVAC - LEVEL 2 PLAN - BUILDING L
3/32" = 1'-0"

STATE OF MISSOURI
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GOVERNOR

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E-022323
REGISTERED PROFESSIONAL ENGINEER

9/26/2025

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FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

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DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
HVAC - LEVEL 2 PLAN - BUILDING L

OVERALL KEY PLAN

SHEET NUMBER:
M102.L

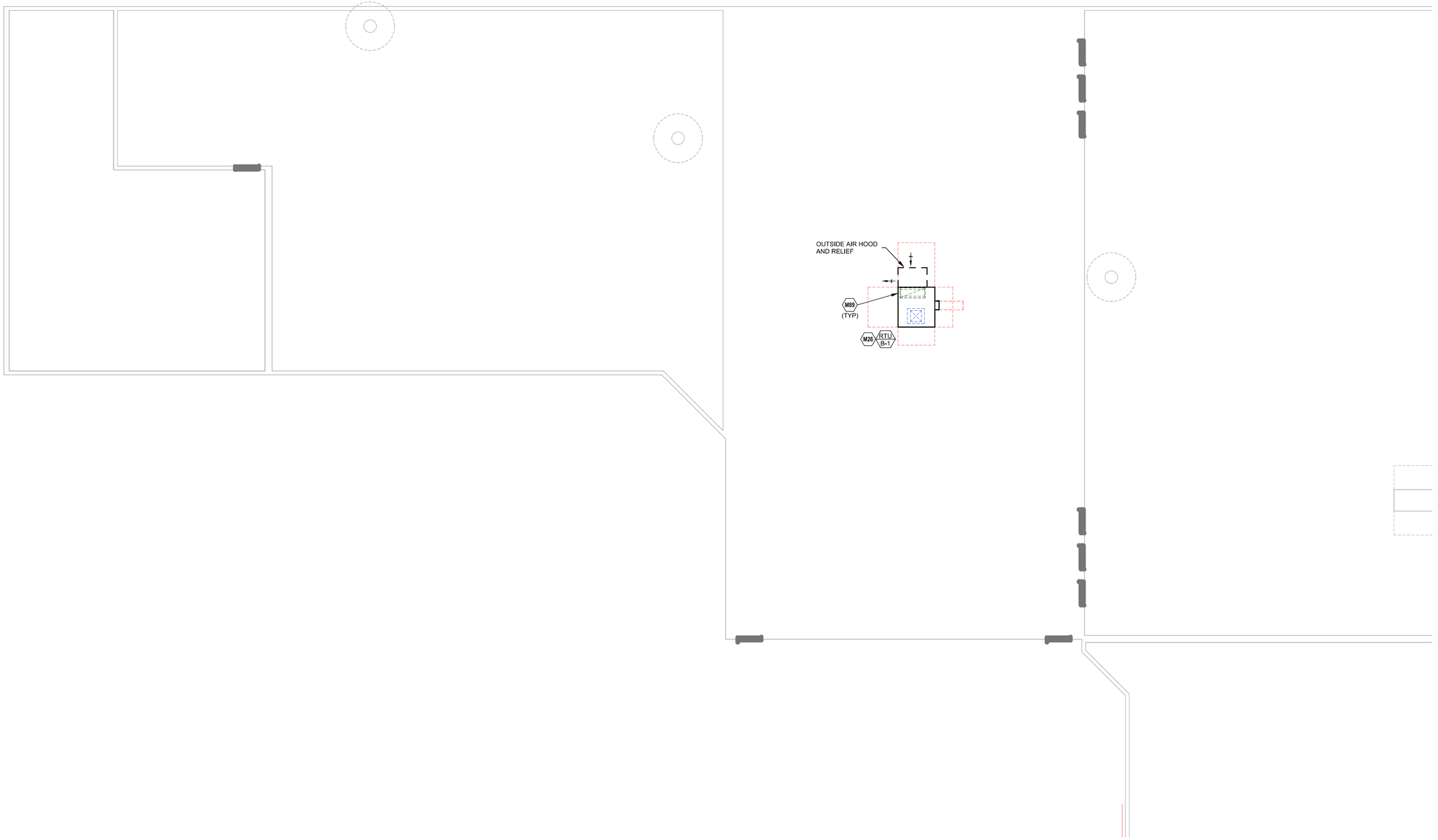
31 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

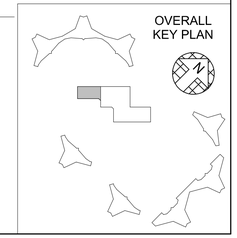
MECHANICAL PLAN NOTES:

M26 ALTERNATE #1 - GYMNASIUM HVAC UPGRADE.

M89 PROVIDE SECURITY BARS PER DETAIL 4 ON SHEET M500 IN ALL DUCT PENETRATIONS THROUGH ROOF TO ALL RTUS. SEE DETAILS FOR ADDITIONAL INFORMATION.



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



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WWW.HENDERSONENGINEERS.COM
2450001658
MO. CORPORATE NO: E-556D
EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:

ISSUE DATE: 09/26/2025

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

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

SHEET NUMBER:
M103.Ba

32 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

MECHANICAL PLAN NOTES:

M19 EXISTING EXHAUST 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 TO REMAIN.

M71 UNIT SIZE SHOWN IS WORST CASE OF "A" UNITS FOR THIS TYPICAL BUILDING. DIFFERENCES IN DIMENSIONS BETWEEN "A" UNITS IN THIS TYPICAL BUILDING ARE CONSTRAINED TO THE OUTSIDE AIR HOOD DIMENSIONS.

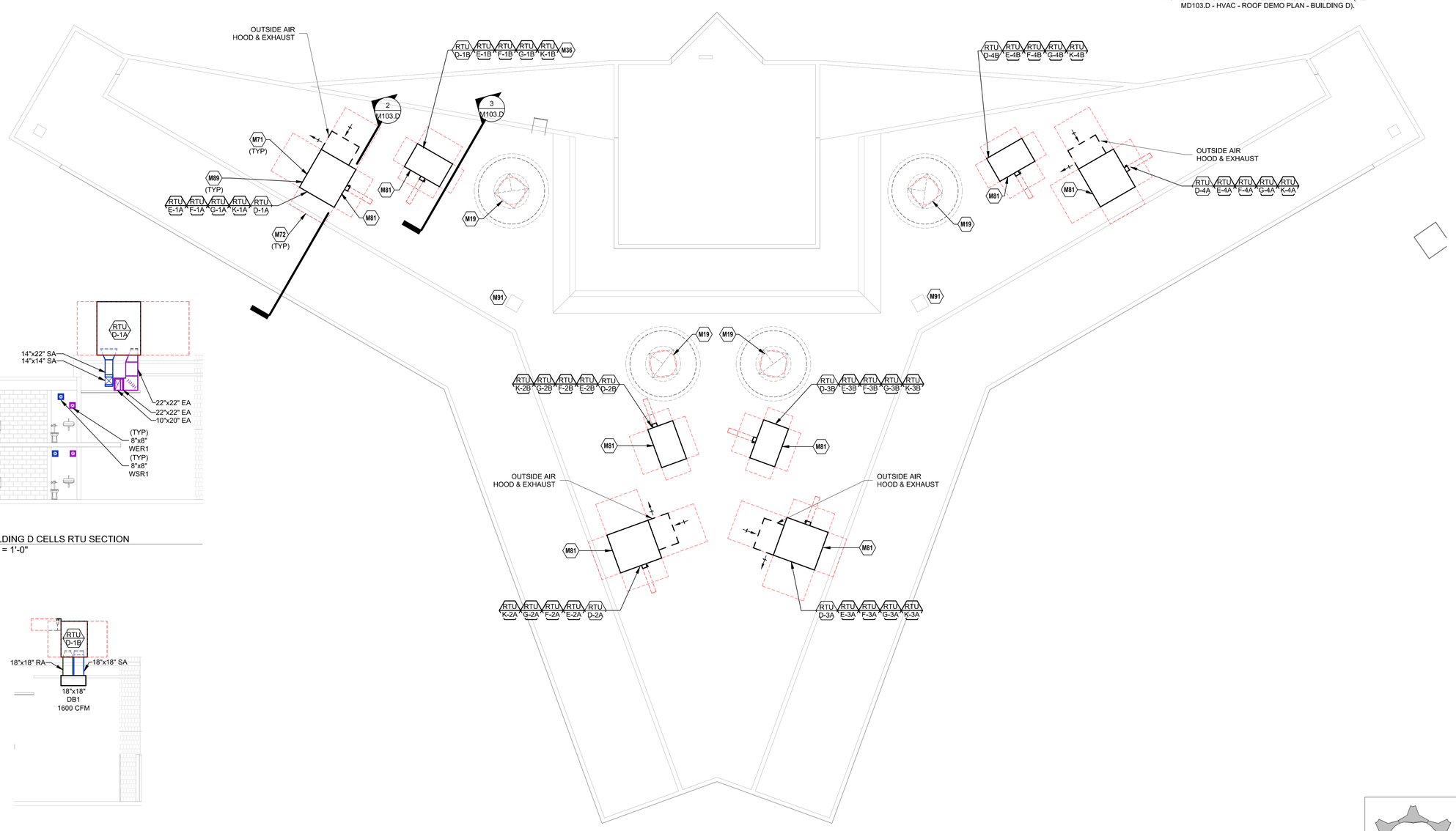
M72 COORDINATE RTU CURB HEIGHT WITH ELEVATION OF CLEARANCE REQUIREMENTS OF RTU AND ROOF PARAPET HEIGHT TO AVOID BLOCKING ACCESS TO ROOFTOP UNIT.

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 4 ON SHEET M500 IN ALL DUCT PENETRATIONS THROUGH ROOF TO ALL RTUS. SEE DETAILS FOR ADDITIONAL INFORMATION.

M91 CAPPED CURB FROM DEMOLISHED EXHAUST FAN (RE: MD103.D - HVAC - ROOF DEMO PLAN - BUILDING D).

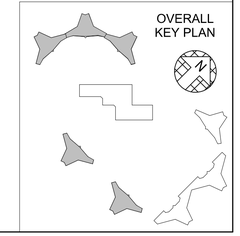
BUILDINGS D,E,F,G,K ARE IDENTICAL. ANY SCOPE SHOWN ON THIS DRAWING WILL ALSO BE REQUIRED ON BUILDINGS E,F,G,K



2 BUILDING D CELLS RTU SECTION
1/8" = 1'-0"

3 BUILDING D DAYROOM RTU SECTION
1/8" = 1'-0"

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



KELLEY P. CRAMM

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

KELLEY P. CRAMM
LICENSE # E-022323
9/26/2025

HENDERSON ENGINEERS
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1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
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REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
MECHANICAL ROOF PLAN - BUILDING D

SHEET NUMBER:
M103.D

33 OF 91 SHEETS
09/26/2025

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

MECHANICAL PLAN NOTES:

M19 EXISTING EXHAUST 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.

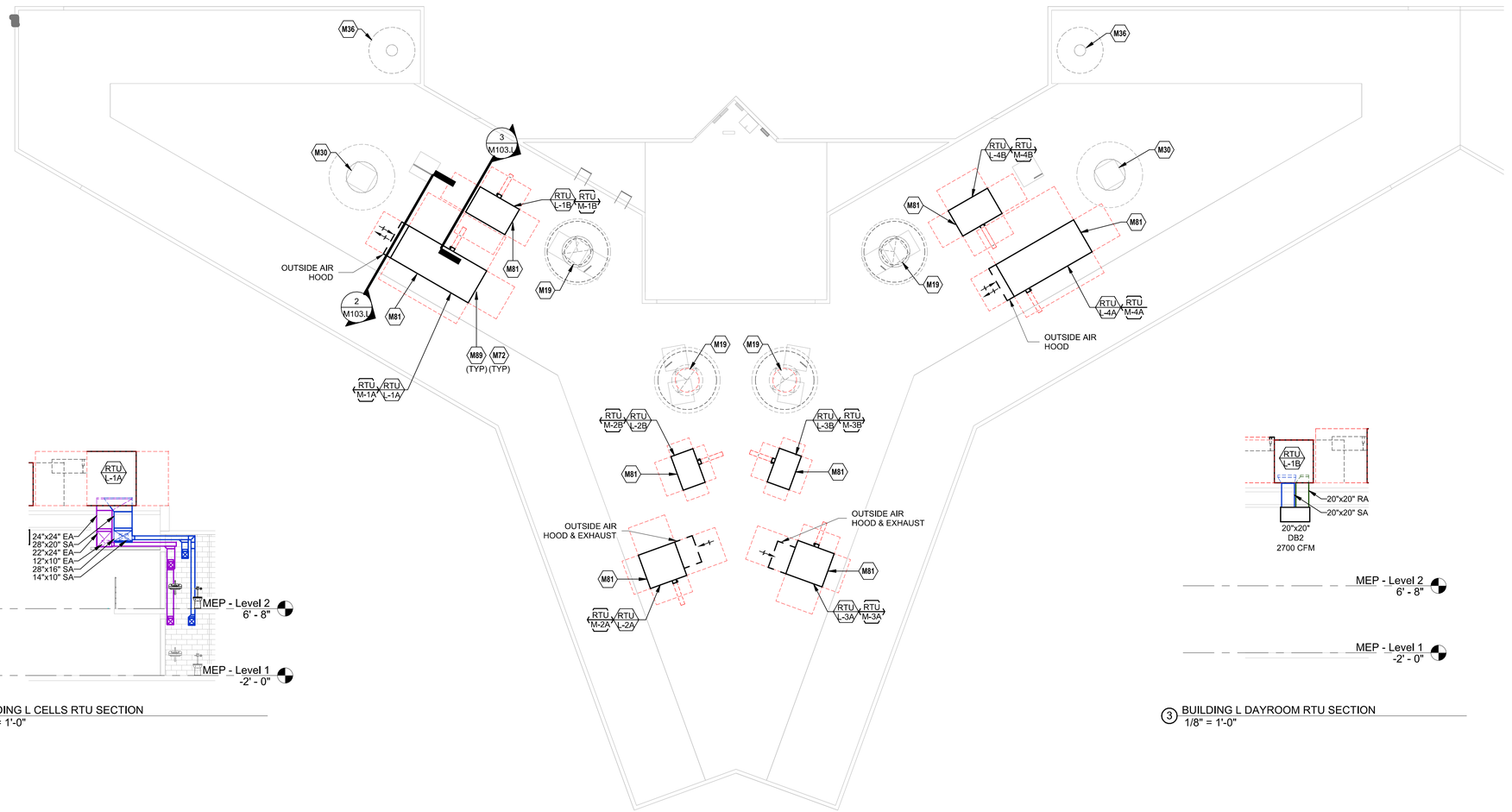
M30 CAPPED CURB FROM DEMOLISHED EXHAUST FAN (RE: MD103.L - HVAC - ROOF DEMO PLAN - BUILDING L).

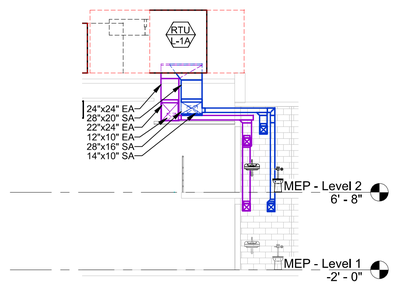
M36 EXISTING EXHAUST TO REMAIN.

M72 COORDINATE RTU CURB HEIGHT WITH ELEVATION OF CLEARANCE REQUIREMENTS OF RTU AND ROOF PARAPET HEIGHT TO AVOID BLOCKING ACCESS TO ROOFTOP UNIT.

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 4 ON SHEET M500 IN ALL DUCT PENETRATIONS THROUGH ROOF TO ALL RTUS. SEE DETAILS FOR ADDITIONAL INFORMATION.

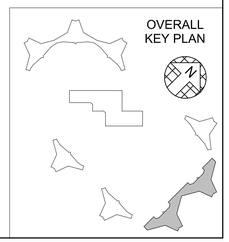




2 BUILDING L CELLS RTU SECTION
1/8" = 1'-0"

3 BUILDING L DAYROOM RTU SECTION
1/8" = 1'-0"

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



STATE OF MISSOURI
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GOVERNOR

9/26/2025

KELLEY P. CRAMM
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 ROOF PLAN - BUILDING L

SHEET NUMBER:
M103.L

34 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

ROOFTOP UNIT SCHEDULE (DX COOLING, NATURAL GAS HEAT)

					SUPPLY FAN						EXHAUST 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)	HAS EXHAUST FAN (Y/N)	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)	CFM	MIN OUT (MBH)	NOM INPUT (MBH)	MIN EFF (%)	EAT (°F DB)	LAT (°F DB)	MIN NO STAGES	MAX VEL (FPM)	MIN OA (CFM)	ABS MIN OA (CFM)	V/PH	MCA	MOCP	DISC TYPE	WEIGHT (LBS)	NOTES
RTU B-1	DAIKIN	DPSC17B	17.0	SZVAV	AF	3100	0.5	1.06	2.30	Yes	No						R32	176.6	111.7	89.4	72.5	55.0	55.0	10.8	18.5	MODULATING	550	3100	324.0	400.0	80	19.0	95.0	MODULATING	500	2260	1360	480/3	47	70	F	2100	A-T, V, W
RTU D-1A	DAIKIN	DPSC07B	8.0	PACKAGED 100% OA	AF	1220	1.0	0.51	1.70	Yes	Yes	1360	1.00	0.37	1.20	Yes	R32	94.2	36.8	85.6	78.4	55.0	55.0	13	20.3	MODULATING	550	1220	162.0	200.0	80	-0.3	95.0	MODULATING	500	1220		208/3	52	70	F	2300	A-T, V
RTU D-1B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU D-2A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1700	1.0	0.69	1.70	Yes	Yes	2220	1.00	0.58	1.70	Yes	R32	140.7	55.1	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1700	243.0	300.0	80	-0.3	95.0	MODULATING	500	1700		208/3	78	110	F	2300	A-T, V
RTU D-2B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU D-3A	DAIKIN	DPSC15B	15.0	PACKAGED 100% OA	AF	1945	1.0	0.93	2.40	Yes	Yes	2465	1.00	0.95	2.10	Yes	R32	161.8	63.4	85.3	78.4	55.0	55.0	11.3	18.9	MODULATING	550	1945	243.0	300.0	80	-0.3	95.0	MODULATING	500	1945		208/3	93	125	F	2400	A-T, V
RTU D-3B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU D-4A	DAIKIN	DPSC10B	10.0	PACKAGED 100% OA	AF	1540	1.0	0.63	1.70	Yes	Yes	1600	1.00	0.45	1.20	Yes	R32	124.5	48.7	85.3	78.4	55.0	55.0	11.3	19.1	MODULATING	550	1540	162.0	200.0	80	-0.3	95.0	MODULATING	500	1540		208/3	63	90	F	2300	A-T, V
RTU D-4B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU E-1A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1780	1.0	0.73	1.70	Yes	Yes	1840	1.00	0.55	1.20	Yes	R32	143.1	56.0	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1780	243.0	300.0	80	-0.3	95.0	MODULATING	500	1780		208/3	77	110	F	2300	A-T, V
RTU E-1B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU E-2A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1785	1.0	0.73	1.70	Yes	Yes	2305	1.00	0.82	2.10	Yes	R32	143.3	56.1	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1785	243.0	300.0	80	-0.3	95.0	MODULATING	500	1785		208/3	79	125	F	2300	A-T, V
RTU E-2B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU E-3A	DAIKIN	DPSC10B	10.0	PACKAGED 100% OA	AF	1380	1.0	0.57	1.70	Yes	Yes	1900	1.00	0.58	2.10	Yes	R32	120.2	47.2	85.3	78.4	55.0	55.0	11.3	19.1	MODULATING	550	1380	162.0	200.0	80	-0.3	95.0	MODULATING	500	1380		208/3	65	100	F	2300	A-T, V
RTU E-3B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU E-4A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1620	1.0	0.66	1.70	Yes	Yes	1680	1.00	0.48	1.20	Yes	R32	138.1	54.2	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1620	243.0	300.0	80	-0.3	95.0	MODULATING	500	1620		208/3	77	110	F	2200	A-T, V
RTU E-4B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU F-1A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1780	1.0	0.73	1.70	Yes	Yes	1840	1.00	0.55	1.20	Yes	R32	143.1	56.0	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1780	243.0	300.0	80	-0.3	95.0	MODULATING	500	1780		208/3	77	110	F	2300	A-T, V
RTU F-1B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU F-2A	DAIKIN	DPSC15B	15.0	PACKAGED 100% OA	AF	1945	1.0	0.93	1.70	Yes	Yes	2465	1.00	0.95	2.10	Yes	R32	161.8	63.4	85.3	78.4	55.0	55.0	11.3	18.9	MODULATING	550	1945	243.0	300.0	80	-0.3	95.0	MODULATING	500	1945		208/3	93	125	F	2400	A-T, V
RTU F-2B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU F-3A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1700	1.0	0.69	1.70	Yes	Yes	2220	1.00	0.58	1.70	Yes	R32	140.7	55.1	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1700	243.0	300.0	80	-0.3	95.0	MODULATING	500	1700		208/3	78	110	F	2300	A-T, V
RTU F-3B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU F-4A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1820	1.0	0.75	1.70	Yes	Yes	1880	1.00	0.57	2.10	Yes	R32	144.3	56.4	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1820	243.0	300.0	80	-0.3	95.0	MODULATING	500	1820		208/3	79	125	F	2300	A-T, V
RTU F-4B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU G-1A	DAIKIN	DPSC15B	15.0	PACKAGED 100% OA	AF	1940	1.0	0.93	4.30	Yes	Yes	2000	1.00	0.63	2.10	Yes	R32	161.7	63.3	85.3	78.4	55.0	55.0	11.3	18.9	MODULATING	550	1940	243.0	300.0	80	-0.3	95.0	MODULATING	500	1940		208/3	97	150	F	2400	A-T, V
RTU G-1B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU G-2A	DAIKIN	DPSC15B	15.0	PACKAGED 100% OA	AF	2035	1.0	0.97	4.30	Yes	Yes	2555	1.00	0.71	1.70	Yes	R32	164.6	64.4	85.3	78.4	55.0	55.0	11.3	18.9	MODULATING	550	2035	243.0	300.0	80	-0.3	95.0	MODULATING	500	2035		208/3	96	150	F	2400	A-T, V
RTU G-2B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU G-3A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1780	1.0	0.73	1.70	Yes	Yes	2300	1.00	0.61	1.70	Yes	R32	143.1	56.0	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1780	243.0	300.0	80	-0.3	95.0	MODULATING	500	1780		208/3	78	110	F	2300	A-T, V
RTU G-3B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU G-4A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1780	1.0	0.73	1.70	Yes	Yes	1840	1.00	0.55	1.20	Yes	R32	143.1	56.0	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1780	243.0	300.0	80	-0.3	95.0	MODULATING	500	1780		208/3	77	110	F	2300	A-T, V
RTU G-4B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU K-1A	DAIKIN	DPSC10B	10.0	PACKAGED 100% OA	AF	1300	1.0	0.54	1.70	Yes	Yes	1360	1.00	0.37	1.20	Yes	R32	117.8	46.5	85.3	78.4	55.0	55.0	11.3	19.1	MODULATING	550	1300	162.0	200.0	80	-0.3	95.0	MODULATING	500	1300		208/3	63	90	F	2300	A-T, V
RTU K-1B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU K-2A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1700	1.0	0.69	1.70	Yes	Yes	2220	1.00	0.58	1.70	Yes	R32	140.7	55.1	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1700	243.0	300.0	80	-0.3	95.0	MODULATING	500	1700		208/3	78	110	F	2300	A-T, V
RTU K-2B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU K-3A	DAIKIN	DPSC15B	15.0	PACKAGED 100% OA	AF	2000	1.0	0.96	4.30	Yes	Yes	2520	1.00	0.7	1.70	Yes	R32	163.5	64.0	85.3	78.4	55.0	55.0	11.3	18.9	MODULATING	550	2000	243.0	300.0	80	-0.3	95.0	MODULATING	500	2000		208/3	96	150	F	2400	A-T, V
RTU K-3B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU K-4A	DAIKIN	DPSC10B	10.0	PACKAGED 100% OA	AF	1540	1.0	0.63	1.70	Yes	Yes	1600	1.00	0.45	1.20	Yes	R32	124.5	48.7	85.3	78.4	55.0	55.0	11.3	19.1	MODULATING	550	1540	162.0	200.0	80	-0.3	95.0	MODULATING	500	1540		208/3	63	90	F	2300	A-T, V
RTU K-4B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU L-1A	DAIKIN	DPSC25B	25.0	PACKAGED 100% OA	AF	3720	1.0	1.86	3.00	Yes	Yes	3940	1.00	1.25	3.00	Yes	R32	284.8	111.4	85.3	78.4	55.0	55.0	10.5	20	MODULATING	550	3720	486.0	600.0	80	-0.3	95.0	MODULATING	500	3720		208/3	122	150	F	4300	A-T, V
RTU L-1B	DAIKIN	DHG102	7.5	SZCV	AF	2700	0.5	1.14	2.40	Yes	No						R32	100.7	62.6	78.2	64.4	56.9	55.1	12.5	18.6	2	550	2700	145.8	180.0	80	52.4	95.0	2	500	625		208/3	44	50	NF	1300	A-C, E-P, R-V
RTU L-2A	DAIKIN	DPSC10B	10.0	PACKAGED 100% OA	AF	1390	1.0	0.57	1.70	Yes	Yes	1910	1.00	0.58	1.20	Yes	R32	121.2	48.7	85.3	78.4	55.0	55.0	11.3	19.1	MODULATING	550	1390	162.0	200.0	80	-0.3	95.0	MODULATING	500	1390		208/3	63	90	F	2300	A-T, V
RTU L-2B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU L-3A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1940	1.0	0.81	1.70	Yes	Yes	2460	1.00	0.94	2.10	Yes	R32	147.7	59.1	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1940	243.0	300.0	80	-0.3	95.0	MODULATING	500	1940		208/3	79	125	F	2300	A-T, V
RTU L-3B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU L-4A	DAIKIN	DPSC30B	30.0	PACKAGED 100% OA	AF	3850	1.0	1.92	3.00	Yes	Yes	4050	1.00	1.31	3.00	Yes	R32	310.6	121.5	85.3	78.4	55.0	55.0	10.3	16.4	MODULATING	550	3850	486.0	600.0	80	-0.3	95.0	MODULATING	500	3850		208/3	140	175	F	4400	A-T, V
RTU L-4B	DAIKIN	DHG102	7.5	SZCV	AF	2700	0.5	1.14	2.40	Yes	No						R32	100.7	62.6	78.2	64.4	56.9	55.1	12.5	18.6	2	550	2700	145.8	180.0	80	52.4	95.0	2	500	625		208/3	44	50	NF	1300	A-C, E-P, R-V
RTU M-1A	DAIKIN	DPSC25B	25.0	PACKAGED 100% OA	AF	3720	1.0	1.86	3.00	Yes	Yes	3940	1.00	1.25	3.00	Yes	R32	284.8	111.4	85.3	78.4	55.0	55.0	10.5	20	MODULATING	550	3720	486.0	600.0	80	-0.3	95.0	MODULATING	500	3720		208/3	122	150	F	4300	A-T, V
RTU M-1B	DAIKIN	DHG102	7.5	SZCV	AF	2700	0.5	1.14	2.40	Yes	No						R32	100.7	62.6	78.2	64.4	56.9	55.1	12.5	18.6	2	550	2700	145.8	180.0	80	52.4	95.0	2	500	625		208/3	44	50	NF	1300	A-C, E-P, R-V
RTU M-2A	DAIKIN	DPSC10B	10.0	PACKAGED 100% OA	AF	1390	1.0	0.57	1.70	Yes	Yes	1910	1.00	0.58	1.20	Yes	R32	121.2	48.7	85.3	78.4	55.0	55.0	11.3	19.1	MODULATING	550	1390	162.0	200.0	80	-0.3	95.0	MODULATING	500	1390		208/3	63	90	F	2300	A-T, V
RTU M-2B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU M-3A	DAIKIN	DPSC12B	12.0	PACKAGED 100% OA	AF	1940	1.0	0.81	1.70	Yes	Yes	2460	1.00	0.94	2.10	Yes	R32	147.7	59.1	85.3	78.4	55.0	55.0	11	17.6	MODULATING	550	1940	243.0	300.0	80	-0.3	95.0	MODULATING	500	1940		208/3	79	125	F	2300	A-T, V
RTU M-3B	DAIKIN	DHG072	6.0	SZCV	AF	1600	0.5	0.65	1.20	Yes	No						R32	67.7	41.8	79.9	65.8	56.4	54.9	12.5	18.6	2	550	1600	101.3	125.0	80	52.4	95.0	2	500	400		208/3	27	40	NF	800	A-C, E-P, R-V
RTU M-4A	DAIKIN	DPSC30B	30.0	PACKAGED 100% OA	AF	3850	1.0	1.92	3.00	Yes	Yes	4050	1.00	1.31	3.00	Yes	R32	310.6	121.5	85.3	78.4	55.0	55.0	10.3	16.4	MODULATING	550	3850	486.0	600.0	80	-0.3	95.0	MODULATING	500	3850		208/3	140	175	F	4400	A-T, V
RTU M-4B	DAIKIN	DHG102	7.5	SZCV	AF	2700	0.5	1.14	2.40	Yes	No						R32	100.7	62.6	78.2	64.4	56.9	55.1	12.5	18.6	2	550	2700	145.8	180.0	80	52.4	95.0	2	500	625		208/3	44	50	NF	1300	A-C, E-P, R-V

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 M601 FOR PACKAGED SINGLE-ZONE ROOFTOP UNIT CONTROL MATRICES.
B. EQUIPMENT SIZED FOR 100°F AMBIENT TEMPERATURE.
C. PROVIDE 2" 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 FACTORY MOUNTED VARIABLE FREQUENCY DRIVE OR 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 16 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 VARIABLE SPEED LEAD COMPRESSOR FOR CAPACITY CONTROL.
R. PROVIDE GUARDS TO PROTECT CONDENSER COIL FROM HAIL OR OTHER DAMAGE.
S. 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.
T. PROVIDE HOT GAS REHEAT COIL.
U. PROVIDE FACTORY MOUNTED NONFUSED DISCONNECT INSTALLED ON SERVICE SIDE OF UNIT. NONFUSED DISCONNECT SHALL HAVE MINIMUM SCCR RATING OF 5 KAIC. SCCR SHALL BE MARKED ON THE EQUIPMENT NAMEPLATE IN ACCORDANCE WITH NEC.
V. PROVIDE RTU WITH PACKAGED CONTROLLERS WITH BACNET INTERACE. RTUS 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.
W. ALTERNATE #1 - GYMNASIUM HVAC UPGRADE.

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	530-18SQB	ALUMINUM	CONCENTRIC DROP BOX	DUCT	46"x22"	25	0.25	ALL
DB2	RUSKIN	SUPPLY & RETURN	530-20SQB	ALUMINUM	CONCENTRIC DROP BOX	DUCT	46"x28"	25	0.20	ALL
DB3	KEES	SUPPLY	DBD-44-DL	STEEL	LOUVERED	SEE PLANS	33"x33"	35	0.25	ALL
WER1	PRICE	SEE PLANS	MPSG	STEEL	PERFORATED	EXHAUST	8"x8"	25	0.08	ALL
WSR1

RTU ROOM AIR FLOW SCHEDULE (QUADRANT 3)

ROOM	BLDG D- RTU-D3A		BLDG E- RTU-E3A		BLDG F- RTU-F3A		BLDG G- RTU-G3A		BLDG K- RTU-K3A		BLDG L- RTU-L3A		BLDG M- RTU-M3A	
	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)
120 - CELL	120	125	80	85	100	105	105	110	120	125	115	120	115	120
121 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
122 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
123 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
124 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
125 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
126 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
127 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
128 - SHOWER	0	100	0	100	0	100	0	100	0	100	0	100	0	100
129 - JAN	0	70	0	70	0	70	0	70	0	70	0	70	0	70
130 - SHOWER	0	100	0	100	0	100	0	100	0	100	0	100	0	100
141 - DAY ROOM	100	0	100	0	100	0	100	0	100	0	100	0	100	0
220 - CELL	115	120	80	85	100	105	105	110	100	105	115	120	115	120
221 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
222 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
223 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
224 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
225 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
226 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
227 - CELL	115	120	80	85	100	105	105	110	120	125	115	120	115	120
228 - SHOWER	0	100	0	100	0	100	0	100	0	100	0	100	0	100
229 - JAN	0	70	0	70	0	70	0	70	0	70	0	70	0	70
230 - SHOWER	0	100	0	100	0	100	0	100	0	100	0	100	0	100
TOTALS:	**1945**	**2465**	**1380**	**1900**	**1700**	**2220**	**1780**	**2300**	**2000**	**2520**	**1940**	**2460**	**1940**	**2460**

RTU ROOM AIR FLOW SCHEDULE (QUADRANT 1)

ROOM	BLDG D- RTU-D1A		BLDG E- RTU-E1A		BLDG F- RTU-F1A		BLDG G- RTU-G1A		BLDG K- RTU-K1A		BLDG L- RTU-L1A		BLDG M- RTU-M1A	
	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)
101 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
102 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
103 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
104 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
105 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
106 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
107 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
108 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
139 - DAY ROOM	100	0	100	0	100	0	100	0	100	0	100	0	100	0
160 - CELL	[redacted]		[redacted]		[redacted]		[redacted]		[redacted]		110	120	110	120
161 - CELL											110	120	110	120
162 - CELL											110	120	110	120
163 - CELL											110	120	110	120
164 - CELL											110	120	110	120
165 - CELL											110	120	110	120
166 - CELL											115	125	115	125
167 - CELL											115	125	115	125
201 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
202 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
203 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
204 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
205 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
206 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
207 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
208 - CELL	70	85	105	115	105	115	115	125	75	85	115	125	115	125
260 - CELL	[redacted]		[redacted]		[redacted]		[redacted]		[redacted]		110	120	110	120
261 - CELL											110	120	110	120
262 - CELL											110	120	110	120
263 - CELL											110	120	110	120
264 - CELL											110	120	110	120
265 - CELL											110	120	110	120
266 - CELL											115	125	115	125
267 - CELL											115	125	115	125
TOTALS:	**1220**	**1360**	**1780**	**1840**	**1780**	**1840**	**1940**	**2000**	**1300**	**1360**	**3720**	**3940**	**3720**	**3940**

RTU ROOM AIR FLOW SCHEDULE (QUADRANT 4)

ROOM	BLDG D- RTU-D4A		BLDG E- RTU-E4A		BLDG F- RTU-F4A		BLDG G- RTU-G4A		BLDG K- RTU-K4A		BLDG L- RTU-L4A		BLDG M- RTU-M4A	
	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)
131 - CELL	90	100	95	105	105	115	105	115	90	100	120	130	120	130
132 - CELL	90	100	95	105	105	115	105	115	90	100	120	130	120	130
133 - CELL	90	100	95	105	105	115	105	115	90	100	120	130	120	130
134 - CELL	90	100	95	105	105	115	105	115	90	100	120	130	120	130
135 - CELL	90	100	95	105	105	115	105	115	90	100	120	130	120	130
136 - CELL	90	100	95	105	105	115	105	115	90	100	120	130	120	130
137 - CELL	90	100	95	105	105	115	105	115	90	100	120	130	120	130
138 - CELL	90	100	95	105	105	115	105	115	90	100	120	130	120	130
142 - DAY ROOM	100	0	100	0	100	0	100	0	100	0	100	0	100	0
169 - CELL	[redacted]		[redacted]		[redacted]		[redacted]		[redacted]		110	120	110	120
170 - CELL											110	120	110	120
171 - CELL											110	120	110	120
172 - CELL											110	120	110	120
173 - CELL											110	120	110	120
174 - CELL											110	120	110	120
175 - CELL											110	120	110	120
176 - CELL											110	120	110	120
231 - CELL	90	100	95	105	110	120	105	115	90	100	125	135	125	135
232 - CELL	90	100	95	105	110	120	105	115	90	100	125	135	125	135
233 - CELL	90	100	95	105	110	120	105	115	90	100	125	135	125	135
234 - CELL	90	100	95	105	110	120	105	115	90	100	125	135	125	135
235 - CELL	90	100	95	105	110	120	105	115	90	100	125	135	125	135
236 - CELL	90	100	95	105	110	120	105	115	90	100	125	135	125	135
237 - CELL	90	100	95	105	110	120	105	115	90	100	125	130	125	130
238 - CELL	90	100	95	105	110	120	105	115	90	100	125	130	125	130
269 - CELL	[redacted]		[redacted]		[redacted]		[redacted]		[redacted]		110	120	110	120
270 - CELL											110	120	110	120
271 - CELL											110	120	110	120
272 - CELL											110	120	110	120
273 - CELL											110	120	110	120
274 - CELL											110	120	110	120
275 - CELL											125	130	125	130
276 - CELL											125	130	125	130
TOTALS:	**1540**	**1600**	**1620**	**1680**	**1820**	**1880**	**1780**	**1840**	**1540**	**1600**	**3850**	**4050**	**3850**	**4050**

RTU ROOM AIR FLOW SCHEDULE (QUADRANT 2)

ROOM	BLDG D- RTU-D2A		BLDG E- RTU-E2A		BLDG F- RTU-F2A		BLDG G- RTU-G2A		BLDG K- RTU-K2A		BLDG L- RTU-L2A		BLDG M- RTU-M2A	
	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)	SUPPLY (CFM)	EXHAUST (CFM)
110 - JAN	0	70	0	70	0	70	0	70	0	70	0	70	0	70
109 - SHOWER	0	100	0	100	0	100	0	100	0	100	0	100	0	100
111 - SHOWER	0	100	0	100	0	100	0	100	0	100	0	100	0	100
112 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
113 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
114 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
115 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
116 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
117 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
118 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
119 - CELL	100	105	105	110	115	120	125	130	100	105	80	85	80	85
140 - DAY ROOM	100	0	100	0	100	0	100	0	100	0	100	0	100	0
209 - SHOWER	0	100	0	100	0	100	0	100	0	100	0	100	0	100
210 - JAN	0	70	0	70	0	70	0	70	0	70	0	70	0	70
211 - SHOWER	0	100	0	100	0	100	0	100	0	100	0	100	0	100
212 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
213 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
214 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
215 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
216 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
217 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
218 - CELL	100	105	105	110	115	120	120	125	100	105	80	85	80	85
219 - CELL	100	105	110	115	120	125	130	135	100	105	90	95	90	95
TOTALS:	**1700**	**2220**	**1785**	**2305**	**1945**	**2465**	**2035**	**2555**	**1700**	**2220**	**1390**	**1910**	**1390**	**1910**

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

KELLEY P. CRAMM
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OFFICE OF ADMINISTRATION
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MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

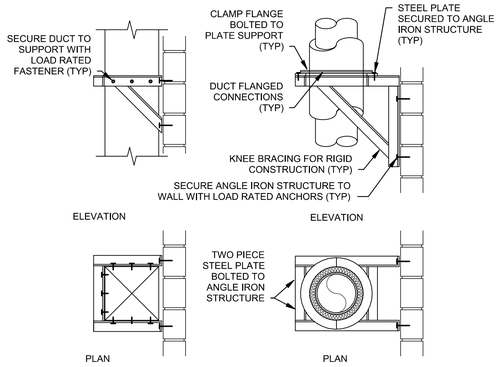
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
MECHANICAL SCHEDULES

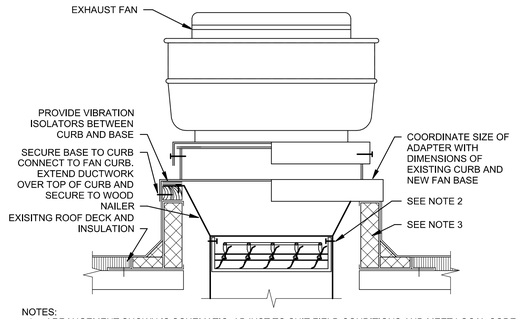
SHEET NUMBER:
M401

KELLEY P. CRAMM



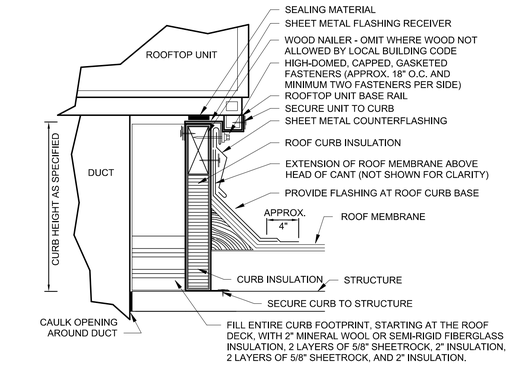
NOTES:
1. REFER TO SPECIFICATIONS AND SMACNA DUCT CONSTRUCTION STANDARDS FOR MORE INFORMATION. SUPPORTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS.
2. CONTRACTOR SHALL SELECT ANCHORS AS APPROPRIATE FOR LOAD AND ENVIRONMENT. REFER TO SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS.

③ DUCT WALL SUPPORT DETAIL
NTS



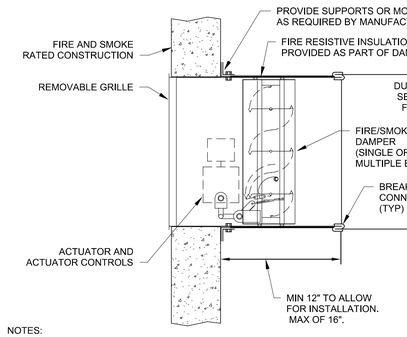
NOTES:
1. ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS AND MEET LOCAL CODE.
2. IF DAMPER IS SPECIFIED IN EQUIPMENT SCHEDULE, INSTALL DAMPER AT BASE OF CURB AND SECURE FROM ABOVE TO ALLOW SERVICE THROUGH TOP OF CURB.
3. EXISTING ROOF CURB.
4. PROVIDE SECURITY BARS AS NOTED ON PLANS. REFER TO DETAIL 4 ON THIS SHEET.

② ROOF MOUNTED UPBLAST FAN DETAIL
NTS



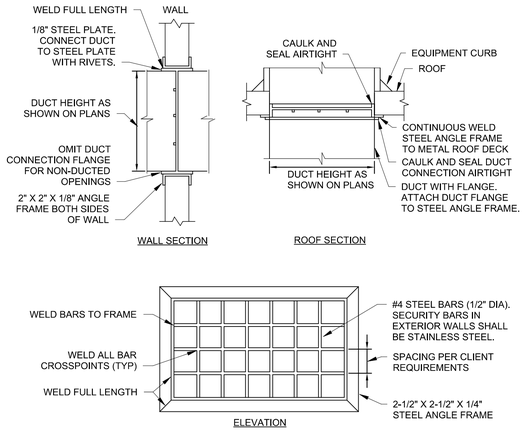
NOTES:
1. CUT METAL DECKING TO ALLOW CURB INSTALLATION ON STEEL FRAMING. AFTER CURB IS SET IN PLACE, TRIM REMAINING METAL DECKING AND INSTALL WITHIN CURB. TACK WELD DECKING TO SUPPORT STEEL. DO NOT WELD INTERIOR DECKING TO ROOF CURB. PROVIDE ADDITIONAL CROSS FRAMING TO SUPPORT INTERIOR DECKING AND FILL 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. INSTALL DAMPER PER MANUFACTURER'S INSTRUCTIONS/RECOMMENDATIONS.
2. MAKE PENETRATION OPENING 1/8" PER FOOT LARGER THAN DAMPER DIMENSIONS WITH 1/4" MINIMUM REQUIRED, MAXIMUM 1".
3. DIVISION 26 CONTRACTOR SHALL PROVIDE POWER CONNECTION TO ALL DAMPERS.
4. INSTALL ACTUATOR AND ACCESS DOOR (WHEN REQUIRED) IN AN ACCESSIBLE LOCATION FOR MAINTENANCE IN ACCORDANCE WITH NFPA REQUIREMENTS.

⑤ FIRE SMOKE DAMPER OUT OF THE WALL DETAIL
NTS



④ SECURITY BARS IN DUCT PENETRATION DETAIL
NTS

STATE OF MISSOURI
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9/26/2025

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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

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ISSUE DATE: 09/26/2025

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

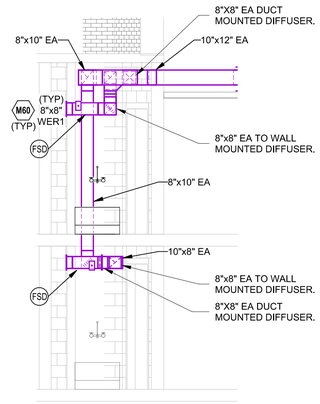
SHEET TITLE:
MECHANICAL DETAILS

SHEET NUMBER:
M500

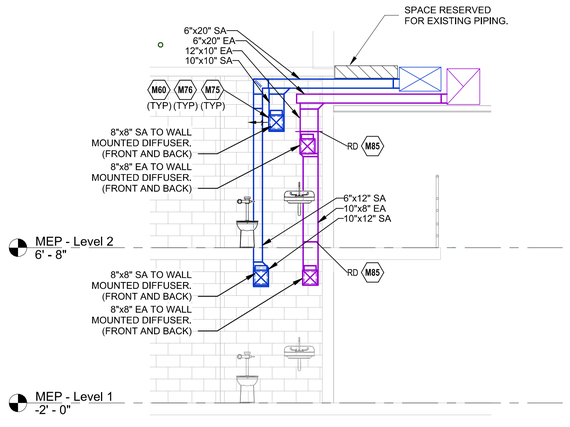
37 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

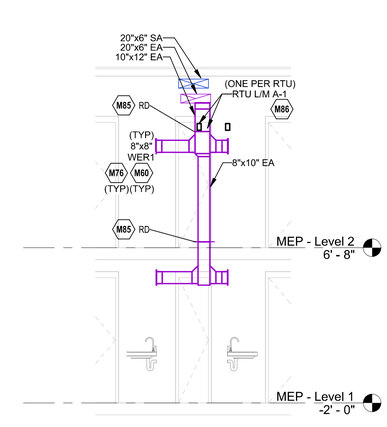
TYPICAL ALL HOUSING BUILDINGS (D,E,F,G,K,L,M)
DEMO EXISTING EXHAUST DUCTWORK WITHIN CHASES SERVING CELLS OR SHOWERS AND JANITOR CLOSETS.
ROUTE NEW SUPPLY AND EXHAUST BRANCHES THROUGH CHASES AS SHOWN BELOW.
TIE INTO NEW EXHAUST MAIN WITHIN NEW SOFFIT.
PROVIDE NEW WALL MOUNTED GRILLES.
EXISTING PLUMBING PIPING TO REMAIN.



1 SECTION - SHOWER CHASE
1/4" = 1'-0"



2 SECTION - CELL CHASE SIDE VIEW
1/4" = 1'-0"



3 SECTION - CELL CHASE FRONT VIEW
1/4" = 1'-0"

MECHANICAL PLAN NOTES:

M60 REFER TO SCHEDULES ON SHEET M402 FOR AIRFLOWS OF EACH ROOM WITHIN EACH BUILDING.

M75 INSTALL SUPPLY GRILLE VERTICALLY SUCH THAT DEFLECTION BARS POINT SUPPLY AIRFLOW HORIZONTALLY AWAY FROM ADJACENT EXHAUST GRILLE.

M76 ADJUST GRILLE LOCATIONS AS REQUIRED TO ACCOMMODATE LOCATION OF EXISTING PIPING. LOCATE SUPPLY GRILLES AS FAR FROM EXHAUST AS POSSIBLE. DUCT SIZES MAY BE CHANGED AS REQUIRED PROVIDED FREE AREA OF DUCT IS UNCHANGED.

M85 DUCT SMOKE DETECTOR BY DIV. 28 SHALL BE ACCESSIBLE THROUGH CHASE DOOR. REFER TO FIRE ALARM DRAWINGS.

M86 DUCT HUMIDITY AND TEMPERATURE SENSOR SHALL BE ACCESSIBLE THROUGH CHASE DOOR. PROVIDE A SINGLE DUCT HUMIDITY SENSOR AND DUCT TEMPERATURE SENSOR PER RTU. DO NOT PROVIDE HUMIDITY AND TEMPERATURE SENSORS WITHIN EVERY CHASE.

STATE OF MISSOURI
MIKE KEHOE,
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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
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PROJECT # C2406-01
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:
M501

38 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

PACKAGED 100% OA UNIT CONTROL MATRIX

CONTROL FEATURE	UNITS	RTUs D/E/F/G/K/L/M 1-4A SETPOINT OR Y/N	POINT TYPE INTERFACE WITH DDC (READ/WRITE)	NOTES
BUILDING AUTOMATION SYSTEM (BAS)				
BAS MONITORING AND MANAGEMENT INTERFACE		Y	BACNET	A
CONTROL STRATEGY				
SPACE TEMPERATURE CONTROL		Y		
HEATING AND COOLING SET POINTS				
COOLING - SPACE TEMPERATURE - OCCUPIED SETPOINT	°F DB	75	READ/WRITE	
COOLING - SPACE TEMPERATURE - OVERNIGHT SETBACK SETPOINT	°F DB	80	READ/WRITE	
DEAD BAND - MINIMUM HEATING AND COOLING TEMPERATURE SETPOINT DIFFERENCE	°F DB	5	READ/WRITE	
HEATING - SPACE TEMPERATURE - OCCUPIED SETPOINT	°F DB	70	READ/WRITE	
HEATING - SPACE TEMPERATURE - OVERNIGHT SETBACK SETPOINT	°F DB	60	READ/WRITE	
DEHUMIDIFICATION - SPACE HUMIDITY SENSOR SETPOINT	%RH	60	READ/WRITE	B
PROGRAMMED CONTROL FEATURES				
HVAC SYSTEM OCCUPIED/OVERNIGHT SETBACK MODE - SCHEDULED THROUGH BAS		Y	READ	B
EQUIPMENT COMPONENTS, ACCESSORIES AND CONTROL FEATURES				
COOLING COIL (DX - VARIABLE SPEED)		Y	READ STATUS	K
DEHUMIDIFICATION - MODULATING HOT GAS REHEAT		Y	READ STATUS	
HEATING - NATURAL GAS - MODULATING		Y	READ STATUS	K
OUTSIDE AIR DAMPER - MOTOR OPERATED		Y	READ STATUS	
RELIEF/EXHAUST AIR DAMPER - MOTOR OPERATED		Y	READ STATUS	
REMOTE TEMPERATURE SENSOR		Y	READ	B
REMOTE HUMIDITY SENSOR		Y	READ	B
SUPPLY FAN CONTROL METHODS				
ON CONTINUOUSLY		Y		
CONSTANT SPEED SUPPLY FAN OPERATION		Y	READ STATUS	K
EXHAUST FAN CONTROL METHODS				
ENABLE EXHAUST FAN WITH SUPPLY FAN STATUS		Y	READ STATUS	
CONSTANT SPEED EXHAUST FAN OPERATION		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	
OUTSIDE AIR DAMPER END SWITCH - SAFETY SHUTDOWN		Y	READ	R
REFRIGERANT LEAK DETECTION ALARM		Y	READ	F

DIV. 23 CONTRACTOR SHALL PROVIDE CONTROL PANEL(S), WIRING, THERMOSTAT(S), TEMPERATURE SENSOR(S), HUMIDISTAT(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.

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. DIVISION 23 CONTRACTOR SHALL PROVIDE DEVICE.
F. DEVICE SHALL BE FACTORY MOUNTED AND PRE-WIRED FOR OPERATION SUBJECT TO THE ONBOARD CONTROLLER.
K. UNITARY CONTROLLER SHALL MODULATE AND/OR CYCLE SUPPLY FAN SPEED AND COIL CAPACITY SUBJECT TO THE INTERNAL SAFETIES AND SEQUENCES TO MAINTAIN SCHEDULED SETPOINTS.
R PROVIDE END SWITCH ON THE OUTSIDE AIR DAMPER AND INTERLOCK THE SWITCH WITH THE SUPPLY FAN TO KEEP IT FROM STARTING IF END SWITCH IS NOT MADE.

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	
ADMINISTRATIVE SPACES	74	50%	NA	69	NA	NA	NA	NA	NA	24/7	24/7	24/7	B-D
DAYROOMS/JAIL SPACES	75	50%	NA	70	NA	NA	NA	NA	NA	24/7	24/7	24/7	B-D
ELECTRICAL / IT SPACES	70	50%	NA	65	NA	NA	NA	NA	NA	24/7	24/7	24/7	B-D

NOTES:
B. ZONE LEVEL SET POINT CONDITIONS SHALL B...
C ZONE LEVEL OCCUPANCY HOUR SCHEDULE SHALL BE PER BUILDING OPERATING HOURS UNLESS OTHERWISE SCHEDULED.
D. ZONE LEVEL CONTROLS SHALL BE CAPABLE O...

POINTS LIST - GLOBAL BUILDING MONITORING

POINT ID	DESCRIPTION	POINT TYPE	UNITS	ACCURACY	TRENDING INTERVAL	ENERGY DASHBOARD DISPLAY	STATUS ALARM	ALARM RANGE	NOTES
BUILDING SENSORS									
BDP	BUILDING DIFFERENTIAL PRESSURE	AI	IN. W.G.	SPEC	15 MIN.	X	X	-0.15 > BDP > +0.20	A, B
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

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).

1 GLOBAL POINTS MONITORING
NTS

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 - OCCUPIED SETPOINT	°F	75	READ/WRITE	
COOLING - OVERNIGHT SETBACK SETPOINT	°F	80	READ/WRITE	
DEAD BAND - MINIMUM HEATING AND COOLING TEMPERATURE SETPOINT DIFFERENCE	°F	5		
HEATING - OCCUPIED SETPOINT	°F	70	READ/WRITE	
HEATING - OVERNIGHT SETBACK SETPOINT	°F	60	READ/WRITE	
DEHUMIDIFICATION SETPOINT - HUMIDITY SENSOR FEEDBACK	% RH	60%	READ/WRITE	B
PROGRAMMED CONTROL FEATURES				
HVAC SYSTEM OCCUPIED/OVERNIGHT SETBACK MODE - SCHEDULED THROUGH BAS		Y	READ	B
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		
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

DIV. 23 CONTRACTOR SHALL PROVIDE CONTROL PANEL(S), WIRING, THERMOSTAT(S), TEMPERATURE SENSOR(S), HUMIDISTAT(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.

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. DIVISION 23 CONTRACTOR 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.

SZVAV ROOFTOP UNIT CONTROL MATRIX

CONTROL FEATURE	UNITS	RTU-B1 SETPOINT OR Y/N	NOTES
SETPOINTS			
COOLING - OCCUPIED SETPOINT	°F	75	
COOLING - UNOCCUPIED SETPOINT	°F	80	
DEAD BAND - MINIMUM HEATING AND COOLING TEMPERATURE SETPOINT DIFFERENCE	°F	5	
HEATING - OCCUPIED SETPOINT	°F	70	
HEATING - UNOCCUPIED SETPOINT	°F	60	
DEHUMIDIFICATION SETPOINT - HUMIDITY SENSOR FEEDBACK	% RH	60%	B
PROGRAMMED CONTROL FEATURES			
HVAC SYSTEM OCCUPIED/UNOCCUPIED MODE - PROGRAMMABLE THERMOSTAT		Y	B
REMOTE TEMPERATURE SENSOR		Y	B
REMOTE HUMIDITY SENSOR		Y	B
DEMAND CONTROL VENTILATION - CO2 SENSOR FEEDBACK	PPM	1,000	B
MORNING WARM-UP SEQUENCE		Y	
MORNING COOL-DOWN SEQUENCE		Y	
EQUIPMENT ACCESSORIES AND CONTROL MODULES			
OUTSIDE AIR DAMPER - MOTOR OPERATED (MODULATING)		Y	L
RELIEF - BAROMETRIC DAMPER		Y	
COOLING COIL (DX - VARIABLE SPEED)		Y	M
DEHUMIDIFICATION - HOT GAS REHEAT		Y	O
HEATING COIL (NATURAL GAS)		Y	M
SUPPLY FAN CONTROL METHODS			
ON DURING OCCUPIED HOURS		Y	
CYCLE WITH LOADS DURING UNOCCUPIED HOURS		Y	
OPTIMUM START SEQUENCE		Y	
VARIABLE VOLUME - MODULATE FAN SPEED IN RESPONSE TO ZONE TEMPERATURE		Y	M, R
SAFETIES, INTERLOCKS, AND ALARMS			
GAS VALVE SAFETY		Y	F
LOW LIMIT FREEZESTAT - FREEZE PROTECTION SAFETY SHUTDOWN		Y	F
REFRIGERANT LEAK DETECTION ALARM		Y	F

DIV. 23 CONTRACTOR SHALL PROVIDE CONTROL PANEL(S), WIRING, THERMOSTAT(S), TEMPERATURE SENSOR(S), HUMIDISTAT(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.

NOTES:
B. DIVISION 23 CONTRACTOR 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.
R. PROVIDE MODULATING FAN CONTROL WITH MINIMUM SPEED LESS THAN 50% OF FULL SPEED. AT MINIMUM SPEED THE FAN SHALL DRAW NO MORE THAN 30% OF FULL SPEED POWER.

STATE OF MISSOURI
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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:

ISSUE DATE: 09/26/2025

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

SHEET TITLE:
MECHANICAL CONTROLS

SHEET NUMBER:
M600

39 OF 91 SHEETS
09/26/2025

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

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)

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

HATCHING LEGEND

- ENLARGED PLAN
- NOT IN SCOPE (NIS)

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OFFICE OF ADMINISTRATION
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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

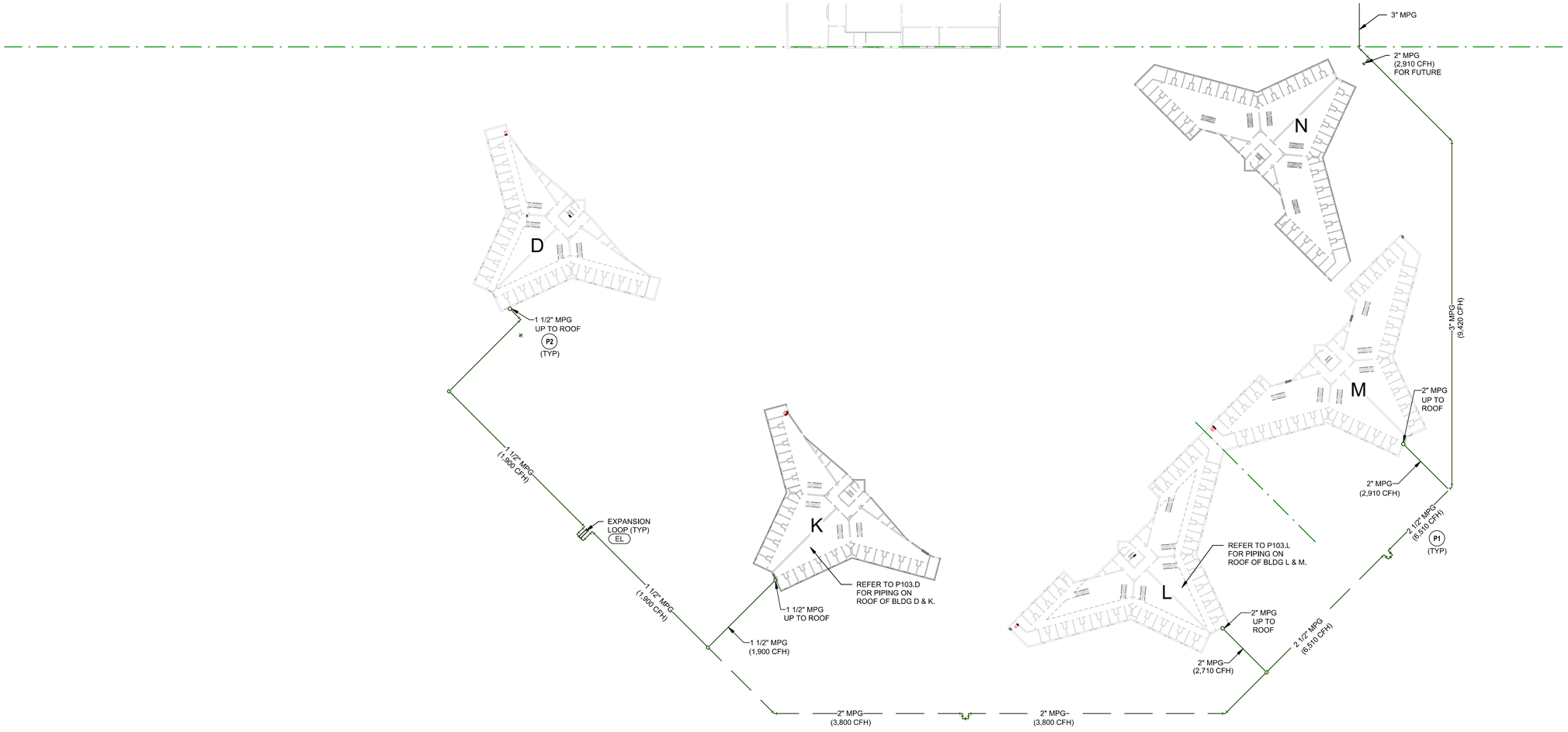
40 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

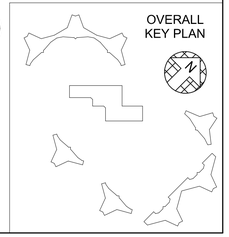
PLUMBING PLAN NOTES:

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,
GOVERNOR

9/26/2025

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

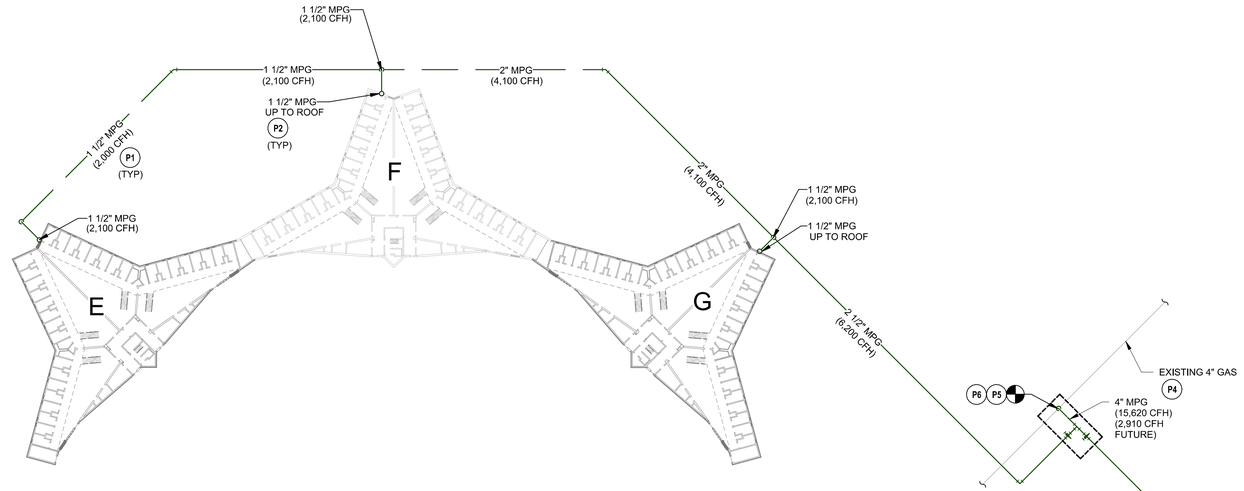
SHEET TITLE:
PLUMBING SITE PLAN - SOUTH

SHEET NUMBER:
P101

41 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM

EXISTING GAS METER
LOCATION (25 PSI)



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

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.

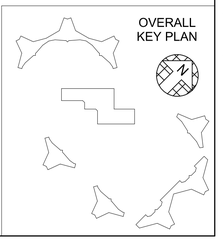
P2 PIPE SHOWN TO ROOF OF BUILDING IS A GENERAL LOCATION. ACTUAL ROUTING MAY VARY BASED ON EXISTING SITE UTILITIES AND BUILDING STRUCTURE. CONTRACTOR TO COORDINATE FINAL LOCATION WITH OWNER AND GENERAL CONTRACTOR. PROVIDE MAZE BARBED TAPE, OR APPROVED EQUIVALENT, FOR ENTIRE LENGTH OF VERTICAL PIPE ROUTED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

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 BELOW GRADE VAULT 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.

OVERALL KEY PLAN



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NOTARIZED STATE OF MISSOURI STATE SEAL REGISTERED PROFESSIONAL ENGINEER

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ISSUE DATE: 09/26/2025

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

SHEET TITLE:

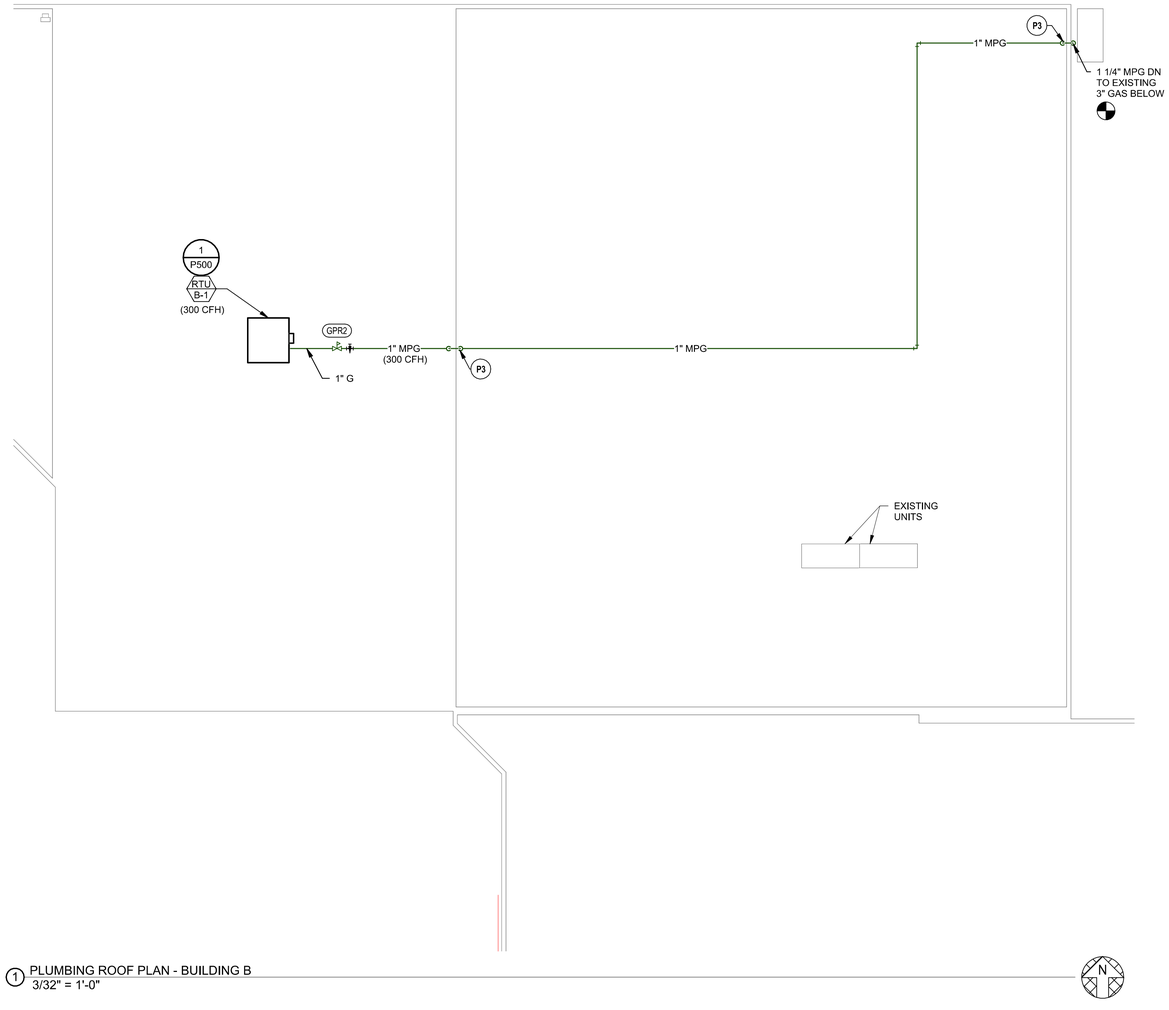
PLUMBING SITE PLAN - NORTH

SHEET NUMBER:

P102

42 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM



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

THIS SHEET PART OF
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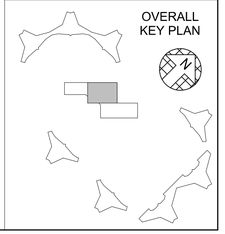


STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
KELLEY P. CRAMM
E-022323
REGISTERED PROFESSIONAL ENGINEER

9/26/2025

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

245000165B
MO. CORPORATE NO: E-556D
EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

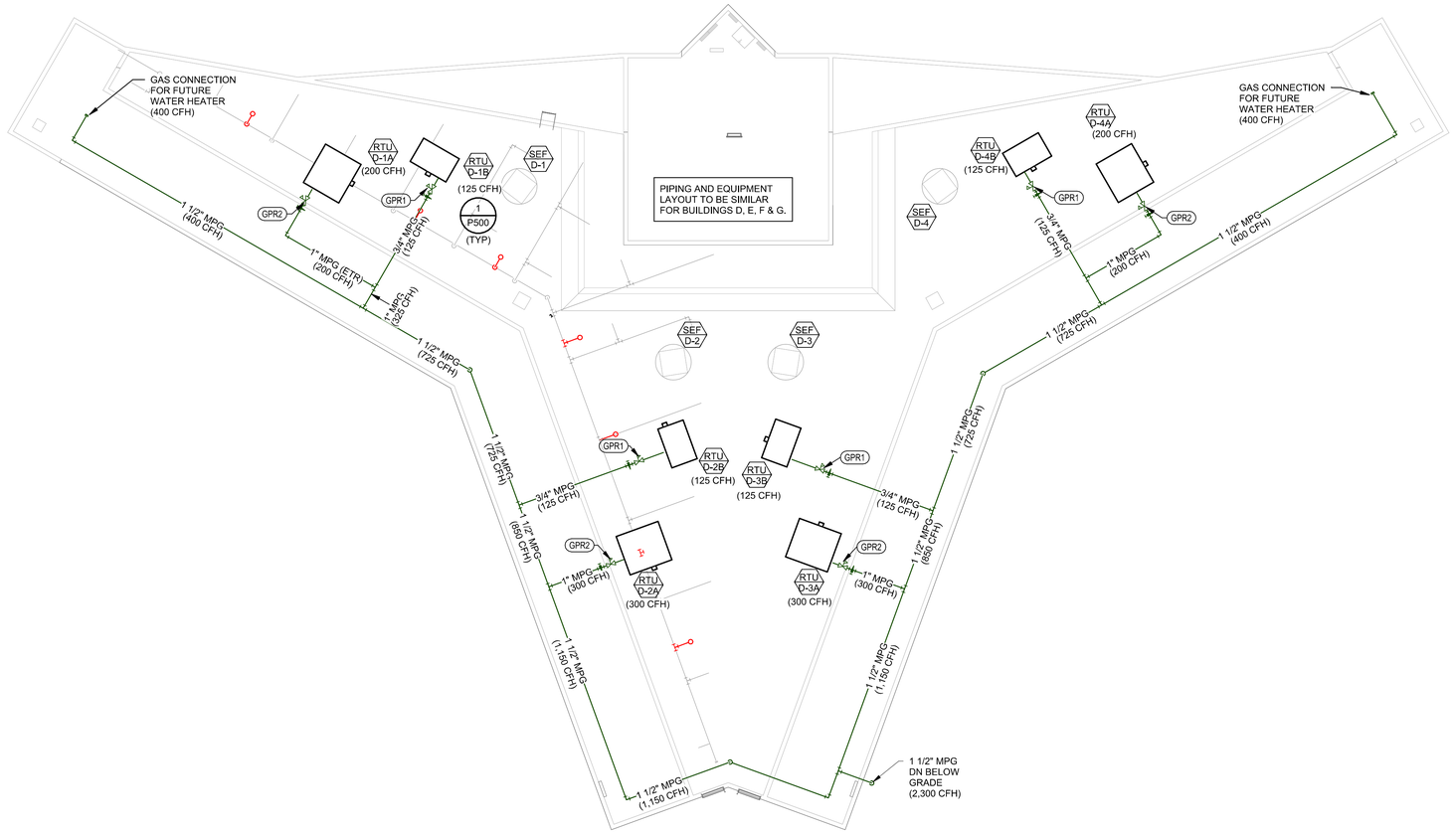
CAD DWG FILE:
DRAWN BY: S Santos
CHECKED BY: S Young
DESIGNED BY: S Santos

SHEET TITLE:
PLUMBING ROOF PLAN - BUILDING B

SHEET NUMBER:
P103.B

43 OF 91 SHEETS
09/26/2025

KELLEY P. CRAMM



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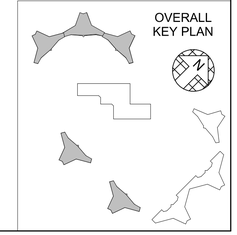
3/32" = 1'-0"



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PLUMBING ROOF PLAN - BUILDING D

SHEET NUMBER:

P103.D

44 OF 91 SHEETS
09/26/2025

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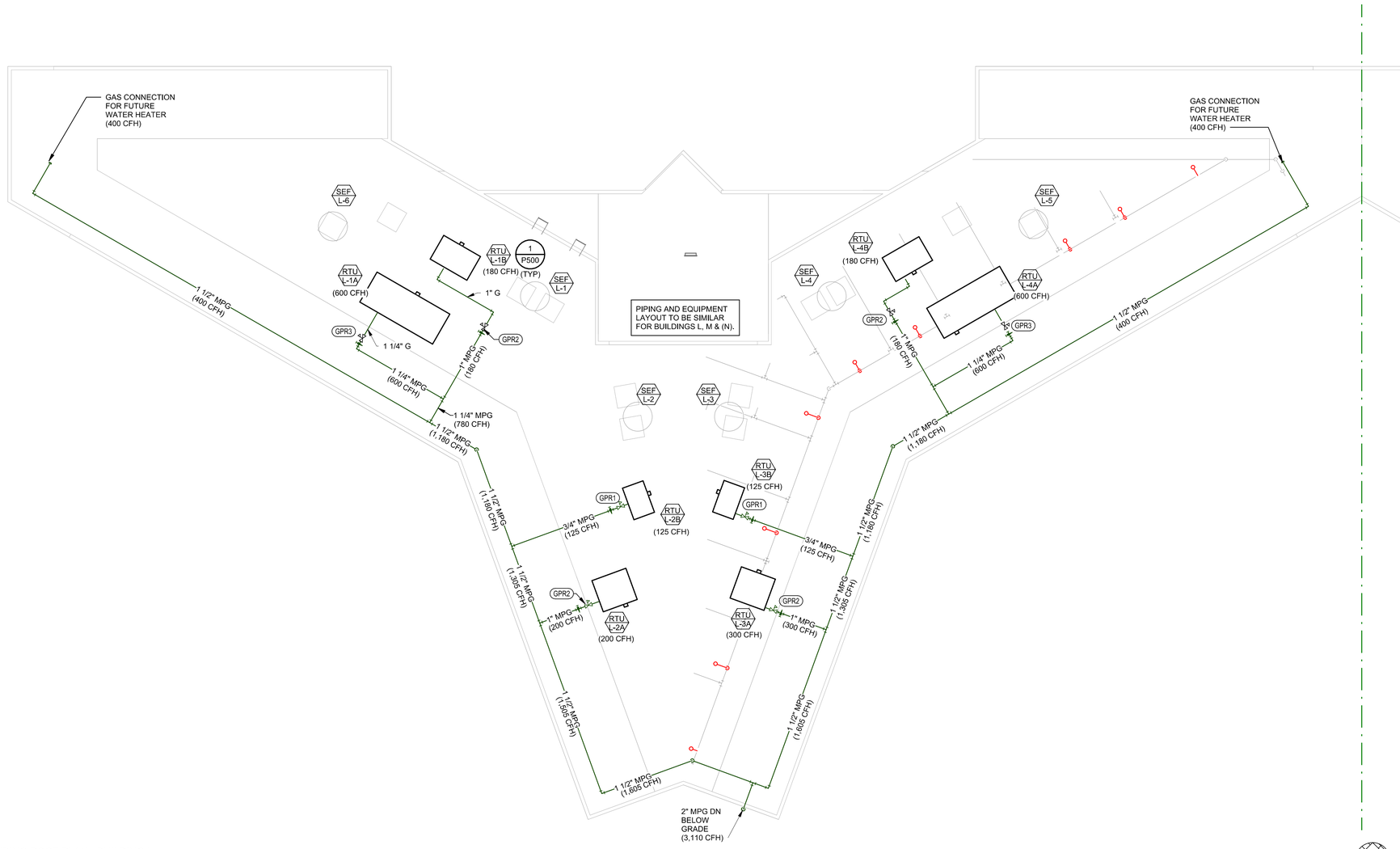

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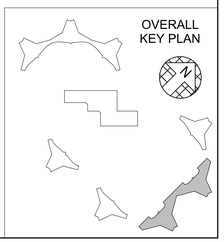
3/32" = 1'-0"



KELLEY P. CRAMM

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MIKE KEHOE, GOVERNOR

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CHECKED BY: S Young
DESIGNED BY: S Santos

SHEET TITLE:
PLUMBING ROOF PLAN - BUILDING L

SHEET NUMBER:
P103.L

45 OF 91 SHEETS
09/26/2025

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	14"	REFER TO PLANS	A, B, D, E, F, G, H, I & J
GPR2	PIETRO-FIORENTINI	31053OPD	C	1"	1,270	5.0	14'	REFER TO PLANS	A, B, D, E, F, G, H, I & J
GPR3	PIETRO-FIORENTINI	31153OPD	C	1-1/4"	5,311	5.0	14"	REFER TO PLANS	A, B, D, E, F, G, H, I & J

NOTES:

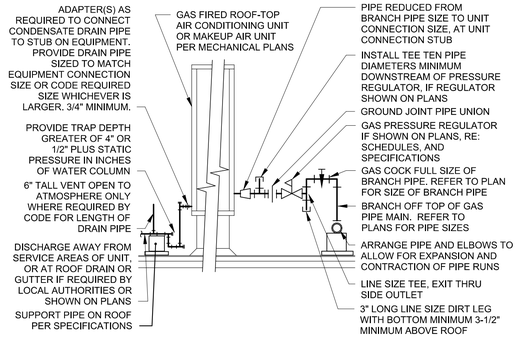
A. C = SELF CONTAINED "DIRECT ACTING" DIAPHRAGM TYPE WITH INTERNAL VENT LIMITER
B. DROOP = 1" WATER COLUMN MAXIMUM
C. DROOP = 2" WATER COLUMN MAXIMUM
D. 65# ALUMINUM BODY, SCREWED CONNECTIONS AND OVERPRESSURE PROTECTION TO 25 PSI
E. MAXIMUM FLOW RATE SCHEDULED, MATCH BODY SIZE AND MAXIMUM FLOW RATE TO 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 SPECIFICATIONS.

Pipe Sizes of Schedule 40 Steel Pipe (LOW PRESSURE)

Pipe Designation	Internal Diameter (Inches)	Low Pressure Gas (CFH)
1/4"	0.364	22
3/8"	0.493	49
1/2"	0.622	91
3/4"	0.824	189
1"	1.049	357
1 1/4"	1.380	732
1 1/2"	1.610	1,097
2"	2.067	2,114
2 1/2"	2.469	3,369
3"	3.068	5,956
4"	4.026	12,147
5"	5.047	21,976
6"	6.065	35,585
8"	7.981	73,113
10"	10.020	132,792
12"	11.938	210,227

Pipe Sizes of Schedule 40 Steel Pipe (5PSI)

Pipe Designation	Internal Diameter (Inches)	Medium Pressure Gas (CFH)
1/4"	0.364	54
3/8"	0.493	119
1/2"	0.622	218
3/4"	0.824	457
1"	1.049	860
1 1/4"	1.380	1,765
1 1/2"	1.610	2,645
2"	2.067	5,095
2 1/2"	2.469	8,120
3"	3.068	14,354
4"	4.026	29,278
5"	5.047	52,969
6"	6.065	85,769
8"	7.981	176,222
10"	10.020	320,067
12"	11.938	506,706



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 NATURAL GAS LOAD

NEW MECHANICAL EQUIPMENT		
EQUIPMENT DESIGNATION	BUILDING LOCATION	CFH
RTU D-1A	BLDG D	200
RTU D-1B	BLDG D	125
RTU D-2A	BLDG D	300
RTU D-2B	BLDG D	125
RTU D-3A	BLDG D	300
RTU D-3B	BLDG D	125
RTU D-4A	BLDG D	200
RTU D-4B	BLDG D	125
RTU E-1A	BLDG E	300
RTU E-1B	BLDG E	125
RTU E-2A	BLDG E	300
RTU E-2B	BLDG E	125
RTU E-3A	BLDG E	200
RTU E-3B	BLDG E	125
RTU E-4A	BLDG E	300
RTU E-4B	BLDG E	125
RTU F-1A	BLDG F	300
RTU F-1B	BLDG F	125
RTU F-2A	BLDG F	300
RTU F-2B	BLDG F	125
RTU F-3A	BLDG F	300
RTU F-3B	BLDG F	125
RTU F-4A	BLDG F	300
RTU F-4B	BLDG F	125
RTU G-1A	BLDG G	300
RTU G-1B	BLDG G	125
RTU G-2A	BLDG G	300
RTU G-2B	BLDG G	125
RTU G-3A	BLDG G	300
RTU G-3B	BLDG G	125
RTU G-4A	BLDG G	300
RTU G-4B	BLDG G	125
RTU K-1A	BLDG K	200
RTU K-1B	BLDG K	125
RTU K-2A	BLDG K	300
RTU K-2B	BLDG K	125
RTU K-3A	BLDG K	300
RTU K-3B	BLDG K	125
RTU K-4A	BLDG K	200
RTU K-4B	BLDG K	125
RTU L-1A	BLDG L	600
RTU L-1B	BLDG L	180
RTU L-2A	BLDG L	200
RTU L-2B	BLDG L	125
RTU L-3A	BLDG L	300
RTU L-3B	BLDG L	125
RTU L-4A	BLDG L	600
RTU L-4B	BLDG L	180
RTU M-1A	BLDG M	600
RTU M-1B	BLDG M	180
RTU M-2A	BLDG M	200
RTU M-2B	BLDG M	125
RTU M-3A	BLDG M	300
RTU M-3B	BLDG M	125
RTU M-4A	BLDG M	800
RTU M-4B	BLDG M	180
	TOTAL =	12820

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 =	15620

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

PLUMBING FIXTURE SCHEDULE

PLUMBING PLAN MARK	DESCRIPTION
EL	EXPANSION LOOP - NATURAL GAS (FOR PIPE SIZES 1/2" THRU 4"): METRAFLEX # MLACT4000 SERIES. REFER TO PLANS FOR PIPE SIZE. LOOPS 2" AND LARGER INSTALLED IN ANY ORIENTATION OTHER THAN HANGING DOWN MUST HAVE THE 180° RETURN SUPPORTED. INSTALL PER MANUFACTURER RECOMMENDATIONS.

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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.D	POWER - LEVEL 1 PLAN - BUILDING D
E201.L	POWER - LEVEL 1 PLAN - BUILDING L
E203.Bb	ELECTRICAL ROOF PLAN - BUILDING B - AREA B
E203.D	ELECTRICAL ROOF PLAN - BUILDING D
E203.L	ELECTRICAL ROOF PLAN - BUILDING L
E210	POWER PLAN - UNIQUE CONDITIONS
E301.D	EQUIPMENT CONNECTION - LEVEL 1 - BLDG D
E301.L	EQUIPMENT CONNECTION - LEVEL 1 PLAN - BUILDING L
E302.D	EQUIPMENT CONNECTION - LEVEL 2 PLAN - BUILDING D
E302.L	EQUIPMENT CONNECTION - LEVEL 2 PLAN - BUILDING L
E600	PANELBOARD SCHEDULES
E601	PANELBOARD SCHEDULES
E602	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

Grand total: 28

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	ARTICLE 700 OR LIFE SAFETY*
DEMOLISH	ARTICLE 701 OR CRITICAL / EQUIPMENT BRANCH*
NEW	ARTICLE 702 OR OPTIONAL*
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

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

- $# — 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
- $ 30/3/3R
- ALC — AUTOMATIC LOAD CONTROL RELAY
- BTS — BRANCH CIRCUIT TRANSFER SWITCH
- [#] [L] [F] [P] — 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)
- D# — 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 — 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 EM — EMERGENCY RECEPTACLE*
- RECEPTACLE INSTALLED ABOVE COUNTER OR BACKSPLASH*
- RECEPTACLE INSTALLED IN CEILING*
- RECEPTACLE INSTALLED VIA DROP CORD*
- H OR H — 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 #### 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 #### 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

NATHAN W. STOSS
LICENSE # PE-2023044638
09/26/25

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EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION: DATE:
REVISION: DATE:
REVISION: DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
ELECTRICAL LEGEND

SHEET NUMBER:
E000

47 OF 91 SHEETS
09/26/2025

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 GENERATOR. ANY POWER OUTAGE 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 HEIGHTS.
2. VERIFY AND COORDINATE ROUGH-IN REQUIREMENTS, LOCATIONS, AND MOUNTING HEIGHTS FOR ALL LIGHTING EQUIPMENT BEFORE PROVIDING ROUGH-IN.
3. VERIFY QUANTITIES, MODEL NUMBERS, AND DESCRIPTIONS WITH MANUFACTURER PRIOR TO PLACING ORDER.
4. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY THE MANUFACTURER AND CATALOG NUMBERS ONLY. FIRST READ THE COMPLTE DESCRIPTION, NOTES, AND SPECIFICATIONS IN CONJUNCTION WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.
5. CONTRACTOR SHALL PROVIDE ALL LIGHT FIXTURES UNLESS NOTED OTHERWISE.
6. REFER TO DIVISION 26 SPECIFICATIONS FOR ACCEPTABLE LED AND DRIVER MANUFACTURERS AND ADDITIONAL INFORMATION.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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MO. CORPORATE NO: E-556D
EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
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MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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ISSUE DATE: 09/26/2025

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

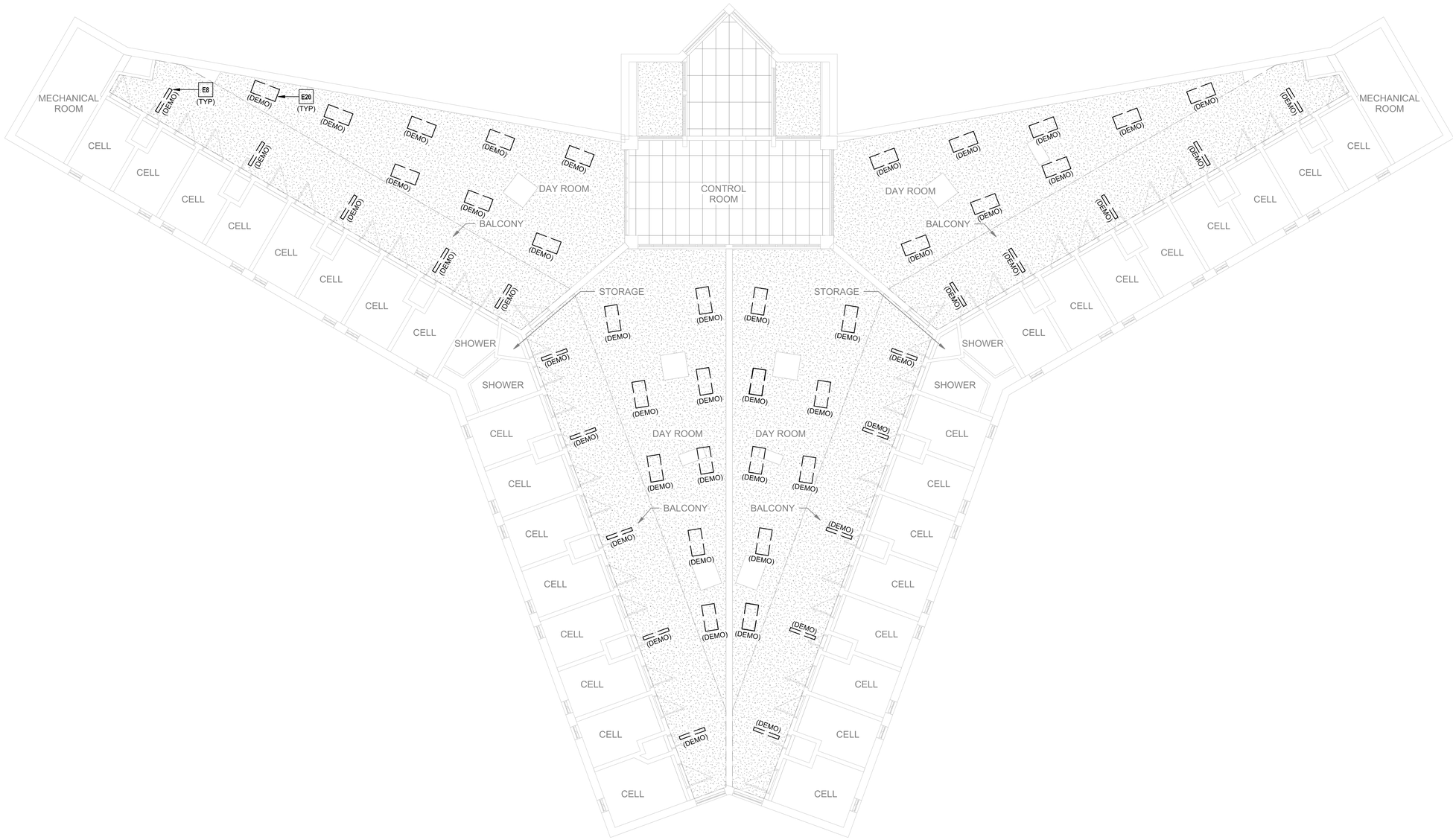
48 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

E8 CONTRACTOR SHALL REMOVE EXISTING SURFACE MOUNTED LIGHT FIXTURE, PROTECT THE EXISTING LIGHTING CIRCUIT FROM DAMAGE DURING THE FIXTURE AND CEILING REMOVAL PROCESS. COORDINATE DEMOLITION AND REMOVAL OF EXISTING CEILING AND LIGHT FIXTURES WITH ARCHITECTURAL DRAWINGS AND OTHER TRADES PRIOR TO START OF WORK.

E20 CONTRACTOR SHALL REMOVE EXISTING SURFACE MOUNTED LIGHT FIXTURE, 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 LIGHTING PLANS FOR ADDITIONAL INFORMATION.


MECHANICAL ROOM
CELL
CELL
CELL
CELL
CELL
CELL
CELL
CELL
SHOWER
SHOWER
CELL
DAY ROOM
BALCONY
CONTROL ROOM
STORAGE
DAY ROOM
BALCONY
STORAGE
SHOWER
SHOWER
CELL
DAY ROOM
DAY ROOM
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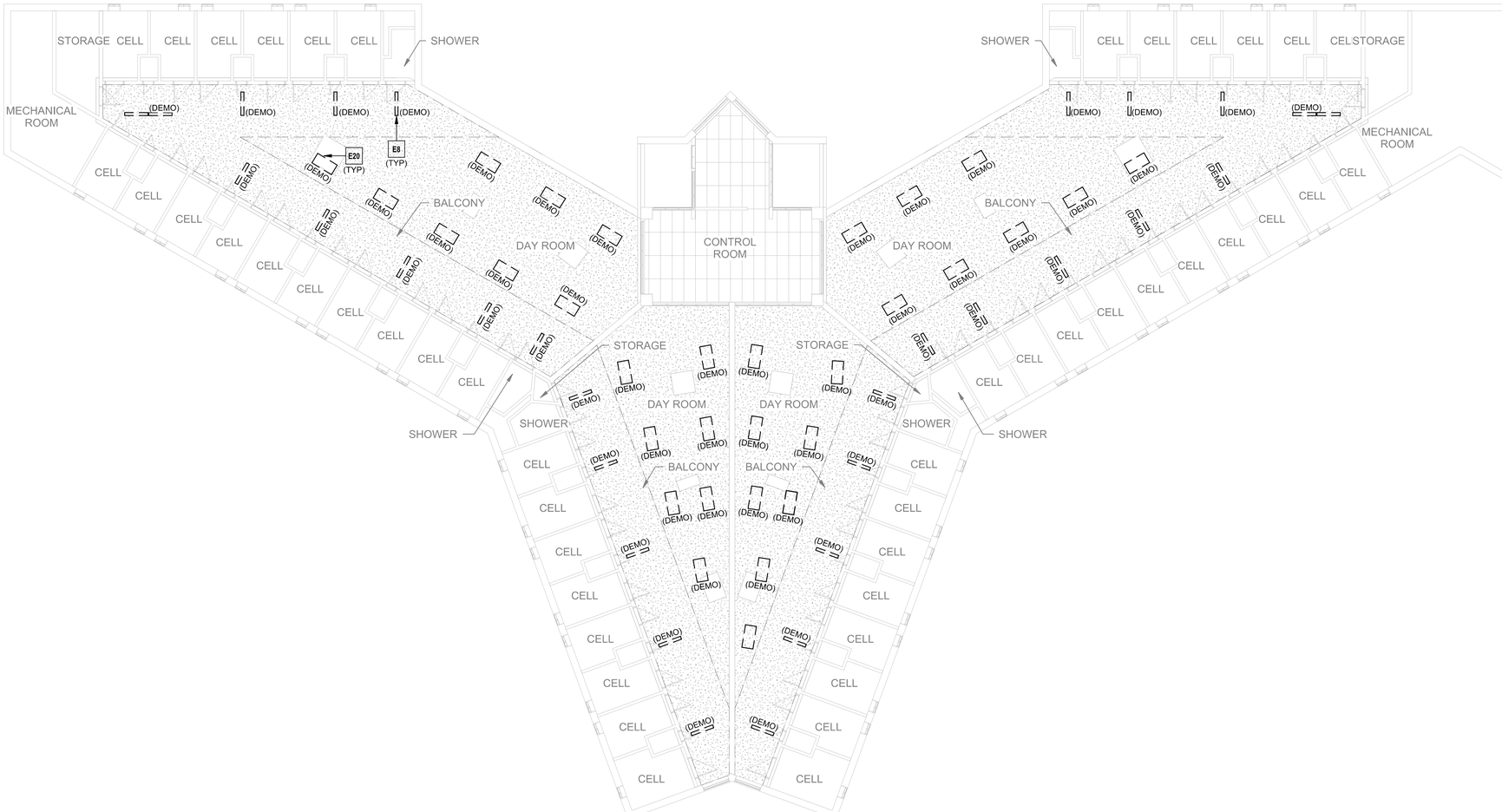
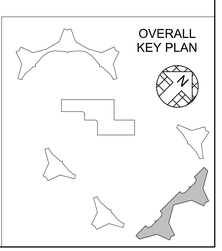


1 LIGHTING - LEVEL 2 DEMO PLAN - BUILDING L - TYP. OF BUILDING M
3/32" = 1'-0"

OVERALL KEY PLAN



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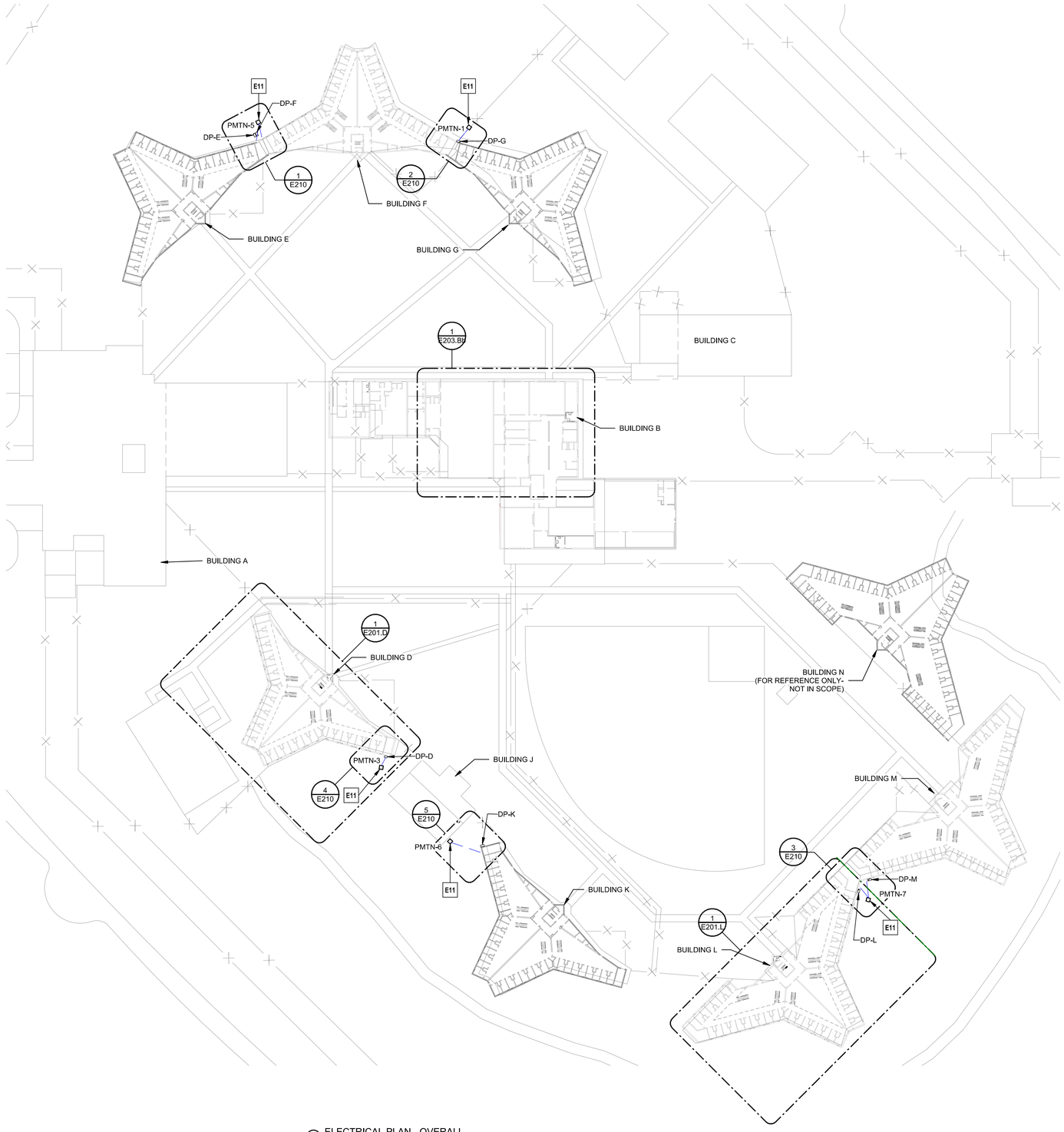
CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

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

SHEET NUMBER:
ED102.L

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.



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

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

SHEET TITLE:
ELECTRICAL PLAN - OVERALL

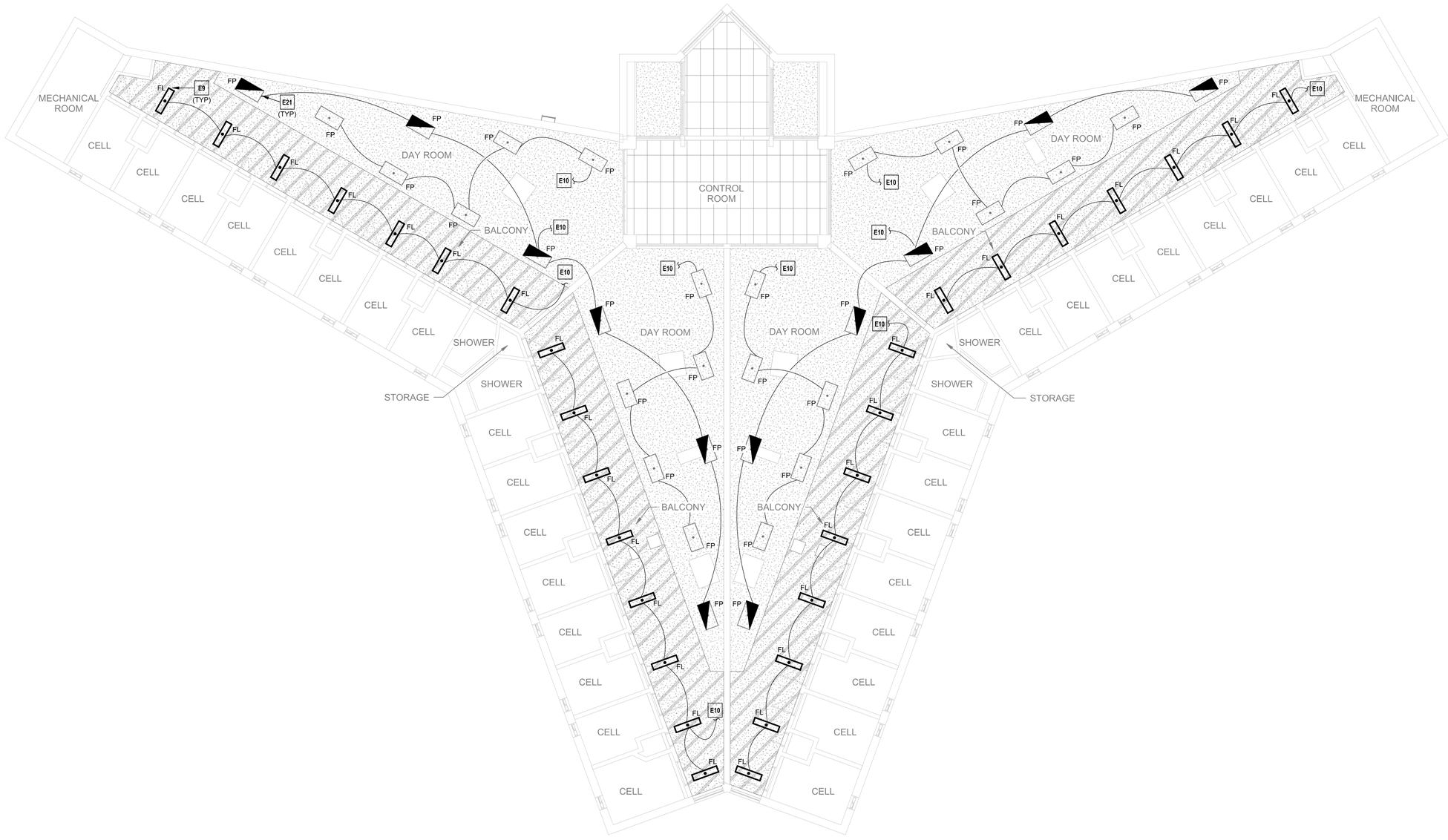
SHEET NUMBER:
E100

51 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER / MODEL #	SERIES / MODEL	APPROVED ALTERNATES	SOURCE QTY	SOURCE TYPE	CRI	CCT	SOURCE LUMENS	DIMMING TYPE	VOLTAGE	INPUT WATTS	INPUT VA	DESCRIPTION	NOTES
FL	KENALL	RMCA-4-FL/XX-0/14-45L50K-DCC-DV-1/9-X	COOPER LIGHTING SOLUTIONS	1	LED	80	5000K	3800	0-10V NON-DIM	120	45	50	RECESSED 4FT LED FIXTURE. VANDAL RESISTANT. COORDINATE MOUNTING CONFIGURATION WITH SOFFIT CONSTRUCTION AND AVAILABLE FASTENER HEAD TYPES WITH OWNER PRIOR TO ORDERING.	
FP	EXISTING TO REMAIN	-	-	4	FLUORESCENT	-	-	-	NON-DIM	120	160	178	EXISTING TO REMAIN 2X4 SURFACE MOUNTED FIXTURE. VANDAL RESISTANT WITH IMPACT RESISTANT LENS.	



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

ELECTRICAL PLAN NOTES:

E9 CONTRACTOR SHALL INSTALL A NEW RECESSED MOUNTED LIGHT FIXTURE AT THIS LOCATION. REFER TO LIGHT FIXTURE SCHEDULE ON SHEET E102.D FOR ADDITIONAL INFORMATION. COORDINATE WITH OTHER TRADES PRIOR TO START OF WORK.

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

E21 CONTRACTOR SHALL RE-INSTALL EXISTING SURFACE MOUNTED LIGHT FIXTURE AT THIS LOCATION. CLEAN AND RE-LAMP ALL FIXTURES AS NECESSARY TO ACHIEVE A UNIFORM LIGHT LEVEL. REFER TO LIGHT FIXTURE SCHEDULE ON SHEET E102.D FOR ADDITIONAL INFORMATION. COORDINATE WITH OTHER TRADES PRIOR TO START OF WORK.

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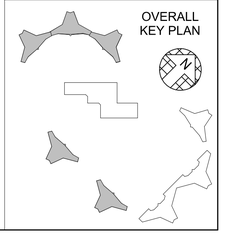
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
LIGHTING - LEVEL 2 PLAN - BUILDING D



SHEET NUMBER:
E102.D

52 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

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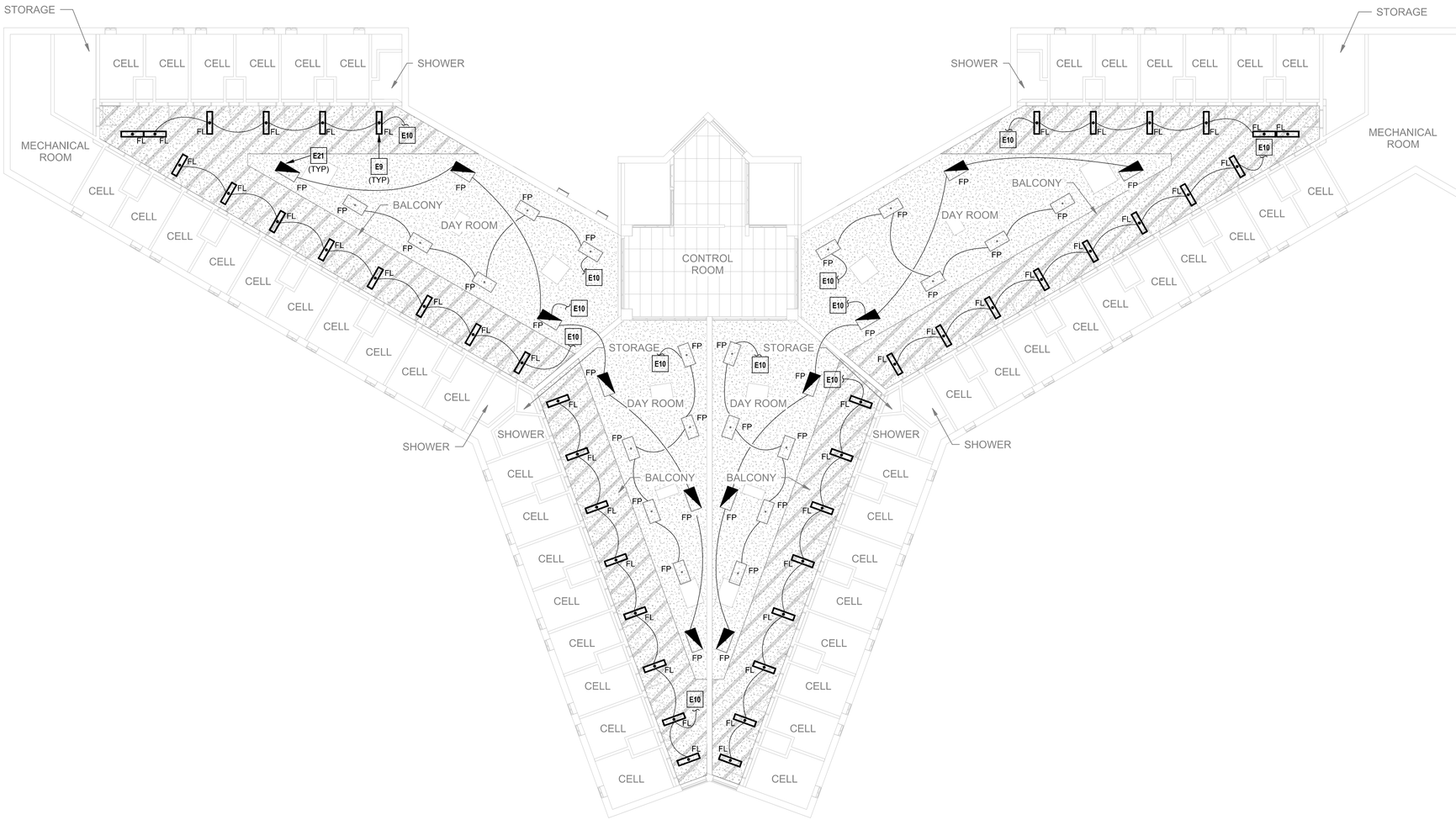
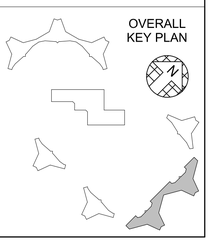


1 LIGHTING - LEVEL 2 PLAN - BUILDING L - TYP. OF BUILDING M
3/32" = 1'-0"

OVERALL KEY PLAN



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FULTON RECEPTION AND
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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 L

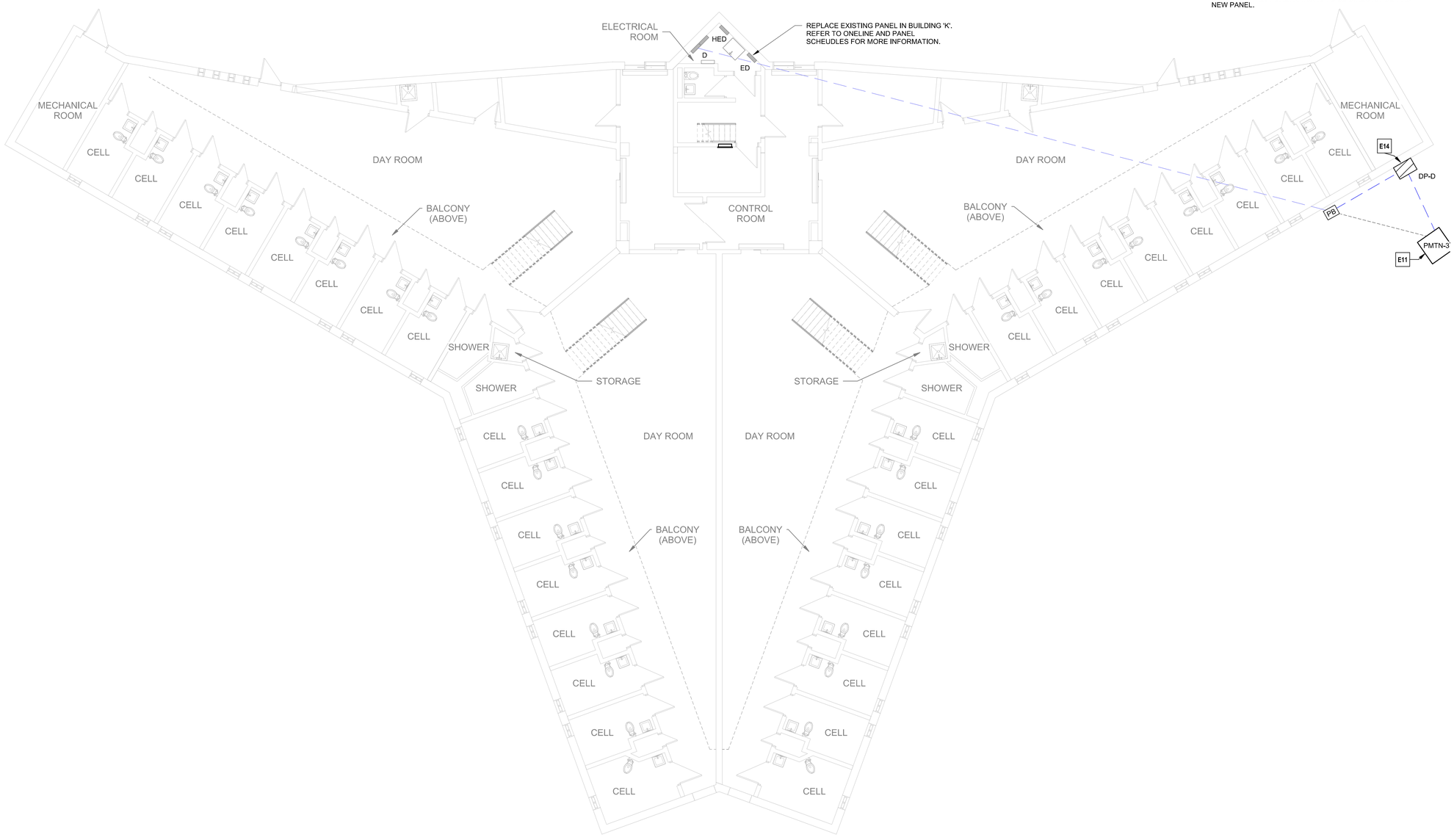
SHEET NUMBER:
E102.L

53 OF 91 SHEETS
09/26/2025

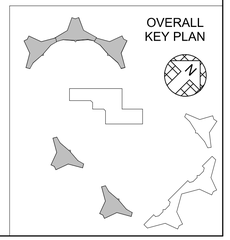
ELECTRICAL PLAN NOTES:

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.

E14 PROVIDE NEW EXTERIOR WALL PENETRATIONS AS NEEDED TO ROUTE NEW CONNECTIONS WITHIN EXISTING MECHANICAL ROOM AND UP TO STURCTURE. 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.



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



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MIKE KEHOE, GOVERNOR

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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 D

SHEET NUMBER:
E201.D

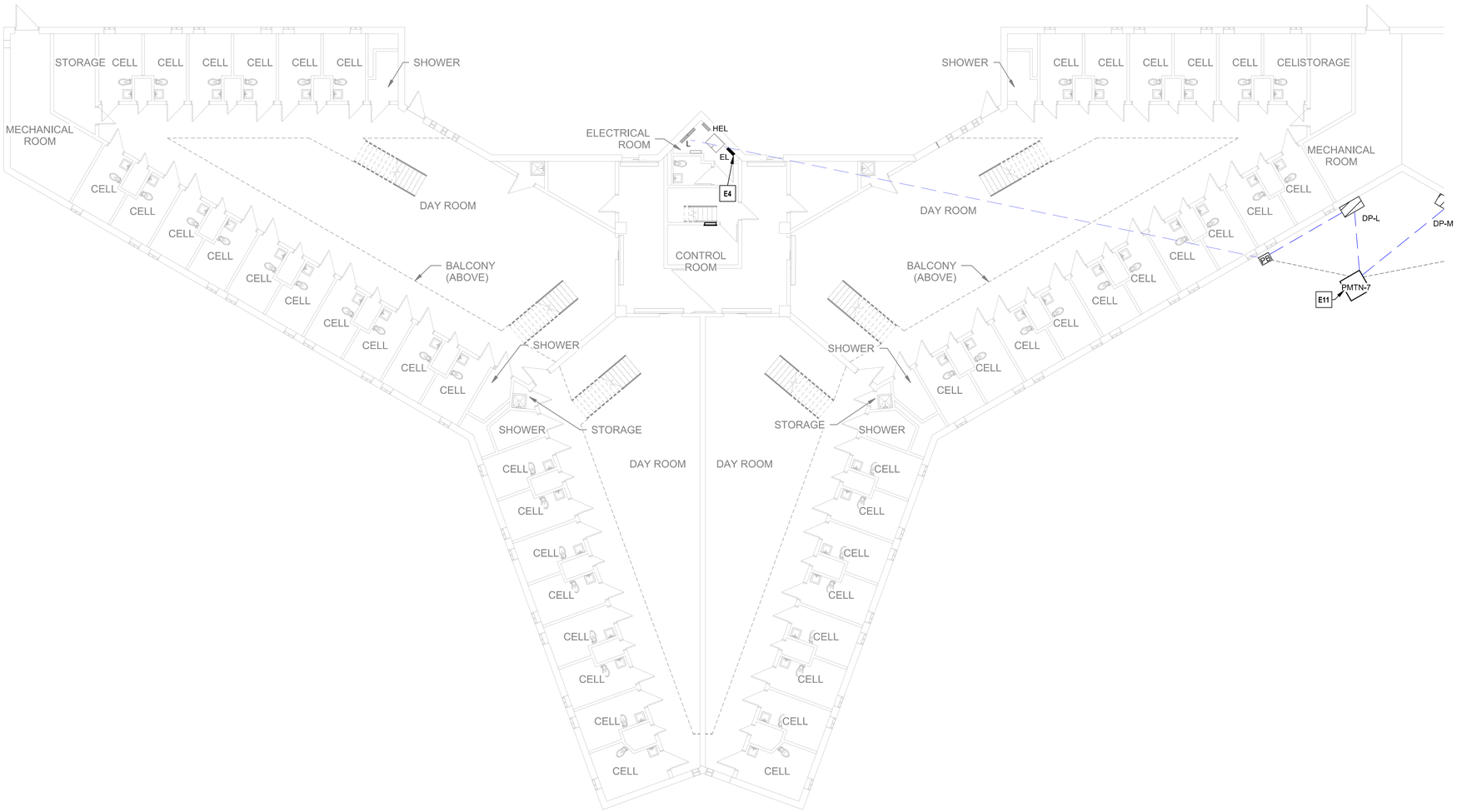
54 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

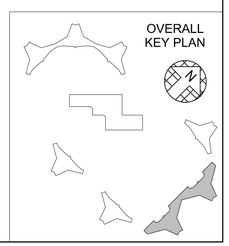
ELECTRICAL PLAN NOTES:

E4 REPLACE EXISTING PANELBOARD IN SAME LOCATION AND RECONNECT EXISTING CIRCUITS TO NEW PANEL. 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.



1 POWER - LEVEL 1 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:
POWER - LEVEL 1 PLAN - BUILDING L

SHEET NUMBER:
E201.L

55 OF 91 SHEETS
09/26/2025

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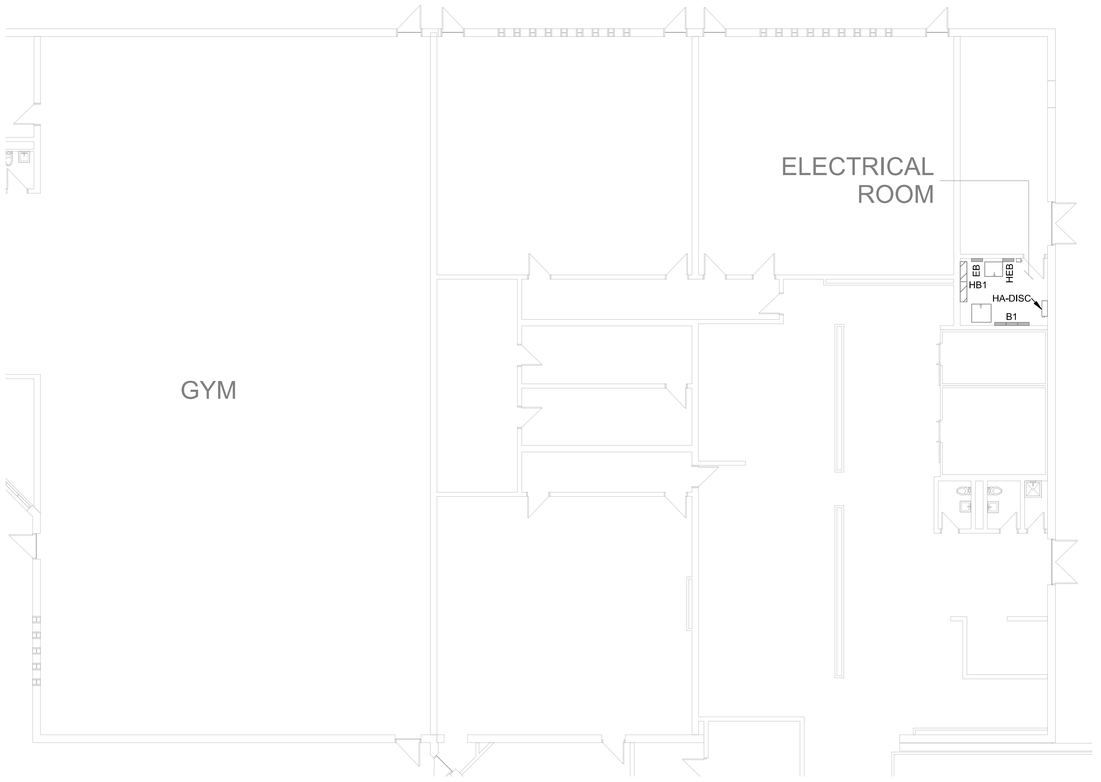
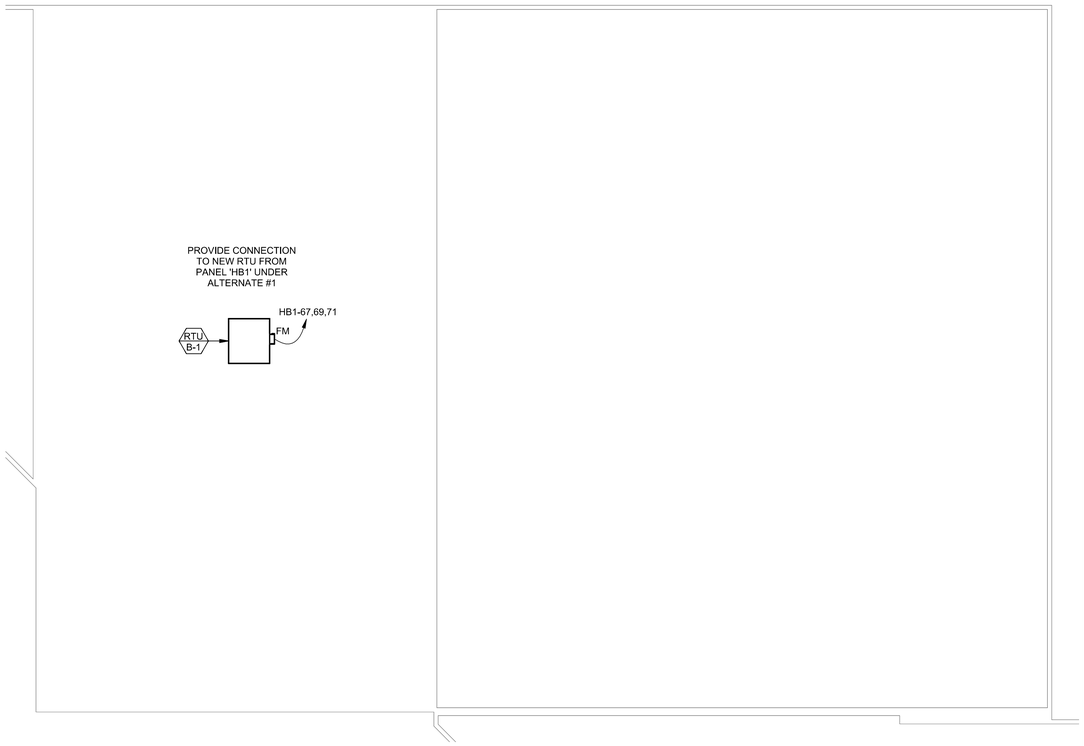
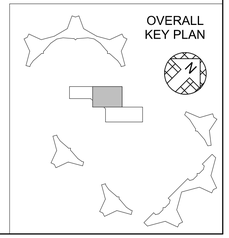


1 POWER - LEVEL 1 PLAN - BUILDING B - AREA B
3/32" = 1'-0"

NO NEW WORK FOR REFRENCE ONLY



2 ELECTRICAL ROOF PLAN - BUILDING B - AREA B
3/32" = 1'-0"



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DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:

ELECTRICAL ROOF PLAN - BUILDING B - AREA B

SHEET NUMBER:

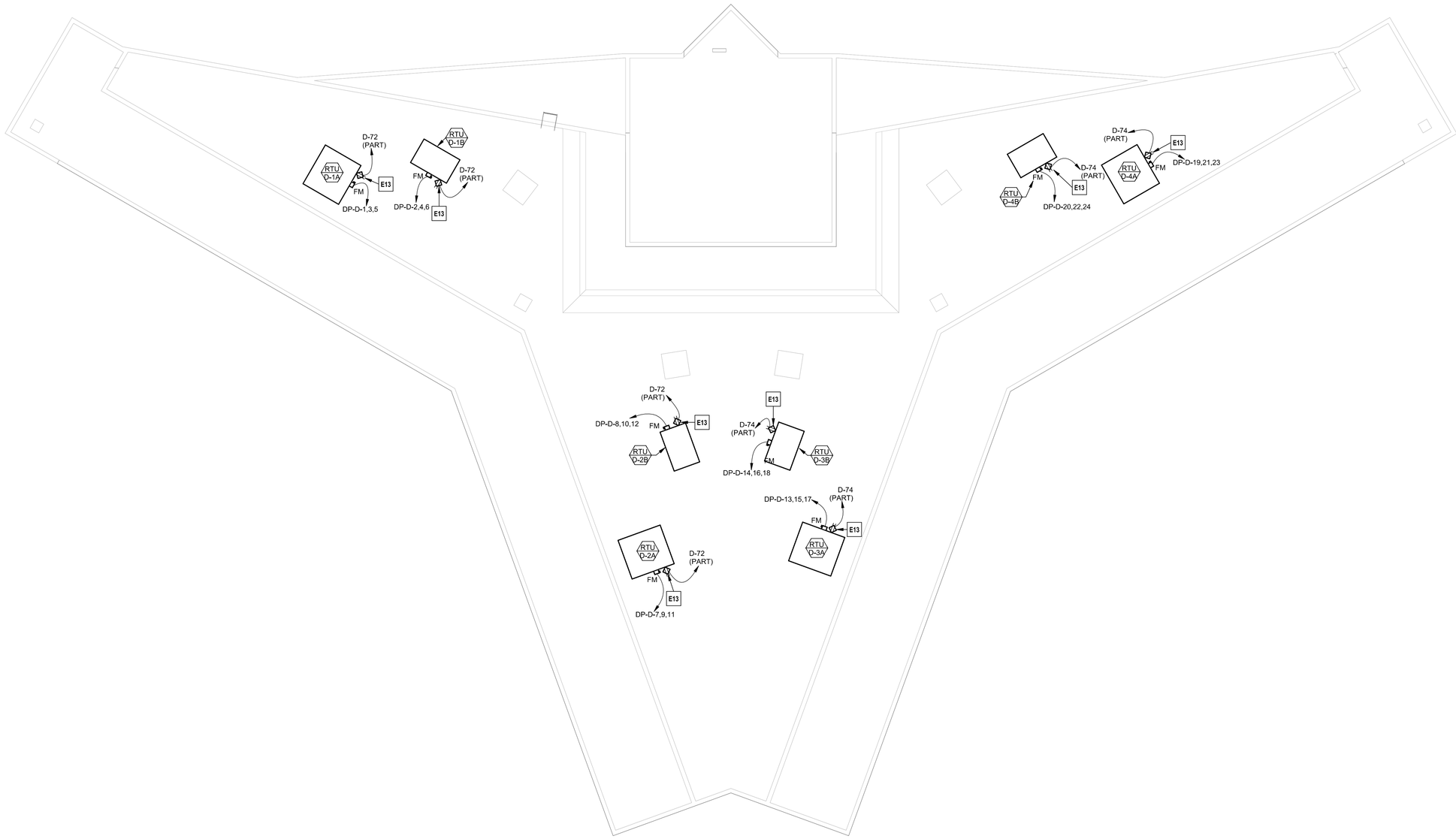
E203.Bb

56 OF 91 SHEETS
09/26/2025

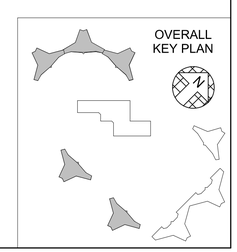
NATHAN W. STOSS

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



STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
09/26/25

NATHAN W. STOSS
LICENSE # PE-2023044638

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2450001658
MO. CORPORATE NO: E-556D
EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
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DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
ELECTRICAL ROOF PLAN - BUILDING D

SHEET NUMBER:
E203.D

57 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

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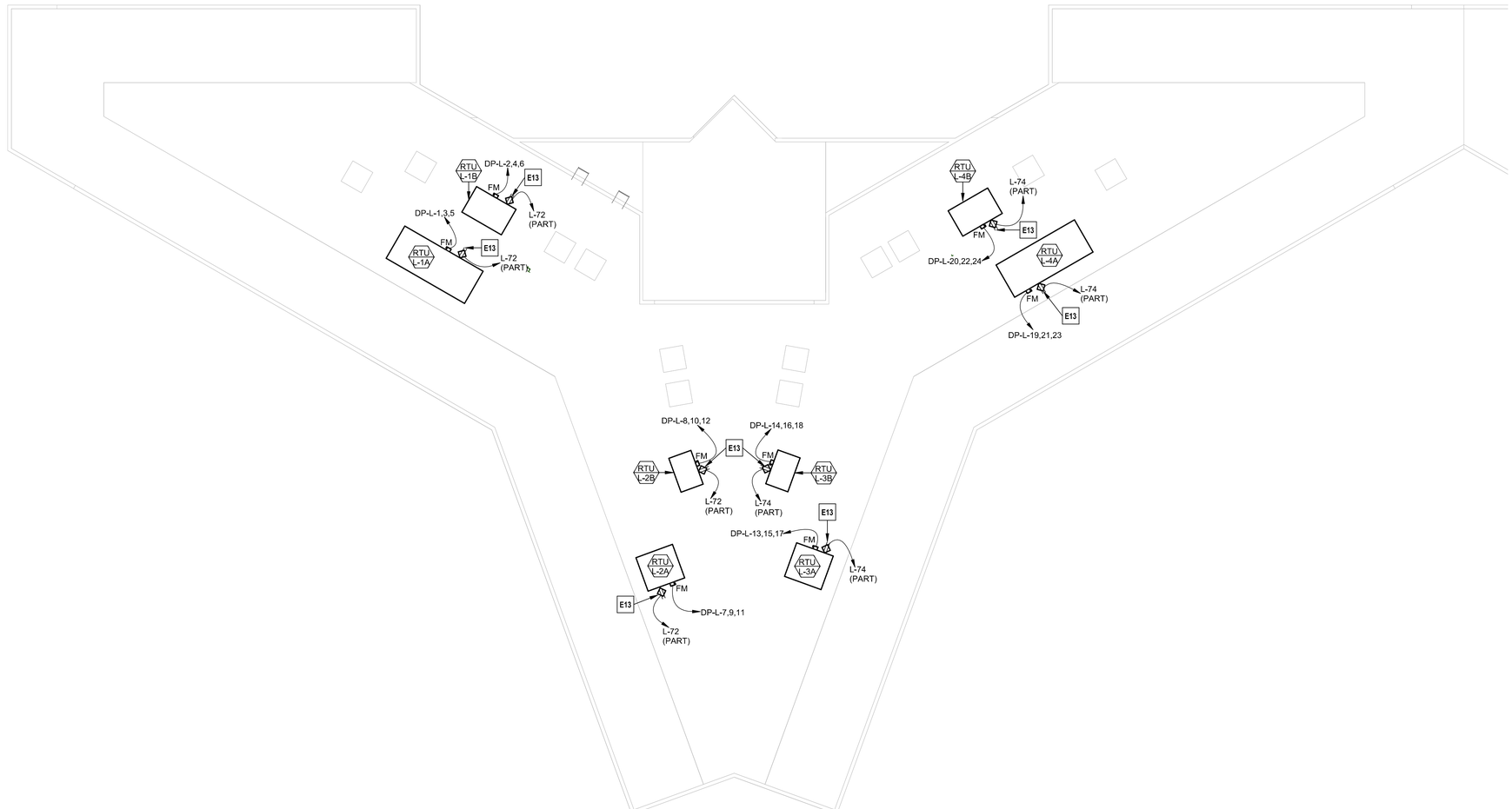
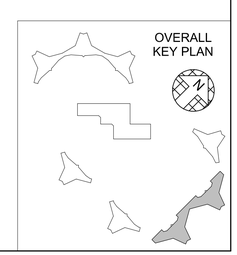


1 ELECTRICAL ROOF PLAN - BUILDING L - TYP. OF BUILDING M
3/32" = 1'-0"



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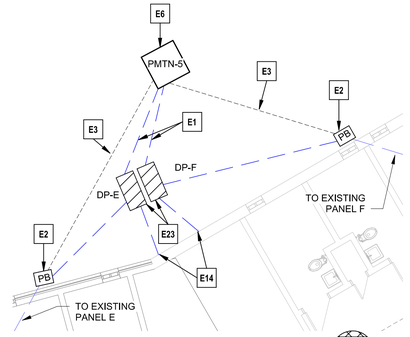
CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL ROOF PLAN - BUILDING L

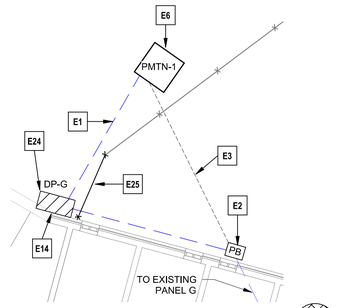
SHEET NUMBER:
E203.L

58 OF 91 SHEETS
09/26/2025

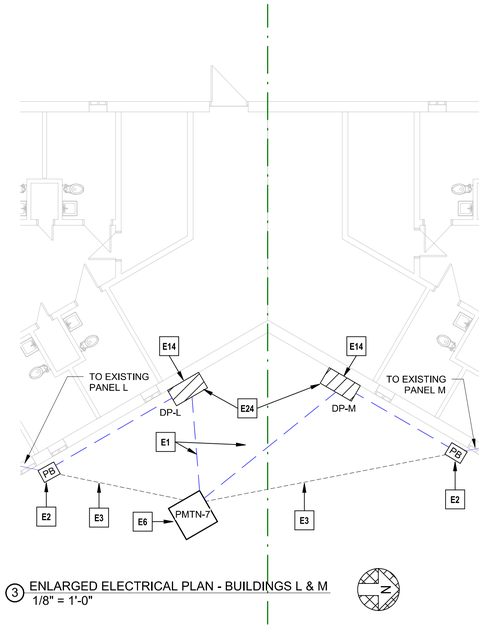
NATHAN W. STOSS



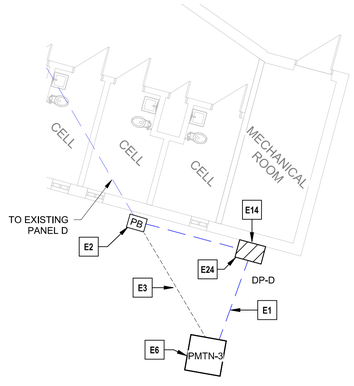
1 ENLARGED ELECTRICAL PLAN - BUILDINGS E & F
1/8" = 1'-0"



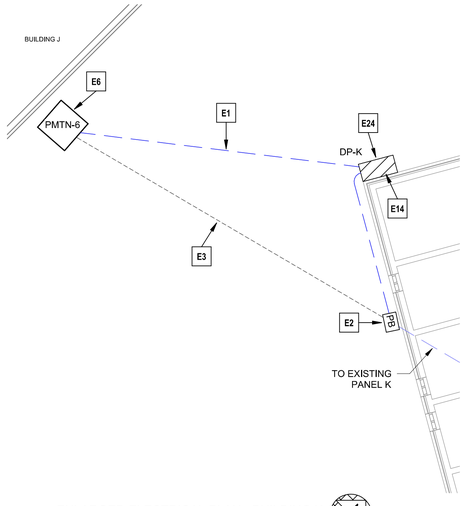
2 ENLARGED ELECTRICAL PLAN - BUILDING G
1/8" = 1'-0"



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 AND REMOVE EXISTING OIL-FILLED 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 STURCTURE. 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

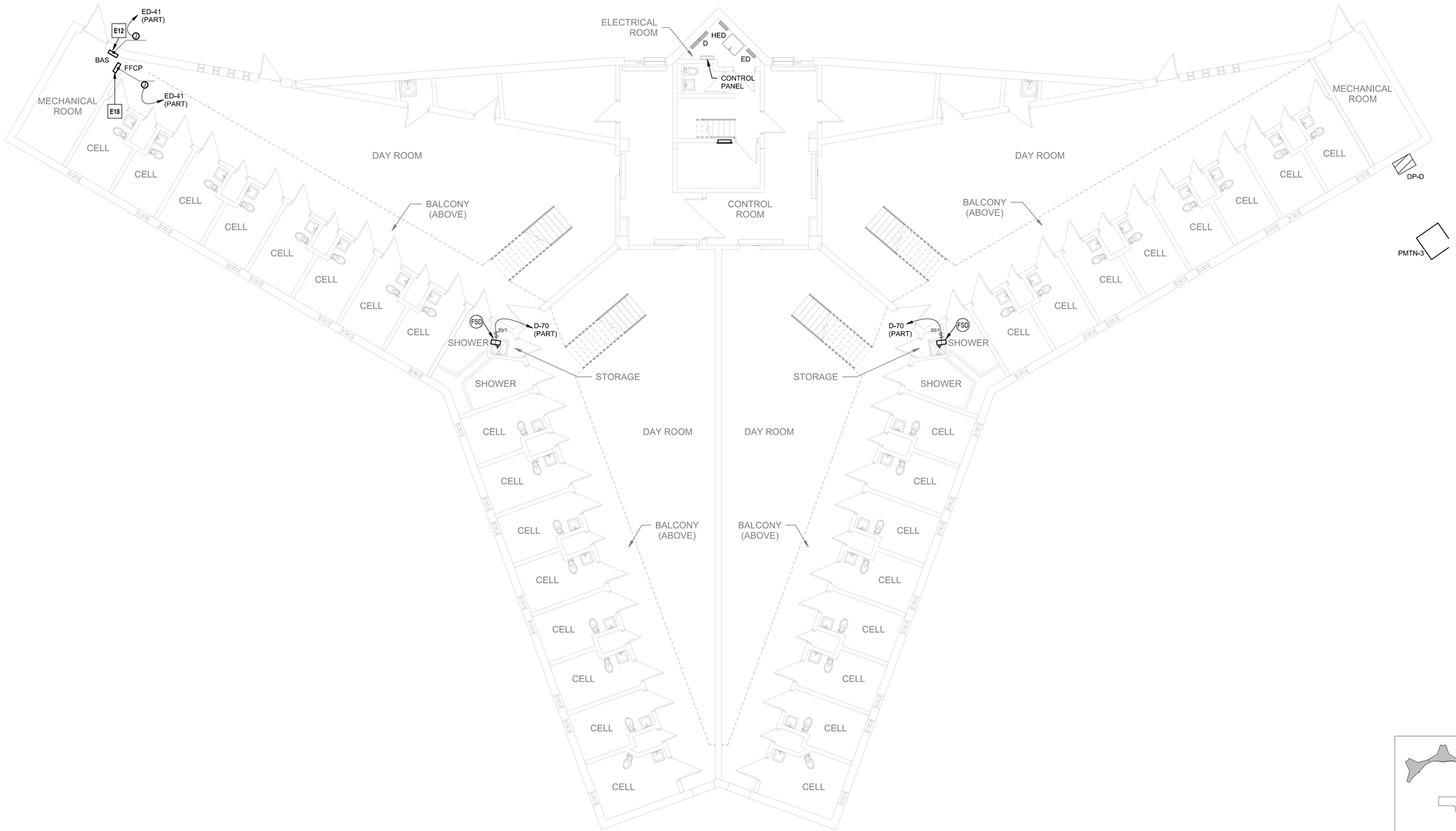
59 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

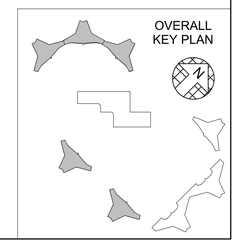
ELECTRICAL PLAN NOTES:

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

E18 FIRE FIGHTER CONTROL PANEL. PROVIDE DATA AND POWER CONNECTION. COORDINATE LOCATION AND REQUIREMENTS WITH FIRE ALARM AND MECHANICAL CONTRACTORS PRIOR TO ROUGH-IN.



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

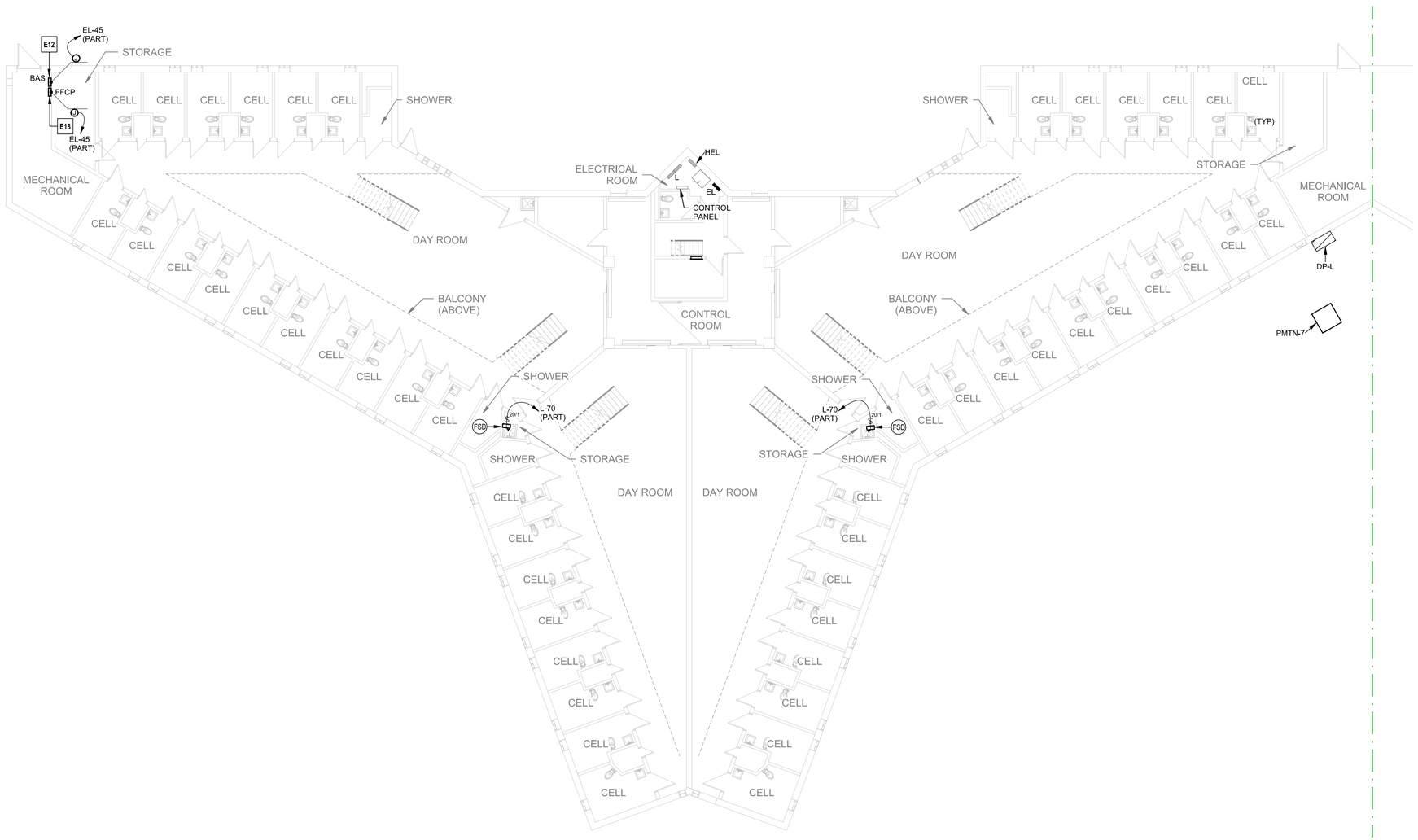
60 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

ELECTRICAL PLAN NOTES:

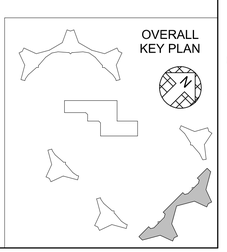
E12 BAS SYSTEM CONTROL PANEL. PROVIDE DATA AND POWER CONNECTION. COORDINATE LOCATION AND REQUIREMENTS WITH CONTROLS CONTRACTOR AND MECHANICAL SHEETS PRIOR TO ROUGH-IN.

E18 FIRE FIGHTER CONTROL PANEL. PROVIDE DATA AND POWER CONNECTION. COORDINATE LOCATION AND REQUIREMENTS WITH FIRE ALARM AND MECHANICAL CONTRACTORS PRIOR TO ROUGH-IN.



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

OVERALL KEY PLAN



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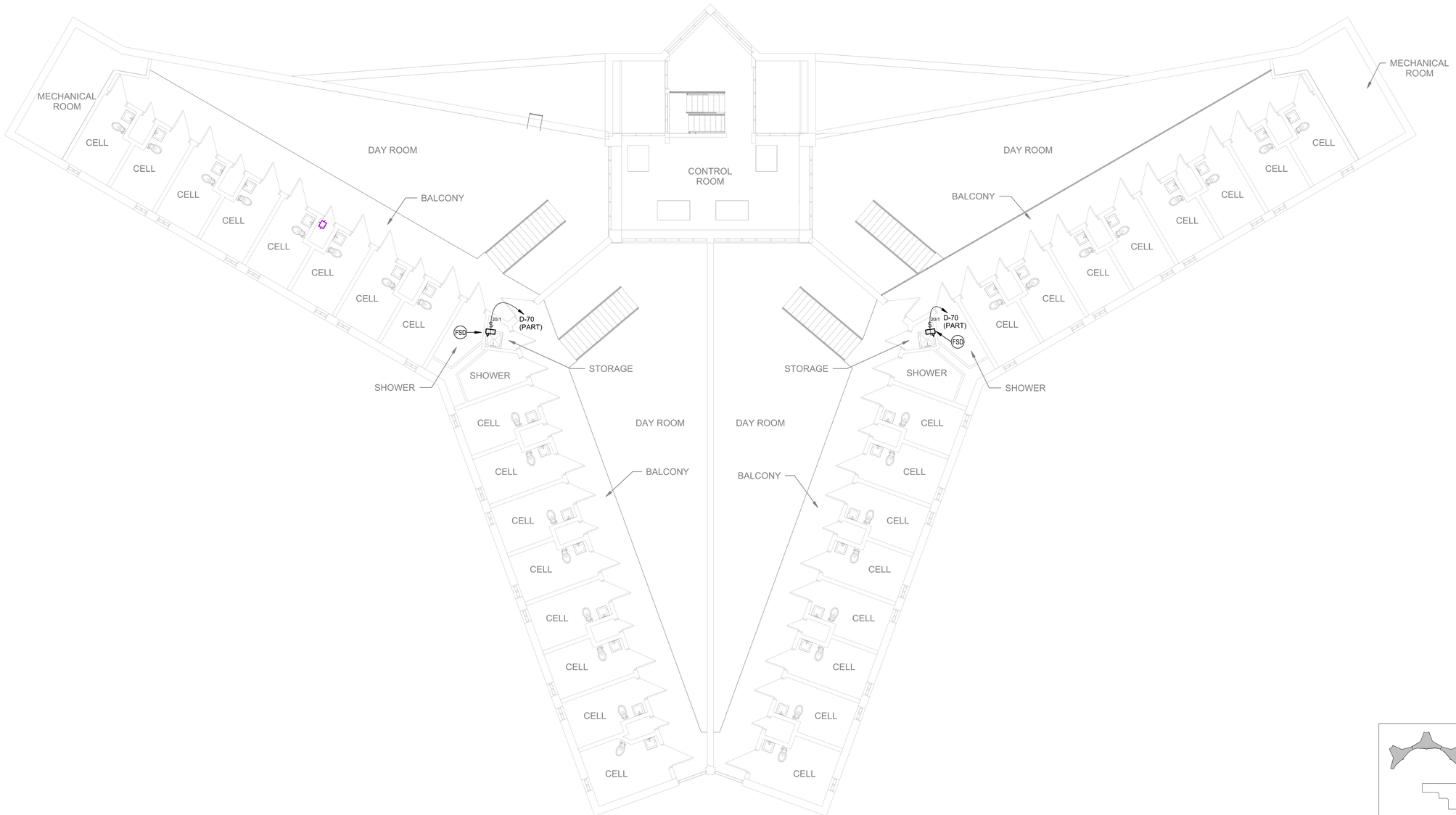
CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
EQUIPMENT CONNECTION - LEVEL 1 - BLDG L

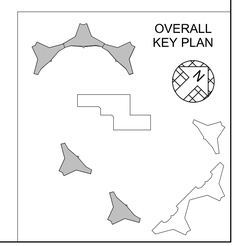
SHEET NUMBER:
E301.L

61 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS



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



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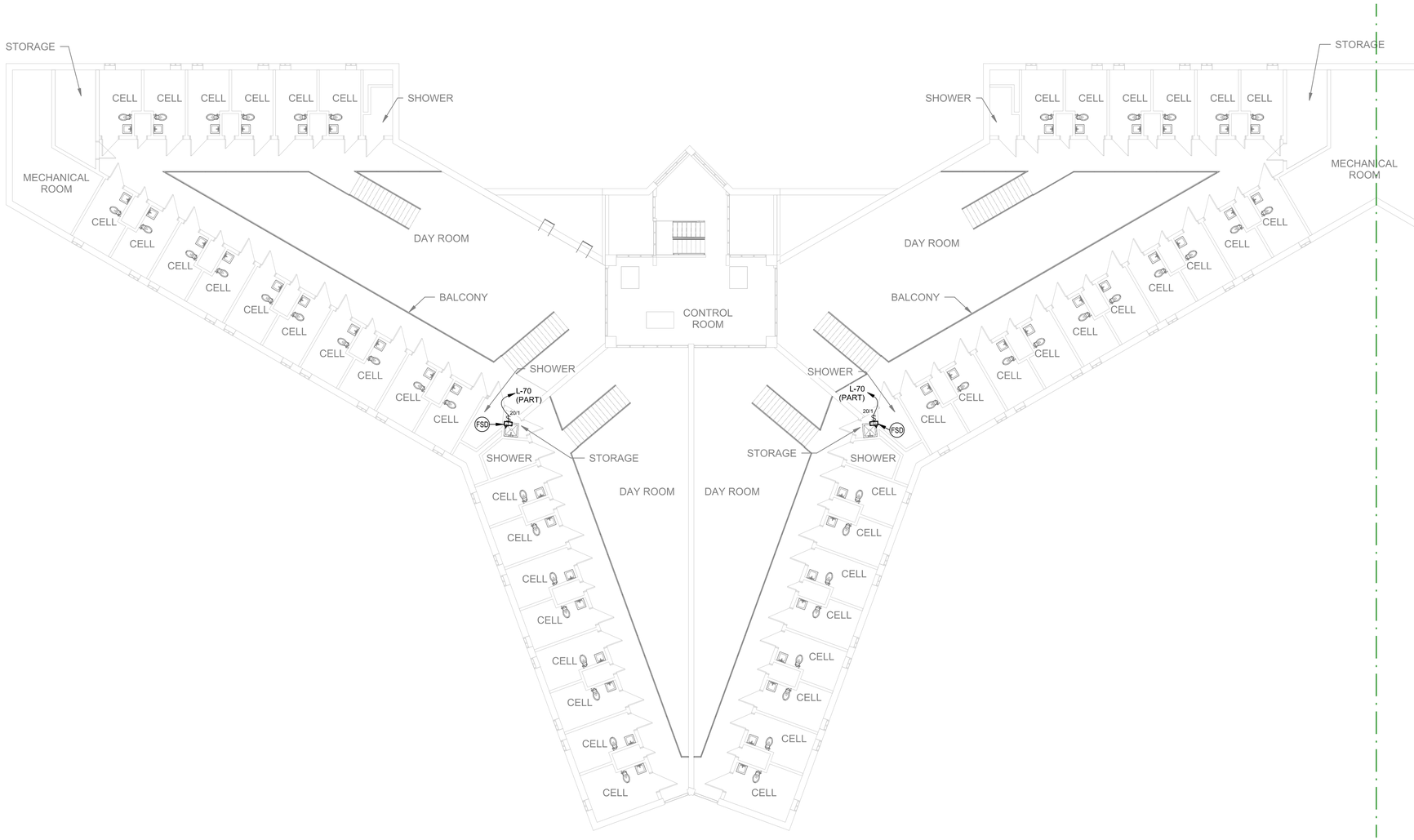
CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
EQUIPMENT CONNECTION - LEVEL 2 - BLDG D

SHEET NUMBER:
E302.D

62 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS



1 EQUIPMENT CONNECTION - LEVEL 2 PLAN - BUILDING L
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 2 - BLDG L

SHEET NUMBER:
E302.L

63 OF 91 SHEETS
09/26/2025

OVERALL KEY PLAN

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		

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

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	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		

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

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	
FA	45	BAS & FIRE FIGHTER PANELS		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		

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

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					900			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					SPACE	44	
FA	45	BAS & FIRE FIGHTER PANELS		360		12	15	1	1	20					SPACE	46	
	47	SPARE					20	1	1	20					SPACE	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		

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

TOTAL DEMAND
78,060 VA
217 A

PANELBOARD NOTES

EK
EL/EM

NATHAN W. STOSS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
09/26/25

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 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS -
FULTON RECEPTION AND
DIAGONSTIC
CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
PANELBOARD SCHEDULES

SHEET NUMBER:
E600

64 OF 91 SHEETS
09/26/2025

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			EX	30	3	3	30	EX	600				50	
EX	51	EXISTING LOAD		600									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**	**20**	**12**		**360**		**FIRE SMOKE DAMPERS [Z]**	70	**N**
	71	SPACE						1	**1**	**20**	**12**			**720**	**MAINT. ROOF RCPTS_1 [R]**	72	**N**
	73	SPACE						1	**1**	**20**	**12**	**720**			**MAINT. ROOF RCPTS_2 [R]**	74	**N**
	75	SPACE						1	1						SPACE	76	
	77	SPACE						1	1						SPACE	78	
	79	SPACE						1	1						SPACE	80	
	81	SPACE						1	1						SPACE	82	
	83	SPACE						1	1						SPACE	84	
		SUBTOTAL	8,400	7,800	9,000							9,120	8,160	9,720	SUBTOTAL		

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF	
TOTAL PHASE A - VA	17,520	COOLING	[C]		1.00	REFRIG	[F]		1.00	
AMPS	146	HEATING	[H]		0	SIGNAGE	[S]		1.25	
TOTAL PHASE B - VA	15,960	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00	
AMPS	133	RECEPTACLES	[R]	1,440	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	52,800 VA
TOTAL PNLBD - VA	52,200	MISC EQUIP	[Z]	360	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			EX	20	3	3	20	EX	600				50	
EX	51	EXISTING LOAD		600									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**	**20**	**12**	**360**			**FIRE SMOKE DAMPERS [Z]**	74	**N**
	75	SPACE						1	**1**	**20**	**12**			**720**	**MAINT. ROOF RCPTS_1 [R]**	76	**N**
	77	SPACE						1	**1**	**20**	**12**				**MAINT. ROOF RCPTS_2 [R]**	78	**N**
	79	SPACE						1	1						SPACE	80	
	81	SPACE						1	1						SPACE	82	
	83	SPACE						1	1						SPACE	84	
		SUBTOTAL	8,400	8,400	10,000									8,760	9,120	10,320	SUBTOTAL

		LOAD		CONN. VA	DF	LOAD		CONN. VA	DF	
TOTAL PHASE A - VA	17,160	LOAD				LOAD				
AMPS	143	COOLING	[C]		1.00	REFRIG	[F]		1.00	
TOTAL PHASE B - VA	17,520	HEATING	[H]		0	SIGNAGE	[S]		1.25	
AMPS	146	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00	
TOTAL PHASE C - VA	20,320	RECEPTACLES	[R]	1,440	1.0/.5	EXISTING	[E]	53,800	1.00	
AMPS	169	MOTORS	[M]		1.00	LRG MOTOR			1.25	TOTAL DEMAND
TOTAL PNLBD - VA	55,000	SUPP HEAT	[U]		1.00	SHOW WND	[W]		1.25	55,600 VA
AMPS	153	MISC EQUIP	[Z]	360	1.00	LTG TRACK			1.00	154 A

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,FA	41	**BAS & FIRE FIGHTER PANELS**			**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	LOAD				LOAD				
AMPS	154	COOLING	[C]		1.00	REFRIG	[F]		1.00	
TOTAL PHASE B - VA	30,200	HEATING	[H]		0	SIGNAGE	[S]		1.25	
AMPS	252	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00	
TOTAL PHASE C - VA	25,260	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	73,600	1.00	
AMPS	211	MOTORS	[M]		1.00	LRG MOTOR			1.25	TOTAL DEMAND
TOTAL PNLBD - VA	73,960	SUPP HEAT	[U]		1.00	SHOW WND	[W]		1.25	73,960 VA
AMPS	205	MISC EQUIP	[Z]	360	1.00	LTG TRACK			1.00	205 A

PANELBOARD NOTES

D/E/F/G	K
ED/EE/EF/EG	

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
09/26/25

NATHAN W. STOSS
LICENSE # PE-2023044638

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

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
PANELBOARD SCHEDULES

SHEET NUMBER:
E601

65 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

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

	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		11,030									9,000				68	
R	69	RTU B-1 (GYM) (ALT #1)		11,030		4	70	3	3	60	EX		9,000		EXISTING LOAD	70	R
	71				11,030									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	51,730	51,730	51,730							80,100	82,400	82,700	SUBTOTAL		

TOTAL PHASE A - VA	131,830	LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
AMPS	476	COOLING	[C]	28,766	1.00	REFRIG	[F]		1.00
TOTAL PHASE B - VA	134,130	HEATING	[H]		0	SIGNAGE	[S]		1.25
AMPS	484	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
TOTAL PHASE C - VA	134,430	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	367,300	1.00
AMPS	485	MOTORS	[M]	1,513	1.00	LRG MTR: 2HP		2,810	1.25
TOTAL PNLBD - VA	400,389	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
AMPS	482	MISC EQUIP	[Z]		1.00	LTG TRACK			1.00

TOTAL DEMAND
401,092 VA
482 A

PANELBOARD NOTES

FEED THRU CONNECTION: (2) Sets of 350kcmil

PANELBOARD: L,M (ETR)

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

FED FROM: **DP-L, M**
AIC RATING: 10000; FULLY RATED
MOUNTING: SURFACE
SERVES: BLDGS L,M
LOCATION: BLDGS 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	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
	17	EXISTING LOAD			3,600	EX	50	2	2	50	EX			3,600	EXISTING LOAD	18	EX
	19		3,600										3,600			20	
EX	21	EXISTING LOAD		3,600		EX	50	2	2	50	EX		3,600		EXISTING LOAD	22	EX
	23				3,600									3,600		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	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	SPARE					20	1	1	20					SPARE	70	R
EX	71	SPARE					20	1	1	20					SPARE	72	EX
EX	73	SPARE					20	1	1	20					SPARE	74	EX
EX	75	SPARE					20	1	1	20					SPARE	76	EX
EX	77	EXISTING LOAD			1,500	EX	20	2	1						SPACE	78	
	79		1,500						1						SPACE	80	
EX	81	EXISTING LOAD		1,500		EX	20	2	1						SPACE	82	
	83				1,500				1						SPACE	84	
		SUBTOTAL	11,700	11,100	15,600							10,200	10,200	12,600	SUBTOTAL		

TOTAL PHASE A - VA	21,900	LOAD		CONN. VA	DF	LOAD		CONN. VA	DF
AMPS	183	COOLING	[C]		1.00	REFRIG	[F]		1.00
TOTAL PHASE B - VA	21,300	HEATING	[H]		0	SIGNAGE	[S]		1.25
AMPS	178	LIGHTING	[L]		1.25	KITCHEN	[K]		1.00
TOTAL PHASE C - VA	28,200	RECEPTACLES	[R]		1.0/.5	EXISTING	[E]	70,800	1.00
AMPS	235	MOTORS	[M]		1.00	LRG MOTOR			1.25
TOTAL PNLBD - VA	71,400	SUPP HEAT	[U]		1.00	SHOW WND [W]			1.25
AMPS	198	MISC EQUIP	[Z]	600	1.00	LTG TRACK			1.00

TOTAL DEMAND
71,400 VA
198 A

PANELBOARD NOTES

FEED THRU CONNECTION: #250

HB1 | L/M

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
09/26/25

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 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

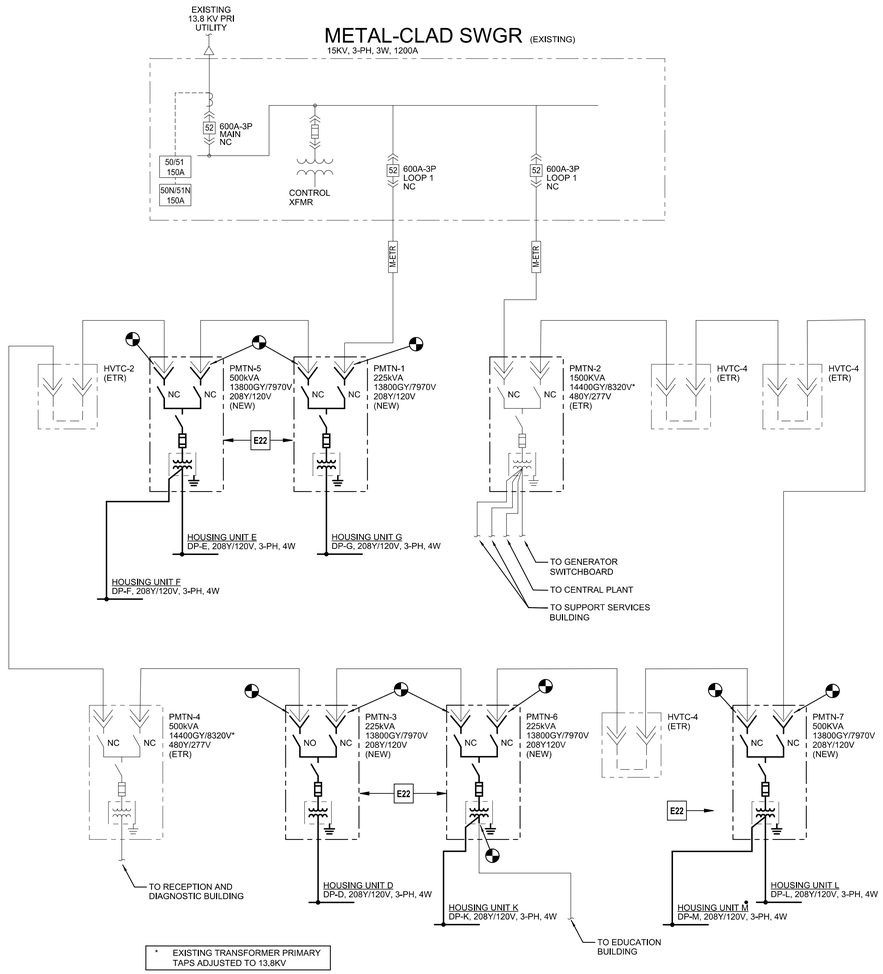
CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
PANELBOARD SCHEDULES

SHEET NUMBER:
E602

66 OF 91 SHEETS
09/26/2025

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

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
09/26/25

NATHAN W. STOSS
LICENSE # PE-2023044638

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MO. CORPORATE NO: E-556D
EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

67 OF 91 SHEETS
09/26/2025

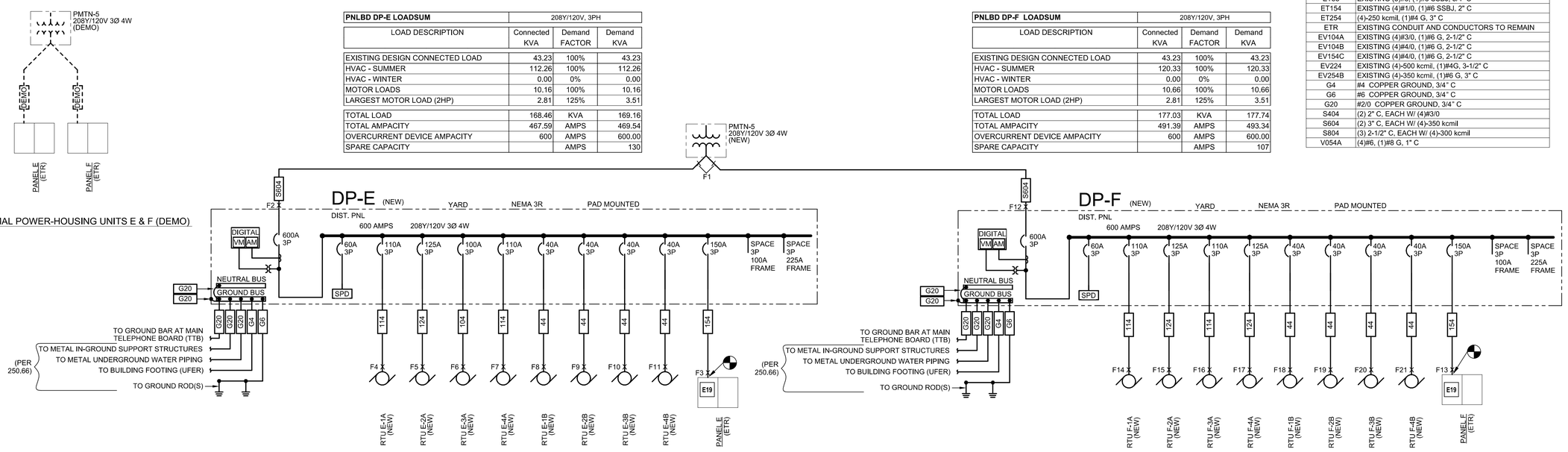
NATHAN W. STOSS

☐ 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
44	(4)#8, (1)#10 G, 3/4" C
54	(4)#8, (1)#10 G, 3/4" C
74	(4)#4, (1)#8 G, 1-1/4" 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
104	(4)#3, (1)#8 G, 1-1/4" C
114	(4)#2, (1)#6 G, 1-1/4" C
124	(4)#1, (1)#6 G, 1-1/2" 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
S804	(3) 2-1/2" C, EACH W/ (4)-300 kcmil
V054A	(4)#6, (1)#8 G, 1" C

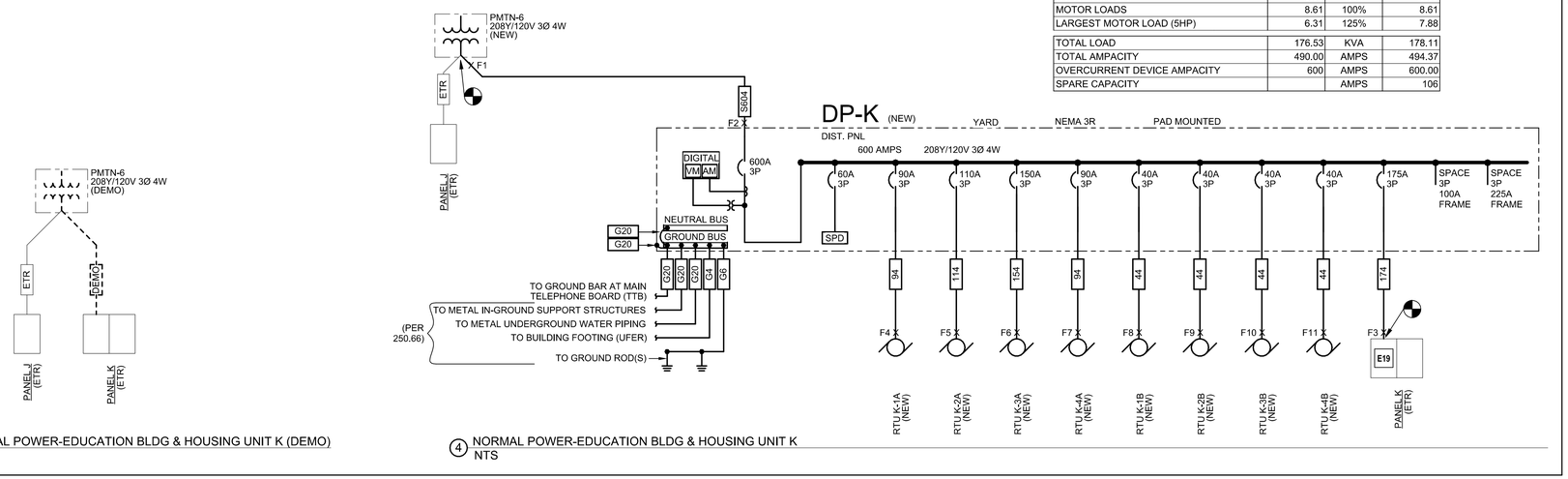


PNLBD DP-E LOADSUM	208Y/120V, 3PH		
LOAD DESCRIPTION	Connected KVA	Demand FACTOR	Demand KVA
EXISTING DESIGN CONNECTED LOAD	43.23	100%	43.23
HVAC - SUMMER	112.26	100%	112.26
HVAC - WINTER	0.00	0%	0.00
MOTOR LOADS	10.16	100%	10.16
LARGEST MOTOR LOAD (2HP)	2.81	125%	3.51
TOTAL LOAD	168.46	KVA	169.16
TOTAL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

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
09/26/25

NATHAN W. STOSS
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MO. CORPORATE NO: E-556D
EXPIRES 10/31/2025

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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

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PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
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ISSUE DATE: 09/26/2025

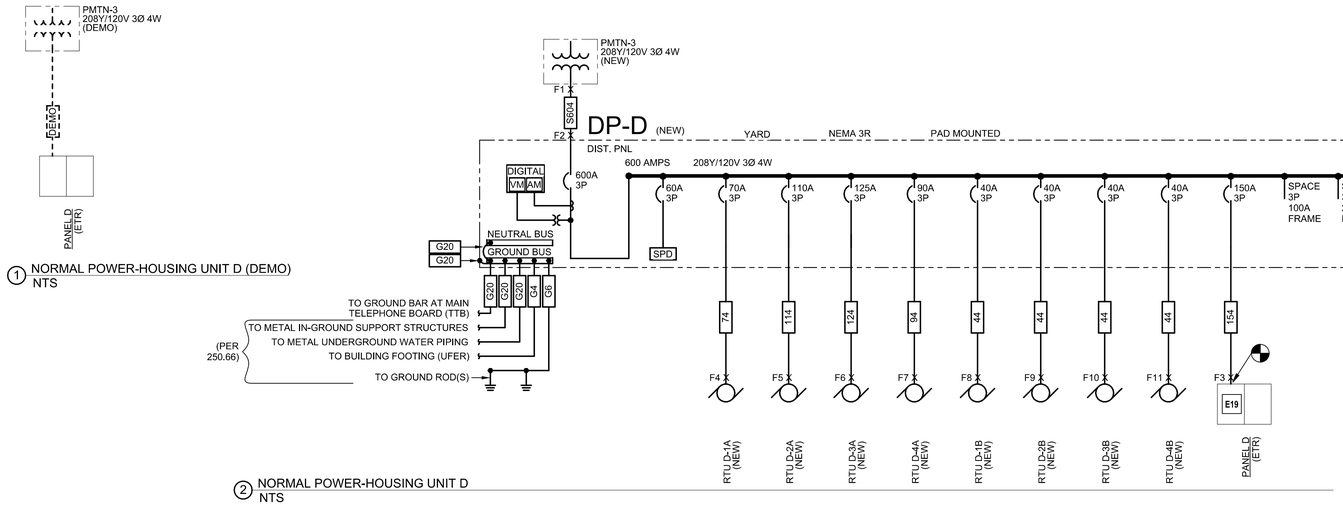
CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL LINE-VOLTAGE ONELINES

SHEET NUMBER:
E801

68 OF 91 SHEETS
09/26/2025

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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FEEDER SCHEDULE:

FDR

FEEDER TAG	FEEDER DESCRIPTION
44	(4)#8, (1)#10 G, 3/4" C
54	(4)#8, (1)#10 G, 3/4" C
74	(4)#4, (1)#8 G, 1-1/4" C
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84	(4)#4, (1)#8 G, 1-1/4" C
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104	(4)#3, (1)#8 G, 1-1/4" C
114	(4)#2, (1)#6 G, 1-1/4" C
124	(4)#1, (1)#6 G, 1-1/2" 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
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S404	(2) 2" C, EACH W/ (4)#3/0
S604	(2) 3" C, EACH W/ (4)-350 kcmil
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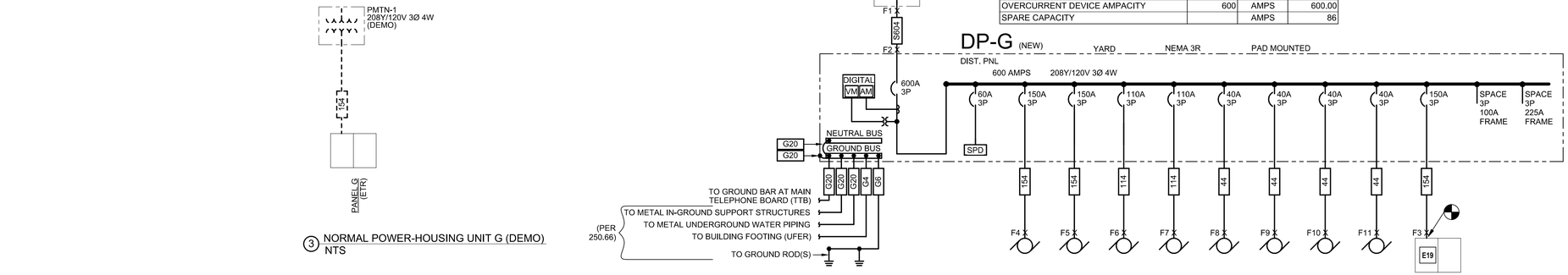
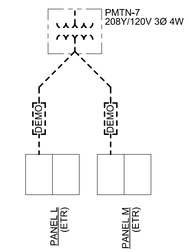
V054A	(4)#6, (1)#8 G, 1" C



3 NORMAL POWER-HOUSING UNIT G (DEMO)
NTS

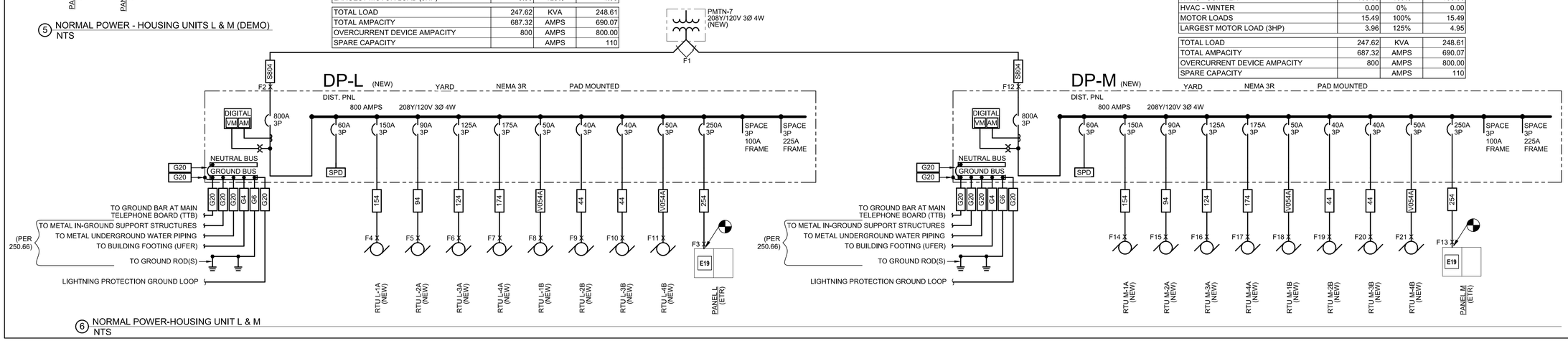
4 NORMAL POWER-HOUSING UNIT G
NTS



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

NATHAN W. STOSS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
09/26/25

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OFFICE OF ADMINISTRATION
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HVAC IMPROVEMENTS -
FULTON RECEPTION AND
DIAGONSTIC
CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
ELECTRICAL
LINE-VOLTAGE
ONELINES

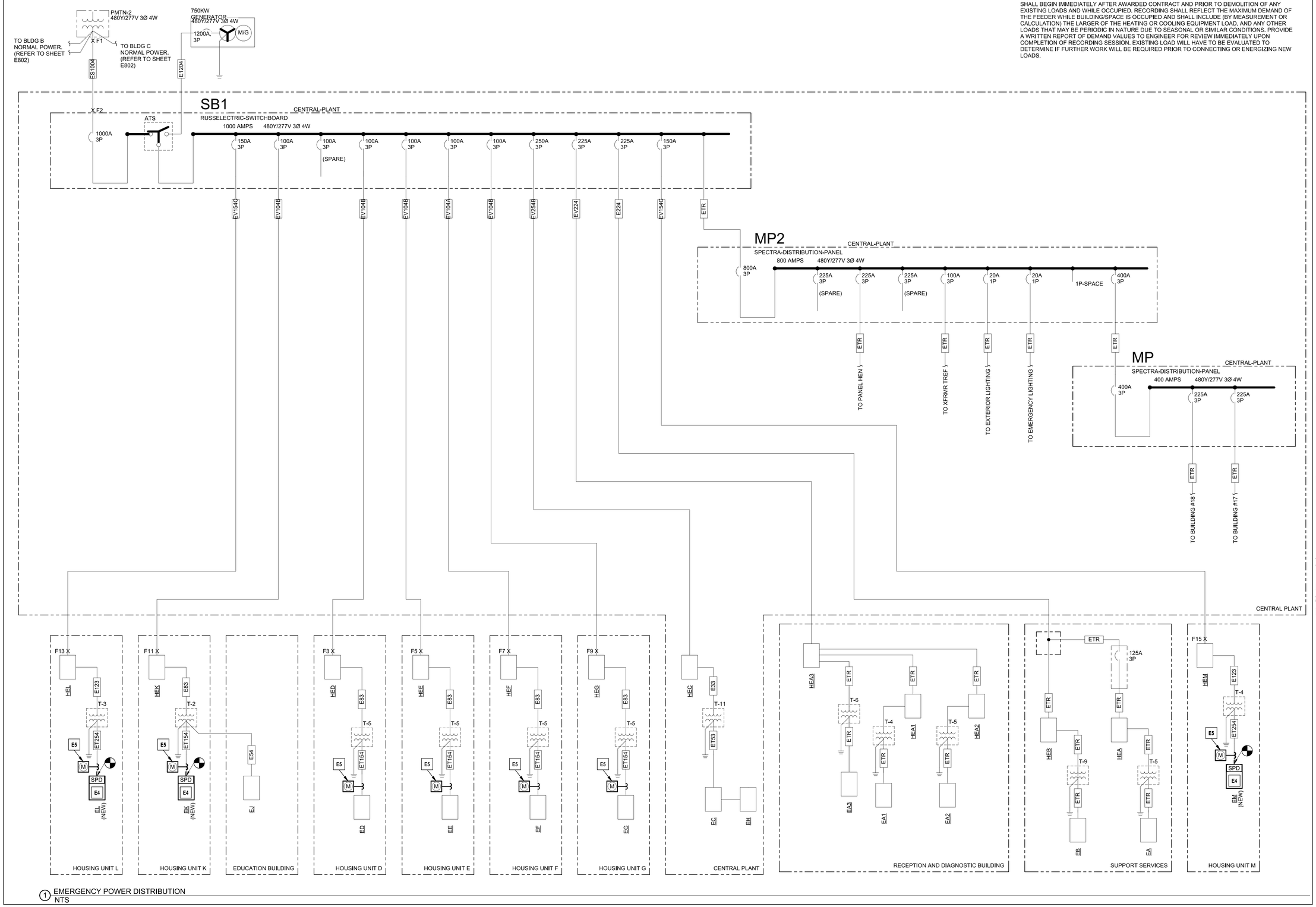
SHEET NUMBER:
E802

69 OF 91 SHEETS
09/26/2025

ELECTRICAL PLAN NOTES:

E4 REPLACE EXISTING PANELBOARD IN SAME LOCATION AND RECONNECT EXISTING CIRCUITS TO NEW PANEL. 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

NATHAN W. STOSS

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
09/26/25

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 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
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DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

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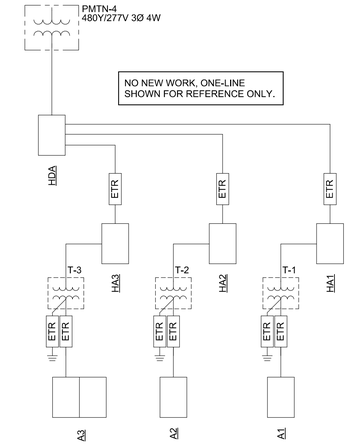
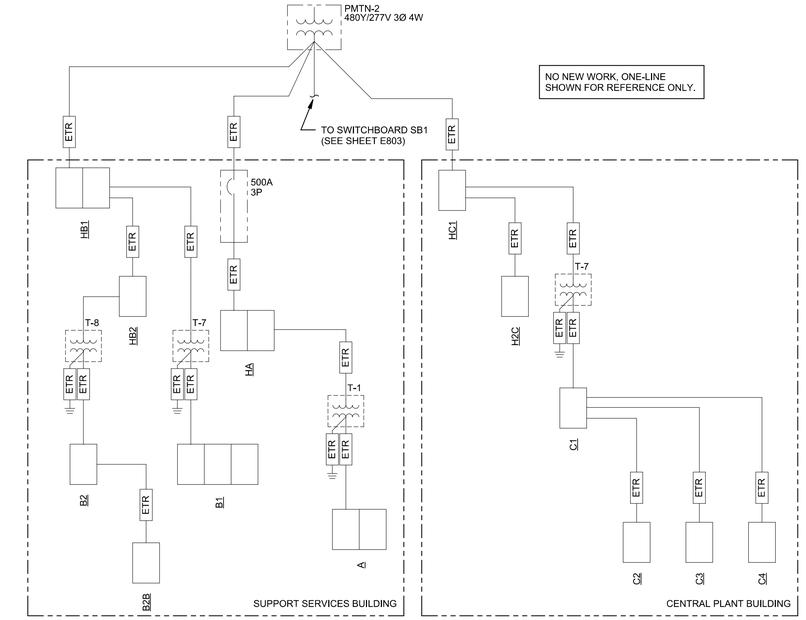
ELECTRICAL
EMERGENCY
ONELINE

SHEET NUMBER:
E803

70 OF 91 SHEETS
09/26/2025



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
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ELECTRICAL
LINE-VOLTAGE
ONELINES

SHEET NUMBER:
E804

71 OF 91 SHEETS
09/26/2025

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	45	0.000310	0.000060	0.554811								18.108	0.05	2,280	-2.10%	-2.26%	4
5	RTU D-2A	2	3	43,561	M	CU	1 Set(s) of 2 AWG	5907	--	208	155	0.85	67	0.000200	0.000057	0.554811								9.518	0.10	4,141	-1.73%	-1.88%	5
6	RTU D-3A	2	3	43,561	M	CU	1 Set(s) of 1 AWG	7293	--	208	145	0.85	80	0.000160	0.000057	0.554811								7.212	0.12	5,305	-1.60%	-1.76%	6
7	RTU D-4A	2	3	43,561	M	CU	1 Set(s) of 3 AWG	4774	--	208	73	0.85	55	0.000250	0.000059	0.554811								5.547	0.15	6,654	-0.81%	-0.97%	7
8	RTU D-1B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	175	0.85	24	0.000780	0.000065	0.554811								40.770	0.02	1,043	-2.44%	-2.59%	8
9	RTU D-2B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	24	0.000780	0.000065	0.554811								38.440	0.03	1,104	-2.30%	-2.45%	9
10	RTU D-3B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	24	0.000780	0.000065	0.554811								33.781	0.03	1,252	-2.02%	-2.18%	10
11	RTU D-4B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	110	0.85	24	0.000780	0.000065	0.554811								25.627	0.04	1,636	-1.53%	-1.69%	11

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: 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 2 AWG	5907	--	208	190	0.85	66	0.000200	0.000057	0.554811								9.208	0.10	3,368	-2.09%	-2.24%	4
5	RTU E-2A	2	3	34,378	M	CU	1 Set(s) of 1 AWG	7293	--	208	155	0.85	68	0.000160	0.000057	0.554811								6.084	0.14	4,853	-1.46%	-1.61%	5
6	RTU E-3A	2	3	34,378	M	CU	1 Set(s) of 3 AWG	4774	--	208	145	0.85	57	0.000250	0.000059	0.554811								8.695	0.10	3,546	-1.68%	-1.83%	6
7	RTU E-4A	2	3	34,378	M	CU	1 Set(s) of 2 AWG	5907	--	208	73	0.85	66	0.000200	0.000057	0.554811								3.538	0.22	7,576	-0.80%	-0.96%	7
8	RTU E-1B	2	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	175	0.85	24	0.000780	0.000065	0.554811								32.176	0.03	1,036	-2.44%	-2.59%	8
9	RTU E-2B	2	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	24	0.000780	0.000065	0.554811								30.337	0.03	1,097	-2.30%	-2.45%	9
10	RTU E-3B	2	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	24	0.000780	0.000065	0.554811								26.660	0.04	1,243	-2.02%	-2.18%	10
11	RTU E-4B	2	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	110	0.85	24	0.000780	0.000065	0.554811								20.225	0.05	1,620	-1.53%	-1.69%	11
12	Distribution 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 2 AWG	5907	--	208	190	0.85	66	0.000200	0.000057	0.554811								9.208	0.10	3,368	-2.09%	-2.24%	14
15	RTU F-2A	12	3	34,378	M	CU	1 Set(s) of 1 AWG	7293	--	208	155	0.85	80	0.000160	0.000057	0.554811								6.084	0.14	4,853	-1.71%	-1.87%	15
16	RTU F-3A	12	3	34,378	M	CU	1 Set(s) of 2 AWG	5907	--	208	145	0.85	67	0.000200	0.000057	0.554811								7.027	0.12	4,283	-1.62%	-1.77%	16
17	RTU F-4A	12	3	34,378	M	CU	1 Set(s) of 1 AWG	7293	--	208	73	0.85	68	0.000160	0.000057	0.554811								2.865	0.26	8,894	-0.69%	-0.84%	17
18	RTU F-1B	12	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	175	0.85	24	0.000780	0.000065	0.554811								32.176	0.03	1,036	-2.44%	-2.59%	18
19	RTU F-2B	12	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	24	0.000780	0.000065	0.554811								30.337	0.03	1,097	-2.30%	-2.45%	19
20	RTU F-3B	12	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	24	0.000780	0.000065	0.554811								26.660	0.04	1,243	-2.02%	-2.18%	20
21	RTU F-4B	12	3	34,378	M	CU	1 Set(s) of 8 AWG	1557	--	208	110	0.85	24	0.000780	0.000065	0.554811								20.225	0.05	1,620	-1.53%	-1.69%	21

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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

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System Voltage: 208Y/120V - 3 phase

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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 1/0 AWG	8925	--	208	190	0.85	84	0.000120	0.000055	0.554811								7.722	0.11	4,994	-1.74%	-1.90%	4
5	RTU G-2A	2	3	43,561	M	CU	1 Set(s) of 1/0 AWG	8925	--	208	155	0.85	83	0.000120	0.000055	0.554811								6.300	0.14	5,968	-1.40%	-1.56%	5
6	RTU G-3A	2	3	43,561	M	CU	1 Set(s) of 2 AWG	5907	--	208	145	0.85	67	0.000200	0.000057	0.554811								8.904	0.10	4,398	-1.62%	-1.77%	6
7	RTU G-4A	2	3	43,561	M	CU	1 Set(s) of 2 AWG	5907	--	208	73	0.85	66	0.000200	0.000057	0.554811								4.483	0.18	7,945	-0.80%	-0.96%	7
8	RTU G-1B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	175	0.85	24	0.000780	0.000065	0.554811								40.770	0.02	1,043	-2.44%	-2.59%	8
9	RTU G-2B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	24	0.000780	0.000065	0.554811								38.440	0.03	1,104	-2.30%	-2.45%	9
10	RTU G-3B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	24	0.000780	0.000065	0.554811								33.781	0.03	1,252	-2.02%	-2.18%	10
11	RTU G-4B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	110	0.85	24	0.000780	0.000065	0.554811								25.627	0.04	1,636	-1.53%	-1.69%	11

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PROFESSIONAL ENGINEER
09/26/25

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EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION: DATE:
REVISION: DATE:
REVISION: DATE:

ISSUE DATE: 09/26/2025

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

SHEET TITLE:
ELECTRICAL CALCULATIONS

SHEET NUMBER:
E805

72 OF 91 SHEETS
09/26/2025

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 3 AWG	4774	--	208	190	0.85	55	0.000250	0.000059	0.554811								14.437	0.06	2,822	-2.12%	-2.27%	4
5	RTU K-2A	2	3	43,561	M	CU	1 Set(s) of 2 AWG	5907	--	208	155	0.85	67	0.000200	0.000057	0.554811								9.518	0.10	4,141	-1.73%	-1.88%	5
6	RTU K-3A	2	3	43,561	M	CU	1 Set(s) of 1/0 AWG	8925	--	208	145	0.85	83	0.000120	0.000055	0.554811								5.893	0.15	6,319	-1.31%	-1.47%	6
7	RTU K-4A	2	3	43,561	M	CU	1 Set(s) of 3 AWG	4774	--	208	73	0.85	55	0.000250	0.000059	0.554811								5.547	0.15	6,654	-0.81%	-0.97%	7
8	RTU K-1B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	175	0.85	24	0.000780	0.000065	0.554811								40.770	0.02	1,043	-2.44%	-2.59%	8
9	RTU K-2B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	165	0.85	24	0.000780	0.000065	0.554811								38.440	0.03	1,104	-2.30%	-2.45%	9
10	RTU K-3B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	145	0.85	24	0.000780	0.000065	0.554811								33.781	0.03	1,252	-2.02%	-2.18%	10
11	RTU K-4B	2	3	43,561	M	CU	1 Set(s) of 8 AWG	1557	--	208	110	0.85	24	0.000780	0.000065	0.554811								25.627	0.04	1,636	-1.53%	-1.69%	11

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

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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	3 Set(s) of 300 kcmil	20868	--	208	15	0.9	640	0.000044	0.000041	0.451027								0.077	0.93	35,704	-0.15%	-0.15%	2
3	Panelboard 'L' (ETR)	2	3	35,704	M	CU	1 Set(s) of 250 kcmil	16483	--	208	128	0.9	200	0.000054	0.000052	0.451027								2.309	0.30	10,791	-1.52%	-1.67%	3
4	RTU L-1A	2	3	35,704	M	CU	1 Set(s) of 1/0 AWG	8925	--	208	210	0.85	110	0.000120	0.000055	0.554811								6.996	0.13	4,465	-2.52%	-2.67%	4
5	RTU L-2A	2	3	35,704	M	CU	1 Set(s) of 3 AWG	4774	--	208	170	0.85	55	0.000250	0.000059	0.554811								10.587	0.09	3,081	-1.90%	-2.05%	5
6	RTU L-3A	2	3	35,704	M	CU	1 Set(s) of 1 AWG	7293	--	208	160	0.85	68	0.000160	0.000057	0.554811								6.523	0.13	4,746	-1.50%	-1.66%	6
7	RTU L-4A	2	3	35,704	M	CU	1 Set(s) of 2/0 AWG	10755	--	208	85	0.85	128	0.000100	0.000054	0.554811								2.350	0.30	10,659	-1.03%	-1.18%	7
8	RTU L-1B	2	3	35,704	M	CU	1 Set(s) of 6 AWG	2425	--	208	195	0.85	41	0.000490	0.000064	0.554811								23.908	0.04	1,433	-3.00%	-3.15%	8
9	RTU L-2B	2	3	35,704	M	CU	1 Set(s) of 8 AWG	1557	--	208	185	0.85	24	0.000780	0.000065	0.554811								35.326	0.03	983	-2.58%	-2.73%	9
10	RTU L-3B	2	3	35,704	M	CU	1 Set(s) of 8 AWG	1557	--	208	162	0.85	24	0.000780	0.000065	0.554811								30,934	0.03	1,118	-2.26%	-2.41%	10
11	RTU L-4B	2	3	35,704	M	CU	1 Set(s) of 6 AWG	2425	--	208	110	0.85	41	0.000490	0.000064	0.554811								13.486	0.07	2,465	-1.69%	-1.84%	11
12	Distribution Panel 'DP-M'	1	3	38,443	NM	CU	3 Set(s) of 300 kcmil	20868	--	208	15	0.9	640	0.000044	0.000041	0.451027								0.077	0.93	35,704	-0.15%	-0.15%	12
13	Panelboard 'M' (ETR)	12	3	35,704	M	CU	1 Set(s) of 250 kcmil	16483	--	208	128	0.9	200	0.000054	0.000052	0.451027								2.309	0.30	10,791	-1.52%	-1.67%	13
14	RTU M-1A	12	3	35,704	M	CU	1 Set(s) of 1/0 AWG	8925	--	208	210	0.85	110	0.000120	0.000055	0.554811								6.996	0.13	4,465	-2.52%	-2.67%	14
15	RTU M-2A	12	3	35,704	M	CU	1 Set(s) of 3 AWG	4774	--	208	170	0.85	55	0.000250	0.000059	0.554811								10.587	0.09	3,081	-1.90%	-2.05%	15
16	RTU M-3A	12	3	35,704	M	CU	1 Set(s) of 1 AWG	7293	--	208	160	0.85	68	0.000160	0.000057	0.554811								6.523	0.13	4,746	-1.50%	-1.66%	16
17	RTU M-4A	12	3	35,704	M	CU	1 Set(s) of 2/0 AWG	10755	--	208	85	0.85	128	0.000100	0.000054	0.554811								2.350	0.30	10,659	-1.03%	-1.18%	17
18	RTU M-1B	12	3	35,704	M	CU	1 Set(s) of 6 AWG	2425	--	208	195	0.85	41	0.000490	0.000064	0.554811								23.908	0.04	1,433	-3.00%	-3.15%	18
19	RTU M-2B	12	3	35,704	M	CU	1 Set(s) of 8 AWG	1557	--	208	185	0.85	24	0.000780	0.000065	0.554811								35.326	0.03	983	-2.58%	-2.73%	19
20	RTU M-3B	12	3	35,704	M	CU	1 Set(s) of 8 AWG	1557	--	208	162	0.85	24	0.000780	0.000065	0.554811								30,934	0.03	1,118	-2.26%	-2.41%	20
21	RTU M-4B	12	3	35,704	M	CU	1 Set(s) of 6 AWG	2425	--	208	110	0.85	41	0.000490	0.000064	0.554811								13.486	0.07	2,465	-1.69%	-1.84%	21

Short-Circuit and Voltage Drop Calculations

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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
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PROFESSIONAL ENGINEER
09/26/25

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2450001658
MO. CORPORATE NO: E-556D
EXPIRES 10/31/2025

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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
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ISSUE DATE: 09/26/2025

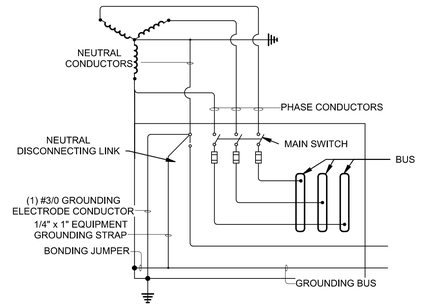
CAD DWG FILE:
DRAWN BY: A. Manning
CHECKED BY: N. Stoss
DESIGNED BY: A. Manning, J. Vidal

SHEET TITLE:
ELECTRICAL CALCULATIONS

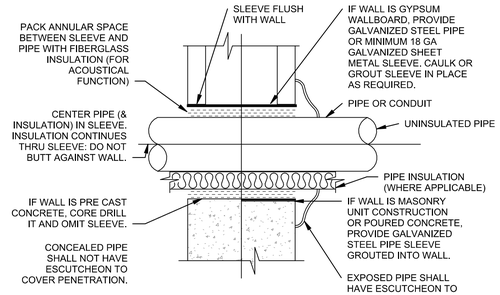
SHEET NUMBER:
E806

73 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

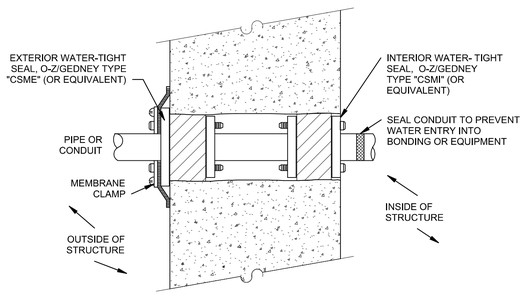


1 SERVICE ENTRANCE GROUNDING DIAGRAM
NTS

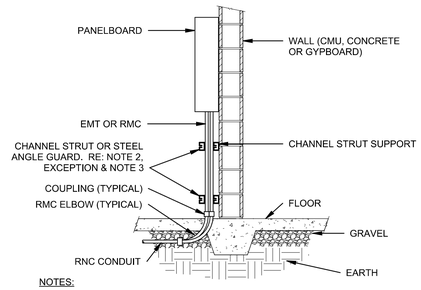


REFER TO ARCHITECTURAL DRAWINGS FOR WALL LOCATIONS.
REFER TO SPECIFICATIONS FOR ALTERNATIVE INSTALLATIONS.
COORDINATE REQUIREMENTS WITH GENERAL CONTRACTOR.

2 CONDUIT PENETRATION THRU NON-FIREWALL
NTS



3 CONDUIT THROUGH EXISTING EXTERIOR WALL
NTS

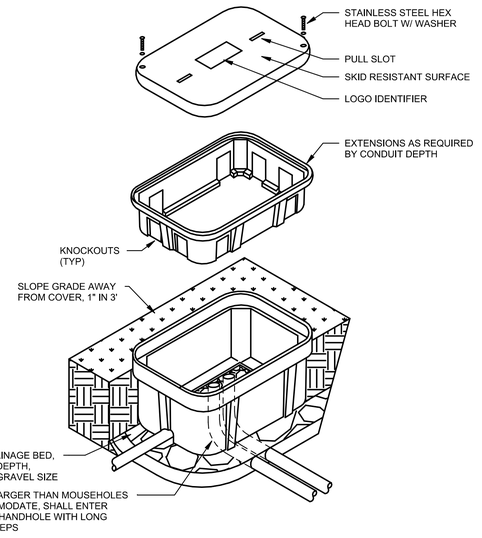


NOTES:

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

STATE OF MISSOURI
NATHAN W. STOSS
NUMBER PE-2023044638
PROFESSIONAL ENGINEER
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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
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DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER:
E900

74 OF 91 SHEETS
09/26/2025

NATHAN W. STOSS

FIRE ALARM SCOPE OF WORK:

1. FIRE ALARM SCOPE OF WORK INCLUDES THE DEMOLITION OF THE EXISTING SIMPLEX FIRE ALARM SYSTEM AND PROVISION OF A NEW POTTER BRAND FIRE ALARM SYSTEM WITHIN BUILDINGS D, E, F, G, K, L, AND M.
   FIRE ALARM CONTROL PANEL PROVIDED SHALL BE POTTER BRAND, NETWORKABLE, AND COMPATIBLE WITH PLANNED INSTALLATION OF WORKSTATION LOCATED IN ADMINISTRATION BUILDING A.
2. SCOPE OF WORK DOES NOT INCLUDE MODIFICATIONS TO EXISTING SMOKE CONTROL SYSTEM. RECONNECT NEW FIRE ALARM SYSTEM TO EXISTING SMOKE CONTROL SYSTEM RELAYS.

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
- #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)
- #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.D	FIRE ALARM - LEVEL 1 PLAN - BUILDING D
FA101.L	FIRE ALARM - LEVEL 1 PLAN - BUILDING L
FA102.D	FIRE ALARM - LEVEL 2 PLAN - BUILDING D
FA102.L	FIRE ALARM - LEVEL 2 PLAN - BUILDING L
FA500	FIRE ALARM DETAILS
FAD101.D	FIRE ALARM - LEVEL 1 DEMO PLAN - BUILDING D
FAD101.L	FIRE ALARM - LEVEL 1 DEMO PLAN - BUILDING L
FAD102.D	FIRE ALARM - LEVEL 2 DEMO PLAN - BUILDING D
FAD102.L	FIRE ALARM - LEVEL 2 DEMO PLAN - BUILDING L

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

CHRISTOPHER J. CULP
LICENSE # PE-2013037646
9/26/2025

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OFFICE OF ADMINISTRATION
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1393 ROUTE O
FULTON, MO 65251

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SITE # 7010
FACILITY # 9327010027

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DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
FIRE ALARM GENERAL NOTES AND LEGEND

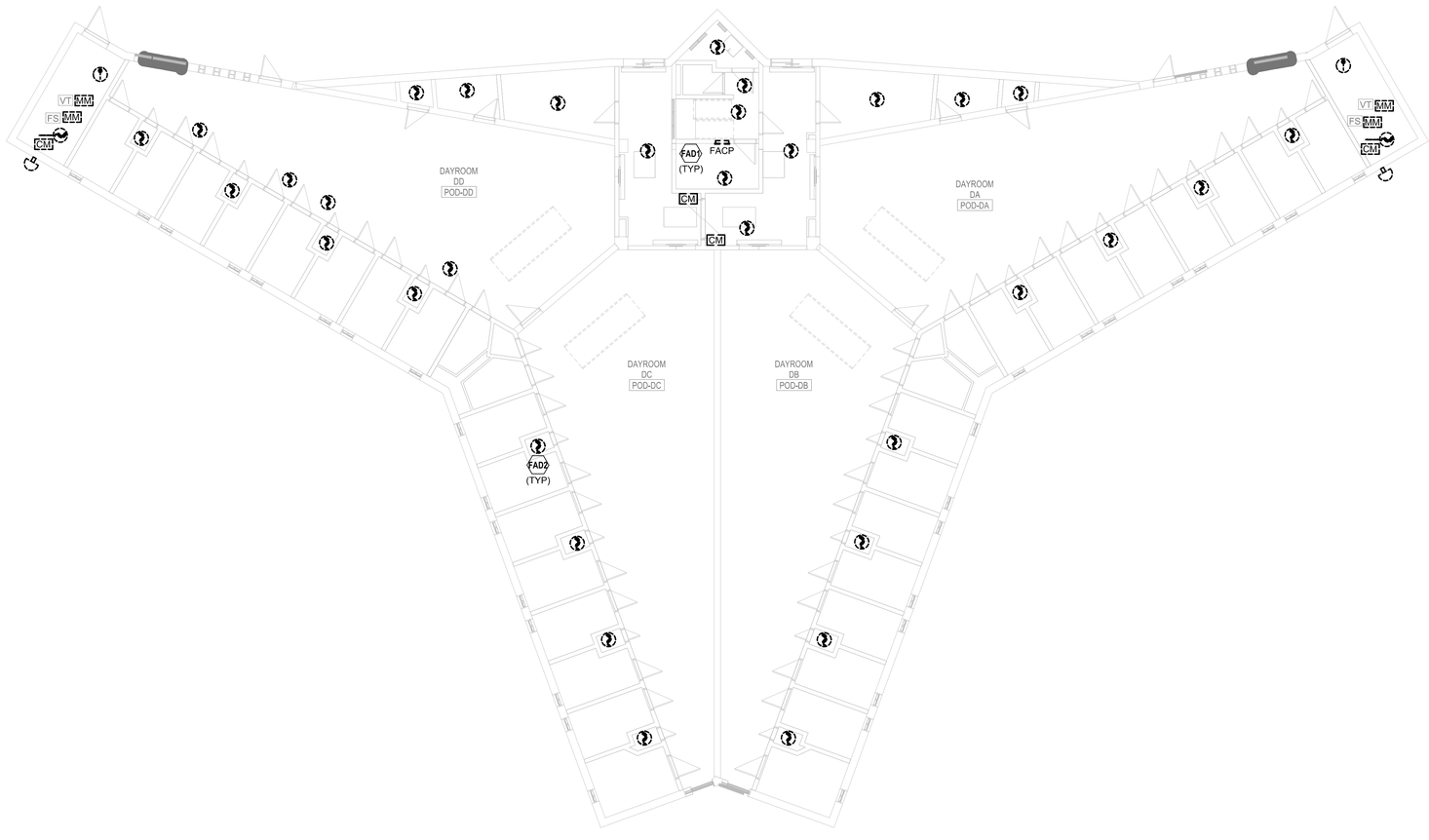
SHEET NUMBER:
FA000

CHRISTOPHER J. CULP

FIRE ALARM DEMOLITION PLAN NOTES:

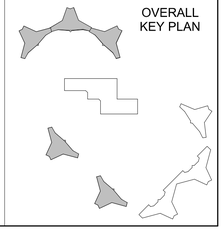
FAD1 FIRE ALARM SYSTEM AS-BUILTS WERE NOT AVAILABLE AT THE TIME OF DESIGN. EXISTING CONDITIONS WERE TAKEN FROM SITE VISITS AND MAY NOT REFLECT EXACT AS-BUILT CONDITIONS. CONTRACTOR SHALL PROVIDE ALL MATERIAL AND LABOR NEEDED FOR COMPLETE DEMOLITION OF EXISTING FIRE ALARM SYSTEM.

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"

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



STATE OF MISSOURI
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PE-2013037646
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9/26/2025

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

SHEET TITLE:

FIRE ALARM - LEVEL 1 DEMO PLAN - BUILDING D

SHEET NUMBER:

FAD101.D

76 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP

FIRE ALARM DEMOLITION PLAN NOTES:

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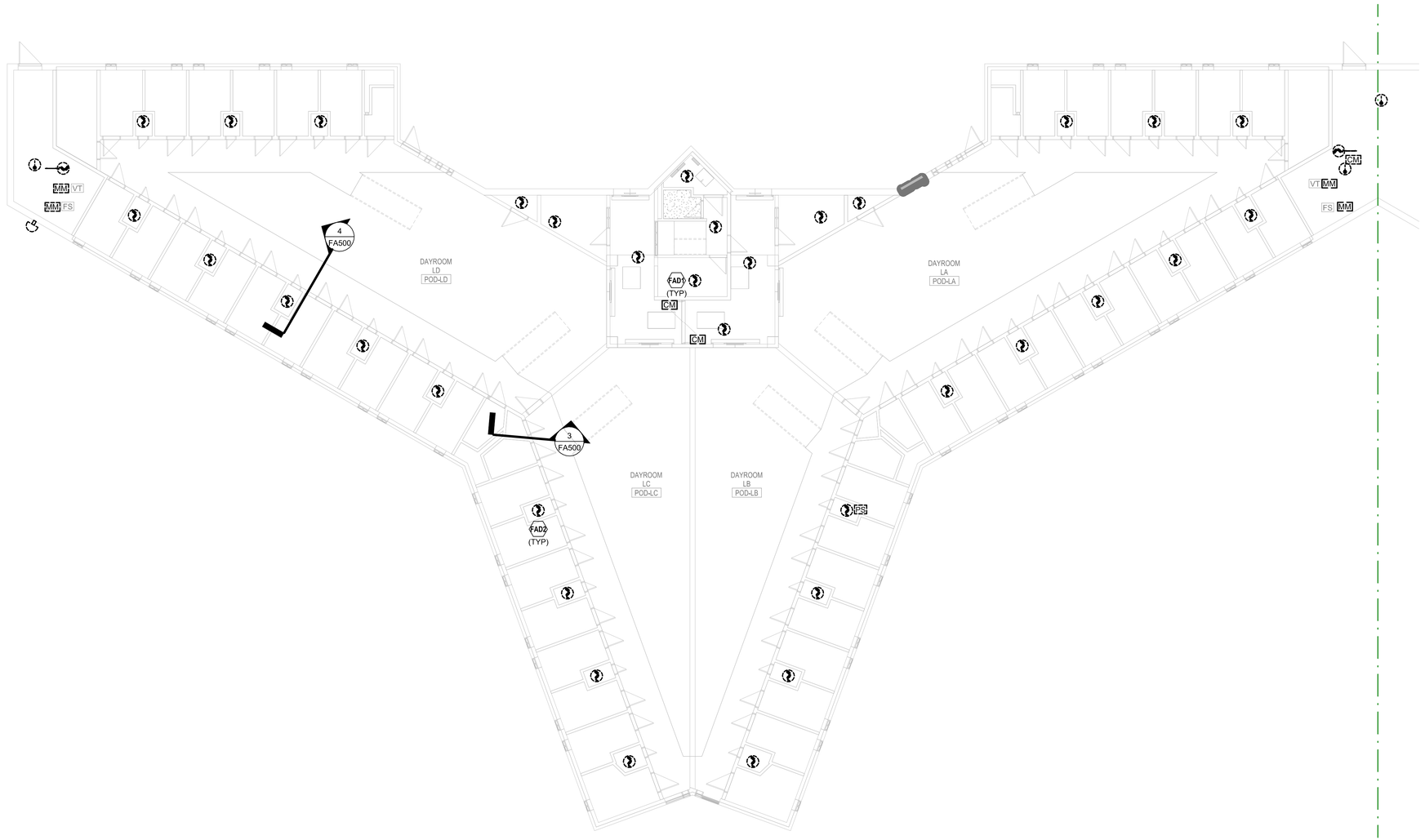
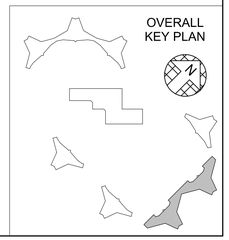


1 FIRE ALARM DEMOLITION - LEVEL 1 - BLDGS. L & M
3/32" = 1'-0"

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

OVERALL KEY PLAN



STATE OF MISSOURI
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CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE ALARM - LEVEL 1 DEMO PLAN - BUILDING L

SHEET NUMBER:
FAD101.L

77 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP

FIRE ALARM DEMOLITION PLAN NOTES:

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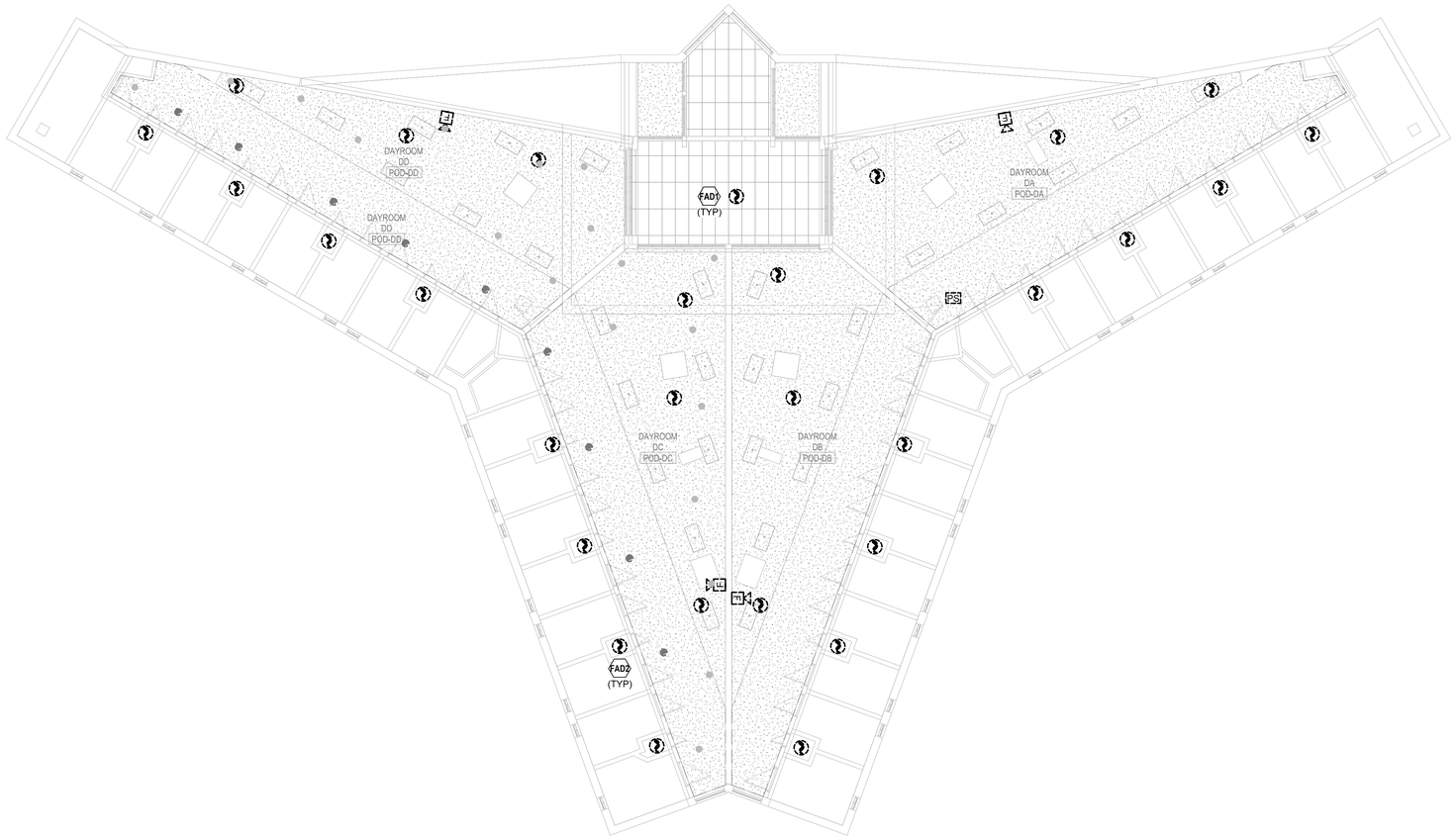
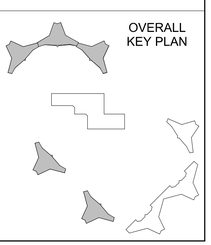


1 FIRE ALARM DEMOLITION - LEVEL 2 - BUILDINGS D,E,F,G,K
3/32" = 1'-0"

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

OVERALL KEY PLAN



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

SHEET TITLE:
FIRE ALARM - LEVEL 2 DEMO PLAN - BUILDING D

SHEET NUMBER:
FAD102.D

78 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP

FIRE ALARM DEMOLITION PLAN NOTES:

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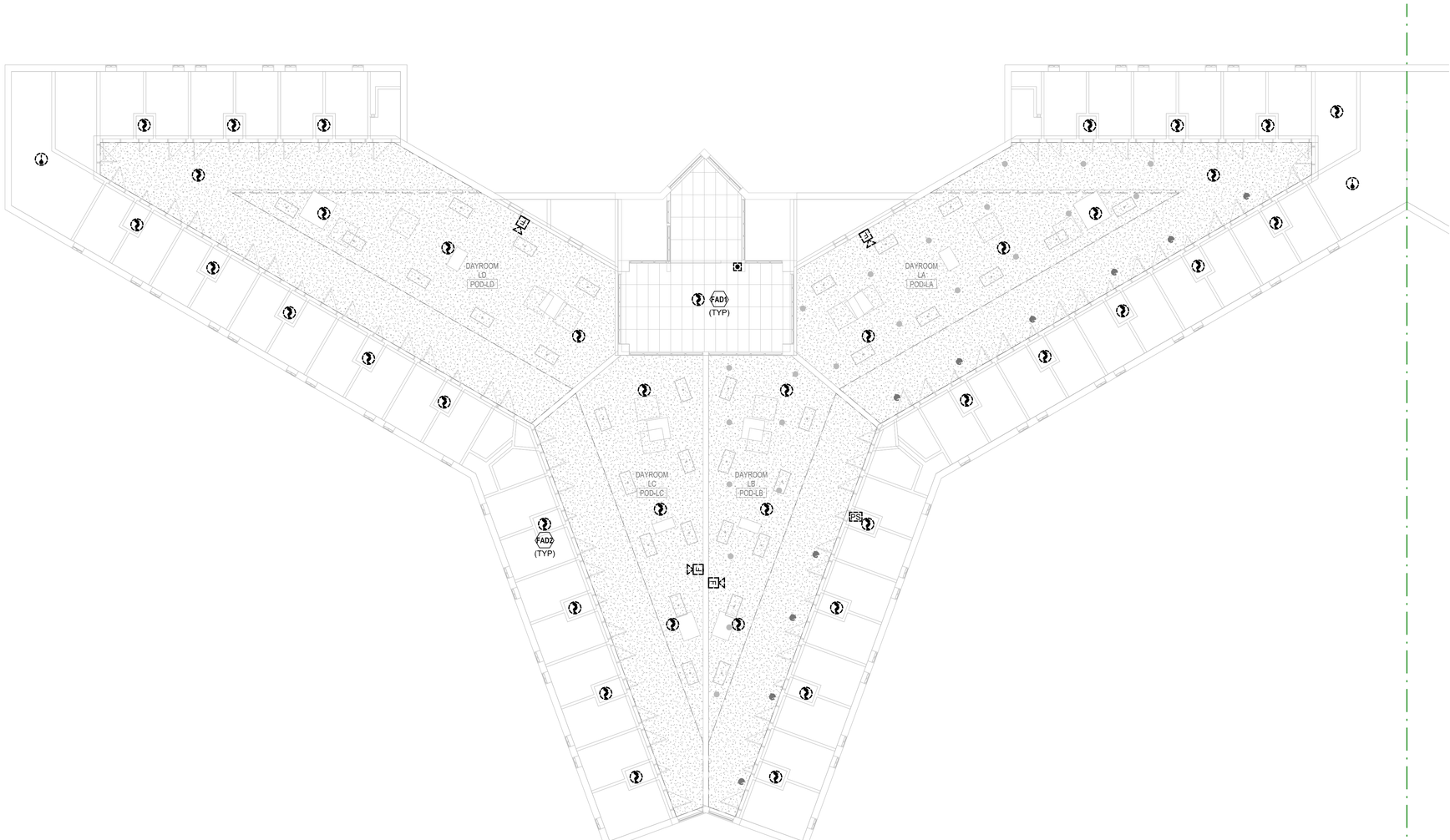

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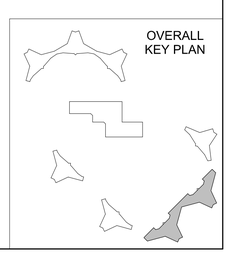
0 4' 8' 12' 16'
SCALE: 3/32"=1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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

9/26/2025

CHRISTOPHER J. CULP
LICENSE # PE-2013037646

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2450001658
MO. CORPORATE NO: E-556D
EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

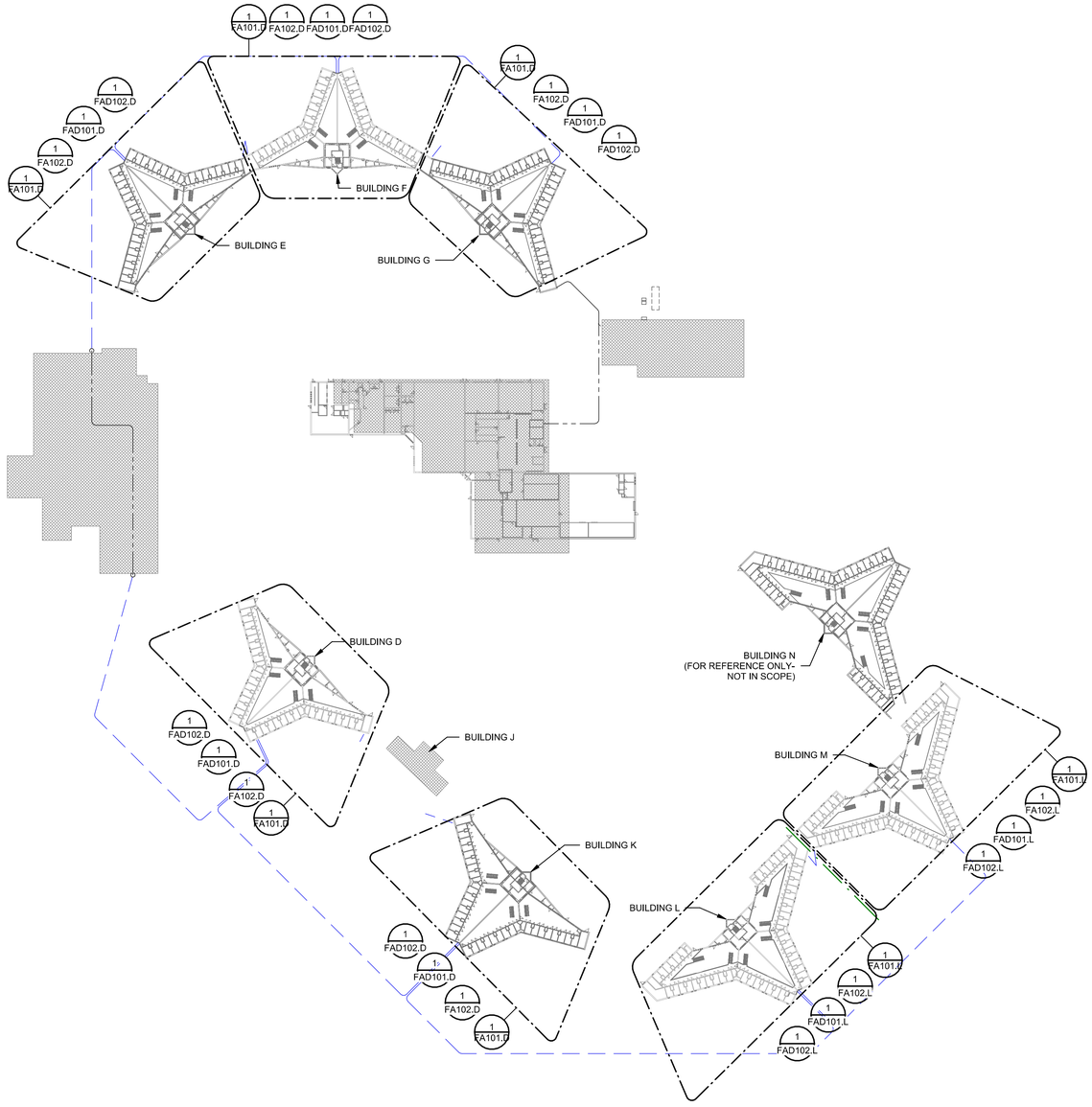
CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE ALARM - LEVEL 2 DEMO PLAN - BUILDING L

SHEET NUMBER:
FAD102.L

79 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP



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

0 40' 80' 120'
SCALE: 1"=80'-0"

OVERALL KEY PLAN

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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

9/26/2025

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ISSUE DATE: 09/26/2025

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

SHEET TITLE:
FIRE ALARM SITE PLAN

SHEET NUMBER:
FA100

80 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

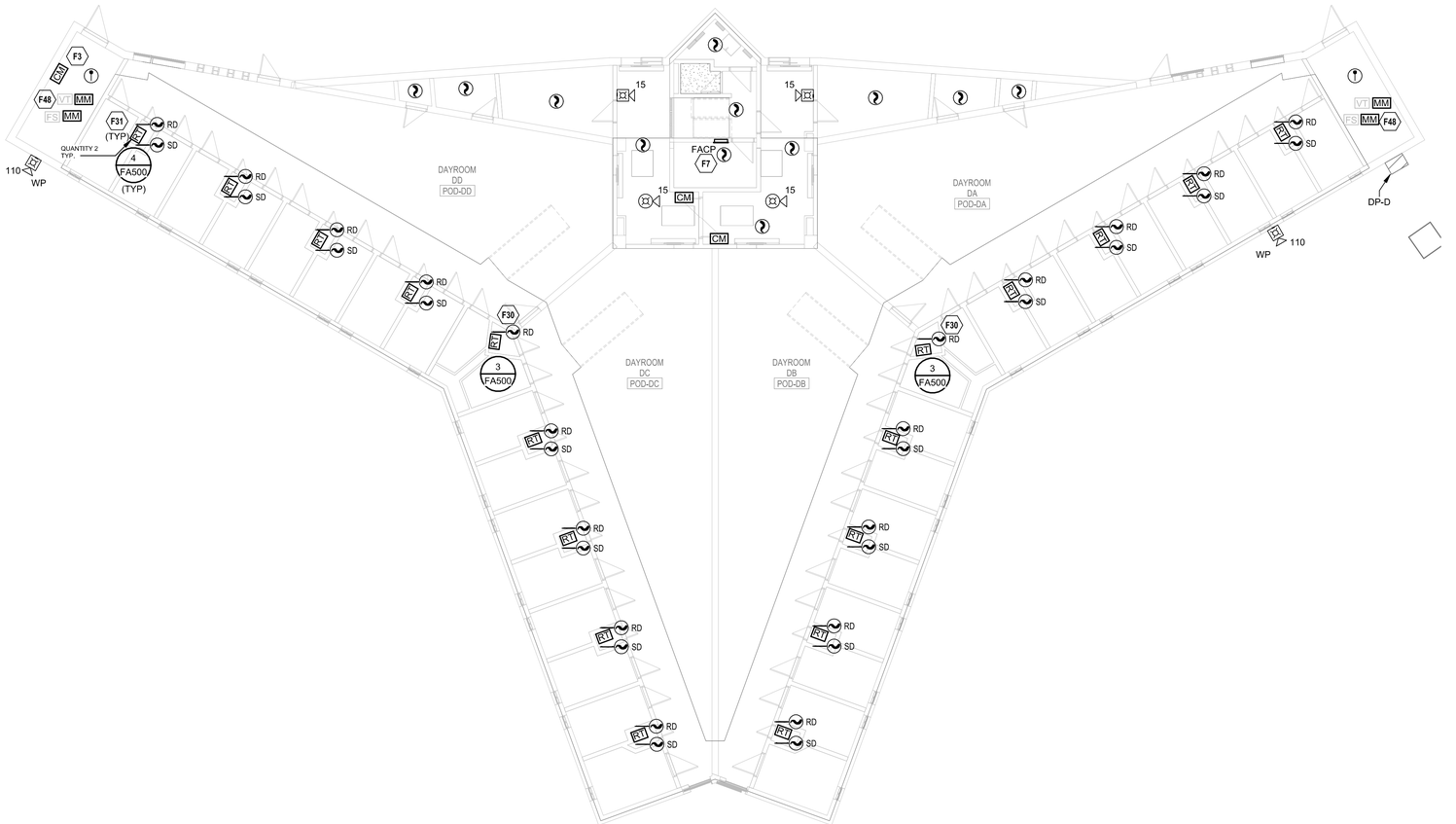
F3 PROVIDE CONNECTIONS TO SEND SIGNAL FROM FIRE ALARM TO BAS TO ACTIVATE SMOKE CONTROL SYSTEM.

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.

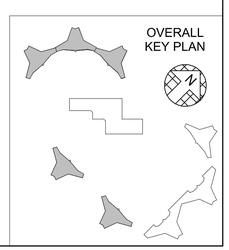
F31 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION ON WALL AT 48" AFF. LABEL FOR EQUIPMENT SERVED.

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"



STATE OF MISSOURI
MIKE KEHOE,
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FULTON, MO 65251

PROJECT # C2406-01
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REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

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

SHEET NUMBER:
FA101.D

81 OF 91 SHEETS
09/26/2025

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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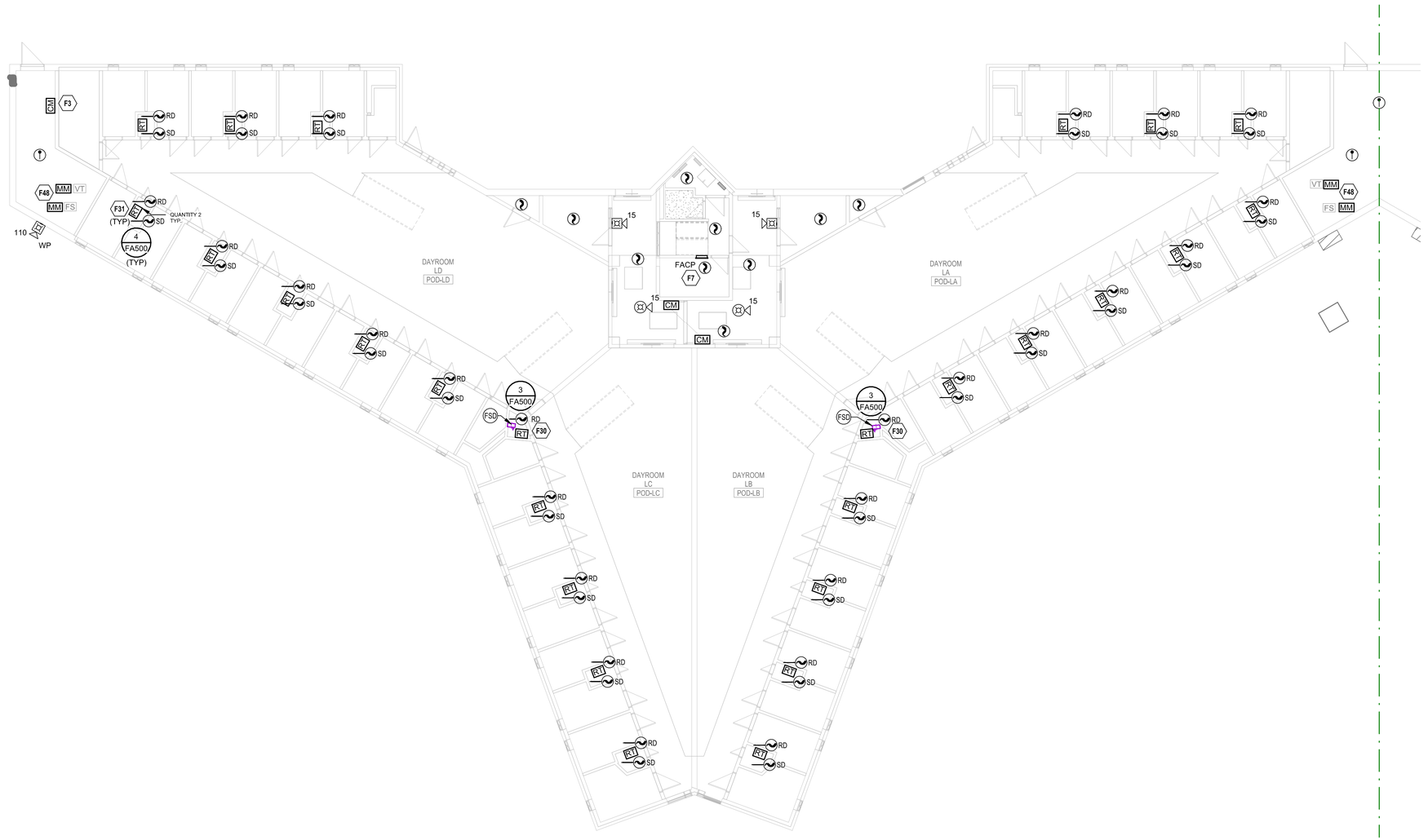
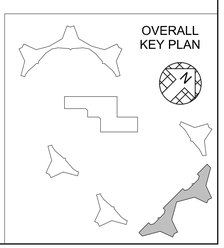


1 TYPICAL FIRE ALARM PLAN - BUILDINGS L & M - LEVEL 1
3/32" = 1'-0"

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

OVERALL KEY PLAN



CHRISTOPHER J. CULP

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1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

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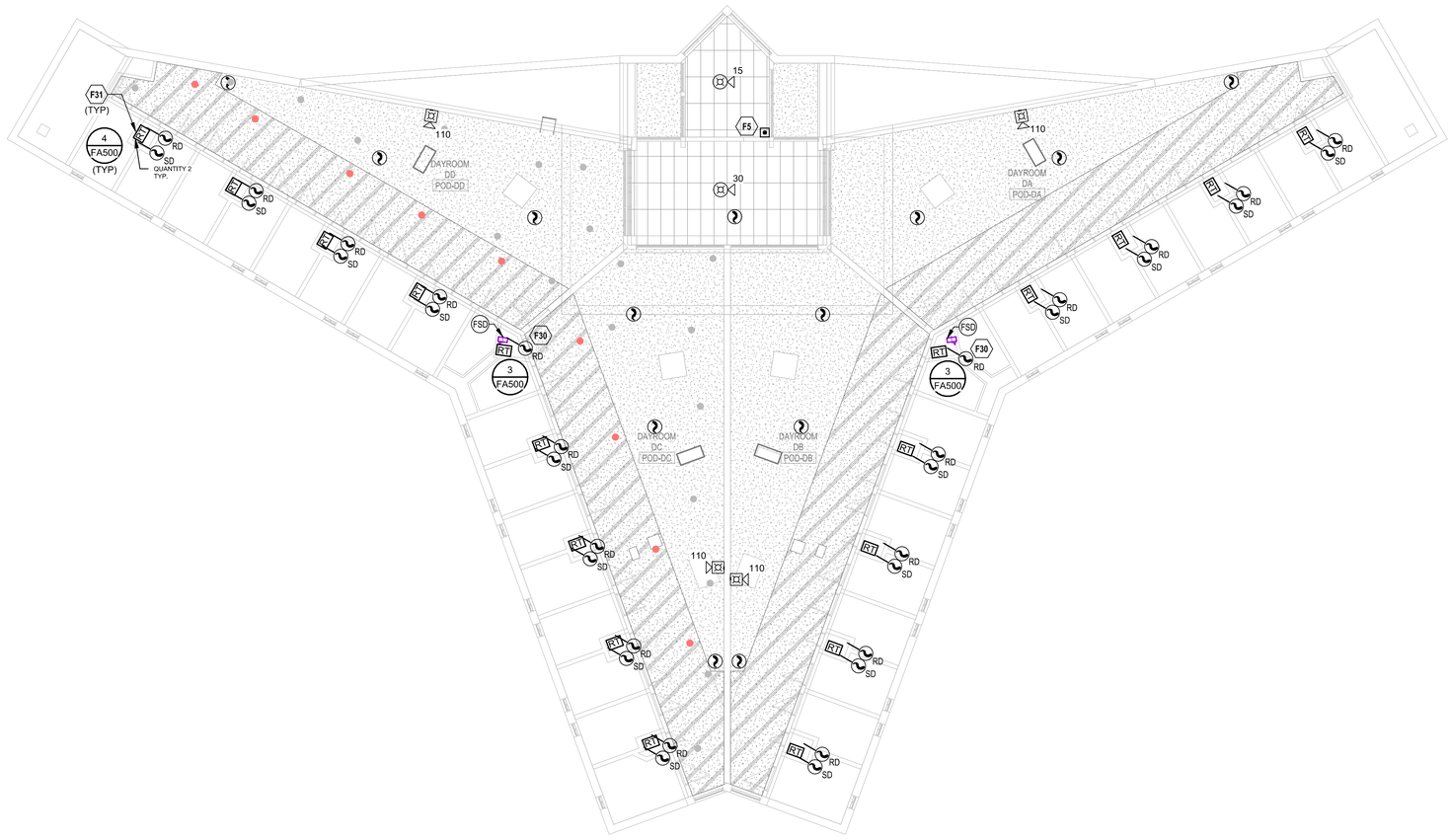
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

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

SHEET TITLE:
FIRE ALARM - LEVEL 1 PLAN - BUILDING L

SHEET NUMBER:
FA101.L

82 OF 91 SHEETS
09/26/2025



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"

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.

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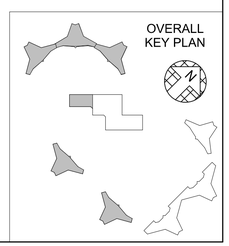
OVERALL KEY PLAN



STATE OF MISSOURI
MIKE KEHOE,
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HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
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 - LEVEL 2 PLAN - BUILDING D

SHEET NUMBER:
FA102.D

83 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP

FIRE ALARM PLAN NOTES:

F5 PROVIDE LISTED TAMPER RESISTANT PULL STATION COVER WITH INTEGRAL BATTERY POWERED ALARM.

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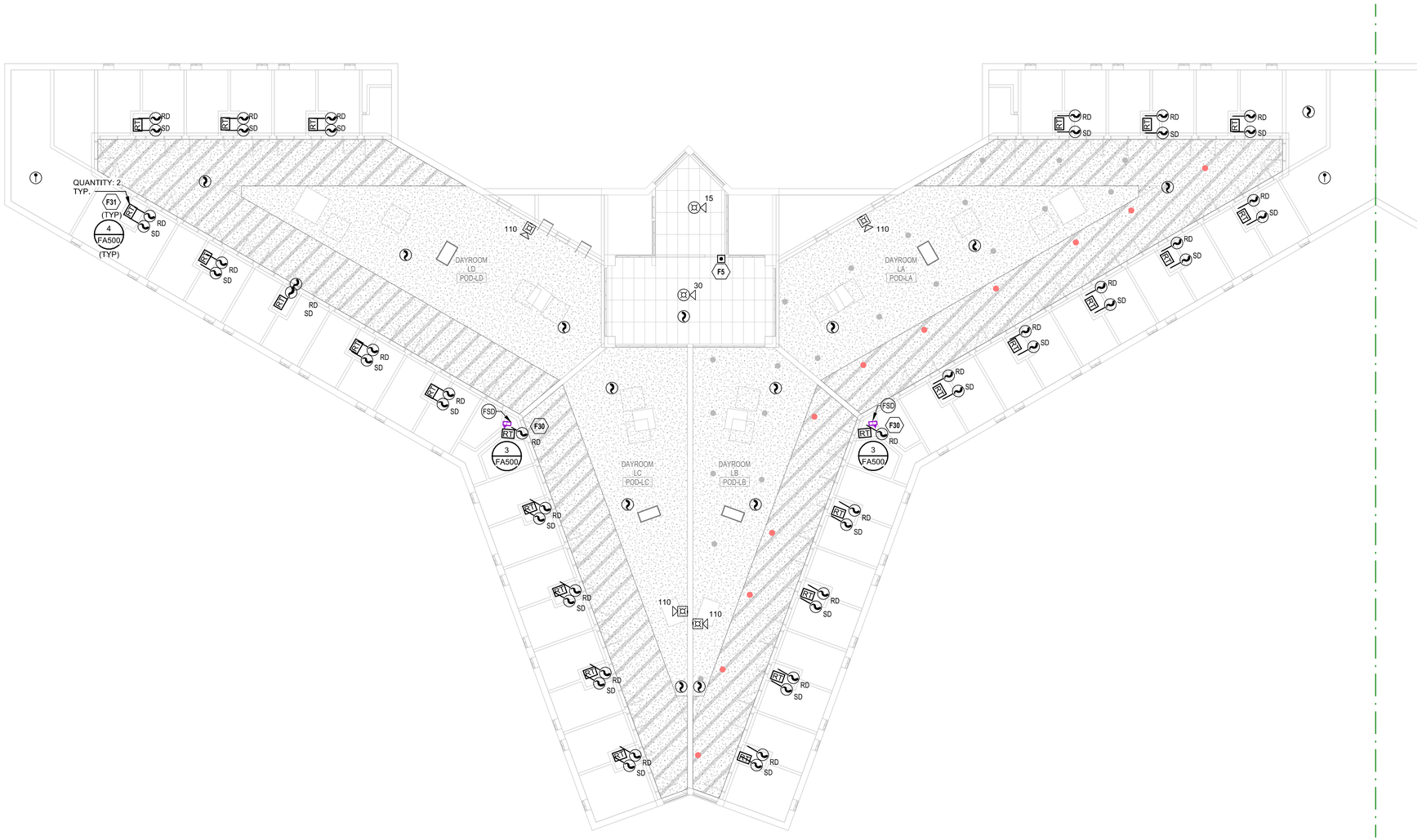

1 TYPICAL FIRE ALARM PLAN - BUILDINGS L & M - LEVEL 2
3/32" = 1'-0"

SCALE: 3/32"=1'-0"

OVERALL KEY PLAN

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
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FULTON, MO 65251

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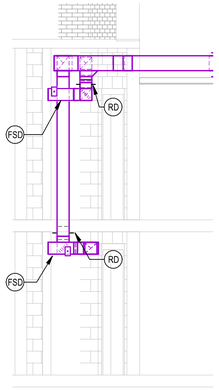
CAD DWG FILE:
DRAWN BY: IJR
CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE ALARM - LEVEL 2 PLAN - BUILDING L

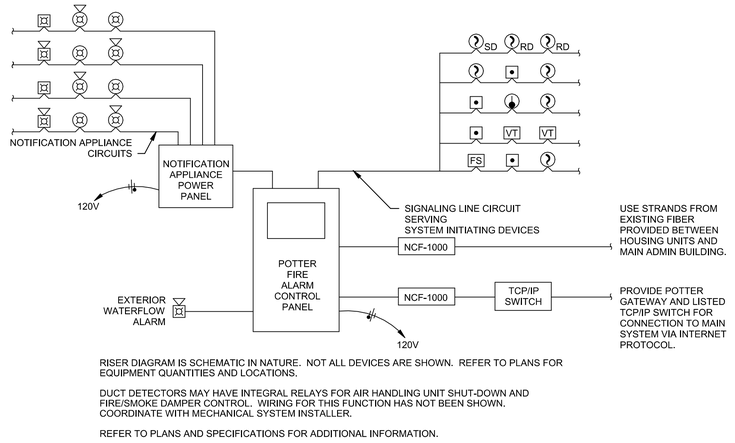
SHEET NUMBER:
FA102.L

84 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP



3 SECTION - SHOWER CHASE DUCT SMOKE DETECTION
1/4" = 1'-0"

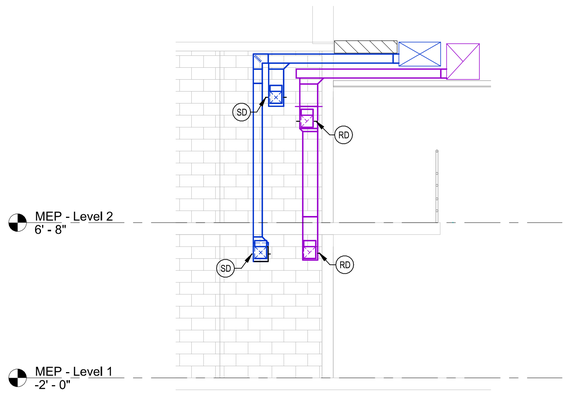


RISER DIAGRAM IS SCHEMATIC IN NATURE. NOT ALL DEVICES ARE SHOWN. REFER TO PLANS FOR EQUIPMENT QUANTITIES AND LOCATIONS.

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.

1 FIRE ALARM RISER DIAGRAM - ADDRESSABLE SYSTEM (NON-VOICE)
NTS



4 SECTION - CELL CHASE SIDE VIEW DUCT SMOKE DETECTION
1/4" = 1'-0"

SYSTEM INPUTS	ALARM	SUPERVISORY	TROUBLE	PRIORITY
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		●	●	●

SYSTEM OUTPUTS	REPORT TO FIRE ALARM CONTROL PANEL	SIGNAL SUPERVISING STATION	ACTIVATE GENERAL FIRE ALARM AUDIBLE/VISIBLE NOTIFICATION APPLIANCES	ACTIVATE FIRE NOTIFICATION APPLIANCE	SHUTDOWN ASSOCIATED FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT AND DAMPERS	SHUTDOWN ASSOCIATED FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT FOR AFFECTED HVAC SYSTEM	SHUTDOWN ALL FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT	SHUTDOWN ALL SUPERVISED FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT	CLOSE ASSOCIATED SMOKE DAMPERS	INITIATE CONTACTS TO BUILDINGS MANAGEMENT SYSTEM FOR SMOKE EXHAUST
ALARM			●	●	●	●	●	●	●	●
SUPERVISORY								●	●	
TROUBLE										
PRIORITY	●	●	●	●	●	●	●	●	●	●

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

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

SHEET TITLE:
FIRE ALARM DETAILS

SHEET NUMBER:
FA500

85 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP

FIRE SPRINKLER SCOPE OF WORK:

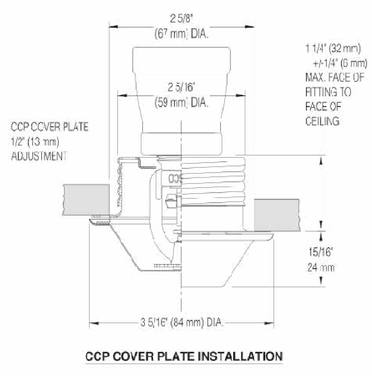
1. FIRE SPRINKLER SCOPE OF WORK INCLUDES THE DEMOLITION, ADDITION, AND RELOCATION OF SPRINKLERS AS A RESULT OF SOFFIT MODIFICATIONS. PROVIDE RELIABLE KFR56-300 SERIES SPRINKLERS WITH CCP COVER.

FIRE SPRINKLER 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 SPRINKLERGENERAL 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.



CCP COVER PLATE INSTALLATION

② CONCEALED SPRINKLER
NTS

FIRE PROTECTION 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 PROTECTION 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

FIRE SPRINKLERS

- UPRIGHT SPRINKLER
- PENDENT SPRINKLER
- CONCEALED SPRINKLER
- DRY PENDENT SPRINKLER
- DRY SIDEWALL SPRINKLER
- SIDEWALL SPRINKLER

FIRE SPRINKLER PIPING

- FP — FIRE PROTECTION (FP)
- SHUTOFF VALVE
- CHECK VALVE
- BACKFLOW PREVENTER
- CAP
- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN
- FIRE DEPARTMENT CONNECTION
- FIRE PUMP TEST HEADER
- INSPECTOR'S TEST CONNECTION / AUXILIARY DRAIN
- SPRINKLER RISER
- TOP BEAM CLAMP
- TRAPEZE HANGER

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

WATER SUPPLY INFORMATION:

OBTAINED FROM: WATER UTILITY COMPANY

TEST DATE : 09/06/01

8" WATER LOOP ON SITE

STATIC PRESSURE: 54 PSI
RESIDUAL PRESSURE: 36 PSI

WATER FLOW: 1120 GPM

THERE ARE NO MAJOR MODIFICATION TO THE EXISTING SYTEM FOR THIS SCOPE OF WORK. LIMITED TO RELOCATION OF EXISTING SPRINKLER HEADS.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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

9/26/2025

CHRISTOPHER J. CULP
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2450001658
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EXPIRES 10/31/2025

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVEMENTS - FULTON RECEPTION AND DIAGONSTIC CORRECTIONAL CENTER

1393 ROUTE O
FULTON, MO 65251

PROJECT # C2406-01
SITE # 7010
FACILITY # 9327010027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 09/26/2025

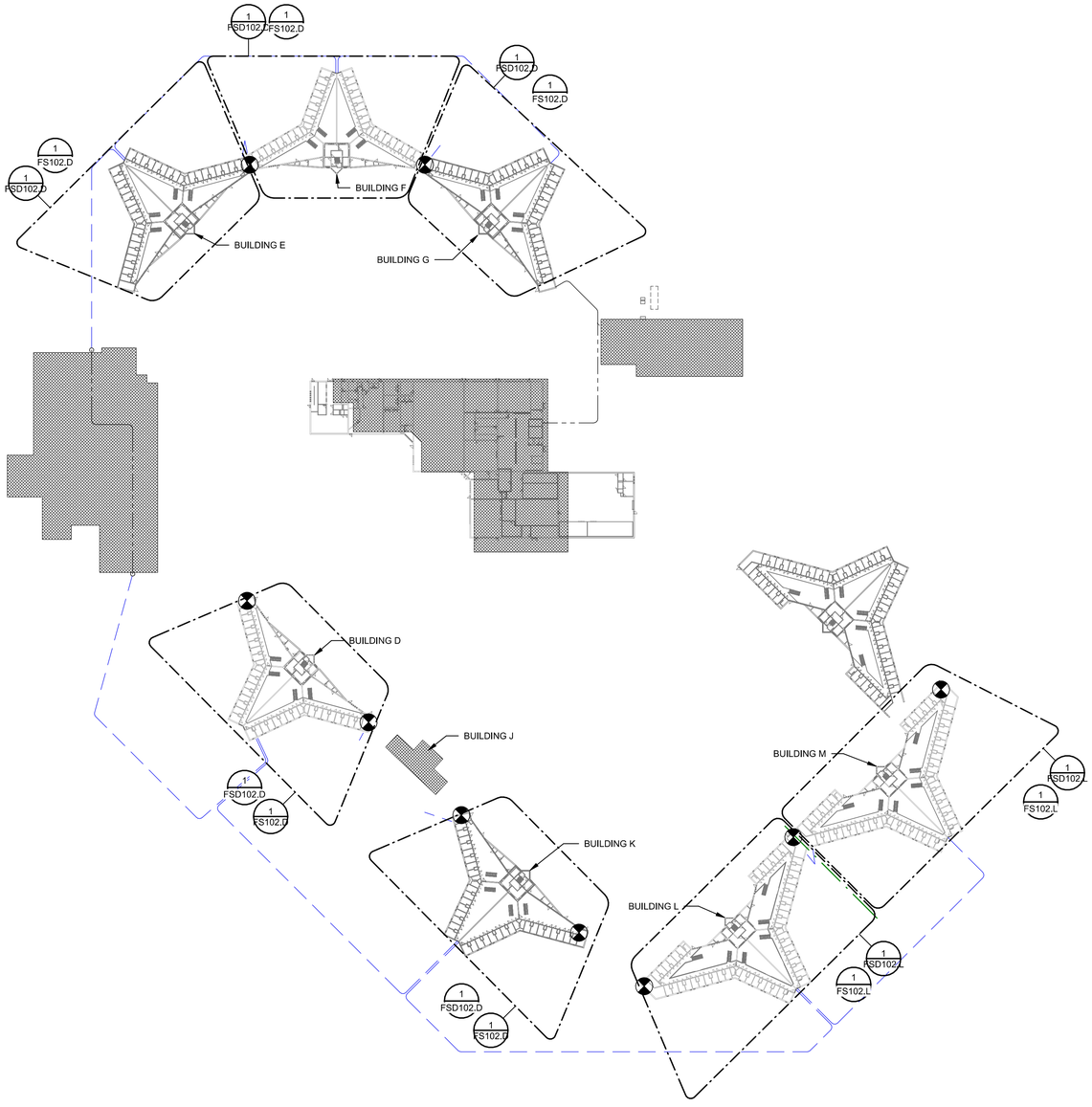
CAD DWG FILE:
DRAWN BY: Author
CHECKED BY: Checker
DESIGNED BY: Designer

SHEET TITLE:
FIRE SPRINKLER GENERAL NOTES AND LEGEND

SHEET NUMBER:
FS000

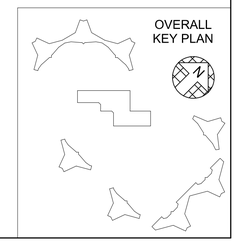
86 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP



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

0 40' 80' 120'
SCALE: 1"=80'-0"



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

SHEET TITLE:
FIRE SPRINKLER SITE PLAN

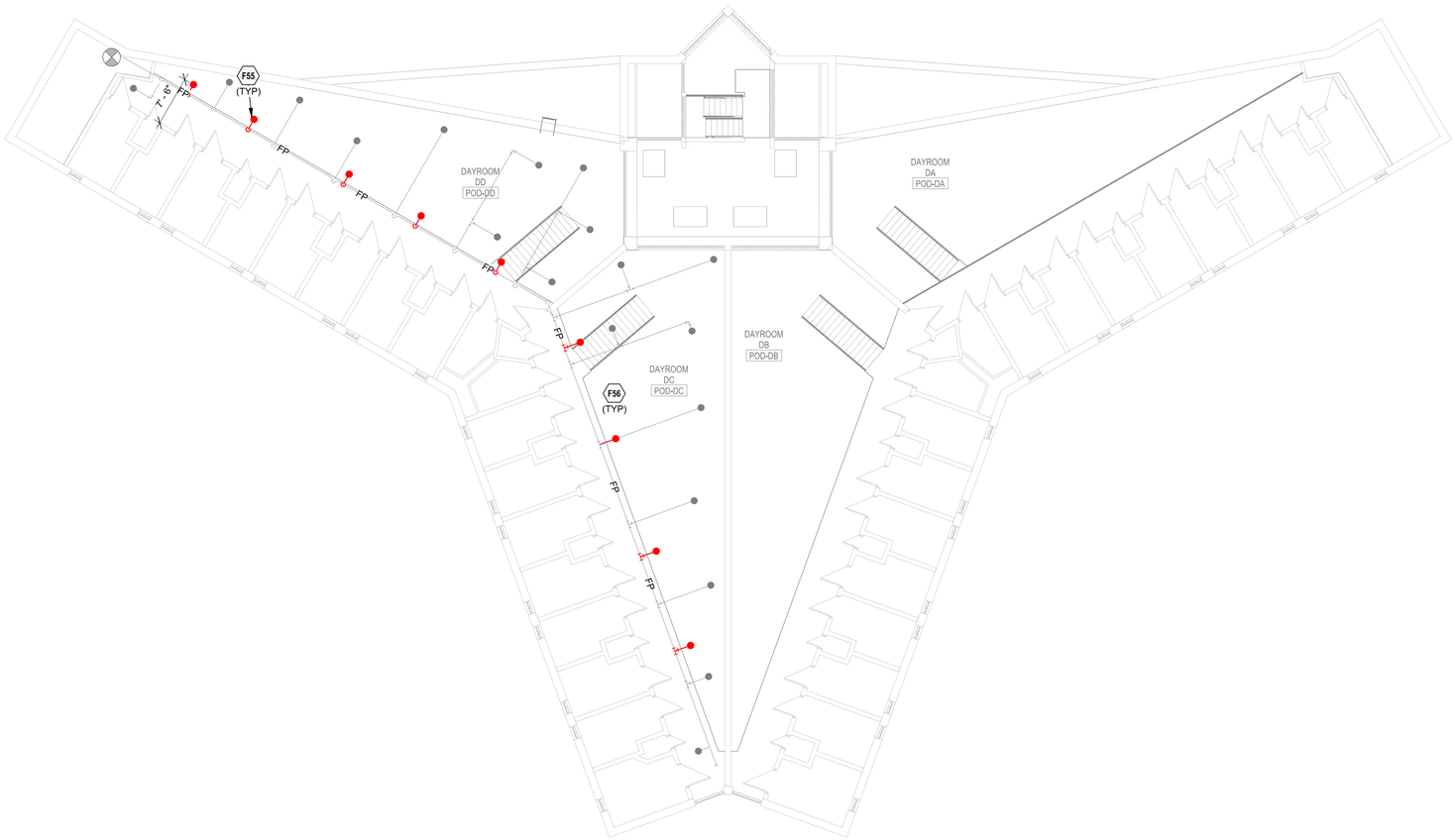
SHEET NUMBER:
FS100

87 OF 91 SHEETS
09/26/2025

FIRE SPRINKLER PLAN NOTES:

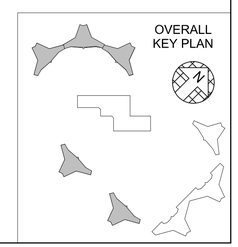
F55 RELOCATE AND INSTALL NEW SPRINKLERS IN MODIFIED SOFFIT. COORDINATE ALL ROUTING WITH MECHANICAL DUCTWORK.

F56 SPRINKLER LAYOUT & SCOPE IN POD-DA & POD-DB MATCHES LAYOUT IN POD-DD & POD-DC.



1 FIRE SPRINKLER - 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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CHECKED BY: Checker
DESIGNED BY: Designer

SHEET TITLE:
FIRE SPRINKLER - LEVEL 2 PLAN - BUILDING D

SHEET NUMBER:
FS102.D

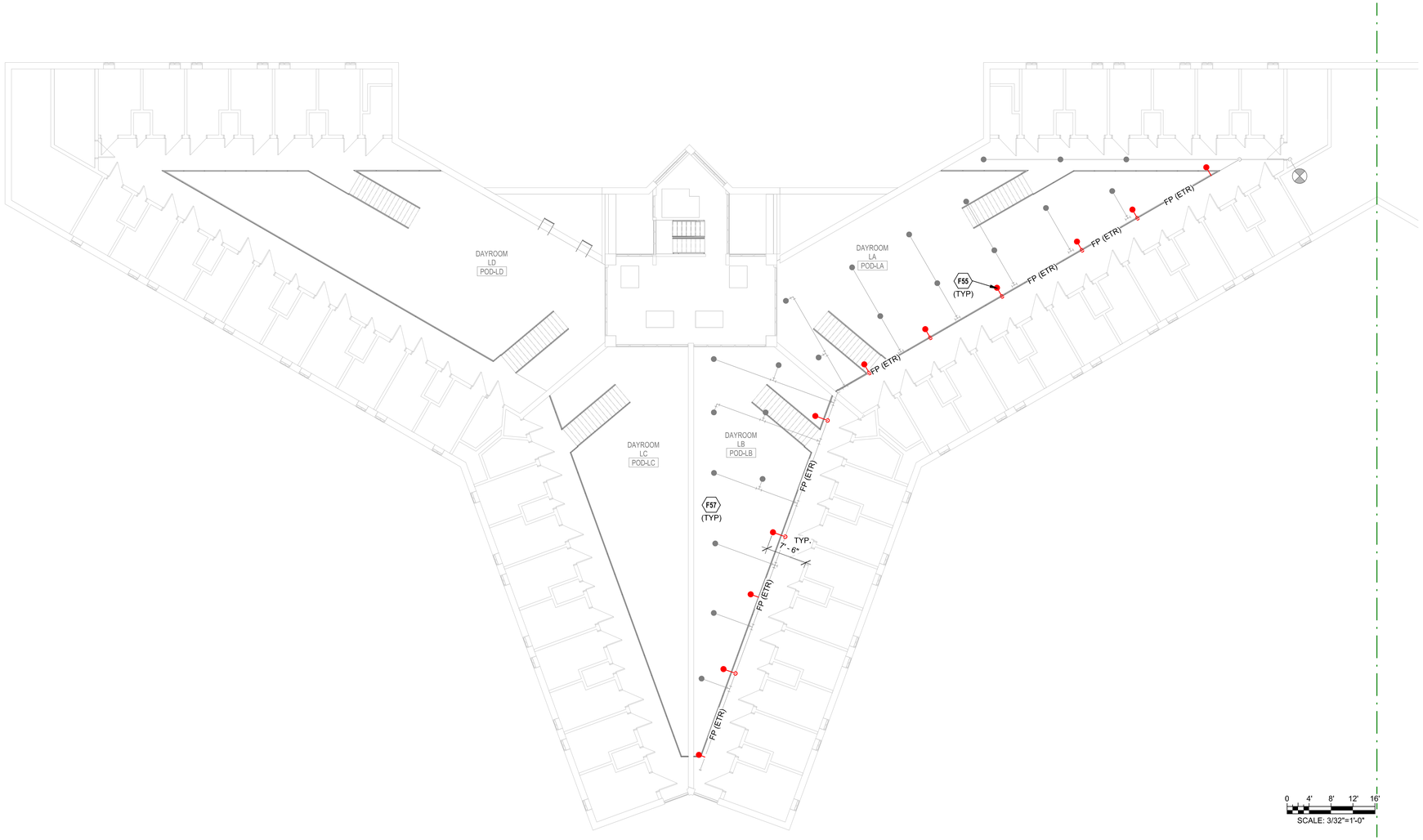
88 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP

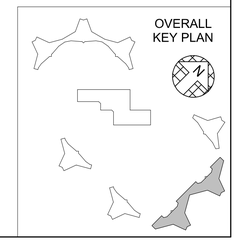
FIRE SPRINKLER PLAN NOTES:

F55 RELOCATE AND INSTALL NEW SPRINKLERS IN MODIFIED SOFFIT. COORDINATE ALL ROUTING WITH MECHANICAL DUCTWORK.

F57 SPRINKLER LAYOUT & SCOPE IN POD-LA & POD-LB MATCHES LAYOUT IN POD-LD & POD-LC.



1 FIRE SPRINKLER - LEVEL 2 PLAN - BUILDINGS L & M
3/32" = 1'-0"



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CAD DWG FILE:
DRAWN BY: Author
CHECKED BY: Checker
DESIGNED BY: Designer

SHEET TITLE:
FIRE SPRINKLER -
LEVEL 2 PLAN -
BUILDING L

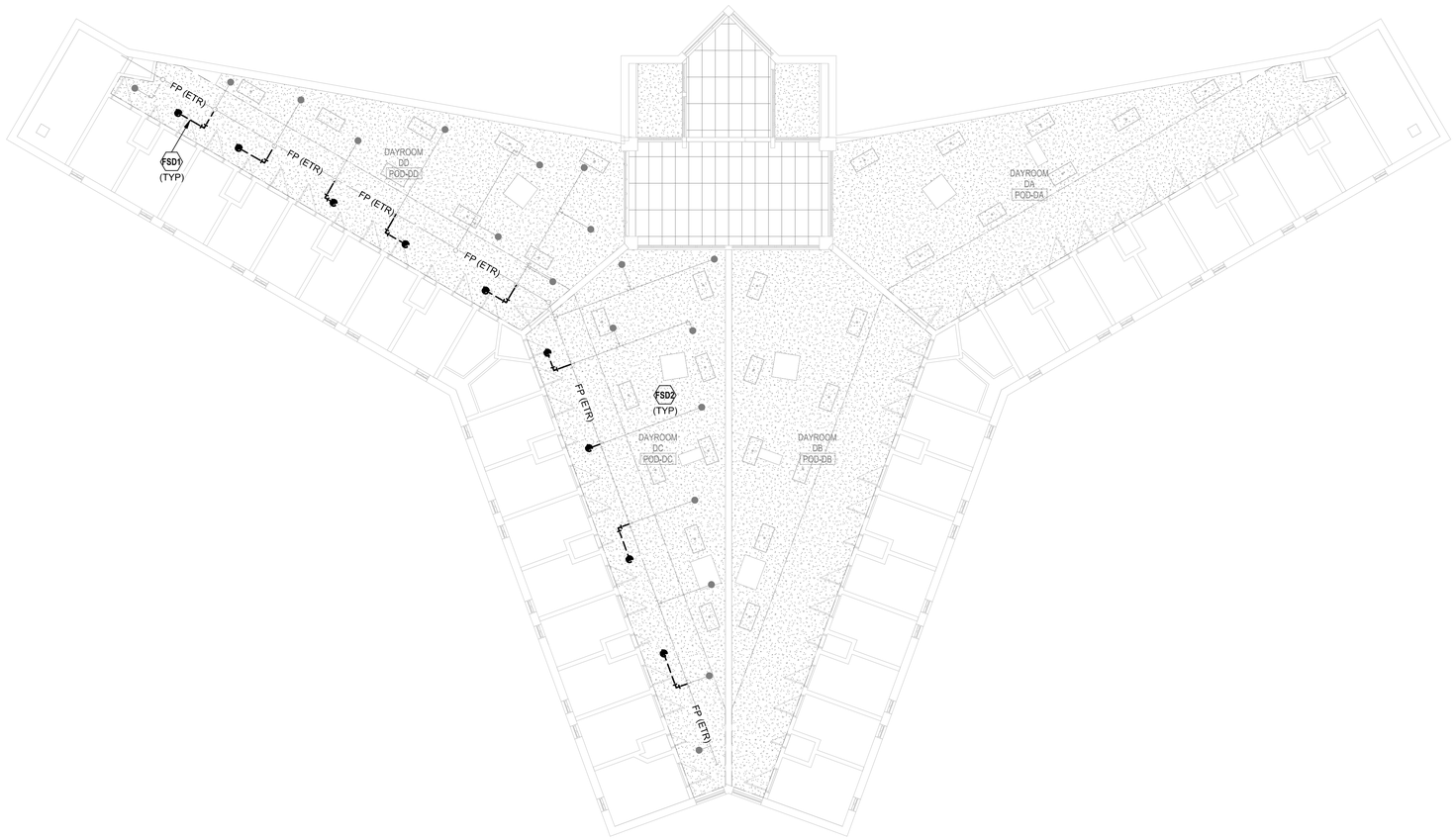
SHEET NUMBER:
FS102.L

89 OF 91 SHEETS
09/26/2025

FIRE SPRINKLER DEMOLTION PLAN NOTES:

FSD1 REMOVE EXISTING SPRINKLER AND ASSOCIATED PIPING BACK TO MAIN.

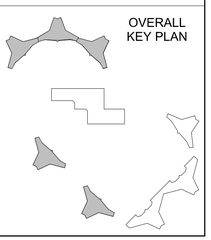
FSD2 SPRINKLER LAYOUT & SCOPE IN POD-DA & POD-DB MATCHES LAYOUT IN POD-DD & POD-DC.



1 FIRESPRINKLER DEMOLITION - LEVEL 2 - BUILDINGS D,E,F,G,K
3/32" = 1'-0"

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

OVERALL KEY PLAN



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CHECKED BY: AMJ
DESIGNED BY: IJR

SHEET TITLE:
FIRE SPRINKLER - LEVEL 2 DEMO PLAN - BUILDING D

SHEET NUMBER:
FSD102.D

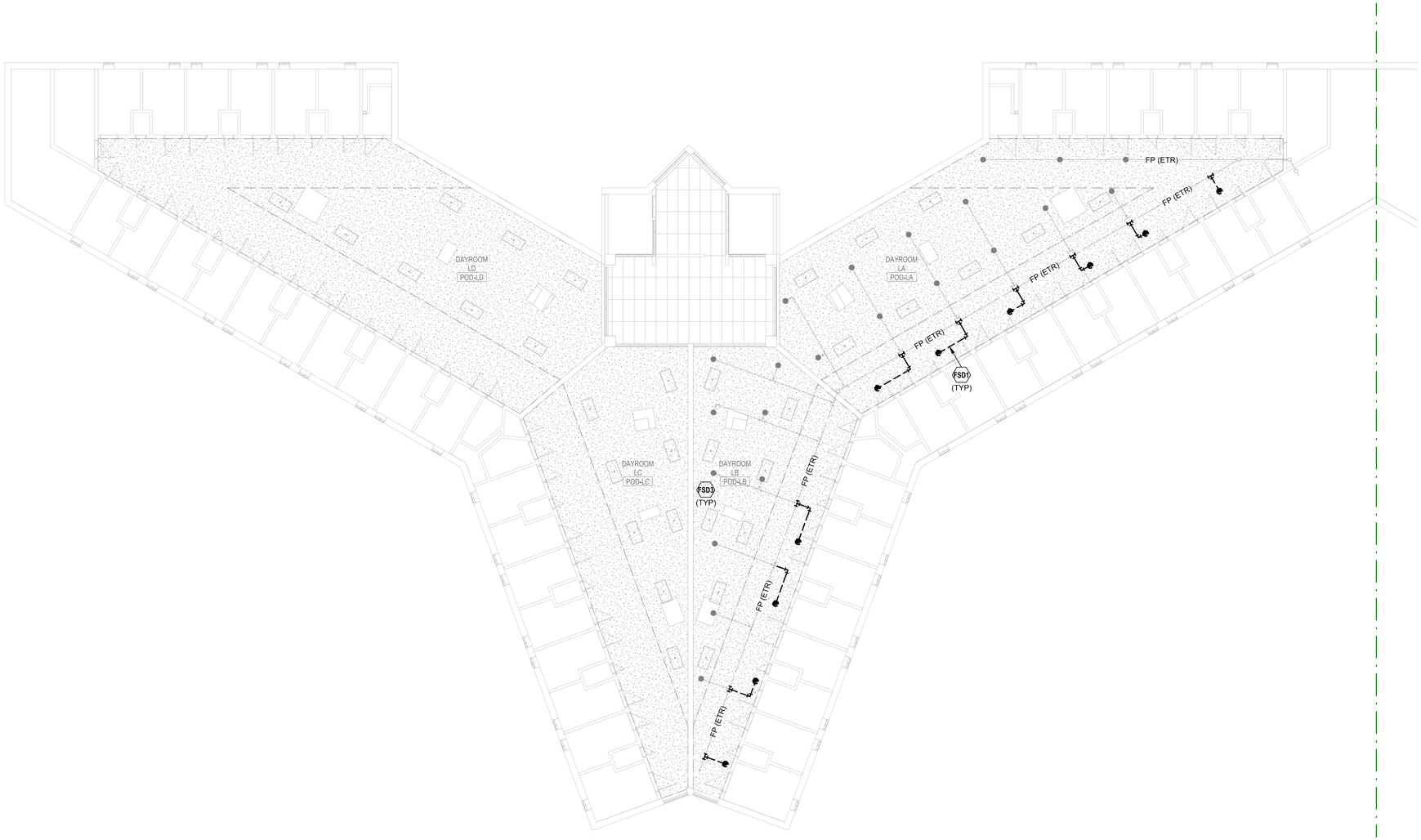
90 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP

FIRE ALARM DEMOLITION PLAN NOTES:

FSD1 REMOVE EXISTING SPRINKLER AND ASSOCIATED PIPING BACK TO MAIN.

FSD3 SPRINKLER LAYOUT & SCOPE IN POD-LA & POD-LB MATCHES LAYOUT IN POD-LD & POD-LC.



1 FIRE SPRINKLER DEMOLITION - LEVEL 2 - BUILDINGS L & M
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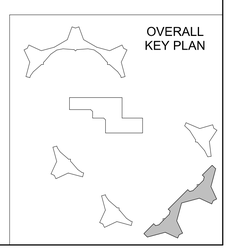
SCALE: 3/32"=1'-0"



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CAD DWG FILE:
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DESIGNED BY: IJR

SHEET TITLE:
FIRE SPRINKLER - LEVEL 2 DEMO PLAN - BUILDING L

SHEET NUMBER:
FSD102.L

91 OF 91 SHEETS
09/26/2025

CHRISTOPHER J. CULP