GSA 3RD FLOOR TI - GRAND FORKS, ND

DRAWING SYMBOLS

- ROOM NAME AND NUMBER — LAB 101
- OPENING NUMBER — 100 36
- CONSTRUCTION NOTE — ?
- DETAIL REFERENCE NUMBER — 1
- SHEET NUMBER — A101
- SECTION/ELEVATION NUMBER — 1
- SHEET NUMBER — A101
- REVISION NOTE — 1
- LEVEL NAME — Name
- LEVEL ELEVATION — Elevation
- SPOT ELEVATION — T.O. ------- 100'-0"
- STRUCTURAL GRID — G
- FIRE EXTINGUISHER CABINET — FEC
- INTERIOR ELEVATION NUMBER — 1
- SHEET NUMBER — A3.1

GENERAL NOTES

1. PRIOR TO ACCEPTANCE OF THIS WORK, THE CONTRACTOR SHALL VISIT THE SITE AND BE FAMILIAR WITH THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL REVIEW, APPROVE AND SUBMIT TO THE ARCHITECT SAMPLES, PRODUCT DATA, AND SHOP DRAWINGS PRIOR TO INSTALLATION. BY DOING SO, THE CONTRACTOR REPRESENTS THAT THEY HAVE VERIFIED FIELD CONDITIONS AND MEASUREMENTS.
2. CONTRACTOR TO NOTIFY ARCHITECT OF ANY CONFLICTS OR OMISSIONS IMMEDIATELY PRIOR TO THE PERFORMANCE OF THE WORK IN QUESTION.
3. WHEN THE CONTRACTOR ACCEPTS DELIVERY OF ALL ITEMS NOTED ON PLANS, WHETHER IN CONTRACT OR NOT IN CONTRACT, THEY SHALL BE RESPONSIBLE FOR LOSS AND/OR DAMAGE OF THESE ITEMS.
4. ITEMS INDICATED IN THIS SET OF DOCUMENTS ARE NOT TO BE ALTERED WITHOUT WRITTEN CONSENT FROM THE ARCHITECT OR ENGINEER. IF ALTERATIONS ARE MADE BY THE OWNER OR CONTRACTOR, THE ARCHITECT AND/OR ENGINEER ASSUME NO RESPONSIBILITY FOR SUCH CHANGES.
5. GSA REGIONAL FIRE PROTECTION ENGINEER IS THE DESIGNATION AUTHORITY HAVING JURISDICTION (AHJ) PER P-100
6. ALL ITEMS INDICATED IN THIS SET SHALL NOT HAVE WIRELESS (WI-FI) OR BLUETOOTH CAPABILITIES. WHERE EQUIPMENT HAS SUCH CAPABILITIES, SUCH FUNCTIONS SHOULD BE CAPABLE OF BEING DISABLED.

ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE
AFF	ABOVE FINISH FLOOR
ALUM	ALUMINUM
ANOD	ANODIZED
<	ANGLE
B.O.	BOTTOM OF
CJ	CONTROL JOINT
CMU	CONCRETE MASONRY UNIT
CT	CERAMIC TILE
℄	CENTER LINE
CFCI	CONTRACTOR FURISHED, CONTRACTOR INSTALLED
DIA	DIAMETER
DS	DOWNSPOUT
(E)	EXISTING
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
ELEV	ELEVATION
EQ	EQUAL
EWC	ELECTRIC WATER COOLER
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER CABINET
FRT	FIRE RETARDANT TREATED
FV	FIELD VERIFY
GA	GAUGE
GC	GENERAL CONTRACTOR
HM	HOLLOW METAL
LAM	LAMINATE
MAX	MAXIMUM
MIN	MINIMUM
MO	MASONRY OPENING
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OVERFLOW DRAIN
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
+/-	PLUS OR MINUS
P.J	PRECAST PANEL JOINT
RAD	RADIUS
RB	RUBBER BASE
RD	ROOF DRAIN
RE:	REFER TO
R.O.	ROUGH OPENING
SIM	SIMILAR
SPEC	SPECIFICATIONS
T.O.	TOP OF
TS	TUBE STEEL
TYP.	TYPICAL
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
WD	WOOD

CODE STATEMENT

PROJECT DESCRIPTION
THE PROJECT IS THE TENANT IMPROVEMENT OF 2578 GSF OF TENANT SPACE ON THE 3RD FLOOR OF THE FEDERAL OFFICE BUILDING. THE PROJECT CONSISTS OF THE DEMOLITION OF EXISTING INTERIOR PARTITIONS, DOORS, LIGHTING, POWER AND HVAC WORK AND THE CONSTRUCTION OF NEW OFFICES IN THE TENANT SPACE. THE PROJECT HAS SPECIFIC SECURITY REQUIREMENTS THAT ARE DESCRIBED IN THE CONTRACT DOCUMENTS.

CODE DATA - SEE LIFE SAFETY SHEETS FOR DETAILED LIFE SAFETY CODE STUDY
OCCUPANCY CLASSIFICATION: B
CONSTRUCTION TYPE: II-B
SPRINKLERS: NO
FIRE ALARM NOTIFICATION: PER NFPA 72
INTERIOR FINISH RATINGS: PER IBC CH. 8

OCCUPANT LOAD - SEE LIFE SAFETY SHEETS FOR OCCUPANT LOAD BREAKDOWN
TOTAL OCCUPANT LOAD: 40 OCCUPANTS

EXITING REQUIREMENTS - SEE LIFE SAFETY SHEETS FOR EXITING REQUIREMENTS

TOILET ROOM REQUIREMENTS
COMMON AREA TOILET FACILITIES ARE PROVIDED ON EACH FLOOR OF THE BUILDING, ONE TOILET ADDED IN SUITE

GOVERNING CODES:
- 2024 INTERNATIONAL BUILDING CODE (IBC)
- 2024 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
- 2024 INTERNATIONAL MECHANICAL CODE (IMC)
- 2024 INTERNATIONAL PLUMBING CODE (IPC)
- 2024 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2024 INTERNATIONAL FUEL GAS CODE (IFGC)
- 2024 INTERNATIONAL FIRE CODE (IFC)
- 2023 NFPA 70 NATIONAL ELECTRICAL CODE (NEC)
- 2024 NFPA 101 LIFE SAFETY CODE (LSC)
- 2022 NFPA 10 STANDARD FOR PORTABLE FIRE EXTINGUISHERS
- 2022 NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE
- PROGRAM OF REQUIREMENTS (POR) FOR NEW RESIDENT AGENCY OFFICE CONSTRUCTION (V22.0)
- 2015 ARCHITECTURAL BARRIERS ACT ACCESSIBILITY STANDARDS (ABAAS)
- 2025 PBS CORE BUILDING STANDARDS

PARTICIPANTS

OWNER
U.S. GENERAL SERVICES ADMINISTRATION
CONTACT: KEVIN SPRUELL
TEL: 267-253-5981

ARCHITECT
DESIGN EDGE, P.C.
482 S BROADWAY
DENVER, CO 80209
CONTACT: SWAGATA GUHA
TEL: 303.260.7277 X114

MECHANICAL, ELECTRICAL, PLUMBING
MEP ENGINEERING, INC.
6402 S. TROY CIRCLE, SUITE 100
CENTENNIAL, CO 80111
CONTACT: ROGER CRAWFORD
TEL: 303.936.1633

FIRE PROTECTION
COFFMAN ENGINEERS, INC.
11080 CIRCLE POINT ROAD #220
WESTMINSTER, CO 80020
CONTACT: JENN WOOD
TEL: 720.805.1955

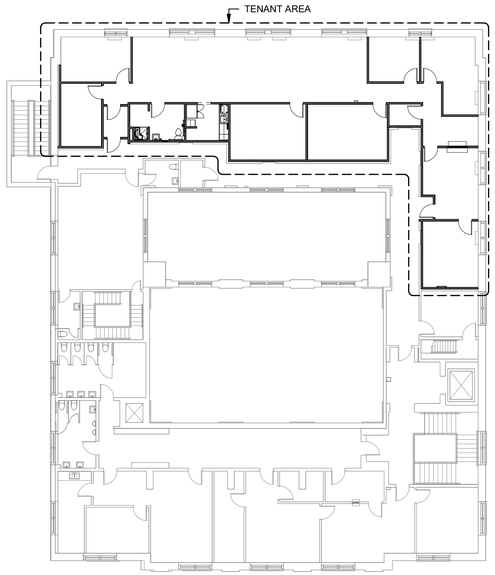
SHEET LIST

SHEET	NAME
GENERAL INFORMATION	
G0.0	COVER SHEET AND PROJECT INFORMATION
ARCHITECTURAL	
A1.1	DEMOLITION FLOOR PLAN
A1.2	DEMOLITION RCP
A1.3	FLOOR PLAN
A1.4	REFLECTED CEILING PLAN
A6.1	DOORS
A6.2	WALL TYPES
A6.3	ENLARGED PLAN, INTERIOR ELEVATIONS, & DETAILS
A6.4	DETAILS
A7.1	FINISH PLAN
MECHANICAL	
M0.1	MECHANICAL LEGEND AND SPECIFICATIONS
M0.2	MECHANICAL SCHEDULES
M0.3	MECHANICAL DIAGRAMS
M0.4	MECHANICAL DIAGRAMS
MD1.3	MECHANICAL DEMOLITION PLAN
M1.3	LEVEL 3 MECHANICAL PLAN
M1.4	ATTIC MECHANICAL PLAN
M1.5	ROOF MECHANICAL PLAN
PLUMBING	
P0.1	PLUMBING LEGEND
P0.2	PLUMBING SPECIFICATIONS
P0.3	PLUMBING SPECIFICATIONS
P0.4	PLUMBING SCHEDULES
P0.5	PLUMBING DIAGRAMS
PD1.3	PLUMBING DEMOLITION PLAN
P1.2	LEVEL 3 DRAIN WASTE VENT PLUMBING PLAN
P1.3	LEVEL 3 PLUMBING PLAN
P1.4	ATTIC PLUMBING PLAN
P1.5	ROOF PLUMBING PLAN
ELECTRICAL	
E0.1	ELECTRICAL LEGEND
E0.2	ELECTRICAL SPECIFICATION
E0.3	ELECTRICAL SPECIFICATION
E0.4	ELECTRICAL SPECIFICATION
E0.5	ONE-LINE DIAGRAM
E0.6	ELECTRICAL SCHEDULES
E0.7	ELECTRICAL DIAGRAMS
ED1.3	ELECTRICAL DEMOLITION PLAN
E1.3	LEVEL 3 POWER PLAN
E1.4	ATTIC POWER PLAN
E1.5	ROOF POWER PLAN
E2.3	LEVEL 3 SPECIAL SYSTEMS PLAN
E2.4	LEVEL 3 CABLE TRAY SECTION VIEW
E3.3	LEVEL 3 LIGHTING PLAN
PH-1	LEVEL 3 PHOTOMETRIC PLAN
PH-2	LEVEL 3 PHOTOMETRIC PLAN - EGRESS
FIRE PROTECTION	
FA-001	FIRE ALARM LEGEND, GENERAL NOTES, & SHEET INDEX
FA-100	LEVEL 3 FIRE ALARM DEMOLITION PLAN
FA-200	LEVEL 3 FIRE ALARM PLAN
LIFE SAFETY	
LS-001	LIFE SAFETY CODE ANALYSIS
LS-100	LEVEL 3 LIFE SAFTEY PLAN

GRAPHIC SYMBOLS

- CONTINUOUS GRAY LINE INDICATES EXISTING WALL PARTITION
- OVERHEAD LINES (ROOF, ETC.)
- NEW METAL STUD PARTITION
- ONE HOUR RATED WALL CONSTRUCTION
- TWO HOUR RATED WALL CONSTRUCTION
- METAL STUD
- CMU
- BATT INSULATION
- RIGID INSULATION
- CONCRETE
- GYPSUM BOARD
- SHEATHING

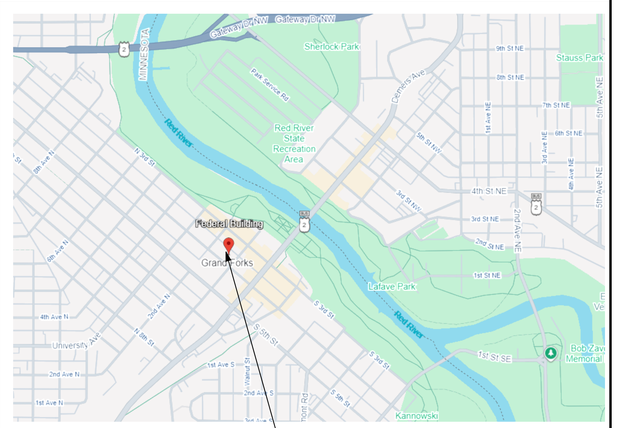
KEY PLAN



LEVEL 3

VICINITY MAP

NOT TO SCALE



NORTH

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GSA General Service Administration

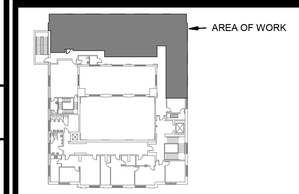
RONALD N. DAVIES FEDERAL BUILDING

OWNER IDENTIFICATION

DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

STAMP OR SEAL



LEVEL 3

KEY PLAN

GRAPHIC SCALE

Mark	Date	Description
	8/5/2025	35% Submittal
	9/22/2025	65% Submittal
	12/5/2025	95% Submittal
	3/6/2026	100% Submittal
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REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	DESIGN EDGE
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	DESIGN EDGE
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	TP	DATE DRAWN:	3/31/2026
CHECKED BY	SG	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ARCHITECTURE		
SHEET TITLE	COVER SHEET AND PROJECT INFORMATION		
SHEET NUMBER	G0.0		
	SHEET 1 OF 49 SHEETS		

SHEET IDENTIFICATION

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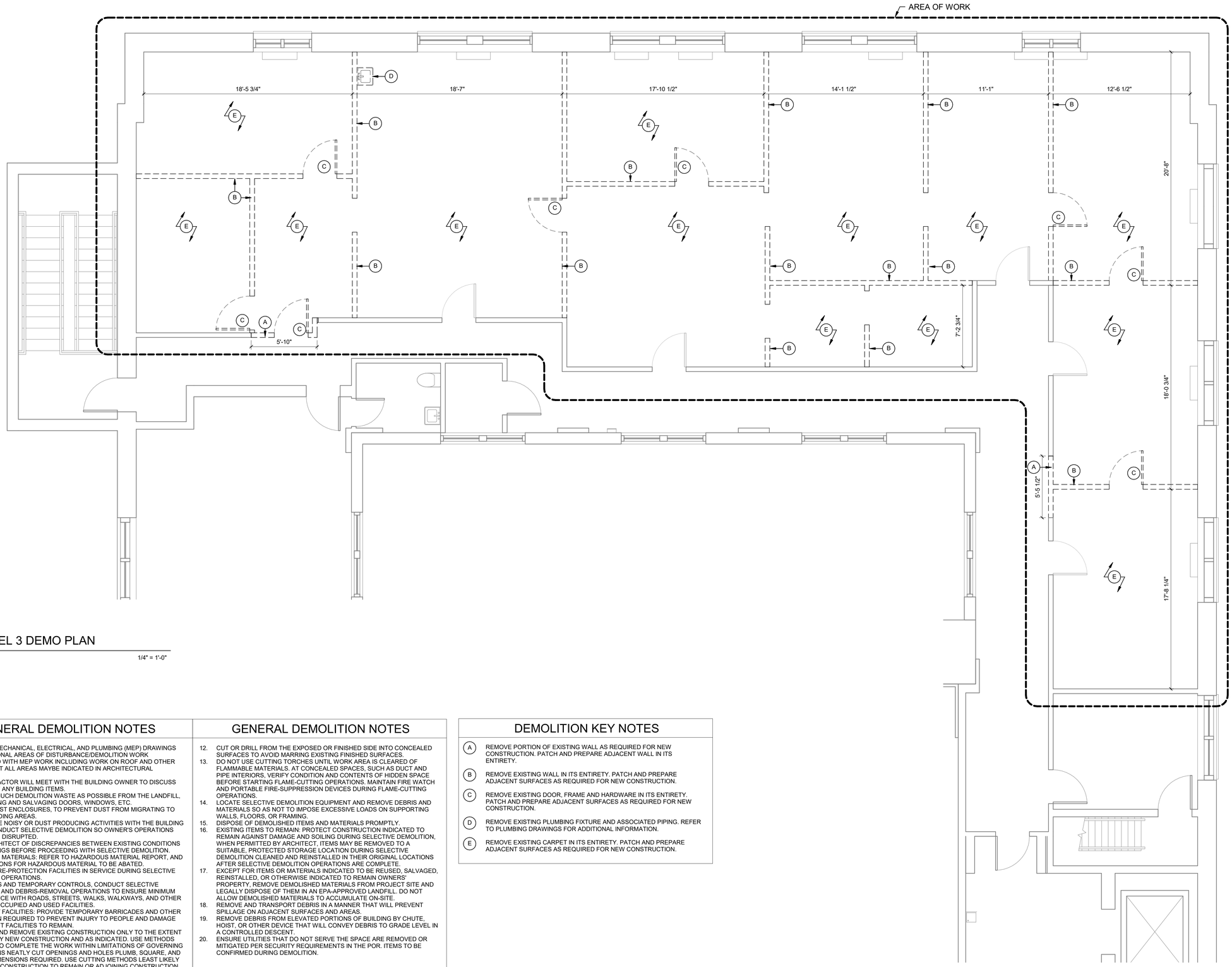

1 LEVEL 3 DEMO PLAN

1/4" = 1'-0"

GENERAL DEMOLITION NOTES

1. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING (MEP) DRAWINGS FOR ADDITIONAL AREAS OF DISTURBANCE/DEMOLITION WORK ASSOCIATED WITH MEP WORK INCLUDING WORK ON ROOF AND OTHER FLOORS. NOT ALL AREAS MAYBE INDICATED IN ARCHITECTURAL DRAWINGS.
2. THE CONTRACTOR WILL MEET WITH THE BUILDING OWNER TO DISCUSS SALVAGE OF ANY BUILDING ITEMS.
3. DIVERT AS MUCH DEMOLITION WASTE AS POSSIBLE FROM THE LANDFILL, BY RECYCLING AND SALVAGING DOORS, WINDOWS, ETC.
4. PROVIDE DUST ENCLOSURES, TO PREVENT DUST FROM MIGRATING TO OTHER BUILDING AREAS.
5. COORDINATE NOISY OR DUST PRODUCING ACTIVITIES WITH THE BUILDING OWNER. CONDUCT SELECTIVE DEMOLITION SO OWNER'S OPERATIONS WILL NOT BE DISRUPTED.
6. NOTIFY ARCHITECT OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND DRAWINGS BEFORE PROCEEDING WITH SELECTIVE DEMOLITION.
7. HAZARDOUS MATERIALS: REFER TO HAZARDOUS MATERIAL REPORT, AND SPECIFICATIONS FOR HAZARDOUS MATERIAL TO BE ABATED.
8. MAINTAIN FIRE-PROTECTION FACILITIES IN SERVICE DURING SELECTIVE DEMOLITION OPERATIONS.
9. SITE ACCESS AND TEMPORARY CONTROLS, CONDUCT SELECTIVE DEMOLITION AND DEBRIS-REMOVAL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, WALKWAYS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.
10. TEMPORARY FACILITIES: PROVIDE TEMPORARY BARRICADES AND OTHER PROTECTION REQUIRED TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT FACILITIES TO REMAIN.
11. DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED. USE METHODS REQUIRED TO COMPLETE THE WORK WITHIN LIMITATIONS OF GOVERNING REGULATIONS NEATLY CUT OPENINGS AND HOLES PLUMB, SQUARE, AND TRUE TO DIMENSIONS REQUIRED. USE CUTTING METHODS LEAST LIKELY TO DAMAGE CONSTRUCTION TO REMAIN OR ADJOINING CONSTRUCTION USE HAND TOOLS OR SMALL POWER TOOLS DESIGNED FOR SAWING OR GRINDING, NOT HAMMERING AND CHOPPING, TO MINIMIZE DISTURBANCE OF ADJACENT SURFACES. TEMPORARILY COVER OPENINGS TO REMAIN.

GENERAL DEMOLITION NOTES

12. CUT OR DRILL FROM THE EXPOSED OR FINISHED SIDE INTO CONCEALED SURFACES TO AVOID MARRING EXISTING FINISHED SURFACES.
13. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS DUCT AND PIPE INTERIORS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS.
14. LOCATE SELECTIVE DEMOLITION EQUIPMENT AND REMOVE DEBRIS AND MATERIALS SO AS NOT TO IMPOSE EXCESSIVE LOADS ON SUPPORTING WALLS, FLOORS, OR FRAMING.
15. DISPOSE OF DEMOLISHED ITEMS AND MATERIALS PROMPTLY.
16. EXISTING ITEMS TO REMAIN: PROTECT CONSTRUCTION INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING SELECTIVE DEMOLITION, WHEN PERMITTED BY ARCHITECT, ITEMS MAY BE REMOVED TO A SUITABLE, PROTECTED STORAGE LOCATION DURING SELECTIVE DEMOLITION CLEANED AND REINSTALLED IN THEIR ORIGINAL LOCATIONS AFTER SELECTIVE DEMOLITION OPERATIONS ARE COMPLETE.
17. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, SALVAGED, REINSTALLED, OR OTHERWISE INDICATED TO REMAIN OWNERS' PROPERTY, REMOVE DEMOLISHED MATERIALS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA-APPROVED LANDFILL. DO NOT ALLOW DEMOLISHED MATERIALS TO ACCUMULATE ON-SITE.
18. REMOVE AND TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.
19. REMOVE DEBRIS FROM ELEVATED PORTIONS OF BUILDING BY CHUTE, HOIST, OR OTHER DEVICE THAT WILL CONVEY DEBRIS TO GRADE LEVEL IN A CONTROLLED DESCENT.
20. ENSURE UTILITIES THAT DO NOT SERVE THE SPACE ARE REMOVED OR MITIGATED PER SECURITY REQUIREMENTS IN THE POR. ITEMS TO BE CONFIRMED DURING DEMOLITION.

DEMOLITION KEY NOTES

(A) REMOVE PORTION OF EXISTING WALL AS REQUIRED FOR NEW CONSTRUCTION. PATCH AND PREPARE ADJACENT WALL IN ITS ENTIRETY.

(B) REMOVE EXISTING WALL IN ITS ENTIRETY. PATCH AND PREPARE ADJACENT SURFACES AS REQUIRED FOR NEW CONSTRUCTION.

(C) REMOVE EXISTING DOOR, FRAME AND HARDWARE IN ITS ENTIRETY. PATCH AND PREPARE ADJACENT SURFACES AS REQUIRED FOR NEW CONSTRUCTION.

(D) REMOVE EXISTING PLUMBING FIXTURE AND ASSOCIATED PIPING. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.

(E) REMOVE EXISTING CARPET IN ITS ENTIRETY. PATCH AND PREPARE ADJACENT SURFACES AS REQUIRED FOR NEW CONSTRUCTION.

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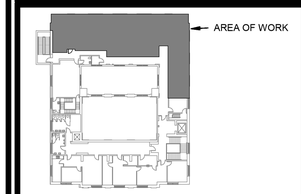

LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
	8/5/2025	35% Submittal
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DRAWN BY	TP	DATE DRAWN:	3/6/2026
CHECKED BY	SG	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ARCHITECTURE		
SHEET TITLE	DEMOLITION FLOOR PLAN		
SHEET NUMBER	A1.1		
	SHEET 2 OF 49 SHEETS		

SHEET IDENTIFICATION

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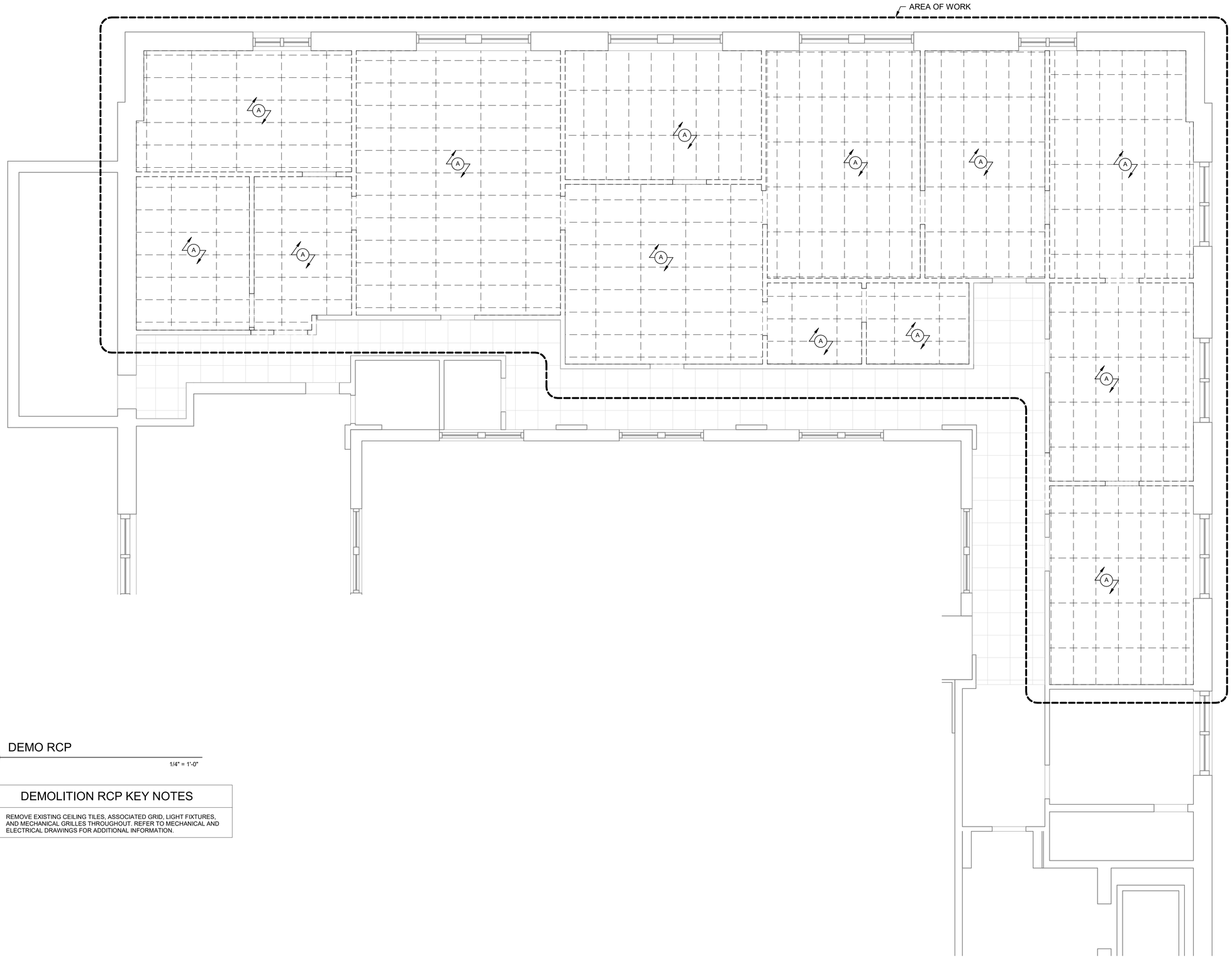

1 DEMO RCP

1/4" = 1'-0"

DEMOLITION RCP KEY NOTES

(A) REMOVE EXISTING CEILING TILES, ASSOCIATED GRID, LIGHT FIXTURES, AND MECHANICAL GRILLES THROUGHOUT. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

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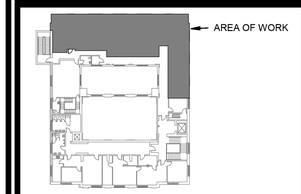

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KEY PLAN

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CONST. CONTR.	

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CHECKED BY	SG	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	ARCHITECTURE	
SHEET TITLE	DEMOLITION RCP	
SHEET NUMBER	A1.2	
	SHEET 3 OF 49 SHEETS	

SHEET IDENTIFICATION

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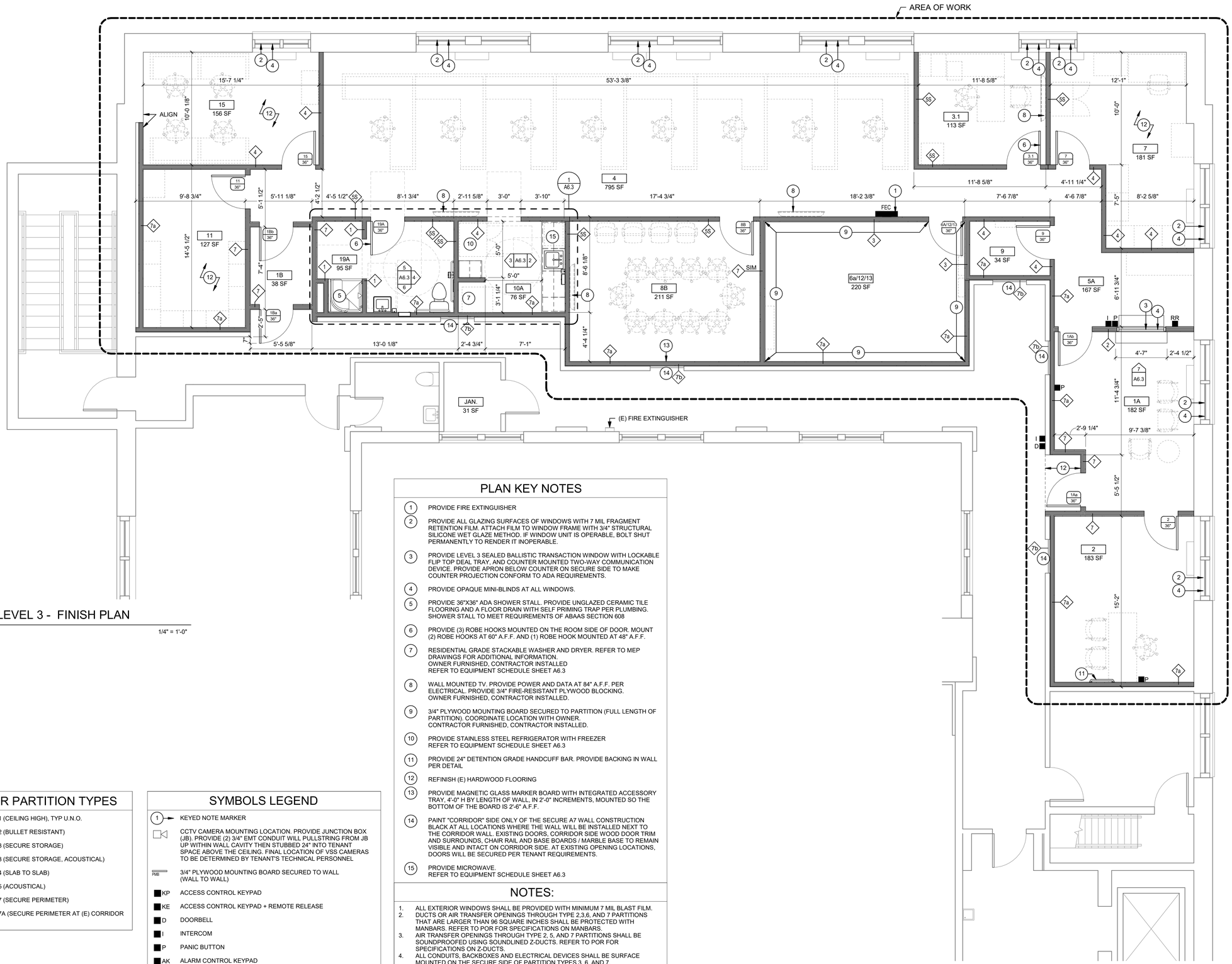

1 LEVEL 3 - FINISH PLAN

1/4" = 1'-0"

PLAN KEY NOTES

1. PROVIDE FIRE EXTINGUISHER
2. PROVIDE ALL GLAZING SURFACES OF WINDOWS WITH 7 MIL FRAGMENT RETENTION FILM. ATTACH FILM TO WINDOW FRAME WITH 3/4" STRUCTURAL SILICONE WET GLAZE METHOD. IF WINDOW UNIT IS OPERABLE, BOLT SHUT PERMANENTLY TO RENDER IT INOPERABLE.
3. PROVIDE LEVEL 3 SEALED BALLISTIC TRANSACTION WINDOW WITH LOCKABLE FLIP TOP DEAL TRAY, AND COUNTER MOUNTED TWO-WAY COMMUNICATION DEVICE. PROVIDE APRON BELOW COUNTER ON SECURE SIDE TO MAKE COUNTER PROJECTION CONFORM TO ADA REQUIREMENTS.
4. PROVIDE OPAQUE MINI-BLINDS AT ALL WINDOWS.
5. PROVIDE 36"X36" ADA SHOWER STALL. PROVIDE UNGLAZED CERAMIC TILE FLOORING AND A FLOOR DRAIN WITH SELF PRIMING TRAP PER PLUMBING. SHOWER STALL TO MEET REQUIREMENTS OF ABAAS SECTION 608
6. PROVIDE (3) ROBE HOOKS MOUNTED ON THE ROOM SIDE OF DOOR. MOUNT (2) ROBE HOOKS AT 60" A.F.F. AND (1) ROBE HOOK MOUNTED AT 48" A.F.F.
7. RESIDENTIAL GRADE STACKABLE WASHER AND DRYER. REFER TO MEP DRAWINGS FOR ADDITIONAL INFORMATION.
   OWNER FURNISHED, CONTRACTOR INSTALLED
   REFER TO EQUIPMENT SCHEDULE SHEET A6.3
8. WALL MOUNTED TV. PROVIDE POWER AND DATA AT 84" A.F.F. PER ELECTRICAL. PROVIDE 3/4" FIRE-RESISTANT PLYWOOD BLOCKING. OWNER FURNISHED, CONTRACTOR INSTALLED.
9. 3/4" PLYWOOD MOUNTING BOARD SECURED TO PARTITION (FULL LENGTH OF PARTITION). COORDINATE LOCATION WITH OWNER. CONTRACTOR FURNISHED, CONTRACTOR INSTALLED.
10. PROVIDE STAINLESS STEEL REFRIGERATOR WITH FREEZER
    REFER TO EQUIPMENT SCHEDULE SHEET A6.3
11. PROVIDE 24" DETENTION GRADE HANDCUFF BAR. PROVIDE BACKING IN WALL PER DETAIL
12. REFINISH (E) HARDWOOD FLOORING
13. PROVIDE MAGNETIC GLASS MARKER BOARD WITH INTEGRATED ACCESSORY TRAY, 4'-0" H BY LENGTH OF WALL, IN 2'-0" INCREMENTS, MOUNTED SO THE BOTTOM OF THE BOARD IS 2'-6" A.F.F.
14. PAINT "CORRIDOR" SIDE ONLY OF THE SECURE A7 WALL CONSTRUCTION BLACK AT ALL LOCATIONS WHERE THE WALL WILL BE INSTALLED NEXT TO THE CORRIDOR WALL. EXISTING DOORS, CORRIDOR SIDE WOOD DOOR TRIM AND SURROUNDS, CHAIR RAIL AND BASE BOARDS / MARBLE BASE TO REMAIN VISIBLE AND INTACT ON CORRIDOR SIDE. AT EXISTING OPENING LOCATIONS, DOORS WILL BE SECURED PER TENANT REQUIREMENTS.
15. PROVIDE MICROWAVE.
    REFER TO EQUIPMENT SCHEDULE SHEET A6.3

NOTES:

1. ALL EXTERIOR WINDOWS SHALL BE PROVIDED WITH MINIMUM 7 MIL BLAST FILM.
2. DUCTS OR AIR TRANSFER OPENINGS THROUGH TYPE 2,3,6, AND 7 PARTITIONS THAT ARE LARGER THAN 96 SQUARE INCHES SHALL BE PROTECTED WITH MANBARS. REFER TO POR FOR SPECIFICATIONS ON MANBARS.
3. AIR TRANSFER OPENINGS THROUGH TYPE 2, 5, AND 7 PARTITIONS SHALL BE SOUNDPROOFED USING SOUNDLINED Z-DUCTS. REFER TO POR FOR SPECIFICATIONS ON Z-DUCTS.
4. ALL CONDUITS, BACKBOXES AND ELECTRICAL DEVICES SHALL BE SURFACE MOUNTED ON THE SECURE SIDE OF PARTITION TYPES 3, 6, AND 7.
5. WINDOW COVERINGS - ALL INTERIOR, TRANSACTION, AND EXTERIOR WINDOWS MUST BE PROVIDED WITH OPAQUE HORIZONTAL WINDOW BLINDS, PER SPECIFICATIONS UNLESS NOTED OTHERWISE.

INTERIOR PARTITION TYPES

- 1 WALL TYPE A1 (CEILING HIGH), TYP U.N.O.
- 2 WALL TYPE A2 (BULLET RESISTANT)
- 3 WALL TYPE A3 (SECURE STORAGE)
- 3A WALL TYPE A3 (SECURE STORAGE, ACOUSTICAL)
- 4 WALL TYPE A4 (SLAB TO SLAB)
- 5 WALL TYPE A5 (ACOUSTICAL)
- 7 WALL TYPE A7 (SECURE PERIMETER)
- 7A WALL TYPE A7A (SECURE PERIMETER AT (E) CORRIDOR WALLS)

SYMBOLS LEGEND

- 1 KEYED NOTE MARKER
- CCTV CAMERA MOUNTING LOCATION. PROVIDE JUNCTION BOX (JB). PROVIDE (2) 3/4" EMT CONDUIT WILL PULLSTRING FROM JB UP WITHIN WALL CAVITY THEN STUBBED 24" INTO TENANT SPACE ABOVE THE CEILING. FINAL LOCATION OF VSS CAMERAS TO BE DETERMINED BY TENANT'S TECHNICAL PERSONNEL
- PMB 3/4" PLYWOOD MOUNTING BOARD SECURED TO WALL (WALL TO WALL)
- KP ACCESS CONTROL KEYPAD
- KE ACCESS CONTROL KEYPAD + REMOTE RELEASE
- D DOORBELL
- I INTERCOM
- P PANIC BUTTON
- AK ALARM CONTROL KEYPAD
- AM AMBUSH MONITOR
- RR REMOTE RELEASE

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True North

Plan North

GSA General Service Administration

OWNER IDENTIFICATION

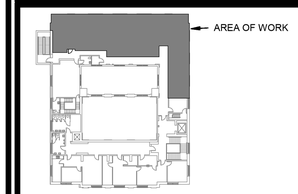
RONALD N. DAVIES FEDERAL BUILDING

DESIGNER IDENTIFICATION

DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

STAMP OR SEAL

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"=4' 0 4' 8'

REVISION BLOCK

Mark	Date	Description
	8/5/2025	35% Submittal
	9/22/2025	65% Submittal
	12/5/2025	95% Submittal
	3/6/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

CONTRACTORS

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	DESIGN EDGE
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

PROJECT IDENTIFICATION

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	DESIGN EDGE
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

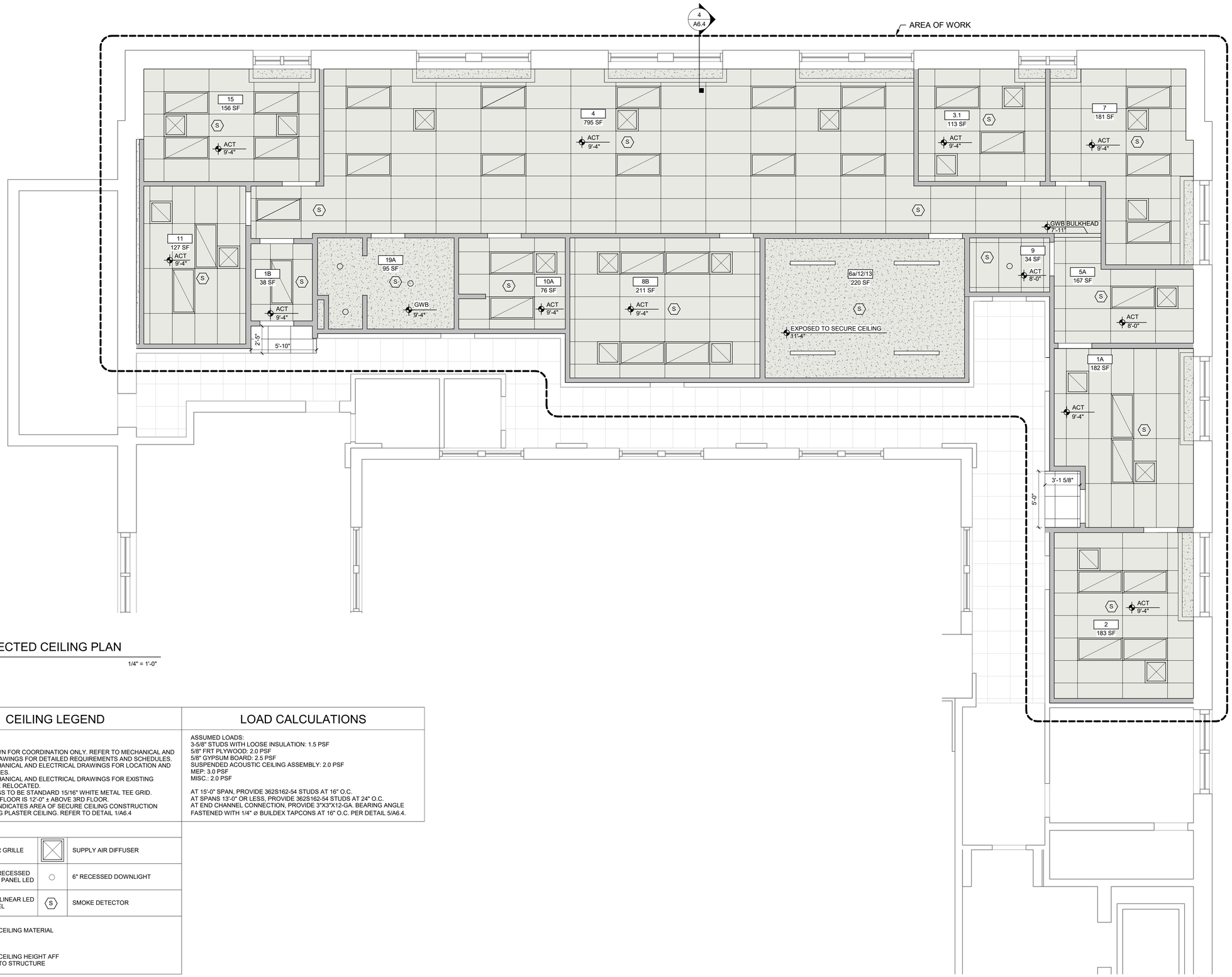
SHEET IDENTIFICATION

DRAWN BY	TP	DATE DRAWN:	3/31/2026
CHECKED BY	SG	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ARCHITECTURE		
SHEET TITLE	FLOOR PLAN		

SHEET NUMBER **A1.3**

SHEET 4 OF 49 SHEETS

5/21/2026 11:31:59 AM



1 REFLECTED CEILING PLAN

1/4" = 1'-0"

CEILING LEGEND

NOTES

1. FIXTURES SHOWN FOR COORDINATION ONLY. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR DETAILED REQUIREMENTS AND SCHEDULES.
2. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION AND TYPE OF FIXTURES.
3. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR EXISTING FIXTURES TO BE RELOCATED.
4. ALL ACT CEILINGS TO BE STANDARD 15/16" WHITE METAL TEE GRID.
5. EXISTING ATTIC FLOOR IS 12'-0" ± ABOVE 3RD FLOOR.
6. SHADED AREA INDICATES AREA OF SECURE CEILING CONSTRUCTION BELOW EXISTING PLASTER CEILING. REFER TO DETAIL 1/A6.4

LEGEND

	RETURN AIR GRILLE		SUPPLY AIR DIFFUSER
	2X4 RECESSED FLAT PANEL LED		6" RECESSED DOWNLIGHT
	4"x4' LINEAR LED PANEL	S	SMOKE DETECTOR

FINISHED CEILING MATERIAL

MAT
100'-0"

FINISHED CEILING HEIGHT AFF OR OPEN TO STRUCTURE

LOAD CALCULATIONS

ASSUMED LOADS:
3-5/8" STUDS WITH LOOSE INSULATION: 1.5 PSF
5/8" FRT PLYWOOD: 2.0 PSF
5/8" GYPSUM BOARD: 2.5 PSF
SUSPENDED ACOUSTIC CEILING ASSEMBLY: 2.0 PSF
MEP: 3.0 PSF
MISC.: 2.0 PSF

AT 15'-0" SPAN, PROVIDE 362S162-54 STUDS AT 16" O.C.
AT SPANS 13'-0" OR LESS, PROVIDE 362S162-54 STUDS AT 24" O.C.
AT END CHANNEL CONNECTION, PROVIDE 3"X3"X12-GA. BEARING ANGLE FASTENED WITH 1/4" ø BUILDEX TAPCONS AT 16" O.C. PER DETAIL 5/A6.4.

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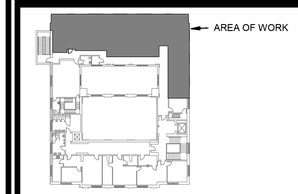

LEVEL 3

KEY PLAN

1"=4' 0 4' 8'

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CHECKED BY	SG	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ARCHITECTURE		
SHEET TITLE	REFLECTED CEILING PLAN		

SHEET IDENTIFICATION

SHEET NUMBER **A1.4**

SHEET 5 OF 49 SHEETS

5/21/2026 11:31:59 AM

DOOR SCHEDULE

DIMENSIONS	DOOR TYPE	DOOR FINISH	FRAME TYPE	FRAME FINISH	HARDWARE	RATING	COMMENTS
3'-0" x 7'-0" x 1 3/4"	WDC	STAIN	HM4	PAINT	9A	20 MIN	STC RATED DOOR WITH FOAMED IN INSULATION IN JAMB
3'-0" x 7'-0" x 1 3/4"	WDD	STAIN	HM2	PAINT	6		BULLET RESISTANT DOOR PER SPECIFICATIONS
3'-0" x 7'-0" x 1 3/4"	WDC	STAIN	HM4	PAINT	9B	20 MIN	STC RATED DOOR WITH FOAMED IN INSULATION IN JAMB
3'-0" x 7'-0" x 1 3/4"	WDC	STAIN	HM3	PAINT	5B		STC RATED DOOR WITH FOAMED IN INSULATION IN JAMB
3'-0" x 7'-0" x 1 3/4"	WDB	STAIN	HM1	PAINT	5A		STC RATED DOOR WITH FOAMED IN INSULATION IN JAMB
3'-0" x 7'-0" x 1 3/4"	WDC	STAIN	HM1	PAINT	3		STC RATED DOOR WITH FOAMED IN INSULATION IN JAMB
3'-0" x 7'-0" x 1 3/4"	WDC	STAIN	HM3	PAINT	5		
3'-0" x 7'-0" x 1 3/4"	WDA	STAIN	HM1	PAINT	1		
3'-0" x 7'-0" x 1 3/4"	WDC	STAIN	HM1	PAINT	3		STC RATED DOOR WITH FOAMED IN INSULATION IN JAMB
3'-0" x 7'-0" x 1 3/4"	WDA	STAIN	HM1	PAINT	4		
3'-0" x 7'-0" x 1 3/4"	WDA	STAIN	HM1	PAINT	5		
3'-0" x 7'-0" x 1 3/4"	WDA	STAIN	HM1	PAINT	5		
3'-0" x 7'-0" x 1 3/4"	WDA	STAIN	HM1	PAINT	2		

NOTE: AT ALL DOORS REQUIRING GASKETING (870-ZER), GASKETS NEED TO BE EASILY ADJUSTABLE WITH THE TURN OF A SCREW DRIVER, TO MAINTAIN A PROPER SEAL EVEN IF THE DOOR SHIFTS AND WARPS. PROVIDE Z OR L BRACKETS TO ENSURE THE SEALS MAKE A CONTINUOUS SEAL AROUND THE DOOR AND CANNOT BE CUT TO MOUNT THE STRIKES.

HARDWARE SET 1

QTY		DESCRIPTION	CATALOG NUMBER	MFR
3	EA.	HINGE	5BB1 4.5 X 4.5	IVE
1	EA.	PASSAGE SET	L9010	SCH
1	EA.	WALL STOP	WS406	IVE

FUNCTION: (F01) PASSAGE LATCH. LATCH RETRACTED BY LEVER EITHER SIDE. BOTH LEVERS ALWAYS UNLOCKED

HARDWARE SET 2

QTY		DESCRIPTION	CATALOG NUMBER	MFR
3	EA.	HINGE	5BB1 4.5 X 4.5	IVE
1	EA.	PRIVACY W/DEADBOLT	L9440	SCH
1	EA.	OH STOP	90S	GLY

FUNCTION: (F19) PRIVACY LOCK. LATCHBOLT RETRACTED BY LEVER EITHER SIDE. OUTSIDE LEVER LOCKED BY ROTATING INSIDE THUMB TURN, EXTENDING DEADBOLT. OUTSIDE LEVER UNLOCKED BY ROTATING INSIDE THUMB TURN TO RETRACT DEADBOLT, ROTATING INSIDE LEVER (RETRACTS LATCHBOLT AND DEADBOLT), OR BY OUTSIDE EMERGENCY KEY.

HARDWARE SET 3

QTY		DESCRIPTION	CATALOG NUMBER	MFR
3	EA.	HINGE	5BB1 4.5 X 4.5 NRP	IVE
1	EA.	CLASSROOM LOCK	L9070	SCH
1	EA.	CYLINDER CORE	AS REQUIRED	
1	EA.	WALL STOP	WS406	IVE
1	SET	GASKETING	870	ZER
1	EA.	DOOR BOTTOM	369	ZER

FUNCTION: (F05) CLASSROOM LOCK. OUTSIDE LEVER LOCKED AND UNLOCKED BY OUTSIDE KEY. INSIDE LEVER ALWAYS UNLOCKED. AUXILIARY LATCH DEADLOCKS LATCHBOLT WHEN DOOR IS CLOSED.

NOTE: USE 870SPB MOUNTING BRACKET TO MOUNT CLOSERS OR RIM-MOUNTED STRIKES. DO NOT CUT SEALS FOR CLOSERS OR STRIKEDS TO ENSURE CONTINUOUS SEAL AT PERIMETER OF DOOR. ADJUST BACKSET DIMENSIONS FOR RIM LOCKS AND PANIC HARDWARE TO ACCOMMODATE MOUNTING BRACKET.

HARDWARE SET 4

QTY		DESCRIPTION	CATALOG NUMBER	MFR
3	EA.	HINGE	5BB1 4.5 X 4.5 NRP	IVE
1	EA.	STOREROOM LOCK	L9080	SCH
1	EA.	CYLINDER CORE	AS REQUIRED	
1	EA.	SURFACE CLOSER	4050A REG	IVE
1	EA.	KICK PLATE	8400 10"	IVE
1	EA.	WALL STOP	WS406	IVE

FUNCTION: (F07) STOREROOM LOCK. FIXED OUTSIDE TRIM - OUTSIDE KEY RETRACTS LATCH. INSIDE LEVER ALWAYS UNLOCKED. AUXILIARY LATCH DEADLOCKS LATCH BOLT WHEN DOOR IS CLOSED.

HARDWARE SET 5

QTY		DESCRIPTION	CATALOG NUMBER	MFR
3	EA.	HINGE	5BB1 4.5 X 4.5	IVE
1	EA.	POWER TRANSFER	EPT10	VON
1	EA.	EU STOREROOM LOCK	L9092EU RX	SCH
1	EA.	FSIC CYLINDER CORE	BY TENANT	B/O
1	EA.	SURFACE CLOSER	4050A REG	LCN
1	EA.	KICK PLATE	8400 10"	IVE
1	EA.	WALL STOP	WS406	IVE
1	EA.	KEYPAD	BY SECURITY SUPPLIER	B/O
1	EA.	DOOR POSITION SWITCH	BY SECURITY SUPPLIER	B/O
1	EA.	POWER SUPPLY	PS902 900-2RS	VON
1	EA.	WIRING DIAGRAMS	RISER AND POINT-TO-POINT	

FUNCTION: ELECTRIFIED STOREROOM LOCK - FAIL SECURE. OUTSIDE KEY OR INSIDE LEVER RETRACTS LATCH. OUTSIDE LEVER UNLOCKED BY CREDENTIAL READER. INSIDE LEVER ALWAYS UNLOCKED. UPON LOSS OF POWER, OUTSIDE LEVER REMAINS LOCKED.

HARDWARE SET 5A

QTY		DESCRIPTION	CATALOG NUMBER	MFR
3	EA.	HINGE	5BB1 4.5 X 4.5 NRP	IVE
1	EA.	POWER TRANSFER	EPT10	VON
1	EA.	EU STOREROOM LOCK	L9092EU RX	SCH
1	EA.	CYLINDER CORE	AS REQUIRED	
1	EA.	SURFACE CLOSER	4050A SCUSH	LCN
1	EA	KICK PLATE	8400 10"	IVE
1	SET	GASKETING	870	ZER
1	EA.	DOOR BOTTOM	369	ZER
1	EA.	MOUNTING BRACKET	870SPB	ZER
1	EA.	KEYPAD	BY SECURITY SUPPLIER	B/O
1	EA.	DOOR POSITION SWITCH	BY SECURITY SUPPLIER	B/O
1	EA.	POWER SUPPLY	PS902 900-2RS	VON
1	EA.	WIRING DIAGRAMS	RISER AND POINT-TO-POINT	

FUNCTION: ELECTRIFIED STOREROOM LOCK - FAIL SECURE. OUTSIDE KEY OR INSIDE LEVER RETRACTS LATCH. OUTSIDE LEVER UNLOCKED BY CREDENTIAL READER. INSIDE LEVER ALWAYS UNLOCKED. UPON LOSS OF POWER, OUTSIDE LEVER REMAINS LOCKED.

NOTE: USE 870SPB MOUNTING BRACKET TO MOUNT CLOSERS OR RIM-MOUNTED STRIKES. DO NOT CUT SEALS FOR CLOSERS OR STRIKES TO ENSURE CONTINUOUS SEAL AT PERIMETER OF DOOR. ADJUST BACKSET DIMENSIONS FOR RIM LOCKS AND PANIC HARDWARE TO ACCOMMODATE MOUNTING BRACKET.

HARDWARE SET 5B

QTY		DESCRIPTION	CATALOG NUMBER	MFR
1	EA.	CONT. HINGE	112HD EPT	IVE
1	EA.	POWER TRANSFER	EPT 10	VON
1	EA.	COMBINATION DEADLOCK	KABA MAS CDX-10	KAB
1	EA.	EU STOREROOM LOCK	L9092EU RX	SCH
1	EA.	FSIC CYLINDER CORE	BY TENANT	B/O
1	EA.	SURFACE CLOSER	4050A EDA	LCN
1	EA.	KICK PLATE	8400 10"	IVE
1	EA.	WALL STOP	WS406	IVE
1	SET	GASKETING	870	ZER
1	EA.	DOOR BOTTOM	369	ZER
2	EA.	MOUNTING BRACKET	870SPB	ZER
1	EA.	KEYPAD	BY SECURITY SUPPLIER	B/O
1	EA.	DOOR POSITION SWITCH	BY SECURITY SUPPLIER	B/O
1	EA.	POWER SUPPLY	PS902 900-2RS	VON
1	EA.	WIRING DIAGRAMS	RISER AND POINT-TO-POINT	

FUNCTION: ELECTRIFIED STOREROOM LOCK - FAIL SECURE. OUTSIDE KEY OR INSIDE LEVER RETRACTS LATCH. OUTSIDE LEVER UNLOCKED BY CREDENTIAL READER. INSIDE LEVER ALWAYS UNLOCKED. UPON LOSS OF POWER, OUTSIDE LEVER REMAINS LOCKED. COMBINATION DEADLOCK: VALID COMBINATION UNLOCKS DEADBOLT. INSIDE KNOB RETRACTS DEADBOLT FOR EGRESS. WHEN UNLOCKED, LIFE SAFETY SWITCH HOLDS DEADBOLT RETRACTED FOR AUTHORIZED ENTRY BY ACCESS CONTROL.

NOTE: USE 870SPB MOUNTING BRACKET TO MOUNT CLOSERS OR RIM-MOUNTED STRIKES. DO NOT CUT SEALS FOR CLOSERS OR STRIKES TO ENSURE CONTINUOUS SEAL AT PERIMETER OF DOOR. ADJUST BACKSET DIMENSIONS FOR RIM LOCKS AND PANIC HARDWARE TO ACCOMMODATE MOUNTING BRACKET.

HARDWARE SET 6

QTY		DESCRIPTION	CATALOG NUMBER	MFR
1	EA.	CONT. HINGE	112HD EPT	IVE
1	EA.	POWER TRANSFER	EPT 10	VON
1	EA.	ELEC PANIC HARDWARE	RX-QEL-9857-DT	VON
1	EA.	LATCH GUARD	LGO-3	VON
1	EA.	SURFACE CLOSER	4050A EDA	LCN
1	EA.	KICK PLATE	8400 10"	IVE
1	EA.	WALL STOP	WS406	IVE
1	SET	GASKETING	870	ZER
1	EA.	DOOR BOTTOM	369	ZER
1	EA.	THRESHOLD	63A	ZER
3	EA.	MOUNTING BRACKET	870SPB	ZER
1	EA.	KEYPAD	BY SECURITY SUPPLIER	B/O
1	EA.	DOOR POSITION SWITCH	BY SECURITY SUPPLIER	B/O
1	EA.	POWER SUPPLY	PS902 900-2RS	VON
1	EA.	WIRING DIAGRAMS	RISER AND POINT-TO-POINT	

FUNCTION: DUMMY TRIM PANIC HARDWARE WITH ELECTRIC LATCH RETRACTION. FIXED OUTSIDE TRIM - NO KEY ACCESS. INSIDE PUSH PAD RETRACTS LATCH FOR EGRESS. ELECTRIC LATCH RETRACTED BY ELECTRONIC ACCESS CONTROL SYSTEM FOR PUSH/PULL OPERATION.

NOTE: USE 870SPB MOUNTING BRACKET TO MOUNT CLOSERS OR RIM-MOUNTED STRIKES. DO NOT CUR SEALS FOR CLOSERS OR STRIKES TO ENSURE CONTINUOUS SEAL AT PERIMETER OF DOOR. ADJUST BACKSET DIMENSIONS FOR RIM LOCKS AND PANIC HARDWARE TO ACCOMMODATE MOUNTING BRACKET.

HARDWARE SET 9A

QTY		DESCRIPTION	CATALOG NUMBER	MFR
1	EA.	CONT. HINGE	112HD EPT	IVE
1	EA.	POWER TRANSFER	EPT10	VON
1	EA.	ELEC FIRE EXIT HARDWARE	RX-QEL-9957-DT-F	VON
1	EA.	LATCH GUARD	LGO-3	VON
1	EA.	SURFACE CLOSER	4050A SCUSH	LCN
1	EA.	KICK PLATE	8400 10"	IVE
1	SET	GASKETING	870	ZER
1	EA.	DOOR BOTTOM	369	ZER
1	EA.	THRESHOLD	63A	ZER
3	EA.	MOUNTING BRACKET	870SPB	ZER
1	EA.	KEYPAD	BY SECURITY SUPPLIER	B/O
1	EA.	DOOR POSITION SWITCH	BY SECURITY SUPPLIER	B/O
1	EA.	POWER SUPPLY	PS902 900-2RS	VON
1	EA.	WIRING DIAGRAMS	RISER AND POINT-TO-POINT	

FUNCTION: DUMMY TRIM PANIC HARDWARE WITH ELECTRIC LATCH RETRACTION. FIXED OUTSIDE TRIM - NO KEY ACCESS. INSIDE PUSH PAD RETRACTS LATCH FOR EGRESS. ELECTRIC LATCH RETRACTED BY ELECTRONIC ACCESS CONTROL SYSTEM FOR PUSH/PULL OPERATION.

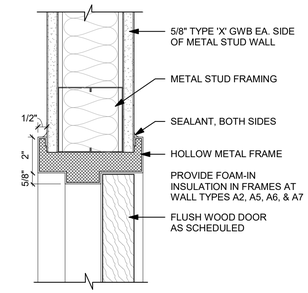
NOTE: USE 870SPB MOUNTING BRACKET TO MOUNT CLOSERS OR RIM-MOUNTED STRIKES. DO NOT CUT SEALS FOR CLOSERS OR STRIKES TO ENSURE CONTINUOUS SEAL AT PERIMETER OF DOOR. ADJUST BACKSET DIMENSIONS FOR RIM LOCKS AND PANIC HARDWARE TO ACCOMMODATE MOUNTING BRACKET.

HARDWARE SET 9B

QTY		DESCRIPTION	CATALOG NUMBER	MFR
1	EA.	CONT. HINGE	112HD EPT	IVE
1	EA.	POWER TRANSFER	EPT10	VON
1	EA.	FSIC CYLINDER HOUSING	AS REQUIRED	SCH
1	EA.	ELEC FIRE EXIT HARDWARE	RX-QEL-9857-NL-F	VON
1	EA.	LATCH GUARD	LGO-3	VON
1	EA	FSIC CYLINDER CORE	BY TENANT	B/O
1	EA.	SURFACE CLOSER	4050A SCUSH	LCN
1	EA.	KICK PLATE	8400 10"	IVE
1	SET	GASKETING	870	ZER
1	EA.	DOOR BOTTOM	369	ZER
1	EA.	THRESHOLD	63A	ZER
3	EA.	MOUNTING BRACKET	870SPB	ZER
1	EA.	KEYPAD	BY SECURITY SUPPLIER	B/O
1	EA.	DOOR POSITION SWITCH	BY SECURITY SUPPLIER	B/O
1	EA.	POWER SUPPLY	PS902 900-2RS	VON
1	EA.	WIRING DIAGRAMS	RISER AND POINT-TO-POINT	

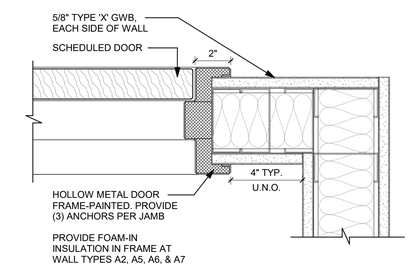
FUNCTION: NIGHT LATCH PANIC HARDWARE WITH ELECTRIC LATCH RETRACTION. FIXED OUTSIDE TRIM - LATCH RETRACTED BY KEY. INSIDE PUSH PAD RETRACTS LATCH FOR EGRESS. ELECTRIC LATCH RETRACTED BY ELECTRONIC ACCESS CONTROL SYSTEM FOR PUSH/PULL OPERATION.

NOTE: USE 870SPB MOUNTING BRACKET TO MOUNT CLOSERS OR RIM-MOUNTED STRIKES. DO NOT CUT SEALS FOR CLOSERS OR STRIKES TO ENSURE CONTINUOUS SEAL AT PERIMETER OF DOOR. ADJUST BACKSET DIMENSIONS FOR RIM LOCKS AND PANIC HARDWARE TO ACCOMMODATE MOUNTING BRACKET.



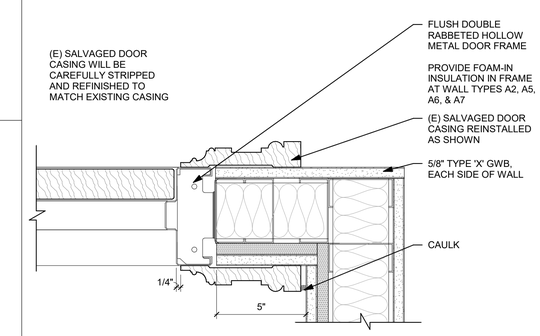
2 HOLLOW METAL HEAD

3" = 1'-0"



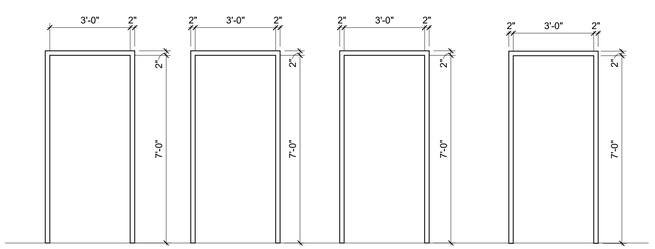
3 HOLLOW METAL JAMB

3" = 1'-0"



4 JAMB DETAIL AT SUITE ENTRY

3" = 1'-0"

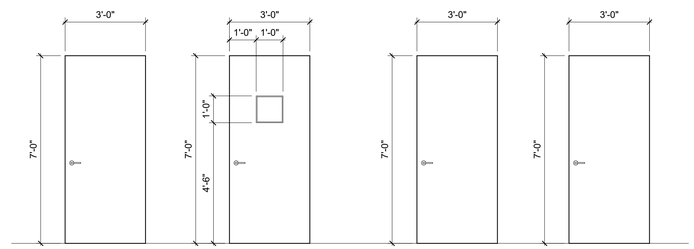


HM1
16 GA. HOLLOW METAL WELDED FRAME FOR INTERIOR DOORS PRIME FOR PAINT

HM2
HOLLOW METAL FULLY WELDED 11 GA. BALLISTIC STEEL FRAME TO MEET UL752 LEVEL III BULLET RESISTANCE. PRIMED FOR PAINT

HM3
16 GA. HOLLOW METAL FULLY WELDED FRAME FOR INTERIOR DOORS PRIMED FOR PAINT AT BUILDING CORRIDOR WALLS & SECURE STORAGE WITH SPECIAL HOLLOW METAL FRAME (WIDER THROAT)

HM4
16 GA. HOLLOW METAL FLUSH FULLY WELDED FRAME FOR BUILDING CORRIDOR DOORS PRIMED FOR PAINT



WDA
SOLID CORE (SCL) PREFINISHED WOOD DOOR

WDB
SOLID CORE PREFINISHED ACOUSTICAL WOOD DOOR. WITH 12Wx12H VIEW WINDOW WITH INTEGRAL BLINDS - VISION CONTROL FROM UNICEL CRANKS WILL BE ON THE OUTSIDE OF ROOM 2

WDC
STC RATED PREFINISHED WOOD DOOR

WDD
SOLID CORE (BULLET PROOF LINING) UL752 LEVEL III, SPSA BULLET RESISTANT DOOR MATERIAL

1 DOOR AND FRAME TYPES

3/8" = 1'-0"

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OWNER IDENTIFICATION

GSA General Service Administration

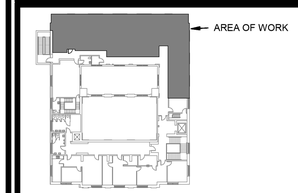
RONALD N. DAVIES FEDERAL BUILDING

DESIGNER IDENTIFICATION

DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

STAMP OR SEAL

KEY PLAN



LEVEL 3

GRAPHIC SCALE

REVISION BLOCK

Mark	Date	Description
	8/5/2025	35% Submittal
	9/22/2025	65% Submittal
	12/5/2025	95% Submittal
	3/6/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

CONTRACTORS

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	DESIGN EDGE
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

PROJECT IDENTIFICATION

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	DESIGN EDGE
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

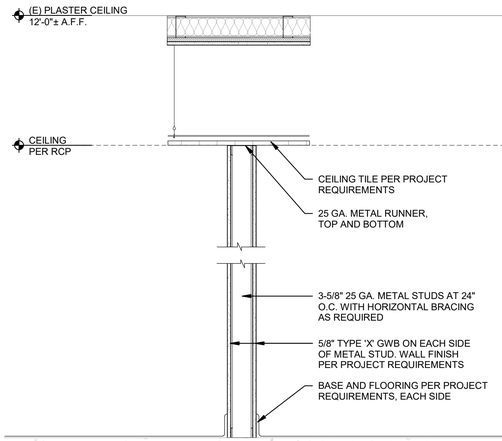
SHEET IDENTIFICATION

DRAWN BY	TP	DATE DRAWN:	3/6/2026
CHECKED BY	SG	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ARCHITECTURE		
SHEET TITLE	DOORS		

SHEET NUMBER **A6.1**

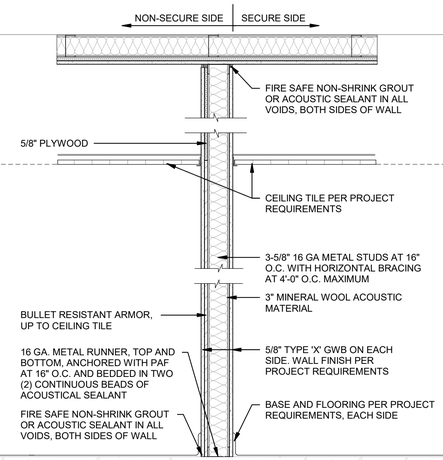
SHEET 6 OF 49 SHEETS

5/21/2026 11:32:00 AM



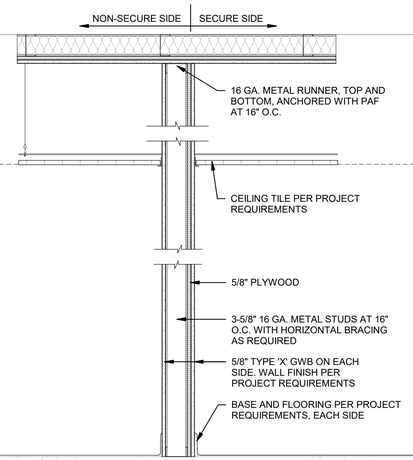
WALL TYPE A1

1. DRYWALL FINISH LEVEL 4, ONE (1) PRIMER COAT PLUS TWO (2) FINISH COATS FROM SLAB TO CEILING, BOTH SIDES.
2. WALLS MAY EXTEND TO 6" ABOVE CEILING FOR EASE OF CONSTRUCTION, BUT IS NOT A TENANT REQUIREMENT.



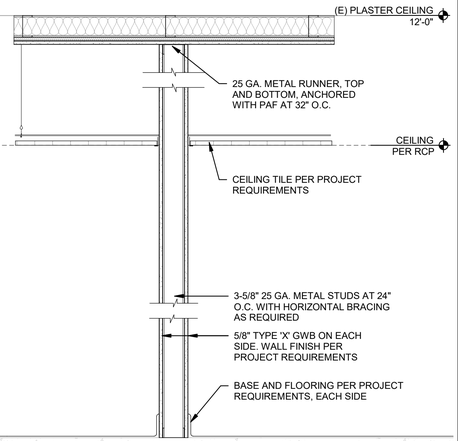
WALL TYPE A2 - BULLET RESISTANT LEVEL 3

1. DRYWALL FINISH LEVEL 4 FROM SLAB TO CEILING. DRYWALL FINISH LEVEL 3 FROM CEILING TO SLAB ABOVE, BOTH SIDES. ONE (1) PRIMER COAT PLUS TWO (2) FINISH COATS FROM SLAB TO SLAB ABOVE, BOTH SIDES. JOINTS BETWEEN DRYWALL AND PLYWOOD/BALLISTIC ARMOR MUST BE STAGGERED AT ALL LOCATIONS.
2. SCRIBE AND SEAL DRYWALL AND PLYWOOD TO FIT CONTOUR OF SLAB AND ALL PENETRATIONS. GAPS, IF PRESENT, MUST BE NO GREATER THAN 1/2" AT ANY LOCATION AND MUST NOT BE CONTINUOUS ACROSS THE WALL.
3. WALLS MUST BE SEALED CONTINUOUSLY AT PERIMETER WITH ACOUSTICAL SEALANT WHERE THEY ABUT ANOTHER ELEMENT (E.G., WALLS, COLUMNS, SLAB, CEILING DECK, OR MULLION.
4. PROVIDE SEALANT AT ALL VOIDS IN EXCESS OF 1/2" AT UNDERSIDE OF A BOTTOM TRACK INSTALLED ON CONCRETE SLAB.
5. IF HVAC IS PLENUM RETURN SYSTEM, PROVIDE Z-DUCT ON THE SLAB-TO-SLAB WALL FOR RETURN AIR. Z-DUCT MUST BE SIZED IN ACCORDANCE WITH THE LATEST EDITION OF ASHRAE GUIDELINES. IF RETURN AIR IS DUCTED TO THE AHU, Z-DUCT IS NOT REQUIRED, BUT MAN BARS ARE STILL REQUIRED INSIDE DUCTWORK WHERE DUCT PASSES THROUGH WALL. Z-DUCT IS TO BE LOCATED ON THE SECURE SIDE OF THE WALL.
6. ALL PENETRATIONS THROUGH WALL MUST BE SEALED ALL AROUND ON BOTH SIDES OF WALL WITH SEALANT TO ELIMINATE GAPS BETWEEN PENETRATION AND WALL. ALL CABLE/WIRE PENETRATIONS MUST PENETRATE WALL WITH SLEEVE. PENETRATION SIZE MUST BE KEPT TO A MINIMUM.
7. A2 WALLS MUST BE BULLET RESISTANT ARMOR UL 752 LEVEL 3, SPSA.
8. PENETRATIONS OVER 96 SQ. IN. THROUGH WALL MUST BE PROTECTED WITH MAN BARS. IF MAN BARS ARE PROVIDED, A 12"X12" HINGED INSPECTION PORT MUST BE PROVIDED ON THE DUCT ON THE SECURE SIDE OF THE WALL.



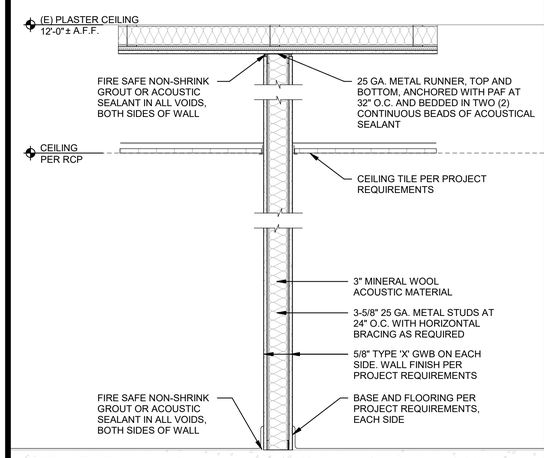
WALL TYPE A3 - SECURED STORAGE

1. DRYWALL FINISH LEVEL 4 FROM SLAB TO CEILING. DRYWALL FINISH LEVEL 3 FROM CEILING TO SLAB ABOVE, BOTH SIDES. ONE (1) PRIMER COAT PLUS TWO (2) FINISH COATS FROM SLAB TO SLAB ABOVE, BOTH SIDES. JOINTS BETWEEN DRYWALL AND PLYWOOD MUST BE STAGGERED AT ALL LOCATIONS.
2. SCRIBE AND SEAL DRYWALL AND PLYWOOD TO FIT CONTOUR OF SLAB AND ALL PENETRATIONS. GAPS, IF PRESENT, MUST BE NO GREATER THAN 1/2" AT ANY LOCATION AND MUST NOT BE CONTINUOUS ACROSS THE WALL.
3. ON THE SECURE SIDE OF WALL, PROVIDE ONE (1) LAYER OF 5/8" PLYWOOD WITH 8'-0" L INSTALLED VERTICALLY. SECURE PLYWOOD TO METAL FRAMING WITH APPROVED CONSTRUCTION ADHESIVE AND STEEL #10 SELF-TAPPING SCREWS AT 12" O.C. MAXIMUM VERTICALLY AT EACH STUD AND 12" O.C. HORIZONTALLY AT TOP AND BOTTOM TRACK. USE FIRE-RATED PLYWOOD WHERE REQUIRED BY CODE.
4. PENETRATIONS OVER 96 SQ IN THROUGH WALL MUST BE PROTECTED WITH MAN BARS. IF MAN BARS ARE PROVIDED, A 12"X12" HINGED INSPECTION PORT MUST BE PROVIDED ON THE DUCT ON THE SECURE SIDE OF THE WALL.
5. ALL UTILITY (POWER AND SIGNAL) DISTRIBUTION ON SECURE SIDE OF WALL WILL BE SURFACE-MOUNTED, CONTAINED IN RACEWAY, OR ADDITIONAL WALL WILL BE CONSTRUCTED USING FURRING STRIPS AS STANDOFF FROM BASE WALL ASSEMBLY.



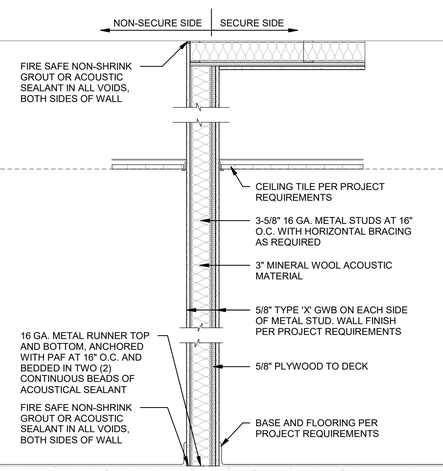
WALL TYPE A4 - SLAB TO SLAB

1. DRYWALL FINISH LEVEL 4, ONE (1) PRIMER COAT PLUS TWO (2) FINISH COATS FROM SLAB TO CEILING, BOTH SIDES. DRYWALL FINISH LEVEL 3 FROM CEILING TO SLAB ABOVE, BOTH SIDES. NO PRIMER OR PAINT REQUIRED ABOVE CEILING.



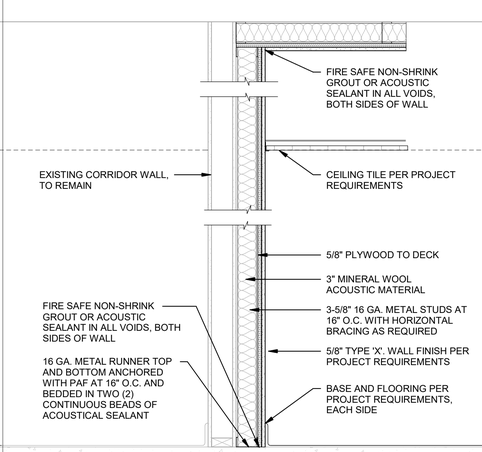
WALL TYPE A5S - ACOUSTICAL

1. DRYWALL FINISH LEVEL 4, ONE (1) PRIMER COAT PLUS TWO (2) FINISH COATS FROM SLAB TO CEILING, BOTH SIDES. DRYWALL FINISH LEVEL 3 FROM CEILING TO SLAB ABOVE, BOTH SIDES.
2. SCRIBE AND SEAL DRYWALL TO FIT CONTOUR OF SLAB AND ALL PENETRATIONS.
3. WALLS MUST BE SEALED CONTINUOUSLY AT PERIMETER WITH ACOUSTICAL SEALANT WHERE THEY ABUT ANOTHER ELEMENT (E.G., WALLS, COLUMNS, SLAB, CEILING DECK, OR MULLION).
4. PROVIDE SEALANT AT ALL VOIDS IN EXCESS OF 1/2" AT UNDERSIDE OF A BOTTOM TRACK INSTALLED ON CONCRETE SLAB.
5. ALL PENETRATIONS THROUGH WALL MUST BE SEALED ALL AROUND ON BOTH SIDES OF WALL WITH SEALANT TO ELIMINATE GAPS BETWEEN PENETRATION AND WALL. ALL CABLE/WIRE PENETRATIONS MUST PENETRATE WALL WITH SLEEVE.



WALL TYPE A7 - PERIMETER

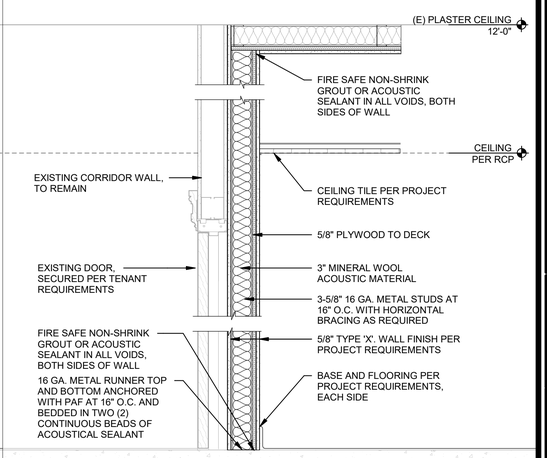
1. DRYWALL FINISH LEVEL 4, SLAB TO CEILING. DRYWALL FINISH LEVEL 3 FROM CEILING TO SLAB ABOVE, BOTH SIDES. ONE (1) PRIMER COAT PLUS TWO (2) FINISH COATS FROM SLAB TO SLAB ABOVE, BOTH SIDES. JOINTS BETWEEN DRYWALL AND PLYWOOD MUST BE STAGGERED AT ALL LOCATIONS.
2. SCRIBE AND SEAL DRYWALL AND PLYWOOD TO FIT CONTOUR OF SLAB AND ALL PENETRATIONS. GAPS, IF PRESENT, MUST BE NO GREATER THAN 1/2" AT ANY LOCATION AND MUST NOT BE CONTINUOUS ACROSS THE WALL.
3. ON THE SECURE SIDE OF WALL, PROVIDE ONE (1) LAYER OF 5/8" PLYWOOD WITH 8'-0" L INSTALLED VERTICALLY. SECURE PLYWOOD TO METAL FRAMING WITH APPROVED CONSTRUCTION ADHESIVE AND STEEL #10 SELF-TAPPING SCREWS AT 12" O.C. MAXIMUM VERTICALLY AT EACH STUD AND 12" O.C. HORIZONTALLY AT TOP AND BOTTOM TRACK. USE FIRE-RATED PLYWOOD WHERE REQUIRED BY CODE.
4. WALLS MUST BE SEALED CONTINUOUSLY AT PERIMETER WITH ACOUSTICAL SEALANT WHERE THEY ABUT ANOTHER ELEMENT (E.G., WALLS, COLUMNS, SLAB, CEILING DECK, OR MULLION).
5. PROVIDE SEALANT AT ALL VOIDS IN EXCESS OF 1/2" AT UNDERSIDE OF A BOTTOM TRACK INSTALLED ON CONCRETE SLAB.
6. IF HVAC IS PLENUM RETURN SYSTEM, PROVIDE Z-DUCT AT SLAB-TO-SLAB WALL FOR RETURN AIR. Z-DUCT MUST BE SIZED IN ACCORDANCE WITH THE LATEST EDITION OF ASHRAE GUIDELINES. IF RETURN AIR IS DUCTED TO THE AHU, Z-DUCT IS NOT REQUIRED, BUT MAN BARS STILL ARE REQUIRED INSIDE DUCTWORK WHERE DUCT PASSES THROUGH WALL.
7. ALL PENETRATIONS THROUGH WALL MUST BE SEALED ALL AROUND ON BOTH SIDES OF WALL WITH SEALANT TO ELIMINATE GAPS BETWEEN PENETRATION AND WALL. ALL CABLE/WIRE PENETRATIONS MUST PENETRATE WALL WITH SLEEVE. PENETRATION SIZE MUST BE KEPT TO A MINIMUM. GAP AROUND PENETRATION MUST NOT EXCEED 1/2".
8. PENETRATIONS OVER 96 SQ. IN. THROUGH WALL MUST BE PROTECTED WITH MAN BARS. IF MAN BARS ARE PROVIDED, A 12"X12" HINGED INSPECTION PORT MUST BE PROVIDED ON THE DUCT ON THE SECURE SIDE OF THE WALL.
9. AT SIM CONDITION, THE EXISTING PLASTER CEILING CONTINUES ACROSS BOTH SIDES OF WALL.



WALL TYPE A7a - AT EXISTING WALL

1. DRYWALL FINISH LEVEL 4, ONE (1) PRIMER COAT PLUS TWO (2) FINISH COATS FROM SLAB TO CEILING, BOTH SIDES. DRYWALL FINISH LEVEL 3 FROM CEILING TO SLAB ABOVE, BOTH SIDES.
2. SCRIBE AND SEAL PLYWOOD AND DRYWALL TO FIT CONTOUR OF SLAB AND ALL PENETRATIONS.
3. WALLS MUST BE SEALED CONTINUOUSLY AT PERIMETER WITH ACOUSTICAL SEALANT WHERE THEY ABUT ANOTHER ELEMENT (E.G., WALLS, COLUMNS, SLAB, CEILING DECK, OR MULLION).
4. PROVIDE SEALANT AT ALL VOIDS IN EXCESS OF 1/2" AT UNDERSIDE OF A BOTTOM TRACK INSTALLED ON CONCRETE SLAB.
5. ALL PENETRATIONS THROUGH WALL MUST BE SEALED ALL AROUND ON BOTH SIDES OF WALL WITH SEALANT TO ELIMINATE GAPS BETWEEN PENETRATION AND WALL. ALL CABLE/WIRE PENETRATIONS MUST PENETRATE WALL WITH SLEEVE.

AT WALL TYPE 7 AND 7a UTILITIES MUST BE SURFACE MOUNTED AT BUILDING CORRIDORS OR ON THE SECURE SIDE OF WALL IF THE OPPOSITE SIDE OF WALL IS NOT EASILY INSPECTABLE BY THE TENANT.



WALL TYPE A7b - AT EXISTING CORRIDOR DOOR

1. DRYWALL FINISH LEVEL 4, ONE (1) PRIMER COAT PLUS TWO (2) FINISH COATS FROM SLAB TO CEILING, BOTH SIDES. DRYWALL FINISH LEVEL 3 FROM CEILING TO SLAB ABOVE, BOTH SIDES.
2. SCRIBE AND SEAL PLYWOOD AND DRYWALL TO FIT CONTOUR OF SLAB AND ALL PENETRATIONS.
3. WALLS MUST BE SEALED CONTINUOUSLY AT PERIMETER WITH ACOUSTICAL SEALANT WHERE THEY ABUT ANOTHER ELEMENT (E.G., WALLS, COLUMNS, SLAB, CEILING DECK, OR MULLION).
4. PROVIDE SEALANT AT ALL VOIDS IN EXCESS OF 1/2" AT UNDERSIDE OF A BOTTOM TRACK INSTALLED ON CONCRETE SLAB.
5. ALL PENETRATIONS THROUGH WALL MUST BE SEALED ALL AROUND ON BOTH SIDES OF WALL WITH SEALANT TO ELIMINATE GAPS BETWEEN PENETRATION AND WALL. ALL CABLE/WIRE PENETRATIONS MUST PENETRATE WALL WITH SLEEVE.

1 WALL TYPES

1" = 1'-0"

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GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

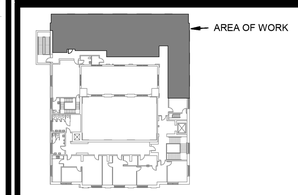
OWNER IDENTIFICATION

DESIGN EDGE
architecture interior design

482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

STAMP OR SEAL



LEVEL 3

KEY PLAN

GRAPHIC SCALE

Mark	Date	Description
	8/5/2025	35% Submittal
	9/22/2025	65% Submittal
	12/5/2025	95% Submittal
	3/6/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	DESIGN EDGE
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	DESIGN EDGE
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	TP	DATE DRAWN:	3/6/2026
CHECKED BY	SG	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ARCHITECTURE		
SHEET TITLE	WALL TYPES		
SHEET NUMBER	A6.2		

SHEET 7 OF 49 SHEETS

SHEET IDENTIFICATION

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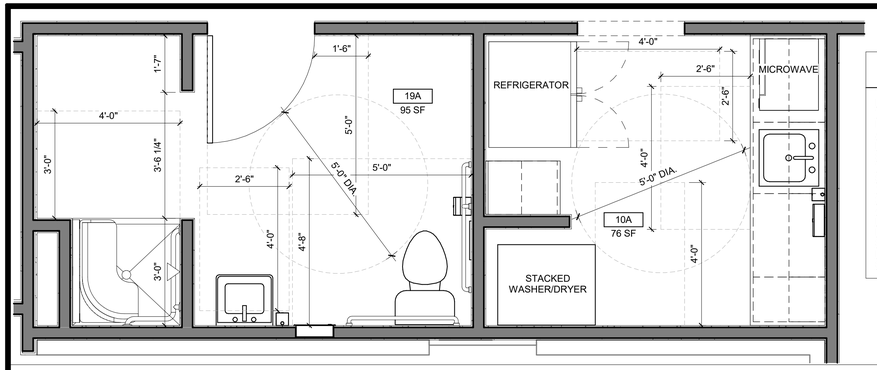


1 ENLARGED PLAN - CLEAR FLOOR SPACE

1/2" = 1'-0"

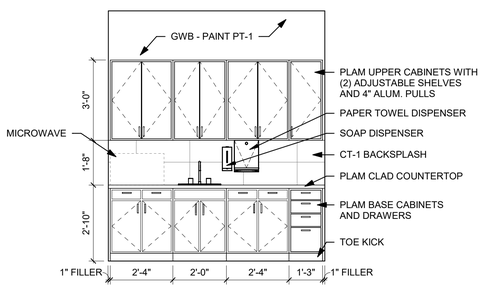
TOILET ACCESSORY SCHEDULE

DESCRIPTION:	MANUFACTURER:	MODEL NO.	PROVIDED BY / INSTALLED BY:	QUANTITY:	NOTES:
TOILET TISSUE DISPENSER	BOBRICK	B-4388	CONTRACTOR / CONTRACTOR	1	
PAPER TOWEL DISPENSER AND WASTE DISPOSAL	BOBRICK	B-369	CONTRACTOR / CONTRACTOR		
PAPER TOWEL DISPENSER	BOBRICK	B-26212	CONTRACTOR / CONTRACTOR	1	SURFACE MOUNTED
SANITARY NAPKIN DISPOSAL	BOBRICK	B-35303	CONTRACTOR / CONTRACTOR	1	
TOILET SEAT COVER DISPENSER	BOBRICK	B-221	CONTRACTOR / CONTRACTOR	1	
SOAP DISPENSER	BOBRICK	B-2013	CONTRACTOR / CONTRACTOR	2	
18" GRAB BAR	BOBRICK	B6806 X 18"	CONTRACTOR / CONTRACTOR	1	VERTICAL
36" GRAB BAR	BOBRICK	B6806 X 36"	CONTRACTOR / CONTRACTOR	1	HORIZONTAL
42" GRAB BAR	BOBRICK	B6806 X 42"	CONTRACTOR / CONTRACTOR	1	HORIZONTAL
MIRROR WITH SHELF	BOBRICK	B-292 1836	CONTRACTOR / CONTRACTOR	1	18"x36" MIRROR
ROBE HOOK	BOBRICK	B7672	CONTRACTOR / CONTRACTOR	6	
SHELF			CONTRACTOR / CONTRACTOR	1	4"W x 8"L ABOVE TOILET PAPER
FULL HEIGHT MIRROR			CONTRACTOR / CONTRACTOR	1	24" X 72" FRAMELESS MIRROR
SHOWER CURTAIN AND HOOKS					SEE NOTES

EQUIPMENT SCHEDULE

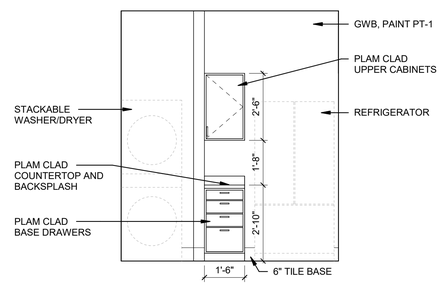
DESCRIPTION:	MANUFACTURER:	MODEL NO.	PROVIDED BY / INSTALLED BY:
MICROWAVE	GE APPLIANCES	PES7227SLSS	OWNER / CONTRACTOR
STACKABLE WASHER / DRYER	LG	WKHC252HWA	OWNER / CONTRACTOR
REFRIGERATOR	WHIRLPOOL	WRFC3036R2	OWNER / CONTRACTOR

NOTES:
1. ALL SHOWER ACCESSORIES (GRAB BARS AND SEAT) ARE INCLUDED IN THE PREFABRICATED MANUFACTURERS SHOWER - SEE PLUMBING DRAWINGS
2. PROVIDE BLOCKING IN WALL FOR ALL WALL MOUNTED ACCESSORIES AND EQUIPMENT



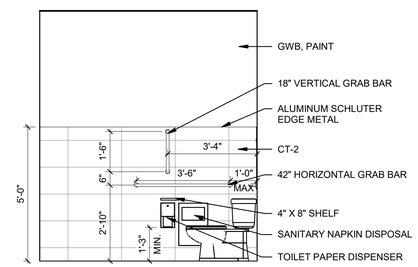
2 10A - EAST

3/8" = 1'-0"



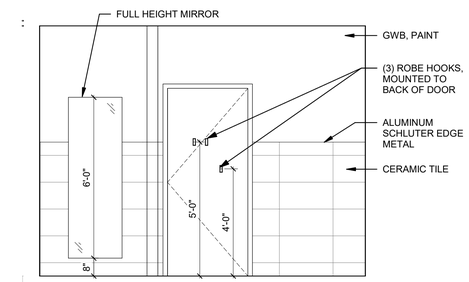
3 10A - WEST

3/8" = 1'-0"



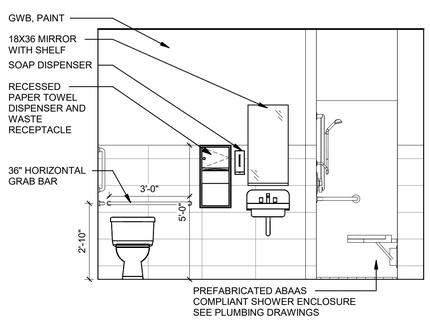
4 19A - EAST

3/8" = 1'-0"



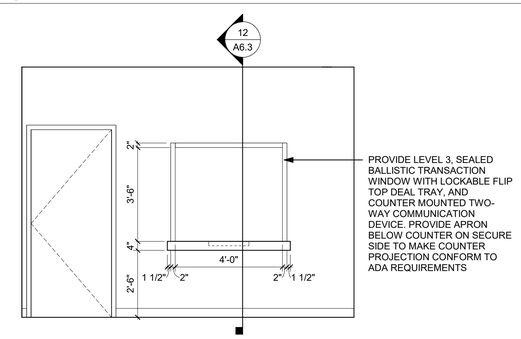
5 19A - NORTH

3/8" = 1'-0"



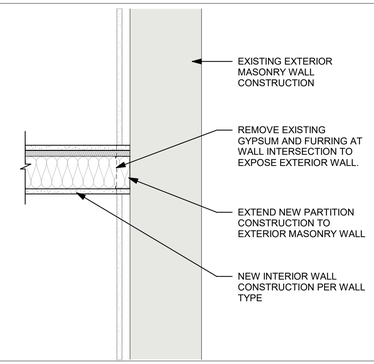
6 19A - SOUTH

3/8" = 1'-0"



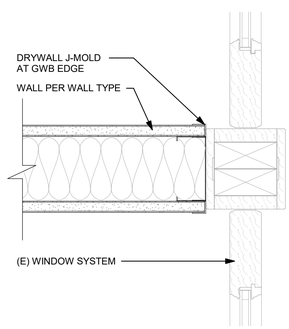
7 1A - NORTH

3/8" = 1'-0"



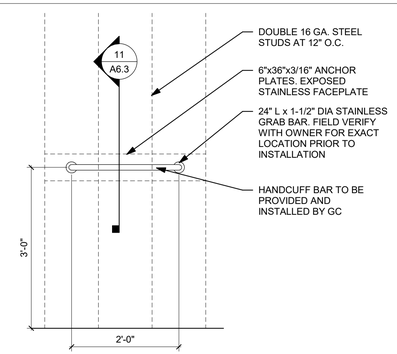
8 WALL INTERSECTION DETAIL

1 1/2" = 1'-0"



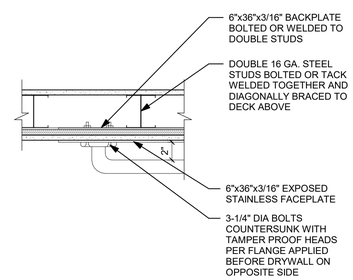
9 WALL AT WINDOW MULLION

3" = 1'-0"



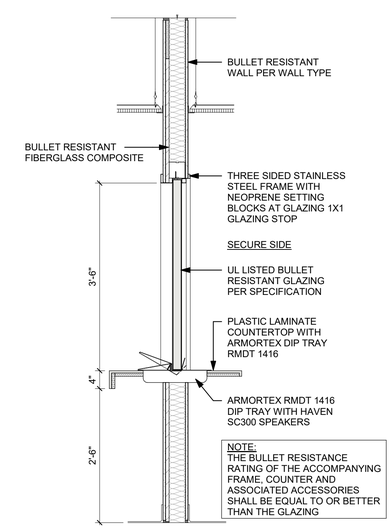
10 HANDCUFF BAR - ELEVATION

3/4" = 1'-0"



11 HANDCUFF BAR

1 1/2" = 1'-0"



12 TRANSACTION COUNTER

3/4" = 1'-0"

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GSA General Service Administration

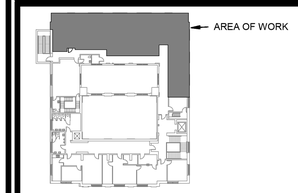
RONALD N. DAVIES FEDERAL BUILDING

OWNER IDENTIFICATION

DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

STAMP OR SEAL



LEVEL 3

KEY PLAN

GRAPHIC SCALE

Mark	Date	Description
	8/5/2025	35% Submittal
	9/22/2025	65% Submittal
	12/5/2025	95% Submittal
	3/6/2026	100% Submittal
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	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	DESIGN EDGE
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	DESIGN EDGE
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

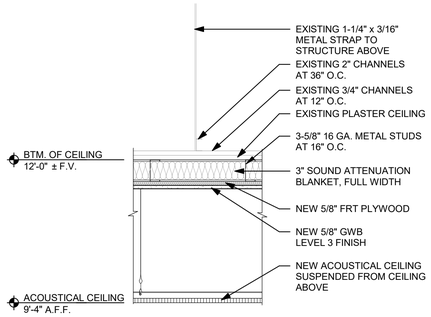
DRAWN BY	TP	DATE DRAWN:	3/6/2026
CHECKED BY	SG	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ARCHITECTURE		
SHEET TITLE	ENLARGED PLAN, INTERIOR ELEVATIONS, & DETAILS		

SHEET IDENTIFICATION

SHEET NUMBER **A6.3**

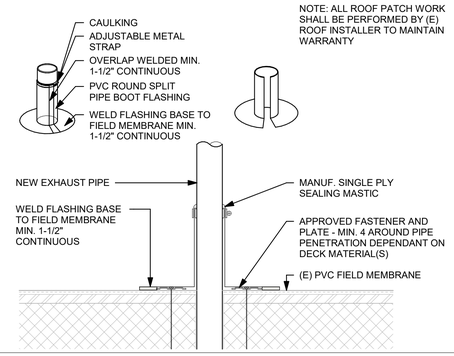
SHEET 8 OF 49 SHEETS

5/21/2026 11:32:01 AM



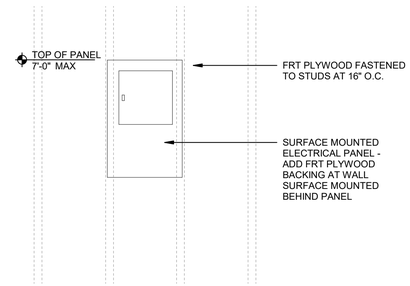
1 TYP. DETAIL AT ATTIC CEILING

1" = 1'-0"



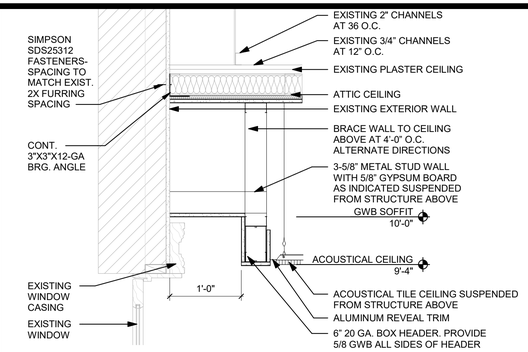
2 ROOF PENETRATION DETAIL

3" = 1'-0"



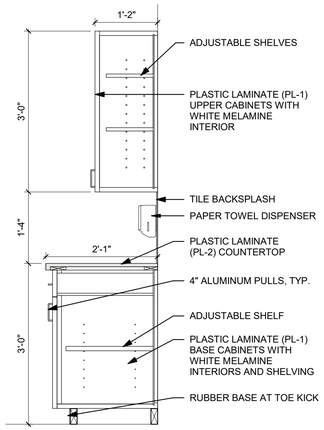
3 ELEC. PANEL MOUNTING DETAIL

3/4" = 1'-0"



4 WINDOW COVE DETAIL

1" = 1'-0"



5 CASEWORK SECTION

3/4" = 1'-0"

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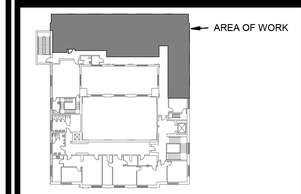
KEY PLAN



LEVEL 3

GRAPHIC SCALE

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DISCIPLINE	ARCHITECTURE		
SHEET TITLE	DETAILS		

SHEET NUMBER **A6.4**

SHEET 9 OF 49 SHEETS

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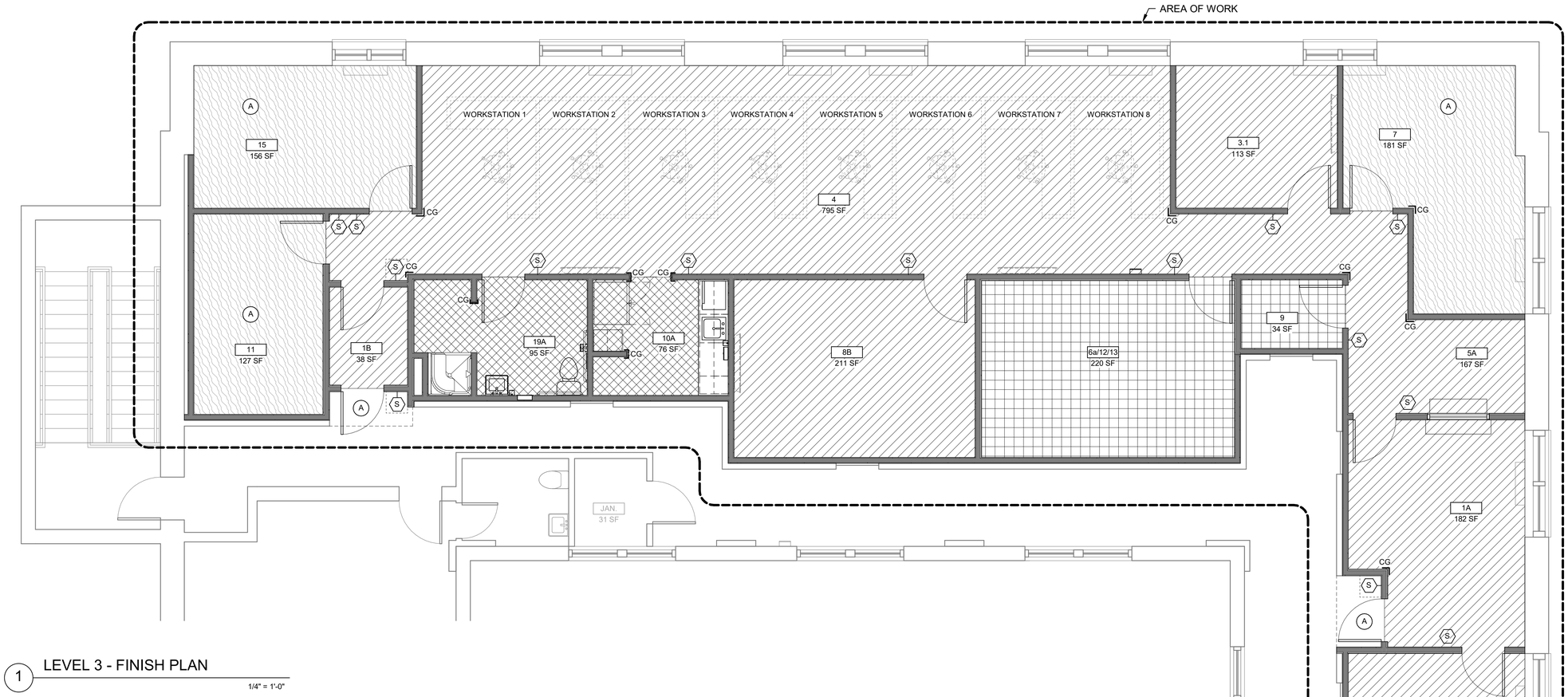


1 LEVEL 3 - FINISH PLAN

1/4" = 1'-0"

FINISH NOTES

1. REPAIR (E) WOOD FLOOR WHERE DAMAGED WITH NEW WOOD FLOORING TO MATCH EXISTING, SO FLOOR IS LEVEL AND READY TO RECEIVE CARPET/VCT. NEW WOOD FLOORING SHALL BE NAILED TO SUBFLOOR SO THAT IT CAN BE REMOVED IN THE FUTURE WITHOUT DAMAGING THE EXISTING WOOD FLOORS.
2. ALL NEW WALLS TO BE PAINTED PT-1, THREE COATS UNLESS NOTED OTHERWISE.
3. PAINT ALL PATCHED AREAS OF WALLS WITH 1 COAT OF PRIMER AND 2 FINISH COATS MINIMUM AS REQUIRED TO ACHIEVE UNIFORM COVERAGE AND FINISH.
4. ALL METAL DOOR FRAMES TO BE PAINTED TO MATCH ADJACENT WALL, ALKYD ENAMEL SATIN FINISH.
5. ALL FINISHES TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
6. ALL FINISHES TO BE SUBMITTED TO DESIGNER FOR APPROVAL PRIOR TO INSTALLATION.
7. FLOORING TRANSITIONS TO OCCUR UNDER CENTERLINE OF DOOR OPENINGS, U.N.O.
8. PREPARE ALL GWB WALLS TO SMOOTH LEVEL 4 FINISH, U.N.O. ALL GWB.
9. PROVIDE STAINLESS STEEL CORNER GUARDS AT ALL OUTSIDE CORNERS OF INTERIOR WALLS WITHIN SUITE. CORNER GUARDS SHALL BE STAINLESS STEEL, 18 GA. MIN., 90 DEGREES, 1" WIDE WINGS (WITH HEMMED EDGES) X 48" HIGH WITH COUNTERSUNK SCREWS.
10. CARPET SHALL BE INSTALLED WITH UNIVERSAL VELCRO FLOORING TAPE OVER (E) WOOD FLOORS THROUGHOUT
11. VINYL COMPOSITION TILE SHALL BE INSTALLED OVER 1/4" PLYWOOD UNDERLAYMENT NAILED TO THE EXISTING FLOOR. NAILING PATTERN SHALL BE MINIMUM REQUIRED TO ATTACH UNDERLAYMENT TO FLOOR TO MINIMIZE DAMAGE TO THE ORIGINAL WOOD FLOOR.
12. PROVIDE TRANSITION STRIPS/REDUCERS/EDGES AT ALL FLOOR MATERIAL CHANGES. FIELD VERIFY ALL INSTALLATION HEIGHTS TO DETERMINE BEST TRIM APPLICATIONS AT EACH CONDITION. PROVIDE VINYL TRANSITIONS AT CARPET TO VCT AND ALUMINUM TRANSITIONS AT TILE TO CARPET TRANSITIONS.

FINISH PLAN KEY NOTES

(A) REMOVE EXISTING CARPET TO EXPOSE (E) WOOD FLOOR. PATCH AND REPAIR EXISTING WOOD FLOORING AS REQUIRED. PROVIDE TRANSITION STRIP FROM WOOD TO TILE.

FINISH PLAN LEGEND

- CPT - CARPET
- CT - CERAMIC TILE
- VCT - VINYL COMPOSITION TILE
- REFINISHED HARDWOOD
- CG - CORNER GUARD
- (S) SIGNAGE

FINISH SCHEDULE

ROOM	BASE	FLOOR	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEILING	COMMENTS
1A	RB	CPT	PT-1	PT-1	PT-1	PT-1	ACT	
1B	RB	CPT	PT-1	PT-1	PT-1	PT-1	ACT	
2	RB	CPT	PT-1	PT-1	PT-1	PT-1	ACT	
3.1	RB	CPT	PT-1	PT-1	PT-1	PT-1	ACT	
4	RB	CPT	PT-1	PT-1	PT-1	PT-1	ACT	
5A	RB	CPT	PT-1	PT-1	PT-1	PT-1	ACT	
6a/12/13	RB	VCT	PT-1 / PMB	PT-1 / PMB	PT-1 / PMB	PT-1 / PMB	N/A	
7	RB	HW	PT-1	PT-1	PT-1	PT-1	ACT	REFINISH EXISTING FLOOR - PATCH AND REPAIR AS REQUIRED.
8B	RB	CPT	PT-1	PT-1	PT-1	PT-1	ACT	
9	RB	VCT	PT-1	PT-1	PT-1	PT-1	ACT	
10A	CT-2a	CT-1	PT-1	PT-1 / CT-1	PT-1	PT-1	ACT	CT-1 AT CABINET BACKSPLASH
11	RB	HW	PT-1	PT-1	PT-1	PT-1	ACT	REFINISH EXISTING FLOOR - PATCH AND REPAIR AS REQUIRED.
15	RB	HW	PT-1	PT-1	PT-1	PT-1	ACT	REFINISH EXISTING FLOOR - PATCH AND REPAIR AS REQUIRED.
19A	CT-2a	CT-1	PT-1 / CT-2	PT-1 / CT-2	PT-1 / CT-2	PT-1 / CT-2	GWB PT-1	CT-2 FROM FIN. FLOOR TO 5'-0" A.F.F.

FINISH LEGEND

FLOORING

NO.	MATERIAL	MANUFACTURER	PRODUCT NAME / #	COLOR NAME / #	REMARKS
CPT	CARPET	PATCRAFT	COLOR VARIANCE	COBBLESTONE BARK 00525	24X24 CARPET TILE
VCT	VINYL COMPOSITION TILE	ARMSTRONG	STANDARD EXCELON	SILK	12X12 TILE
CT-1	CERAMIC TILE	DALTILE	PLATINUM	GREY UB04	12X24 TILE
HW	HARDWOOD				RESTORE EXISTING

BASE

NO.	MATERIAL	MANUFACTURER	PRODUCT NAME / #	COLOR NAME / #	REMARKS
RB	RUBBER BASE	MANNINGTON	BURKEBASE TYPE TP	BLACK	STRAIGHT/TOELESS AT CARPET, COVED AT OTHER
CT-2a	CERAMIC TILE BASE	DALTILE	PLATINUM	CHALK IT50	12X24 TILE CUT TO 6" H

WALLS

NO.	MATERIAL	MANUFACTURER	PRODUCT NAME / #	COLOR NAME / #	REMARKS
PT-1	PAINT (FIELD)	SHERWIN WILLIAMS	PROMAR 200	ALABASTER WHITE 7008	LATEX - EGGSHELL
PT-2	PAINT (DOOR FRAMES)	SHERWIN WILLIAMS		BEDROCK 9563	SEMI-GLOSS
CT-2	CERAMIC TILE	DALTILE	PLATINUM	CHALK IT50	12X24
CG	CORNER GUARD	INPRO	SURFACE MOUNT STAINLESS STEEL CORNER GUARD	304 STAINLESS STEEL SATIN #4 FINISH	MECHANICALLY-FASTENED, 16-GA. WITH ROUNDED EDGES WITH REMOVABLE PROTECTIVE COATING. 1" W WINGS AND MOUNTED FROM FLOOR BASE UP TO 48" A.F.F. PROVIDE RECESSED MOUNTING OR HIDDEN FASTENERS SPACED AT 16" O.C.

CEILINGS

NO.	MATERIAL	MANUFACTURER	PRODUCT NAME / #	COLOR NAME / #	REMARKS
ACT	ACOUSTIC CEILING TILE	USG	MARS HIGH NRC	WHITE	2'X4' SUSPENDED ACOUSTICAL CEILING TILE SYSTEM IN 15/16" WHITE METAL TEE GRID - REFER TO SPECIFICATIONS

CASEWORK

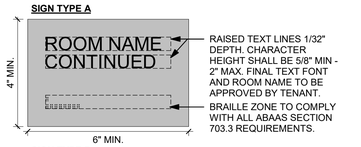
NO.	MATERIAL	MANUFACTURER	PRODUCT NAME / #	COLOR NAME / #	REMARKS
PL-1	PLAM CABINETS	FORMICA		SILVER RIFTWOOD 6413	
PL-2	COUNTERTOP	FORMICA		WHITE BARDIGLIO 9306	

SIGNAGE SCHEDULE

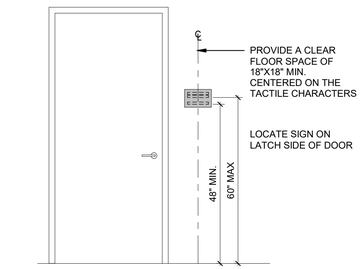
LOCATION	SIGN TYPE	SIGN MESSAGE
ROOM 1A	A	318
ROOM 1B	A / B	330
ROOM 2	A	318A
ROOM 3.1	A	322
ROOM 5A	A	319
ROOM 6a/12/13	A	323
ROOM 7	A	321
ROOM 8B	A	324
ROOM 9	A	320
ROOM 10A	A	326
ROOM 11	A	329
ROOM 15	A	328
ROOM 19A	A	327

NOTES:
1. SIGNS MUST BE MINIMUM 6"Wx4"H, AND AT A MINIMUM INDICATE THE ROOM NUMBER AND FUNCTION NAME, AND HAVE THE CAPABILITY TO PROVIDE A SLOT FOR REMOVABLE NAME PLATES.
2. INCLUDE 8-1/2"Wx11"H SIGN ON EGRESS SIDE OF ALL DOORS WITH CDX-10 LOCKS FOR A TENANT PROVIDED SIGN.
3. AT ROOM 1B, THE SIGN FROM THE CORRIDOR TO BE TYPE A. THE SIGN FROM THE TENANT SPACE TO BE TYPE B.

SIGN TYPE A



SIGN TYPE B



2 SIGNAGE LOCATION

1/2" = 1'-0"

True North

Plan North

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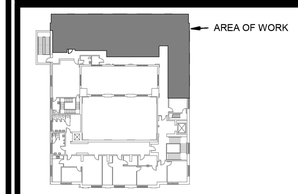

LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
	8/5/2025	35% Submittal
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ADDRESS	102 NORTH 4TH STREET,
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BIM FILE NAME	

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DRAWN BY	TP	DATE DRAWN:	3/6/2026
CHECKED BY	SG	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ARCHITECTURE		
SHEET TITLE	FINISH PLAN		

SHEET IDENTIFICATION

SHEET NUMBER **A7.1**

SHEET 10 OF 49 SHEETS

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DIVISION 230000 - MECHANICAL SPECIFICATIONS

BASIC MECHANICAL REQUIREMENTS

QUALITY ASSURANCE:
1. IF MANUFACTURER'S MATERIAL OR EQUIPMENT IS LISTED IN SCHEDULES OR ON DRAWINGS, THEY ARE TYPES TO BE PROVIDED FOR ESTABLISHMENT OF SIZE, CAPACITY, GRADE, AND QUALITY. IF OTHER ACCEPTABLE MANUFACTURERS ARE USED, COST OF ANY CHANGE IN CONSTRUCTION REQUIRED BY THE OTHER USE SHALL BE BORNE BY CONTRACTOR.
2. EQUIPMENT SHALL CONFORM TO STATE AND/OR LOCAL ENERGY CONSERVATION STANDARDS.

INTENT AND INTERPRETATIONS:
1. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO RESULT IN A COMPLETE MECHANICAL INSTALLATION IN COMPLETE ACCORDANCE WITH ALL APPLICABLE LOCAL CODES AND ORDINANCES.
2. DRAWINGS ARE DIAGRAMATIC IN CHARACTER AND DO NOT NECESSARILY INDICATE EVERY REQUIRED PIPE, OFFSET, TRANSITION, ETC. ITEMS NOT SPECIFICALLY MENTIONED IN THE SPECIFICATION OR NOTED ON THE DRAWINGS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED.
3. DRAWINGS AND SPECIFICATIONS ARE COMPLIMENTARY. WHATEVER IS CALLED FOR IN EITHER IS BINDING AS THOUGH CALLED FOR IN BOTH. IF THERE IS A CONFLICT IN THE CONTRACT DOCUMENTS, THE MORE DEMANDING AND COSTLY DESIGN SHALL BE SELECTED FOR BIDDING PURPOSES. THE CONTRACTOR SHALL IMMEDIATELY PRESENT THE CONFLICT FOUND IN THE CONTRACT DOCUMENTS TO THE ARCHITECT/ENGINEER FOR RESOLUTION. IF THE RESOLUTION FAVORS A LESS COSTLY DESIGN, THE CONTRACTOR WILL BE REQUIRED TO REIMBURSE THE DIFFERENCE IN COST.
4. DRAWINGS SHALL NOT BE SCALED FOR ROUGH-IN MEASUREMENTS OR USED AS SHOP DRAWINGS. WHERE DRAWINGS ARE REQUIRED FOR THESE PURPOSES OR HAVE TO BE MADE FROM FIELD MEASUREMENTS, TAKE THE NECESSARY MEASUREMENTS AND PREPARE THE DRAWINGS.
5. BEFORE ANY WORK IS INSTALLED, DETERMINE THAT EQUIPMENT WILL PROPERLY FIT THE SPACE. THAT REQUIRED CLEARANCES CAN BE MAINTAINED AND THAT EQUIPMENT CAN BE LOCATED WITHOUT INTERFERENCE BETWEEN SYSTEMS, WITH STRUCTURAL ELEMENTS, OR WITH THE WORK OF OTHER TRADES.
6. IF CONFLICTS ARE DISCOVERED IN CONTRACT DOCUMENTS AS WORK PROGRESSES, SUBMIT A SET OF DRAWINGS MARKED WITH RED PENCIL SHOWING RECOMMENDED MODIFICATIONS TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.

JOB CONDITIONS:
1. CONFER, COOPERATE, AND COORDINATE WORK WITH OTHER TRADES. COORDINATE CEILING CAVITY SPACE CAREFULLY WITH ALL TRADES.

PERMITS AND FEES:
1. ARRANGE AND PAY FOR ALL INSPECTIONS, PERMITS, LICENSES, CERTIFICATES, AND FEES REQUIRED IN CONNECTION WITH WORK.

SUBMITTALS AND SHOP DRAWINGS:
1. CONFORM TO REQUIREMENTS OF DIVISION 1 AND FOLLOWING PARAGRAPHS.
2. SUBMITTALS SHALL INCLUDE CATALOG CUT-SHEETS AND MANUFACTURER'S DATA SHEETS.
3. PRIOR TO ORDERING EQUIPMENT OR BEGINNING INSTALLATION WORK, ASSEMBLE, PREPARE, AND FURNISH SUBMITTALS AND SHOP DRAWINGS REQUIRED FOR PROJECT. FURNISH SUBMITTALS AND SHOP DRAWINGS AS REQUIRED BY INDIVIDUAL SECTIONS OF SPECIFICATIONS.
4. CONTRACTOR SHALL THOROUGHLY CHECK SUBCONTRACTORS' OR VENDORS' SUBMITTALS AND SHOP DRAWINGS AND, AFTER APPROVING THEM, SUBMIT THEM FOR REVIEW. SUBMITTALS AND SHOP DRAWINGS THAT DO NOT BEAR CONTRACTOR'S REVIEW STAMP WILL BE RETURNED NOT REVIEWED.
5. IF DISCREPANCIES BETWEEN SUBMITTALS, SHOP DRAWINGS, AND CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SUBMITTALS AND SHOP DRAWINGS ARE REVIEWED, REQUIREMENTS OF CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE. SUBMITTALS AND SHOP DRAWINGS WHICH ARE SUBMITTED, BUT WHICH ARE NOT REQUIRED BY CONTRACT DOCUMENTS, WILL BE RETURNED NOT REVIEWED.
6. SUBMITTALS AND SHOP DRAWINGS SHALL IDENTIFY SPECIFIC EQUIPMENT WITH NUMBERS OR LETTERS IDENTICAL TO THOSE LISTED OR SCHEDULED ON THE DRAWINGS OR SPECIFICATIONS.

RECORD DOCUMENTS:
1. KEEP IN CUSTODY DURING ENTIRE PERIOD OF CONSTRUCTION. A CURRENT SET OF DOCUMENTS INDICATING CHANGES THAT HAVE BEEN MADE TO THE CONTRACT DOCUMENTS.
2. UPON COMPLETION OF WORK, SUBMIT THE COMPLETE SET OF RECORD DOCUMENTS TO THE ARCHITECT.

PROTECTION OF EQUIPMENT:
1. PROTECT MATERIALS AND EQUIPMENT FROM PHYSICAL DAMAGE, CONSTRUCTION DIRT, AND THE ELEMENTS FROM TIME OF SHIPMENT TO TIME INSTALLATION IS ACCEPTED BY OWNER.

GUARANTEE:
1. GUARENTEE MATERIALS, WORKMANSHIP, AND OPERATION OF EQUIPMENT INSTALLED FOR PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF ENTIRE WORK. REPAIR OR REPLACE ANY PART OF WORK WHICH SHOWS DEFECT DURING THAT TIME.
2. BE RESPONSIBLE FOR DAMAGE TO PROPERTY OF OWNER OR TO WORK OF OTHER CONTRACTORS DURING CONSTRUCTION AND GUARANTEE PERIOD.
3. FURNISH EQUIPMENT WARRANTIES TO OWNER.

MECHANICAL EQUIPMENT WIRING AND CONNECTIONS:
1. VOLTAGE CHARACTERISTICS SHALL BE AS IN ELECTRICAL DIVISION OF SPECIFICATION AND ON ELECTRICAL DRAWINGS.

TEMPORARY FACILITIES:
1. USE OF EXISTING EQUIPMENT FOR TEMPORARY HEATING OR COOLING: DO NOT USE NEW OR EXISTING BUILDING EQUIPMENT WITHOUT WRITTEN PERMISSION FROM OWNER.

INSPECTIONS:
1. DO NOT COVER UP OR ENCLOSE WORK UNTIL INSPECTED, TESTED, AND APPROVED. ANY WORK ENCLOSED OR COVERED UP BEFORE SUCH APPROVAL SHALL BE UNCOVERED, TESTED, AND APPROVED.

ACCESS DOORS:
1. FURNISH HINGED STEEL ACCESS DOORS WITH CONCEALED LATCH, WHETHER SHOWN OR NOT, IN WALLS AND PLASTER OR GYPSUM BOARD CEILINGS FOR ACCESS TO CONCEALED VALVES, SHOCK ARRESTERS, AIR VENTS, MOTORS, FANS, BALANCING VALVES, OR OTHER OPERATING DEVICES REQUIRING ADJUSTMENT OR SERVICING.
2. ACCESS DOOR SHALL BE SIZE OF EQUIPMENT TO BE REMOVED OR 24" BY 24" IF USED FOR SERVICE ONLY.

SUPERVISION:
1. SUPERVISE WORK TO PROCEED IN PROPER SEQUENCE WITHOUT DELAY TO OTHER CONTRACTORS. KEEP SUPERVISOR ON PREMISES AT ALL TIMES TO ENSURE THAT INTENT OF DRAWINGS AND SPECIFICATIONS IS BEING FOLLOWED.

INSTALLATION:
1. WORKMANSHIP SHALL BE FIRST QUALITY. APPEARANCE OF WORK SHALL BE OF EQUAL IMPORTANCE TO ITS MECHANICAL OPERATION. LACK OF QUALITY WORKMANSHIP SHALL BE REASON FOR REJECTION OF SYSTEM IN PART OR IN WHOLE.
2. INSTALL SO THAT ALL VALVES AND EQUIPMENT CAN BE EASILY ACCESSED AND SERVICED BY ADEQUATE CLEARANCE, INSTALLATION OF ACCESS DOORS, UNIONS IN PIPING, OR OTHER METHODS.
3. COMPLETE INSTALLATION SHALL FUNCTION SMOOTHLY AND NOISELESSLY.
4. INSTALL EQUIPMENT AND MATERIALS PER MANUFACTURERS' RECOMMENDATIONS AND LOCAL CODES OR REGULATIONS.
5. PLACE OR REPLACE ALL EQUIPMENT NAMEPLATES WHERE THEY CAN BE SEEN AND READ WITHOUT DIFFICULTY.
6. FLUSH PIPES FREE OF FOREIGN SUBSTANCES BEFORE INSTALLING VALVES OR MAKING FINAL CONNECTIONS. CLEAN ALL PIPING AND EQUIPMENT.

COMPLETION:
1. CLEAN INSULATION COVERING, DUCTS, PIPES, EQUIPMENT, AND ACCESSORIES TO RECEIVE PRIME COAT OF PAINT. CLEAN EQUIPMENT RECEIVED WITH PRIME COAT TO RECEIVE FINAL COAT.
2. REPLACE AIR FILTERS IF UNITS WERE OPERATED DURING CONSTRUCTION. CLEAN DUCTS, BLOWERS, AND COILS IF UNITS WERE OPERATED WITHOUT FILTERS DURING CONSTRUCTION.
3. INSTRUCT OWNER IN OPERATION AND MAINTENANCE OF MECHANICAL SYSTEMS. MINIMUM PARTICIPANTS SHALL INCLUDE MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR REPRESENTATIVES.
4. AFTER TESTS AND ADJUSTMENTS HAVE BEEN MADE AND SYSTEMS PRONOUNCED SATISFACTORY FOR PERMANENT OPERATION, REFINISH DAMAGED FINISH AND LEAVE EVERYTHING IN PROPER WORKING ORDER AND APPEARANCE.
5. ON COMPLETION OF WORK, REMOVE TOOLS, SCAFFOLDING, ETC., FROM GROUNDS AND LEAVE PREMISES CLEAN.

OPERATION AND MAINTENANCE MANUALS:
1. PRIOR TO COMPLETION OF PROJECT SUBMIT OPERATION AND MAINTENANCE MANUALS FOR MECHANICAL EQUIPMENT WITH MOVING OR MOVABLE PARTS, INCLUDING PLUMBING SYSTEMS, PER IECC. INSTRUCTIONS SHALL BE IN PAMPHLET, TYPEWRITTEN OR PDF FORM. INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT SHALL BE INDICATED BY A SEPARATE TAB.
2. INCLUDE TEST AND BALANCE REPORT.
3. INCLUDE STARTING, STOPPING, LUBRICATION, PREVENTATIVE MAINTENANCE SCHEDULE, AND ADJUSTMENT INFORMATION FOR EACH PIECE OF EQUIPMENT.
4. INCLUDE GUARANTEES AND WARRANTIES OF ALL EQUIPMENT.

PIPE AND PIPE FITTINGS

PIPE AND TUBE:
A. COPPER REFRIGERANT TUBE: ASTM B280-03, SEAMLESS.
B. COPPER DRAINAGE TUBE (DWV): ASTM B306-88.

PIPE AND TUBE JOINTS AND FITTINGS:
A. COPPER AND BRASS PIPE FITTINGS: ASME B16.23, PRESSURE FITTINGS; ASME B16.29, DRAINAGE FITTINGS.

GENERAL:
A. COOLING COIL CONDENSATE DRAIN PIPING: MAINTAIN PIPE SLOPE 1/8" DOWN PER LINEAR FOOT IN THE DIRECTION OF FLOW UNLESS OTHERWISE NOTED ON DRAWINGS.
B. MAKE CONNECTIONS TO EQUIPMENT WITH UNIONS OR FLANGES.
C. COOLING COIL CONDENSATE DRAIN PIPING SHALL BE EQUAL TO OR LARGER THAN THE EXIT DIAMETER OF THE DRAIN PAN DRAIN CONNECTION.
D. FLUSH EACH PIPING SYSTEM AND PROVE CLEAN.

COPPER PIPE CONNECTIONS:
A. USE 15% SILVER BRAZING ALLOY AND SILVER BRAZING FLUX ON CONCEALED JOINTS.

REFRIGERANT COPPER PIPE CONNECTIONS:
A. 2-5/8" O.D. AND SMALLER: 95% TIN, 5% ANTIMONY LEAD-FREE SOLDER.
B. 3-1/8" O.D. AND LARGER, HOT GAS PIPING, BURIED PIPING: 15% SILVER BRAZING ALLOY.
C. CONTINUOUSLY PURGE PIPING WITH DRY NITROGEN DURING SILVER BRAZING PROCESS.

PIPE TESTING:
A. TEST ALL PIPING SYSTEMS. CORRECT LEAKS BY REMAKING JOINTS. REMOVE EQUIPMENT NOT ABLE TO WITHSTAND TEST PRESSURE FROM SYSTEM DURING TEST. CONSULT GOVERNING CODES FOR SPECIAL SYSTEM REQUIREMENTS.
B. TEST PIPING BEFORE BEING PERMANENTLY ENCLOSED.
C. OBTAIN CERTIFICATES OF APPROVAL, ACCEPTANCE, COMPLIANCE WITH REGULATIONS OF AGENCIES HAVING JURISDICTION. SUBMIT TO OWNER.
D. REFRIGERANT PIPING SYSTEM TEST: TEST WITH NITROGEN AT 300 PSIG ON HIGH SIDE OF SYSTEM AND AT 150 PSIG ON LOW SIDE. MAINTAIN PRESSURE FOR 4 HOURS. AFTER TEST, EVACUATE PIPING WITH VACUUM PUMP FOR MINIMUM 24 HOURS OR UNTIL SYSTEM HAS BEEN completely EVACUATED.

SUPPORTS, ANCHORS, SEALS

WORK INCLUDED:
1. DUCT HANGERS AND SUPPORTS.
2. EQUIPMENT BASES AND SUPPORTS.
3. FLASHING FOR MECHANICAL EQUIPMENT.
4. SLEEVING FOR MECHANICAL EQUIPMENT.

REFERENCE STANDARDS:
1. PIPE SUPPORTS: ANSI B31.1, POWER PIPING.
2. DUCT HANGERS AND REINFORCEMENT: SMACNA DUCT MANUALS.
3. FIRE BARRIER PRODUCTS: ASTM E119-00e, ASTM E814-02, ASTM 84-04, AND UL 1479.

SUBMITTALS:
FURNISH MANUFACTURER'S SUBMITTAL DATA FOR PREFABRICATED EQUIPMENT SUPPORTS.

DUCT HANGERS AND SUPPORTS:
1. HANGERS: GALVANIZED STEEL BAND, ROLLED ANGLE, OR UNISTRUT TYPE MEMBERS WITH THREADED RODS.
2. WALL SUPPORTS: GALVANIZED STEEL BAND IRON OR FABRICATED ANGLE BRACKET.
3. VERTICAL SUPPORT AT FLOOR: ROLLED ANGLE.
4. RIGID ROUND DUCTWORK: 1" WIDE GALVANIZED STEEL STRAPS; QUANTITY, SPACING, AND GAUGE PER SMACNA STANDARDS.
5. FLEXIBLE DUCTWORK: 1" WIDE GALVANIZED STEEL STRAPS. MAXIMUM ALLOWABLE SAG 1/2" PER FOOT.
6. SPACING AND GAUGE OF HANGERS PER INTERNATIONAL MECHANICAL CODE, SMACNA STANDARDS, AND DUCT MANUFACTURER'S RECOMMENDATIONS.
7. PROVIDE A MINIMUM OF TWO FASTENERS INTO DUCT AND INTO TOP ATTACHMENT FOR ALL DUCTS WITH LONG SIDE EXCEEDING 18".

PREFABRICATED EQUIPMENT SUPPORTS:
1. EQUIPMENT BASES
   A. SOLID TOP EQUIPMENT BASE WITH INTEGRAL DUCT CURB AND STEPPED CANT TO MATCH ROOF INSULATION. PITCH BASE TO MATCH ROOF PITCH, PROVIDE LEVEL INSTALLATION.

EXECUTION/INSTALLATION:
1. INSERTS
   A. USE INSERTS FOR SUSPENDING HANGERS FROM REINFORCED CONCRETE SLABS AND SIDES OF REINFORCED CONCRETE BEAMS.
   B. SET INSERTS IN POSITION IN ADVANCE OF CONCRETE WORK. PROVIDE REINFORCEMENT ROD IN CONCRETE FOR INSERTS CARRYING PIPE OVER 4" OR DUCTS OVER 60" WIDE.
   C. WHERE CONCRETE SLABS FORM FINISHED CEILING, FINISH INSERTS FLUSH WITH SLAB SURFACE.
   D. WHERE INSERTS ARE OMITTED, DRILL THROUGH CONCRETE SLAB FROM BELOW AND PROVIDE ROD WITH RECESSED SQUARE STEEL PLATE AND NUT ABOVE SLAB. OBTAIN WRITTEN PERMISSION OF LOCATION AND PROCEDURE FROM STRUCTURAL ENGINEER PRIOR TO COMMENCING WORK.
2. ANCHORS
   A. USE ANCHORS FOR SUSPENDING HANGERS FROM REINFORCED CONCRETE SLABS, AND SIDES OF REINFORCED CONCRETE BEAMS.
   B. REVIEW ANCHOR LOCATIONS, DEPTHS WITH ARCHITECT AND STRUCTURAL ENGINEER BEFORE INSTALLATION.
   C. INSTALL PER MANUFACTURER'S DESIGN CRITERIA, INSTALLATION INSTRUCTIONS.

DUCT HANGERS AND SUPPORTS:
1. SUPPORT DUCTWORK IN ACCORDANCE WITH INTERNATIONAL MECHANICAL CODE, SMACNA, AND ASHRAE REQUIREMENTS AND RECOMMENDATIONS.

EQUIPMENT BASES:
1. CONCRETE BASES FOR EQUIPMENT WILL BE PROVIDED BY OTHERS ONLY IF SHOWN IN ARCHITECTURAL OR STRUCTURAL DRAWINGS. ALL OTHER BASES SHALL BE PROVIDED BY THIS CONTRACTOR.
2. BASES SHALL BE 4" THICK MINIMUM, EXTEND 6" BEYOND MACHINERY BEDPLATES. THICKEN CONCRETE AT ANCHOR BOLTS IF IMBEDMENT EXCEEDS 2".
3. SIZE AND LOCATE ALL BASES. FURNISH ALL REQUIRED ANCHOR BOLTS AND SLEEVES.
4. SECURE EQUIPMENT OR VIBRATION ISOLATION DEVICES FOR EQUIPMENT TO BASES WITH ANCHOR BOLTS. ANCHOR BOLTS SHALL BE PROVIDED BY EQUIPMENT MANUFACTURER OR SPECIFIED BY EQUIPMENT MANUFACTURER AND SUPPLIED BY CONTRACTOR. BOLTS SHALL BE SECURELY IMBEDDED IN THE CONCRETE BASE. GROUT MACHINERY UNDER ENTIRE BEARING SURFACE UNLESS ISOLATED FOR VIBRATION. AFTER GROUT HAS SET, REMOVE ALL WEDGES, SHIMS, JACK BOLTS. FILL SPACE WITH NONSHRINKING GROUT. PROVIDE LEAD WASHERS AT EQUIPMENT ANCHOR BOLTS.
5. FABRICATE EQUIPMENT SUPPORTS OF STRUCTURAL STEEL, MEMBERS OR STEEL PIPE AND FITTINGS. BRACE AND FASTEN WITH FLANGES BOLTED TO STRUCTURE.

FLASHING AND SAFING:
1. WHERE EXPOSED PIPING AND DUCTWORK PASSES THROUGH WALLS, FLOORS, ROOFS, PROVIDE CHROME PLATED OR STAINLESS STEEL ESCUTCHEON FOR PIPING AND A MINIMUM 26 GAUGE GALVANIZED ANGLE FROM FOR DUCTWORK. ROLL FRAME TO MATCH THE DIAMETER OF ROUND DUCT.
2. PROVIDE SOUND RATED FLASHING AROUND DUCTS AND PIPES PASSING FROM EQUIPMENT ROOMS, INSTALLED PER MANUFACTURER'S DATA FOR SOUND CONTROL TO MEET THE ATTENUATION SPECIFIED ON ARCHITECTURAL DRAWINGS FOR THE DESIGNATED WALL.
3. FLASH AND COUNTERFLASH WHERE MECHANICAL EQUIPMENT PASSES THROUGH WEATHER-OR WATER-PROOF WALLS, FLOORS, ROOFS.

SLEEVES:
1. PROVIDE FRAMED 18 GAUGE GALVANIZED SHEET METAL SLEEVES FOR DUCTWORK. UNLESS OTHERWISE INDICATED, SLEEVES SHALL BE OF SIZE TO PROVIDE PROM 1/4" TO 1" CLEARANCE BETWEEN BARE PIPE OR DUCT AND SLEEVE OR BETWEEN INSULATION JACKET AND SLEEVE. WHERE PIPE OR DUCT PASSES THROUGH CONCRETE FLOOR, EXTEND SLEEVE MINIMUM 1" ABOVE FINISHED FLOOR.
2. SLEEVES IN BEARING WALLS, WATERPROOF MEMBRANE FLOORS, WET AREAS SHALL BE STEEL PIPE OR CAST IRON PIPE FOR SMALL ROUND DUCTS AND PIPES. 16 GAUGE GALVANIZED STEEL METAL FOR DUCTS. SLEEVES IN NON-BEARING WALLS, FLOORS, CEILINGS SHALL BE STEEL PIPE, CAST IRON PIPE, OR GALVANIZED SHEET METAL WITH LOCK-TYPE LONGITUDINAL SEAM.
3. WHERE DUCTS PENETRATE BEARING WALS (EXCLUDING FOUNDATIONS), FIRE RATED WALLS, PARTITIONS, FLOORS, PACK AND SEAL ENTIRE SPACE BETWEEN DUCT AND SLEEVE WITH DOW CORNING 3-6548 SILICONE RTV FOAM. OR 1" MINIMUM THICKNESS OF 3M FIRE BARRIER, CP-25 CAULK, OR 303 PUTTY ON EACH SIDE OF OPENING.
4. WHERE DUCT PENETRATIONS OCCUR IN NON-FIRE RATED FLOORS OR WALLS, PACK SPACE BETWEEN DUCT AND SLEEVE OR INSULATION INSERT AND SLEEVE ON EACH END WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL.

MECHANICAL IDENTIFICATION

EQUIPMENT IDENTIFICATION
1. IDENTIFY EQUIPMENT WITH LAMINATED BLACK PLASTIC TAG ENGRAVED WHITE CORE LETTERING. TAG SHALL INDICATE EQUIPMENT DUTY SUCH AS "FURNACE", "CONDENSING UNIT", AND EQUIPMENT DESIGNATION AS SHOWN ON DRAWINGS. TAGS SHALL HAVE MINIMUM THICKNESS OF 1/16" MINIMUM SIZE OF 1-1/2" X 4". WITH MOUNTING HOLES. SECURE TAGS TO EQUIPMENT BY MEANS OF SCREWS, BOLTS, CHAINS.
2. IDENTIFY EACH THERMOSTAT BY MEANS OF GUN TAG INDICATING CORRESPONDING UNIT WHICH IT CONTROLS. LOCATE TAG INSIDE THE INSTRUMENT COVER.

INSULATION

1. FURNISH AND INSTALL INSULATION FOR ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK SYSTEMS. INSULATION THICKNESS AND R-VALUE PER THE IECC. LINE LOW PRESSURE RECTANGULAR DUCTWORK. INSULATE OUTSIDE AIR DUCTS ON THE OUTSIDE. PROVIDE FOR 1" DUCT LINER FOR RECTANGULAR EXHAUST DUCTS FOR 15 FEET STARTING AT FAN.
2. FURNISH AND INSTALL INSULATION FOR ALL REFRIGERANT PIPING SYSTEMS. REFRIGERANT LIQUID AND INDOOR REFRIGERATED SUCTION PIPING, ALL SIZES: 1" THICKNESS. REFRIGERANT PIPING OUTDOORS, ALL SIZES: 3/4" THICKNESS.
3. MECHANICAL PIPING INSULATION SCHEDULE:

SERVICE	PIPE SIZE	THICKNESS	CONDUCTIVITY K-VALUE Btu.in./(hFt²°F)
CHILLED WATER	1-1/4" AND SMALLER	1/2"	0.21-0.27
	1-1/2" AND LARGER	1"	0.21-0.27
HEATING WATER 105-140	1-1/4" AND SMALLER	1"	0.21-0.28
	1-1/2" AND LARGER	1-1/2"	0.21-0.28
HEATING WATER 141-200	1-1/4" AND SMALLER	1-1/2"	0.25-0.29
	1-1/2" AND LARGER	2"	0.25-0.29

4. MECHANICAL DUCT INSULATION SCHEDULE:

SERVICE	WRAP	LINER
RECTANGULAR SUPPLY DUCTS OUTSIDE OR UNCONDITIONED SPACE	3" (R-12)	3" (R-12)
RECTANGULAR SUPPLY DUCTS IN EXTERIOR WALLS*	2" (R-6)	1-1/2" (R-6)
ROUND SUPPLY DUCTS IN EXTERIOR WALLS*	2" (R-6)	1-1/2" (R-6)

* WHERE THE DESIGN TEMPERATURE DIFFERENCE BETWEEN THE INTERIOR AND EXTERIOR OF THE DUCT IS NOT GREATER THAN 15 DEG F.

DUCTWORK

A. FLEXIBLE AIR DUCT
   1. LISTED UNDER UL-181 STANDARDS AS CLASS I AIR DUCT MATERIAL. MAXIMUM OPERATING PRESSURE 6" W.C., WORKING VELOCITY 4,000 FPM. MATERIAL SHALL BE APPROVED BY AUTHORITY HAVING JURISDICTION.
   2. INSULATED: ALUMINUM LAMINATE INNER CORE GALVANIZED STEEL HELIX, 10" W.G., 1" THICK 3/4 LB. DENSITY FIBERGLASS INSULATION (MINIMUM R-6), METAL OR APPROVED METALLIZED POLYESTER OR SUPER-RESISTANT FOIL SCRIM OUTER JACKET (MAXIMUM VAPOR TRANSMISSION RATE 0.05 ERMS).
B. SPIN-IN FITTING: FLARED INLET; MANUAL VOLUME DAMPER AND REGULATOR WHERE NOTED.
C. FABRICATION
   1. DUCT PRESSURE AND LEAKAGE CLASSIFICATIONS
   2. FABRICATE ALL DUCTWORK PER SMACNA STANDARDS, THE INTERNATIONAL MECHANICAL CODE (IMC) AND THE REQUIREMENTS OF THE FOLLOWING PRESSURE CLASSIFICATIONS TABLE.

DUCTWORK PRESSURE CHART		
DUCTWORK		MIN. DUCT PRESSURE CLASSIFICATION (W.C.)
VARIABLE AIR VOLUME DUCTWORK	FROM FAN OUTLET TO TERMINAL UNIT	4"
SUPPLY DUCTWORK	FROM FAN TO OUTLET	2"
VARIABLE AIR VOLUME DUCTWORK	FROM TERMINAL UNIT TO AIR DEVICES	1"
RETURN DUCTWORK		-1"
EXHAUST DUCTWORK	FROM AIR DEVICES TO FAN INLET	-1"
EXHAUST DUCTWORK	FROM FAN OUTLET TO DISCHARGE POINT	1/2"

D. MAKE EQUIVALENT DUCT SIZE CHANGES FROM ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS. NO VARIATION OF DUCT CONFIGURATION OR SIZES PERMITTED EXCEPT BY WRITTEN PERMISSION.
E. CROSS BREAK OR BEAD ALL DUCTS IN EXCESS OF 18".
F. LAP METAL DUCTS IN DIRECTION OF AIR FLOW. HAMMER DOWN EDGES AND SLIPS TO LEAVE SMOOTH DUCT INTERIOR. PROVIDE CORNER CLOSURES.
G. BRANCH CONNECTIONS IN RECTANGULAR DUCTWORK SHALL BE 45 DEGREE ENTRY TYPE WITH 4" MINIMUM CONNECTOR LENGTH.
H. CONSTRUCT TEES, BENDS, ELBOWS WITH MINIMUM CENTER LINE RADIUS 1-1/2" TIMES WIDTH OF DUCT. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS USED, PROVIDE TURNING VANES.
I. INCREASE DUCT SIZES MAXIMUM 15 DEGREE DIVERGENCE. MAXIMUM DIVERGENCE: 20 DEGREE UPSTREAM OF EQUIPMENT, 30 DEGREE DOWNSTREAM.
J. RIGIDLY CONSTRUCT METAL DUCTS WITH JOINTS MECHANICALLY TIGHT, AIRTIGHT, BRACED AND STIFFENED.
K. SEAL ALL DUCTWORK (USING LIQUIDS, MASTICS, OR GASKETS, AS APPLICABLE) PER THE INTERNATIONAL MECHANICAL CODE (IMC).
L. JOINTS IN RECTANGULAR DUCTWORK MAY BE MADE WITH DUCTMATE SYSTEM, NEXUS 4 BOLT DUCT CONNECTION SYSTEM, OR TDC.
M. WORK INCLUDES ACCESS DOOR, BALANCING DAMPER, FLEXIBLE CONNECTION AND TURNING VANES.
N. DUCT ACCESS DOORS SHALL BE UL LABLED. FABRICATE PER ASHRAE AND SMACNA. FURNISH MANUFACTURER'S SUBMITTAL DATA FOR ACCESS DOORS, BALANCING DAMPERS, FLEXIBLE CONNECTIONS AND TURNING VANES.
O. DUCT ACCESS DOOR SHALL RATED FOR SAME STATIC PRESSURE AS DUCTWORK AND SHALL BE FRAMED, HINGED, GASKETED TYPE WITH SASH LOCKS; FULLY INSULATED.
P. PROVIDE ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, FIRE OR COMBINATION FIRE/SMOKE DAMPERS, AND ELSEWHERE AS INDICATED. REVIEW LOCATION WITH ARCHITECT PRIOR TO FABRICATION. PROVIDE 6" X 6" QUICK OPENING ACCESS DOORS FOR INSPECTION AT BALANCING DAMPERS AND TURNING VANES.
Q. VOLUME DAMPER SHALL BE MULTIPLE OPPOSED BLADE TYPE, CLOSE FITTED DUCTS, SUITABLE FOR STATIC PRESSURE IN DUCTWORK AT INSTALLED LOCATION. DAMPERS 12" OR LESS IN HEIGHT SHALL HAVE SINGLE BLADE. DAMPER BLADES SHALL BE STAMPED 16 GAUGE GALVANIZED STEEL, MAXIMUM LENGTH 48". SHAFT SPACING SHALL NOT EXCEED 9". BEARINGS SHALL BE MOLDED SYNTHETIC. POSITIONING DEVICE SHALL BE LOCKING LEVER AND QUADRANT TYPE, LEVER PARALLEL TO BLADE. LOCKED TO QUADRANT WITH THUMBSCREW OR WING NUT, END OF SHAFT NOTCHED PARALLEL TO DAMPER POSITION. CONSTRUCT DAMPER BLADES FOR MEDIUM AND HIGH PRESSURE SYSTEMS WITH END BEARINGS OR OTHER SEALING DEVICE. SUPPLY LOCKING TYPE HANDLES.

DUCTWORK (CONTINUED)

R. NOT ALL BALANCING DAMPERS REQUIRED FOR THE BALANCING WORK ARE SHOWN ON THE DRAWINGS PROVIDE BALANCING DAMPERS AT POINTS ON LOW PRESSURE SUPPLY, RETURN, EXHAUST SYSTEMS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AND AS REQUIRED FOR AIR BALANCING. COORDINATE WITH BALANCING CONTRACTOR AND PROVIDE ANY ADDITIONAL BALANCING DAMPERS REQUIRED. INSTALL DAMPERS IN ACCESSIBLE LOCATION.
S. FLEXIBLE CONNECTION SHALL BE NEOPRENE COATED, 30 OZ. FIBERGLASS FABRIC, 6" WIDE TIGHTLY CRIMPED INTO METAL EDGING STRIP, ATTACHED TO DUCTING AND EQUIPMENT BY SCREWS OR BOLTS AT 6" INTERVALS. PLENUM RATED WHERE REQUIRED. FLEXIBLE CONNECTIONS EXPOSED TO WEATHER SHALL BE COATED WITH DEWPOINT HYPALON.
T. TURNING VANES SHALL BE INSTALLED IN SUPPLY, RETURN, AND EXHAUST MITERED ELBOWS. THEY SHALL BE FORMED SINGLE WALL (36" MAXIMUM LENGTH) OR DOUBLE WALL (GREATER THAN 36" LENGTH) GALVANIZED STEEL BLADES. FOR METAL DUCTWORK OTHER THAN STEEL USE SAME TYPE MATERIAL AS DUCT. TURNING VANES INSTALLED IN UNEQUAL ELBOWS: ADJUSTABLE TYPE THAT REMAINS ALIGNED TO AIRSTREAM IN ALL POSITIONS.
U. ALL DUCTWORK SHALL BE GALVANIZED STEEL METAL WITH INSULATION PER SPECIFICATIONS. FLEX DUCT SHALL BE UL-181 LISTED, CLASS 1, FACTORY PRE-INSULATED 1-1/2", WITH INNER LINER AND STEEL HELIX. FLEX DUCTS SHALL BE MINIMUM 5'-0" LONG.
V. PAINT ALL DUCTWORK ABOVE CEILING RETURN GRILLES FLAT BLACK.

TEMPERATURE CONTROL SYSTEMS

1. ALL CONTROLS TO BE PROVIDED BY THE EQUIPMENT MANUFACTURER OR AN INDEPENDENT CONTROLS CONTRACTOR. MATCH EXISTING TEMPERATURE CONTROL MANUFACTURER.
2. PROVIDE ALL CONTROLS FOR A COMPLETE OPERATIONAL SYSTEM. PROVIDE ALL INTERLOCKS TO EQUIPMENT AS INDICATED OR AS REQUIRED FOR PROPER OPERATION OF THE EQUIPMENT.
3. CONCEAL WIRING WITHIN BUILDING CONSTRUCTION EXCEPT IN MECHANICAL ROOMS AND AREAS WHERE OTHER CONDUIT AND PIPING ARE EXPOSED. INSTALL CONTROL WIRING SYSTEM IN CONDUIT WHERE EXPOSED OR SUBJECT TO DAMAGE. THE USE OF WIREMOLD SHALL NOT BE PERMITTED.
4. ALL CONTROL WIRING SHALL BE INSTALLED IN A NEAT AND PROFESSIONAL MANNER. PARALLEL TO BUILDING LINES WITH ADEQUATE SUPPORT. BOTH CONDUIT AND PLENUM WIRING SHALL BE SUPPORTED FROM OR ANCHORED TO STRUCTURAL MEMBERS. CONDUIT OR PLENUM WIRING SUPPORTED FROM OR ANCHORED TO PIPING, DUCT SUPPORTS, AND CEILING SUSPENSION SYSTEM, OR THE ELECTRICAL CONDUITS IS NOT ACCEPTABLE.
5. U.L. PLENUM RATED CABLE SHALL BE ALLOWABLE IN AIR PLENUMS AS APPROVED BY LOCAL CODES.
6. INSTALL SYSTEMS, COMPONENTS AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
7. TIME CLOCKS REQUIRED TO COMPLETE THE TEMPERATURE CONTROL SEQUENCE SHALL BE 7-DAY, 24-HOUR ELECTRONIC TYPE. EQUIP TIME CLOCKS WITH BATTERY BACKUP TO MAINTAIN PROGRAMMING IN CASE OF POWER FAILURE.
8. INSTRUCT OWNER'S PERSONNEL IN OPERATION AND MAINTENANCE OF ELECTRIC CONTROL SYSTEMS.

TESTING AND BALANCING

1. WORK INCLUDES TESTING AND BALANCING OF AIR AND WATER DISTRIBUTION SYSTEMS A

VENTILATION SCHEDULE

ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION 2021 IMC, TABLE 403.3		AREA OF OCCUPANCY (SQ.FT)	OCCUPANCY LOAD (PER 1,000 SF)	NUMBER OF PEOPLE	OUTDOOR AIR PER OCCUPANCY (CFM PER PERSON)	OUTDOOR AIR PER SQ. FT. (CFM)	EXHAUST RATE (CFM)	ZONE AIR DISTRIBUTION EFFECTIVENESS	OUTDOOR AIR REQUIRED (CFM)	PRIMARY AIRFLOW (CFM)	PRIMARY OUTDOOR AIR FRACTION, Zp
1A	ROOM 1A	OFFICES	OFFICE SPACES	180	5	1	5	0.06	---	0.8	20	225	0.09
2	ROOM 2	OFFICES	OFFICE SPACES	120	5	1	5	0.06	---	0.8	16	225	0.07
3.1	ROOM 3.1	OFFICES	OFFICE SPACES	120	5	1	5	0.06	---	0.8	16	150	0.11
4	ROOM 4	OFFICES	OFFICE SPACES	790	5	8	5	0.06	---	0.8	110	750	0.15
5A	ROOM 5A	PUBLIC SPACES	CORRIDORS	170	---	---	---	0.06	---	0.8	13	100	0.13
6A	ROOM 6a/12/13	STORAGE	WAREHOUSES	220	---	---	---	0.06	---	0.8	17	250	0.07
7	ROOM 7	OFFICES	OFFICE SPACES	180	5	1	5	0.06	---	0.8	20	250	0.08
8B	ROOM 8B	OFFICES	CONFERENCE ROOMS	215	50	11	5	0.06	---	0.8	85	450	0.19
9	ROOM 9	STORAGE	WAREHOUSES	35	---	---	---	0.06	---	0.8	3	50	0.06
10A	ROOM 10A	OFFICES	RECEPTION AREAS	70	30	3	5	0.06	---	0.8	24	150	0.16
11	ROOM 11	STORAGE	WAREHOUSES	135	---	---	---	0.06	---	0.8	11	150	0.07
15	ROOM 15	OFFICES	OFFICE SPACES	155	5	4	5	0.06	---	0.8	37	200	0.19
19A	ROOM 19A	PUBLIC SPACES	TOILET ROOMS	95	---	---	---	---	50/70	0.8	---	50	---

NOTES

1. SCHEDULE BASED ON INTERNATIONAL MECHANICAL CODE, 2021 EDITION, CHAPTER 4 VENTILATION.
2. ZONE AIR DISTRIBUTION EFFECTIVENESS DETERMINED USING TABLE 403.3.1.2.
3. SYSTEM VENTILATION EFFICIENCY DETERMINED USING TABLE 403.3.2.3.2. INTERPOLATION UTILIZED.
4. OCCUPANT DIVERSITY ASSUMED TO BE NEGLIGIBLE.
5. OA REQUIRED IS THE SUM OF THE CALCULATED OUTDOOR AIR DIVIDED BY THE VENTILATION EFFICIENCY, EV.

SUMMARY

OA REQUIRED	388	CFM	MAX Zp	0.19	TOTAL AREA, (SQ FT)	2,485
SA PROVIDED	3,000	CFM	EV	0.96	CFM PER SQ FT	1.2
OA PERCENTAGE	20	%				
OA PROVIDED	600	CFM				

THE AMOUNT OF OUTSIDE AIR PROVIDED EXCEEDS THE CODE REQUIRED MINIMUM.

ZONE DAMPER SCHEDULE

REMARKS:

1. ACCEPTABLE MANUFACTURERS INCLUDE: HONEYWELL, YOUNG, RUSKIN, TITUS, PRICE.
2. PROVIDE WITH YOUNG T-720 DIGITAL DISPLAY THERMOSTAT.
3. PROVIDE WITH SUPPLY AIR TEMPERATURE SENSOR
4. PROVIDE WITH BELIMO LMB24 24V ACTUATOR.
5. PROVIDE WITH YR MODEL 3035 TRANSFORMER.
6. INTERLOCK DAMPER WITH ZD-2A INTERFACE BOARD TO OPERATE AS DRONE.

ZONE DAMPER SEQUENCE OF OPERATION:

1. THE SUPPLY TEMPERATURE SENSOR SHALL DETERMINE IF WARM OR COLD AIR IS BEING DELIVERED TO THE DAMPER. THERMOSTAT SHALL DISPLAY EITHER HEATING OR COOLING MODE ACCORDINGLY.
2. ZONE DAMPER SHALL OPEN, CLOSE, OR MODULATE AS NEEDED TO MAINTAIN SPACE TEMPERATURE SETPOINT.

SYMBOL	MANUFACTURER	ROOM SERVED	MODEL	INLET SIZE	NORMAL POSITION NO/NC	MAX PRIMARY CFM @ 5,300'	MIN PRIMARY CFM @ 5,300'	REMARKS
ZD-1A	YOUNG	15	4075-IF	8	NO	150 CFM	50 CFM	1, 2, 3, 4, 5
ZD-1B	YOUNG	3.1	4075-IF	8	NO	150 CFM	50 CFM	1, 2, 3, 4, 5
ZD-2A	YOUNG	8B	4075-IF	8	NO	225 CFM	65 CFM	1, 2, 3, 4, 5
ZD-2B	YOUNG	8B	4075-IF	8	NO	225 CFM	65 CFM	1, 4, 6
ZD-3A	YOUNG	7	4075-IF	8	NO	250 CFM	75 CFM	1, 2, 3, 4, 5

SPLIT SYSTEM FAN COIL SCHEDULE

REMARKS:

1. ACCEPTABLE MANUFACTURERS ARE: VERTIV, MITSUBISHI, CARRIER, DAIKIN, LIEBERT, STULZ, SAMSUNG, TRANE, YORK.
2. UNIT SHALL BE DESIGNED TO OPERATE ON R-32 REFRIGERANT.
3. INDOOR AND OUTDOOR UNIT MUST BE PROVIDED BY THE SAME MANUFACTURER.
4. EXTERNAL STATIC PRESSURE DOES NOT INCLUDE LOSSES FOR UNIT CASING, FILTERS, OR COILS.
5. PROVIDE WITH MANUFACTURER'S CONDENSATE PUMP.
6. UNIT CFM/COIL CAPACITIES BASED ON HIGH SPEED OPERATION.
7. PROVIDE WITH REMOTE WALL MOUNTED PROGRAMMABLE THERMOSTAT.
8. PROVIDE FACTORY PRE-INSULATED REFRIGERANT PIPING, FIELD COORDINATE REQUIRED LENGTH.
9. PROVIDE DRAIN PAN, AUXILIARY DRAIN, AND/OR WATER LEVEL DETECTION TO SHUT OFF FAN COIL DURING OVERFLOW.
10. INDOOR UNIT POWERED BY OUTDOOR UNIT.
11. PROVIDE COMMUNICATION FILTER FOR RJ45 LOW VOLTAGE CONNECTOR BETWEEN INDOOR AND OUTDOOR UNIT. INSTALL IN ROOM 6A.
12. PROVIDE EQUIPMENT WITH NO WI-FI OR BLUETOOTH CAPABILITIES. IF STANDARD, CONTRACTOR TO DISABLE OR REMOVE DURING INSTALL.

SPECIFICATIONS:

A. UNIT CASING SHALL BE HEAVY DUTY GALVANIZED OR PAINTED STEEL, FULLY INSULATED WITH 1" THICK, 3/4LB. DENSITY FIBERGLASS THERMAL/ACOUSTICAL INSULATION, REMOVABLE PANELS FOR ACCESS TO UNIT INTERIOR. UNIT SHALL HAVE A DRAIN PAN THAT IS POSITIVELY SLOPED IN EVERY PLANE AND INSULATED WITH CLOSED CELL INSULATION.
B. FANS: DOUBLE WIDTH, DOUBLE INLET CENTRIFUGAL TYPE. FAN WHEELS AND HOUSING ARE CORROSION RESISTANT FAN HOUSING CONSTRUCTION IS FORMED SHEET METAL.
C. MOTORS: ALL PERMANENT SPLIT CAPACITOR MOTORS ARE RUN TESTED IN ASSEMBLED UNITS. ALL MOTORS TO HAVE INTEGRAL THERMAL OVERLOAD PROTECTION WITH A MAXIMUM OPERATING TEMPERATURE OF 104 F AND ARE PERMANENTLY LUBRICATED. MOTORS TO BE MOUNTED ON UNIVERSAL MOTOR BASE WITH ADJUSTABLE BELT DRIVE AND BELT GUARD. PROVIDE STARTER/DISCONNECT PACKAGE.
D. ELECTRICAL: PROVIDE FACTORY MOUNTED AND WIRED NEMA 1 RATED COMBINATION STARTER/DISCONNECT PACKAGE INCLUDING FUSED DISCONNECT SWITCH, HAND-OFF-AUTO SELECTOR SWITCH, TWO NORMALLY OPEN AUXILIARY CONTACTS, CONTROL POWER TRANSFORMER. FUSES SHALL BE FACTORY SELECTED FOR THE EXACT MOTOR USED IN FAN COIL UNIT.
E. COILS: ALL COILS SHALL BE REMOVABLE FROM UNIT. UNIT WATER COILS SHALL BE BURST TESTED AT 450 PSIG AND LEAK TESTED AT 100 PSIG. DESIGNED FOR 300 PSIG MAXIMUM WORKING PRESSURE AND 200 F MAXIMUM OPERATING TEMPERATURE. REFRIGERANT COILS SHALL BE DESIGNED FOR 250 PSIG MAXIMUM WORKING PRESSURE. PROVIDE MINIMUM 6" SPACE BETWEEN COILS WITH ACCESS FOR INSTALLATION AND SERVICING OF CONTROLS. COIL INSULATION AND ADHESIVE SHALL MEET NFPA-90A REQUIREMENTS FOR FLAME SPREAD AND SMOKE GENERATION.
F. REFRIGERANT COILS: 1/2" OR 5/8" O.D. COPPER TUBES MECHANICALLY BONDED TO ALUMINUM FINS, COPPER HEADERS AND CONNECTIONS, LOW PRESSURE DROP VENTURI TYPE REFRIGERANT DISTRIBUTOR (WITH SIDE INLET PORT FOR HOT GAS BYPASS WHERE APPLICABLE), SHIPPED WITH HOLDING CHARGE.
G. PIPING PACKAGE: ALL PIPING PACKAGES SHALL BE BURST TESTED AT 450 PSIG AND LEAK TESTED AT 100 PSIG. THE MAXIMUM WORKING PRESSURE OF THE NTERCONNECTING PIPING SHALL BE 300 PSIG. INSULATION OF THE PIPING PACKAGE IS NOT REQUIRED.
H. FILTERS: SHALL BE CONCEALED FROM SIGHT AND EASILY REMOVABLE. FILTERS SHALL BE EITHER 1" THROWAWAY OR 1" PLEATED MEDIA THROWAWAY.
I. CONTROLS: UNIT SHALL BE EQUIPPED WITH 24V TRANSFORMER, MOTOR CONTACTOR AND TERMINAL STRIP FOR CONNECTION TO FIELD OR FACTORY PROVIDED CONTROLLER.

SEQUENCE OF OPERATION:

A. COOLING CYCLE: UPON A RISE IN SPACE TEMPERATURE ABOVE SPACE TEMPERATURE SETPOINT (ADJ.), THE THERMOSTAT SHALL CYCLE THE FAN AND REFRIGERATION CYCLE TO MAINTAIN SPACE TEMPERATURE SETPOINT.
B. PROVIDE CONDENSATE SENSOR SWITCH IN SECONDARY DRAIN PORT. WIRE TO DE-ENERGIZE UNIT UPON DETECTION OF WATER.

SYMBOL	MANUFACTURER	MODEL	TYPE	SERVICE	FAN DATA			COOLING CAPACITY					ELECTRICAL DATA			WEIGHT (LBS)	REMARKS
					CFM TOTAL @1,400'	ESP IN W.C.	MOTOR WATTS	TOTAL CAPACITY (MBH)	EAT DB (F)	EAT WB (F)	LAT DB (F)	LAT WB (F)	VOLTAGE	PHASE	MCA (A)		
AC-1	VERITIV	WLM110A	HIGH WALL	ROOM 6A	1825	0.10	56	37.5	75	61	55	54	208	1	4	150	1 - 12

FAN SCHEDULE

REMARKS:

1. ACCEPTABLE MANUFACTURERS INCLUDE: ACME, BROAN, CARNES, COOK, GREENHECK, PANASONIC, PENN, SOLER & PALAU, AND TWIN CITY.
2. PROVIDE FAN WITH UNIT MOUNTED SPEED CONTROL SWITCH.
3. PROVIDE WITH DISCHARGE DUCT COLLAR.

SPECIFICATION (CEILING MOUNTED):

A. HOUSING: ACOUSTICALLY INSULATED STEEL.
B. FAN WHEEL: CENTRIFUGAL TYPE. FAN WHEEL AND MOTOR ASSEMBLE: MOUNT ON VIBRATION ISOLATORS; TOTALLY REMOVABLE FROM HOUSING.
C. FAN SHALL BE COMPLETE WITH INLET GRILLE, GRAVITY BACKDRAFT DAMPER, VARIABLE SPEED CONTROL.

SEQUENCE OF OPERATION (SEPARATE SWITCH):

A. FAN TO BE INTERLOCKED WITH A SEPARATE WALL SWITCH.

SYMBOL	MANUFACTURER	MODEL	FAN TYPE	SERVICE	CFM @S.L.	S.P. IN W.C. @ 1,400'	ELECTRICAL DATA				DRIVE TYPE	DAMPER TYPE	SONES	WEIGHT (LBS)	HEIGHT (INCLUDING CURB)	REMARKS
							VOLTAGE	PHASE	RPM	WATTS						
EF-1	GREENHECK	SP-B110	CEILING	RESTROOM EXHAUST	100	0.25	120	1	950	8.0 W	DIRECT	BACKDRAFT	2	15.0	7	1, 2, 3

AIR DEVICE SCHEDULE

NOTES:

1. EQUIPMENT SCHEDULE BASED ON PRICE. ACCEPTABLE MANUFACTURERS: CARNES, KRUGER, METAL-AIRE, PRICE, TITUS, NAILOR
2. MAX NC RATING 30, PROVIDE NECESSARY FRAME AND TRIM FOR CEILING APPLICATION.

SYMBOL	TYPE	MANUFACTURER	MODEL	FRAME	MATERIAL	FINISH	DAMPER TYPE	ACCESSORIES	REMARKS
CD-1	CEILING DIFFUSER	PRICE	SCD	LAY-IN	STEEL	WHITE POWDER COAT	OBD	SQUARE TO ROUND ADAPTER	SQUARE CONE W/ REMOVABLE CORE; 4-WAY PATTERN UNLESS OTHERWISE SHOWN; 24"x24" FACE, NECK SIZE PER PLANS
CD-2	CEILING DIFFUSER	PRICE	SCD	SURFACE	STEEL	WHITE POWDER COAT	OBD	SQUARE TO ROUND ADAPTER	SQUARE CONE W/ REMOVABLE CORE; 4-WAY PATTERN UNLESS OTHERWISE SHOWN; 12"x12" FACE, NECK SIZE PER PLANS
RG-1	RETURN GRILLE	PRICE	PDDR	LAY-IN	STEEL	WHITE POWDER COAT	NONE	LIGHT SHIELD	24"x24" FACE SIZE.
SG-1	SUPPLY GRILLE	PRICE	520	SURFACE	STEEL	WHITE POWDER COAT	NONE	NONE	DOUBLE DEFLECTION, 3/4" SPACING, SEE PLANS FOR GRILLE SIZE
TG-1	TRANSFER GRILLE	PRICE	530	SURFACE	STEEL	WHITE POWDER COAT	NONE	NONE	45 DEGREE DEFLECTION, 3/4" SPACING. SEE PLANS FOR FACE SIZE

SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE

REMARKS:

1. ACCEPTABLE MANUFACTURERS ARE: VERTIV, MITSUBISHI, CARRIER, DAIKIN, SAMSUNG, TRANE, YORK.
2. UNIT SHALL BE DESIGNED TO OPERATE ON R-32 REFRIGERANT.
3. INDOOR AND OUTDOOR UNIT MUST BE PROVIDED BY THE SAME MANUFACTURER.
4. AUTOMATIC RESET TIMER TO PREVENT RAPID CYCLING OF COMPRESSOR.
5. PROVIDE COMPRESSOR HIGH/LOW CUT-OFF SWITCH.
6. PROVIDE WITH LOW AMBIENT KIT.
7. UNIT SHALL BE MOUNTED ON SUPPORT STAND. SEE DIAGRAM AND ROOF PLAN FOR FURTHER DETAIL.
8. FIELD INSTALLED CONTINOUS 3/8" LIQUID AND 5/8" SUCTION REFRIGERANT PIPING.
9. PROVIDE WITH FIELD INSTALLED HAIL GUARD KIT. VERTIV MODEL NUMBER CUHAILGRD-11.

SPECIFICATIONS:

A. GENERAL: WEATHERPROOFED, HOLDING CHARGE OF R-32, REMOVABLE END PANEL FOR ACCESS TO MAJOR COMPONENTS AND CONTROLS.
B. CASING: CASING SHALL BE CONSTRUCTED FROM GALVANIZED STEEL PLATE, FINISHED WITH AN ELECTROSTATICALLY APPLIED, THERMALLY FUSED ACRYLIC OR POLYESTER POWDER
C. COMPRESSOR: TWIN ROTARY COMPRESSOR WITH INVERTER CIRCUIT TO CONTROL COMPRESSOR SPEED, LIQUID ACCUMULATION PROTECTION, SUCTION AND DISCHARGE VALVES, RUBBER-IN-SHEAR VIBRATION ISOLATORS, SUCTION GAS COOLED MOTOR WITH INTERNAL TEMPERATURE AND CURRENT-SENSITIVE MOTOR OVERLOADS, FILTER DRYER, AND SIGHTGLASS.
D. CONDENSER FANS AND MOTORS: HORIZONTAL DISCHARGE, DIRECT-DRIVE FAN MOUNTED IN FRONT OF THE COIL, BUILT-IN CURRENT AND THERMAL OVERLOAD PROTECTION, AND RAISED GUARD.
E. CONDENSER COIL: ALUMINUM FINS MECHANICALLY BONDED TO COPPER TUBES, SUBCOOLING CIRCUIT FOR EACH REFRIGERATION CIRCUIT, FACTORY PRESSURE AND LEAK-TESTED TO 425 PSIG, CONDENSER COIL HAIL GUARD.
F. OTHER FEATURES: BUILT IN BASE PAN HEATER, HIGH PRESSURE PROTECTION, COMPRESSOR THERMAL PROTECTION AND OVERCURRENT DETECTION, FAN MOTOR OVERHEATING/VOLTAGE PROTECTION.
G. PROVIDE FACTORY REFRIGERANT LINESETS FOR CONNECTION FOR PIPING FROM CONDENSING UNIT TO FAN COIL UNIT WHERE DISTANCES WILL PERMIT.
H. CONTROLS: 24-VOLT CONTROL CIRCUIT WITH FUSING AND CONTROL POWER TRANSFORMER; FACTORY-WIRED COMPLETE WITH MAGNETIC CONTACTORS FOR THE COMPRESSORS, COOLING LOW AMBIENT FAN SWITCHES, HIGH PRESSURE CUT-OUTS, INTERNAL PRESSURE RELIEF VALVES, LOW PRESSURE CUT-OUTS AND RESET RELAYS, TERMINAL BLOCK FOR POWER WIRING, ANTI-SHORTCYCLE TIMERS, LOW TEMPERATURE LOCK-OUT FOR TEMPERATURES BELOW LOW-AMBIENT CONTROL CAPABILITIES, PER SCHEDULE.

SEQUENCE OF OPERATION:

A. SEE SPLIT SYSTEM AIR CONDITIONER SCHEDULE FOR SEQUENCE OF OPERATIONS.

SYMBOL	SERVICE	MANUFACTURER	MODEL	TOTAL REFRIGERANT CHARGE (LBS)	COOLING CAPACITY			ELECTRICAL DATA							APPROX. OPERATING WEIGHT (LBS)	REMARKS
					TOTAL CAPACITY (MBH)	SCOP	OA DESIGN TEMP (F)	VOLTAGE	PHASE	MCA (A)	MOCP (A)	AIC RATING	Isc AVAILABLE	DATE CALCULATED		
CU-1	AC-1	VERTIV	CUL111-E000A	5.31	37.5	3.16	95	208	3	30	55	5000	3029	09-15-25	185	1 - 9

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True North

Plan North

GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

OWNER IDENTIFICATION

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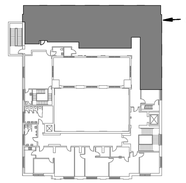
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

REGISTERED PROFESSIONAL ENGINEER
KATHERINE V. BROMANBALLAS
PE-41745
DATE 05.05.26
NORTH DAKOTA

STAMP OR SEAL



LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
	8/05/2025	35% Submittal
	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN:	4/20/2026
CHECKED BY	KVB	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	MECHANICAL		
SHEET TITLE	MECHANICAL SCHEDULES		
SHEET NUMBER	M0.2		
	SHEET 12 OF 49 SHEETS		

SHEET IDENTIFICATION

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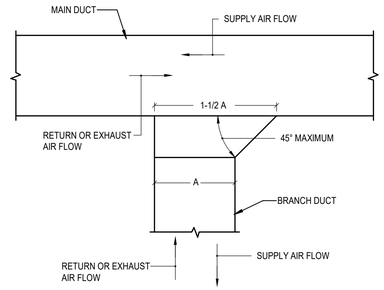

6 DUCT TAKE-OFF DIAGRAM

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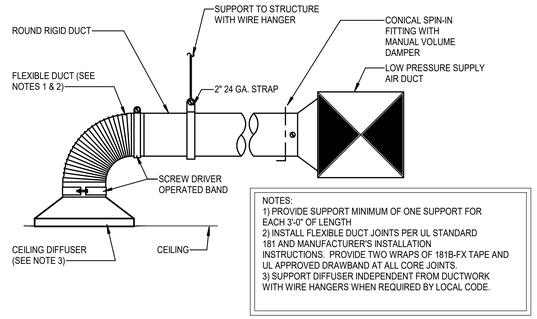

3 AIR DEVICE DIAGRAM

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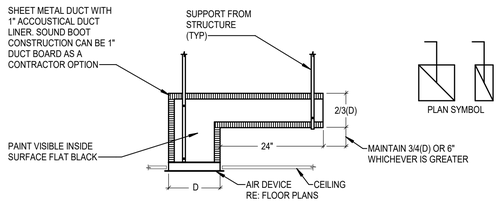

5 SOUND BOOT DIAGRAM

SCALE: NOT TO SCALE

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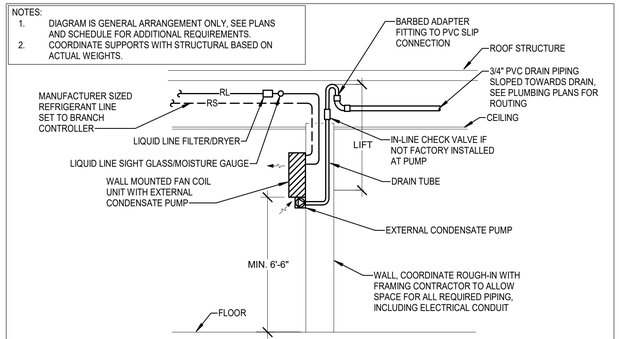

2 DUCTLESS HIGH WALL FAN COIL INSTALLATION DIAGRAM

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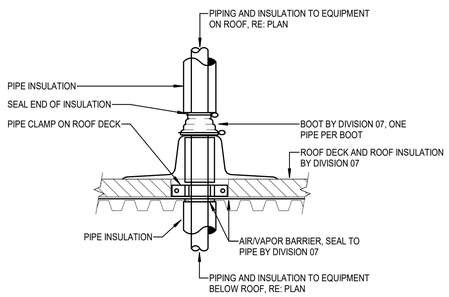

7 PIPE WITH INSULATION ROOF PENETRATION DIAGRAM

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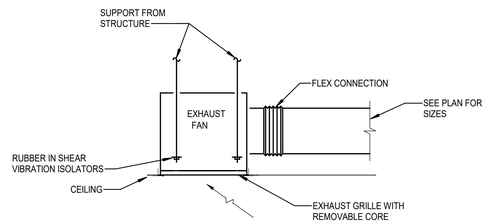

4 CEILING EXHAUST FAN DIAGRAM

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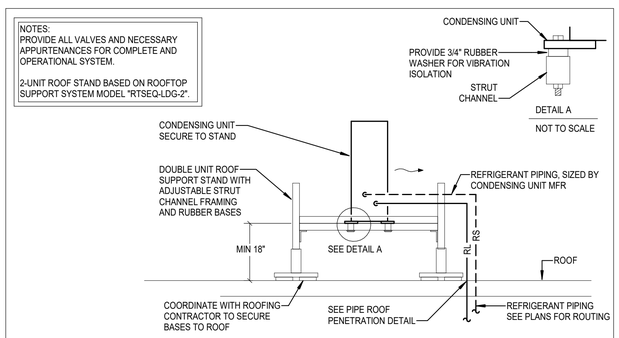

1 ROOF MOUNTED CONDENSING UNIT INSTALLATION DIAGRAM

SCALE: NOT TO SCALE

23 62 00.09

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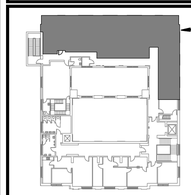

LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
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REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
BIM FILE NAME	

BUILDING

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CHECKED BY	KVB	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	MECHANICAL		
SHEET TITLE	MECHANICAL DIAGRAMS		
SHEET NUMBER	M0.3		
	SHEET 13 OF 49 SHEETS		

SHEET IDENTIFICATION

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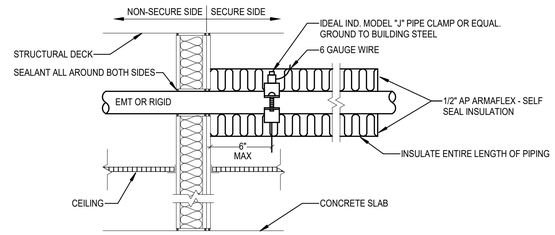
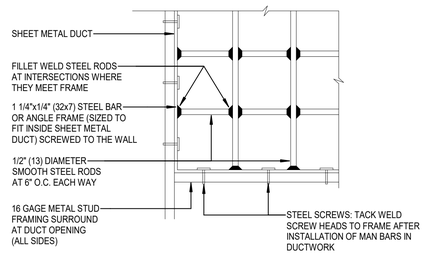


1. GROUNDING AND WRAPPING REQUIRES TENANT APPROVAL.
2. ARMAFLEX SELF-SEAL INSULATION MUST BE CONTINUOUS THROUGH SECURE SPACE.
3. IF RACEWAY IS GREATER THAN 2", USE SENIOR INDUSTRIES SI-0954 SERIES UNIVERSAL GROUND STRAP CLAMP WITH PENETRATOR ("P" SUFFIX TO P/N).

4 GROUNDING AND WRAPPING FOR REFRIGERANT PIPING

SCALE: NOT TO SCALE

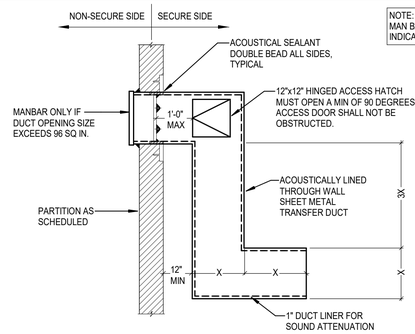


1. MAN BARS IN STEEL BAR OR ANGLE FRAME SCREWED TO WALL FRAMING AT DUCT OPENING USING MINIMUM #9 SELF-TAPPING SCREWS SPACED 6" OC.
2. IF CODE REQUIRES INSTALLATION OF FIRE DAMPER, INTEGRITY OF THE MAN BAR MUST BE MAINTAINED.
3. ALL SCREW HEADS IN MAN BAR FRAME AND 16-GAUGE STUD FRAMING MUST BE MADE NONREMOVABLE BY USING TAMPER-PROOF SCREWS, BY WELDING, OR BY EPOXY BEING PLACED UPON SCREW HEADS. ENSURE SCREWS ARE PROVIDED EVERY 6" VERTICALLY AND HORIZONTALLY.
4. ALL WALL, DUCT, AND AIR RELIEF PENETRATIONS LARGER THAN 96 SQ IN IN AREA, THROUGH WALL TYPES DESIGNATED IN THE 'DIAGRAMS' SECTION, MUST BE SECURED WITH MAN BARS AS DESCRIBED IN THE POR. DUCTS WITH ANY DIMENSIONS LESS THAN 6" DO NOT REQUIRE MAN BARS. WHERE MAN BARS ARE PROVIDED, A 12" L X 12" W INSPECTION PORT MUST BE PROVIDED ON THE DUCT ON THE SECURE SIDE OF THE WALL. REFER TO THE 'SECURITY' SECTION IN THE POR REGARDING SPECIFIC MAN BAR REQUIREMENTS.

2 MAN BAR DIAGRAM

SCALE: NOT TO SCALE

NOTE:
MAN BAR ONLY REQUIRED WHERE INDICATED ON THE PLANS.

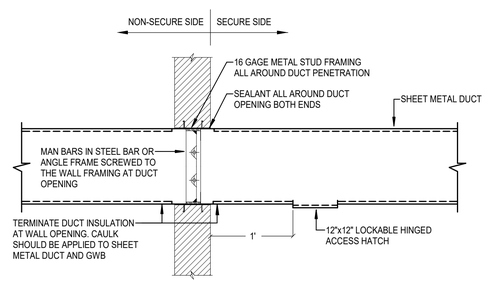


1. DESIGN AND INSTALLATION OF Z-DUCT MUST NOT COMPROMISE TENANT SECURITY SOUND ATTENUATION REQUIREMENTS OF WALL.
2. Z-DUCT MUST HAVE TWO (2) 90º BENDS AND ENSURE THERE IS NOT A DIRECT SOUND PATH THROUGH DUCT.
3. ENTIRE LENGTH OF DUCT MUST BE LINED WITH 1" SOUND ATTENUATION MATERIAL.
4. Z-DUCT MUST BE LOCATED AS FAR AS PRACTICAL AWAY FROM RETURN AIR GRILLES IN CEILING.
5. Z-DUCT REQUIRED AT WALL TYPES A2, A5, A6A, A6B, A7 AND ALL VARIANTS. Z-DUCT REQUIRED IN ALL WALLS IN ALL ROOMS MARKED WITH SOUND ISOLATION REQUIREMENT.
6. INSPECTION PORT IS NOT REQUIRED IF NON-SECURE SIDE OF WALL IS INSPECTABLE BY TENANT.
7. Z-DUCT IS REQUIRED IN CONFERENCE ROOMS WITH WALL TYPE A5 CONSTRUCTION, EXCEPT FOR PRIVATE OFFICES.
8. AIR VELOCITY THROUGH A Z-DUCT RETURN MUST NOT EXCEED 400 FT/MIN AND MUST NOT EXCEED TOTAL PRESSURE LOSS OF 0.025" OF WATER AT FULL DESIGN AIR FLOW.

3 Z-DUCT DIAGRAM

SCALE: NOT TO SCALE

NOTE:
SEE ARCHITECTURAL DRAWINGS FOR WALL TYPES.



1. PROVIDE MAN BARS AT POINT OF ENTRY FOR DUCTS OVER 96 SQ IN THAT PENETRATE PERIMETER WALL. MAN BARS MUST BE SPACED AND
WELDED AT 6" OC. DUCTS WITH ANY DIMENSIONS LESS THAN 6" DO NOT REQUIRE MAN BARS.
2. 12" X 12" INSPECTION PORT MUST BE PROVIDED ON SECURE SIDE OF WALL. ENSURE INSPECTION PORT OPENS AT MINIMUM OF 90º AND IS NOT OBSTRUCTED. COORDINATE LOCATION WITH CEILING GRID, LIGHTS, PIPES, CONDUITS, AND OTHER DUCTS.

1 DUCT PENETRATION AT WALL WITH MAN BARS

SCALE: NOT TO SCALE

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DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

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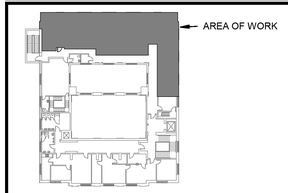
REGISTERED PROFESSIONAL ENGINEER
KATHERINE V. BROMAN-BALLAS
PE-41745
DATE 05.05.26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

REVISION BLOCK

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CONTRACTORS

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
BIM FILE NAME	

PROJECT IDENTIFICATION

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

SHEET IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN: 4/20/2026
CHECKED BY	KVB	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	MECHANICAL	
SHEET TITLE	MECHANICAL DIAGRAMS	
SHEET NUMBER	M0.4	
	SHEET 14 OF 49 SHEETS	

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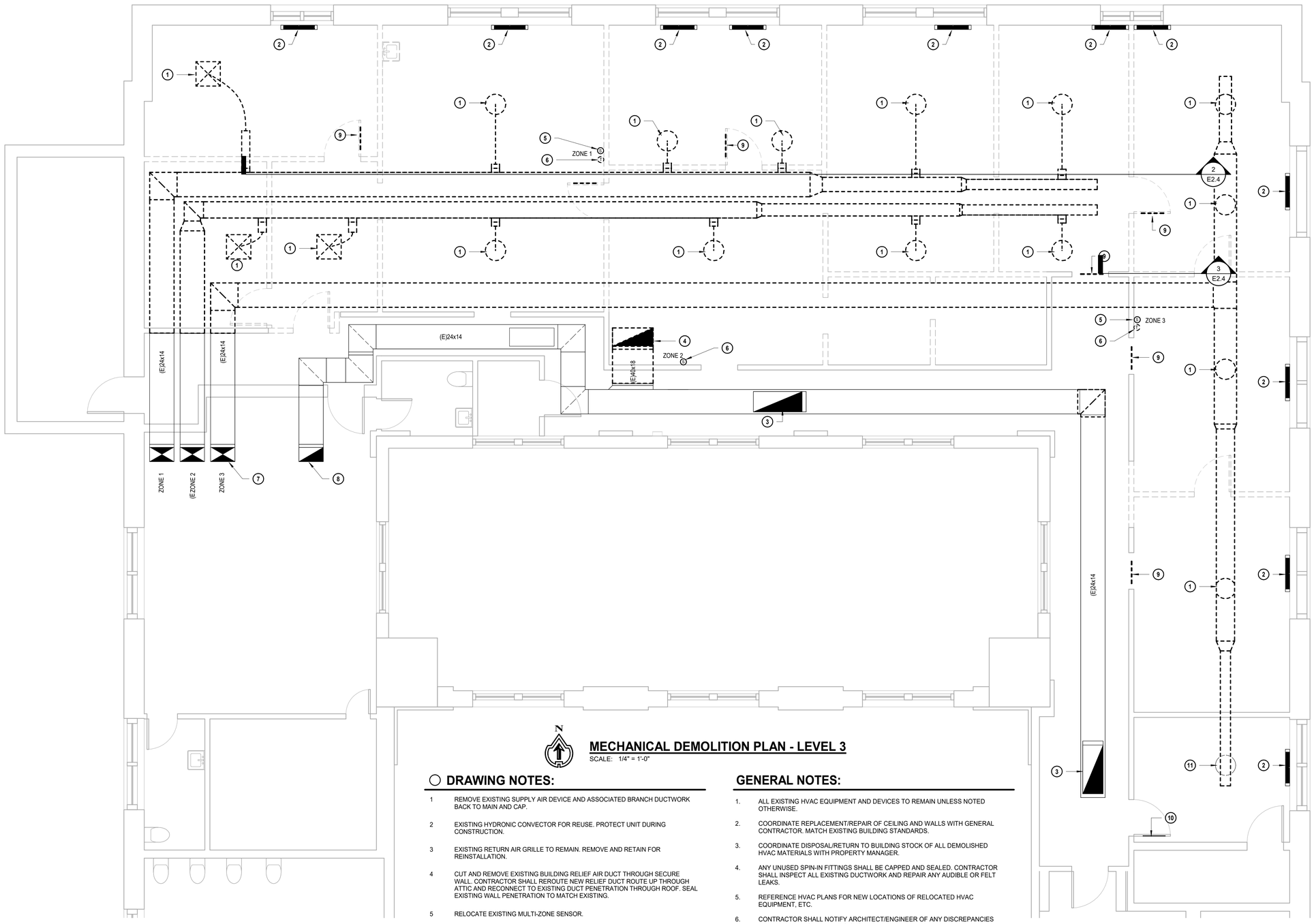

MECHANICAL DEMOLITION PLAN - LEVEL 3

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

DRAWING NOTES:

1. REMOVE EXISTING SUPPLY AIR DEVICE AND ASSOCIATED BRANCH DUCTWORK BACK TO MAIN AND CAP.
2. EXISTING HYDRONIC CONVECTOR FOR REUSE. PROTECT UNIT DURING CONSTRUCTION.
3. EXISTING RETURN AIR GRILLE TO REMAIN. REMOVE AND RETAIN FOR REINSTALLATION.
4. CUT AND REMOVE EXISTING BUILDING RELIEF AIR DUCT THROUGH SECURE WALL. CONTRACTOR SHALL REROUTE NEW RELIEF DUCT ROUTE UP THROUGH ATTIC AND RECONNECT TO EXISTING DUCT PENETRATION THROUGH ROOF. SEAL EXISTING WALL PENETRATION TO MATCH EXISTING.
5. RELOCATE EXISTING MULTI-ZONE SENSOR.
6. RELOCATE EXISTING PERIMETER HEATING SYSTEM ZONE THERMOSTAT.
7. EXISTING SUPPLY AIR ZONE DUCTWORK UP TO MULTI-ZONE AIR HANDLING UNIT ABOVE TO REMAIN. CONTRACTOR TO PROVIDE PRE-BALANCE REPORT OF ALL DOWNSTREAM AIR DEVICES.
8. EXISTING RETURN AIR DUCTWORK UP TO MULTI-ZONE AIR HANDLING UNIT TO REMAIN.
9. EXISTING DOOR TRANSFER GRILLES TO BE REMOVED.
10. EXISTING DOOR TRANSFER GRILLES TO REMAIN.
11. REMOVE AND RETAIN EXISTING SUPPLY AIR DEVICE FOR REINSTALLATION. REMOVE ASSOCIATED BRANCH DUCTWORK BACK TO MAIN.

GENERAL NOTES:

1. ALL EXISTING HVAC EQUIPMENT AND DEVICES TO REMAIN UNLESS NOTED OTHERWISE.
2. COORDINATE REPLACEMENT/REPAIR OF CEILING AND WALLS WITH GENERAL CONTRACTOR. MATCH EXISTING BUILDING STANDARDS.
3. COORDINATE DISPOSAL/RETURN TO BUILDING STOCK OF ALL DEMOLISHED HVAC MATERIALS WITH PROPERTY MANAGER.
4. ANY UNUSED SPIN-IN FITTINGS SHALL BE CAPPED AND SEALED. CONTRACTOR SHALL INSPECT ALL EXISTING DUCTWORK AND REPAIR ANY AUDIBLE OR FELT LEAKS.
5. REFERENCE HVAC PLANS FOR NEW LOCATIONS OF RELOCATED HVAC EQUIPMENT, ETC.
6. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES THAT MAY AFFECT THE HVAC SYSTEM.
7. ALL DUCT DIMENSIONS SHOWN ARE SHEET METAL DIMENSIONS.

0 2' 4' 8'
0 2"
1/4" = 1'-0"

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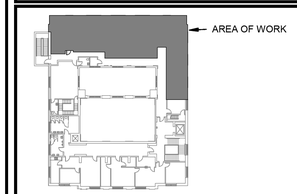

LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

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SHEET IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN: 4/20/2026
CHECKED BY	KVB	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	MECHANICAL	
SHEET TITLE	MECHANICAL DEMOLITION PLAN	
SHEET NUMBER	MD1.3	
	SHEET 15 OF 49 SHEETS	

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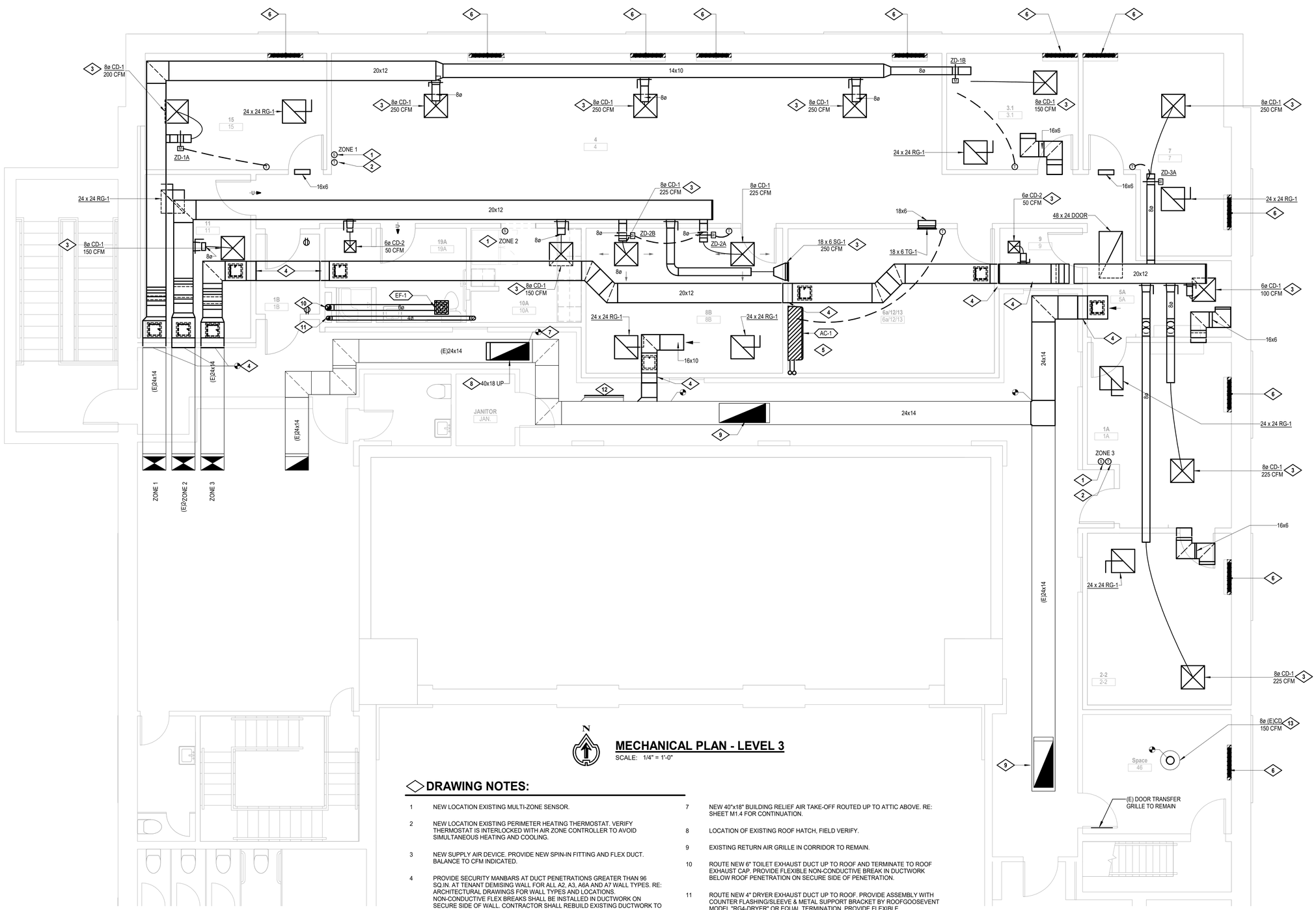

MECHANICAL PLAN - LEVEL 3

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

DRAWING NOTES:

1. NEW LOCATION EXISTING MULTI-ZONE SENSOR.
2. NEW LOCATION EXISTING PERIMETER HEATING THERMOSTAT. VERIFY THERMOSTAT IS INTERLOCKED WITH AIR ZONE CONTROLLER TO AVOID SIMULTANEOUS HEATING AND COOLING.
3. NEW SUPPLY AIR DEVICE. PROVIDE NEW SPIN-IN FITTING AND FLEX DUCT. BALANCE TO CFM INDICATED.
4. PROVIDE SECURITY MANBARS AT DUCT PENETRATIONS GREATER THAN 96 SQ.IN. AT TENANT DEMISING WALL FOR ALL A2, A3, A6A AND A7 WALL TYPES. RE: ARCHITECTURAL DRAWINGS FOR WALL TYPES AND LOCATIONS. NON-CONDUCTIVE FLEX BREAKS SHALL BE INSTALLED IN DUCTWORK ON SECURE SIDE OF WALL. CONTRACTOR SHALL REBUILD EXISTING DUCTWORK TO INSTALL NEW SECURITY MAN BARS AS REQUIRED. PROVIDE WITH DUCT ACCESS PANEL INSTALLED IN BOTTOM OF DUCT.
5. INSTALL HIGH WALL CASSETTE 7'-0" AFF. REFRIGERANT PIPING ROUTED IN WALL UP TO ASSOCIATED CONDENSING UNIT ON ROOF. COORDINTATE EXACT ROUTING OF PIPING WITH EXISTING BUILDING CONDITIONS. EQUIPMENT AND BUILDING ENGINEER. RE: PLUMBING FOR CONDENSATE ROUTING.
6. EXISTING HYDRONIC WALL CONVECTOR TO BE REUSED.CONTRACTOR TO SERVICE AND REFURBISH UNIT TO LIKE-NEW CONDITION AS REQUIRED. VERIFY FUNCTIONALITY OF DAMPERS ON CONVECTOR DISCHARGE.
7. NEW 40"x18" BUILDING RELIEF AIR TAKE-OFF ROUTED UP TO ATTIC ABOVE. RE: SHEET M1.4 FOR CONTINUATION.
8. LOCATION OF EXISTING ROOF HATCH, FIELD VERIFY.
9. EXISTING RETURN AIR GRILLE IN CORRIDOR TO REMAIN.
10. ROUTE NEW 6" TOILET EXHAUST DUCT UP TO ROOF AND TERMINATE TO ROOF EXHAUST CAP. PROVIDE FLEXIBLE NON-CONDUCTIVE BREAK IN DUCTWORK BELOW ROOF PENETRATION ON SECURE SIDE OF PENETRATION.
11. ROUTE NEW 4" DRYER EXHAUST DUCT UP TO ROOF. PROVIDE ASSEMBLY WITH COUNTER FLASHING/SLEEVE & METAL SUPPORT BRACKET BY ROOFGOOSEVENT MODEL "RG4-DRYER" OR EQUAL TERMINATION. PROVIDE FLEXIBLE NON-CONDUCTIVE BREAK IN DUCTWORK BELOW ROOF PENETRATION ON SECURE SIDE OF PENETRATION.
12. CAP EXISTING DUCT AT TAKE-OFF.
13. EXISTING SUPPLY AIR DEVICE. EXTEND AND CONNECT NEW BRANCH DUCTWORK FOR ATTIC ABOVE AS SHOWN ON SHEET M1.4. BALANCE TO CFM NOTED.

0 2' 4' 8'
0 2'
1/4" = 1'-0"

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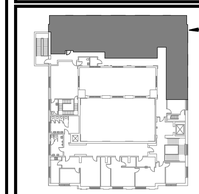

LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
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	9/22/2025	65% Submittal
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REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

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ADDRESS	102 NORTH 4TH STREET,
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DRAWN BY	ADS	DATE DRAWN:	4/20/2026
CHECKED BY	KVB	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	MECHANICAL		
SHEET TITLE	LEVEL 3 MECHANICAL PLAN		
SHEET NUMBER	M1.3		
	SHEET 16 OF 49 SHEETS		

SHEET IDENTIFICATION

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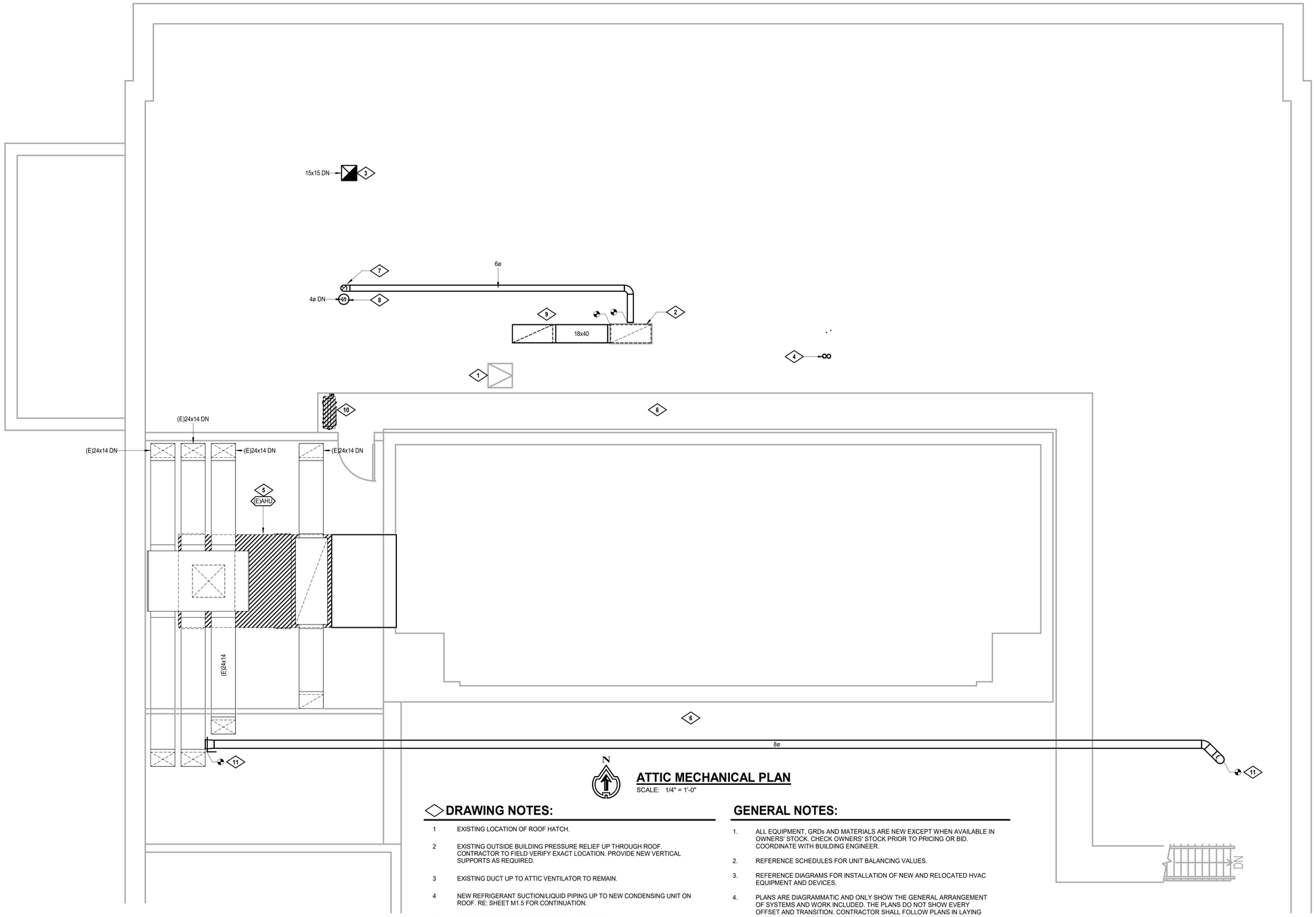

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ATTIC MECHANICAL PLAN

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

DRAWING NOTES:

1 EXISTING LOCATION OF ROOF HATCH.

2 EXISTING OUTSIDE BUILDING PRESSURE RELIEF UP THROUGH ROOF. CONTRACTOR TO FIELD VERIFY EXACT LOCATION. PROVIDE NEW VERTICAL SUPPORTS AS REQUIRED.

3 EXISTING DUCT UP TO ATTIC VENTILATOR TO REMAIN.

4 NEW REFRIGERANT SUCTION/LIQUID PIPING UP TO NEW CONDENSING UNIT ON ROOF. RE: SHEET M1.5 FOR CONTINUATION.

5 EXISTING MULTI-ZONE AIR HANDLING UNIT TO REMAIN.

6 EXISTING CATWALK IN ATTIC.

7 NEW 6" EXHAUST DUCT ROUTED TO EXISTING RELIEF LOUVER.

8 NEW 4" DRYER EXHAUST DUCT ROUTED UP THROUGH ROOF.

9 EXTEND AND CONNECT NEW RELIEF DUCT TO EXISTING VERTICAL DUCT RISER.

10 EXSTING HEAT PUMP UNIT SERVING ADJACENT SPACE TO REMAIN.

11 CONNECT NEW SUPPLY DUCT TAKE-OFF FROM EXISTING SUPPLY MAIN. ROUTE TIGHT TO STRUCTURE ABOVE CATWALK AND CONNECT TO EXISTING DIFFUSER BELOW. SEAL ANNULAR SPACE AT HARD CEILING PENETRATION WITH FIRESTOP.

GENERAL NOTES:

1. ALL EQUIPMENT, GRDs AND MATERIALS ARE NEW EXCEPT WHEN AVAILABLE IN OWNERS' STOCK. CHECK OWNERS' STOCK PRIOR TO PRICING OR BID. COORDINATE WITH BUILDING ENGINEER.
2. REFERENCE SCHEDULES FOR UNIT BALANCING VALUES.
3. REFERENCE DIAGRAMS FOR INSTALLATION OF NEW AND RELOCATED HVAC EQUIPMENT AND DEVICES.
4. PLANS ARE DIAGRAMMATIC AND ONLY SHOW THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. THE PLANS DO NOT SHOW EVERY OFFSET AND TRANSITION. CONTRACTOR SHALL FOLLOW PLANS IN LAYING OUT WORK AND COORDINATE WITH OTHER TRADES TO VERIFY SPACE IN WHICH WORK IS INSTALLED.
5. ALL DUCT DIMENSIONS SHOWN ARE SHEET METAL DIMENSIONS.
6. NOT ALL DUCT TRANSITIONS AND OFFSETS ARE SHOWN. CONTRACTOR SHALL PROVIDE THE NECESSARY FITTING REQUIRED AND INSTALL ACCORDINGLY.
7. COORDINATE NEW AND OR RELOCATED AIR DEVICE LOCATIONS WITH EXISTING SPRINKLER HEADS AND LIGHTING LAYOUT, FIELD VERIFY.
8. COORDINATE THERMOSTAT LOCATIONS WITH FURNITURE LAYOUT, INSTALL ACCORDINGLY. VERIFY FURNITURE LAYOUT WITH ARCHITECTURAL DRAWINGS.
9. CONTRACTOR SHALL PROVIDE NECESSARY CODE COMPLYING CLEARANCES FOR ALL EQUIPMENT INSTALLED.

0 2' 4' 8'
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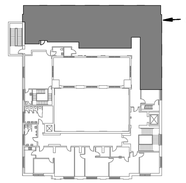

LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

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SHEET TITLE	ATTIC MECHANICAL PLAN	
SHEET NUMBER	M1.4	

SHEET 17 OF 49 SHEETS

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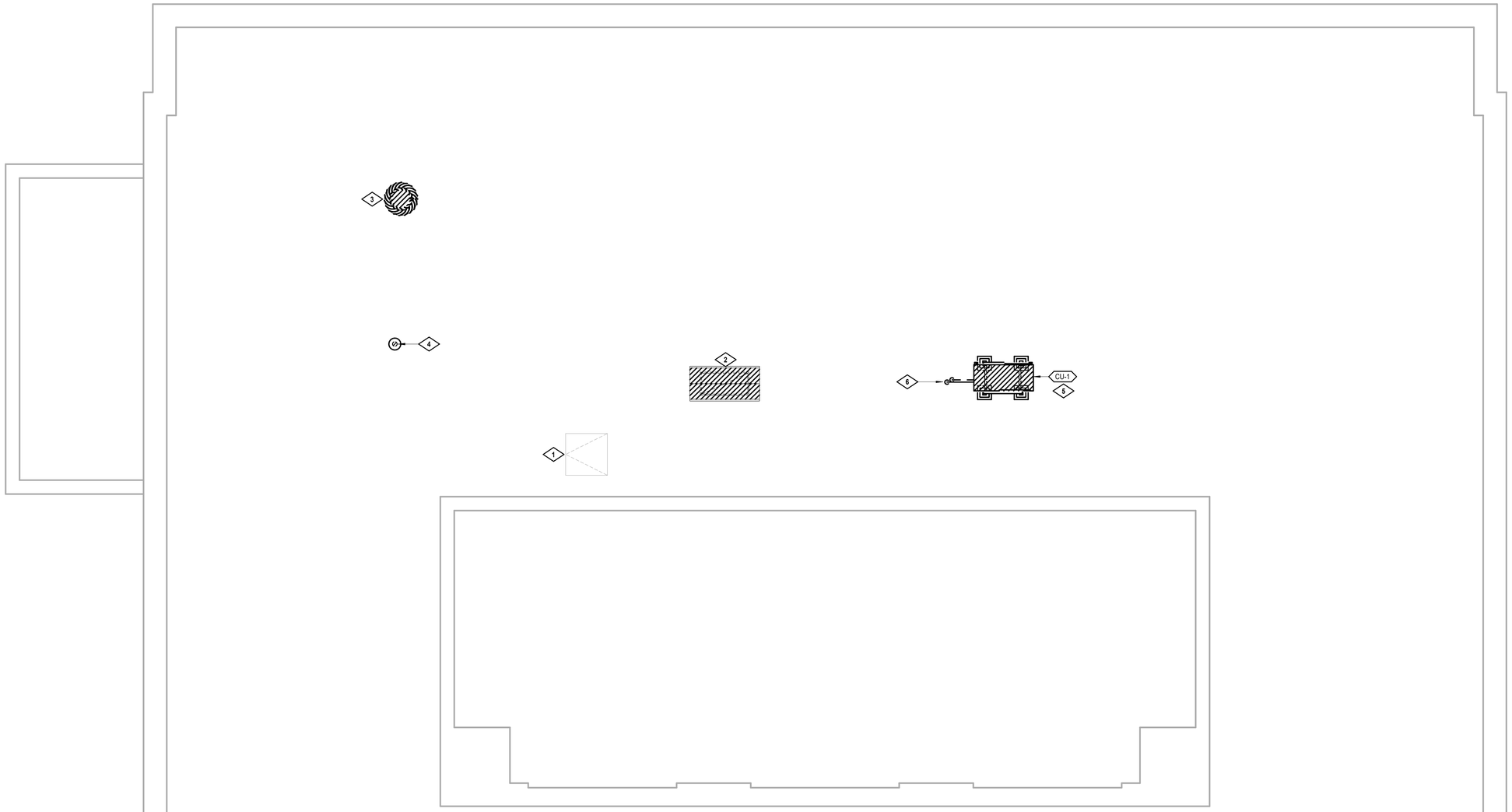

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ROOF MECHANICAL PLAN

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

DRAWING NOTES:

1 EXISTING ROOF ACCESS HATCH.

2 EXISTING BUILDING PRESSURE RELIEF HOOD TO REMAIN.

3 EXISTING ATTIC VENTILATOR FAN TO REMAIN.

4 NEW 4" DRYER EXHAUST TERMINATION, EQUAL TO ROOFGOOSEVENT MODEL "RG4-DRYER" CAP.

5 NEW CONDENSING UNIT MOUNTED ON ROOF CURB WITH SNOW STAND AND GUARDS. RE: DIAGRAM FOR ADDITIONAL INFORMATION.

6 FIELD INSTALLED REFRIGERANT LINESET DOWN TO INDOOR UNIT. PROVIDE WITH RJ6 OR EQUAL ROOF UTILITY TERMINATION GOOSE NECK AT ROOF PENETRATION.

GENERAL NOTES:

1. ALL EQUIPMENT, GRDs AND MATERIALS ARE NEW EXCEPT WHEN AVAILABLE IN OWNERS' STOCK. CHECK OWNERS' STOCK PRIOR TO PRICING OR BID. COORDINATE WITH BUILDING ENGINEER.
2. REFERENCE SCHEDULES FOR UNIT BALANCING VALUES.
3. REFERENCE DIAGRAMS FOR INSTALLATION OF NEW AND RELOCATED HVAC EQUIPMENT AND DEVICES.
4. PLANS ARE DIAGRAMMATIC AND ONLY SHOW THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. THE PLANS DO NOT SHOW EVERY OFFSET AND TRANSITION. CONTRACTOR SHALL FOLLOW PLANS IN LAYING OUT WORK AND COORDINATE WITH OTHER TRADES TO VERIFY SPACE IN WHICH WORK IS INSTALLED.
5. ALL DUCT DIMENSIONS SHOWN ARE SHEET METAL DIMENSIONS.
6. NOT ALL DUCT TRANSITIONS AND OFFSETS ARE SHOWN. CONTRACTOR SHALL PROVIDE THE NECESSARY FITTING REQUIRED AND INSTALL ACCORDINGLY.
7. COORDINATE NEW AND OR RELOCATED AIR DEVICE LOCATIONS WITH EXISTING SPRINKLER HEADS AND LIGHTING LAYOUT, FIELD VERIFY.
8. COORDINATE THERMOSTAT LOCATIONS WITH FURNITURE LAYOUT, INSTALL ACCORDINGLY. VERIFY FURNITURE LAYOUT WITH ARCHITECTURAL DRAWINGS.
9. CONTRACTOR SHALL PROVIDE NECESSARY CODE COMPLYING CLEARANCES FOR ALL EQUIPMENT INSTALLED.

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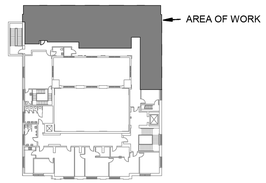
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

STAMP OR SEAL

REGISTERED PROFESSIONAL ENGINEER
KATHERINE V. BROMAN-BALLAS
PE-41745
DATE 05.05.26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

REVISION BLOCK

Mark	Date	Description
	8/05/2025	35% Submittal
	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

CONTRACTORS

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
BIM FILE NAME	

PROJECT IDENTIFICATION

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

SHEET IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN: 4/20/2026
CHECKED BY	KVB	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	MECHANICAL	
SHEET TITLE	ROOF MECHANICAL PLAN	
SHEET NUMBER	M1.5	
	SHEET 18 OF 49 SHEETS	

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PLUMBING LEGEND

NOT ALL ITEMS LISTED BELOW ARE USED ON THIS SET OF PLUMBING DRAWINGS

PLUMBING PIPING

SYMBOL	ABBV	DESCRIPTION
	CW	DOMESTIC COLD WATER
	HW	DOMESTIC HOT WATER
	HWC	DOMESTIC HOT WATER CIRCULATION
180	HW	DOMESTIC HOT WATER AT TEMP. SHOWN
SAN	SAN	SANITARY WASTE
GW	GW	GREASE WASTE
SOD	SOD	SEDIMENT & OIL DRAIN
FM	FM	FORCE MAIN DRAINAGE
D	D	DRAIN
V	V	SANITARY VENT
RD	RD	ROOF DRAIN
OD	OD	OVERFLOW STORM DRAIN
F	F	FIRE SPRINKLER
FDC	FDC	FIRE DEPT. CONNECTION
G	G	NATURAL GAS LOW PRESSURE
MPG	MPG	NATURAL GAS MEDIUM PRESSURE
LPG	LPG	PROPANE GAS
CA	CA	COMPRESSED AIR

PIPING SYMBOLS

SYMBOL	DESCRIPTION
	WALL HYDRANT
	HOSE BIBB
	BALL VALVE
	BUTTERFLY VALVE
	CALIBRATED BALANCING VALVE
	GATE VALVE
	CHECK VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	PUMP
	ATMOSPHERIC VACUUM BREAKER
	STRAINER
	RELIEF VALVE
	DOWNSPOUT NOZZLE
	WATER HAMMER ARRESTER
	UNION
	REDUCER
M	WATER METER
G	GAS METER
	PRESSURE GUAGE
	THERMOMETER
	FLOOR SINK
	AREA/FLOOR DRAIN
	ROOF DRAIN OR OVERFLOW DRAIN
	WALL CLEANOUT AND LINE CLEANOUT
	FLOOR CLEANOUT
	CONNECT NEW TO EXISTING
DTL / SHT	RISER NUMBER AND SHEET BUBBLE
1t	EQUIPMENT DESIGNATION

PLUMBING PIPING SYMBOLS

SYMBOL	DESCRIPTION
	ARROW IN LINE INDICATES DIRECTION OF FLOW
	REMOVE EXISTING
	BOTTOM PIPE CONNECTION
	PIPING UP
	PIPING DOWN
	FIXTURE TRAP OR DRAIN TRAP
	PIPING CAP OR PLUG

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	FFE	FINISHED FLOOR ELEVATION	NIC	NOT IN CONTRACT
AFG	ABOVE FINISHED GRADE	FPC	FIRE PROTECTION CONTRACTOR	NO	NORMALLY OPEN
AP	ACCESS PANEL	GC	GENERAL CONTRACTOR	NTS	NOT TO SCALE
BFP	BACKFLOW PREVENTER	IE	INVERT ELEVATION	(R)	RELOCATED
DN	DOWN	LCO	LINE CLEANOUT	SCO	SURFACE CLEAN OUT
DNZ	DOWNSPOUT NOZZLE	MC	MECHANICAL CONTRACTOR	TYP	TYPICAL
(E)	EXISTING	MH	MANHOLE	VIR	VALVE IN RISER
EC	ELECTRICAL CONTRACTOR	(N)	NEW	VTR	VENT THROUGH ROOF
EL	ELEVATION	NC	NORMALLY CLOSED	WCO	WALL CLEAN OUT
FCO	FLOOR CLEAN OUT				

NOTE:

APPLICABLE CODE STANDARDS

2024 INTERNATIONAL BUILDING CODE	2024 INTERNATIONAL ENERGY CONSERVATION CODE
2024 INTERNATIONAL FIRE CODE	2024 INTERNATIONAL FUEL GAS CODE
2024 INTERNATIONAL MECHANICAL CODE	
2024 INTERNATIONAL PLUMBING CODE	

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True North

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GSA General Service Administration

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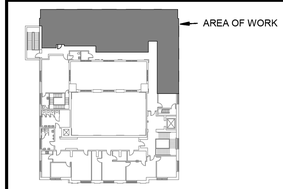

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	SHEET 19 OF 49 SHEETS	

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DIVISION 220000 - PLUMBING SPECIFICATIONS

BASIC PLUMBING REQUIREMENTS

QUALITY ASSURANCE:
1. IF MANUFACTURER'S MATERIAL OR EQUIPMENT IS LISTED IN SCHEDULES OR ON DRAWINGS, THEY ARE TYPES TO BE PROVIDED FOR ESTABLISHMENT OF SIZE, CAPACITY, GRADE, AND QUALITY. IF OTHER ACCEPTABLE MANUFACTURERS ARE USED, COST OF ANY CHANGE IN CONSTRUCTION REQUIRED BY THEIR USE SHALL BE BORNE BY CONTRACTOR.

2. EQUIPMENT SHALL CONFORM TO STATE AND/OR LOCAL ENERGY CONSERVATION STANDARDS.

3. COMPLY WITH RULES AND REGULATIONS OF LOCAL UTILITY COMPANIES. INCLUDE COST OF VALVES, VALVE BOXES, METER BOXES, METERS, ACCESSORY EQUIPMENT REQUIRED FOR PROJECT.

INTENT AND INTERPRETATIONS:
1. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO RESULT IN A COMPLETE MECHANICAL INSTALLATION IN COMPLETE ACCORDANCE WITH ALL APPLICABLE LOCAL CODES AND ORDINANCES.

2. DRAWINGS ARE DIAGRAMMATIC IN CHARACTER AND DO NOT NECESSARILY INDICATE EVERY REQUIRED PIPE, OFFSET, TRANSITION, ETC. ITEMS NOT SPECIFICALLY MENTIONED IN THE SPECIFICATION OR NOTED ON THE DRAWINGS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED.

3. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WHATEVER IS CALLED FOR IN EITHER IS BINDING AS THOUGH CALLED FOR IN BOTH. IF THERE IS A CONFLICT IN THE CONTRACT DOCUMENTS, THE MORE DEMANDING AND COSTLY DESIGN SHALL BE SELECTED FOR BIDDING PURPOSES. THE CONTRACTOR SHALL IMMEDIATELY PRESENT THE CONFLICT FOUND IN THE CONTRACT DOCUMENTS TO THE ARCHITECT/ENGINEER FOR RESOLUTION. IF THE RESOLUTION FAVORS A LESS COSTLY DESIGN, THE CONTRACTOR WILL BE REQUIRED TO REIMBURSE THE DIFFERENCE IN COST.

4. DRAWINGS SHALL NOT BE SCALED FOR ROUGH-IN MEASUREMENTS OR USED AS SHOP DRAWINGS. WHERE DRAWINGS ARE REQUIRED FOR THESE PURPOSES OR HAVE TO BE MADE FROM FIELD MEASUREMENTS, TAKE THE NECESSARY MEASUREMENTS AND PREPARE THE DRAWINGS.

5. BEFORE ANY WORK IS INSTALLED, DETERMINE THAT EQUIPMENT WILL PROPERLY FIT THE SPACE, THAT REQUIRED CLEARANCES CAN BE MAINTAINED AND THAT EQUIPMENT CAN BE LOCATED WITHOUT INTERFERENCES BETWEEN SYSTEMS, WITH STRUCTURAL ELEMENTS, OR WITH THE WORK OF OTHER TRADES.

6. IF CONFLICTS ARE DISCOVERED IN CONTRACT DOCUMENTS AS WORK PROGRESSES, SUBMIT A SET OF DRAWINGS MARKED WITH RED PENCIL SHOWING RECOMMENDED MODIFICATIONS TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.

7. CONTRACTOR SHALL COORDINATE WITH ALL OWNER SUPPLIED EQUIPMENT PRIOR TO ROUGH-IN. ENSURE ALL EQUIPMENT CONNECTIONS ARE PROVIDED FOR AND THAT THE INSTALLATION WILL MEET ALL LOCAL AND NATIONAL CODE REQUIREMENTS.

JOB CONDITIONS:
CONFER, COOPERATE, AND COORDINATE WORK WITH OTHER TRADES. COORDINATE CEILING CAVITY SPACE CAREFULLY WITH ALL TRADES. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AS WELL AS COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT, UNLESS THE CONTRACT DOCUMENTS GIVE OTHER SPECIFIC INSTRUCTIONS CONCERNING THESE MATTERS.

PERMITS AND FEES:
1. ARRANGE AND PAY FOR ALL INSPECTIONS, PERMITS, LICENSES, CERTIFICATES, AND FEES REQUIRED IN CONNECTION WITH WORK.

SUBMITTALS AND SHOP DRAWINGS:
1. CONFORM TO REQUIREMENTS OF DIVISION 1 AND FOLLOWING PARAGRAPHS.

2. SUBMITTALS SHALL INCLUDE CATALOG CUT-SHEETS AND MANUFACTURER'S DATA SHEETS,

3. PRIOR TO ORDERING EQUIPMENT OR BEGINNING INSTALLATION WORK, ASSEMBLE, PREPARE, AND FURNISH SUBMITTALS AND SHOP DRAWINGS REQUIRED FOR PROJECT. FURNISH SUBMITTALS AND SHOP DRAWINGS AS REQUIRED BY INDIVIDUAL SECTIONS OF SPECIFICATIONS.

4. CONTRACTOR SHALL THOROUGHLY CHECK SUBCONTRACTORS' OR VENDORS' SUBMITTALS AND SHOP DRAWINGS AND, AFTER APPROVING THEM, SUBMIT THEM FOR REVIEW. SUBMITTALS AND SHOP DRAWINGS THAT DO NOT BEAR CONTRACTOR'S REVIEW STAMP WILL BE RETURNED NOT REVIEWED.

5. IF DISCREPANCIES BETWEEN SUBMITTALS, SHOP DRAWINGS, AND CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SUBMITTALS AND SHOP DRAWINGS ARE REVIEWED, REQUIREMENTS OF CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE. SUBMITTALS AND SHOP DRAWINGS WHICH ARE SUBMITTED, BUT WHICH ARE NOT REQUIRED BY CONTRACT DOCUMENTS, WILL BE RETURNED NOT REVIEWED.

6. SUBMITTALS AND SHOP DRAWINGS SHALL IDENTIFY SPECIFIC EQUIPMENT WITH NUMBERS OR LETTERS IDENTICAL TO THOSE LISTED OR SCHEDULED ON THE DRAWINGS OR SPECIFICATIONS.

BASIC MECHANICAL REQUIREMENTS (CONTINUED)

RECORD DOCUMENTS:
1. KEEP IN CUSTODY DURING ENTIRE PERIOD OF CONSTRUCTION, A CURRENT SET OF DOCUMENTS INDICATING CHANGES THAT HAVE BEEN MADE TO THE CONTRACT DOCUMENTS.

2. UPON COMPLETION OF WORK, SUBMIT THE COMPLETE SET OF RECORD DOCUMENTS TO THE ARCHITECT.

PROTECTION OF EQUIPMENT:
1. PROTECT MATERIALS AND EQUIPMENT FROM PHYSICAL DAMAGE, CONSTRUCTION DIRT, AND THE ELEMENTS FROM TIME OF SHIPMENT TO TIME INSTALLATION IS ACCEPTED BY OWNER.

GUARANTEE:
1. GUARANTEE MATERIALS, WORKMANSHIP, AND OPERATION OF EQUIPMENT INSTALLED FOR PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF ENTIRE WORK. REPAIR OR REPLACE ANY PART OF WORK WHICH SHOWS DEFECT DURING THAT TIME.

2. BE RESPONSIBLE FOR DAMAGE TO PROPERTY OF OWNER OR TO WORK OF OTHER CONTRACTORS DURING CONSTRUCTION AND GUARANTEE PERIOD.

3. FURNISH EQUIPMENT WARRANTIES TO OWNER.

MECHANICAL EQUIPMENT WIRING AND CONNECTIONS:
1. VOLTAGE CHARACTERISTICS SHALL BE AS IN ELECTRICAL DIVISION OF SPECIFICATIONS AND ON ELECTRICAL DRAWINGS.

TEMPORARY FACILITIES:
1. USE OF EXISTING EQUIPMENT FOR TEMPORARY HEATING OR COOLING: DO NOT USE NEW OR EXISTING BUILDING EQUIPMENT WITHOUT WRITTEN PERMISSION FROM OWNER.

INSPECTIONS:
1. DO NOT COVER UP OR ENCLOSE WORK UNTIL INSPECTED, TESTED, AND APPROVED. ANY WORK ENCLOSED OR COVERED UP BEFORE SUCH APPROVAL SHALL BE UNCOVERED, TESTED, AND APPROVED.

ACCESS DOORS:
1. FURNISH HINGED STEEL ACCESS DOORS WITH CONCEALED LATCH, WHETHER SHOWN OR NOT, IN WALLS AND PLASTER OR GYPSUM BOARD CEILINGS FOR ACCESS TO CONCEALED VALVES, SHOCK ARRESTERS, AIR VENTS, MOTORS, FANS, BALANCING VALVES, OR OTHER OPERATING DEVICES REQUIRING ADJUSTMENT OR SERVICING.

2. ACCESS DOOR SHALL BE SIZE OF EQUIPMENT TO BE REMOVED OR 24" BY 24" IF USED FOR SERVICE ONLY.

INSTALLATION:
1. WORKMANSHIP SHALL BE FIRST QUALITY. APPEARANCE OF WORK SHALL BE OF EQUAL IMPORTANCE TO ITS MECHANICAL OPERATION. LACK OF QUALITY WORKMANSHIP SHALL BE REASON FOR REJECTION OF SYSTEM IN PART OR IN WHOLE.

2. INSTALL SO THAT ALL VALVES AND EQUIPMENT CAN BE EASILY ACCESSED AND SERVICED BY ADEQUATE CLEARANCE, INSTALLATION OF ACCESS DOORS, UNIONS IN PIPING, OR OTHER METHODS.

3. COMPLETE INSTALLATION SHALL FUNCTION SMOOTHLY AND NOISELESSLY.

4. INSTALL EQUIPMENT AND MATERIALS PER MANUFACTURERS' RECOMMENDATIONS AND LOCAL CODES OR REGULATIONS.

5. PLACE OR REPLACE ALL EQUIPMENT NAMEPLATES WHERE THEY CAN BE SEEN AND READ WITHOUT DIFFICULTY.

6. FLUSH PIPES FREE OF FOREIGN SUBSTANCES BEFORE INSTALLING VALVES OR MAKING FINAL CONNECTIONS. CLEAN ALL PIPING AND EQUIPMENT.

PIPE AND PIPE FITTINGS

QUALITY ASSURANCE
A. WELDING MATERIALS AND LABOR SHALL CONFORM TO ASME CODE FOR PRESSURE PIPING AND APPLICABLE STATE LABOR REGULATIONS.

B. USE WELDERS FULLY QUALIFIED AND LICENSED BY STATE AUTHORITIES. FURNISH CERTIFICATION FROM APPROVED TESTING AGENCY OR NATIONAL CERTIFIED PIPE WELDING BUREAU THAT WELDERS PERFORMING WORK ARE CERTIFIED.

C. ALL PIPING MATERIALS SHALL COMPLY WITH LOCAL CODES.

UNIONS AND COUPLINGS
A. 2" AND SMALLER: 125 PSI CAST IRON FOR THREADED FERROUS PIPING; BRONZE FOR COPPER OR BRASS PIPE, SOLDERED JOINTS.

B. 2-1/2" AND LARGER: 150 PSI FORGED STEEL FLANGES, RAISED FACE WITH WELDING NECK, FOR FERROUS PIPING; BRONZE FLANGES FOR COPPER OR BRASS PIPING. GASKETS FOR WATER PIPING TO 140 F EQUAL TO GARLOCK PREMIUM GRADE STYLE 22 RED RUBBER, 1/16" THICK. GASKETS FOR NATURAL GAS EQUAL TO GARLOCK BLUE-GARD STYLE 3000 SYNTHETIC FIBER WITH NITRILE BINDER, 1/16" THICK. GASKETS FOR CONDENSATE, AND WATER ABOVE 140 F AS MANUFACTURED BY FLEXITALLIC.

C. DIELECTRIC UNIONS AND FLANGES: EPCO OR EQUAL HAVING PROPER GASKET MATERIAL FOR CONNECTION OF DISSIMILAR METALS. UNIONS, 2" AND SMALLER, DIELECTRICALLY GASKETED FLANGES, 2-1/2" AND LARGER. USE DIELECTRIC CONNECTIONS WHEREVER JOINING DISSIMILAR METALS IN OPEN DOMESTIC WATER SYSTEMS.

EXECUTION
A. VERIFY LOCATION(S) OF ALL AIR PLENUMS. ALL PIPING AND SUPPORT MATERIALS INSTALLED IN AIR PLENUMS SHALL BE PLENUM-RATED. DO NOT INSTALL SPECIFIED NON-PLENUM-RATED MATERIALS IN AIR PLENUMS; USE PLENUM-RATED OPTIONS.

B. ROUTE PIPING IN ORDERLY MANNER AND MAINTAIN PROPER SLOPE.

C. CONCEAL PIPING IN WALLS OR ABOVE CEILING UNLESS OTHERWISE NOTED.

D. MAINTAIN FOLLOWING PIPE SLOPES UNLESS OTHERWISE NOTED ON DRAWINGS:
- COOLING COIL CONDENSATE DRAIN PIPING: 1/8" DOWN PER LINEAR FOOT IN THE DIRECTION OF FLOW.
- SANITARY WASTE 2-1/2" AND SMALLER: 1/4" DOWN PER 1'-0" IN DIRECTION OF FLOW.
- SANITARY WASTE 3" AND LARGER: 1/8" DOWN PER 1'-0" IN DIRECTION OF FLOW.
- GREASE WASTE: 1/4" DOWN PER 1'-0" IN DIRECTION OF FLOW.
- SANITARY VENT PIPING, ALL SIZES: GRADED AND CONNECTED AS TO DRIP BACK BY GRAVITY TO THE DRAINAGE PIPE IT SERVES.
- STORM DRAIN PIPING, ALL SIZES: 1/8" DOWN PER 1'-0" IN DIRECTION OF FLOW.

E. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE OR CONNECTED EQUIPMENT.

F. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND FOR ACCESS TO VALVES, AIR VENTS, DRAINS, UNIONS.

G. INSTALL SAME TYPE PIPING MATERIAL SPECIFIED FOR INSIDE BUILDING TO 5'-0" OUTSIDE BUILDING.

H. MAKE CONNECTIONS TO EQUIPMENT WITH UNIONS OR FLANGES.

PIPE AND PIPE FITTINGS (CONTINUED)

STEEL PIPE CONNECTIONS
A. 2" AND SMALLER - THREADED; 2-1/2" AND LARGER - WELDED.

B. DO NOT USE MITERED AND WELDED ELBOWS IN LIEU OF FITTINGS.

C. DIE CUT THREADED JOINTS WITH FULL CUT STANDARD TAPER PIPE THREADS WITH 1/2" WIDE WHITE TEFLON PIPE JOINT SEALANT TAPE APPLIED TO MALE THREADS ONLY.

D. USE ONLY MALLEABLE IRON THREADED PIPE FITTINGS FOR GAS PIPING.

E. USE BUTT WELD FITTINGS FOR WELDED STEEL PIPES. USE OXYACETYLENE OR ELECTRIC ARC PROCESS.

CAST IRON PIPE CONNECTIONS
A. JOINTS FOR BELL AND SPIGOT PIPES: NEOPRENE GASKETING SYSTEM WITH "TY-SEAL" WATER SOLUBLE LUBRICANT.

B. JOINTS FOR PLAIN END PIPE ABOVE GRADE: STAINLESS STEEL BAND TYPE GASKET AND CLAMP MECHANICAL FASTENER.

C. USE HUBLESS PIPING ABOVE GRADE ONLY.

COPPER PIPE CONNECTIONS
A. 2-1/2" AND SMALLER: USE 15% SILVER BRAZING ALLOY AND SILVER BRAZING FLUX ON BELOW-GRADE JOINTS. USE 95% TIN, 5% ANTIMONY LEAD-FREE SOLDER AND ASTM B813-91 NON-CORROSIVE STM 1.0 FLUX ON JOINTS. APPLY FLUX ON CLEANED END OF PIPE AND INSIDE FITTINGS WITH SMOOTH EVEN COATS.

B. 3" AND LARGER: USE 15% SILVER BRAZING ALLOY AND SILVER BRAZING FLUX. APPLY FLUX ON CLEANED END OF PIPE AND INSIDE FITTINGS WITH SMOOTH EVEN COATS.

APPLICATION OF PIPING SYSTEMS:

SERVICE	MATERIAL
EQUIPMENT DRAINS AND OVERFLOWS	COPPER, TYPE M OR DWV, HARD DRAWN
SANITARY DRAIN AND VENT ABOVE SLAB-ON-GRADE	COPPER, TYPE DWV, HARD DRAWN; CAST IRON; SCH 40 PVC (PVC NOT ALLOWED IN ANY RETURN AIR PLENUM)
SANITARY DRAIN AND VENT, BELOW SLAB-ON-GRADE INSIDE BUILDING	CAST IRON; SCHEDULE 40 PVC (PVC NOT ALLOWED IN ANY RETURN AIR PLENUM)
STORM DRAIN INSIDE BUILDING	CAST IRON; SCHEDULE 40 PVC (PVC NOT ALLOWED IN ANY RETURN AIR PLENUM)
DOMESTIC WATER UNBURIED	COPPER, TYPE L, HARD DRAWN CROSS-LINKED POLYETHYLENE (PEX) ASTM F877 FOR DOMESTIC HOT AND COLD WATER
DOMESTIC WATER BURIED	COPPER, TYPE K, HARD DRAWN CROSS-LINKED POLYETHYLENE (PEX) ASTM F877 FOR DOMESTIC HOT AND COLD WATER
DOMESTIC WATER EXPOSED AT FIXTURES	SEAMLESS BRASS PIPE, CHROME PLATED
GAS PIPING	SCHEDULE 40 BLACK STEEL

CAST IRON PIPING AND FITTINGS:
A. CAST IRON PIPING SHALL BEAR THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND LISTED BY NSF INTERNATIONAL.

B. HUBLESS STANDARD DUTY CAST IRON PIPE AND FITTINGS SHALL CONFORM TO CISPI 310 AND LISTED BY NSF INTERNATIONAL.

UNDERGROUND PIPE INSTALLATION
A. PROTECT STEEL PIPE INSTALLED BELOW GRADE AND TO MINIMUM 6" ABOVE GRADE WITH FACTORY APPLIED COVERING, PRO-CO FELT AND PIPE LINE ENAMEL NO. 4 DOUBLE WRAP OR X-TRU-COAT PLASTIC COATING. PROTECT FIELD JOINTS ON STEEL PIPE BY WITH TAPECOAT COMPANY PRIME COAT AND ONE LAYER OF TAPECOAT #20 HEAT APPLIED, 62 MIL TAPE PER MANUFACTURER'S RECOMMENDATIONS.

B. PROVIDE THRUST BLOCK AT ALL DIRECTION CHANGES ON PRESSURE PIPE.

C. BURY ALL OUTSIDE WATER PIPING MINIMUM 5'-0" BELOW GRADE TO TOP OF PIPE.

D. BURY ALL OUTSIDE GAS PIPING MINIMUM 1'-6" BELOW GRADE TO TOP OF PIPE.

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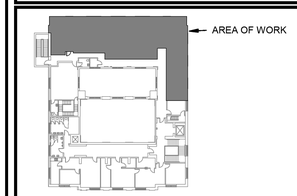

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DIVISION 220000 - PLUMBING SPECIFICATIONS

VALVES

SUBMITTALS
A. FURNISH MANUFACTURER'S SUBMITTAL DATA FOR VALVES.

B. VALVES SHALL BE OF SAME MANUFACTURER WHERE POSSIBLE. VALVE SEATS AND MATERIALS SHALL BE SUITABLE FOR SERVICE INTENDED.

ACCEPTABLE MANUFACTURES
A. BALL VALVE: APOLLO, KITZ, NIBCO.

B. GAS VALVE: DEZURIK.

RATINGS
A. UNLESS OTHERWISE INDICATED, VALVES SHALL BE SUITABLE FOR 200 PSIG WOG AND 250

SHUTOFF VALVE
A. BALL VALVE: ALL SIZES: TWO-PIECE BRONZE OR FORGED BRASS BODY WITH PTFE SEATS, PRESSURE RATED TO 150 SWP/600 WOG, FULL PORT, BLOWOUT-PROOF STEM AND POSITIVE SHUT-OFF. PACKING GLAND WITH PTFE PACKING. STEM EXTENSION WHERE INSULATED, LOCKABLE HANDLE.

BALANCING VALVE
A. FULL PORTED BALL VALVE WITH BALANCING STOPS.

CHECK VALVE
A. 2" AND SMALLER: BRONZE, SWING DISC, SOLDER OR THREADED ENDS.

B. 2-1/2" AND LARGER: IRON BODY, BRONZE TRIM, SWING DISC, RENEWABLE DISC AND SEAT, FLANGED ENDS.

C. SPRING LOADED, SILENT TYPE, CAST IRON BODY WITH BUNA-N SEATS SUITABLE FOR 250F. WAFER AND DISCS OF ALUMINUM, BRONZE, OR DUCTILE IRON. SHAFT AND SPRINGS TYPE 316 STAINLESS STEEL.

GAS VALVE
D. IRON OR FORGED BRASS BODY INDOORS, BRONZE OR FORGED BRASS BODY OUTDOORS.

E. FORGED BRASS BALL VALVE. CERTIFIED TO CSA, ASME B16.33, AND UL FOR GAS PIPING SYSTEMS.

DRAIN VALVE
A. BALL VALVE WITH NIPPLE, CAP, HOSE THREAD.

INSTALLATION
A. PROVIDE VALVES SUITABLE TO CONNECT TO ADJOINING PIPING AS SPECIFIED FOR PIPE JOINTS. USE PIPE SIZE VALVES.

B. 2" AND SMALLER: THREADED OR SOLDERED.

C. 2-1/2" AND LARGER: FLANGED.

D. SOLDER OR SCREW TO SOLDER ADAPTERS FOR COPPER TUBING.

E. PROVIDE DRAIN VALVES AT MAIN SHUT-OFF VALVES, LOW POINTS OF PIPING AND APPARATUS.

F. USE SPRING LOADED CHECK VALVES AT PUMPS AND WHERE INSTALLED IN VERTICAL POSITION.

SUPPORTS, ANCHORS, SEALS

REFERENCE STANDARDS
A. PIPE SUPPORTS: ANSI B31.1, POWER PIPING.

INSERTS
A. MALLEABLE IRON CASE, GALVANIZED STEEL SHELL, EXPANDER PLUG FOR THREADED CONNECTION WITH LATERAL ADJUSTMENT, TOP SLOT FOR REINFORCING RODS, LUGS FOR ATTACHING TO FORMS. USE INSERTS AND ANCHORS SUITABLE FOR TYPE OF STRUCTURAL CONDITIONS AND COMPONENTS.

PIPE HANGERS AND SUPPORTS
A. HANGERS, PIPE SIZES TO 1-1/2": ADJUSTABLE STEEL RING (INSULATED PIPE) OR BAND (UNINSULATED PIPE).

B. HANGERS, HOT PIPE SIZES 2" TO 4" AND ALL COLD PIPE SIZES: ADJUSTABLE STEEL CLEVIS.

C. WALL SUPPORT, PIPE SIZES TO 3": CARBON STEEL HOOK.

D. WALL SUPPORT, PIPE SIZES 4" AND OVER: WELDED STEEL BRACKET AND PIPE STRAP. ADJUSTABLE STEEL YOKE PIPE ROLL OR ROLLER CHAIR FOR HOT PIPE SIZES 5" AND OVER.

E. VERTICAL SUPPORT: STEEL RISER CLAMP.

F. FLOOR SUPPORT, HOT PIPE SIZES TO 4" AND ALL COLD PIPE SIZES: CARBON STEEL, ADJUSTABLE PIPE SADDLE, LOCKNUT NIPPLE, FLOOR FLANGE, CONCRETE PIER OR STEEL SUPPORT SIZED FOR PIPE ELEVATION.

G. FOR PIPE SIZES 1-1/2" AND SMALLER, PROTECT INSULATED HORIZONTAL PIPE AT POINT OF SUPPORT BY 180 DEGREE, 12" LONG SHEET METAL SHIELD. NO HANGER SHALL PENETRATE OR CRUSH INSULATING MATERIAL.

H. FOR PIPE SIZES 2" AND LARGER, PROTECT INSULATED HORIZONTAL PIPE AT POINT OF SUPPORT BY 180 DEGREE, 12" LONG GALVANIZED SHEET METAL SHIELD SURROUNDING 180 DEGREE INSERT OF HIGH DENSITY CALCIUM SILICATE INSULATION OF SAME THICKNESS AS ADJOINING PIPE INSULATION. ON COLD PIPING, EXTEND INSULATION INSERT 1" BEYOND SHEET METAL SHIELD AT EACH END. OVERSIZE HANGERS TO ACCOMMODATE SHIELDED INSERTS. NO HANGER SHALL PENETRATE OR CRUSH INSULATING MATERIAL. AT CONTRACTOR'S OPTION, PRE-MANUFACTURED THERMAL HANGER SHIELDS WITH INTEGRAL VAPOR BARRIER, EQUIVALENT TO VALUE ENGINEERED PRODUCTS PRO-SHIELD OR PRO-SHIELD N/T, MAY BE UTILIZED. FOR EXTERIOR INSTALLATIONS USE WEATHER SHIELD WITH ALUMINUM JACKET.

I. PROVIDE COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING WHERE PIPING AND HANGER ARE IN DIRECT CONTACT WITH ONE ANOTHER.

PIPE HANGER RODS
A. THREADED STEEL.

PIPE HANGERS AND SUPPORTS
A. SUPPORT HORIZONTAL PIPING AS FOLLOWS:

NOMINAL PIPE SIZE	MAXIMUM HANGER SPACING			HANGER ROD DIAMETER
	STEEL	COPPER	SCHEDULE 40 PVC	
1-1/2" AND SMALLER	6'-0"	6'-0"	4'-0"	3/8"
2" TO 4"	10'-0"	10'-0"	4'-0"	3/8"
5" TO 8"	10'-0"	10'-0"	4'-0"	1/2"

A. INSTALL HANGERS TO PROVIDE MINIMUM 1/2" CLEAR SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK, EXCEPT WHERE UL LISTING FOR FIRE RATED CEILING REQUIRES 4" MINIMUM SEPARATION.

B. SUPPORT HORIZONTAL CAST IRON HUB AND SPIGOT PIPE WITHIN 1'-0" OF EACH HUB AND WITH 5'-0" MAXIMUM SPACING BETWEEN HANGERS, EXCEPT THAT PIPE EXCEEDING 5'-0" IN LENGTH SHALL BE SUPPORTED AT INTERVALS NO GREATER THAN 10'-0". SUPPORT HORIZONTAL NO-HUB CAST IRON PIPE RUNS AT EACH FITTING AND AT EACH LENGTH OF PIPE LESS THAN 4'-0" WITH AT LEAST ONE HANGER. SUPPORT HORIZONTAL NO-HUB PIPES LONGER THAN 4'-0" ON BOTH SIDES OF EACH JOINT.

C. PLACE HANGER WITHIN 1'-6" OF EACH ELBOW OR TEE.

D. SUPPORT VERTICAL PIPING AT EVERY FLOOR. SUPPORT VERTICAL SOIL PIPE AT EACH FLOOR AT HUB. SUPPORT NO-HUB PIPE SO WEIGHT IS CARRIED FROM PIPE TO SUPPORT AND NOT FROM JOINT TO SUPPORT. SUPPORT 2" AND SMALLER PIPES MIDWAY BETWEEN FLOORS WITH RESTRAINTS ADEQUATE TO PREVENT PERPENDICULAR AXIAL MOVEMENT.

E. SUPPORT EACH BRANCH PIPE TO EQUIPMENT AT TAKE-OFF AND WITHIN 12" OF TERMINATION.

F. PROVIDE GALVANIZED STEEL INSULATION PROTECTION SADDLES AT ALL SUPPORT POINTS FOR INSULATED PIPES ON TRAPEZE HANGERS.

G. ANCHOR ALL SUPPORTING LUGS OR GUIDES TO BUILDING STRUCTURE.

H. ANCHOR AND SUPPORT WATER CONNECTIONS TO PLUMBING FIXTURES, IN PIPE CHASES OR WALLS, TO FIXTURE CARRIERS OR WASTE AND VENT PIPING. SUPPORTS SHALL BE SIMILAR TO ADJUSTO-SPACER SYSTEM AS MANUFACTURED BY THOMAS INDUSTRIES. PLACE ADJUSTO-SPACERS EVERY 10'-0" ON VERTICAL PIPE AND EVERY 5'-0" ON HORIZONTAL PIPE. INSULATE PIPE AREA IN CONTACT WITH ADJUSTO-SPACERS WITH DUCT TAPE, FELT LINER, OR PLASTIC LINER MATERIAL.

SUPPORTS, ANCHORS, SEALS (CONTINUED)

FLASHING AND SAFING
A. WHERE EXPOSED PIPING PASSES THROUGH WALLS, FLOORS, ROOFS, PROVIDE CHROME PLATED OR STAINLESS STEEL ESCUTCHEON FOR PIPING.

B. FLASH AND COUNTERFLASH WHERE MECHANICAL EQUIPMENT PASSES THROUGH WEATHER- OR WATER-PROOFED WALLS, FLOORS, ROOFS.

C. PROVIDE PRE-MANUFACTURED PIPE BOOT FOR VENT AND/OR WASTE STACKS PASSING THROUGH ROOF. SECURE BOOT TO PIPE WITH STAINLESS STEEL BAND CLAMP OR OTHER CLAMPING DEVICE AS APPROVED BY ROOFING MANUFACTURER, RE: ARCHITECT.

SLEEVES
A. PROVIDE PIPE SLEEVES TO APPLICABLE TRADES WITH PRECISE ROUGH-IN LOCATIONS FOR PIPES PASSING THROUGH CONCRETE OR MASONRY CONSTRUCTION. UNLESS OTHERWISE INDICATED, SLEEVES SHALL BE OF SIZE TO PROVIDE FROM 1/4" TO 1" CLEARANCE BETWEEN BARE PIPE AND SLEEVE. WHERE PIPE PASSES THROUGH CONCRETE FLOOR, EXTEND SLEEVE MINIMUM 1" ABOVE FINISHED FLOOR.

B. SLEEVES IN BEARING WALLS, WATERPROOF MEMBRANE FLOORS, WET AREAS SHALL BE STEEL PIPE OR CAST IRON PIPE. SLEEVES IN NON-BEARING WALLS, FLOORS, CEILINGS SHALL BE STEEL PIPE OR CAST IRON PIPE.

C. WHERE UNINSULATED PIPES PENETRATE BEARING WALLS (EXCLUDING FOUNDATIONS), FIRE RATED WALLS, PARTITIONS, FLOORS, PACK AND SEAL ENTIRE SPACE BETWEEN PIPE AND SLEEVE WITH DOW CORNING 3-6548 SILICONE RTV FOAM, OR 1" MINIMUM THICKNESS OF 3M FIRE BARRIER, CP-25 CAULK, OR 303 PUTTY ON EACH SIDE OF OPENING.

D. ENCASE ALL INSULATED PIPES PENETRATING FIRE WALLS AND FLOORS IN 360 DEGREE METAL-SHIELDED INSULATION INSERTS AS MANUFACTURED BY VALUE ENGINEERED PRODUCTS. PACK AND SEAL SPACE BETWEEN SHIELD AND SLEEVE PER PRECEDING PARAGRAPH. EXTEND INSULATION INSERT ON ALL DOMESTIC WATER LINES 1" BEYOND SHEET METAL SHIELD.

E. PIPE TO SLEEVE CLOSURE FOR PIPES PENETRATING FOUNDATIONS, WATERPROOFING MEMBRANE FLOORS, WET AREAS SHALL BE "LINK-SEAL".

METERS AND GAUGES

SUBMITTALS
A. FURNISH MANUFACTURER'S SUBMITTAL DATA FOR: THERMOMETERS, PRESSURE GAUGES, FLOW MEASURING DEVICES, TEST PLUGS.

PORTABLE INSERTION TYPE THERMOMETERS
A. 5" STEMS, ACCURATE WITHIN 1% OVER DIAL RANGE, HERMETICALLY SEALED.

CONSTANT READ THERMOMETERS
B. MERCURY FREE THERMOMETER: 9" ALUMINUM CASE, NON-TOXIC HEAT TRANSFER MEDIUM-FILLED TUBE, SEPARABLE SOCKET CONNECTION, EXTENSION NECK TO CLEAR INSULATION, SWIVEL ANGLE STEM, FULLY ADJUSTABLE, ACCURATE WITHIN 1% OVER DIAL RANGE.

PORTABLE INSERTION TYPE PRESSURE GAUGES
C. 4-1/2" DIAL, PHOSPHOR-BRONZE BOURDON TUBE, STAINLESS STEEL MOVEMENT, ACCURATE WITHIN 1/2% OVER SCALE RANGE.

CONSTANT READ PRESSURE GAUGES
A. 4-1/2" OR 5" DIAL, STANDARD BLACK CASE, BRASS PRESSURE SNUBBER AND NEEDLE VALVE. ACCURATE WITHIN 1% OVER MIDDLE HALF OF SCALE RANGE, 2% OVER REMAINDER.

FLOW MEASURING DEVICE
A. ORIFICE OR VENTURI TYPE, FACTORY ASSEMBLED WITH 300 PSIG RATED BALL VALVE OR 125 PSIG RATED MULTI-TURN GLOBE VALVE WITH ADJUSTABLE MEMORY STOP. SCHRADER TYPE PRESSURE TEST PORTS AND CAPS WITH PORT EXTENSIONS. CHAINED METAL TAG INDICATING LOCATION, GPM, AND METER READING.

INSTALLATION
A. MOUNT THERMOMETERS TO BE EASILY READ FROM FLOOR.

B. INSTALL FLOW MEASURING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

C. FURNISH METERING STATION WITH PERMANENT METAL TAG MARKED WITH STATION DESIGNATION, GPM, METER READING FOR GPM.

MECHANICAL IDENTIFICATION

PIPE IDENTIFICATION
A. IDENTIFY EACH PIPING SYSTEM AND INDICATE DIRECTION OF FLOW WITH BAND-SECURED OR SNAP-ON PRINTED LABELS IN MECHANICAL ROOM AND OTHER EXPOSED AREAS AND PRESSURE SENSITIVE, SELF-ADHESIVE LABELS IN CONCEALED AREAS. APPLY MARKINGS AFTER PAINTING AND CLEANING OF PIPING AND INSULATION IS COMPLETED.

B. APPLY LEGEND AND FLOW ARROWS AT VALVE LOCATIONS, AT POINTS WHERE PIPING ENTERS OR LEAVES VALVE OR METER BOX, AT NOT LESS THAN EVERY 30'-0" OF RUN OR AT LEAST ONCE IN EVERY EXPOSED LOCATION. LOCATE MARKINGS FOR MAXIMUM VISIBILITY.

C. WORDING/COLOR COMBINATIONS SHALL MEET ANSI SPECIFICATIONS UNLESS COLORS ARE SPECIFIED OTHERWISE.

D. SIZES OF LETTERING AND FLOW ARROWS SHALL BE AS FOLLOWS:

OUTSIDE DIAMETER OF PIPE OR COVERING (INCLUSIVE)	SIZE OF LETTER	MINIMUM LENGTH OF FLOW ARROW
5/8" TO 2"	1/2"	2-1/2"
2-1/2" AND LARGER	1"	4"

PLUMBING INSULATION

GENERAL
A. ADHESIVES AND INSULATION MATERIALS: COMPOSITE FIRE AND SMOKE HAZARD RATINGS MAXIMUM 25 FOR FLAME SPREAD AND 50 FOR SMOKE DEVELOPED. ADHESIVES SHALL BE WATERPROOF.

PIPE INSULATION
A. HEAVY DENSITY ONE-PIECE FIBERGLASS, FACTORY APPLIED VAPOR BARRIER JACKET, DOUBLE SURFACE ADHESIVE SELF-SEALING LAP. "K" FACTOR 0.23 AT 75 F MEAN TEMPERATURE. INSULATION EXPOSED TO WEATHER: PROTECT INSULATION WITH WEATHERPROOF METAL JACKET. JACKET SHALL BE FACTORY APPLIED ALUMINUM, 0.016" THICK, WITH LAMINATED VAPOR BARRIER AND "Z" GROOVE WATERTIGHT SEAL. SEAL EACH JOINT WITH SNAP STRAPS CONTAINING PERMANENT PLASTIC SEALING COMPOUND. SECURE WITH 1/2" WIDE STAINLESS STEEL BANDS. INSULATE FITTINGS WITH MITERED SECTIONS OF SAME MATERIAL. SEAL JOINTS WITH SEALING COMPOUND AND PREFORMED ALUMINUM BANDS.

INSTALLATION
A. INSULATION SHALL BE CONTINUOUS THROUGH INSIDE WALLS. PACK AROUND PIPES WITH FIREPROOF SELF-SUPPORTING INSULATION MATERIAL, FULLY SEALED.

B. FINISH INSULATION NEATLY AT HANGERS, SUPPORTS, OTHER PROTRUSIONS, AND WHERE THE INSULATION BREAKS FOR SERVICE OR ACCESS REQUIREMENTS.

C. DO NOT COVER PIPING UNTIL TESTED.

D. REMOVE AND REAPPLY INSULATION IF, IN OPINION OF ARCHITECT, IT HAS NOT BEEN INSTALLED IN FIRST CLASS WORKMANLIKE MANNER.

E. REPAIR SEPARATION OF JOINTS OR CRACKING OF INSULATION DUE TO THERMAL MOVEMENT OR POOR WORKMANSHIP.

INSTALLATION OF PIPE INSULATION
A. SEAL LONGITUDINAL LAPS WITH VAPOR BARRIER ADHESIVE OR WITH FACTORY APPLIED DOUBLE SURFACE PRESSURE SENSITIVE ADHESIVE SYSTEM. SEAL END JOINTS WITH 3" WIDE BUTT STRIPS SECURED WITH VAPOR BARRIER ADHESIVE. SEAL ALL SEAMS ON COLD WATER PIPING WITH BENJAMIN FOSTER 30-35 SEAL FAST MASTIC.

INSTALLATION OF INSULATION ON FITTINGS AND VALVES
A. INSULATE FITTINGS AND VALVES WITH FIRMLY COMPRESSED FOIL-FACED FIBERGLASS BLANKET AND 25/50 UL RATED PVC FITTING COVERS (ZESTON OR EQUAL).

B. WHERE INSTALLATION OF PVC FITTING COVERS IS PROHIBITED BY LOCAL AUTHORITIES, INSULATE FITTINGS AND VALVES WITH MOLDED FIBERGLASS FITTINGS OR FIRMLY COMPRESSED FOIL-FACED FIBERGLASS BLANKET. SECURE IN PLACE WITH 20 GAUGE CORROSION RESISTANT WIRE AND APPLY SMOOTHING COAT OF INSULATING CEMENT. FINISH WITH LAYER OF GLASS CLOTH EMBEDDED BETWEEN TWO COATS OF VAPOR BARRIER MASTIC. LAP GLASS FABRIC 2" ONTO ADJACENT INSULATION.

C. INSULATION ON FITTINGS AND VALVES SHALL BE SAME THICKNESS AS ON PIPE.

INSULATION SCHEDULE:

SERVICE	PIPE SIZE	THICKNESS
DOMESTIC COLD WATER	ALL	1"
DOMESTIC HOT WATER, DOMESTIC HOT WATER RECIRCULATION	1-1/2" AND SMALLER	1"
	2" AND LARGER	2"
ROOF DRAIN, OVERFLOW DRAIN PIPING (VERTICAL LEADER FROM DRAIN BOWLS, AND ALL HORIZONTAL)	ALL	1/2"
ROOF DRAIN, OVERFLOW DRAIN BOWL	ALL	1"

TESTING AND BALANCING

STATUS OF SYSTEMS
A. DO NOT BEGIN TESTING AND BALANCING WORK UNTIL SYSTEM HAS BEEN COMPLETED AND IS IN FULL WORKING ORDER.

B. PUT SYSTEMS AND EQUIPMENT INTO FULL OPERATION AND CONTINUE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING. ASCERTAIN PRELIMINARY TAB REQUIREMENTS PRIOR TO COMMENCEMENT OF WORK THROUGH REVIEW OF AVAILABLE DRAWINGS AND SPECIFICATIONS. MAKE VISUAL OBSERVATIONS AT SITE DURING CONSTRUCTION TO DETERMINE LOCATION AND SUITABILITY OF REQUIRED BALANCING DEVICES.

REQUIREMENTS OF WORK
A. DOMESTIC CIRCULATING HOT WATER
   a. ADJUST MANUAL BALANCING VALVES IN SYSTEM SO ALL HOT WATER OUTLETS RECEIVE ADEQUATE SUPPLY OF HOT WATER.
   b. WHEN BALANCING IS DONE, MARK VALVES IN BALANCED POSITION, SET LOCKING RINGS.

GENERAL PIPE TESTING
A. TEST ALL PIPING SYSTEMS. CORRECT LEAKS BY REMAKING JOINTS. REMOVE EQUIPMENT NOT ABLE TO WITHSTAND TEST PRESSURE FROM SYSTEM DURING TEST. CONSULT GOVERNING CODES FOR SPECIAL SYSTEM REQUIREMENTS.

B. TEST PIPING BEFORE BEING PERMANENTLY ENCLOSED.

C. OBTAIN CERTIFICATES OF APPROVAL, ACCEPTANCE, COMPLIANCE WITH REGULATIONS OF AGENCIES HAVING JURISDICTION. SUBMIT TO OWNER.

CHLORINATION OF DOMESTIC WATER LINE
A. STERILIZE DOMESTIC WATER SYSTEM AFTER PRESSURE TESTS HAVE BEEN COMPLETED. FLUSH ENTIRE SYSTEM, INTRODUCE CHLORINE OR HYPOCHLORITE TO NOT LESS THAN 50 PPM RESIDUAL CHLORINE. LET STAND FOR 24 HOURS MINIMUM.

B. FLUSH SYSTEM WITH CLEAN WATER UNTIL CHLORINE CONTENT IS REDUCED TO 1 PPM AT POINT FURTHEST FROM WHERE CHLORINE WAS INTRODUCED.

SYSTEM TESTS
A. HYDROSTATIC TEST - WATER PIPING (NEW PIPING ONLY): HAND PUMP SYSTEM TO GREATER OF 100 PSIG OR 150% OF OPERATING PRESSURE. MAINTAIN PRESSURE UNTIL SYSTEM HAS BEEN INSPECTED FOR LEAKS BUT NOT LESS THAN FOUR HOURS.

B. COMPRESSED AIR OR NITROGEN TEST FOR NATURAL GAS PIPING: SUBJECT PIPING SYSTEM TO REQUIRED GAS PRESSURE WITH OIL FREE AIR OR NITROGEN. SYSTEM SHALL MAINTAIN PRESSURE FOR DURATION OF SOAPY WATER TEST OF EACH JOINT. TEST PRESSURE OF 100 PSIG FOR 4 HOURS OR TEST PRESSURE OF 60 PSIG OR ABOVE FOR 24 HOURS SHOWING NO PRESSURE DROP EXCEPT THAT CAUSED BY TEMPERATURE CHANGES. DO NOT USE FLAME OR OTHER LIQUID FOR TESTING. DO NOT REPAIR DEFECTS IN GAS PIPING OR FITTINGS; REMOVE AND REPLACE WITH SOUND MATERIAL.

C. WASTE, DRAIN, VENT PIPING: FILL SYSTEM WITH WATER TO POINT OF OVERFLOW BUT NOT LESS THAN 10'-0" HEAD. MAINTAIN WATER LEVEL FOR 4 HOURS.

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True North

Plan North

GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

OWNER IDENTIFICATION

DESIGNEDGE architecture interior design
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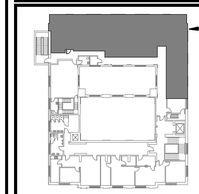
DESIGNER IDENTIFICATION

REGISTERED PROFESSIONAL ENGINEER
KATHERINE V. BROWN-VALAS
PE-41745
DATE 05.05.26
NORTH DAKOTA

STAMP OR SEAL



KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
	8/05/2025	35% Submittal
	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN: 4/20/2026
CHECKED BY	KVB	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	PLUMBING	
SHEET TITLE	PLUMBING SPECIFICATIONS	
SHEET NUMBER	P0.3	
	SHEET 21 OF 49 SHEETS	

SHEET IDENTIFICATION

5/6/2026 9:24:37 AM

PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	ADA	MANUFACTURER	MODEL NUMBER	ACCEPTABLE MANUFACTURERS	TRIM MANUFACTURER AND MODEL NUMBER	TYPE	ACCESSORIES	FINISH	FLOW RATE	REMARKS	ROUGH IN CONNECTION SIZING			
												WASTE (IN)	VENT (IN)	HOT (IN)	COLD (IN)
L-1	LAVATORY	YES	AMERICAN STANDARD	LUCERN 355.012	ZURN TOTO KOHLER	SLOAN EBF-650-BAT	20"x18" CONCEALED ARM WALL MOUNTED, 4" CENTERSET FAUCET WITH IR HANDS FREE CONTROL AND 4-3/4" SPOUT	OFFSET GRID STRAINER TRUEBRO TRAP COVER, BATTERY BOX FLOOR MOUNTED CARRIER	VITREOUS CHINA CHROME FAUCETS	0.5 GPM	COORDINATE POWER WITH DIVISION 27	2	2	1/2	1/2
S-1	SINK	YES	ELKAY	LRAD3322	ACORN JUST STANADYNE	DELTA 1996ZZ-SD-DST	22"X19" O.D. SINGLE COMPARTMENT, DELUXE SINGLE HANDLE FAUCET, METAL CONSTRUCTION & 9" SPOUT	PULL DOWN SPRAY FAUCET, OFFSET DRAIN OPENING FOR ADA COMPLIANCE, LEAD FREE	STAINLESS STEEL CHROME FAUCETS	1.5 GPM	6-1/2" DEEP SINK, COORDINATE FAUCET HOLE CONFIGUIRATION WITH FAUCET	2	2	1/2	1/2
SH-1	SHOWER	YES	COMFORT DESIGN	XSS 3637 BF 3P RRF	AQUA-BATH FLORESTONE KOHLER	--	THREE PIECE, TRANSFER, 36"X36" SLIP RESISTANT FLOOR, 2" NO CAULK DRAIN, PRESSURE BALANCING VALVE WITH SERVICE STOPS, ADA HANDLE. LEFT HAND TRANSFER	GRAB BARS & FOLDING SEAT COLLAPSIBLE THRESHOLD HAND-HELD SHOWER ASSEMBLY W/ SLIDE BAR, SOAP DISH	ACRYLIC CHROME FAUCETS	1.75 GPM	SHOWER HEAD COORDINATE SKIRT AND THRESHOLD WITH ARCHITECTAL DRAWINGS	2	2	1/2	1/2
WC-1	WATER CLOSET	YES	AMERICAN STANDARD	CADET FLOWISE 2467.100	ZURN TOTO KOHLER	N/A	FLOOR MOUNTED, PRESSURE ASSISTED TANK TYPE, 17" HIGH, ELONGATED BOWL, 12" ROUGH-IN	HEAVY DUTY SEAT, COLOR SHALL MATCH FIXTURE	VITREOUS CHINA	1.1 GPF	COORDINATE TRIP LEVER LOCATION HIGH EFFICIENCY FLUSH WATERSENSE CERTIFIED	4	2	--	1/2

NOTE:
ALL CONNECTIONS TO POTABLE WATER SYSTEM SHALL CONFORM TO NSF/ANSI-61 AND NSF/ANSI-372.
ALL PLUMBING FIXTURES SHALL BE EPA WATERSENSE CERTIFIED.

PLUMBING SPECIALTIES SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL NUMBER	ACCEPTABLE MANUFACTURERS	TYPE	ACCESSORIES	FINISH	REMARKS
D-1	DISPOSER	IN SINK ERATOR	PRO 333	WASTE KING GE, MONOGRAM	3/4 HP, 120-1-60 AUTOMATIC REVERSING STAINLESS STEEL ELEMENTS	MOTOR OVERLOAD PROTECTION, PLUG AND CORD	--	COORDINATE CONNECTION WITH DIVISION 26
WCO-1	WALL CLEANOUT	JAY R SMITH	4510	JOSAM, ZURN, WADE/WATTS	COUNTERSUNK PLUG STAINLESS STEEL COVER PLATE	--	NICKEL BRONZE	SIZE NOTED ON PLAN
FD-1	FLOOR DRAIN	JAY R SMITH	2005A05-P050	JOSAM, ZURN, MIFAB	5" ROUND TOP, ROUND CAST IRON BODY, FLASHING CLAMP, ADJUSTABLE STRAINER HEAD, SECURED GRATE	TRAP PRIMER CONNECTION	NICKLE BRONZE	FOR FINISHED FLOOR AREAS
WB-1	LAUNDRY WALL BOX	GUY GRAY	WB200HA	LSP PRODUCTS, OATEY, SIOUX CHIEF	LAUNDRY, RECESSED, STEEL WATTS #2T "DUO CLOZ" VALVES WATER AND WASTE CONNECTIONS	INTEGRAL HAMMER ARRESTERS OPEN FRAME FACEPLATE	GALVANIZED STEEL	FOR COMMERCIAL APPLICATIONS
TP-1	TRAP PRIMER	SIOUX CHIEF	695	P.P.P.	TRAP PRIMER, PRESSURE DROP STYLE 10 PSIG DROP OPERATING ACTIVATION 0.25 OZ PER DISCHARGE	--	BRASS	30 PSI MINIMUM PRESSURE ASSE 1018 CERTIFIED

NOTE: ALL CONNECTIONS TO POTABLE WATER SYSTEM SHALL CONFORM TO NSF/ANSI-61 AND NSF/ANSI-372 EFFECTIVE 01/04/2014.

THERMOSTATIC MIXING VALVE SCHEDULE

SYMBOL	MODEL	SERVICE	HOT WATER INLET TEMP. °F	COLD WATER INLET TEMP. °F	OUTLET WATER TEMP. °F	MINIMUM FLOW (GPM)	DESIGN FLOW (GPM)	PRESSURE DROP (PSI)	CONNECTION SIZE (IN)	CONNECTION SIZE (OUT)	NOTES
TMV-1	170-LF	PUBLIC LAVATORIES	140	40	110	0.25	0.5	2	3/8	3/8	1, 2

NOTES:
1. EQUIPMENT SCHEDULE BASED ON: LEONARD.
2. ACCEPTABLE MANUFACTURERS INCLUDE: LAWLER, POWERS, WEBSTONE, BRADLEY, AND SYMMONS.

SPECIFICATION:

TMV-1: POINT OF USE THERMOSTATIC MIXING VALVE, LEAD FREE BODY, LOCKED TEMPERATURE ADJUSTMENT CAP, VANDAL RESISTANT, COPPER ENCAPSULATED THERMOSTAT ASSEMBLY, STAINLESS STEEL SPRINGS, INTEGRAL CHECK VALVES, ON HOT AND COLD WATER INLETS.

WATER HAMMER ARRESTOR SCHEDULE

SYMBOL	MODEL	PDI SYMBOL	CONNECTION SIZE	FIXTURE UNIT RATING	NOTES
WHA-A	1260XL-A	A	1/2"	1-11	1, 2
WHA-B	1260XL-B	B	3/4"	12-32	1, 2
WHA-C	1260XL-C	C	1"	33-60	1, 2
WHA-D	1260XL-D	D	1"	61-113	1, 2
WHA-E	1260XL-E	E	1"	114-154	1, 2
WHA-F	1260XL-F	F	1"	155-330	1, 2

NOTES:
1. EQUIPMENT SCHEDULE BASED ON ZURN.
2. ACCEPTABLE MANUFACTURERS INCLUDE: J.R. SMITH, SIOUX CHIEF, P.P.P. AND WILKINS.

SPECIFICATION:
STAINLESS STEEL PISTON TYPE WITH DOUBLE "O" RING SEAL, MALE THREAD INLET.

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True North

Plan North

OWNER IDENTIFICATION

GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

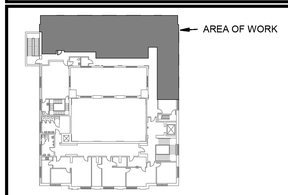
DESIGNER IDENTIFICATION

DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

STAMP OR SEAL

REGISTERED PROFESSIONAL ENGINEER
KATHERINE V. BROMAN-BALAS
PE-41745
DATE 05.05.26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

REVISION BLOCK

Mark	Date	Description
	8/05/2025	35% Submittal
	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

CONTRACTORS

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
BIM FILE NAME	

PROJECT IDENTIFICATION

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

SHEET IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN: 4/20/2026
CHECKED BY	KVB	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	PLUMBING	
SHEET TITLE	PLUMBING SCHEDULES	
SHEET NUMBER	P0.4	
	SHEET 22 OF 49 SHEETS	

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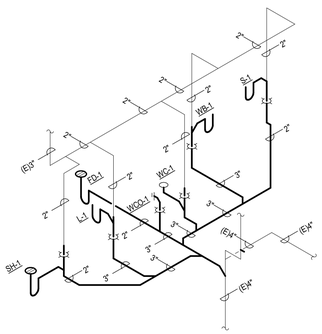
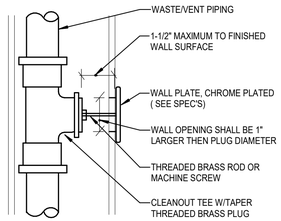


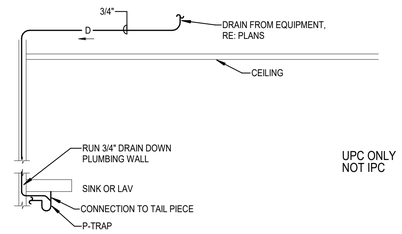
PLUMBING ISOMETRIC - WASTE AND VENT

SCALE: NONE



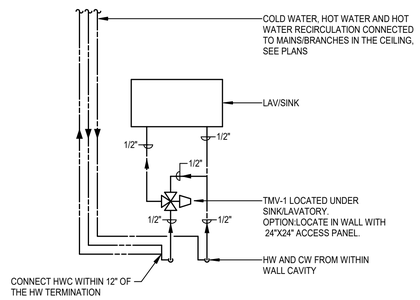
6 WALL CLEANOUT (WCO)

SCALE: NOT TO SCALE — 22 13 19.07



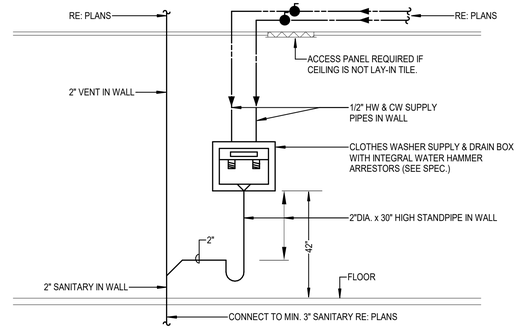
3 EQUIPMENT DRAIN TO WASTE DIAGRAM

SCALE: NOT TO SCALE — 22 05 00.06



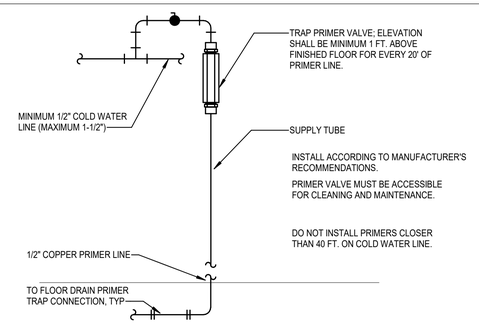
5 POINT OF USE THERMOSTATIC MIXING VALVE DIAGRAM

SCALE: NOT TO SCALE — 22 11 19.06



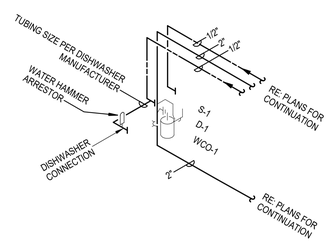
2 CLOTHES WASHER SUPPLY AND DRAIN BOX DIAGRAM

SCALE: NOT TO SCALE — 22 05 00.08



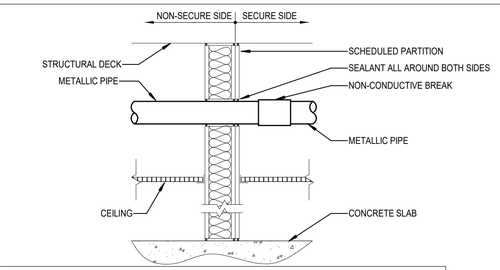
7 TRAP PRIMER DIAGRAM

SCALE: NOT TO SCALE — 22 11 19.01



4 TYPICAL SINK/DISHWASHER DIAGRAM

SCALE: NOT TO SCALE — 22 05 00.15



NOTE:
NON-CONDUCTIVE BREAK SHALL BE UL LISTED FOR USE IN AUTOMATIC FIRE SPRINKLER SYSTEMS.

THE NON-CONDUCTIVE BREAK IS NOT REQUIRED IN A RESIDENT AGENCY (RA) IF THE BUILDING IS A STAND ALONE STRUCTURE AND THE CLIENT IS THE ONLY TENANT OCCUPYING THE BUILDING.

1 DIELECTRIC PIPING BREAK DIAGRAM

SCALE: NOT TO SCALE

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Plan North

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PE-41745
DATE 05.05.26
NORTH DAKOTA

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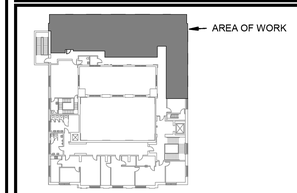

LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
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REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
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CITY/ST./ZIP	
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN: 4/20/2026
CHECKED BY	KVB	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	PLUMBING	
SHEET TITLE	PLUMBING DIAGRAMS	
SHEET NUMBER	P0.5	
	SHEET 23 OF 49 SHEETS	

SHEET IDENTIFICATION

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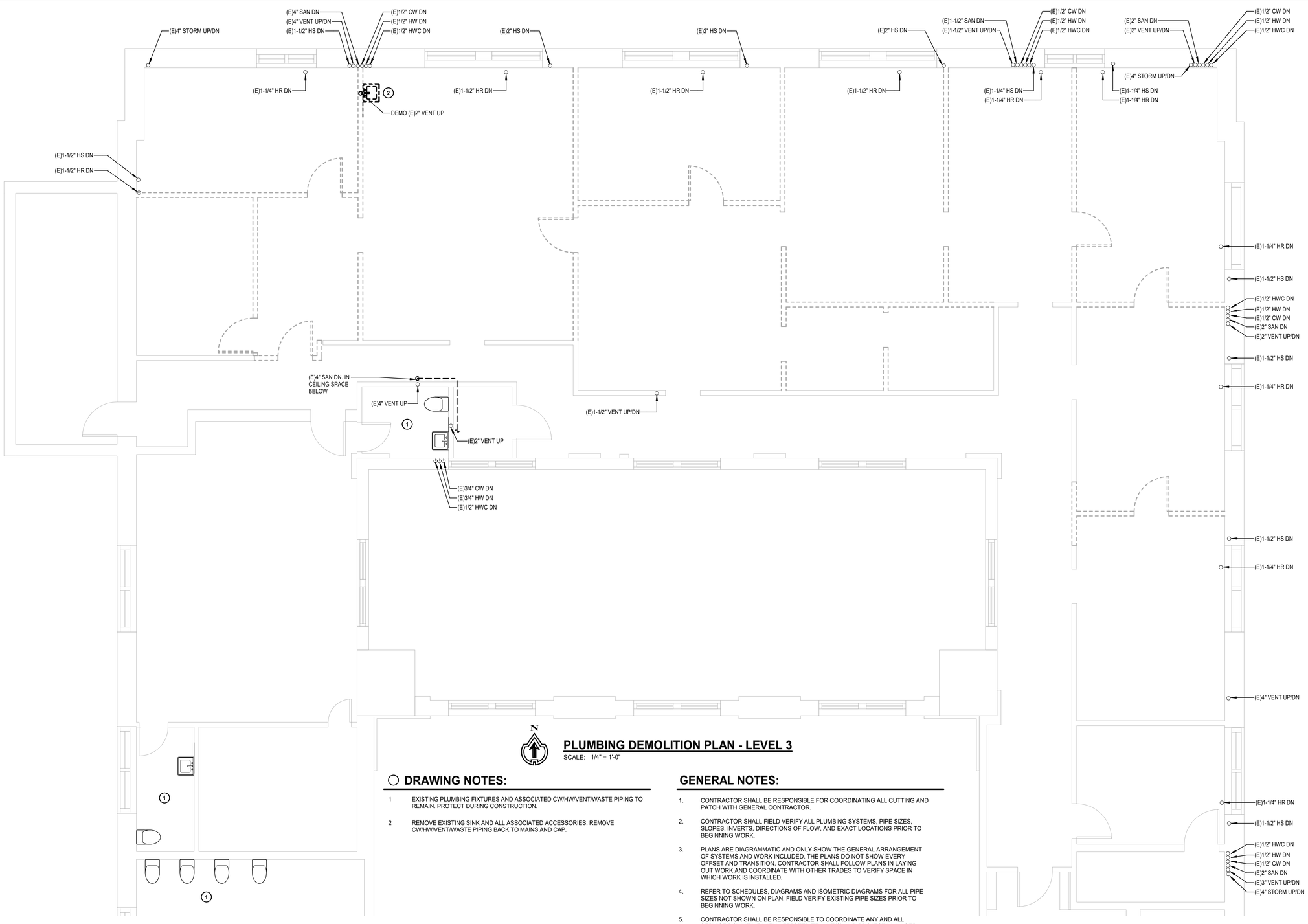

PLUMBING DEMOLITION PLAN - LEVEL 3

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

DRAWING NOTES:

1. EXISTING PLUMBING FIXTURES AND ASSOCIATED CW/HW/VENT/WASTE PIPING TO REMAIN. PROTECT DURING CONSTRUCTION.
2. REMOVE EXISTING SINK AND ALL ASSOCIATED ACCESSORIES. REMOVE CW/HW/VENT/WASTE PIPING BACK TO MAINS AND CAP.

GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CUTTING AND PATCH WITH GENERAL CONTRACTOR.
2. CONTRACTOR SHALL FIELD VERIFY ALL PLUMBING SYSTEMS, PIPE SIZES, SLOPES, INVERTS, DIRECTIONS OF FLOW, AND EXACT LOCATIONS PRIOR TO BEGINNING WORK.
3. PLANS ARE DIAGRAMMATIC AND ONLY SHOW THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. THE PLANS DO NOT SHOW EVERY OFFSET AND TRANSITION. CONTRACTOR SHALL FOLLOW PLANS IN LAYING OUT WORK AND COORDINATE WITH OTHER TRADES TO VERIFY SPACE IN WHICH WORK IS INSTALLED.
4. REFER TO SCHEDULES, DIAGRAMS AND ISOMETRIC DIAGRAMS FOR ALL PIPE SIZES NOT SHOWN ON PLAN. FIELD VERIFY EXISTING PIPE SIZES PRIOR TO BEGINNING WORK.
5. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ANY AND ALL SERVICE DOWNTIME WITH AFFECTED TENANT(S) AND PROJECT MANAGER PRIOR TO THE INTERRUPTION OF SERVICE.
6. COORDINATE SCHEDULE OF FLOOR PENETRATIONS AND WASTE PIPE INSTALLATION WITH TENANT BELOW AND BUILDING MANAGEMENT PRIOR TO BEGINNING CONSTRUCTION. UTILIZE ANY EXISTING ROUGH-IN AND BUILDING MAIN WASTE AND VENT CONNECTIONS.
7. CONTRACTOR SHALL CONFIRM REQUIREMENTS FOR LOCATING STEEL REINFORCING PRIOR TO MAKING FLOOR PENETRATIONS. PERFORM FLOOR X-RAY AS REQUIRED TO LOCATE STEEL.
8. CONTRACTOR SHALL FIELD VERIFY THE PIPING CONTINUITY OF SERVICE TO EXISTING FIXTURES TO REMAIN PRIOR TO BEGINNING DEMOLITION OF PIPING.
9. PROVIDE DIELECTRIC PIPING BREAKS AT SECURED WALL CONSTRUCTION, TYPICAL. SEE DIAGRAM.

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architecture interior design
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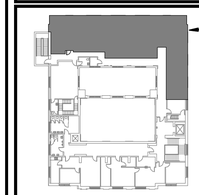
KATHERINE V. BROWN-VALIAS
PE-41745
DATE 05.05.26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

REVISION BLOCK

Mark	Date	Description
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CONTRACTORS

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

PROJECT IDENTIFICATION

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PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

SHEET IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN:	4/20/2026
CHECKED BY	KVB	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	PLUMBING		
SHEET TITLE	PLUMBING DEMOLITION PLAN		
SHEET NUMBER	PD1.3		
	SHEET 24 OF 49 SHEETS		

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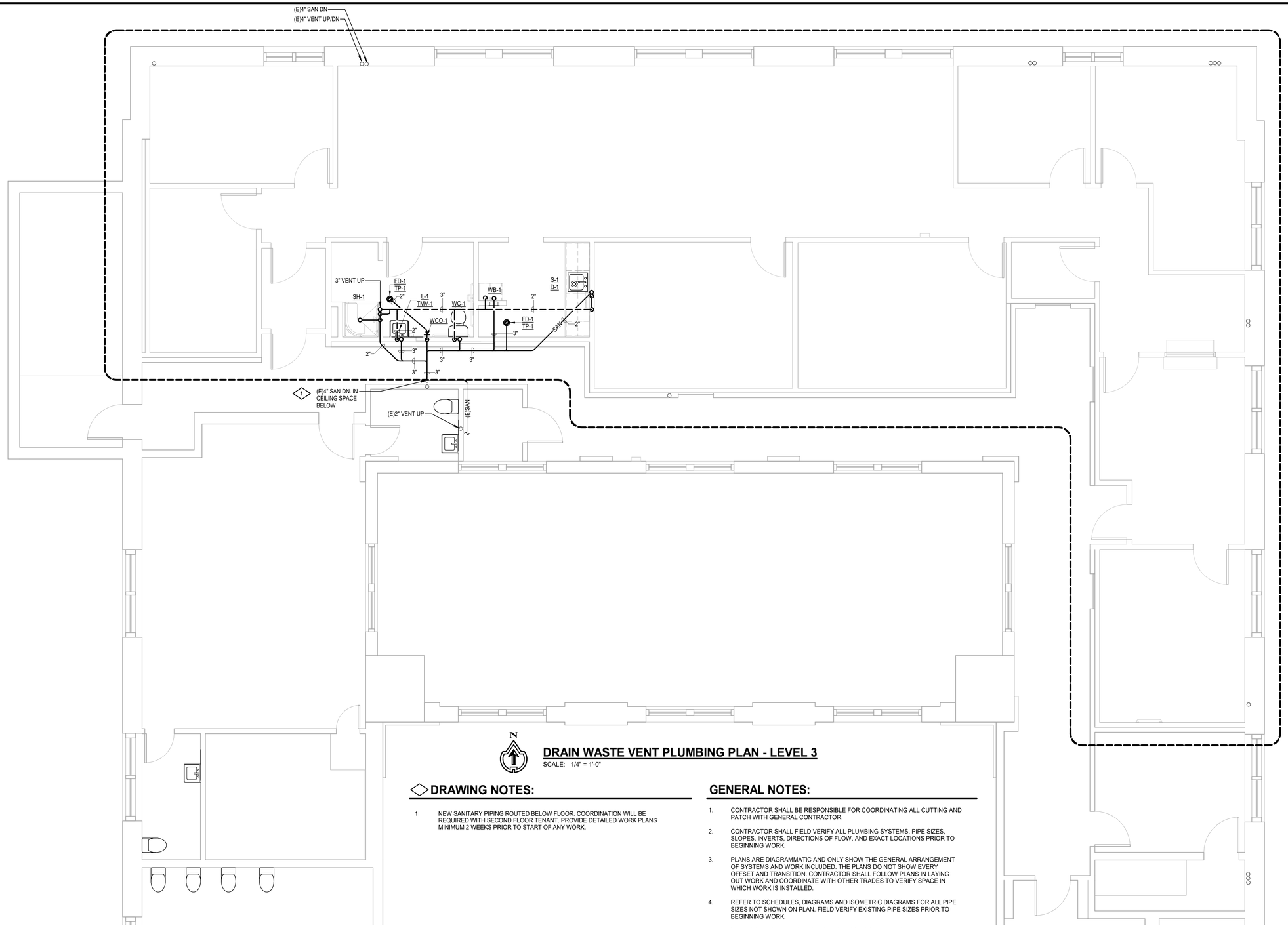

DRAIN WASTE VENT PLUMBING PLAN - LEVEL 3

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

DRAWING NOTES:

1 NEW SANITARY PIPING ROUTED BELOW FLOOR. COORDINATION WILL BE REQUIRED WITH SECOND FLOOR TENANT. PROVIDE DETAILED WORK PLANS MINIMUM 2 WEEKS PRIOR TO START OF ANY WORK.

GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CUTTING AND PATCH WITH GENERAL CONTRACTOR.
2. CONTRACTOR SHALL FIELD VERIFY ALL PLUMBING SYSTEMS, PIPE SIZES, SLOPES, INVERTS, DIRECTIONS OF FLOW, AND EXACT LOCATIONS PRIOR TO BEGINNING WORK.
3. PLANS ARE DIAGRAMMATIC AND ONLY SHOW THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. THE PLANS DO NOT SHOW EVERY OFFSET AND TRANSITION. CONTRACTOR SHALL FOLLOW PLANS IN LAYING OUT WORK AND COORDINATE WITH OTHER TRADES TO VERIFY SPACE IN WHICH WORK IS INSTALLED.
4. REFER TO SCHEDULES, DIAGRAMS AND ISOMETRIC DIAGRAMS FOR ALL PIPE SIZES NOT SHOWN ON PLAN. FIELD VERIFY EXISTING PIPE SIZES PRIOR TO BEGINNING WORK.
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6. COORDINATE SCHEDULE OF FLOOR PENETRATIONS AND WASTE PIPE INSTALLATION WITH TENANT BELOW AND BUILDING MANAGEMENT PRIOR TO BEGINNING CONSTRUCTION. UTILIZE ANY EXISTING ROUGH-IN AND BUILDING MAIN WASTE AND VENT CONNECTIONS.
7. CONTRACTOR SHALL CONFIRM REQUIREMENTS FOR LOCATING STEEL REINFORCING PRIOR TO MAKING FLOOR PENETRATIONS. PERFORM FLOOR X-RAY AS REQUIRED TO LOCATE STEEL.
8. CONTRACTOR SHALL FIELD VERIFY THE PIPING CONTINUITY OF SERVICE TO EXISTING FIXTURES TO REMAIN PRIOR TO BEGINNING DEMOLITION OF PIPING.
9. PROVIDE DIELECTRIC PIPING BREAKS AT SECURED WALL CONSTRUCTION, TYPICAL. SEE DIAGRAM.

0 2' 4' 8'
0 2'
1/4" = 1'-0"

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Plan North

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architecture interior design

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Telephone: 303-260-7277

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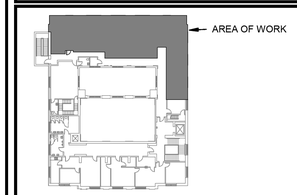
REGISTERED PROFESSIONAL ENGINEER
KATHERINE V. BROWNVBALIAS
PE-41745
DATE 05.05.26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

REVISION BLOCK

Mark	Date	Description
	8/05/2025	35% Submittal
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PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

PROJECT IDENTIFICATION

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PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

SHEET IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN: 4/20/2026
CHECKED BY	KVB	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	PLUMBING	
SHEET TITLE	LEVEL 3 DRAIN WASTE VENT PLUMBING PLAN	
SHEET NUMBER	P1.2	
	SHEET 25 OF 49 SHEETS	

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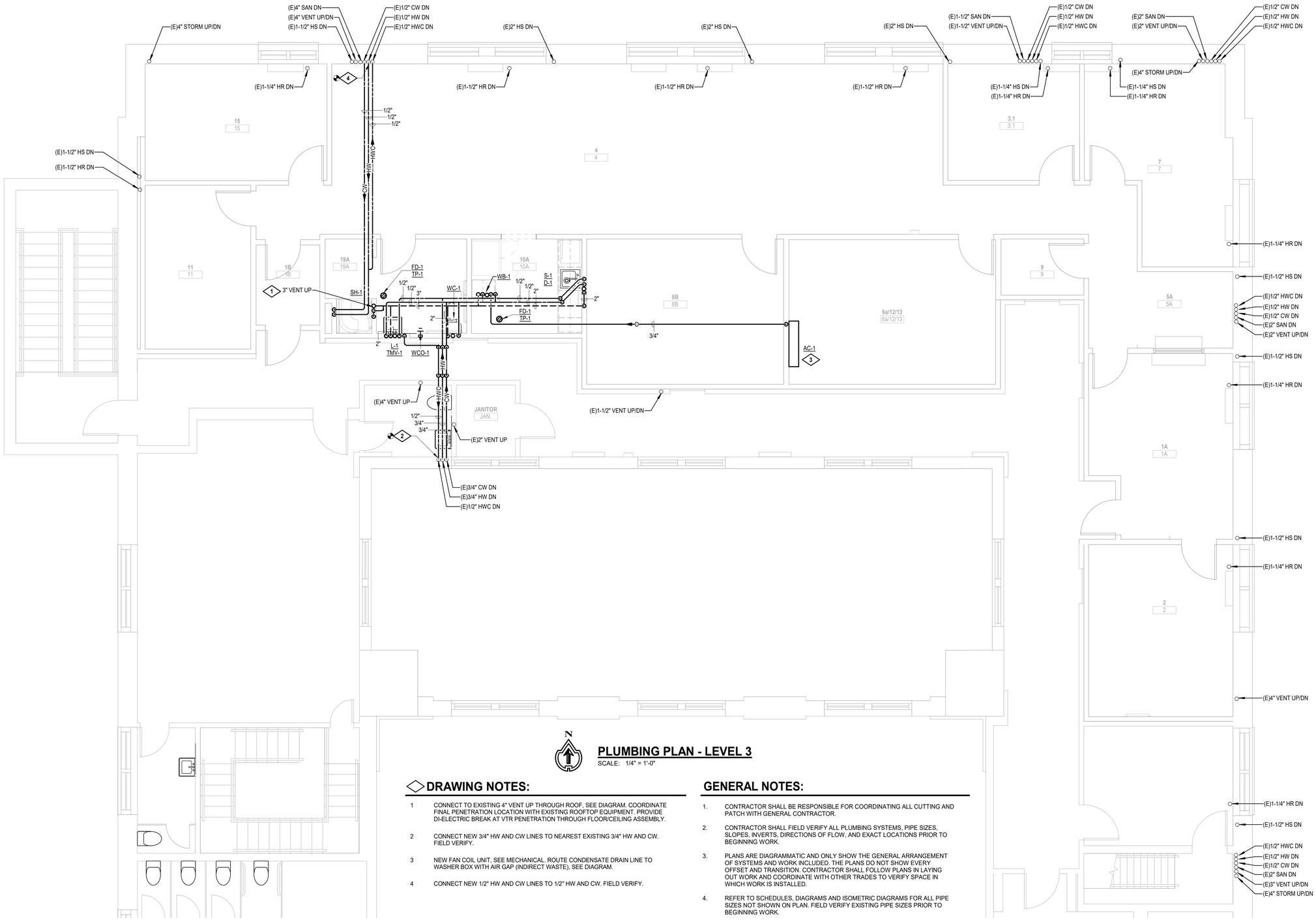

PLUMBING PLAN - LEVEL 3

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

DRAWING NOTES:

1. CONNECT TO EXISTING 4" VENT UP THROUGH ROOF, SEE DIAGRAM. COORDINATE FINAL PENETRATION LOCATION WITH EXISTING ROOFTOP EQUIPMENT. PROVIDE DI-ELECTRIC BREAK AT VTR PENETRATION THROUGH FLOOR/CEILING ASSEMBLY.
2. CONNECT NEW 3/4" HW AND CW LINES TO NEAREST EXISTING 3/4" HW AND CW. FIELD VERIFY.
3. NEW FAN COIL UNIT, SEE MECHANICAL. ROUTE CONDENSATE DRAIN LINE TO WASHER BOX WITH AIR GAP (INDIRECT WASTE), SEE DIAGRAM.
4. CONNECT NEW 1/2" HW AND CW LINES TO 1/2" HW AND CW. FIELD VERIFY.

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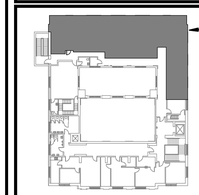

LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

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CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

PROJECT IDENTIFICATION

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

SHEET IDENTIFICATION

DRAWN BY	ADS	DATE DRAWN: 4/20/2026
CHECKED BY	KVB	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	PLUMBING	
SHEET TITLE	LEVEL 3 PLUMBING PLAN	
SHEET NUMBER	P1.3	
	SHEET 26 OF 49 SHEETS	

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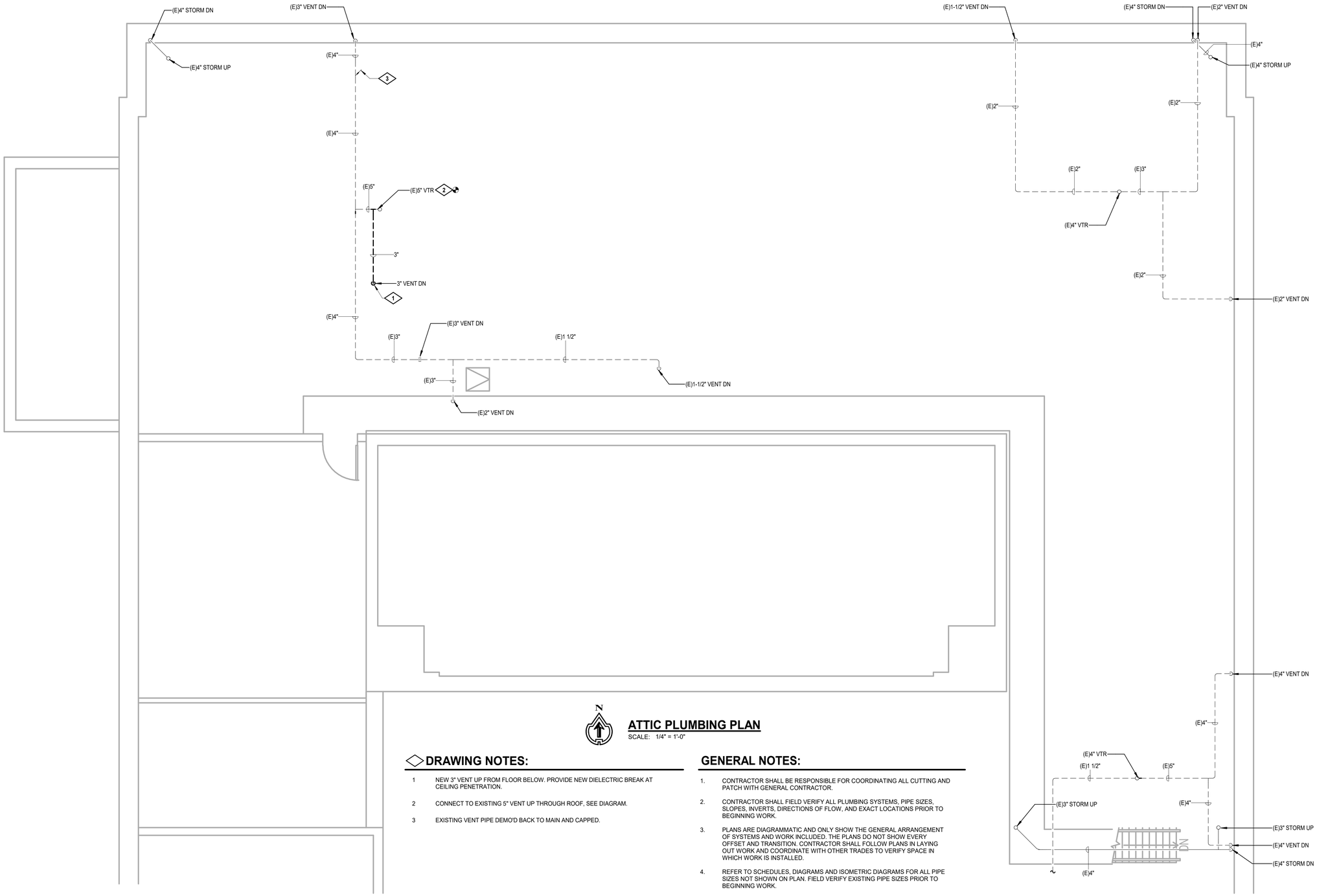

N

ATTIC PLUMBING PLAN

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

DRAWING NOTES:

1 NEW 3" VENT UP FROM FLOOR BELOW. PROVIDE NEW DIELECTRIC BREAK AT CEILING PENETRATION.

2 CONNECT TO EXISTING 5" VENT UP THROUGH ROOF, SEE DIAGRAM.

3 EXISTING VENT PIPE DEMO'D BACK TO MAIN AND CAPPED.

GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CUTTING AND PATCH WITH GENERAL CONTRACTOR.
2. CONTRACTOR SHALL FIELD VERIFY ALL PLUMBING SYSTEMS, PIPE SIZES, SLOPES, INVERTS, DIRECTIONS OF FLOW, AND EXACT LOCATIONS PRIOR TO BEGINNING WORK.
3. PLANS ARE DIAGRAMMATIC AND ONLY SHOW THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. THE PLANS DO NOT SHOW EVERY OFFSET AND TRANSITION. CONTRACTOR SHALL FOLLOW PLANS IN LAYING OUT WORK AND COORDINATE WITH OTHER TRADES TO VERIFY SPACE IN WHICH WORK IS INSTALLED.
4. REFER TO SCHEDULES, DIAGRAMS AND ISOMETRIC DIAGRAMS FOR ALL PIPE SIZES NOT SHOWN ON PLAN. FIELD VERIFY EXISTING PIPE SIZES PRIOR TO BEGINNING WORK.
5. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ANY AND ALL SERVICE DOWNTIME WITH AFFECTED TENANT(S) AND PROJECT MANAGER PRIOR TO THE INTERRUPTION OF SERVICE.
6. COORDINATE SCHEDULE OF FLOOR PENETRATIONS AND WASTE PIPE INSTALLATION WITH TENANT BELOW AND BUILDING MANAGEMENT PRIOR TO BEGINNING CONSTRUCTION. UTILIZE ANY EXISTING ROUGH-IN AND BUILDING MAIN WASTE AND VENT CONNECTIONS.
7. CONTRACTOR SHALL CONFIRM REQUIREMENTS FOR LOCATING STEEL REINFORCING PRIOR TO MAKING FLOOR PENETRATIONS. PERFORM FLOOR X-RAY AS REQUIRED TO LOCATE STEEL.
8. CONTRACTOR SHALL FIELD VERIFY THE PIPING CONTINUITY OF SERVICE TO EXISTING FIXTURES TO REMAIN PRIOR TO BEGINNING DEMOLITION OF PIPING.
9. PROVIDE DIELECTRIC PIPING BREAKS AT SECURED WALL CONSTRUCTION, TYPICAL. SEE DIAGRAM.

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True North

Plan North

GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

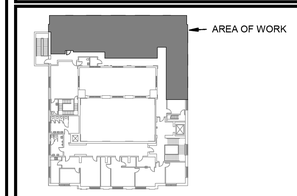
OWNER IDENTIFICATION

DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

REGISTERED PROFESSIONAL ENGINEER
KATHERINE V. BROMAVSALIAS
PE-41745
DATE 05.05.26
NORTH DAKOTA

STAMP OR SEAL



LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
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	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

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CHECKED BY	KVB	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	PLUMBING	
SHEET TITLE	ATTIC PLUMBING PLAN	
SHEET NUMBER	**P1.4**	
	SHEET 27 OF 49 SHEETS	

SHEET IDENTIFICATION

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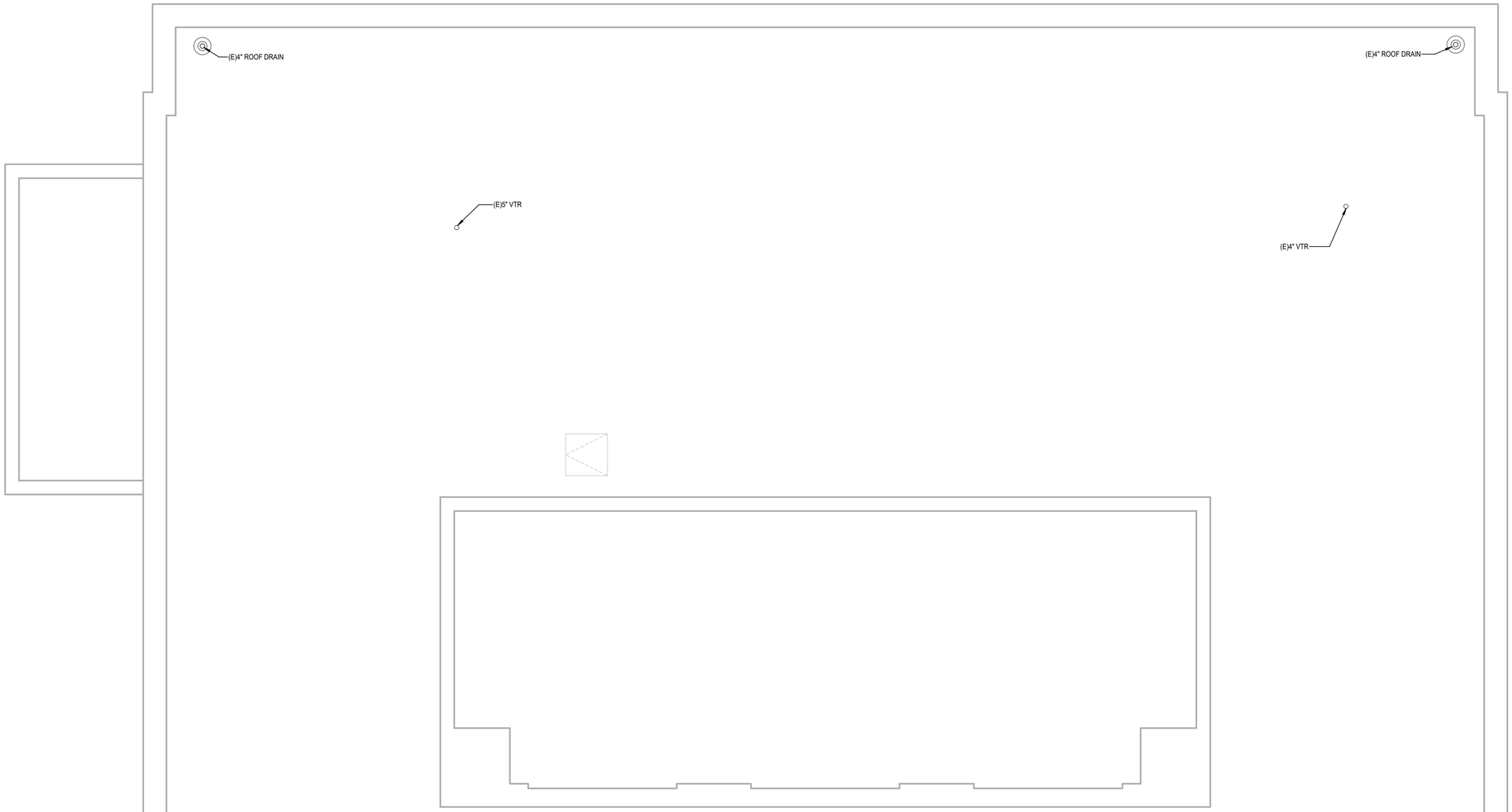

ROOF PLUMBING PLAN

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

GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CUTTING AND PATCH WITH GENERAL CONTRACTOR.
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0 2' 4' 8'
0 2'
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True North

Plan North

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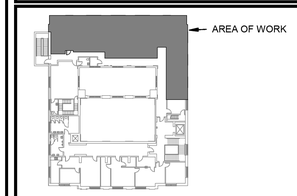

LEVEL 3

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1"= 4' 0 4' 8'

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SHEET NUMBER	P1.5	
	SHEET 28 OF 49 SHEETS	

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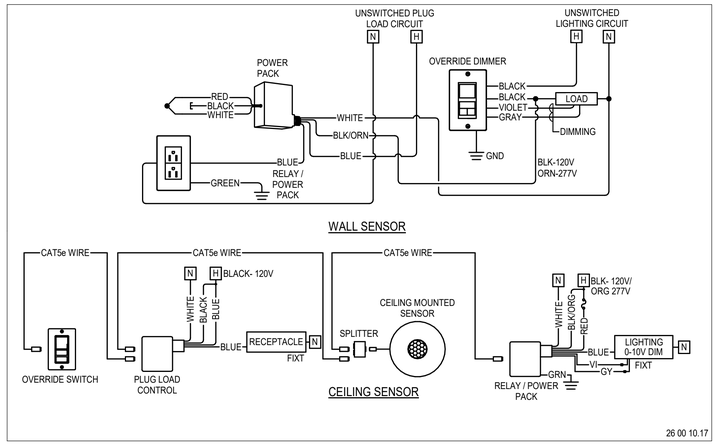
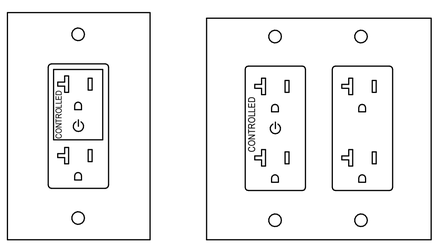


CONTROLLED RECEPTACLE WIRING DIAGRAM

SCALE: NOT TO SCALE



NOTES:

1. IECC 2021, 405.11 AUTOMATIC RECEPTACLE CONTROL
1.1 AT LEAST 50% OF ALL 125V, 15 AND 20 AMP RECEPTACLES INSTALLED IN ENCLOSED OFFICES, CONFERENCE ROOMS, ROOMS USED PRIMARILY FOR COPY OR PRINT FUNCTIONS, BREAKROOMS, CLASSROOMS, AND INDIVIDUAL WORKSTATIONS INCLUDING THOSE INSTALLED IN MODULAR PARTITIONS AND MODULE OFFICE WORKSTATION SYSTEMS.
1.2. AT LEAST 25% OF BRANCH CIRCUIT FEEDERS FOR MODULAR FURNITURE NOT SHOWN ON THE CONSTRUCTION DOCUMENTS.

2. IECC 2021, 405.11.1 - AUTOMATIC RECEPTACLE CONTROL FUNCTION
EITHER SPLIT CONTROLLED RECEPTACLES SHALL BE PROVIDED WITH THE TOP RECEPTACLE CONTROLLED, OR A CONTROLLED RECEPTACLE SHALL BE LOCATED WITHIN 12" OF EACH UNCONTROLLED RECEPTACLE
2.1 CONTROLLED VIA:
TIMECLOCK, 5000 SQUARE FOOT ZONE LIMIT, 2-HOUR MANUAL OVERRIDE OR
SENSOR WITH 20 MINUTE TIMEOUT OR
SIGNAL FROM BUILDING SYSTEM WITH 20 MINUTE TIMEOUT (BUILDING AUTOMATION SYSTEM)

26 27 26.1

CONTROLLED RECEPTACLE DIAGRAM

SCALE: NOT TO SCALE

ELECTRICAL SYMBOLS LEGEND

ALL SYMBOLS INDICATED IN THE LEGEND MAY NOT NECESSARILY BE USED ON PLANS.

CIRCUITING

SYMBOL	DESCRIPTION
	CIRCUITING DESIGNATION - OPEN 277/480V , SOLID 120/208V.
	CIRCUITING - RUN CONCEALED IN WALL OR CEILING
	CIRCUITING - RUN CONCEALED IN FLOOR OR GRADE
	CONDUIT RISER - TURNED UP, TURNED DOWN
	CIRCUITING - CONTINUED AS DESIGNATED
	CIRCUITING - END CAP

LINETYPES AND LINEWEIGHTS

	NEW CIRCUITING - CONTINUOUS AND BOLD
	NEW CIRCUITING - UNDER FLOOR OR GRADE - LARGER DASHED AND BOLD
	EXISTING CIRCUITING - CONTINUOUS AND THIN
	DEMOLITION CIRCUITING - LARGER DASHED AND THIN
	NEW AND RELOCATED DEVICES AND FIXTURES - CONTINUOUS AND BOLD
	EXISTING DEVICES AND FIXTURES - CONTINUOUS AND THIN
	DEMOLITION DEVICES AND FIXTURES - DASHED AND BOLD

NOTES AND TAGS

#	REVISION DELTA
#	DRAWING NOTE
#	MECHANICAL EQUIPMENT
#	LIGHTING CONTROL NOTE

TELECOMMUNICATION SYMBOLS

	TELEPHONE OUTLET, DOUBLE GANG BOX, 1-1/2" CONDUIT STUB TO ACCESSIBLE CEILING
	DATA OUTLET, DOUBLE GANG BOX, 1-1/2" CONDUIT STUB TO ACCESSIBLE CEILING
	CABLE TV OUTLET, DOUBLE GANG BOX, 1" CONDUIT STUB TO ACCESSIBLE CEILING
	FLOOR DATA OUTLET - SEE DRAWING NOTES
	FLOOR TELEPHONE/DATA OUTLET - SEE DRAWING NOTES

SPECIAL SYSTEMS

S SM	SOUND MASKING SPEAKER LOCATED ABOVE CEILING
S PA	PAGING SPEAKER
S V	PAGING VOLUME CONTROL

POWER SYMBOLS

SYMBOL	DESCRIPTION
	JUNCTION BOX; J-BOX WITH BLANK COVER
	DUPLEX RECEPTACLE
	TOP HALF CONTROLLED DUPLEX RECEPTACLE
USB	COMBINATION DUPLEX RECEPT / USB OUTLET
WP GFCI	WEATHERPROOF GFCI DUPLEX RECEPTACLE WITH WHILE IN USE COVER
	DEDICATED DUPLEX RECEPTACLE
	CEILING MOUNTED DUPLEX RECEPTACLE
	FOURPLEX RECEPTACLE
	DEDICATED FOURPLEX RECEPTACLE
	HALF CONTROLLED FOURPLEX RECEPTACLE
	SPECIAL RECEPTACLE - SEE DRAWING NOTES
	FLOOR COMBINATION PWR/DATA FLOOR BOX
	HALF CONTROLLED FLOOR COMBINATION PWR/DATA FLOOR BOX
	HALF CONTROLLED WALL FEED (POWER, TELEPHONE, DATA) FOR SYSTEMS FURNITURE
	NON FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
GB	GROUND BAR
	PANEL BOARD

SWITCHES

S	SWITCH, SINGLE POLE
S 2	SWITCH, DOUBLE POLE
S TO	SWITCH, THERMAL OVERLOAD

SECURITY AND ACCESS CONTROL SYMBOLS

CR	CARD READER, DOUBLE GANG BOX, 3/4" CONDUIT STUB TO ACCESSIBLE CEILING
IM	INTERCOM PUSH BUTTON, DOUBLE GANG BOX, 3/4" CONDUIT STUB TO ACCESSIBLE CEILING
DO	SECURITY CAMERA, DOME TYPE, DOUBLE GANG BOX, 3/4" CONDUIT STUB TO CABLE TRAY
FE	SECURITY CAMERA, FISHEYE TYPE DOUBLE GANG BOX 3/4" CONDUIT STUB TO CABLE TRAY
M	WALL SECURITY MOTION SENSOR, DBL GANG, 3/4" CONDUIT STUB TO ACCESSIBLE CEILING
	CLG. SECURITY MOTION SENSOR, DBL GANG, 3/4" CONDUIT STUB TO ACCESSIBLE CEILING
DC	DOOR CONTACT, - SEE DRAWINGS NOTES 3/4" CONDUIT TO JUNCTION BOX
KP	HIRSCH ACCESS CONTROL KEYPAD
AK	ALARM CONTROL KEYPAD
P	PANIC BUTTON
I	INTERCOM - AI PHONE SYSTEM
VM	VSS MONITOR, SINGLE GANG BOX, 3/4" EMT STUBBED UP ABOVE CEILING.
RR	REMOTE RELEASE BUTTON
B	DOOR BELL
S	SECURITY STROBE

LIGHTING CONTROL SENSORS

OS	WALL VACANCY SENSOR, INFRARED ONLY, SINGLE ZONE, INTEGRAL OVERRIDE SWITCH
OS D	WALL VACANCY SENSOR, INFRARED ONLY, SINGLE ZONE, INTEGRAL OVR SWITCH, DIMMING
OS Ab	WALL VACANCY SENSOR, INFRARED ONLY, DUAL ZONE, INTEGRAL OVERRIDE SWITCH,
OS LV	CEILING VACANCY SENSOR, INFRARED ONLY, SINGLE ZONE, POWER PACK; LV OVERRIDE SWITCHES
LV Ab	CEILING VACANCY SENSOR, INFRARED ONLY, DUAL ZONE, 2P POWER PACK; LV OVERRIDE SWITCHES
VS Ab VS WP	CEILING VACANCY SENSOR, SINGLE ZONE, EXTERIOR RATED, EXTENDED RANGE, PIR
OS	WALL OCCUPANCY SENSOR, INFRARED ONLY, SINGLE ZONE, INTEGRAL OVERRIDE SWITCH
OS D	WALL OCCUPANCY SENSOR, INFRARED ONLY, SINGLE ZONE, INTEGRAL OVR SWITCH, DIMMING
OS Ab	WALL OCCUPANCY SENSOR, INFRARED ONLY, DUAL ZONE, INTEGRAL OVERRIDE SWITCH,
OS LV	CEILING OCCUPANCY SENSOR, INFRARED ONLY, SINGLE ZONE, POWER PACK; LV OVERRIDE SWITCHES
OS Ab LV Ab	CEILING OCCUPANCY SENSOR, INFRARED ONLY, DUAL ZONE, 2P POWER PACK; LV OVERRIDE SWITCHES
OS WP	CEILING OCCUPANCY SENSOR, SINGLE ZONE, EXTERIOR RATED, EXTENDED RANGE, PIR
D	INTERIOR DAYLIGHT SENSOR

ONE LINE DIAGRAM SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
PANEL "LA"	PANEL BOARD	100/3	CIRCUIT BREAKER
T F	PAD MOUNTED TRANSFORMER		GROUNDING CONNECTION
		M	METER

ABBREVIATIONS

A, AMP	AMPERE	CU	COPPER	GC	GENERAL CONTRACTOR	MLO	MAIN LUGS ONLY	NTS	NOT TO SCALE
AC	ABOVE COUNTER	CLG	CEILING (CEILING MOUNTED)	GD	GARBAGE DISPOSAL	MV	MEDIUM VOLTAGE	(PART)	PARTIAL CIRCUIT
AFCI	ARC FAULT CIRCUIT INTERRUPTER	CWP	COLD WATER PIPE	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	MW	MICROWAVE	REF	REFRIGERATOR
AFF	ABOVE FINISHED FLOOR	(D)	EXISTING TO BE DEMOLISHED	G,GND	GROUND	(N)	NEW	(RL)	EXISTING TO BE RELOCATED
AFG	ABOVE FINISHED GRADE	Db	DECIBEL	HP	HORSEPOWER	N	NEUTRAL	RTS	REMOVE TEST SWITCH
AL	ALUMINUM	(E)	EXISTING TO REMAIN	IG	ISOLATED GROUND DEVICE	N.C.	NORMALLY CLOSED	SPST	SINGLE POLE SINGLE THROW SWITCH
BLDG	BUILDING	EC	ELECTRICAL CONTRACTOR	LV	LOW VOLTAGE	N.O.	NORMALLY OPEN	DPST	DOUBLE POLE SINGLE THROW SWITCH
C	CONDUIT	EPO	EMERGENCY POWER OFF	MC	MECHANICAL CONTRACTOR	NEC	NATIONAL ELECTRIC CODE	TBB	TELEPHONE PLYWOOD BACKBOARD
CB	CIRCUIT BREAKER	EM	EMERGENCY POWER CIRCUIT	MCB	MAIN CIRCUIT BREAKER	NF	NON FUSED	UC	UNDER COUNTER
CCTV	CLOSED CIRCUIT TELEVISION	FA	FIRE ALARM	MFR	MANUFACTURER	NIC	NOT IN CONTRACT	UG	UNDER GROUND
CT	CURRENT TRANSFORMER	FC	FOOTCANDLES			NL	NIGHT LIGHT	WP	WEATHERPROOF – NEMA 3R
								XP	EXPLOSION PROOF

NOTES:

APPLICABLE CODES AND STANDARDS

2021 INTERNATIONAL BUILDING CODE	2021 INTERNATIONAL ENERGY CONSERVATION CODE	2023 NATIONAL ELECTRIC CODE
2021 INTERNATIONAL FIRE CODE	2021 INTERNATIONAL FUEL GAS CODE	

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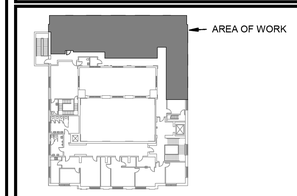

LEVEL 3

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1"= 4' 0 4' 8'

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CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	ELECTRICAL LEGEND		
SHEET NUMBER	E0.1		
	SHEET 29 OF 49 SHEETS		

SHEET IDENTIFICATION

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DIVISION 26 - ELECTRICAL SPECIFICATIONS

260100 - BASIC ELECTRICAL REQUIREMENTS - GENERAL

1. THE GENERAL CONDITIONS OF THE CONTRACT, SUPPLEMENTARY CONDITIONS OF THE GENERAL CONTRACT, AND REQUIREMENTS OF OTHER DIVISIONS APPLY TO WORK UNDER THIS DIVISION. PROVIDE LABOR, MATERIALS, REQUIRED, WHICH INCLUDES BUT IS NOT LIMITED TO, MASONRY, EXCAVATION AND BACKFILL, CONCRETE, CARPENTRY, AND PATCHING, AND SIMILAR WORK. PROVIDE TEMPORARY ELECTRICITY FOR ELECTRICAL WORK AND THE WORK OF OTHER TRADES.

2. THE MANUFACTURER'S MATERIAL OR EQUIPMENT LISTED FIRST IN THE SPECIFICATIONS OR ON THE DRAWINGS ARE TYPES TO BE PROVIDED FOR ESTABLISHMENT OF SIZE, CAPACITY, GRADE AND QUALITY. ADDITIONAL MANUFACTURERS MATERIALS OR EQUIPMENT LISTED ARE CONSIDERED TO BE "OTHER ACCEPTABLE" MANUFACTURERS, AND THE COST OF CHANGES IN CONSTRUCTION REQUIRED BY THEIR USE SHALL BE BORNE BY THIS CONTRACTOR.

3. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO RESULT IN A COMPLETE ELECTRICAL INSTALLATION IN COMPLETE ACCORDANCE WITH APPLICABLE CODES AND ORDINANCES.

4. NEITHER THE PROFESSIONAL ACTIVITIES OF THE ENGINEER NOR THE PRESENCE OF THE ENGINEER OR ITS EMPLOYEES AND SUBCONSULTANTS AT A CONSTRUCTION/PROJECT SITE SHALL RELIEVE THE CONTRACTOR OF ITS OBLIGATIONS, DUTIES, AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES, OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING, AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

5. DRAWINGS ARE DIAGRAMMATIC IN CHARACTER AND DO NOT NECESSARILY INDICATE EVERY REQUIRED JUNCTION BOX, PULL BOX, ELL, ETC. ITEMS NOT SPECIFICALLY MENTIONED IN THE SPECIFICATION OR NOTED ON THE DRAWINGS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED.

6. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WHATEVER IS CALLED FOR IN EITHER IS BINDING AS THOUGH CALLED FOR IN BOTH. THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.

7. DRAWINGS SHALL NOT BE SCALED FOR ROUGH-IN MEASUREMENTS OR USED AS SUBMITTALS. WHERE DRAWINGS ARE REQUIRED FOR THESE PURPOSES OR HAVE TO BE MADE FROM FIELD MEASUREMENTS, TAKE THE NECESSARY MEASUREMENTS AND PREPARE THE DRAWINGS.

8. PRIOR TO ORDERING EQUIPMENT, DETERMINE THAT EQUIPMENT SHALL ADEQUATELY PASS THROUGH BUILDING OPENING AND PASSAGE WAYS PROVIDING UNOBSTRUCTED ACCESS TO FINAL EQUIPMENT LOCATION. EQUIPMENT SHALL BE MANUFACTURED AND SHIPPED IN SECTIONS FOR ASSEMBLY IN FINAL EQUIPMENT LOCATION WHEN INADEQUATE BUILDING OPENINGS AND PASSAGE WAYS LIMIT ACCESS. SUBMITTALS SHALL INDICATE SECTIONALIZED MANUFACTURE OF EQUIPMENT.

9. BEFORE ORDERING EQUIPMENT AND BEFORE WORK IS INSTALLED, DETERMINE THAT EQUIPMENT SHALL PROPERLY FIT THE SPACE; THAT REQUIRED CLEARANCES CAN BE MAINTAINED AND THAT ELECTRICAL EQUIPMENT CAN BE LOCATED WITHOUT INTERFERENCES BETWEEN SYSTEMS, WITH STRUCTURAL ELEMENTS OR WITH THE WORK OF OTHER TRADES.

10. IF CONFLICTS ARE DISCOVERED IN CONTRACT DOCUMENTS AS WORK PROGRESSES, A SET OF PDF'S MARKED UP IN RED TEXT AND AND SYMBOLS SHOWING RECOMMENDED MODIFICATIONS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.

11. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF CIRCUITS AND OUTLETS, LOCATIONS OF SWITCHES, PANELBOARDS AND OTHER WORK. HOWEVER, REARRANGEMENT AND RECIRCUITING SHALL NOT BE PERMITTED WITHOUT SPECIFIC ACCEPTANCE.

12. INCIDENTAL EQUIPMENT SUCH AS TOOLS, SCAFFOLDING, CONSUMABLE ITEMS, TESTING EQUIPMENT, APPLIANCES AND THE LIKE SHALL BE PROVIDED WHETHER LISTED OR NOT. LABOR, FEES, LICENSES, START-UP AND CHECKOUT SERVICES SHALL ALSO BE PROVIDED.

13. INSTRUCTIONS SUCH AS "PROVIDE THE OUTLETS..." SHALL MEAN THE SAME AS THOUGH THE WORDS "THIS CONTRACTOR SHALL" PRECEDED EACH INSTRUCTION. "PROVIDE" SHALL MEAN "FURNISH AND INSTALL" WHERE THE WORDS "ACCEPTED" OR "ACCEPTABLE" ARE USED, SUCH "ACCEPTED" OR "ACCEPTABLE" ACTION BY THE ARCHITECT DENOTES THAT THE WORK OR EQUIPMENT ITEM IS IN CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND, IN GENERAL, COMPLIES WITH THE PERTINENT INFORMATION GIVEN IN THE CONTRACT DOCUMENTS.

14. IN THE EVENT THAT DISCREPANCIES EXIST OR REQUIRED ITEMS OR DETAILS HAVE BEEN OMITTED, NOTIFY THE ARCHITECT IN WRITING OF SUCH DISCREPANCY OR OMISSION AT LEAST FIVE DAYS PRIOR TO BID DATE. FAILURE TO DO SO SHALL BE CONSTRUED AS WILLINGNESS TO SUPPLY NECESSARY MATERIALS AND LABOR REQUIRED FOR THE PROPER COMPLETION OF THIS WORK. FOR DISCREPANCIES WHICH ARE NOT REPORTED BY CONTRACTOR THE MOST STRINGENT REQUIREMENT SHALL APPLY.

15. IN THE EVENT THAT ADDITIONAL INFORMATION IS REQUIRED DURING CONSTRUCTION, REQUEST SUCH INFORMATION FROM THE ARCHITECT IN WRITING PRIOR TO PERFORMING RELATED WORK. THE REQUEST FOR INFORMATION SHALL INCLUDE AN EXPLANATION OF THE INFORMATION REQUIRED INCLUDING REFERENCES TO RELATED PORTIONS OF THE DOCUMENTS AND CONTRACTOR'S RECOMMENDATIONS.

16. EXAMINE THE PREMISES AND BECOME FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE FOR NOT FOLLOWING THIS PROCEDURE.

17. PROTECT WORK, MATERIALS, AND EQUIPMENT AGAINST THEFT, INJURY, OR DAMAGE UNTIL IT HAS BEEN INSTALLED, TESTED, AND ACCEPTED.

18. BE RESPONSIBLE FOR DAMAGE TO THE PROPERTY OF THE OWNER OR TO THE WORK OF OTHER TRADES DUE TO THE ELECTRICAL WORK DURING THE CONSTRUCTION AND WARRANTY PERIOD.

19. ERRORS AND OMISSIONS IN THE CONTRACT DOCUMENTS DO NOT RELIEVE THE CONTRACTOR FROM PROVIDING THE WORK IN ACCORDANCE WITH REGULATORY REQUIREMENTS.

20. EXECUTE AND INSPECT WORK IN ACCORDANCE WITH UNDERWRITERS, LOCAL AND STATE CODES, RULES AND REGULATIONS APPLICABLE TO THE TRADE AFFECTED AS A MINIMUM, BUT IF THE PLANS OR SPECIFICATIONS CALL FOR REQUIREMENTS THAT EXCEED THESE RULES AND REGULATIONS, THE GREATER REQUIREMENT SHALL BE FOLLOWED. FOLLOW REQUIREMENTS OF IBC, IMC, IFC, IECC, NFPA, NEC, OSHA, NEMA, ANSI, UL, EIA/TIA, AND APPLICABLE STATE, LOCAL OR FEDERAL SPECIFICATIONS.

21. THE OWNER'S STANDARDS OR TECHNICAL GUIDES SHALL BE CONSIDERED PART OF THESE CONSTRUCTION DOCUMENTS.

22. OBTAIN PERMITS REQUIRED FOR THE ELECTRICAL WORK ON THIS PROJECT. PAY FEES, INCLUDING SERVICE INSTALLATION AND CONNECTION CHARGES, PERMIT FEES. NO WORK SHALL BE STARTED PRIOR TO OBTAINING NECESSARY PERMITS AND PAYMENT OF REQUIRED FEES. WORK INSTALLED PRIOR TO OBTAINING PROPER PERMITS SHALL, IF REQUIRED BY PERMITTING AUTHORITY, BE REDONE IN COMPLIANCE WITH REQUIREMENTS. NOTATIONS MADE ON PERMIT OR REVIEW DOCUMENTS SHALL BE OBSERVED. ADDITIONAL REQUIREMENTS NOTED BY JURISDICTIONAL AUTHORITY SHALL BE MADE PART OF THE REQUIREMENTS FOR CONSTRUCTION OF THE PROJECT. ADDITIONAL COSTS FOR IMPLEMENTING JURISDICTIONAL AUTHORITY'S REQUIREMENTS, IF ANY, SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO CONSTRUCTION FOR REVIEW.

23. SUBSTITUTIONS.
   A. MATERIAL AND EQUIPMENT USED IN BIDS SHALL BE AS SPECIFIED. PROPOSED SUBSTITUTIONS SHALL BE REVIEWED AFTER AWARD OF CONTRACT DURING SUBMITTAL REVIEW. PROPOSED SUBSTITUTES SHALL BE CLEARLY LABELED AS A SUBSTITUTE. SUBMITTALS SHALL INCLUDE DATA NECESSARY FOR COMPLETE EVALUATION OF THE PROPOSED SUBSTITUTION. SUBSTITUTION MATERIALS AND EQUIPMENT USED IN BIDS SHALL BE AT CONTRACTOR'S RISK, AND AS SUCH ARE SUBJECT TO REJECTION DURING SUBMITTAL REVIEW. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FEES FOR RE-DESIGN INCURRED BY THE ENGINEER RESULTING FROMTHE USE OF SUBSTITUTION MATERIALS. SUCH EXTRA FEES SHALL BE DEDUCTED FROM PAYMENT TO THE CONTRACTOR.
   B. WHERE "OTHER ACCEPTABLE" MANUFACTURERS ARE NAMED, THEIR PRODUCTS MAY BE USED PROVIDED THEY TOTALLY MEET THE SPECIFICATIONS AND ARE DIMENSIONALLY SUITABLE AND OPERATIONALLY IDENTICAL TO THE SPECIFIED ITEM. THE DECISION AS TO WHETHER OR NOT SUCH ITEMS ARE EQUAL TO THE SPECIFIED ITEMS SHALL BE MADE BY THE ARCHITECT DURING SUBMITTAL REVIEW.

24. SUBMITTALS
   A. THE PURPOSE OF SUBMITTALS IS TO ENSURE THAT CONTRACTOR UNDERSTANDS DESIGN REQUIREMENTS AND DEMONSTRATES UNDERSTANDING BY INDICATING AND DETAILING INTENDED MATERIALS, METHODS, AND PROPER INSTALLATION PRACTICES. IF DISCREPANCIES BETWEEN SUBMITTALS AND CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SUBMITTALS ARE REVIEWED, REQUIREMENTS OF CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE. SUBMITTALS WHICH ARE SUBMITTED, BUT WHICH ARE NOT REQUIRED BY CONTRACT DOCUMENTS, SHALL BE RETURNED NOT REVIEWED.
   B. REVIEW OF SUBMITTALS AND ACTION RECOMMENDED AS RESULT OF REVIEW IS A COURTESY EXTENDED TO CONTRACTOR BY ENGINEER. THIS REVIEW IS INTENDED TO MINIMIZE DELIVERY TO JOB SITE AND INSTALLATION OF MATERIALS AND EQUIPMENT THAT DO NOT MEET INTENT OF CONSTRUCTION DOCUMENTS. SUBMISSION OF MATERIAL FOR REVIEW DOES NOT ALTER CONTRACTOR'S OBLIGATION TO FOLLOW INTENT OF CONSTRUCTION DOCUMENTS, NOR CONTRACTOR'S RESPONSIBILITY TO COMPLY THEREWITH REGARDLESS OF ACTION NOTED IN ENGINEERS REVIEW.
   C. PRODUCT DATA SUBMITTALS SHALL INCLUDE CATALOG CUT-SHEETS, MANUFACTURER'S DATA SHEETS, WRITTEN DESCRIPTIONS, SPECIFICATION SHEETS DETAILING THE ASSOCIATED PRODUCT, ITEM, ASSEMBLY AND INSTALLATION. HIGHLIGHT CHARACTERISTICS AND FEATURES WITHIN PRODUCT DATA SUBMITTALS WITH A YELLOW HIGHLIGHTING MARKER TO IDENTIFY COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. INDICATE CHARACTERISTICS AND FEATURES WHICH ARE MISSING OR VARY FROM THE DRAWINGS AND SPECIFICATIONS. SUBMITTALS SHALL INCLUDE DETAILS, INSTALLATION DRAWINGS, ASSEMBLY DRAWINGS, FABRICATION DRAWINGS, DIAGRAMS, ETC., WHICH SHOW ADAPTATION OR INSTALLATION OF CONTRACTOR-FURNISHED PRODUCTS OR MATERIALS FOR OVERALL PROJECT.
   D. PRIOR TO ORDERING EQUIPMENT OR BEGINNING INSTALLATION WORK, ASSEMBLE, PREPARE, AND SUBMIT SHOP DRAWINGS REQUIRED FOR PROJECT. SUBMIT SUBMITTALS AS REQUIRED BY INDIVIDUAL SECTIONS OF SPECIFICATIONS. AS A MINIMUM, PROVIDE PRODUCT DATA SUBMITTALS FOR EQUIPMENT INDICATED ON THE DRAWINGS WHETHER MENTIONED IN THESE SPECIFICATIONS OR NOT.
   E. CONTRACTOR SHALL THOROUGHLY CHECK SUBCONTRACTORS' OR VENDORS' SUBMITTALS AND, AFTER APPROVING SUBMITTALS, PROVIDE SUBMITTALS FOR REVIEW. PARTIAL OR INCOMPLETE SUBMITTALS WILL NOT BE REVIEWED BY THE ARCHITECT AND WILL BE RETURNED NOT REVIEWED. SUBMITTALS THAT DO NOT BEAR CONTRACTOR'S REVIEW STAMP SHALL BE RETURNED NOT REVIEWED.
   F. EACH SET OF SUBMITTALS SUBMITTED OR RE-SUBMITTED SHALL BEAR A UNIQUE CONTRACTOR'S SUBMITTAL NUMBER. AFTER REVIEW, SUBMITTALS SHALL BE RETURNED TOGETHER WITH SUBMITTAL REVIEW SHEET WHICH INDICATES COMMENTS ON SUBMITTALS WITH SPECIFIC ACTIONS SUCH AS: NO EXCEPTION TAKEN; MAKE CORRECTIONS NOTED, RE-SUBMITTAL NOT REQUIRED; MAKE CORRECTIONS NOTED, RE-SUBMITTAL REQUIRED; REJECTED; NOT REVIEWED. CONTINUE TO RE-SUBMIT SUBMITTALS UNTIL NO EXCEPTION TAKEN OR MAKE CORRECTIONS NOTED, RE-SUBMITTAL NOT REQUIRED ACTION IS INDICATED. PROVIDE A COPY OF THE ORIGINAL SUBMITTAL REVIEW COMMENTS FOR RESUBMITTED ITEMS.
   G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXTRA FEES INCURRED BY THE ENGINEER RESULTING FROM SUBSEQUENT REVIEW(S) OF SUBMITTALS WHICH FAIL TO MEET THE REQUIREMENTS HEREIN. SUCH EXTRA FEES SHALL BE DEDUCTED FROM PAYMENT TO THE CONTRACTOR.

26. KEEP IN CUSTODY DURING ENTIRE PERIOD OF CONSTRUCTION, A CURRENT SET OF DOCUMENTS INDICATING CHANGES THAT HAVE BEEN MADE TO THE CONTRACT DOCUMENTS. CHANGES TO BE NOTED ON THE DOCUMENTS SHALL INCLUDE BUT SHALL NOT BE LIMITED TO, PANELBOARD, LUMINAIRE, EQUIPMENT, AND OTHER SCHEDULES; CIRCUITING; EQUIPMENT, LUMINAIRES, OR CONDUIT LOCATED MORE THAT 2 FEET (0.61 METERS) FROM WHERE SHOWN ON DRAWINGS; ELECTRICAL EQUIPMENT RATINGS; MODIFICATIONS TO SPECIFICATIONS. INCORPORATE ADDENDA, ACCEPTED ALTERNATES, CHANGE ORDERS, AND OTHER DOCUMENT REVISIONS WHICH OCCURRED AFTER THE AWARD OF THE GENERAL CONTRACT OR THE START OF CONSTRUCTION ACTIVITIES INTO THE RECORD DOCUMENTS. NOTATIONS AND CHANGES SHALL BE DONE IN A NEAT AND LEGIBLE MANNER. UPON COMPLETION OF WORK, SUBMIT THE COMPLETE SET OF RECORD DOCUMENTS TO THE ARCHITECT.

27. MAKE PROVISIONS FOR RECEIVING AND STORING MATERIALS, INCLUDING OWNER FURNISHED MATERIALS TO BE INSTALLED UNDER THIS DIVISION. CAREFULLY MARK AND STORE MATERIALS. CAREFULLY CHECK AND INSPECT MATERIALS FURNISHED FOR INSTALLATION, AND FURNISH A RECEIPT ACKNOWLEDGING ACCEPTANCE OF DELIVERY AND CONDITION OF THE MATERIALS RECEIVED. DO NOT USE RECEIVED MATERIALS WHICH CONTAIN CRACKS, DENTS, ABRASIONS, OR OTHER DEFECTS. MARK SUCH MATERIALS REJECTED AND REMOVE FROM SITE OR RETURN TO SUPPLIER FOR REPLACEMENT.

28. PROTECT MATERIALS AND EQUIPMENT FROM PHYSICAL DAMAGE, CONSTRUCTION DIRT, AND THE ELEMENTS FROM THE TIME THEY ARE DELIVERED UNTIL FINAL ACCEPTANCE. THE CONTRACTOR INSTALLING THE EQUIPMENT OR MATERIALS SHALL BE RESPONSIBLE FOR THEIR PROTECTION.

29. SCHEDULE WORK TO COORDINATE WITH THAT OF OTHER TRADES TO MINIMIZE DELAYS. COORDINATE WITH OWNER AND UTILITY COMPANIES OUTAGES DUE TO INTERFACING ELECTRICAL EQUIPMENT. OUTAGES MUST BE SCHEDULED AT LEAST FIVE DAYS IN ADVANCE AND SHALL BE AT A TIME AND DURATION ACCEPTABLE TO THE OWNER. OUTAGES AT A TIME OTHER THAN NORMAL WORKING HOURS, SHALL NOT ENTITLE THE CONTRACTOR TO ADDITIONAL OVERTIME OR COMPENSATION BEYOND THAT IN THE BID.

30. LOCATIONS OF DEVICES, OUTLETS, ETC., AS SHOWN ON THE DRAWINGS ARE APPROXIMATE UNLESS DIMENSIONED OR OTHERWISE NOTED. WHERE LOCATIONS OF DEVICES, OUTLETS, ETC., ARE DIMENSIONED OR NOTED ON THE DRAWINGS, VERIFY LOCATION WITH ARCHITECT'S REPRESENTATIVE OR WITH EQUIPMENT TO BE SUPPLIED. EXACT LOCATIONS OF DEVICES, OUTLETS, ETC., SHALL BE COORDINATED WITH FIELD CONDITIONS. ENSURE THAT SWITCHES OR OTHER ELECTRICAL DEVICES ARE MOUNTED SUCH THAT THEY ARE NOT "TRAPPED" BEHIND OPENED DOORS OR OTHERWISE RENDERED INACCESSIBLE, REGARDLESS OF LOCATIONS INDICATED ON DRAWINGS.

31. PRIOR TO ROUGH-IN FOR SERVICE TO EQUIPMENT FURNISHED OR PROVIDED BY OTHERS, COORDINATE WITH OTHER TRADES AND OWNER TO VERIFY ROUGH-IN LOCATIONS, CONNECTION REQUIREMENTS, ELECTRICAL SERVICE TO EQUIPMENT SIZE AND CHARACTERISTICS, AND OBTAIN A SCHEDULE OF EQUIPMENT ELECTRICAL LOADS. SCHEDULES SHALL BE FOR VERIFYING ELECTRICAL SERVICES, CONTROLS, DISCONNECTS, FUSES, AND OVERLOAD PROTECTION. COORDINATE WITH ARCHITECT, AUTHORITY HAVING JURISDICTION, AND OTHER APPROPRIATE DIVISIONS AS NEEDED.

32. VERIFY THE PHYSICAL DIMENSIONS OF EACH ITEM OF ELECTRICAL EQUIPMENT TO FIT THE AVAILABLE SPACE AND PROMPTLY NOTIFY THE ARCHITECT PRIOR TO ROUGHING-IN IF CONFLICTS APPEAR. BE RESPONSIBLE FOR COORDINATION OF EQUIPMENT TO THE AVAILABLE SPACE AND TO THE ACCESS ROUTES THROUGH THE CONSTRUCTION. CONFER AND COOPERATE WITH OTHER TRADES AND COORDINATE THE WORK IN PROPER RELATION WITH THEIRS. COORDINATE CEILING CAVITY SPACE CAREFULLY WITH OTHER TRADES.

33. ALL ELECTRICAL EQUIPMENT SHALL BE LISTED AND LABELED WITH THE UNDERWRITERS LABORATORY TAG OR OTHER LISTING AS APPROVED BY THE LOCAL JURISDICTIONAL AUTHORITY. CUSTOM DESIGNED ITEMS SHALL BE FABRICATED OF UL APPROVED MATERIALS AND UL LISTED AS A COMPLETE ASSEMBLY AS REQUIRED.

34. THROUGHOUT SPECIFICATIONS, VARIOUS MATERIALS, EQUIPMENT, APPARATUS, ETC., ARE SPECIFIED BY MANUFACTURER, BRAND NAME, TYPE OR CATALOG NUMBER. SUCH DESIGNATIONS ARE TO ESTABLISH STANDARDS OF DESIRED QUALITY AND CONSTRUCTION AND SHALL BE THE BASIS OF THE BID. SUBSTITUTIONS SHALL BE ALLOWED ONLY AS SPECIFIED HEREIN.

35. MAKE UP THE OPERATING AND MAINTENANCE MANUALS AS SPECIFIED AND SUBMIT NO LATER THAN 2 WEEKS PRIOR TO THE COMPLETION OF THE PROJECT. INFORMATION CONTAINED IN THE OPERATING AND MAINTENANCE MANUALS CONSIST OF SUBMITTAL MATERIALS REFLECTING EQUIPMENT AS SUPPLIED AND INSTALLED, TEST REPORTS, WARRANTIES, DESCRIPTION OF REQUIRED TESTING AND TESTING METHODS, DESCRIPTION OF ROUTINE MAINTENANCE, CLEANING, ADJUSTMENTS, AND SERVICE REQUIRED, SUGGESTED FREQUENCY OF TESTING AND MAINTENANCE, AND RECOMMENDED REPLACEMENT PARTS WITH A LIST OF NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF SERVICE ORGANIZATIONS THAT CARRY STOCK OF SUCH REPLACEMENT PARTS. AN INDEX SHALL BE PROVIDED WHICH SHALL LIST CONTENTS IN AN ORDERLY MANNER. SUBMIT ONE ELECTRONIC COPY OF THE MANUAL TO THE ARCHITECT FOR REVIEW PRIOR TO PREPARATION OF FINAL COPIES. AFTER REVIEW, MAKE CHANGES AS NOTED AND PREPARE 3 FINAL HARD BOUND COPIES OF MANUAL AND ONE ELECTRONIC COPY TO BE TURNED OVER TO THE OWNER.

260100 - BASIC ELECTRICAL REQUIREMENTS - EXECUTION

1. WORKMANSHIP SHALL BE FIRST QUALITY THROUGHOUT AND SHALL BE IN COMPLETE ACCORDANCE WITH THE APPLICABLE CODES. THE APPEARANCE OF THE WORK SHALL BE OF EQUAL IMPORTANCE TO ITS OPERATION. LACK OF QUALITY WORKMANSHIP SHALL BE CONSIDERED SUFFICIENT REASON FOR REJECTION OF A SYSTEM IN PART OR IN WHOLE.

2. SUPERVISE WORK SO IT SHALL PROCEED IN PROPER SEQUENCE WITHOUT DELAY TO OTHER TRADES. THE SUPERINTENDENT SHALL BE ON THE PROJECT SITE FOR THE DURATION OF THE PROJECT TO ENSURE THAT CONTRACT DOCUMENTS ARE BEING FOLLOWED.

3. DEMOLITION
   A. PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES FOR EXISTING ELECTRICAL EQUIPMENT WHICH IS TO BE REMOVED, ABANDONED, OR RELOCATED. COMPLY WITH STATE AND FEDERAL REGULATIONS FOR THE REMOVAL, HAULING AND DISPOSAL OF MATERIALS.
   B. VERIFY THAT FEEDERS AND BRANCH CIRCUITS HAVE BEEN DISCONNECTED AND SAFELY CAPPED FROM EQUIPMENT TO BE RELOCATED, DEMOLISHED OR REMOVED.
   C. REMOVE ELECTRICAL EQUIPMENT TO BE RELOCATED AND ENSURE THAT SUCH EQUIPMENT IS IN ACCEPTABLE CONDITION FOR REUSE. THESE ITEMS SHALL BE TAGGED, PROTECTED FROM DAMAGE, AND STORED AS DIRECTED BY THE ARCHITECT.
   D. LAMPS, BALLASTS, AND OTHER ELECTRICAL EQUIPMENT WHICH CONTAIN HAZARDOUS MATERIALS SHALL BE PROPERLY REMOVED AND DISPOSED. PAY FEES FOR DISPOSAL. REPORT THE EXISTENCE OF HAZARDOUS MATERIALS UNRELATED TO ELECTRICAL EQUIPMENT TO THE ARCHITECT IMMEDIATELY.
   E. THE LOCATIONS OF EXISTING EQUIPMENT, CIRCUITING, ETC. SHOWN ON THE DRAWINGS HAVE BEEN TAKEN FROM EXISTING DRAWINGS AND OBTAINED FROM FIELD SURVEYS AND ARE, THEREFORE, ONLY AS ACCURATE AS THAT INFORMATION. EXISTING CONDITIONS SHALL BE FIELD VERIFIED WITH NECESSARY ADJUSTMENT BEING MADE TO THE DRAWING INFORMATION.

      WHERE ITEMS ARE INDICATED ON THE DRAWINGS TO BE REMOVED, REMOVAL OF THE ITEM SHALL INCLUDE REMOVAL OF POWER CIRCUITS, CONTROL CIRCUITS, OVERCURRENT DEVICES, GROUNDING, ACCESSORY DEVICES, RACEWAY AND HARDWARE UNLESS NOTED OTHERWISE. ENSURE THAT THE CONTINUITY OF FEED THROUGH CIRCUITS IS MAINTAINED.
   F. WHERE CIRCUITS TO BE REMOVED ARE EXPOSED DURING CONSTRUCTION, COMPLETELY REMOVE WIRE, CONDUIT, AND SUPPORTS AS REQUIRED. WHERE CIRCUITS TO BE REMOVED ARE CONCEALED OR EMBEDDED IN CONCRETE, REMOVE WIRING BACK TO JUNCTION POINT.
   G. ABANDONED CONDUIT, LEFT IN PLACE, SHALL HAVE PULL TAPE INSTALLED AND SHALL BE LABELED AT EACH END IDENTIFYING ORIGIN, DESTINATION AND ABANDONMENT. LABELS SHALL BE SEMI-PERMANENT.
   H. REMOVAL AND RELOCATION OF ELECTRICAL EQUIPMENT SHALL INCLUDE PATCHING AND PAINTING AS REQUIRED TO REFINISH BUILDING SURFACES. COORDINATE PATCHING AND REPAINTING WITH ARCHITECT.

5. EQUIPMENT MODIFICATION
   A. WHERE EXISTING EQUIPMENT IS TO BE MODIFIED, FURNISH MATERIALS AND LABOR NECESSARY TO MODIFY OR ADD TO THE EQUIPMENT. MODIFICATIONS SHALL BE DONE NEATLY WITH FACTORY PARTS AND ASSEMBLIES APPROVED FOR THE APPLICATION. PROVIDE EQUIPMENT SUPPLIER WITH INFORMATION OF EXISTING EQUIPMENT, INCLUDING SERIAL NUMBER, DATE OF MANUFACTURE, AND SPECIAL REQUIREMENTS. MODIFICATION SHALL IN NO WAY JEOPARDIZE THE COMPLIANCE OF EXISTING EQUIPMENT WITH GOVERNING CODES, UNDERWRITERS LISTINGS OR OTHER REGULATIONS.
   B. ALL NEW AND MODIFIED ELECTRICAL EQUIPMENT, SUCH AS PANELBOARDS. ARE LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE WHILE ENERGIZED SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT PER NEC 2023, ARTICLE 110.16.

6. CUTTING, PATCHING, OPENINGS, SLEEVES, INSERTS AND HANGERS
   A. FURNISH AND INSTALL SLEEVES AND BOXES REQUIRED FOR OPENINGS IN THE STRUCTURE FOR INSTALLATION OF ELECTRICAL WORK. BE RESPONSIBLE FOR PROPER PLACEMENT OF SLEEVES AND BOXES.
   B. PROVIDE INSERTS AND HANGERS REQUIRED TO SUPPORT CONDUIT, CABLES, BOXES, FIXTURES, ETC. PROVIDE INDEPENDENT SUPPORT FOR ALL ELECTRICAL EQUIPMENT.
   C. PROPERLY SIZE AND LOCATE HOLES AND CHASES REQUIRED FOR WORK UNDER THIS DIVISION AS CONSTRUCTION PROGRESSES. BEFORE BEGINNING SLEEVING OR INSTALLATION WORK, CAREFULLY STUDY CONTRACT DRAWINGS AND CHECK CONDUIT, BOXES AND EQUIPMENT LOCATIONS FOR INTERFERENCE WITH OTHER TRADES. IF CONFLICTS ARE DISCOVERED IN DRAWINGS OR AS WORK PROGRESSES, A SET OF PRINTS MARKED WITH RED PENCIL SHOWING RECOMMENDED INSTALLATION METHODS SHALL BE SUBMITTED TO THE [ARCHITECT] [ENGINEER] FOR REVIEW PRIOR TO INSTALLATION. CUTTING, REPAIRING AND REQUIRED STRUCTURAL REINFORCING FOR INSTALLATION OF THIS WORK SHALL BE DONE IN CONFORMANCE WITH THE ARCHITECT'S DIRECTIONS. CUTTING SHALL NOT BE DONE WITHOUT THE ARCHITECT'S APPROVAL.
   D. CUTTING OF CONCRETE OR OTHER BUILDING MATERIALS SHALL BE AVOIDED WHERE POSSIBLE. HAVE A WORKMANQUALIFIED IN THE ELECTRICAL TRADE PRESENT AT THE POURING OF CONCRETE OR THE BUILDING OF MASONRY CONTAINING ELECTRICAL WORK TO AVOID CUTTING OF CONCRETE OR OTHER BUILDING MATERIAL.
   E. SLEEVES AND CHASES ARE PROHIBITED IN STRUCTURAL MEMBERS EXCEPT WHERE APPROVED BY THE ARCHITECT] IN WRITING. IF OPENINGS NECESSARY FOR THIS WORK ARE NOT INSTALLED AT THE TIME OF CONSTRUCTION, OR IF AN OPENING IS REQUIRED IN EXISTING CONSTRUCTION, PROVIDE THE OPENING.
   F. PATCHING IN EVERY INSTANCE CONSISTS OF COMPLETING THE WORK TO MATCH AND BLEND IN WITH THE ADJOINING EXISTING WORK INSOFAR AS METHODS, MATERIALS AND COLORS. AND WORKMANSHIP ARE CONCERNED. PATCHES WHICH ARE NOT PROPERLY BLENDED SHALL BE REJECTED AND ORDERED REDONE. EXECUTE PATCHING IN FULL COMPLIANCE WITH THE PROVISION OF THE SPECIFICATIONS RELATING TO THE TYPE OF WORK INVOLVED BY CRAFTSMEN QUALIFIED AND SKILLED IN THE PARTICULAR TYPE OF WORK INVOLVED.
   G. OPENINGS FOR ELECTRICAL WORK SHALL BE CAREFULLY CAULKED OR GROUTED AS REQUIRED. SPARE CONDUITS SHALL BE TIGHTLY CAPPED.
   H. HOLES AND VOIDS CREATED TO EXTEND ELECTRICAL SYSTEMS THROUGH FIRE RATED FLOORS, WALLS, AND CEILINGS SHALL BE SEALED WITH AN INTUMESCENT MATERIAL.
   I. COSTS OF CUTTING AND PATCHING CAUSED BY IMPROPER COORDINATION SHALL BE PAID FOR BY THE CONTRACTOR REGARDLESS OF THE RESPONSIBILITIES SET FORTH IN THESE CONTRACT DOCUMENTS FOR NEW WORK.

7. EQUIPMENT IDENTIFICATION
   A. LABELS SHALL BE ETCHED LAMACOID TAGS, BLACK WITH WHITE CORE. LETTERING SHALL BE 1/4 INCH UPPER-CASE, UNLESS OTHERWISE NOTED. ATTACH LABEL TAGS TO EQUIPMENT WITH SHEET METAL SCREWS. EMERGENCY EQUIPMENT LABELS SHALL BE THE SAME AS ABOVE EXCEPT TAGS SHALL BE RED WITH WHITE CORE.
   B. POWER DISTRIBUTION EQUIPMENT FURNISHED UNDER DIVISION 26 INCLUDING, BUT NOT LIMITED TO, PANELBOARDS, AND DISCONNECTS ARE LABELED TO INCLUDE NAME, AMPERE, VOLTAGE, PHASE, AND AIC RATING.
   C. MAIN AND BRANCH DISCONNECTS FOR PANELBOARDS, SHALL BE CLEARLY IDENTIFIED AS TO SERVICE FRAME SIZE, CIRCUIT BREAKER TRIP SETTING OR FUSE SIZE AND TYPE.
   D. LABEL JUNCTION, SPLICE AND TERMINAL BOX INTERIORS AND COVERS. LABELING SHALL BE BY WAY OF PERMANENT MARKING PEN AND INCLUDE PANEL NAME AND CIRCUIT NUMBER. LABELS SHALL BE LOCATED ON THE BACK INTERIOR SURFACE OF BOXES. IN FINISHED AREAS LOCATE LABELS ON THE INTERIOR SURFACE OF COVERS. ON JUNCTION BOXES ABOVE CEILINGS OR IN UNFINISHED AREAS, LOCATE LABELS ON THE EXTERIOR SURFACE OF COVERS.
   E. LABEL OUTLET BOXES. LABELING SHALL BE BY WAY OF TYPED ADHESIVE LABEL AND INCLUDE PANEL NAME AND CIRCUIT NUMBER. LOCATE LABELS ON THE EXTERIOR SURFACE OF DEVICE FACEPLATE.
   F. THE EXTERIOR SURFACE OF STANDBY SYSTEM JUNCTION, SPLICE, AND TERMINAL BOX COVERS SHALL BE PAINTED ORANGE.
   G. UNLESS OTHERWISE INDICATED, WIRES AND CABLES OF EACH COMMUNICATION SYSTEM SHALL HAVE UNIQUE COLORS WHICH FOLLOW A COLOR CODING DOCUMENTED WITHIN THE HEAD-END EQUIPMENT OF EACH SYSTEM.
   H. CONDUIT MUST BE TAGGED INDIVIDUALLY TO INDICATE ORIGINATION AND TERMINATION POINTS

DIVISION 26 - ELECTRICAL SPECIFICATIONS CONTINUED

260500 - COMMON WORK RESULTS FOR ELECTRICAL - PRODUCTS

1. CONDUIT
   A. RIGID METAL CONDUIT SHALL BE STEEL, GALVANIZED INSIDE AND OUTSIDE. FACTORY MADE THREADS SHALL BE FULL CUT AND GALVANIZED AFTER THREADING. THE CONDUIT SHALL BE UL LISTED AND SHALL MEET THE REQUIREMENTS OF UL 6 AND ANSI C80.1.

   B. ELECTRICAL METALLIC TUBING SHALL BE HOT-DIPPED GALVANIZED OR ELECTRO-GALVANIZED STEEL WITH AN INNER COATING TO PROTECT CABLES AND AID PULLING. THE CONDUIT SHALL BE UL LISTED AND SHALL MEET THE REQUIREMENTS OF UL 797 AND ANSI C80.3.

   C. FLEXIBLE METAL CONDUIT SHALL BE COMPOSED OF ONE SPIRALLY WOUND CONTINUOUS STRIP OF INTERLOCKED GALVANIZED STEEL. THE CONDUIT SHALL CONFORM TO FEDERAL SPECIFICATION WW-C-566C AND SHALL BE UL LISTED.

   D. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL BE GALVANIZED STEEL WITH AN OIL AND SUNLIGHT RESISTANT POLYVINYL CHLORIDE JACKET BONDED OR EXTRUDED ONTO THE EXTERIOR. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL BE APPROVED FOR GROUNDING. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL MEET UL STANDARD FOR SAFETY, UL 360.

2. CONDUIT FITTINGS
   A. FITTINGS FOR RIGID METAL CONDUIT SHALL BE GALVANIZED OR CADMIUM PLATED. FITTINGS SHALL BE THREADED. COUPLINGS SHALL BE OF GALVANIZED STEEL. LOCKNUTS AND BUSHINGS SHALL BE STEEL OR MALLEABLE IRON. BUSHINGS SHALL HAVE NYLON INSULATED THROAT.

   B. CONNECTORS, COUPLINGS AND COMBINATION COUPLINGS FOR EMT SHALL BE STEEL SET SCREW OR STEEL COMPRESSION TYPE. INSULATED THROAT CONNECTORS SHALL BE USED FOR SIZES 1 INCH AND SMALLER. UNINSULATED CONNECTORS WITH INSULATED BUSHING SHALL BE USED FOR SIZES LARGER THAN 1 INCH.

   C. FITTINGS FOR FLEXIBLE METAL CONDUIT AND LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL BE OF A TYPE SPECIFICALLY DESIGNED FOR THE PURPOSE.

   D. EXPANSION FITTINGS ACROSS STRUCTURAL JOINTS SHALL BE OF A DESIGN TO COMPENSATE FOR EXPANSION AND CONTRACTION AND SHALL BE SEALED TO PREVENT ENTRANCE OF WATER OR MOISTURE. EXPANSION FITTINGS SHALL BE APPROVED FOR GROUNDING DUTY.

   E. ADAPTERS FOR JOINTS BETWEEN PVC AND STEEL CONDUITS SHALL BE UL LISTED CARLON E942 AND E943 SERIES.

3. WIRE AND CABLE
   A. CONDUCTORS SHALL BE NEW AND UNUSED. WIRE AND CABLE SHALL BE COPPER SINGLE CONDUCTOR TYPE WITH 600V INSULATION, UNLESS OTHERWISE NOTED. CONDUCTOR SHALL BE SOFT ANNEALED CLASS B, PER ASTM B-3 FOR SOLID WIRE AND ASTM B-8 FOR STRANDED WIRE. CONDUCTORS SHALL BE MINIMUM 98% CONDUCTIVE.

   B. NUMBER 10 AWG AND SMALLER WIRE EXCEPT FOR MOTOR CIRCUITS SHALL BE SOLID WITH TYPE THHN, OR THWN INSULATION. LARGER WIRE AND MOTOR CIRCUIT FEEDERS SHALL BE STRANDED WITH TYPE THHN, OR THWN INSULATION. CONDUCTORS FOR SERVICE ENTRANCE USE OR WHERE USED UNDERGROUND SHALL BE TYPE XHHW ONLY. GROUNDING CONDUCTORS SHALL BE COPPER.

   C. INSULATION SHALL BE FLAME RETARDANT, HEAT RESISTANT POLYVINYL CHLORIDE (PVC), ETHYLENE PROPYLENE (EP) OR POLYETHYLENE (PE) WITH MINIMUM INSULATION THICKNESSES PER TABLE 310-13 OF THE NEC. THE INSULATION SHALL CONFORM TO THE REQUIREMENTS OF UL 83 ICEA S-68-516 FOR EP, ICEA S-61-402 FOR PVC AND PE.

   D. TYPE THWN OR THHN WIRE AND CABLE SHALL HAVE A OUTER NYLON JACKET CONFORMING TO UL-83. CABLES SHALL BE MANUFACTURED TO MEET THE STANDARDS OF INSULATED CABLE ENGINEER'S ASSOCIATION (ICEA).

   E. MC CABLE SHALL BE UL LISTED, AND CONSIST OF COLOR-CODED INSULATED CONDUCTORS WRAPPED SURROUNDED WITH A MOISTURE RESISTANT TAPE AND ENCLOSED IN A GALVANIZED STEEL INTERLOCKED CLADDING. EACH CABLE SHALL CONTAIN A FULL SIZED GROUND WIRE. APPROVED FOR 6 FOOT FIXTURE WHIPS ONLY.

   F. WIRE PULLING LUBRICANT SHALL BE EQUAL TO IDEAL "AQUA GEL CW" OR DOW CORNING COMPOUND #7.

4. CONNECTORS AND SPLICES
   A. FOR SOLID WIRE SIZE #10 AND SMALLER, "SCOTCHLOK" INSULATED TWIST-ON CONNECTORS OR COMPRESSION TYPE, 600V INSULATED OR ACCEPTABLE SUBSTITUTION.

   B. FOR STRANDED WIRE, "BURNDY HYDENT" HYDRAULIC COMPRESSION TYPE, TAPED TO 600V INSULATION LEVEL.

5. PULL AND JUNCTION BOXES
   A. PROVIDE CODE GAUGE SHEET METAL BOXES WITH SUITABLE COVERS, TRIMS, ETC. BOXES TO BE SIZED, PER THE NEC, BY NUMBER AND SIZE OF CONDUITS AND CONDUCTORS, UNLESS OTHERWISE NOTED.

6. OUTLET BOXES
   A. BOXES SHALL BE ZINC OR CADMIUM-PLATED CODE GAUGE PRESSED STEEL AND OF THE KNOCK-OUT TYPE. DEPTH MAY VARY TO SUIT REQUIREMENTS OF LOCATION.

   B. BOXES SHALL ACCOMMODATE DEVICES TO BE INSTALLED AND SHALL BE SIZED AS REQUIRED BY THE NEC FOR NUMBER AND SIZE OF CONDUITS AND CONDUCTORS ENTERING AND LEAVING. ROUND BOXES SHALL NOT BE PERMITTED, EXCEPT WHERE SPECIFICALLY CALLED FOR.

   C. SPECIAL OVERSIZED OUTLET BOXES SHALL BE CODE GAUGE STEEL AND OF THE KNOCK-OUT TYPE. BOXES SHALL HAVE CREW MOUNTED COVERS FOR SURFACE OR FLUSH MOUNTING. BOXES SHALL BE SIZED AS INDICATED OR AS REQUIRED BY THE NATIONAL ELECTRICAL CODE. SPECIAL OUTLET BOXES SHALL ACCOMMODATE THE EQUIPMENT SERVED.

   D. WEATHERPROOF BOXES SHALL BE CAST ALUMINUM WITH THREADED HUBS. BOXES SHALL HAVE SCREW MOUNTED, GASKETED COVERS.

7. SUPPORTS
   A. HANGERS, STRAPS AND SUPPORTS SHALL BE OF CORROSION RESISTANT OR GALVANIZED STEEL.

   B. SINGLE RUNS: GALVANIZED MALLEABLE-IRON CONDUIT STRAPS FOR SURFACE MOUNTING OR 3/8 INCH THREADED ROD WITH STEEL ONE BOLT CONDUIT CLAMPS FOR ALL SUSPENDED RUNS.

   C. MULTIPLE RUNS: CHANNEL SUPPORT FOR SURFACE MOUNTING OR TRAPEZE STYLE HANGERS OF 1-5/8 INCHES BY 1-5/8 INCHES GALVANIZED STEEL CHANNELS, SUPPORTED BY 3/8 INCH THREADED ROD FOR ALL SUSPENDED RUNS. SIZE HANGERS TO ALLOW FOR 25 PERCENT ADDITIONAL CONDUITS.

   D. SUPPORTS AND HARDWARE SHALL BE GALVANIZED STEEL, EXCEPT THAT HIGH CARBON SPRING STEEL SUPPORTS MAY BE USED IN STEEL STUD WALLS TO SUPPORT HORIZONTAL AND VERTICAL CONDUIT UP TO 3/4 INCH.

   E. PERFORATED PLUMBING TAPE IS NOT PERMITTED IN ANY SUPPORT APPLICATION.

8. ANCHOR METHODS
   A. HOLLOW MASONRY: TOGGLE BOLTS OR SPIDER TYPE EXPANSION ANCHORS.
   B. SOLID MASONRY (EXCLUDING CONCRETE): STEEL EXPANSION BOLTS.
   C. NEW CONCRETE: PRESET INSERTS WITH MACHINE SCREWS AND BOLTS.
   D. EXISTING CONCRETE: STEEL EXPANSION BOLTS.
   E. WOOD SURFACES: WOOD SCREWS.
   F. STEEL: WELDED THREADED STUDS OR GALVANIZED STEEL CLAMPS.
   G. LIGHT STEEL: SHEET METAL SCREWS.

9. FIRE SEALS
   A. FIRE SEALS FOR WALLS AND FLOORS SHALL BE AN INTUMESCENT MATERIAL CAPABLE OF EXPANDING TO FILL VOIDS WHEN EXPOSED TO TEMPERATURES BEGINNING AT 250 DEGREE F (121 DEGREE C). THE SEAL SYSTEM SHALL BE U.L. CLASSIFIED AND HAVE ICBO, BOCA, AND SBCC RATINGS TO 3 HOURS. THE SEAL SYSTEM FIRE RATING SHALL EQUAL OR EXCEED THE FIRE RATING OF THE PENETRATED SURFACE TO COMPLY WITH NEC SECTION 300-21.

   B. IN CABLE TRAY APPLICATIONS THE FIRE SEAL SHALL BE EITHER A PILLOW OR PUTTY TYPE ALLOWING EASY REENTRY.

260500 - COMMON WORK RESULTS FOR ELECTRICAL - EXECUTION

1. CONDUIT INSTALLATION

   A. MOTOR, VIBRATING EQUIPMENT, AND ROOFTOP MOUNTED HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT CONNECTIONS SHALL BE MADE WITH PVC JACKETED LIQUID TIGHT FLEXIBLE METALLIC CONDUIT FOR THE LAST 2 FEET WITH LIQUID TIGHT CONNECTORS. SIMILAR EQUIPMENT CONNECTIONS IN ENVIRONMENTAL AIR PLENUMS SHALL BE MADE WITH FLEXIBLE METAL CONDUIT.

   B. RACEWAYS IN OTHER AREAS SHALL BE ELECTRICAL METALLIC TUBING UNLESS OTHERWISE NOTED.

2. CONDUIT SIZES

   A. MINIMUM SIZE ALLOWABLE FOR LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL BE 3/4 INCH.

   B. MINIMUM SIZE ALLOWABLE FOR FLEXIBLE METAL CONDUIT SHALL BE 3/4 INCH EXCEPT FOR LUMINAIRE AND CONTROL WIRING FOR WHICH 3/8 INCH SHALL BE ALLOWED.

3. CONDUIT EXECUTION
   A. CONDUCTOR AND CONDUIT SIZES SHOWN ON DRAWINGS ARE BASED ON THE USE OF COPPER CONDUCTORS.

   B. WIRE AND CABLE SHALL BE RUN IN METAL RACEWAYS, EXCEPT WHERE NONMETALLIC RACEWAYS HAVE BEEN SPECIFICALLY APPROVED.

   C. CONDUIT SHALL BE RUN PARALLEL TO WALLS, CEILINGS, AND BUILDING LINES WHEREVER POSSIBLE.

   D. CONDUIT SHALL BE INSTALLED IN FINISHED WALLS AND ABOVE SUSPENDED CEILINGS. CONDUIT ROUTED ABOVE SUSPENDED CEILINGS SHALL BE SURFACE MOUNTED TO THE STRUCTURAL CEILING WHEN ABOVE SUSPENDED CEILINGS, ROUTE CONDUITS ABOVE SUSPENDED LAY-IN CEILING INSTEAD OF SUSPENDED HARD CEILINGS WHEREVER POSSIBLE. COORDINATE THE ROUTING OF ALL OTHER CONDUIT WITH THE ARCHITECT PRIOR TO ROUGH-IN.

   E. WHERE FLEXIBLE METAL CONDUIT IS USED FOR EQUIPMENT CONNECTIONS OR OTHER SPECIAL (APPROVED) SITUATIONS, GROUND CONTINUITY SHALL BE PROVIDED IN ACCORDANCE WITH THE NEC. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL BE USED FOR FLEXIBLE EQUIPMENT CONNECTIONS IN DAMP AND WET AREAS EXCEPT WHERE INSTALLED IN ENVIRONMENTAL AIR PLENUMS WHERE FLEXIBLE METAL CONDUIT SHALL BE USED.

   F. DO NOT CUT, NOTCH OR DRILL STRUCTURAL FRAMING MEMBERS FOR THE INSTALLATION OF CONDUIT WITHOUT THE ARCHITECT'S APPROVAL IN EACH CASE.

   G. INSTALL EXPANSION FITTINGS WHERE CONDUIT CROSSES AN EXPANSION JOINT IN STRUCTURE OR IS IN AN ENVIRONMENT WHERE TEMPERATURE CHANGES COMBINED WITH CONDUIT RUN LENGTH PRODUCE EXPANSION OR CONTRACTION STRESS ON THE INSTALLATION. ENDS OF CONDUIT SHALL BE PROVIDED WITH INSULATED GROUNDING BUSHINGS. COPPER GROUND RINGS OR A FLEXIBLE BONDING JUMPER, EQUAL TO AT LEAST THREE TIMES THE NOMINAL WIDTH OF THE JOINT, SHALL BE PROVIDED TO INSURE A CONTINUOUS GROUND BETWEEN CONDUIT AND FITTING.

   H. PROVIDE COMPLETELY SEPARATE RACEWAY SYSTEM FOR CIRCUITS, OUTLETS, LUMINAIRES, ETC., THAT ARE CONNECTED TO THE EMERGENCY OR STANDBY SYSTEM.

   I. PROVIDE SEPARATE CODE-SIZED GROUND CONDUCTOR FOR EACH RUN OF CONDUIT. CONDUIT SHALL BE SIZED TO ACCOMMODATE GROUND CONDUCTOR.

   J. PROVIDE ROOF JACKS FOR WATERPROOFING CONDUIT PENETRATIONS OF ROOF. CONDUIT ROUTING AND MOUNTING ON ROOFS SHALL BE COORDINATED WITH THE ARCHITECT. UNLESS OTHERWISE INDICATED OR REQUIRED, CONDUIT SHALL BE MOUNTED 12 INCHES ABOVE THE FINISHED SURFACE OF FLAT ROOFS ON REDWOOD OR TREATED WOOD STANDOFFS. CONDUITS SHALL BE PERMANENTLY ATTACHED TO STANDOFFS. STANDOFFS SHALL REST FREELY ON ROOF WITHOUT BEING ANCHORED TO ROOF SURFACE.

   K. CARE SHALL BE TAKEN TO AVOID PLACING CONDUITS WHERE THEY SHALL BE SUBJECTED TO EXCESSIVE HEAT. LOCATE CONDUITS A MINIMUM OF 12 INCHES FROM FLUES, STEAM LINES, HOT WATER LINES, ETC.

   L. CONDUIT ENDS SHALL BE CAPPED USING STANDARD CAPPED BUSHINGS TO PREVENT ENTRANCE OF FOREIGN MATERIALS DURING AND AFTER CONSTRUCTION. WHEN CONDUIT INSTALLATION IS NOT IN PROGRESS CLOSE OPEN ENDS OF CONDUIT WITH TEMPORARY PLUGS OR CAPS.

   M. CLEAN CONDUITS PRIOR TO INSTALLATION OF WIRES. INSTALL A NYLON PULLING LINE IN EACH CONDUITS RUN ASSEMBLY OR AFTER COMPLETION OF EACH CONDUIT RUN ASSEMBLY FOR INSTALLATION OF WIRES OR FOR FUTURE USE.

4. WIRE AND CABLE INSTALLATION
   A. MINIMUM WIRE SIZE FOR LIGHTING AND POWER CIRCUITS SHALL BE #12. SIGNAL AND CONTROL CIRCUITS MAY USE #14 EXCEPT AS NOTED. WIRING SHALL BE INSTALLED IN CONDUIT, UNLESS OTHERWISE NOTED.

   B. UNLESS OTHERWISE INDICATED OR REQUIRED, THE FOLLOWING SCHEDULE SHALL BE ADHERED TO FOR CONDUCTOR SIZES:

CIRCUIT OVERCURRENT DEVICE RATING	COPPER CONDUCTOR SIZES
20 A OR LESS	#12 AWG
30 A	#10 AWG
40 A	# 8 AWG
50 A	# 6 AWG
60 A	# 4 AWG
70 A	# 4 AWG
80 A	# 3 AWG
90 A	# 2 AWG
100 A	# 1 AWG

   C. TO LIMIT VOLTAGE DROP, 120 V BRANCH CIRCUITS WITH LENGTH FROM PANEL TO FIRST OUTLET EXCEEDING 75 FEET SHALL BE #10 OR LARGER. FOR 277 V BRANCH CIRCUITS WITH LENGTH FROM PANEL TO FIRST OUTLET EXCEEDING 175 FEET SHALL BE #10 OR LARGER. WIRE SIZES FOR OTHER BRANCH CIRCUITS SHALL BE SIZED TO LIMIT VOLTAGE DROP TO 3%.

   D. CONDUCTORS FROM OUTLET TO LUMINAIRE SOCKETS AND WHERE RUN IN LUMINAIRE CHANNELS SHALL BE TYPE THHN OR AS APPROVED BY THE NEC.

   E. SOLID WIRE #10 AND SMALLER SHALL BE CONNECTED AS SPECIFIED HEREIN AND SHALL BE MADE TIGHT IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.

   F. STRANDED WIRE SHALL BE CONNECTED AS SPECIFIED HEREIN AND THOROUGHLY TAPED WITH "SCOTCH" #33 OR ACCEPTABLE SUBSTITUTION APPROVED EQUAL ELECTRICAL TAPE.

   G. PROVIDE EQUIPMENT LUGS COMPATIBLE WITH WIRE SIZES INDICATED. LUGS SHALL NOT BE RATED LESS THAN EQUIPMENT RATING. PROVIDE BOX SIZES TO ACCOMMODATE WIRE BENDING RADIUS REQUIREMENTS. REVISE FEEDERS AS NEEDED, MAINTAINING THE AMPERE RATING AND FAULT CURRENT VALUES INDICATED, FOR COMPATIBILITY WITH EQUIPMENT LUGS, UL LISTINGS, OR MANUFACTURER'S RECOMMENDATIONS.

   H. INSTALL WIRING AFTER CONCRETE, PLASTERING, ETC., WORK IS COMPLETE. CAREFULLY PULL WIRE UNSPLICED BETWEEN OUTLETS. USE APPROVED PULLING LUBRICANT AS NECESSARY TO PREVENT INSULATION CUTTING OR NICKING. BRANCH CIRCUIT AND FEEDER WIRING SHALL BE COLOR CODED IN ACCORDANCE WITH NEC AND IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

CONDUCTOR	208Y/120V/3ø
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUND	GREEN

   I. MOTOR CIRCUITS AND FEEDERS SHALL UTILIZE STRANDED CONDUCTORS.

   J. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT. ALL HOME RUNS SHALL BE RUN IN CONDUIT. OBTAIN WRITTEN APPROVAL FROM DESIGN ENGINEER AND PROPERTY MANAGEMENT FOR THE USE OF "MC" AND "AC" TYPE CABLING. IF APPROVED, "MC" AND "AC" TYPE CABLE SHALL BE PERMITTED FOR USE IN BRANCH CIRCUIT WIRING FROM JUNCTION BOXES TO DEVICES ONLY AND FOR LIGHT FIXTURE WHIPS TO J-BOX WITHIN 6FT. "MC" AND "AC" CABLING SHALL BE INSTALLED PER NATIONAL ELECTRICAL CODE AND LOCAL BUILDING DEPARTMENT REQUIREMENTS. USE APPROVED TYPE COUPLINGS AND CONNECTORS. PROVIDE CONDUIT SUPPORTS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE AS A MINIMUM. PRE-MANUFACTURED CABLE ASSEMBLIES SHALL NOT BE PERMITTED.

5. PULL AND JUNCTION BOX INSTALLATION
   A. LOCATE PULL BOXES AND JUNCTION BOXES ABOVE REMOVABLE CEILINGS OR IN ELECTRICAL ROOM, UTILITY ROOMS, OR STORAGE AREAS.

   B. PULL AND JUNCTION BOXES SHALL BE SUPPORTED INDEPENDENTLY OF THE CONDUIT SYSTEM AND SHALL BE PLUMB. SUPPORTS SHALL BE NONCOMBUSTIBLE AND CORROSION RESISTANT. SUSPENDED PULL AND JUNCTION BOXES SHALL BE SUPPORTED WITH THREADED ROD HANGERS AND GALVANIZED STEEL CLAMPS, OR TRAPEZE HANGERS OF UNISTRUT OR KINDORF CHANNEL.

   C. PULL AND JUNCTION BOXES SHALL BE ACCESSIBLE.

6. OUTLET BOX INSTALLATION
   A. EACH LIGHTING OUTLET, SWITCH, CONVENIENCE OUTLET, COMMUNICATION OUTLET, OR OTHER MISCELLANEOUS DEVICE SHALL BE PROVIDED WITH A SUITABLE BOX.

   B. CONVENIENCE OUTLETS AND TELEPHONE AND DATA OUTLETS SHALL BE PROVIDED WITH DOUBLE GANG BOXES AND SINGLE DEVICE TRIM PLATES WHERE SINGLE DEVICES ARE INDICATED.

   C. WHERE TWO OR MORE SIMILAR TYPE DEVICES OCCUR ADJACENT TO EACH OTHER, THEY SHALL BE IN A GANG TYPE BOX WITH A GANG TYPE COVER. WHERE DIFFERENT TYPE DEVICES OCCUR ADJACENT TO EACH OTHER, SPACE OUTLET BOXES SO THAT FINISH PLATES SHALL BE SPACED 1 INCH APART.

   D. 4" SQUARE (DOUBLE GANG) JUNCTION BOX WITH SINGLE GANG PLASTER RING FOR ALL NEW COMBINATION TELEPHONE/DATA OUTLETS. STUB 1" EMPTY CONDUIT UP TO 6" ABOVE ACCESSIBLE CEILING WITH PULL WIRE IN CONDUIT AND PLASTIC BUSHINGS ON CONDUIT ENDS. OWNER'S COMMUNICATION'S SYSTEM VENDOR UNDER SEPARATE CONTRACT SHALL PROVIDE ALL COMMUNICATION DEVICES AND WIRING. COORDINATE EXACT REQUIREMENTS AND OUTLET LOCATIONS WITH ARCHITECTURAL PLANS PRIOR TO ROUGH IN.

   E. INSTALL OUTLET BOXES SECURELY IN PLACE, PLUMB WITH BUILDING LINES IN ACCORDANCE WITH NEC. RECESS OUTSIDE EDGE AND ASSOCIATED TRIM PLATES FROM FINISHED SURFACE IN ACCORDANCE WITH NEC. PROVIDE BLANK COVERS, WHICH MATCH DEVICE PLATES IN AREA, FOR OUTLETS NOT SPECIFIED WITH COVERS. OUTLETS IN PLASTERED, PANELED, AND FURRED FINISHES SHALL BE EQUIPPED WITH TRIM PLATES AND EXTENSIONS OF SUCH DEPTHS AS TO BRING OUTLETS FLUSH WITH FINAL SURFACE FINISH.

   F. WALL OUTLETS IN EXPOSED BLOCK OR MASONRY CONSTRUCTION SHALL HAVE EXTENSION AND DEVICE MOUNTING STRAPS AS REQUIRED TO PROVIDE ONLY SUCH WALL OPENINGS AS MAY BE COVERED BY DEVICE PLATES WITHOUT THE USE OF MORTAR OR OTHER FILLER MATERIAL.

   G. BOXES SHALL BE SUPPORTED INDEPENDENTLY OF THE CONDUIT SYSTEM AND SHALL BE PLUMB. SUPPORTS SHALL BE NONCOMBUSTIBLE AND CORROSION RESISTANT. SUSPENDED BOXES SHALL BE SUPPORTED WITH THREADED ROD HANGERS AND GALVANIZED STEEL CLAMPS, OR TRAPEZE HANGERS OF UNISTRUT OR KINDORF CHANNEL. WHERE THE SUSPENDED CEILING SYSTEM IS APPROVED FOR THE APPLICATION, OUTLET BOXES MAY BE SUPPORTED WITH BAR HANGERS ATTACHED TO THE CEILING CHANNELS.

   H. INSTALL ADDITIONAL STRAPS OR CROSS-BRACING TO ENSURE COMPLETE RIGID INSTALLATION IN STEEL STUD SYSTEM, BRACING PRIOR TO INSTALLATION OF WALL FINISH MATERIAL.

   I. "BACK-TO-BACK" OUTLETS IN THE SAME WALL, OR "THRU-WALL" TYPE BOXES SHALL NOT BE PERMITTED. PROVIDE 12 INCH (MINIMUM) LONG NIPPLE TO OFFSET OUTLETS SHOWN ON OPPOSITE SIDES OF A COMMON WALL TO MINIMIZE SOUND TRANSMISSION.

   J. OUTLET BOXES ON OPPOSITE SIDES OF FIRE RATED WALLS AND PARTITIONS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF AT LEAST 24 INCHES.

   K. PROVIDE LUMINAIRE OUTLETS WITH 3/8 INCH NO BOLT FIXTURE STUD WHERE REQUIRED.

   L. TELEPHONE OUTLETS SHALL BE MOUNTED AT THE SAME HEIGHT AS ADJACENT RECEPTACLE OUTLETS UNLESS NOTED OTHERWISE.

7. SUPPORT INSTALLATION
   A. INSTALL INDIVIDUAL AND MULTIPLE RACEWAY HANGERS AND RISER CLAMPS TO SUPPORT RACEWAYS. PROVIDE ALL HARDWARE AS REQUIRED FOR HANGER ASSEMBLIES AND FOR SECURING HANGER RODS TO CONDUITS.

   B. MULTIPLE RUNS OF CONDUITS ON CEILINGS AND WALLS SHALL BE MOUNTED ON UNISTRUT OR KINDORF CHANNELS. PERFORATED PLUMBERS TAPE SHALL NOT BE USED.

   C. CADDY CLIPS WITH SUPPORT WIRES USING NOT LESS THAN NO. 14 WIRE MAY BE USED ONLY FOR SINGLE SUSPENDED RUNS OF EMT OR RIGID CONDUIT UP TO 3/4 INCHES.

   D. CONDUIT AND BOX SUPPORT INSTALLATION SHALL PREVENT DISPLACEMENT OF CONDUIT IN ANY DIRECTION.

   E. IN STEEL STUD WALLS, HIGH CARBON STEEL SPRING CLIPS MAY BE USED TO SUPPORT CONDUITS UP TO 3/4 INCH, AND BOXES TO METAL STUDS.

   F. SUPPORTS, WHETHER FOR SINGLE OR MULTIPLE RUNS, REGARDLESS OF TYPE SHALL HAVE STRENGTH ADEQUATE TO SUPPORT AT LEAST FOUR TIMES THE PRESENT LOAD, A MINIMUM OF 200-LB DESIGN LOAD.

8. FIRE SEAL INSTALLATION
   A. FIRE SEAL INSTALLATIONS SHALL BE PERFORMED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL CONFORM TO STANDARD UL FIRE STOP SYSTEM DETAILS. ALL CABLES OR CONDUITS SHALL BE FIRMLY SECURED AND CLEANED WHERE PENETRATING THE FIRE RATED SURFACE. FIRE SEALS SHALL NOT ACT AS SUPPORTS.

260526 - GROUNDING - PRODUCTS

1. PROVIDE A COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIREMENT. ITEMS NOT SPECIFICALLY MENTIONED IN THE SPECIFICATIONS OR DRAWINGS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE INSTALLATION SHALL BE INCLUDED. WHERE TYPES, SIZES, RATINGS, AND QUANTITIES INDICATED ARE IN EXCESS OF NEC REQUIREMENTS, THE MORE STRINGENT REQUIREMENTS GOVERN.
2. EQUIPMENT AND BONDING JUMPER CONDUCTORS: COPPER AND INSULATED WITH GREEN INSULATION OR MARKING UNLESS OTHERWISE NOTED.
3. GROUNDING-ELECTRODE CONDUCTORS: COPPER STRANDED CABLE, UNLESS OTHERWISE INDICATED.

260526 - GROUNDING - EXECUTION

1. GROUNDING CONDUCTORS: AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, OR DAMAGE. CONDUCTORS SHALL BE FORMED TO THE CONTOUR OF EQUIPMENT AND FIRMLY SUPPORTED.
2. EQUIPMENT GROUNDING CONDUCTORS: PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR WITH ALL FEEDER AND BRANCH CIRCUIT CONDUCTORS, UNLESS OTHERWISE INDICATED. A PROPERLY SIZED COMMON EQUIPMENT GROUNDING CONDUCTOR MAY BE USED FOR MULTIPLE FEEDERS OR BRANCH CIRCUITS ROUTED WITHIN A SINGLE CONDUIT.
3. SIGNAL AND COMMUNICATION SYSTEMS: FOR TELEPHONE SYSTEM, FIRE ALARM AND DETECTION SYSTEM, DATA SYSTEM, CARD ACCESS SYSTEM, PUBLIC ADDRESS SYSTEM, SECURITY SYSTEM, CLOCK AND PROGRAM SYSTEM, AND OTHER COMMUNICATION SYSTEMS, PROVIDE A #4 AWG MINIMUM INSULATED GROUNDING CONDUCTOR IN RACEWAY FROM GROUNDING-ELECTRODE SYSTEM TO EACH COMMUNICATION SYSTEM SERVICE TERMINAL CABINET, WIRING CLOSET, OR CENTRAL EQUIPMENT LOCATION.

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL
1.1 RELATED DOCUMENTS
   A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
1.2 SUMMARY
   A. SECTION INCLUDES:
      1. LABELS.
      2. BANDS AND TUBES.
      3. TAPES AND STENCILS.
      4. TAGS.
      5. SIGNS.
      6. CABLE TIES.
      7. MISCELLANEOUS IDENTIFICATION PRODUCTS.
1.3 ACTION SUBMITTALS
   A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
      1. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES FOR ELECTRICAL IDENTIFICATION PRODUCTS.
   B. SAMPLES: FOR EACH TYPE OF LABEL AND SIGN TO ILLUSTRATE COMPOSITION, SIZE, COLORS, LETTERING STYLE, MOUNTING PROVISIONS, AND GRAPHIC FEATURES OF IDENTIFICATION PRODUCTS.
   C. IDENTIFICATION SCHEDULE: FOR EACH PIECE OF ELECTRICAL EQUIPMENT AND ELECTRICAL SYSTEM COMPONENTS TO BE AN INDEX OF NOMENCLATURE FOR ELECTRICAL EQUIPMENT AND SYSTEM COMPONENTS USED IN IDENTIFICATION SIGNS AND LABELS. USE SAME DESIGNATIONS INDICATED ON DRAWINGS.
   D. DELEGATED-DESIGN SUBMITTAL: FOR ARC-FLASH HAZARD STUDY.
PART 2 - PRODUCTS
2.1 PERFORMANCE REQUIREMENTS
   A. COMPLY WITH ASME A13.1.
   B. COMPLY WITH NFPA 70.
   C. COMPLY WITH 29 CFR 1910.144 AND 29 CFR 1910.145.
   D. COMPLY WITH ANSI Z535.4 FOR SAFETY SIGNS AND LABELS.
   E. COMPLY WITH NFPA 70E REQUIREMENTS FOR ARC-FLASH WARNING LABELS.
   F. ADHESIVE-ATTACHED LABELING MATERIALS, INCLUDING LABEL STOCKS, LAMINATING ADHESIVES, AND INKS USED BY LABEL PRINTERS, SHALL COMPLY WITH UL 969.
   G. THERMAL MOVEMENTS: ALLOW FOR THERMAL MOVEMENTS FROM AMBIENT AND SURFACE TEMPERATURE CHANGES.
      1. TEMPERATURE CHANGE: 120 DEG F (67 DEG C), AMBIENT; 180 DEG F (100 DEG C), MATERIAL SURFACES.
2.2 COLOR AND LEGEND REQUIREMENTS
   A. RACEWAYS AND CABLES CARRYING CIRCUITS AT 600 V OR LESS:
      1. BLACK LETTERS ON AN ORANGE FIELD.
      2. LEGEND: INDICATE VOLTAGE.
   B. COLOR-CODING FOR PHASE- AND VOLTAGE-LEVEL IDENTIFICATION, 600 V OR LESS: USE COLORS LISTED BELOW FOR UNGROUNDED SERVICE FEEDER AND BRANCH-CIRCUIT CONDUCTORS.
      1. COLOR SHALL BE FACTORY APPLIED OR FIELD APPLIED FOR SIZES LARGER THAN NO. 8 AWG IF AUTHORITIES HAVING JURISDICTION PERMIT.
      2. COLORS FOR 208/120-V CIRCUITS:
         A. PHASE A: BLACK.
         B. PHASE B: RED.
         C. PHASE C: BLUE.
   C. WARNING LABEL COLORS:
      1. IDENTIFY SYSTEM VOLTAGE WITH BLACK LETTERS ON AN ORANGE BACKGROUND.
      2. WORKSPACE CLEARANCE WARNING: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES (915 MM).
   D. EQUIPMENT IDENTIFICATION LABELS:
      1. BLACK LETTERS ON A WHITE FIELD.
2.3 LABELS
   A. VINYL WRAPAROUND LABELS: PREPRINTED, FLEXIBLE LABELS LAMINATED WITH A CLEAR, WEATHER- AND CHEMICAL-RESISTANT COATING AND MATCHING WRAPAROUND CLEAR ADHESIVE TAPE FOR SECURING LABEL ENDS.
   B. SELF-ADHESIVE WRAPAROUND LABELS: PREPRINTED, 3-MIL- (0.08-MM-) THICK, POLYESTER FLEXIBLE LABEL WITH ACRYLIC PRESSURE-SENSITIVE ADHESIVE.
      1. SELF-LAMINATION: CLEAR: UV-, WEATHER- AND CHEMICAL-RESISTANT; SELF-LAMINATING, PROTECTIVE SHIELD OVER THE LEGEND. LABELS SIZED SUCH THAT THE CLEAR SHIELD OVERLAPS THE ENTIRE PRINTED LEGEND.
      2. MARKER FOR LABELS:
         A. MACHINE-PRINTED, PERMANENT, WATERPROOF, BLACK INK RECOMMENDED BY PRINTER MANUFACTURER.
   C. SELF-ADHESIVE LABELS: POLYESTER, THERMAL, TRANSFER-PRINTED, 3-MIL- (0.08-MM-) THICK, MULTICOLOR, WEATHER- AND UV-RESISTANT, PRESSURE-SENSITIVE ADHESIVE LABELS, CONFIGURED FOR INTENDED USE AND LOCATION.
      1. MINIMUM NOMINAL SIZE:
         A. 1-1/2 BY 6 INCHES (37 BY 150 MM) FOR RACEWAY AND CONDUCTORS.
         B. 3-1/2 BY 5 INCHES (76 BY 127 MM) FOR EQUIPMENT.
         C. AS REQUI

DIVISION 26 - ELECTRICAL SPECIFICATIONS CONTINUED

2.7 CABLE TIES
A. GENERAL-PURPOSE CABLE TIES: FUNGUS INERT, SELF-EXTINGUISHING, ONE PIECE, SELF-LOCKING, AND TYPE 6/6 NYLON.
1. MINIMUM WIDTH: 3/16 INCH (5 MM).
2. TENSILE STRENGTH AT 73 DEG F (23 DEG C) ACCORDING TO ASTM D638: 12,000 PSI (82.7 MPA).
3. TEMPERATURE RANGE: MINUS 40 TO PLUS 185 DEG F (MINUS 40 TO PLUS 85 DEG C).
4. COLOR: BLACK, EXCEPT WHERE USED FOR COLOR-CODING.
B. PLENUM-RATED CABLE TIES: SELF-EXTINGUISHING, UV STABILIZED, ONE PIECE, AND SELF-LOCKING.
1. MINIMUM WIDTH: 3/16 INCH (5 MM).
2. TENSILE STRENGTH AT 73 DEG F (23 DEG C) ACCORDING TO ASTM D638: 7000 PSI (48.2 MPA).
3. UL 94 FLAME RATING: 94V-0.
4. TEMPERATURE RANGE: MINUS 50 TO PLUS 284 DEG F (MINUS 46 TO PLUS 140 DEG C).
5. COLOR: BLACK.
2.8 MISCELLANEOUS IDENTIFICATION PRODUCTS
B. FASTENERS FOR LABELS AND SIGNS: SELF-TAPPING, STAINLESS-STEEL SCREWS OR STAINLESS-STEEL MACHINE SCREWS WITH NUTS AND FLAT AND LOCK WASHERS.

PART 3 - EXECUTION
1.1 PREPARATION
A. SELF-ADHESIVE IDENTIFICATION PRODUCTS: BEFORE APPLYING ELECTRICAL IDENTIFICATION PRODUCTS, CLEAN SUBSTRATES OF SUBSTANCES THAT COULD IMPAIR BOND, USING MATERIALS AND METHODS RECOMMENDED BY MANUFACTURER OF IDENTIFICATION PRODUCT.
1.2 INSTALLATION
A. VERIFY AND COORDINATE IDENTIFICATION NAMES, ABBREVIATIONS, COLORS, AND OTHER FEATURES WITH REQUIREMENTS IN OTHER SECTIONS REQUIRING IDENTIFICATION APPLICATIONS, DRAWINGS, SHOP DRAWINGS, MANUFACTURER'S WIRING DIAGRAMS, AND OPERATION AND MAINTENANCE MANUAL. USE CONSISTENT DESIGNATIONS THROUGHOUT PROJECT.
B. INSTALL IDENTIFYING DEVICES BEFORE INSTALLING ACOUSTICAL CEILINGS AND SIMILAR CONCEALMENT.
C. VERIFY IDENTITY OF EACH ITEM BEFORE INSTALLING IDENTIFICATION PRODUCTS.
D. COORDINATE IDENTIFICATION WITH PROJECT DRAWINGS, MANUFACTURER'S WIRING DIAGRAMS, AND OPERATION AND MAINTENANCE MANUAL.
E. APPLY IDENTIFICATION DEVICES TO SURFACES THAT REQUIRE FINISH AFTER COMPLETING FINISH WORK.
F. INSTALL SIGNS WITH APPROVED LEGEND TO FACILITATE PROPER IDENTIFICATION, OPERATION, AND MAINTENANCE OF ELECTRICAL SYSTEMS AND CONNECTED ITEMS.
G. SYSTEM IDENTIFICATION FOR RACEWAYS AND CABLES UNDER 600 V: IDENTIFICATION SHALL COMPLETELY ENCIRCLE CABLE OR CONDUIT. PLACE IDENTIFICATION OF TWO-COLOR MARKINGS IN CONTACT, SIDE BY SIDE.
1. SECURE TIGHT TO SURFACE OF CONDUCTOR, CABLE, OR RACEWAY.
H. ELEVATED COMPONENTS: INCREASE SIZES OF LABELS, SIGNS, AND LETTERS TO THOSE APPROPRIATE FOR VIEWING FROM THE FLOOR.
I. VINYL WRAPAROUND LABELS:
1. SECURE TIGHT TO SURFACE OF RACEWAY OR CABLE AT A LOCATION WITH HIGH VISIBILITY AND ACCESSIBILITY.
2. ATTACH LABELS THAT ARE NOT SELF-ADHESIVE TYPE WITH CLEAR VINYL TAPE, WITH ADHESIVE APPROPRIATE TO THE LOCATION AND SUBSTRATE.
J. SELF-ADHESIVE WRAPAROUND LABELS: SECURE TIGHT TO SURFACE AT A LOCATION WITH HIGH VISIBILITY AND ACCESSIBILITY.
K. SELF-ADHESIVE LABELS:
1. ON EACH ITEM, INSTALL UNIQUE DESIGNATION LABEL THAT IS CONSISTENT WITH WIRING DIAGRAMS, SCHEDULES, AND OPERATION AND MAINTENANCE MANUAL.
2. UNLESS OTHERWISE INDICATED, PROVIDE A SINGLE LINE OF TEXT WITH 1/2-INCH- (13-MM-) HIGH LETTERS ON 1-1/2-INCH- (38-MM-) HIGH LABEL; WHERE TWO LINES OF TEXT ARE REQUIRED, USE LABELS 2 INCHES (50 MM) HIGH.
L. HEAT-SHRINK, PREPRINTED TUBES: SECURE TIGHT TO SURFACE AT A LOCATION WITH HIGH VISIBILITY AND ACCESSIBILITY.
M. MARKER TAPES: SECURE TIGHT TO SURFACE AT A LOCATION WITH HIGH VISIBILITY AND ACCESSIBILITY.
N. SELF-ADHESIVE VINYL TAPE: SECURE TIGHT TO SURFACE AT A LOCATION WITH HIGH VISIBILITY AND ACCESSIBILITY.
O. TAPE AND STENCIL: COMPLY WITH REQUIREMENTS IN PAINTING SECTIONS FOR SURFACE PREPARATION AND PAINT APPLICATION.
P. FLOOR MARKING TAPE: APPLY STRIPES TO FINISHED SURFACES FOLLOWING MANUFACTURER'S WRITTEN INSTRUCTIONS.
Q. NONMETALLIC PREPRINTED TAGS:
1. PLACE IN A LOCATION WITH HIGH VISIBILITY AND ACCESSIBILITY.
2. SECURE USING GENERAL-PURPOSE CABLE TIES.
R. BAKED-ENAMEL SIGNS:
1. ATTACH SIGNS THAT ARE NOT SELF-ADHESIVE TYPE WITH MECHANICAL FASTENERS APPROPRIATE TO THE LOCATION AND SUBSTRATE.
2. UNLESS OTHERWISE INDICATED, PROVIDE A SINGLE LINE OF TEXT WITH 1/2-INCH- (13-MM-) HIGH LETTERS ON MINIMUM 1-1/2-INCH- (38-MM-) HIGH SIGNS; WHERE TWO LINES OF TEXT ARE REQUIRED, USE SIGNS MINIMUM 2 INCHES (50 MM) HIGH.
S. LAMINATED ACRYLIC OR MELAMINE PLASTIC SIGNS:
1. ATTACH SIGNS THAT ARE NOT SELF-ADHESIVE TYPE WITH MECHANICAL FASTENERS APPROPRIATE TO THE LOCATION AND SUBSTRATE.
2. UNLESS OTHERWISE INDICATED, PROVIDE A SINGLE LINE OF TEXT WITH 1/2-INCH- (13-MM-) HIGH LETTERS ON 1-1/2-INCH- (38-MM-) HIGH SIGN; WHERE TWO LINES OF TEXT ARE REQUIRED, USE LABELS 2 INCHES (50 MM) HIGH.
T. CABLE TIES: GENERAL PURPOSE, FOR ATTACHING TAGS, EXCEPT AS LISTED BELOW:
1. IN SPACES HANDLING ENVIRONMENTAL AIR: PLENUM RATED.
1.3 IDENTIFICATION SCHEDULE
A. INSTALL IDENTIFICATION MATERIALS AND DEVICES AT LOCATIONS FOR MOST CONVENIENT VIEWING WITHOUT INTERFERENCE WITH OPERATION AND MAINTENANCE OF EQUIPMENT. INSTALL ACCESS DOORS OR PANELS TO PROVIDE VIEW OF IDENTIFYING DEVICES.
B. IDENTIFY CONDUCTORS, CABLES, AND TERMINALS IN ENCLOSURES AND AT JUNCTIONS, TERMINALS, PULL POINTS, AND LOCATIONS OF HIGH VISIBILITY. IDENTIFY BY SYSTEM AND CIRCUIT DESIGNATION.
C. ACCESSIBLE RACEWAYS AND METAL-CLAD CABLES, 600 V OR LESS, FOR SERVICE, FEEDER, AND BRANCH CIRCUITS, MORE THAN 30 A AND 120 V TO GROUND: IDENTIFY WITH SELF-ADHESIVE RACEWAY LABELS.
1. LOCATE IDENTIFICATION AT CHANGES IN DIRECTION, AT PENETRATIONS OF WALLS AND FLOORS, AT 50-FOOT (15-M) MAXIMUM INTERVALS IN STRAIGHT RUNS, AND AT 25-FOOT (7.6-M) MAXIMUM INTERVALS IN CONGESTED AREAS.
D. POWER-CIRCUIT CONDUCTOR IDENTIFICATION, 600 V OR LESS: FOR CONDUCTORS IN PULL AND JUNCTION BOXES, USE VINYL WRAPAROUND LABELS TO IDENTIFY THE PHASE.
1. LOCATE IDENTIFICATION AT CHANGES IN DIRECTION, AT PENETRATIONS OF WALLS AND FLOORS, AT 50-FOOT (15-M) MAXIMUM INTERVALS IN STRAIGHT RUNS, AND AT 25-FOOT (7.6-M) MAXIMUM INTERVALS IN CONGESTED AREAS.
E. CONTROL-CIRCUIT CONDUCTOR IDENTIFICATION: FOR CONDUCTORS AND CABLES IN PULL AND JUNCTION BOXES, MANHOLES, AND HANDHOLES, USE SELF-ADHESIVE LABELS WITH THE CONDUCTOR OR CABLE DESIGNATION, ORIGIN, AND DESTINATION.
F. CONTROL-CIRCUIT CONDUCTOR TERMINATION IDENTIFICATION: FOR IDENTIFICATION AT TERMINALS, PROVIDE SELF-ADHESIVE LABELS WITH THE CONDUCTOR DESIGNATION.
G. WORKSPACE INDICATION: APPLY FLOOR MARKING TAPE TO FINISHED SURFACES. SHOW WORKING CLEARANCES IN THE DIRECTION OF ACCESS TO LIVE PARTS. WORKSPACE SHALL COMPLY WITH NFPA 70 AND 29 CFR 1926.403 UNLESS OTHERWISE INDICATED. DO NOT INSTALL AT FLUSH-MOUNTED PANELBOARDS AND SIMILAR EQUIPMENT IN FINISHED SPACES.
H. INSTRUCTIONAL SIGNS: SELF-ADHESIVE LABELS, INCLUDING THE COLOR CODE FOR GROUNDED AND UNGROUNDED CONDUCTORS.
I. WARNING LABELS FOR INDOOR CABINETS, BOXES, AND ENCLOSURES FOR POWER AND LIGHTING: SELF-ADHESIVE LABELS.
1. APPLY TO EXTERIOR OF DOOR, COVER, OR OTHER ACCESS.
2. FOR EQUIPMENT WITH MULTIPLE POWER OR CONTROL SOURCES, APPLY TO DOOR OR COVER OF EQUIPMENT, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
A. POWER-TRANSFER SWITCHES.
B. CONTROLS WITH EXTERNAL CONTROL POWER CONNECTIONS.
J. ARC FLASH WARNING LABELING: SELF-ADHESIVE LABELS.
K. EQUIPMENT IDENTIFICATION LABELS:
1. INDOOR EQUIPMENT: SELF-ADHESIVE LABEL.
2. OUTDOOR EQUIPMENT: LAMINATED ACRYLIC OR MELAMINE SIGN.
3. EQUIPMENT TO BE LABELED:
A. PANELBOARDS: TYPEWRITTEN DIRECTORY OF CIRCUITS IN THE LOCATION PROVIDED BY PANELBOARD MANUFACTURER. PANELBOARD IDENTIFICATION SHALL BE IN THE FORM OF A SELF-ADHESIVE, ENGRAVED, LAMINATED ACRYLIC OR MELAMINE LABEL.
B. ENCLOSURES AND ELECTRICAL CABINETS.
C. ACCESS DOORS AND PANELS FOR CONCEALED ELECTRICAL ITEMS.
D. SWITCHGEAR.
E. SWITCHBOARDS.
F. ENCLOSED SWITCHES.
G. ENCLOSED CIRCUIT BREAKERS.
H. REMOTE-CONTROLLED SWITCHES, DIMMER MODULES, AND CONTROL DEVICES.

END OF SECTION 260553

262414 - MOTOR AND CIRCUIT DISCONNECTS - PRODUCTS

1. PROVIDE MOTOR AND CIRCUIT DISCONNECTS AS SCHEDULED AND INDICATED ON DRAWINGS. MOTOR AND CIRCUIT DISCONNECTS ARE NOT ALWAYS SHOWN SYMBOLICALLY ON THE DRAWINGS. REFER TO PLANS AND EQUIPMENT SCHEDULE FOR QUANTITIES AND TYPES TO BE PROVIDED.

2. SUBMIT SHOP DRAWINGS AND PRODUCT DATA INCLUDE MANUFACTURER'S DESCRIPTIVE CATALOG DATA AND SHORT CIRCUIT RATINGS. DISCONNECTS THROUGHOUT THE PROJECT SHALL BE OF THE SAME MANUFACTURER. ACCEPTABLE MANUFACTURERS: CUTLER-HAMMER/EATON CORP., GENERAL ELECTRIC, SIEMENS, AND SQUARE D.MOTOR AND CIRCUIT DISCONNECTS SHALL BE NEMA STANDARD TYPE HEAVY-DUTY, "HD," 100 PERCENT DUTY RATED. MOTOR AND CIRCUIT DISCONNECTS SHALL HAVE QUICK, MAKE, QUICK, BREAK, VISIBLE BLADE OPERATING MECHANISMS WITH FULL COVER INTERLOCK AND FACILITIES FOR PADLOCKING IN THE "OFF" OR "OPEN" POSITION. MOTOR AND CIRCUIT DISCONNECTS SHALL BE ENCLOSED, UL LISTED, AND HORSEPOWER RATED FOR THE LOADS SERVED. MOTOR AND CIRCUIT DISCONNECTS SHALL HAVE COPPER CURRENT CARRYING PARTS AND REMOVABLE ARC SUPPRESSORS. DISCONNECT SHALL INCLUDE FRONT ACCESSIBLE PROVISIONS FOR DEFEATING THE COVER INTERLOCK.

1. UL (NEMA) 1 ENCLOSURES SHALL BE USED IN INDOOR AND DRY LOCATIONS, UL (NEMA) 3R ENCLOSURES SHALL BE USED IN EXTERIOR OR WET LOCATIONS. UL (NEMA) 4X STAINLESS STEEL NSF APPROVED ENCLOSURES SHALL BE USED IN KITCHEN LOCATIONS. UL (NEMA) 12 OR 12X ENCLOSURES SHALL BE UTILIZED WHERE REQUIRED. HAZARDOUS LOCATION ENCLOSURES SHALL BE RATED FOR CLASS AND DIVISION. REFER TO DRAWINGS FOR HAZARDOUS LOCATIONS.

2. MOTOR AND CIRCUIT DISCONNECTS SHALL BE FUSIBLE OR NON-FUSIBLE AS INDICATED ON THE DRAWINGS OR AS REQUIRED AND SHALL BE OF SAME OR LARGER AMPERE RATING AS THE CIRCUIT PROTECTIVE DEVICE, 30 AMPERE MINIMUM. DISCONNECTS, WHEN FUSIBLE, SHALL BE EQUIPPED WITH CLASS R, FUSE REJECTION CLIPS.

3. MOTOR AND CIRCUIT DISCONNECTS SHALL INCLUDE EQUIPMENT GROUND LUG.

4. MOTOR AND CIRCUIT DISCONNECTS SHALL INCLUDE SOLID NEUTRALS IN 4-WIRE APPLICATIONS.

5. MOTOR AND CIRCUIT DISCONNECTS INDICATED ON DRAWINGS SHALL HAVE AUXILIARY CONTACTS FOR SHUT-DOWN OF VARIABLE SPEED DRIVE ON LINE SIDE OF DISCONNECT IF DISCONNECT IS OPENED. PROVIDE CONTROL WIRING IN CONDUIT BETWEEN DISCONNECT AND DRIVE. COORDINATE REQUIREMENTS FOR SUCH CONTROL WITH DRIVE SUPPLIER.

262414 - MOTOR AND CIRCUIT DISCONNECTS - EXECUTION

1. FURNISH AND INSTALL MOTOR AND CIRCUIT DISCONNECTS FOR PERMANENTLY CONNECTED MOTORS LARGER THAN 1/8 HP UNLESS THE CONNECTED DEVICE IS COMPLETE WITH AN APPROVED DISCONNECTING MEANS.

2. INSTALL MOTOR AND CIRCUIT DISCONNECT IMMEDIATELY ADJACENT TO ITS ASSOCIATED MOTOR AND WITHIN SIGHT OF MOTOR AND DRIVE EQUIPMENT. PROVIDE MOUNTING HARDWARE, UNISTRUT RACK, FUSES, FUSE CLIPS, AND ACCESSORIES AS REQUIRED FOR THE APPLICATION.

3. IN UTILITY AREAS, MOUNT MOTOR AND CIRCUIT DISCONNECTS ON ADJACENT WALLS MAINTAINING NEC REQUIRED ACCESS. WHERE REQUIRED, DUE TO ACCESS REQUIREMENTS, MOUNT MOTOR AND CIRCUIT DISCONNECTS ON FREE STANDING UNISTRUT STANDS ADJACENT TO EQUIPMENT.

4. ON ROOFS, OR OTHER EXTERIOR LOCATIONS, MOUNT MOTOR AND CIRCUIT DISCONNECTS ON EQUIPMENT OR PROVIDE FREE STANDING UNISTRUT STAND ADJACENT TO EQUIPMENT.

262416 - PANELBOARDS - PRODUCTS

1. PROVIDE PANELBOARDS IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS. PANELBOARDS THROUGHOUT THE PROJECT SHALL BE OF THE SAME MANUFACTURER. ACCEPTABLE MANUFACTURERS: CUTLER-HAMMER/EATON CORP., GENERAL ELECTRIC, SIEMENS, AND SQUARE D, ABB.

2. SUBMIT PRODUCT DATA FOR PANELBOARDS AND OVERCURRENT PROTECTION DEVICE TYPES AND NECESSARY ACCESSORIES.

3. SUBMIT SHOP DRAWINGS FOR EACH PANELBOARD TO INCLUDE:
A. SCHEDULES INDICATING INDIVIDUAL COMPONENTS AND RATINGS. AS A MINIMUM, INCLUDE AMPERE, VOLTAGE, PHASE, AND AIC RATINGS.

B. DRAWINGS SHALL CONTAIN OVERALL PANELBOARD DIMENSIONS, INTERIOR MOUNTING DIMENSIONS, AND WIRING GUTTER DIMENSIONS, CONDUIT ENTRANCE SIZES AND LOCATIONS, ARRANGEMENT OF OVERCURRENT PROTECTION, AND INSTALLATION DETAILS INDICATING MOUNTING.

C. SCALED PLANS AND ELEVATIONS FOR INSTALLED SPACE OF PANELBOARD INDICATING CLEARANCES AND SERVICE SPACE RELATIVE TO ADJACENT SURFACES.

4. PANELBOARD AIC RATINGS AS INDICATED OR REQUIRED ARE ESTABLISHED BY THE LOWEST RATED COMPONENT OF EACH PANELBOARD. SERIES RATING IS NOT PERMITTED UNLESS OTHERWISE NOTED. EACH PANELBOARD SHALL BE CERTIFIED BY THE MANUFACTURER AS HAVING BEEN TESTED AS A COMPLETE UNIT UNDER FAULT CONDITIONS TO WITHSTAND THE AIC RATING INDICATED OR REQUIRED. STANDARD TESTS PER UL STANDARDS.

5. PANELBOARDS SHALL HAVE 100 PERCENT RATED COPPER BUSES FOR EACH PHASE AND NEUTRAL. TIN-PLATED ALUMINUM BUSES ARE NOT ALLOWED. GROUND BUSES SHALL HAVE RATING AND NUMBER AND SIZE OF CIRCUIT CONNECTIONS PER UL REQUIREMENTS FOR CONNECTION TO EQUIPMENT GROUNDING SYSTEM. PROVIDE 100 PERCENT RATED COPPER GROUND BUS FOR PANELBOARDS. PANELBOARDS SHALL BE SUITABLE FOR USE AS SERVICE EQUIPMENT WHERE INDICATED.

6. NAMEPLATE INFORMATION SHALL INCLUDE CATALOG NUMBER OR FACTORY ORDER NUMBER, DATE OF MANUFACTURING, UL LISTED LABEL, AMPERE, VOLTAGE, PHASE, AND AIC RATINGS.

7. MULTIPLE SECTION PANELBOARDS SHALL HAVE REQUIRED FEED THROUGH LUGS (OR FACTORY BUSING) FOR INTERCONNECTION.

8. FRONTS SHALL BE FULLY HINGED 1-PIECE WITH DOOR-IN-DOOR CONSTRUCTION. MOUNTING SHALL BE FLUSH OR SURFACE AS INDICATED ON DRAWINGS. FRONTS SHALL BE FLAT WITH CONCEALED DOOR HINGES AND TRIM SCREWS. FRONT SHALL NOT BE REMOVABLE WITH THE DOOR LOCKED.

262416 - PANELBOARDS - EXECUTION

1. MOUNT PANELBOARDS WITH TOP OF TRIM 6.5 FEET ABOVE THE FINISH FLOOR, UNLESS OTHERWISE INDICATED.

2. THE FIRE RATED INTEGRITY OF WALLS IN WHICH FLUSH MOUNTED PANELBOARDS ARE INSTALLED SHALL BE MAINTAINED.

3. PRIOR TO ENERGIZING, RETIGHTEN ALL FIELD CONNECTIONS TO MANUFACTURER'S TORQUE SPECIFICATIONS, CHECK THAT ALL GROUNDING CONNECTIONS ARE PROPER, EXERCISE DEVICES TO MAKE CERTAIN THAT THEY OPERATE PROPERLY.

262726 - WIRING DEVICES - PRODUCTS

1. PROVIDE WIRING DEVICES AND ACCESSORIES IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS. WIRING DEVICES AND ACCESSORIES SHALL BE OF THE SAME MANUFACTURER THROUGHOUT THE PROJECT WHEREVER POSSIBLE. ACCEPTABLE MANUFACTURERS: COOPER WIRING DEVICES, HUBBELL, LEVITON. DEVICE PLATES AND ACCESSORIES SHALL MATCH CORRESPONDING WIRING DEVICES.

2. SUBMIT PRODUCT DATA FOR EACH PRODUCT SPECIFIED. PROVIDE SAMPLES AS REQUESTED BY ARCHITECT OR ENGINEER.

3. STRAIGHT-BLADE RECEPTACLES: STANDARD, IG, TVSS, IG WITH TVSS, AND GFCI TYPES SHALL BE HUBBELL 5362 SERIES, HEAVY-DUTY, SPECIFICATION GRADE, 20A, UNLESS OTHERWISE INDICATED OR REQUIRED.

4. STRAIGHT-BLADE RECEPTACLES: HUBBELL CBRF20 COMMERCIAL SERIES, GENERAL-DUTY, SPECIFICATION GRADE, 20A, UNLESS OTHERWISE INDICATED OR REQUIRED.

5. STRAIGHT-BLADE RECEPTACLES: STANDARD, IG, TVSS, IG WITH TVSS, GFCI, AND TR TYPES SHALL BE HUBBELL 8300 SERIES, HEAVY-DUTY, HOSPITAL GRADE, 20A, UNLESS OTHERWISE INDICATED OR REQUIRED.

6. SPECIAL PURPOSE OUTLETS: HEAVY-DUTY GRADE OF NEMA CONFIGURATION INDICATED OR REQUIRED. SPECIAL PURPOSE OUTLETS SHALL BE RECEPTACLES OTHER THAN SINGLE-PLEX OR DUPLEX, 125V, AND 15A OR 20A NON-LOCKING TYPE.

7. USB CHARGER RECEPTACLES: HUBBELL USB8300W, OR EQUAL.

8. AUTOMATIC CONTROL RECEPTACLES: SPECIFICATION GRADE, 20A, UNLESS OTHERWISE INDICATED OR REQUIRED. UNIVERSALLY RECOGNIZED POWER SYMBOL AND THE WORD "CONTROLLED" REMAINS CLEARLY VISABLE ON THE DEVICE AFTER INSTALLATION.
A. ONE CONTROLLED FACE SPLIT CIRCUIT HOT TAB: HUBBELL BR15C1 (15A), BR20C1 (20A) OR EQUAL.

B. TWO CONTROLLED FACES: HUBBELL BR15C2 (15A), BR20C2 (20A) OR EQUAL.

9. SWITCHES: 1, 2, 3, 4, K, P (RED POLYCARBONATE LIGHTED HANDLE), PO (CLEAR POLYCARBONATE LIGHTED HANDLE) TYPES SHALL BE HUBBELL HBL1221 SERIES, HEAVY-DUTY, SPECIFICATION GRADE, 20A, UNLESS OTHERWISE INDICATED OR REQUIRED.

10. SWITCHES: 1, 2, 3, AND 4 TYPES SHALL BE HUBBELL CSB320 SERIES, GENERAL-DUTY, SPECIFICATION GRADE, 20A, UNLESS OTHERWISE INDICATED OR REQUIRED.

11. 30A SWITCHES: 1, 2, AND 3 TYPES SHALL BE HUBBELL HBL3031 SERIES, HEAVY-DUTY, SPECIFICATION GRADE, UNLESS OTHERWISE INDICATED OR REQUIRED.

12. MOMENTARY CONTACT SWITCHES: THREE POSITION, TWO CIRCUIT, CENTER OFF TYPE SHALL BE HUBBELL HBL1557 SERIES, HEAVY-DUTY, SPECIFICATION GRADE,20A, WITH TOGGLE OR KEY AS INDICATED.

13. MAINTAINED CONTACT SWITCHES: THREE POSITION, TWO CIRCUIT, CENTER OFF TYPE SHALL BE HUBBELL HBL1385 SERIES, HEAVY-DUTY, SPECIFICATION GRADE, [15A] [20A], WITH TOGGLE OR KEY AS INDICATED. SINGLE OR DOUBLE POLE AS INDICATED.

14. WIRING DEVICE COLOR SHALL BE WHITE UNLESS OTHERWISE INDICATED OR REQUIRED. VERIFY COLOR WITH ARCHITECT PRIOR TO SUBMITTALS. SPECIAL CONDITION COLORS: EMERGENCY (RED), STANDBY (YELLOW), IG RECEPTACLES (ORANGE), TVSS RECEPTACLES (BLUE).

15. DEVICE PLATE COLOR SHALL BE BRUSHED STAINLESS STEEL UNLESS OTHERWISE INDICATED OR REQUIRED. VERIFY COLOR WITH ARCHITECT PRIOR TO SUBMITTALS.

16. STAINLESS STEEL DEVICE PLATES SHALL BE 0.04-INCH-THICK TYPE 302 STAINLESS STEEL.

17. WEATHER PROOF ENCLOSURES SHALL BE NEMA 3R RATED WHILE-IN-USE WHEN USED WITH MANUFACTURER'S RECOMMENDED OUTLET BOX. GASKETS ARE CLOSED-CELL FOAM. MEETS OSHA LOCKOUT AND TAGOUT REQUIREMENTS. ENCLOSURES SHALL HAVE LATCHING COVERS AND CORD OPENINGS. UL LISTED AND CSA CERTIFIED WITH CLEARLY MARKED LOGOS. COVERS INCLUDE GASKET AND MOUNTING SCREWS. LIDS HAVE GASKETLESS DESIGN. HOLES FOR PADLOCKS ARE 1/4 INCH.
A. METALLIC TYPE SHALL BE DIE CAST ALLOY 360 COPPER-FREE ALUMINUM WITH STANDARD GRAY FACTORY PAINTED CUSTOM COLOR BAKED ALUMINUM LACQUER FINISH. COORDINATE COLOR WITH ARCHITECT PRIOR TO SUBMITTALS.

B. NON-METALLIC TYPE SHALL BE OF IMPACT RESISTANT POLYCARBONATE WITH TRANSPARENT COVER WHICH PROVIDES VISIBILITY TO THE CONNECTION.

262726 - WIRING DEVICES - EXECUTION

1. RECEPTACLES OVER-COUNTER SHALL BE MOUNTED HORIZONTALLY, AND VERTICALLY MOUNTED ELSEWHERE, UNLESS OTHERWISE INDICATED. MOUNT HORIZONTAL RECEPTACLES WITH NEUTRAL BLADE SLOT UP, AND MOUNT VERTICAL RECEPTACLES WITH GROUND PRONG HOLE UP.

2. WHERE RECEPTACLES ARE INSTALLED WITHIN ONE STUD SPACING WIDTH FROM A SWITCH, THE CONVENIENCE OUTLET AND SWITCH SHALL ALIGN VERTICALLY.

3. SWITCHES SHALL BE LOCATED AS INDICATED ON DRAWINGS, ARRANGED SINGULAR OR IN GANGS AND WITHIN 18 INCHES OF DOOR JAMB ON THE STRIKE SIDE OF THE DOOR OPENINGS. GROUP ADJACENT SWITCHES UNDER SINGLE MULTI-GANG WALL PLATE. VERIFY THE DOOR SWINGS WITH THE ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.

4. MATCH RECEPTACLES AND SPECIAL PURPOSE OUTLETS TO OWNER-FURNISHED EQUIPMENT, UNLESS OTHERWISE INDICATED.

5. INSTALL EMERGENCY OR STANDBY SWITCHES SEPARATE FROM NORMAL POWER SWITCHES. DO NOT INCLUDE IN THE MULTIPLE GANG CONFIGURATIONS.

6. SWITCH AND RECEPTACLE COMBINATIONS SHALL BE PERMITTED IN A SINGLE 2-GANG BOX WHERE BOTH ARE OF THE SAME VOLTAGE. PROVIDE SEPARATE BOXES WHERE DIFFERENT VOLTAGES ARE PRESENT.

7. INSTALL DEVICE PLATES AS REQUIRED FOR ALL DEVICE BOXES AND BLANKED OUTLET BOXES. INSTALL DEVICES AND DEVICE PLATES PLUMB AND SECURE.

8. DEVICE PLATES SHALL BE MARKED ON THE OUTSIDE INDICATING PANELBOARD AND CIRCUIT NUMBER TO WHICH THE DEVICE IS CONNECTED.

9. DEVICE PLATES FOR SPECIAL PURPOSE OUTLETS SHALL BE MARKED ON THE OUTSIDE TO IDENTIFY THE VOLTAGE, LOAD, AND NEMA CONFIGURATION OF THE RECEPTACLE.

10. LABELING OF DEVICE PLATES ON THE OUTSIDE SHALL BE BY WAY OF ADHESIVE LABELS.
A. ADHESIVE LABELS SHALL BE OF CLEAR OR WHITE KROY, BROTHER, OR BRADY TAPE WITH BLACK 1/4 INCH MINIMUM HEIGHT UPPER-CASE LETTERS. RED LETTERS ON WHITE TAPE SHALL BE USED FOR EMERGENCY APPLICATIONS ON RED NYLON PLATES.

B. WHERE FACTORY INGRAVED LABELS ARE CALLED FOR LABELS SHALL BE OF BLACK 1/4 INCH MINIMUM HEIGHT RECESSED UPPER-CASE LETTERS. WHITE LETTERS SHALL BE USED FOR EMERGENCY APPLICATIONS ON RED NYLON PLATES.

11. PROTECT WIRING DEVICES AND ASSEMBLIES DURING PAINTING. INSTALL DEVICE PLATES WHEN PAINTING IS COMPLETE.

12. INTERNALLY CLEAN DEVICES, DEVICE OUTLET BOXES, AND ENCLOSURES. REPLACE STAINED, DAMAGED, OR DEFECTIVE COMPONENTS.

13. TEST RECEPTACLES FOR PROPER POLARITY AND GROUND CONTINUITY. REPLACE RECEPTACLES WHICH ARE DAMAGED OR DEFECTIVE. TEST GFCI RECEPTACLES WITH BOTH LOCAL AND REMOTE FAULT SIMULATIONS ACCORDING TO MANUFACTURER RECOMMENDATIONS.

14. TEST EACH SWITCH AND REPLACE SWITCHES WHICH ARE DAMAGED OR DEFECTIVE.

262800 - OVERCURRENT PROTECTIVE DEVICES - PRODUCTS

1. PROVIDE CIRCUIT BREAKERS AND FUSES OF TYPE, SIZE AND MANUFACTURER IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.

2. SUBMIT PRODUCT DATA FOR EACH PRODUCT SPECIFIED. SUBMIT SELECTIVE COORDINATION CURVE CHARTS FOR ALL CIRCUIT BREAKERS AND FUSES PROPOSED AS PRODUCT SUBSTITUTIONS THAT VARY FROM ENGINEER'S PLANS. SELECTIVE COORDINATION SHALL COMPLY WITH NEC ARTICLE 700.

3. CIRCUIT BREAKERS SHALL BE FROM ONE SOURCE AND BY A SINGLE MANUFACTURER WHICH IS THE SAME MANUFACTURER AS PANELBOARD, SWITCHBOARD, DISCONNECTING DEVICE, ETC. ACCEPTABLE MANUFACTURERS: CUTLER-HAMMER/EATON CORP., GENERAL ELECTRIC, SIEMENS, AND SQUARE D., ABB.

4. CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL MAGNETIC, QUICK MAKE, QUICK BREAK, TRIP FREE AND TRIP INDICATING UNLESS OTHERWISE NOTED. MULTI POLE BREAKERS SHALL BE COMMON TRIP, USE OF TIE BARS OR PINS IS NOT ACCEPTABLE. ALL CIRCUIT BREAKER LUGS SHALL BE RATED FOR A MINIMUM OF 75 DEGREE CELSIUS.

5. EXTRA MATERIALS
A. SPARE FUSES: 20 PERCENT OF EACH FUSE TYPE AND SIZE INSTALLED, BUT NOT LESS THAN 2 SETS OF 3 OF EACH TYPE AND SIZE.

262800 - OVERCURRENT PROTECTIVE DEVICES - EXECUTION

1. VERIFY MECHANICAL EQUIPMENT OVERCURRENT PROTECTIVE DEVICE SIZE AND TYPE WITH NAME PLATE DATA AND STARTER DATA.

2. PROVIDE SETTINGS ON CIRCUIT BREAKERS PER MANUFACTURER'S RECOMMENDATIONS.

3. INSTALL SPARE FUSE CABINET NEAR THE MAIN SERVICE EQUIPMENT, UNLESS OTHERWISE NOTED, WITH NEATLY STORED BOXES OF SPARE FUSES WITHIN.

265100 - LIGHTING - PRODUCTS

1. PROVIDE LUMINAIRES, LAMPS, BALLASTS, AND ACCESSORIES IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS. LUMINAIRES REQUIRING CAPS, MOUNTING SPACES, HOLD-DOWN CLIPS OR OTHER ACCESSORY ITEMS SHALL BE FURNISHED COMPLETE WITH SAME WHETHER THE DESCRIPTIONS, CATALOG NUMBERS, AND NOTES ON THE DRAWINGS INCLUDE SUCH ITEMS OR NOT.

2. SUBMIT PRODUCT DATA FOR EACH LUMINAIRE AND ACCESSORY INCLUDING LAMPS, BALLAST, AND DRIVERS. PROVIDE SAMPLES AS REQUESTED BY ARCHITECT.

3. RECESSED OR SEMI-RECESSED LUMINAIRES SHALL BE DESIGNED TO BE COMPATIBLE WITH CEILING AS INSTALLED. FURNISH AND INSTALL FRAMES WHERE REQUIRED FOR PROPER INSTALLATION. SUPPLY WITH TRIM THAT IS COMPATIBLE WITH CEILING SYSTEM IN WHICH IT SHALL BE INSTALLED.

4. LED LUMINAIRES INDICATED TO INCLUDE BATTERY PACKS SHALL CONTAIN A BATTERY PACK ASSEMBLY CONSISTING OF A BATTERY, CHARGER, INVERTER, AND ELECTRONIC CIRCUITRY ENCLOSED IN ONE ASSEMBLY. LUMINAIRE SHALL HAVE VALID UL LABEL WITH BATTERY PACK INSTALLED AT LUMINAIRE MANUFACTURER'S FACTORY.

5. EXTRA MATERIALS
A. LED MODULES AND DRIVERS: 1 FOR EVERY 20 OF EACH TYPE INSTALLED, BUT NOT LESS THAN 1.

B. LENSES: 1 FOR EVERY 100 OF EACH TYPE INSTALLED, BUT NOT LESS THAN 1.

265100 - LIGHTING - EXECUTION

1. CONFIRM COMPATIBILITY AND INTERFACE OF OTHER MATERIALS WITH LUMINAIRE AND CEILING SYSTEM. IN THE EVENT OF ANY DISCREPANCY, IMMEDIATELY NOTIFY THE ARCHITECT. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN RESOLVED.

2. INSTALLATION OF LUMINAIRES IN MECHANICAL ROOMS SHALL BE COORDINATED WITH THE DUCTWORK AND OTHER OBSTRUCTIONS. WHERE LUMINAIRES ARE SHOWN IN CONFLICT WITH LOCATIONS OF STRUCTURAL MEMBERS, MECHANICAL OR OTHER EQUIPM

Isc CALCULATION - 3 PHASE

Point #1 - At The Utility Transformer

Isc
= 39,000

Point #2 - At the Main Board

f =	[1.732	X	length	X	Isc(prev)]	/	[# runs	X	wire factor	X	voltage]
f =	1.732	X	150	X	39,000	/	3	X	28,033	X	208
f =	0.579										

M = 1/(1+f)
M = 0.633

Isc
Isc = Isc(prev) x M
= 24,696

Point #3 - At Panel "P"

f =	[1.732	X	length	X	Isc(prev)]	/	[# runs	X	wire factor	X	voltage]
f =	1.732	X	150	X	24,696	/	1	X	16,483	X	208
f =	1.871										

M = 1/(1+f)
M = 0.348

Isc
Isc = Isc(prev) x M
= 8,601

Point #4 - At Panel "RP-CR"

f =	[1.732	X	length	X	Isc(prev)]	/	[# runs	X	wire factor	X	voltage]
f =	1.732	X	10	X	8,601	/	1	X	7,292	X	208
f =	0.098										

M = 1/(1+f)
M = 0.911

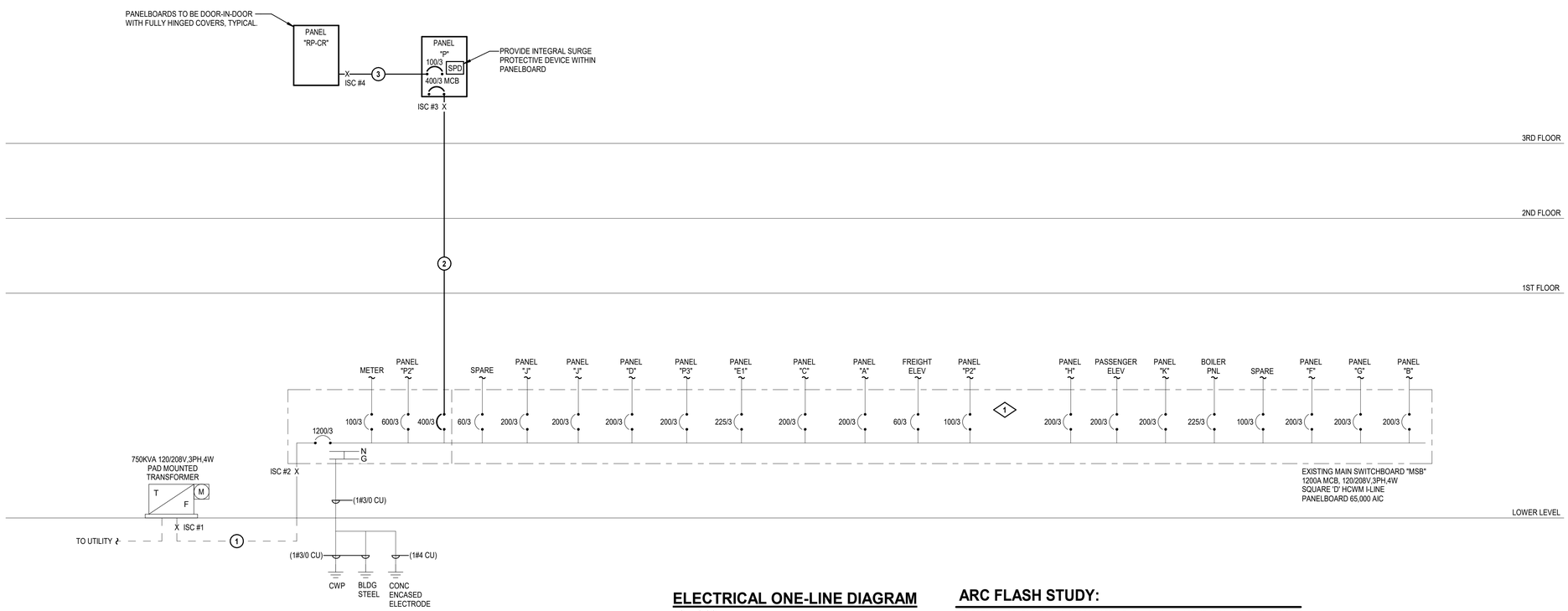
Isc
Isc = Isc(prev) x M
= 7,831

DRAWING NOTES:

1. PROVIDE NEW 400A 3-POLE CIRCUIT BREAKER COMPATIBLE WITH EXISTING SWITCHBOARD.

FEEDER SCHEDULE:

1. 3[(4-600 KCMIL CU)3-1/2"C
2. 2[(4-250 KCMIL CU; 1#4 GND)2-1/2"C]
3. (4 #1 CU; 1#8 GND)1-1/2"C



ELECTRICAL ONE-LINE DIAGRAM

NOT TO SCALE

ARC FLASH STUDY:

ELECTRICAL CONTRACTOR TO COORDINATE WITH BUILDING MANAGEMENT TO UPDATE EXISTING ARCFLASH STUDY AND PROVIDE UPDATED STUDY AS A SUBMITTAL FOR REVIEW.

ONCE ARCLASH STUDY SUBMITTAL HAS BEEN REVIEWED AND APPROVED CONTRACTOR TO PROVIDE NECESSARY SIGNAGE ON ELECTRICAL EQUIPMENT AS REQUIRED BY NFPA 70E.

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True North

Plan North

GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

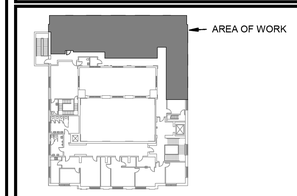
OWNER IDENTIFICATION

DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

REGISTERED PROFESSIONAL ENGINEER
ROGER C. CRAWFORD
PE-7391
DATE 05.21.26
NORTH DAKOTA

STAMP OR SEAL



LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
	8/05/2025	35% Submittal
	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN:	4/20/2026
CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	ONE-LINE DIAGRAM		

SHEET NUMBER **E0.5**

SHEET 33 OF 49 SHEETS

SHEET IDENTIFICATION

5/21/2026 5:05:19 PM

PROVIDE WITH INTEGRAL SURGE PROTECTION DEVICE. DEVICE TO BE RATED MINIMUM 80KA.

PANEL "P" VOLTAGE 120 / 208 V 3 Φ 4 W
FLUSH EXTG MAIN 400/3 MLO
SURFACE X NEW X BUS 400A FEED THRU AIC 10,000 A

LOAD TYPE	DESCRIPTION	BKR	CIR	LOAD (VA/Φ) AΦ		BΦ		CΦ		CIR	BKR	DESCRIPTION	LOAD TYPE	
L	LIGHTING	20	1	435	887					2	20	LIGHTING	L	
G	DOOR SECURITY EPT	20	3			1000	860			4	20/2	SYSTEMS FURNITURE	RG	1
G	RCPT - RM10A UC REFRIG.	20	5					500	860	6		SYSTEMS FURNITURE	RG	1
M	RCPT - RM 10A DISPOSAL	20	7	864	860					8	20/2	SYSTEMS FURNITURE	RG	1
K	RCPT - RM 10A REFRIG.	20	9			800	860			10		SYSTEMS FURNITURE	RG	1
G	RCPT - RM 10A GFCI	20	11					1000	360	12	20	RCPT - ROOM 11	R	
G	RCPT - RM 10A GFCI	20	13	1000	720					14	20	RCPT - ROOM 15	R	
G	WASHER - RM 10A	20	15			1000	180			16	20	RCPT - RM 19A	R	
G	DRYER - RM 10A	30/2	17					2500	500	18	20	RCPT - SOUND MASK RM 9	G	
G	-		19	2500	200					20	20	EXIT SIGNS	L	
R	RCPT - ROOM 1A, 2	20	21			1080	0			22	20	SPARE		
R	RCPT - ROOM 8B	20	23					900	180	24	20	GFCI REC ROOF	M	
R	RCPT - ROOM 7	20	25	900	1440					26	20	RCPT - ROOM 4,5A,9	R	
G	DED RCPT - ROOM 7	20	27			1000	0			28	20	SPARE		
G	DED RCPT - ROOM 7	20	29					1000	0	30	20	SPARE		
R	RCPT - ROOM 8B	20	31	900	3600					32	50/3	AC-1/CU-1	M	
R	RCPT - ROOM 3.1	20	33			1080	3600			34		-	M	
R	DOOR SECURITY RECEPT	20	35					360	3600	36		-	M	
R	TV RCPT - ROOM 4	20	37	360	8600					38		PANEL "RP-CR"	G	
	SPARE	20	39			0	8700			40	100/3	-	G	
	SPARE	20	41					0	8145	42		-	G	
	SPARE	20	43	0	0					44	20	SPARE		
	SPARE	20	45			0	0			46	20	SPARE		
	SPARE	20	47					0	860	48	20/2	SYSTEMS FURNITURE	RG	1
	SPARE	20	49	0	860					50		SYSTEMS FURNITURE	RG	1
	SPARE	20	51			0	860			52	20/2	SYSTEMS FURNITURE	RG	1
	SPARE	20	53					0	860	54		SYSTEMS FURNITURE	RG	1
	SPARE	20	55	0	860					56	20/2	SYSTEMS FURNITURE	RG	1
	SPARE	20	57			0	860			58		SYSTEMS FURNITURE	RG	1
	SPARE	20	59					0	860	60	20/2	SYSTEMS FURNITURE	RG	1
	SPARE	20	61	0	860					62		SYSTEMS FURNITURE	RG	1
	SPARE	20	63			0	860			64	20/2	SYSTEMS FURNITURE	RG	1
	SPARE	20	65					0	860	66		SYSTEMS FURNITURE	RG	1
	SPARE	20	67	0	860					68	20/2	SYSTEMS FURNITURE	RG	1
	SPARE	20	69			0	860			70		SYSTEMS FURNITURE	RG	1
	SPACE		71					0	0	72	20	SPARE		
	SPACE		73	0	0					74	20	SPARE		
	SPACE		75			0	0			76	20	SPARE		
	SPACE		77					0	0	78	20	SPARE		
	SPACE		79	0	0					80	20	SPARE		
	SPACE		81			0	0			82	20	SPARE		
	SPACE		83					0	0	84		SPACE		
				26706		23600		23345						

LOAD TYPE	CONNECTED KVA AΦ	BΦ	CΦ	TOTAL ALL Φ'S	FACTOR	DEMAND KVA AΦ	BΦ	CΦ	TOTAL ALL Φ'S
LIGHTING/CONTINUOUS	1.5	0.0	0.0	1.5	125%	1.9	0.0	0.0	1.9
RECEPTACLE (10KVA OR LESS)	3.3	3.3	3.3	10.0	100%	3.3	3.3	3.3	10.0
RECEPTACLE (OVER 10KVA)	2.8	1.2	0.1	4.0	50%	1.4	0.6	0.0	2.0
HVAC/MOTOR	4.5	3.6	3.8	11.8	100%	4.5	3.6	3.8	11.8
MOTOR(LARGEST)	0.0	0.0	0.0	0.0	125%	0.0	0.0	0.0	0.0
KITCHEN EQUIPMENT	0.0	0.8	0.0	0.8	100%	0.0	0.8	0.0	0.8
MISCELLANEOUS	14.6	14.7	16.1	45.4	100%	14.6	14.7	16.1	45.4
25% SPARE CAPACITY	7.5	7.5	7.5	22.5	100%	7.5	7.5	7.5	22.5
TOTAL KVA	34.2	31.1	30.8	96.2	TOTAL KVA	33.2	30.5	30.8	94.5
					TOTAL AMPS	276.6	254.3	256.7	276.6

LOAD TYPE LEGEND L = LIGHTING R = RECEPTACLE M = HVAC / MOTOR K = KITCHEN G = MISCELLANEOUS

1 PROVIDE SINGLE MEANS OF DISCONNECT FOR FURNITURE SYSTEM CIRCUITS PER NEC 605.8. AS WELL AS PROVIDE SINGLE MEANS OF DISCONNECT FOR MULTI-WIRE BRANCH CIRCUITS THAT WILL DISCONNECT ALL UNGROUNDED CONDUCTORS PER NEC 210.4(b) and 240.15(B)(1)

PANEL FED FROM PANEL "P".

PANEL "RP-CR" VOLTAGE 120 / 208 V 3 Φ 4 W
FLUSH EXTG MAIN MLO X
SURFACE X NEW X BUS 100A FEED THRU AIC 10,000 A

LOAD TYPE	DESCRIPTION	BKR	CIR	LOAD (VA/Φ) AΦ		BΦ		CΦ		CIR	BKR	DESCRIPTION	LOAD TYPE
G	EQUIP RM 6A	30	1	2250	600					2	20	EQUIP RM 6A	G
G	EQUIP RM 6A	20	3			600	600			4	20	EQUIP RM 6A	G
G	EQUIP RM 6A	20	5					600	600	6	20	EQUIP RM 6A	G
G	EQUIP RM 6A	20	7	600	600					8	20	EQUIP RM 6A	G
G	EQUIP RM 6A	20	9			600	600			10	20	EQUIP RM 6A	G
G	EQUIP RM 6A	20	11					600	600	12	20	EQUIP RM 6A	G
G	EQUIP RM 6A	20	13	600	600					14	20	EQUIP RM 6A	G
G	EQUIP RM 6A	20	15			600	600			16	20	EQUIP RM 6A	G
G	EQUIP RM 6A	20	17					600	2250	18	30	EQUIP RM 6A	G
G	EQUIP RM 6A	20	19	600	2250					20	30/2	EQUIP RM 6A	G
G	EQUIP RM 6A	30/2	21			2250	2250			22		-	G
G	-		23					2250	600	24	20	EQUIP RM 6A	G
G	PANIC ALARM CNTL PNL	20	25	500	0					26	20	SPARE	
	SPARE	20	27			0	600			28	20	EQUIP RM 6A	G
	SPARE	20	29					0	45	30	20	SPARE	G
	SPARE	20	31	0	0					32	20	SPARE	
	SPARE	20	33			0	0			34	20	SPARE	
	SPARE	20	35					0	0	36	20	SPARE	
	SPARE	20	37	0	0					38	20	SPARE	
	SPARE	20	39			0	0			40	20	SPARE	
	SPARE	20	41					0	0	42	20	SPARE	
				8600		8700		8145					

LOAD TYPE	CONNECTED KVA AΦ	BΦ	CΦ	TOTAL ALL Φ'S	FACTOR	DEMAND KVA AΦ	BΦ	CΦ	TOTAL ALL Φ'S
LIGHTING/CONTINUOUS	0.0	0.0	0.0	0.0	125%	0.0	0.0	0.0	0.0
RECEPTACLE (10KVA OR LESS)	0.0	0.0	0.0	0.0	100%	0.0	0.0	0.0	0.0
RECEPTACLE (OVER 10KVA)	0.0	0.0	0.0	0.0	50%	0.0	0.0	0.0	0.0
HVAC/MOTOR	0.0	0.0	0.0	0.0	100%	0.0	0.0	0.0	0.0
MOTOR(LARGEST)	0.0	0.0	0.0	0.0	125%	0.0	0.0	0.0	0.0
KITCHEN EQUIPMENT	0.0	0.0	0.0	0.0	100%	0.0	0.0	0.0	0.0
MISCELLANEOUS	8.6	8.7	8.1	25.4	100%	8.6	8.7	8.1	25.4
25% SPARE CAPACITY	3.0	3.0	3.0	9.0	100%	3.0	3.0	3.0	9.0
TOTAL KVA	11.6	11.7	11.1	34.4	TOTAL KVA	11.6	11.7	11.1	34.4
					TOTAL AMPS	96.7	97.5	92.9	97.5

LOAD TYPE LEGEND L = LIGHTING R = RECEPTACLE M = HVAC / MOTOR K = KITCHEN G = MISCELLANEOUS

MECHANICAL EQUIPMENT SCHEDULE

DESIGNATION	DESCRIPTION	VOLTAGE	PH	HP	KVA (W)	FLA (MCA)	AIC (A)	Isc (A)	DATE	CONDUCTORS	CONDUIT	SWITCH	CB	FUSE SIZE/TYPE	REMARKS
AC-1	AIR CONDITIONER	208	1			1.0				2 #12; 1 #12 GND	3/4	DPST	-		1
CU-1	CONDENSING UNIT	208	3			(30)	5,000	3,029	01/23/26	3 #6; 1#10 GND	3/4	60/3	50/3	50A FRN-R	1
EF-1	EXHAUST FAN	120	1		(8)					2 #12; 1 #12 GND	3/4	SPST	20/1		2

REMARKS:
1. INDOOR UNIT FED FROM OUTDOOR UNIT. CONTRACTOR TO FOLLOW PATH OF REFRIGERANT WITH POWER CONNECTION.
2. UNIT CONTROLLED VIA LOCAL OCCUPANCY SENSOR. PROVIDE ADDITIONAL POWER PACK AS REQUIRED.

LIGHTING FIXTURE SCHEDULE

LUMINAIRE ID	MANUFACTURER	MODEL	CATALOG NUMBER	DESCRIPTION	VOLTAGE	DIMMING	MOUNTING	LAMPS LAMP QTY	TYPE	WATTS	LUMENS	COLOR TEMP/CRI
A	LITHONIA	CPX	CPX-2X4-4000LM-90CRI-35K-SWL-MIN1-ZT-MVOLT-BAA	2X4 RECESSED FLAT PANEL LED WITH SMOOTH SURFACE LENS	MVOLT	0-10V	RECESSED	1	LED	34.8	4936	3500/90
AE	LITHONIA	CPX	CPX-2X4-4000LM-90CRI-35K-SWL-MIN1-ZT-MVOLT-E10W-BAA	2X4 RECESSED FLAT PANEL LED WITH SMOOTH SURFACE LENS WITH 90-MIN EMERGENECY BATTERY PACK	MVOLT	0-10V	RECESSED	1	LED	34.8	4936	3500/90
A1	LITHONIA	CPX	CPX-2X4-3000LM-90CRI-35K-SWL-MIN1-ZT-MVOLT-BAA	2X4 RECESSED FLAT PANEL LED WITH SMOOTH SURFACE LENS	MVOLT	0-10V	RECESSED	1	LED	24.6	3268	3500/90
A1E	LITHONIA	CPX	CPX-2X4-3000LM-90CRI-35K-SWL-MIN1-ZT-MVOLT-E10W-BAA	2X4 RECESSED FLAT PANEL LED WITH SMOOTH SURFACE LENS WITH 90-MIN EMERGENECY BATTERY PACK	MVOLT	0-10V	RECESSED	1	LED	24.6	3268	3500/90
B	LITHONIA	CLX	CLX L48 5000LM SEF FDL MVOLT GZ10 35K 90CRI BAA	4-FOOT LED STRIP LIGHT WITH ACRYLIC LENS	MVOLT	0-10V	RECESSED	1	LED	31.8	5000	3500/90
BE	LITHONIA	CLX	CLX L48 5000LM SEF FDL MVOLT GZ10 35K 90CRI E10W BAA	4-FOOT LED STRIP LIGHT WITH ACRYLIC LENS AND 90-MINUTE EMERGENCY BATTERY PACK	MVOLT	0-10V	RECESSED	1	LED	31.8	5000	3500/90
R1	LITHONIA	LDN6	LDN6-35/1500-L06-AR-LSS-TRW-MVOLT-90CRI-BAA	6-INCH RECESSED DOWNLIGHT WITH CLEAR ALZAK REFLECTOR	MVOLT	0-10V	RECESSED	1	LED	17.5	1514	3500/90
X	LITHONIA	LQM	LQM-S-W-RG-MVOLT-EL	THERMOPLASTIC EXIT SIGN WITH WHITE HOUSING AND COLOR SWITCHABLE LETTERING WITH 90-MNUTE BATTERY PACK	MVOLT	0-10V	UNIVERSAL	1	LED	1.5	-	-

NOTES:
1 WHERE APPLICABLE, VERIFY ALL FINISHES WITH ARCHITECT PRIOR TO ORDERING.
2 VERIFY ALL SUSPENSION LENGTHS FOR PENDANT FIXTURES PRIOR TO ORDERING.
3 ALL LIGHTING FIXTURES MUST MEET BUY AMERICAN REQUIREMENTS.
4 NO SUBSTITUTIONS ACCEPTED DURING BID PROCESS UNLESS DIRECTED BY ARCHITECT / ENGINEER. PROVIDE PRICING FOR FIXTURES AS LISTED ON THIS SCHEDULE.
5 FOR LUMINAIRES THAT REQUIRE MULTIPLE COMPONENTS (TRACK LIGHTING, TAPE LIGHT, ETC), ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE REPRESENTATIVE / MANUFACTURER TO ENSURE ALL COMPONENTS NEEDED ARE ORDERED.
6 ANY WIRELESS PROVISIONS OR CAPABILITIES SHALL BE COMPLETELY DISABLED OR REMOVED FROM THE FIXTURES PRIOR TO SHIPPING FROM FACTORY.
7 REFER TO ARCHITECTURAL DETAILS FOR ANY SPECIAL MOUNTING REQUIREMENTS PRIOR TO ORDERING.

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True North
Plan North

GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

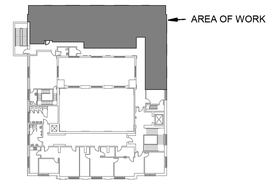
OWNER IDENTIFICATION

DESIGNEDGE architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

REGISTERED PROFESSIONAL ENGINEER ROGER C. CRAWFORD PE-7391 DATE 05.21.26 NORTH DAKOTA

STAMP OR SEAL



LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
	8/05/2025	35% Submittal
	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

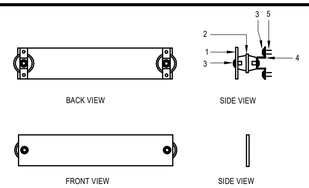
DRAWN BY	CMM	DATE DRAWN:	4/20/2026
CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	ELECTRICAL SCHEDULES		

SHEET NUMBER **E0.6**

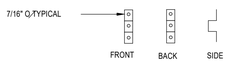
SHEET 34 OF 49 SHEETS

SHEET IDENTIFICATION

5/21/2026 5:05:20 PM



TYPICAL GROUND BAR ASSEMBLY

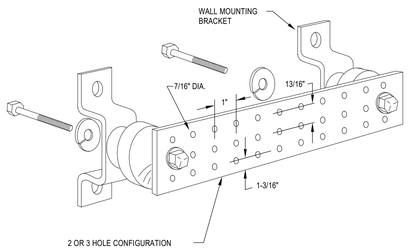


BRACKET FOR GROUND BAR-DIMENSIONS

1. HIGH CONDUCTIVITY COPPER BAR, 12"L x 4"W x 1/4"D. CONTRACTOR TO COORDINATE LENGTHS WITH TENANT PROJECT MANAGER. PROVIDE PEFORATIONS FOR INSTALLING GROUND CABLE LUGS.
2. RED COLORED STANDOFF INSULATOR GLASTIC #1872-1A.
3. STAINLESS STEEL TYPE 304 HARDWARE 3/8"-16-7/8"L HEX BOLT WITH MATCHING 3/8" BOLT SIZE SPLIT LOCKWASHER AND FLAT WASHER.
4. 1"W x 1/8"T STAINLESS STEEL TYPE 304 BRACKET.
5. (4) STAINLESS STEEL TYPE 304 HARDWARE 3/8" EXPANSION BOLT.
6. COORDINATE LOCATION WITH TENANT PROJECT MANAGER.
7. ELECTRICAL CONTRACTOR TO CONNECT TO GROUNDED SOURCE WITH MINIMUM #4/0 COPPER CABLE.
8. ADD SECONDARY GROUND BUS BAR WITHIN EXISTING COMMUNICATIONS ROOM. COORDINATE FINAL LOCATION WITH LOCAL GOVERNMENT TECHNICAL MANAGER.
9. PROVIDE PERFORATIONS FOR INSTALLING GROUND CABLE LUGS.

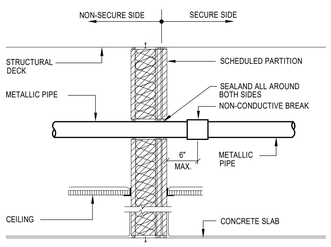
1 GROUND BUS BAR ASSEMBLY

SCALE: N.T.S.



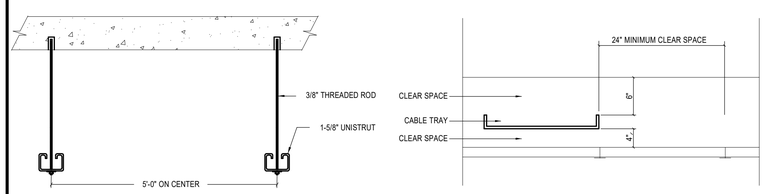
2 TELECOMM GROUND BAR DETAILS

SCALE: N.T.S.
NOTE: TELECOMM GROUND BUS BAR SHALL TERMINATE AT MAIN SYSTEM GROUND.



3 DI-ELECTRIC BREAK DETAIL

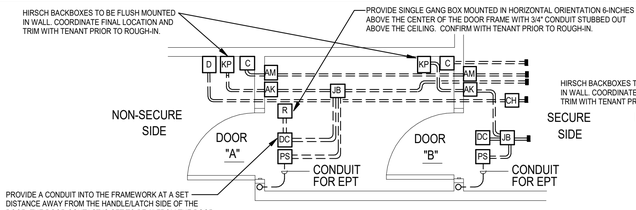
SCALE: N.T.S.
NOTE: NON-CONDUCTIVE BREAK SHALL BE UL LISTED.



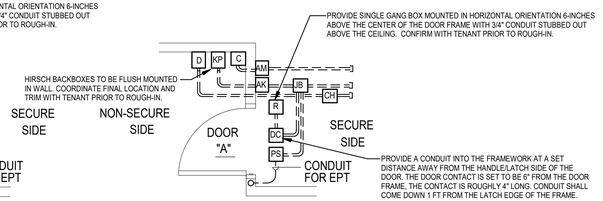
4 CABLE TRAY LAYOUT DETAIL

SCALE: NONE

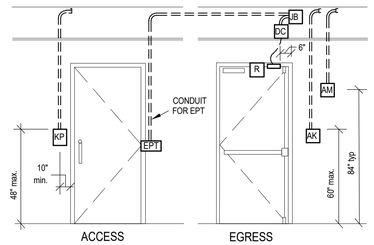
1. CABLE TRAY MUST BE INSTALLED SO THERE IS AT LEAST 6" OF CLEAR SPACE ABOVE CABLE TRAY AND 4" OF CLEAR SPACE BELOW CABLE TRAY TO NEAREST CEILING ELEMENT.
2. HORIZONTAL PLACEMENT OF CABLE TRAY MUST MAXIMIZE ACCESS. WHERE POSSIBLE, MAINTAIN 24" HORIZONTAL CLEARANCE ON ONE (1) SIDE OF TRAY TO ALLOW CABLE INSTALLATION ACCESS.
3. WHERE POSSIBLE, ALIGN EDGE OF CEILING TILE WITH EDGE OF CABLE TRAY TO ALLOW EASY ACCESS.



MANTRAP CONFIGURATION



SINGLE DOOR CONFIGURATION



DOOR "A"

CONDUIT REQUIREMENTS AT ELECTRONICALLY ACCESS CONTROLLED DOORS

AK	ALARM CONTROL KEYPAD
AM	AMBUSH MONITOR
C	SECURITY CAMERA
DC	DOOR CONTACT
JB	JUNCTION BOX (12" X 12" HOFFMAN W/ COVER)
KP	ACCESS CONTROL KEYPAD
D	DOORBELL / INTERCOM (FOR SWE > 1,000 SF)
CH	DOOR CHIME (FOR SWE > 1,000 SF)
EPT	ELECTRIC POWER TRANSFER
PS	POWER SUPPLY
R	REQUEST TO EXIT

DOOR CONDUIT CONDITION LEGEND (RESIDENT AGENCY)

*1. PROVIDE CONDUIT FOR DC, AND JUNCTION BOX. (EXIT ONLY)

2. PROVIDE CONDUITS FOR EPT, KP, BACKBOX FOR KP, AND JUNCTION BOX. (EQUIPMENT ROOM)

*3. PROVIDE CONDUITS FOR EPT, KP, DC, BACKBOX FOR KP, AND JUNCTION BOX. (STORAGE)

4. PROVIDE CONDUITS FOR EPT, KP, DC, AK, BACKBOX KP, AND JUNCTION BOX. (ALARMED)

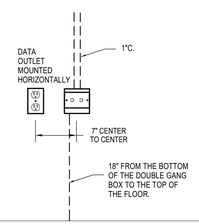
5. PROVIDE CONDUITS FOR EPT, KP, DC, C, AK, BACKBOX KP, AM AND JUNCTION BOX. (PERIMETER)

* FOR A6 & A7 SERIES WALL TYPES, ALL BOXES AND CONDUITS SHALL BE SURFACE MOUNTED. REFER TO ARCHITECTURAL PLANS FOR WALL TYPES.

CONDUIT AND JUNCTION BOX CONFIGURATIONS AND LOCATIONS ARE SHOWN IN ELEVATION AND PLAN FOR CONCEPTUAL REPRESENTATION ONLY. REFER TO PROGRAM OF REQUIREMENTS OR WRITTEN SPECIFICATIONS FOR ACTUAL REQUIRED DOOR CONDUIT CONDITION.

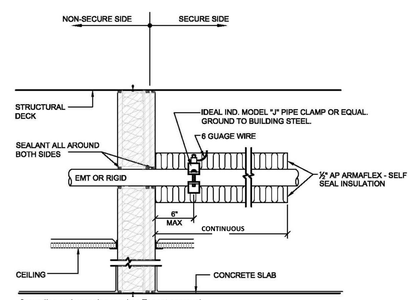
5 DOOR CONDUIT CONDITION DETAIL

SCALE: N.T.S.



7 FACEPLATE MOUNTING DETAIL

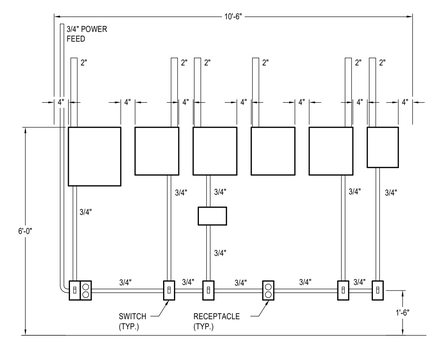
SCALE: N.T.S.



1. Grounding and wrapping requires Tenant approval.
2. Armaflex Self-Seal insulation must be continuous through secure space.
3. If raceway is greater than 2", use Senior Industries SI-0954 series Universal ground strap clamp with penetrator ("P" suffix to P/N).

8 GROUNDING AND WRAPPING DETAIL

SCALE: NONE

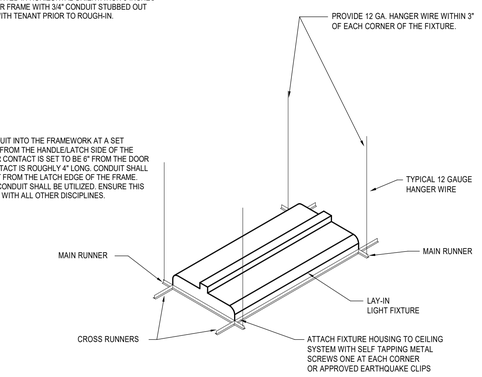


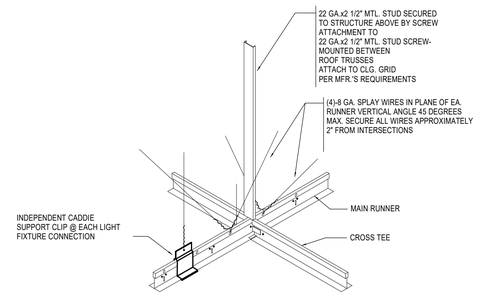
PROVIDE (3) 20A BREAKERS
1 - HIRSCH
1 - ALARM
1 - CAMERA POWER

COORDINATE ALL REQUIREMENTS WITH THE TENANT

9 MAIN COMM ROOM

SCALE: NONE





NOTE:
INSTALL BRACING 12'-0" ON CENTER EACH WAY AND WITHIN 4'-0" OF PERIMETER WALLS.

6 LIGHT FIXTURE INSTALLATION DETAILS

SCALE: N.T.S.

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RONALD N. DAVIES FEDERAL BUILDING

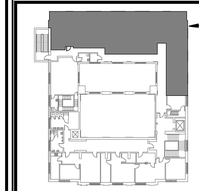
OWNER IDENTIFICATION

DESIGNEDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

REGISTERED PROFESSIONAL ENGINEER
ROGER C. CRAWFORD
PE-7391
DATE 05.21.26
NORTH DAKOTA

STAMP OR SEAL



LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
	8/05/2025	35% Submittal
	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN:	4/20/2026
CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	ELECTRICAL DIAGRAMS		
SHEET NUMBER	E0.7		
	SHEET 35 OF 49 SHEETS		

SHEET IDENTIFICATION

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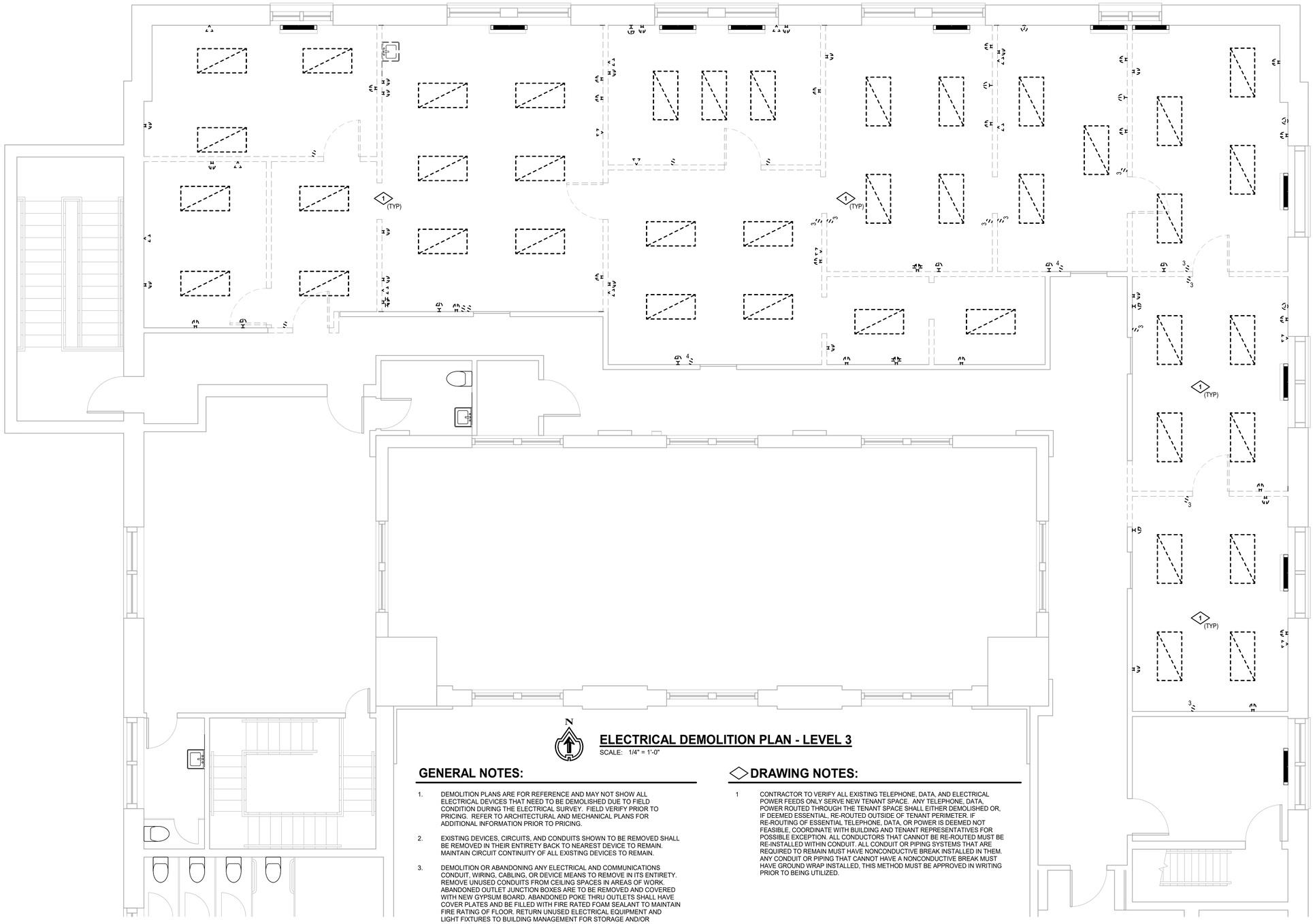

N

ELECTRICAL DEMOLITION PLAN - LEVEL 3

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

GENERAL NOTES:

1. DEMOLITION PLANS ARE FOR REFERENCE AND MAY NOT SHOW ALL ELECTRICAL DEVICES THAT NEED TO BE DEMOLISHED DUE TO FIELD CONDITION DURING THE ELECTRICAL SURVEY. FIELD VERIFY PRIOR TO PRICING. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR ADDITIONAL INFORMATION PRIOR TO PRICING.
2. EXISTING DEVICES, CIRCUITS, AND CONDUITS SHOWN TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY BACK TO NEAREST DEVICE TO REMAIN. MAINTAIN CIRCUIT CONTINUITY OF ALL EXISTING DEVICES TO REMAIN.
3. DEMOLITION OR ABANDONING ANY ELECTRICAL AND COMMUNICATIONS CONDUIT, WIRING, CABLING, OR DEVICE MEANS TO REMOVE IN ITS ENTIRETY. REMOVE UNUSED CONDUITS FROM CEILING SPACES IN AREAS OF WORK. ABANDONED OUTLET JUNCTION BOXES ARE TO BE REMOVED AND COVERED WITH NEW GYPSUM BOARD. ABANDONED POKE THRU OUTLETS SHALL HAVE COVER PLATES AND BE FILLED WITH FIRE RATED FOAM SEALANT TO MAINTAIN FIRE RATING OF FLOOR. RETURN UNUSED ELECTRICAL EQUIPMENT AND LIGHT FIXTURES TO BUILDING MANAGEMENT FOR STORAGE AND/OR REMOVAL FROM SITE AS DIRECTED BY OWNERS.
4. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR ANY EQUIPMENT THAT IS TO BE DEMOLISHED DURING THIS SCOPE OF WORK. COORDINATE WITH MECHANICAL CONTRACTOR FOR DEMOLITION RESPONSIBILITIES.
5. COORDINATE WITH BUILDING MANAGEMENT DISPOSAL OF EXISTING EQUIPMENT TO BE REMOVED AND IF ANY EQUIPMENT IS TO BE RETURNED TO BUILDING STOCK PRIOR TO PRICING.
6. TURN OFF ALL UNUSED BREAKERS AND INDICATE "SPARE" ON UPDATED PANEL INDEXES.
7. POKE THROUGH CORE LOCATIONS ARE TO BE CAPPED FROM FLOOR BELOW AND FILLED WITH CONCRETE.

DRAWING NOTES:

1 CONTRACTOR TO VERIFY ALL EXISTING TELEPHONE, DATA, AND ELECTRICAL POWER FEEDS ONLY SERVE NEW TENANT SPACE. ANY TELEPHONE, DATA, POWER ROUTED THROUGH THE TENANT SPACE SHALL EITHER DEMOLISHED OR, IF DEEMED ESSENTIAL, RE-ROUTED OUTSIDE OF TENANT PERIMETER. IF RE-ROUTING OF ESSENTIAL TELEPHONE, DATA, OR POWER IS DEEMED NOT FEASIBLE, COORDINATE WITH BUILDING AND TENANT REPRESENTATIVES FOR POSSIBLE EXCEPTION. ALL CONDUCTORS THAT CANNOT BE RE-ROUTED MUST BE RE-INSTALLED WITHIN CONDUIT. ALL CONDUIT OR PIPING SYSTEMS THAT ARE REQUIRED TO REMAIN MUST HAVE NONCONDUCTIVE BREAK INSTALLED IN THEM. ANY CONDUIT OR PIPING THAT CANNOT HAVE A NONCONDUCTIVE BREAK MUST HAVE GROUND WRAP INSTALLED, THIS METHOD MUST BE APPROVED IN WRITING PRIOR TO BEING UTILIZED.

0 2' 4' 8'
0 2"
1/4" = 1'-0"

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architecture interior design

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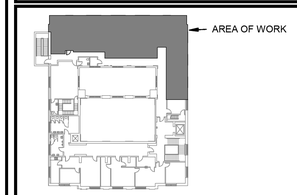

LEVEL 3

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PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

BUILDING

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SHEET IDENTIFICATION

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CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	ELECTRICAL DEMOLITION PLAN		

SHEET NUMBER **ED1.3**

SHEET 36 OF 49 SHEETS

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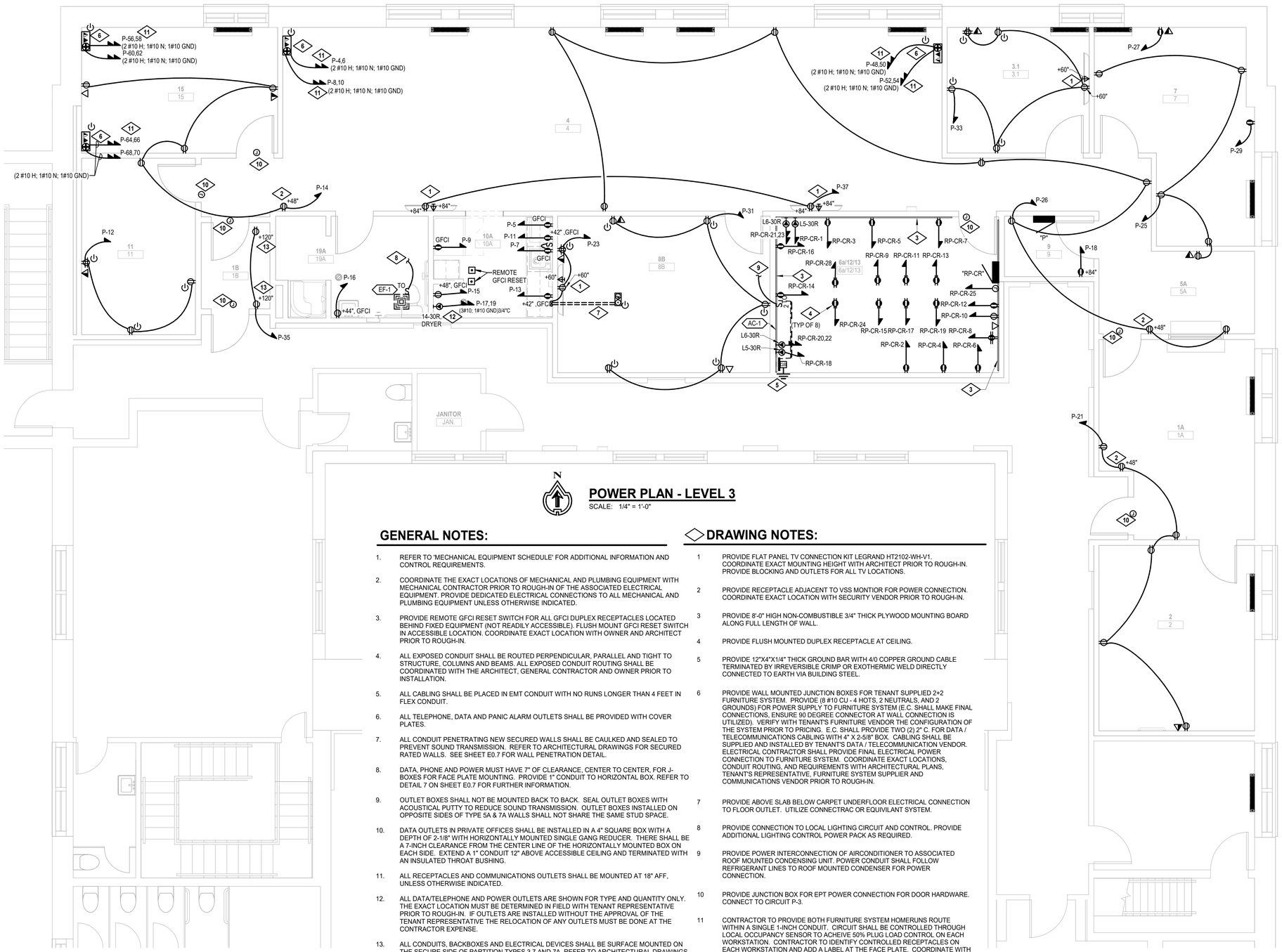

POWER PLAN - LEVEL 3

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

GENERAL NOTES:

1. REFER TO 'MECHANICAL EQUIPMENT SCHEDULE' FOR ADDITIONAL INFORMATION AND CONTROL REQUIREMENTS.
2. COORDINATE THE EXACT LOCATIONS OF MECHANICAL AND PLUMBING EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN OF THE ASSOCIATED ELECTRICAL EQUIPMENT. PROVIDE DEDICATED ELECTRICAL CONNECTIONS TO ALL MECHANICAL AND PLUMBING EQUIPMENT UNLESS OTHERWISE INDICATED.
3. PROVIDE REMOTE GFCI RESET SWITCH FOR ALL GFCI DUPLEX RECEPTACLES LOCATED BEHIND FIXED EQUIPMENT (NOT READILY ACCESSIBLE). FLUSH MOUNT GFCI RESET SWITCH IN ACCESSIBLE LOCATION. COORDINATE EXACT LOCATION WITH OWNER AND ARCHITECT PRIOR TO ROUGH-IN.
4. ALL EXPOSED CONDUIT SHALL BE ROUTED PERPENDICULAR, PARALLEL AND TIGHT TO STRUCTURE, COLUMNS AND BEAMS. ALL EXPOSED CONDUIT ROUTING SHALL BE COORDINATED WITH THE ARCHITECT, GENERAL CONTRACTOR AND OWNER PRIOR TO INSTALLATION.
5. ALL CABLING SHALL BE PLACED IN EMT CONDUIT WITH NO RUNS LONGER THAN 4 FEET IN FLEX CONDUIT.
6. ALL TELEPHONE, DATA AND PANIC ALARM OUTLETS SHALL BE PROVIDED WITH COVER PLATES.
7. ALL CONDUIT PENETRATING NEW SECURED WALLS SHALL BE CAULKED AND SEALED TO PREVENT SOUND TRANSMISSION. REFER TO ARCHITECTURAL DRAWINGS FOR SECURED RATED WALLS. SEE SHEET E0.7 FOR WALL PENETRATION DETAIL.
8. DATA, PHONE AND POWER MUST HAVE 7" OF CLEARANCE, CENTER TO CENTER, FOR J-BOXES FOR FACE PLATE MOUNTING. PROVIDE 1" CONDUIT TO HORIZONTAL BOX. REFER TO DETAIL 7 ON SHEET E0.7 FOR FURTHER INFORMATION.
9. OUTLET BOXES SHALL NOT BE MOUNTED BACK TO BACK. SEAL OUTLET BOXES WITH ACOUSTICAL PUTTY TO REDUCE SOUND TRANSMISSION. OUTLET BOXES INSTALLED ON OPPOSITE SIDES OF TYPE 5A & 7A WALLS SHALL NOT SHARE THE SAME STUD SPACE.
10. DATA OUTLETS IN PRIVATE OFFICES SHALL BE INSTALLED IN A 4" SQUARE BOX WITH A DEPTH OF 2-1/8" WITH HORIZONTALLY MOUNTED SINGLE GANG REDUCER. THERE SHALL BE A 7-INCH CLEARANCE FROM THE CENTER LINE OF THE HORIZONTALLY MOUNTED BOX ON EACH SIDE. EXTEND A 1" CONDUIT 12" ABOVE ACCESSIBLE CEILING AND TERMINATED WITH AN INSULATED THROAT BUSHING.
11. ALL RECEPTACLES AND COMMUNICATIONS OUTLETS SHALL BE MOUNTED AT 18" AFF, UNLESS OTHERWISE INDICATED.
12. ALL DATA/TELEPHONE AND POWER OUTLETS ARE SHOWN FOR TYPE AND QUANTITY ONLY. THE EXACT LOCATION MUST BE DETERMINED IN FIELD WITH TENANT REPRESENTATIVE PRIOR TO ROUGH-IN. IF OUTLETS ARE INSTALLED WITHOUT THE APPROVAL OF THE TENANT REPRESENTATIVE THE RELOCATION OF ANY OUTLETS MUST BE DONE AT THE CONTRACTOR EXPENSE.
13. ALL CONDUITS, BACKBOXES AND ELECTRICAL DEVICES SHALL BE SURFACE MOUNTED ON THE SECURE SIDE OF PARTITION TYPES 3,7 AND 7A. REFER TO ARCHITECTURAL DRAWINGS FOR PARTIITION TYPES.
14. ALL RECEPTACLE AND DEVICE FACEPLATES SHALL BE PROVIDED WITH TYPED CIRCUIT NUMBER LABELS PER SPECIFICATIONS.
15. ALL SINGLE PHASE LINE-NEUTRAL CIRCUITS MUST NOT SHARE NEUTRAL OR GROUND WIRES. ELECTRIFIED FURNITURE SYSTEMS ARE AN EXCEPTION.
16. CABLE TRAY FOR ROOM 6A/12/13 IS PART OF CABLING CONTRACTORS SCOPE VIA SEPERATE CONTRACT. GENERAL CONTRACTOR NOT TO PROVIDE CABLE TRAY FOR THIS ROOM. CABLE TRAY SHOWN FOR REFERENCE AND COORDINATION PURPOSES ONLY.

DRAWING NOTES:

1. PROVIDE FLAT PANEL TV CONNECTION KIT LEGRAND HT2102-WH-V1. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE BLOCKING AND OUTLETS FOR ALL TV LOCATIONS.
2. PROVIDE RECEPTACLE ADJACENT TO VSS MONTIOR FOR POWER CONNECTION. COORDINATE EXACT LOCATION WITH SECURITY VENDOR PRIOR TO ROUGH-IN.
3. PROVIDE 8'-0" HIGH NON-COMBUSTIBLE 3/4" THICK PLYWOOD MOUNTING BOARD ALONG FULL LENGTH OF WALL.
4. PROVIDE FLUSH MOUNTED DUPLEX RECEPTACLE AT CEILING.
5. PROVIDE 12"X4"X1/4" THICK GROUND BAR WITH 4/0 COPPER GROUND CABLE TERMINATED BY IRREVERSIBLE CRIMP OR EXOTHERMIC WELD DIRECTLY CONNECTED TO EARTH VIA BUILDING STEEL.
6. PROVIDE WALL MOUNTED JUNCTION BOXES FOR TENANT SUPPLIED 2×2 FURNITURE SYSTEM. PROVIDE (8 #10 CU - 4 HOTS, 2 NEUTRALS, AND 2 GROUNDS) FOR POWER SUPPLY TO FURNITURE SYSTEM (E.C. SHALL MAKE FINAL CONNECTIONS, ENSURE 90 DEGREE CONNECTOR AT WALL CONNECTION IS UTILIZED). VERIFY WITH TENANT'S FURNITURE VENDOR THE CONFIGURATION OF THE SYSTEM PRIOR TO PRICING. E.C. SHALL PROVIDE TWO (2) 2" C. FOR DATA / TELECOMMUNICATIONS CABLING WITH 4" X 2-5/8" BOX. CABLING SHALL BE SUPPLIED AND INSTALLED BY TENANT'S DATA / TELECOMMUNICATION VENDOR. ELECTRICAL CONTRACTOR SHALL PROVIDE FINAL ELECTRICAL POWER CONNECTION TO FURNITURE SYSTEM. COORDINATE EXACT LOCATIONS, CONDUIT ROUTING, AND REQUIREMENTS WITH ARCHITECTURAL PLANS, TENANT'S REPRESENTATIVE, FURNITURE SYSTEM SUPPLIER AND COMMUNICATIONS VENDOR PRIOR TO ROUGH-IN.
7. PROVIDE ABOVE SLAB BELOW CARPET UNDERFLOOR ELECTRICAL CONNECTION TO FLOOR OUTLET. UTILIZE CONNECTRAC OR EQUIVILANT SYSTEM.
8. PROVIDE CONNECTION TO LOCAL LIGHTING CIRCUIT AND CONTROL. PROVIDE ADDITIONAL LIGHTING CONTROL POWER PACK AS REQUIRED.
9. PROVIDE POWER INTERCONNECTION OF AIRCONDITIONER TO ASSOCIATED ROOF MOUNTED CONDENSING UNIT. POWER CONDUIT SHALL FOLLOW REFRIGERANT LINES TO ROOF MOUNTED CONDENSER FOR POWER CONNECTION.
10. PROVIDE JUNCTION BOX FOR EPT POWER CONNECTION FOR DOOR HARDWARE. CONNECT TO CIRCUIT P-3.
11. CONTRACTOR TO PROVIDE BOTH FURNITURE SYSTEM HOMERUNS ROUTE WITHIN A SINGLE 1-INCH CONDUIT. CIRCUIT SHALL BE CONTROLLED THROUGH LOCAL OCCUPANCY SENSOR TO ACHEIVE 50% PLUG LOAD CONTROL ON EACH WORKSTATION. CONTRACTOR TO IDENTIFY CONTROLLED RECEPTACLES ON EACH WORKSTATION AND ADD A LABEL AT THE FACE PLATE. COORDINATE WITH FURNITURE VENDOR AND OWNER PRIOR TO PROVIDING FINAL ELECTRICAL CONNECTIONS TO THE FURNITURE SYSTEMS. TEST THE CONTROLLED RECEPTACLES IN THE PRESENCE OF OWNER FOR PROPER FUNCTIONALITY. COORDINATE EXACT LOCATION OF WALL FEED WITH THE FURNITURE VENDOR/INSTALLER PRIOR TO ROUGH-INS.
12. PROVIDE PROPER NEMA TYPE RECEPTACLES REQUIRED FOR THE DRYER AND WASHER. CONTRACTOR SHALL COORDINATE WITH OWNER/ARCHITECT AND VERIFY EXACT NEMA TYPE RECEPTACLE REQUIRED FOR THE DRYER AND WASHER PRIOR TO ROUGH-IN.
13. RECEPTACLE FOR SECURITY DOOR POWER AS REQUIRED. COORDINATE WITH DOOR SECURITY INSTALLER FOR FINAL LOCATION PRIOR TO ROUGH-IN.

0 2' 4' 8'
0 1' 2"
1/4" = 1'-0"

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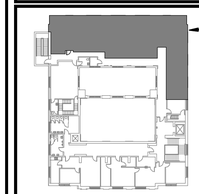
NORTH DAKOTA

STAMP OR SEAL



LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
	8/05/2025	35% Submittal
	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN:	4/20/2026
CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	LEVEL 3 POWER PLAN		

SHEET NUMBER **E1.3**

SHEET 37 OF 49 SHEETS

SHEET IDENTIFICATION

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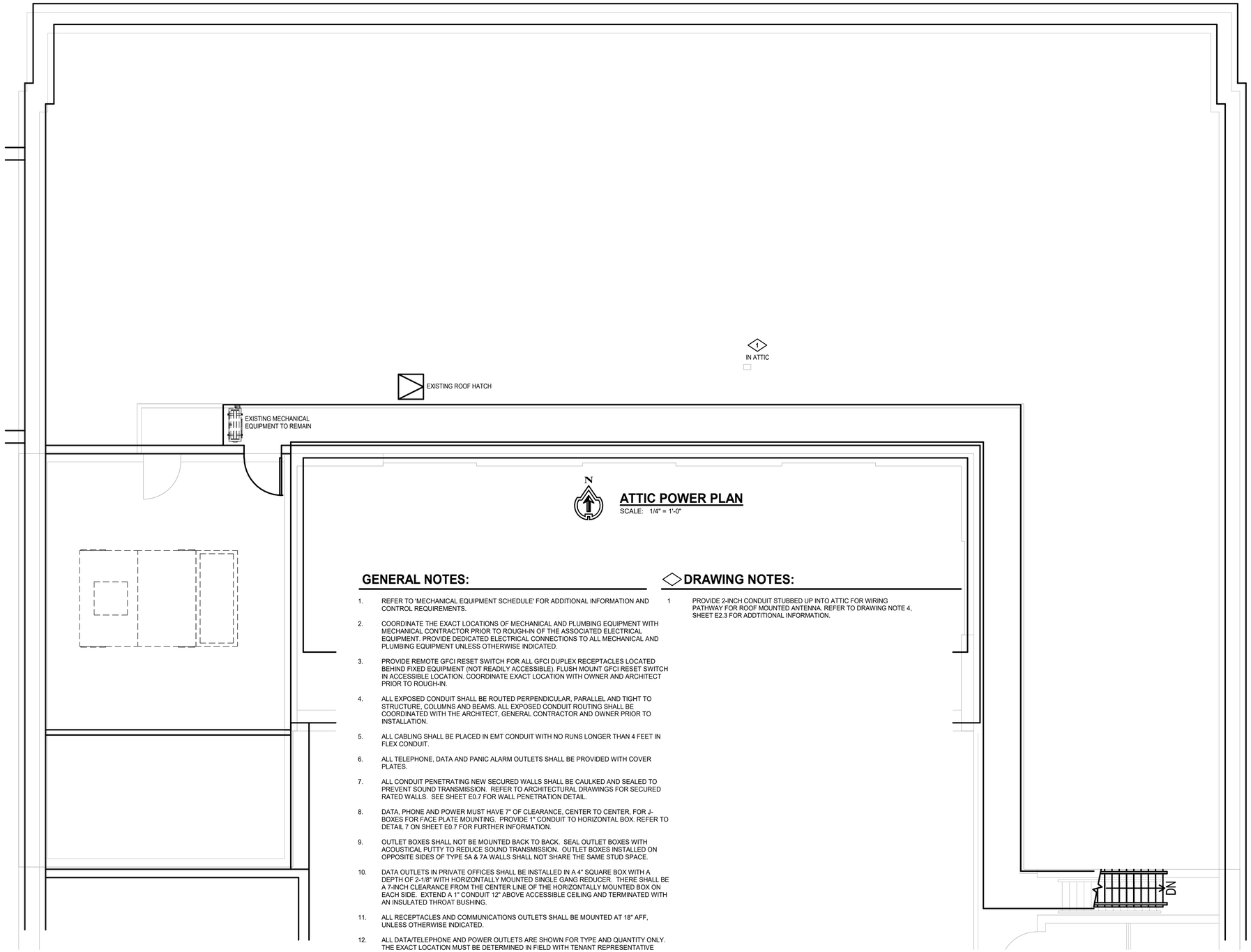

ATTIC POWER PLAN

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

GENERAL NOTES:

1. REFER TO 'MECHANICAL EQUIPMENT SCHEDULE' FOR ADDITIONAL INFORMATION AND CONTROL REQUIREMENTS.
2. COORDINATE THE EXACT LOCATIONS OF MECHANICAL AND PLUMBING EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN OF THE ASSOCIATED ELECTRICAL EQUIPMENT. PROVIDE DEDICATED ELECTRICAL CONNECTIONS TO ALL MECHANICAL AND PLUMBING EQUIPMENT UNLESS OTHERWISE INDICATED.
3. PROVIDE REMOTE GFCI RESET SWITCH FOR ALL GFCI DUPLEX RECEPTACLES LOCATED BEHIND FIXED EQUIPMENT (NOT READILY ACCESSIBLE). FLUSH MOUNT GFCI RESET SWITCH IN ACCESSIBLE LOCATION. COORDINATE EXACT LOCATION WITH OWNER AND ARCHITECT PRIOR TO ROUGH-IN.
4. ALL EXPOSED CONDUIT SHALL BE ROUTED PERPENDICULAR, PARALLEL AND TIGHT TO STRUCTURE, COLUMNS AND BEAMS. ALL EXPOSED CONDUIT ROUTING SHALL BE COORDINATED WITH THE ARCHITECT, GENERAL CONTRACTOR AND OWNER PRIOR TO INSTALLATION.
5. ALL CABLING SHALL BE PLACED IN EMT CONDUIT WITH NO RUNS LONGER THAN 4 FEET IN FLEX CONDUIT.
6. ALL TELEPHONE, DATA AND PANIC ALARM OUTLETS SHALL BE PROVIDED WITH COVER PLATES.
7. ALL CONDUIT PENETRATING NEW SECURED WALLS SHALL BE CAULKED AND SEALED TO PREVENT SOUND TRANSMISSION. REFER TO ARCHITECTURAL DRAWINGS FOR SECURED RATED WALLS. SEE SHEET E0.7 FOR WALL PENETRATION DETAIL.
8. DATA, PHONE AND POWER MUST HAVE 7" OF CLEARANCE, CENTER TO CENTER, FOR J-BOXES FOR FACE PLATE MOUNTING. PROVIDE 1" CONDUIT TO HORIZONTAL BOX. REFER TO DETAIL 7 ON SHEET E0.7 FOR FURTHER INFORMATION.
9. OUTLET BOXES SHALL NOT BE MOUNTED BACK TO BACK. SEAL OUTLET BOXES WITH ACOUSTICAL PUTTY TO REDUCE SOUND TRANSMISSION. OUTLET BOXES INSTALLED ON OPPOSITE SIDES OF TYPE 5A & 7A WALLS SHALL NOT SHARE THE SAME STUD SPACE.
10. DATA OUTLETS IN PRIVATE OFFICES SHALL BE INSTALLED IN A 4" SQUARE BOX WITH A DEPTH OF 2-1/8" WITH HORIZONTALLY MOUNTED SINGLE GANG REDUCER. THERE SHALL BE A 7-INCH CLEARANCE FROM THE CENTER LINE OF THE HORIZONTALLY MOUNTED BOX ON EACH SIDE. EXTEND A 1" CONDUIT 12" ABOVE ACCESSIBLE CEILING AND TERMINATED WITH AN INSULATED THROAT BUSHING.
11. ALL RECEPTACLES AND COMMUNICATIONS OUTLETS SHALL BE MOUNTED AT 18" AFF, UNLESS OTHERWISE INDICATED.
12. ALL DATA/TELEPHONE AND POWER OUTLETS ARE SHOWN FOR TYPE AND QUANTITY ONLY. THE EXACT LOCATION MUST BE DETERMINED IN FIELD WITH TENANT REPRESENTATIVE PRIOR TO ROUGH-IN. IF OUTLETS ARE INSTALLED WITHOUT THE APPROVAL OF THE TENANT REPRESENTATIVE THE RELOCATION OF ANY OUTLETS MUST BE DONE AT THE CONTRACTOR EXPENSE.
13. ALL CONDUITS, BACKBOXES AND ELECTRICAL DEVICES SHALL BE SURFACE MOUNTED ON THE SECURE SIDE OF PARTITION TYPES 3,7 AND 7A. REFER TO ARCHITECTURAL DRAWINGS FOR PARTIITION TYPES.
14. ALL RECEPTACLE AND DEVICE FACEPLATES SHALL BE PROVIDED WITH TYPED CIRCUIT NUMBER LABELS PER SPECIFICATIONS.
15. ALL SINGLE PHASE LINE-NEUTRAL CIRCUITS MUST NOT SHARE NEUTRAL OR GROUND WIRES. ELECTRIFIED FURNITURE SYSTEMS ARE AN EXCEPTION.
16. CABLE TRAY FOR ROOM 6A/12/13 IS PART OF CABLING CONTRACTORS SCOPE VIA SEPERATE CONTRACT. GENERAL CONTRACTOR NOT TO PROVIDE CABLE TRAY FOR THIS ROOM. CABLE TRAY SHOWN FOR REFERENCE AND COORDINATION PURPOSES ONLY.

DRAWING NOTES:

1 PROVIDE 2-INCH CONDUIT STUBBED UP INTO ATTIC FOR WIRING PATHWAY FOR ROOF MOUNTED ANTENNA. REFER TO DRAWING NOTE 4, SHEET E2.3 FOR ADDTITIONAL INFORMATION.

0 2' 4' 8'
0 2'
1/4" = 1'-0"

True North

Plan North

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OWNER IDENTIFICATION

GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

DESIGNER IDENTIFICATION

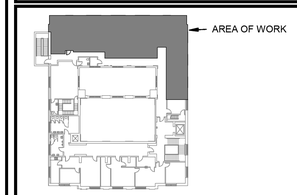
DESIGN EDGE
architecture interior design

482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

STAMP OR SEAL

REGISTERED PROFESSIONAL ENGINEER
ROGER C. CRAWFORD
PE-7391
DATE
05.21.26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

REVISION BLOCK

Mark	Date	Description
	8/05/2025	35% Submittal
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CONTRACTORS

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A/E	Design Edge
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
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Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
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SHEET IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN:	4/20/2026
CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	LEVEL ATTIC POWER PLAN		

SHEET NUMBER **E1.4**

SHEET 38 OF 49 SHEETS

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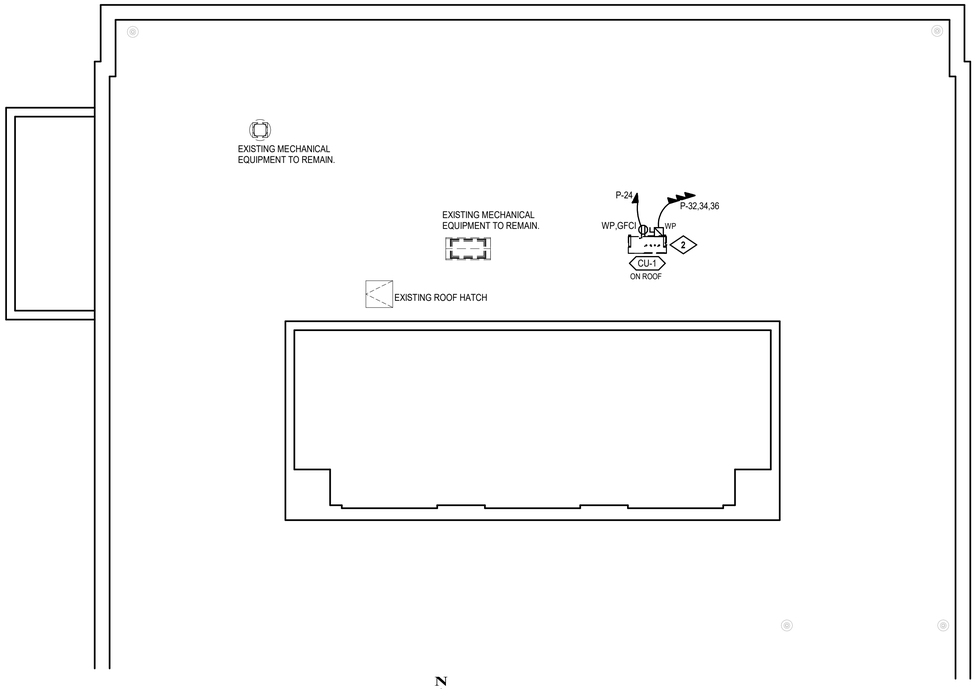
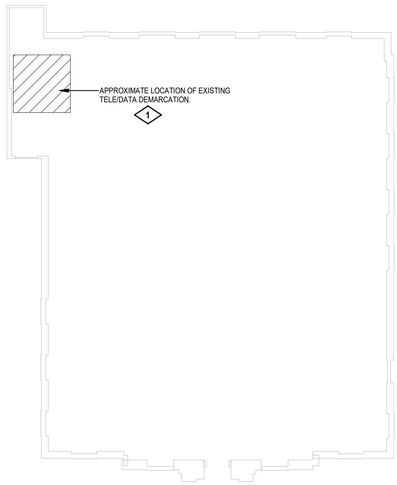


ROOF POWER PLAN

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



BASEMENT TELE/DATA DEMARC LOCATION

SCALE: 1" = 20'-0"

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3. PROVIDE REMOTE GFCI RESET SWITCH FOR ALL GFCI DUPLEX RECEPTACLES LOCATED BEHIND FIXED EQUIPMENT (NOT READILY ACCESSIBLE). FLUSH MOUNT GFCI RESET SWITCH IN ACCESSIBLE LOCATION. COORDINATE EXACT LOCATION WITH OWNER AND ARCHITECT PRIOR TO ROUGH-IN.
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7. ALL CONDUIT PENETRATING NEW SECURED WALLS SHALL BE CAULKED AND SEALED TO PREVENT SOUND TRANSMISSION. REFER TO ARCHITECTURAL DRAWINGS FOR SECURED RATED WALLS. SEE SHEET E0.7 FOR WALL PENETRATION DETAIL.
8. DATA, PHONE AND POWER MUST HAVE 7" OF CLEARANCE, CENTER TO CENTER, FOR J-BOXES FOR FACE PLATE MOUNTING. PROVIDE 1" CONDUIT TO HORIZONTAL BOX. REFER TO DETAIL 7 ON SHEET E0.7 FOR FURTHER INFORMATION.
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16. CABLE TRAY FOR ROOM 6A/12/13 IS PART OF CABLING CONTRACTORS SCOPE VIA SEPERATE CONTRACT. GENERAL CONTRACTOR NOT TO PROVIDE CABLE TRAY FOR THIS ROOM. CABLE TRAY SHOWN FOR REFERENCE AND COORDINATION PURPOSES ONLY.

◇ DRAWING NOTES:

1. CONTRACTOR TO COORDINATE WITH BUILDING MANGEMENT FOR EXACT LOCATION OF BUILDING TELE/DATA DEMARCATION LOCATION. PROVIDE NEW 2-INCH EMT CONDUIT FROM BASEMENT DEMARC LOCATION TO NEW 3RD FLOOR TELECOM ROOM. FOLLOW EXISTING PATH TO THE FULLEST EXTENT POSSIBLE.
2. CONTRACTOR TO COORDINATE METHODOLOGY AND PROCEDURE OF ROOFING PENETRATIONS WITH BUILDING MANAGEMENT SUCH THAT ANY PENETRATIONS WILL NOT VOID ANY ROOFING WARRANTIES CURRENTLY IN PLACE.

0 2' 4' 8'
0 2"
1/4" = 1'-0"

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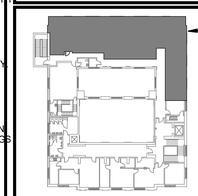
DESIGN EDGE
architecture interior design

482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

STAMP OR SEAL

REGISTERED PROFESSIONAL ENGINEER
ROGER C. CRAWFORD
PE-7391
DATE 05.21.26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

REVISION BLOCK

Mark	Date	Description
	8/05/2025	35% Submittal
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CONST. CONTR. NO.	
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BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
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PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

SHEET IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN: 4/20/2026
CHECKED BY	RCC	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	ELECTRICAL	
SHEET TITLE	ROOF POWER PLAN	
SHEET NUMBER	E1.5	
	SHEET 39 OF 49 SHEETS	

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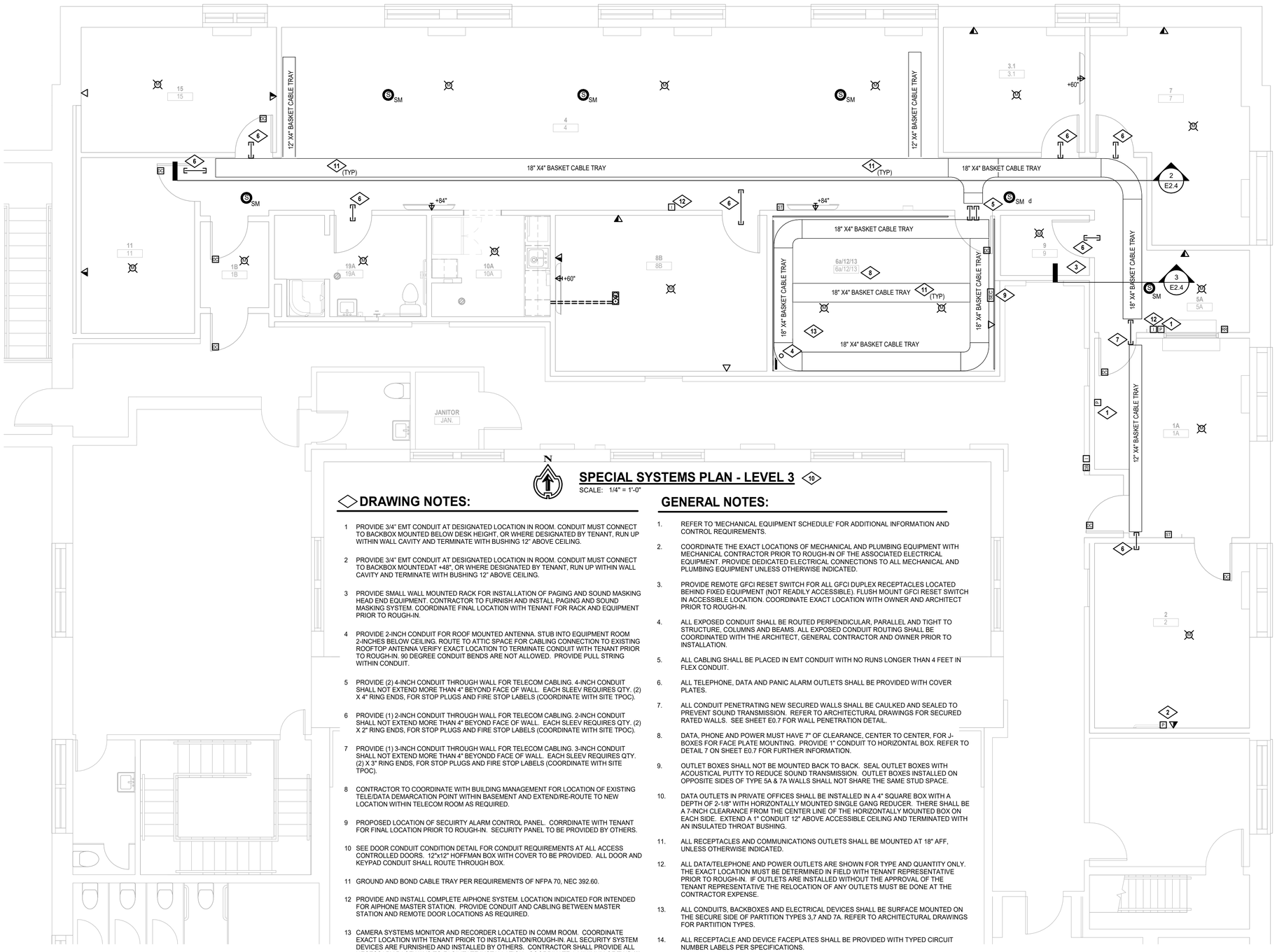

SPECIAL SYSTEMS PLAN - LEVEL 3 (10)

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

DRAWING NOTES:

1 PROVIDE 3/4" EMT CONDUIT AT DESIGNATED LOCATION IN ROOM. CONDUIT MUST CONNECT TO BACKBOX MOUNTED BELOW DESK HEIGHT, OR WHERE DESIGNATED BY TENANT, RUN UP WITHIN WALL CAVITY AND TERMINATE WITH BUSHING 12" ABOVE CEILING.

2 PROVIDE 3/4" EMT CONDUIT AT DESIGNATED LOCATION IN ROOM. CONDUIT MUST CONNECT TO BACKBOX MOUNTEDAT +48", OR WHERE DESIGNATED BY TENANT, RUN UP WITHIN WALL CAVITY AND TERMINATE WITH BUSHING 12" ABOVE CEILING.

3 PROVIDE SMALL WALL MOUNTED RACK FOR INSTALLATION OF PAGING AND SOUND MASKING HEAD END EQUIPMENT. CONTRACTOR TO FURNISH AND INSTALL PAGING AND SOUND MASKING SYSTEM. COORDINATE FINAL LOCATION WITH TENANT FOR RACK AND EQUIPMENT PRIOR TO ROUGH-IN.

4 PROVIDE 2-INCH CONDUIT FOR ROOF MOUNTED ANTENNA. STUB INTO EQUIPMENT ROOM 2-INCHES BELOW CEILING. ROUTE TO ATTIC SPACE FOR CABLING CONNECTION TO EXISTING ROOFTOP ANTENNA VERIFY EXACT LOCATION TO TERMINATE CONDUIT WITH TENANT PRIOR TO ROUGH-IN. 90 DEGREE CONDUIT BENDS ARE NOT ALLOWED. PROVIDE PULL STRING WITHIN CONDUIT.

5 PROVIDE (2) 4-INCH CONDUIT THROUGH WALL FOR TELECOM CABLING. 4-INCH CONDUIT SHALL NOT EXTEND MORE THAN 4" BEYOND FACE OF WALL. EACH SLEEV REQUIRES QTY. (2) X 4" RING ENDS, FOR STOP PLUGS AND FIRE STOP LABELS (COORDINATE WITH SITE TPOC).

6 PROVIDE (1) 2-INCH CONDUIT THROUGH WALL FOR TELECOM CABLING. 2-INCH CONDUIT SHALL NOT EXTEND MORE THAN 4" BEYOND FACE OF WALL. EACH SLEEV REQUIRES QTY. (2) X 2" RING ENDS, FOR STOP PLUGS AND FIRE STOP LABELS (COORDINATE WITH SITE TPOC).

7 PROVIDE (1) 3-INCH CONDUIT THROUGH WALL FOR TELECOM CABLING. 3-INCH CONDUIT SHALL NOT EXTEND MORE THAN 4" BEYONDD FACE OF WALL. EACH SLEEV REQUIRES QTY. (2) X 3" RING ENDS, FOR STOP PLUGS AND FIRE STOP LABELS (COORDINATE WITH SITE TPOC).

8 CONTRACTOR TO COORDINATE WITH BUILDING MANAGEMENT FOR LOCATION OF EXISTING TELE/DATA DEMARCATION POINT WITHIN BASEMENT AND EXTEND/RE-ROUTE TO NEW LOCATION WITHIN TELECOM ROOM AS REQUIRED.

9 PROPOSED LOCATION OF SECUIRTY ALARM CONTROL PANEL. CORRDINATE WITH TENANT FOR FINAL LOCATION PRIOR TO ROUGH-IN. SECURITY PANEL TO BE PROVIDED BY OTHERS.

10 SEE DOOR CONDUIT CONDITION DETAIL FOR CONDUIT REQUIREMENTS AT ALL ACCESS CONTROLLED DOORS. 12"x12" HOFFMAN BOX WITH COVER TO BE PROVIDED. ALL DOOR AND KEYPAD CONDUIT SHALL ROUTE THROUGH BOX.

11 GROUND AND BOND CABLE TRAY PER REQUIREMENTS OF NFPA 70, NEC 392.60.

12 PROVIDE AND INSTALL COMPLETE AIPHONE SYSTEM. LOCATION INDICATED FOR INTENDED FOR AIPHONE MASTER STATION. PROVIDE CONDUIT AND CABLING BETWEEN MASTER STATION AND REMOTE DOOR LOCATIONS AS REQUIRED.

13 CAMERA SYSTEMS MONITOR AND RECORDER LOCATED IN COMM ROOM. COORDINATE EXACT LOCATION WITH TENANT PRIOR TO INSTALLATION/ROUGH-IN. ALL SECURITY SYSTEM DEVICES ARE FURNISHED AND INSTALLED BY OTHERS. CONTRACTOR SHALL PROVIDE ALL NECESSARY RACEWAYS TO FACILITATE INSTALLATION. COORDINATE A MINIMUM OF TWO (2) REVIEW MEETINGS WITH TENANT SECURITY SUBCONTRACTOR PRIOR TO ROUGH-IN.

GENERAL NOTES:

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2. COORDINATE THE EXACT LOCATIONS OF MECHANICAL AND PLUMBING EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN OF THE ASSOCIATED ELECTRICAL EQUIPMENT. PROVIDE DEDICATED ELECTRICAL CONNECTIONS TO ALL MECHANICAL AND PLUMBING EQUIPMENT UNLESS OTHERWISE INDICATED.
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SOUND MASKING SYSTEM REQUIREMENTS:

1. SYSTEM MUST INCLUDE NOISE GENERATOR, AMPLIFIER, WIRING, LOUDSPEAKERS LOCATED ABOVE CEILING AND CONTROLS.
2. NOISE GENERATOR, AMPLIFIER, CONTROLS AND WIRING MUST BE INDEPENDANT FROM THE REST OF THE OFFICE BUILDING.
3. SOUND LEVEL FROM THE SYSTEM MUCH MATCH NC40 CONTOUR BETWEEN 400 AND 2000 HZ WITH SMOOTH ROLL OFF ABOVE AND BELOW THOSE FREQUENCIES.
4. MAXIMUM AVERAGE RANGE OF SOUND POWER DEVIATION MUST NOT EXCEED 2DB FOR 250, 2000, AND 4000 HZ OCTAVE BAND AND 1.5DB FOR 500 AND 1000 HZ OCTAVE BAND.
5. SOUND LEVEL MUST BE UNIFORM WITH RESPECT TO TIME AND REMAIN CONSTANT WHEN MEASURED IN ONE (1)-MINUTE AVERAGED SOUND PRESSURE LEVEL OF ANY OCTAVE BAND OF MASKING SOUND FROM 250 TO 8000HZ. PERSONS IN THESE SPACES UNDER CALIBRATED CONDITIONS MUST NOT BE ABLE TO DETERMINE SOURCE OF MASKING SOUND.
6. SOUND MASKING SYSTEM MUST BE PROGRAMMABLE AND HAVE CAPAVILITY TO ACCEPT CHANGES TO SCHEDULE AND SOUND LEVEL. PROVIDE TOUCHSCREEN DISPLAY OR COMPUTER THAT ENABLES CONTROL OF SOUND MASKING SYSTEM.
7. SYSTEM MUST BE TESTED IN ACCORDANCE WITH LATEST EDITION OF ASTME 1041 AND ASTME 1130 "STANDARD TEST METHOD FOR OVJECTIVE MEASUREMENT OF SPEECH PRIVACY IN OPEN OFFICES USING ARCTICULATION INDEX. FOR COMPLIANCE. PROVIDE TEST RESULTS TO TENANT FOR ACCEPTANCE.
8. SOUND MASKING SYSTEM MUST BE INTERFACED WITH FIRE ALARM SYSTEM AND CEASE OPERATION UPON CESSATION OF FIRE ALARM ACTIVIATION. SOUND MASKING SYSTEM MUST RESET AUTOMATICALLY TO NORMAL OPERATION UPON CESSATION OF FIRE ALARM CONDITION.
9. SOUND MASKING SYSTEM MUST BE TUNED BY FACTORY-CERTIFIED TECHNICIAN AFTER OCCUPANCY.

0 2' 4' 8'
0 2'
1/4" = 1'-0"

True North

Plan North

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GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

OWNER IDENTIFICATION

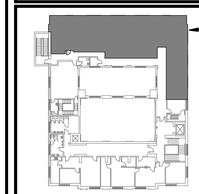
DESIGN EDGE
architecture interior design

482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

REGISTERED PROFESSIONAL ENGINEER
ROGER C. CRAWFORD
PE-7391
DATE
05.21.26
NORTH DAKOTA

STAMP OR SEAL



LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
	8/05/2025	35% Submittal
	9/22/2025	65% Submittal
	12/05/2025	95% Submittal
	3/06/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN:	4/20/2026
CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	LEVEL 3 SPECIAL SYSTEMS PLAN		

SHEET NUMBER **E2.3**

SHEET 40 OF 49 SHEETS

SHEET IDENTIFICATION

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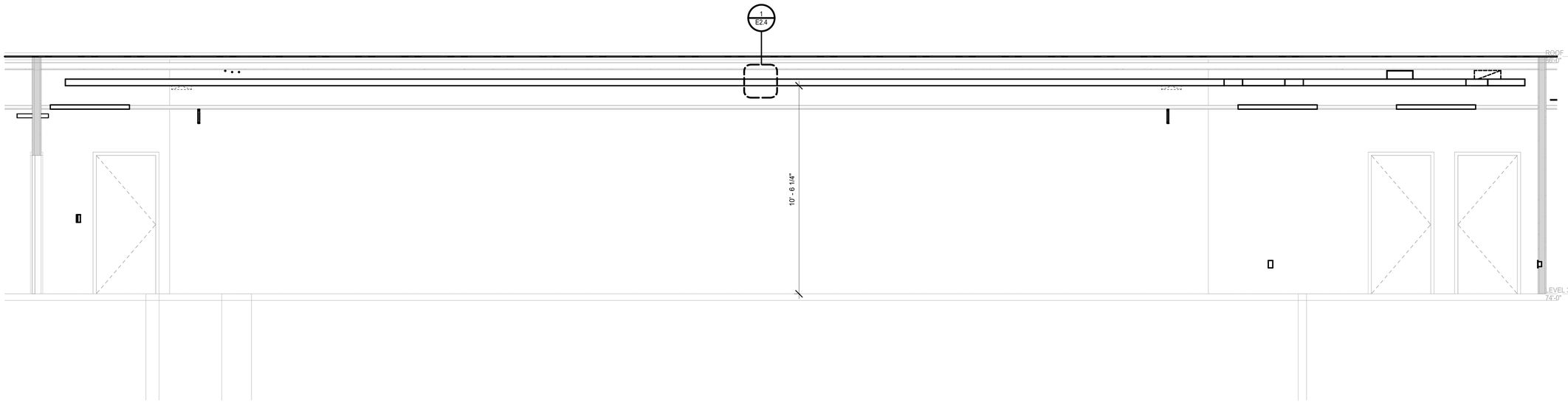
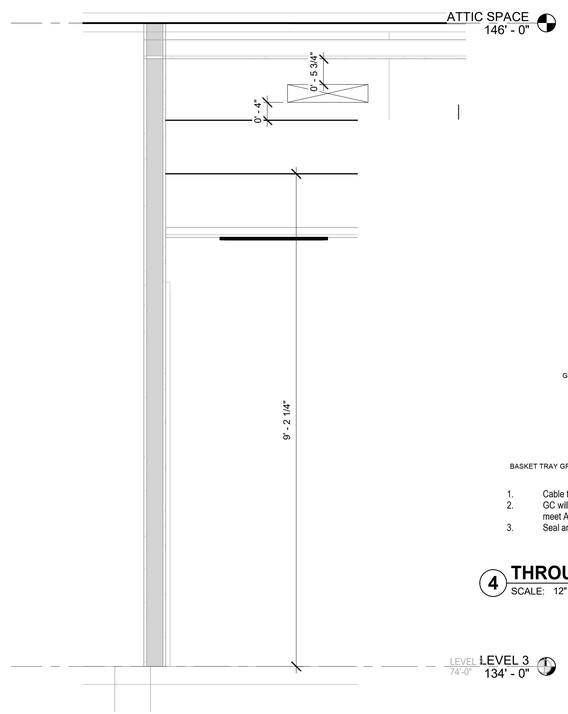
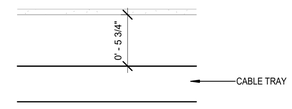


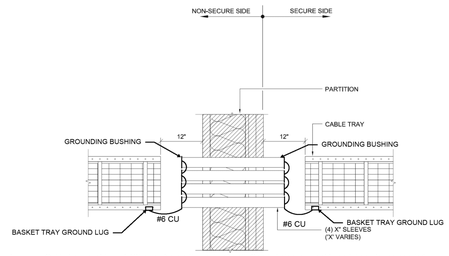
2 CABLE TRAY SECTION
SCALE: 3/8" = 1'-0"



3 CABLE TRAY SECTION 2
SCALE: 3/4" = 1'-0"



1 Cable Tray Enlarged Section
SCALE: 1 1/2" = 1'-0"



1. Cable tray must be cut 12" away from either side of wall. Conduit sleeve quantity and diameter as needed.
2. GC will seal sleeves with re-entrable fire proofing/sealant after Tenant installation of cabling. Fire-rated material must meet ASTM E84 and latest edition of NFPA 101, Section 8.3.5.1.
3. Seal around sleeves with acoustical caulk, both sides.

4 THROUGH WALL SLEEVES AT CABLE TRAY DIAGRAM
SCALE: 12" = 1'-0"

GENERAL NOTES:

1. CABLE TRAY FOR ROOM 6A/12/13 IS PART OF CABLING CONTRACTORS SCOPE VIA SEPERATE CONTRACT. GENERAL CONTRACTOR NOT TO PROVIDE CABLE TRAY FOR THIS ROOM. CABLE TRAY SHOWN FOR REFERENCE AND COORDINATION PURPOSES ONLY.

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RONALD N. DAVIES FEDERAL BUILDING

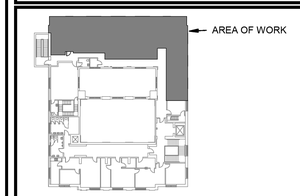
DESIGNER IDENTIFICATION

DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

STAMP OR SEAL

REGISTERED PROFESSIONAL ENGINEER
ROGER C. CRAWFORD
PE-7391
DATE
05.21.26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

REVISION BLOCK

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	8/05/2025	35% Submittal
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CONTRACTORS

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
CITY/ST./ZIP	
BIM FILE NAME	

PROJECT IDENTIFICATION

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

SHEET IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN: 4/20/2026
CHECKED BY	RCC	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	ELECTRICAL	
SHEET TITLE	LEVEL 3 CABLE TRAY SECTION VIEW	
SHEET NUMBER	E2.4	
	SHEET 41 OF 49 SHEETS	

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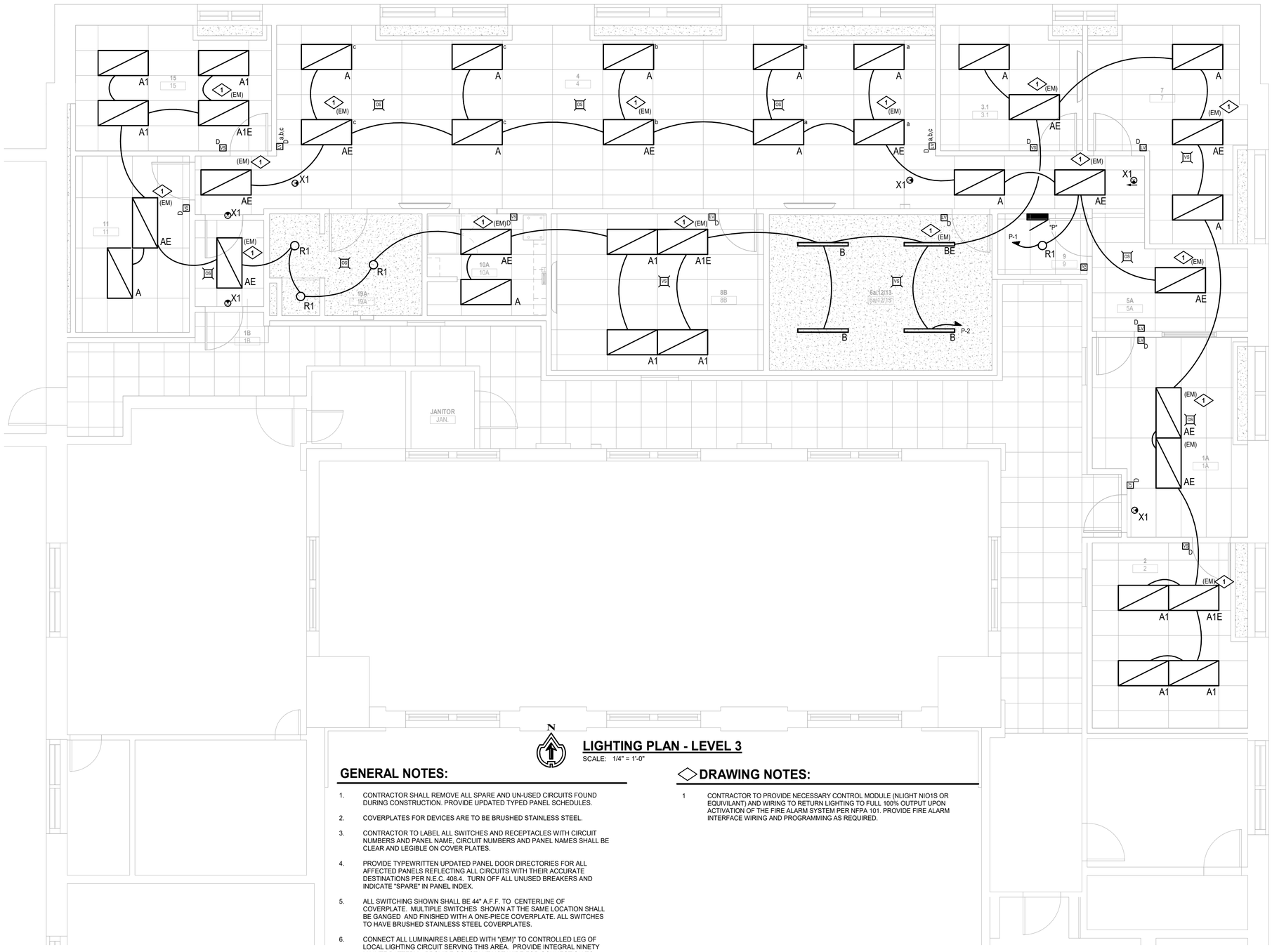

N

LIGHTING PLAN - LEVEL 3

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

GENERAL NOTES:

1. CONTRACTOR SHALL REMOVE ALL SPARE AND UN-USED CIRCUITS FOUND DURING CONSTRUCTION. PROVIDE UPDATED TYPED PANEL SCHEDULES.
2. COVERPLATES FOR DEVICES ARE TO BE BRUSHED STAINLESS STEEL.
3. CONTRACTOR TO LABEL ALL SWITCHES AND RECEPTACLES WITH CIRCUIT NUMBERS AND PANEL NAME. CIRCUIT NUMBERS AND PANEL NAMES SHALL BE CLEAR AND LEGIBLE ON COVER PLATES.
4. PROVIDE TYPEWRITTEN UPDATED PANEL DOOR DIRECTORIES FOR ALL AFFECTED PANELS REFLECTING ALL CIRCUITS WITH THEIR ACCURATE DESTINATIONS PER N.E.C. 408.4. TURN OFF ALL UNUSED BREAKERS AND INDICATE "SPARE" IN PANEL INDEX.
5. ALL SWITCHING SHOWN SHALL BE 44" A.F.F. TO CENTERLINE OF COVERPLATE. MULTIPLE SWITCHES SHOWN AT THE SAME LOCATION SHALL BE GANGED AND FINISHED WITH A ONE-PIECE COVERPLATE. ALL SWITCHES TO HAVE BRUSHED STAINLESS STEEL COVERPLATES.
6. CONNECT ALL LUMINAIRES LABELED WITH "(EM)" TO CONTROLLED LEG OF LOCAL LIGHTING CIRCUIT SERVING THIS AREA. PROVIDE INTEGRAL NINETY MINUTE BATTERY . PROVIDE CONSTANT HOT WIRE FOR CONNECTION TO BATTERY. BATTERY SHALL ALLOW FOR CONTROLLABILITY OF LUMINAIRE. FIXTURES SHALL BE CONTROLLED DURING NORMAL CONDITIONS AND RETURN TO FULL OUTPUT UPON LOSS OF NORMAL POWER.
7. ALL CONDUIT IN EXPOSED CEILING TO BE RUN TIGHT TO STRUCTURE AND PAINTED TO MATCH. REFER TO ARCHITECTURAL PLAN FOR MORE INFORMATION.
8. EXPOSED CONDUIT SHALL BE INSTALLED TIGHT TO BOTTOM OF STRUCTURE AND SHALL BE EMT CONDUIT RAN PERPENDICULAR OR PARALLEL TO BUILDING WALLS AND LINES. EXPOSED MC CONDUIT IS NOT ACCEPTABLE.
9. ALL LIGHTING CIRCUITING SHALL BE NEW.
10. MC CABLE IS ONLY ALLOWED FOR FINAL FIXTURE CONNECTION AND MUST NOT EXCEED 6 FT.
11. CONNECT ALL EXIT SIGNS TO CIRCUIT P-20.

DRAWING NOTES:

1 CONTRACTOR TO PROVIDE NECESSARY CONTROL MODULE (NLIGHT NIO1S OR EQUIVILANT) AND WIRING TO RETURN LIGHTING TO FULL 100% OUTPUT UPON ACTIVATION OF THE FIRE ALARM SYSTEM PER NFPA 101. PROVIDE FIRE ALARM INTERFACE WIRING AND PROGRAMMING AS REQUIRED.

0 2' 4' 8'
0 2'
1/4" = 1'-0"

True North

Plan North

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ROGER C. CRAWFORD
PE-7391
DATE 05.21.26
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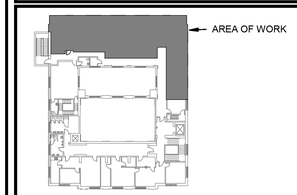

LEVEL 3

KEY PLAN

1"= 4' 0 4' 8'

GRAPHIC SCALE

Mark	Date	Description
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REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	Design Edge
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578GSF
Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
SUBMISSION STAGE	ISSUED FOR CONSTRUCTION
SUBMISSION DATE	5/6/2026

PROJECT IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN:	4/20/2026
CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	LEVEL 3 LIGHTING PLAN		
SHEET NUMBER	E3.3		
	SHEET 42 OF 49 SHEETS		

SHEET IDENTIFICATION

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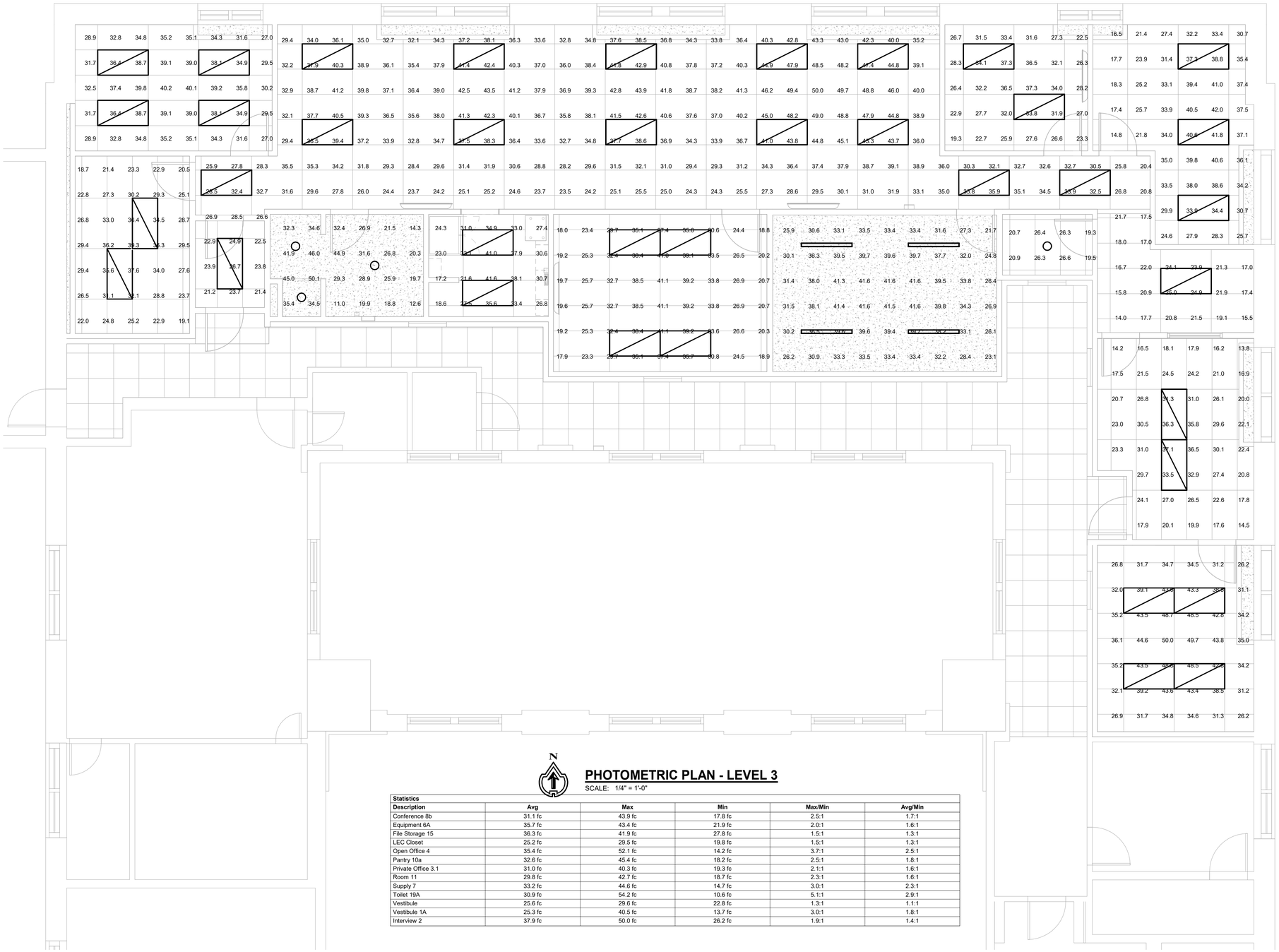

PHOTOMETRIC PLAN - LEVEL 3

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

Statistics					
Description	Avg	Max	Min	Max/Min	Avg/Min
Conference 8b	31.1 fc	43.9 fc	17.8 fc	2.5:1	1.7:1
Equipment 6A	35.7 fc	43.4 fc	21.9 fc	2.0:1	1.6:1
File Storage 15	36.3 fc	41.9 fc	27.8 fc	1.5:1	1.3:1
LEC Closet	25.2 fc	29.5 fc	19.8 fc	1.5:1	1.3:1
Open Office 4	35.4 fc	52.1 fc	14.2 fc	3.7:1	2.5:1
Pantry 10a	32.6 fc	45.4 fc	18.2 fc	2.5:1	1.8:1
Private Office 3.1	31.0 fc	40.3 fc	19.3 fc	2.1:1	1.6:1
Room 11	29.8 fc	42.7 fc	18.7 fc	2.3:1	1.6:1
Supply 7	33.2 fc	44.6 fc	14.7 fc	3.0:1	2.3:1
Toilet 19A	30.9 fc	54.2 fc	10.6 fc	5.1:1	2.9:1
Vestibule	25.6 fc	29.6 fc	22.8 fc	1.3:1	1.1:1
Vestibule 1A	25.3 fc	40.5 fc	13.7 fc	3.0:1	1.8:1
Interview 2	37.9 fc	50.0 fc	26.2 fc	1.9:1	1.4:1

0 2' 4' 8'
0 2"
1/4" = 1'-0"

True North

Plan North

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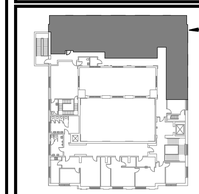
DESIGNER IDENTIFICATION

DESIGNEDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

STAMP OR SEAL

REGISTERED PROFESSIONAL ENGINEER
ROGER C. CRAWFORD
PE-7391
DATE 05.21.26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

REVISION BLOCK

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CONTRACTORS

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CONST. CONTR. NO.	
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CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
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BIM FILE NAME	

PROJECT IDENTIFICATION

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Model Author	MEP ENGINEERING INC.
PROJECT NUMBER	23133
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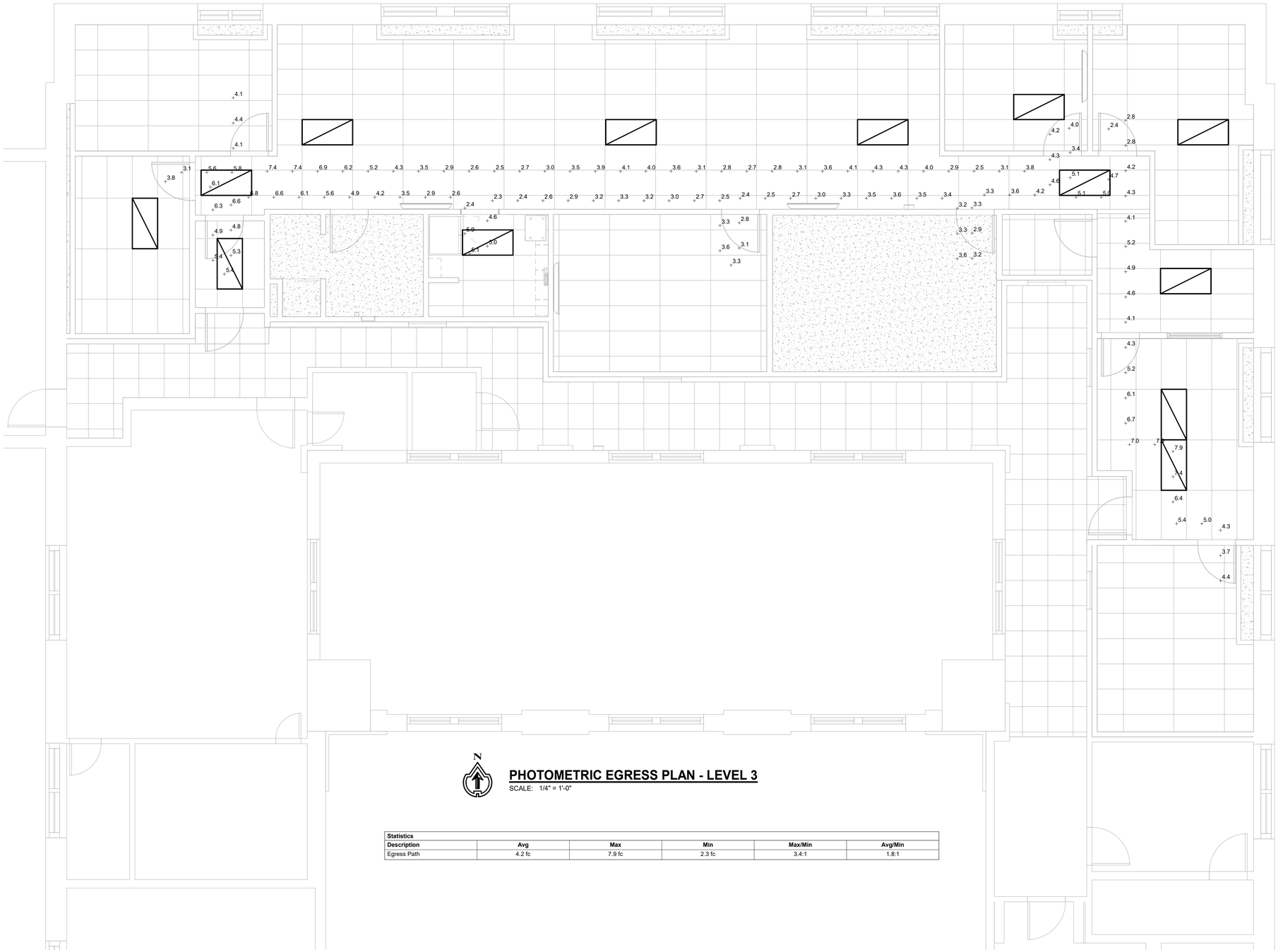
SUBMISSION DATE	5/6/2026

SHEET IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN:	4/20/2026
CHECKED BY	RCC	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	ELECTRICAL		
SHEET TITLE	LEVEL 3 PHOTOMETRIC PLAN		
SHEET NUMBER	PH-1		
	SHEET 43 OF 49 SHEETS		

5/21/2026 5:05:52 PM



PHOTOMETRIC EGRESS PLAN - LEVEL 3

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

Statistics					
Description	Avg	Max	Min	Max/Min	Avg/Min
Egress Path	4.2 fc	7.9 fc	2.3 fc	3.4:1	1.8:1

0 2' 4' 8'
0 2"
1/4" = 1'-0"

True North

Plan North

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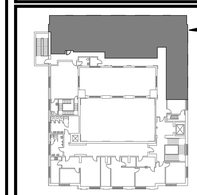

LEVEL 3

GRAPHIC SCALE

1"= 4' 0 4' 8'

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CONST. CONTR. NO.	
A/E	
SUB A/E	
CONST. CONTR.	

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CITY/ST./ZIP	
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SHEET IDENTIFICATION

DRAWN BY	CMM	DATE DRAWN: 4/20/2026
CHECKED BY	RCC	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	ELECTRICAL	
SHEET TITLE	LEVEL 3 PHOTOMETRIC PLAN - EGRESS	
SHEET NUMBER	**PH-2**	
	SHEET 44 OF 49 SHEETS	

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FIRE ALARM NOTES:

1. THE SCOPE OF WORK FOR THIS PROJECT INVOLVES DEMOLISHING EXISTING FIRE ALARM INITIATING DEVICES AND PROVIDING NEW FIRE ALARM INITIATING DEVICES AND NOTIFICATION APPLIANCES THROUGHOUT THE SCOPE OF WORK.
2. THE FIRE ALARM SYSTEM SHALL BE DESIGNED AND INTALLED IN ACCORDANCE WITH NFPA 72-2022 AND SPECIFICATION SECTION 28 31 64.
3. THE EDWARDS EST IO1000 FIRE ALARM CONTROL PANEL IS LOCATED ON LEVEL 1 OF THE BUILDING.
4. ALL DEVICES AND EQUIPMENT SHALL BE U.L. LISTED OR FM APPROVED.
5. DEVICE LOCATIONS AND CONDUIT ROUTING ARE CONCEPTUAL. DEVICES ARE SHOWN IN SUGGESTED LOCATIONS. FINAL QUANTITY AND LAYOUT SHALL BE IN ACCORDANCE WITH APPLICABLE CODES, MANUFACTURER'S RECOMMENDATIONS, AND EQUIPMENT LISTINGS. COORDINATE LOCATIONS WITH ALL OTHER DISCIPLINES.
6. INSTALLATION DRAWINGS, SHOP DRAWINGS, AND AS-BUILT DRAWINGS SHALL BE PREPARED BY, OR UNDER THE SUPERVISION OF, AN EXPERIENCED TECHNICIAN WHO IS CURRENTLY CERTIFIED BY THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET) AS AN ENGINEERING TECHNICIAN WITH A MINIMUM LEVEL-III CERTIFICATION IN THE FIRE ALARM SYSTEM PROGRAM. DATA SHOWING THE NAME AND CERTIFICATION OF THE TECHNICIAN SHALL BE PROVIDED PRIOR TO THE SUBMITTAL OF DRAWINGS.
7. THE FIRE ALARM SYSTEM SHALL BE A COMPLETE ADDRESSABLE, SUPERVISED, AUTOMATIC AND MANUALLY ACTUATED SYSTEM. SIGNALING LINE CIRCUITS SHALL BE CLASS B. IDC SHALL BE CLASS B. NOTIFICATION APPLIANCE CIRCUITS SHALL BE CLASS B.
8. PERFORMANCE, LOCATION, AND MOUNTING OF AUDIBLE NOTIFICATION APPLIANCES MUST BE IN ACCORDANCE WITH THE REQUIREMENTS IN NFPA 72.
9. THE DESIGN FOR ACHIEVING THE REQUIRED MINIMUM DBA LEVELS MUST TAKE INTO CONSIDERATION ALL BUILDING CONSTRUCTION MATERIALS SUCH AS CARPETING, HARD SURFACES, WALLS, DOORS, ETC., AND ANY OTHER MATERIALS THAT CAN CAUSE SOUND LEVEL ATTENUATION AND/OR CLARITY PROBLEMS IN THE PLACEMENT AND LOCATION OF ALL AUDIBLE NOTIFICATION APPLIANCES.
10. VISUAL NOTIFICATION APPLIANCES SHALL BE SPACED IN ACCORDANCE WITH NFPA 72. VISIBLE NOTIFICATION APPLIANCES MUST BE INSTALLED IN PUBLIC AND COMMON AREAS. VISIBLE NOTIFICATION APPLIANCES ARE NOT REQUIRED TO BE INSTALLED IN INDIVIDUAL OFFICES. PUBLIC AND COMMON AREAS INCLUDE, BUT ARE NOT LIMITED TO, PUBLIC RESTROOMS, RECEPTION AREAS, BUILDING CORE AREAS, CONFERENCE ROOMS, AND OPEN OFFICE AREAS.
11. SYNCHRONIZE ALL VISUAL NOTIFICATION APPLIANCES. SYNCHRONIZE ALL AUDIBLE NOTIFICATION APPLIANCES.
12. SMOKE DETECTORS SHALL BE LOCATED A MINIMUM OF 3 FEET FROM SUPPLY AIR DIFFUSERS.
13. FIRE ALARM RACEWAY PENETRATING FIRE RATED WALLS, FLOORS, CEILINGS, AND PARTITIONS MUST BE PROVIDED WITH UL LISTED FIRE STOPPING SOLUTION TO PROPERLY SEAL AROUND RACEWAY WITHIN THE PENETRATION.

FIRE ALARM SYMBOL LEGEND:

	STROBE - WALL MOUNTED
	STROBE - CEILING MOUNTED
	HORN - WALL MOUNTED
	HORN W/STROBE - WALL MOUNTED
S	SMOKE DETECTOR - CEILING OR SURFACE MOUNTED
S	DEMOLISHED SMOKE DETECTOR
	SMOKE DETECTOR - WALL MOUNTED
	SMOKE DETECTOR - DUCT
F	MANUAL FIRE ALARM PULL STATION
DH	MAGNETIC DOOR HOLD OPEN DEVICE
FI	FAULT ISOLATION MODULE
AI	FIRE ALARM ADDRESSABLE INTERFACE MODULE (INPUT)
AR	FIRE ALARM ADDRESSABLE RELAY (OUTPUT)
AMP	FIRE ALARM AMPLIFIER PANEL
FARP	FIRE ALARM REMOTE CONTROL PANEL
FACP	FIRE ALARM SYSTEM CONTROL PANEL
ZONE #	FIRE ALARM ZONE IDENTIFICATION NUMBER
	FIRE ALARM ZONE BOUNDARY

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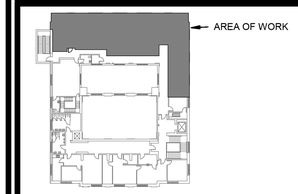
Telephone: 303-260-7277

STAMP OR SEAL

REGISTERED PROFESSIONAL ENGINEER
ANDREW J. TAGGART
PE-27849
DATE 4/17/26
NORTH DAKOTA

KEY PLAN



LEVEL 3

GRAPHIC SCALE

REVISION BLOCK

Mark	Date	Description
	8/5/2025	35% Submittal
	9/22/2025	65% Submittal
	12/5/2025	95% Submittal
	3/6/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

CONTRACTORS

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	DESIGN EDGE
SUB A/E	
CONST. CONTR.	

BUILDING

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS CITY/ST./ZIP	102 NORTH 4TH STREET, GRAND FORKS, ND 58203
BIM FILE NAME	

PROJECT IDENTIFICATION

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578 GSF
Model Author	
PROJECT NUMBER	23133
SUBMISSION STAGE	100% CONSTRUCTION DRAWINGS
SUBMISSION DATE	4/20/2026

SHEET IDENTIFICATION

DRAWN BY	JMW	DATE DRAWN: 3/31/2026
CHECKED BY	AJT	SHEET SIZE: 24 X 36
FLOOR NUMBER	LEVEL 3	
DISCIPLINE	FIRE PROTECTION	
SHEET TITLE	FIRE ALARM LEGEND, GENERAL NOTES, & SHEET INDEX	

SHEET NUMBER **FA-001**

SHEET 45 OF 49 SHEETS

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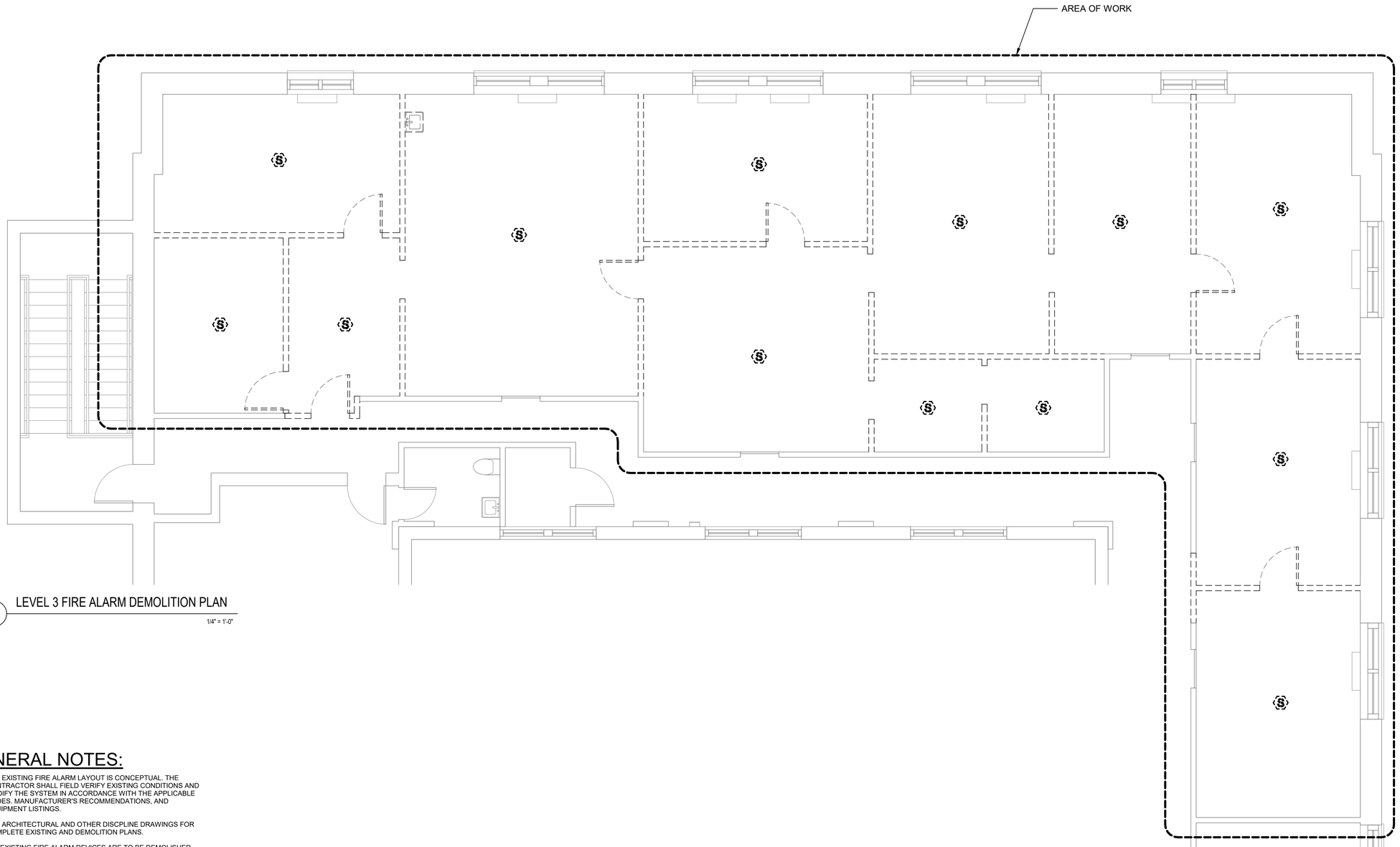

1 LEVEL 3 FIRE ALARM DEMOLITION PLAN

1/4" = 1'-0"

GENERAL NOTES:

1. THE EXISTING FIRE ALARM LAYOUT IS CONCEPTUAL. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MODIFY THE SYSTEM IN ACCORDANCE WITH THE APPLICABLE CODES. MANUFACTURER'S RECOMMENDATIONS, AND EQUIPMENT LISTINGS.
2. SEE ARCHITECTURAL AND OTHER DISCPLINE DRAWINGS FOR COMPLETE EXISTING AND DEMOLITION PLANS.
3. ALL EXISTING FIRE ALARM DEVICES ARE TO BE DEMOLISHED. EXISTING CIRCUITS MAY BE REUSED IF THEY PASS CONTINUITY TEST.

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True North

Plan North

OWNER IDENTIFICATION

GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

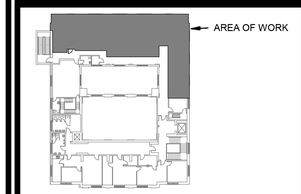
DESIGNER IDENTIFICATION

DESIGN EDGE
architecture interior design
482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

STAMP OR SEAL

REGISTERED PROFESSIONAL ENGINEER
ANDREW J. TAGGART
PE-27849
DATE 4/17/26
NORTH DAKOTA

KEY PLAN



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1/4" = 1' 0 1/4" 1/2"

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FLOOR NUMBER	LEVEL 3		
DISCIPLINE	FIRE PROTECTION		
SHEET TITLE	LEVEL 3 FIRE ALARM DEMOLITION PLAN		
SHEET NUMBER	FA-100		

SHEET 46 OF 49 SHEETS

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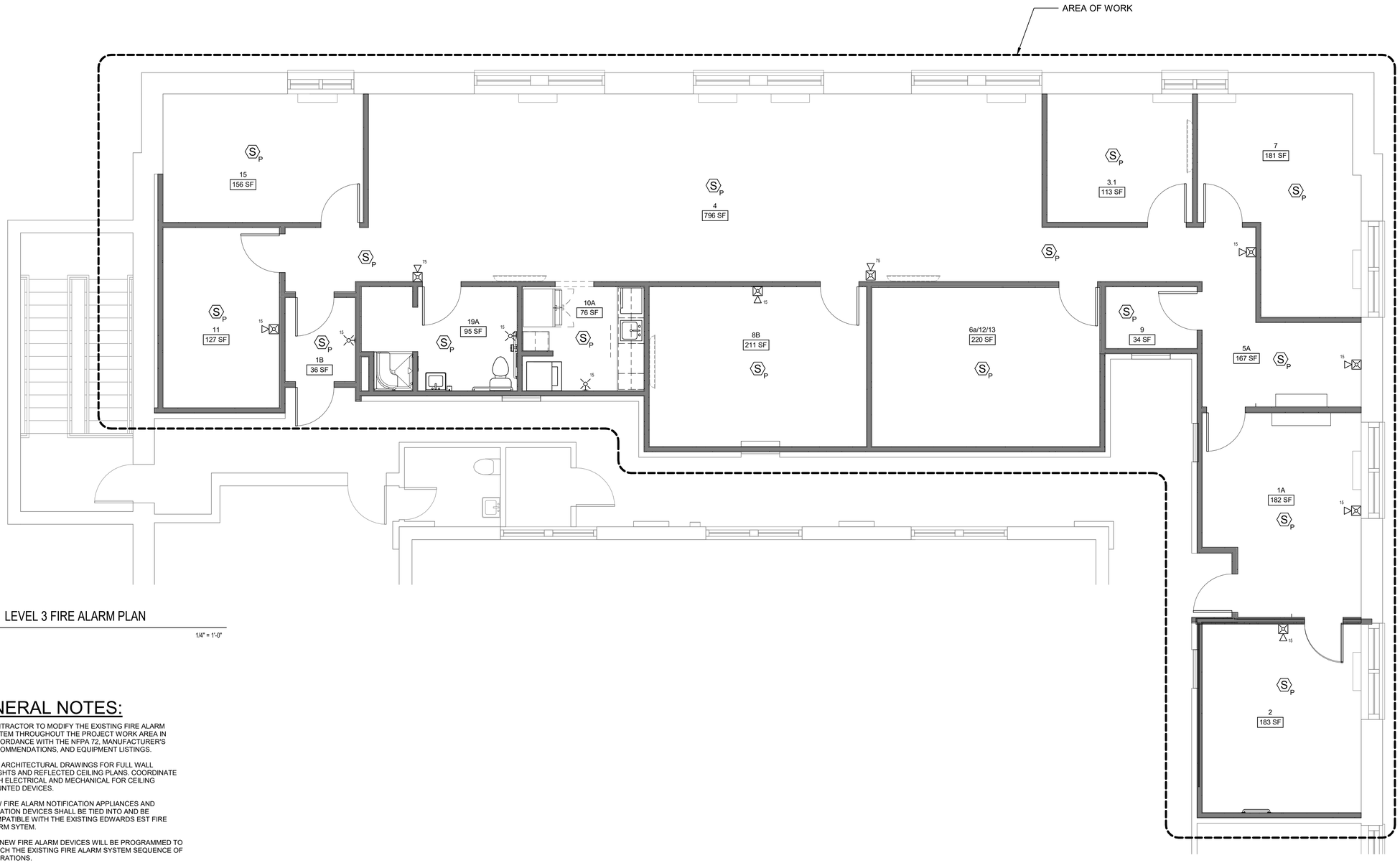

1 LEVEL 3 FIRE ALARM PLAN

1/4" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR TO MODIFY THE EXISTING FIRE ALARM SYSTEM THROUGHOUT THE PROJECT WORK AREA IN ACCORDANCE WITH THE NFPA 72, MANUFACTURER'S RECOMMENDATIONS, AND EQUIPMENT LISTINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR FULL WALL HEIGHTS AND REFLECTED CEILING PLANS. COORDINATE WITH ELECTRICAL AND MECHANICAL FOR CEILING MOUNTED DEVICES.
3. NEW FIRE ALARM NOTIFICATION APPLIANCES AND INITIATION DEVICES SHALL BE TIED INTO AND BE COMPATIBLE WITH THE EXISTING EDWARDS EST FIRE ALARM SYTEM.
4. ALL NEW FIRE ALARM DEVICES WILL BE PROGRAMMED TO MATCH THE EXISTING FIRE ALARM SYSTEM SEQUENCE OF OPERATIONS.
5. FIRE ALARM CONTRACTOR SHALL PROVIDE CONTROL MODULE AT THE FACP FOR EMERGENCY LIGHTING INTERFACE. EMERGENCY LIGHTING SHALL BE PROGRAMMED TO OUTPUT FULL BRIGHTNESS UPON FIRE ALARM ACTIVATION. SEE SHEET E3.3 FOR MORE INFORMATION.

XX SHEET NOTES:

1. N/A

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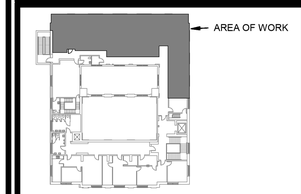

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SHEET TITLE	LEVEL 3 FIRE ALARM PLAN	
SHEET NUMBER	FA-200	
	SHEET 47 OF 49 SHEETS	

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FIRE AND LIFE SAFETY CODE ANALYSIS:

APPLICABLE CODES AND STANDARDS
PBS CORE BUILDING STANDARDS
2024 INTERNATIONAL BUILDING CODE (IBC)
2024 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
2024 INTERNATIONAL FIRE CODE (IFC)
2024 INTERNATIONAL MECHANICAL CODE (IMC)
2024 INTERNATIONAL PLUMBING CODE (IPC)
2022 NFPA 10 STANDARD FOR PORTABLE FIRE EXTINGUISHERS
2023 NFPA 70 NATIONAL ELECTRICAL CODE (NEC)
2022 NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE
2024 NFPA 101 LIFE SAFETY CODE (LSC)
PROGRAM OF REQUIREMENTS (POR) FOR NEW RESIDENT AGENCY OFFICE CONSTRUCTION (V22.0)

PROJECT DESCRIPTION
THE SCOPE OF WORK INVOLVES RENOVATING A PORTION OF LEVEL 3 OF THE RONALD N. DAVIES FEDERAL BUILDING LOCATED IN GRAND FORKS, NORTH DAKOTA. THE WORK AREA INVOLVES DEMOLISHING EXISTING WALLS AND DOORS IN THE OFFICE AREA TO CREATE NEW OFFICES AND SUPPORT SPACES.

THE PROJECT WORK AREA WILL BE DESIGNED TO MEET ALL REQUIREMENTS OF THE IBC AS REQUIRED BY THE GRAND FORKS CITY CODE AMENDMENT 19-0101. THE INTERNATIONAL EXISTING BUILDING CODE (IEBC) IS NOT ADOPTED BY THE CITY OF GRAND FORKS.

BUILDING CONSTRUCTION
NON-COMBUSTIBLE EXTERIOR WALL CONSTRUCTION. INTERIOR WALL AND STRUCTURAL ELEMENTS WERE OSBERVED TO BE NONCOMBUSTIBLE. THEREFORE, CONSTRUCTION TYPE MOST CLOSELY RESEMBLES TYPE II-B. CONSTRUCTION TYPE WILL BE MAINTAINED FOR ANY STRUCTURAL ELEMENTS.

OCCUPANCY CLASSIFICATION

OCCUPANCY	IBC	NFPA 101
OFFICES, VESTIBULES, RESTROOMS, CORRIDORS, TRAINING/CONFERENCE ROOM	B, BUSINESS (304.1)	BUSINESS
FILE STORAGE, EQUIPMENT ROOMS, PANTRY, SUPPLY ROOMS, CLOSETS	S-1, MODERATE STORAGE (311.2) (ACCESSORY)	ORDINARY HAZARD STORAGE

THE PROJECT WILL ASSUME THE BUILDING TO MAINTAIN A NON-SEPARATED MIXED-USE GROUP B OCCUPANCY WITH GROUP S-1 AND A-3 AS ACCESSORY OCCUPANCIES. THERE ARE NO GROUP A-3 OCCUPANCIES WITHIN THE PROJECT WORK AREA. THE GROUP S-1 OCCUPANCY WILL BE CONSIDERED AN ACCESSORY OCCUPANCY AS IT DOES NOT OCCUPY MORE THAN 10 PERCENT OF THE FLOOR AREA OF THE BUILDING IN ACCORDNACE WITH 508.2.3.

BUILDING HEIGHT AND AREA (IBC 504.3, 504.4, 506.2)

THE ALLOWABLE BUILDING AREA, HEIGHT, AND NUMBER OF STORIES SHALL BE BASED ON GROUP B OCCUPANCY.

GROUP B, BUSINESS:

	ALLOWED	PROVIDED
NUMBER OF STORIES	3	3
BUILDING HEIGHT (FT)	55	46
BUILDING AREA - NS (SF)	23,000	7,580

THE BUILDING AREA, HEIGHT, AND NUMBER OF STORIES ARE IN COMPLIANCE AND WILL NOT BE MODIFIED BY THIS PROJECT.

FIRE RESISTANCE REQUIREMENTS FOR TYPE IIB BUILDING (IBC)

BUILDING ELEMENT	MATERIAL	REQUIRED RATING	PROVIDED RATING	SECTION
STRUCTURAL FRAME	NON-COMBUSTIBLE	0 HR	0 HR	TABLE 601
BEARING WALLS - EXTERIOR	NON-COMBUSTIBLE	0 HR	0 HR	TABLE 601
BEARING WALLS - INTERIOR	NON-COMBUSTIBLE	0 HR	0 HR	TABLE 601
NONBEARING WALLS - EXTERIOR	NON-COMBUSTIBLE	0 HR	0 HR	TABLE 601
NONBEARING WALLS - INTERIOR	NON-COMBUSTIBLE	0 HR	0 HR	TABLE 601
SHAFT ENCLOSURES	NON-COMBUSTIBLE	0 HR	0 HR	TABLE 601
FLOOR & FLOOR-CEILINGS	NON-COMBUSTIBLE	0 HR	0 HR	TABLE 601
EXTERIOR WALL	ALL OCCUPANCIES > 10' FIRE SEPARATION DISTANCE	0 HR	0 HR	TABLE 705.5
EXTERIOR WALL OPENINGS		0 HR	0 HR	TABLE 705.8.1

THE FIRE RESISTANCE RATINGS WILL BE MAINTAINED FOR ANY STRUCTURAL ELEMENTS.

FIRE AND SMOKE PROTECTION FEATURES

OCCUPANCY SEPARATION: THE "NON-SEPARATED" USE PROVISION OF IBC HAS BEEN UTILIZED AND OCCUPANCIES ARE NOT REQUIRED TO BE SEPARATED PER 508.3. NO INCIDENTAL USE AREAS ARE CURRENTLY IDENTIFIABLE THAT WOULD REQUIRE FIRE RESISTANCE RATED CONSTRUCTION SEPARATION. THERE ARE NO ELECTRICAL ROOMS WITHIN THE PROJECT WORK AREA.

FIRE WALLS: NO REQUIREMENTS

FIRE BARRIERS/PARTITIONS: CORRIDOR WALLS ARE REQUIRED TO BE 1-HOUR FIRE RESISTANCE RATED PER IBC TABLE 1020.1. HOWEVER, THIS PROJECT IS CLASSIFIED AS A HISTORIC BUILDING. IEBC SECTION 1203.7 ALLOWS AN EXCEPTION FOR THE 1-HOUR RATING REQUIREMENT FOR CORRIDOR WALLS AND CEILINGS CONSTRUCTED OF METAL LATH AND PLASTER. THEREFORE, THE PROJECT AREA WILL NOT REQUIRE ANY FIRE RESISTANCE RATINGS OF ANY NEW CORRIDOR WALLS.

SMOKE BARRIERS: NO REQUIREMENTS.

INTERIOR FINISHES (IBC TABLE 803.13)

OCCUPANCY	INTERIOR EXIT PASSAGEWAYS	CORRIDORS	ROOMS
B	A	B	C

LIFE SAFETY CODE SUMMARY

OCCUPANT LOAD FACTOR AND TOTAL CALCULATED LOAD:

OCCUPANT LOAD FACTOR (TABLE 7.3.1.2):

COLLABORATION ROOMS/SPACES:	30 GROSS SF/PERSON
BUSINESS AREAS:	150 GROSS SF/PERSON
STORAGE AREAS (>450 SF IN AREA):	500 GROSS SF/PERSON
ASSEMBLY, LESS CONCENTRATED AREAS:	15 NET SF/PERSON
KITCHEN AREAS:	100 GROSS SF/PERSON

TOTAL CALCULATED OCCUPANT LOAD:

COLLABORATION ROOMS/SPACES:	5 PEOPLE
BUSINESS:	15 PEOPLE
STORAGE:	4 PEOPLE
ASSEMBLY, LESS CONCENTRATED AREAS:	15 PEOPLE
KITCHEN AREAS:	1 PEOPLE
TOTAL OCCUPANT LOAD:	40 PEOPLE

NUMBER OF EXITS PER FLOOR (NFPA 101 38.2.4.1):

REQUIRED:	PROVIDED:
2	2

CAPACITY OF MEANS OF EGRESS (7.3.3.1):

LEVEL COMPONENTS = 0.2 INCH/PERSON
(1) SINGLE DOOR = 34" / 0.2" = 170 PEOPLE

STAIR COMPONENTS = 0.3 INCH/PERSON
(1) STAIR WIDTH = 46"/ 0.3" = 154 PEOPLE

TOTAL EGRESS CAPACITY = 154 PEOPLE

TOTAL OCCUPANT LOAD (OF PROJECT AREA) = 40 PEOPLE

A FULL ANALYSIS OF THE EXISTING LEVEL 3 AREA COULD NOT BE PERFORMED AS EXISTING DRAWINGS WERE NOT PROVIDED. HOWEVER, IT IS ASSUMED THE EXISTING USE OF THE SPACE WAS GENERALLY BUSINESS AND STORAGE. IT IS NOT ANTICIPATED THAT THE NEW OCCUPANT LOAD FROM THE PROJECT WORK AREA WILL DRAMATICALLY IMPACT THE CAPACITY OF THE EXISTING PLAN NORTHWEST EXIT STAIR.

LSC SECTION 7.5.4.2 - WHERE TWO EXITS OR EXIT ACCESS DOORS ARE REQUIRED FROM ANY PORTION OF THE EXIT ACCESS, THEY SHALL BE PLACED A DISTANCE APART NOT LESS THAN 1/2 OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED MEASURED IN A STRAIGHT LINE.
THE BUILDING IS IN COMPLAINCE.

EGRESS LIGHTING AND EMERGENCY LIGHTING SHALL BE PROVIDED AS FOLLOWS:

THE FLOORS AND OTHER WALKING SURFACES WITHIN AN EXIT AND THE PORTIONS OF EXIT ACCESS AND EXIT DISCHARGE MUST BE ILLUMINATED AS FOLLOWS (NFPA 101 7.8.1.3-7.8.1.4):
- 1 FT-CANDLE FOR FLOORS
- 10 FT-CANDLE FOR STAIRS
- 0.2 FT-CANDLE DUE TO FAILURE OF A SINGLE LIGHT UNIT

THE FLOORS AND OTHER WALKING SURFACES WITHIN AN EXIT AND THE PORTIONS OF THE EXIT ACCESS AND EXIT DISCHARGE MUST BE ILLUMINATED AS FOLLOWS BY EMERGENCY LIGHTING IN THE EVENT OF FAILURE OR NORMAL LIGHTING (NFPA 101 SECTION 7.9.2):

- 1 FT-CANDLE AVERAGE AT FLOOR LEVEL
- 0.1 FT-CANDLE AT ANY SINGLE POINT AT FLOOR LEVEL
- MAXIMUM TO MINIMUM ILLUMINATION SHALL NOT EXCEED A RATIO OF 40 TO 1

COMMON PATH, TRAVEL DISTANCE, DEAD-END CORRIDORS (NFPA 101 7.5.1.1.4, 7.5.1.2.1, 7.6.6):

NFPA 101 OCCUPANCY	TRAVEL DISTANCE ALLOWED (FT)	TRAVEL DISTANCE PROVIDED (FT)
BUSINESS	200	136
STORAGE	200	

NFPA 101 OCCUPANCY	COMMON PATH DISTANCE ALLOWED (FT)	COMMON PATH DISTANCE PROVIDED (FT)
BUSINESS	75	26
STORAGE	50	

NFPA 101 OCCUPANCY	DEAD-END DISTANCE ALLOWED (FT)	DEAD-END DISTANCE PROVIDED (FT)
BUSINESS	50	9
STORAGE	20	

EXIT SIGNAGE
PER NFPA 101 7.10, EXIT SIGNS WILL BE PROVIDED IN AREAS ACCESSIBLE TO THE PUBLIC AND WHERE AN EXIT IS NOT IMMEDIATELY APPARENT. ACCESS TO THE EXITS WILL BE MARKED BY APPROVED, READILY VISIBLE SIGNS IN ALL CASES WHERE THE EXIT OR WAY TO REACH THE EXIT IS NOT READILY APPARENT TO THE OCCUPANT. NEW SIGN PLACEMENT WILL BE SUCH THAT NO POINT IN AN EXIT ACCESS CORRIDOR IS GREATER THAN THE RATED VIEWING DISTANCE OR 100 FEET, WHICHEVER IS SHORTER.

FIRE SPRINKLER SYSTEM
THE EXISTING BUILDING IS PARTIALLY SPRINKLERED. THE BASEMENT LEVEL IS PROVIDED WITH A WET-PIPE AUTOMATIC SPRINKLER SYSTEM. LEVELS 1-3 ARE NOT PROVIDED WITH SPRINKLER PROTECTION. IBC 903 DOES NOT REQUIRE GROUP B OCCUPANCIES TO BE PROVIDED WITH AN AUTOMATIC SPRINKLER SYSTEM. THEREFORE, THE PROJECT WORK AREA WILL NOT BE PROVIDED WITH AN AUTOMATIC SPRINKLER SYSTEM.

FIRE ALARM SYSTEM
THE BUILDING IS PROVIDED WITH AN EXISTING ADDRESSABLE FIRE ALARM SYSTEM. IBC 907.2.2 REQUIRES GROUP B OCCUPANCIES WITH AN OCCUPANT LOAD OF MORE THAN 100 PERSONS ABOVE OR BELOW THE LOWEST LEVEL OF EXIT DISCHARGE TO HAVE A MANUAL FIRE ALARM SYSTEM. ALTHOUGH EXISTING LIFE SAFETY DRAWINGS WERE NOT PROVIDED, IT IS ASSUMED THAT THE OCCUPANT LOAD OF LEVEL 2 AND LEVEL 3 IN AGGREGATE EXCEED 100 PERSONS. THEREFORE, THE FIRE ALARM SYSTEM COVERAGE WITHIN THE PROJECT WORK AREA WILL BE MAINTAINED AND THE SYSTEM WILL BE MODIFIED TO MEET THE REQUIREMENTS OF IBC AND NFPA 72.

PORTABLE FIRE EXTINGUISHERS
PORTABLE FIRE EXTINGUISHERS WILL BE INSTALLED IN ACCORDANCE WITH NFPA 101 SECTION 7.10 AND NFPA 10. PORTABLE FIRE EXTINGUISHERS WILL BE PLACED IN NORMAL PATHS OF TRAVEL AND WHERE THEY WILL HAVE READY ACCESS AND BE AVAILABLE FOR IMMEDIATE USE.

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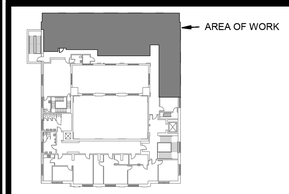

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SHEET TITLE	LIFE SAFETY CODE ANALYSIS		

SHEET NUMBER **LS-001**
SHEET 48 OF 49 SHEETS

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OCCUPANT LOAD

Number	NAME	AREA	OCCUPANCY LOAD FACTOR NFPA 101	LOAD FACTOR	OCCUPANTS
19A	TOILET	95.4 SF	BUSINESS, UNCONCENTRATED	150 SF	1
1B	VESTIBULE	35.8 SF	BUSINESS, UNCONCENTRATED	150 SF	1
4	OPEN OFFICE	796.3 SF	BUSINESS, UNCONCENTRATED	150 SF	6
8B	CONFERENCE/TRAINING	210.9 SF	ASSEMBLY, LESS CONCENTRATED	15 SF	15
10A	PANTRY	75.8 SF	KITCHEN	100 SF	1
3.1	PRIVATE OFFICE	113.1 SF	BUSINESS, UNCONCENTRATED	150 SF	1
7	SUPPLY	181.2 SF	ACCESSORY STORAGE AREAS	500 SF	1
11	ROOM 11	127.3 SF	COLLABORATION ROOMS/SPACE <450 SF	30 SF	5
6A	EQUIPMENT	220.4 SF	ACCESSORY STORAGE AREAS	500 SF	1
9	LEC CLOSET	34.2 SF	ACCESSORY STORAGE AREAS	500 SF	1
5A	ROOM 5A	167.2 SF	BUSINESS, UNCONCENTRATED	150 SF	2
2	INTERVIEW	181.9 SF	BUSINESS, UNCONCENTRATED	150 SF	2
1A	VESTIBULE	182.3 SF	BUSINESS, UNCONCENTRATED	150 SF	2
15	FILE STORAGE	156.2 SF	ACCESSORY STORAGE AREAS	500 SF	1
		2578.2 SF			40

OCCUPANCY GROUP LEGEND

PATTERN	NFPA 101 OCCUPANCY CLASSIFICATION
	BUSINESS
	ORDINARY HAZARD STORAGE
	NOT IN SCOPE OF WORK

LIFE SAFETY LEGEND

TRAVEL DISTANCES

XX' / XX' = DEAD END

XX' / XX' = COMMON PATH OF EXIT TRAVEL

XX' / XX' = EXIT ACCESS

XX' / XX' = TRAVEL DISTANCE / MAXIMUM ALLOWABLE

FIRE-RESISTANCE-RATED WALL ASSEMBLIES

1 HOUR FIRE RESISTANCE RATING

2 HOUR FIRE RESISTANCE RATING

FUNCTION OF SPACE TAG

OCC CLASS ABRV — OCCUPANCY CLASSIFICATION ABBREVIATION

10 OCC — OCCUPANT LOAD

95,000 SF — AREA OF SPACE

EGRESS COMPONENT CAPACITY SYMBOLS

CALCULATED EXIT WIDTH REQUIRED (IN.) — XX" / XX" — EXIT WIDTH PROVIDED (IN.)

FIRE PROTECTION SYMBOLS

FE = FIRE EXTINGUISHER

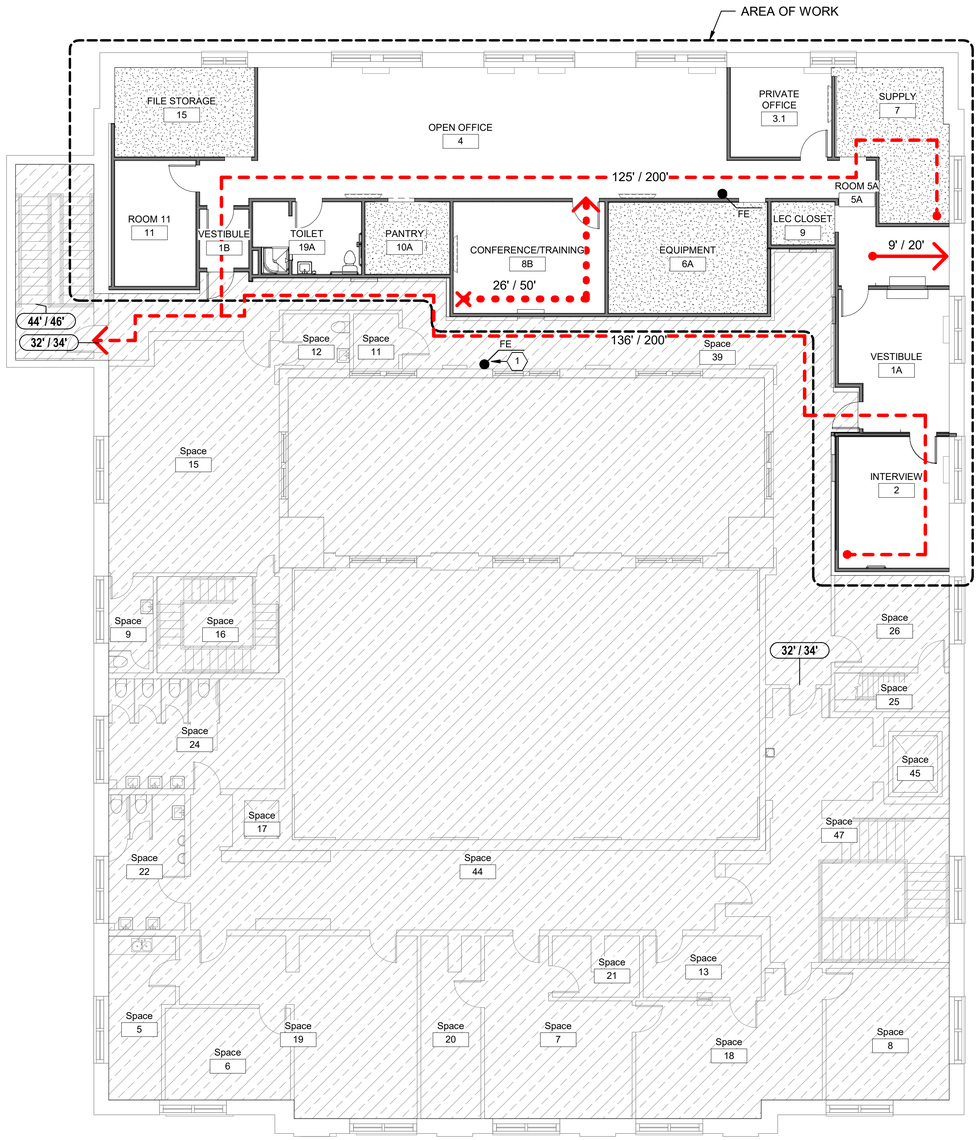
= 1/3-HOUR FIRE RESISTANCE RATED DOOR

GENERAL NOTES:

1. SEE LIFE SAFETY CODE ANALYSIS SHEET FOR MORE INFORMATION ON EGRESS COMPONENT CALCULATIONS AND TRAVEL DISTANCES.
2. THE PLAN NORTHWEST STAIR EXITS TO THE EXTERIOR.

KEY NOTES:

1. EXISTING EQUIPMENT



1 LEVEL 3 LIFE SAFETY PLAN

1/8" = 1'-0"

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True North

Plan North

GSA General Service Administration

RONALD N. DAVIES FEDERAL BUILDING

OWNER IDENTIFICATION

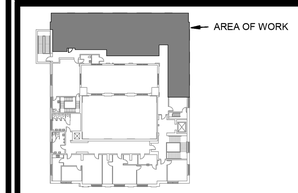
DESIGN EDGE
architecture interior design

482 S Broadway - Suite 100
Denver, Colorado 80209
Telephone: 303-260-7277

DESIGNER IDENTIFICATION

REGISTERED PROFESSIONAL ENGINEER
ANDREW J. TAGGART
PE-27849
DATE 4/17/26
NORTH DAKOTA

STAMP OR SEAL



LEVEL 3

KEY PLAN

1/8" = 1" 0 1/8" 1/4"

GRAPHIC SCALE

Mark	Date	Description
	8/5/2025	35% Submittal
	9/22/2025	65% Submittal
	12/5/2025	95% Submittal
	3/6/2026	100% Submittal
	3/31/2026	Issued for Construction
	4/20/2026	Issued for Construction
	5/6/2026	Issued for Construction

REVISION BLOCK

PRIME CONTR. NO.	47PJ0020D0012
PRIME ORDER NO.	47PJ0025F0120
CONST. CONTR. NO.	
A/E	DESIGN EDGE
SUB A/E	
CONST. CONTR.	

CONTRACTORS

BUILDING NUMBER	ND0008ZZ
BUILDING NAME	RONALD N. DAVIES FEDERAL BUILDING
ADDRESS	102 NORTH 4TH STREET,
CITY/ST./ZIP	GRAND FORKS, ND 58203
BIM FILE NAME	

BUILDING

PROJECT TITLE	GSA 3RD FLOOR TI - GRAND FORKS, ND
PROJECT DESCRIPTION	TENANT IMPROVEMENT OF 2,578 GSF
Model Author	
PROJECT NUMBER	23133
SUBMISSION STAGE	100% CONSTRUCTION DRAWINGS
SUBMISSION DATE	4/20/2026

PROJECT IDENTIFICATION

DRAWN BY	JMW	DATE DRAWN:	3/31/2026
CHECKED BY	AJT	SHEET SIZE:	24 X 36
FLOOR NUMBER	LEVEL 3		
DISCIPLINE	FIRE PROTECTION		
SHEET TITLE	LEVEL 3 LIFE SAFETY PLAN		
SHEET NUMBER	LS-100		
	SHEET 49 OF 49 SHEETS		

SHEET IDENTIFICATION

4/17/2026 12:37:25 PM