	SYMBOL	LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
2	DETAIL NUMBER	UP DN	SUPPLY CEILING REGISTER OR GRILLE
PL105	DRAWING NUMBER WHERE DRAWN	UP DN	EXHAUST OR RETURN DUCT (UP & DOWN)
A	SECTION LETTER	⊗	DUCT UP (ROUND)
PL105	DRAWING NUMBER WHERE SHOWN		DUCT DOWN (ROUND)
/	BUILDING NO. WHERE EQUIPMENT IS LOCATED.		CEILING AIR TERMINAL (ROUND)
	EQUIPMENT ABBREVIATION		FLEXIBLE DUCT
26-P-3	EQUIPMENT NO.3 IN BUILDING NO.26 TYPICAL UNIT NO.		ROUND AND SQUARE 4-WAY CEILING DIFFUSERS
	WASTE PIPING		EXHAUST OR RETURN CEILING REGISTER OR GRILLE
	VENT PIPING		EXISTING DUCT TO BE REMOVED
	COLD WATER PIPING	7 10x8 Z	NEW DUCT (INSIDE DIMENSIONS: WIDTH x DEPTH)
	HOT WATER PIPING		COMBINATION FIRE/SMOKE DAMPER
	HOT WATER CIRCULATION PIPING	VFD	VARIABLE FREQUENCY DRIVE
A	POINT OF CONNECTION BETWEEN NEW AND		VANED ELBOW (PROVIDE ALL SQUARE OR
	EXISTING WORK DIRECTION OF PIPE PITCH (DOWN)		RECTANGULAR ELBOWS WITH VANES EVEN IF SYMBOL IS MISSING)
—	DIRECTION OF FLOW		
	REDUCER OR INCREASER		STANDARD RADIUS ELBOW (LONG RADIUS)
	ECCENTRIC REDUCER		
o	PIPE UP		VANED ELBOW (SHORT RADIUS)
	PIPE DOWN	F/S DPR	
	RISE OR DROP IN PIPE		COMBINATION FIRE/SMOKE DAMPER
ı	TOP CONNECTION, 45° OR 90°	FD	
	BOTTOM CONNECTION, 45° OR 90°		FIRE DAMPER
		' ___ 	AUTOMATIC CONTROL DAMPER TWO
	SIDE CONNECTION		POSITION STAINLESS STEEL BLIST
	CAPPED OUTLET		STAINLESS STEEL DUCT
	UNION		CONNECT NEW DUCT TO EXISTING DUCT
	STRAINER PIPE OR DUCT BREAK (GRAPHIC ONLY -		
	CONTINUOUS PIPE/DUCT)		VANED ELBOW & AIR SPLIT TYPE DUCT TAKE-OFF
	CHECK VALVE		CTANDADD DDANGU CUDDI V
<u> </u>	BALL VALVE	SUPPLY	STANDARD BRANCH SUPPLY NO SPLITTER (45° TAP)
 ₽	GATE VALVE	45° Z SUPPLY	A LID FIDE DATED WALL
	PETE'S PLUG		1 HR FIRE RATED WALL
	CIRCUIT SETTER STRAINER WITH BLOWDOWN VALVE & 3/4" HOSE		CEILING / WALL ACCESS PANEL
	CONNECTION DRAIN/BLOWDOWN VALVE WITH 3/4" HOSE	(RPI)	ROOM PRESSURE INDICATOR
<u> </u>	CONNECTION	(DPT)	DIFFERENTIAL PRESSURE TRANSDUCER
	PUMP	(T)	THERMOSTAT
<u> </u>	FLOW ELEMENT	(E)	TEMPERATURE SENSOR
&	MODULATING CONTROL VALVE	(H)	HUMIDITY AND TEMPERATURE SENSOR
	THREE-WAY MODULATING CONTROL VALVE	R	REFRIGERANT DETECTOR
• 3"CO	CLEANOUT	(SS)	EMERGENCY SHUTOFF SWITCH
——II 3"CO	CLEANOUT	<u>(S)</u>	DUCT SMOKE DETECTOR LOCATION (DETECTOR PROVIDED BY DIVISION 16)
<u> </u>	VENT THROUGH ROOF	© CO	CARBON DIOXIDE (CO2) SENSOR
	BALANCING VALVE		DUCT MOUNTED COIL (HOT WATER OR STEAM COIL)
BFP	BACKFLOW PREVENTER ASSEMBLY	<u> </u>	EXISTING DUCT TO BE REMOVED
0	FLOOR DRAIN	۲	EXISTING PIPE TO BE REMOVED
CD-1 12X12 100 CFM	DIFFUSER CALLOUT (TYPE, CONNECTION SIZE, CFM)		EXISTING PIPE/DUCT TO REMAIN LIMIT OF DEMOLITION
-	EQUIPMENT CLEARANCE	2	EXISTING PIPE/DUCT TO BE REMOVED
-	MECHANICAL EQUIPMENT	<u></u>	VOLUME DAMPER
-	SUPPLY ARROW		1 HR FIRE RATED WALL
 √ ►	EXHAUST ARROW		1 HR SMOKE / FIRE RATED WALL
+++++++	FLEXIBLE DUCT		2 HR FIRE RATED WALL

ABBRI	EVIATIONS LIST		
°F	DEGREES FAHRENHEIT	LAT	LEAVING AIR TEMPERATURE (DEGREES FAHRENHEIT)
(E)	EXISTING	LAV	LAVATORY
AVV A/E	AUTOMATIC AIR VENT ARCHITECT/ENGINEER	LB LBS	POUND POUNDS
AABC ABAAS	ASSOCIATED AIR BALANCE COUNCIL ARCHITECTURAL BARRIERS ACT ACCESSIBILITY STANDARD	LED LF	LIGHT EMITTING DIODE LINEAR FEET
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE (DEGREES FAHRENHEIT)
ACCEPT ADA	ACCEPTANCE AMERICANS WITH DISABILITIES ACT	MAX MBH	MAXIMUM THOUSAND BRITISH THERMAL UNITS PER HOUR
AFF AFUE	ABOVE FINISHED FLOOR ANNUAL FUEL UTILIZATION EFFICIENCY	MC MCA	MECHANICAL CONTRACTOR MINIMUM CIRCUIT AMPACITY
AG	AIRGAP	MERV	MINIMUM ENERGY REPORTING VALUE
AMP AMT	AMPERES AMOUNT	MFG MFR	MANUFACTURER MANUFACTURER
AMPS	AMPERES	MIN	MINIMUM
ANSI APSP	AMERICAN NATIONAL STANDARDS INSTITUTE ASSOCIATION OF POOL AND SPA PROFESSIONALS	MOCP MPC	MAXIMUM OVERCURRENT PROTECTION MEDIUM PRESSURE CONDENSATE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	MPS	MEDIUM PRESSURE STEAM
ASJ ASME	ALL SERVICE JACKET AMERICAN SOCIETY OF MECHANICAL ENGINEERS	MRT N/A	MEAN RADIANT TEMPERATURE NOT APPLICABLE
ASSY AUX	ASSEMBLY AUXILIARY	NC NC	NOISE CRITERIA NORMALLY CLOSED
AVG	AVERAGE	NEBB	NATIONAL ENVIRONMENTAL BALANCING BUREAU
AVV AWG	AUTOMATIC AIR VENT AVERAGE WIRE GUAGE	NEC NEMA	NATIONAL ELECTRICAL CODE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
BC	BRANCH CIRCUIT CONTROLLER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
BDD BFP	BACKDRAFT DAMPER BACKFLOW PREVENTER	NIC NO	NOT IN CONTRACT NUMBER
BTU	BRITISH THERMAL UNIT	NO NDLV	NORMALLY OPEN
BTUH C	BRITISH THERMAL UNITS PER HOUR CONDUIT	NPLV NPSHA	NON-STANDARD PART LOAD VALUE NOMINAL PUMP SUCTION HEAD AVAILABLE
CA CAP	COMPRESSED AIR CAPACITY	NPSHR NRC	NOMINAL PUMP SUCTION HEAD REQUIRED NOISE REDUCTION CRITERIA
CD	CONDENSATE	OA	OUTSIDE AIR
CFH CFM	CUBIC FEE PER HOUR CUBIC FEET PER MINUTE	OD ORL	OUTSIDE DIAMETER OVERFLOW RAIN LEADER
CFSD	COMBINATION FIRE/SMOKE DAMPER	OSA	OUTSIDE AIR
CHR CHS	CHILLED WATER RETURN CHILLED WATER SUPPLY	OSHA OZ	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION OUNCE
CIRC	CIRCULATION	PB	PRESSURE BALANCE
CO CO2	CLEANOUT CARBON DIOXIDE	PCF PD	POUNDS PER CUBIC FOOT PRESSURE DROP
COMP	COMPRESSED	PH	PHASE
COND CONN	CONDENSATE CONNECTION	PRV PSI	PRESSURE REDUCING VALVE POUNDS PER SQUARE INCH
COP CPVC	COEFFICIENT OF PERFORMANCE CHLORINATED POLYVINYL CHLORIDE	PSID PSIG	POUNDS PER SQUARE INCH DIFFERENTIAL POUNDS PER SQUARE INCH GAUGE
CSR	CURRENT SENSING RELAY	PTAC	PACKAGED TERMINAL AIR CONDITIONER
CV CV	CUBIC COEFFICIENT OF FLOW	PVC PWR	POLYVINYL CHLORIDE POOL WATER RETURN
CW	COLD WATER	PWS	POOL WATER SUPPLY
CWR CWS	CONDENSER WATER RETURN CONDENSER WATER SUPPLY	QTY RECT	QUANTITY RECTANGULAR
DB DC	DRY BULB	RGB	RED-GREEN-BLUE
DCCO	DOUBLE CHECK DATA CENTER COOLING OPTIMIZATION	RL RM	RAIN LEADER ROOM
DDC DE	DIRECT DIGITAL CONTROL DIATOMACIOUS EARTH	RP RPBP	REDUCED PRESSURE REDUCED PRESSURE BACKFLOW PREVENTER
DEG	DEGREE (FAHRENHEIT)	RPM	REVOLUTIONS PER MINUTE
DF DI	DRINKING FOUNTAIN DEIONIZED	SCFM SCO	STANDARD CUBIC FEET PER MINUTE SURFACE CLEANOUT
DIA	DIAMETER	SEER	SEASONAL ENERGY EFFICIENCY RATIO
DISCH DN	DISCHARGE DOWN	SENS SF	SENSIBLE SQUARE FEET
EA	EXHAUST AIR	SM SMACNA	SHEET METAL
EAT EC	ENTERING AIR TEMPERATURE (DEGREES FAHRENHEIT) ELECTRICAL CONTRACTOR	SIVIACINA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
EDB EER	ENTERING DRY BULB TEMPERATURE (DEGREES FAHRENHEIT) ENERGY EFFICIENCY RATIO	SOFA SP	SUCTION OUTLET FITTING ASSEMBLY STATIC PRESSURE
EFF	EFFICIENCY	SPWG	STATIC PRESSURE (INCHES WATER GAUGE)
ELEC EPO	ELECTRICAL EMERGENCY POWER OFF	SQ FT SQ IN	SQUARE FEET SQUARE INCHES
ESP	EXTERNAL STATIC PRESSURE	SS	STAINLESS STEEL
EWB EWT	ENTERING WET BULB TEMPERATURE (DEGREES FAHRENHEIT) ENTERING WATER TEMPERATURE (DEGREES FAHRENHEIT)	ST STM	STORM DRAIN STEAM
EXH	EXHAUST	SUCT	SUCTION
F F&FD	FAHRENHEIT FLOOR & FUNNEL DRAIN	T&PV T	TEMPERATURE & PRESSURE RELIEF VALVE TEMPERATURE
FCO FD	FLUSH CLEANOUT FLOOR DRAIN	TD TDH	TEMPERATURE DROP TOTAL DYNAMIC HEAD
FIN	FINISHED	TEFC	TOTALLY ENCLOSED FAN-COOLED
FLA FLR	FULL LOAD AMPERES FLOOR	TEMP TS	TEMPERATURE THERMOSTATIC
FPM	FEET PER MINUTE	TW	TEMPERED WATER
FPS FT	FEET PER SECOND FEET	TYP UL	TYPICAL UNDERWRITERS LABORATORIES
FU FWH	FIXTURE UNITS	UPC	UNIFORM PLUMBING CODE ULTRAVIOLET
G G	FREEZEPROOF WALL HYDRANT GAS	UV V	VOLT
GA GAL	GAUGE GALLON	VA VA	UNITED STATES DEPARTMENT OF VETERAN'S AFFAIRS VOLT-AMPERES
GC	GENERAL CONTRACTOR	VD	VOLUME DAMPER
GPD GPF	GALLONS PER DAY GALLONS PER FLUSH	VFD VRF	VARIABLE FREQUENCY DRIVE VARIABLE REFRIGERANT FLOW
GPH	GALLONS PER HOUR	VTR	VENT THROUGH ROOF
GPM GYP	GALLONS PER MINUTE GYPSUM	W/ W	WITH WATT
GW	GREASE WASTE	WB WC	WET BULB
H HB	HEIGHT HOSE BIBB	WC	WATER CLOSET WATER COLUMN
HG HP	MERCURY HORSEPOWER	WCO WI	WALL CLEANOUT WIDTH
HPC	HIGH PRESSURE CONDENSATE	YCO	YARD CLEAN OUT
HPS HSPF	HIGH PRESSURE STEAM HEATING SEASON PERFORMANCE FACTOR		
HR	HOUR		
HRS HW	HOURS HOT WATER		
HWC	HOT WATER CIRCULATION		
HWR HWS	HEATING WATER RETURN HEATING WATER SUPPLY		
HZ IBC	HERTZ INTERNATIONAL BUILDING CODE		
ID	INSIDE DIAMETER		
IEER	INTEGRATED ENERGY EFFICIENCY RATIO		

LAT LAV	LEAVING AIR TEMPERATURE (DEGREES FAHRENHEIT) LAVATORY
LB LBS	POUND POUNDS
LED	LIGHT EMITTING DIODE
LF LWT	LINEAR FEET LEAVING WATER TEMPERATURE (DEGREES FAHRENHEI
MAX	MAXIMUM
MBH MC	THOUSAND BRITISH THERMAL UNITS PER HOUR MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MERV MFG	MINIMUM ENERGY REPORTING VALUE MANUFACTURER
MFR MIN	MANUFACTURER MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MPC MPS	MEDIUM PRESSURE CONDENSATE MEDIUM PRESSURE STEAM
MRT	MEAN RADIANT TEMPERATURE
N/A NC	NOT APPLICABLE NOISE CRITERIA
NC	NORMALLY CLOSED
NEBB NEC	NATIONAL ENVIRONMENTAL BALANCING BUREAU NATIONAL ELECTRICAL CODE
NEMA NFPA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO NO	NUMBER NORMALLY OPEN
NPLV	NON-STANDARD PART LOAD VALUE
NPSHA NPSHR	NOMINAL PUMP SUCTION HEAD AVAILABLE NOMINAL PUMP SUCTION HEAD REQUIRED
NRC	NOISE REDUCTION CRITERIA
OA OD	OUTSIDE AIR OUTSIDE DIAMETER
ORL	OVERFLOW RAIN LEADER
OSA OSHA	OUTSIDE AIR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
OZ PB	OUNCE PRESSURE BALANCE
PCF	POUNDS PER CUBIC FOOT
PD PH	PRESSURE DROP PHASE
PRV	PRESSURE REDUCING VALVE
PSI PSID	POUNDS PER SQUARE INCH POUNDS PER SQUARE INCH DIFFERENTIAL
PSIG	POUNDS PER SQUARE INCH GAUGE
PTAC PVC	PACKAGED TERMINAL AIR CONDITIONER POLYVINYL CHLORIDE
PWR	POOL WATER RETURN
PWS QTY	POOL WATER SUPPLY QUANTITY
RECT RGB	RECTANGULAR RED-GREEN-BLUE
RL	RAIN LEADER
RM RP	ROOM REDUCED PRESSURE
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM SCFM	REVOLUTIONS PER MINUTE STANDARD CUBIC FEET PER MINUTE
SCO	SURFACE CLEANOUT
SEER SENS	SEASONAL ENERGY EFFICIENCY RATIO SENSIBLE
SF SM	SQUARE FEET SHEET METAL
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS
SOFA	NATIONAL ASSOCIATION SUCTION OUTLET FITTING ASSEMBLY
SP	STATIC PRESSURE
SPWG SQ FT	STATIC PRESSURE (INCHES WATER GAUGE) SQUARE FEET
SQ IN	SQUARE INCHES
SS ST	STAINLESS STEEL STORM DRAIN
STM	STEAM
SUCT T&PV	SUCTION TEMPERATURE & PRESSURE RELIEF VALVE
T	TEMPERATURE

GENERAL NOTES

APPROVAL.

DOCUMENTS.

- 1. PROVIDE SYSTEM STARTUP, TESTING, & ADJUSTMENTS OF INSTALLED SYSTEMS TO MEET PERFORMANCE REQUIREMENTS INDICATED IN THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL SUPPORT SYSTEM COMMISSIONING AND SHALL COORDINATE WITH PROJECT COMMISSIONING AGENT.
- 3. CONTRACTOR SHALL PROVIDE ALL DOCUMENTATION REQUIRED TO

SUPPORT SYSTEM COMMISSIONING.

- 4. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND CONSTRUCTION FEES. FURNISH COPIES OF ALL CONSTRUCTION PERMITS, FINAL APPROVED PERMITS, AND SIMILAR DOCUMENTS TO OWNER DOCUMENTING COMPLIANCE WITH CODE REQUIREMENTS.
- 5. BASIS OF DESIGN: THE PRODUCTS OR SERVICES IN THE BASIS OF DESIGN AND EQUIPMENT/PRODUCT SCHEDULES ON THESE DRAWINGS WERE PURPOSELY SELECTED BY THE A/E TO MEET THE OWNER'S PROGRAMMING REQUIREMENTS AND ARE NOT BEING "SOLE-SOURCED" BY THE VA UNLESS NOTED OTHERWISE. PRODUCTS FROM OTHER MANUFACTURERS WITH EQUAL SALIENT CHARACTERISTICS, EQUAL QUALITY, EQUAL LEAD TIMES, AND EQUAL MAINTENANCE COSTS MAY BE USED TO BID AND CONSTRUCT THE PROJECT. BIDDERS SHALL CONTACT THE A/E VIA THE VA PROJECT CONTRACTING OFFICER DURING THE BID PHASE FOR APPROVAL OF THE SUBSTITUTION REQUEST ON EACH ITEM. IN THE EVENT A CONTRACTOR IS AWARDED THE PROJECT WITHOUT OBTAINING VA APPROVAL OF THE SUBSTITUTION REQUEST DURING THE BID PHASE AND THE SHOP DRAWINGS AND SUBMITTALS OF ALTERNATE MANUFACTURERS ARE NOT APPROVED BY THE A/E OR THE VA THEN THE CONTRACTOR MUST INSTALL THE BASIS OF DESIGN PRODUCTS OR SERVICES AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CHANGES RESULTING FROM PRODUCT SUBSTITUTIONS. NON-APPROVED PRODUCTS OR SERVICES ARE AT THE CONTRACTOR'S RISK AND NO EQUITABLE ADJUSTMENT TO TIME OR MONEY WILL BE MADE FOR COST DIFFERENCES BETWEEN APPROVED VERSUS NON-APPROVED AFTER BIDDING HAS BEEN CLOSED. ALLOW SEVEN CALENDAR DAYS BEFORE BIDS ARE DUE TO OBTAIN
- 6. COORDINATE ALL MECHANICAL, PLUMBING, CONTROLS, & OTHER WORK WITH ALL OTHER TRADES TO INSURE PROPER AND ADEQUATE INTERFACE OF THEIR WORK WITH THE WORK SHOWN ON THESE
- 7. PROVIDE COORDINATED SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION & INSTALLATION.
- 8. ALL VALVES, TRAPS, TEST PORTS, DAMPERS, CONTROLS, CLEANOUTS, ETC. SHALL BE LOCATED SO AS TO BE ACCESSIBLE FOR MAINTENANCE, ADJUSTMENT, & TESTING. PROVIDE ACCESS PANELS FOR ALL CONCEALED DEVICES. ACCESS PANEL LOCATIONS AND FINISHES SHALL

BE COORDINATED WITH ARCHITECT.

- 9. FOR PUBLIC OR SECURE AREAS, ACCESS PANELS SHALL BE LOCKING
- 10. ALL PIPING & DUCTWORK IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR ABOVE THE SUSPENDED CEILING SYSTEM. REFER TO ARCHITECTURAL DOCUMENTS FOR FURRING &
- CHASE LOCATIONS & SIZES. 11. THE FIRST FIGURE OF DUCT SIZE CALLOUTS INDICATES DIMENSION OF FACE SHOWN OR INDICATED. DUCT SIZES ARE NET INSIDE DIMENSIONS. PROVIDE ANY APPLICABLE DUCT LINING AND INSULATION PER THESE
- 12. DUCTWORK SHALL BE 2.0" PRESSURE CLASS UNLESS OTHERWISE NOTED ON THESE DRAWINGS.

NET INSIDE DIMENSIONS PLUS 2X INSULATION THICKNESS.

PLANS AND SPECIFICATIONS. NOMINAL OUTER DUCT DIMENSIONS ARE

- 13. CONSTRUCT DUCTWORK ACCORDING TO SMACNA DUCT CONSTRUCTION MANUAL & INTERNATIONAL ENERGY CONSERVATION CODE SECTION C403.12.2 REQUIREMENTS.
- 14. PROVIDE TURNING VANES IN ALL MITERED RECTANGULAR DUCT ELBOWS
- 15. PROVIDE MANUAL BALANCING DAMPERS ON ALL NEW AND MODIFIED DUCT BRANCHES TO AIR INLETS & OUTLETS. LOCATE DAMPERS AS CLOSE TO MAIN TRUNK DUCT CONNECTION AS POSSIBLE. WHERE BRANCH DUCTWORK IS INACCESSIBLE (SUCH AS ABOVE HARD LID CEILING SYSTEM), PROVIDE BALANCING DAMPER AT REGISTER, GRILLE, OR DIFFUSER.
- 16. PROVIDE MOTORIZED DAMPERS ON OUTDOOR AIR SUPPLY, [AND] EXHAUST OPENINGS, AND RELIEF OUTLETS. DAMPERS SHALL HAVE A MAXIMUM LEAKAGE RATE OF 4 CFM PER SQUARE FOOT AT 1" W.C. DAMPERS SHALL BE INTERLOCKED WITH ASSOCIATED FANS, EQUIPMENT, AND OTHER DAMPERS SERVING THE SAME ZONE OR AREA.
- 17. RELIEF GRAVITY DAMPERS SHALL HAVE A MAXIMUM LEAKAGE RATE OF 20 CFM PER SQUARE FOOT AT 1" W.C. DAMPERS SMALLER THAN 24" IN EITHER DIRECTION SHALL HAVE A MAXIMUM LEAKAGE RATE OF 40 CFM PER SQUARE FOOT AT 1" W.C.
- 18. PROVIDE OUTSIDE AIR DUCTWORK, SHAFTS, AND PLENUMS WITH R-12 INSULATION FROM THE BUILDING ENVELOPE TO THE HEAT RECOVERY UNIT. PROVIDE VAPOR BARRIER PER INTERNATIONAL BUILDING CODE METAL FRAMED WALL REQUIREMENTS. CONSTRUCTED DUCT ASSEMBLY LEAKAGE RATE SHALL NOT EXCEED 0.4 CFM PER SQUARE FOOT AT 0.3"
- 19. PROVIDE COMPLETE CONDENSATE DRAINAGE SYSTEM FOR ALL SPLIT, MINI-SPLIT, CRAC, AND PACKAGE SYSTEMS WITH COOLING. FIELD ROUTE DRAINAGE PIPING FROM EQUIPMENT TO NEAREST DRAIN LOCATION (SUCH AS SERVICE SINK, FUNNEL DRAIN, ETC.). SLOPE NON-PRESSURIZED DRAIN PIPING TO DRAIN LOCATION. PIPING & FITTINGS SHALL BE COPPER. MINIMUM PIPE SIZE SHALL BE 3/4". INCREASE PIPE SIZE WHERE APPLICABLE PER INTERNATIONAL MECHANICAL CODE
- 20. PIPING & DUCTWORK SHALL BE ROUTED SO AS NOT TO OBSTRUCT ACCESS OR CAUSE TRIPPING OR OTHER HAZARDS.
- 21. PIPING & DUCTWORK SHALL BE ROUTED SO AS TO MAINTAIN CODE-REQUIRED CLEARANCES FOR ELECTRICAL EQUIPMENT, ADA/ABAAS ACCESSIBILITY, AS WELL AS MAINTAINING CLEAR ACCESS AT ALL DOORS, WINDOWS, & OTHER ARCHITECTURAL FEATURES IN THE BUILDING.
- 22. SIZE REFRIGERANT PIPING ON SPLIT SYSTEM UNITS PER MANUFACTURER'S RECOMMENDATION.
- 23. PROVIDE ISOLATION VALVES WITH FILL PORTS AT EACH END OF ALL REFRIGERANT PIPE RUNS. WHERE ISOLATION VALVES ARE INTEGRATED WITH THE CONNECTED EQUIPMENT, SEPARATE VALVES ARE NOT
- 24. PROVIDE COMPLETE REFRIGERANT ISOLATION SYSTEM FOR ALL REFRIGERANT-BASED SPLIT SYSTEMS, INCLUDING BUT NOT LIMITED TO REFRIGERANT DETECTOR(S), SOLENOID ISOLATION VALVES, CONTROL INTERLOCKS, ETC. REFRIGERANT ISOLATION SYSTEMS SHALL BE CONNECTED TO THE BUILDING DDC SYSTEM FOR MONITORING AND
- 25. PROVIDE REFRIGERANT LEAK DETECTORS IN ALL SPACES WITH REFRIGERANT-BASED EQUIPMENT OR WHERE REFRIGERANT PIPING IS ROUTED THROUGH. LEAK DETECTORS SHALL BE SELECTED TO MATCH REFRIGERANT(S) USED. WHERE MULTIPLE REFRIGERANTS ARE USED IN A SINGLE SPACE, DETECTORS MAY BE COMBINATION TYPE CAPABLE OF DETECTING ALL UTILIZED REFRIGERANTS. DETECTORS SHALL BE CONNECTED TO BUILDING DDC SYSTEM FOR MONITORING AND
- 26. PROVIDE 5W/FT HEAT TRACE FOR ALL DOMESTIC WATER PIPING & P-TRAPS IN UNHEATED SPACES. P-TRAPS INSTALLED IN-GRADE BELOW FROST LINE DEPTH SHALL NOT REQUIRE HEAT TRACE.
- 27. TOTAL STATIC PRESSURE NOTED IN SCHEDULES SHALL BE ASSUMED TO INCLUDE DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.

- 28. AIR INLET & OUTLET SIZES SHOWN ON PLANS ARE NECK SIZES. PROVIDE ADDITIONAL PANS, HARDWARE, ETC., REQUIRED TO INSTALL AIR INLETS & OUTLETS IN CEILING SYSTEM.
- 29. WALL REGISTER-TYPE AIR INLETS & OUTLETS SHALL BE INSTALLED AT 7" AFF MINIMUM ELEVATION.
- 30. AIR INLETS & OUTLETS IN UNFINISHED SPACES OR OPEN CEILING AREAS SHALL BE INSTALLED AT 96" AFF UNLESS OTHERWISE NOTED ON THESE DRAWINGS. ALL INLETS & OUTLETS WITHIN THE SAME SPACE SHALL BE
- INSTALLED AT THE SAME ELEVATION. 31. WALL-MOUNTED THERMOSTATS & SENSORS SHALL BE MOUNTED AT 48"
- AFF UNLESS NOTED OTHERWISE IN THESE DOCUMENTS. 32. WATER PIPE CONNECTIONS TO AIR HEATING AND COOLING COILS SHALL BE MANUFACTURED & CONNECTED IN COUNTER-FLOW CONFIGURATION
- 33. ALL PRESSURES LISTED ARE GAGE PRESSURES UNLESS OTHERWISE

BETWEEN WATER & AIR.

PIPE SIZE SHALL BE 3/4".

GROUNDING LUGS.

- 34. PROVIDE MANUAL/AUTOMATIC AIR VENTS AT ALL LOCAL HIGH POINTS FOR HYDRONIC SYSTEMS, WHEREVER NEW LOCAL HIGH POINTS ARE CREATED BY PIPING WORK UNDER THIS CONTRACT.
- 35. PROVIDE COMPLETE DRAINAGE PIPING SYSTEM FOR DISCHARGE FROM ALL AIR VENTS INSTALLED ON HYDRONIC PIPING. FIELD ROUTE DRAINAGE PIPING FROM EQUIPMENT TO NEAREST DRAIN LOCATION (SUCH AS SERVICE SINK, FUNNEL DRAIN, ETC.). DRAIN LOCATIONS SHALL BE IN UTILITY ROOMS OR OTHER NON-PUBLIC AREAS. SLOPE NON-PRESSURIZED DRAIN PIPING TO DRAIN LOCATION. PIPING & FITTINGS SHALL BE TYPE-L COPPER WITH BRAZED OR SWEAT FITTINGS. MINIMUM
- 36. PROVIDE SEISMIC SUPPORT, BRACING, AND ATTACHMENTS FOR DUCTWORK, PIPING, AND EQUIPMENT.
- 37. SEISMIC PROVISIONS SHALL BE PROVIDED TO MEET REQUIREMENTS FOR ASCE-7 SEISMIC DESIGN CATEGORY D & RISK CATEGORY IV.
- 38. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70 STANDARDS AND LOCAL REQUIREMENTS.
- 39. ALL FIELD WIRING SHALL REQUIRE AN ELECTRICAL PERMIT AND SHALL BE
- 40. ALL EQUIPMENT AND COMPONENTS REQUIRING GROUNDING SHALL BE PROVIDED WITH FACTORY-INSTALLED GROUNDING LUGS OR FACTORY DRILLED & TAPPED FOR FIELD INSTALLATION OF GROUNDING LUGS. MECHANICAL CONTRACTOR SHALL PROVIDE GROUNDING LUGS WITH ALL EQUIPMENT AND COMPONENTS REQUIRING FIELD-INSTALLED

PERFORMED BY A LICENSED ELECTRICIAN.

- 41. A SHORT DASH IN A SCHEDULE TABLE CELL INDICATES THAT THE COLUMN HEADING IS NOT USED OR NOT APPLICABLE TO THAT SCHEDULED ITEM.
- 42. MAINTAIN AND RESTORE (IF INTERRUPTED) ALL CONDUITS & CONDUCTORS, PIPING, & DUCTWORK PASSING THROUGH RENOVATED
- AREAS AND SERVICING UNDISTURBED AREAS. 43. REMOVE ALL ABANDONED DUCTWORK, PIPING, CONTROLS, WIRING, ETC.,
- WHERE ACCESSIBLE IN RENOVATED AREAS.
- 44. WHERE CONTROLS ARE DEMOLISHED, REMOVE WIRING BACK TO NEAREST CONTROL PANEL OR JUNCTION BOX. REMOVE ACCESSIBLE
- CONDUIT, JUNCTION BOXES, ETC.
- 45. WHERE PIPING IS DEMOLISHED, REMOVE PIPING BACK TO NEAREST MAIN
- 46. EXISTING HYDRONIC PIPING SYSTEMS AT THIS CAMPUS UTILIZE GLYCOL FOR FREEZE PROTECTION. THE TYPE AND CONCENTRATION OF GLYCOL
- VARIES BY BUILDING AND SYSTEM. WHEREVER POSSIBLE, WHEN HYDRONIC PIPING IS ALTERED, RE-ROUTED, OR HAS OTHER WORK PERFORMED WHICH REQUIRES PARTIAL OR COMPLETE SYSTEM DRAINING, CONTRACTOR SHALL CAPTURE AND RETURN THE WATER/GLYCOL MIXTURE AND RE-USE TO FILL THE MODIFIED SYSTEM. WHERE THIS IS NOT POSSIBLE, OR WHERE A SYSTEM IS BEING EXTENDED AND ADDITIONAL FLUID VOLUME IS REQUIRED, CONTRACTOR SHALL CONSULT WITH COR AND FORT MEADE VA HVAC TECHNICIAN FOR SPECIFIC REQUIREMENTS FOR EACH HYDRONIC SYSTEM.
- 47. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL DELIVER THE SALVAGED MATERIALS TO A LOCATION AS DIRECTED BY THE OWNER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- 48. CONTRACTOR SHALL SCAN WALLS, FLOORS, CEILINGS, AND OTHER SURFACES THAT COULD CONCEAL COMPONENTS SUCH AS EXISTING PIPING, ELECTRICAL ITEMS, OR OTHERS PRIOR TO ANY CUTTING, DRILLING, OR SIMILAR OPERATION TO VERIFY THAT THE AREA OF WORK IS CLEAR OF COMPONENTS THAT COULD BE DAMAGED.
- 49. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL CUTTING AND DEMOLITION WORK NECESSARY IN EXISTING AREAS OF THE BUILDING TO PROVIDE WORK SHOWN ON THESE DOCUMENTS. CUTTING WORK SHALL INCLUDE SAW CUTTING, CORE-DRILLING, AND ALL SIMILAR WORK AS REQUIRED BY THE TYPE OF CONSTRUCTION BEING PENETRATED OR MODIFIED.
- 50. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL RESTORATION WORK NECESSARY IN EXISTING AREAS OF THE BUILDING TO PROVIDE WORK SHOWN ON THESE DOCUMENTS. RESTORATION SHALL INCLUDE PATCHING TO MATCH EXISTING SURROUNDING CONSTRUCTION AND FINISHES WHERE CUTTING, CORE-DRILLING, CEILING REMOVAL, AND SIMILAR WORK IS PERFORMED. REFER TO ARCHITECTURAL DOCUMENTS FOR ADDITIONAL RESTORATION REQUIREMENTS. PATCHED AREAS SHALL BE RE-PAINTED FULL HEIGHT
- 51. WHERE DIRECTION REGARDING RESTORATION AT SPECIFIC LOCATIONS OF CUTTING, CORE-DRILLING, & SIMILAR ACTIVITIES DOES NOT EXIST IN THE ARCHITECTURAL DOCUMENTS, RESTORATION SHALL INCLUDE PATCHING TO MATCH EXISTING SURROUNDING CONSTRUCTION AND FINISHES. PATCHED AREAS SHALL BE RE-PAINTED FULL HEIGHT OF WALL FROM WALL CORNER TO WALL CORNER.

OF WALL FROM WALL CORNER TO WALL CORNER.

RATED WALL LOCATIONS.

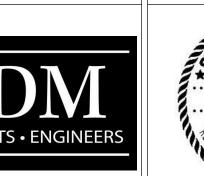
- 52. PROVIDE FIRESTOPPING FOR ALL NEW DUCT OR PIPE PENETRATIONS OF RATED WALL ASSEMBLIES. REFER TO ARCHITECTURAL DOCUMENTS FOR
- 53. WHERE T-BAR CEILINGS ARE REMOVED TO ALLOW FOR WORK SHOWN ON THESE DRAWINGS, UNDAMAGED CEILING PANELS MAY BE REINSTALLED. T-BAR GRID SYSTEMS SHALL BE REPAIRED OR REPLACED TO MATCH
- 54. WHEREVER POSSIBLE, ANY LIQUID-CARRYING PIPING INCLUDING CONDENSATE DRAINS, SANITARY DRAIN, DOMESTIC WATER, CHILLED OR HEATING WATER, STEAM OR STEAM CONDENSATE, OR OTHER SIMILAR PIPING SYSTEMS, SHALL BE RE-ROUTED OUTSIDE OF DATA SPACES.
- 55. PROVIDE DRIP TRAY WITH LEAK DETECTOR MONITORED BY AND CONNECTED TO DDC SYSTEM AT ALL LOCATIONS WHERE CONDENSING UNITS, INDOOR UNITS, CONDENSATE PIPING, DOMESTIC WATER PIPING, STEAM OR STEAM CONDENSATE PIPING, OR ANY OTHER LIQUID-CARRYING ELEMENTS ARE LOCATED IN DATA SPACES INCLUDING TR, MCR, OR SIMILAR SPACES, OR ABOVE TE ENCLOSURES. DRIP TRAYS SHALL BE PROVIDED WITH 120V POWERED CONDENSATE PUMP. PROVIDE 3/4" CONDENSATE DRAIN PIPING FROM PUMP TO DRAIN LOCATION. PUMPED CONDENSATE DRAIN PIPING MAY BE CONNECTED TO OTHER PUMPED OR GRAVITY CONDENSATE DRAIN PIPES IN THE SAME ROOM. COORDINATE WITH EC TO PROVIDE 120V POWER FOR CONDENSATE
- 56. DASHED OR DOTTED BOLD LINES INDICATE ITEMS TO BE REMOVED. UN-BOLDED LINES INDICATE EXISTING ITEMS TO REMAIN.
- 57. THE INFORMATION SHOWN ON THESE DRAWINGS IS TAKEN FROM AS-BUILT DRAWINGS AND NON-DESTRUCTIVE VISUAL INSPECTION OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

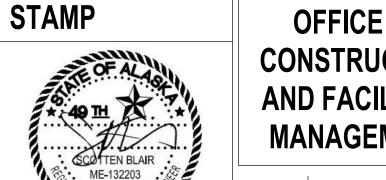
HIVAC DEGICALDATA - ET MEADE SOLITH DAKOTA LISA

LUNAC	DESIGN	I DATA - I	- I MEAD	E, 30C	JIH DAKUT	A, USA				
	0.4	. %	99.6%	WET BULB	ANNUAL EXTREME DA	AILY MEAN DRY BULB				
DESIGN			TEMPE	RATURES						
CONDITIONS	SUM	MER	WINTER	04.%	MAXIMUM	MINIMUM				
	DRY BULB	WET BULB	DRY BULB	U4. /0	IVIAAIIVIOIVI	IVIIIVIIVIOIVI				
OUTDOOR DESIGN CONDITIONS	97.2 °F	65.8 °F	-9.2 °F	70.9 °F	103.1 °F	-17.0 °F				
NOTES										

1. VA DESIGN MANUAL REV. MAY 1 2023 TABLE 7-1 ASHRAE 2021 FUNDEMENTALS CHAPTER 14 CLIMATE DESIGN INFORMATION

ARCHITECT/ENGINEER OF RECORD **GDM 1308 NE 134TH ST SUITE A VANCOUVER, WA 98685** 541.436.4723 ADAM GODDIN, P.E.





INTERNATIONAL MECHANICAL CODE

INTEGRATED PART LOAD VALUE

INDIRECT WASTE

IRRIGATION

KILOWATT

LENGTH

JUNCTION BOX

J-BOX

OFFICE OF CONSTRUCTION AND FACILITIES **MANAGEMENT**

U.S. Department of Veterans Affairs

DRAWING TITLE

NOT FOR CONSTRUCTION FOR OFFICIAL USE ONLY (FOUO)

MECHANICAL GENERAL

INFORMATION

FLS

100% CONSTRUCTION

DOCUMENTS

PHASE

FULLY SPRINKLERED

UPGRADES

EHRM INFRASTRUCTURE

PROJECT TITLE

01/31/2025

LOCATION FORT MEADE, SOUTH DAKOTA **ISSUE DATE** CHECKED BY DRAWN BY

ADR

ΑF

DRAWING NUMBER MG-001

PROJECT NUMBER

BUILDING NUMBER

568-21-701

Revisions:

VA FORM 08 - 6231

CONSULTANT

MECHANICAL ENGINEER

4317 6TH AVE SE, SUITE 300

LACEY, WA 98503

SCOTTEN BLAIR, P.E.

541.436.4723

				\Box	NDENSING U	INIT SCI		 F								
SYMBOL	SERVES	MANUFACTURER	REFRIGERANT	MODEL	TYPE	NOMINAL TONS	DESIGN OSA		IENCY RATINGS	3	<u> </u>	ELECTI	RICAI		WEIGHT	NOTES
OTMBOL	OLIVEO	WANDIAGIONER	REINIOEIVANI	WODEL	1112	NOMINAL TONG	TEMP (°F)	EER2	HSFP2	COP2	VOLT	PHASE	MCA	MOCP	(LBS)	NOTES
40-OU-1	40-IU-1	MITSUBISHI	R-454B	PUZ-AK12NL	AIR-COOLED HEAT PUMP	1.0	105	13.3	10.2	2.6	208	1	11	15	93	1,2,3,4,5
46-OU-1	46-IU-1	MITSUBISHI	R-454B	PUZ-AK12NL	AIR-COOLED HEAT PUMP	1.0	105	13.3	10.2	2.6	208	1	11	15	93	1,2,3,4,5
48-OU-1	48-IU-1	MITSUBISHI	R-454B	PUZ-AK12NL	AIR-COOLED HEAT PUMP	1.0	105	13.3	10.2	2.6	208	1	11	15	93	1,2,3,4,5
50-OU-1	50-IU-1	MITSUBISHI	R-454B	PUZ-AK12NL	AIR-COOLED HEAT PUMP	1.0	105	13.3	10.2	2.6	208	1	11	15	93	1,2,3,4,5
53-OU-1	53-IU-1	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
88-OU-1	88-IU-1	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
89-OU-1	89-IU-1	MITSUBISHI	R-454B	PUZ-AK36NLHZ	AIR-COOLED HEAT PUMP	3.0	105	12.3	9.0	1.8	208	1	24	35	261	1,2,3,4,5
90-OU-1	90-IU-1	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
110-OU-1	110-IU-1	MITSUBISHI	R-454B	PUZ-AK12NL	AIR-COOLED HEAT PUMP	1.0	105	13.3	10.2	2.6	208	1	11	15	93	1,2,3,4,5
113-OU-1	113-IU-1	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
113-OU-2	113-IU-2	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
113-OU-3	113-IU-3	MITSUBISHI	R-454B	PUZ-AK36NLHZ	AIR-COOLED HEAT PUMP	3.0	105	12.3	9.0	1.8	208	1	24	35	261	1,2,3,4,5
113-CU-4	113-IU-4	MITSUBISHI	R-410A	PUZ-HA36NKA	AIR-COOLED HEAT PUMP	3.0	105	12.3	9.0	1.8	208	1	24	35	261	1,2,3,4,5
113-OU-4A	113-IU-4A	MITSUBISHI	R-454B	PUZ-AK24NLHZ	AIR-COOLED HEAT PUMP	2.0	105	12.6	9.5	1.9	208	1	17	25	190	1,2,3,4,5
113-OU-4B	113-IU-4B	MITSUBISHI	R-454B	PUZ-AK24NLHZ	AIR-COOLED HEAT PUMP	2.0	105	12.6	9.5	1.9	208	1	17	25	190	1,2,3,4,5
113-OU-5	113-IU-5	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
113-OU-6	113-IU-6	MITSUBISHI	R-454B	PUZ-AK12NL	AIR-COOLED HEAT PUMP	1.0	105	13.3	10.2	2.6	208	1	11	15	93	1,2,3,4,5
137-OU-1	137-IU-1	MITSUBISHI	R-454B	PUZ-AK12NL	AIR-COOLED HEAT PUMP	1.0	105	13.3	10.2	2.6	208	1	11	15	93	1,2,3,4,5
145-OU-1	145-IU-1	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
145-OU-2	145-IU-2	MITSUBISHI	R-454B	PUZ-AK24NLHZ	AIR-COOLED HEAT PUMP	2.0	105	12.6	9.5	1.9	208	1	17	25	190	1,2,3,4,5
145-OU-3	145-IU-3	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
145-OU-4	145-IU-4	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
145-OU-5	145-IU-5	MITSUBISHI	R-454B	PUZ-AK12NL	AIR-COOLED HEAT PUMP	1.0	105	13.3	10.2	2.6	208	1	11	15	93	1,2,3,4,5
145-OU-6	145-IU-6	MITSUBISHI	R-454B	PUZ-AK24NLHZ	AIR-COOLED HEAT PUMP	2.0	105	12.6	9.5	1.9	208	1	17	25	190	1,2,3,4,5
145-OU-7	145-IU-7	MITSUBISHI	R-454B	PUZ-AK24NLHZ	AIR-COOLED HEAT PUMP	2.0	105	12.6	9.5	1.9	208	1	17	25	190	1,2,3,4,5
145-OU-8	145-IU-8	MITSUBISHI	R-454B	PUZ-AK24NLHZ	AIR-COOLED HEAT PUMP	2.0	105	12.6	9.5	1.9	208	1	17	25	190	1,2,3,4,5
146-OU-1	146-IU-1	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
148-OU-1	148-IU-1	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
148-OU-2	148-IU-2	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
148-OU-3	148-IU-3	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5
T171-OU-1	T171-IU-1	MITSUBISHI	R-454B	PUZ-AK12NL	AIR-COOLED HEAT PUMP	1.0	105	13.3	10.2	2.6	208	1	11	15	93	1,2,3,4,5
T296-OU-1	T296-IU-1	MITSUBISHI	R-454B	PUZ-AK30NLHZ	AIR-COOLED HEAT PUMP	2.5	105	12.8	8.5	1.8	208	1	24	35	261	1,2,3,4,5

1296-OU-1 | 1296-IU-1 | MITSUBISHI | R-454B | PUZ-AK30NLHZ | AIR-COOLED HEAT PUMP | 2.5 | 105 | 12.8 | 8.5 | 1.8 | 208 | 1 | 24 | 35 | 261 | 1,2,3,4,5

2. PROVIDE WITH INTERCONNECTING POWER AND CONTROL WIRING BETWEEN INDOOR AND OUTDOOR UNITS.

1. ELECTRICAL DISCONNECT SHALL BE PROVIDED BY DIVISION 23 CONTRACTOR WITH EQUIPMENT, AND SHALL BE FIELD INSTALLED.

3. PROVIDE WITH MANUFACTURER'S 18" MOUNTING STAND.

4. PROVIDE AND ATTACH LABEL TO UNIT WITH SYSTEM AND SPACE SERVED. 5. PROVIDE WITH MANUFACTURER'S WIND BAFFLE KIT.

SYMBOL	SERVES	MANUFACTURER	MODEL	REFRIGERANT	MOUNTING	TOTAL COOLING	SENSIBLE COOLING	HEATING	8	SUPPLY FA	N	MIN	El	LECTRIC/		WEIGHT	NOTES
						MBH	MBH	MBH	CFM	FLA	MCA	OSA	VOLT	PHASE	MCA	(LBS)	
40-IU-1	BLDG 40 100A	MITSUBISHI	PLA-AE12NL	R-454B	CEILING	10.7	10.2	8.1	530	0.28	1.00	25	208	1	14	46	1,2,3,4
46-IU-1	BLGD 46 B105	MITSUBISHI	PKA-AL12NL	R-454B	WALL	10.7	10.1	8.1	385	0.19	1.00	-	208	1	14	28	1,2,3,4
48-IU-1	BLDG 48 100	MITSUBISHI	PLA-AE12NL	R-454B	CEILING	10.7	10.2	8.1	530	0.28	1.00	25	208	1	14	46	1,2,3,4
50-IU-1	BLDG 50 201A	MITSUBISHI	PKA-AL12NL	R-454B	WALL	10.7	10.1	8.1	385	0.19	1.00	-	208	1	14	28	1,2,3,4
53-IU-1	BLDG 53 TCB1	MITSUBISHI	PKA-AK30NL	R-454B	WALL	29.1	20.6	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
88-IU-1	BLDG 88 B102D	MITSUBISHI	PKA-AK30NL	R-454B	WALL	29.3	20.8	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
89-IU-1	BLDG 89 202	MITSUBISHI	PKA-AK36NL	R-454B	WALL	33.1	24.1	31.4	920	0.27	1.00	-	208	1	14	46	1,2,3,4
90-IU-1	BLDG 90 102A	MITSUBISHI	PKA-AK30NL	R-454B	WALL	29.5	20.8	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
110-IU-1	BLDG 110 102	MITSUBISHI	PKA-AL12NL	R-454B	WALL	10.7	10.1	8.1	385	0.19	1.00	-	208	1	14	28	1,2,3,4
113-IU-1	BLDG 113 B01	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.5	20.4	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
113-IU-2	BLDG 113 169	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.5	20.4	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
113-IU-3	BLDG 113 187A	MITSUBISHI	PKA-AK36NL	R-454B	WALL	34.8	24.7	32.8	920	0.27	1.00	-	208	1	14	46	1,2,3,4
113-IU-4	BLDG 113 TCS103	MITSUBISHI	PKA-A36KA8	PKA-A36KA8	WALL	34.8	24.7	32.8	920	0.27	1.00	-	208	1	14	46	1,2,3,4
113-IU-4A	BLDG 113 TCS103	MITSUBISHI	PKA-AK24NL	R-454B	WALL	23.9	18.5	22.5	705	0.27	1.00	-	208	1	14	46	1,2,3,4
113-IU-4B	BLDG 113 TCS103	MITSUBISHI	PKA-AK24NL	R-454B	WALL	23.9	18.5	22.5	705	0.27	1.00	-	208	1	14	46	1,2,3,4
113-IU-5	BLDG 113 216	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.5	20.4	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
113-IU-6	BLDG 113 192A	MITSUBISHI	PLA-AE12NL	R-454B	CEILING	10.7	10.2	8.1	530	0.28	1.00	25	208	1	14	46	1,2,3,4
137-IU-1	BLDG 137 104	MITSUBISHI	PKA-AL12NL	R-454B	WALL	10.7	10.1	8.1	385	0.19	1.00	-	208	1	14	28	1,2,3,4
145-IU-1	BLDG 145 122B	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.5	20.4	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
145-IU-2	BLDG 145 129	MITSUBISHI	PKA-AK24NL	R-454B	WALL	23.9	18.5	22.5	705	0.27	1.00	-	208	1	14	46	1,2,3,4
145-IU-3	BLDG 145 229A	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.5	20.4	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
145-IU-4	BLDG 145 329	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.5	20.4	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
145-IU-5	BLDG 145 138	MITSUBISHI	PKA-AL12NL	R-454B	WALL	10.7	10.1	8.1	385	0.19	1.00	-	208	1	14	28	1,2,3,4
145-IU-6	BLDG 145 128	MITSUBISHI	PKA-AK24NL	R-454B	WALL	23.9	18.5	22.5	705	0.27	1.00	-	208	1	14	46	1,2,3,4
145-IU-7	BLDG 145 126	MITSUBISHI	PKA-AK24NL	R-454B	WALL	23.9	18.5	22.5	705	0.27	1.00	-	208	1	14	46	1,2,3,4
145-IU-8	BLDG 145 125	MITSUBISHI	PKA-AL12NL	R-454B	WALL	10.7	10.1	8.1	385	0.19	1.00	-	208	1	14	28	1,2,3,4
146-IU-1	BLDG 146 108	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.7	20.5	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
148-IU-1	BLDG 148 A114A	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.5	20.4	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
148-IU-2	BLDG 148 C106A	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.5	20.4	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
148-IU-3	BLDG 148 F108	MITSUBISHI	PKA-AK30NL	R-454B	WALL	28.5	20.4	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
T171-IU-1	BLDG T171 100	MITSUBISHI	PLA-AE12NL	R-454B	CEILING	10.7	10.2	8.1	530	0.28	1.00	25	208	1	14	46	1,2,3,4
T296-IU-1	BLDG T296 104	MITSUBISHI	PKA-AK30NL	R-454B	WALL	29.5	20.8	27.7	775	0.27	1.00	-	208	1	14	46	1,2,3,4
PROVIDE WITH PROVIDE WITH	OWERED BY OUTDOOR UI CONDENSATE PUMP. CON BACNET DDC INTERFACE. INTERCONNECTING POWE	NDENSATE PUMP SHALL															

INDOOR UNIT SCHEDULE

		CONSULTANT
		MECHANICAL ENGINEE GDM 4317 6TH AVE SE, SUITE
		LACEY, WA 98503 541.436.4723
Revisions:	Date:	SCOTTEN BLAIR, P.E.

VA FORM 08 - 6231

CONSULTANT ARCHITECT/ENGINEER OF RECORD MECHANICAL ENGINEER A/E GDM 1308 NE 134TH ST SUITE A 4317 6TH AVE SE, SUITE 300 LACEY, WA 98503 VANCOUVER, WA 98685 541.436.4723

ADAM GODDIN, P.E.



STAMP

OFFICE OF CONSTRUCTION AND FACILITIES **MANAGEMENT** VA U.S. Department of Veterans Affairs

NOT FOR CONSTRUCTION FOR OFFICIAL USE ONLY (FOUO)

DRAWING TITLE

PHASE PROJECT TITLE PROJECT NUMBER 568-21-701 EHRM INFRASTRUCTURE MECHANICAL SCHEDULES 100% CONSTRUCTION **UPGRADES** DOCUMENTS **BUILDING NUMBER** FORT MEADE, SOUTH DAKOTA DRAWING NUMBER FLS FULLY SPRINKLERED CHECKED BY DRAWN BY ISSUE DATE MG-002 01/31/2025 ADR AF

BLDG	ROOM	IT RACKS		DF DESIGN (TR/ HEAT LOAD STANDARD BASIS OF DESIGN	NOTES
				VA STANDARD	
NUM	NUM	QTY	TE / TR	KW (BTU/HR)	
40	100A	1	TE	0.5 kW (1700 btu/hr)	
46	B105	1	TE	0.5 kW (1700 btu/hr)	
48	100	1	TE	0.5 kW (1700 btu/hr)	
50	201A	1	TE	0.5 kW (1700 btu/hr)	
		·	. –	(1.00 00.11)	
53	TCB1	1	TR	5 kW (17100 btu/hr)	
88	B102D	1	TR	5 kW (17100 btu/hr)	
89	202	1	TR	5 kW (17100 btu/hr)	
90	102A	1	TR	5 kW (17100 btu/hr)	
110	102	1	TE	0.5 kW (1700 btu/hr)	
113	B01	1	TR	5 kW (17100 btu/hr)	
113	169	1	TR	5 kW (17100 btu/hr)	
113	187A	2	TR	7 kW (23900 btu/hr)	
113	TCS103	3	TR	8.5 kW (29000 btu/hr)	
113	216	1	TR	5 kW (17100 btu/hr)	
137	104	1	TE	0.5 kW (1700 btu/hr)	
145	122B	1	TR	5 kW (17100 btu/hr)	
145	229A	1	TR	5 kW (17100 btu/hr)	
145	329	1	TR	5 kW (17100 btu/hr)	
146	108	1	TR	5 kW (17100 btu/hr)	
147	103	1	TE	0.5 kW (1700 btu/hr)	
148	A114A	1	TR	5 kW (17100 btu/hr)	
148	C106A	1	TR	5 kW (17100 btu/hr)	
148	F108	1	TR	5 kW (17100 btu/hr)	_
T171	100	1	TE	0.5 kW (1700 btu/hr)	
T296	103	1	TR	5 kW (17100 btu/hr)	
		1		· · ·	

SYMBOL	TYPE	QTY	SERVICE	DESCRIPTION/DATA	WORK SCOPE	NOTES
E-113-IU-6	INDOOR UNIT	1	BLDG 113 TCS102	-	EXISTING TO REMAIN	+
E-113-IU-7	INDOOR UNIT	1	BLDG 113 TCS103	FRIEDRICH, MODEL: FPHSW09A1B, 120V / 1PH	DEMOLISH	1
E-113-IU-8	INDOOR UNIT	1	BLDG 113 TCS104	FRIEDRICH, MODEL: FPHSW09A1B, 120V / 1PH	DEMOLISH	1
CU-1	CONDENSING UNIT	1	-	SPLIT A/C SYSTEM, CARRIER, 208V / 1PH, MCA 14.1, MOCP 25, 24MBH	EXISTING TO REMAIN	
CU-2	CONDENSING UNIT	1	-	SPLIT A/C SYSTEM, CARRIER, 208V / 1PH, MCA 14.1, MOCP 25, 24MBH	DEMOLISH	
CU-3	CONDENSING UNIT	1	-	SPLIT A/C SYSTEM, CARRIER, 208V / 1PH, MCA 14.1, MOCP 25, 24MBH	EXISTING TO REMAIN	
E) OUTDOOR UNIT	CONDENSING UNIT	1	BLDG 113	FRIEDRICH, MODEL: FPHSR09A1A, 120V / 1PH, MCA 13.5A, MOCP 20A	DEMOLISH	
E) OUTDOOR UNIT	CONDENSING UNIT	1	BLDG 113	MITSUBISHI ELECTRIC	EXISTING TO REMAIN	

		_		
=	NOTES		SYMBOL	SERVES
MAIN			145-CRAC-1	BLDG 145 132
	1		145-CRAC-2	BLDG 145 132
	1		145-CRAC-3	BLDG 145 132
MAIN			145-CRAC-6	BLDG 145 137B
			145-CRAC-7	BLDG 145 137B
MAIN			2. COMPUTER 3. PROVIDE WI	DISCONNECT SHAL ROOM AIR CONDITIO TH CONDENSATE PU UNIT WITH FLOOR I
			5. DOWNFLOW	UNIT WITH FLOOR I

		CO	MPUTER RO	OOM AIR CO	DNDITIONI	NG SYSTEM	1S - INDO	OOR	UNI	Γ SCHE	DUL	-E					
SYMBOL	SERVES	MANUFACTURER	MODEL	TYPE	TOTAL COOLING	SENSIBLE COOLING	HEATING		SUPPLY	FAN		EL	ECTRIC	AL		WEIGHT	NOTES
					MBH	МВН	MBH	CFM	HP	ESP (IN WG)	VOLT	PHASE	FLA	MCA	МОСР	(LBS)	
145-CRAC-1	BLDG 145 132	LIEBERT	DA080DP	FLOOR	233	196	102	9198	38.4	0.2	208	3	119.2	128.5	150	2200	1,2,3,4,6,7,8,9
145-CRAC-2	BLDG 145 132	LIEBERT	DA080DP	FLOOR	233	196	102	9198	38.4	0.2	208	3	119.2	128.5	150	2200	1,2,3,4,6,7,8,9
145-CRAC-3	BLDG 145 132	LIEBERT	DA080DP	FLOOR	233	196	102	9198	38.4	0.2	208	3	119.2	128.5	150	2200	1,2,3,4,6,7,8,9
145-CRAC-6	BLDG 145 137B	LIEBERT	PX011UA1C	FLOOR	43.3	38.2	20.40	1800	1.3	0.2	208	1	39.9	48.6	60	600	1,2,3,5,6,8
145-CRAC-7	BLDG 145 137B	LIEBERT	PX011UA1C	FLOOR	43.3	38.2	20.40	1800	1.3	0.2	208	1	39.9	48.6	60	600	1,2,3,5,6,8
IOTES:																	
. ELECTRICAL	DISCONNECT SHALL	BE PROVIDED BY DIVI	SION 23 CONTRACTOR	R WITH EQUIPMENT. AN	ND SHALL BE FIELD II	NSTALLED.											

HALL BE PROVIDED BY DIVISION 23 CONTRACTOR WITH EQUIPMENT, AND SHALL BE FIELD INSTALLED. ITIONING UNIT WITH DEDICATED HUMIDIFICATION AND DEHUMIDIFICATION CAPABILITIES.

PUMP. CONDENSATE PUMP SHALL BE POWERED BY INDOOR UNIT.

R LEVEL DISCHARGE. PROVIDE WITH FRONT DISCHARGE OPTION. OR LEVEL DISCHARGE. PROVIDE WITH FRONT, LEFT, AND RIGHT DISCHARGE OPTIONS.

6. DESIGN BASED ON 105 DEGREE F OUTSIDE AIR TEMPERATURE. 7. PROVIDE WITH SMOKE DETECTOR FOR UNIT SHUTDOWN. DETECTOR MAY BE FACTORY INSTALLED OR FACTORY PROVIDED FOR FIELD INSTALLATION.

8. PROVIDE WITH BACNET DDC INTERFACE CAPABILITY. 9. PROVIDE WITH UNIT POWER MONITORING OPTION.

WALL CAP SCHEDULE										
SERVES	MANUFACTURER	MODEL	FINISH	NOTES						
BUILDING 40	BROAN	641FA	WHITE							
BUILDING 48	BROAN	641FA	WHITE							
BUILDING T171	BROAN	641FA	WHITE							
	•			•						
	BUILDING 40 BUILDING 48	SERVES MANUFACTURER BUILDING 40 BROAN BUILDING 48 BROAN	SERVES MANUFACTURER MODEL BUILDING 40 BROAN 641FA BUILDING 48 BROAN 641FA	SERVES MANUFACTURER MODEL FINISH BUILDING 40 BROAN 641FA WHITE BUILDING 48 BROAN 641FA WHITE						

SYMBOL	SERVES	MANUFACTURER	MODEL		EL	ECTRIC	AL		WEIGHT	NOTES
				VOLT	PHASE	FLA	MCA	МОСР		
145-RE-1	145-CRAC-1	LIEBERT	PR085	480	3	7.00	7.90	15	340	
145-RE-2	145-CRAC-1	LIEBERT	PR085	480	3	7.00	7.90	15	340	
145-RE-3	145-CRAC-2	LIEBERT	PR085	480	3	7.00	7.90	15	340	

		WEA ⁻	THERPROO	F LC	DUVE	ER S	CHE	DU	LE				
SYMBOL	MANUFACTURER	MODEL	SERVICE	CFM		SIZE (IN)		FREE	AREA	MAX PD	MAX VELOCITY	FINISH	NOTES
					LENGTH	HEIGHT	DEPTH	%	SQ FT	(IN)	(FPM)		
145-L-1	RUSKIN	BL520DD	EMERGENCY RELIEF	-	24	24	6	50	2.00	0.08	980	SEE NOTES	1,2,3,4
2. PROVIDE LO 3. BLAST RESIS													

		CO	MPUTER R	OOM AIR	CONDITION	IER SYSTEN	IS - CONE	DENSING	1U E	VIT S	SCH	EDI	JLE		
	SYMBOL	SERVES	MANUFACTURER	REFRIGERANT	MODEL	TYPE	NOMINAL TONS	DESIGN TEMP		ELE	CTRIC	AL		WEIGHT	NOTES
								(°F)	VOLT	PHASE	FLA	MCA	МОСР	(LBS)	
	145-CU-1	145-CRAC-1	LIEBERT	R-410A	MCL220E1YD	AIR-COOLED	20	105	208	3	22.8	24.2	25	1547	1, 3, 4
	145-CU-2	145-CRAC-2	LIEBERT	R-410A	MCL220E1YD	AIR-COOLED	20	105	208	3	22.8	24.2	25	1547	1, 3, 4
	145-CU-3	145-CRAC-3	LIEBERT	R-410A	MCL220E1YD	AIR-COOLED	20	105	208	3	22.8	24.2	25	1547	1, 3, 4
	145-CU-6	145-CRAC-6	LEIBERT	R-410A	MCS028E1	AIR-COOLED	4	105	208	1	3	3.8	15	183	1, 2, 3
l	145-CU-7	145-CRAC-7	LEIBERT	R-410A	MCS028E1	AIR-COOLED	4	105	208	1	3	3.8	15	183	1, 2, 3

1. ELECTRICAL DISCONNECT SHALL BE PROVIDED BY DIVISION 23 CONTRACTOR WITH EQUIPMENT, AND SHALL BE FIELD INSTALLED.

3. PROVIDE AND ATTACH LABEL TO UNIT WITH SYSTEM AND SPACE SERVED.

4. PROVIDE WITH 60" STAND LEGS, PRE-ECONOMIZER WITH SEPARATE ELECTRICAL CONNECTION 460/3PH/7.0 FLA

				AIR INLE	ETS AND	OUTLETS	SCHED	JLE			
YMBOL	MANUFACTURER	MODEL	SERVICE	MOUNTING TYPE	MATERIAL	CFM	FACE SIZE (IN)	FINISH	NC	THROW	NOTES
SD-1	TITUS	TMS	SUPPLY	LAY-IN	STEEL	PER PLANS	PER PLANS	PER ARCH	<25	4-WAY	1, 4
SD-2	TITUS	300FL	SUPPLY	CEILING	ALUMINUM	PER PLANS	PER PLANS	PER ARCH	<25	-	3, 4
SD-3	TITUS	TDCR	SUPPLY	LAY-IN	ALUMINUM	PER PLANS	PER PLANS	PER ARCH	<25	4-WAY	5
EG-1	TITUS	50F	EXHAUST	LAY-IN	ALUMINUM	PER PLANS	PER PLANS	PER ARCH	<25	-	2, 4
RG-1	TITUS	50F	RETURN	LAY-IN	ALUMINUM	PER PLANS	PER PLANS	PER ARCH	<25	-	2, 4
TEC:	•		•		•	•	•		•	•	

1. ADJUSTABLE THROW, OPTIONAL DAMPER FOR BALANCING, BORDER/FRAME TYPE AS REQUIRED FOR MOUNTING.

2. 1/2" EGGCRATE CORE, BORDER/FRAME TYPE AS REQUIRED FOR MOUNTING

3. 3/4" BLADE SPACING, DOUBLE DEFLECTIN, FRONT BLADES PARALLEL TO SHORT DIMENSION, INDIVIDUALLY ADJUSTABLE BLADES, FRAME TYPE AS REQUIRED FOR MOUNTING.

4. FURNISH ALL PRODUCTS OF A SINGLE MANUFACTURER. 5. PROVIDE WITH FILTER.

						Al	R HANDL	ING	UN	IT SCHED	ULE											
SYMBOL	MANUFACTURER	MODEL		COOLIN	IG COIL		ELECTRIC HEAT		SUP	PLY FAN	ESP (IN. WC)	TSP (IN. WC)	MIN	FILTER EF	FFICIENCY		N	OTOR D	ATA		WEIGHT	NOTES
			NOMINAL TONS	TOTAL MBH	EWB DEG F	AMBIENT DEG F	KW	CFM	TYPE	ARRANGEMENT	ESP (IIV. VVC)	TSP (IIV. VVC)	OSA	RATING	FILTER SQ FT	VOLT	PHASE	MCA	HP	QTY	(LBS)	
145-RTU-1	TRANE	WHC102H3RNA	8.5	105	67	105	18.0	3400	BELT	FC CENTRIFUGAL	1.10	1.30	30%	MERV 13	13.9	208	3	100	2.75	1	953	1
NOTES: 1. PROVIDE W	/ITH DX COOLING, ECO	NOMIZER OPERATION, SIN	NGLE POINT ELECTRIC	AL CONNECTION, PA	CKAGED DDC CONTR	ROLS, ECONOMIZER H	OOD, BAROMETRIC R	ELIEF HO)OD						•							

EMERGENCY RELIEF DAMPER SYMBOL MANUFACTURER DUCT SIZE (IN) 145-ERD-1 GREENHECK SEBR-40 PRESSURE RELIEF 1. CONFIGURE DAMPER FOR BAROMETRIC PRESSURE RELIEF. SET RELIEF PRESSURE PER RECOMMENDATIONS OF CLEAN AGENT SYSTEM CONTRACTOR.

				PUMP S	CHEDULE	<u> </u>									
SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	FLOV	V	NPSHR	RPM		ELEC	TRICAL		MOUNTING	WEIGHT	NOTES
					GPM (DESIGN)	GPM (MIN)	(FT)	Ī	HP	W	VOLT	PHASE		(LBS)	
46-P-1	BELL & GOSSET	E-60	BLDG 46	IN-LINE	20	5	20.00	1,725	1/2	208	4	1	INLINE	55	
NOTES:					-							•		-	

	R-VALUE	K-VALUE	NRC	THICKNESS	INSULATIO	N LOCATION	TYPE	NOTES
	(MIN)	(MAX)	(MIN, 1")	(IN)	INSIDE DUCT	OUTSIDE DUCT		
ILDING	8.00	-	-	4.40	-	Х	FIBERGLASS WITH ASJ	1
IED SPACE	3.50	-	-	4.40	-	Х	FIBERGLASS WITH ASJ	1
	1.90	-	-	2.00	-	Х	FIBERGLASS WITH ASJ	1
LDING	1.90	-	-	4.40	-	Х	FIBERGLASS WITH ASJ	1
TO BUILDING	8.00	-	-	2.00	-	Х	POLYISO BOARD	1,2,4
	-	0.25	0.55	1.00	Х	-	CLOSED-CELL ELASTOMERIC	3

1. ASJ SHALL INCLUDE VAPOR BARRIER.

2. PROVIDE WITH ALUMINUM EXTERIOR JACKET. 3. PROVIDE SOUND LINING FOR A MINIMUM OF 10' UPSTREAM & DOWNSTREAM OF ALL FAN EQUIPMENT >500 CFM.

APPLICATION

SUPPLY AIR DUCT INSULATION OUTSIDE BUILDING

SUPPLY AIR DUCT INSULATION IN UNCONDITIONED SPACE SUPPLY AIR DUCT INSIDE BUILDING

OUTSIDE AIR DUCT INSULATION INSIDE BUILDING

SUPPLY DUCT INSULATION, EXTERIOR, FROM UNIT TO BUILDING

SOUNDLINING

4. PROVIDE WITH PVC EXTERIOR JACKET.

		PIP	E INSU	JLATI	ION S	CHE	DULE			
APPLICATION	TEMP RANGE	INSULATION C	CONDUCTIVITY		NOMII	NAL PIPE SIZ	ĽE (IN)		TYPE	NOTES
	(°F)	K FACTOR	MRT (°F)	<1"	1" - 1-1/4"	1-1/2" - 3"	4" - 8"	≥8"		
CWR/CWS	40-60	0.28-0.27	75	0.50	0.50	1.00	1.00	1.00	FIBERGLASS W/ ASJ	
HWR/HWS	100-180	0.25-0.29	125	1.50	1.50	2.00	2.00	2.00	FIBERGLASS W/ ASJ	
WATER SOURCE	40-140	0.21-0.28	100	1.00	1.00	1.50	1.50	1.50	FIBERGLASS W/ ASJ	
CONDENSATE DRAIN	40-60	0.28-0.27	75	0.50	0.50	1.00	1.00	1.00	FLEXIBLE ELASTOMERIC	
AHU DRAINS AND TRAPS	<40	0.20-0.26	75	0.50	1.00	1.00	1.00	1.50	FLEXIBLE ELASTOMERIC	
REFRIGERANT PIPING	0-150	0.25-0.29	125	1.50	1.50	2.00	-	-	FLEXIBLE ELASTOMERIC	
LOW PRESSURE STEAM	201-250	0.27-0.30	150	2.50	2.50	2.50	3.00	3.00	FIBERGLASS W/ ASJ	
MEDIUM PRESSURE STEAM	251-350	0.29-0.32	200	3.00	4.00	4.50	4.50	4.50	FIBERGLASS W/ ASJ	
LOW PRESSURE STEAM CONDENSATE	141-200	0.25-0.29	125	1.50	1.50	2.00	2.00	2.00	FIBERGLASS W/ ASJ	
MEDIUM PRESSURE STEAM	201-250	0.27-0.30	150	2.50	2.50	2.50	3.00	3.00	FIBERGLASS W/ ASJ	
HW, HWC	105-140	0.21-0.28	100	1.00	1.00	1.50	1.50	1.50	FIBERGLASS W/ ASJ	
CW	40-60	0.28-0.27	75	0.50	0.50	1.00	1.00	1.00	FIBERGLASS W/ ASJ	
ROOF DRAIN	<40	0.20-0.26	75	-	-	1.00	1.00	1.50	FIBERGLASS W/ ASJ	
NOTES:										

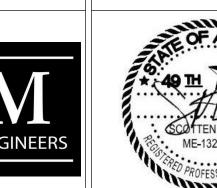
					PING SCHEDULE							
APPLICATION	SIZE RANGE	LOCATION	MATERIALS	JOINTS/COUPLINGS	FITTINGS	PRESSURE	TEMPERATURE		PIPE IDEN	ITIFICATION		NOTE
	(IN)					RATING (PSI)	RATING	TYPE	LETTERING	BACKGROUND	FLOW ARROWS	
CWR/CWS	1/2" - 2"	ALL	COPPER TUBE, ASTM B88, TYPE L	PRESS-FIT, THREADED, FLANGED, SOLDER	WROUGHT COPPER, CAST COPPER ALLOY, CAST BRONZE			SELF ADHESIVE	WHITE	GREEN	X	1,2
CWR/CWS	2-1/2" & LARGER	ALL	CARBON STEEL, ASTM A53B, SCHEDULE STD	GROOVED, THREADED, FLANGED	CARBON STEEL			SELF ADHESIVE	WHITE	GREEN	Х	1,2
HWR/HWS	1/2" - 2"	ALL	COPPER TUBE, ASTM B88, TYPE L	PRESS-FIT, THREADED, FLANGED, SOLDER	WROUGHT COPPER, CAST COPPER ALLOY, CAST BRONZE			SELF ADHESIVE	BLACK	YELLOW	X	1,2
HWR/HWS	2-1/2" & LARGER	ALL	CARBON STEEL, ASTM A53B, SCHEDULE STD	GROOVED, THREADED, FLANGED	CARBON STEEL			SELF ADHESIVE	BLACK	YELLOW	Х	1,2
WATER SOURCE	1/2" - 2"	ALL	COPPER TUBE, ASTM B88, TYPE L	PRESS-FIT, THREADED, FLANGED, SOLDER	WROUGHT COPPER, CAST COPPER ALLOY, CAST BRONZE			SELF ADHESIVE	BLACK	YELLOW	Х	1,2
WATER SOURCE	2-1/2" & LARGER	ALL	CARBON STEEL, ASTM A53B, SCHEDULE STD	GROOVED, THREADED, FLANGED	CARBON STEEL			SELF ADHESIVE	BLACK	YELLOW	Х	1,2
CONDENSATE DRAIN	ALL	INTERIOR	COPPER TUBE, ASTM B88, TYPE L	SOLDER, THREADED	CAST BRONZE, CAST COPPER ALLOY, WROUGHT COPPER ALLOY			SELF ADHESIVE	BLACK	YELLOW	-	1,2
REFRIGERANT PIPING	ALL	ALL	COPPER TUBE, ASTM B280, ACR, HARD TEMPER	BRAZED, SOLDERED	WROUGHT COPPER			SELF ADHESIVE	BLACK	YELLOW	-	1
EFRIGERANT LINESETS	ALL	ALL	COPPER TUBE, ASTM B280 OR B1003	BRAZED, SOLDERED	WROUGHT COPPER			SELF ADHESIVE	BLACK	YELLOW	-	1
LPS	ALL	ALL	CARBON STEEL, ASTM A54B OR A106B, SCHEDULE 4	WELDED, THREADED, FLANGED	FORGED STEEL, MALLEABLE IRON	150		SELF ADHESIVE			Х	
LPR	ALL	ALL	CARBON STEEL, ASTM A54B OR A106B, SCHEDULE 8	0 WELDED, THREADED, FLANGED	FORGED STEEL, MALLEABLE IRON	150		SELF ADHESIVE			Х	
MPS	ALL	ALL	CARBON STEEL, ASTM A54B OR A106B, SCHEDULE 4	WELDED, THREADED, FLANGED	FORGED STEEL, MALLEABLE IRON	150		SELF ADHESIVE			Х	
MPC	ALL	ALL	CARBON STEEL, ASTM A54B OR A106B, SCHEDULE 8	WELDED, THREADED, FLANGED	FORGED STEEL, MALLEABLE IRON	150		SELF ADHESIVE			Х	
HW, HWC	ALL	ALL	COPPER TUBE, ASTM B88, TYPE L	SOLDER, THREADED	CAST BRONZE, CAST COPPER ALLOY, WROUGHT COPPER ALLOY			SELF ADHESIVE	BLACK	YELLOW	-	1,2
TEMPERED HW	ALL	ALL	COPPER TUBE, ASTM B88, TYPE L	SOLDER, THREADED	CAST BRONZE, CAST COPPER ALLOY, WROUGHT COPPER ALLOY			SELF ADHESIVE	WHITE	GREEN	-	1,2
CW	ALL	ALL	COPPER TUBE, ASTM B88, TYPE L	SOLDER, THREADED	CAST BRONZE, CAST COPPER ALLOY, WROUGHT COPPER ALLOY			SELF ADHESIVE	WHITE	GREEN	-	1,2
SANITARY DWV	ALL	INTERIOR	PVC, SCHEDULE 40, SOLID WALL, ASTM D-2665	GLUED, ASTM D-2665	PVC, SCHEDULE 40			SELF ADHESIVE	WHITE	GREEN	-	
SANITARY DWV	ALL	EXTERIOR	PVC, SCHEDULE 40, SOLID WALL, ASTM D-2665	GLUED, ASTM D-2665	PVC, SCHEDULE 40			SELF ADHESIVE	WHITE	GREEN	-	
SANITARY DWV	ALL	DIRECT BURIED	PVC, SCHEDULE 40, SOLID WALL, ASTM D-2665	GLUED, ASTM D-2665	PVC, SCHEDULE 40			SELF ADHESIVE	WHITE	GREEN	-	
SANITARY DWV	ALL	ALL	CAST IRON, ASTM A888	HUBLESS, ASTM A888/CISPI 301	CAST IRON, ASTM A888/CISPI 301			SELF ADHESIVE	WHITE	GREEN	-	
ROOF DRAIN	ALL	INTERIOR (CONCEALED)	PVC, SCHEDULE 40, SOLID WALL, ASTM D-2665	GLUED, ASTM D-2665	PVC, SCHEDULE 40			SELF ADHESIVE			-	1
ROOF DRAIN	ALL	INTERIOR (EXPOSED)	PVC, SCHEDULE 40, SOLID WALL, ASTM D-2665	GLUED, ASTM D-2665	PVC, SCHEDULE 40			SELF ADHESIVE			-	1
ROOF DRAIN	ALL	ALL	CAST IRON, ASTM A888	HUBLESS, ASTM A888/CISPI 301	CAST IRON, ASTM A888/CISPI 301			SELF ADHESIVE			-	1

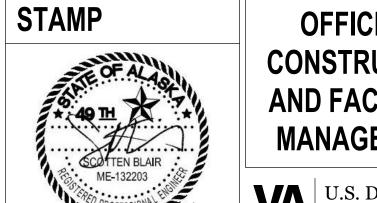
2. PROVIDE DI-ELECTRIC UNIONS OR FITTINGS FOR PIPE CONNECTIONS BETWEEN DISSIMILAR METALS.

		□ CONSULTAN 1
		MECHANICAL ENGINEER
		GDM
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Revisions:	Date:	

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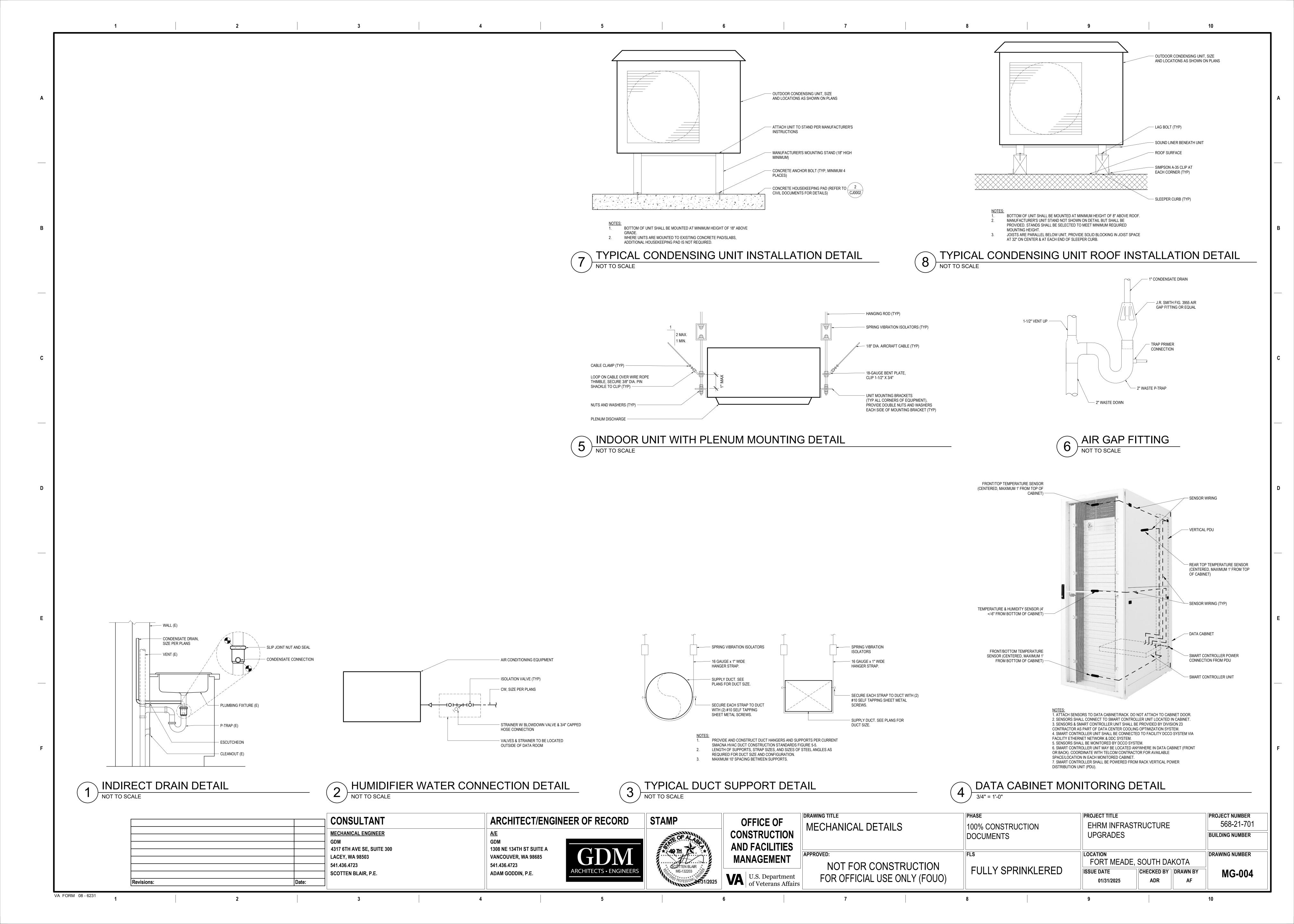
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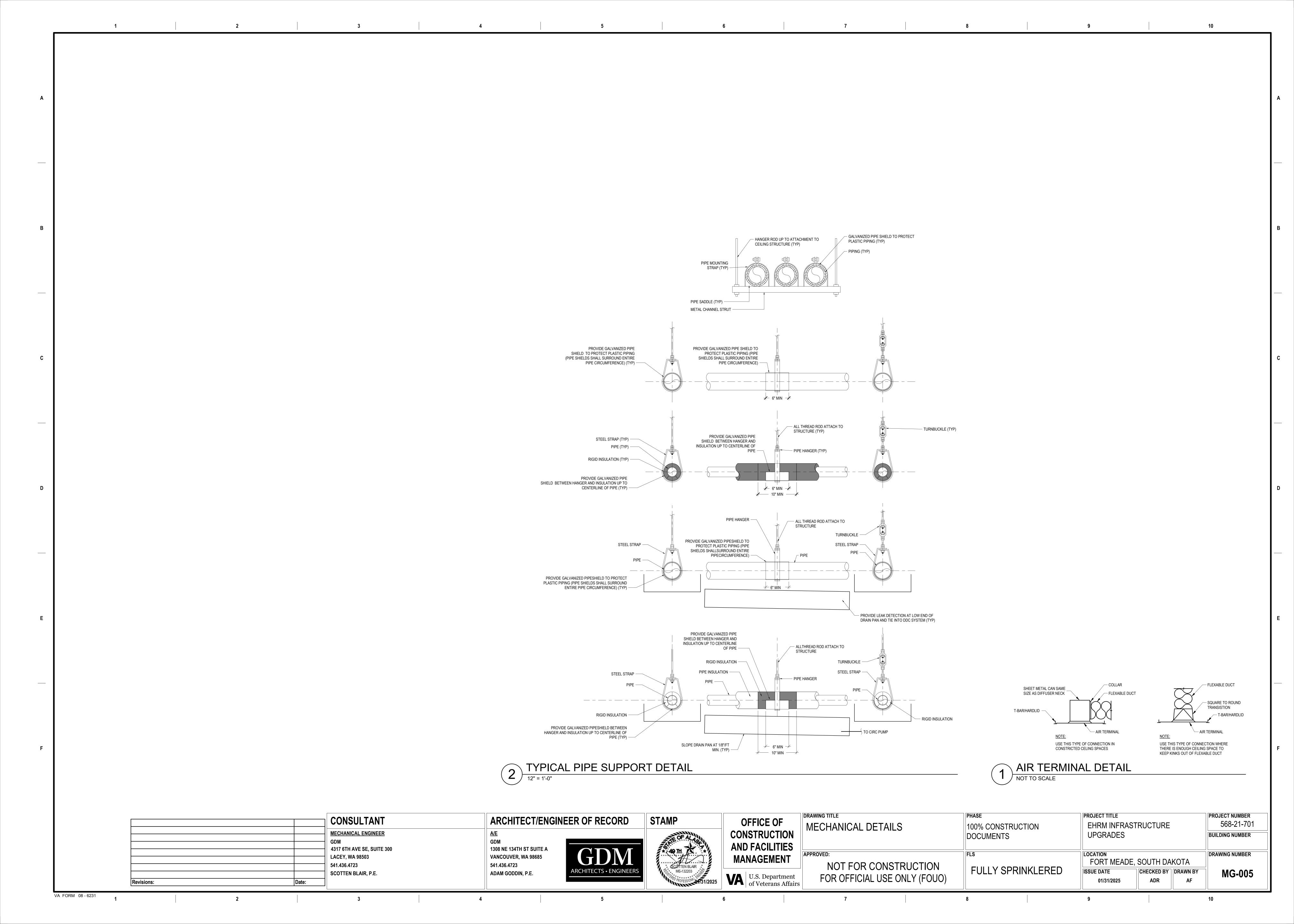
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JLES	PHASE 100% CONSTRUCTION DOCUMENTS	PROJECT TITLE EHRM INFRAST UPGRADES	RUCTURE		PROJECT NUMBER 568-21-701 BUILDING NUMBER
RUCTION	FLS	FORT MEADE,	SOUTH DA	KOTA	DRAWING NUMBER
NLY (FOUO)	FULLY SPRINKLERED	ISSUE DATE 01/31/2025	CHECKED BY ADR	DRAWN BY AF	MG-003

VA FORM 08 - 6231

U.S. Department of Veterans Affairs





SYSTEM POINTS LIST - HVAC SYSTEMS SYSTEM POINT DESCRIPTION OUTPUT INPUT OUTPUT ALARMS **PROGRAMS** COMPUTER ROOM AIR CONDITIONING UNIT DISCHARGE AIR TEMPERATURE DISCHARGE STATIC PRESSURE RETURN AIR HUMIDITY SUPPLY FAN STATUS SUPPLY FAN SPEED SUPPLY FAN SPEED SETPOINT HUMIDIFIER COMMAND DISCHARGE AIR TEMPERATURE SETPOINT DISCHARGE AIR PRESSURE SETPOINT COOLING SETPOINT **COOLING ENABLE** SCHEDULE COMMAND UNIT ENABLE COMMAND FIRE ALARM SHUTDOWN EPO SHUTDOWN UNIT ALARM **UNIT POWER** DATA RACK MONITORING RACK TEMPERATURE SENSOR RACK HUMIDITY SENSOR MINI-SPLIT HEAT PUMPS (NON-TR SPACES) UNIT ENABLE UNIT ERROR **HEATING SETPOINT** HEATING ENABLE COOLING SETPOINT COOLING ENABLE FAN SPEED STATE SCHEDULE COMMAND $X \mid X \mid X \mid$ OPERATIONAL STATE FIRE ALARM SHUT DOWN AIR HANDLING UNIT 145-RTU-1 H-O-A CONTROL ON-OFF INDICATION O/A TEMP INDICATION S/A TEMP SET POINT S/A TEMP INDICATION R/A TEMP INDICATION O/A DAMPER POSITION INDICATION $X \mid X \mid X$ **ECONOMIZER INDICATION** COOLING STAGE (ON/OFF/STAGE 1-X) SUPPLY FAN STATUS ALARM SETPOINT PUMP 46-P-1 ON/OFF STATUS SPACE TEMPERATURE SENSOR SPACE HUMIDITY SENSOR REFRIGERANT LEAK DETECTORS LIQUID LEAK DETECTORS | X | 1. INTEGRATE ALL POINTS AVAILABLE FROM FACTORY UNIT CONTROLLER INTO DDC SYSTEM. . PROVIDE GATEWAY IF REQUIRED TO CONNECT FACTORY UNIT CONTROLLER TO DDC SYSTEM. . PROVIDE LIQUID LEAK DETECTOR W/ DDC CONNECTION AT EACH INDIVIDUAL DRIP PAN LOCATION. . FIRE ALARM SHUTDOWN IS FOR RETURN AIR DUCT SMOKE DETECTORS IN UNITS WITH AIRFLOWS 2,000 CFM OR HIGHER SPACE TEMPERATURE AND HUMIDITY SENSORS MAY BE PROVIDED AS SEPARATE SENSORS OR COMBINED SENSOR UNITS. . RACK TEMPERATURE AND HUMIDITY SENSORS MAY BE PROVIDED AS SEPARATE SENSORS OR COMBINED SENSOR UNITS.

SEQUENCE OF OPERATIONS

- 1.1. ALL TEMPERATURE SETPOINTS AND MINIMUM/MAXIMUM ALLOWABLE VALUES SHALL BE USER ADJUSTABLE.
- 1.2. ALL TIME VALUES, SUCH AS ALARM DELAYS, LEAD-LAG INTERVALS, ETC., SHALL BE USER ADJUSTABLE.
- 2. COMPUTER ROOM AIR CONDITIONING UNIT MCR
- 2.1. DESCRIPTION: COMPUTER ROOM AIR CONDITIONING UNITS TO PROVIDE TEMPERATURE AND HUMIDITY CONTROL TO THE SPACES THAT THEY SERVE.
- 2.2. SPACE CONDITIONING: THE CRACUNITS SHALL OPERATE DURING BOTH OCCUPIED AND UNOCCUPIED HOURS USING MANUFACTURER'S PRE-PROGRAMMED SEQUENCES TO HEAT, COOL, HUMIDIFY, AND DE-HUMIDIFY THE SPACE TO MAINTAIN SPACE CONDITION REQUIREMENTS SPECIFIED FOR THE DATA CENTER
- 2.3. DATA CENTER COOLING OPTIMIZATION (DCCO) SYSTEM
- 2.3.1. THE DCCO SYSTEM WILL MONITOR THE SPACE CONDITIONS, RACK ENVIRONMENT CONDITIONS, AND CRAC UNIT OPERATION AND AUTOMATICALLY MANAGE & ADJUST CRAC UNIT OPERATION SETTINGS FOR MOST EFFICIENT OPERATION.
- 2.3.2. RACK SENSORS AT DATA CABINETS SHALL BE CONNECTED TO THE BUILDING DDC SYSTEM AND MONITORED BY THE DCCO SYSTEM.
- 2.3.3. COMMUNICATION BETWEEN THE DCCO SYSTEM & THE CRAC UNITS WILL BE THROUGH THE BUILDING
- 2.3.4. CRAC UNITS SHALL RECEIVE TEMPERATURE AND HUMIDITY SETPOINTS, ENABLE/DISABLE, & FAN SPEED SETPOINTS FROM THE DATA CENTER COOLING OPTIMIZATION (DCCO) SYSTEM VIA THE
- 2.3.5. DCCO SYSTEM CONTROL & MANAGEMENT SHALL BE VIA DCCO SYSTEM WEB PAGE, SEPARATE FROM DDC SYSTEM.
- 2.4. MULTI-UNIT OPERATION AND STAGING:
- 2.4.1. MULTI-UNIT OPERATION AND STAGING SHALL BE MANAGED BY THE DCCO SYSTEM.
- 2.4.2. THE CRAC UNIT ONBOARD CONTROLS FOR EACH UNIT SHALL BE SET UP FOR STANDALONE OPERATION, WITH MANUFACTURER'S TEAMWORK MODES AND LEAD-LAG CONTROLS DISABLED.
- 2.4.3. DCCO SYSTEM SHALL AUTOMATICALLY MANAGE UNIT STAGING AND REDUNDANT OPERATION, AS WELL AS MOST EFFICIENT SPACE CONDITIONING OPERATION.
- 2.4.4. DCCO SYSTEM SHALL AUTOMATICALLY ROTATE LEAD/LAG DUTY FOR CONNECTED UNITS.
- 2.4.5. CRAC UNITS SERVING MCR SPACE SHALL BE CONNECTED TO CRAC UNIT MANUFACTURER'S WALL-
- 2.5. SPACE MONITORING:
- 2.5.1. THE DDC SYSTEM SHALL MONITOR THE SPACE USING DEDICATED TEMPERATURE AND HUMIDITY SENSORS. IF CONDITIONS IN THE SPACE ARE ABOVE OR BELOW THE ALLOWABLE CONDITIONS (USER ADJUSTABLE MIN AND MAX SETPOINTS FOR TEMPERATURE AND HUMIDITY) FOR 5 MIN. (ADJUSTABLE) OR MORE, AN ALARM SHALL BE INITIATED ON THE DDC SYSTEM.

MOUNTED NETWORK SWITCH WITH TOUCH-SCREEN DISPLAY.

- 2.6. FIRE ALARM SHUTDOWN: THE HVAC SYSTEM SHALL BE DEACTIVATED ON A FIRE ALARM SIGNAL FROM THE BUILDING FIRE ALARM SYSTEM (INCLUDING THE CLEAN AGENT SUPPRESSION SYSTEM SERVING THE MCR). THIS SHALL BE DONE THROUGH AN INTER-LOCKING SAFETY RELAY THAT REMOVES CONTROL POWER TO THE DDC.
- 2.7. EMERGENCY SHUTDOWN: THE CRAC UNITS WILL BE DEACTIVATED IF ANY OF THE EMERGENCY POWER-
- OFF (EPO) BUTTON(S) IN THE MCR ARE ACTIVATED.
- 2.8. HUMIDITY AND TEMPERATURE LIMITS MCR SPACE 2.8.1. TEMPERATURE: 65°F - 75 °F
- 2.8.2. HUMIDITY: 30% 60% RH
- 3. COMPUTER ROOM AIR CONDITIONING UNIT ENTRANCE ROOMS
- 3.1. DESCRIPTION: COMPUTER ROOM AIR CONDITIONING UNITS TO PROVIDE TEMPERATURE AND HUMIDITY CONTROL TO THE SPACES THAT THEY SERVE.
- 3.2. SPACE CONDITIONING: CRAC UNITS SHALL RECEIVE TEMPERATURE AND HUMIDITY SETPOINTS FROM THE BUILDING DDC SYSTEM. THE UNITS SHALL OPERATE DURING BOTH OCCUPIED AND UNOCCUPIED HOURS USING MANUFACTURER'S PRE-PROGRAMMED SEQUENCES TO HEAT, COOL, HUMIDIFY, AND DE-HUMIDIFY THE SPACE TO MAINTAIN SPACE CONDITION REQUIREMENTS SPECIFIED FOR THE DATA CENTER EQUIPMENT.
- 3.3. MULTI-UNIT OPERATION AND STAGING:
- 3.3.1. CRAC UNITS SERVING MCR SPACE SHALL BE NETWORKED TOGETHER TO FACILITATE MULTI-UNIT OPERATION AND STAGING.
- 3.3.2. CRAC UNITS SHALL BE CONFIGURED USING MANUFACTURER'S CONTROLS FOR AUTOMATIC UNIT STAGING AND REDUNDANT OPERATION, AS WELL AS MOST EFFICIENT SPACE CONDITIONING

- 3.4. SPACE MONITORING:
- 3.4.1. THE DDC SYSTEM SHALL MONITOR THE SPACE USING DEDICATED TEMPERATURE AND HUMIDITY SENSORS. IF CONDITIONS IN THE SPACE ARE ABOVE OR BELOW THE ALLOWABLE CONDITIONS (USER ADJUSTABLE MIN AND MAX SETPOINTS FOR TEMPERATURE AND HUMIDITY) FOR 5 MIN. (ADJUSTABLE) OR MORE, AN ALARM SHALL BE INITIATED ON THE DDC SYSTEM.
- 3.5. FIRE ALARM SHUTDOWN: THE HVAC SYSTEM SHALL BE DE-ACTIVATED ON A FIRE ALARM SIGNAL FROM THE BUILDING FIRE ALARM SYSTEM (INCLUDING THE CLEAN AGENT SUPPRESSION SYSTEM SERVING THE MCR). THIS IS DONE THROUGH AN INTER-LOCKING SAFETY RELAY THAT REMOVES CONTROL POWER TO
- 3.6. HUMIDITY AND TEMPERATURE SETPOINTS ENTRANCE ROOMS
- 3.6.1.1. LOW TEMPERATURE SETPOINT: 65°F (USER ADJUSTABLE)
- 3.6.1.2. HIGH TEMPERATURE SETPOINT: 75 °F (USER ADJUSTABLE)
- 3.6.2. HUMIDITY

3.6.1. TEMPERATURE

- 3.6.2.1. LOW HUMIDITY SETPOINT 30% RH (USER ADJUSTABLE)
- 3.6.2.2. HIGH HUMIDITY SETPOINT 60% RH (USER ADJUSTABLE)
- 4. COMPUTER ROOM AIR CONDITIONING UNIT TR SPACES 4.1. DESCRIPTION: COMPUTER ROOM AIR CONDITIONING UNITS TO PROVIDE TEMPERATURE AND HUMIDITY
- 4.2. SPACE CONDITIONING: CRAC UNITS SHALL RECEIVE TEMPERATURE AND HUMIDITY SETPOINTS FROM THE BUILDING DDC SYSTEM. THE UNITS SHALL OPERATE DURING BOTH OCCUPIED AND UNOCCUPIED HOURS USING MANUFACTURER'S PREPROGRAMMED SEQUENCES TO HEAT, COOL, DEHUMIDIFY, AND HUMIDIFY THE SPACE TO MAINTAIN CONDITION REQUIREMENTS SPECIFIED FOR THE DATA CENTER EQUIPMENT.
- 4.3. SPACE CONDITIONING MONITORING: THE DDC SYSTEM SHALL MONITOR THE SPACE USING DEDICATED TEMPERATURE AND HUMIDITY SENSORS. IF CONDITIONS IN THE SPACE ARE ABOVE OR BELOW THE ALLOWABLE CONDITIONS (USER ADJUSTABLE MIN AND MAX SEPOINTS FOR TEMPERATURE AND HUMIDITY) FOR 5 MIN (ADJUSTABLE) OR MORE, AN ALARM SHALL BE INITIATED ON THE DDC SYSTEM.
- 4.4. FIRE ALARM SHUTDOWN: THE HVAC SYSTEM WILL SHUTDOWN ON A FIRE ALARM SIGNAL FROM THE BUILDING FIRE ALARM SYSTEM. THIS IS DONE THRU AN INTERLOCKING SAFETY RELAY THAT REMOVES
- CONTROL POWER TO THE DDC. 4.4.1. FAN(S) SHALL BE DE-ACTIVATED.
- 4.4.2. COMPRESSOR(S) SHALL BE DE-ACTIVATED.

CONTROL TO THE SPACES THAT THEY SERVE.

- 4.5. HUMIDITY SENSOR AND TEMPERATURE SENSOR:
- 4.5.1. DDC MONITORING (TE): DDC TO MONITOR AND TREND THE ROOM TEMPERATURE.
- 4.5.2. DDC MONITORING (HE): DDC TO MONITOR AND TREND THE ROOM RELATIVE HUMIDITY.
- 4.5.3. ALARM: TEMPERATURE SENSOR (TE): DDC TO MONITOR TEMPERATURE AND SEND AN ALARM IF TEMPERATURE EXCEEDS TEMPERATURE SETPOINT BY 5 °F FOR MORE THAN 5 MINUTES (USER
- ADJUSTABLE FOR TIME AND VLUE OUTSIDE OF RANGE). 4.6. ALARM: HUMDITY SENSOR (HE): DDC TO MONITOR RELATIVE HUMIDITY AND SEND AN ALARM UPON
- FAILURE TO MEET HUMIDITY SETPOINTS. 4.7. HUMIDITY AND TEMPERATURE SETPOINTS - TR SPACES
- 4.7.1.1. LOW TEMPERATURE SETPOINT: 41 °F
- 4.7.1.2. HIGH TEMPERATURE SETPOINT: 95 °F
- 4.7.1.3. ALLOWABLE RANGE: 41-95 °F
- 4.7.2. HUMIDITY
- 4.7.2.1. ALLOWABLE RANGE: 8-80% RH
- 5. PACKAGED AIR HANDLING UNIT 145-RTU-1
- 5.1. DESCRIPTION: ROOF TOP UNIT PROVIDES HEATED AND COOLED SUPPLY AIR TO REMODELED OIT OFFICE
- 5.2. OPERATION MODE: UNIT SHALL BE CONTROLLED BY THE DDC VIA AN OCCUPIED/UNOCCUPIED SCHEDULE. 5.2.1. OCCUPIED MODE:
- 5.2.1.1. THE OUTSIDE AIR DAMPERS SHALL OPEN PAST MINIMUM TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT.

30 °F THE SUPPLY AIR TEMPERATURE SHALL BE MAINTAINED AT 65 °F.

- 5.2.1.2. THE RETURN AIR DAMPER SHALL MODULATE WITH THE OUTSIDE AIR DAMPER SUCH THAT
- WHEN THE OUTSIDE AIR DAMPER IS OPEN, THE RETURN AIR DAMPER IS CLOSED. 5.2.1.3. THE SUPPLY AIR TEMPERATURE SHALL BE LINEARLY RESET BETWEEN THE TWO POINTS AS FOLLOWS: WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 60 °F THE SUPPLY AIR

TEMPERATURE SHALL BE MAINTAINED AT 55 °F. WHEN THE OUTSIDE AIR TEMPERATURE IS AT

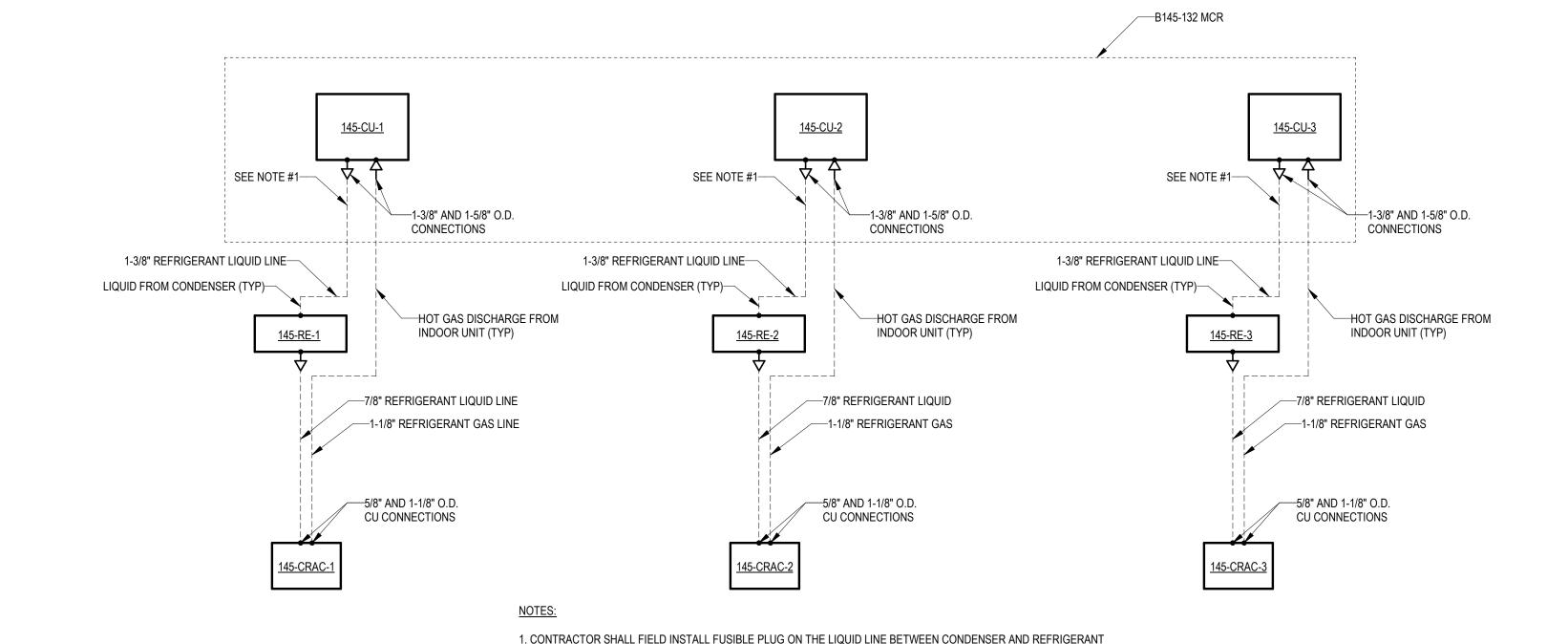
- 5.2.2. UNOCCUPIED MODE:
- 5.2.2.1. DURING NIGHT MODE OF OPERATION, RTU WILL RUN BASED UPON ZONE NIGHT SET BACK TEMPERATURE. IF ANY ZONE DROPS BELOW NIGHT SET BACK SETPOINT THE UNIT SHALL START AND RUN WITH THE OUTSIDE AIR DAMPERS FULL CLOSED AND THE RETURN AIR
- 5.3. ON LOW SUPPLY AIR TEMPERATURE ALARM (INITIALLY 40 °F, ADJUSTABLE), DELAY TWO MINUTES, THEN O/A DAMPER WILL FULL CLOSE, R/A DAMPER WILL FULLY OPEN, AND ALARM SHALL SIGNAL. PROVIDE AUTOMATIC RESET OF ALARM AFTER FIVE MINUTES.
- 5.4. ON SMOKE DETECTION, THE FAN SHALL STOP, O/A DAMPERS WILL FULLLY CLOSE AND R/A DAMPERS WILL FULLY OPEN. INTERCONNECT WITH FIRE ALARM SYSTEM SUCH THAT UPON SMOKE DETECTION FIRE ALARM SYSTEM SHALL BE SIGNALED AND CONVERSELY UPON ACTIVATION OF THE FIRE ALARM, SYSTEM SHALL STOP THE FAN AS INDICATED ABOVE. COORDINATE WITH THE FIRE ALARM SYSTEM.
- 6. MINI SPLIT HEAT PUMPS (NON-TR SPACES)
- 6.1. DESCRIPTION: SPLIT SYSTEM INDOOR AND OUTDOOR UNIT SHALL OPERATE USING MANUFACTUREERS PREPROGRAMMED SEQUENCES TO CONTROL ZONE TEMPERATURE TO SETPOINT.
- 6.2. SUPPLY FAN START / STOP: THE SUPPLY FAN WIL BE STARTED ACCORDING TO THE SCHEDULE, AFTER
- THE SUPPLY FAN HAS BEEN STARTED, THE CONTROL SEQUENCE WILL BE ENABLED. 6.3. ZONE CONTROL: THE COMPRESSOR WILL CYCLE TO MAINTAIN THE ZONE TEMPERATURE AT SETPOINT.
- 6.4. HEAT PUMP CONTROL: ZONE TEMPERATURE SHALL BE OBTAINED FROM TEH ZONE THERMOSTAT. IF ZONE TEMPERATURE RISES ABOVE THE ZONE TEMPERATURE SETPOINT, THE INDOOR UNIT SHALL BE ENABLED
- 6.5. NIGHT SETBACK / NIGHT SETUP: WHEN IN "UNOCCUPIED" MODE, THE UNIT WILL CYCLE AS NECESSARY TO MAINTAIN THE NIGHT SETBACK ZONE TEMPERATURE AT SETPOINT. A DIFFERENTIAL PREVENTS THE UNIT

TO PROVIDE COOLING WHEN THE COMPRESSOR IS RUNNING.

- 6.6. SHUTDOWN: WHEN THE UNIT IS SHUTDOWN BY EITHER A STOP COMMAND OR SYSTEM SAFETY, THE UNIT
- 6.6.1. SUPPLY FAN WILL BE OFF.

WILL BE SET AS FOLLOWS:

- 6.6.2. COMPRESSOR WILL BE OFF.
- 7. PUMP 46-P-1
- 7.1. ACTIVATE PUMP WHEN THE BUILDING SYSTEM CALLS FOR HEATING WATER SUPPLY.
- 7.2. WHEN CALL FOR HEATING WATER SUPPLY ENDS, PUMP SHALL OPERATE FOR 5 MINUTE COOLDOWN PERIOD AND THEN DEACTIVATE.
- 8. LIQUID LEAK DETECTORS
- 8.1. DESCRIPTION: PROVIDE LIQUID LEAK DETECTION FOR THE FOLLOWING AREAS:
- 8.2. DDC SHALL MONITOR LEAK DETECTORS. IF REFRIGERANT IS DETECTED BY LEAK DETECTOR, AN ALARM
- SHALL BE TRIGGERED ON THE DDC SYSTEM.
- 9. REFRIGERANT LEAK DETECTORS
- 9.1. DESCRIPTION: PROVIDE REFRIGERANT LEAK DETECTION FOR THE FOLLOWING AREAS.
- 9.1.1. MCR
- 9.1.2. TR SPACES
- 9.1.3. TE SPACES WITH NEW REFRIGERANT-BASED COOLING SYSTEMS
- 9.1.4. ALL SPACES WITH NEW REFRIGERANT PIPING ROUTED THROUGH THE SPACE.
- 9.2. SENSORS
- 9.2.1. SENSORS SHALL MONITOR REFRIGERANT LEVELS IN SPACE.
- 9.2.2. SENSORS SHALL BE SELECTED AND LOCATED TO MATCH ALL REFRIGERANTS UTILIZED IN EACH
- MONITORED SPACE. 9.3. SENSOR MONITORING
- 9.3.1. THE DDC SHALL SENSORS AND SHALL TRIGGER ALARM IF REFRIGERANT LEVELS ABOVE ALLOWABLE THRESHOLD ARE DETECTED.
- 9.4. ALARMS
- 9.4.1. PROVIDE VISUAL AND AUDIBLE ALARM IN SPACES WHEN ALARM IS TRIGGERED, ALONG WITH ALARM ON DDC SYSTEM.
- UNIT HEATERS
- 10.1. UNIT HEATERS SHALL ACTIVATE BASED ON INTEGRAL THERMOSTAT TO CONTROL SPACE TEMPERATURE TO SETPOINT.
- 10.2. LOW TEMPERATURE SET POINT: 40 °F



MCR CRAC UNIT SYSTEM DIAGRAM NOT TO SCALE

CONSULTANT STAMP ARCHITECT/ENGINEER OF RECORD **MECHANICAL ENGINEER 4317 6TH AVE SE, SUITE 300 1308 NE 134TH ST SUITE A** VANCOUVER, WA 98685 **LACEY, WA 98503**

541.436.4723

ADAM GODDIN, P.E.

SCOTTEN BLAIR **ARCHITECTS • ENGINEER**

OFFICE OF

CONSTRUCTION

AND FACILITIES **MANAGEMENT**

DRAWING TITLE

NOT FOR CONSTRUCTION FOR OFFICIAL USE ONLY (FOUO)

DIAGRAMS, POINTS LISTS, &

SEQUENCE OF OPERATIONS

FULLY SPRINKLERED

DOCUMENTS

PHASE

FLS

LOCATION FORT MEADE, SOUTH DAKOTA CHECKED BY DRAWN BY **ISSUE DATE** ADR

UPGRADES

EHRM INFRASTRUCTURE

PROJECT TITLE

DRAWING NUMBER **MG-006** во

PROJECT NUMBER

BUILDING NUMBER

568-21-701

Revisions:

VA FORM 08 - 6231

. WALL MOUNTED REFRIGERANT LEAK DETECTION SENSOR.

. PROVIDE REFRIGERANT DETECTORS FOR ALL SPACES WITH NEW REFRIGERANT PIPING ROUTED THROUGH THE SPACE.

DATA RACK TEMPERATURE & HUMIDITY SENSORS PROVIDED WITH DATA CENTER COOLING OPTIMIZATION SYSTEM.

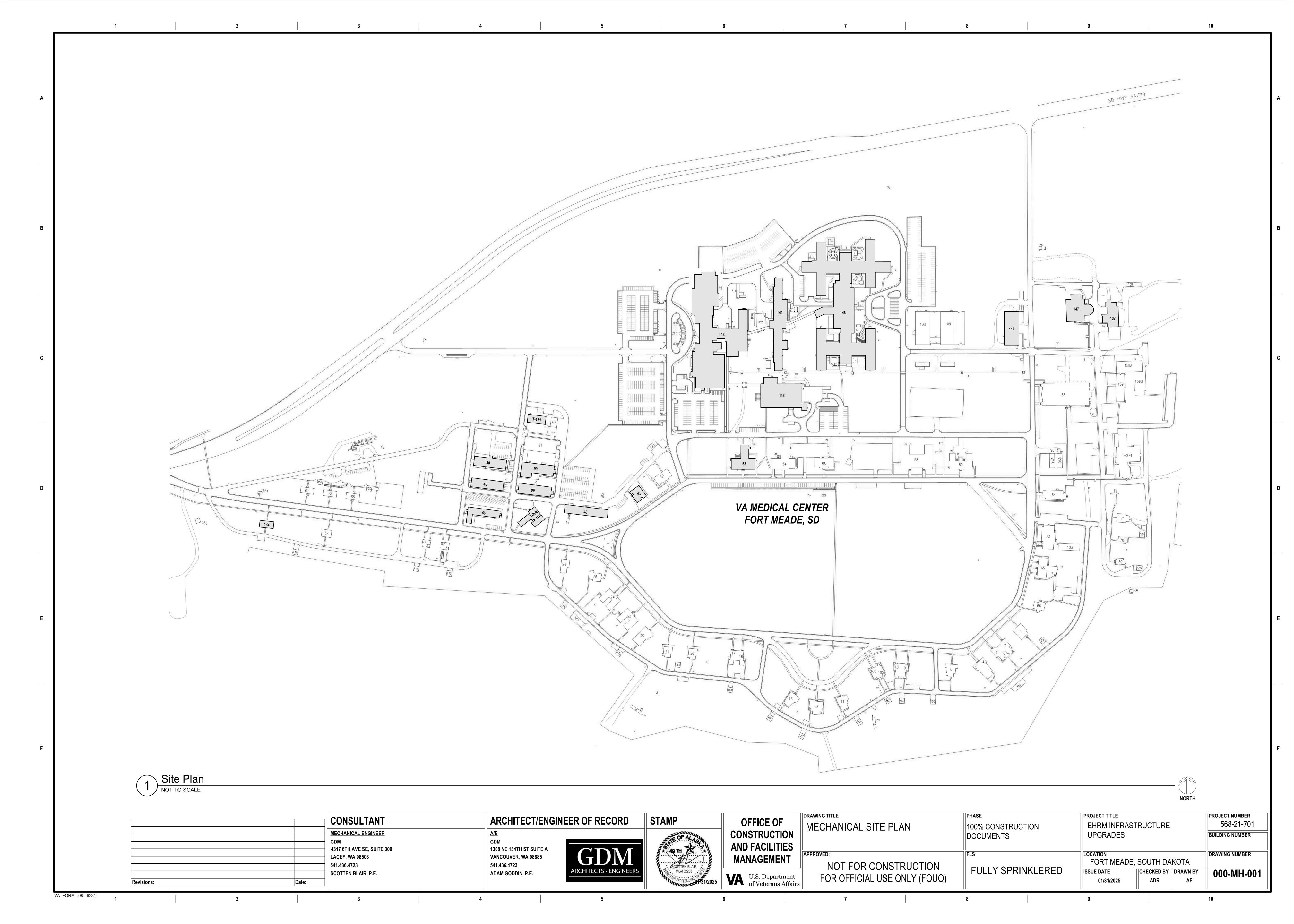
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SCOTTEN BLAIR, P.E.

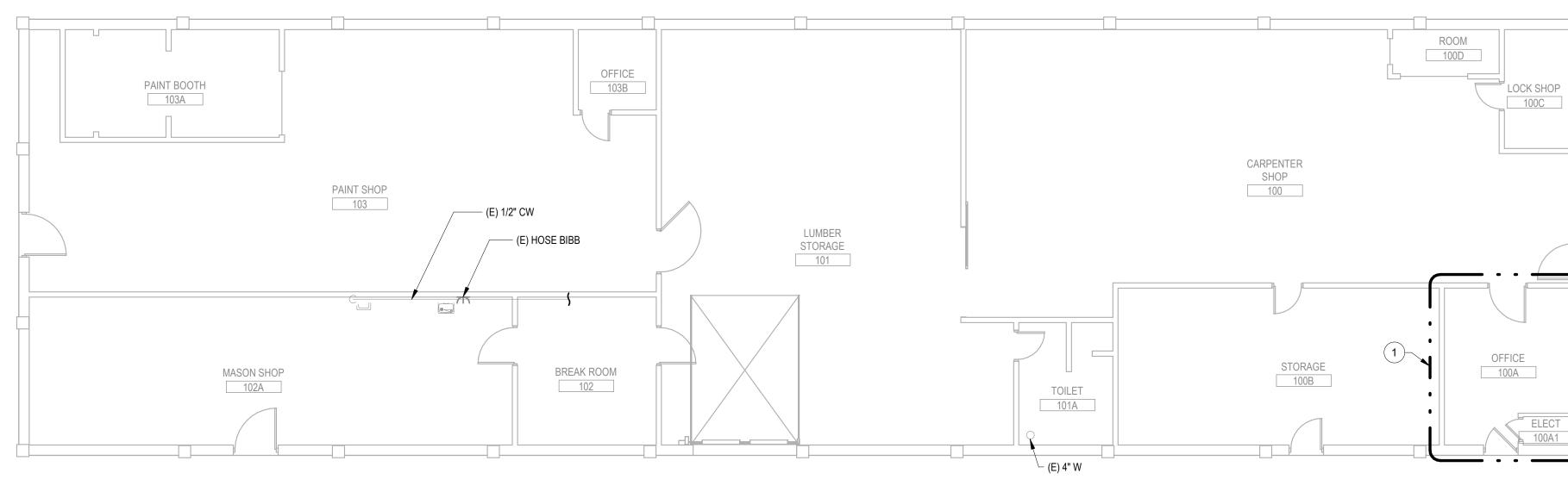
U.S. Department of Veterans Affairs

100% CONSTRUCTION

01/31/2025



PLAN NOTES APPROXIMATE OUTLINE OF NEW TE AREA. SEE REMODEL SHEETS FOR ALL DISCIPLINES FOR ADDITIONAL INFORMATION.



BUILDING 040 - FIRST FLOOR DEMOLITION PLAN - OVERALL

1/8" = 1'-0"

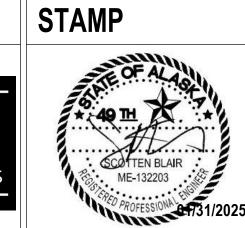
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	GDM
	4317 6TH AVE S
	LACEY, WA 985
	541.436.4723
	SCOTTEN BLAI
Revisions: Date:	

VA FORM 08 - 6231

ARCHITECT/ENGINEER OF RECORD CONSULTANT MECHANICAL ENGINEER

1308 NE 134TH ST SUITE A 4317 6TH AVE SE, SUITE 300 VANCOUVER, WA 98685 LACEY, WA 98503 541.436.4723 SCOTTEN BLAIR, P.E. ADAM GODDIN, P.E.







NORTH

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•	PHASE 100% CONSTRUCTION DOCUMENTS	PROJECT TITLE EHRM INFRASTI UPGRADES	RUCTURE		PROJECT NUMBER 568-21-701 BUILDING NUMBER
	DOGGINEITIO				BDLG 40
	FLS	FORT MEADE,	SOUTH DAI	KOTA	DRAWING NUMBER
	FULLY SPRINKLERED	1SSUE DATE 01/31/2025	CHECKED BY JNB	DRAWN BY ADR	040-MD-011

PROJECT KEY PLAN VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741

PLAN NOTES INSTALL REFRIGERANT DETECTOR 12" FROM FINISHED FLOOR. SLEEVE AND SEAL EXTERIOR WALL PIPING PENETRATION WEATHER-TIGHT. COORDINATE WITH CIVIL FOR EXTERIOR HOUSEKEEPING PAD DETAILS FOR OUTDOOR CONDENSING UNIT. REFER TO ARCHITECTURAL DOCUMENTS FOR CONDENSING UNIT PAD, SNOW PROTECTION AND STAND DETAILS. WALL MOUNTED CABINET. ROUTE 3/4" CONDENSATE DOWN WALL TO NEW AIR GAP FITTING AT EXISTING 4" WASTE PIPE. PROVIDE WALL ACCESS HATCH. PROVIDE WALL ACCESS HATCH. PROVIDE NEW THERMOSTAT INSTALLED AT 4-6" AFF. PROVIDE WELDED SEAMLESS STAINLESS STEEL DRIP PAN BELOW ALL PIPING CONVEYING FLUIDS ABOVE TR AREA. DRIP PANS SHALL EXTEND 6" MIN FROM BOTH SIDES OF PIPE. PROVIDE 3/4" DRAIN FROM DRIP PAN AND ROUTE SIMILAR TO IU CONDENSATE DRAIN.

PROVIDE NEW COMBINATION TEMPERATURE AND HUMIDITY SENSOR INSTALLED AT 4'-6" AFF.

PROJECT KEY PLAN

VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741

PANT SOOTH 100 PANT S

BUILDING 040 - FIRST FLOOR REMODEL PLAN - OVERALL

1/8" = 1'-0"

NORTH

	CONSULTANT	ARCHITECT/ENGINE
	MECHANICAL ENGINEER	<u>A/E</u>
	GDM	GDM
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	SCOTTEN BLAIR, P.E.	ADAM GODDIN, P.E.

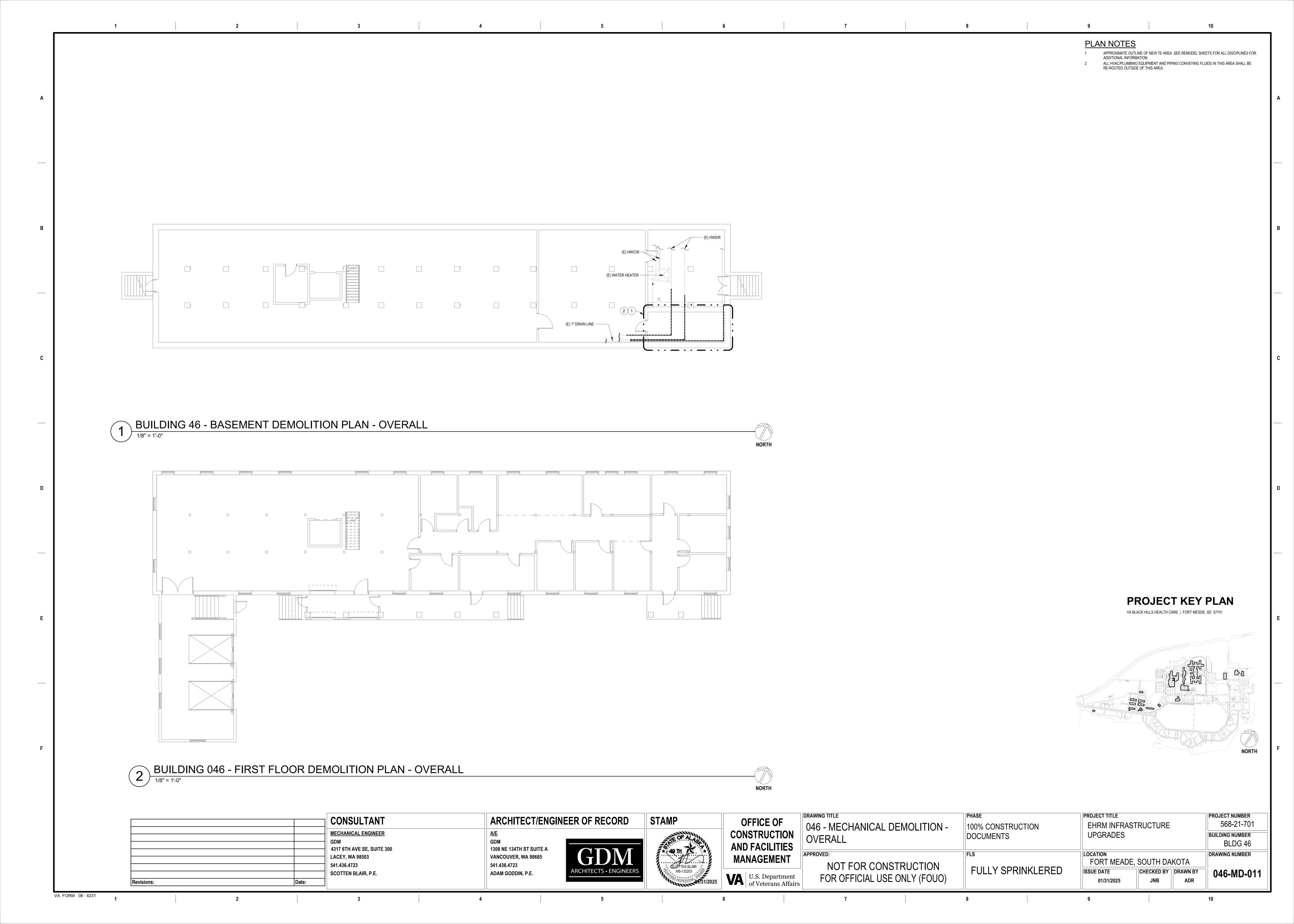


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SCOTTEN BLAIR	MANAGEMENT
ME-132203 PROFESSION B 731/2025	U.S. Department of Veterans Affairs

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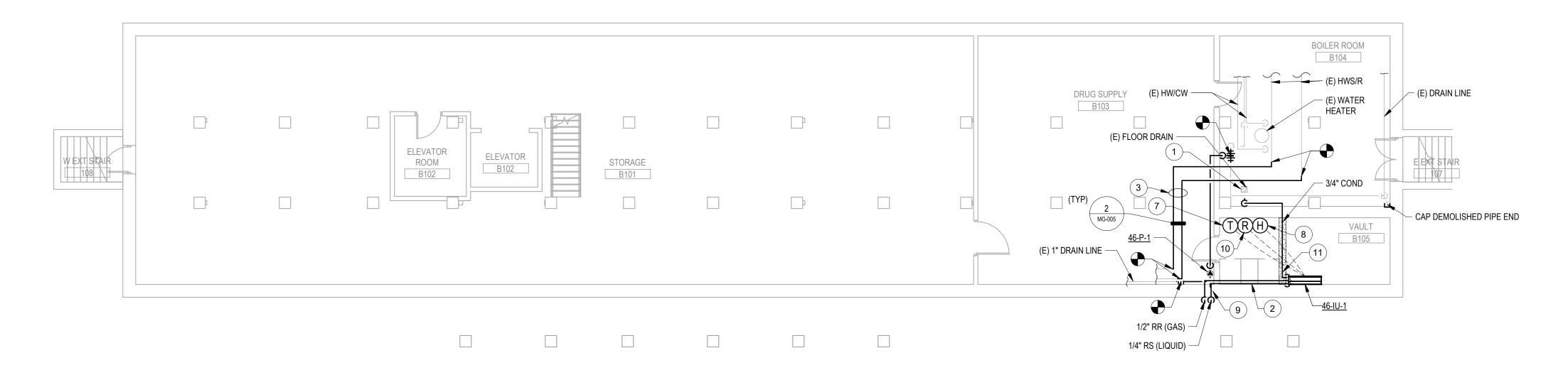
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	PHASE	PROJECT TITLE EHRM INFRASTRUCTURE			PROJECT NUMBER
10DEL -	100% CONSTRUCTION			568-21-701	
	DOCUMENTS	UPGRADES			BUILDING NUMBER
					BLDG 40
	FLS	LOCATION			DRAWING NUMBER
UCTION ILY (FOUO)		FORT MEADE,	SOUTH DA	KOTA	
	FULLY SPRINKLERED	ISSUE DATE	CHECKED BY	DRAWN BY	040-MH-011
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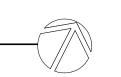


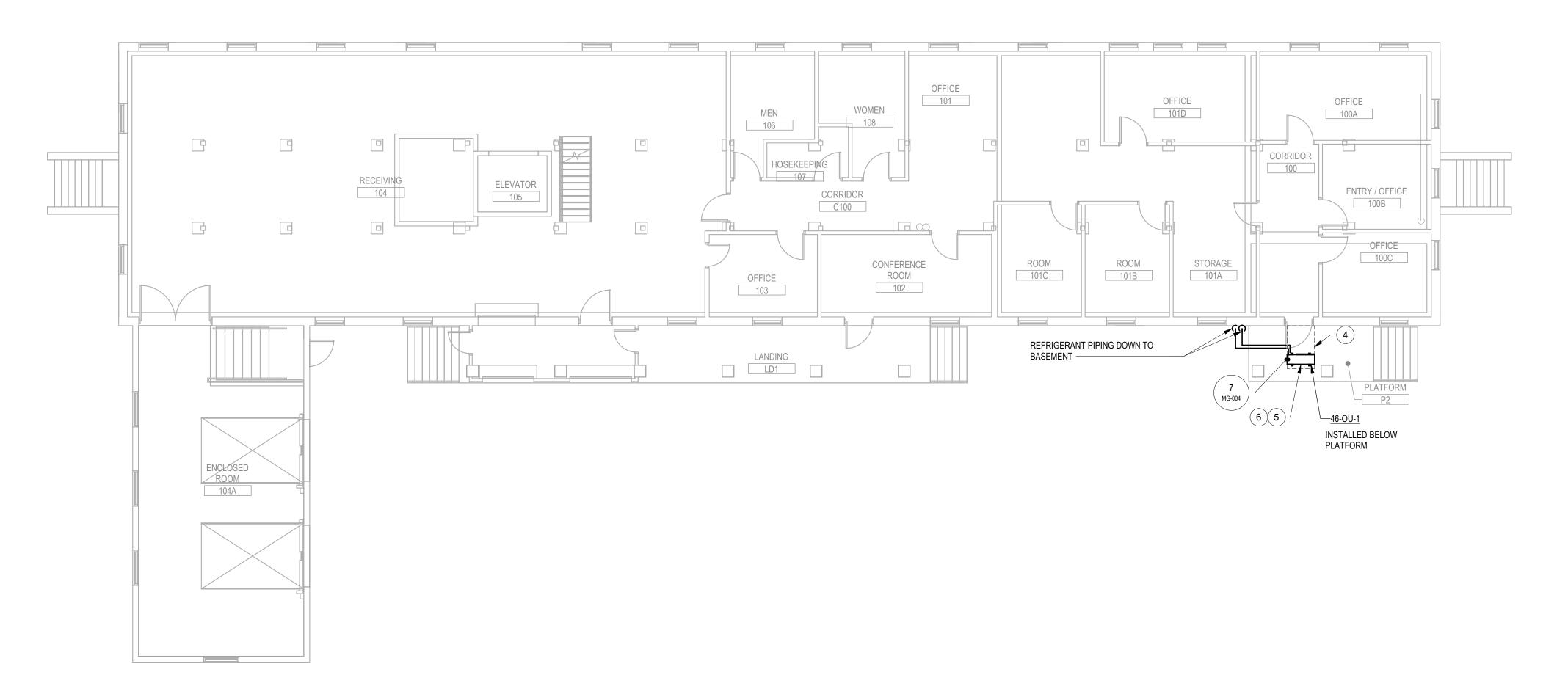
PLAN NOTES

- ROUTE 3/4" CONDENSATE DOWN WALL AND OVER TO EXISTING FLOOR DRAIN.
- WALL MOUNTED CABINET. REROUTE (E) HEATING WATER SUPPLY/RETURN OUT FROM ABOVE NEW DATA CABINET.
- EQUIPMENT SERVICE CLEARANCE (TYP). REFER TO ARCHITECTURAL DOCUMENTS FOR CONDENSING UNIT PAD, SNOW PROTECTION AND
- COORDINATE WITH CIVIL FOR EXTERIOR HOUSEKEEPING PAD DETAILS FOR OUTDOOR
- CONDENSING UNIT. PROVIDE NEW THERMOSTAT INSTALLED AT 4'-6" AFF.
- PROVIDE NEW COMBINATION TEMPERATURE AND HUMIDITY SENSOR INSTALLED AT 4'-6" AFF. CONNECT TO DDC SYSTEM.
- SLEEVE AND SEAL EXTERIOR WALL PIPING PENETRATION WEATHER-TIGHT.
- INSTALL REFRIGERANT DETECTOR 12" FROM FINISHED FLOOR. PROVIDE WELDED SEAMLESS STAINLESS STEEL DRIP PAN BELOW ALL PIPING CONVEYING FLUIDS ABOVE TR AREA. DRIP PANS SHALL EXTEND 6" MIN FROM BOTH SIDES OF PIPE. PROVIDE 3/4" DRAIN FROM DRIP PAN AND ROUTE SIMILAR TO IU CONDENSATE DRAIN.



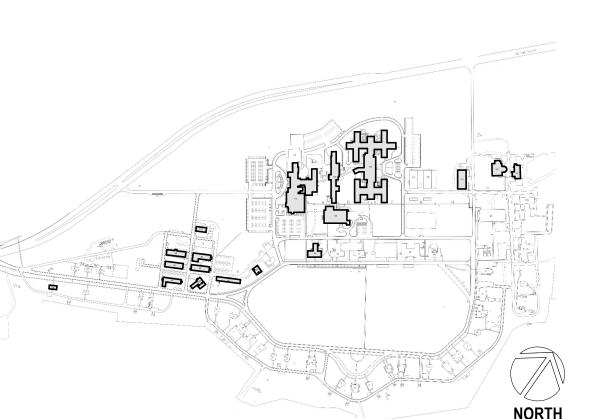
BUILDING 046 - BASEMENT REMODEL PLAN - OVERALL





PROJECT KEY PLAN

VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741



ADR

BUILDING 046 - FIRST FLOOR REMODEL PLAN - OVERALL

1/8" = 1'-0"



		CONSULTAN
		MECHANICAL ENGINEE
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		SCOTTEN BLAIR, P.E.
Revisions:	Date:	

ARCHITECT/ENGINEER OF RECORD	
7	

541.436.4723

ADAM GODDIN, P.E.



TAMP	OFFICE OF	
OF ALTON	CONSTRUCTION AND FACILITIES	
SCOTTEN BLAIR	MANAGEMENT	
ME-132203 PROFESSIONA 0-1731/2025	U.S. Department of Veterans Affairs	

OFFICE OF
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AND FACILITIES
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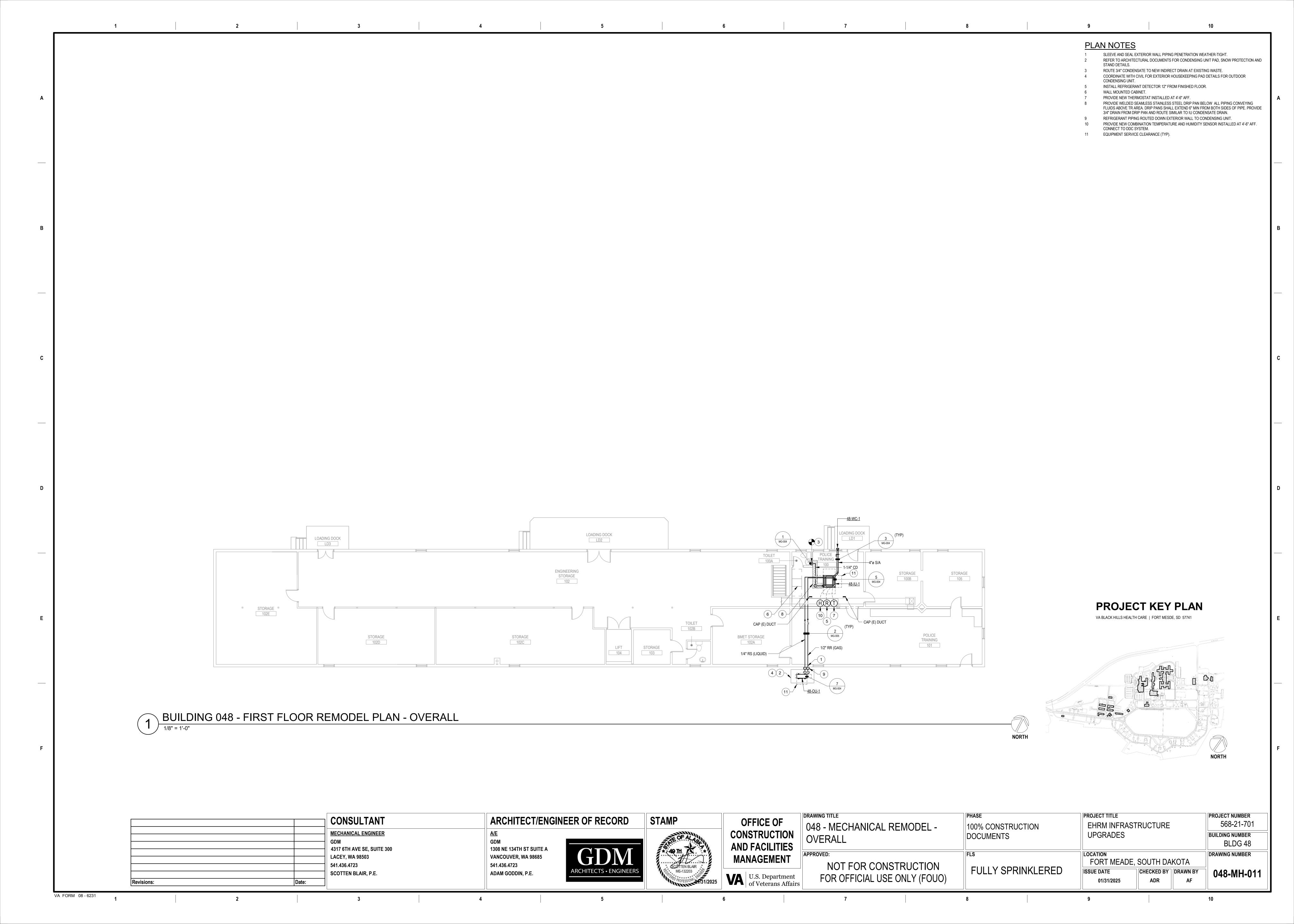
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DEL -	PHASE 100% CONSTRUCTION DOCUMENTS	PROJECT TITLE EHRM INFRASTRUCTURE UPGRADES	PROJECT NUMBER 568-21-701 BUILDING NUMBER BLDG 46
CTION	FLS	FORT MEADE, SOUTH DAKO	TA DRAWING NUMBER
Y (FOLIO)	FULLY SPRINKLERED	ISSUE DATE CHECKED BY DRA	046-MH-011

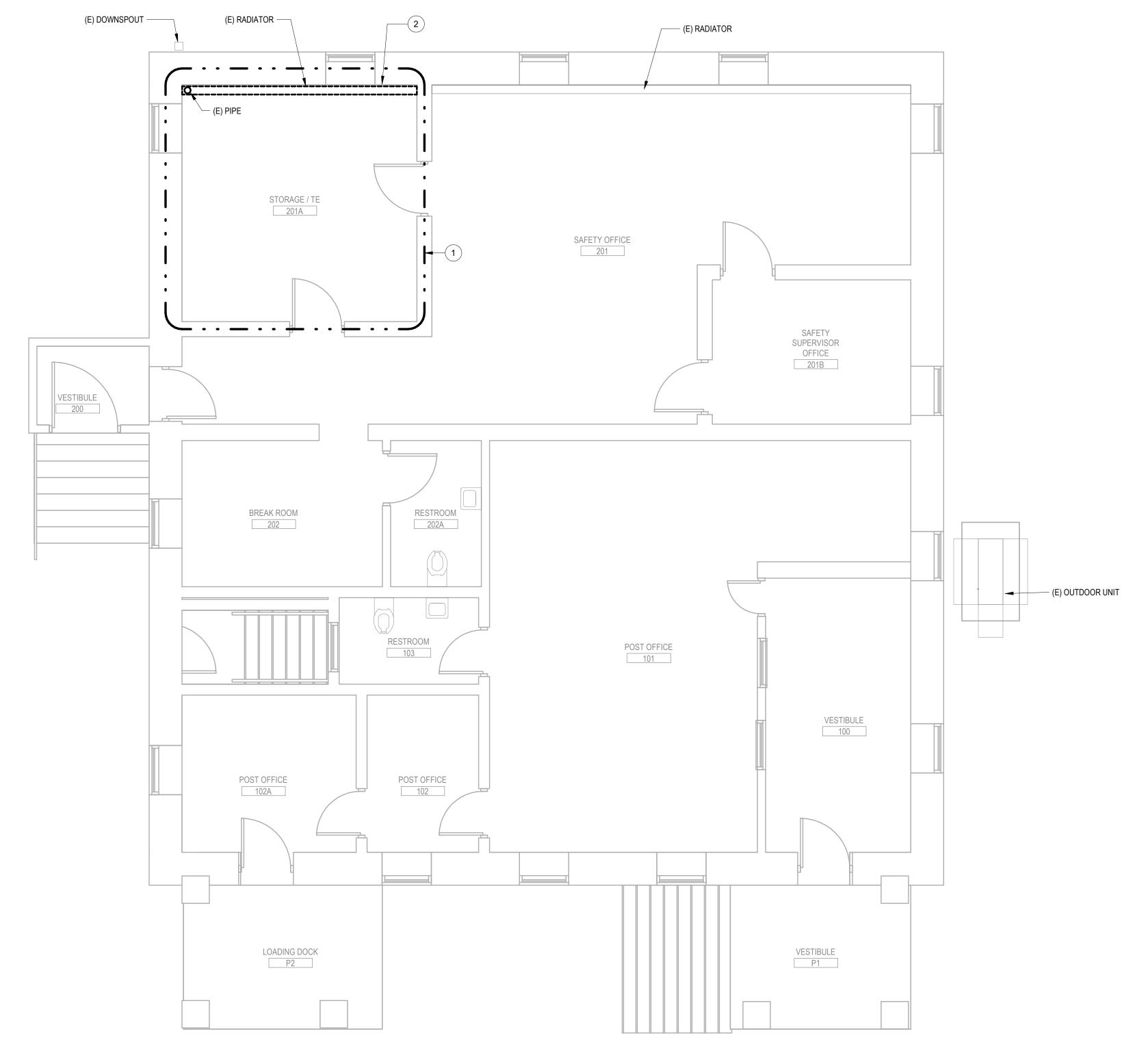
01/31/2025

PLAN NOTES DEMOLISH EXISTING AIR TERMINAL AND ASSOCIATED DUCTWORK BACK TO BRANCH AND CAP. DEMOLISH EXISTING WINDOW MOUNTED COOLING UNIT. DEMOLISH EXISTING ELECTRIC CABINET UNIT HEATER BELOW WINDOW. 3 DEMOLISH EXISTING MECHANICAL EQUIPMENT AND ANY ASSOCIATED CONTROLS AND WIRING BACK TO NEAREST CONTROL PANEL OR JUNCTION BOX. 4 APPROXIMATE OUTLINE OF NEW TE AREA. SEE REMODEL SHEETS FOR ALL DISCIPLINES FOR ADDITIONAL LOADING DOCK LOADING DOCK — EXISTING WALL MOUNTED CABINET E-SD 6/6 ENGINEERING STORAGE 102 STORAGE 105 STORAGE 102E E-SD 10/6 (E) SA (E) MECHANICAL UNIT BMET STORAGE 102A STORAGE 102D STORAGE 102C POLICE TRAINING 101 BUILDING 048 - FIRST FLOOR DEMOLITION PLAN - OVERALL PROJECT TITLE PROJECT NUMBER DRAWING TITLE ARCHITECT/ENGINEER OF RECORD CONSULTANT STAMP **OFFICE OF** 100% CONSTRUCTION 568-21-701 EHRM INFRASTRUCTURE 048 - MECHANICAL DEMOLITION -CONSTRUCTION MECHANICAL ENGINEER **UPGRADES BUILDING NUMBER** DOCUMENTS **OVERALL** GDM BLDG 048 AND FACILITIES 4317 6TH AVE SE, SUITE 300 1308 NE 134TH ST SUITE A FORT MEADE, SOUTH DAKOTA DRAWING NUMBER FLS VANCOUVER, WA 98685 LACEY, WA 98503 **MANAGEMENT** 541.436.4723 541.436.4723 FULLY SPRINKLERED ISSUE DATE CHECKED BY DRAWN BY ARCHITECTS • ENGINEER 048-MD-011 SCOTTEN BLAIR, P.E. ADAM GODDIN, P.E. VA U.S. Department of Veterans Affairs 05/03/2024 ADR AF Revisions: VA FORM 08 - 6231



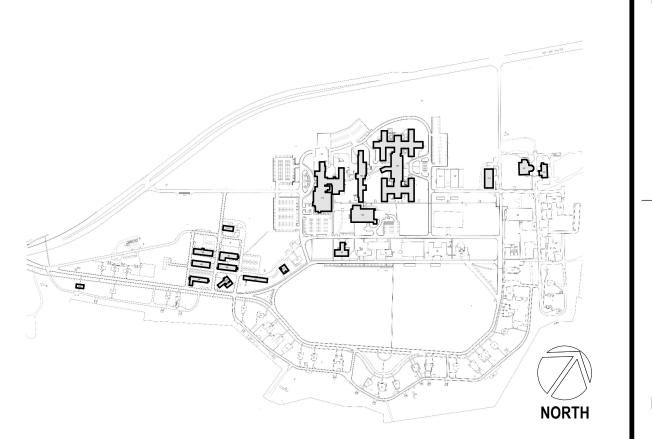
PLAN NOTES

- APPROXIMATE OUTLINE OF NEW TE AREA. SEE REMODEL SHEETS FOR ALL DISCIPLINES FOR ADDITIONAL INFORMATION.
- EXISTING RADIATOR. CONTRACTOR TO DEMOLISH OUT OF SPACE AND RECONNECT EXISTING EQUIPMENT.



PROJECT KEY PLAN

VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741



1	BUILDING 050 - FIRST FLOOR DEMOLITION PLAN - OVERAL	.L
\	1/4" = 1'-0"	

IECHANICAL ENGINEER	A/E	
	<u>A/E</u>	
SDM 317 6TH AVE SE, SUITE 300	GDM 1308 NE 134TH ST SUITE A	
41.436.4723	541.436.4723	GDM ARCHITECTS • ENGINEERS
3 A 4	17 6TH AVE SE, SUITE 300 CEY, WA 98503	OM 17 6TH AVE SE, SUITE 300 18 1308 NE 134TH ST SUITE A VANCOUVER, WA 98685 1.436.4723 541.436.4723

	STAMP	
	STEOF AL ADIO	
	* 49 TH	
DC	SCOTTEN BLAIR	
RS —	ME-132203 PROFESSIONA 0-731/2025	•

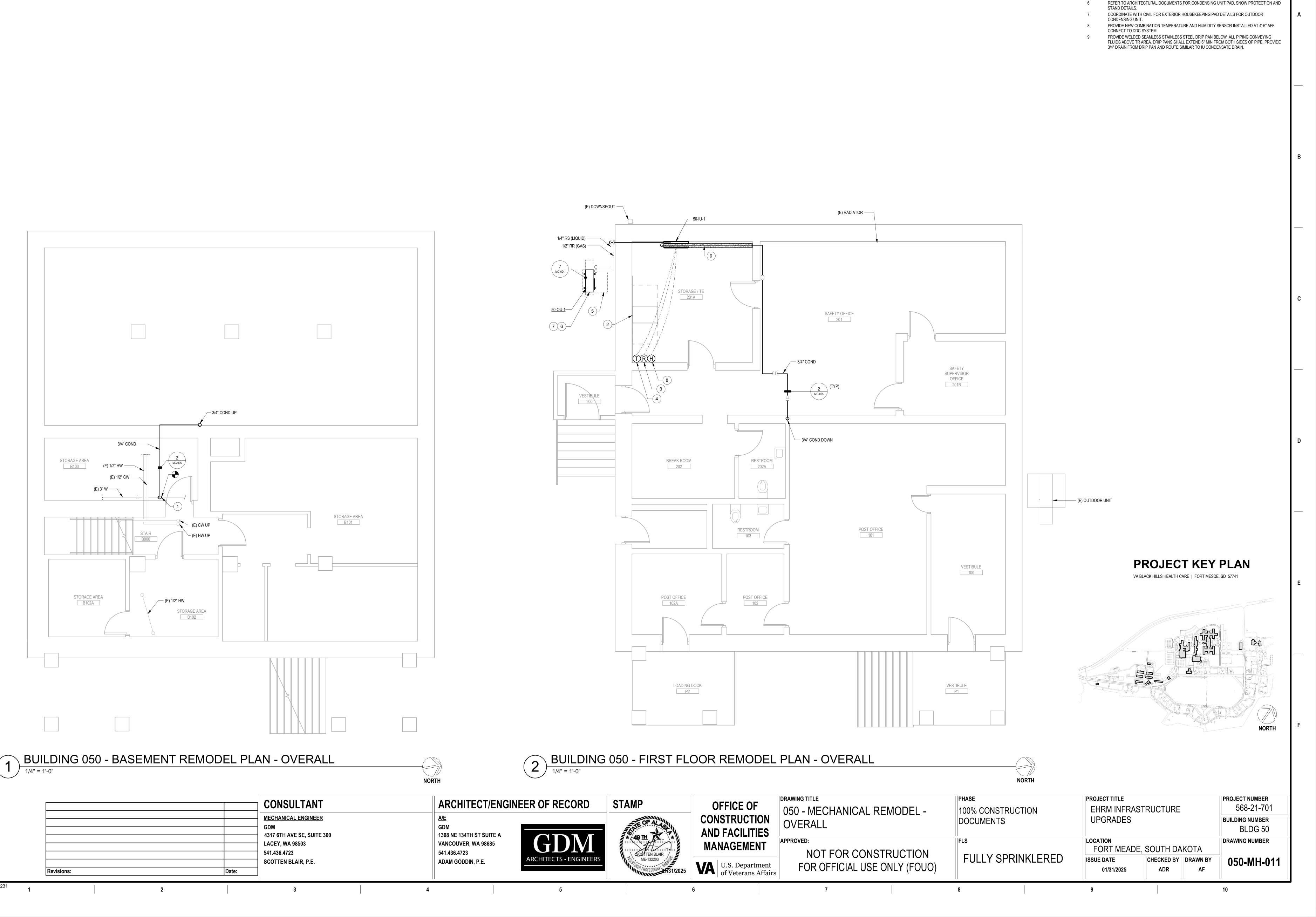
CON	OFFICE OF ISTRUCTION OFACILITIES NAGEMENT
1//	U.S. Department

N S	050 - MECHANICAL DEMOLITION - OVERALL
-	APPROVED:
	NOT FOR CONSTRUCTION
nt fairs	FOR OFFICIAL USE ONLY (FOUO)

TION -	100% CONSTRUCTION DOCUMENTS	E
	FLS	LO
FOLIO)	FULLY SPRINKLERED	ISS

PROJECT TITLE EHRM INFRASTRUCTURE		PROJECT NUMBER 568-21-701	
UPGRADES			BUILDING NUMBER BLDG 50
FORT MEADE, SOUTH DAKOTA			DRAWING NUMBER
ISSUE DATE 01/31/2025	CHECKED BY ADR	DRAWN BY AF	050-MD-01

of Veterans Affairs



___ 3/4" COND UP

STORAGE AREA

3/4" COND ----

STORAGE AREA

STORAGE AREA

B102A

Revisions:

VA FORM 08 - 6231

PLAN NOTES

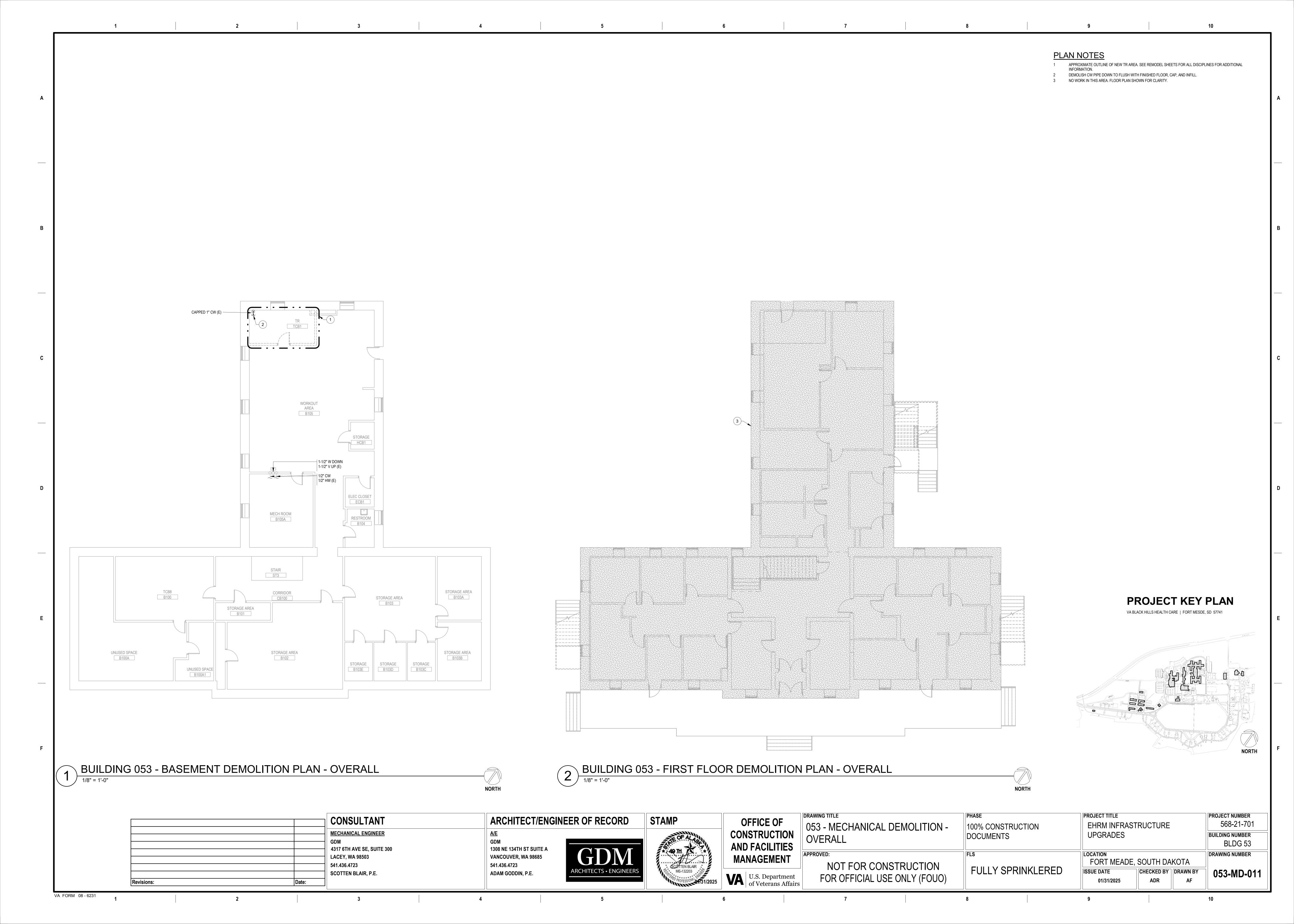
WALL MOUNTED CABINET.

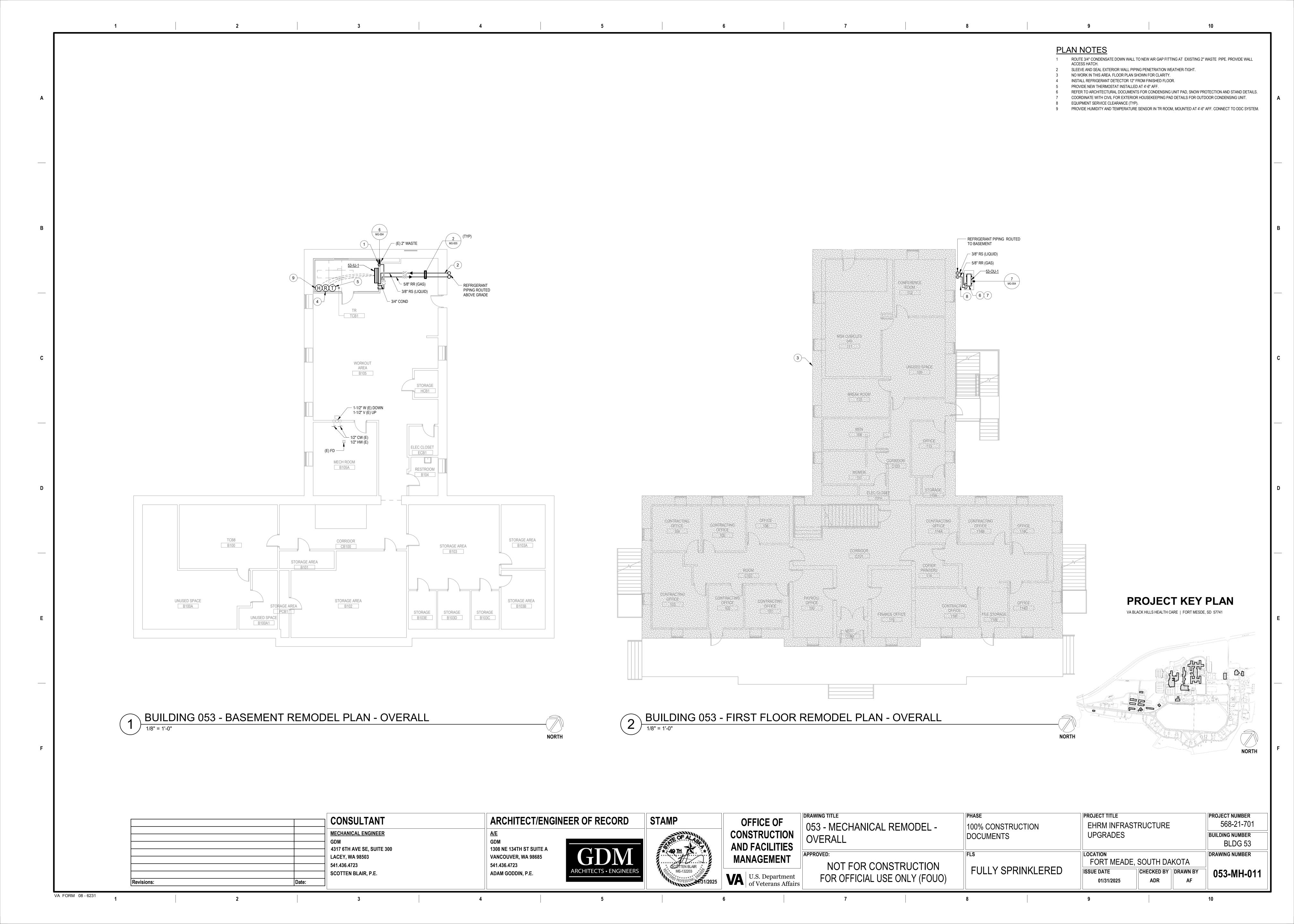
ROUTE 3/4" CONDENSATE TO NEW INDIRECT DRAIN AT EXISTING WASTE.

INSTALL REFRIGERANT DETECTOR 12" FROM FINISHED FLOOR.

PROVIDE NEW THERMOSTAT INSTALLED AT 4'-6" AFF.

EQUIPMENT SERVICE CLEARANCE (TYP).



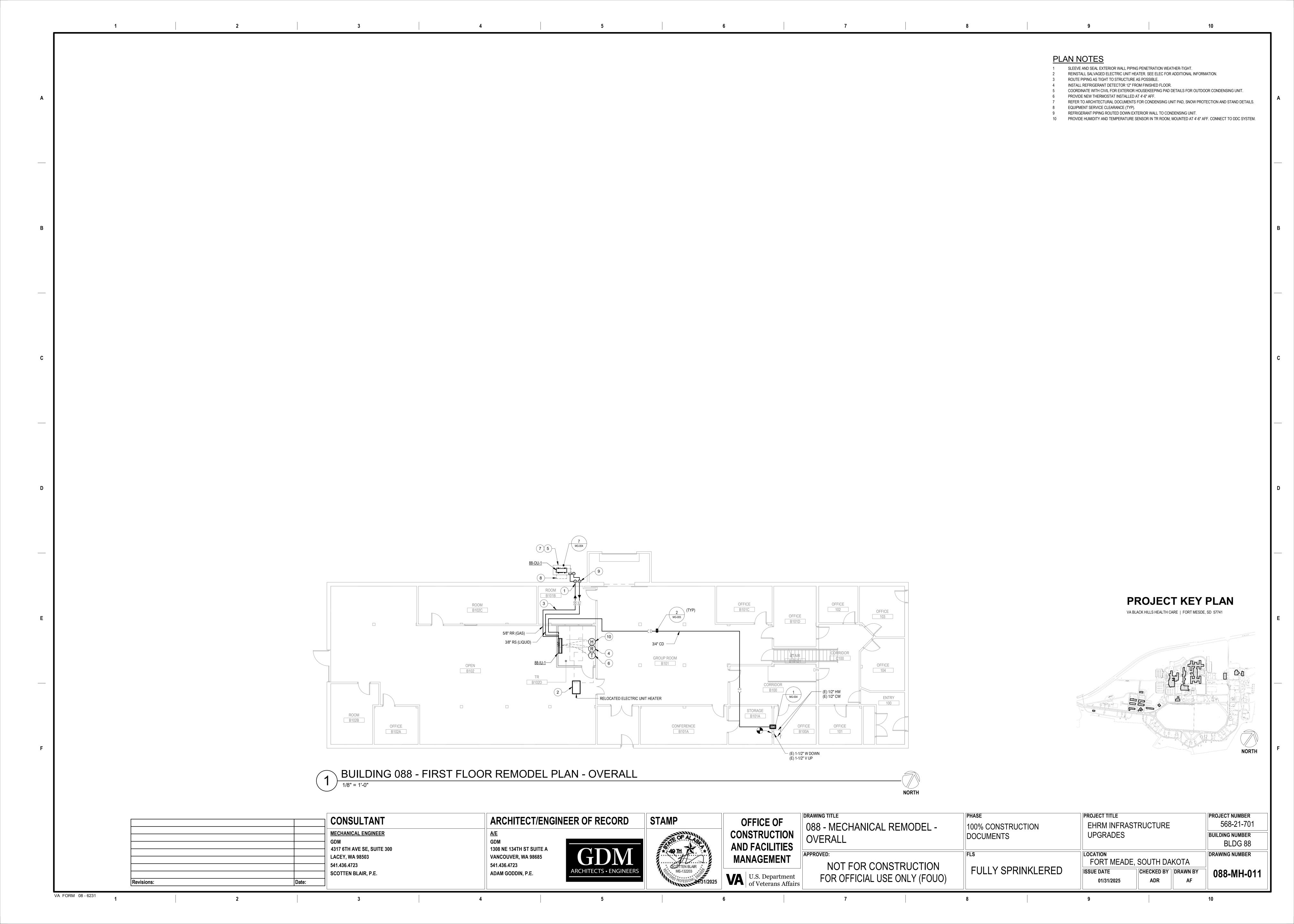


PLAN NOTES 1 APPROXIMATE OUTLINE OF NEW TR AREA. SEE REMODEL SHEETS FOR ALL DISCIPLINES FOR ADDITIONAL 2 RELOCATE ELECTRIC UNIT HEATER OUTSIDE OF TR LOCATION. SEE ELECTRICAL FOR ADDITIONAL INFORMATION. PROJECT KEY PLAN OFFICE B101C ROOM B102C ROOM B101B VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741 GROUP ROOM B101 OPEN B102 - ELECTRIC UNIT HEATER (E) CORRIDOR
B100 (E) 1/2" HW (E) 1/2" CW ROOM B102B OFFICE B102A CONFERENCE B101A (E) 1-1/2" W DOWN, (E) 1-1/2" V UP BUILDING 088 - FIRST FLOOR DEMOLITION PLAN - OVERALL

1/8" = 1'-0" NORTH PROJECT NUMBER 568-21-701 DRAWING TITLE PHASE PROJECT TITLE CONSULTANT ARCHITECT/ENGINEER OF RECORD STAMP OFFICE OF EHRM INFRASTRUCTURE 088 - MECHANICAL DEMOLITION -100% CONSTRUCTION CONSTRUCTION MECHANICAL ENGINEER **UPGRADES** DOCUMENTS BUILDING NUMBER OVERALL BLDG 88 AND FACILITIES * 49 TH

SCOTTEN BLAIR

ME-132203 1308 NE 134TH ST SUITE A 4317 6TH AVE SE, SUITE 300 GDM FORT MEADE, SOUTH DAKOTA DRAWING NUMBER **MANAGEMENT** VANCOUVER, WA 98685 LACEY, WA 98503 NOT FOR CONSTRUCTION 541.436.4723 541.436.4723 FULLY SPRINKLERED CHECKED BY DRAWN BY ISSUE DATE 088-MD-011 SCOTTEN BLAIR, P.E. ADAM GODDIN, P.E. VA U.S. Department of Veterans Affairs FOR OFFICIAL USE ONLY (FOUO) 01/31/2025 Revisions: VA FORM 08 - 6231



PLAN NOTES APPROXIMATE OUTLINE OF NEW TR AREA. SEE REMODEL SHEETS FOR ALL DISCIPLINES FOR ADDITIONAL INFORMATION. ROOM 104 ROOM 105 CONFERENCE 106 SHOP

111 RECEPTION 100 SHOP 112 — (E) 1-1/2" W DOWN, (E) 1-1/2" V UP ROOM 111B OFFICE OFFICE 113 112A OFFICE 107 ROOM 111A OFFICE 108 BUILDING 089 - FIRST FLOOR DEMOLITION PLAN - OVERALL

1/8" = 1'-0" PROJECT KEY PLAN VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741 BUILDING 089 - SECOND FLOOR DEMOLITION PLAN - OVERALL

1/8" = 1'-0" NORTH DRAWING TITLE PROJECT TITLE PROJECT NUMBER PHASE CONSULTANT ARCHITECT/ENGINEER OF RECORD STAMP OFFICE OF 568-21-701 EHRM INFRASTRUCTURE 089 - MECHANICAL DEMOLITION -100% CONSTRUCTION CONSTRUCTION MECHANICAL ENGINEER DOCUMENTS **UPGRADES** BUILDING NUMBER OVERALL BLDG 8 AND FACILITIES # 49 TH

SCOTTEN BLAIR

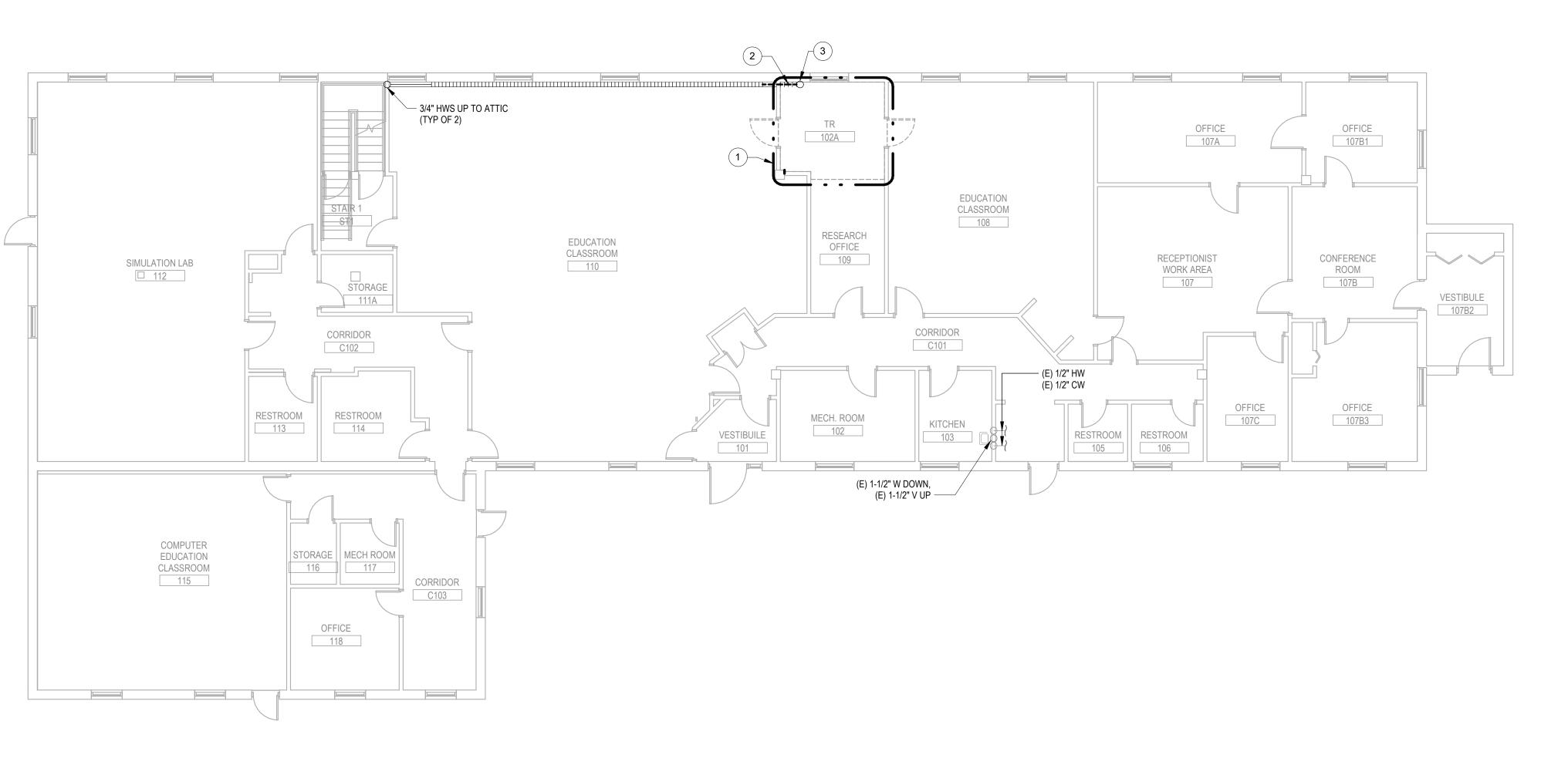
ME-132203 4317 6TH AVE SE, SUITE 300 1308 NE 134TH ST SUITE A FORT MEADE, SOUTH DAKOTA DRAWING NUMBER VANCOUVER, WA 98685 LACEY, WA 98503 **MANAGEMENT** NOT FOR CONSTRUCTION 541.436.4723 541.436.4723 FULLY SPRINKLERED CHECKED BY DRAWN BY ISSUE DATE 089-MD-011 ADAM GODDIN, P.E. SCOTTEN BLAIR, P.E. U.S. Department of Veterans Affairs FOR OFFICIAL USE ONLY (FOUO) 01/31/2025 ADR Revisions:

VA FORM 08 - 6231

PLAN NOTES ROUTE 3/4" CONDENSATE DOWN TO (E) JANITOR SINK. SLEEVE AND SEAL EXTERIOR WALL PIPING PENETRATION WEATHER-TIGHT. PROVIDE NEW THERMOSTAT INSTALLED AT 4'-6" AFF. INSTALL REFRIGERANT DETECTOR 12" FROM FINISHED FLOOR. REFER TO ARCHITECTURAL DOCUMENTS FOR CONDENSING UNIT PAD, SNOW PROTECTION AND STAND DETAILS. COORDINATE WITH CIVIL FOR EXTERIOR HOUSEKEEPING PAD DETAILS FOR OUTDOOR CONDENSING UNIT. EQUIPMENT SERVICE CLEARANCE (TYP). REFRIGERANT PIPING ROUTED DOWN EXTERIOR WALL TO CONDENSING UNIT. ROUTE PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. 10 PROVIDE HUMIDITY AND TEMPERATURE SENSOR IN TR ROOM, MOUNTED AT 4'-6" AFF. CONNECT TO DDC SYSTEM. RR/RS PIPING ROUTED ALONG COLUMN TO SECOND FLOOR CONFERENCE 106 RECEPTION 100 SHOP 112 CD PIPING ROUTED ALONG COLUMN TO SECOND FLOOR — CORRIDOR 100D — (E) 1-1/2" V UP (E) 1-1/2" W DOWN OFFICE 113 OFFICE 112A ROOM 111A COPY 100A 111B (E) JAN SINK -BUILDING 089 - FIRST FLOOR REMODEL PLAN - OVERALL PROJECT KEY PLAN — 3/8" RS (LIQUID) VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741 ATTIC 200 CONDENSATE PIPING ROUTED ALONG COLUMN TO FIRST FLOOR BUILDING 089 - SECOND FLOOR REMODEL PLAN - OVERALL 1/8" = 1'-0" NORTH DRAWING TITLE PROJECT TITLE PROJECT NUMBER PHASE CONSULTANT ARCHITECT/ENGINEER OF RECORD STAMP **OFFICE OF** 568-21-701 EHRM INFRASTRUCTURE 089 - MECHANICAL REMODEL -100% CONSTRUCTION MECHANICAL ENGINEER CONSTRUCTION DOCUMENTS **UPGRADES** BUILDING NUMBER **OVERALL** BLDG 89 AND FACILITIES 49 TH SCOTTEN BLAIR ME-132203 4317 6TH AVE SE, SUITE 300 1308 NE 134TH ST SUITE A FORT MEADE, SOUTH DAKOTA DRAWING NUMBER VANCOUVER, WA 98685 LACEY, WA 98503 **MANAGEMENT** NOT FOR CONSTRUCTION 541.436.4723 541.436.4723 FULLY SPRINKLERED CHECKED BY DRAWN BY ISSUE DATE 089-MH-011 ADAM GODDIN, P.E. SCOTTEN BLAIR, P.E. U.S. Department of Veterans Affairs FOR OFFICIAL USE ONLY (FOUO) 01/31/2025 ADR Revisions: VA FORM 08 - 6231

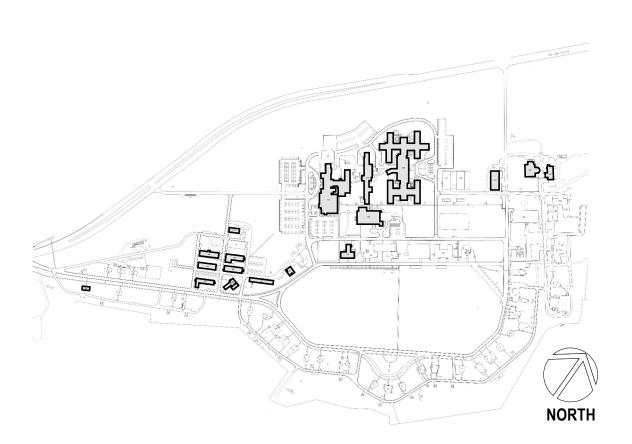
PLAN NOTES

- 1 APPROXIMATE OUTLINE OF NEW TR AREA. SEE REMODEL SHEETS FOR ALL DISCIPLINES FOR ADDITIONAL
- DEMOLISH EXISTING FIN TUBE, FIN TUBE ENCLOSURE, AND ASSOCIATED HYDRONIC BRANCH PIPING TO EXTENT NECESSARY FOR TR REMODEL. SALVAGE VALVE TRAIN FOR RE-USE IN REMODEL.
- 3 DEMOLISH HYDRONIC PIPE RISER TO ATTIC. PATCH AND SEAL FLOOR PENETRATION.



PROJECT KEY PLAN

VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741



BUILDING 090 - FIRST FLOOR DEMOLITION PLAN - OVERALL 1/8" = 1'-0"

		CONSULTANT
		MECHANICAL ENGINEER
		GDM
		4317 6TH AVE SE, SUITE 300 LACEY, WA 98503
		541.436.4723
		SCOTTEN BLAIR, P.E.
Davisiana	Deter	

ARCHITECT/ENGINEER OF RECORD	
<u>A/E</u>	
GDM	
1308 NE 134TH ST SUITE A	

A/E	
GDM	
1308 NE 134TH ST SUITE A	
VANCOUVER, WA 98685	GDM
541.436.4723	
ADAM GODDIN, P.E.	ARCHITECTS • ENGINEERS

AMP	OFFICE O	
OF ALCO	CONSTRUCT	
* 49 TH	AND FACILI	
ME-132203 PROFESSIONA 0-1731/2025	VA U.S. Depart of Veteran	

OFFICE OF CONSTRUCTION AND FACILITIES MANAGEMENT
IIS Departmen

ON ES	090 - MECHANICAL DEMOLITION OVERALL
T	APPROVED: NOT FOR CONSTRUCTION

90 - MECHANICAL DEMOLITION - OVERALL	100% CONSTRUCTIO DOCUMENTS
PROVED:	FLS
NOT FOR CONSTRUCTION FOR OFFICIAL USE ONLY (FOUO)	FULLY SPRINK

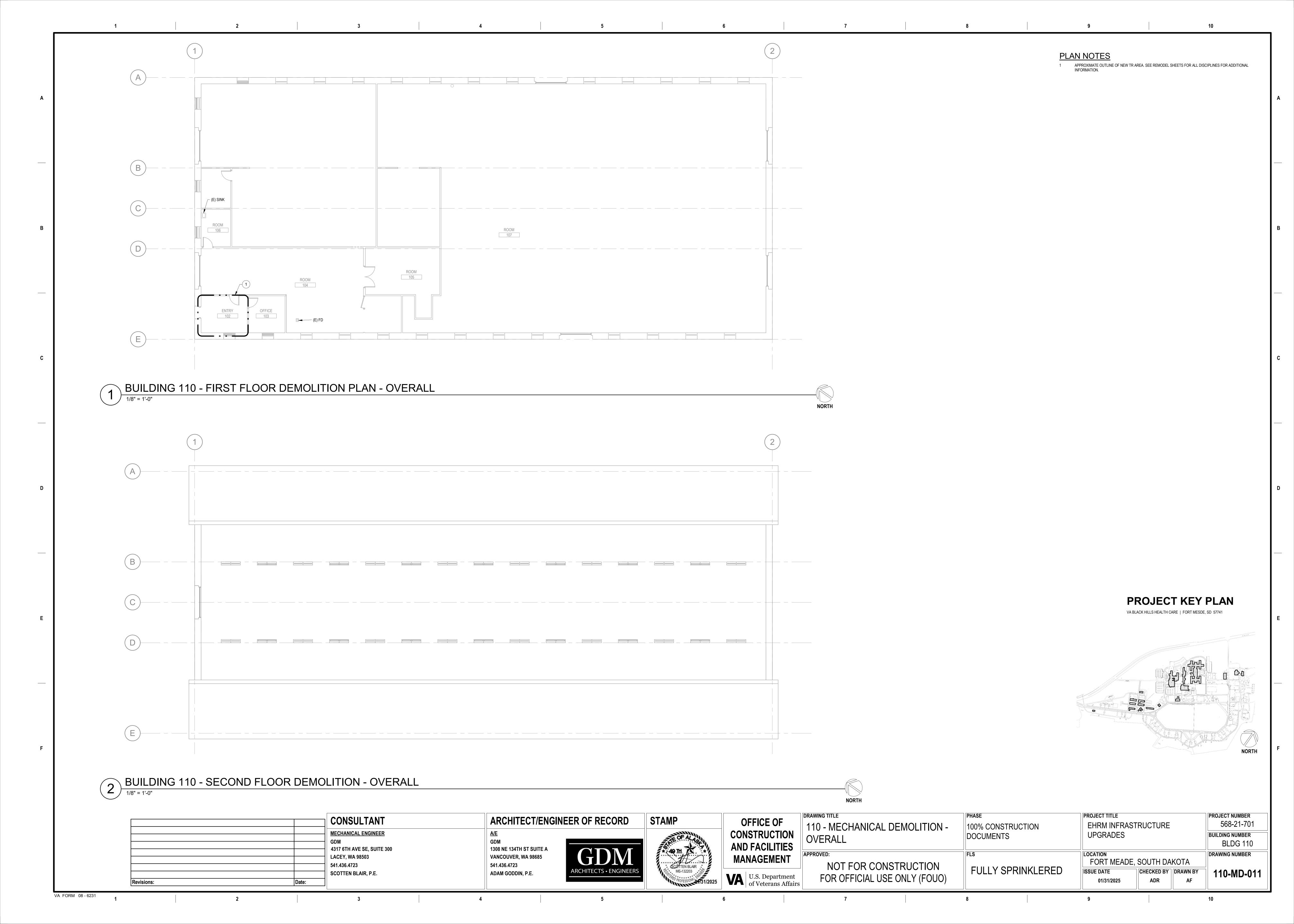
PHASE 100% CONSTRUCTION DOCUMENTS	PROJECT TITLE EHRM INFRASTRUCTURE UPGRADES	PROJECT NUMBE 568-21-7 BUILDING NUMBE BLDG 9
FLS	FORT MEADE, SOUTH DAKOTA	DRAWING NUMBE
		; I

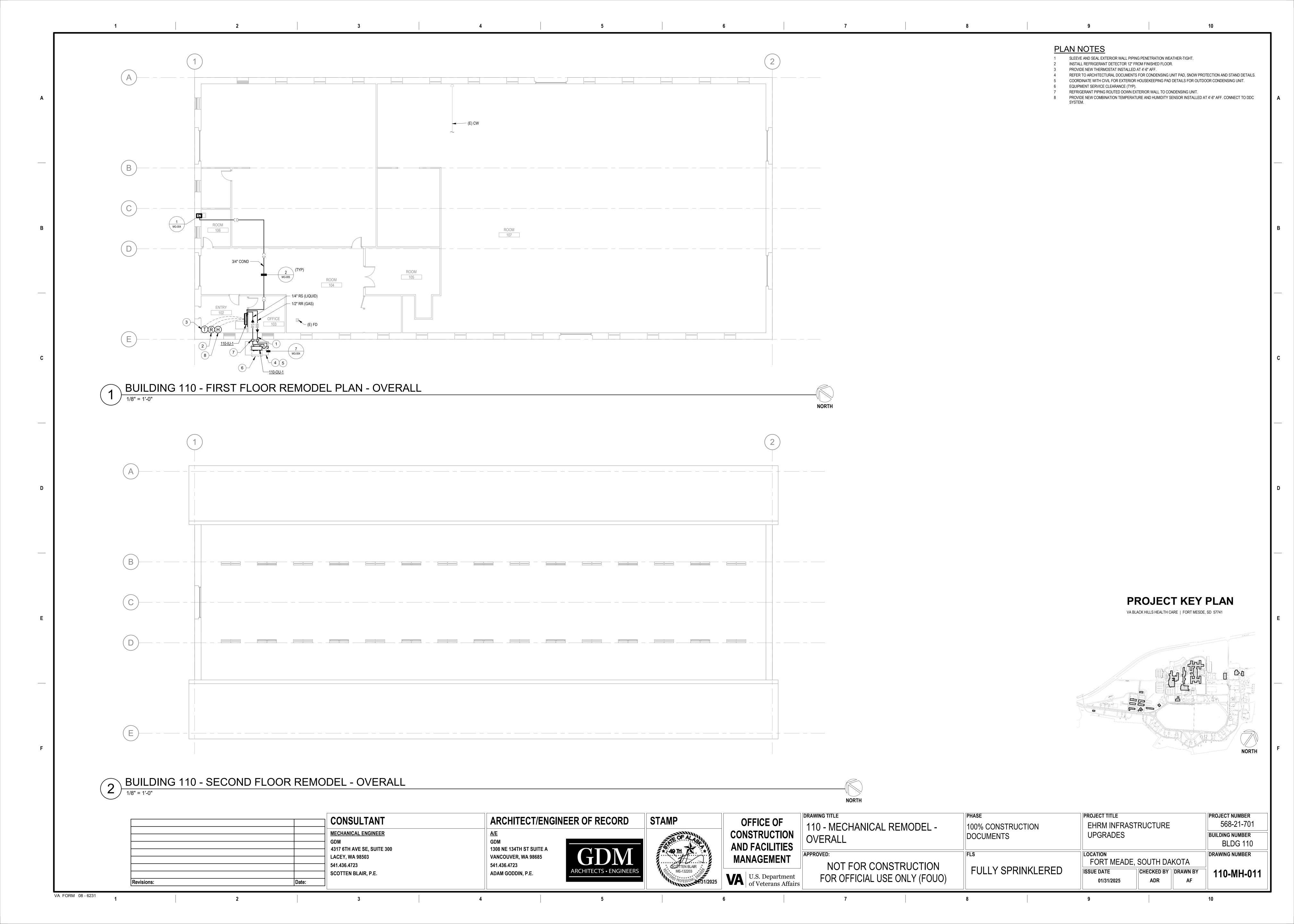
Revisions: VA FORM 08 - 6231

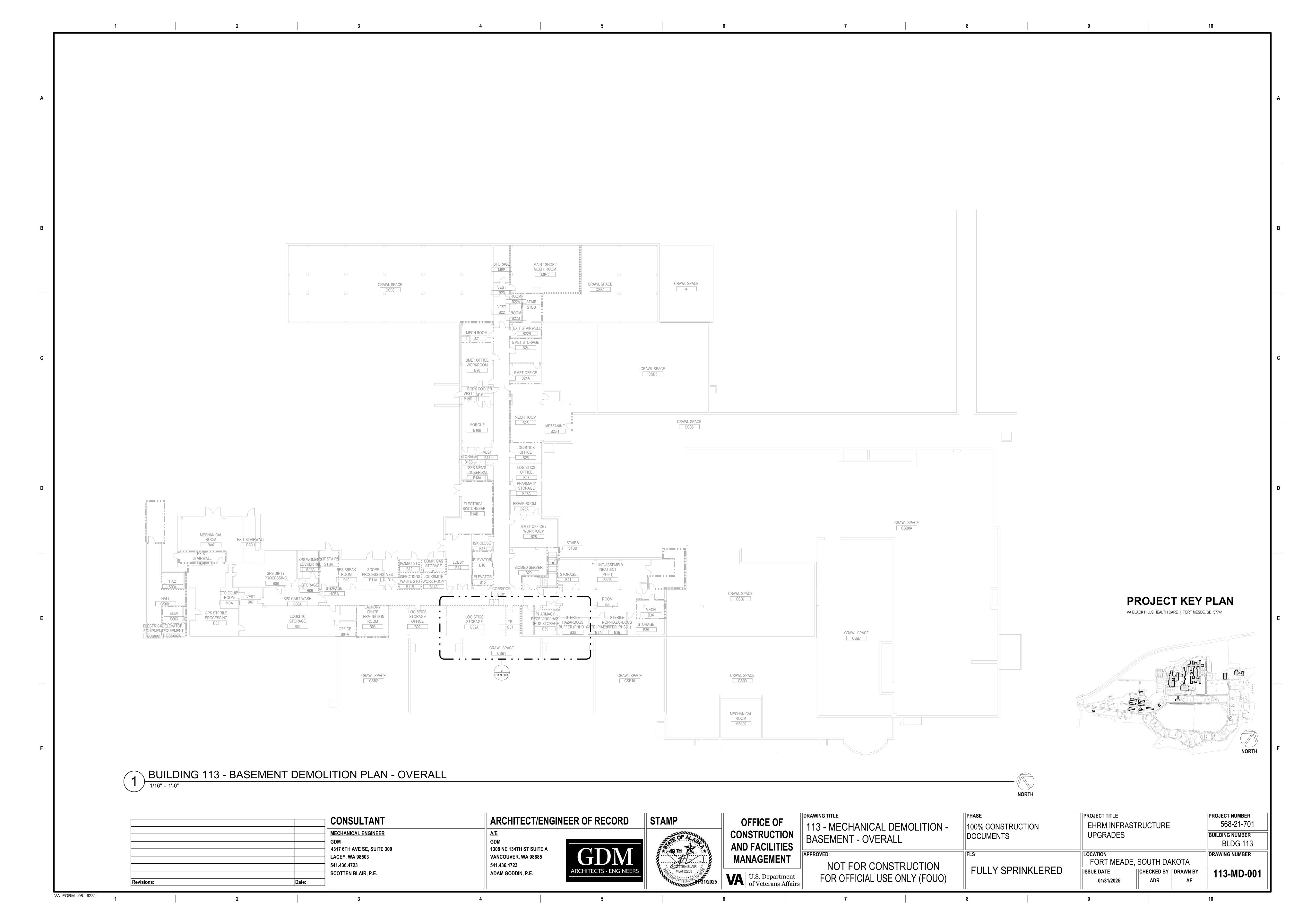
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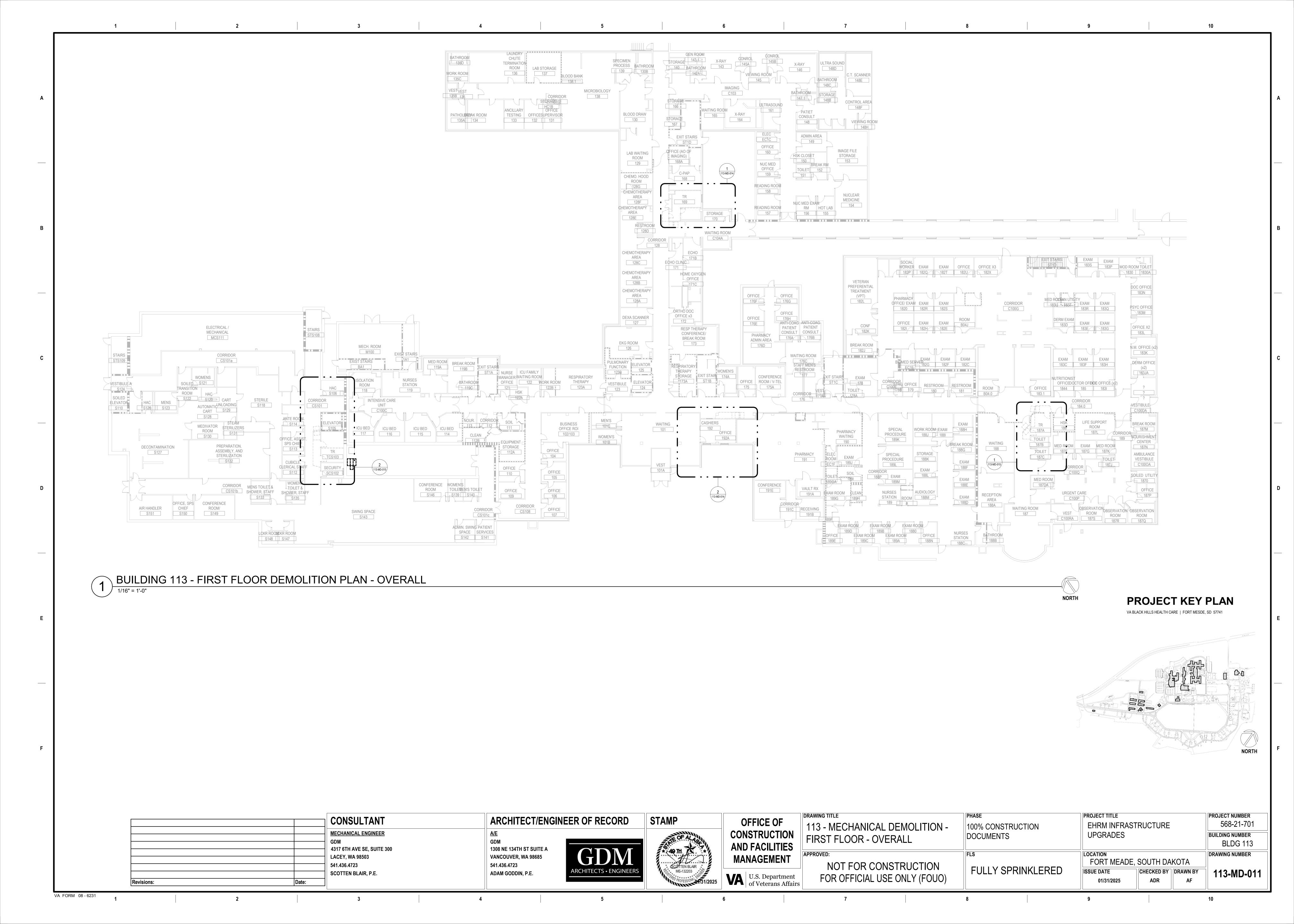
CHECKED BY DRAWN BY 090-MD-011 01/31/2025

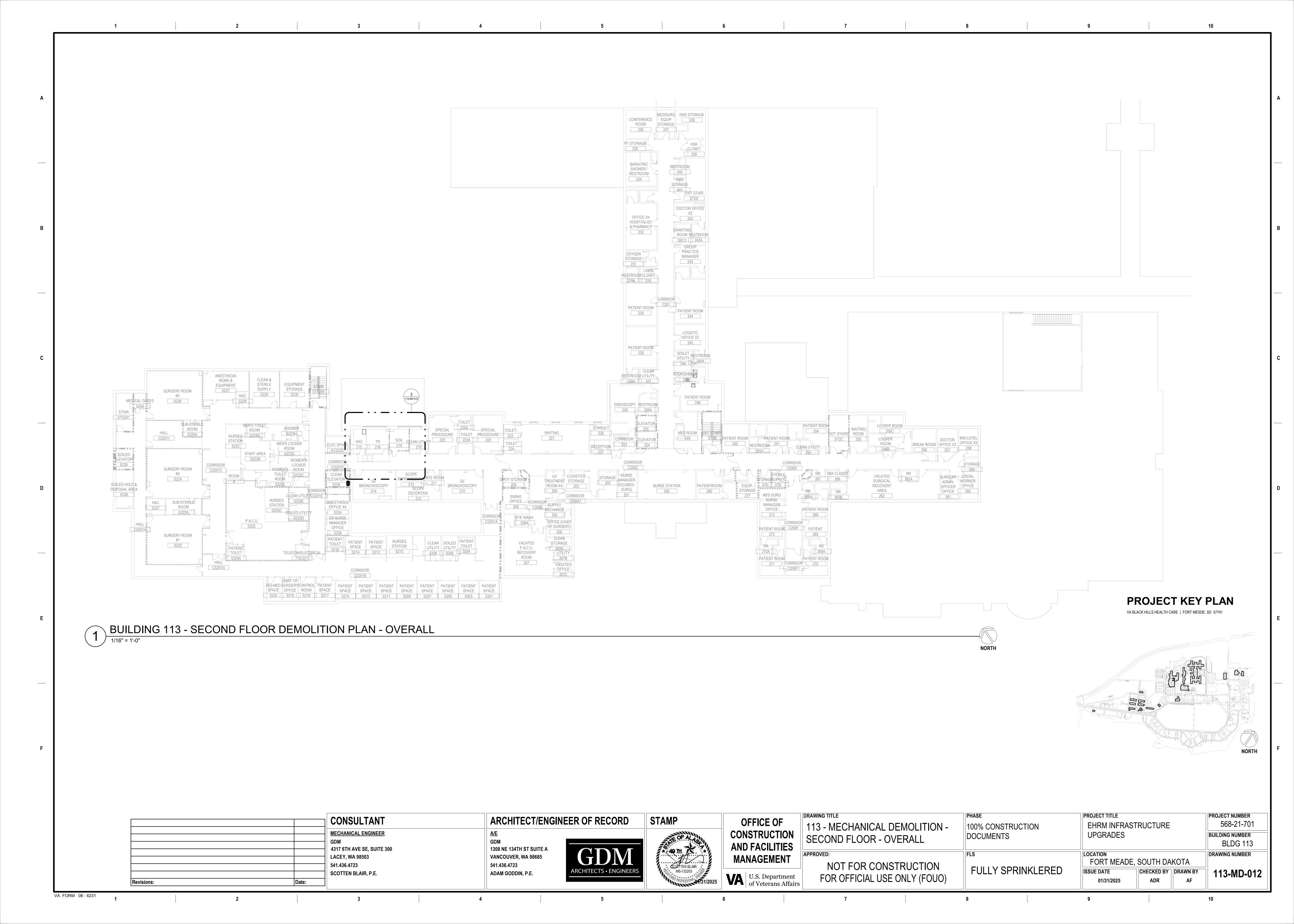
PLAN NOTES REFER TO ARCHITECTURAL DOCUMENTS FOR CONDENSING UNIT PAD, SNOW PROTECTION AND STAND DETAILS. COORDINATE WITH CIVIL FOR EXTERIOR HOUSEKEEPING PAD DETAILS FOR OUTDOOR CONDENSING UNIT. ROUTE 3/4" CONDENSATE DOWN WALL TO (E) WASTE MAIN BELOW (E) PLUMBING FIXTURE. PROVIDE WALL ACCESS HATCH AND NEW AIRGAP FITTING. DEMOLISH AND PATCH WALL AS NECESSARY. 4 ROUTE 3/4" HYDRONIC HEATING PIPE UP TO BRANCH LINE LOCATED IN ATTIC AND RECONNECT. RE-INSTALL SALVAGED VALVE TRAIN IN FINTUBE ENCLOSURE. 5 INSTALL REFRIGERANT DETECTOR 12" FROM FINISHED FLOOR. PROVIDE NEW THERMOSTAT INSTALLED AT 4'-6" AFF. SLEEVE AND SEAL EXTERIOR WALL PIPING PENETRATION WEATHER-TIGHT. 8 EQUIPMENT SERVICE CLEARANCE (TYP). REFRIGERANT PIPING ROUTED DOWN EXTERIOR WALL TO CONDENSING UNIT. ROUTE PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. PROVIDE HUMIDITY AND TEMPERATURE SENSOR IN TR ROOM, MOUNTED AT 4'-6" AFF. CONNECT TO DDC SYSTEM. (E) 3/4" HWS UP TO ATTIC 3/4" HWS UP TO ATTIC — OFFICE 107A EDUCATION CLASSROOM 108 RESEARCH OFFICE 109 RECEPTIONIST WORK AREA 107 CONFERENCE ROOM 107B VESTIBULE SIMULATION LAB CORRIDOR C102 EDUCATION CLASSROOM 110 OFFICE 107B3 RESTROOM RESTROOM 105 PROJECT KEY PLAN VESTIBUILE 101 VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741 (E) 1-1/2" V UP (E) 1-1/2" W DOWN — COMPUTER EDUCATION CLASSROOM 115 OFFICE 118 BUILDING 090 - FIRST FLOOR REMODEL PLAN - OVERALL PROJECT TITLE PROJECT NUMBER DRAWING TITLE PHASE CONSULTANT ARCHITECT/ENGINEER OF RECORD STAMP OFFICE OF 568-21-701 EHRM INFRASTRUCTURE 090 - MECHANICAL REMODEL -100% CONSTRUCTION CONSTRUCTION MECHANICAL ENGINEER **UPGRADES** BUILDING NUMBER DOCUMENTS **OVERALL** GDM BLDG 90 AND FACILITIES 1308 NE 134TH ST SUITE A 4317 6TH AVE SE, SUITE 300 FORT MEADE, SOUTH DAKOTA DRAWING NUMBER FLS VANCOUVER, WA 98685 LACEY, WA 98503 **MANAGEMENT** NOT FOR CONSTRUCTION 541.436.4723 541.436.4723 FULLY SPRINKLERED CHECKED BY DRAWN BY ISSUE DATE 090-MH-011 ADAM GODDIN, P.E. SCOTTEN BLAIR, P.E. U.S. Department of Veterans Affairs FOR OFFICIAL USE ONLY (FOUO) 01/31/2025 ADR AF Revisions: VA FORM 08 - 6231

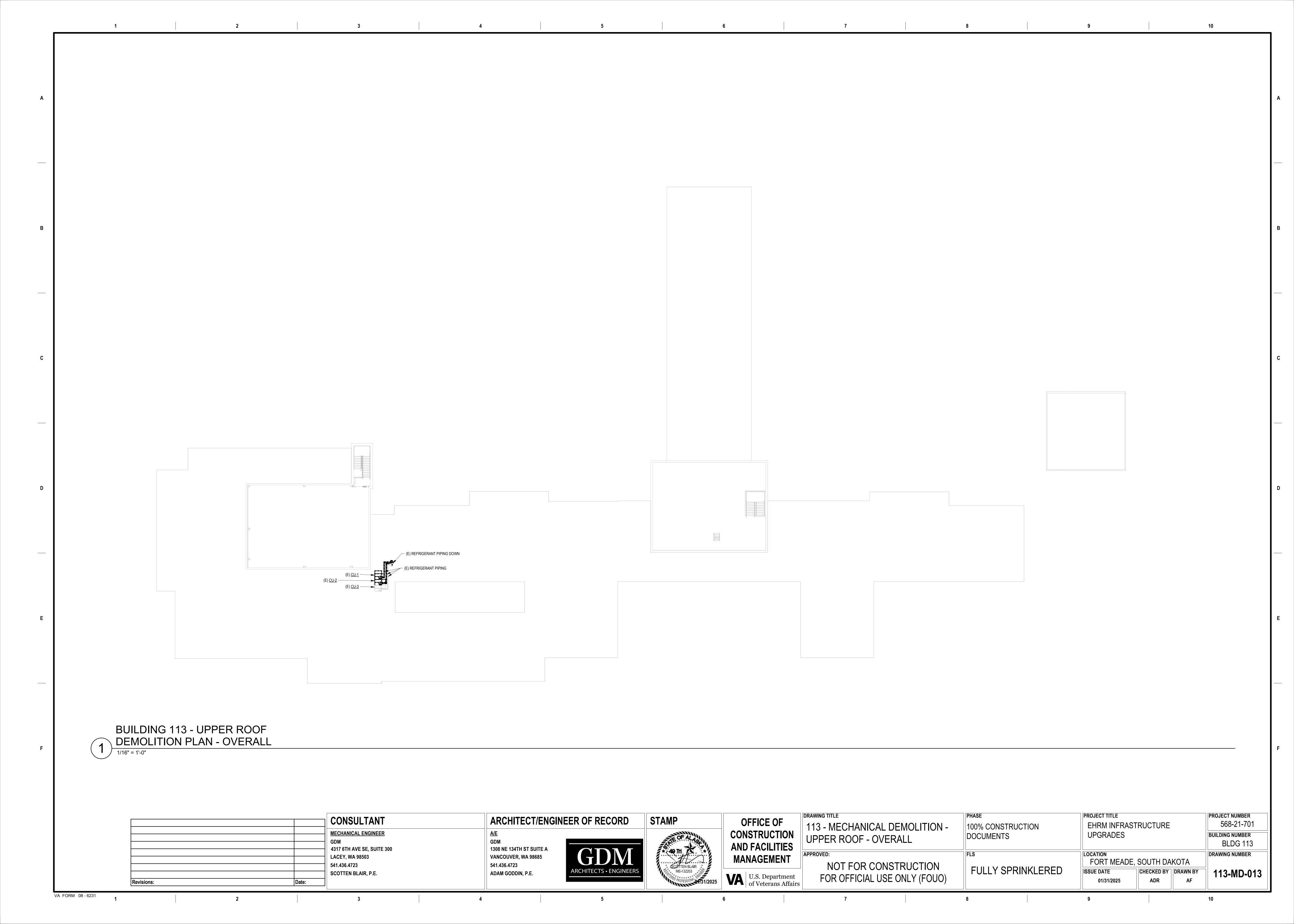


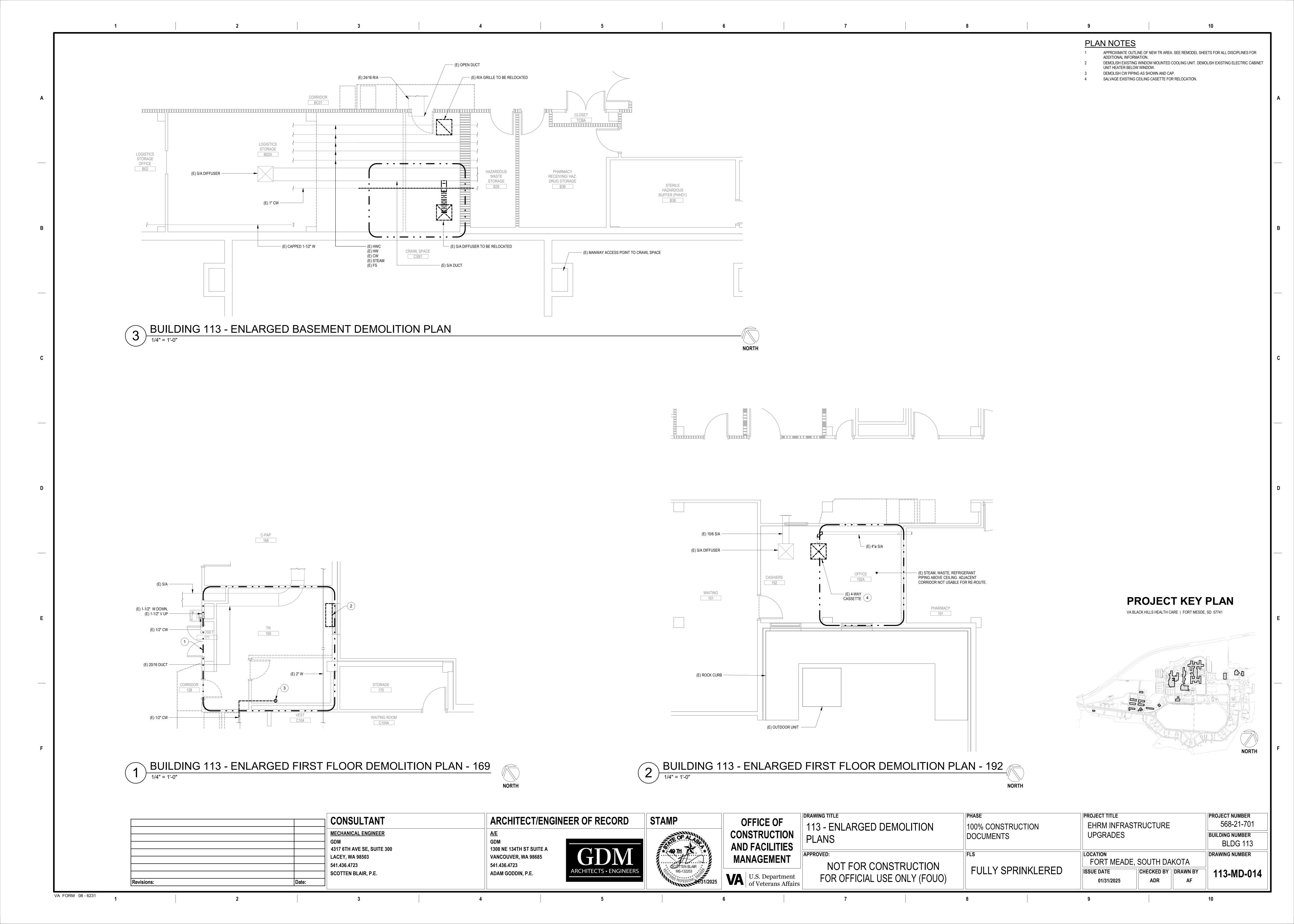


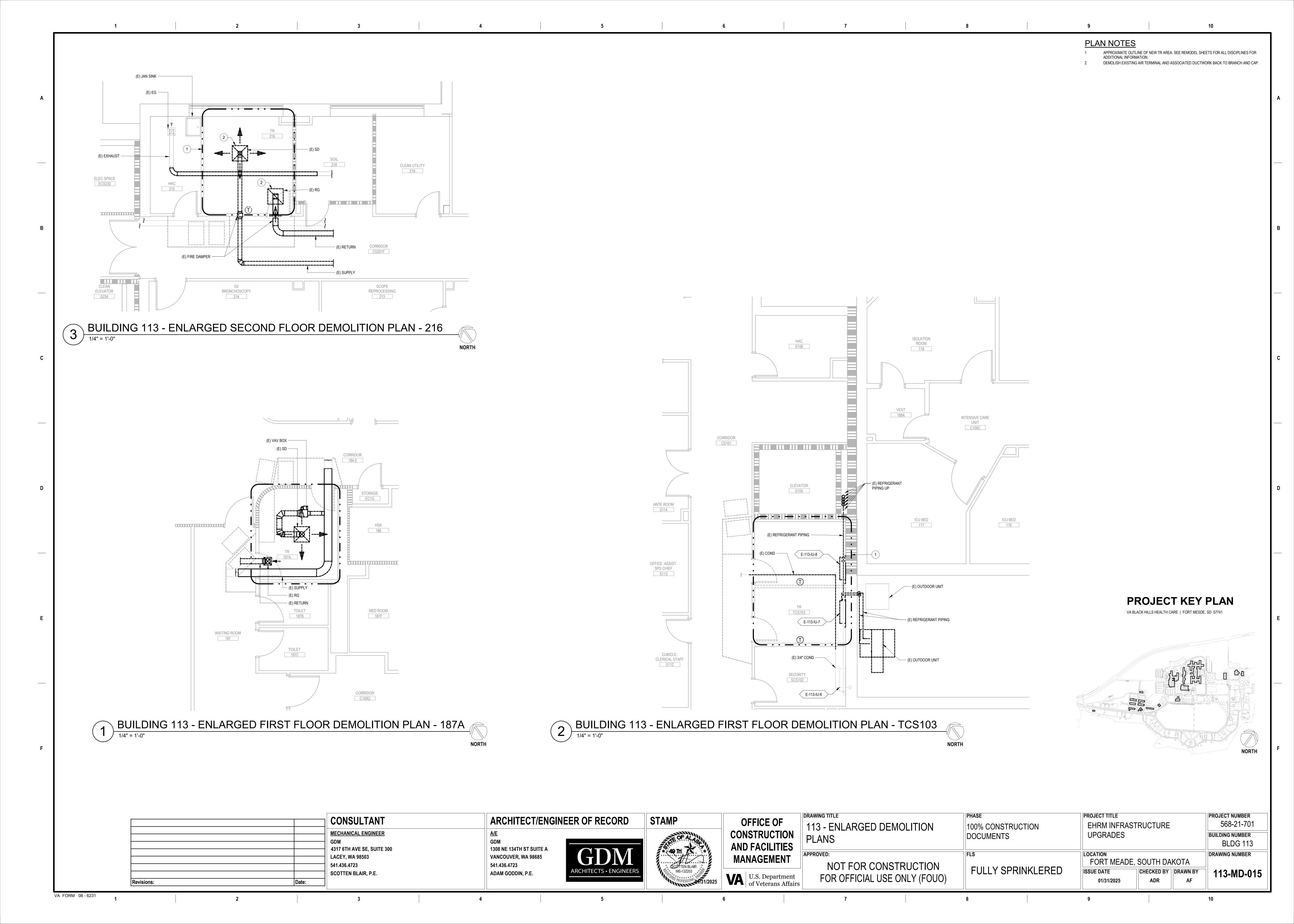


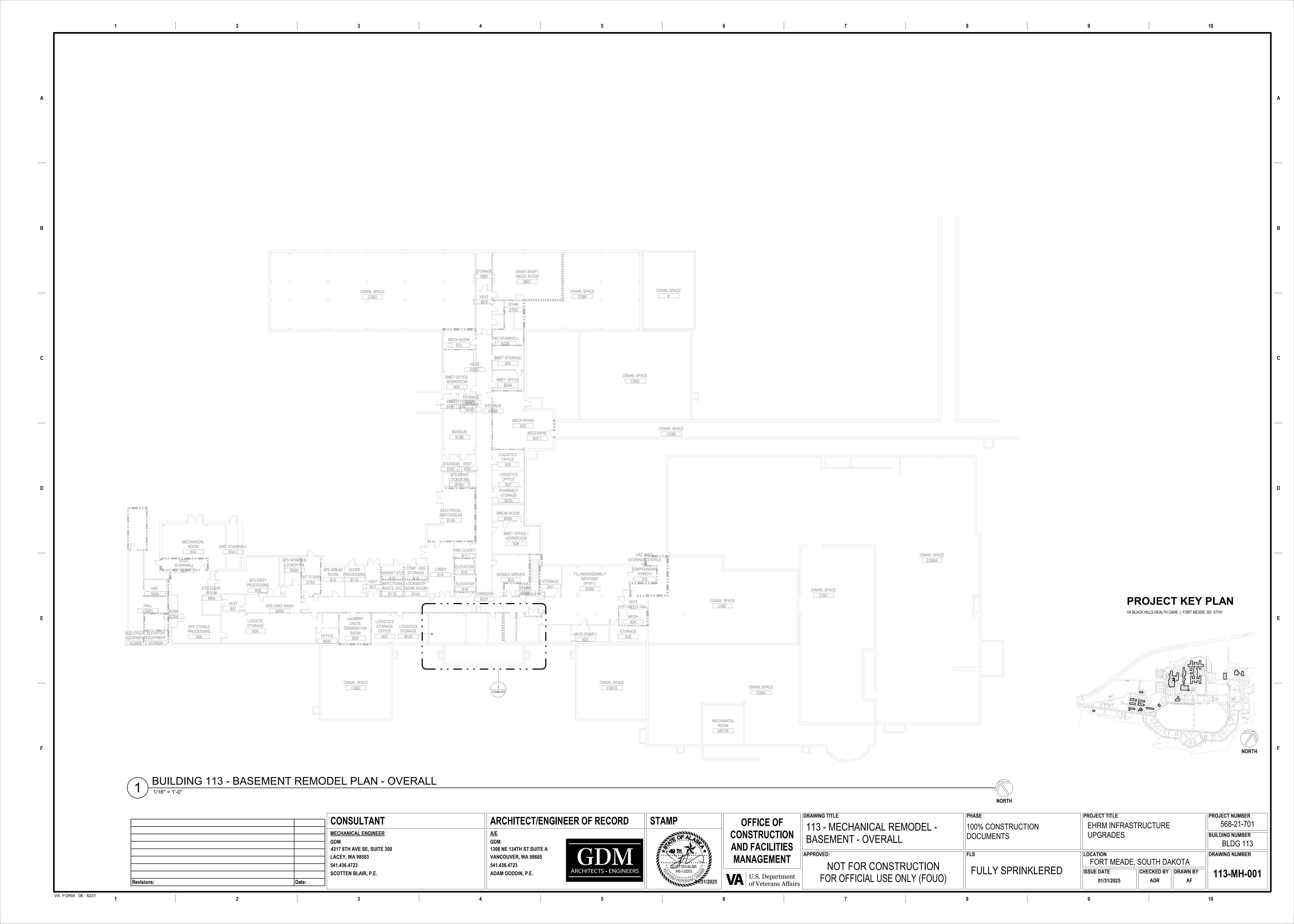


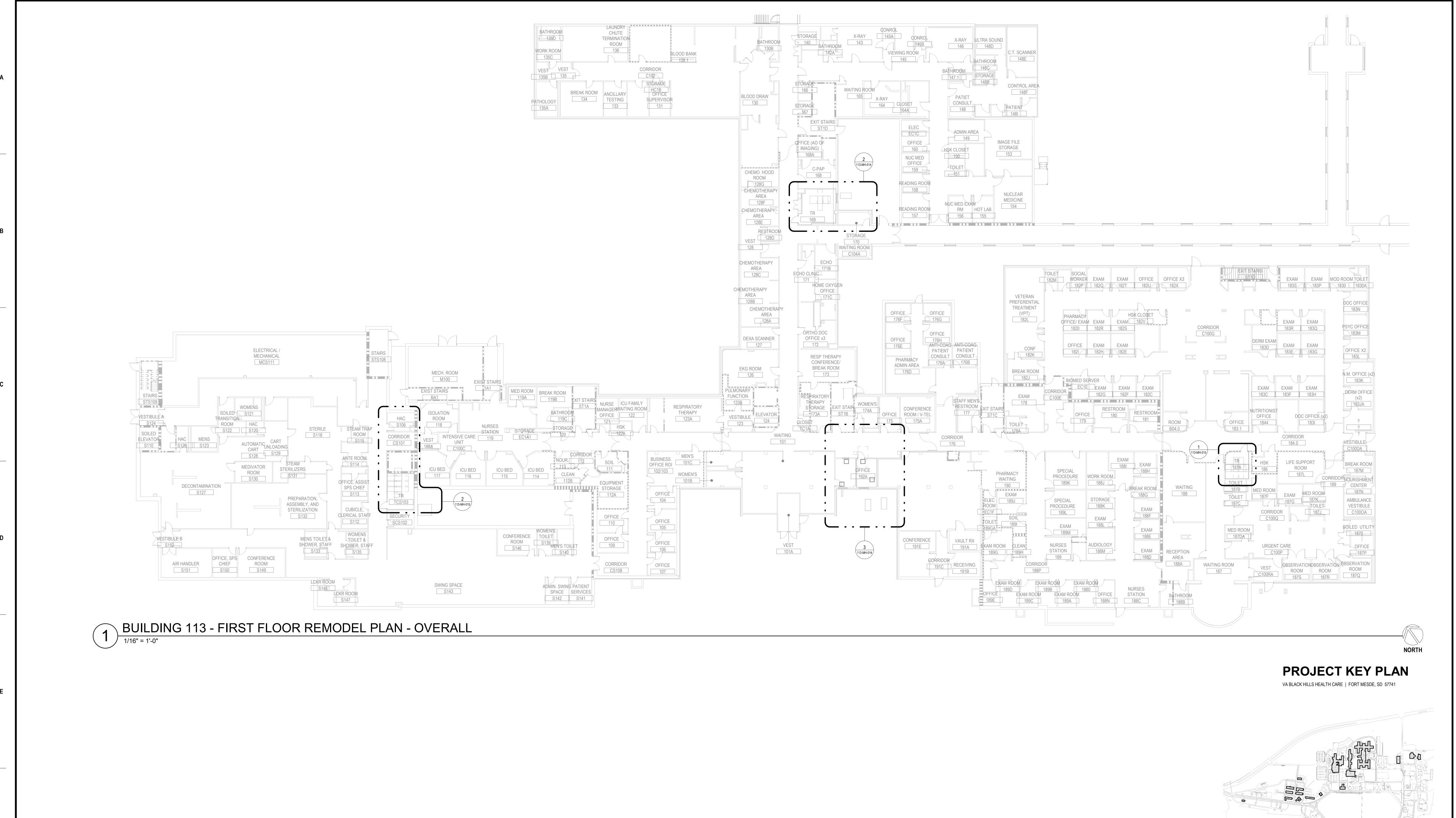


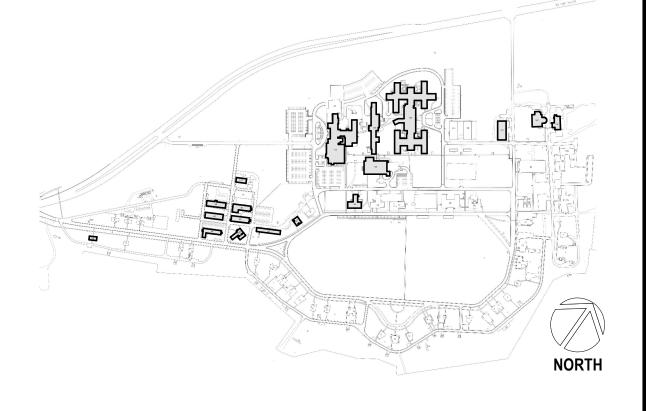






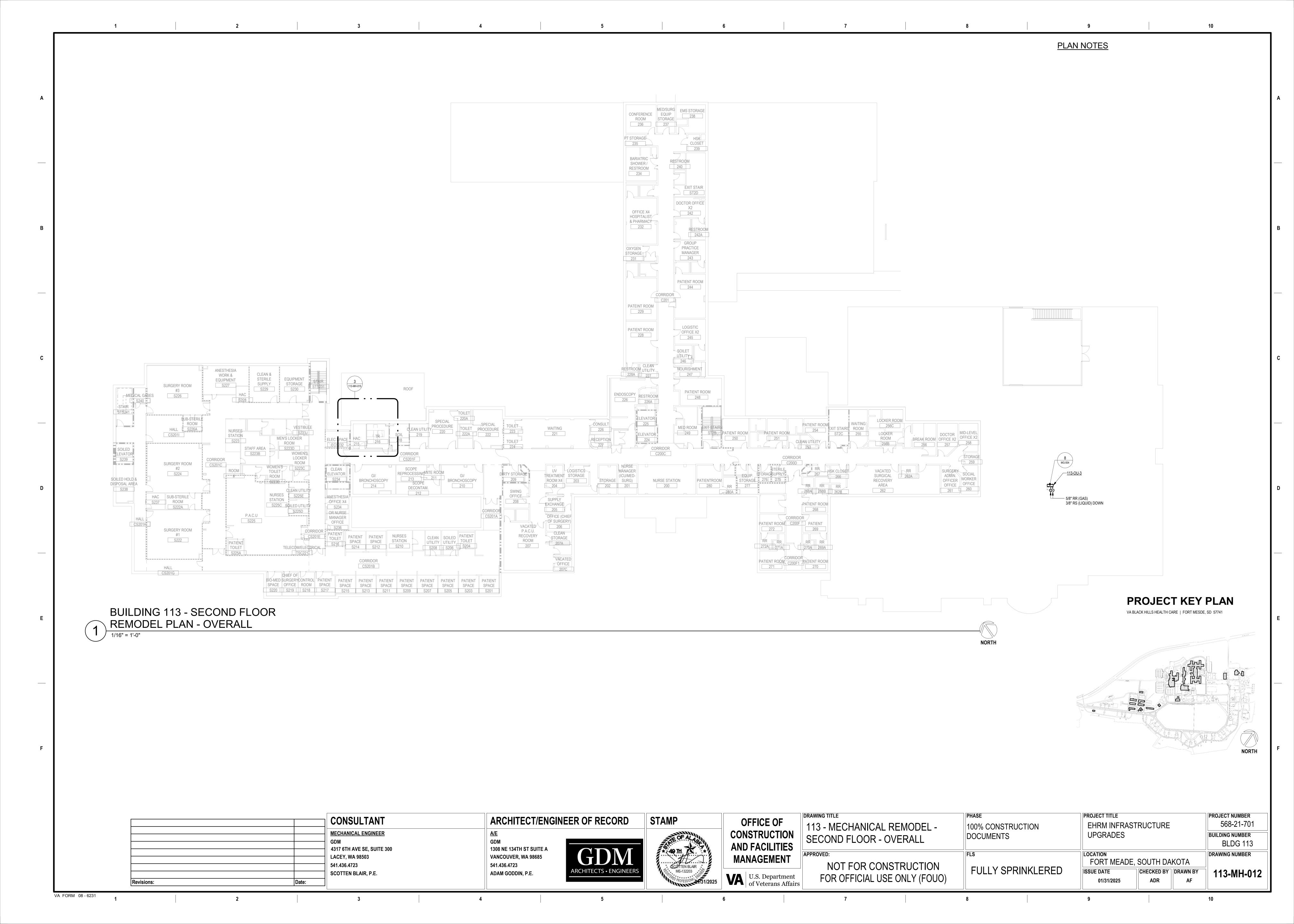


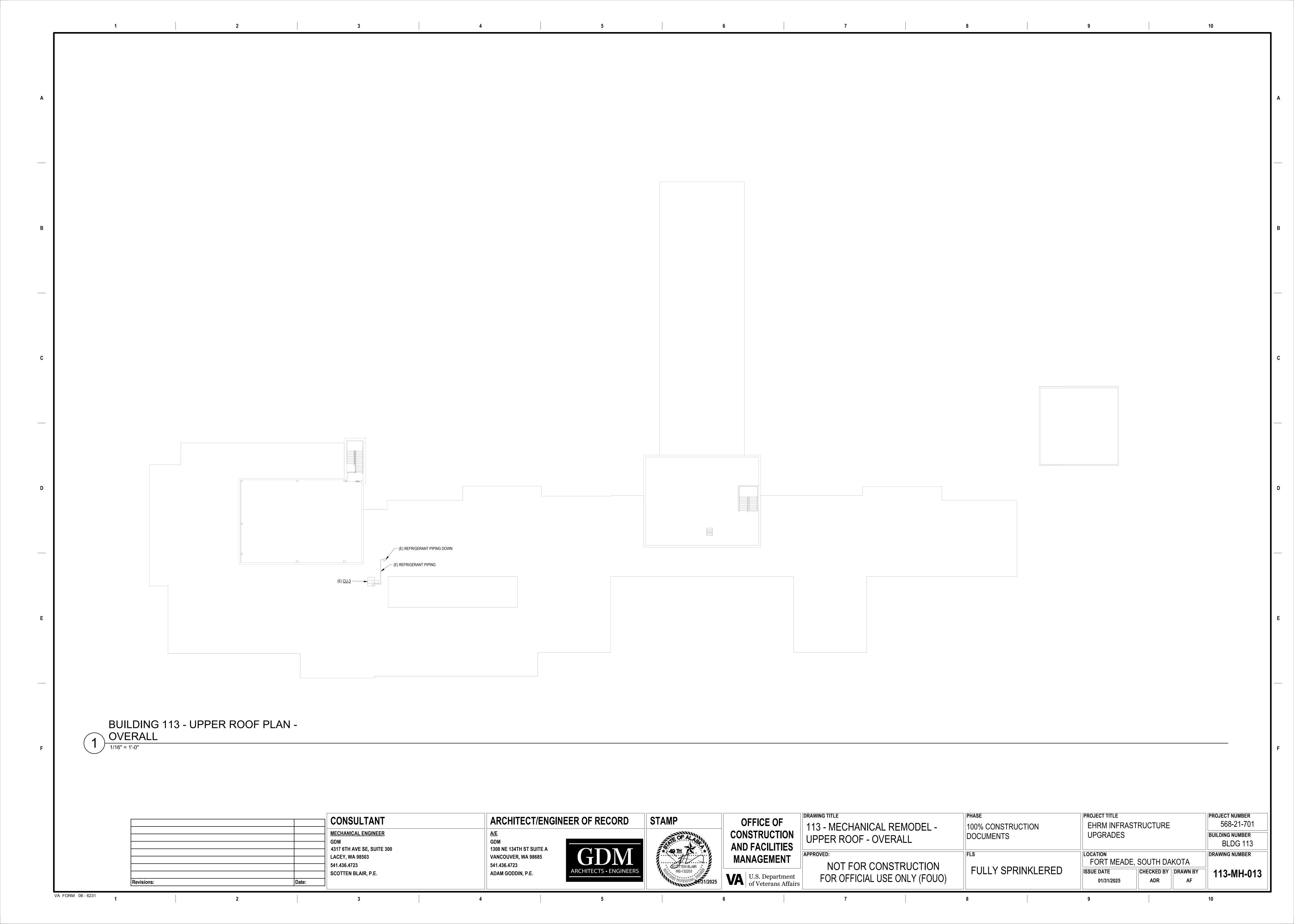


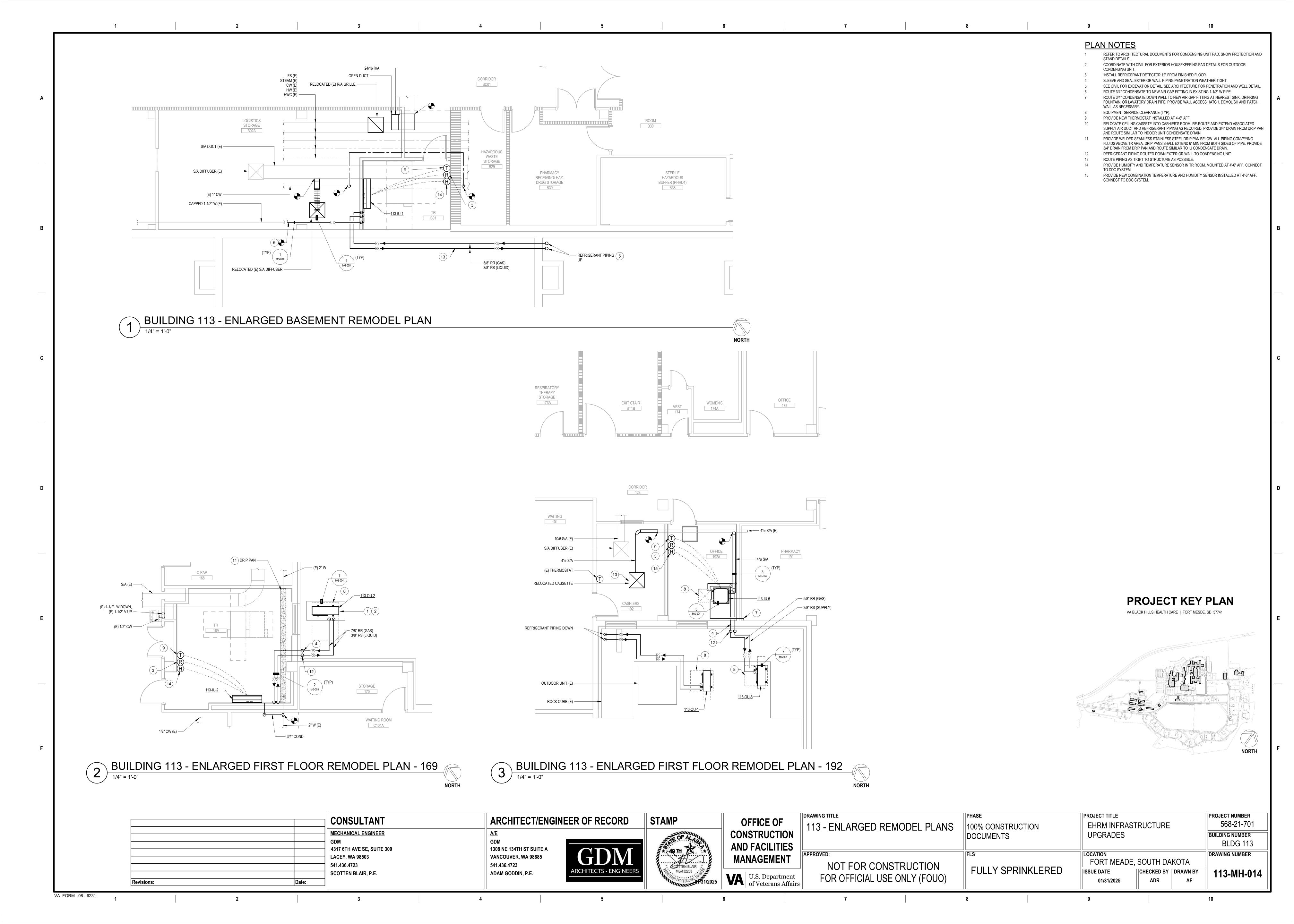


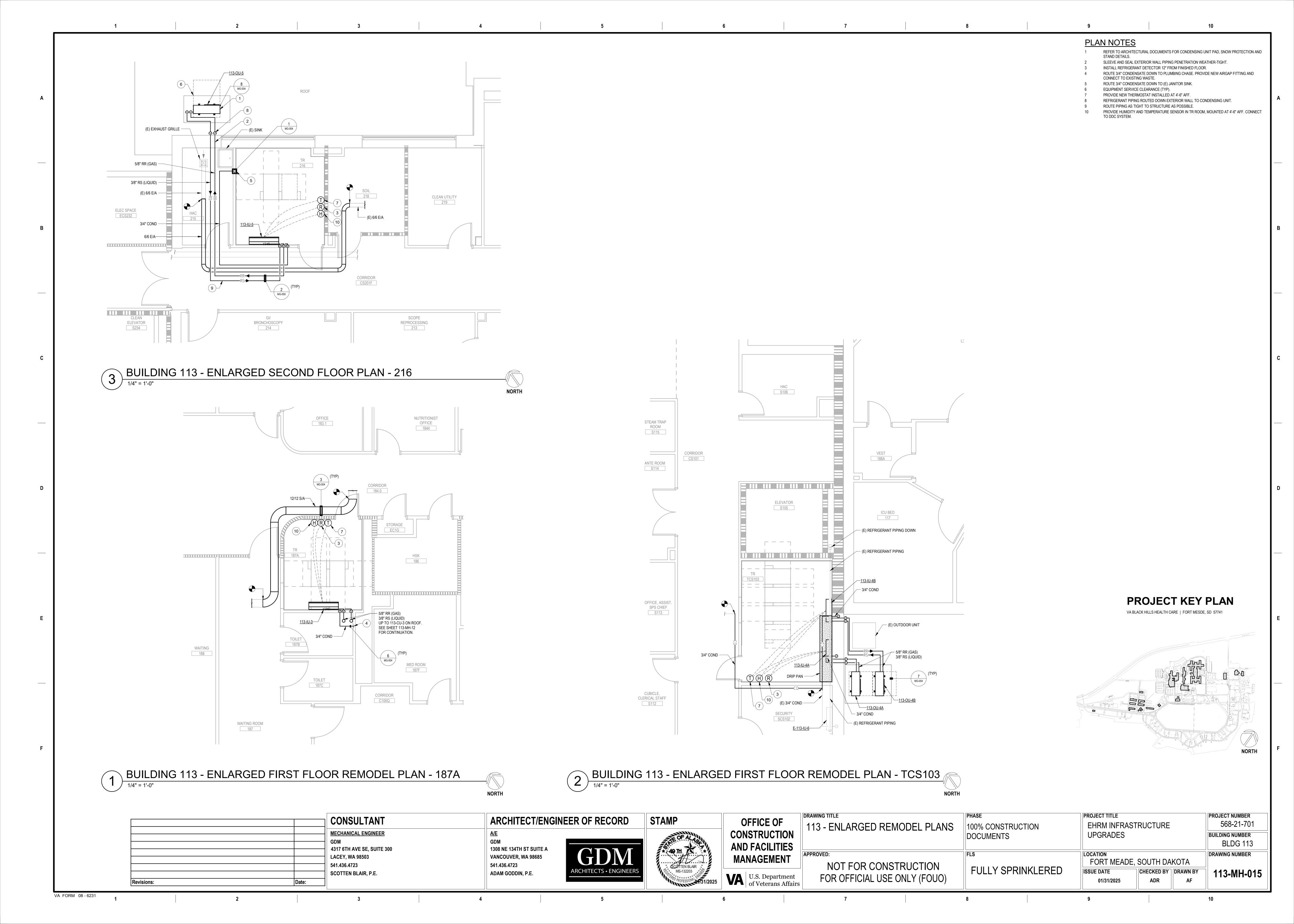
PROJECT TITLE PROJECT NUMBER DRAWING TITLE PHASE ARCHITECT/ENGINEER OF RECORD CONSULTANT STAMP OFFICE OF 568-21-701 EHRM INFRASTRUCTURE 113 - MECHANICAL REMODEL -100% CONSTRUCTION CONSTRUCTION **MECHANICAL ENGINEER UPGRADES BUILDING NUMBER** DOCUMENTS FIRST FLOOR - OVERALL **GDM BLDG 113** AND FACILITIES 1308 NE 134TH ST SUITE A 4317 6TH AVE SE, SUITE 300 DRAWING NUMBER LOCATION FLS VANCOUVER, WA 98685 LACEY, WA 98503 **MANAGEMENT** FORT MEADE, SOUTH DAKOTA NOT FOR CONSTRUCTION 541.436.4723 541.436.4723 FULLY SPRINKLERED CHECKED BY DRAWN BY ISSUE DATE 113-MH-011 ADAM GODDIN, P.E. SCOTTEN BLAIR, P.E. **VA** U.S. Department of Veterans Affairs FOR OFFICIAL USE ONLY (FOUO) 01/31/2025 ADR AF Revisions:

VA FORM 08 - 6231

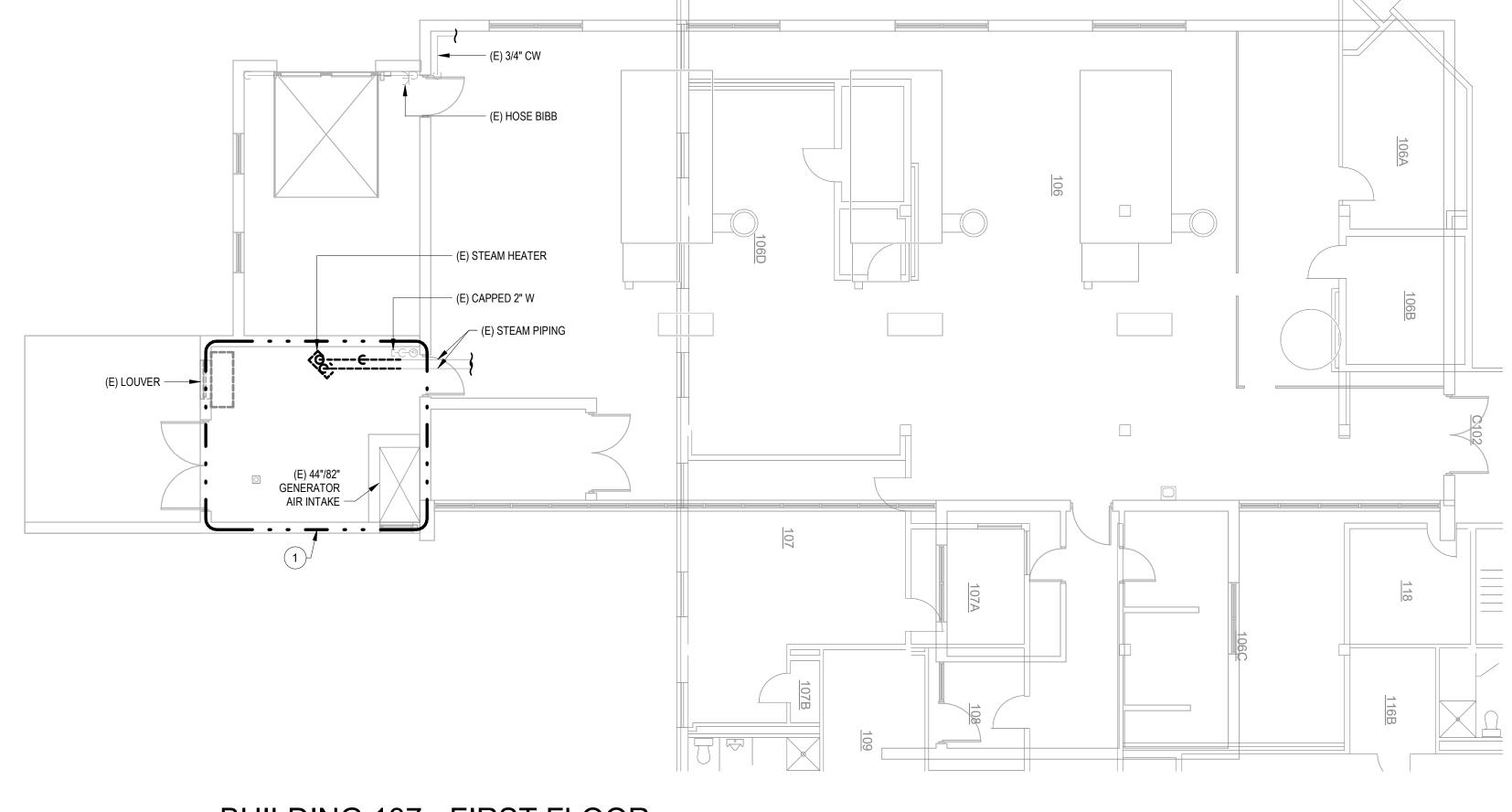








PLAN NOTES APPROXIMATE OUTLINE OF NEW TE AREA. SEE REMODEL SHEETS FOR ALL DISCIPLINES FOR ADDITIONAL INFORMATION. PROJECT KEY PLAN VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741 NORTH DRAWING TITLE STAMP NICAL DEMOLITION -



BUILDING 137 - FIRST FLOOR DEMOLITION PLAN - OVERALL

		CONSULTANT
		MECHANICAL ENGINEER
		GDM 4317 6TH AVE SE, SUITE
		LACEY, WA 98503 541.436.4723
		SCOTTEN BLAIR, P.E.
Revisions:	Date:	7

VA FORM 08 - 6231

CONSULTANT ARCHITECT/ENGINEER OF RECORD MECHANICAL ENGINEER 4317 6TH AVE SE, SUITE 300

1308 NE 134TH ST SUITE A VANCOUVER, WA 98685 541.436.4723 ADAM GODDIN, P.E.



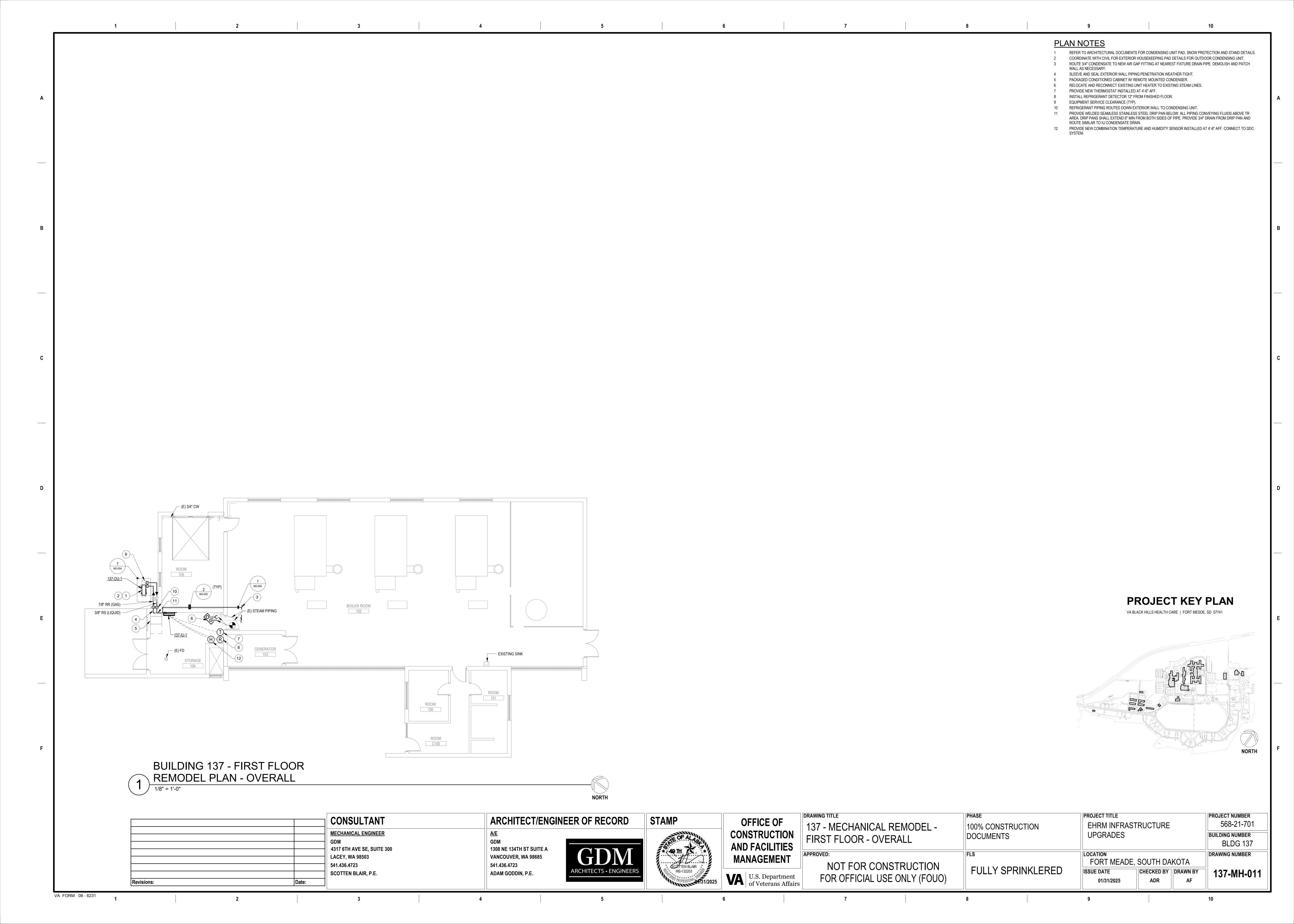
AMP 6 49 TH	OFFICE OF CONSTRUCTION AND FACILITIES MANAGEMENT		
SCOTTEN BLAIR ME-132203 ME-132203 ME-132203 ME-132203 ME-132203	VA	U.S. Department of Veterans Affairs	

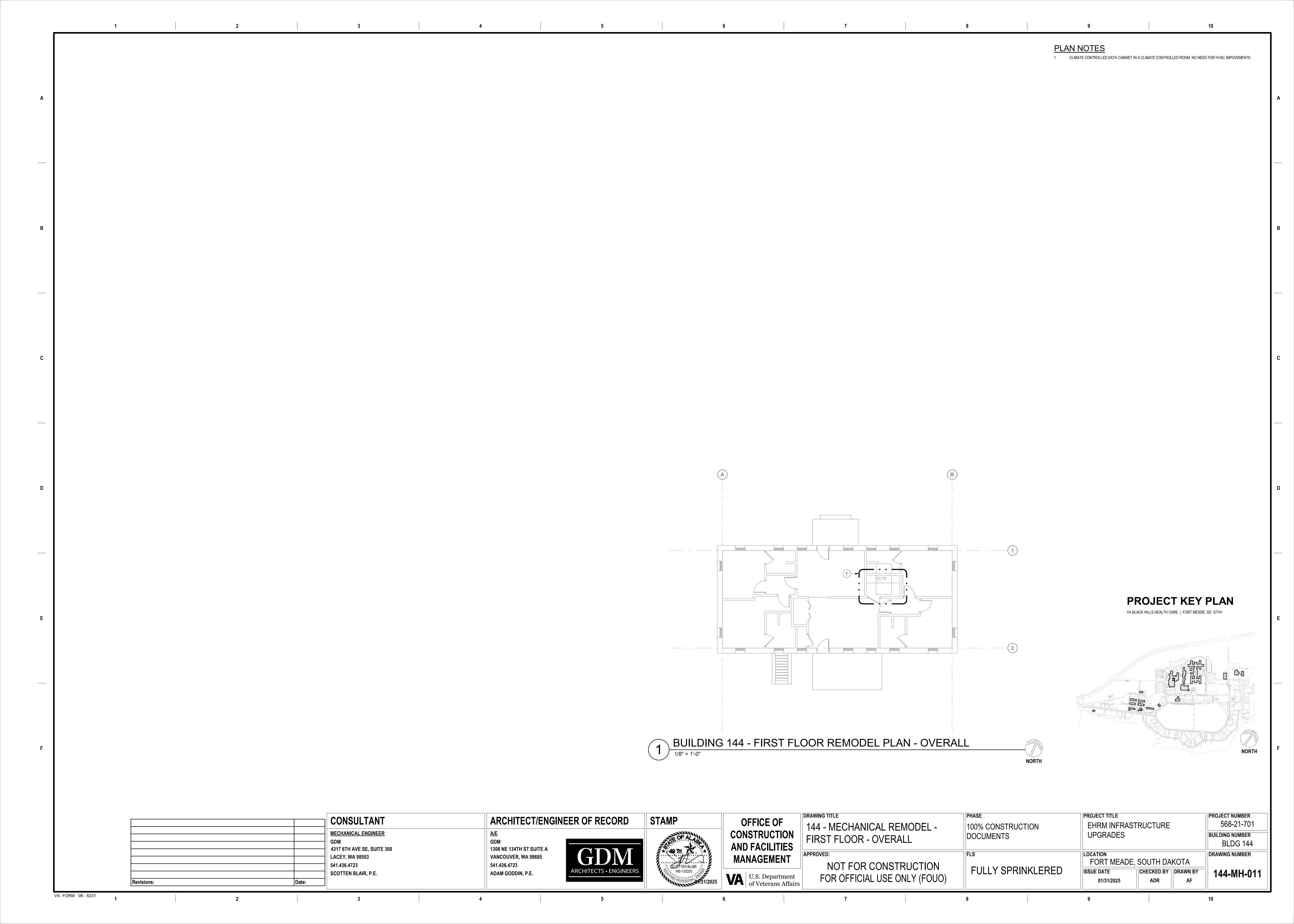
	OFF	ICE OF
	CONS	TRUCTION
	AND F	ACILITIES
	MANA	AGEMENT
) E	VA U.	S. Departmen

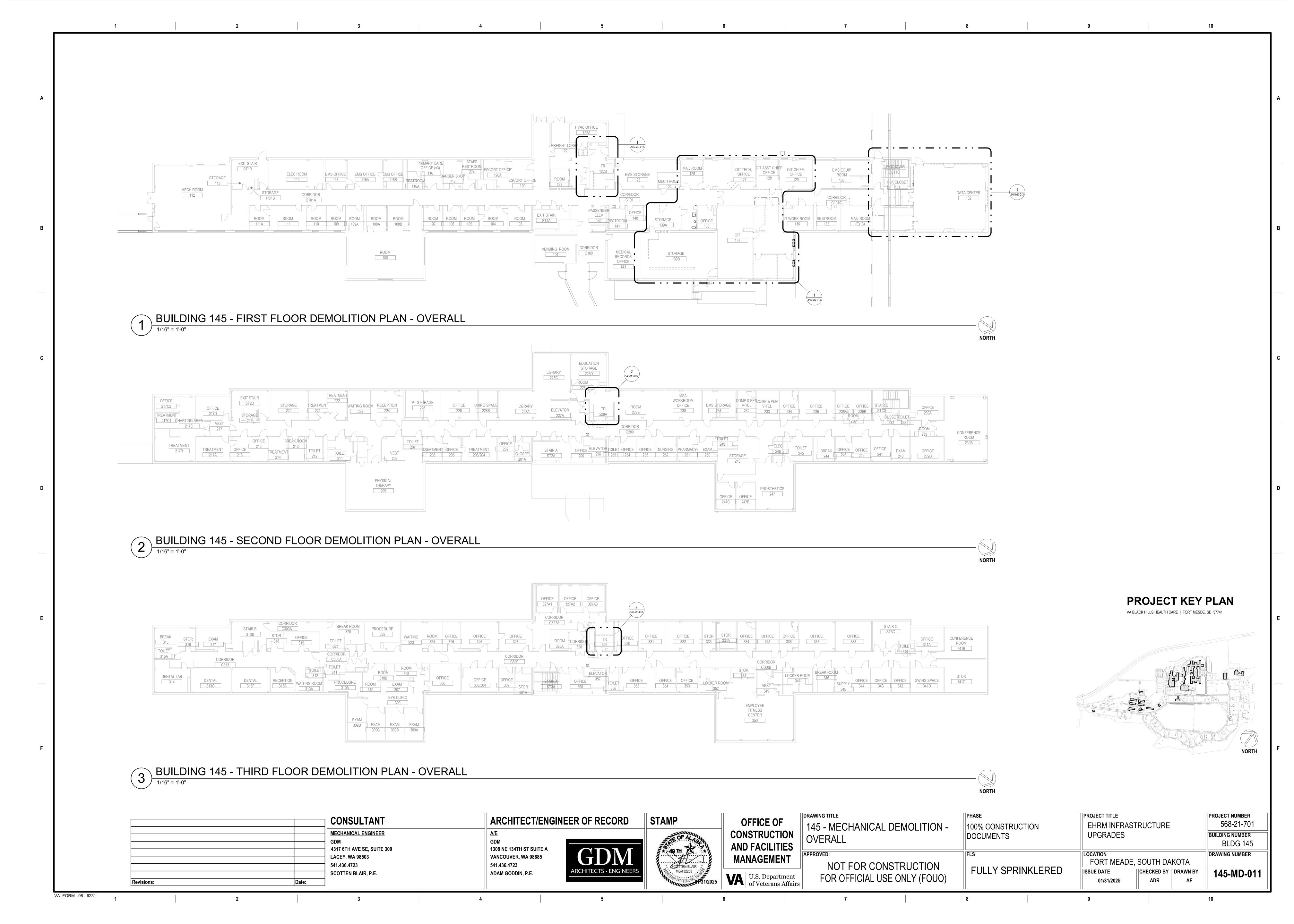
OF CTION	137 - MECHAN FIRST FLOOR
ITIES MENT	APPROVED: NOT FOR
artment	FOR OFFICI

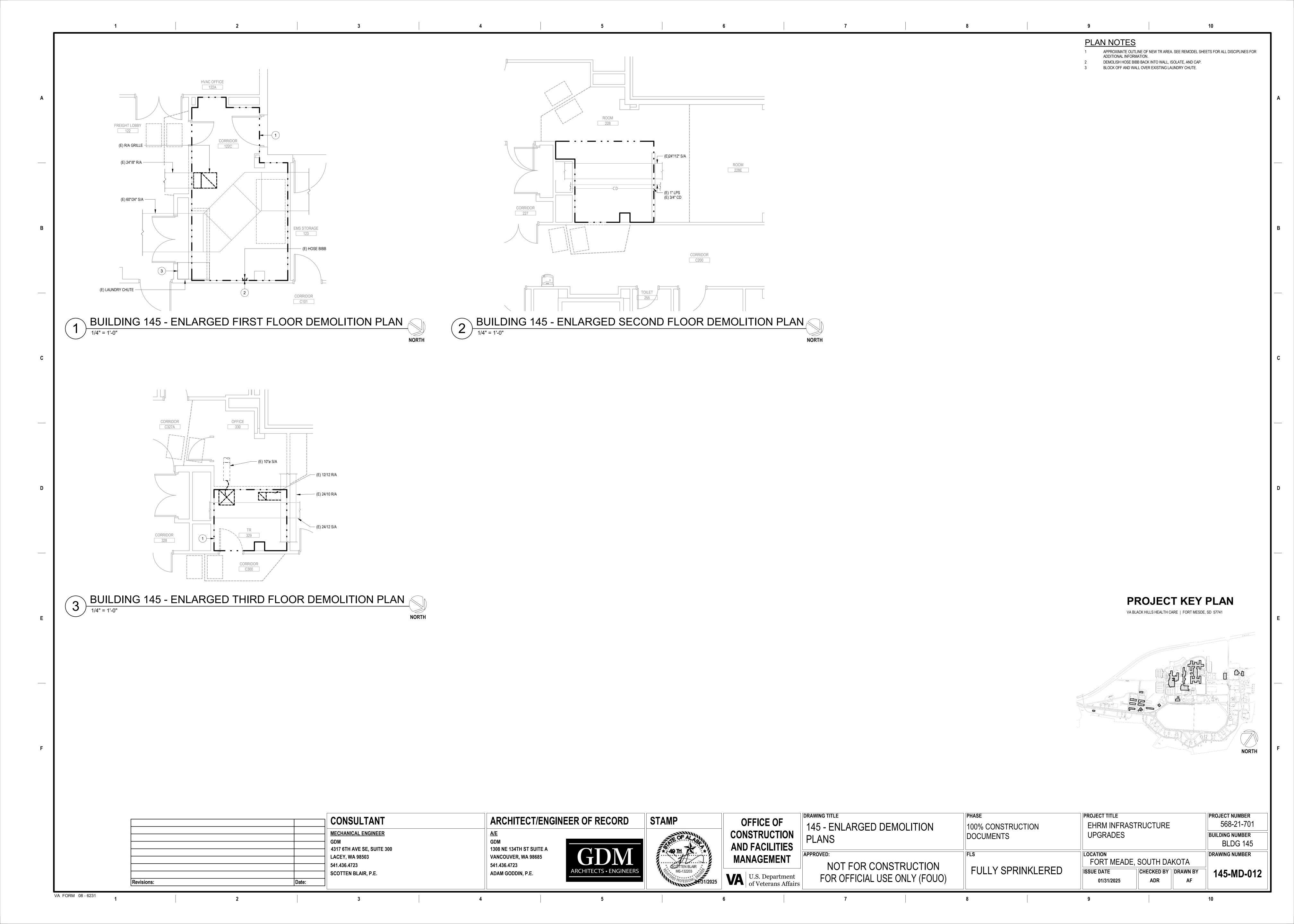
	FIRST FLOOR - OVERALL
AF	PPROVED:
	NOT FOR CONSTRUCTION
	FOR OFFICIAL USE ONLY (FOUO)

PHASE	PROJECT TITLE			PROJECT NUMBER
100% CONSTRUCTION	EHRM INFRAST	RUCTURE		568-21-701
DOCUMENTS	UPGRADES			BUILDING NUMBER
D O O O M E I I I O				BLDG 137
FLS	LOCATION			DRAWING NUMBER
	FORT MEADE,	SOUTH DA	KOTA	
FULLY SPRINKLERED	ISSUE DATE	CHECKED BY	DRAWN BY	137-MD-011
	01/31/2025	ADR	ΔF	



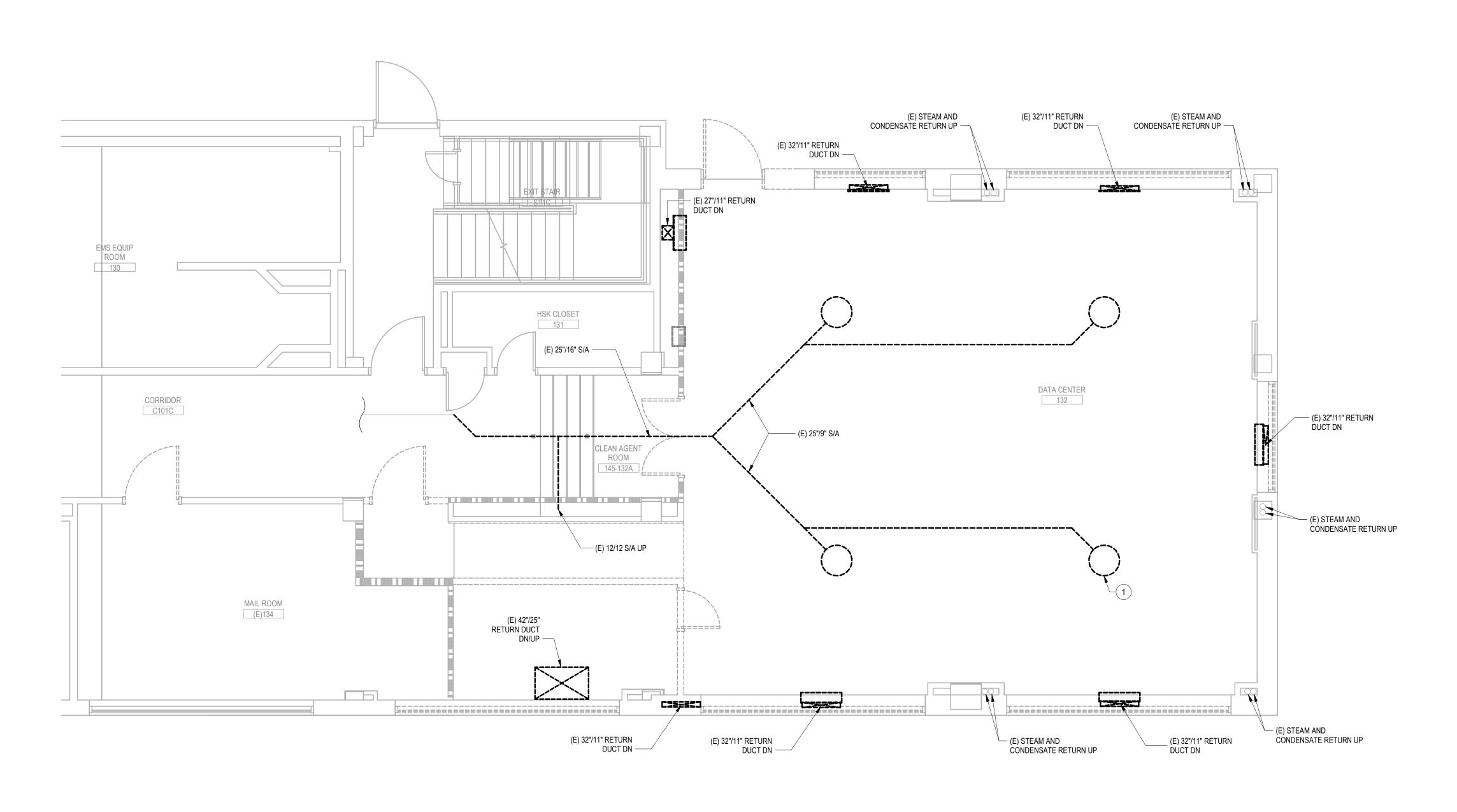






PLAN NOTES

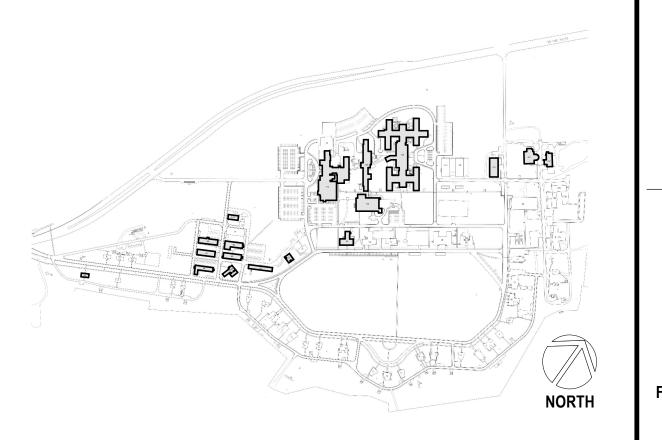
1 DEMOLISH S/A DIFFUSER AND ASSOCIATED S/A DUCTWORK TO EXTENT SHOWN



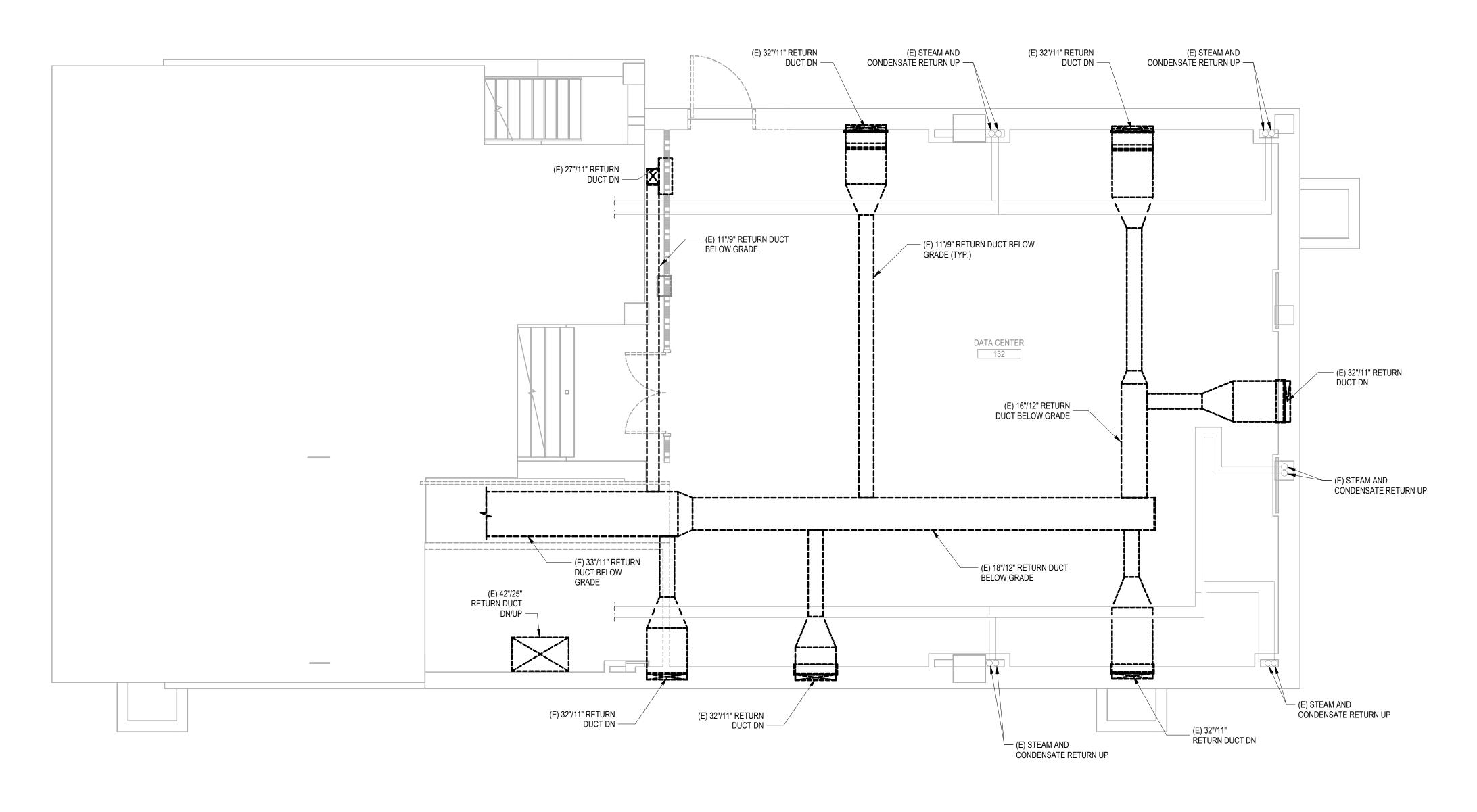
BUILDING 145 - ENLARGED FIRST FLOOR DEMOLITION PLAN- 132

PROJECT KEY PLAN

VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741



	CONSULTANT	ARCHITECT/ENGINEER OF RECORD	STAMP	OFFICE OF	145 - ENLARGED DEMOLITION	PHASE 100% CONSTRUCTION	PROJECT TITLE EHRM INFRASTRUCTURE	PROJECT NUMBER 568-21-701
	MECHANICAL ENGINEER GDM 4247 GTU AVE SE SUITE 200	A/E GDM	OF AL 18		PLAN	DOCUMENTS	UPGRADES	BUILDING NUMBER BLDG 145
	4317 6TH AVE SE, SUITE 300 LACEY, WA 98503 541.436.4723	1308 NE 134TH ST SUITE A VANCOUVER, WA 98685 541.436.4723	* 49 TH *	MANAGEMENT	APPROVED: NOT FOR CONSTRUCTION	FLS CODDING EDED	FORT MEADE, SOUTH DAKOTA	DRAWING NUMBER
Revisions: Date:	SCOTTEN BLAIR, P.E.	ADAM GODDIN, P.E. ARCHITECTS • ENGINEERS	ME-132203 ME-132203 PROFESSIONA 0-1731/2025	U.S. Department of Veterans Affairs	FOR OFFICIAL USE ONLY (FOUO)	FULLY SPRINKLERED	ISSUE DATE 01/31/2025 CHECKED BY ADR AF	145-MD-013

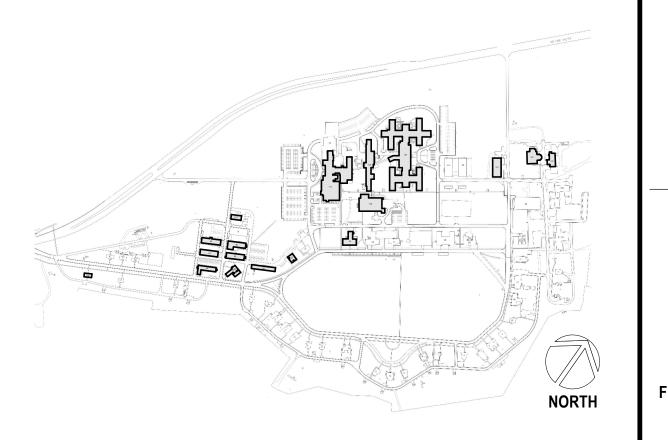


1 BUILDING 145 - ENLARGED BASEMENT DEMOLITION PLAN- 132

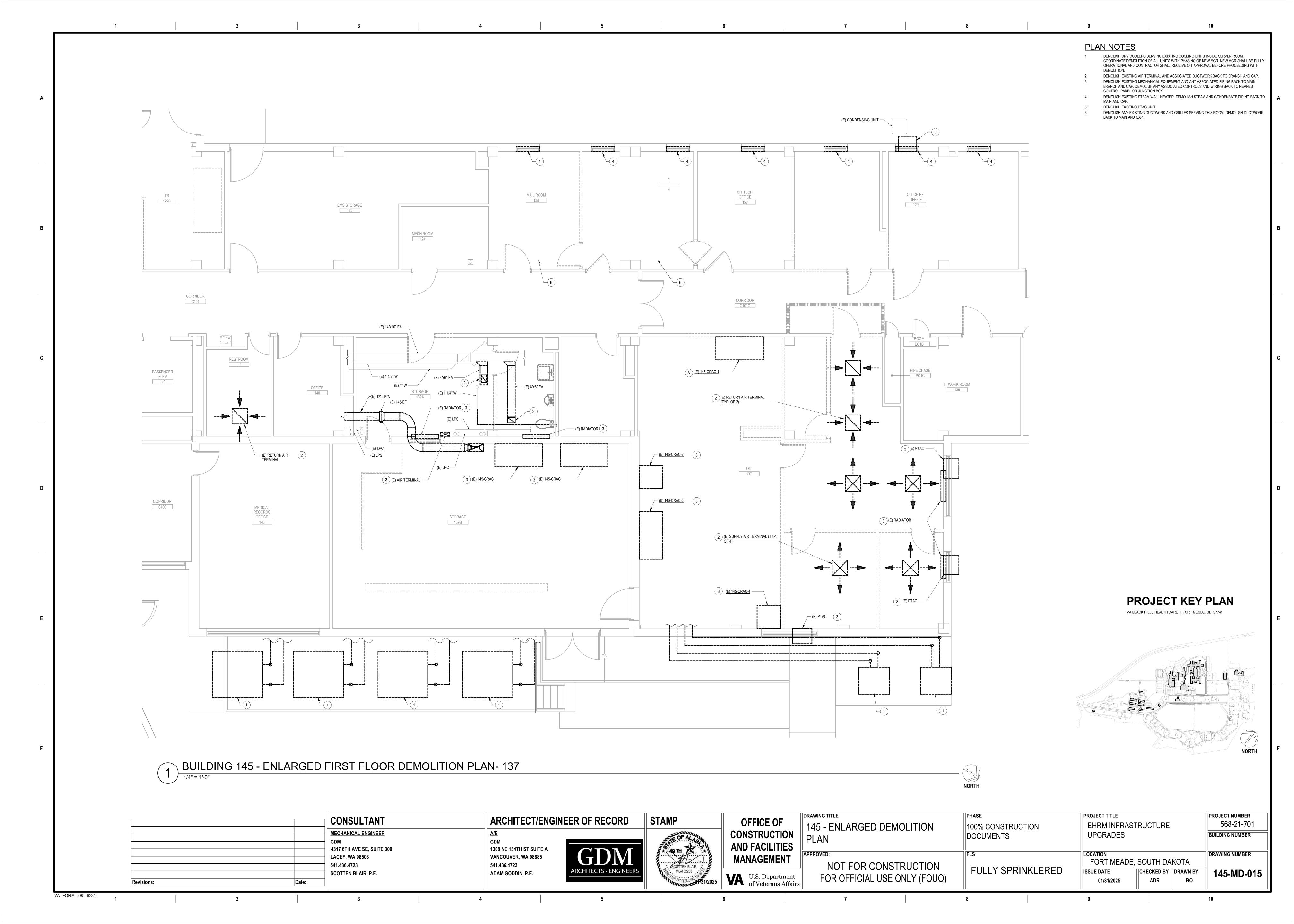


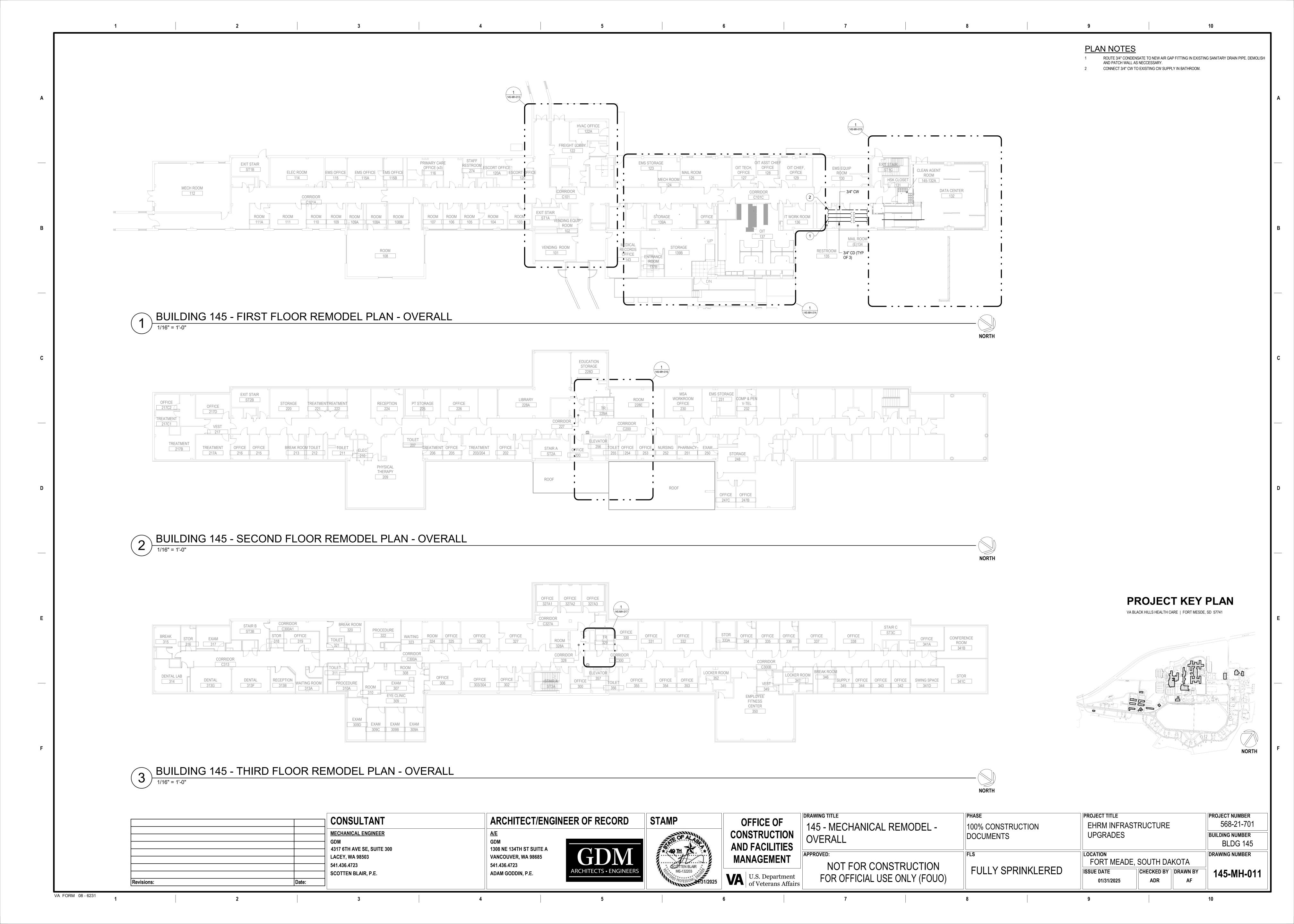
PROJECT KEY PLAN

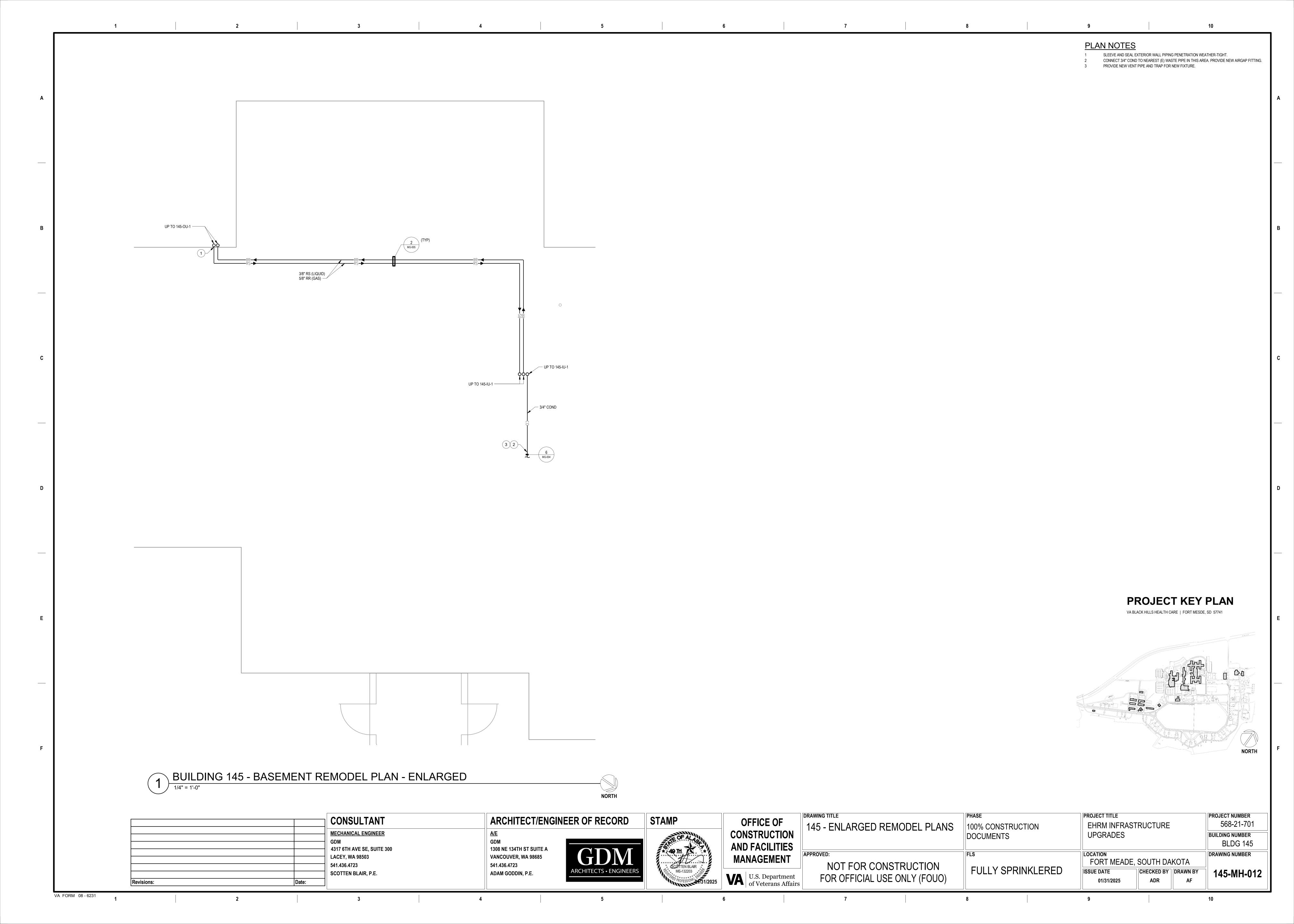
VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741

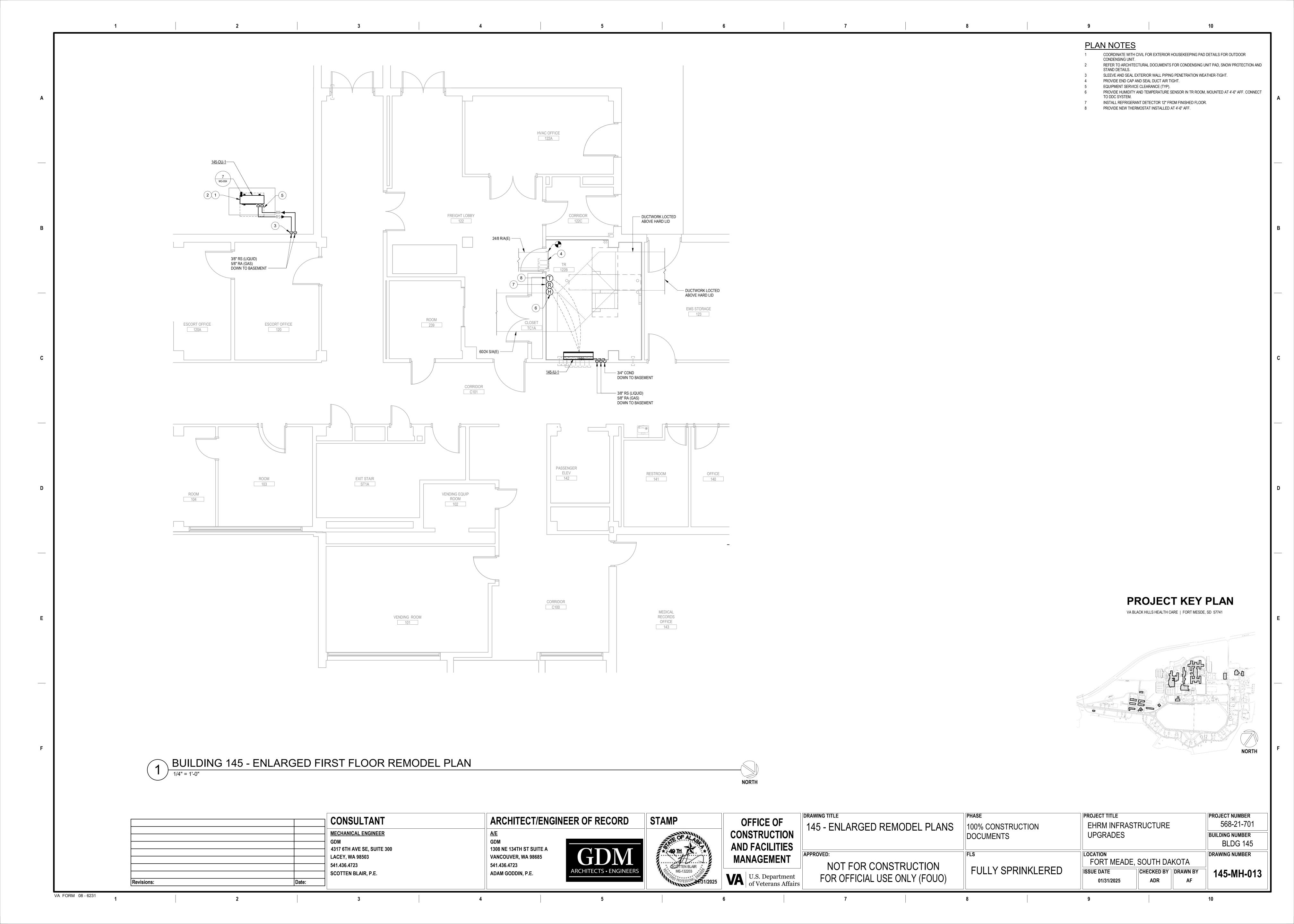


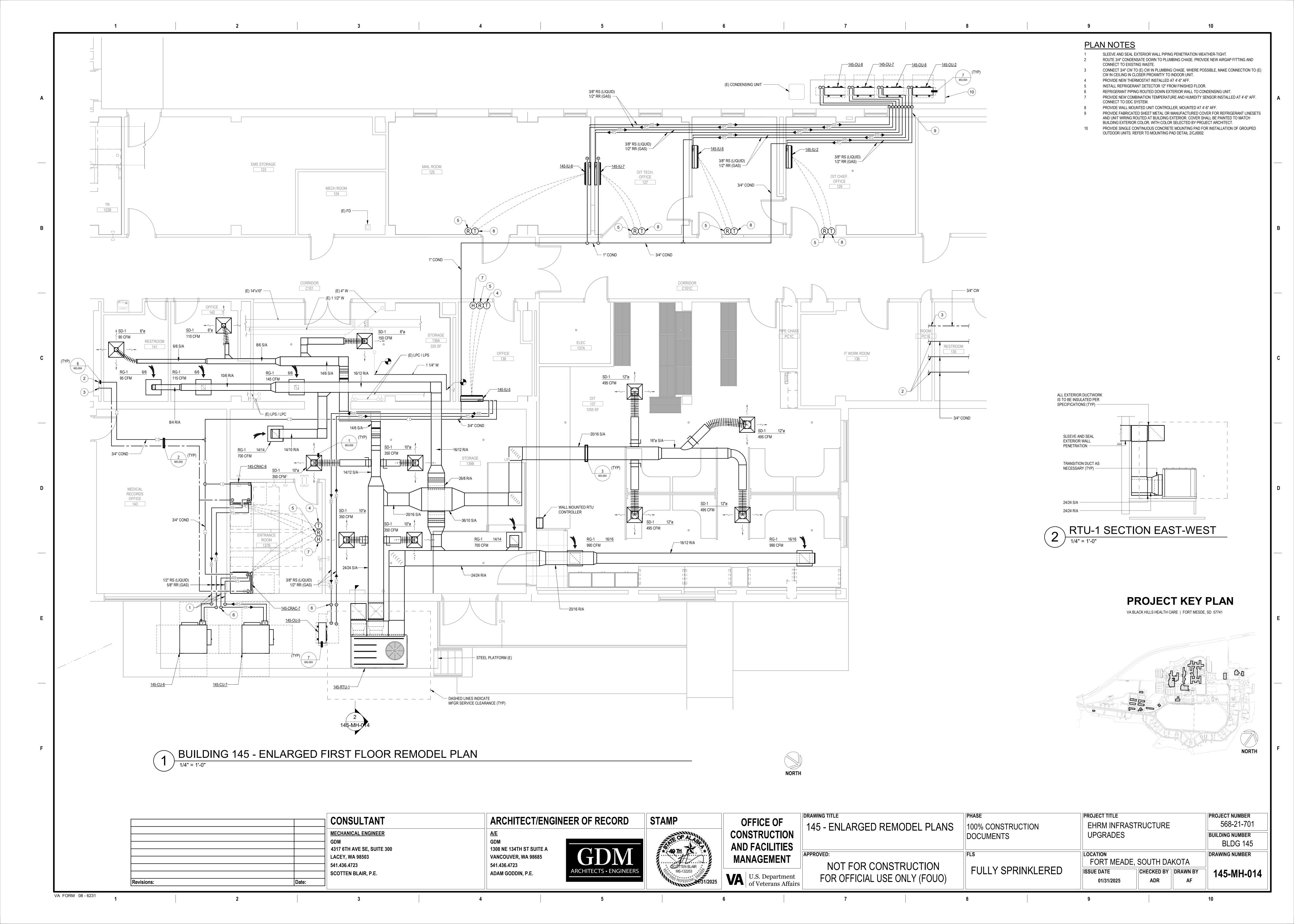
	CONSULTANT MECHANICAL ENGINEER GDM 4317 6TH AVE SE, SUITE 300	ARCHITECT/ENGINEER OF RECORD A/E GDM 1308 NE 134TH ST SUITE A	STAMP		145 - ENLARGED DEMOLITION PLAN	100% CONSTRUCTION DOCUMENTS	EHRM INFRASTRUCTURE UPGRADES	PROJECT NUMBER 568-21-701 BUILDING NUMBER 145
	LACEY, WA 98503 541.436.4723	VANCOUVER, WA 98685 541.436.4723	* 49 TH SCOTTEN BLAIR	MANAGEMENT	APPROVED: NOT FOR CONSTRUCTION	FLS	FORT MEADE, SOUTH DAKOTA	
Revisions: Date:	SCOTTEN BLAIR, P.E.	ADAM GODDIN, P.E. ARCHITECTS • ENGINEERS	ME-132203 ME-13220 ME-12220 ME-1220 ME-12220 ME-12220 ME-12220 ME-12220 ME-12220 ME-12220 ME-1220 ME-1220 ME-1220 ME-1220	U.S. Department of Veterans Affairs		FULLY SPRINKLERED	ISSUE DATE 01/31/2025 CHECKED BY ADR BO	145-MD-014

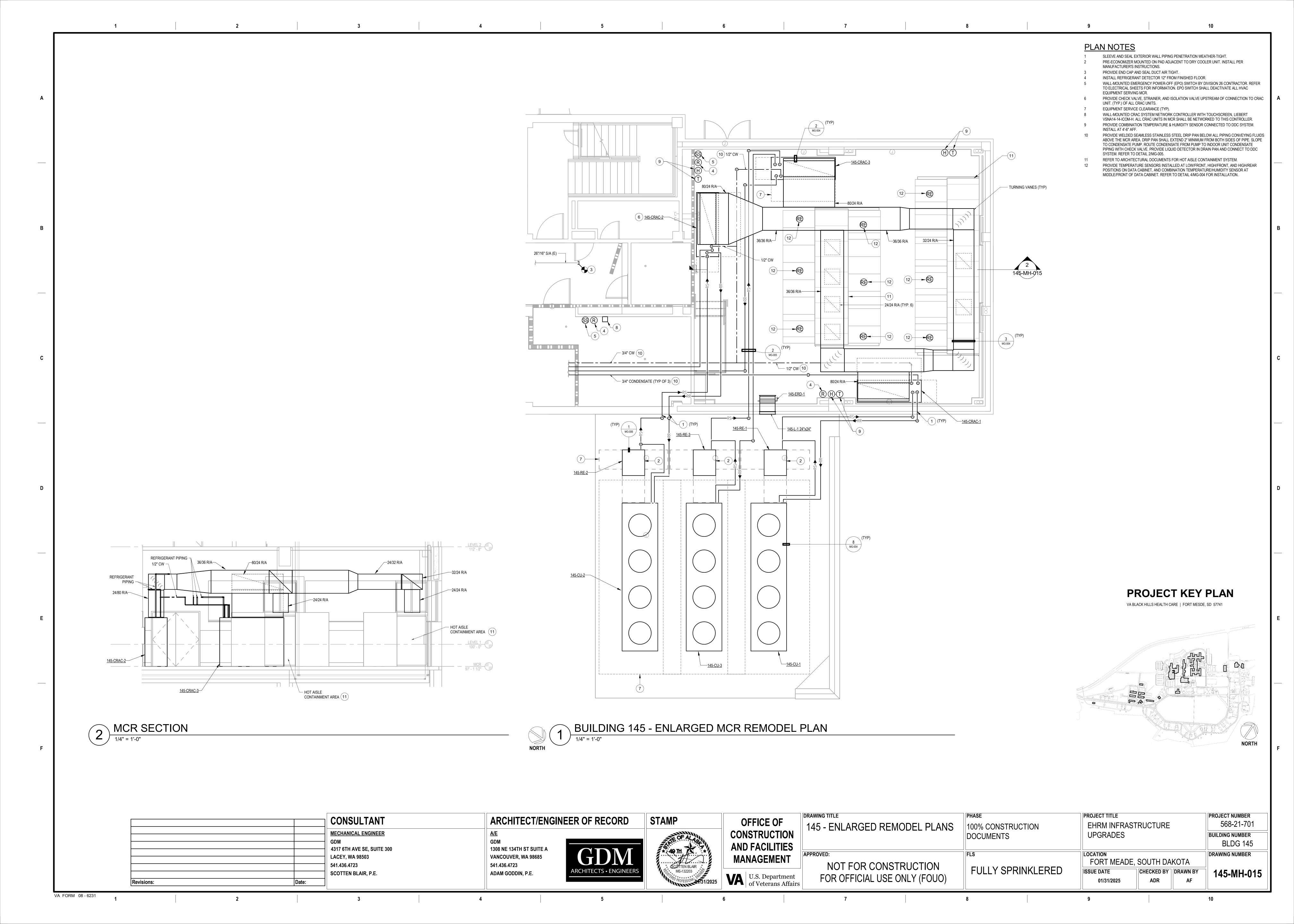


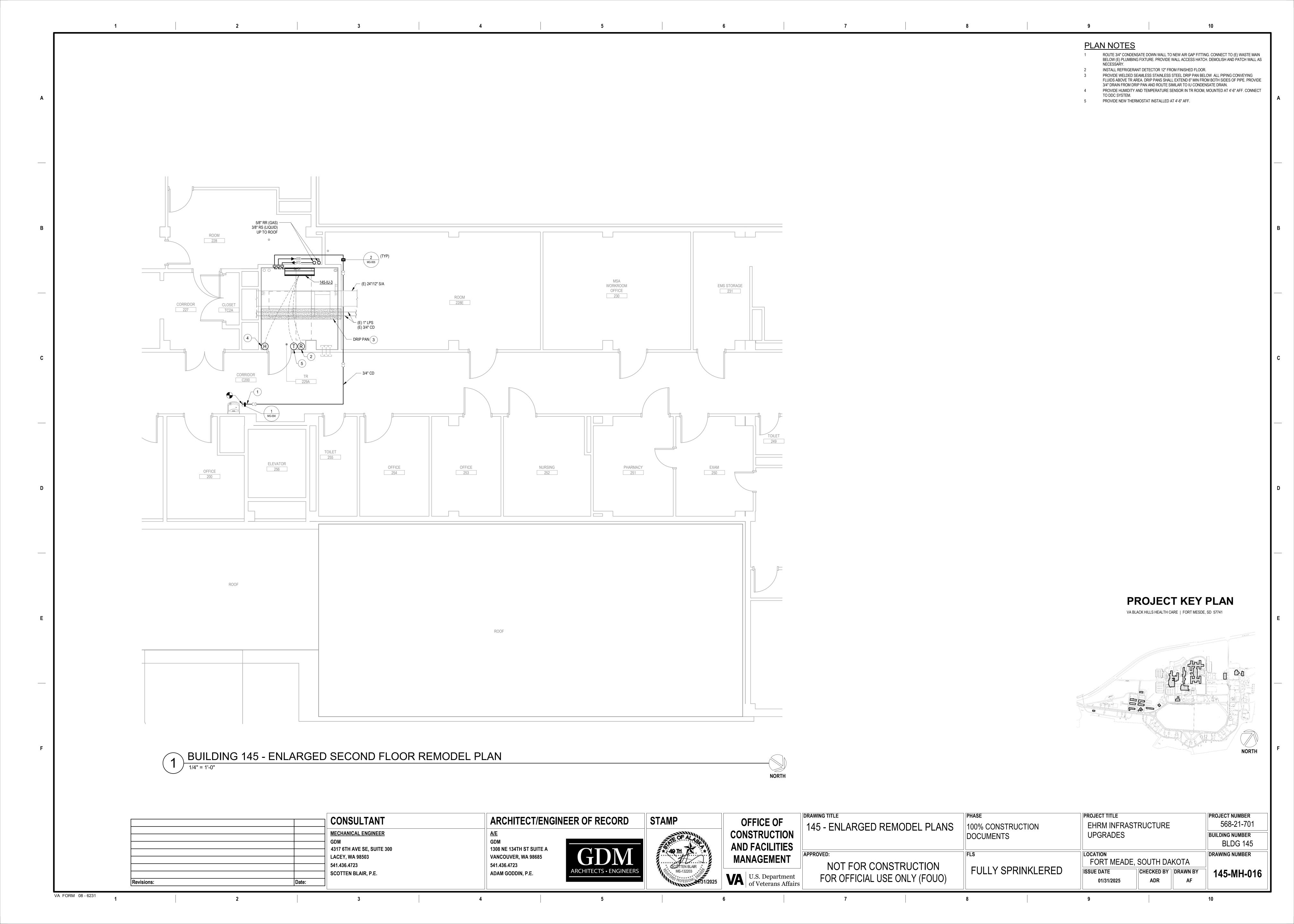


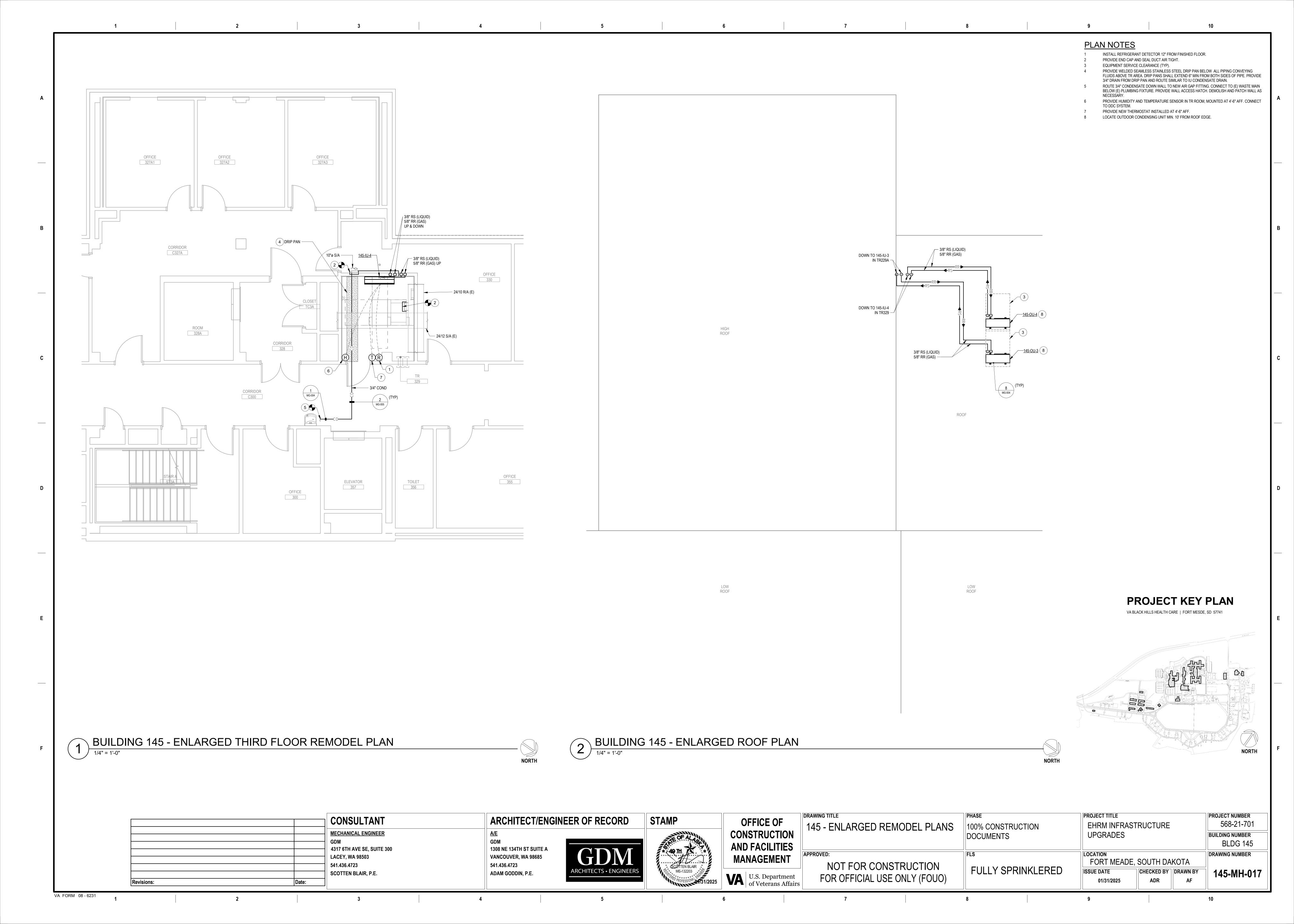


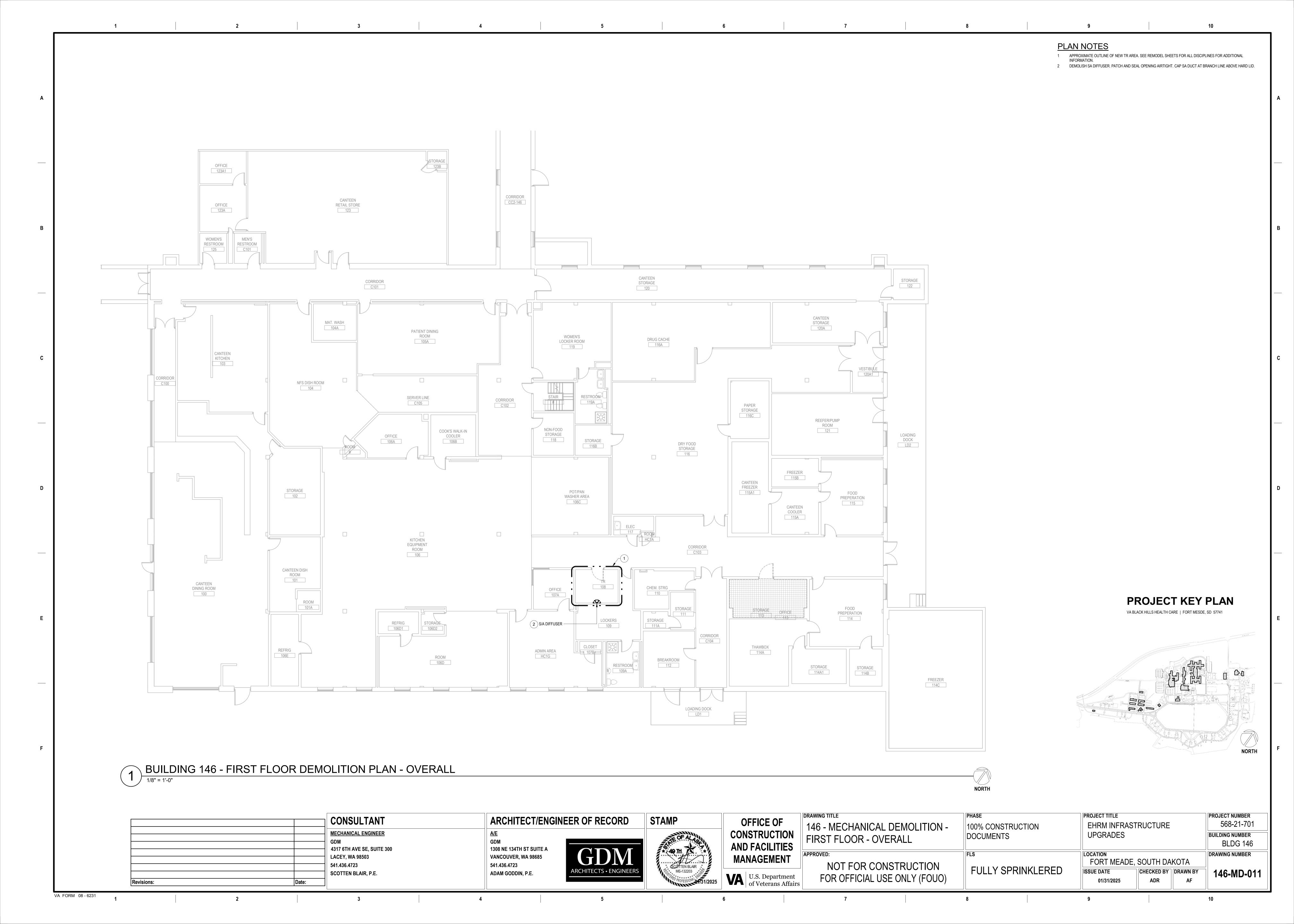


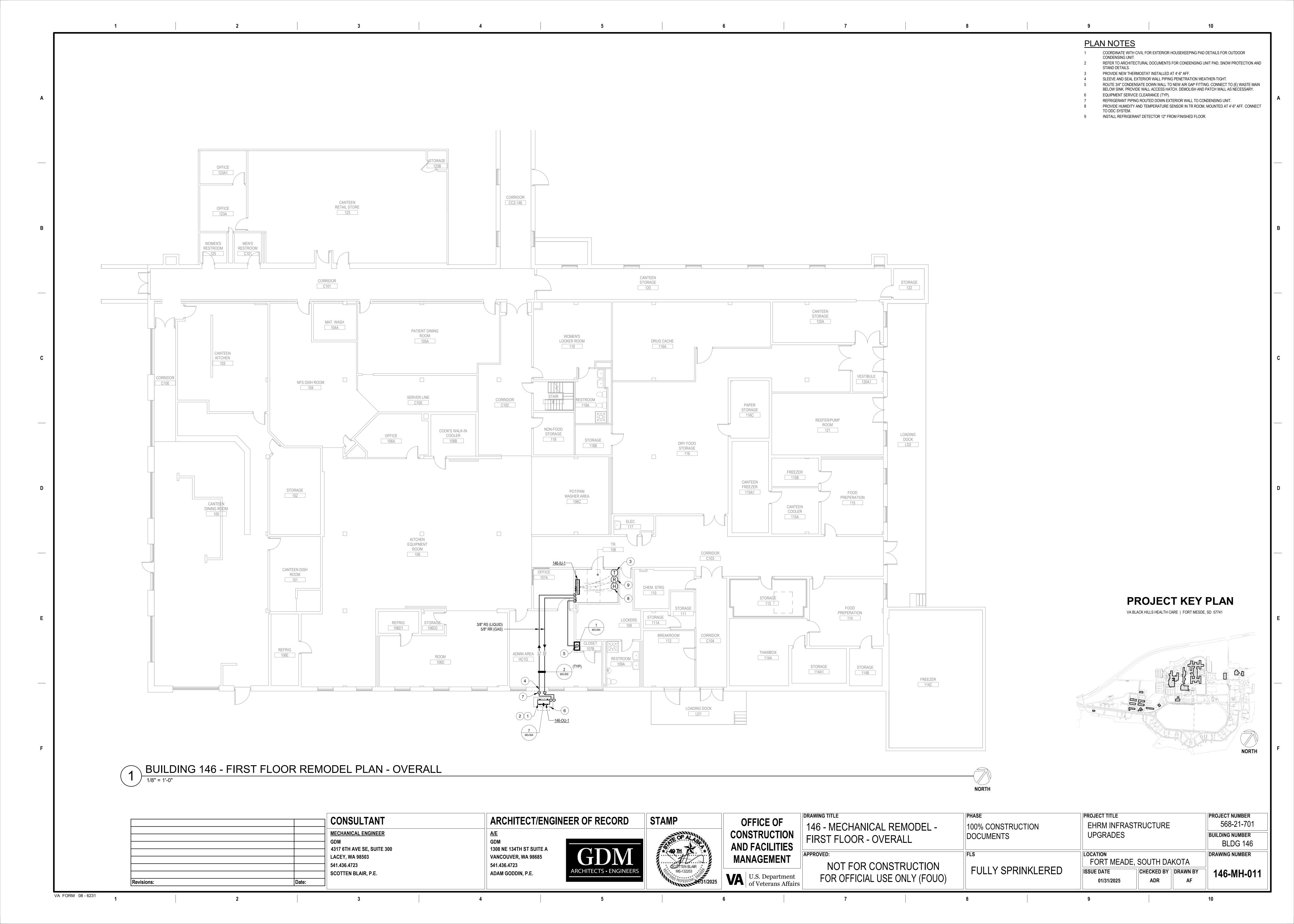


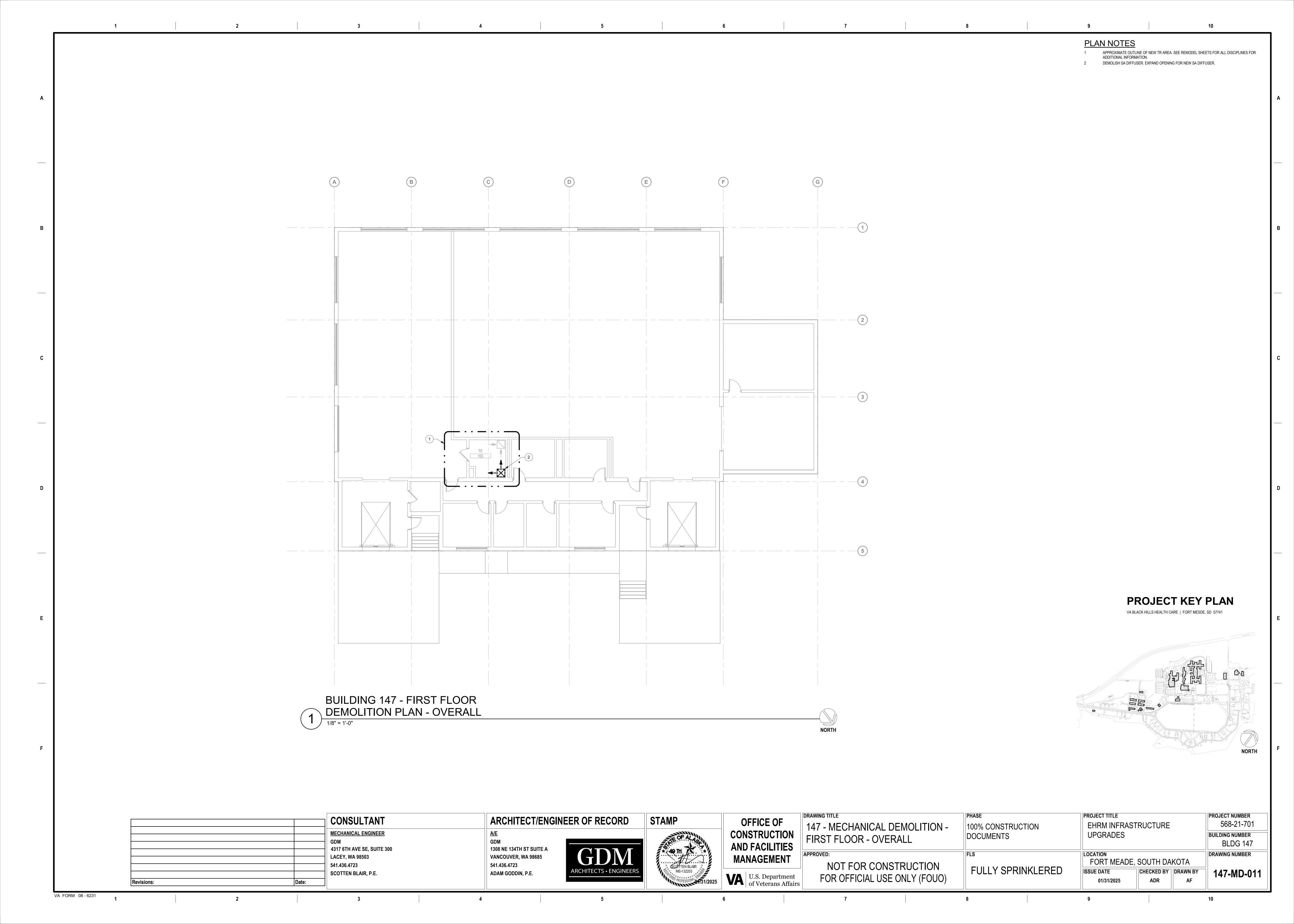


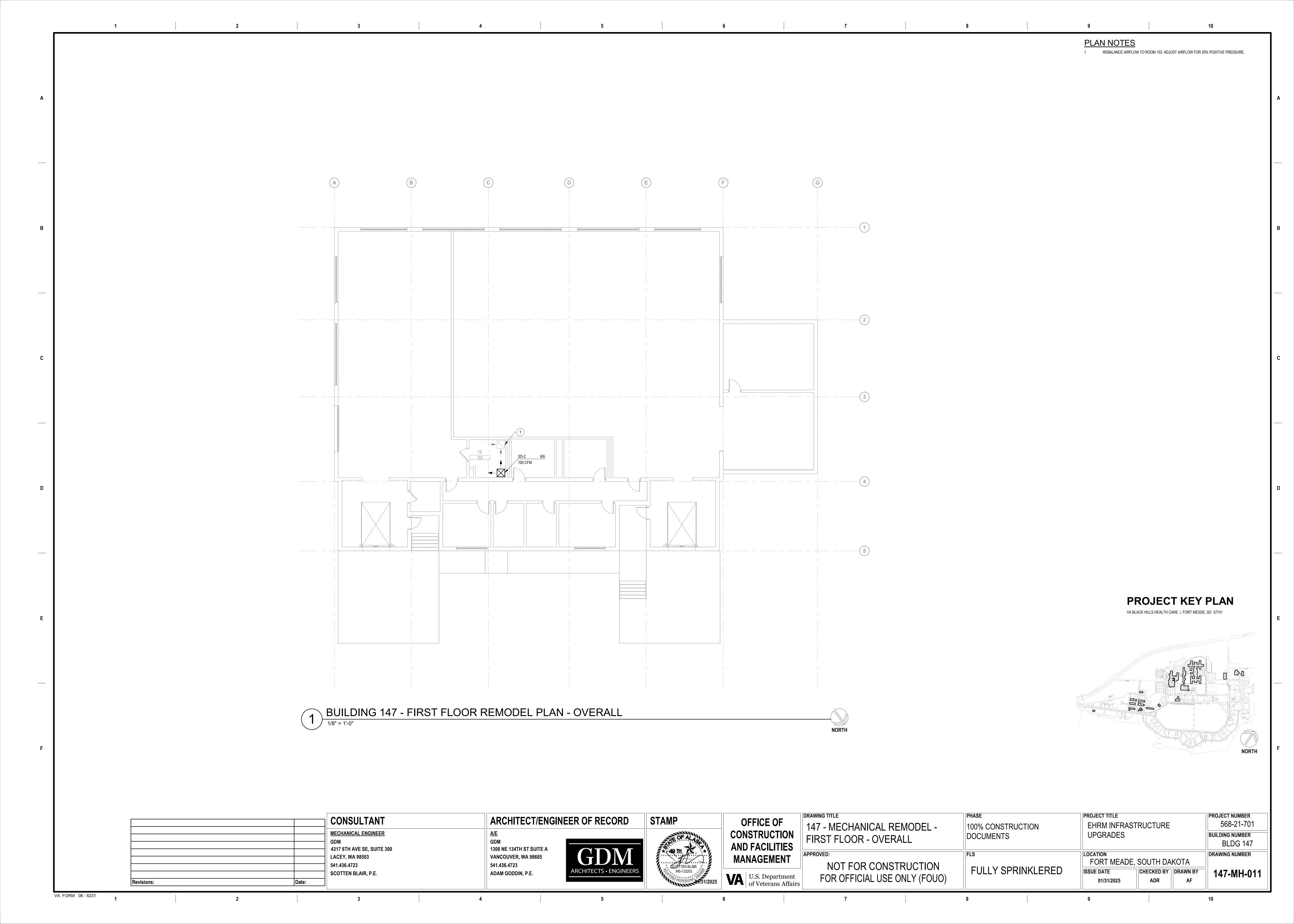


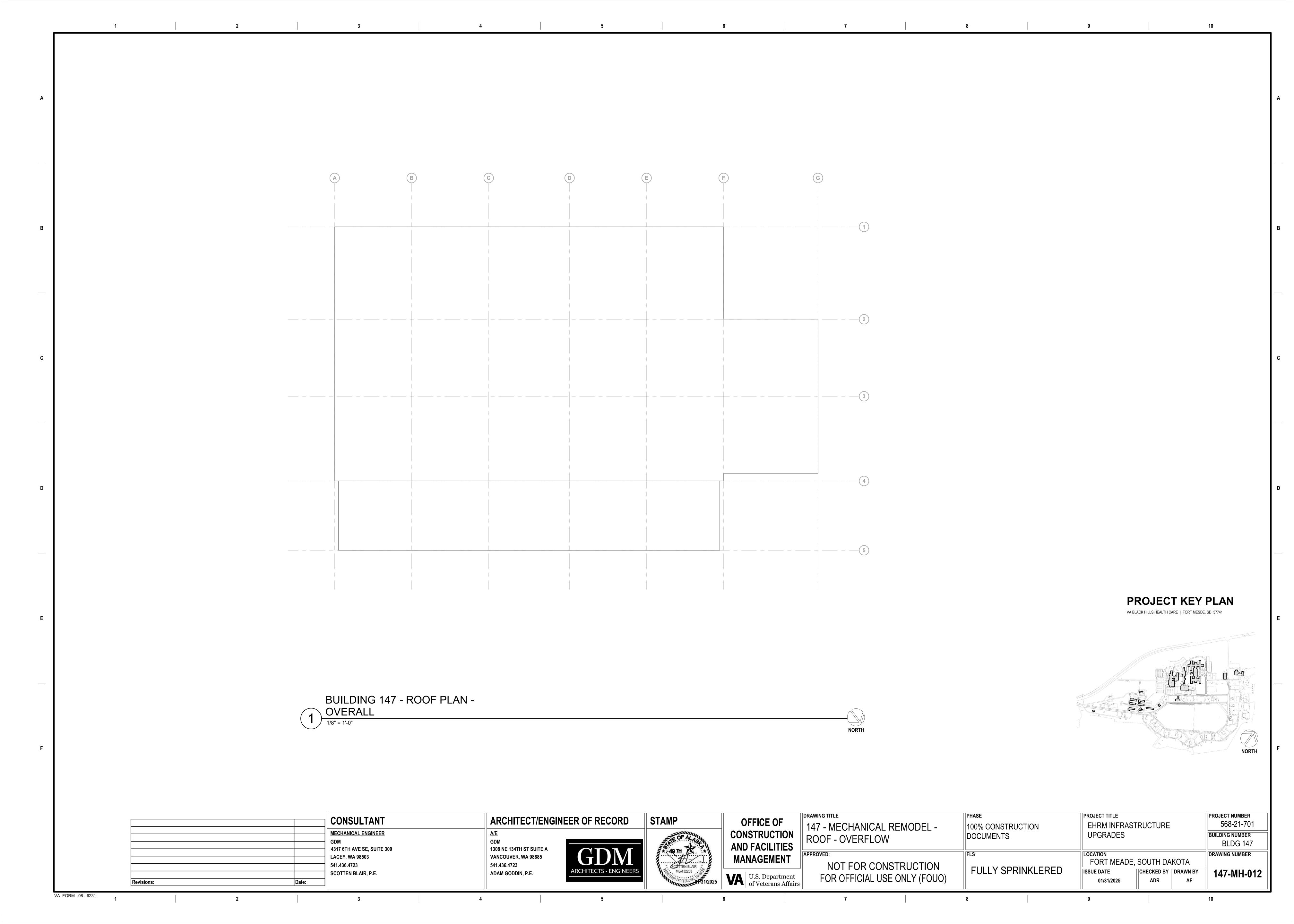


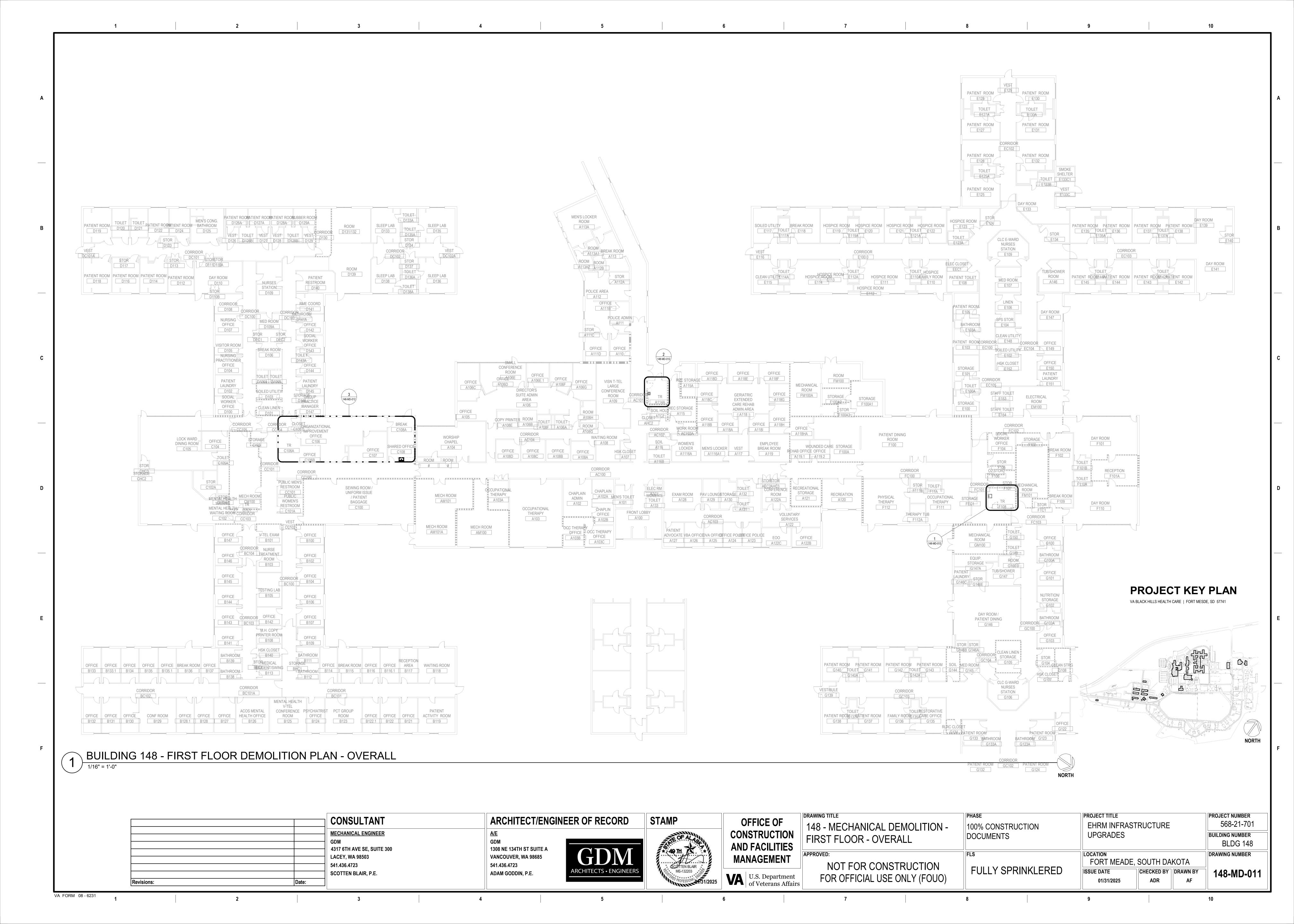


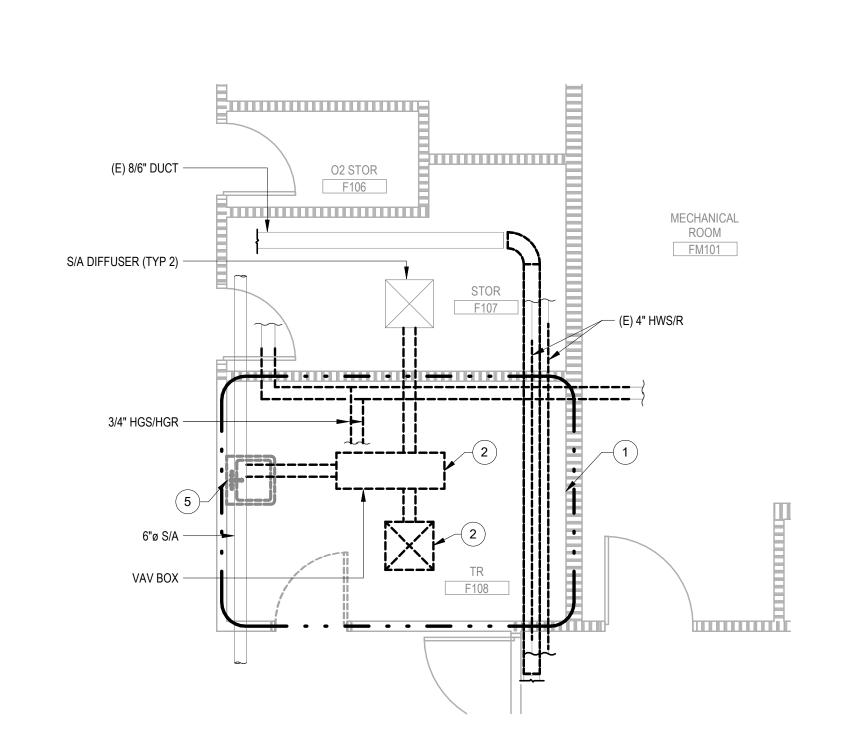




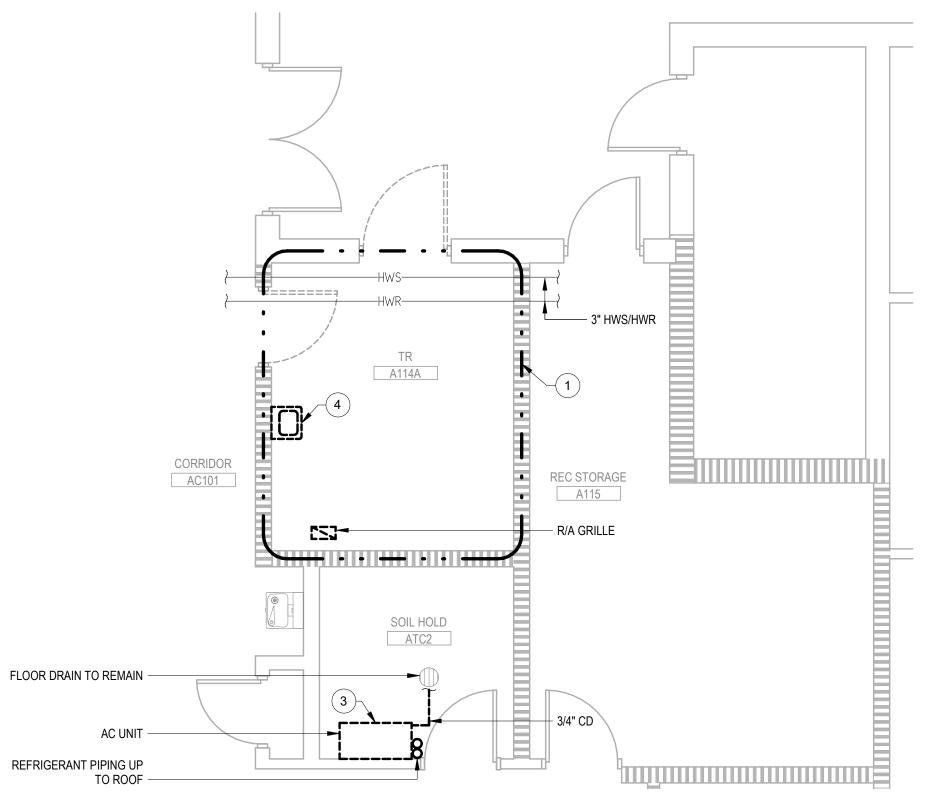












BUILDING 148 - ELARGED FIRST FLOOR DEMOLITION PLAN - 114 2) BUILD 1/4" = 1'-0"

PROJECT KEY PLAN VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741

PLAN NOTES

ADDITIONAL INFORMATION.

CONDENSATE PIPING AS INDICATED.

MEDIUM PRESSURE DUCTWORK BRANCH AT MAIN TRUNK.

ACCOMODATE REMODEL WORK. SALVAGE FOR RE-USE IN REMODEL.

APPROXIMATE OUTLINE OF NEW TR AREA. SEE REMODEL SHEETS FOR ALL DISCIPLINES FOR

SALVAGE VAV BOX AND HEATING WATER PIPING VALVE TRAIN FOR RELOCATION. DEMOLISH LOW PRESSURE DUCTWORK, MEDIUM PRESSURE DUCTWORK, AND SA DIFFUSER AS INDICATED. CAP

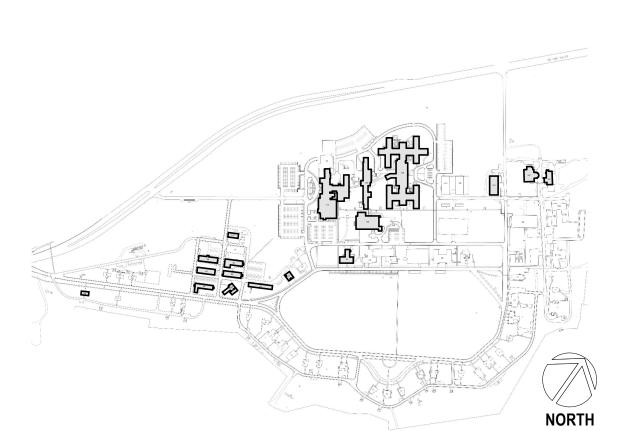
DEMOLISH AC UNIT, ASSOCIATED ROOF MOUNTED CONDENSING UNIT, REFRIGERANT PIPING, AND

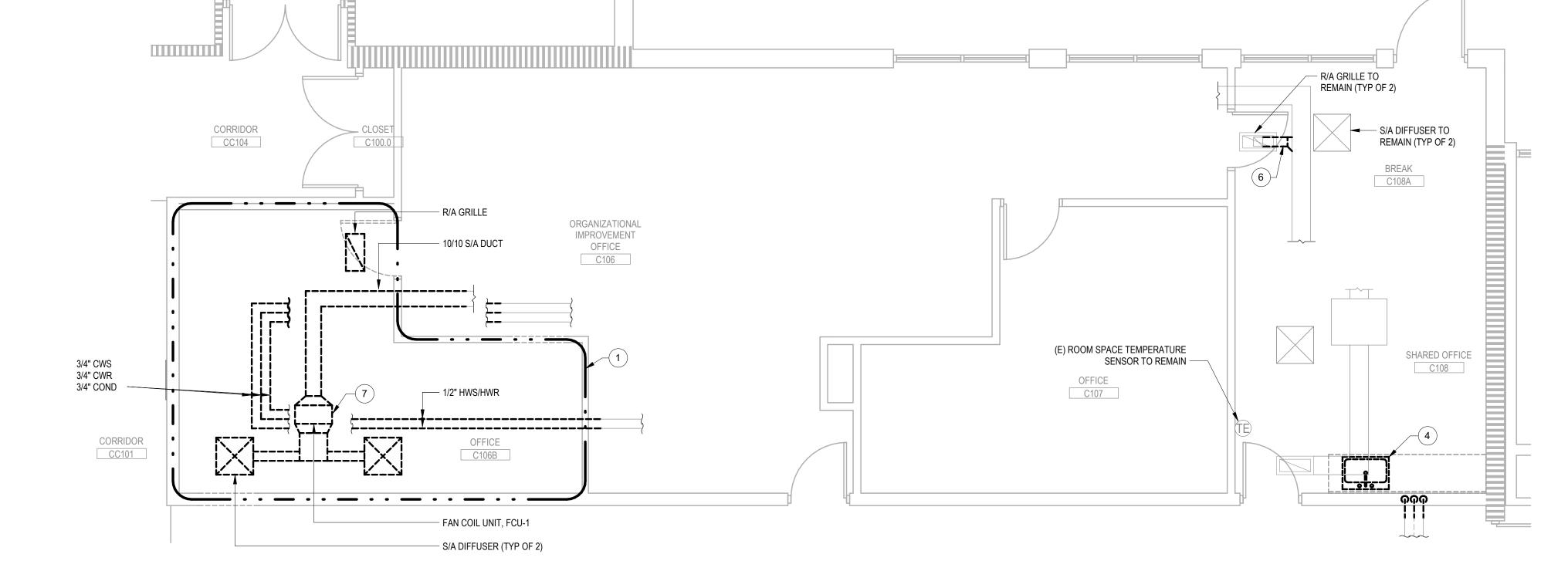
DEMOLISH DOMESTIC WATER, WASTE, AND VENT PIPING TO SINK AS NECCESSARY TO

RETAIN (E) COLD WATER AND (E) WASTE STUBS FOR FUTURE INDOOR UNIT CONNECTION. DEMOLISH CONNECTED RETURN AIR DUCT BACK TO MAIN AND CAP. RETURN AIR GRILLE TO

SALVAGE FAN COIL UNIT FOR RELOCATION. DEMOLISH SA DUCTWORK, DIFFUSERS, CHILLED

WATER PIPING, HEATING WATER PIPING, AND CONDENSATE PIPING AS INDICATED.





BUILDING 148 - ENLARGED FIRST FLOOR DEMOLITION PLAN - 106

		CONSULTAN
		MECHANICAL ENGINEE
		GDM 4317 6TH AVE SE, SUITE
		LACEY, WA 98503 541.436.4723
		SCOTTEN BLAIR, P.E.
Revisions:	Date:	

VA FORM 08 - 6231

CONSULTANT ARCHITECT/ENGINEER OF RECORD MECHANICAL ENGINEER 4317 6TH AVE SE, SUITE 300 1308 NE 134TH ST SUITE A LACEY, WA 98503 VANCOUVER, WA 98685

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ADAM GODDIN, P.E.



STAMP SCOTTEN BLAIR
ME-132203

OFFICE OF CONSTRUCTION AND FACILITIES **MANAGEMENT** U.S. Department of Veterans Affairs

NORTH

148 - ENLARGED MECHANICAL **DEMOLITION PLANS**

DRAWING TITLE

NOT FOR CONSTRUCTION FOR OFFICIAL USE ONLY (FOUO)

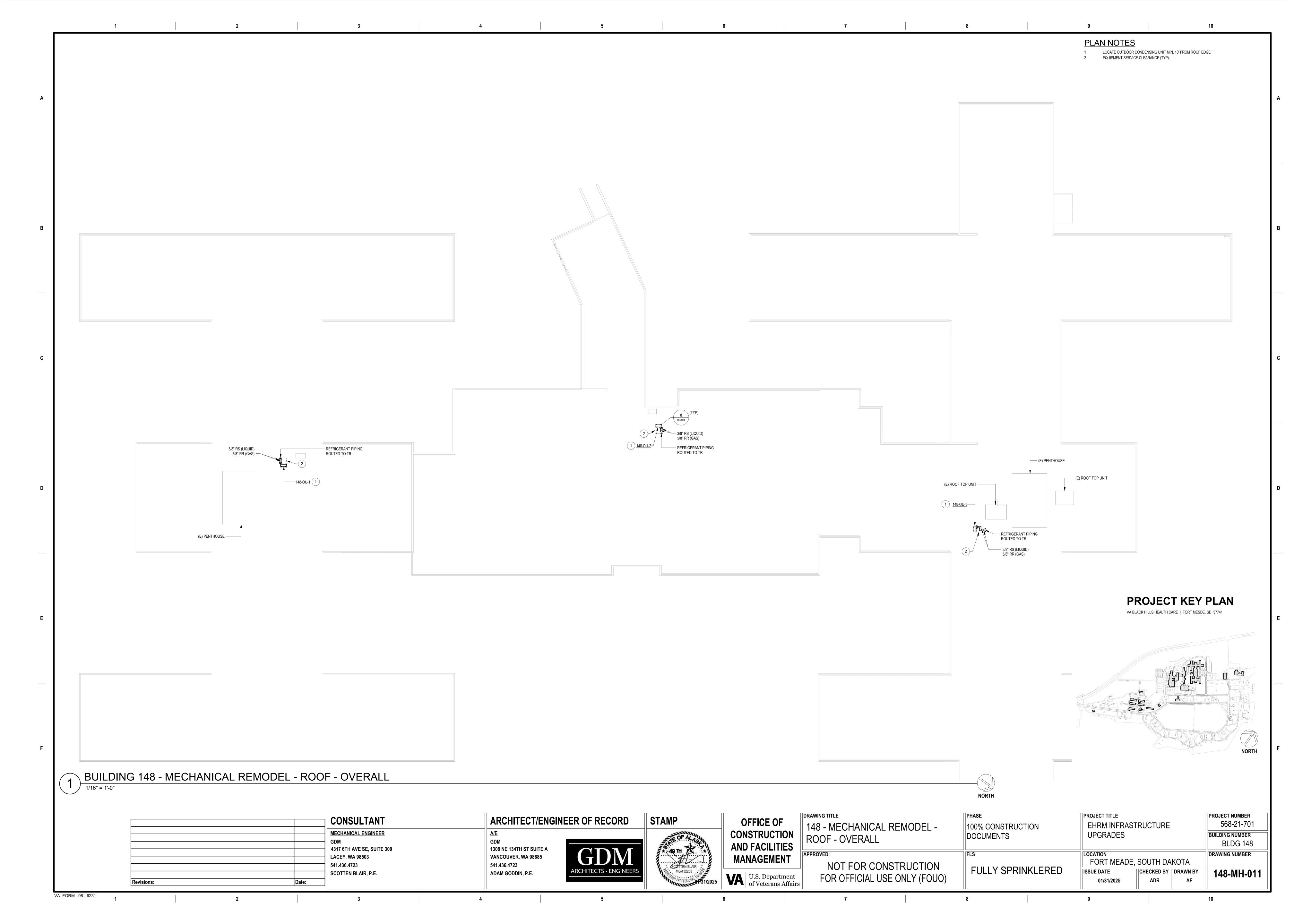
PROJECT TITLE PHASE EHRM INFRASTRUCTURE 100% CONSTRUCTION **UPGRADES** DOCUMENTS FORT MEADE, SOUTH DAKOTA

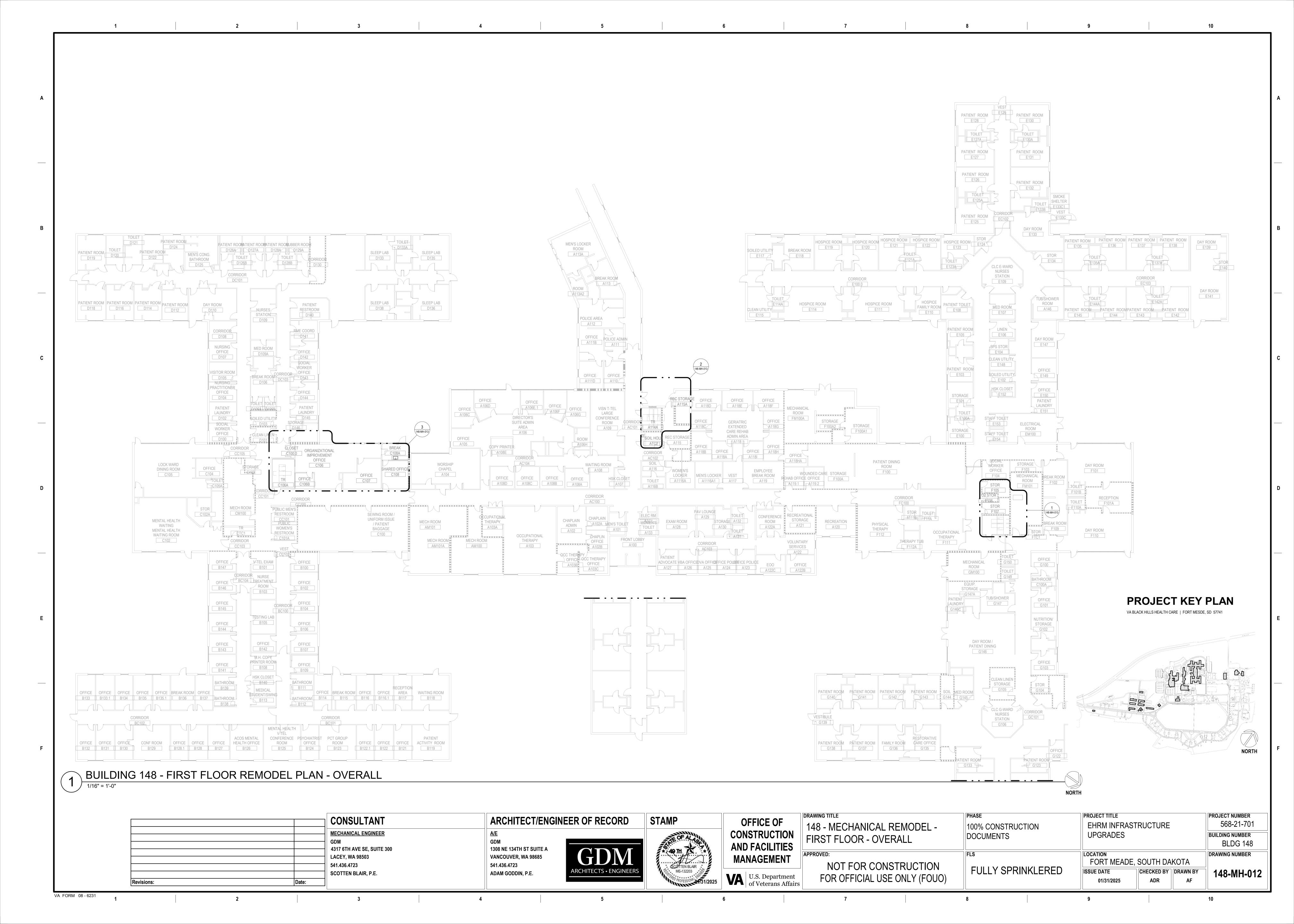
FULLY SPRINKLERED

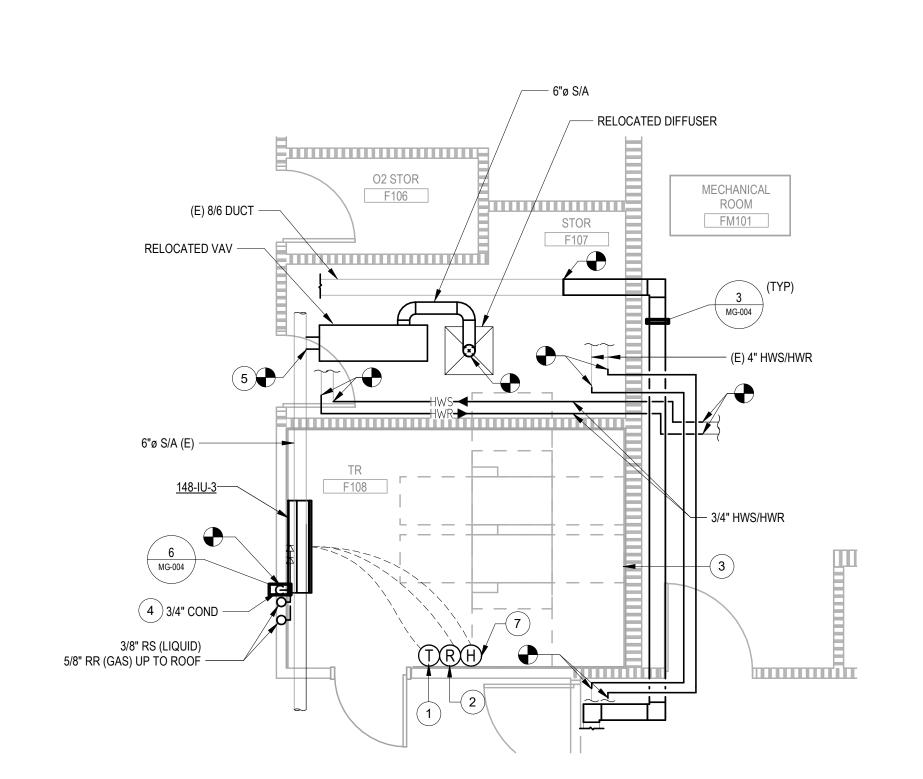
BUILDING NUMBER **BLDG 148** DRAWING NUMBER CHECKED BY DRAWN BY ISSUE DATE 148-MD-012 01/31/2025 ADR

PROJECT NUMBER

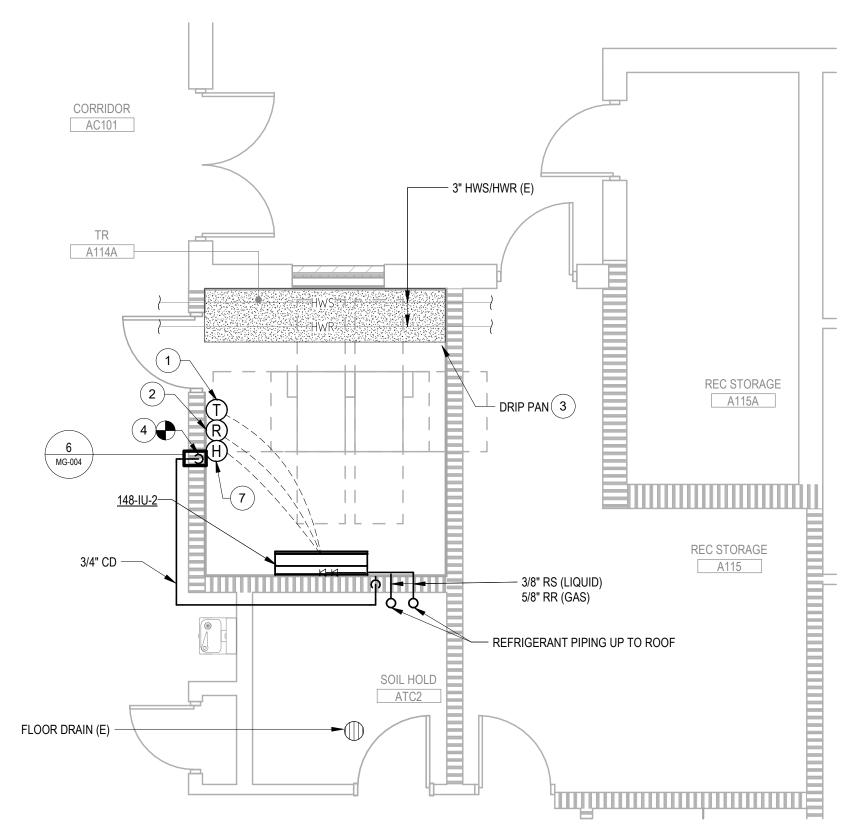
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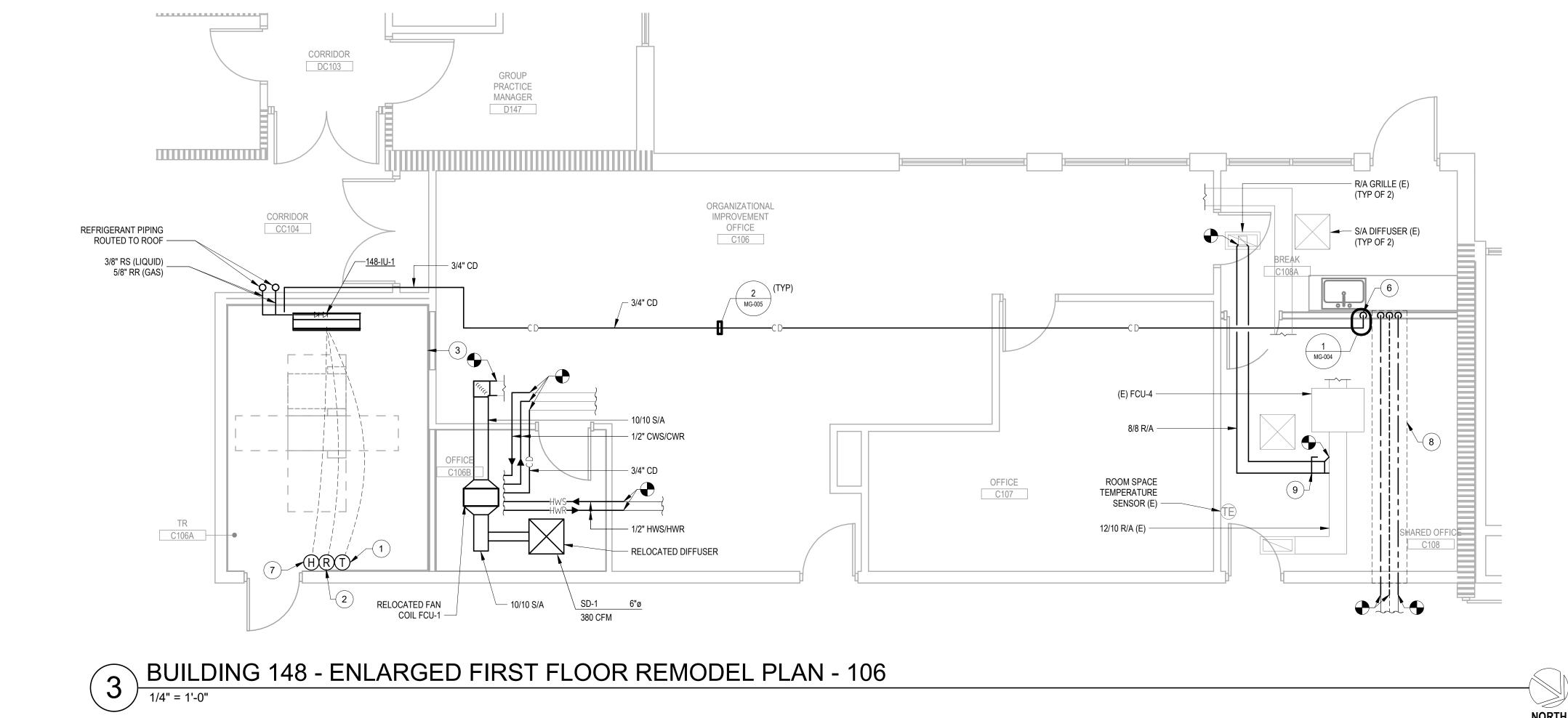




BUILDING 148 - ENLARGED FIRST FLOOR REMODEL PLAN - 108,



BUILDING 148 - ENLARGED FIRST FLOOR REMODEL PLAN - 114



PROJECT KEY PLAN

PLAN NOTES

PROVIDE NEW THERMOSTAT INSTALLED AT 4'-6" AFF.

REROUTE HEATING WATER PIPING AS SHOWN.

FITTING AND ACCESS HATCH.

ACCOMMODATE 1-1/2" W.

INSTALL REFRIGERANT DETECTOR 12" FROM FINISHED FLOOR.

BALANCE RETURN AIR DUCT TO EXISTING FAN COIL UNIT TO 240 CFM.

3/4" DRAIN FROM DRIP PAN AND ROUTE SIMILAR TO IU CONDENSATE DRAIN.

PROVIDE WELDED SEAMLESS STAINLESS STEEL DRIP PAN BELOW ALL PIPING CONVEYING FLUIDS ABOVE TR AREA. DRIP PANS SHALL EXTEND 6" MIN FROM BOTH SIDES OF PIPE. PROVIDE

CONNECT 3/4" COND TO (E) WASTE STUB FROM DEMOLISHED SINK. PROVIDE NEW AIRGAP

REINSTALL SALVAGED VAV BOX AND HEATING WATER PIPING VALVE TRAIN. EXTEND AND

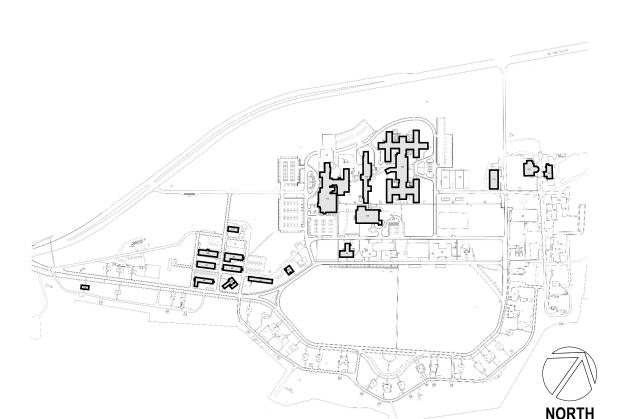
ROUTE 3/4" CONDENSATE DRAIN LINE TO WASTE MAIN IN PROXIMITY TO THE RELOCATED SINK WASTE PIPE CONNECTION. PROVIDE INDIRECT DRAIN CONNECTION CONCEALED IN VERTICAL

PROVIDE HUMIDITY AND TEMPERATURE SENSOR IN TR ROOM, MOUNTED AT 4'-6" AFF. CONNECT

LOCATION. DASHED LINES INDICATE APPROXIMATE OUTLINE OF CONCRETE SLAB DEMOLITION TO

EXTEND 3/4" CW/HW, 1-1/2" V, AND 1-1/2" W FROM EXISTING SINK LOCATION TO NEW SINK

VA BLACK HILLS HEALTH CARE | FORT MESDE, SD 57741



LACEY, WA 98503

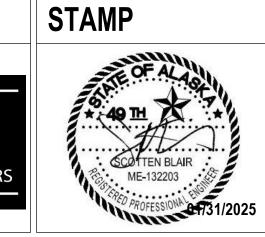
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VANCOUVER, WA 98685 ADAM GODDIN, P.E.



OFFICE OF CONSTRUCTION AND FACILITIES **MANAGEMENT** U.S. Department of Veterans Affairs

NORTH

DRAWING TITLE

	148 - ENLARGED MECHANICAL REMODEL PLANS
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	NOT FOR CONSTRUCTION
'S	FOR OFFICIAL USE ONLY (FOUO)

	100% CONSTRUCTION DOCUMENTS
	FLS
NC	FULLY SPRINKLERED

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01/31/2025

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Revisions:

