DETAIL NOTES:
1. INSTALL SPRINKLERS IN 2' X 2' CEILING TILES AS INDICATED ABOVE.
2. ALIGN SPRINKLERS AMONGST ADJACENT CEILING TILES WHERE IN THE SAME FIELD OF VIEW INCLUDING THROUGH OPEN DOORS AND GLASS PARTITIONS.
3. WHERE SPRINKLERS ARE INSTALLED IN CEILINGS OTHER THAN 2' X 2' CEILING TILES, ALIGN WITH LIGHTS, DIFFUSERS, AND ARCHITECTURAL FEATURES.

1 FIRE SPRINKLER CEILING TILE INSTALLATION DETAIL
NTS

RATED
RATEDENGINEERING.COM
MO LIC #2026005125

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT:

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
FIRE SUPPRESSION DETAILS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED DBN | DRAWN JCP

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
FX501
DRAWING # 38 OF 74

Veterans Health Administration

VA | U.S. Department of Veterans Affairs

5/27/2026 8:56:19 AM

VA FORM 08-6231

ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS OR SYMBOLS WILL BE UTILIZED FOR THIS PROJECT.

A

A/E	ARCHITECT / ENGINEER
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AG	AIR GAP
AP	ACCESS PANEL
AS	AUTOMATIC SPRINKLER
ASD	ADJUSTABLE SPEED DRIVES
ASD	AUTOMATIC SPRINKLER DRAIN
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS
ASR	AUTOMATIC SPRINKLER RISER
AV	ACID VENT
AW	ACID WASTE

B

BFP	REDUCED PRESSURE BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BSP	BLACK STEEL PIPE
BT	BATHTUB
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR

C

C	CENTIGRADE (CELSIUS)
CA	COMPRESSED AIR
CGA	COMPRESSED GAS ASSOCIATION
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CO	CLEANOUT
CS	CLINICAL SINK
CV	CONTROL VALVE

D

DCW	DOMESTIC COLD WATER
DFU	DRAINAGE FIXTURE UNITS
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
DHWS	DOMESTIC HOT WATER SUPPLY
DI	DEIONIZED WATER
DN	DOWN
DS	DOWNSPOUT
DW	DISHWASHER
DWG	DRAWING
DWH	DOMESTIC WATER HEATER
DWR	DRINKING WATER RETURN
DWS	DRINKING WATER SUPPLY
DWV	DRAIN WASTE VENT

E

EL	ELEVATION
EMCS	ENERGY MONOSERRAT AND CENTRAL SYSTEM
EPA	ENVIRONMENTAL PROTECTION AGENCY
EPACT	ENERGY POLICY ACT
ESC	ESCUTCHEON
ESH	EMERGENCY SHOWER
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EWH	ELECTRIC WATER HEATER
EWS	EYE WASH STATION
EWS/SH	EYE WASH/ DRENCH SHOWER
EX.	EXISTING

F

F	FAHRENHEIT
FCO	FLOOR CLEANOUT
FCW	FILTERED COLD WATER
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT (HOSE) CONNECTION
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FM	FLOW METER
FOP	FUEL OIL PUMP
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
FS	FLOOR SINK
FS	FLOW SWITCH
FU	FIXTURE UNITS

G

GAL	GALLONS
GCO	GRADE CLEANOUTS
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GPS	GAS REGULATOR STATION
GT	GREASE TRAP
GVTR	GAS VENT THROUGH ROOF
GWH	GAS FIRED UNIT HEATER

H

H&CW	HOT & COLD WATER
HB	HOSE BIBB
HD	HUB DRAIN
HP	HORSEPOWER
HS	HAND SINK
HST	HOT WATER STORAGE TANK (DOMESTIC)
HWB	HOT WATER BOILER
HWCP	HOT WATER CIRCULATING PUMP
HWP	HOT WATER PUMP
HX	HEAT EXCHANGER
HYD	HYDRANT

I

ID	INSIDE DIAMETER
IE	INVERT ELEVATION
ICW	INDUSTRIAL COLD WATER
IHW	INDUSTRIAL HOT WATER
INV	INVERT
IPC	INTERNATIONAL PLUMBING CODE
IRW	IRRIGATION WATER
IW	INDIRECT WASTE
IWH	INSTANTANEOUS WATER HEATER
IWR	INDUSTRIAL WATER RETURN
IWS	INDUSTRIAL WATER SUPPLY

J

J	INTENTIONALLY LEFT BLANK

K

kW	KILOWATT
kWh	KILOWATT HOUR

L

L/s	LITERS PER SECOND (OR LITERS/SECOND)
LA	LABORATORY AIR
LAV	LAVATORY
LBS/HR	POUNDS PER HOUR
LCW	LABORATORY COLD WATER
LHW	LABORATORY HOT WATER
LNG	LIQUID NATURAL GAS
LOX	LIQUID OXYGEN
LV	LABORATORY VACUUM
LW	LOW WATER

M

M	METER, SI UNIT
MA	MEDICAL AIR
MAV	MANUAL AIR VENT
MBH	1000 BTUH
MED	MEDICAL
MER	MECHANICAL EQUIPMENT ROOM
MH	MANHOLE
MOU	MEMORANDUM OF UNDERSTANDING
MSB	MOP SERVICE BASIN
MV	MEDICAL VACUUM

N

N2	NITROGEN
N2O	NITROUS OXIDE
NC	NORMALLY CLOSED
NG	NATURAL GAS
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM.	NOMINAL
NPW	NON POTABLE WATER
NTS	NOT TO SCALE

O

O	OXYGEN
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFD	OVERFLOW DRAIN
OR	OPERATING ROOM
OVFL	OVERFLOW

P

PA	PASCAL
PD	PRESSURE DROP
PDI	PLUMBING AND DRAINAGE INSTITUTE
PG	PRESSURE GAGE
PP	PLUMBING PUMP
PPM	PARTS PER MILLION
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
PSIG	POUNDS PER SQUARE INCH – GAGE
PTRV	PRESSURE TEMPERATURE RELIEF VALVE
PO	POTABLE WATER

Q

Q	INTENTIONALLY LEFT BLANK

R

RD	ROOF DRAIN
RDL	ROOF DRAIN LEADER
RL	ROOF LEADER
RO	REVERSE OSMOSIS
RP	RECIRCULATION PUMP
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RWL	RAIN WATER LEADER

S

SAN	SANITARY SEWER
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SCFM	STANDARD CUBIC FEET PER MINUTE
SCW	SOFTENED COLD WATER
SDMH	STORM DRAIN MANHOLE
SMH	SANITARY MANHOLE
SP	SUMP PUMP
SPR	SPRINKLER LINE
SQ FT	SQUARE FOOT (FEET)
SS	SANITARY SEWER. STAINLESS STEEL
ST	STORM SEWER, STORAGE TANK
SW	STORM WATER

T

TCV	TEMPERATURE CONTROL VALVE
TD	TEMPERATURE DIFFERENCE, TRENCH DRAIN
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TMV	THERMOSTATIC MIXING VALVE
TP	TRAP PRIMER
TSTAT	THERMOSTAT
TWR	TEMPERED WATER RETURN
TWS	TEMPERED WATER SUPPLY
TYP	TYPICAL

U

U	INTENTIONALLY LEFT BLANK

V

V	VENT
VAC	VACUUM
VB	VACUUM BREAKER
VCO	VACUUM CLEANER OUTLET
VP	VACUUM PUMP
VS	VENT STACK
VSD	VARIABLE SPEED DRIVE
VTR	VENT THROUGH ROOF

W

W	WASTE
WC	WATER CLOSET
WCO	WALL CLEANOUT
WG	WATER GAGE
WH	WALL HYDRANT, WATER HEATER
WHA	WATER HAMMER ARRESTER
WL	WATER LINE
WM	WATER METER
WPD	WATER SIDE PRESSURE DROP
WS	WASTE STACK
WSFU	WATER SUPPLY FIXTURE UNITS

X

X	INTENTIONALLY LEFT BLANK

Y

YCO	YARD CLEANOUT
YH	YARD HYDRANT

Z

Z	INTENTIONALLY LEFT BLANK

GENERAL ANNOTATIONS

- Name 101 — ROOM TAG
- 1 — OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT DESIGNATION
- XX-1 — PLUMBING EQUIPMENT DESIGNATION
- 1 / XX-XX — DETAIL NUMBER / SHEET NUMBER
- 1 / PL-100 — SECTION NUMBER / SHEET NUMBER

GENERAL PIPING SYMBOLS

- EXISTING TO REMAIN
- EXISTING TO BE DEMOLISHED
- NEW PIPE
- CONNECT NEW TO EXISTING
- LIMIT OF DEMOLITION

PLUMBING PIPING TYPES

- ACD — AUXILIARY CONDENSATE DRAIN
- AI — MEDICAL AIR INTAKE
- AV — ACID VENT
- AW — ACID WASTE
- CA — COMPRESSED AIR
- CD — CONDENSATE DRAIN
- CO — CARBON DIOXIDE
- DCW — DOMESTIC COLD WATER
- DHW — DOMESTIC HOT WATER
- DHWR — DOMESTIC HOT WATER RECIRC.
- FCW — FILTERED COLD WATER
- FOD — FUEL OIL DISCHARGE
- FOS — FUEL OIL SUPPLY
- FOR — FUEL OIL RETURN
- FOV — FUEL OIL VENT
- G — NATURAL GAS
- GW — GREASE WASTE
- IA — INDUSTRIAL AIR
- LA — LABORATORY AIR
- LPG — LIQUIFIED PETROLEUM GAS
- LV — LABORATORY VACUUM
- MA — MEDICAL AIR
- MPG — MEDIUM PRESSURE NATURAL GAS
- MV — MEDICAL VACUUM
- N — NITROGEN
- NO — NITROUS OXIDE
- NPW — NON POTABLE WATER (NPW)
- OA — ORAL EVACUATION
- O — OXYGEN
- OST — OVERFLOW STORM DRAIN
- SCW — SOFTENED COLD WATER (SCW)
- SS — SANITARY SEWER
- ST — STORM DRAIN
- VE — MEDICAL VACUUM EXHAUST
- V — VENT
- 140° — 140° DOMESTIC HOT WATER (140°)

MEDICAL GAS SYMBOLS

O	WALL OUTLET - OXYGEN
MA	WALL OUTLET - MEDICAL AIR
MV	WALL OUTLET - MEDICAL VACUUM
N	WALL OUTLET - NITROGEN
NO	WALL OUTLET - NITROUS OXIDE
CO	WALL OUTLET - CARBON DIOXIDE
LA	WALL OUTLET - LABORATORY AIR
LV	WALL OUTLET - LABORATORY VACUUM
AAP-X	AREA ALARM PANEL (AAP-X)
MAP-X	MASTER ALARM PANEL (MAP-X)
ZVB-X	ZONE VALVE BOX (ZVB-X)

PLUMBING PIPING SYMBOLS

- ANCHOR
- BACKFLOW PREVENTER (BFP, RPBP)
- CAP
- DIRECTION OF FLOW
- DIRECTION OF PIPE PITCH (DOWN)
- FLANGE CONNECTION
- FLOAT & THERMOSTATIC STEAM TRAP
- FM — FLOW METER
- INVERTED BUCKET STEAM TRAP
- NONFREEZE WALL HYDRANT
- PIPE RISER
- PIPE DROP
- PRESSURE AND TEMPERATURE TEST PLUG
- PRESSURE GAUGE
- PUMP
- REDUCER (CONCENTRIC)
- REDUCER (ECCENTRIC)
- STRAINER
- TEE
- TEE UP
- TEE DOWN
- THERMOMETER
- UNION

PLUMBING VALVE SYMBOLS

- ANGLE GLOBE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- GLOBE VALVE
- MV / AV — MANUAL OR AUTOMATIC AIR VENT
- MODULATING CONTROL VALVE
- M — MOTOR OPERATED VALVE
- PRESSURE REDUCING VALVE
- SAFETY RELIEF VALVE
- THERMOSTATIC MIXING VALVE

PLUMBING CLEANOUT AND DRAIN SYMBOLS

- SQUARE FLOOR SINK (FS)
- SQUARE FLOOR DRAIN (FD)
- ROOF DRAIN (RD), SIZE & TYPE
- ROUND FLOOR DRAIN (FD)
- END OF LINE CLEANOUT
- FLOOR CLEANOUT (FCO)
- WALL CLEANOUT (WCO)

DEMOLITION GENERAL NOTES:

A. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK. NOTIFY GENERAL CONTRACTOR REGARDING CONFLICTS BEFORE PROCEEDING WITH WORK.

B. VERIFY SIZE AND LOCATION OF EXISTING UTILITIES PRIOR TO START OF DEMOLITION. RELOCATE, REMOVE AND ADJUST MECHANICAL AND ELECTRICAL ITEMS AS NECESSARY TO COORDINATE WITH NEW WORK.

C. AFTER DEMOLITION IS COMPLETE, PATCH AND REPAIR FINISHES TO MATCH EXISTING CONDITIONS.

D. COORDINATE DEMOLITION WITH GENERAL CONTRACTOR. NOTIFY GENERAL CONTRACTOR AND OWNER IF A SHUDTOWN OF UTILITIES IS REQUIRED.

E. PROTECT EXISTING UTILITIES TO REMAIN FROM DAMAGE DURING DEMOLITION.

F. TEMPORARILY MOVE OR TAKE EQUIPMENT OUT OF SERVICE AS NECESSARY TO COMPLETE WORK.

G. SAWCUT CONCRETE FLOOR AS REQUIRED FOR DEMOLITION WORK INDICATED. COORDINATE WITH NEW PLUMBING BEFORE CUTTING ANY FLOOR. CONTRACTOR TO X-RAY FLOORS FOR ALL STRUCTURAL FLOORS.

GENERAL NOTES:

A. ALL PIPING SHALL BE COORDINATED WITH CIVIL UTILITY PIPING, FIRE PROTECTION, DUCTWORK, MECHANICAL PIPING, LIGHTING, STRUCTURAL AND ARCHITECTURAL SYSTEMS.

B. PIPE CLEANOUTS SHALL BE LINE SIZE (6" MAX.). LOCATE 100' APART MAXIMUM FOR SIZES UP THROUGH 6".

C. PLUMBING VENTS THROUGH ROOF (VTR) SHALL BE 3" MINIMUM. SMALLER VTR'S INDICATED SHALL INCREASE TO 3" PIPE, 12" BELOW ROOF.

D. ACCESS PANELS SHALL BE PROVIDED FOR ALL WATER HAMMER ARRESTORS LOCATED IN WALLS TO ACCESS EQUIPMENT. PANEL SHALL BE AS LARGE AS PRACTICAL FOR THE FUNCTION THEY ARE INTENDED.

E. DO NOT SCALE DRAWINGS, SEE ARCHITECTURAL FLOOR PLAN FOR DIMENSIONS.

F. ALL PLUMBING WORK SHALL COMPLY WITH THE 2009 INTERNATIONAL PLUMBING CODE.

G. PIPE ROUTING IS SCHEMATIC AS SHOWN AND IS NOT INTENDED TO INDICATE EXACT ROUTING. CONTRACTOR SHALL PROVIDE ANY ADDITIONAL OFFSET AND FITTINGS REQUIRED FOR PROPER INSTALLATION AND TO MAINTAIN CLEARANCES.

H. CONCEAL PIPING ABOVE CEILING AND WITHIN WALLS OR CHASES, EXCEPT IN MECHANICAL SPACES OR WHEN OTHERWISE NOTED.

I. SEE ARCHITECTURAL DRAWINGS FOR FIXTURE LOCATIONS AND MOUNTING HEIGHTS.

J. PROVIDE TRAP PROTECTION FOR ALL FLOOR DRAINS.

K. PROVIDE AN AIR GAP, WHEN REQUIRED BY CODE, SERVING INDIVIDUAL FIXTURES, DEVICES, APPLIANCES AND APPARATUS.

L. COORDINATE PIPING WITH ELECTRICAL EQUIPMENT PRIOR TO INSTALLATION. ROUTE PIPING TO AVOID ELECTRICAL EQUIPMENT AND CLEARANCE AREAS.

M. ANY DEVIATIONS IN ELECTRICAL REQUIREMENTS FROM THE BASIS OF DESIGN FOR THE PLUMBING EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO ENSURE COORDINATION WITH THE ELECTRICAL CONTRACTOR FOR PROPER SIZE ELECTRICAL MATERIAL AND EQUIPMENT AT NO ADDITIONAL COST.

N. PROVIDE SHOCK ARRESTORS PER STANDARD PDI-WH-201.

O. SEAL ALL FIRE AND SMOKE BARRIER PENETRATIONS IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE, SPECIFICATIONS, AND DETAILS. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS AND RATINGS OF FIRE AND SMOKE WALLS, BARRIERS, AND PARTITIONS.

FULLY SPRINKLERED

100% BID DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
PLUMBING LEGEND

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN BLB

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER **P-000**

DRAWING # 39 OF 74

Veterans Health Administration

VA | U.S. Department of Veterans Affairs

5/26/2026 9:13:14 PM

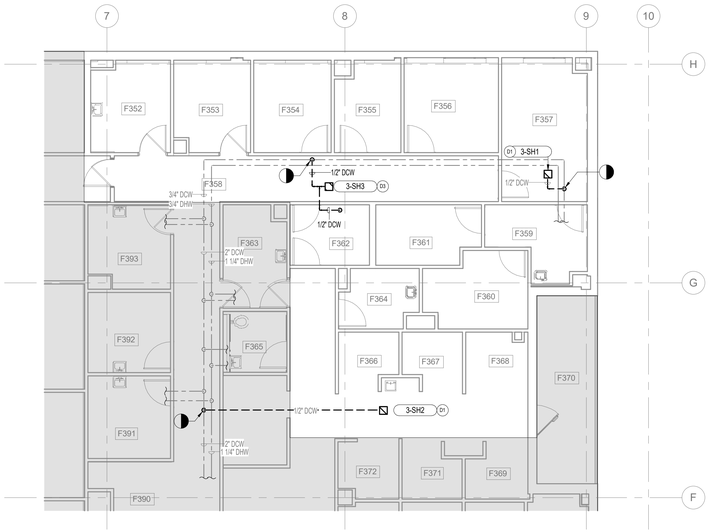
VA FORM 08-6231

DEMOLITION KEYNOTES

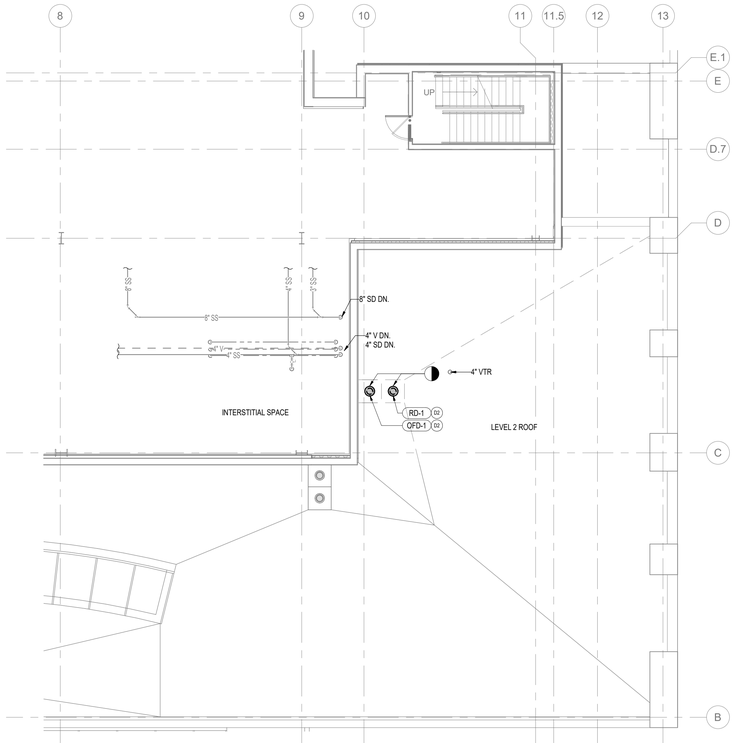
D1 DEMOLISH DCW SERVING HUMIDIFIER BACK TO DEMARCATION TO INCLUDE BRANCH TEE AND ALL HANGERS. REPAIR MAIN AND INSULATE.

D2 DEMOLISH ROOF AND OVERFLOW DRAIN.

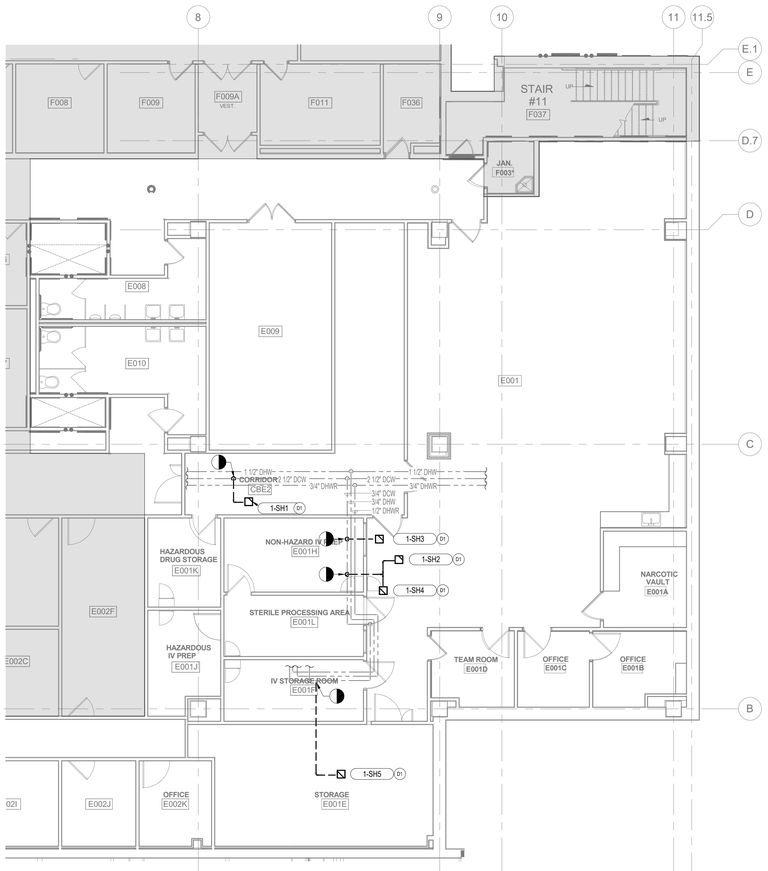
D3 DEMOLISH DCW SERVING HUMIDIFIER AND DRAIN COOLER BACK TO DEMARCATION TO INCLUDE BRANCH TEE AND ALL HANGERS. REPAIR MAIN AND INSULATE.



3 PLUMBING DEMOLITION PLAN - LEVEL 3 DOMESTIC WATER
1/8" = 1'-0"

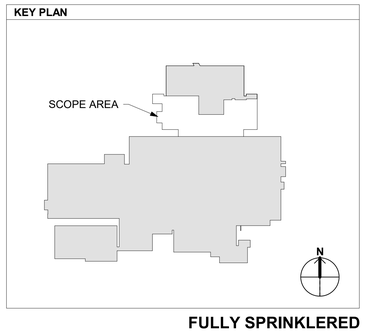


2 PLUMBING DEMOLITION PLAN - INTERSTITIAL STORM DRAIN
1/8" = 1'-0"



1 PLUMBING DEMOLITION PLAN - BASEMENT DOMESTIC WATER
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% BID DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
DEMOLITION PLUMBING PLAN

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN BLB

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
PD-101
DRAWING # 40 OF 74

Veterans Health Administration

U.S. Department of Veterans Affairs

5/26/2026 9:13:15 PM

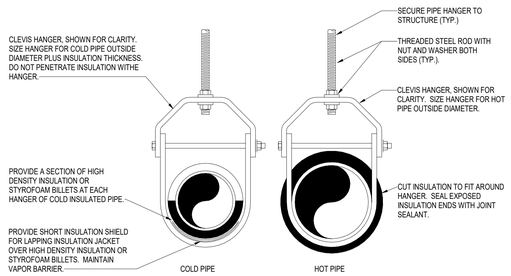
VA FORM 08-6231

FLOOR DRAINS / CLEANOUT SCHEDULE (FD / CO)

MARK	LOCATION	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	OUTLET SIZE	DESCRIPTION
FD-E		Jay R. Smith	2410 Series	4"	Floor Drain
RD-1	PENTHOUSE ROOF	JAY R. SMITH	1800	6"	CAST IRON BODY COMBINED FLASHING CLAMP AND GRAVEL STOP FOR ROOF DRAIN AND 3-1/2" HIGH INTERNAL WATER DAM STANDPIPE FOR OVERFLOW DRAIN.

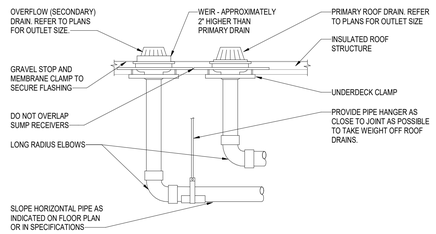
KEYNOTES

1. CONNECT TO EXISTING 6" STORM SEWER AND ROUTE AS SHOWN ON PLANS.
2. INSTALL ROOF DRAIN AS SHOWN ON PLANS. COORDINATE ALL WORK WITH ROOFING CONTRACTOR.
4. 6" STORM SEWER DOWN TO FLOOR BELOW.
5. 6" STORM SEWER DOWN FROM FLOOR ABOVE. ROUTE PIPING TIGHT TO STRUCTURE.
6. CONNECT TO EXISTING 4" VENT THRU ROOF AND ROUTE AS SHOW ON PLANS.
7. ROUTE 4" VENT UP THRU ROOF OF PENTHOUSE.
8. ROUTE 2" VENT UP THRU ROOF OF PENTHOUSE.
9. CONNECT 3" DRAIN TO EXISTING 8" SANITARY RISER.
10. 4" VENT UP AND DOWN.
11. 2" VENT UP AND DOWN.
12. 3" DRAIN WITH TRAP UP TO FD-D IN PENTHOUSE.



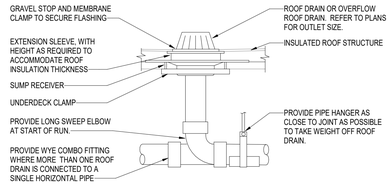
REFER TO SPECIFICATIONS FOR INSULATION TYPES, INSULATION THICKNESSES, HANGER TYPES, HANGER ROD CONNECTIONS TO SRUCTURE AND HANGER SPACING.

6 PIPE HANGER DETAIL
NTS

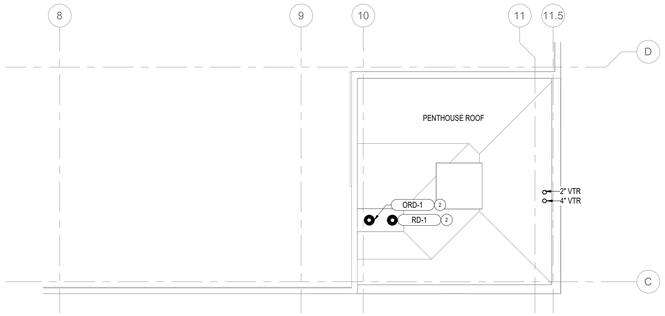


NOTE:
CAST INTO CONCRETE ROOF. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. INSULATE ROOF DRAIN SUMP AND PIPE PER SPECIFICATIONS. LOCATE DRAINS WHERE SHOWN ON ARCHITECTURAL PLANS; VERIFY WITH STRUCTURAL PLANS FOR ROOF LOW POINTS. COORDINATE WITH STRUCTURAL DRAWINGS REGARDING PROVISION FOR SUPPLEMENTARY STEEL FRAMING AROUND ROOF OPENING.

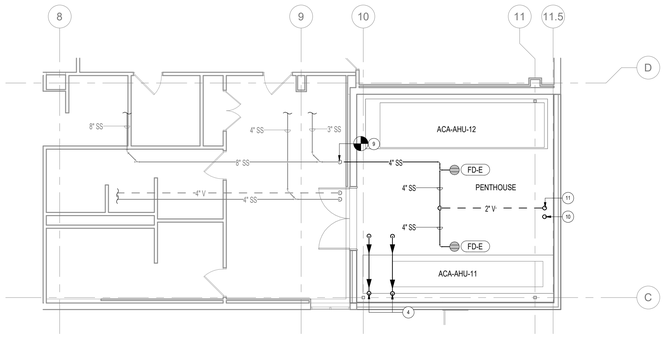
5 ROOF AND OVERFLOW DRAIN DETAIL
NTS



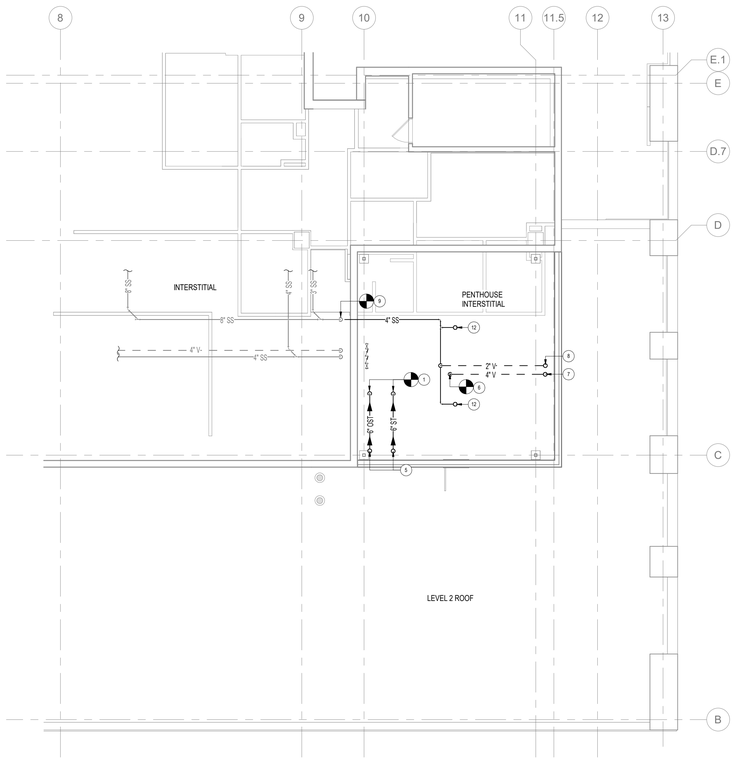
4 ROOF DRAIN INSTALLATION DETAIL
NTS



3 PLUMBING PLAN - LEVEL 3 ROOF - WASTE, STORM, VENT
1/8" = 1'-0"

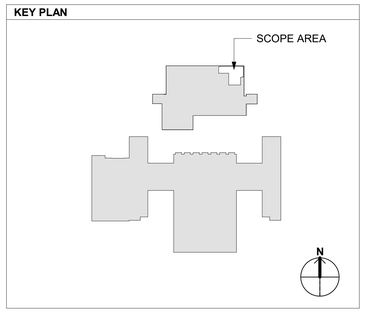


2 PLUMBING PLAN - LEVEL 3 - WASTE, STORM, VENT
1/8" = 1'-0"



1 PLUMBING PLAN - INTERSTITIAL LEVEL - WASTE, STORM, VENT
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% BID DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 9:13:17 PM

VA FORM 08-6231

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
WASTE, STORM, VENT PLUMBING PLAN

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN BLB

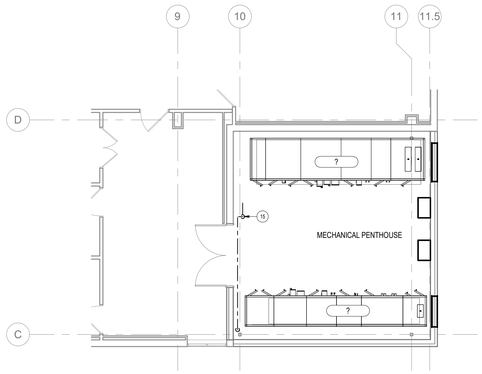
PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

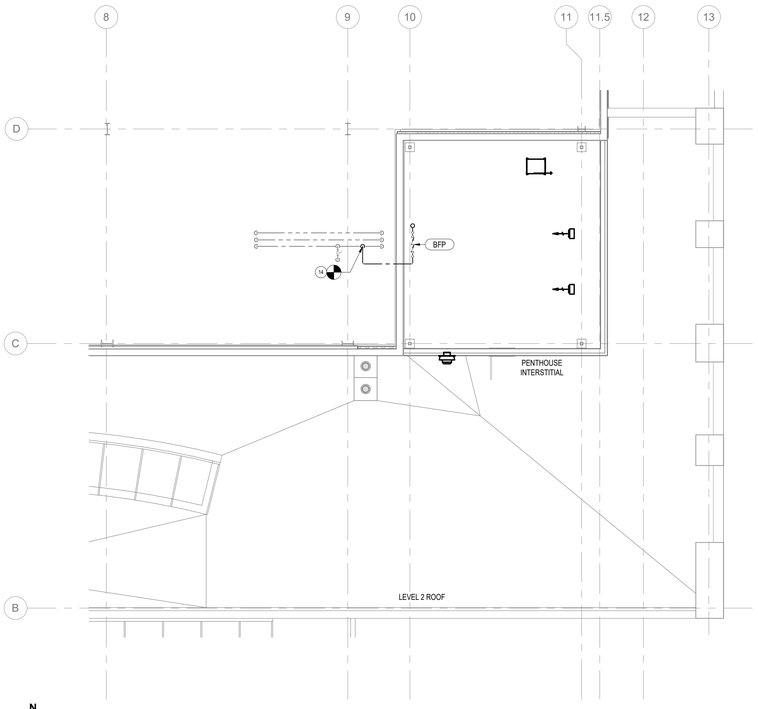
DRAWING NUMBER
PL-101
DRAWING # 41 OF 74

Veterans Health Administration

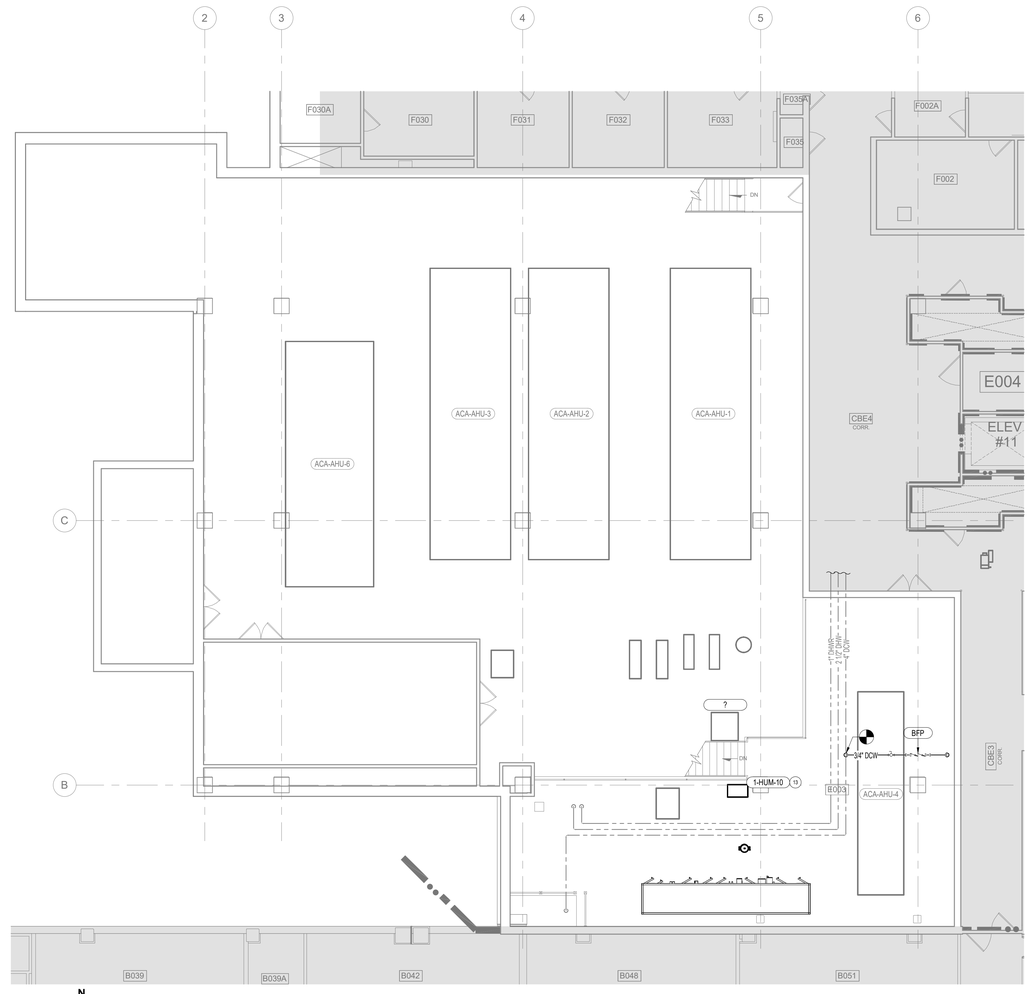
VA | U.S. Department of Veterans Affairs



3 PLUMBING PLAN - LEVEL 3 - DOMESTIC WATER
1/8" = 1'-0"



2 PLUMBING PLAN - INTERSTITIAL - DOMESTIC WATER
1/8" = 1'-0"



1 PLUMBING PLAN - BASEMENT - DOMESTIC WATER
1/8" = 1'-0"

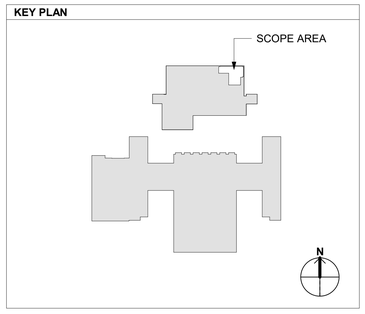
KEYNOTES

13 CONNECT 3/4" DCW TO EXISTING 4" DCW IN MECHANICAL ROOM. ROUTE DCW TO 1-HUM-10. HUMIDIFIER BY DIV. 23. INSTALL BACKFLOW PREVENTER AND ISOLATION VALVES UPSTREAM AND DOWN STREAM OF BFP.

14 CONNECT 1" DCW TO EXISTING 2" DCW IN INTERSTITIAL SPACE. ROUTE UP TO MECHANICAL PENTHOUSE TO HUMIDIFIERS 1-HUM-11 & 1-HUM-12. HUMIDIFIERS BY DIV. 23. INSTALL BACKFLOW PREVENTER AND ISOLATION VALVES UPSTREAM AND DOWNSTREAM OF BFP. INSTALL SHUTOFF VALVE AT EACH HUMIDIFIER.

15 1" DCW DOWN TO INTERSTITIAL BELOW. ROUTE 3/4" DCW TO EACH HUMIDIFIER AND INSTALL SHUTOFF VALVE.

KEY PLAN



FULLY SPRINKLERED

100% BID DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 9:13:19 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
DOMESTIC WATER PLUMBING PLAN

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN BLB

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
PP-101
DRAWING # 42 OF 74

Veterans Health Administration

VA | U.S. Department of Veterans Affairs

VA FORM 08-6231

ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS OR SYMBOLS WILL BE UTILIZED FOR THIS PROJECT.

A

A/E	ARCHITECT / ENGINEER
AHXX	AIR TO AIR HEAT EXCHANGER
AB	AIR BLENDER
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACU	AIR CONDITIONING UNIT
AF	AFTER FILTER
AFCV	AIR FLOW CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
AFW	AIR FOIL WHEEL (FAN)
AHU	AIR-HANDLING UNIT
AMP	AMPERAGE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
AS	AIR SEPARATOR
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AW	AIR WASHER
AXF	AXIAL FLOW

B

B	BOILER
BD	BUTTERFLY DAMPER
BDD	BACKDRAFT DAMPER
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BHX	BOILER BLOWDOWN HEAT EXCHANGER
BIW	BACKWARD INCLINED WHEEL (FAN)
BSC	BIOLOGICAL SAFETY CABINETS
BT	BLOWOFF TANK
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR

C

C	CENTIGRADE (CELSIUS)
CC	COOLING COIL
CCD	COOLING COIL CONDENSATE DRAIN
CENT	CENTRIFUGAL
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFT	CUBIC FEET
CFP	CHEMICAL FEED PUMP
CH	CHILLER
CHP	CHILLED WATER PUMP
CHW	CHILLER WATER
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CI	CAST IRON
CM	CUBIC METER
CM/S	CUBIC METER PER SECOND
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
COMP	COMPRESSOR UNIT
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CS	CONDENSATE STORAGE TANK
CSG	CLEAN STEAM GENERATOR
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	CONSTANT VOLUME
CW	COLD WATER (POTABLE)
CC	CHILLED WATER COOLING COIL
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY

D

Db	DRY-BULB TEMPERATURE
DB	DECIBELS
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DIA	DIAMETER
DIW	DEIONIZED WATER
DP	DEW POINT TEMPERATURE
DPA	DIFFERENTIAL PRESSURE ASSEMBLY
DPS	DIFFERENTIAL PRESSURE SENSOR
DSD	DUCT SMOKE DETECTOR
DX	DIRECT EXPANSION

E

EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EVAPORATIVE COOLER
ECC	ENGINEERING CONTROL CENTER
ECU	EVAPORATIVE CONDENSER UNIT
EDH	ELECTRIC DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EGS	EMERGENCY GAS SHUTOFF
EGT	ENTERING GLYCOL TEMPERATURE
EH	EXHAUST HEATER
EJ	EXPANSION JOINT
EMD	END OF MAIN DRIP (STEAM)
ENT	ENTERING
ERC	ELECTRIC REHEAT COIL
ERP	ELECTRICAL RADIANT PANEL
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETO	ETHYLENE OXIDE
ETR	EXISTING TO REMAIN
EUH	ELECTRIC UNIT HEATER
EWC	EVAPORATIVE WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING

F

F	FAHRENHEIT
F&T	FLOAT AND THERMOSTATIC
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FCUC	FAN COIL UNIT COOLING ONLY
FCUH	FAN COIL UNIT HEATING ONLY
FCW	FORWARD CURVED WHEEL (FAN)
FD	FIRE DAMPER
FSD	COMBINATION FIRE / SMOKE DAMPER
FF	FINAL FILTER
FHX	FLUE GAS/FEEDWATER HEAT EXCHANGER
FM	FLOW METER
FOP	FUEL OIL PUMP
FOT	FUEL OIL TANK
FOHX	FUEL OIL HEAT EXCHANGER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPTU	FAN POWERED TERMINAL UNIT
FRP	FIBER REINFORCED POLYESTER
FS	FLOW SWITCH
FSTAT	FREEZESTAT
FT	FEET
FT-LB	FOOT-POUND
FTR	FIN TUBE RADIATION
FV	FACE VELOCITY

G

GA	GAUGE
GAL	GALLONS
GH	GRAVITY HOOD
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GS	GALVANIZED STEEL

H

HU	HUMIDIFIER
H&CW	HOT & COLD WATER
HAC	HOUSEKEEPING AID CLOSET
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HOA	HAND/OFF/AUTOMATIC
HP	HEAT PUMP
HP	HORSEPOWER
HPC	HIGH PRESSURE STEAM CONDENSATE RETURN
HPDT	HIGH PRESSURE DRIP TRAP
HPS	HIGH PRESSURE STEAM (61-300 PSIG)
HRC	HEAT RECOVERY COIL
HRD	HEAT RECOVERY DEVICE
HRP	HYDRONIC RADIANT (CEILING) PANEL
HRW	HEAT RECOVERY WHEEL
HSTAT	HUMIDISTAT
HTM	HUMIDIFIER TERMINAL
HUM	HUMIDIFIER UNIT MOUNTED
HVU	HEATING AND VENTILATING UNIT
HW	HOT WATER
HC	HOT WATER HEATING COIL
HHP	HEATING HOT WATER PUMP
HHR	HEATING HOT WATER RETURN
HHS	HEATING HOT WATER SUPPLY
HHUH	HOT WATER UNIT HEATER
HX	HEAT EXCHANGER
HZ	HERTZ

I

I/O	INPUT/OUTPUT
IAQ	INDOOR AIR QUALITY
IBT	INVERTED BUCKET TRAP
ICF	IN-LINE CENTRIFUGAL FAN
ID	INSIDE DIAMETER
IFB	INTEGRAL FACE AND BYPASS
IN	INCHES
IN HG	INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
IN-LB	INCH-POUND
IPLV	INTEGRATED PART LOAD VALUE
IRH	INFRARED HEATER
IS	INSECT SCREEN
IU	INDUCTION UNIT
IV	INLET VANES

J

J	INTENTIONALLY LEFT BLANK

K

kg	KILOGRAM
kg/HR	KILOGRAM PER HOUR
kPa	KILOPASCAL
kW	KILOWATT
kWh	KILOWATT HOUR

L

L	LITER
L/h	LITERS PER HOUR (OR LITERS/HOUR)
L/m	LITERS PER MINUTE (OR LITERS/MINUTE)
L/s	LITERS PER SECOND (OR LITERS/SECOND)
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LGT	LEAVING GLYCOL TEMPERATURE
LH	LATENT HEAT
LPC	LOW PRESSURE STEAM CONDENSATE RETURN
LPG	LIQUID PROPANE GAS
CLPC	LOW PRESSURE STEAM CONDENSATE (CLEAN)
LLHX	LIQUID TO LIQUID HEAT EXCHANGER
LPS	LOW PRESSURE STEAM (0-15 PSIG)
CLPS	LOW PRESSURE STEAM (CLEAN)
LSD	LINEAR SLOT DIFFUSER
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LVG	LEAVING
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE

M

M	METER, SI UNIT
M/s	METERS PER SECOND (OR METERS/SECOND)
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MB	MIXING BOX
MBH	1000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MH	MANHOLE
MHP	MOTOR HORSEPOWER
MIN	MINIMUM
MM	MILLIMETER
MOV	MOTOR OPERATED VALVE
MPC	MEDIUM PRESSURE STEAM CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM (16-60 PSIG)
MTD	MEAN TEMPERATURE DIFFERENCE
MVD	MANUAL VOLUME DAMPER
MZ	MULTI-ZONE

N

NA	NOT APPLICABLE
NC	NOISE CRITERIA
NG	NATURAL GAS
NGFM	NATURAL GAS FLOWMETER
NOAA	NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NOM	NOMINAL
NPLV	NON-STANDARD PART LOAD VALUE
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE

O

OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OD	OUTSIDE DIAMETER
OFM	OIL FLOWMETER
OSD	ORGANIC SOIL FILTER

P

P	PUMP
PA	PASCAL
PC	PUMPED CONDENSATE
PCF	POUNDS PER CUBIC FOOT (FEET)
PD	PRESSURE DROP
PF	PRE-FILTER
PG	PRESSURE GAGE
PGW	PROPYLENE GLYCOL-WATER (SOLUTION)
PHC	PREHEAT COIL
PPM	PARTS PER MILLION
PRS	PRESSURE REGULATING (VALVE) STATION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
PSIG	POUNDS PER SQUARE INCH – GAGE
PSS	PRIMARY SECONDARY SYSTEM
PSV	PRESSURE SAFETY VALVE
PTAC	PACKAGED TERMINAL AIR CONDITIONER

Q

Q	INTENTIONALLY LEFT BLANK

R

R/E	RETURN OR EXHAUST
RA	RETURN AIR
RAD	REFRIGERANT AIR DRYER
RAF	RADIO FREQUENCY
RAHX	ROTARY AIR HEAT EXCHANGER
RAT	RETURN AIR TEMPERATURE
RCCH	REMOTE CONDENSER CHILLER
RCU	RECIPROCATING CHILLER UNIT
RD	REFRIGERANT DISCHARGE
REA	RELIEF AIR
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID LINE
RLA	RUN LOAD AMPERE
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
RV	RELIEF VALVE

S

SA	SUPPLY AIR
SAD	SOUND ATTENUATING DEVICE
SAT	SUPPLY AIR TEMPERATURE
SC	SHADING COEFFICIENT
SCFM	STANDARD CUBIC FEET PER MINUTE
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DAMPER
SEN	SENSIBLE HEAT
SF	SUPPLY FAN
SH	STEAM HUMIDIFIER
SHC	STEAM HEATING COIL
SI	SQUARE INCHES
SP	STATIC PRESSURE
SP GR	SPECIFIC GRAVITY
SPS	STATIC PRESSURE SENSOR
SQ FT	SQUARE FOOT (FEET)
SS	STAINLESS STEEL
SSHX	STEAM TO STEAM HEAT EXCHANGER
SSR	SOLID SEPARATOR
ST	STEAM TRAP
SUH	STEAM UNIT HEATER
SVS	STEAM VENT SILENCER
SWHX	STEAM TO WATER HEAT EXCHANGER

T

T&PCV	TEMPERATURE AND PRESSURE CONTROL VALVE
TAB	TESTING, ADJUSTING, BALANCE
TD	TEMPERATURE DIFFERENCE
TDH	TOTAL DYNAMIC HEAD
TDS	TOTAL DISSOLVED SOLIDS
TG	TRANSFER GRILLE
TP	TRAP
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TU	TERMINAL UNIT
TWU	THRU-WALL UNIT

U

UC	UNDER CUT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
URV	UPBLAST UNIT VENTILATOR

V

V	VALVE
VAF	VANE-AXIAL FAN
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER (MANUAL OPPOSED BLADE)
VFD	VARIABLE FREQUENCY DRIVE
VI	VIBRATION ISOLATOR
VIV	VARIABLE INLET VANES
VP	VACUUM PUMP
VPS	VARIABLE PRIMARY SYSTEM
VR	VACUUM (STEAM CONDENSATE) RETURN
VSD	VARIABLE SPEED DRIVE
VUH	VERTICAL UNIT HEATER

W

W	WATTS
WAG	WASTE ANESTHESIA GAS
Wb	WET-BULB (TEMPERATURE)
WC	WATER COOLED
WCCH	WATER COOLED CHILLER
WCCU	WATER COOLED CONDENSING UNIT
WCHP	WATER COOLED HEAT PUMPS
WCPU	WATER COOLED PACKAGED UNIT
WF	WATER FILTER
WFM	WATER FLOWMETER
WG	WATER GAGE
WPD	WATER SIDE PRESSURE DROP

X

X	INTENTIONALLY LEFT BLANK

Y

YR	YEAR

Z

Z	INTENTIONALLY LEFT BLANK

GENERAL ANNOTATIONS

SPACE NAME — B-100 — SPACE TAG

1 — OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT DESIGNATION

26-P-3 — BUILDING NUMBER WHERE EQUIPMENT IS LOCATED; EQUIPMENT ABBREVIATION (PUMP); PUMP NO. 3 IN BUILDING NO. 26 — **MECHANICAL EQUIPMENT TAG**

26-TU-1-1 — BUILDING NUMBER WHERE EQUIPMENT IS LOCATED; ITEM (TERMINAL UNIT); ITEM NUMBER (TERMINAL UNIT NO. 1); SERVED BY AIR HANDLER UNIT NO. 1 — **TERMINAL UNIT TAG**

1 / XX-XX — DETAIL NUMBER / SHEET NUMBER

1 / MH-100 — SECTION NUMBER / SHEET NUMBER

H — HUMIDISTAT

T — THERMOSTAT

H — HUMIDITY SENSOR

T — TEMPERATURE SENSOR

GENERAL PIPING SYMBOLS

- EXISTING TO REMAIN
- EXISTING TO BE DEMOLISHED
- NEW PIPE
- CONNECT NEW TO EXISTING
- LIMIT OF DEMOLITION

HVAC PIPING TYPES

BO	BOILER BLOWOFF	CHS	CHILLED WATER SUPPLY	FWPS	FEEDWATER PUMP SUCTION	LPS	LOW PRESSURE STEAM SUPPLY
CBD	CONTINUOUS BLOWDOWN	CWS	CONDENSER WATER SUPPLY	HHR	HEATING HOT WATER RETURN	LPC	LOW PRESSURE STEAM CONDENSATE
CD	CONDENSATE DRAIN	CWR	CONDENSER WATER RETURN	HHS	HEATING HOT WATER SUPPLY	MPS	MEDIUM PRESSURE STEAM SUPPLY
CF	CHEMICAL FEED	DR	DRIP RETURN	HPC	HIGH PRESSURE STEAM CONDENSATE	MPC	MEDIUM PRESSURE STEAM CONDENSATE
CHR	CHILLED WATER RETURN	FWPD	FEEDWATER PUMP DISCHARGE	HPS	HIGH PRESSURE STEAM SUPPLY	PC	PUMPED CONDENSATE
						RL	REFRIGERANT LIQUID
						RS	REFRIGERANT SUCTION
						QV	CRYOGEN VENT
						VR	VACUUM RETURN

HVAC VALVE SYMBOLS

ANGLE GLOBE VALVE	MOTOR CONTROLLED VALVE
BALL VALVE	PRESSURE REDUCING VALVE
BUTTERFLY VALVE	SAFETY RELIEF VALVE
CHECK VALVE	
CONTROL VALVE	
CONTROL VALVE, THREE WAY	
GATE VALVE	
GLOBE VALVE	
MV AV — MANUAL OR AUTOMATIC AIR VENT	

HVAC PIPING SYMBOLS

ANCHOR	DIRECTION OF PIPE PITCH (DOWN)	FLOAT & THERMOSTATIC STEAM TRAP	INVERTED BUCKET STEAM TRAP	PRESSURE AND TEMPERATURE TEST PLUG	QUICK-COUPLE HOSE CONNECTOR	STRAINER	TEE UP	THERMOMETER
CAP	EXPANSION JOINT	FLEXIBLE CONNECTOR	PIPE RISER	PRESSURE GAUGE	REDUCER (CONCENTRIC)	STRAINER WITH BLOWOFF AND HOSE CONNECTION	TEE DOWN	UNION
DIRECTION OF FLOW	FLANGE CONNECTION	FLOW METER	PIPE DROP	PUMP	REDUCER (ECCENTRIC)	TEE		

GENERAL DUCT SYMBOLS

EXISTING TO REMAIN	CONNECT NEW TO EXISTING	ELBOW WITH TURNING VANES	EXHAUST, RELIEF, MAKE UP, OR OUTSIDE AIR DUCT UP	RETURN DUCT DOWN	BRANCH DUCT WITH CONICAL FITTING & MANUAL VOLUME DAMPER	BRANCH DUCT WITH HIGH EFFICIENCY TAKE-OFF (HETO) BRANCH FITTING & MANUAL VOLUME DAMPER	SD-1 300 TYPE AIRFLOW (CFM)	
EXISTING TO BE DEMOLISHED	LIMIT OF DEMOLITION	ROUND ELBOW	EXHAUST, RELIEF, MAKE UP, OR OUTSIDE AIR DUCT DOWN	SUPPLY AIR DUCT UP	SQUARE TO ROUND TRANSITION	DAMPERS: (BD, FD, FSD, MD, SD, VD)	RG-1 300 TYPE AIRFLOW (CFM)	
NEW DUCT (INSIDE DIMENSIONS: W" X D")			RETURN DUCT UP	SUPPLY AIR DUCT DOWN			EG-1 300 TYPE AIRFLOW (CFM)	

GENERAL NOTES:

A. MECHANICAL PLANS AND SECTIONS ARE INTENDED TO ACCURATELY ILLUSTRATE THE SCOPE OF WORK BUT ARE STILL DIAGRAMMATIC IN NATURE.

B. MECHANICAL DRAWINGS DO NOT SHOW ALL ACCESSORIES TO BE INSTALLED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SYSTEMS ARE FULLY FUNCTIONAL AND COMPLIANT WITH APPLICABLE CODES.

C. THE EXISTING CONDITIONS DEPICTED IN THESE PLANS ARE BASED ON AS-BUILT DOCUMENTATION AND INFORMATION OBTAINED FROM FIELD SURVEYS AND ARE AS ACCURATE AS POSSIBLE. DUE TO OBSTRUCTIONS, CEILINGS, ETC., NOT ALL CONDITIONS COULD BE VERIFIED. THE CONTRACTOR SHALL SURVEY THE SITE PRIOR TO BID AND NOTIFY THE ARCHITECT/ENGINEER OF ANY CONFLICTS, OBSTRUCTIONS, OR INCONSISTENCIES PREVENTING INSTALLATION OF THE MECHANICAL SYSTEM.

D. ALL EXPOSED UNINSULATED PIPING SHALL BE PAINTED PER THE SPECIFICATION SECTION "PAINTING".

E. COORDINATE FAN COIL (FCU) AND TERMINAL UNIT (TU/VAV/CV) REHEAT COIL RIGHT OR LEFT HAND COIL CONNECTIONS WITH PIPING PLANS.

F. ALL FLUE AND COMBUSTION AIR PIPING FROM GAS-FIRED EQUIPMENT SHALL BE SIZED BY THE GAS-FIRED EQUIPMENT MANUFACTURER BASED ON THE SPECIFIC PIPE ROUTING AND ELEVATIONS FOR THIS PROJECT. REFER TO MANUFACTURERS INSTALLATION MANUAL AND LOCAL CODE REQUIREMENTS FOR REQUIRED FLUE AND COMBUSTION AIR PIPING MATERIALS.

G. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.

H. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO AND WITHIN 50' OF ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS. DO THE SAME FOR SUPPORTS OF STEAM MAINS WITHIN 50' OF BOILER OR PRESSURE REDUCING VALVES.

I. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.

J. MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.

K. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.

L. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UP AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.

M. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.

N. CONCRETE HOUSEKEEPING PADS TO SUIT MECHANICAL EQUIPMENT SHALL BE SIZED AND LOCATED BY THE MECHANICAL CONTRACTOR. MINIMUM CONCRETE PAD THICKNESS SHALL BE 4". PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 4" ON EACH SIDE. CONCRETE HOUSEKEEPING PADS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE SIZE AND LOCATION OF CONCRETE HOUSEKEEPING PADS.

O. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, ETC.) IS SUB-CONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.

P. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.

Q. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

R. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS WHERE REQUIRED TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT.

S. ALL DUCTWORK, PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.

T. ALL ROOF MOUNTED EQUIPMENT CURBS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR.

U. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.

V. ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH AN APPROVED FIRE STOPPING MATERIAL.

W. ALL AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH AIR HANDLING UNIT AND ROOFTOP UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH P-TRAP, AND PIPED TO NEAREST DRAIN. SEE DETAILS AND SPECIFICATIONS FOR DEPTH OF AIR CONDITIONING CONDENSATE TRAP.

X. REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.

PIPING GENERAL NOTES:

A. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE PIPING SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.

B. ELEVATIONS AS SHOWN ON THE DRAWINGS ARE TO THE CENTERLINE OF ALL PRESSURE PIPING AND TO THE INVERT OF ALL GRAVITY PIPING.

C. MAINTAIN A MINIMUM OF 3'-6" OF GROUND COVER OVER ALL UNDERGROUND HVAC PIPING (EDIT DEPTH OF GROUND COVER TO SUIT FROST LINE DEPTH AND PROJECT REQUIREMENTS).

D. UNLESS OTHERWISE NOTED, ALL CHILLED WATER AND HEATING WATER PIPING SHALL BE 3/4" SIZE (EDIT SYSTEM TYPE OR PIPE SIZE TO SUIT PROJECT REQUIREMENTS).

E. PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING WATER, CHILLED WATER, AND OTHER CLOSED WATER PIPING SYSTEMS (EDIT SYSTEM TYPES TO SUIT PROJECT REQUIREMENTS). ALL PIPING SHALL GRADE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.

F. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB, WITH SPACE FOR INSULATION IF REQUIRED.

G. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.

H. ALL VALVES SHALL BE INSTALLED SO THAT VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED.

I. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).

J. PROVIDE CHAINWHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOMS MOUNTED GREATER THAN 7'-0" ABOVE FLOOR LEVEL; CHAIN SHALL EXTEND TO 7'-0" ABOVE FLOOR LEVEL.

K. ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.

L. UNIONS AND/OR FLANGES SHALL BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BYPASSES, AND IN LONG PIPING RUNS (100' OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.

M. PITCH STEAM PIPING DOWNWARD IN THE DIRECTION OF FLOW 1/4" IN 10' (1" IN 40') MINIMUM. PITCH ALL STEAM RETURN LINES DOWNWARD IN THE DIRECTION OF CONDENSATE FLOW 1/2" PER 10' (1" IN 20') MINIMUM. WHERE LENGTH OF BRANCH LINES ARE LESS THAN 8', PITCH BRANCH LINES TOWARD MAINS 1/2" PER FOOT MINIMUM.

N. PITCH UP ALL STEAM AND CONDENSATE RUNOUTS TO RISERS AND EQUIPMENT 1/2" PER FOOT. WHERE THIS PITCH CANNOT BE OBTAINED, RUNOUTS OVER 8' IN LENGTH SHALL BE ONE SIZE LARGER THAN NOTED.

O. TAP ALL BRANCH LINES FROM TOP OF STEAM MAINS (45° PREFERRED, 90° ACCEPTABLE).

P. PROVIDE AN END OF MAIN DRIP AT EACH RISE IN THE STEAM MAIN. PROVIDE CONDENSATE DRIPS AT THE BOTTOM OF ALL STEAM RISERS, DOWNFED RUNOUTS TO EQUIPMENT, RADIATORS, ETC., AT END OF MAINS AND LOW POINTS, AND AHEAD OF ALL PRESSURE REGULATORS, CONTROL VALVES, ISOLATION VALVES, AND EXPANSION JOINTS.

Q. ON STRAIGHT STEAM PIPING RUNS WITH NO NATURAL DRAINAGE POINTS, INSTALL DRIP LEGS AT INTERVALS NOT EXCEEDING 200' WHERE PIPE IS PITCHED DOWNWARD IN THE DIRECTION OF STEAM FLOW AND A MAXIMUM OF 100' WHERE THE PIPE IS PITCHED UP SO THAT CONDENSATE FLOW IS OPPOSITE OF STEAM FLOW.

R. STEAM TRAPS SHALL BE MINIMUM 3/4" IN SIZE.

S. INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.

T. ALL PIPING SHALL CLEAR DOORS AND WINDOWS.

U. ALL VALVES SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.

V. ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

W. PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS, CHILLERS, COOLING TOWERS, AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION EXCEPT WATER COILS. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.

X. SLOPE REFRIGERANT PIPING ONE PERCENT IN THE DIRECTION OF OIL RETURN. LIQUID LINES MAY BE INSTALLED LEVEL.

Y. INSTALL HORIZONTAL REFRIGERANT HOT GAS DISCHARGE PIPING WITH 1/2" PER 10' DOWNWARD SLOPE AWAY FROM THE COMPRESSOR.

Z. INSTALL HORIZONTAL REFRIGERANT SUCTION LINES WITH 1/2" PER 10' DOWNWARD SLOPE TO THE COMPRESSOR, WITH NO LONG TRAPS OR DEAD ENDS WHICH MAY CAUSE OIL TO SEPARATE FROM THE SUCTION GAS AND RETURN TO THE COMPRESSOR IN DAMAGING SLUGS.

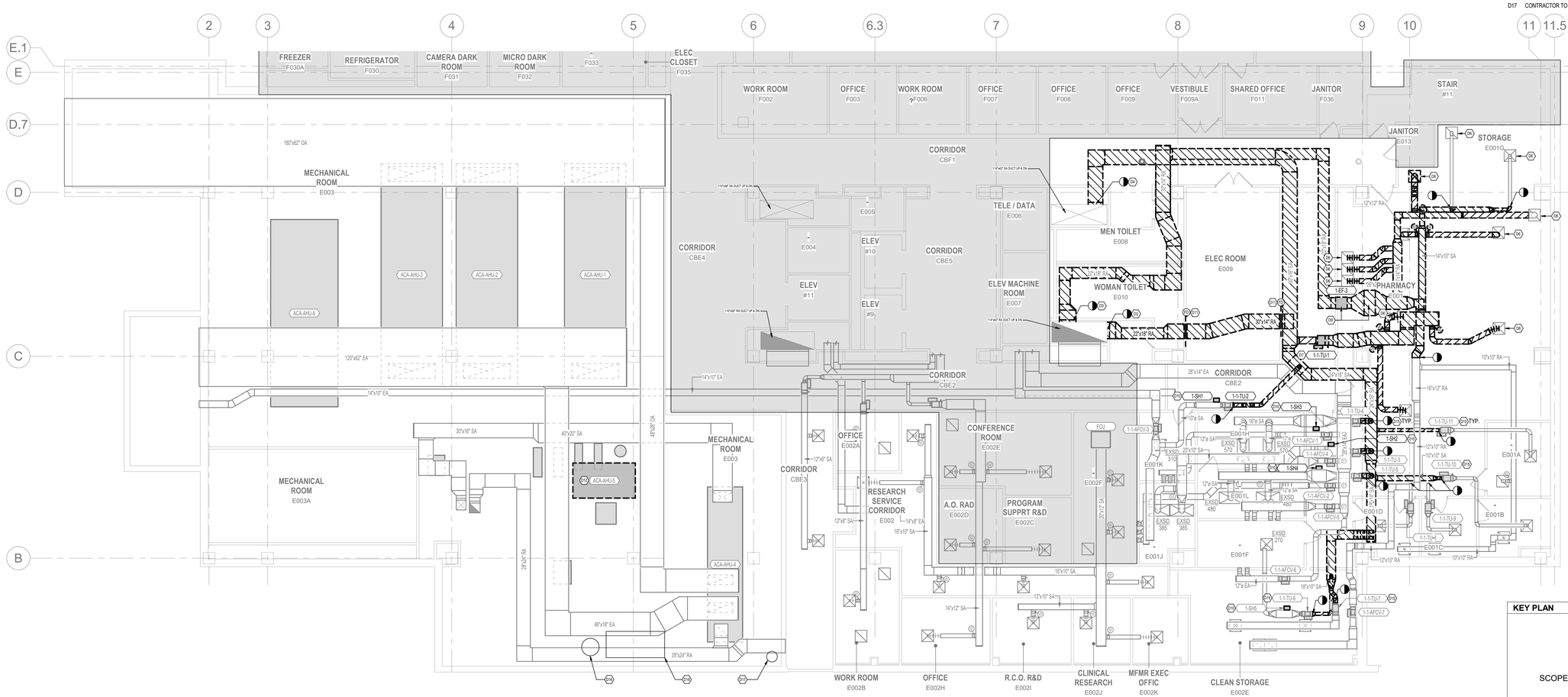
AA. PROVIDE LINE SIZE LIQUID INDICATORS IN MAIN LIQUID

DEMOLITION GENERAL PLAN NOTES

1. CONTRACTOR TO PROVIDE PRE-BALANCE TESTING ON ACA-AHU-9. COORDINATE PRE-TESTING WITH VA COR. PROVIDE PRE-BALANCE REPORT TO VA COR. FINAL SYSTEM BALANCING OF ACA-AHU-9 TO MATCH PRE-TESTING VALUES.
2. CONTRACTOR TO PROVIDE PRE-BALANCE TESTING ON BASEMENT COMPOUNDING AND LEVEL 3 COMPOUNDING. COORDINATE PRE-TESTING WITH VA COR. PROVIDE PRE-BALANCE REPORT TO VA COR. FINAL BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS.
3. WORK INSIDE BUILDING SHALL BE CONDUCTED AFTER HOURS AND/OR ON WEEKENDS.
4. COORDINATE ALL WORK INSIDE BUILDING WITH VA COR A MINIMUM OF 14 DAYS IN ADVANCE.
5. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO SUPPORT CONSTRUCTION ACTIVITIES, COORDINATE ALL SHUTDOWN SCHEDULES - INCLUDING TIMING AND DURATION - WITH THE VA COR A MINIMUM OF 14 DAYS IN ADVANCE.

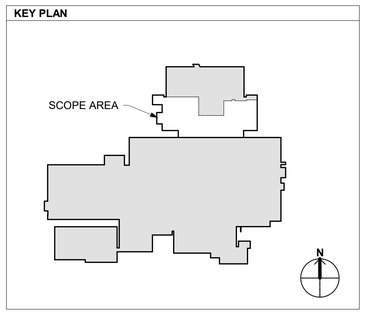
DEMOLITION KEYNOTES

D3	DEMOLISH RETURN AIR DUCT BACK TO DEMARCATION. REPAIR PLENUM AND SEAL AIR TIGHT. REPAIR INSULATION WITH SIMILIAR MATERIAL. COORDINATE FIREWALL REPAIR WITH GENERAL CONTRACTOR.
D4	DEMOLISH SUPPLY AIR DUCT BACK TO DEMARCATION. REPAIR PLENUM AND SEAL AIR TIGHT. REPAIR INSULATION WITH SIMILIAR MATERIAL. COORDINATE FIREWALL REPAIR WITH GENERAL CONTRACTOR.
D6	EXISTING DIFFUSER/GRILLE TO BE REUSED. CLEAN AND PREPARE FOR NEW CONNECTION.
D7	REMOVE VAV TERMINAL UNIT 1-1-TU-1, CLEAN, STORE, AND PROTECT FOR REUSE IN NEW CONSTRUCTION.
D9	DEMOLISH EXISTING EXHAUST FAN AND ASSOCIATED CONTROLS, HEPA FILTER BOX, AND DEBRIS CONTAINMENT BOX. COORDINATE WITH ELECTRICAL CONTRACTOR FOR HIGH VOLTAGE DEMOLITION.
D10	DEMOLISH STEAM HUMIDIFIER AND ASSOCIATED CONTROLS. REPAIR AND SEAL DUCT AIR TIGHT. REPAIR INSULATION. COORDINATE WITH PLUMBING CONTRACTOR FOR DCW DEMOLITION. COORDINATE WITH ELECTRICAL CONTRACTOR FOR HIGH VOLTAGE DEMOLITION.
D11	DEMOLISH FIRE DAMPER. COORDINATE FIRE BARRIER REPAIR WITH GENERAL CONTRACTOR.
D12	DEMOLISH ACA-AHU-5 AND ALL ASSOCIATED DUCT, CONTROLS, AND STEAM PIPING. COORDINATE HIGH VOLTAGE DEMOLITION WITH ELECTRICAL CONTRACTOR.
D15	EXISTING TERMINAL UNIT TO REMAIN. PROTECT UNIT FROM DAMAGE AND SEAL THE INLET DURING DEMOLITION PORTION OF PROJECT.
D16	REMOVE AND RELOCATE VACUUM/COMPRESSOR AND RECEIVER TANK. COORDINATE NEW LOCATION WITH OWNER. RELOCATE/MODIFY ALL PIPING AND ELECTRICAL CONNECTIONS AS REQUIRED TO RELOCATE TANK.
D17	CONTRACTOR TO REMOVE EXISTING TANK AND ABANDONED SYSTEM.



1 BASEMENT - HVAC DUCT DEMOLITION PLAN
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC DEMOLITION PLAN - BASEMENT

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER **MD101**

DRAWING # 44 OF 74

Veterans Health Administration

VA | U.S. Department of Veterans Affairs

5/26/2026 3:19:08 PM

VA FORM 08-6231

DEMOLITION GENERAL PLAN NOTES

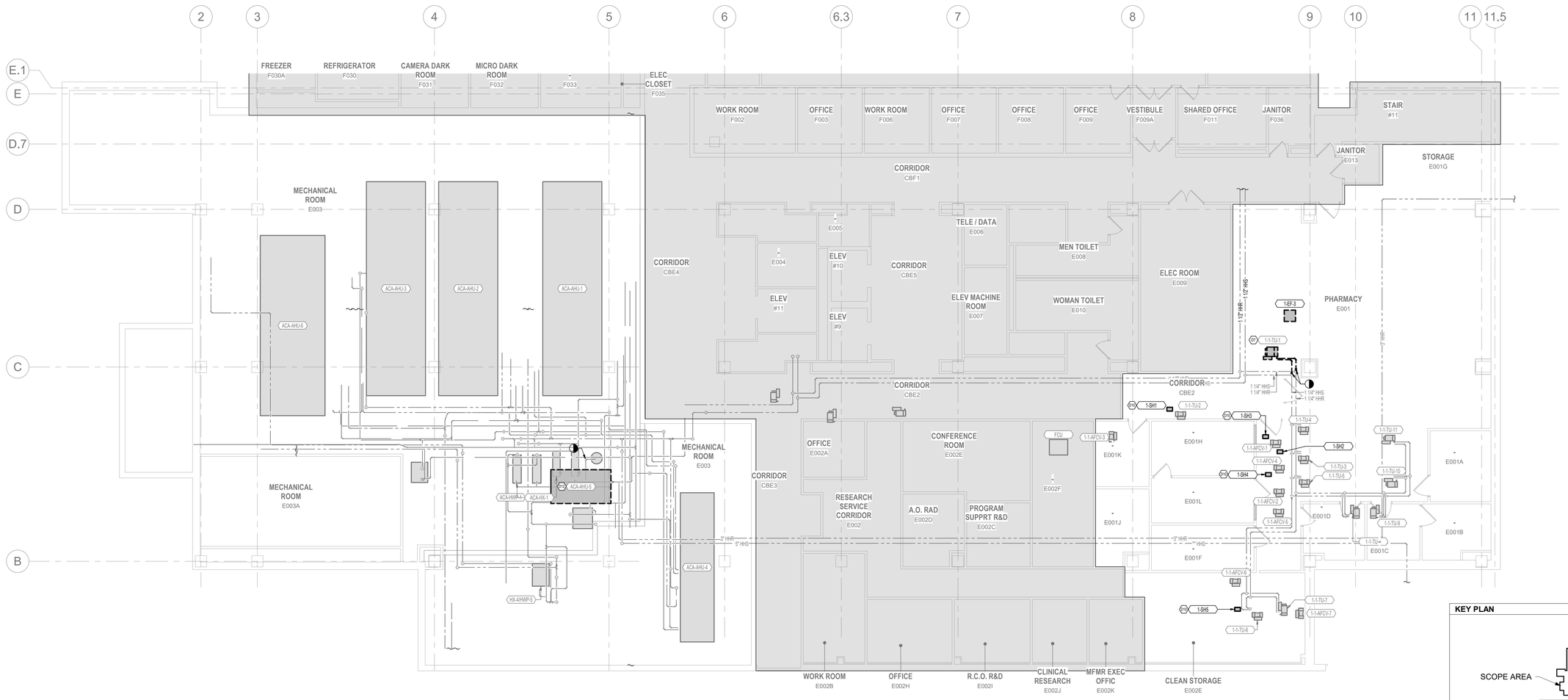
1. CONTRACTOR TO PROVIDE PRE-BALANCE TESTING ON ACA-AHU-9. COORDINATE PRE-TESTING WITH VA COR. PROVIDE PRE-BALANCE REPORT TO VA COR. FINAL SYSTEM BALANCING OF ACA-AHU-9 TO MATCH PRE-TESTING VALUES.
2. CONTRACTOR TO PROVIDE PRE-BALANCE TESTING ON BASEMENT COMPOUNDING AND LEVEL 3 COMPOUNDING. COORDINATE PRE-TESTING WITH VA COR. PROVIDE PRE-BALANCE REPORT TO VA COR. FINAL BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS.
3. WORK INSIDE BUILDING SHALL BE CONDUCTED AFTER HOURS AND/OR ON WEEKENDS.
4. COORDINATE ALL WORK INSIDE BUILDING WITH VA COR A MINIMUM OF 14 DAYS IN ADVANCE.
5. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO SUPPORT CONSTRUCTION ACTIVITIES, COORDINATE ALL SHUTDOWN SCHEDULES - INCLUDING TIMING AND DURATION - WITH THE VA COR A MINIMUM OF 14 DAYS IN ADVANCE.

DEMOLITION KEYNOTES

D7 REMOVE VAV TERMINAL UNIT 1-1-TU-1, CLEAN, STORE, AND PROTECT FOR REUSE IN NEW CONSTRUCTION.

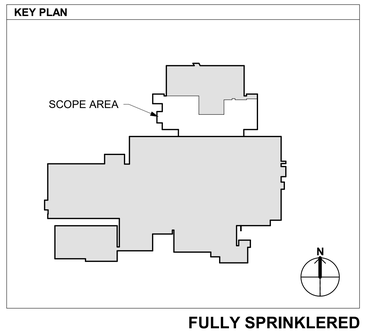
D10 DEMOLISH STEAM HUMIDIFIER AND ASSOCIATED CONTROLS. REPAIR AND SEAL DUCT AIR TIGHT. REPAIR INSULATION. COORDINATE WITH PLUMBING CONTRACTOR FOR DCW DEMOLITION. COORDINATE WITH ELECTRICAL CONTRACTOR FOR HIGH VOLTAGE DEMOLITION.

D12 DEMOLISH ACA-AHU-5 AND ALL ASSOCIATED DUCT, CONTROLS, AND STEAM PIPING. COORDINATE HIGH VOLTAGE DEMOLITION WITH ELECTRICAL CONTRACTOR.



1 BASEMENT - HVAC PIPE DEMOLITION PLAN
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC DEMOLITION PLAN - BASEMENT

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

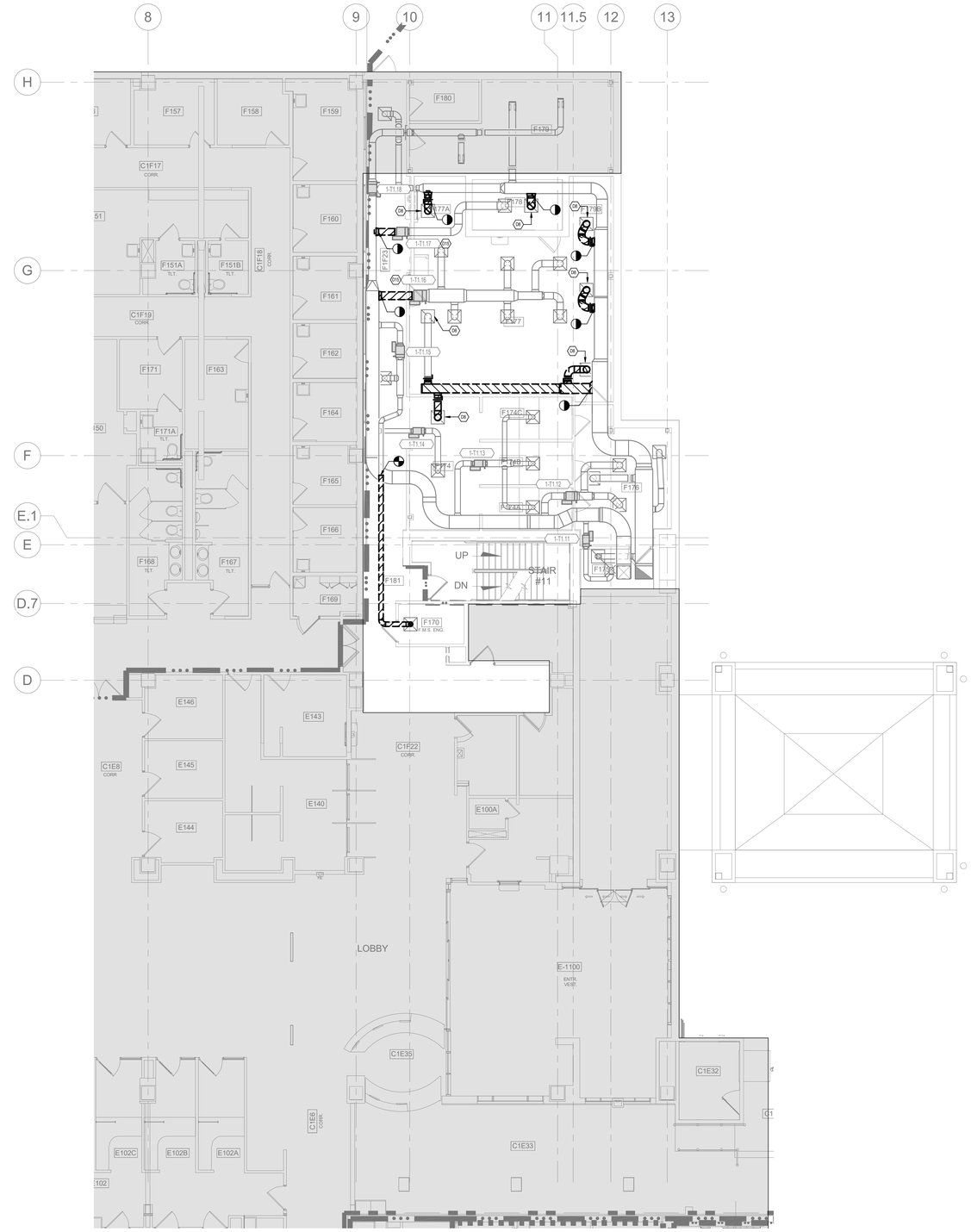
DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**
BUILDING NUMBER 1
DRAWING NUMBER **MD102**
DRAWING # 45 OF 74

Veterans Health Administration
VA U.S. Department of Veterans Affairs

5/26/2026 3:19:10 PM

VA FORM 08-6231



1 LEVEL 1 - HVAC DUCT DEMOLITION PLAN
1/8" = 1'-0"

DEMOLITION GENERAL PLAN NOTES

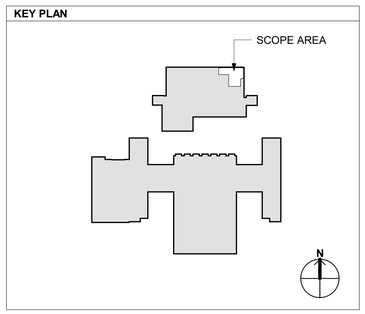
1. CONTRACTOR TO PROVIDE PRE-BALANCE TESTING ON ACA-AHU-9. COORDINATE PRE-TESTING WITH VA COR. PROVIDE PRE-BALANCE REPORT TO VA COR. FINAL SYSTEM BALANCING OF ACA-AHU-9 TO MATCH PRE-TESTING VALUES.
2. CONTRACTOR TO PROVIDE PRE-BALANCE TESTING ON BASEMENT COMPOUNDING AND LEVEL 3 COMPOUNDING. COORDINATE PRE-TESTING WITH VA COR. PROVIDE PRE-BALANCE REPORT TO VA COR. FINAL BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS.
3. WORK INSIDE BUILDING SHALL BE CONDUCTED AFTER HOURS AND/OR ON WEEKENDS.
4. COORDINATE ALL WORK INSIDE BUILDING WITH VA COR A MINIMUM OF 14 DAYS IN ADVANCE.
5. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO SUPPORT CONSTRUCTION ACTIVITIES, COORDINATE ALL SHUTDOWN SCHEDULES - INCLUDING TIMING AND DURATION - WITH THE VA COR A MINIMUM OF 14 DAYS IN ADVANCE.

DEMOLITION KEYNOTES

D8 EXISTING RETURN GRILLE TO BE REUSED IN NEW CONSTRUCTION. CLEAN GRILLE AND PREPARE FOR NEW CONNECTION. DEMOLISH BRANCH DUCT BACK TO MAIN, PATCH AIR TIGHT, AND REPAIR INSULATION.

D15 EXISTING TERMINAL UNIT TO REMAIN. PROTECT UNIT FROM DAMAGE AND SEAL THE INLET DURING DEMOLITION PORTION OF PROJECT.

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:11 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC DEMOLITION PLAN - LEVEL 1

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER
589A4-25-102

BUILDING NUMBER
1

DRAWING NUMBER
MD103
DRAWING # 46 OF 74

Veterans Health Administration

VA | U.S. Department of Veterans Affairs

VA FORM 08-6231

DEMOLITION GENERAL PLAN NOTES

1. CONTRACTOR TO PROVIDE PRE-BALANCE TESTING ON ACA-AHU-9. COORDINATE PRE-TESTING WITH VA COR. PROVIDE PRE-BALANCE REPORT TO VA COR. FINAL SYSTEM BALANCING OF ACA-AHU-9 TO MATCH PRE-TESTING VALUES.
2. CONTRACTOR TO PROVIDE PRE-BALANCE TESTING ON BASEMENT COMPOUNDING AND LEVEL 3 COMPOUNDING. COORDINATE PRE-TESTING WITH VA COR. PROVIDE PRE-BALANCE REPORT TO VA COR. FINAL BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS.
3. WORK INSIDE BUILDING SHALL BE CONDUCTED AFTER HOURS AND/OR ON WEEKENDS.
4. COORDINATE ALL WORK INSIDE BUILDING WITH VA COR A MINIMUM OF 14 DAYS IN ADVANCE.
5. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO SUPPORT CONSTRUCTION ACTIVITIES, COORDINATE ALL SHUTDOWN SCHEDULES - INCLUDING TIMING AND DURATION - WITH THE VA COR A MINIMUM OF 14 DAYS IN ADVANCE.

DEMOLITION KEYNOTES

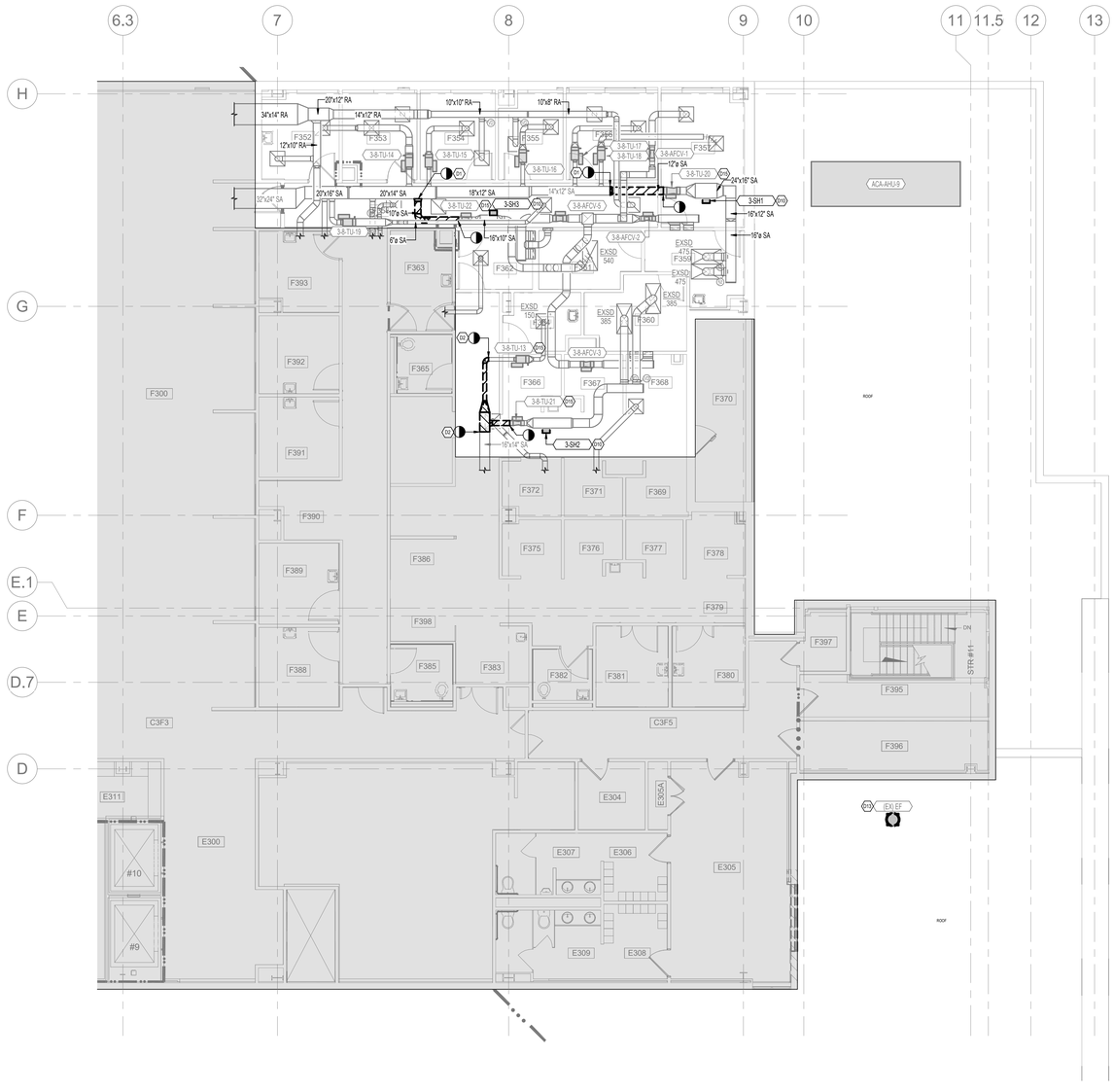
D1 DEMOLISH SUPPLY AIR DUCT BACK TO DEMARCATION AND CAP. SEAL DUCT AIR TIGHT AND INSULATE.

D2 DEMOLISH SUPPLY AIR DUCT BACK TO DEMARCATION AND CAP. PREPARE DUCT FOR FUTURE CONNECTION.

D10 DEMOLISH STEAM HUMIDIFIER AND ASSOCIATED CONTROLS. REPAIR AND SEAL DUCT AIR TIGHT. REPAIR INSULATION. COORDINATE WITH PLUMBING CONTRACTOR FOR DCW DEMOLITION. COORDINATE WITH ELECTRICAL CONTRACTOR FOR HIGH VOLTAGE DEMOLITION.

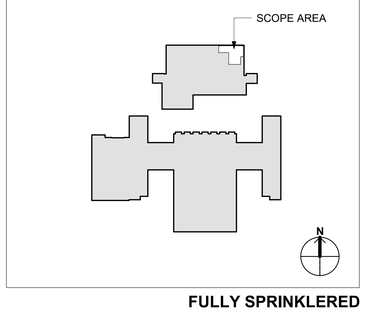
D13 DEMOLISH EXHAUST FAN. DUCT TO BE REUSED IN NEW CONSTRUCTION. COORDINATE WITH ROOFING CONTRACTOR FOR PENETRATION REPAIR. CONTRACTOR TO SEAL DUCT PENETRATION WATER TIGHT.

D15 EXISTING TERMINAL UNIT TO REMAIN. PROTECT UNIT FROM DAMAGE AND SEAL THE INLET DURING DEMOLITION PORTION OF PROJECT.



1 LEVEL 3 - HVAC DUCT DEMOLITION PLAN
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC DEMOLITION PLAN - LEVEL 3

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER **MD104**
DRAWING # 47 OF 74

Veterans Health Administration

U.S. Department of Veterans Affairs

5/26/2026 3:19:13 PM

VA FORM 08-6231

GENERAL PLAN NOTES

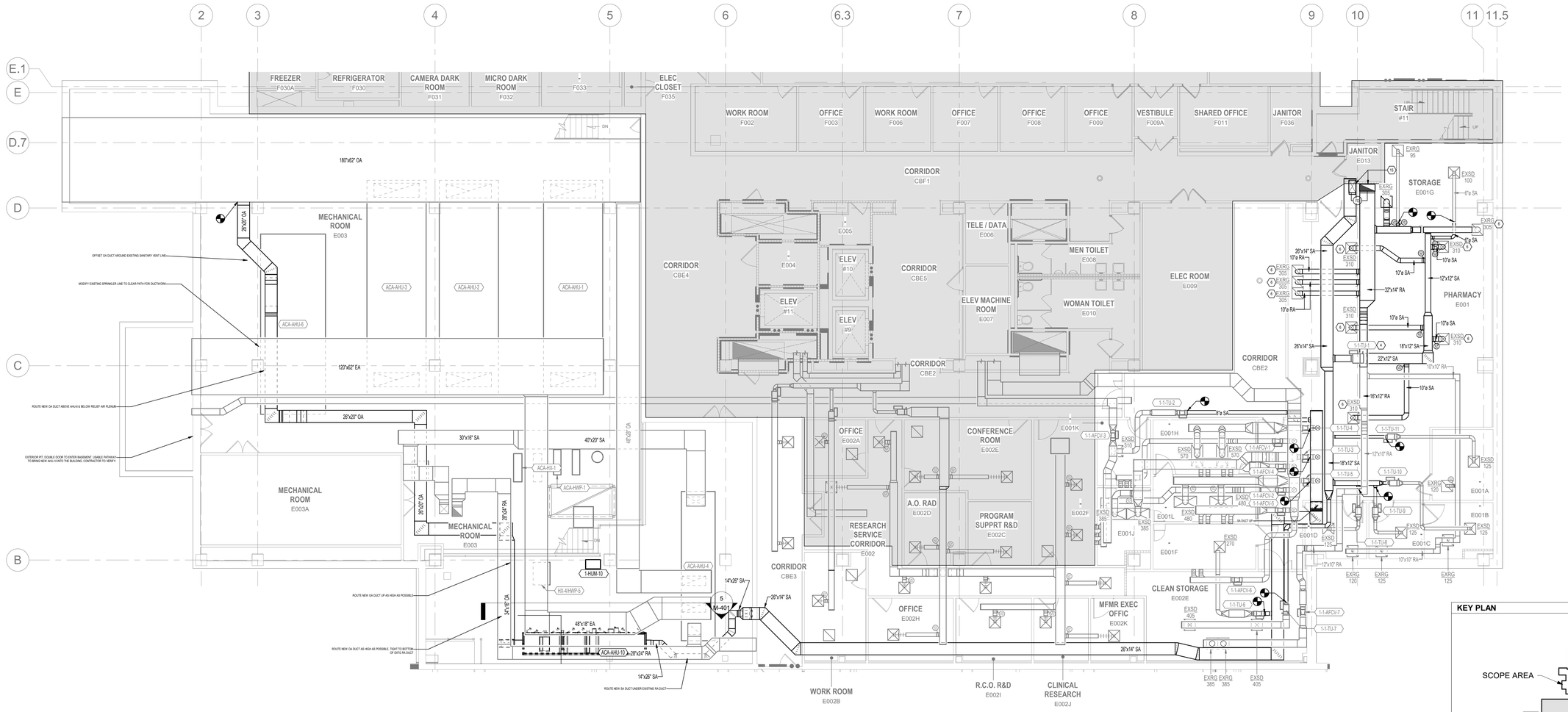
1. ALL BUILDING SYSTEMS SHALL REMAIN FULLY OPERATIONAL THROUGHOUT THE DURATION OF CONSTRUCTION. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO FACILITATE THE WORK, COORDINATE ALL SHUTDOWN SCHEDULES, INCLUDING DURATION AND TIMING, WITH THE VA COR 14 DAYS IN ADVANCE.
2. IMMEDIATELY REPORT ANY DAMAGE TO VA PROPERTY INCURRED DURING DEMOLITION OR CONSTRUCTION TO THE VA COR.
3. ALL PIPE HANGERS REMOVED TO FACILITATE DUCT/PIPE ROUTING ARE TO BE REPLACED.
4. CONTRACTOR TO PROVIDE FINAL SYSTEM BALANCE TESTING ON ACA-AHU-9, 10, 11, & 12. FINAL SYSTEM BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS. PROVIDE BALANCING REPORT TO VA COR FOR APPROVAL.

KEYNOTES

4 REINSTALL VAV TERMINAL UNIT 1-1-TU-1 AS SHOWN. REUSE ALL PIPING ACCESSORIES AND CONTROLS. COORDINATE WITH ELECTRICAL CONTRACTOR FOR HIGH VOLTAGE.

6 REINSTALL DIFFUSER/GRILLE FROM DEMOLITION.

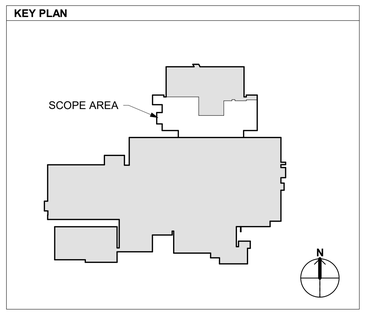
15 ROUTE SA & RA DUCT UP TO FIRST FLOOR. SEE 4/M-501 FOR DUCT RISER SUPPORT DETAIL. PROVIDE FIRE DAMPER WHERE DUCT PENETRATES THE FLOOR ABOVE. PROVIDE ACCESS PANEL IN PROPER ORIENTATION ON THE FLOOR ABOVE.



N

1 BASEMENT - HVAC DUCT PLAN
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC DUCT PLAN - BASEMENT

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER **MH101**

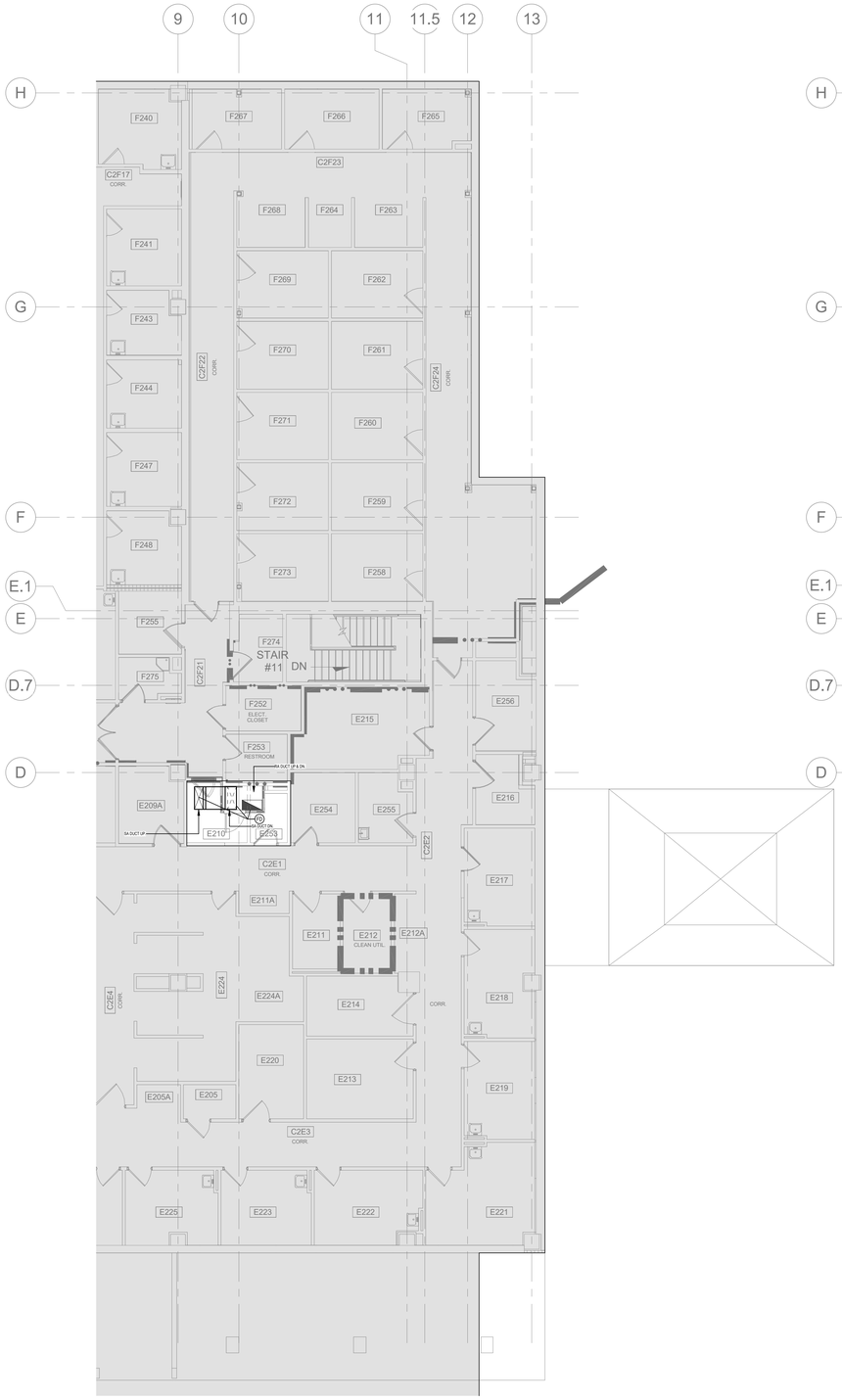
DRAWING # 48 OF 74

Veterans Health Administration

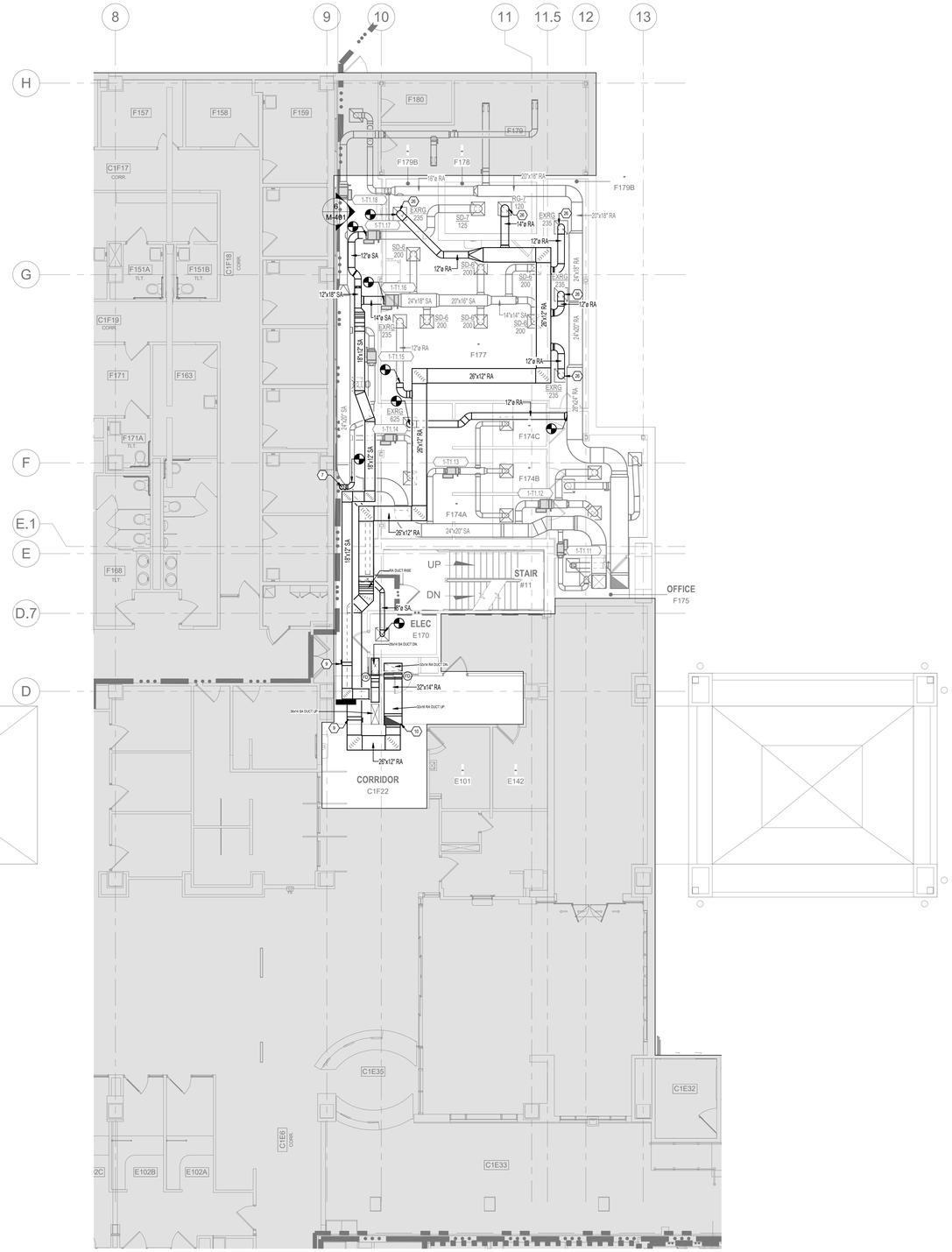
VA U.S. Department of Veterans Affairs

5/26/2026 3:19:14 PM

VA FORM 08-6231



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



1 LEVEL 1 - HVAC DUCT PLAN
1/8" = 1'-0"

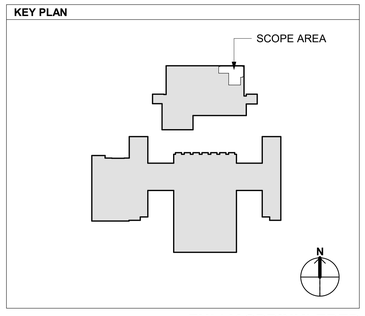
GENERAL PLAN NOTES

1. ALL BUILDING SYSTEMS SHALL REMAIN FULLY OPERATIONAL THROUGHOUT THE DURATION OF CONSTRUCTION. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO FACILITATE THE WORK, COORDINATE ALL SHUTDOWN SCHEDULES, INCLUDING DURATION AND TIMING, WITH THE VA COR 14 DAYS IN ADVANCE.
2. IMMEDIATELY REPORT ANY DAMAGE TO VA PROPERTY INCURRED DURING DEMOLITION OR CONSTRUCTION TO THE VA COR.
3. ALL PIPE HANGERS REMOVED TO FACILITATE DUCT/PIPE ROUTING ARE TO BE REPLACED.
4. CONTRACTOR TO PROVIDE FINAL SYSTEM BALANCE TESTING ON ACA-AHU-9, 10, 11, & 12. FINAL SYSTEM BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS. PROVIDE BALANCING REPORT TO VA COR FOR APPROVAL.

KEYNOTES

7 ROUTE 8" SUPPLY DUCT DOWN BELOW NEW SUPPLY AND RETURN. CONNECT TO EXISTING SUPPLY DIFFUSER IN ROOM F170.
9 INSTALL VOLUME DAMPER. SEE 2/M-501 FOR INSTALLATION DETAIL.
10 CAP BOTTOM OF RISER AND TAP WITH BRANCH DUCTS.
26 ROUTE AND CONNECT DUCTWORK TO EXISTING DIFFUSER/GRILLE.

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:16 PM

VA FORM 08-6231

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC DUCT PLAN - LEVEL 1 AND 2

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER **MH102**

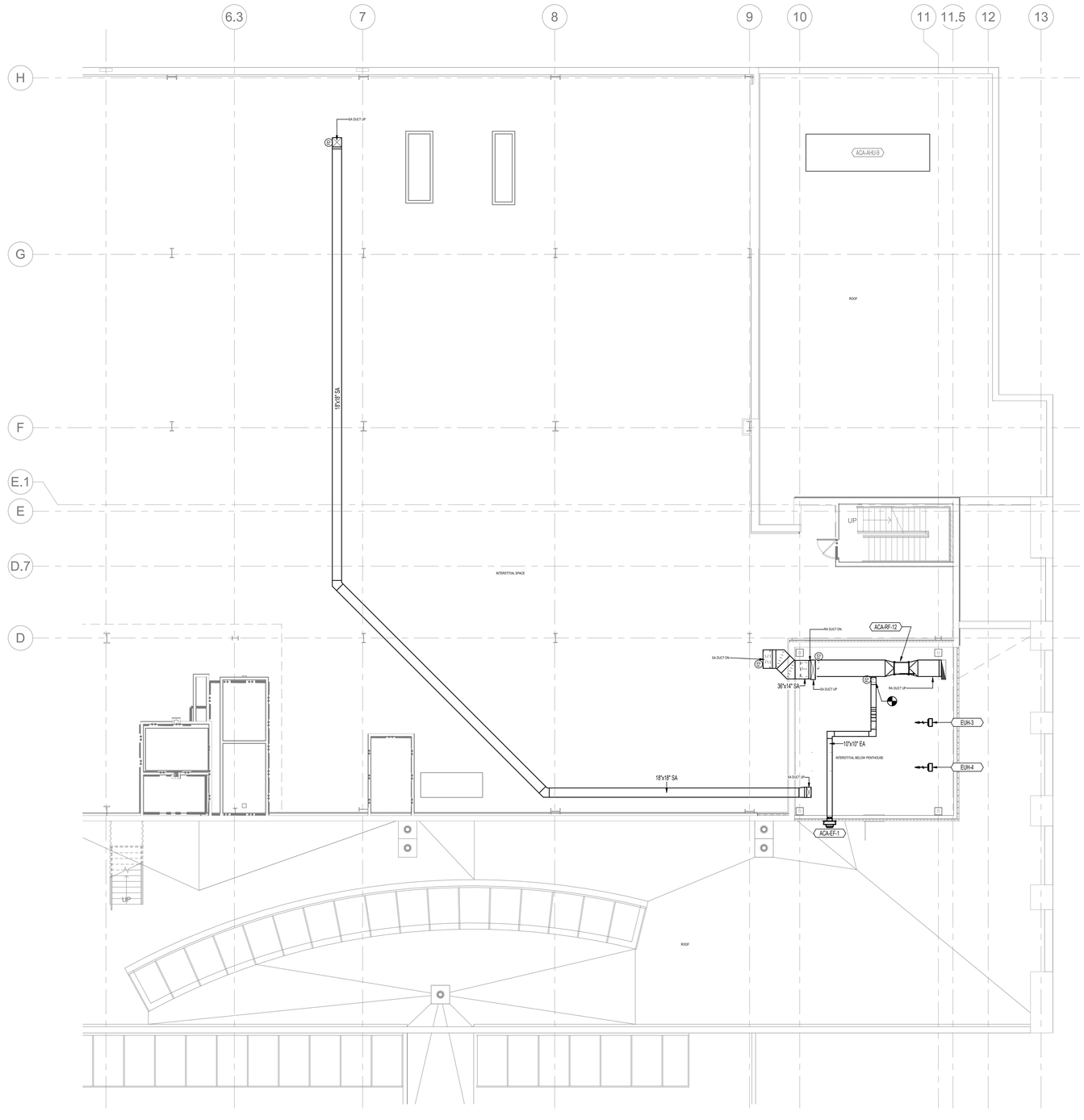
DRAWING # 49 OF 74

Veterans Health Administration

VA | U.S. Department of Veterans Affairs

GENERAL PLAN NOTES

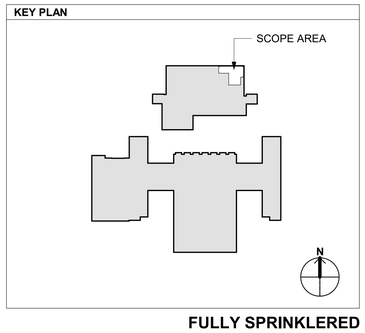
1. ALL BUILDING SYSTEMS SHALL REMAIN FULLY OPERATIONAL THROUGHOUT THE DURATION OF CONSTRUCTION. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO FACILITATE THE WORK, COORDINATE ALL SHUTDOWN SCHEDULES, INCLUDING DURATION AND TIMING, WITH THE VA COR 14 DAYS IN ADVANCE.
2. IMMEDIATELY REPORT ANY DAMAGE TO VA PROPERTY INCURRED DURING DEMOLITION OR CONSTRUCTION TO THE VA COR.
3. ALL PIPE HANGERS REMOVED TO FACILITATE DUCT/PIPE ROUTING ARE TO BE REPLACED.
4. CONTRACTOR TO PROVIDE FINAL SYSTEM BALANCE TESTING ON ACA-AHU-9, 10, 11, & 12. FINAL SYSTEM BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS. PROVIDE BALANCING REPORT TO VA COR FOR APPROVAL.



N

1 INTERSTITIAL - HVAC DUCT PLAN
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:17 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC DUCT PLAN - INTERSTITIAL SPACE

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
MH103
DRAWING # 50 OF 74

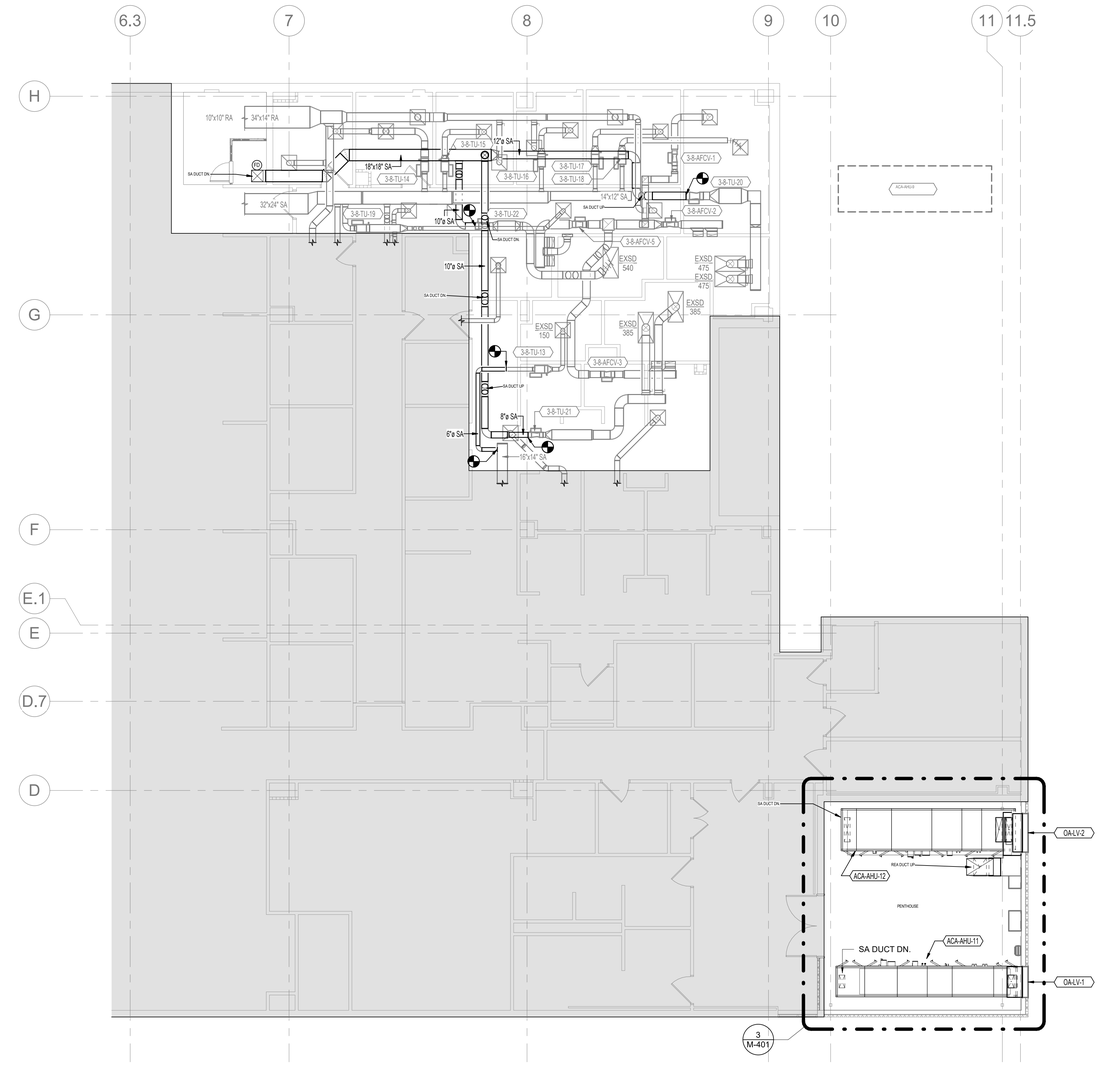
Veterans Health Administration

VA | U.S. Department of Veterans Affairs

VA FORM 08-6231

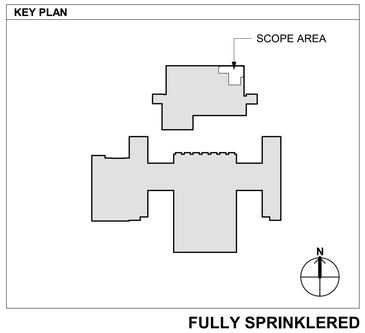
GENERAL PLAN NOTES

1. ALL BUILDING SYSTEMS SHALL REMAIN FULLY OPERATIONAL THROUGHOUT THE DURATION OF CONSTRUCTION. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO FACILITATE THE WORK, COORDINATE ALL SHUTDOWN SCHEDULES, INCLUDING DURATION AND TIMING, WITH THE VA COR 14 DAYS IN ADVANCE.
2. IMMEDIATELY REPORT ANY DAMAGE TO VA PROPERTY INCURRED DURING DEMOLITION OR CONSTRUCTION TO THE VA COR.
3. ALL PIPE HANGERS REMOVED TO FACILITATE DUCT/PIPE ROUTING ARE TO BE REPLACED.
4. CONTRACTOR TO PROVIDE FINAL SYSTEM BALANCE TESTING ON ACA-AHU-9, 10, 11, & 12. FINAL SYSTEM BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS. PROVIDE BALANCING REPORT TO VA COR FOR APPROVAL.



1 LEVEL 3 - HVAC DUCT PLAN
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-20140313 51 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC DUCT PLAN - LEVEL 3

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN BLB

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
MH104
DRAWING # 51 OF 74

Veterans Health Administration

VA | U.S. Department of Veterans Affairs

5/26/2026 3:19:18 PM

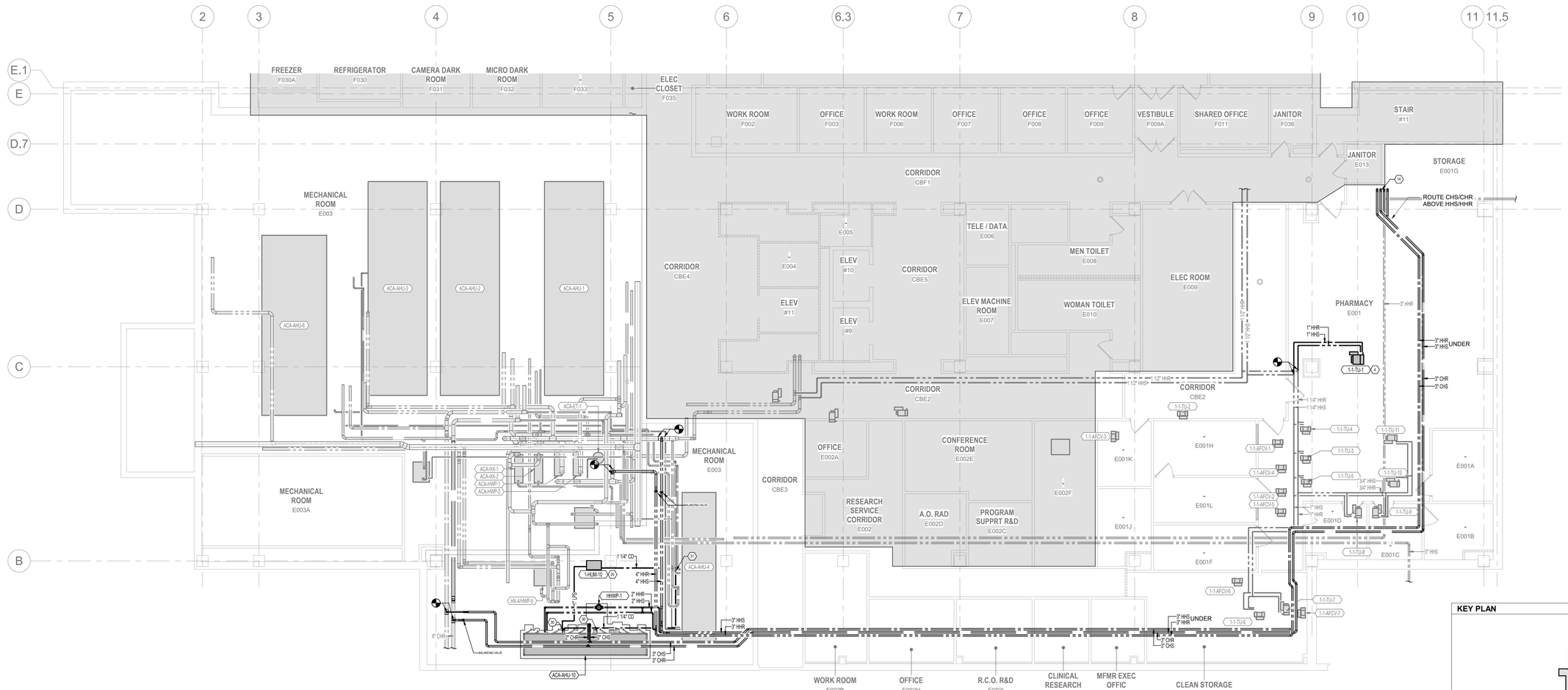
VA FORM 08-6231

GENERAL PLAN NOTES

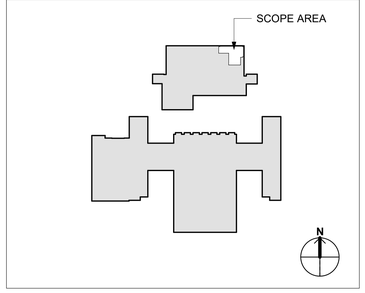
1. ALL BUILDING SYSTEMS SHALL REMAIN FULLY OPERATIONAL THROUGHOUT THE DURATION OF CONSTRUCTION. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO FACILITATE THE WORK, COORDINATE ALL SHUTDOWN SCHEDULES, INCLUDING DURATION AND TIMING, WITH THE VA COR 14 DAYS IN ADVANCE.
2. IMMEDIATELY REPORT ANY DAMAGE TO VA PROPERTY INCURRED DURING DEMOLITION OR CONSTRUCTION TO THE VA COR.
3. ALL PIPE HANGERS REMOVED TO FACILITATE DUCT/PIPE ROUTING ARE TO BE REPLACED.
4. CONTRACTOR TO PROVIDE FINAL SYSTEM BALANCE TESTING ON ACA-AHU-9, 10, 11, & 12. FINAL SYSTEM BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS. PROVIDE BALANCING REPORT TO VA COR FOR APPROVAL.

KEYNOTES

4	REINSTALL VAV TERMINAL UNIT 1-1-TU-1 AS SHOWN. REUSE ALL PIPING ACCESSORIES AND CONTROLS. COORDINATE WITH ELECTRICAL CONTRACTOR FOR HIGH VOLTAGE.
14	CHS/CHR & HHS/HHR UP TO FIRST FLOOR. SEE 5/M-501 FOR PIPE RISER SUPPORT DETAIL. SEE 9/M-501 FOR PIPE SUPPORT DETAIL.
25	INSTALL ELECTRIC RESISTANCE STEAM HUMIDIFIER ON WALL 36" AFF. INSTALL DISPERSION TUBE IN SUPPLY DUCT ACCORDING TO MANUFACTURER'S INSTALLATION LITERATURE. INSTALL HUMIDITY SENSOR IN OA/MA DUCT. COORDINATE WITH PLUMBING CONTRACTOR FOR DCW CONNECTION. COORDINATE DISCONNECT LOCATION AND HIGH VOLTAGE CONNECTION WITH ELECTRICAL CONTRACTOR.
30	CONNECT CONDENSATE DRAIN PIPING TO AHU. SEE DETAIL 9/M-501 FOR MORE INFORMATION.
31	ROUTE CONDENSATE PIPING TO FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR DRAIN LOCATION.



1 BASEMENT - HVAC PIPING PLAN
1/8" = 1'-0"



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC PIPING PLAN - BASEMENT

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

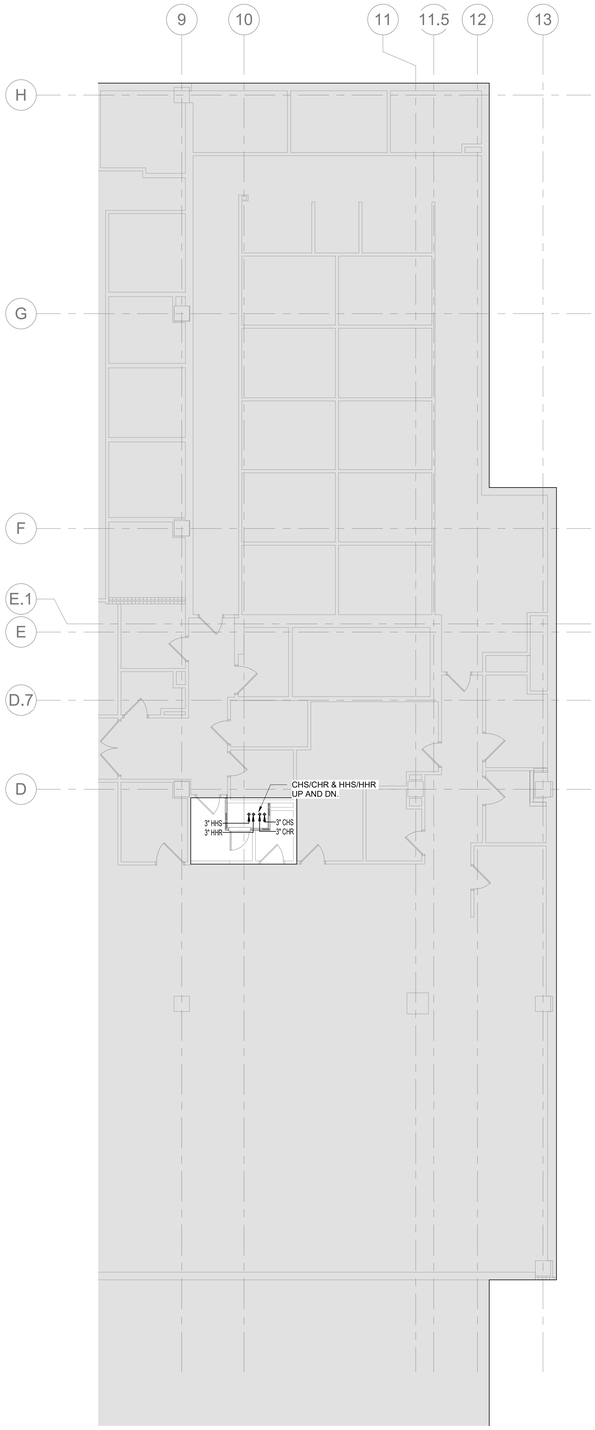
BUILDING NUMBER 1

DRAWING NUMBER **MP101**
DRAWING # 52 OF 74

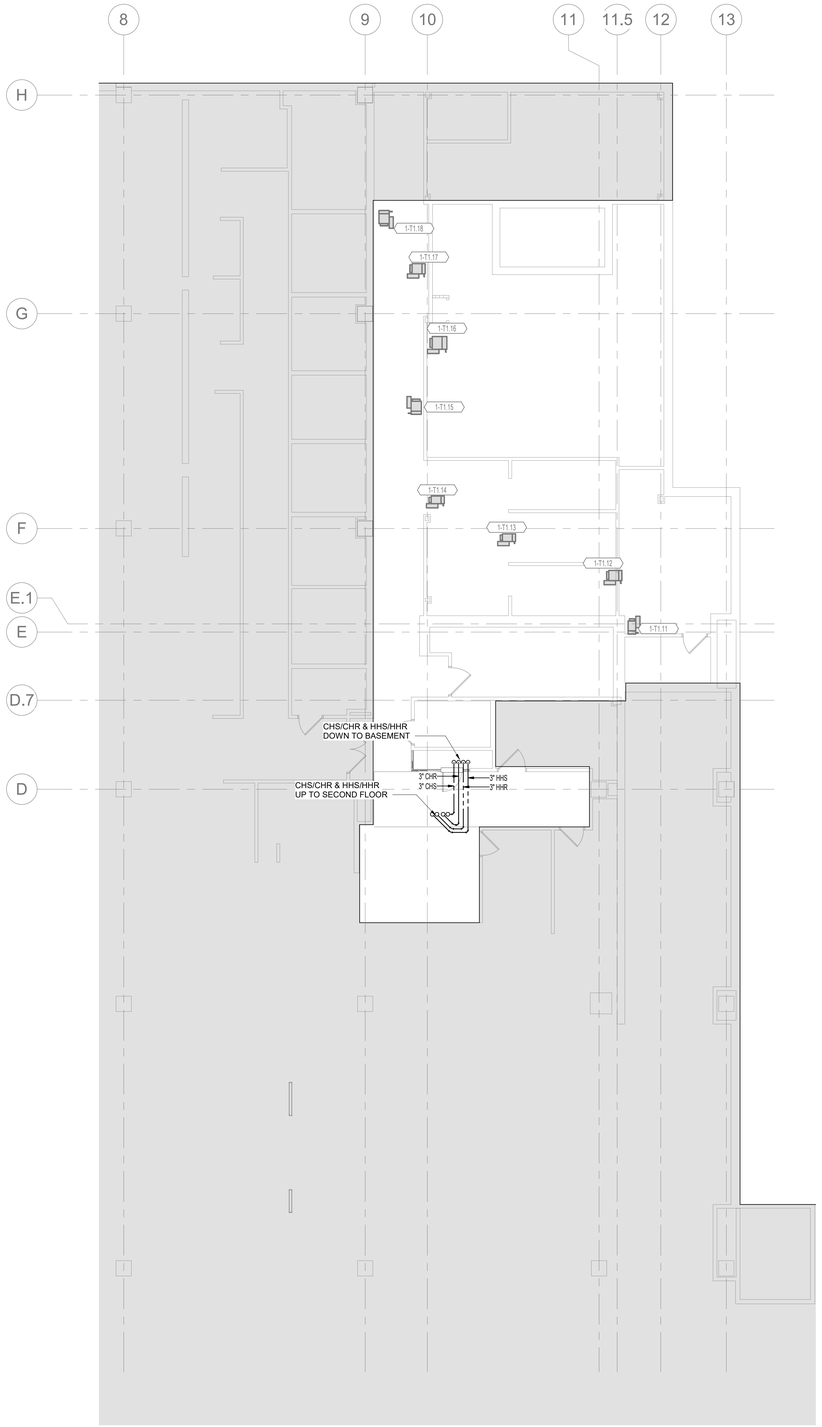
Veterans Health Administration
VA U.S. Department of Veterans Affairs

5/26/2026 3:19:20 PM

VA FORM 08-6231



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

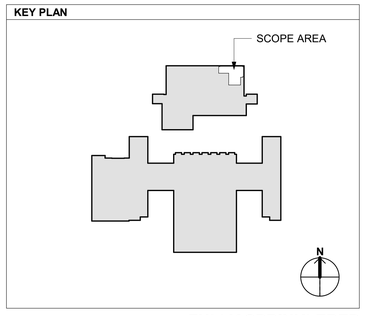


1 LEVEL 1 - HVAC PIPING PLAN
1/8" = 1'-0"

GENERAL PLAN NOTES

1. ALL BUILDING SYSTEMS SHALL REMAIN FULLY OPERATIONAL THROUGHOUT THE DURATION OF CONSTRUCTION. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO FACILITATE THE WORK, COORDINATE ALL SHUTDOWN SCHEDULES, INCLUDING DURATION AND TIMING, WITH THE VA COR 14 DAYS IN ADVANCE.
2. IMMEDIATELY REPORT ANY DAMAGE TO VA PROPERTY INCURRED DURING DEMOLITION OR CONSTRUCTION TO THE VA COR.
3. ALL PIPE HANGERS REMOVED TO FACILITATE DUCT/PIPE ROUTING ARE TO BE REPLACED.
4. CONTRACTOR TO PROVIDE FINAL SYSTEM BALANCE TESTING ON ACA-AHU-9, 10, 11, & 12. FINAL SYSTEM BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS. PROVIDE BALANCING REPORT TO VA COR FOR APPROVAL.

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:21 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC PIPING PLAN - LEVEL 1 AND 2

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
MP102
DRAWING # 53 OF 74

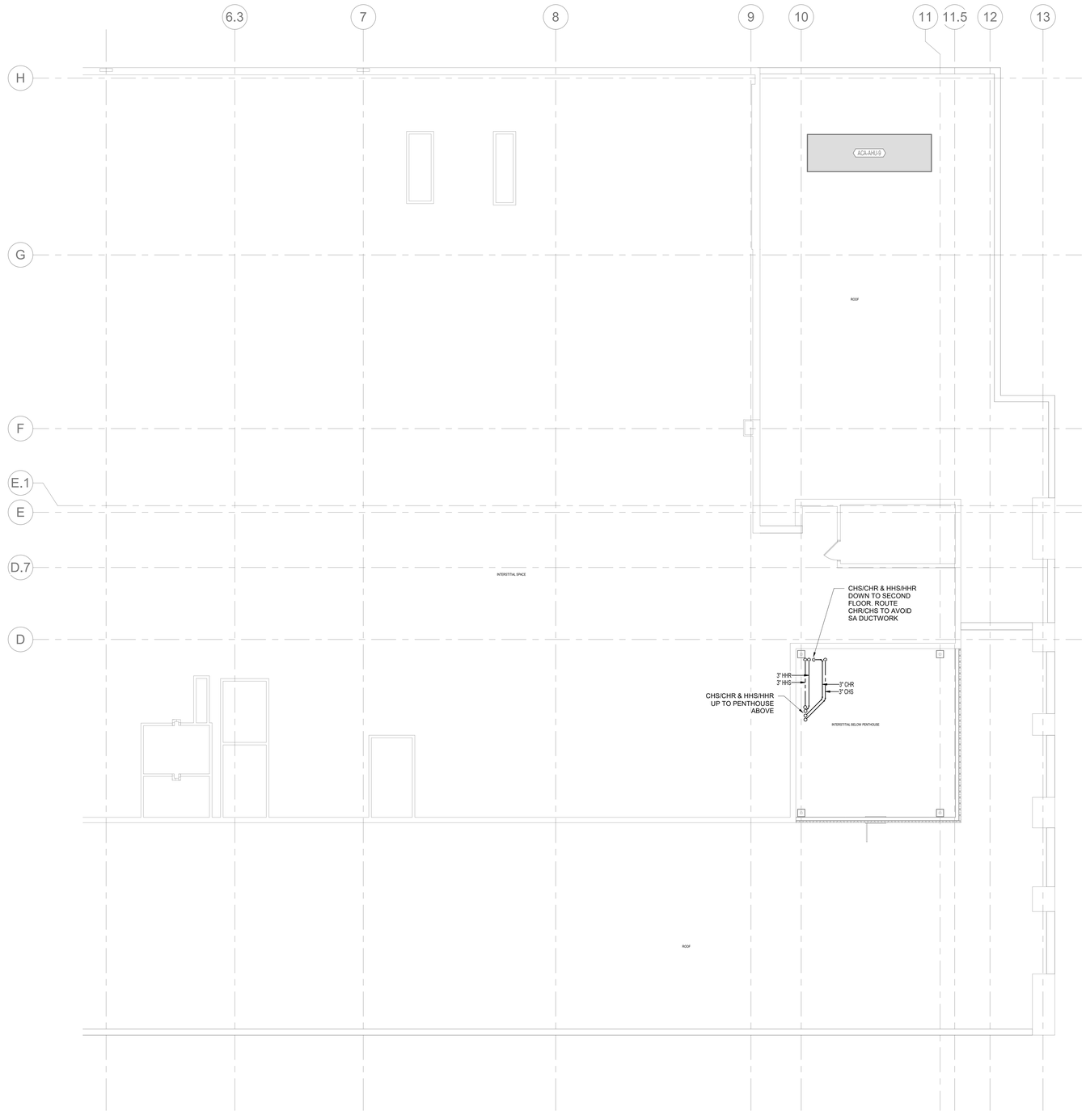
Veterans Health Administration

VA | U.S. Department of Veterans Affairs

VA FORM 08-6231

GENERAL PLAN NOTES

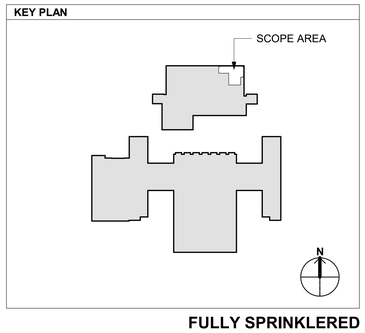
1. ALL BUILDING SYSTEMS SHALL REMAIN FULLY OPERATIONAL THROUGHOUT THE DURATION OF CONSTRUCTION. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO FACILITATE THE WORK, COORDINATE ALL SHUTDOWN SCHEDULES, INCLUDING DURATION AND TIMING, WITH THE VA COR 14 DAYS IN ADVANCE.
2. IMMEDIATELY REPORT ANY DAMAGE TO VA PROPERTY INCURRED DURING DEMOLITION OR CONSTRUCTION TO THE VA COR.
3. ALL PIPE HANGERS REMOVED TO FACILITATE DUCT/PIPE ROUTING ARE TO BE REPLACED.
4. CONTRACTOR TO PROVIDE FINAL SYSTEM BALANCE TESTING ON ACA-AHU-9, 10, 11, & 12. FINAL SYSTEM BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS. PROVIDE BALANCING REPORT TO VA COR FOR APPROVAL.



N

1 INTERSTITIAL - HVAC PIPING PLAN
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC PIPING PLAN - INTERSTITIAL SPACE

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
MP103
DRAWING # 54 OF 74

Veterans Health Administration

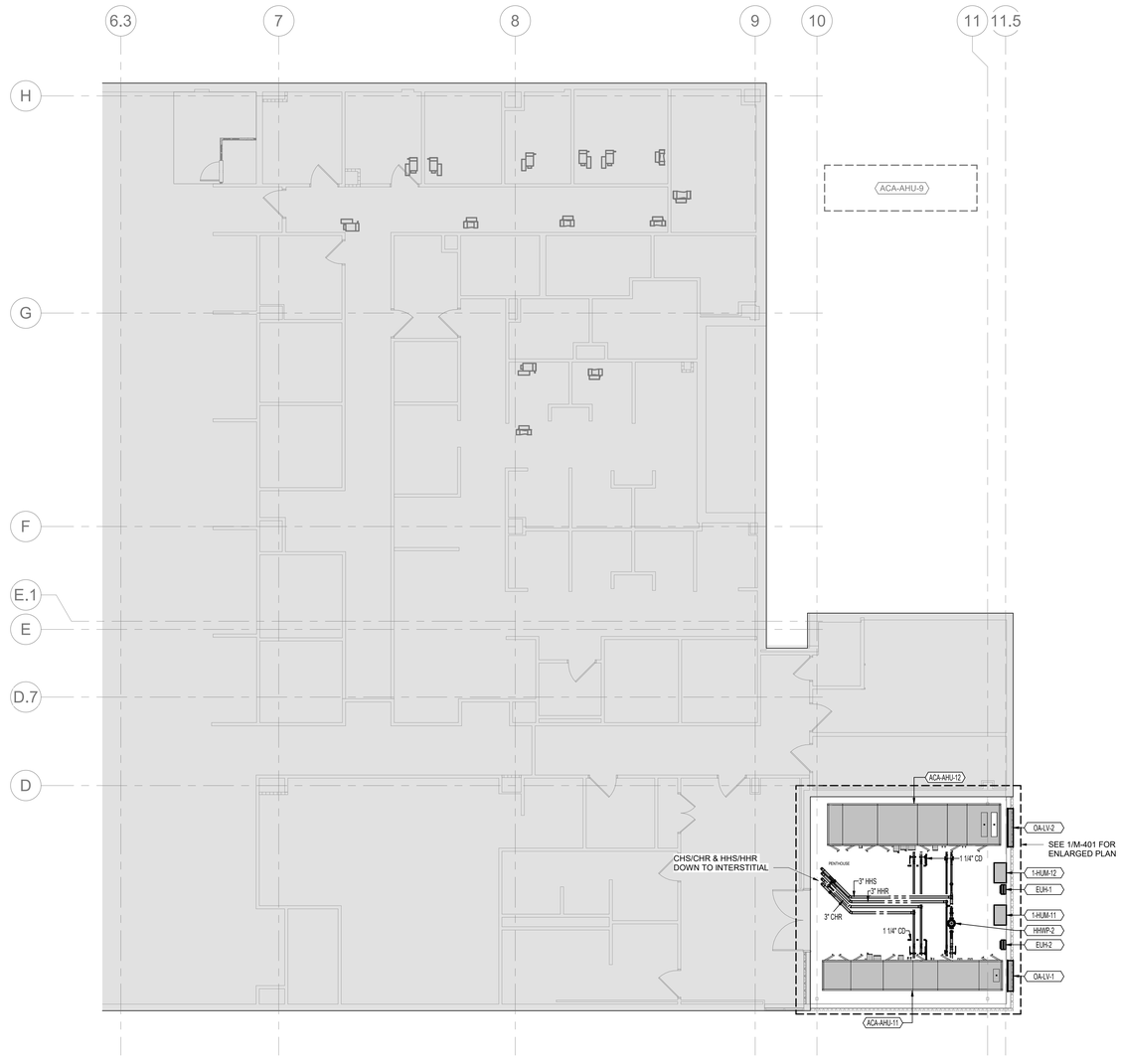
VA | U.S. Department of Veterans Affairs

5/26/2026 3:19:21 PM

VA FORM 08-6231

GENERAL PLAN NOTES

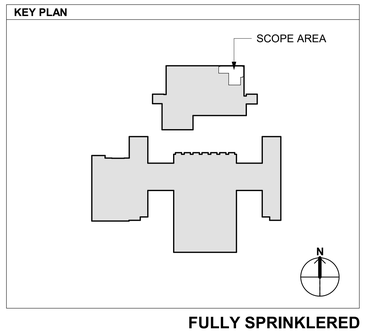
1. ALL BUILDING SYSTEMS SHALL REMAIN FULLY OPERATIONAL THROUGHOUT THE DURATION OF CONSTRUCTION. IF TEMPORARY SHUTDOWNS ARE REQUIRED TO FACILITATE THE WORK, COORDINATE ALL SHUTDOWN SCHEDULES, INCLUDING DURATION AND TIMING, WITH THE VA COR 14 DAYS IN ADVANCE.
2. IMMEDIATELY REPORT ANY DAMAGE TO VA PROPERTY INCURRED DURING DEMOLITION OR CONSTRUCTION TO THE VA COR.
3. ALL PIPE HANGERS REMOVED TO FACILITATE DUCT/PIPE ROUTING ARE TO BE REPLACED.
4. CONTRACTOR TO PROVIDE FINAL SYSTEM BALANCE TESTING ON ACA-AHU-9, 10, 11, & 12. FINAL SYSTEM BALANCING TO MATCH PRESCRIBED VALUES ON CONSTRUCTION DRAWINGS. PROVIDE BALANCING REPORT TO VA COR FOR APPROVAL.



N

1 LEVEL 3 - HVAC PIPING PLAN
1/8" = 1'-0"

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:22 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC PIPING PLAN - LEVEL 3

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER
589A4-25-102

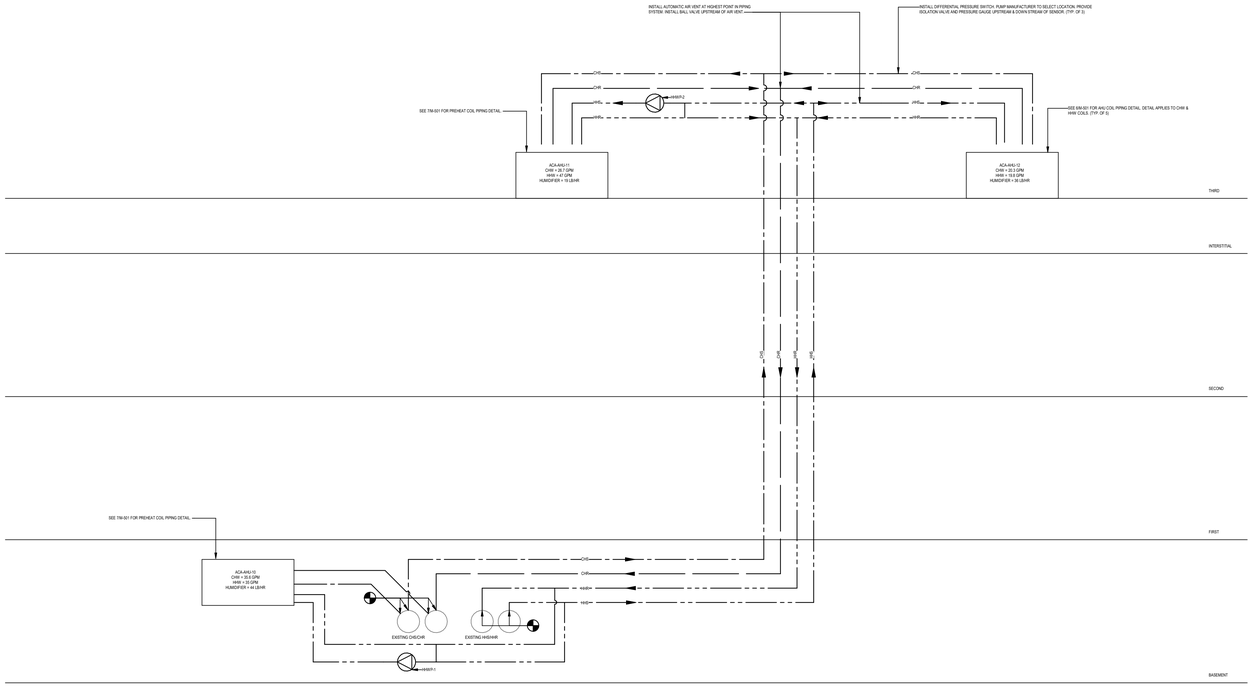
BUILDING NUMBER
1

DRAWING NUMBER
MP104
DRAWING # 55 OF 74

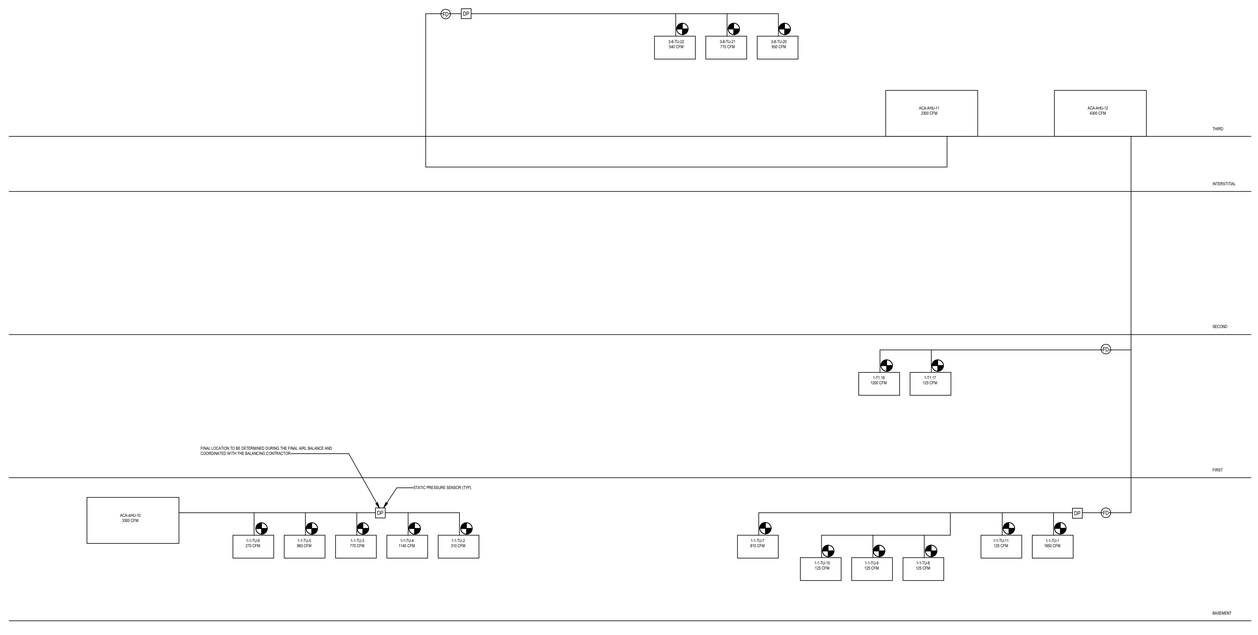
Veterans Health Administration

VA | U.S. Department of Veterans Affairs

VA FORM 08-6231



2 HYDRONIC FLOW DIAGRAM
NOT TO SCALE



1 AIRFLOW DIAGRAM
NOT TO SCALE

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:23 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-20140313 51 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL FLOW DIAGRAMS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

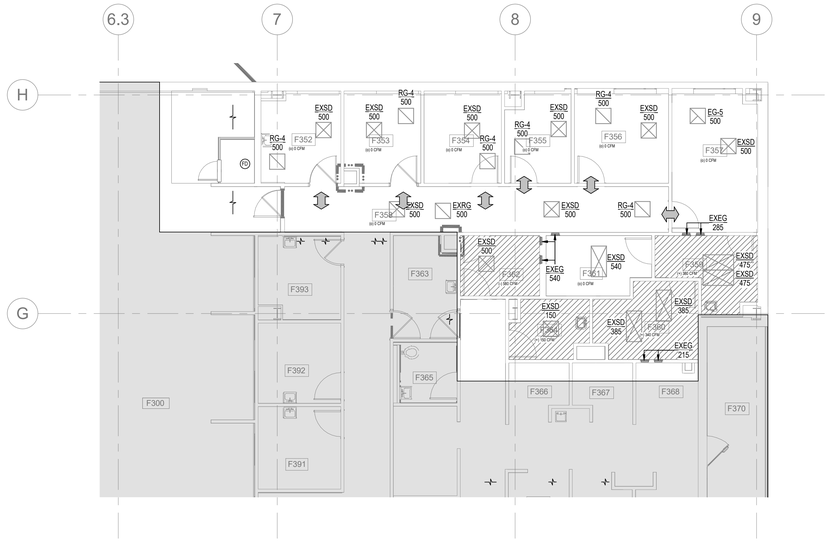
BUILDING NUMBER 1

DRAWING NUMBER
M-201
DRAWING # 56 OF 74

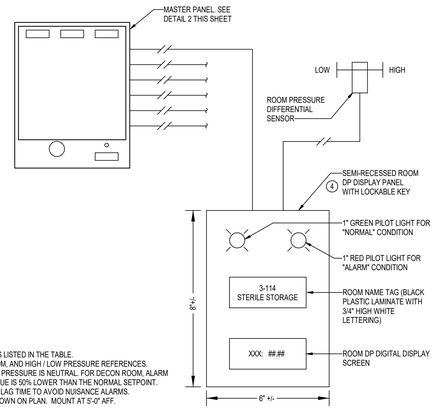
Veterans Health Administration

U.S. Department of Veterans Affairs

VA FORM 08-6231

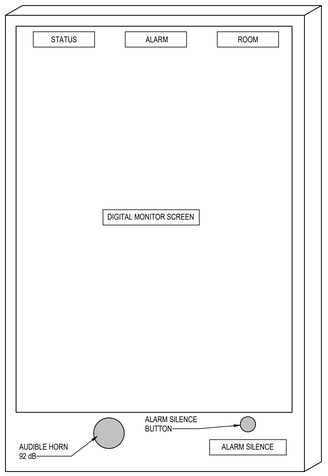


3 LEVEL 3 - HVAC DUCT PLAN Copy 1
1/8" = 1'-0"



NOTES:
1. TYPICAL FOR ROOMS LISTED IN THE TABLE.
2. SEE TABLE FOR ROOM, AND HIGH / LOW PRESSURE REFERENCES.
3. ALARM WHEN ROOM PRESSURE IS NEUTRAL. FOR DECON ROOM, ALARM WHEN ROOM DP VALUE IS 50% LOWER THAN THE NORMAL SETPOINT. ALLOW 60 SECONDS LAG TIME TO AVOID NUISANCE ALARMS.
4. PROVIDE WHERE SHOWN ON PLAN. MOUNT AT 5'-0" AFF.

5 ROOM PRESSURE MONITORING AND ALARM
NOT TO SCALE



NOTES:
1. ON THE PRESS OF ALARM SILENCE, THE HORN AND THE STROBE LIGHT SHALL STOP. RE-TRIGGER THE ALARM AFTER 10 MINUTES IF THE ROOM IS STILL IN ALARM.
2. RESET ALARM AUTOMATICALLY ONCE THE ROOM PRESSURE IS NORMAL.
3. DIGITAL MASTER ROOM PRESSURE MONITOR.
4. REFER TO VA FOR MASTER ALARM PANEL LOCATION IN ADMINISTRATION SPACE.

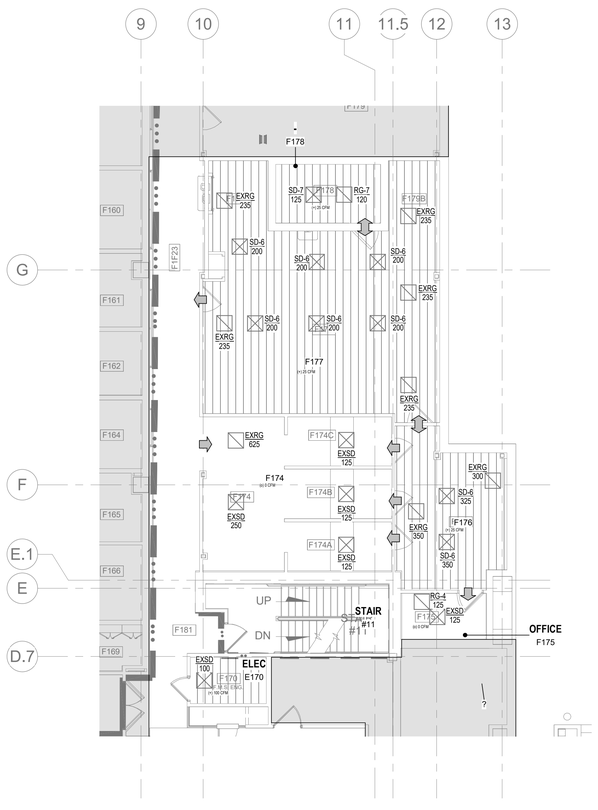
4 MASTER ROOM PRESSURE (MRPP) MONITOR/ALARM PANEL
NOT TO SCALE

LEGEND - ROOM PRESSURIZATION

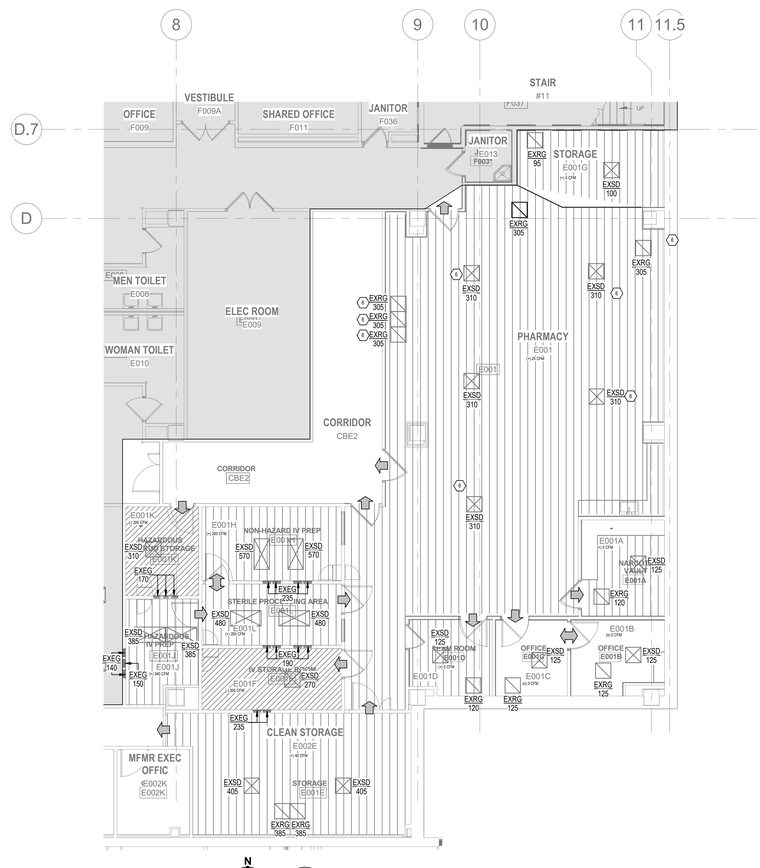
- DOUBLE NEGATIVE PRESSURE
- NEGATIVE PRESSURE
- NEUTRAL PRESSURE
- POSITIVE PRESSURE
- DOUBLE POSITIVE PRESSURE

ROOM AIRFLOW / PRESSURIZATION SCHEDULE

SPACE NUMBER	PRESSURE RELATIONSHIP	ACTUAL SUPPLY AIRFLOW	ACTUAL RETURN AIRFLOW	ACTUAL EXHAUST AIRFLOW
CBE2				
E001	+	1550	1525	-
E001A	+	100	95	-
E001B	o	125	125	-
E001C	o	125	125	-
E001D	+	125	120	-
E001F	-	270	-	470
E001G	+	100	95	-
E001H	+	1140	-	940
E001J	+	770	-	430
E001K	-	310	-	510
E001L	+	960	-	760
E002E	+	810	770	
F170	+	100	-	-
F174	o	625	625	-
F175	o	125	125	-
F176	+	675	650	-
F177	+	1200	1175	-
F178	+	125	120	-
F352	o	500	500	-
F353	o	500	500	-
F354	o	500	500	-
F355	o	500	500	-
F356	o	500	500	-
F357	o	500	-	500
F358	o	1000	1000	
F359	+	950	-	570
F360	+	770	-	430
F361	o	540	-	540
F362	-	500	-	1080
F364	+	150	-	-



2 LEVEL 1 - HVAC DUCT PLAN Copy 1
1/8" = 1'-0"



1 BASEMENT - HVAC DUCT PLAN Copy 1
1/8" = 1'-0"

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:25 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL FLOW DIAGRAMS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

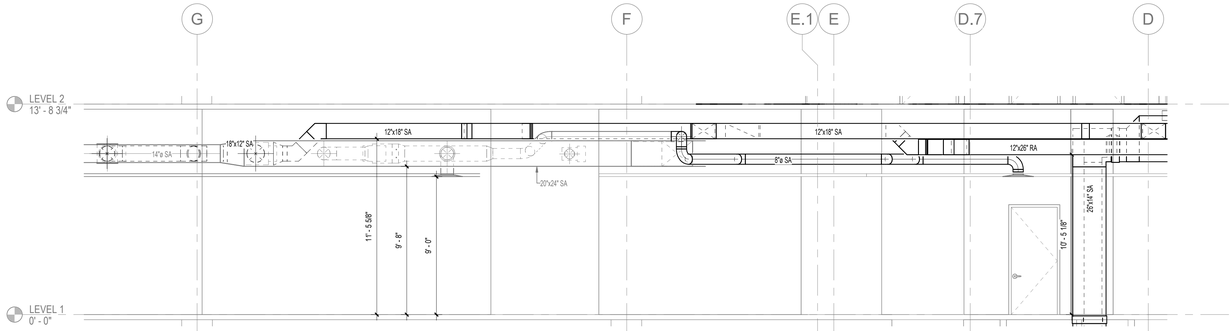
BUILDING NUMBER 1

DRAWING NUMBER
M-202
DRAWING # 57 OF 74

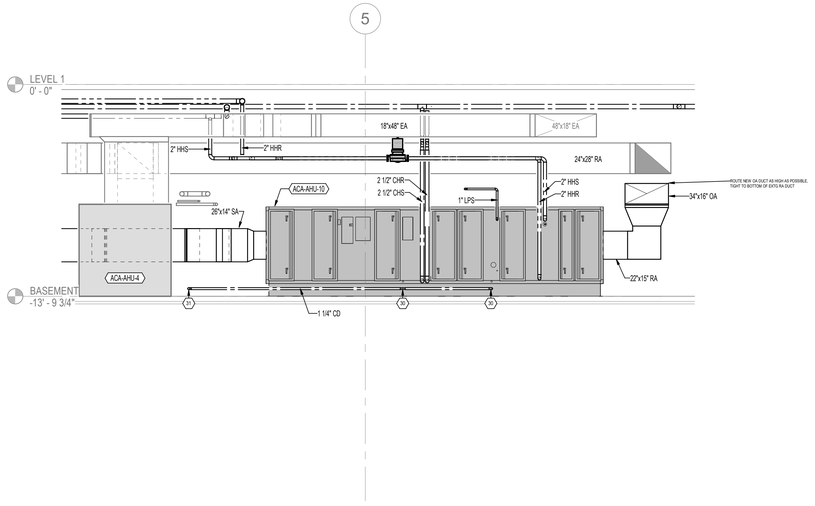
Veterans Health Administration

VA | U.S. Department of Veterans Affairs

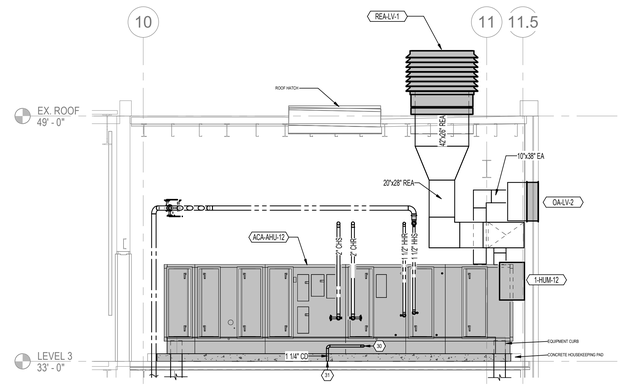
VA FORM 08-6231



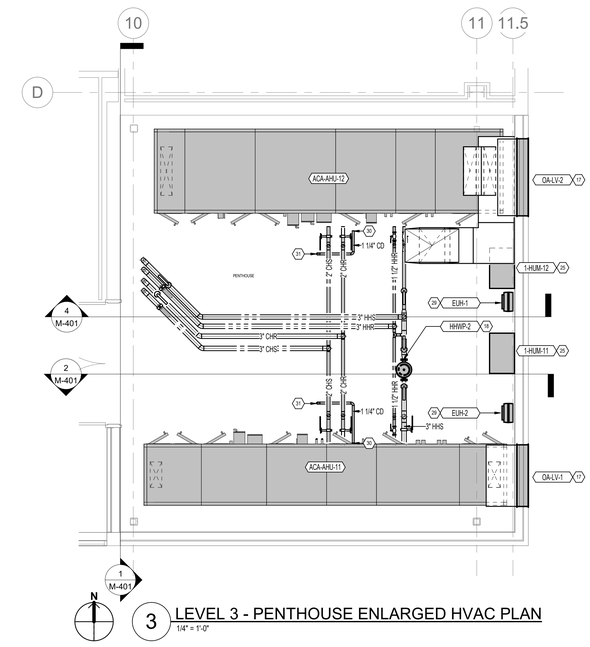
6 LEVEL 1 CORRIDOR SECTION
1/4" = 1'-0"



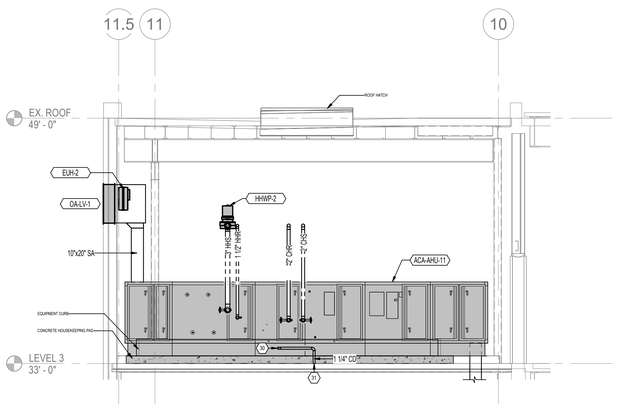
5 ACA-AHU-10 SECTION
1/4" = 1'-0"



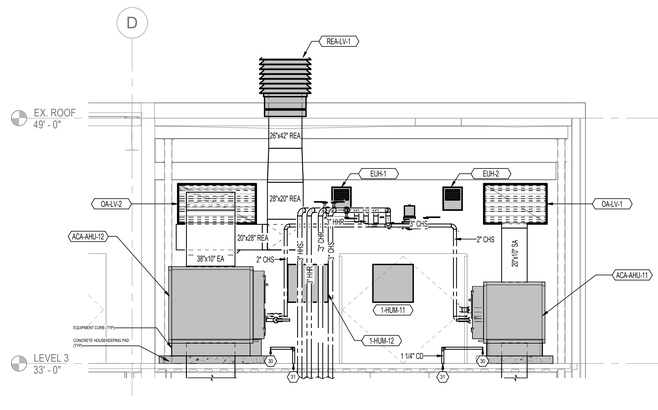
4 ACA-AHU-12 SECTION
1/4" = 1'-0"



3 LEVEL 3 - PENTHOUSE ENLARGED HVAC PLAN
1/4" = 1'-0"



2 ACA-AHU-11 SECTION
1/4" = 1'-0"



1 NORTH - SOUTH PENTHOUSE SECTION
1/4" = 1'-0"

KEYNOTES

17 INSTALL OUTDOOR AIR LOUVER MINIMUM 9'-0" AFF. SEE 3/M-501 FOR INSTALLATION DETAIL.

18 INSTALL VERTICAL INLINE PUMP. SEE 1/M-501 FOR PUMP PIPING DETAIL. COORDINATE HIGH VOLTAGE CONNECTION WITH ELECTRICAL CONTRACTOR.

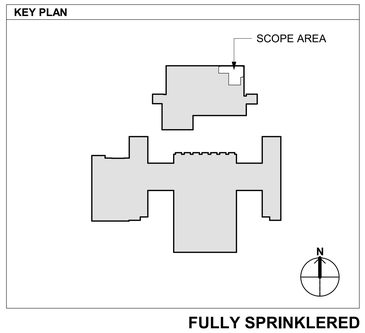
25 INSTALL ELECTRIC RESISTANCE STEAM HUMIDIFIER ON WALL 36" AFF. INSTALL DISPERSION TUBE IN SUPPLY DUCT ACCORDING TO MANUFACTURER'S INSTALLATION LITERATURE. INSTALL HUMIDITY SENSOR IN OA/MA DUCT. COORDINATE WITH PLUMBING CONTRACTOR FOR DCW CONNECTION. COORDINATE DISCONNECT LOCATION AND HIGH VOLTAGE CONNECTION WITH ELECTRICAL CONTRACTOR.

29 INSTALL ELECTRIC UNIT HEATER 10' AFF.

30 CONNECT CONDENSATE DRAIN PIPING TO AHU. SEE DETAIL 9/M-501 FOR MORE INFORMATION.

31 ROUTE CONDENSATE PIPING TO FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR DRAIN LOCATION.

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:28 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
HVAC ENLARGED PLANS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

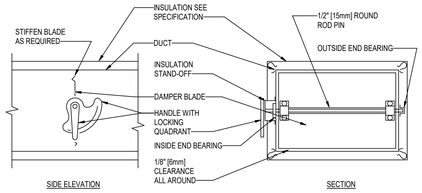
DRAWING NUMBER **M-401**

DRAWING # 58 OF 74

Veterans Health Administration

VA | U.S. Department of Veterans Affairs

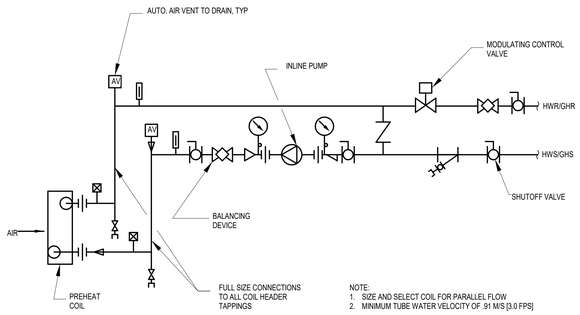
VA FORM 08-6231



NOTE:

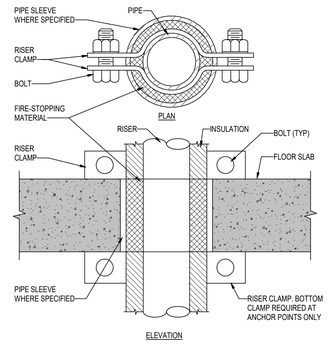
1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

8 VOLUME DAMPER
NOT TO SCALE



NOTE:
1. SIZE AND SELECT COIL FOR PARALLEL FLOW
2. MINIMUM TUBE WATER VELOCITY OF .91 M/S [3.0 FPS]

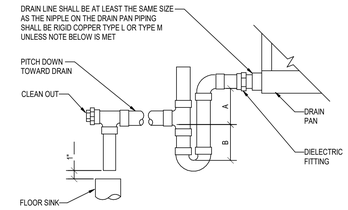
7 PREHEAT COIL (HOT WATER) - PIPING CONNECTIONS
NOT TO SCALE



NOTES:

1. PROVIDE ANCHORS ONLY WHERE SHOWN ON DRAWINGS.
2. EXTEND SLEEVE ABOVE FLOOR WHERE SPECIFIED.

6 SUPPORT ANCHOR FOR PIPE RISER
NOT TO SCALE

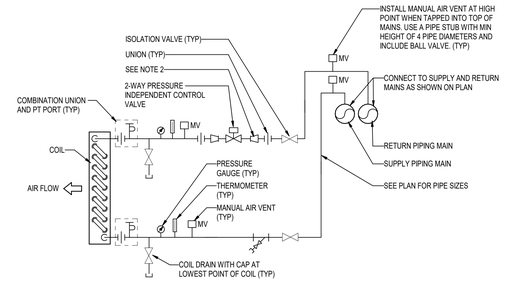


NOTES:
1. CPVC PIPE MAY BE USED ONLY IF APPROVED BY LOCAL VA AND IS INDOORS AND DOES NOT PASS THROUGH RATED BARRIERS.
2. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

UNIT TYPE	A	B
DRAW THRU	2" PLUS X	X
BLOW THRU	1" MINIMUM	2X

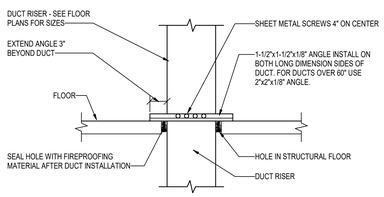
WHERE X = STATIC PRESSURE IN PAN

9 AIR HANDLING UNIT DRAIN TRAP
NOT TO SCALE

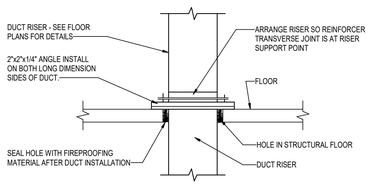


NOTES:
1. INSTALL CONTROL VALVE BETWEEN UNIONS OR FLANGES.
2. PROVIDE CONCENTRIC REDUCERS BOTH SIDES OF CONTROL VALVE AS REQUIRED.
3. REPLACE UNION/FLANGE SET WITH A FLEXIBLE PIPE CONNECTOR WHERE EQUIPMENT IS SUPPORTED OR SUSPENDED BY SPRING ISOLATORS.
4. ARRANGEMENT SHOWN FOR FULL FLOW THROUGH COIL ON FAILURE.

5 AHU COIL PIPING CONNECTION - PRESSURE INDEPENDENT CONTROL VALVE
NOT TO SCALE



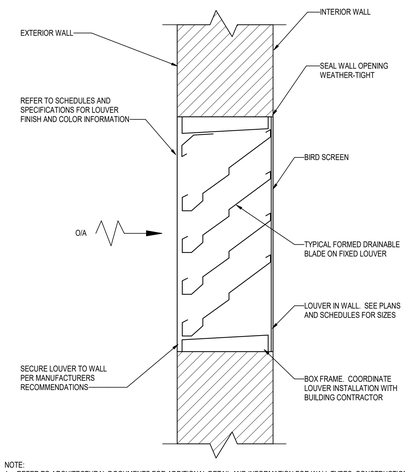
0.5 INCH WG TO 2 INCHES WG DUCT RISER SUPPORT



2 INCHES WG TO 4 INCHES WG DUCT RISER SUPPORT

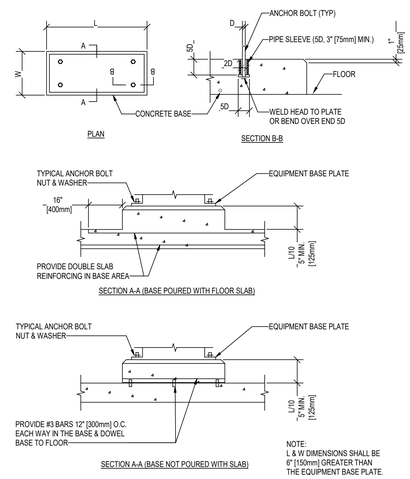
NOTE:
1. ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND FAN ROOM FLOORS SHALL BE PROVIDED WITH A 3" HIGH CONCRETE CURB AROUND OPENING FOR DUCT.

4 DUCT RISER SUPPORTS
NOT TO SCALE



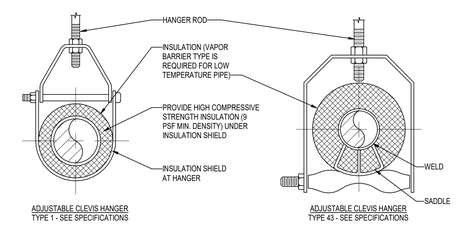
NOTE:
1. REFER TO ARCHITECTURAL DOCUMENTS FOR ADDITIONAL DETAIL AND INFORMATION FOR WALL TYPES, CONSTRUCTION, AND MOUNTING.

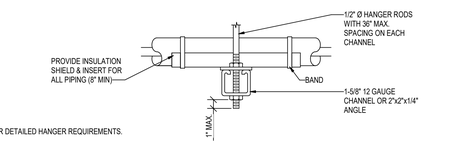
3 TYPICAL DRUM LOUVER INSTALLATION DETAIL
NOT TO SCALE



NOTE:
L & W DIMENSIONS SHALL BE 6" [150mm] GREATER THAN THE EQUIPMENT BASE PLATE.

2 CONCRETE EQUIPMENT BASES
NOT TO SCALE





NOTES:
1. SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS.

SIDE VIEW TRAPEZE HANGER FOR UP TO 1000 LB. UNIFORM LOAD

MAXIMUM PIPE/TUBING SUPPORT SPACING

NOM. SIZE	IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24
PIPE	FT.	7	7	7	9	10	11	12	14	16	17	19	22	23	25	27	28	30	32
TUBING	FT.	5 FT	6	7	8	8	9	10	12	13	14	16	-	-	-	-	-	-	-

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

1 PIPE HANGERS
NOT TO SCALE

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:29 PM

VA FORM 08-6231

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL DETAILS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

PROJECT NUMBER
589A4-25-102

BUILDING NUMBER
1

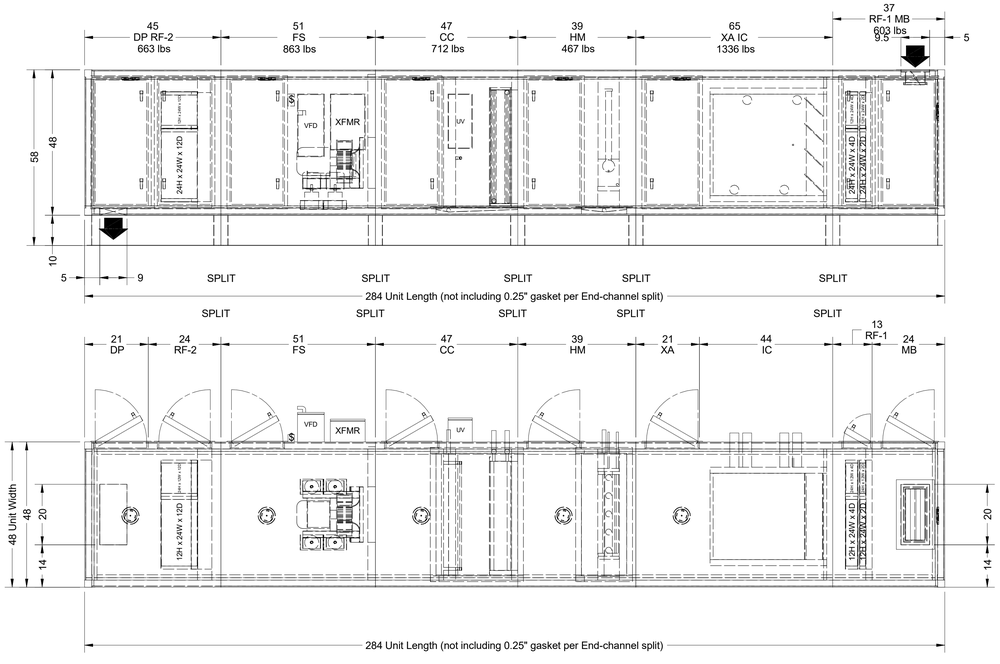
LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

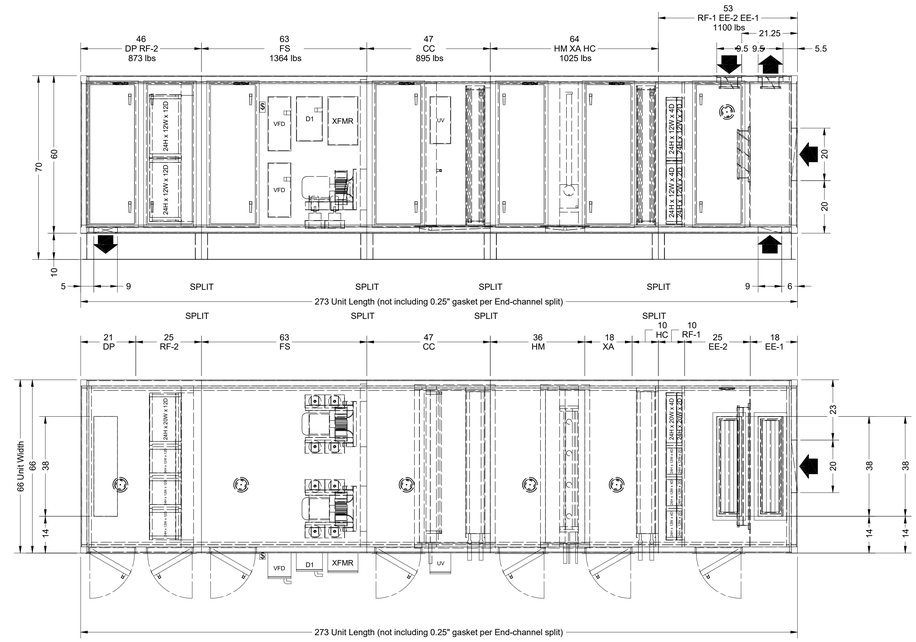
DRAWING NUMBER
M-501
DRAWING # 59 OF 74

Veterans Health Administration

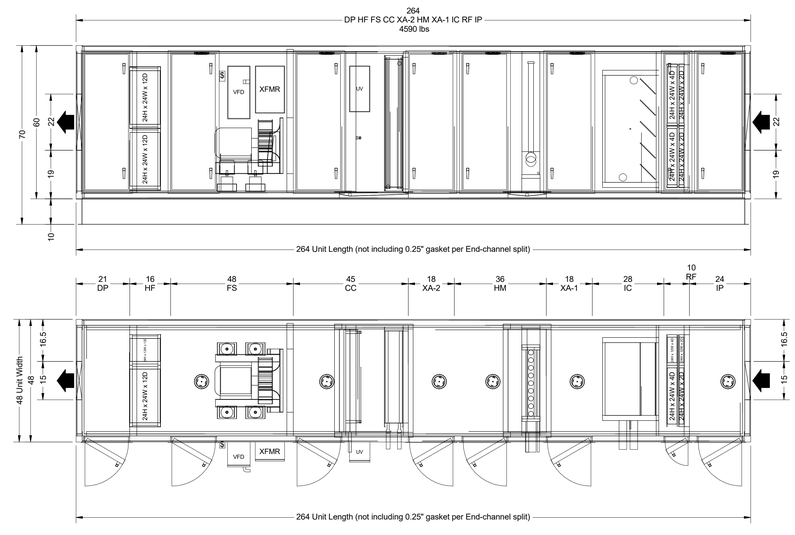
VA | U.S. Department of Veterans Affairs



2 ACA-AHU-11 CUSTOM UNIT SECTION DETAIL
NOT TO SCALE



3 ACA-AHU-12 CUSTOM UNIT SECTION DETAIL
NOT TO SCALE



1 ACA-AHU-10 CUSTOM UNIT SECTION DETAIL
NOT TO SCALE

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL DETAILS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
M-502
DRAWING # 60 OF 74

Veterans Health Administration

U.S. Department of Veterans Affairs

5/26/2026 3:19:29 PM

VA FORM 08-6231

AIR HANDLING UNIT SCHEDULE (AHU)

MARK	MANUFACTURER/MODEL	LOCATION	SUPPLY FAN ARRAY DESIGN AIRFLOW (CFM)	MIN. OA AIRFLOW (CFM)	ESP (IN-WG)	STARTER	# OF MOTORS	HORSE POWER	RPM	FLA (A)	MCA (A)	MOCP (A)	V/Ph	COOLING COIL - CHILLED WATER FLUID	CHW FLOW (GPM)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EWT (°F)	LWT (°F)	EAT DB/WB (°F)	LAT DB/WB (°F)	APD (IN-WG)	WPD (FT-WG)	HEATING COIL - HOT WATER FLUID	HHW FLOW (GPM)	CAPACITY (MBH)	EWT (°F)	LWT (°F)	EAT DB (°F)	LAT DB (°F)	APD (IN-WG)	WPD (FT-WG)	WEIGHT (LB)	NOTES
ACA-AHU-10	YORK / XTI-60X48	MECHANICAL ROOM E003	3,500	3,500	3.0	VFD	1	7.5	3,600	13.4	15.66	20	460/3	WATER	35.6	232	140	42	55	95/75	55.7 / 54.1	0.21	7.5	WATER	35	249.8	190	175.6	0	65.8	0.72	.81	4550	1 THRU 9
ACA-AHU-11	YORK / XTI-48X48	PENTHOUSE	2,300	2,300	2.6	VFD	1	5.0	3,600	10.49	12.02	15	460/3	WATER	26.7	174	107	42	55	95/75	53.4/52.3	0.25	6.1	WATER	47	202.2	190	181.3	0	81	0.35	0.3	4500	1 THRU 8, 10
ACA-AHU-12	YORK / XTI-60X66	PENTHOUSE	4,300	1,600	2.0	VFD	2	5.0 (ea)	3,600	16.62	18.16	20	460/3	WATER	20.3	132	77	42	55	71/64	54/53.4	0.11	3.2	WATER	19.8	193	190	169.9	53	94.8	0.01	1.4	5200	1 THRU 7, 10

NOTES:
1. MANUFACTURER PROVIDED MOTOR CONTROLLERS.
2. SINGLE POINT POWER CONNECTION WITH UV LIGHT AND MAINTENANCE RECEPTACLE. UV IS FOR COIL IRRADIANCE.
3. COIL VELOCITY <450 FPM.
4. PF1 = MERV 7 ,PF2 = MERV 11, FF = MERV 16A
5. HUMIDIFIER DISPERSION GRID TO BE LOCATION WITHIN THE AHU, BETWEEN THE PREHEAT COIL AND COOLING COIL.
6. REFER TO DETAILS FOR DIMENSIONS OF AHUs.
7. PROVIDE 4" MIN. HOUSEKEEPING PAD. REFER TO STRUCTURAL.
8. ACA-AHU-10 & 11 SHALL HAVE IFB PRE-HEAT COILS.
9. ACA-AHU-10 SPLITS SHALL BE DESIGNED TO FIT THROUGH A DOUBLE DOOR (APPROX. 6'X7'). THERE IS AN EXTERIOR PIT THAT OPENS TO THE OUTSIDE LOCATED IN THE BASEMENT. CONTRACTOR TO CONFIRM ROUTING AND SPLIT DIMENSIONS.
10. ACA-AHU-11 & 12 SPLITS SHALL BE DESIGNED TO FIT THROUGH A 6'X6' ROOF HATCH IN THE NEW PENTHOUSE, REFER TO ARCH. CONTRACTOR TO CONFIRM ROUTING AND SPLIT DIMENSIONS.

HUMIDIFIER SCHEDULE (HUM)

Mark	MANUFACTURER/MODEL	LOCATION	DESIGN FLOW (LB/HR)	ELECTRICAL DATA KW	MOCP (A)	V/Ph	WEIGHT (LB)	NOTES
1-HUM-12	CONDAIR/EL-050	PENTHOUSE	42.9	18.7	30	480/3	200	1, 2, 4
1-HUM-11	CONDAIR/EL-075	PENTHOUSE	60.4	28.1	45	480/3	200	1, 2, 4
1-HUM-10	CONDAIR/EL-100	BASEMENT MECH.	91.9	37.4	60	480/3	200	1, 2, 3

NOTES:
1. STEAM DISPERSION GRID TO BE MOUNTED IN EACH RESPECTIVE AHU.
2. CONTRACTOR TO PROVIDE ALL NECESSARY PIPE CONNECTIONS. CONNECT TO NEAREST DCW LINE. PROVIDE STEAM LINE FROM HUMIDIFER TO AHU. PROVIDE CD DRAIN LINE.
3. FOR 1-HUM-10, PROVIDE EQUIPMENT STAND FOR THE STEAM GENERATOR.
4. FOR 1-HUM-11 & 12, PROVIDE WALL MOUNTING BRACKET.

LOUVER SCHEDULE (ELV/ILV)

MARK	MANUFACTURER/MODEL	LOCATION	ASSOCIATED UNIT	DESIGN AIRFLOW (CFM)	AIR VELOCITY (FPM)	APD (IN WC)	MIN. FREE AREA (SQFT)	DIMENSIONS WIDTH (IN)	LENGTH (IN)	WEIGHT (LB)	NOTES
OA-LV-1	GREENHECK/ ESD-435	PENTHOUSE	ACA-AHU-11	2500	534	0.05	4.7	30	48	31	1 THRU 4
OA-LV-2	GREENHECK/ ESD-435	PENTHOUSE	ACA-AHU-12	4300	421	0.04	8.9	48	48	48	1 THRU 4
REA-LV-1	GREENHECK/WRH-26X42	PENTHOUSE	ACA-AHU-12	4300	567	0.04	7.6	26	42	110	ALL LISTED

1. PROVIDE W/ ALUMINUM BIRDSCREEN.
2. PROVIDE WITH 2-COAT CLEAR ANODIZED KYNAR FINISH. COLOR AS SELECTED BY ARCHITECT.
3. PROVIDE LOW VOLTAGE MOTORIZED DAMPER INTERLOCKED W/ ASSOCIATED FAN OR UNIT.
4. FRAME TYPE SHALL MATCH WALL CONSTRUCTION, CORDINATE WITH ARCHITECT.
5. PROVIDE MIN. 18" TALL ROOF CURB.

UNIT HEATER SCHEDULE - ELECTRIC (EUH)

MARK	BASIS OF DESIGN (MANUFACTURER/MODEL)	MINIMUM OUTPUT (KW)	TYPE	AIRFLOW (CFM)	AMPS	V/PH/HZ	NOTES
EUH-1	QMARK / MUH0541	5	ELECTRIC	350	6.0	480/3/60	1-6
EUH-2	QMARK / MUH0541	5	ELECTRIC	350	6.0	480/3/60	1-6
EUH-3	QMARK / MUH0541	5	ELECTRIC	350	6.0	480/3/60	1-5
EUH-4	QMARK / MUH0541	5	ELECTRIC	350	6.0	480/3/60	1-5

1. PROVIDE ALL EQUIPMENT EQUAL TO OR BETTER.
2. PROVIDE WITH UNIT MOUNTED THERMOSTAT.
3. PROVIDE MANUAL SUMMER / WINTER CHANGE-OVER SWITCH.
4. PROVIDE NECESSARY MOUNTING BRACKET AND ACCESSORIES FOR VERTICAL MOUNTING.
5. PROVIDE FACTORY MOUNTED DISCONNECT INSTALLED ON SERVICE SIDE OR UNIT.
6. MOUNT 10 FEET ABOVE FINISHED FLOOR WITHOUT OBSTRUCTING AIRFLOW.

FAN SCHEDULE (EF/RF)

MARK	MANUFACTURER/MODEL	LOCATION	FAN DATA DESIGN AIRFLOW (CFM)	ESP (IN-WG)	MOUNT	RPM	DRIVE	ELECTRICAL DATA HORSE POWER	FLA (A)	V/Ph	WEIGHT (LB)	NOTES
ACA-EF-1	COOK / ACWD VF	PENTHOUSE	275	0.6	WALL	2,800	DIRECT	1/3	4.4	120/1	40	1, 2, 3
ACA-RF-12	GREENHECK / QEID-16-100-VG	PENTHOUSE INTERSTITIAL	4,300	2.0	INLINE	2,000	DIRECT	2.17	4.7	460/3	120	4, 5

1. INSTALL PER MANUFACTURERS RECOMMENDATIONS. PROVIDE MOUNTING HARDWARE AS RECOMMENDED.
2. PROVIDE MOTORIZED DAMPER AND BIRDSCREEN.
3. PROVIDE EC MOTOR WITH SPEED CONTROLLER IN FAN HOUSING TO SET AT FINAL AIR BALANCE.
4. PROVIDE WITH VFD. FAN SPEED TO ADJUST TO MAINTAIN A POSITIVE BUILDING STATIC PRESSURE 0.02" WC. MAX AIRFLOW TO OCCUR WHEN ACA-AHU-12 GOES INTO ECONOMIZER MODE.
5. PROVIDE VIBRATION ISOLATION. PROVIDE ALL MOUNTING HARDWARE.

HYDRONIC PUMP SCHEDULE (CHWP/HHWP)

Mark	MANUFACTURER/MODEL	LOCATION	DESCRIPTION	FLUID	DESIGN FLOW (GPM)	PUMP HEAD (FT)	ELECTRICAL DATA WATTS	RATED CURRENT (A)	V/Ph	WEIGHT (LB)	NOTES
HHWP-2	GRUNDFOS/UPS 32-160 F B	PENTHOUSE	INLINE, MULTI-STAGE	WATER	47	25	625 W	6	480/3	52	ALL LISTED
HHWP-1	GRUNDFOS/UPS 32-160 F B	BASEMENT MECH.	INLINE, MULTI-STAGE	WATER	35	15	625 W	6	480/3	52	ALL LISTED

NOTES:
1. VFD PROVIDED BY DIVISION 23 CONTRACTOR. ONE VFD PER PUMP.
2. SUPPORT PUMP WITH VERTICAL SUPPORTS INDEPENDENT FROM PIPING.
3. PUMP MOTOR SHALL BE NON-OVERLOADING THROUGHOUT THE FULL RANGE OF THE PUMP CURVE.

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL SCHEDULES

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER **M-601**

DRAWING # 61 OF 74

Veterans Health Administration

VA U.S. Department of Veterans Affairs

5/26/2026 3:19:30 PM

VA FORM 08-6231

POINTS LIST - STANDARD TRENDING INTERVALS

POINT NAME	TREND INTERVAL	OPERATIONAL TREND DURATION	TESTING TREND DURATION
AI	15 MIN.	24 HOURS	3 DAYS
BI	CHANGE OF VALUE	24 HOURS	3 DAYS
AO	15 MIN.	24 HOURS	3 DAYS
BO	CHANGE OF VALUE	24 HOURS	3 DAYS
CALC	1 HOUR	30 DAYS	N/A

NOTES:
1. SEE EQUIPMENT POINT LISTS FOR EQUIPMENT SPECIFIC TRENDING REQUIREMENTS.

PROJECT DESIGN CONDITIONS

CLIMATE CONDITIONS	
WEATHER STATION	2021 ASHRAE CLIMATE DATA / WMO: 724450
ASHRAE CLIMATE ZONE	4A
HEATING 99.6% (F DB)	3.2 °F (99.6% F DB)
HUMIDIFICATION 99.6% (DP / HR / MCDB)	-5.2 °F / 4.3 / 5.1 °F
COOLING 0.4% (DB / MCWB)	94.7 °FDb / 75.7 °FWb
DEHUMIDIFICATION 0.4% (DP / HR / MCDB)	76.6 °FDb / 143.2 / 85.7 °FWb
MAX. AMBIENT DB TEMP (50 YRS)	109.1 °F
MIN. AMBIENT DB TEMP (50 YRS)	-15.2 °F
BUILDING OPERATING HOURS (VERIFY WITH STATION)	
MONDAY - FRIDAY	24/7
SATURDAY	24/7
SUNDAY	24/7

NOTES:
1. ZONE LEVEL OCCUPANCY HOUR SCHEDULE SHALL BE PER BUILDING OPERATING HOURS UNLESS OTHERWISE SCHEDULED.
2. ZONE LEVEL SET POINT CONDITIONS SHALL BE AS SCHEDULED UNLESS OTHERWISE SCHEDULED OR NOTED FOR ROOM SPECIFIC SPACE CONDITIONS.
3. ZONE LEVEL SET POINT CONDITIONS SHALL RESET TO UNOCCUPIED UNTIL PATIENT ROOM SETPOINTS ARE SATISFIED.
4. DIVISION 23 CONTRACTOR TO PROVIDE ROOM AIR BALANCE WHERE POSSIBLE. AIR BALANCE SHALL BE NEUTRAL FOR NON-CRITICAL SPACES NOT SHOWN IN SCHEDULE.
5. SEE UPS 797 AND UPS 800 FOR ROOM AIR BALANCE INFORMATION.

HVAC DESIGN MANUAL

SPACE / UNIT DESCRIPTIONS	COOLING OCC. F Db	COOLING UNOCC. F Db	HEATING OCC. F Db	HEATING UNOCC. F Db	HUMIDIFICATION MAX. %RH	HUMIDIFICATION MIN. %RH	MAX. NOISE LEVEL NC	ROOM AIR BALANCE (0) (+) (-) (-- -) (+ +)	NOTES
PHARMACY SERVICE - INPATIENT AND OUTPATIENT PHARMACY WORK AND SUPPORT AREAS									
DISPENSING STATION	75	78	70	68	60%	30%	40	(+)	1-4
CONTROLLED SUBSTANCE WORK AREA VAULT	75	78	70	68	60%	30%	40	(+)	1-4
SECURED CONTROLLED SUBSTANCE DISPENSING	75	78	70	68	60%	30%	40	(+)	1-4
EXTEMPORANEOUS REPACKAGING	75	78	70	68	60%	30%	40	(+)	1-4
STAT COUNTER	75	78	70	68	60%	30%	40	(+)	1-4
DRUG INFORMATION AREA	75	78	70	68	60%	30%	40	(o)	1-4
BREAKDOWN AND VERIFICATION RECEIVING AREA	75	78	70	68	60%	30%	40	(+)	1-4
INVENTORY AND VERIFICATION RECEIVING AREA	75	78	70	68	60%	30%	40	(+)	1-4
PRESCRIPTION RECEIVING WINDOW	75	78	70	68	60%	30%	40	(+)	1-4
PRESCRIPTION FILLING AND ASSEMBLY AREA	75	78	70	68	60%	30%	40	(+)	1-4
PRESCRIPTION DISPENSING AREA	75	78	70	68	60%	30%	40	(+)	1-4
PRESCRIPTION MAIL OUT	75	78	70	68	60%	30%	40	(+)	1-4
CONSULT ROOM	75	78	70	68	60%	30%	40	(+)	1-4
PHARMACY CACHE AREA	75	78	70	68	60%	30%	40	(+)	1-4
PHARMACY SERVICE - INPATIENT PHARMACY STAFF AND ADMINISTRATION AREAS									
PHARMACY SERVICE CHIEF OFFICE / ASSOCIATE CHIEF OFFICE	75	78	70	68	60%	30%	35	(o)	1-4
WAITING	75	78	70	68	60%	30%	35	(o)	1-4
PHARMACIST WORKSTATION	75	78	70	68	60%	30%	35	(o)	1-4
SECRETARY WORKSTATION / CLERICAL WORKSTATION	75	78	70	68	60%	30%	35	(o)	1-4
CONFERENCE ROOM	75	78	70	68	60%	30%	35	(+)	1-4
STAFF LOUNGE	75	78	70	68	60%	30%	40	(-)	1-4
PHARMACY SERVICE - USP CHAPTER 797 AND USP CHAPTER 800 AREAS									
INTRAVENOUS ADMIXTURE ANTEROOM OR USP 797 ANTE-AREAS	68	70	68	65	60%	30%	40	NOTE 5	1-4
ONCOLOGY DRUG INTRAVENOUS ADMIXTURE ANTEROOM OR USP 797 OR USP 800 ANTE-AREAS	68	70	68	65	60%	30%	40	NOTE 5	1-4
INTRAVENOUS ADMIXTURE ASEPTIC TRANSFER ROOM OR USP 797 BUFFER	68	70	68	65	60%	30%	40	NOTE 5	1-4
ONCOLOGY DRUG PREPARATION AREA OR USP 800 BUFFER	68	70	68	65	60%	30%	40	NOTE 5	1-4
USP 800 AIR LOCK FOR ONCOLOGY BUFFER	NA	NA	NA	NA	NA	NA	40	NOTE 5	1-4
STORAGE AND CLEAN / DECONTAMINATION AREA OR USP 800 UNPACKING / STORAGE HAZARDOUS DRUGS	68	70	68	65	60%	30%	40	NOTE 5	1-4

MECHANICAL CONTROLS LEGEND

ABBREVIATIONS

A
AI ANALOG INPUT
AO ANALOG OUTPUT
AV ANALOG VIRTUAL
AFS AIRFLOW STATION
AF AFTER FILTER
AFCV AIRFLOW CONTROL VALVE
AHU AIR HANDLING UNIT

B
BAC BUILDING AUTOMATION CONTROL
BI BINARY INPUT
BO BINARY OUTPUT
BV BINARY VIRTUAL
BP BUILDING PRESSURE
BPC BUILDING PRESSURE CONTROL

C
CC COOLING COIL
CHW CHILLED WATER
CP CIRCULATING PUMP
CT CURRENT TRANSMITTER

D
DD DIRECT DRIVE
DX DIRECT EXPANSION
DP DIFFERENTIAL PRESSURE

E
EA EXHAUST AIR
EAT ENTERING AIR TEMPERATURE
ECM ELECTRONICALLY COMMUTATED MOTOR
EF EXHAUST FAN
ER ENERGY RECOVERY
EWT ENTERING WATER TEMPERATURE

F
FF FINAL FILTER
FSD FIRE SMOKE DAMPER

G
GF GAS FURNACE

H
HC HEATING COIL
HGB HOT GAS BYPASS
HW HOT WATER

I
IFB INTEGRAL FACE AND BYPASS

L
LAT LEAVING AIR TEMPERATURE
HGB HOT GAS BYPASS
LWT LEAVING WATER TEMPERATURE

M
MAT MIXED AIR TEMPERATURE
MOA MINIMUM OUTSIDE AIR

N
NG NATURAL GAS

O
OA OUTSIDE AIR
OCC OCCUPANCY
OX OXYGEN
OXS OXYGEN SENSOR

P
PCC PRECOOLING COIL
PF PRE FILTER
PHC PREHEAT COIL

R
RA RETURN AIR
RF RETURN FAN
RHC REHEAT COIL
R/E RETURN/EXHAUST
R/R RETURN/RELIEF

S
SA SUPPLY AIR
SF SUPPLY FAN
SD SMOKE DAMPER

T
TCP TEMPERATURE CONTROL PANEL
TA TRANSFER AIR
TMV THERMOSTATIC MIXING VALVE
TCV TEMPERATURE CONTROL VALVE

U
UV ULTRAVIOLET

V
VFD VARIABLE FREQUENCY DRIVE
VOC VOLITILE ORGANIC COMPOUND

SYMBOLS

EQUIPMENT

CHILLED WATER COIL
DIRECT EXPANSION COIL
HOT WATER COIL
HOT WATER INTEGRAL FACE AND BYPASS COIL
ELECTRIC HEATING COIL
GAS FURNACE
HUMIDIFIER DISPERSION GRID
MODULATING OPPOSED BLADE DAMPER
MODULATING PARALLEL BLADE DAMPER
SMOKE DAMPER
BACKDRAFT DAMPER
VAV ATU MODULATING DAMPER
2-POSITION OPPOSED BLADE DAMPER
2-POSITION PARALLEL BLADE DAMPER
FILTER
BLOWER FAN
PLENUM FAN
PUMP
CURRENT TRANSMITTER
2-WAY MODULATING CONTROL VALVE
3-WAY MODULATING CONTROL VALVE
THERMOSTATIC MIXING VALVE
POINT TYPE
POINT NAME

SENSORS & DEVICES

DUCTWORK

AIRFLOW STATION
AIRFLOW SENSOR
SMOKE DETECTOR
TEMPERATURE SENSOR
FREEZESTAT
HUMIDITY SENSOR
DAMPER POSITION INDICATOR
DIFFERENTIAL PRESSURE SENSOR
RETURN/EXHAUST AIR DUCT STATIC PRESSURE SENSOR
SUPPLY AIR DUCT STATIC PRESSURE SENSOR

PIPING

TEMPERATURE SENSOR
PRESSURE SENSOR
FLOW METER
AQUASTAT

ZONE

ZONE TEMPERATURE SENSOR
ZONE HUMIDITY SENSOR
ZONE OCCUPANCY SENSOR
POSITIVE SPACE DIFFERENTIAL PRESSURE SENSOR
NEGATIVE SPACE DIFFERENTIAL PRESSURE SENSOR

CONTROLS NOTES

1. BASIS OF DESIGN FOR BUILDING AUTOMATION SYSTEM SHALL MATCH THE EXISTING CAMPUS STANDARD.
2. CONTROL DIAGRAMS, SEQUENCE OF OPERATIONS, AND POINTS LISTS ARE DIAGRAMATIC. CONTROLS CONTRACTOR SHALL PROVIDE ENGINEERED CONTROLS DESIGN BASED ON APPROVED EQUIPMENT, ASHRAE GUIDELINE 36 SEQUENCES, AND FACILITY STANDARDS.
3. LOW VOLTAGE CONTROL WIRING SHALL BE PROVIDED AND INSTALLED BY THE CONTROLS CONTRACTOR. LOW VOLTAGE WIRING SHALL BE ENCLOSED IN CONDUIT.
4. CONTROL PANELS SHALL BE PROVIDED, LOCATED, AND INSTALLED BY THE CONTROLS CONTRACTOR AND POWERED BY THE ELECTRICAL CONTRACTOR.
5. CONTROLS CONTRACTOR SHALL COORDINATE POWER WIRING AND JUNCTION BOX LOCATIONS FOR CONTROLS DEVICES WITH ELECTRICAL CONTRACTOR.

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:31 PM

VA FORM 08-6231

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL CONTROLS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

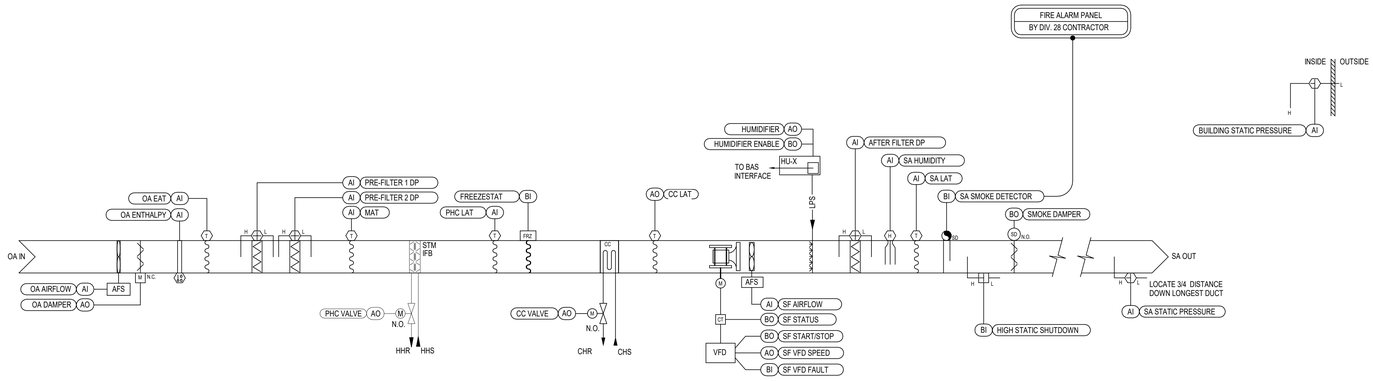
BUILDING NUMBER 1

DRAWING NUMBER **M-701**

DRAWING # 62 OF 74

Veterans Health Administration

VA U.S. Department of Veterans Affairs



1 ACA-AHU-10
NOT TO SCALE

SEQUENCE OF OPERATIONS
VARIABLE AIR VOLUME AIR HANDLING UNIT (ACA-AHU-10)

GENERAL DESCRIPTION
The variable air volume (VAV) air handling unit (ACA-AHU-10) described by this sequence of operations consists of the following features. These features include a variable-speed supply fan, integral face and bypass preheating coil, humidifier, and chilled water cooling coil that operate with zone level variable air volume terminal units to provide heating, ventilation, air-conditioning, and humidification for the conditioned space as shown on the drawings.

OPERATING MODES

SYSTEM START UP MODE
The AHU shall be in system start up mode for after the unit has been enabled. The AHU will automatically reset to Occupied Mode after a user definable amount of time.

MORNING WARM UP MODE
The AHU shall be in morning warm up mode prior to the occupied hours of operation per the project design conditions schedule shown on the control drawings AND when there is a call for heating. The start time shall automatically adjust based on the outside air temperature and the zone temperature setpoints.

MORNING COOL DOWN MODE
The AHU shall be in morning cool down mode prior to the occupied hours of operation per the project design conditions schedule shown on the control drawings AND when there is a call for cooling. The start time shall automatically adjust based on the outside air temperature and the zone temperature setpoints.

OCCUPIED MODE
The AHU shall be in occupied mode per the project design conditions schedule shown on the control drawings.

UNOCCUPIED MODE
The AHU shall be in unoccupied mode for all periods not included in the occupied hours of operation per the project design conditions schedule shown on the control drawings. Overrides of unoccupied schedule shall be defined by zone level controls.

FREEZE PROTECTION MODE – LEVEL 1
The unit shall be in freeze protection mode – level 1 when the level 1 low limit temperature controller senses a preheat coil leaving air temperature of 42°F (adj.) or less.
The unit shall automatically reset when the mixed air temperature is above 43°F (adj.).

FREEZE PROTECTION MODE – LEVEL 2
The unit shall be in freeze protection mode – level 2 when the level 2 low limit temperature controller senses a preheat coil leaving air temperature of 35°F (adj.) or less.
Freeze Protection Mode – Level 2 shall be disabled by manual reset.

CONTROL SETPOINT RESETS

SUPPLY AIR TEMPERATURE RESET – COOLING ONLY *(USER SELECTION – LOW HUMIDITY LOCATIONS ONLY)*
When the zone temperature and zone humidity are within their respective setpoints, the supply air temperature setpoint shall reset to 60°F.

SUPPLY AIR STATIC PRESSURE RESET – TRIM AND RESPOND
Supply air static pressure setpoint shall be reset using the trim and respond logic within the range of 0.5 in. w.g. to the static pressure setpoint determined during balancing. The control system shall monitor the zone level VAV box damper position to determine a pressure request, which is defined as any zone actuator at greater than 90% open.
Trim and Respond Logic: When the fan is OFF, the setpoint shall be reset to the default value. While the fan is proven ON, every 2 minutes, decrease the setpoint by 0.04 in. w.g. (adj.) if there is one (adj.) or less zone pressure request. If there is more than one (adj.) zone pressure request, every 2 minutes, increase the setpoint by 0.03 in. w.g. (adj.) times the number of pressure requests, but no more than 0.12 in. w.g.

SAFETIES, OVERRIDES, AND INTERLOCKS

SMOKE DETECTOR INTERLOCK
The unit shall be disabled via hard wired interlock at the fan start circuit on activation of a system smoke detector.

FIRE ALARM CONTROL PANEL INTERLOCK
The unit shall be disabled via hard wired interlock at the fan start circuit upon receipt of signal from fire alarm control panel.

SMOKE DAMPER INTERLOCK
Associated system smoke dampers shall be closed via hard wired interlock whenever the supply fan is off.

HIGH SUPPLY AIR STATIC PRESSURE INTERLOCK
The unit shall be disabled via hard wired interlock at the supply fan start circuit upon activation of duct high pressure controller.

FREEZE PROTECTION MODE – LEVEL 1 INTERLOCK
The supply fan shall be enabled by via hard wired interlock at the supply fan start circuit from the level 1 low limit temperature controller.

FREEZE PROTECTION MODE – LEVEL 2 INTERLOCK
The supply fan shall be disabled via hard wired interlock at the supply fan start circuit from the level 2 low limit temperature controller.

CONTROL SYSTEM INTERLOCK
Control power shall be removed from actuators when the associated system turns off.

COMPONENT CONTROLS

SUPPLY FAN CONTROL – VFD

SYSTEM START UP MODE
The fan(s) shall energize and slowly ramp to the initial minimum fan speed determined during system startup.

MORNING WARM UP MODE
The fan(s) shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The fan(s) shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall measure duct static pressure and modulate the fan(s) VFD speed to maintain the duct static pressure setpoint. The minimum fan speed setting shall be established during balancing.

UNOCCUPIED MODE *(USER SELECTION)*
The fan(s) shall operate as if in Occupied Mode.
OR
The fan(s) shall be OFF.

FREEZE PROTECTION MODE – LEVEL 1
The fan(s) shall be ON and operate as if in Occupied Mode.

FREEZE PROTECTION MODE – LEVEL 2
The fan(s) shall be OFF.

OUTSIDE AIR DAMPER

SYSTEM START UP MODE
If the outside air temperature is below 42°F (adj.), the OA damper shall open to its minimum position. The OA damper shall slowly open until fully OPEN. The OA damper will operate as if in Occupied Mode when the preheat coil leaving air temperature is above 43°F (adj.).
If the outside air temperature is above 43°F (adj.), the OA damper shall operate as if in Occupied Mode.

OUTSIDE AIR DAMPER (CONT.)

MORNING WARM UP MODE
The OA damper shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The OA damper shall operate as if in Occupied Mode.

OCCUPIED MODE
The OA damper shall be fully OPEN.

UNOCCUPIED MODE *(USER SELECTION)*
The OA damper shall operate as if in Occupied Mode.
OR
The OA damper shall be CLOSED.

FREEZE PROTECTION MODE – LEVEL 1
The OA damper shall operate as if in Occupied Mode.

FREEZE PROTECTION MODE – LEVEL 2
The OA damper shall be CLOSED.

PREHEAT COIL – FACE AND BYPASS / VALVE – MODULATING

SYSTEM START UP MODE
If the outside air temperature is below 42°F (adj.), the face damper shall be fully OPEN, the bypass damper shall be CLOSED, and the coil valve shall be fully OPEN. The face and bypass dampers and the coil valve will operate as if in Run Mode when the preheat coil leaving air temperature is above 43°F (adj.).

RUN MODE
The controller shall modulate the face and bypass damper and the valve as described below to maintain the preheat coil leaving air temperature setpoint.

When the outside air temperature is above 35°F, the face damper shall be OPEN, the bypass damper CLOSED, and the steam coil valve shall modulate to maintain the preheat coil leaving air temperature setpoint.

When the outside air temperature is below 35°F, the coil valve shall be fully OPEN, and the face and bypass dampers shall modulate to maintain the preheat coil leaving air temperature setpoint.

FREEZE PROTECTION MODE
The face damper shall be fully OPEN, the bypass damper shall be CLOSED, and the coil valve shall be fully OPEN.

COOLING COIL – CHILLED WATER VALVE – MODULATING

SYSTEM START UP MODE
If the outside air temperature is below 42°F (adj.), the chilled water coil valve shall be fully OPEN. The chilled water coil valve will operate as if in Occupied Mode when the preheat coil leaving air temperature is above 43°F (adj.).
If the outside air temperature is above 43°F (adj.), the chilled water coil valve shall operate as if in Occupied Mode.

MORNING WARM UP MODE
The chilled water coil valve shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The chilled water coil valve shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall modulate chilled water valve to maintain the cooling coil leaving air temperature setpoint.

UNOCCUPIED MODE *(USER SELECTION)*
The chilled water coil valve shall operate as if in Occupied Mode.
OR
The chilled water coil valve shall be CLOSED.

FREEZE PROTECTION MODE – LEVEL 1
The chilled water coil valve shall be fully OPEN.

FREEZE PROTECTION MODE – LEVEL 2
The chilled water coil valve shall be fully OPEN.

FILTER MONITORING – HOURS
ALL MODES
The controller shall monitor the fan runtime to provide a maintenance reminder at 50% of filter elapsed time (1100 hours) and an alarm at 100% elapsed time (2200 hours)

HUMIDIFIER

SYSTEM START UP MODE
The humidifier shall be OFF.

MORNING WARM UP MODE
The humidifier shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The humidifier shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall measure the return air humidity and modulate the humidifier to maintain a setpoint of 50% RH (adj.). The humidifier shall be enabled whenever the supply fan status is ON.
The humidifier shall be OFF whenever the supply air humidity rises from 90% RH to 95% RH (adj.) or on loss of supply fan status.
Humidity Reset Schedule: The return air humidity setpoint shall be reset subject to the outdoor ambient temperature. The initial reset schedule shall be user adjustable and set for 30% RH at 30°F and above and 20% RH at 20°F and below.

UNOCCUPIED MODE *(USER SELECTION)*
The humidifier shall operate as if in Occupied Mode.
OR
The humidifier shall be OFF.

FREEZE PROTECTION MODE – LEVEL 1
The humidifier shall be OFF.

FREEZE PROTECTION MODE – LEVEL 2
The humidifier shall be OFF.

POINTS LIST SCHEDULE - VARIABLE AIR VOLUME AIR HANDLING UNIT (ACA-AHU-10)

POINTS NAME	HARDWARE POINTS				SOFTWARE POINTS							SHOWN ON GRAPHIC
	AI	AO	BI	BO	SETPOINT	AV	BV	LOOP	SCHED	TREND	ALARM	
OUTSIDE AIR												
OA TEMPERATURE	X									X		X
OA ENTHALPY	X									X		X
OA DAMPER		X								X		X
OA AIRFLOW	X									X		X
PRE-FILTER 1 DIFFERENTIAL PRESSURE	X									X	X	X
PRE-FILTER 2 DIFFERENTIAL PRESSURE	X									X	X	X
PRE-HEAT COIL												
PHC VALVE		X								X		X
PHC LAT	X									X		X
FREEZESTAT			X							X	X	X
HUMIDIFIER												
HUMIDIFIER		X								X		X
HUMIDIFIER ENABLE				X						X		X
COOLING COIL												
CC VALVE		X								X		X
CC LAT	X									X		X
SUPPLY AIR												
SF AIRFLOW	X									X		X
SF STATUS			X							X		X
SF START/STOP				X						X		X
SF VFD FAULT			X								X	X
SF VFD SPEED		X								X		X
AFTER FILTER DIFFERENTIAL PRESSURE	X									X	X	X
SA LAT	X									X		X
SA HUMIDITY	X									X	X	X
SA SMOKE DETECTOR			X							X	X	X
HIGH STATIC SHUTDOWN			X							X		X
SA SMOKE DAMPER				X						X		X
SA STATIC PRESSURE	X									X		X
SETPOINTS												
EMERGENCY SHUTDOWN					N/A		X			X	X	
PHC LAT SETPOINT					NOTE 3	X				X		
CC LAT SETPOINT					NOTE 3	X				X		
SA LAT SETPOINT					55°F	X				X		
SA STATIC PRESSURE SETPOINT					NOTE 3	X				X		
SA HUMIDITY SETPOINT					NOTE 3	X				X		

ALARM	DESCRIPTION	ALARM	ALARM...
HIGH PHC LEAVING AIR TEMPERATURE	IF THE PHC LEAVING AIR TEMPERATURE IS GREATER THAN 90 F (ADJ.)	X	10 MIN.
LOW PHC LEAVING AIR TEMPERATURE	IF THE PHC LEAVING AIR TEMPERATURE IS LESS THAN 45 F (ADJ.)	X	10 MIN.
HIGH SUPPLY AIR TEMPERATURE	IF THE SUPPLY AIR TEMPERATURE IS 5 F GREATER THAN ITS SETPOINT (ADJ.)	X	10 MIN.
LOW SUPPLY AIR TEMPERATURE	IF THE SUPPLY AIR TEMPERATURE IS 5 F LESS THAN ITS SETPOINT (ADJ.)	X	10 MIN.
HIGH SUPPLY AIR HUMIDITY	IF THE SUPPLY AIR HUMIDITY IS GREATER THAN 90% (ADJ.)	X	5 MIN.
LOW SUPPLY AIR HUMIDITY	IF THE SUPPLY AIR HUMIDITY IS LESS THAN 30% (ADJ.)	X	5 MIN.
HIGH SUPPLY AIR STATIC PRESSURE	IF THE SUPPLY AIR STATIC PRESSURE IS 25% GREATER THAN SETPOINT (ADJ.)	X	5 MIN.
LOW SUPPLY AIR STATIC PRESSURE	IF THE SUPPLY AIR STATIC PRESSURE IS 25% LESS THAN SETPOINT (ADJ.)	X	5 MIN.
SUPPLY FAN FAILURE	COMMANDED ON, BUT THE STATUS IS OFF	X	10 MIN.
SUPPLY FAN IN HAND	COMMANDED OFF, BUT THE STATUS IS ON	X	10 MIN.
SUPPLY FAN RUNTIME EXCEEDED	STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.)	X	10 MIN.
PRE-FILTER 1 CHANGE REQUIRED	PRE-FILTER 1 HAS BEEN IN USE FOR MORE THAN 2200 HOURS (ADJ.) OR THE FILTER D.P. EXCEEDED ITS LIMIT.	X	1 HOUR
PRE-FILTER 2 CHANGE REQUIRED	PRE-FILTER 2 HAS BEEN IN USE FOR MORE THAN 2200 HOURS (ADJ.) OR THE FILTER D.P. EXCEEDED ITS LIMIT.	X	1 HOUR
AFTER FILTER CHANGE REQUIRED	AFTER FILTER HAS BEEN IN USE FOR MORE THAN 2200 HOURS (ADJ.) OR THE FILTER D.P. EXCEEDED ITS LIMIT.	X	1 HOUR
PRE-FILTER 1 MISSING	PRE-FILTER 1 D.P. LOWER THAN ITS NEW FILTER LIMIT.	X	1 HOUR
PRE-FILTER 2 MISSING	PRE-FILTER 2 D.P. LOWER THAN ITS NEW FILTER LIMIT.	X	1 HOUR
AFTER FILTER MISSING	AFTER FILTER D.P. LOWER THAN ITS NEW FILTER LIMIT.	X	1 HOUR

NOTES:
1. SEE STANDARD TRENDING POINTS LIST SCHEDULE ON SHEET M-701 FOR APPLICABLE TREND INTERVALS.
2. SEE PROJECT DESIGN CONDITIONS SCHEDULE ON SHEET M-701 FOR APPLICABLE SETPOINTS.
3. SEE EQUIPMENT SCHEDULES FOR SETPOINT VALUES.

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:32 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL CONTROLS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

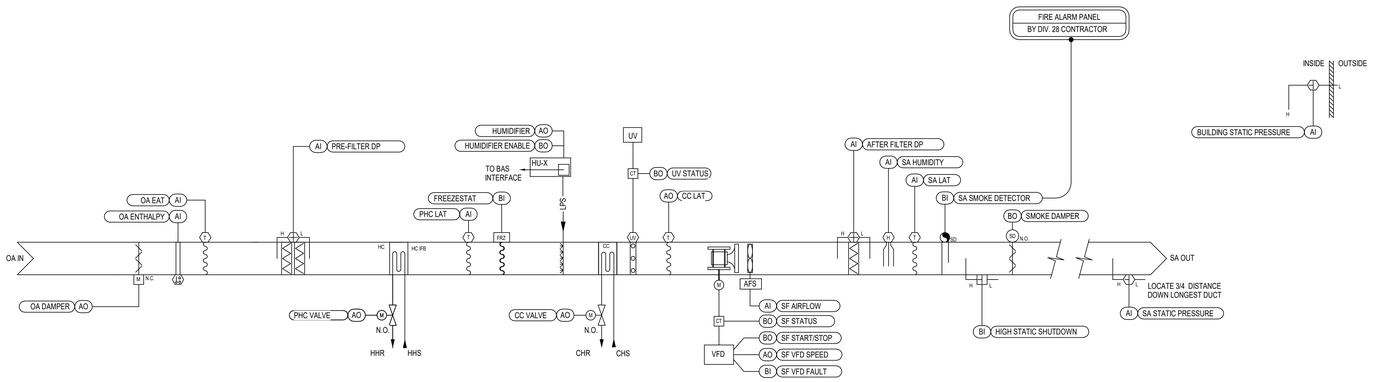
DRAWING NUMBER **M-702**

DRAWING # 63 OF 74

Veterans Health Administration

VA U.S. Department of Veterans Affairs

VA FORM 08-6231



1 ACA-AHU-11
NOT TO SCALE

SEQUENCE OF OPERATIONS
VARIABLE AIR VOLUME AIR HANDLING UNIT (ACA-AHU-11)

GENERAL DESCRIPTION
The variable air volume (VAV) air handling unit (ACA-AHU-11) described by this sequence of operations consists of the following features. These features include a variable speed supply fan, hot water preheating coil, humidifier, and chilled water cooling coil that operate with zone level variable air volume terminal units to provide heating, ventilation, air-conditioning, and humidification for the conditioned space as shown on the drawings.

OPERATING MODES

SYSTEM START UP MODE
The AHU shall be in system start up mode for after the unit has been enabled. The AHU will automatically reset to Occupied Mode after a user definable amount of time.

MORNING WARM UP MODE
The AHU shall be in morning warm up mode prior to the occupied hours of operation per the project design conditions schedule shown on the control drawings AND when there is a call for heating. The start time shall automatically adjust based on the outside air temperature and the zone temperature setpoints.

MORNING COOL DOWN MODE
The AHU shall be in morning cool down mode prior to the occupied hours of operation per the project design conditions schedule shown on the control drawings AND when there is a call for cooling. The start time shall automatically adjust based on the outside air temperature and the zone temperature setpoints.

OCCUPIED MODE
The AHU shall be in occupied mode per the project design conditions schedule shown on the control drawings.

UNOCCUPIED MODE
The AHU shall be in unoccupied mode for all periods not included in the occupied hours of operation per the project design conditions schedule shown on the control drawings. Overrides of unoccupied schedule shall be defined by zone level controls.

FREEZE PROTECTION MODE – LEVEL 1
The unit shall be in freeze protection mode – level 1 when the level 1 low limit temperature controller senses a preheat coil leaving air temperature of 42°F (adj.) or less.
The unit shall automatically reset when the mixed air temperature is above 43°F (adj.).

FREEZE PROTECTION MODE – LEVEL 2
The unit shall be in freeze protection mode – level 2 when the level 2 low limit temperature controller senses a preheat coil leaving air temperature of 35°F (adj.) or less.
Freeze Protection Mode – Level 2 shall be disabled by manual reset.

CONTROL SETPOINT RESETS

SUPPLY AIR TEMPERATURE RESET – COOLING ONLY *(USER SELECTION – LOW HUMIDITY LOCATIONS ONLY)*
When the zone temperature and zone humidity are within their respective setpoints, the supply air temperature setpoint shall reset to 60°F.

SUPPLY AIR STATIC PRESSURE RESET – TRIM AND RESPOND
Supply air static pressure setpoint shall be reset using the trim and respond logic within the range of 0.5 in. w.g. to the static pressure setpoint determined during balancing. The control system shall monitor the zone level VAV box damper position to determine a pressure request, which is defined as any zone actuator at greater than 90% open.
Trim and Respond Logic: When the fan is OFF, the setpoint shall be reset to the default value. While the fan is proven ON, every 2 minutes, decrease the setpoint by 0.04 in. w.g. (adj.) if there is one (adj.) or less zone pressure request. If there is more than one (adj.) zone pressure request, every 2 minutes, increase the setpoint by 0.03 in. w.g. (adj.) times the number of pressure requests, but no more than 0.12 in. w.g.

SAFETIES, OVERRIDES, AND INTERLOCKS

SMOKE DETECTOR INTERLOCK
The unit shall be disabled via hard wired interlock at the fan start circuit on activation of a system smoke detector.

FIRE ALARM CONTROL PANEL INTERLOCK
The unit shall be disabled via hard wired interlock at the fan start circuit upon receipt of signal from fire alarm control panel.

SMOKE DAMPER INTERLOCK
Associated system smoke dampers shall be closed via hard wired interlock whenever the supply fan is off.

HIGH SUPPLY AIR STATIC PRESSURE INTERLOCK
The unit shall be disabled via hard wired interlock at the supply fan start circuit upon activation of duct high pressure controller.

FREEZE PROTECTION MODE – LEVEL 1 INTERLOCK
The supply fan shall be enabled by via hard wired interlock at the supply fan start circuit from the level 1 low limit temperature controller.

FREEZE PROTECTION MODE – LEVEL 2 INTERLOCK
The supply fan shall be disabled via hard wired interlock at the supply fan start circuit from the level 2 low limit temperature controller.

CONTROL SYSTEM INTERLOCK
Control power shall be removed from actuators when the associated system turns off.

COMPONENT CONTROLS

SUPPLY FAN CONTROL – VFD

SYSTEM START UP MODE
The fan(s) shall energize and slowly ramp to the initial minimum fan speed determined during system startup.

MORNING WARM UP MODE
The fan(s) shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The fan(s) shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall measure duct static pressure and modulate the fan(s) VFD speed to maintain the duct static pressure setpoint. The minimum fan speed setting shall be established during balancing.

UNOCCUPIED MODE *(USER SELECTION)*
The fan(s) shall operate as if in Occupied Mode.
OR
The fan(s) shall be OFF.

FREEZE PROTECTION MODE – LEVEL 1
The fan(s) shall be ON and operate as if in Occupied Mode.

FREEZE PROTECTION MODE – LEVEL 2
The fan(s) shall be OFF.

OUTSIDE AIR DAMPER

SYSTEM START UP MODE
If the outside air temperature is below 42°F (adj.), the OA damper shall open to its minimum position. The OA damper shall slowly open until fully OPEN. The OA damper will operate as if in Occupied Mode when the preheat coil leaving air temperature is above 43°F (adj.).
If the outside air temperature is above 43°F (adj.), the OA damper shall operate as if in Occupied Mode.

OUTSIDE AIR DAMPER (CONT.)

MORNING WARM UP MODE
The OA damper shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The OA damper shall operate as if in Occupied Mode.

OCCUPIED MODE
The OA damper shall be fully OPEN.

UNOCCUPIED MODE *(USER SELECTION)*
The OA damper shall operate as if in Occupied Mode.
OR
The OA damper shall be CLOSED.

FREEZE PROTECTION MODE – LEVEL 1
The OA damper shall operate as if in Occupied Mode.

FREEZE PROTECTION MODE – LEVEL 2
The OA damper shall be CLOSED.

PREHEAT COIL – HOT WATER VALVE – MODULATING

SYSTEM START UP MODE
If the outside air temperature is below 42°F (adj.), the hot water coil valve shall be fully OPEN. The hot water coil valve will operate as if in Occupied Mode when the preheat coil leaving air temperature is above 43°F (adj.).
If the outside air temperature is above 43°F (adj.), the hot water coil valve shall operate as if in Occupied Mode.

MORNING WARM UP MODE
The hot water coil valve shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The hot water coil valve shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall modulate hot water valve to maintain the heating coil leaving air temperature setpoint.

UNOCCUPIED MODE *(USER SELECTION)*
The hot water coil valve shall operate as if in Occupied Mode.
OR
The hot water coil valve shall be CLOSED.

FREEZE PROTECTION MODE – LEVEL 1
The hot water coil valve shall be fully OPEN.

FREEZE PROTECTION MODE – LEVEL 2
The hot water coil valve shall be fully OPEN.

COOLING COIL – CHILLED WATER VALVE – MODULATING

SYSTEM START UP MODE
If the outside air temperature is below 42°F (adj.), the chilled water coil valve shall be fully OPEN. The chilled water coil valve will operate as if in Occupied Mode when the preheat coil leaving air temperature is above 43°F (adj.).
If the outside air temperature is above 43°F (adj.), the chilled water coil valve shall operate as if in Occupied Mode.

MORNING WARM UP MODE
The chilled water coil valve shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The chilled water coil valve shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall modulate chilled water valve to maintain the cooling coil leaving air temperature setpoint.

UNOCCUPIED MODE *(USER SELECTION)*
The chilled water coil valve shall operate as if in Occupied Mode.
OR
The chilled water coil valve shall be CLOSED.

FREEZE PROTECTION MODE – LEVEL 1
The chilled water coil valve shall be fully OPEN.

FREEZE PROTECTION MODE – LEVEL 2
The chilled water coil valve shall be fully OPEN.

FILTER MONITORING – HOURS
ALL MODES
The controller shall monitor the fan runtime to provide a maintenance reminder at 50% of filter elapsed time (1100 hours) and an alarm at 100% elapsed time (2200 hours)

HUMIDIFIER

SYSTEM START UP MODE
The humidifier shall be OFF.

MORNING WARM UP MODE
The humidifier shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The humidifier shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall measure the return air humidity and modulate the humidifier to maintain a setpoint of 50% RH (adj.). The humidifier shall be enabled whenever the supply fan status is ON.
The humidifier shall be OFF whenever the supply air humidity rises from 90% RH to 95% RH (adj.) or on loss of supply fan status.
Humidity Reset Schedule: The return air humidity setpoint shall be reset subject to the outdoor ambient temperature. The initial reset schedule shall be user adjustable and set for 30% RH at 30°F and above and 20% RH at 20°F and below.

UNOCCUPIED MODE *(USER SELECTION)*
The humidifier shall operate as if in Occupied Mode.
OR
The humidifier shall be OFF.

FREEZE PROTECTION MODE – LEVEL 1
The humidifier shall be OFF.

FREEZE PROTECTION MODE – LEVEL 2
The humidifier shall be OFF.

POINTS LIST SCHEDULE - VARIABLE AIR VOLUME AIR HANDLING UNIT (ACA-AHU-11)

POINTS NAME	HARDWARE POINTS				SOFTWARE POINTS							SHOWN ON GRAPHIC
	AI	AO	BI	BO	SETPOINT	AV	BV	LOOP	SCHED	TREND	ALARM	
OUTSIDE AIR												
OA TEMPERATURE	X									X		X
OA ENTHALPY	X									X		X
OA DAMPER		X								X		X
PRE-FILTER DIFFERENTIAL PRESSURE	X									X	X	X
PRE-HEAT COIL												
PHC VALVE		X								X		X
PHC LAT	X									X		X
FREEZESTAT			X							X	X	X
HUMIDIFIER												
HUMIDIFIER		X								X		X
HUMIDIFIER ENABLE				X						X		X
COOLING COIL												
CC VALVE		X								X		X
UV LIGHT				X						X		X
CC LAT	X									X		X
SUPPLY AIR												
SF AIRFLOW	X									X		X
SF STATUS			X							X		X
SF START/STOP				X						X		X
SF VFD FAULT			X								X	X
SF VFD SPEED		X								X		X
AFTER FILTER DIFFERENTIAL PRESSURE	X									X	X	X
SA LAT	X									X		X
SA HUMIDITY	X									X	X	X
SA SMOKE DETECTOR			X							X	X	X
HIGH STATIC SHUTDOWN			X							X		X
SA SMOKE DAMPER				X						X		X
SA STATIC PRESSURE	X									X		X
SETPOINTS												
EMERGENCY SHUTDOWN					N/A		X			X	X	
PHC LAT SETPOINT					NOTE 3	X				X		
CC LAT SETPOINT					NOTE 3	X				X		
SA LAT SETPOINT					55°F	X				X		
SA STATIC PRESSURE SETPOINT					NOTE 3	X				X		
SA HUMIDITY SETPOINT					NOTE 3	X				X		

ALARM	DESCRIPTION	ALARM	ALARM...
HIGH PHC LEAVING AIR TEMPERATURE	IF THE PHC LEAVING AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.)	X	10 MIN.
LOW PHC LEAVING AIR TEMPERATURE	IF THE PHC LEAVING AIR TEMPERATURE IS LESS THAN 45°F (ADJ.)	X	10 MIN.
HIGH SUPPLY AIR TEMPERATURE	IF THE SUPPLY AIR TEMPERATURE IS 5°F GREATER THAN ITS SETPOINT (ADJ.)	X	10 MIN.
LOW SUPPLY AIR TEMPERATURE	IF THE SUPPLY AIR TEMPERATURE IS 5°F LESS THAN ITS SETPOINT (ADJ.)	X	10 MIN.
HIGH SUPPLY AIR HUMIDITY	IF THE SUPPLY AIR HUMIDITY IS GREATER THAN 90% (ADJ.)	X	5 MIN.
LOW SUPPLY AIR HUMIDITY	IF THE SUPPLY AIR HUMIDITY IS LESS THAN 30% (ADJ.)	X	5 MIN.
HIGH SUPPLY AIR STATIC PRESSURE	IF THE SUPPLY AIR STATIC PRESSURE IS 25% GREATER THAN SETPOINT (ADJ.)	X	5 MIN.
LOW SUPPLY AIR STATIC PRESSURE	IF THE SUPPLY AIR STATIC PRESSURE IS 25% LESS THAN SETPOINT (ADJ.)	X	5 MIN.
SUPPLY FAN FAILURE	COMMANDED ON, BUT THE STATUS IS OFF	X	10 MIN.
SUPPLY FAN IN HAND	COMMANDED OFF, BUT THE STATUS IS ON	X	10 MIN.
SUPPLY FAN RUNTIME EXCEEDED	STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.)	X	10 MIN.
PRE-FILTER 1 CHANGE REQUIRED	PRE-FILTER 1 HAS BEEN IN USE FOR MORE THAN 2200 HOURS (ADJ.) OR THE FILTER D.P. EXCEEDED ITS LIMIT.	X	1 HOUR
PRE-FILTER 2 CHANGE REQUIRED	PRE-FILTER 2 HAS BEEN IN USE FOR MORE THAN 2200 HOURS (ADJ.) OR THE FILTER D.P. EXCEEDED ITS LIMIT.	X	1 HOUR
AFTER FILTER CHANGE REQUIRED	AFTER FILTER HAS BEEN IN USE FOR MORE THAN 2200 HOURS (ADJ.) OR THE FILTER D.P. EXCEEDED ITS LIMIT.	X	1 HOUR
PRE-FILTER 1 MISSING	PRE-FILTER 1 D.P. LOWER THAN ITS NEW FILTER LIMIT.	X	1 HOUR
PRE-FILTER 2 MISSING	PRE-FILTER 2 D.P. LOWER THAN ITS NEW FILTER LIMIT.	X	1 HOUR
AFTER FILTER MISSING	AFTER FILTER D.P. LOWER THAN ITS NEW FILTER LIMIT.	X	1 HOUR

NOTES:
1. SEE STANDARD TRENDING POINTS LIST SCHEDULE ON SHEET M-701 FOR APPLICABLE TREND INTERVALS.
2. SEE PROJECT DESIGN CONDITIONS SCHEDULE ON SHEET M-701 FOR APPLICABLE SETPOINTS.
3. SEE EQUIPMENT SCHEDULES FOR SETPOINT VALUES.

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:32 PM

VA FORM 08-6231

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL CONTROLS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

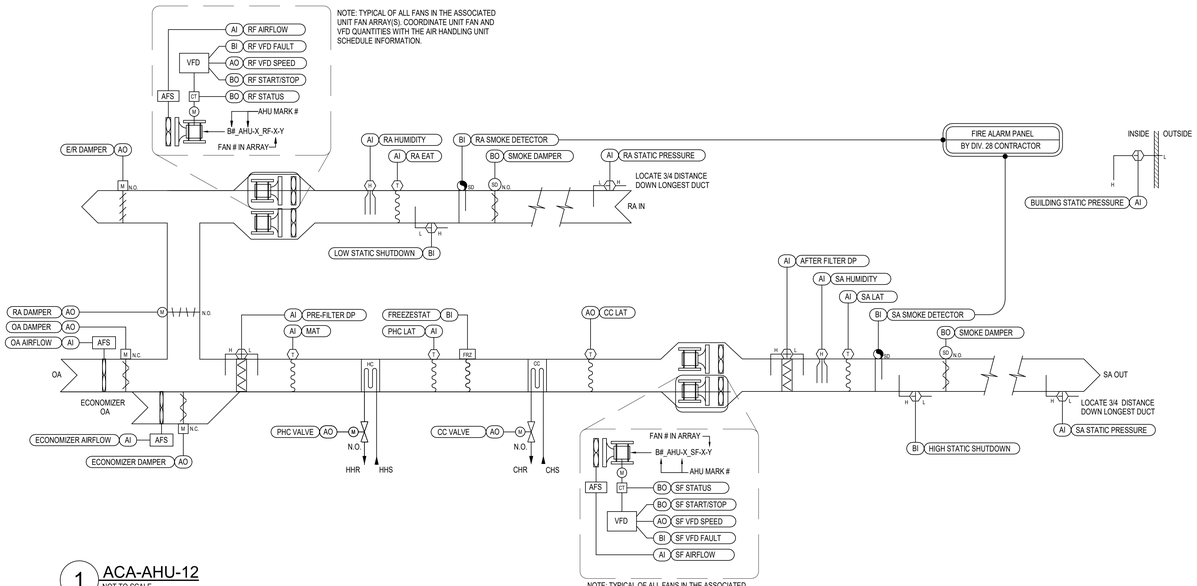
PROJECT NUMBER
589A4-25-102

BUILDING NUMBER
1

DRAWING NUMBER
M-703
DRAWING # 64 OF 74

Veterans Health Administration

VA | U.S. Department of Veterans Affairs



1 ACA-AHU-12
NOT TO SCALE

POINTS LIST SCHEDULE - VARIABLE AIR VOLUME AIR HANDLING UNIT (AHU-12)

POINTS NAME	HARDWARE POINTS				SOFTWARE POINTS							SHOWN ON GRAPHIC
	AI	AO	BI	BO	SETPOINT	AV	BV	LOOP	SCHED	TREND	ALARM	
OUTSIDE AIR												
OA TEMPERATURE	X									X		
OA ENTHALPY	X											
MOA DAMPER		X								X		X
MOA AIRFLOW	X									X		X
ECONOMIZER DAMPER		X								X		X
ECONOMIZER AIRFLOW	X									X		X
MIXED AIR												
PRE-FILTER 1 DIFFERENTIAL PRESSURE	X									X	X	X
PRE-FILTER 2 DIFFERENTIAL PRESSURE	X									X	X	X
MIXED AIR TEMPERATURE	X									X		X
PRE-HEAT COIL												
PHC VALVE		X								X		X
PHC LAT	X									X		X
FREEZESTAT			X							X	X	X
HUMIDIFIER												
HUMIDIFIER		X								X		X
HUMIDIFIER ENABLE				X						X		X
COOLING COIL												
CC VALVE		X								X		X
CC LAT	X									X		X
SUPPLY AIR												
SF AIRFLOW	X									X		X
SF STATUS			X							X		X
SF START/STOP				X						X		X
SF VFD FAULT			X								X	X
SF VFD SPEED		X								X		X
AFTER FILTER DIFFERENTIAL PRESSURE	X									X	X	X
SA LAT	X									X		X
SA HUMIDITY	X									X	X	X
SA SMOKE DETECTOR			X							X	X	X
HIGH STATIC SHUTDOWN			X							X		X
SA SMOKE DAMPER				X						X		X
SA STATIC PRESSURE	X									X		X
RETURN AIR												
RF AIRFLOW	X									X		X
RF STATUS			X							X		X
RF START/STOP				X						X		X
RF VFD FAULT			X								X	X
RF VFD SPEED		X								X		X
RA EAT	X									X		X
RA HUMIDITY	X									X		X
RA ENTHALPY	X									X		
RA SMOKE DETECTOR			X							X	X	X
LOW STATIC SHUTDOWN			X							X	X	X
RA SMOKE DAMPER		X								X		X
RA STATIC PRESSURE	X									X		X
RA DAMPER		X								X		X
RELIEF/EXHAUST												
E/R DAMPER		X								X		X
MISCELLANEOUS												
BUILDING STATIC PRESSURE	X									X		X
SETPOINTS												
EMERGENCY SHUTDOWN					N/A		X			X	X	
BUILDING DIFFERENTIAL PRESSURE SETPOINT					.03 IN WG					X		
ECONOMIZER MAT SETPOINT					53°F	X				X		
PHC LAT SETPOINT					NOTE 3	X				X		
CC LAT SETPOINT					NOTE 3	X				X		
RA STATIC PRESSURE SETPOINT					NOTE 3	X				X		
RA HUMIDITY SETPOINT					NOTE 3	X				X		
SA LAT SETPOINT					55°F	X				X		
SA STATIC PRESSURE SETPOINT					NOTE 3	X				X		
SA HUMIDITY SETPOINT					NOTE 3	X				X		

ALARM	DESCRIPTION	ALARM	ALARM
HIGH MIXED AIR TEMPERATURE	IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90 F (ADJ.)	X	10 MIN.
LOW MIXED AIR TEMPERATURE	IF THE MIXED AIR TEMPERATURE IS LESS THAN 45 F (ADJ.)	X	10 MIN.
HIGH SUPPLY AIR TEMPERATURE	IF THE SUPPLY AIR TEMPERATURE IS 5 F GREATER THAN ITS SETPOINT (ADJ.)	X	10 MIN.
LOW SUPPLY AIR TEMPERATURE	IF THE SUPPLY AIR TEMPERATURE IS 5 F LESS THAN ITS SETPOINT (ADJ.)	X	10 MIN.
HIGH RETURN AIR TEMPERATURE	IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90 F (ADJ.)	X	10 MIN.
LOW RETURN AIR TEMPERATURE	IF THE RETURN AIR TEMPERATURE IS LESS THAN 45 F (ADJ.)	X	10 MIN.
HIGH SUPPLY AIR HUMIDITY	IF THE SUPPLY AIR HUMIDITY IS GREATER THAN 90% (ADJ.)	X	5 MIN.
LOW SUPPLY AIR HUMIDITY	IF THE SUPPLY AIR HUMIDITY IS LESS THAN 30% (ADJ.)	X	5 MIN.
HIGH RETURN AIR HUMIDITY	IF THE RETURN AIR HUMIDITY IS GREATER THAN 70% (ADJ.)	X	5 MIN.
LOW RETURN AIR HUMIDITY	IF THE RETURN AIR HUMIDITY IS LESS THAN 35% (ADJ.)	X	5 MIN.
HIGH SUPPLY AIR STATIC PRESSURE	IF THE SUPPLY AIR STATIC PRESSURE IS 25% GREATER THAN SETPOINT (ADJ.)	X	5 MIN.
LOW SUPPLY AIR STATIC PRESSURE	IF THE SUPPLY AIR STATIC PRESSURE IS 25% LESS THAN SETPOINT (ADJ.)	X	5 MIN.
HIGH RETURN AIR STATIC PRESSURE	IF THE RETURN AIR STATIC PRESSURE IS 25% GREATER THAN SETPOINT (ADJ.)	X	5 MIN.
LOW RETURN AIR STATIC PRESSURE	IF THE RETURN AIR STATIC PRESSURE IS 25% LESS THAN SETPOINT (ADJ.)	X	5 MIN.
SUPPLY FAN FAILURE	COMMANDED ON, BUT THE STATUS IS OFF	X	10 MIN.
SUPPLY FAN IN HAND	COMMANDED OFF, BUT THE STATUS IS ON	X	10 MIN.
SUPPLY FAN RUNTIME EXCEEDED	STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.)	X	10 MIN.
RETURN FAN FAILURE	COMMANDED ON, BUT THE STATUS IS OFF	X	10 MIN.
RETURN FAN IN HAND	COMMANDED OFF, BUT THE STATUS IS ON	X	10 MIN.
RETURN FAN RUNTIME EXCEEDED	STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.)	X	10 MIN.
PRE-FILTER 1 CHANGE REQUIRED	PRE-FILTER 1 HAS BEEN IN USE FOR MORE THAN 2200 HOURS (ADJ.) OR THE FILTER D.P. EXCEEDED ITS LIMIT.	X	1 HOUR
PRE-FILTER 2 CHANGE REQUIRED	PRE-FILTER 2 HAS BEEN IN USE FOR MORE THAN 2200 HOURS (ADJ.) OR THE FILTER D.P. EXCEEDED ITS LIMIT.	X	1 HOUR
AFTER FILTER CHANGE REQUIRED	AFTER FILTER HAS BEEN IN USE FOR MORE THAN 2200 HOURS (ADJ.) OR THE FILTER D.P. EXCEEDED ITS LIMIT.	X	1 HOUR
PRE-FILTER 1 MISSING	PRE-FILTER 1 D.P. LOWER THAN ITS NEW FILTER LIMIT.	X	1 HOUR
PRE-FILTER 2 MISSING	PRE-FILTER 2 D.P. LOWER THAN ITS NEW FILTER LIMIT.	X	1 HOUR
AFTER FILTER MISSING	AFTER FILTER D.P. LOWER THAN ITS NEW FILTER LIMIT.	X	1 HOUR
HIGH BUILDING STATIC PRESSURE	IF THE BUILDING STATIC PRESSURE IS 25% GREATER THAN SETPOINT (ADJ.)	X	5 MIN.
LOW BUILDING STATIC PRESSURE	IF THE BUILDING STATIC PRESSURE IS 25% LESS THAN SETPOINT (ADJ.)	X	5 MIN.

NOTES:
1. SEE STANDARD TRENDING POINTS LIST SCHEDULE ON SHEET XX-M-701 FOR APPLICABLE TREND INTERVALS.
2. SEE PROJECT DESIGN CONDITIONS SCHEDULE ON SHEET XX-M-701 FOR APPLICABLE SETPOINTS.
3. SEE EQUIPMENT SCHEDULES FOR SETPOINT VALUES.

SEQUENCE OF OPERATIONS
VARIABLE AIR VOLUME AIR HANDLING UNIT (ACA-AHU-12)

GENERAL DESCRIPTION
The variable air volume (VAV) air handling unit (ACA-AHU-12) described by this sequence of operations consists of the following features. These features include a variable speed supply fan array, hot water preheating coil, humidifier, and chilled water cooling coil that operate with zone level variable air volume terminal units to provide heating, ventilation, air-conditioning, and humidification for the conditioned space as shown on the drawings.

OPERATING MODES

SYSTEM START UP MODE
The AHU shall be in system start up mode for after the unit has been enabled. The AHU will automatically reset to Occupied Mode after a user definable amount of time.

MORNING WARM UP MODE
The AHU shall be in morning warm up mode prior to the occupied hours of operation per the project design conditions schedule shown on the control drawings AND when there is a call for heating. The start time shall automatically adjust based on the outside air temperature and the zone temperature setpoints.

MORNING COOL DOWN MODE
The AHU shall be in morning cool down mode prior to the occupied hours of operation per the project design conditions schedule shown on the control drawings AND when there is a call for cooling. The start time shall automatically adjust based on the outside air temperature and the zone temperature setpoints.

OCCUPIED MODE
The AHU shall be in occupied mode per the project design conditions schedule shown on the control drawings.

UNOCCUPIED MODE
The AHU shall be in unoccupied mode for all periods not included in the occupied hours of operation per the project design conditions schedule shown on the control drawings. Overrides of unoccupied schedule shall be defined by zone level controls.

ECONOMIZER MODE – OUTSIDE AIR TEMPERATURE ENABLED
The unit shall be in economizer mode when:
The supply fan status is on;
AND the AHU is not in freeze protection mode;
AND the outside air temperature is less than 65°F (adj.);
AND the outside air temperature is less than the return air temperature;
AND there is a call for cooling.

FREEZE PROTECTION MODE – LEVEL 1
The unit shall be in freeze protection mode – level 1 when the level 1 low limit temperature controller senses a mixed air temperature of 42°F (adj.) or less.
The unit shall automatically reset when the mixed air temperature is above 43°F (adj.).

FREEZE PROTECTION MODE – LEVEL 2
The unit shall be in freeze protection mode – level 2 when the level 2 low limit temperature controller senses a mixed air temperature of 35°F (adj.) or less.
Freeze Protection Mode – Level 2 shall be disabled by manual reset.

CONTROL SETPOINT RESETS

SUPPLY AIR TEMPERATURE RESET – COOLING ONLY *(USER SELECTION – LOW HUMIDITY LOCATIONS ONLY)*
When the zone temperature and zone humidity are within their respective setpoints, the supply air temperature setpoint shall reset to 60°F.

SUPPLY AIR STATIC PRESSURE RESET – TRIM AND RESPOND
Supply air static pressure setpoint shall be reset using the trim and respond logic within the range of 0.5 in. w.g. to the static pressure setpoint determined during balancing. The control system shall monitor the zone level VAV box damper position to determine a pressure request, which is defined as any zone actuator at greater than 90% open.
Trim and Respond Logic: When the fan is OFF, the setpoint shall be reset to the default value. While the fan is proven ON, every 2 minutes, decrease the setpoint by 0.04 in. w.g. (adj.) if there is one (adj.) or less zone pressure request. If there is more than one (adj.) zone pressure request, every 2 minutes, increase the setpoint by 0.03 in. w.g. (adj.) times the number of pressure requests, but no more than 0.12 in. w.g.

SAFETIES, OVERRIDES, AND INTERLOCKS

SMOKE DETECTOR INTERLOCK
The unit shall be disabled via hard wired interlock at the fan start circuit on activation of a system smoke detector.

FIRE ALARM CONTROL PANEL INTERLOCK
The unit shall be disabled via hard wired interlock at the fan start circuit upon receipt of signal from fire alarm control panel.

SMOKE DAMPER INTERLOCK
Associated system smoke dampers shall be closed via hard wired interlock whenever the supply fan is off.

SUPPLY FAN INTERLOCK
Relief/Return fans shall be interlocked to be OFF with the associated unit supply fan.

HIGH SUPPLY AIR STATIC PRESSURE INTERLOCK
The unit shall be disabled via hard wired interlock at the supply fan start circuit upon activation of duct high pressure controller.

LOW RETURN AIR STATIC PRESSURE INTERLOCK
The unit shall be disabled via hard wired interlock at the return fan start circuit upon activation of duct low pressure controller.

FREEZE PROTECTION MODE – LEVEL 1 INTERLOCK
The supply fan shall be enabled by via hard wired interlock at the supply fan start circuit from the level 1 low limit temperature controller.

FREEZE PROTECTION MODE – LEVEL 2 INTERLOCK
The supply fan shall be disabled by via hard wired interlock at the supply fan start circuit from the level 2 low limit temperature controller.

CONTROL SYSTEM INTERLOCK
Control power shall be removed from actuators when the associated system turns off.

COMPONENT CONTROLS

SUPPLY PLENUM FAN ARRAY CONTROL – MULTIDRIVE VFD

SYSTEM START UP MODE
The fan(s) shall energize and slowly ramp to the initial minimum fan speed determined during system startup.

MORNING WARM UP MODE
The fan(s) shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The fan(s) shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall measure duct static pressure and modulate the fan(s) VFD speed to maintain the duct static pressure setpoint. The minimum fan speed setting shall be established during balancing.

UNOCCUPIED MODE *(USER SELECTION)*
The fan(s) shall operate as if in Occupied Mode.
OR
The fan(s) shall be OFF.

ECONOMIZER MODE – OUTSIDE AIR TEMPERATURE ENABLED
The fan(s) shall operate as if in Occupied Mode.

FREEZE PROTECTION MODE – LEVEL 1
The fan(s) shall be ON and operate as if in Occupied Mode.

FREEZE PROTECTION MODE – LEVEL 2
The fan(s) shall be OFF.

MIXED AIR DAMPERS WITH ECONOMIZER

SYSTEM START UP MODE
If the outside air temperature is below 42°F (adj.), the MOA damper shall be CLOSED, the RA damper shall be OPEN, and the economizer damper shall be CLOSED. After the supply fan has reached minimum fan speed, the MOA damper shall slowly open until fully OPEN. The MOA, RA, and economizer dampers will operate as if in Occupied Mode when the mixed air temperature is above 43°F (adj.).
If the outside air temperature is above 43°F (adj.), the MOA, RA, and economizer dampers shall operate as if in Occupied Mode.

MORNING WARM UP MODE
The MOA, RA, and economizer dampers shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The MOA, RA, and economizer dampers shall operate as if in Occupied Mode.

OCCUPIED MODE
The MOA damper shall be fully OPEN, the RA damper shall be OPEN, and the economizer damper shall be CLOSED.
MOA Active Control: The MOA damper shall be OPEN, and the RA damper shall modulate to satisfy the minimum outside airflow setpoint as indicated by the minimum outside airflow measuring station.

UNOCCUPIED MODE *(USER SELECTION)*
The MOA, RA, and economizer dampers shall operate as if in Occupied Mode.
OR
The MOA damper shall be CLOSED, the RA damper shall be fully OPEN, and the economizer damper shall be CLOSED.

ECONOMIZER MODE – OUTSIDE AIR TEMPERATURE ENABLED
The MOA damper shall be fully OPEN. The RA and economizer dampers shall modulate in opposing directions to maintain the mixed air temperature setpoint.

FREEZE PROTECTION MODE – LEVEL 1
The MOA damper shall be CLOSED, the RA damper shall be fully OPEN, and the economizer damper shall be CLOSED.

FREEZE PROTECTION MODE – LEVEL 2
The MOA damper shall be CLOSED, the RA damper shall be fully OPEN, and the economizer damper shall be CLOSED.

RELIEF/EXHAUST AIR DAMPERS

SYSTEM START UP MODE
The relief/exhaust air damper shall operate as if in Occupied Mode.

MORNING WARM UP MODE
The relief/exhaust air damper shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The relief/exhaust air damper shall operate as if in Occupied Mode.

OCCUPIED MODE
The relief/exhaust air damper is enabled and shall operate subject to the building pressure controller to maintain the building pressure setpoint.
When the return plenum fan array is ON, the relief/exhaust air damper shall be OPEN.
When the return plenum fan array is OFF, the relief/exhaust air damper shall modulate to maintain the building pressure setpoint.

UNOCCUPIED MODE *(USER SELECTION)*
The relief/exhaust air damper shall operate as if in Occupied Mode.
OR
The relief/exhaust air damper shall be CLOSED.

ECONOMIZER MODE – OUTSIDE AIR TEMPERATURE ENABLED
The relief/exhaust air damper shall operate as if in Occupied Mode.

FREEZE PROTECTION MODE – LEVEL 1
The relief/exhaust air damper shall be CLOSED.

FREEZE PROTECTION MODE – LEVEL 2
The relief/exhaust air damper shall be CLOSED.

PREHEAT COIL – HOT WATER VALVE – MODULATING

SYSTEM START UP MODE
If the outside air temperature is below 42°F (adj.), the hot water coil valve shall be fully OPEN. The hot water coil valve will operate as if in Occupied Mode when the mixed air temperature is above 43°F (adj.).
If the outside air temperature is above 43°F (adj.), the hot water coil valve shall operate as if in Occupied Mode.

MORNING WARM UP MODE
The hot water coil valve shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The hot water coil valve shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall modulate hot water valve to maintain the heating coil leaving air temperature setpoint.

UNOCCUPIED MODE *(USER SELECTION)*
The hot water coil valve shall operate as if in Occupied Mode.
OR
The hot water coil valve shall be CLOSED.

ECONOMIZER MODE – OUTSIDE AIR TEMPERATURE ENABLED
The hot water coil valve shall operate as if in Occupied Mode.

FREEZE PROTECTION MODE – LEVEL 1
The hot water coil valve shall be fully OPEN.

FREEZE PROTECTION MODE – LEVEL 2
The hot water coil valve shall be fully OPEN.

COOLING COIL – CHILLED WATER VALVE – MODULATING

SYSTEM START UP MODE
If the outside air temperature is below 42°F (adj.), the chilled water coil valve shall be fully OPEN. The chilled water coil valve will operate as if in Occupied Mode when the mixed air temperature is above 43°F (adj.).
If the outside air temperature is above 43°F (adj.), the chilled water coil valve shall operate as if in Occupied Mode.

MORNING WARM UP MODE
The chilled water coil valve shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The chilled water coil valve shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall modulate chilled water valve to maintain the cooling coil leaving air temperature setpoint.

UNOCCUPIED MODE *(USER SELECTION)*
The chilled water coil valve shall operate as if in Occupied Mode.
OR
The chilled water coil valve shall be CLOSED.

ECONOMIZER MODE – OUTSIDE AIR TEMPERATURE ENABLED
The chilled water coil valve shall operate as if in Occupied Mode.

FREEZE PROTECTION MODE – LEVEL 1
The chilled water coil valve shall be fully OPEN.

FREEZE PROTECTION MODE – LEVEL 2
The chilled water coil valve shall be fully OPEN.

FILTER MONITORING – HOURS
ALL MODES
The controller shall monitor the fan runtime to provide a maintenance reminder at 50% of filter elapsed time (1100 hours) and an alarm at 100% elapsed time (2200 hours)

HUMIDIFIER

SYSTEM START UP MODE
The humidifier shall be OFF.

MORNING WARM UP MODE
The humidifier shall operate as if in Occupied Mode.

MORNING COOL DOWN MODE
The humidifier shall operate as if in Occupied Mode.

OCCUPIED MODE
The controller shall measure the return air humidity and modulate the humidifier to maintain a setpoint of 50% RH (adj.). The humidifier shall be enabled whenever the supply fan status is ON.
The humidifier shall be OFF whenever the supply air humidity rises from 90% RH to 95% RH (adj.) or on loss of supply fan status.
Humidity Reset Schedule: The return air humidity setpoint shall be reset subject to the outdoor ambient temperature. The initial reset schedule shall be user adjustable and set for 30% RH at 30°F and above and 20% RH at 20°F and below.

UNOCCUPIED MODE *(USER SELECTION)*
The humidifier shall operate as if in Occupied Mode.
OR
The humidifier shall be OFF.

ECONOMIZER MODE – OUTSIDE AIR TEMPERATURE ENABLED
The humidifier shall operate as if in Occupied Mode.
When the humidifier energy demand exceeds the mechanical energy saved by the economizer, then the economizer shall be OFF and mechanical cooling shall be used to maintain the humidity low limit setpoint.

FREEZE PROTECTION MODE – LEVEL 1
The humidifier shall be OFF.

FREEZE PROTECTION MODE – LEVEL 2
The humidifier shall be OFF.

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:33 PM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL CONTROLS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

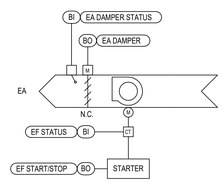
PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER **M-704**
DRAWING # 65 OF 74

Veterans Health Administration
VA U.S. Department of Veterans Affairs

VA FORM 08-6231



2 GENERAL EXHAUST FAN (EF-1) TYPICAL CONTROL DIAGRAM

NOT TO SCALE

POINTS LIST SCHEDULE - GENERAL EXHAUST FAN (EF-1)

POINTS NAME	HARDWARE POINTS				SOFTWARE POINTS							SHOWN ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM		
EXHAUST FAN												
EF STATUS			X						X			X
EF START/STOP				X					X			X
DAMPER												
EXHAUST AIR DAMPER STATUS			X						X			X
EXHAUST AIR DAMPER				X					X			X
ALARMS	**DESCRIPTION**										**ALARM**	**ALARM DELAY**
EXHAUST AIR DAMPER FAILURE	COMMANDED OPEN, BUT THE STATUS IS CLOSED										X	10 MIN.
EXHAUST AIR DAMPER IN HAND	COMMANDED CLOSED, BUT THE STATUS IS OPEN										X	10 MIN.
EF FAILURE	COMMANDED ON, BUT THE STATUS IS OFF										X	10 MIN.
EF IN HAND	COMMANDED OFF, BUT THE STATUS IS ON										X	10 MIN.
EF RUNTIME EXCEEDED	FAN RUNTIME EXCEEDS A USER DEFINABLE LIMIT										X	10 MIN.

NOTES:
1. SEE STANDARD TRENDING POINTS LIST SCHEDULE ON SHEET XX-M-701 FOR APPLICABLE TREND INTERVALS.

SEQUENCE OF OPERATIONS
EXHAUST FAN (EF-1)

GENERAL DESCRIPTION
The exhaust fan provides general exhaust ventilation to the conditioned space(s) as shown on the drawings.

OPERATING MODES

OCCUPIED MODE
The exhaust fan shall be in occupied mode per the project design conditions schedule shown on sheet M-701.

UNOCCUPIED MODE
The exhaust fan shall be in unoccupied mode for all periods not included in the occupied hours of operation.

COMPONENT CONTROL LOOPS

EXHAUST FAN – ON/OFF
- When the HOA switch is in hand position, the variable speed supply fan shall operate at a speed set manually by the operator at the user interface of the drive.
- When the HOA switch is in off position, the fan shall be off.
- When the HOA switch is in auto position, the variable speed supply fan shall operate subject to the unit enable signal, and unit operating modes.

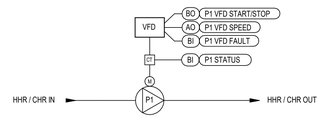
OCCUPIED MODE:
- The exhaust fan shall be enabled after the EA damper has proven operable.
- The exhaust fan shall be commanded to run and shall maintain a user defined constant speed.

UNOCCUPIED MODE:
The exhaust fan shall be off.

MOTORIZED DAMPER

OCCUPIED MODE:
The motorized damper shall be open. The motorized damper shall open 30 sec (adj.) prior to activation of the exhaust fan.

UNOCCUPIED MODE:
The motorized damper shall be closed. The motorized damper shall close 30 sec (adj.) after the fan is OFF.



SEQUENCE OF OPERATIONS
RECIRCULATION PUMP (RP-X)

GENERAL DESCRIPTION
The inline pump will operate to recirculate water for the fixtures shown on the drawings.

OPERATING MODES
NORMAL OPERATING MODE:
The pump shall be in normal operating mode at all times.

COMPONENT CONTROLS
PUMP
NORMAL OPERATING MODE:
The pump shall operate at the specified flow rate.

1 HEATING HOT WATER PUMP (HHWP-X) TYPICAL CONTROL DIAGRAM

1/2" = 1'-0"

POINTS LIST SCHEDULE - HEATING HOT WATER PUMPS (HHWP-X)

POINTS NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOWN ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
PUMPS											
PUMP VFD SPEED		X							X		X
PUMP STATUS			X						X		X
PUMP VFD FAULT			X							X	X
PUMP START/STOP				X					X		X
ALARMS	**DESCRIPTION**									**ALARM**	**ALARM DELAY**
PUMP FAILURE	COMMANDED ON, BUT THE STATUS IS OFF									X	10 MIN.
PUMP IN HAND	COMMANDED OFF, BUT THE STATUS IS ON									X	10 MIN.
PUMP RUNTIME EXCEEDED	STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT									X	10 MIN.

NOTES:
1. SEE STANDARD TRENDING POINTS LIST SCHEDULE ON SHEET XX-M-701 FOR APPLICABLE TREND INTERVALS.

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/26/2026 3:19:33 PM

VA FORM 08-6231

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
MECHANICAL CONTROLS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE,
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED JGD | DRAWN DSM

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER **M-705**

DRAWING # 66 OF 74

Veterans Health Administration

U.S. Department of Veterans Affairs

ABBREVIATIONS

#	
1P	SINGLE-POLE
1PH	SINGLE-PHASE
3P	THREE-POLE
3PH	THREE-PHASE
3W	THREE-WIRE
4W	FOUR-WIRE
A	
A or AMP	AMPERE
A/C	AIR CONDITIONING
A/E	ARCHITECT/ENGINEER
AAP	ALARM ANNUNCIATOR PANEL
AC	ALTERNATING CURRENT OR ARMORED CABLE
ACC	ACCESSIBLE
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJOINING
ADO	AUTOMATIC DOOR OPENER
AF	AMPERE FRAME OR AMP FUSE
AFC	ABOVE FINISHED COUNTER, OR AUTOMATIC FREQUENCY CONTROL, OR AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AH	AMPERE HOUR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
AIP	ABANDONED IN PLACE
ALT	ALTERNATE
AMB	AMBIENT
ARCH	ARCHITECT
ASC	AMPS SHORT CIRCUIT
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV	AUDIO VISUAL
B	
BAT	BATTERY
BC	BARE COPPER
BD	BOARD
BFF	BELOW FINISH FLOOR
BIL	BASIC INSULATION LEVEL
BLDG	BUILDING
BLK	BLOCK
BPIP	BOILER PLANT INSTRUMENTATION PANEL
BRKR	BREAKER
BYP	BY-PASS
C	
C	CONDUIT
CAP	CAPACITY
CAT	CATALOG
CATV	COMMUNITY ANTENNA TELEVISION
CCR	CONTROL CONTACTOR
CCTV	CLOSED CIRCUIT TELEVISION
CD	CONSTRUCTION DOCUMENTS OR CANDELA
CF	CONTRACTOR FURNISHED
CF/CI	CONTRACTOR FURNISHED / CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED / OWNER INSTALLED
CFE	CONTRACTOR FURNISHED EQUIPMENT
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COAX	COAXIAL CABLE
COMM	COMMUNICATION
CONC	CONCRETE
CONT	CONTINUED
CONTR	CONTRACTOR
COORD	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CRI	COLOR RENDERING INDEX
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
CU FT	CUBIC FEET
CVD	CUMULATIVE VOLTAGE DROP
D	
DB	DECIBEL OR DIRECT BURIAL
DC	DIRECT CURRENT
DCP	DIMMER CONTROL PANEL
DEG C	DEGREES CELSIUS
DEG F	DEGREES FAHRENHEIT
DEMO	DEMOLITION
DIAG	DIAGRAM
DISC	DISCONNECT
DISTR	DISTRIBUTION
DN	DOWN
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DRSW	DOOR SWITCH
DS	DISCONNECT SWITCH
DWG	DRAWING
E	
EC	EMPTY CONDUIT
EG	EQUIPMENT GROUND
EL	ELEVATION
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EMCP	EMER. MONITORING CONTROL PANEL
EMER	EMERGENCY
EMI	ELECTROMAGNETIC INTERFERENCE
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EPO	EMERGENCY POWER OFF
ESMT	EASEMENT
ETD	EXISTING TO BE DEMOLISHED
ETR	EXISTING TO REMAIN
ETL	EXISTING TO BE RELOCATED
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
F	
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FABL	FIRE ALARM BELL
FABX	FIRE ALARM BOX
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FI	FILM ILLUMINATOR
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE METALLIC CONDUIT
FLUOR	FLUORESCENT
FO	FIBER-OPTIC
FP	FIRE PROTECTION
FT	FEET OR FOOT
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
G	
G	GROUND OR GENERATOR
GND	GROUND
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GTB	GROUND TERMINAL BOX
H	
HCM	HORIZONTAL CABLE MANAGER
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HT	HEIGHT
HZ	HERTZ
I	
IC	INSULATION CONTACT
IESNA	ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IR	INFRARED
IWH	INSTANTANEOUS WATER HEATER
J	
JB OR J-BOX	JUNCTION BOX
K	
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAH	KILOVOLT-AMPERE-HOUR
KVAR	KILOVOLT-AMPERE-REACTIVE
KW	KILOWATT
KWH	KILOWATT-HOUR
KWHM	KILOWATT-HOUR METER
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET (FOOT)
LM	LUMEN
LP	LIGHT POLE
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPS
LT	LIGHT
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LTG	LIGHTING
LTNG	LIGHTNING
LV	LOW VOLTAGE
M	
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MC	METAL-CLAD
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MG	MOTOR GENERATOR
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
MVA	MEGAVOLT-AMPERE
MW	MEGAWATT
N	
N	NEUTRAL
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NS	NO SCALE
NTS	NOT TO SCALE
O	
OC	ON CENTER
OD	OUTSIDE DIAMETER
OL	OVERLOAD
P	
P	POLE
PA	PUBLIC ADDRESS
PB	PANELBOARD, OR PULL BOX, OR PUSHBUTTON
PBPU	PREFABRICATED BEDSIDE PATIENT UNIT
PCB	POLYCHLORINATED BIPHENYL
PEC	PHOTOELECTRIC CELL
PED	PEDESTAL
PEND	PENDANT
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PNLBD	PANELBOARD
POD	POWER OPERATED DAMPER
POE	POWER OVER ETHERNET
PT	POTENTIAL TRANSFORMER
PTRV	POWER TYPE ROOF VENTILATION
PVC	POLYVINYL CHLORIDE (PLASTIC)
PWR	POWER
R	
RCP	REFLECTED CEILING PLAN
RCPT	RECEPTACLE
RE	REFER TO
REC	RECESSED
RELO	RELOCATED
REQD	REQUIRED
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RMS	ROOT MEAN SQUARE
RU	RACK UNIT
SCC	SHORT CIRCUIT CAPACITY
SD	SMOKE DETECTOR
SES	SERVICE ENTRANCE SECTION
SF	SQUARE FEET (FOOT)
SHT	SHEET
SI	INTERNATIONAL SYSTEM OF UNITS
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
SSTV	SECURITY SURVEILLANCE TELEVISION
SURF	SURFACE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
T	
TC	TIME CLOCK
TEL	TELEPHONE
TP	TWISTED PAIR
TPS	TWISTED PAIR SHIELDED
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TYP	TYPICAL
U	
UFD	UNDERFLOOR DUCT
UGND	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	
V	VOLT
VA	VOLT-AMPERE
VAR	VOLT-AMPERE-REACTIVE
VCM	VERTICAL CABLE MANAGER
VFD	VARIABLE FREQUENCY DRIVE
W	
W	WATT
WH	WATER HEATER
WP	WEATHERPROOF
X	
XFER	TRANSFER
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

STANDARD MOUNTING HEIGHTS

ELECTRICAL:	(AFF, AFG UNLESS NOTED OTHERWISE)
AUDIBLE APPLIANCES (CENTERLINE)	84"
ALARMS (TOP)	48"
ANNUNCIATOR PANELS (TOP)	48"
CLOCK OUTLETS (CENTERLINE)	84"
CONTROLS (TOP)	48"
EXIT SIGNS (WALL-MOUNTED, BOTTOM)	80"
FIRE ALARM ANNUNCIATOR PANEL (DISPLAY)	60"
FIRE ALARM BELL (EXTERIOR)	120"
FIRE ALARM CONTROL PANEL/UNIT (DISPLAY)	60"
GROUND BAR	72"
INTERCOM (AFEA ONLY)	36"
INTERCOMS (TOP)	48"
PANELS & PANELBOARDS (TOP)	72"
PULL STATIONS (TOP)	48"
PHOTOCELLS	144"
RECEPTACLES (BOTTOM)	18"
RECEPTACLES, EXTERIOR (BOTTOM)	24"
RECEPTACLES, GARAGES (BOTTOM)	26"
RECEPTACLES IN EQUIPMENT ROOMS (TOP)	48"
RECEPTACLES ABOVE COUNTERTOPS (TOP)	44"
REMOTE INDICATING LIGHT, EQUIPMENT ROOMS (TOP)	48"
REMOTE INDICATING LIGHT, FINISHED AREAS (TOP)	CEILING
SAFETY SWITCHES & STARTERS	48"
SWITCHES (TOP)	48"
TELEPHONE/DATA/TV OUTLETS (BOTTOM)	18"
VISIBLE APPLIANCES (CENTERLINE)	84"

CODES, STANDARDS, AND EXECUTIVE ORDERS

PURPOSE: THE PUBLIC BUILDINGS AMENDMENT ACT OF 1988, PUBLIC LAW (PUB. L.) 100-678 REQUIRES FEDERAL AGENCIES TO FOLLOW NATIONAL RECOGNIZED "MODEL" BUILDING CODES. THE FEDERAL PARTICIPATION IN THE DEVELOPMENT AND USE OF VOLUNTARY STANDARDS, OFFICE OF MANAGEMENT AND BUDGET (OMB) CIRCULAR A-119, REQUIRES ALL EXECUTIVE AGENCIES TO RELY ON VOLUNTARY STANDARDS, BOTH DOMESTIC AND INTERNATIONAL, WHENEVER FEASIBLE, AND TO PARTICIPATE IN VOLUNTARY STANDARD BODIES.

GENERAL: VA HAS ADOPTED THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS AS A MINIMUM FOR ALL PROJECTS PERFORMED IN THE MODERNIZATION, ALTERATION, ADDITION, OR IMPROVEMENT OF ITS REAL PROPERTY AND THE CONSTRUCTION OF NEW STRUCTURES. VA DESIGN MANUALS AND MASTER SPECIFICATIONS SPECIFY OTHER CODES AND STANDARDS THAT VA FOLLOWS ON ITS PROJECTS. REFERENCE RELEVANT ADDENDA FOR EACH OF THE ADOPTED CODES AND STANDARDS:

- VA DIRECTIVES, DESIGN MANUALS, MASTER SPECIFICATIONS, VA NATIONAL CAD STANDARD APPLICATION GUIDE, AND OTHER GUIDANCE ON THE TECHNICAL INFORMATION LIBRARY (TIL) (HTTP://WWW.CFM.VA.GOV/TIL).
- 2024 INTERNATIONAL BUILDING CODE (IBC) (ONLY WHEN SPECIFICALLY REFERENCED IN VA DESIGN DOCUMENTS, SEE NOTES BELOW)
- 2024 INTERNATIONAL EXISTING BUILDING CODE (IEBC) (IF APPLICABLE)
- 2024 NFPA 101 LIFE SAFETY CODE (SEE NOTES BELOW)
- 2024 NATIONAL FIRE CODES (NFPA)
- OCCUPATIONAL, SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS.
- 2023 VA SEISMIC DESIGN REQUIREMENTS, H-18-8
- 2024 INTERNATIONAL MECHANICAL CODE
- 2023 NATIONAL ELECTRICAL CODE (NEC), NFPA 70
- 2024 INTERNATIONAL PLUMBING CODE (IPC)
- 2022 SAFETY CODE FOR ELEVATORS AND ESCALATORS, AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) A 17.1.
- ARCHITECTURAL BARRIERS ACT (ABA) STANDARDS INCLUDING VA SUPPLEMENT, VA BARRIER FREE DESIGN STANDARD (PG-18-13)
- 2022 ANSI ICC A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
- 2022 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY, AMERICAN CONCRETE INSTITUTE AND COMMENTARY (ACI 318-19)
- 2023 STEEL CONSTRUCTION MANUAL (16TH EDITION), AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
- ENERGY POLICY ACT OF 2005 (EPACT)
- 2007 DOE INTERIM FINAL RULE: ENERGY CONSERVATION STANDARDS FOR NEW FEDERAL, COMMERCIAL AND MULTI-FAMILY HIGH-RISE RESIDENTIAL BUILDINGS AND NEW LOW-RISE RESIDENTIAL BUILDINGS, 10 CFR PARTS 433, 434 AND 435.
- 2006 FEDERAL LEADERSHIP IN HIGH PERFORMANCE AND SUSTAINABLE BUILDINGS: MEMORANDUM OF UNDERSTANDING (MOU)
- 2018 EXECUTIVE ORDER 13834: EFFICIENT FEDERAL OPERATIONS
- 2021 THE PROVISIONS FOR CONSTRUCTION AND SAFETY SIGNS. STATED IN THE GENERAL REQUIREMENTS SECTION 010000 OF THE VA MASTER CONSTRUCTION SPECIFICATION.
- 2022 VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY – ASHRAE STANDARD 62.1
- 2022 SAFETY STANDARD FOR REFRIGERATION SYSTEMS – ASHRAE STANDARD 15
- 2024 PHYSICAL SECURITY AND RESILIENCY DESIGN MANUAL

LOCAL CODES: AS AN AGENCY OF THE FEDERAL GOVERNMENT, VA IS NOT SUBJECT TO LOCAL IMPOSITION OF CODE ENFORCEMENT PROCEDURES (DRAWING REVIEWS, BUILDING PERMITS, INSPECTIONS, FEES, ETC.). VA MUST FUNCTION AS THE AUTHORITY HAVING JURISDICTION (AHJ) AND THUS HAS THE RESPONSIBILITY TO GUARD PUBLIC HEALTH AND SAFETY THROUGH ENFORCING ITS ADOPTED CODES. HOWEVER, LOCAL AUTHORITIES SHOULD BE NOTIFIED ABOUT PLANNED PROJECTS AND GIVEN OPPORTUNITY TO REVIEW DRAWINGS PROVIDED THAT VA DOES NOT PAY FOR REVIEW OR INSPECTION FEES.

NOTES:

1. NFPA 101 PRIMARILY ADDRESSES LIFE SAFETY AND FIRE PROTECTION FEATURES WHILE THE IBC ADDRESSES A WIDE RANGE OF CONSIDERATIONS, INCLUDING, BUT NOT LIMITED TO, STRUCTURAL STRENGTH, SEISMIC STABILITY, SANITATION, ADEQUATE LIGHT AND VENTILATION, AND ENERGY CONSERVATION. VA BUILDINGS MUST MEET THE REQUIREMENTS OF NFPA 101 AND DOCUMENTS REFERENCED BY NFPA 101 IN ORDER TO COMPLY WITH THE ACCREDITATION REQUIREMENTS OF THE JOINT COMMISSION. THEREFORE, DESIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF NFPA 101 AND DOCUMENTS REFERENCED THEREIN. DESIGN FEATURES NOT ADDRESSED BY NFPA 101 OR DOCUMENTS REFERENCED THEREIN SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE IBC OR AS OTHERWISE ADDRESSED ABOVE IN THIS PROGRAM GUIDE. FOR DESIGN FEATURES THAT ARE ADDRESSED BY BOTH THE IBC AS WELL AS NFPA 101 OR A DOCUMENT REFERENCED BY NFPA 101, THE REQUIREMENTS OF NFPA 101 OR THE DOCUMENT REFERENCED BY NFPA 101 SHALL BE USED EXCLUSIVELY (THIS APPLIES EVEN IF THE IBC REQUIREMENTS ARE DIFFERENT).
2. CONFLICTS BETWEEN NATIONALLY RECOGNIZED CODES AND STANDARDS AND VA REQUIREMENTS – SHOULD A CONFLICT EXIST BETWEEN VA REQUIREMENTS AND VA ADOPTED NATIONALLY RECOGNIZED CODES AND STANDARDS, THE CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF VA. THE RESOLUTION OF THE CONFLICT SHALL BE MADE BY THE AUTHORITY HAVING JURISDICTION FOR VA TO ENSURE A CONSISTENCY SYSTEM WIDE.

GENERAL NOTES

A. ELECTRICAL PLANS AND SECTIONS ARE INTENDED TO ACCURATELY ILLUSTRATE THE SCOPE OF WORK, BUT ARE STILL DIAGRAMMATIC IN NATURE.

B. ELECTRICAL DRAWINGS DO NOT SHOW ALL ACCESSORIES TO BE INSTALLED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SYSTEMS ARE FULLY FUNCTIONAL AND COMPLIANT WITH APPLICABLE CODES.

C. ELECTRICAL DRAWINGS REFLECT COORDINATION EFFORTS WITH BUILDING DISCIPLINES. HOWEVER, COORDINATION WITH OTHER TRADES IS REQUIRED.

D. REFERENCE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING SCHEDULE AND PHASING REQUIREMENTS. SCHEDULE WORK TO MINIMIZE DISRUPTION OF SERVICES.

E. COORDINATE WITH SCHEDULE WITH THE CONTRACTING OFFICER'S REPRESENTATIVE BEFORE THE START OF WORK.

F. PANELBOARDS AND OTHER ELECTRICAL EQUIPMENT REQUIRE SHUTDOWN. COORDINATE SERVICE SHUTDOWN FOR ALL EQUIPMENT WITH THE CONTRACTING OFFICER'S REPRESENTATIVE.

G. MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.

H. UPDATE ALL PANELBOARD SCHEDULES AFFECTED AT THE COMPLETION OF THE PROJECT.

I. IF FIELD CONDITIONS VARY FROM THE DRAWINGS, THE CONTRACTOR SHALL DOCUMENT THE VARIATION AND REPORT IT TO THE GENERAL CONTRACTOR FOR RESOLUTION WITH THE ENGINEER OF RECORD.

ANNOTATION

- MECHANICAL KEYNOTE CALL OUT
- PLUMBING KEY NOTE CALL OUT
- ELECTRICAL KEYNOTE CALL OUT
- OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT
- PLUMBING EQUIPMENT DESIGNATION
- EQUIPMENT DESIGNATION TAG
- LIMIT OF DEMOLITION
- NEW WORK TO EXISTING WORK CONNECTION POINT
- DETAIL REFERENCE
- SECTION CUT DESIGNATION

LIGHTING SYMBOLS

- LIGHT FIXTURE, CEILING MOUNTED — A1 = LIGHT FIXTURE TYPE "A1E" REFER TO LIGHT FIXTURE SCHEDULE; a = SWITCHED BY SWITCH "a"; NL = NIGHT LIGHT; ARROW INDICATES AIMING DIRECTION
- LIGHTING TRACK WITH TRACK LIGHT FIXTURES — A1E = LIGHT FIXTURE TYPE "A1E" REFER TO LIGHT FIXTURE SCHEDULE; a = SWITCHED BY SWITCH "a"
- EMERGENCY LIGHT FIXTURE, CEILING MOUNTED — A1E = LIGHT FIXTURE TYPE "A1E" REFER TO LIGHT FIXTURE SCHEDULE; a = SWITCHED BY SWITCH "a"; NL = NIGHT LIGHT
- EXIT SIGN, CEILING MOUNTED, FACE/ARROWS AS INDICATED — X1E = LIGHT FIXTURE TYPE "X1E" REFER TO LIGHT FIXTURE SCHEDULE
- EXIT SIGN, WALL MOUNTED, FACE/ARROWS AS INDICATED — X1E = LIGHT FIXTURE TYPE "X1E" REFER TO LIGHT FIXTURE SCHEDULE
- EMERGENCY BATTERY PACK LIGHT FIXTURE, CEILING MOUNTED — Y1E = LIGHT FIXTURE TYPE "Y1E" REFER TO LIGHT FIXTURE SCHEDULE
- EMERGENCY BATTERY PACK LIGHT FIXTURE, WALL MOUNTED — Y1E = LIGHT FIXTURE TYPE "Y1E" REFER TO LIGHT FIXTURE SCHEDULE
- LIGHT FIXTURE, WALL MOUNTED — A1 = LIGHT FIXTURE TYPE "A1" REFER TO LIGHT FIXTURE SCHEDULE
- LIGHT FIXTURE, BOLLARD — A1 = LIGHT FIXTURE TYPE "A1" REFER TO LIGHT FIXTURE SCHEDULE
- LIGHT FIXTURE, POLE MOUNTED — A1 = LIGHT FIXTURE TYPE "A1" REFER TO LIGHT FIXTURE SCHEDULE

CIRCUITING SYMBOLS

- HOMERUN TO PANELBOARD. TICK MARKS INDICATE NUMBER OF CONDUCTORS. DESIGNATIONS ARE PANELBOARD AND CIRCUIT NUMBERS. (LP1, 1,3,5)
- UNSWITCHED HOT CONDUCTORS SHOWN LEADING NEUTRAL CONDUCTOR
- NEUTRAL CONDUCTOR
- SWITCHED HOT CONDUCTORS SHOWN TRAILING GROUND CONDUCTOR
- EQUIPMENT GROUNDING CONDUCTOR IN RACEWAY
- ISOLATED GROUNDING CONDUCTOR IN RACEWAY
- CONCEALED RACEWAY
- EXPOSED RACEWAY
- RACEWAY TURNING UP
- RACEWAY TURNING DOWN
- EQUIPMENT TERMINATION
- LOW VOLTAGE CABLE (NOT ROUTED IN CONDUIT)
- UE — UNDERGROUND ELECTRIC LINE
- OE — OVERHEAD ELECTRIC LINE

WIRING DEVICE SYMBOLS

- RECEPTACLE, SIMPLEX, NEMA 5-20R, UNO
- RECEPTACLE, DUPLEX, NEMA 5-20R, UNO
- RECEPTACLE, DOUBLE-DUPLEX, NEMA 5-20R, UNO
- RECEPTACLE, MOUNTED 6" ABOVE COUNTER, TYPE AS INDICATED ABOVE
- RECEPTACLE, DUPLEX, GROUND-FAULT CIRCUIT INTERRUPTER, NEMA 5-20R, UNO
- RECEPTACLE, DUPLEX, CEILING MOUNTED, NEMA 5-20R, UNO
- RECEPTACLE, DUPLEX, DROP CORD, NEMA 5-20R, UNO
- RECEPTACLE, DUPLEX, FLOOR MOUNTED, NEMA 5-20R, UNO
- RECEPTACLE, TWIST-LOCK
- RECEPTACLE, SPECIAL PURPOSE
- MULTI-OUTLET, SURFACE RACEWAY, 24" ON CENTER, NEMA 5-20R, UNO
- RECEPTACLE DESIGNATIONS AS FOLLOWS:
  - C = CLOCK HANGER
  - E = EMERGENCY POWER
  - GF = GROUND FAULT CIRCUIT INTERRUPTER
  - IG = ISOLATED GROUND
  - S = SWITCHED
  - TR = TAMPER RESISTANT
  - WP = WEATHER PROOF COVER
  - WR = WEATHER RESISTANT
  - XP = EXPLOSION PROOF
- MULTI-SERVICE POWER POLE WITH POWER/DATA, TYPE AS NOTED AND/OR SCHEDULED
- MULTI-SERVICE FLOOR BOX/POKE-THRU WITH POWER/DATA, TYPE AS NOTED AND/OR SCHEDULED
- RECEPTACLE ON EMERGENCY POWER
- RECEPTACLE, ISOLATED GROUND TYPE
- WALL SWITCH, SINGLE POLE (LINE VOLTAGE, UNO.)
- WALL SWITCH DESIGNATIONS AS FOLLOWS:
  - 2 = TWO-POLE
  - 3 = THREE-WAY
  - 4 = FOUR-WAY
  - D = DIMMER SWITCH
  - OS# = OCCUPANCY SENSOR TYPE (LINE-VOLTAGE, UNO.) RE: OCCUPANCY SENSOR AND SWITCH SCHEDULE
  - P = SINGLE-POLE, SINGLE-THROW, PILOT LIGHT
  - K = KEYED-TYPE
  - M = MOTOR RATED
  - WP = WEATHER PROOF WITH COVER
- OCCUPANCY SENSOR, CEILING MOUNTED — OS# = CEILING MOUNTED OCCUPANCY SENSOR, REFER TO OCCUPANCY SENSOR AND SWITCH SCHEDULE
- PP# — POWER PACK FOR LIGHTING CONTROL
- ES — EMERGENCY SHUNT RELAY
- J — JUNCTION BOX
- PUSH BUTTON, TYPE AS NOTED
- EPO — MUSHROOM TYPE PUSH BUTTON, TYPE AS NOTED

LIGHTNING PROTECTION SYMBOLS

- LIGHTNING PROTECTION AIR TERMINAL
- LIGHTNING PROTECTION CABLE CONNECTION
- LIGHTNING PROTECTION GROUND ROD
- LIGHTNING PROTECTION CONDUCTOR

POWER EQUIPMENT SYMBOLS

- SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION PANELBOARD ON HOUSEKEEPING PAD
- PANELBOARD, RECESS MOUNTED
- PANELBOARD, SURFACE MOUNTED
- CABINET, RECESS MOUNTED
- CABINET, SURFACE MOUNTED
- TRANSFORMER
- T — LOW-VOLTAGE TRANSFORMER
- 100/3 — DISCONNECT SWITCH, NON-FUSED, 100/3 INDICATES AMPERES/POLES, CB = CIRCUIT BREAKER TYPE
- 100/3/70 — DISCONNECT SWITCH, FUSED, 100/3/70 INDICATES AMPERES/POLES/FUSE, CB = CIRCUIT BREAKER TYPE
- 100/3/70/1 — COMBINATION DISCONNECT SWITCH WITH MOTOR STARTER 100/3/70/1 INDICATES AMPERES/POLES/FUSE/ NEMA STARTER SIZE, NF = NON-FUSED, CB = CIRCUIT BREAKER TYPE
- 100/3/CB — VARIABLE FREQUENCY DRIVE WITH DISCONNECT SWITCH 100/3/70 INDICATES AMPERES/POLES/FUSE SIZE, NF = NON-FUSED, CB = CIRCUIT BREAKER TYPE
- MAGNETIC MOTOR STARTER, NEMA SIZE AS NOTED, 3-POLE, UNO
- C — CONTACTOR
- PC — PHOTOCELL
- R — RELAY
- TS — TIME SWITCH

ELECTRICAL ONE-LINE DIAGRAM SYMBOLS

- 275KW STANDBY / 480Y/277V, 3PH, 4W / 400A/3P / E/G — GENERATOR, SEPARATELY DERIVED SOURCE, TYPE AND RATINGS AS INDICATED
- 275KW STANDBY / 480Y/277V, 3PH, 4W / 400A/3P / E/G — GENERATOR, NON-SEPARATELY DERIVED SOURCE, TYPE AND RATINGS AS INDICATED
- ATS# / 200A 3P — TRANSFER SWITCH, RATINGS AS INDICATED; ATS = AUTOMATIC TRANSFER SWITCH; MTS = MANUAL TRANSFER SWITCH
- ATS# / 200A 3P — AUTOMATIC TRANSFER SWITCH WITH BYPASS TYPE AND RATINGS AS INDICATED
- TX# — TRANSFORMER
- TX# — TRANSFORMER, SHIELDED
- PANELBOARD, SINGLE-SECTION, RATINGS PER SCHEDULES
- PANELBOARD, MULTI-SECTION, RATINGS PER SCHEDULES
- 600AF 500AT 3P — DRAWOUT CIRCUIT BREAKER, RATINGS AS INDICATED
- 400AS 3P 225AF LPS-R — FUSED DISCONNECT SWITCH, RATINGS AS INDICATED
- 600AF 500AT 3P — CIRCUIT BREAKER, RATINGS AS INDICATED
- 400AS 3P 225AF LPS-R NEMA 1 — COMBINATION FUSED SWITCH AND STARTER, RATINGS AS INDICATED
- COMBINATION CIRCUIT BREAKER AND STARTER, RATINGS AS INDICATED
- CAPACITOR
- CONTACT, CLOSED
- CONTACT, OPEN
- VARIABLE FREQUENCY DRIVE WITH DISCONNECT, RATINGS AS INDICATED
- ### — FEEDER TAG
- GFR — GROUND-FAULT RELAY
- KK — KIRK-KEY INTERLOCK
- CURRENT TRANSFORMER
- HEATER
- SURGE ARRESTER
- POTENTIAL TRANSFORMER
- ST — SHUNT-TRIP RELAY
- SPD — SURGE PROTECTION DEVICE
- AM — AMMETER
- DM — COMBINATION DIGITAL AMMETER/VOLTMETER
- GROUND CONNECTION
- GROUND CONNECTION WITH TEST WELL
- MOTOR
- 200A DEAD-FRONT ELBOW
- 600A DEAD-FRONT ELBOW
- M — UTILITY METER
- VM — VOLTMETER
- R — RELAY
- DEAD-FRONT SPLITTER
- FAULT INDICATOR

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/27/2026 8:46:01 AM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
ELECTRICAL LEGEND AND ABBREVIATIONS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED RK | DRAWN JMF

PROJECT NUMBER **589A4-25-102**

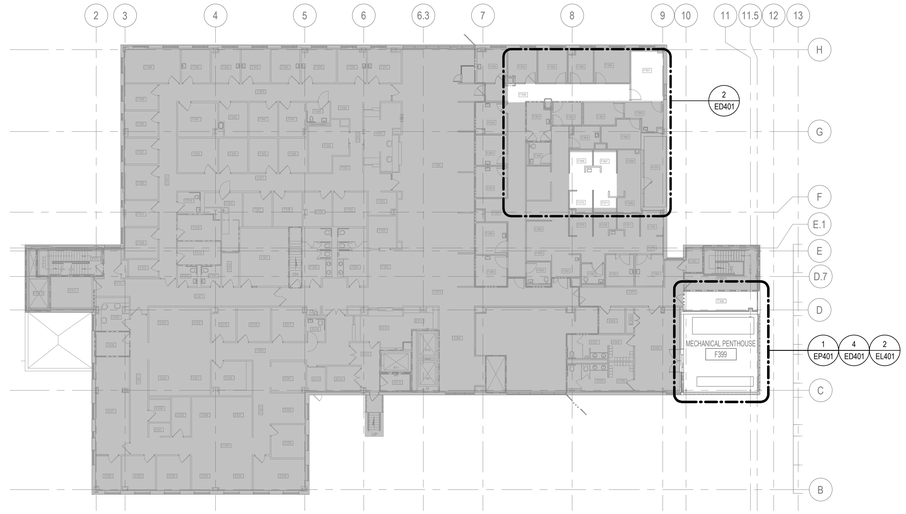
BUILDING NUMBER 1

DRAWING NUMBER **E-001**

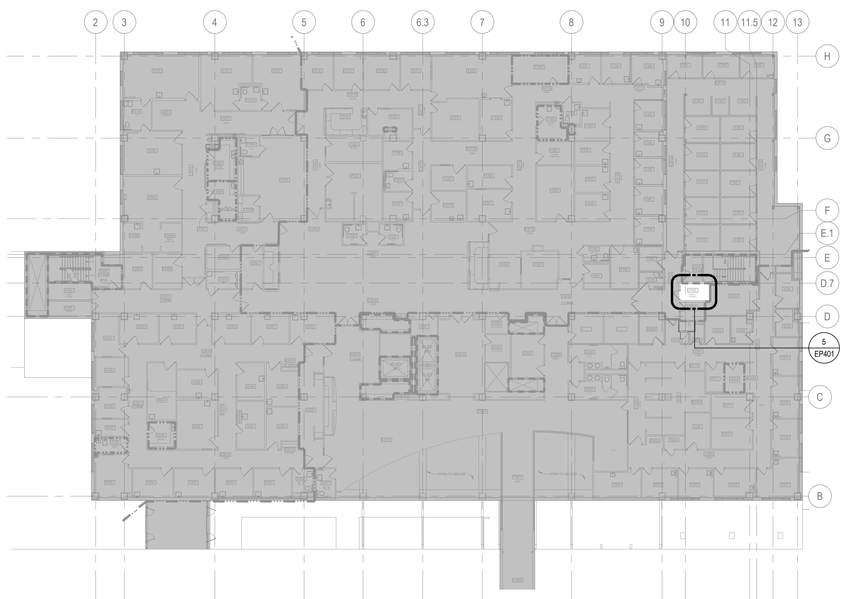
DRAWING # 67 OF 74

VA FORM 08-6231

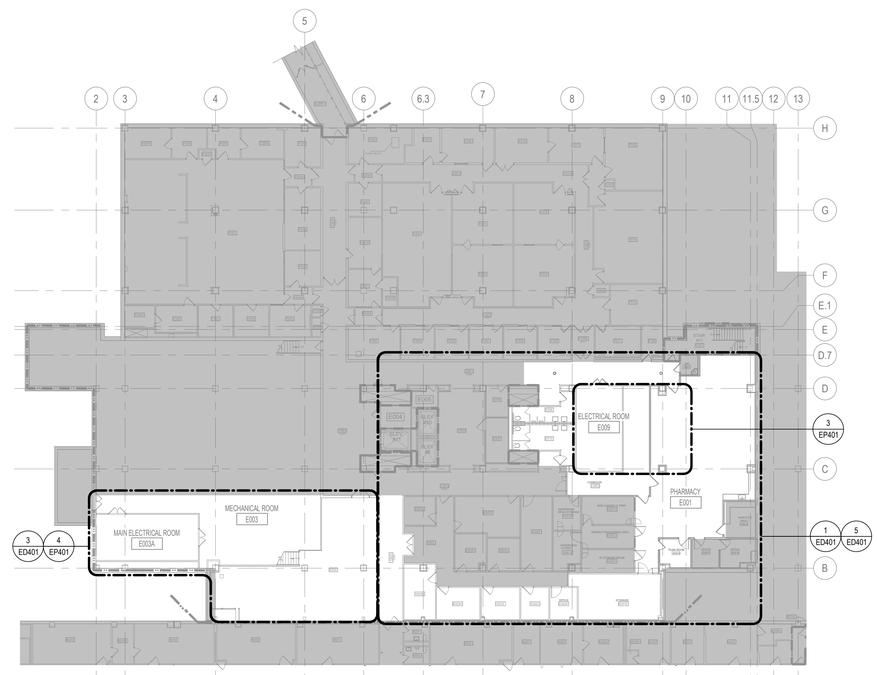
4 ELECTRICAL REFERENCE PLAN - ROOF
3/64" = 1'-0"



3 ELECTRICAL REFERENCE PLAN - LEVEL 3
3/64" = 1'-0"



2 ELECTRICAL REFERENCE PLAN - LEVEL 2
3/64" = 1'-0"



1 ELECTRICAL REFERENCE PLAN - BASEMENT
3/64" = 1'-0"

GENERAL NOTES

A. DASHED DEVICES INDICATE DEVICES TO BE DEMOLISHED UNLESS NOTED OTHERWISE.

B. WHERE PORTIONS OF CIRCUIT ARE REMOVED OR ABANDONED, RE-ESTABLISH CIRCUIT CONTINUITY FOR REMAINING PORTIONS OF CIRCUITS AS REQUIRED TO MAINTAIN OPERATION.

C. THE VA SHALL MAINTAIN RIGHT TO FIRST REFUSAL TO ALL DEMOLITION WASTE TO BE REMOVED. ALL OTHER ITEMS OF INTEREST OR VALUE TO THE VA THAT MAY BE UNCOVERED DURING DEMOLITION SHALL REMAIN THE PROPERTY OF THE VA UNLESS NOTED OTHERWISE.

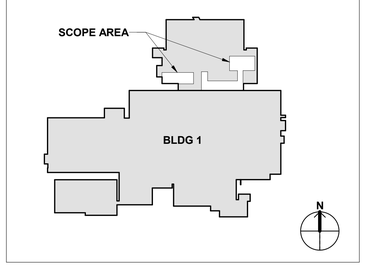
D. FOR ELECTRICAL DEVICES INDICATED TO REMAIN, EXTEND BOXES TO BE FLUSHED WITH NEW FINISH ON EXISTING WALLS, WHERE REQUIRED.

E. COORDINATE REMOVAL OF ALL EXISTING CONDUIT AND ELECTRICAL DEVICES AND/ OR EQUIPMENT IN WALLS TO BE REMOVED. PATCH AND REPAIR ALL OPENINGS IN GYPSUM BOARD THAT ARE EXISTING TO REMAIN.

F. FOR CIRCUITS BEING COMPLETELY DEMOLISHED, REMOVE CABLE AND CONDUIT ALL THE WAY BACK TO SOURCE.

G. ALL RECEPTACLES, UPS SYSTEMS, AND PDUS TO BE DEMOLISHED IN AREA OF WORK. REMOVE CONDUIT AND CONDUCTORS BACK TO UPSTREAM PANELBOARD.

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
ELECTRICAL REFERENCE PLANS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED RK | DRAWN JMF

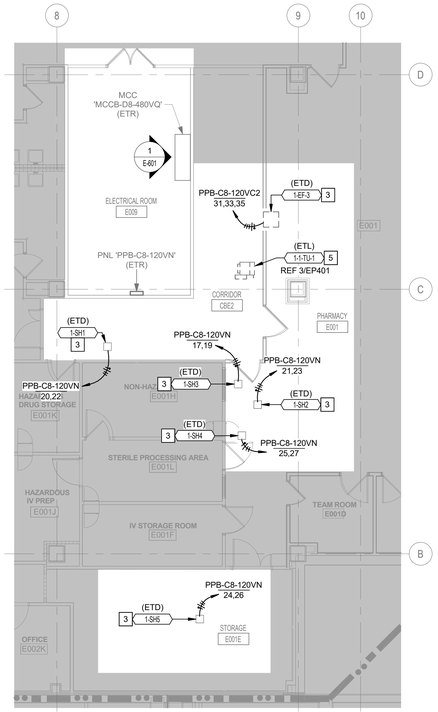
PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
E-101
DRAWING # 68 OF 74

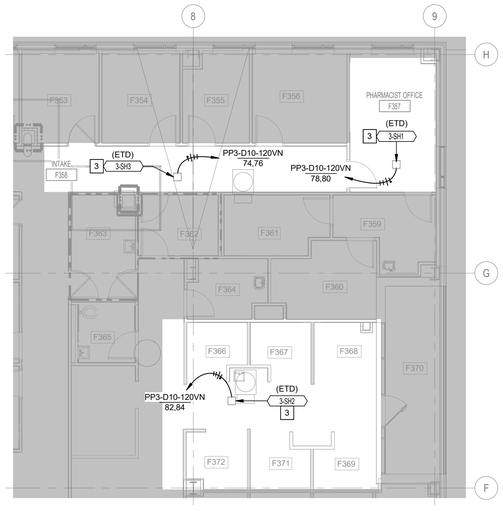
5/27/2026 8:46:02 AM

VA FORM 08-6231



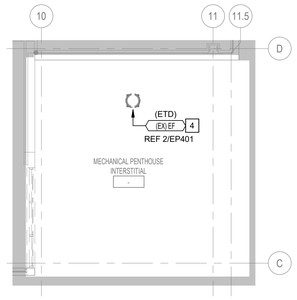
N

5 ENLARGED DEMOLITION PLAN - BASEMENT
1/8" = 1'-0" REF: 1/ E-101



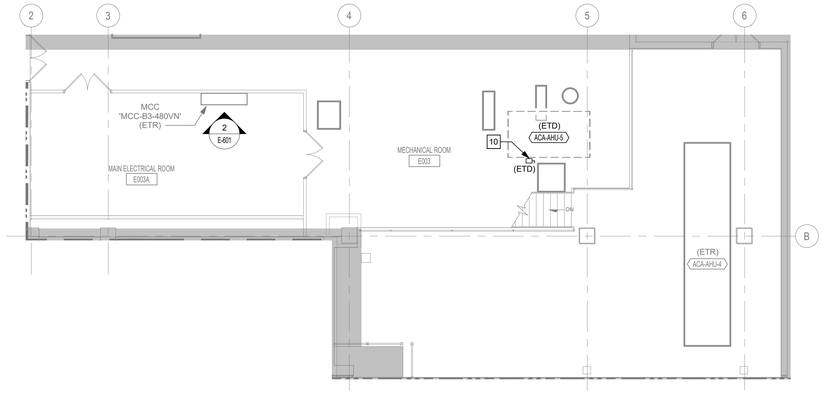
N

2 ENLARGED DEMOLITION PLAN - LEVEL 3
1/8" = 1'-0" REF: 3/ E-101



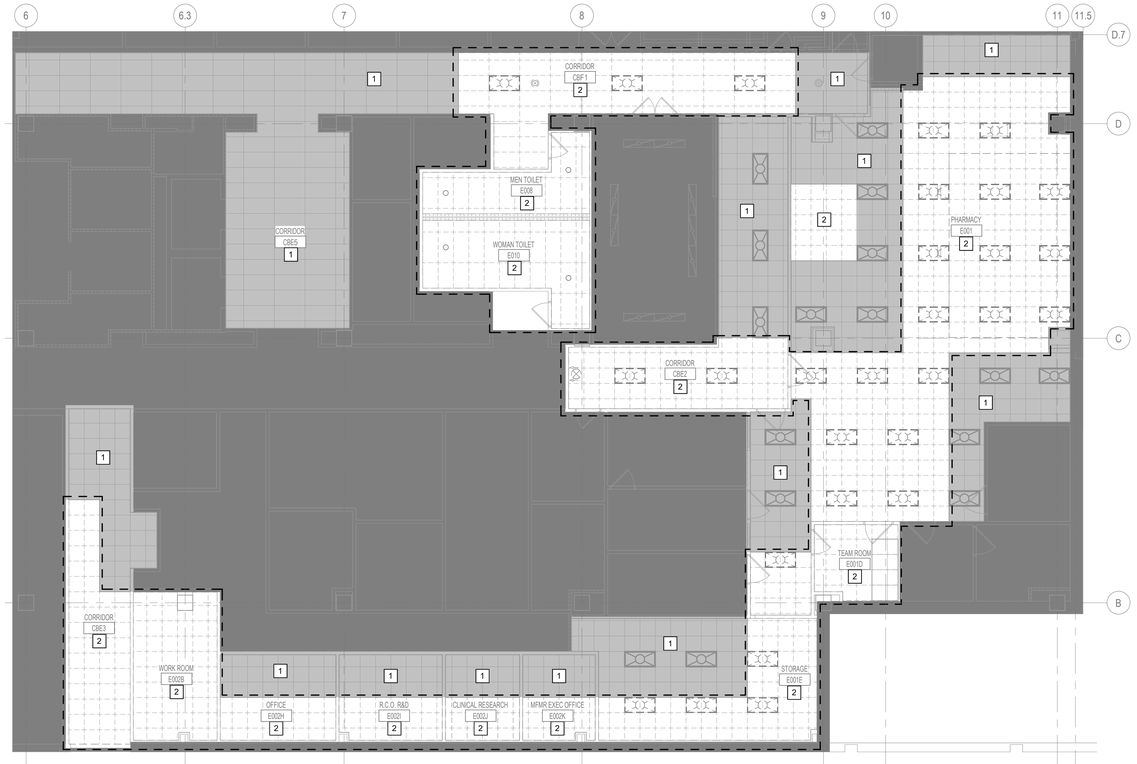
N

4 ENLARGED DEMOLITION PLAN - EXISTING ROOFTOP - INTERSTITIAL LEVEL
1/8" = 1'-0" REF: 3/ E-101



N

3 ENLARGED DEMOLITION PLAN - MECHANICAL RM E003 - BASEMENT
1/8" = 1'-0" REF: 1/ E-101



N

1 REFLECTED CEILING DEMOLITION PLAN - BASEMENT
1/8" = 1'-0" REF: 1/ E-101

DEMOLITION GENERAL NOTES

A. DASHED DEVICES INDICATE DEVICES TO BE DEMOLISHED UNLESS NOTED OTHERWISE.

B. WHERE PORTIONS OF THE CIRCUIT ARE REMOVED OR ABANDONED, RE-ESTABLISH CIRCUIT CONTINUITY FOR REMAINING PORTIONS OF CIRCUITS AS REQUIRED TO MAINTAIN OPERATION.

C. THE VA SHALL MAINTAIN THE RIGHT OF FIRST REFUSAL TO ALL DEMOLITION WASTE TO BE REMOVED. ALL OTHER ITEMS OF INTEREST OR VALUE TO THE VA THAT MAY BE UNCOVERED DURING DEMOLITION SHALL REMAIN THE PROPERTY OF THE VA UNLESS NOTED OTHERWISE.

D. FOR ELECTRICAL DEVICES INDICATED TO REMAIN, EXTEND BOXES TO BE FLUSHED WITH THE NEW FINISH ON EXISTING WALLS, WHERE REQUIRED.

E. COORDINATE REMOVAL OF ALL EXISTING CONDUIT AND ELECTRICAL WIRING DEVICES AND/OR EQUIPMENT IN WALLS TO BE REMOVED. PATCH AND REPAIR ALL OPENINGS IN GYPSUM BOARD THAT ARE EXISTING TO REMAIN.

F. FOR CIRCUITS BEING COMPLETELY DEMOLISHED, REMOVE CABLE AND CONDUIT ALL THE WAY BACK TO SOURCE PANELBOARD.

ELECTRICAL KEYNOTES

1 EXISTING CEILING SYSTEM SHALL REMAIN.

2 EXISTING CEILING SYSTEMS ARE TO BE DEMOLISHED AS PART OF THIS PROJECT FOR NEW MECHANICAL WORK. ALL LIGHTING AND LIGHTING CONTROLS SYSTEMS IN AFFECTED AREA TO REMAIN EXISTING DURING ALL PHASES OF CONSTRUCTION. PROTECT AND TEMPORARILY SUPPORT LIGHT FIXTURES AND DEVICES WHERE NECESSARY. CEILING WILL BE REINSTALLED ONCE MECHANICAL WORK IS COMPLETED.

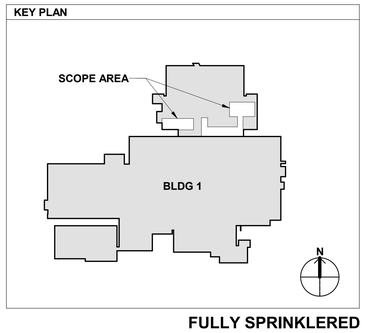
3 EXISTING MECHANICAL EQUIPMENT ABOVE CEILING AND CORRESPONDING ACCESSORIES ARE TO BE DEMOLISHED AS PART OF THIS PROJECT. REMOVE THE EXISTING CIRCUITS INCLUSIVE OF CONDUITS, BOXES, AND SUPPORTS BACK TO THE TERMINATION POINT AT THE EXISTING FEEDER BREAKER. RELABEL THE FEEDER BREAKER AS "SPARE".

4 EXISTING EXHAUST FAN TO BE DEMOLISHED. PRESERVE EXISTING CIRCUIT AND EXTEND OR REROUTE TO NEW LOCATION.

5 MAINTAIN CIRCUITRY AND CORRESPONDING ACCESSORIES OF EXISTING MECHANICAL EQUIPMENT LOCATED ABOVE CEILING. EXTEND OR REROUTE TO NEW LOCATION.

10 DISCONNECT AND REMOVE EXISTING CIRCUIT, BACK TO EXISTING MCC. REMOVE EXISTING DISCONNECT.

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
ELECTRICAL DEMOLITION PLANS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** CHECKED RK DRAWN JMF

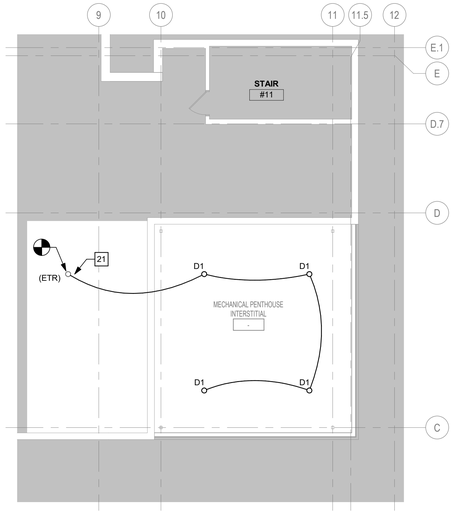
PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER
ED401
DRAWING # 69 OF 74

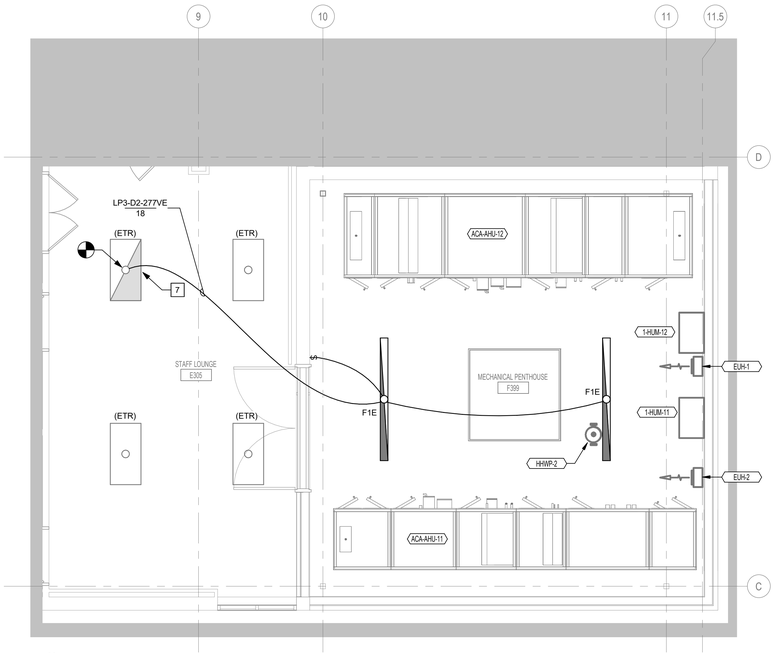
5/27/2026 8:46:02 AM

VA FORM 08-6231



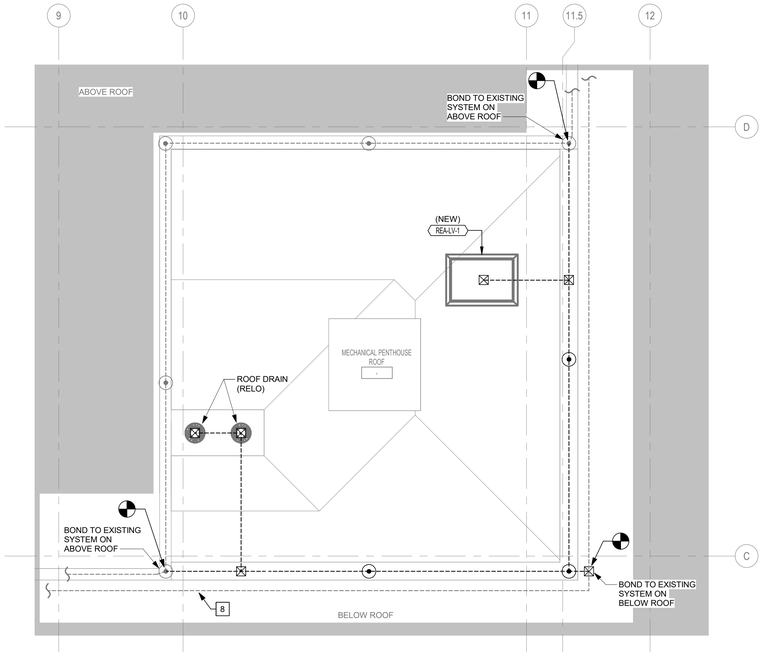
N

3 ENLARGED LIGHTING PLAN - MECHANICAL PENTHOUSE INTERSTITIAL
1/8" = 1'-0"



N

2 ENLARGED LIGHTING PLAN - MECHANICAL PENTHOUSE F399 - LEVEL 3
1/4" = 1'-0" REF: 3/ E-101



N

1 ENLARGED LIGHTNING PROTECTION PLAN - MECHANICAL PENTHOUSE ROOF
1/4" = 1'-0" REF: 4/ E-101

GENERAL NOTES

A. DASHED DEVICES INDICATE DEVICES TO BE DEMOLISHED UNLESS NOTED OTHERWISE.

B. WHERE PORTIONS OF CIRCUIT ARE REMOVED OR ABANDONED, RE-ESTABLISH CIRCUIT CONTINUITY FOR REMAINING PORTIONS OF CIRCUITS AS REQUIRED TO MAINTAIN OPERATION.

C. THE VA SHALL MAINTAIN RIGHT TO FIRST REFUSAL TO ALL DEMOLITION WASTE TO BE REMOVED. ALL OTHER ITEMS OF INTEREST OR VALUE TO THE VA THAT MAY BE UNCOVERED DURING DEMOLITION SHALL REMAIN THE PROPERTY OF THE VA UNLESS NOTED OTHERWISE.

D. FOR ELECTRICAL DEVICES INDICATED TO REMAIN, EXTEND BOXES TO BE FLUSHED WITH NEW FINISH ON EXISTING WALLS, WHERE REQUIRED.

E. COORDINATE REMOVAL OF ALL EXISTING CONDUIT AND ELECTRICAL DEVICES AND/ OR EQUIPMENT IN WALLS TO BE REMOVED. PATCH AND REPAIR ALL OPENINGS IN GYPSUM BOARD THAT ARE EXISTING TO REMAIN.

F. FOR CIRCUITS BEING COMPLETELY DEMOLISHED, REMOVE CABLE AND CONDUIT ALL THE WAY BACK TO SOURCE.

G. ALL RECEPTACLES, UPS SYSTEMS, AND PDUS TO BE DEMOLISHED IN AREA OF WORK. REMOVE CONDUIT AND CONDUCTORS BACK TO UPSTREAM PANELBOARD.

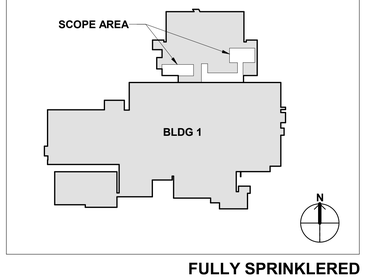
ELECTRICAL KEYNOTES

7 REUSE POWER FROM EXISTING EGRESS LIGHTING CIRCUIT #18 ON LIFE SAFETY PANEL 'LP3-D2-277VE' VIA THE NEAREST EXISTING LIGHT FIXTURE POWERED BY THIS CIRCUIT AS SHOWN ON PLANS.

8 EXISTING LIGHTNING PROTECTION SYSTEM MAY NEED TO BE SHIFTED DURING CONSTRUCTION OF MECHANICAL PENTHOUSE WALLS. PROTECT EXISTING SYSTEM DURING CONSTRUCTION. PROVIDE NEW SECTIONS OF CONDUCTOR OR MOUNTING BRACKETS AS NEEDED.

21 REUSE POWER AND CONTROLS FROM EXISTING LIGHTING CIRCUIT VIA THE NEAREST LIGHT FIXTURE WITHIN THE INTERSTITIAL SPACE.

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/27/2026 8:46:03 AM

VA FORM 08-6231

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
ELECTRICAL LIGHTING PLAN

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

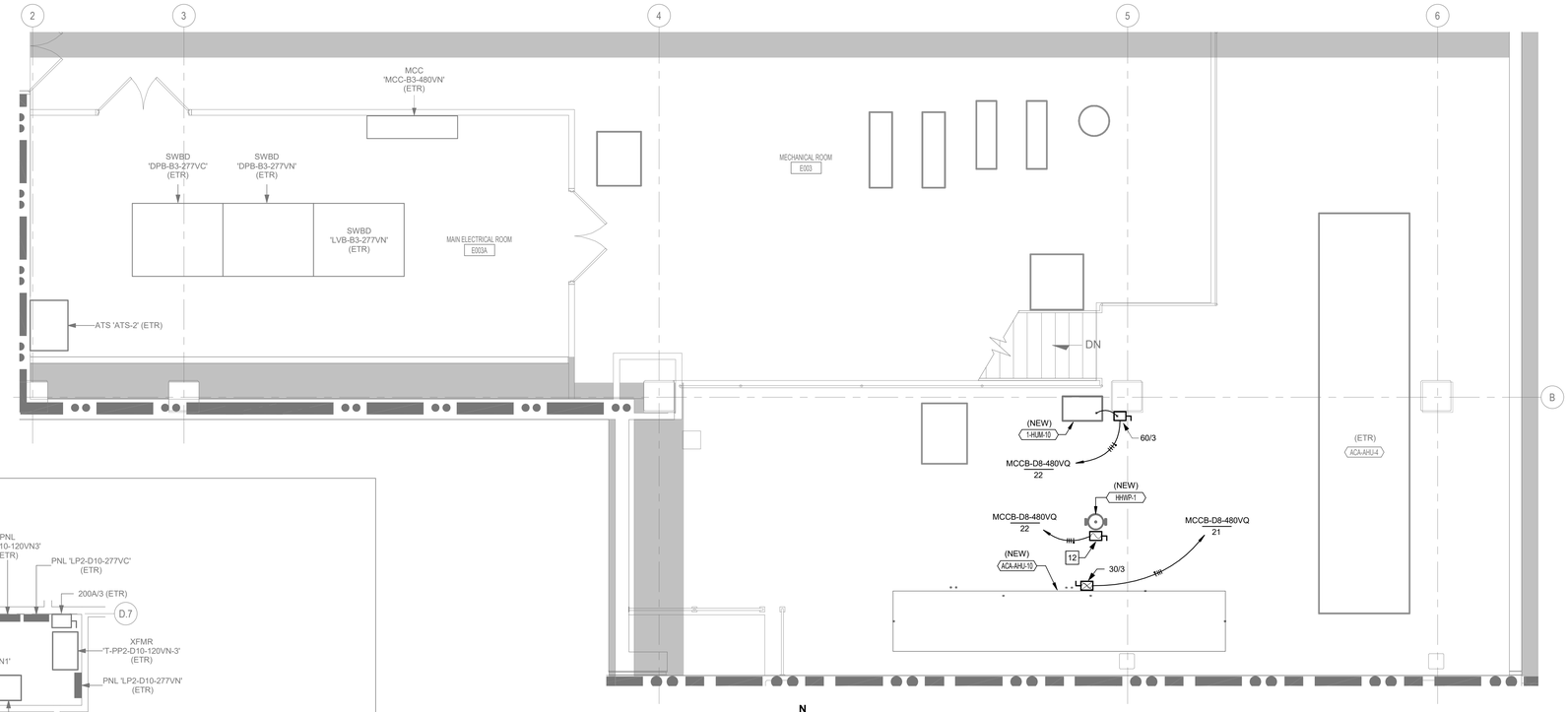
LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED RK | DRAWN JMF

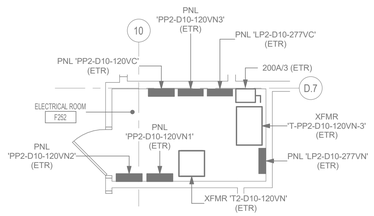
PROJECT NUMBER
589A4-25-102

BUILDING NUMBER
1

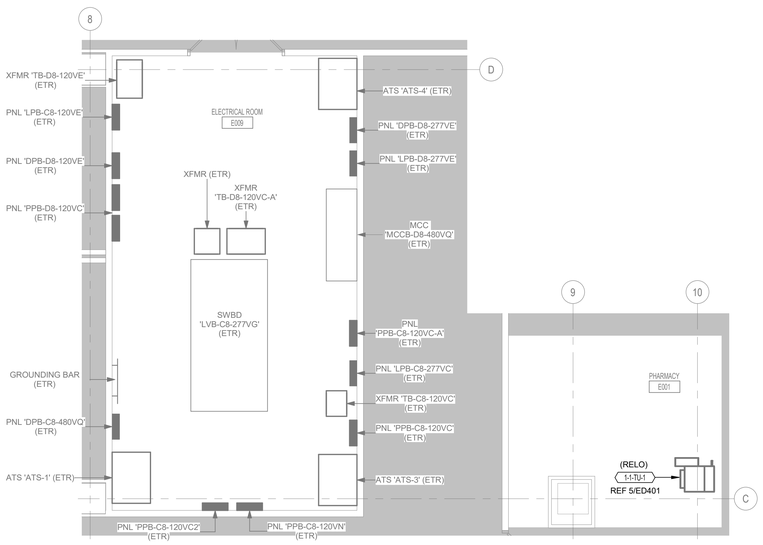
DRAWING NUMBER
EL401
DRAWING # 70 OF 74



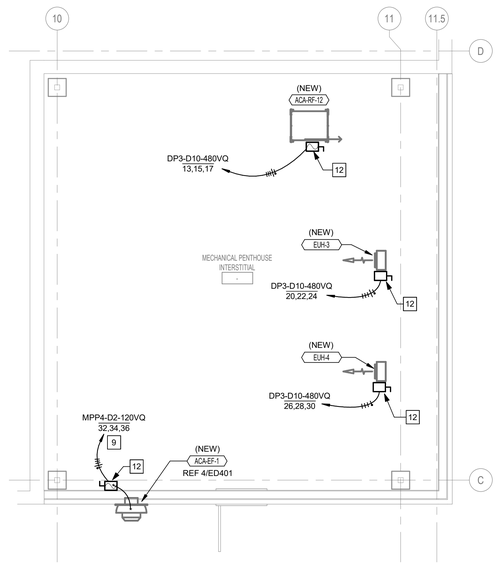
4 ENLARGED POWER PLAN - MECHANICAL ROOM E003 - BASEMENT
1/4" = 1'-0" REF: 1/ E-101



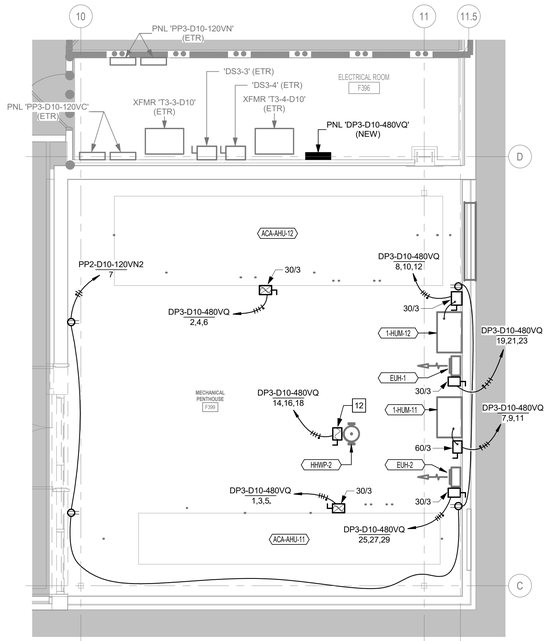
5 ENLARGED POWER PLAN - ELECTRICAL ROOM F252 - LEVEL 2
1/4" = 1'-0" REF: 2/ E-101



3 ENLARGED POWER PLAN - ELECTRICAL ROOM E009 - BASEMENT
1/4" = 1'-0" REF: 1/ E-101



2 ENLARGED POWER PLAN - MECHANICAL PENTHOUSE INTERSTITIAL
1/4" = 1'-0"



1 ENLARGED POWER PLAN - MECHANICAL PENTHOUSE - LEVEL 3
1/4" = 1'-0" REF: 3/ E-101

GENERAL NOTES

A. DASHED DEVICES INDICATE DEVICES TO BE DEMOLISHED UNLESS NOTED OTHERWISE.

B. WHERE PORTIONS OF CIRCUIT ARE REMOVED OR ABANDONED, RE-ESTABLISH CIRCUIT CONTINUITY FOR REMAINING PORTIONS OF CIRCUITS AS REQUIRED TO MAINTAIN OPERATION.

C. THE VA SHALL MAINTAIN RIGHT TO FIRST REFUSAL TO ALL DEMOLITION WASTE TO BE REMOVED. ALL OTHER ITEMS OF INTEREST OR VALUE TO THE VA THAT MAY BE UNCOVERED DURING DEMOLITION SHALL REMAIN THE PROPERTY OF THE VA UNLESS NOTED OTHERWISE.

D. FOR ELECTRICAL DEVICES INDICATED TO REMAIN, EXTEND BOXES TO BE FLUSHED WITH NEW FINISH ON EXISTING WALLS, WHERE REQUIRED.

E. COORDINATE REMOVAL OF ALL EXISTING CONDUIT AND ELECTRICAL DEVICES AND/ OR EQUIPMENT IN WALLS TO BE REMOVED. PATCH AND REPAIR ALL OPENINGS IN GYPSUM BOARD THAT ARE EXISTING TO REMAIN.

F. FOR CIRCUITS BEING COMPLETELY DEMOLISHED, REMOVE CABLE AND CONDUIT ALL THE WAY BACK TO SOURCE.

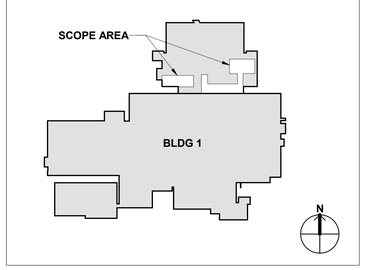
G. ALL RECEPTACLES, UPS SYSTEMS, AND PDUS TO BE DEMOLISHED IN AREA OF WORK. REMOVE CONDUIT AND CONDUCTORS BACK TO UPSTREAM PANELBOARD.

ELECTRICAL KEYNOTES

9 REROUTE OR EXTEND EXISTING CIRCUIT PREVIOUSLY SERVING FORMER MECHANICAL EQUIPMENT AT THIS LOCATION FROM EXISTING CONTROL DEVICE. SEE ONE-LINE DIAGRAMS FOR MODIFICATIONS REQUIRED FOR CIRCUIT.

12 DISCONNECT TO BE PROVIDED BY DIVISION 23 CONTRACTOR.

KEY PLAN



FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/27/2026 8:46:04 AM

VA FORM 08-6231

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
ENLARGED POWER PLANS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED RK | DRAWN JMF

PROJECT NUMBER
589A4-25-102

BUILDING NUMBER
1

DRAWING NUMBER
EP401

DRAWING # 71 OF 74

4 CONDUIT JOINT CROSSING DETAIL
NTS

3 MECHANICAL UNIT BONDING TERMINAL DETAIL
NTS

2 SPLICERS/CONDUCTORS DETAIL
NTS

1 TYPICAL PARAPET AIR TERMINAL DETAIL
NTS

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
ELECTRICAL DETAILS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED RK | DRAWN JMF

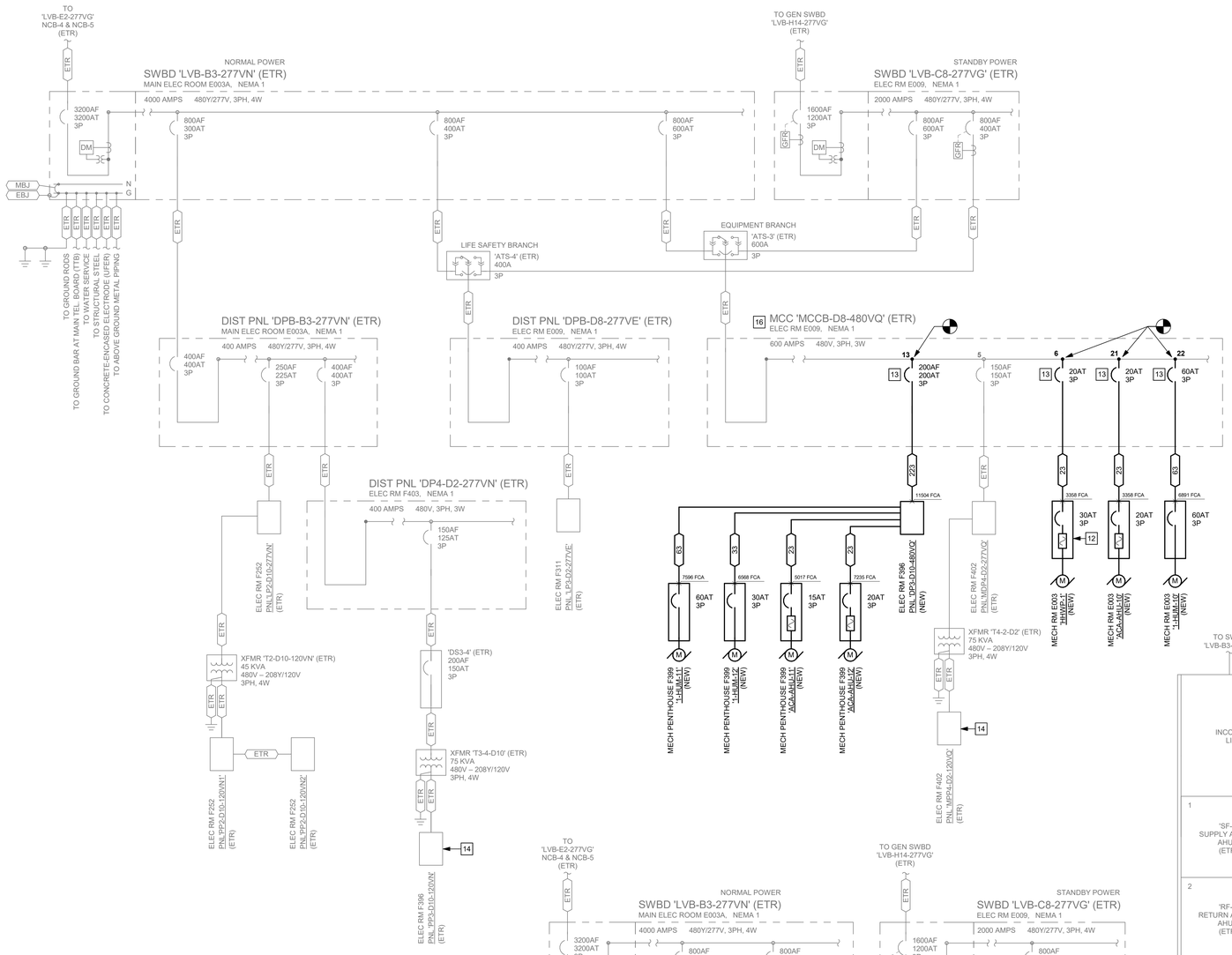
PROJECT NUMBER
589A4-25-102

BUILDING NUMBER
1

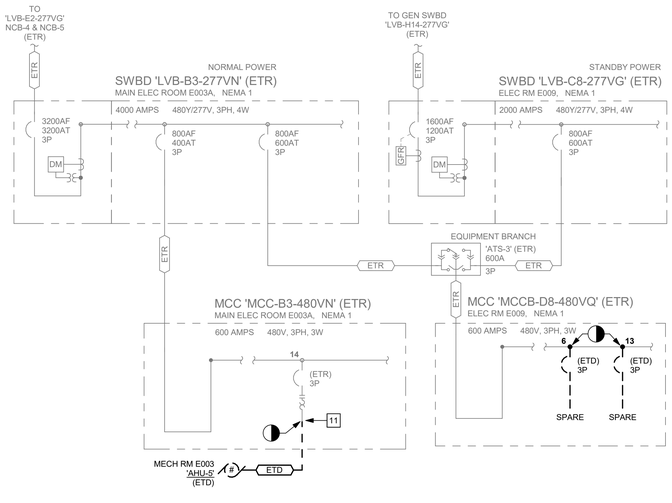
DRAWING NUMBER
E-501
DRAWING # 72 OF 74

5/27/2026 8:46:04 AM

VA FORM 08-6231

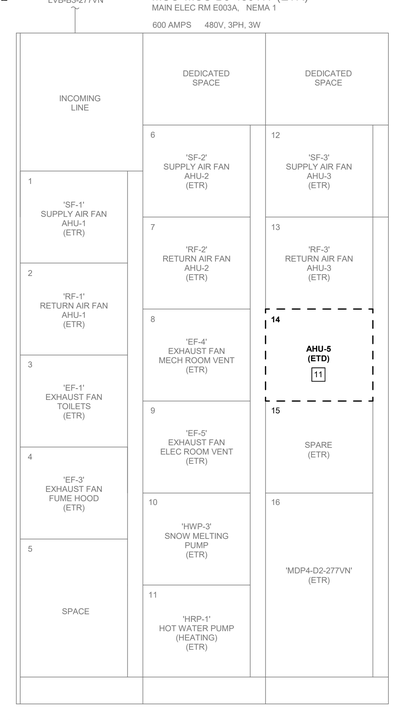


4 ONE-LINE DIAGRAM - NEW WORK
NTS

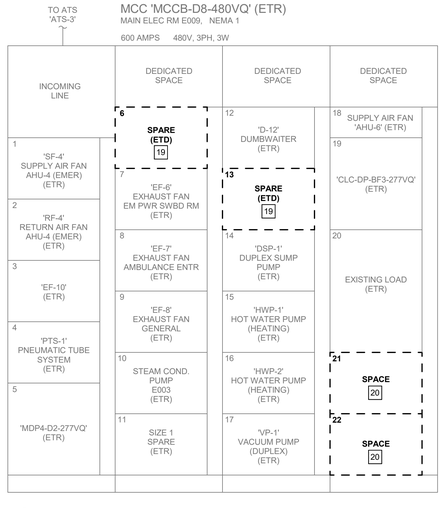


3 PARTIAL ONE-LINE DIAGRAM - DEMOLITION
NTS

LOAD CALCS 100% DESIGN - COLUMBIA, MO - 2517			
PANEL 'MCCB-D8-480VQ' (LVB-B3-277VN + LVB-C8-277VG)			
LOAD TYPE	KVA	% DEMAND	KVA (TOTAL)
HVAC (100% LARGEST MOTOR + 80% REMAINING)	160.6	80%	136.0
EXISTING	92.3	100%	92.3
SUBTOTAL LOADS (DEMAND)			228.3
SPARE CAPACITY - 25%			57.07
MIN KVA WITH SPARE CAPACITY			285.4
@ 125% x 480V, 3PH 3W = AMPS			429.2



2 MCC 'MCC-B3-480VN' ELEVATION - DEMOLITION
NTS REF: 3/ ED401



1 MCC 'MCCB-D8-480VQ' ELEVATION - DEMOLITION
NTS REF: 5/ ED401

ONE-LINE DIAGRAM GENERAL NOTES

A. ELECTRICAL ONE-LINE DIAGRAMS SHOWN MAY NOT REPRESENT THE ENTIRE ELECTRICAL SYSTEM FOR EACH BUILDING. THE DIAGRAMS ONLY REPRESENT THE EQUIPMENT BEING AFFECTED BY THIS SCOPE OF WORK.

B. PANELBOARDS AND OTHER ELECTRICAL EQUIPMENT MAY REQUIRE SHUTDOWN. COORDINATE SERVICE SHUTDOWN FOR ALL AFFECTED EQUIPMENT WITH THE CONTRACTING OFFICER'S REPRESENTATIVE NO LESS THAN 90 DAYS IN ADVANCE OF ANTICIPATED WORK.

C. FAULT CURRENT CALCULATIONS, WHERE SHOWN, ARE PRELIMINARY. CONTRACTOR SHALL FIELD VERIFY EXACT ROUTINGS AND REQUIRED LENGTHS. PROVIDE FINAL CALCULATIONS FOR NEW EQUIPMENT IN ACCORDANCE WITH SPECIFICATION 26 05 73.

D. ONE-LINE DIAGRAMS ARE BASED ON BEST INFORMATION AVAILABLE. VERIFY ALL INFORMATION IN FIELD AND ALERT ENGINEER TO DISCREPANCIES.

E. WHERE NEW BREAKERS ARE SHOWN TO BE ADDED TO EXISTING ELECTRICAL EQUIPMENT PROVIDE AIC RATING AND BREAKER STYLE TO MATCH EXISTING.

FEEDER/BRANCH CIRCUIT SCHEDULE

TAG	AMPS	DESCRIPTION
23	20A	(3)#12, (1)#12G, 3/4 IN. C
33	30A	(3)#10, (1)#10G, 3/4 IN. C
63	60A	(3)#6, (1)#10G, 1 IN. C
223	225A	(3)#4/0, (1)#4G, 2 IN. C
ETR	N/A	EXISTING TO REMAIN
ETD	N/A	EXISTING TO DEMO

NOTE: ALL CONDUCTOR SIZES ARE BASED ON 75 DEGREE C RATED TERMINATION AND COPPER CONDUCTORS WITH TYPE THHN/THWN-2 INSULATION. FOR TERMINATION OR INSULATION TYPES RATED LESS THAN 75 DEGREE C, MODIFY SIZES ACCORDING TO NFPA 70.

ELECTRICAL KEYNOTES

11 REMOVE EXISTING CIRCUIT FROM MMC AS INDICATED. EXISTING STARTER/ OC DEVICE TO REMAIN.

12 DISCONNECT TO BE PROVIDED BY DIVISION 23 CONTRACTOR.

13 NEW CIRCUIT BREAKER REQUIRED. MATCH STYLE AND AIC RATING OF EXISTING BREAKERS ON THIS PANEL.

14 PANELBOARD FEEDS CIRCUITS TO BE DEMOLISHED OR RELOCATED AS SHOWN ON PLANS.

16 PRIOR TO CONNECTING NEW LOAD, CONTRACTOR SHALL METER PANELBOARDS INDICATED IN THE DRAWING SET FOR A MINIMUM OF 30 DAYS IN ACCORDANCE WITH ARTICLE 220.87 OF THE 2023 NATIONAL ELECTRICAL CODE. THE MAXIMUM METERED DEMAND AT 125 PERCENT PLUS THE NEW DEMAND SHALL NOT EXCEED THE PANELBOARD RATING. IF CALCULATED LOAD EXCEEDS THE PANELBOARD RATING, CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD.

19 REMOVE EXISTING BREAKER FROM EXISTING MCC AS NOTED. REPLACE WITH BREAKER AS INDICATED.

20 EXISTING SPACE TO BE USED FOR NEW BREAKER.

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

5/27/2026 8:46:04 AM

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:
The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
ELECTRICAL ONE-LINE DIAGRAMS AND ELEVATIONS

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED RK | DRAWN JMF

PROJECT NUMBER **589A4-25-102**
BUILDING NUMBER 1
DRAWING NUMBER **E-601**
DRAWING # 73 OF 74

VA FORM 08-6231

PANELBOARD 'PP2-D10-120VN2' (ETR) — NORMAL POWER

BUS SIZE: 225 A
MAIN SIZE/TYPE: 175 A MCB
VOLTS/PHASE: 208Y/120V, 3PH, 4W
MOUNTING: SURFACE
A.I.C RATING: EXISTING
SECTIONS: 1

FAULT CURRENT: RE: ONE-LINE DIAGRAM
LOCATION: ELECTRICAL ROOM F252
SERVES: MISC. NORMAL POWER
FED FROM: T2-D10-120VN

EQUIPMENT GROUND BUS

VOLT-AMPS/PHASE

CKT NO.	DESCRIPTION	LOAD TYPE	NOTE	WIRE SIZE	GND SIZE	BRKR AMP	P	A	B	C	A	B	C	P	BRKR AMP	GND SIZE	WIRE SIZE	NOTE	LOAD TYPE	DESCRIPTION	CKT NO.
1	EXISTING LOAD (ETR)	--		--	--	20	1	0			0			1	20	--	--		--	SPARE (ETR)	2
3	EXISTING LOAD (ETR)	--		--	--	20	1		0			0		1	20	--	--		--	SPARE (ETR)	4
5	SPARE (ETR)	--		--	--	20	1			0			0	1	20	--	--		--	SPARE (ETR)	6
7	**RCPT - MECH PENTHOUSE**	**R**		**12**	**12**	**20**	**1**	**720**			0			1	20	--	--		--	SPARE (ETR)	8
9	EQUIPPED SPACE	--		--	--	--	1		--			0		1	20	--	--		--	EXISTING LOAD (ETR)	10
11	SPARE (ETR)	--		--	--	20	1			0			0	1	20	--	--		--	EXISTING LOAD (ETR)	12
13	EXISTING LOAD (ETR)	--		--	--	20	1	0			0			1	20	--	--		--	EXISTING LOAD (ETR)	14
15	EXISTING LOAD (ETR)	--		--	--	20	1		0			0		1	20	--	--		--	EXISTING LOAD (ETR)	16
17	EXISTING LOAD (ETR)	--		--	--	20	1			0			0	1	20	--	--		--	EXISTING LOAD (ETR)	18
19	EXISTING LOAD (ETR)	--		--	--	20	1	0			0			1	20	--	--		--	EXISTING LOAD (ETR)	20
21	EXISTING LOAD (ETR)	--		--	--	20	1		0			0		1	20	--	--		--	EXISTING LOAD (ETR)	22
23	EXISTING LOAD (ETR)	--		--	--	20	1			0			0	1	20	--	--		--	EXISTING LOAD (ETR)	24
25	EXISTING LOAD (ETR)	--		--	--	20	1	0			0			1	20	--	--		--	EXISTING LOAD (ETR)	26
27	EXISTING LOAD (ETR)	--		--	--	20	1		0			0		1	20	--	--		--	EXISTING LOAD (ETR)	28
29	EXISTING LOAD (ETR)	--		--	--	20	1			0			0	1	20	--	--		--	EXISTING LOAD (ETR)	30
31	EXISTING LOAD (ETR)	--		--	--	20	1	0			0			1	20	--	--		--	EXISTING LOAD (ETR)	32
33	EXISTING LOAD (ETR)	--		--	--	20	2		0			0		2	20	--	--		--	EXISTING LOAD (ETR)	34
35										0			0								36
37								0			0			1	20	--	--		--	EXISTING LOAD (ETR)	38
39	EXISTING LOAD (ETR)	--		--	--	90	3		0			0		1	20	--	--		--	EXISTING LOAD (ETR)	40
41										0			0	1	20	--	--		--	EXISTING LOAD (ETR)	42
								PHASE A		PHASE B			PHASE C								
		TOTAL PHASE LOAD (VA):						720 VA		0 VA			0 VA								
		TOTAL PHASE LOAD (A):						6 A		0 A			0 A								

LOAD TYPE	CONNECTED LOAD	NEC DEMAND	DEMAND LOAD		TOTAL CONNECTED	TOTAL DEMAND
EXISTING LOAD (E):	0 VA	125.00%	0 VA	PANELBOARD	720 VA	720 W
COOLING (C):	0 VA	100.00%	0 VA	TOTALS:	2 A	2 A
HEATING (H):	0 VA	100.00%	0 VA	NOTES:		
LIGHTING (L):	0 VA	125.00%	0 VA			
RECEPTACLES (R):	720 VA	100.00%	720 VA			
MOTORS (M):	0 VA	100.00%	0 VA			
KITCHEN (K):	0 VA	100.00%	0 VA			
MISC. EQUIPMENT (Z):	0 VA	100.00%	0 VA			

13

PANELBOARD 'DP3-D10-480VQ' (NEW) — EQUIPMENT BRANCH

BUS SIZE: 225 A
MAIN SIZE/TYPE: 200 A MCB
VOLTS/PHASE: 480V, 3PH, 3W
MOUNTING: SURFACE
A.I.C RATING: FCA+10% MINIMUM FULLY RATED
SECTIONS: 1

FAULT CURRENT: RE: ONE-LINE DIAGRAM
LOCATION: ELECTRICAL ROOM F396
SERVES: MECH EQUIPMENT
FED FROM: MCCB-D8-480VQ

EQUIPMENT GROUND BUS

VOLT-AMPS/PHASE

CKT NO.	DESCRIPTION	LOAD TYPE	NOTE	WIRE SIZE	GND SIZE	BRKR AMP	P	A	B	C	A	B	C	P	BRKR AMP	GND SIZE	WIRE SIZE	NOTE	LOAD TYPE	DESCRIPTION	CKT NO.
1								3331			5032										2
3	AIR HANDLER - 'ACA-AHU-11'	M		OL	OL	15	3		3331			5032		3	20	OL	OL		M	AIR HANDLER - 'ACA-AHU-12'	4
5										3331			5032								6
7								9339			6235										8
9	HUMIDIFIER - 'HUM-11'	M		OL	OL	45	3		9339			6235		3	30	OL	OL		M	HUMIDIFIER - 'HUM-12'	10
11										9339			6235								12
13								1330			217										14
15	RELIEF FAN - 'ACA-RF-12'	M		12	12	15	3		1330			217		3	15	12	12		M	HOT WTR PUMP - 'HHWP-2'	16
17										1330			217								18
19								1662			1662										20
21	UNIT HEATER - 'EUH-1'	M		12	12	15	3		1662			1662		3	15	12	12		M	UNIT HEATER - 'EUH-3'	22
23										1662			1662								24
25								1662			1662										26
27	UNIT HEATER - 'EUH-2'	M		12	12	15	3		1662			1662		3	15	12	12		M	UNIT HEATER - 'EUH-4'	28
29										1662			1662								30
31								0			0										32
33	SPARE	--		--	--	20	3		0			0		3	20	--	--		--	SPARE	34
35										0			0								36
37								--			--										38
39	EQUIPPED SPACE	--		--	--	--	3		--			--		3	--	--	--		--	EQUIPPED SPACE	40
41										--			--								42
								PHASE A		PHASE B			PHASE C								
		TOTAL PHASE LOAD (VA):						32132 VA		32132 VA			32132 VA								
		TOTAL PHASE LOAD (A):						116 A		116 A			116 A								

LOAD TYPE	CONNECTED LOAD	NEC DEMAND	DEMAND LOAD		TOTAL CONNECTED	TOTAL DEMAND
EXISTING LOAD (E):	0 VA	125.00%	0 VA	PANELBOARD	96396 VA	103400 W
COOLING (C):	0 VA	100.00%	0 VA	TOTALS:	116 A	124 A
HEATING (H):	0 VA	100.00%	0 VA	NOTES:		
LIGHTING (L):	0 VA	125.00%	0 VA	OL: REFER TO ONE-LINE FOR SIZES AND RATINGS		
RECEPTACLES (R):	0 VA	100.00%	0 VA			
MOTORS (M):	96396 VA	107.27%	103400 VA			
KITCHEN (K):	0 VA	100.00%	0 VA			
MISC. EQUIPMENT (Z):	0 VA	100.00%	0 VA			

LIGHT FIXTURE SCHEDULE

NOTES:

TYPE	BASIS OF DESIGN: MANUFACTURER AND MODEL	MOUNTING	LAMP			BALLAST/DRIVER			DESCRIPTION	NOTES
			TYPE	LUMENS	COLOR TEMP	TYPE	VOLTAGE	INPUT VA		
D1	COOPER LIGHITNG: VT1730	SURFACE MOUNT	LED	1496 lm	3500 K	STANDARD ELECTRONIC LED DRIVER	120 V	20 VA	GENERAL PURPOSE VAPORTIGHT LED FLOODLIGHT. PROVIDE SCHEDULED FIXTURE OR MATCH EXISTING LIGHT FIXTURES FOUND WITHIN THE INTERSTITIAL AREA.	
F1E	HE WILLIAMS: 39W-8-L104/835-A-(L84)-AC/D48-DRV-UNV	CHAIN MOUNT AT 9'-0", UNO	LED	8399 lm	3500 K	STANDARD ELECTRONIC LED DRIVER	277 V	73 VA	8' LINEAR WRAP WIDE LENS. L84 LOWER LUMEN PACKAGE. CONNECTED TO EXISTING LIFE SAFETY CIRCUIT.	

#	ELECTRICAL KEYNOTES
13	NEW CIRCUIT BREAKER REQUIRED. MATCH STYLE AND AIC RATING OF EXISTING BREAKERS ON THIS PANEL.

FULLY SPRINKLERED

100% CONSTRUCTION DOCUMENTS

No.	REVISION DESCRIPTION	DATE

CONSULTANTS:

CIVIL/STRUCTURAL
H2B ENGINEERING
1225 NORTH LOOP WEST, SUITE 800
HOUSTON, TX 77008
(713) 864-2900

MECH/ELEC/PLUMB/TECH ENGINEER
SPUR DESIGN
312 SW 25TH STREET
OKLAHOMA CITY, OK 73109
(405) 842-6100

PHYSICAL SECURITY
FORCE PROTECT
4015 VITRUVIAN WAY, UNIT 1212
ADDISON, TX 75001
PHONE NUMBER

FIRE PROTECTION ENGINEER
RATED ENGINEERING
609 S. KELLY AVE., SUITE H2
EDMOND, OK 73003
(405) 210-5814

ARCHITECT: SPUR #: 2517

Spur

SPUR DESIGN, LLC
312 SW 25TH STREET
Oklahoma City, OK 73109
(405) 842-6100

ARCH REG. NO. A-2012034754 EXP. 12/31/2026
ENGR REG. NO. E-2014031351 EXP. 12/31/2026

STAMP:

The information on this document is preliminary or incomplete, not for construction, recording purposes, or implementation.

DRAWING TITLE
ELECTRICAL SCHEDULES

VA HEALTH CARE SYSTEM APPROVAL:

PROJECT TITLE
INSTALL DEDICATED PHARMACY AIR HANDLER

LOCATION HARRY S. TRUMAN VAMC
800 HOSPITAL DRIVE
COLUMBIA, MO 65201

DATE **05/28/2026** | CHECKED RK | DRAWN JMF

PROJECT NUMBER **589A4-25-102**

BUILDING NUMBER 1

DRAWING NUMBER **E-701**

DRAWING # 74 OF 74

5/27/2026 8:46:05 AM

VA FORM 08-6231