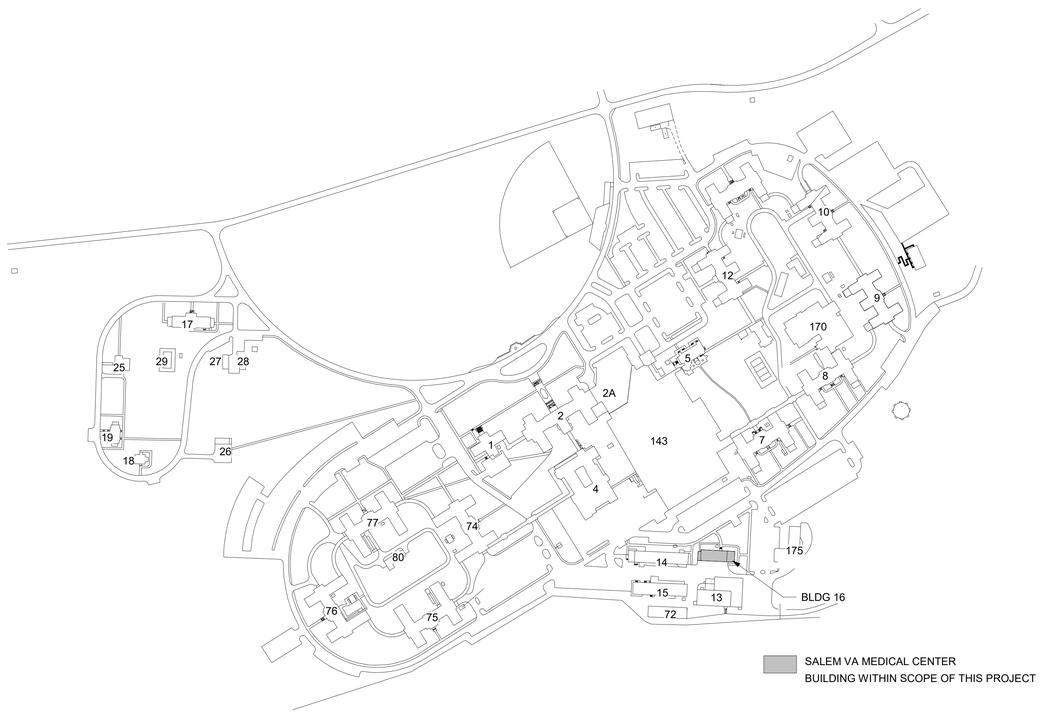
REPLACE BUILDING 16 HVAC

SALEM VA MEDICAL CENTER, SALEM - VIRGINIA

PROJECT #: 658-24-106

DRAWING INDEX



1 FACILITY SITE PLAN

NOT TO SCALE

TRUE NORTH

PROJECT INFORMATION

CODE ANALYSIS

STATE: VIRGINIA
COUNTY: ROANOKE
JURISTICTION: SALEM

OWNER: GOV, VETERANS AFFAIRS

CONST TYPE: EXISTING
OCCUPANCY: BUSINESS

ICRA CLASS REQUIREMENTS

CLINIC RISK: LOW
CLASS REQS: CLASS II

APPROX SQUARE FEET IN SCOPE

8,509 SF

APPLICABLE BUILDING & LEVEL

BUILDING 16, LEVEL 1

APPLICABLE CLINIC

N/A

PROJECT DESCRIPTION

PROJECT INVOLVES EVALUATION, SURVEY AND DESIGN FOR REPLACEMENT OF AIR HANDLING UNITS AT THE SALEM VA MEDICAL CENTER BUILDING 16. THE INTENT IS TO ENHANCE THE HVAC SYSTEMS OF THE BUILDING AND REPLACE THE CURRENT HVAC UNIT SERVING THE FIRST FLOOR. THE FIRST FLOOR IS MAINLY OFFICE SPACE.

DESIGN TEAM

ARCHITECT

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PHONE: (206) 590-2118

MECHANICAL

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ELECTRICAL

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STRUCTURAL

JUNKER GONZALEZ ENGINEERING
8285 LA MESA BLVD, SUITE C
LA MESA, CA 91942
PHONE: (858) 245-3660

GENERAL NOTES

1. DO NOT SCALE DRAWINGS.

BID SET	02/28/2025
Revisions:	Date

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Drawing Title: COVER SHEET

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Drawing Number: G-001

Dwg. 1 OF 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

SYMBOLS

EXTERIOR ELEVATION

INTERIOR ELEVATION

BUILDING SECTION FLAG

WALL SECTION FLAG

CALLOUT FLAG

VERTICAL GRID LINE

HORIZONTAL GRID LINE

TRUE NORTH ARROW

PROJECT NORTH ARROW
(TRUE NORTH DASHED)

ELEVATION / LEVEL MARKER

KEY NOTE

TOILET
101
150 SF
ROOM TAG
(SF OPTIONAL)

ACT 2x2
9' - 0" AFF
CEILING HEIGHT TAG

01A
WALL TAG

F-1
FLOOR TAG

R-1
ROOF TAG

101A
DOOR TAG

W1
WINDOW TAG

SOAP DISH A5175
SPECIALTY EQUIPMENT TAG

IN-04.02-01
SIGNAGE TAG

D88
SIGNAGE KEY NOTE
(AW SHEETS ONLY)

A01
SIGNAGE MATERIAL TAG
(AW SHEETS ONLY)

EXISTING TO REMAIN

NEW CONSTRUCTION

TO DEMOLISH
(DEMO SHEET(S) ONLY)

ABOVE

BELOW

EXISTING DOOR TO REMAIN

EXISTING DOOR TO DEMOLISH
(DEMO SHEET(S) ONLY)

NEW DOOR

AREA SHOWN ON SHEET

OUT OF SCOPE

INACCESSIBLE DURING PHASE
(ICRA SHEET(S) ONLY)

TEMPORARY ICRA BOUNDRY
(ICRA SHEET(S) ONLY)

TEMPORARY ICRA BARRIER
(ICRA SHEET(S) ONLY)

TEMPORARY ICRA DOOR
(ICRA SHEET(S) ONLY)

ADHESIVE WALK-OFF MATS
(ICRA SHEET(S) ONLY)

TEMPORARY ICRA AIR PRESSURE
(ICRA SHEET(S) ONLY)

CONTRACTOR PATH OF TRAVEL
(ICRA SHEET(S) ONLY)

SMOKE COMPARTMENT PERIMETER
(FIRE LIFE SAFETY SHEET(S) ONLY)

SMOKE RATED WALL

1 HR FIRE RATED WALL

2 HR FIRE RATED WALL

SMOKE & 1 HR FIRE RATED WALL

FEC
FIRE EXTINGUISHER CABINET
(FIRE LIFE SAFETY SHEET(S) ONLY)

EMERGENCY EGRESS ROUTE
(FIRE LIFE SAFETY SHEET(S) ONLY)

SPRINKLER PER FIRE PROTECTION

DIFFUSER PER MECHANICAL
(SIZE & PROPORTION MAY VARY)

LIGHT FIXTURE PER ELECTRICAL
(SIZE & PROPORTION MAY VARY)

MATERIALS

EARTH

SAND

BATT INSULATION

RIGID INSULATION

CONCRETE

STEEL

PLYWOOD, FIRE RATED

GYPSUM BOARD, TYPE 'X'

ACOUSTICAL CEILING TILE, 2' x 2'

ABBREVIATIONS

SYMBOLS

&	AND
∠	ANGLE
@	AT
℄	CENTERLINE
°	DEGREES
#	NUMBER

A

AB	ANCHOR BOLT
ABA	ARCHITECTURAL BARRIERS ACT
A(C)T	ACOUSTICAL (CEILING) TILE
ACM	ASBESTOS CONTAINING MATERIAL
ACW	ACOUSTICAL WALL
ADA	AMERICANS W/ DISABILITIES ACT
ADJ	ADJACENT
A/E	ARCHITECT/ENGINEER
AF	ACCESS FLOOR
AFF	ABOVE FINISH FLOOR
AGG	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATELY
ARCH	ARCHITECT(URAL)
ASPH	ASPHALT
A/V	AUDIO / VIDEO

B

BARR	BARRIER
BATH	BATHROOM
BB	BACKER BOARD
BLD(G)	BUILDING
BLK(G)	BLOCK(ING)
BLW	BELOW
BM	BEAM
BMT(U)	BONE MARROW TRANSPLANT (UNIT)
BO	BOTTOM OF
BOC	BOTTOM OF CURB
BOS	BOTTOM OF SLAB
BRC	BRACE, BRACING
BRKT	BRACKET
BRNG	BEARING
BTM	BOTTOM
BTWN	BETWEEN

C

CAB	CABINET
CC	CONTRACTOR FURN, CONTRACTOR INST
CD	CONSTRUCTION / CONTRACT DOCUMENTS
CJ	CONTROL JOINT
CLG	CEILING
CLR	CLEAR(ANCE)
CMU	CONCRETE MASONRY UNIT
CO	CONTRACTING OFFICER
COL	COLUMN
COMP	COMPOSITION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
COR	CONTRACTING OFFICER REPRESENTATIVE
CORR	CORRIDOR
CS	CONCRETE SEALER
CT	CERAMIC TILE
CTR	CENTER
CV	CONTRACTOR FURNISHED, VA INSTALLED

D

DB	DESIGN BUILD
DBL	DOUBLE
DC	DIRECT CURRENT
DD	DESIGN DEVELOPMENT
DEMO	DEMOLISH(ION)
DEPT	DEPARTMENT
DG	DESIGN GUIDE
DIA	DIAMETER
DIM	DIMENSION
DM	DESIGN MANUAL
DWN	DOWN
DR	DOOR
DTL	DETAIL
DWG	DRAWING(S)

E

E	EAST
EA	EACH
EJ	EXPANSION JOINT
ELEC	ELECTRIC(AL)
ELEV	ELEVATION OR ELEVATOR
ENG	ENGINEER(ING)
EOC	EDGE OF CURB
EOP	EDGE OF PAVEMENT
EPDM	ETHYLENE PROPYLENE DIENE TERPOLYMER
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
ETS	EXPOSED TO STRUCTURE
EX(IST)	EXISTING
EXP	EXPANSION
EXT	EXTERIOR

F

FA	FIRE ALARM
FD	FLOOR DRAIN
FE(C)	FIRE EXTINGUISHER (CABINET)
FF	FACTORY FINISH
FFB	FINISH FLOOR BREAK
FIN	FINISH(ED)
FLASH	FLASHING
FLR	FLOOR(ING)
FLRSNT	FLORESCENT
FNDN	FOUNDATION
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOS	FACE OF STUDS
FP	FIRE PROOF
FR	FIRE RATED
FRM	FRAME
FT	FOOT, FEET
FTG	FOOTING
FUR	FURRING
FURN	FURNISHED

G

GA	GAGE, GAUGE
GALV	GALVANIZED
GE	GENERAL ELECTRIC
G(W)B	GYPSUM (WALL) BOARD
GC	GENERAL CONTRACTOR
GL	GRID LINE
GLB	GLUE LAMINATED BEAM
GMU	GLASS MASONRY UNIT
GOV(T)	GOVERNMENT
GYP	GYPSUM BOARD

H

HAC	HOUSEKEEPING AIDES CLOSET
HDR	HEADER
H(D)W(E)	HARDWARE
HM	HOLLOW METAL
HORZ	HORIZONTAL
HPDL	HIGH PRESSURE DECORATIVE LAM
HR	HOUR
HT	HEIGHT
HVAC	HEATING, VENTILATION & AIR CONDITIONING

I

ICRA	INFECTIOUS CONTROL RISK ASSESSMENT
ID	INSIDE DIAMETER OR DIM
ILSM	INTERIM LIFE SAFETY MEASURES
INCL	INCLUDE(D,ING)
INST	INSTALL
INSUL	INSULATION
INT	INTERIOR

J

JT	JOINT

K

KV	KILOVOLT

L

LAM	LAMINATE(D)
LAV	LAVATORY
LCM	LEAD CONTAINING MATERIAL(S)
LD	LEAD
LT	LIGHT

M

MAT	MATERIAL(S)
MAX	MAXIMUM
MDF	MEDIUM-DENSITY FIBREBOARD
MECH	MECHANIC(AL)
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MFR	MANUFACTURE(R)
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MODIFIED
MTL	METAL

N

N	NORTH
N(/)A	NOT APPLICABLE
NEG	NEGATIVE
NO.	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE

O

O.C.	ON CENTER(S)
OPN(G)	OPEN(ING)
OPP	OPPOSITE
OPT	OPTION(AL)
OVHD	OVERHEAD

P

P	PAINT
PCONC	PRECAST CONCRETE
PCRA	PRE-CONSTRUCTION RISK ASSESSMENT
PL	PLATE
PLAM	PLASTIC LAMINATE
PLY(WD)	PLYWOOD
PNL	PANEL
PR	PAIR
PRFB	PREFABRICATED
PS	PLASTIC
PT	PORCELAIN TILE
PTN(S)	PARTITION(S)
PVMT	PAVEMENT

Q

QTY	QUANTITY

R

RAD	RADIUS
RCP(S)	REFLECTED CEILING PLAN(S)
REF	REFERENCE
REINF	REINFORCE(D,ING)
REP	REPRESENTATIVE
REQ(S,('D)	REQUIRE(D,S,MENT(S))
RESIL	RESILIENT
REV	REVERSE
RF	ROOF
RM	ROOM
RMV	REMOVE
RO	ROUGH OPENING

S

S	SOUTH
SCHED	SCHEDULE
SCI(D)	SPINAL CORD INJURY (& DISABILITY)
SD	SCHEMATIC DESIGN
SDSF	SOLID SURFACE
SECT	SECTION
SF	SQUARE FEET
SFRM	SPRAY APPLIED FIRE-RESISTIVE MATERIAL
SHG	SHINGLES
SHLD(G)	SHEILD(ING)
SHT(G)	SHEET (SHEATHING)
SIM	SIMILAR
SM	SEAM
SOW	SCOPE OF WORK
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
ST	STAIN
STDG	STANDING
STF	STAFF
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SURG	SURGERY, SURGICAL
SUSP	SUSPENDED
SV	SHEET VINYL
SYS	SYSTEM

T

TBD	TO BE DETERMINED
TBL	TABLE
TEMP	TEMPORARY
T&G	TONGUE AND GROOVE
THK	THICK(NESS)
THRESH	THRESHOLD
TOC	TABLE OF CONTENTS
TOS	TOP OF SLAB
TPH	TOILET PAPER HOLDER
TRANS	TRANSITION
TS	TUBE STEEL
TYP	TYPICAL

U

UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED

V

VA	VETERANS AFFAIRS
VAR	VARIES
VB	VAPOR BARRIER
VC	VA FURNISHED, CONTRACTOR INSTALLED
VERT	VERTICAL
VIF	VERIFY IN FIELD
VV	VA FURNISHED, VA INSTALLED

W

W	WEST
W/	WITH
WD	WOOD
WDW	WINDOW
WGHT	WEIGHT
W/O	WITHOUT
WP	WATERPROOF(ING)
WR	WATER RESISTANT
WRK	WORK

X

XRY	X-RAY

BID SET	02/28/2025
Revisions:	Date

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Drawing Title: ARCH SYMBOLS, ABBREVIATIONS, & GENERAL NOTES

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

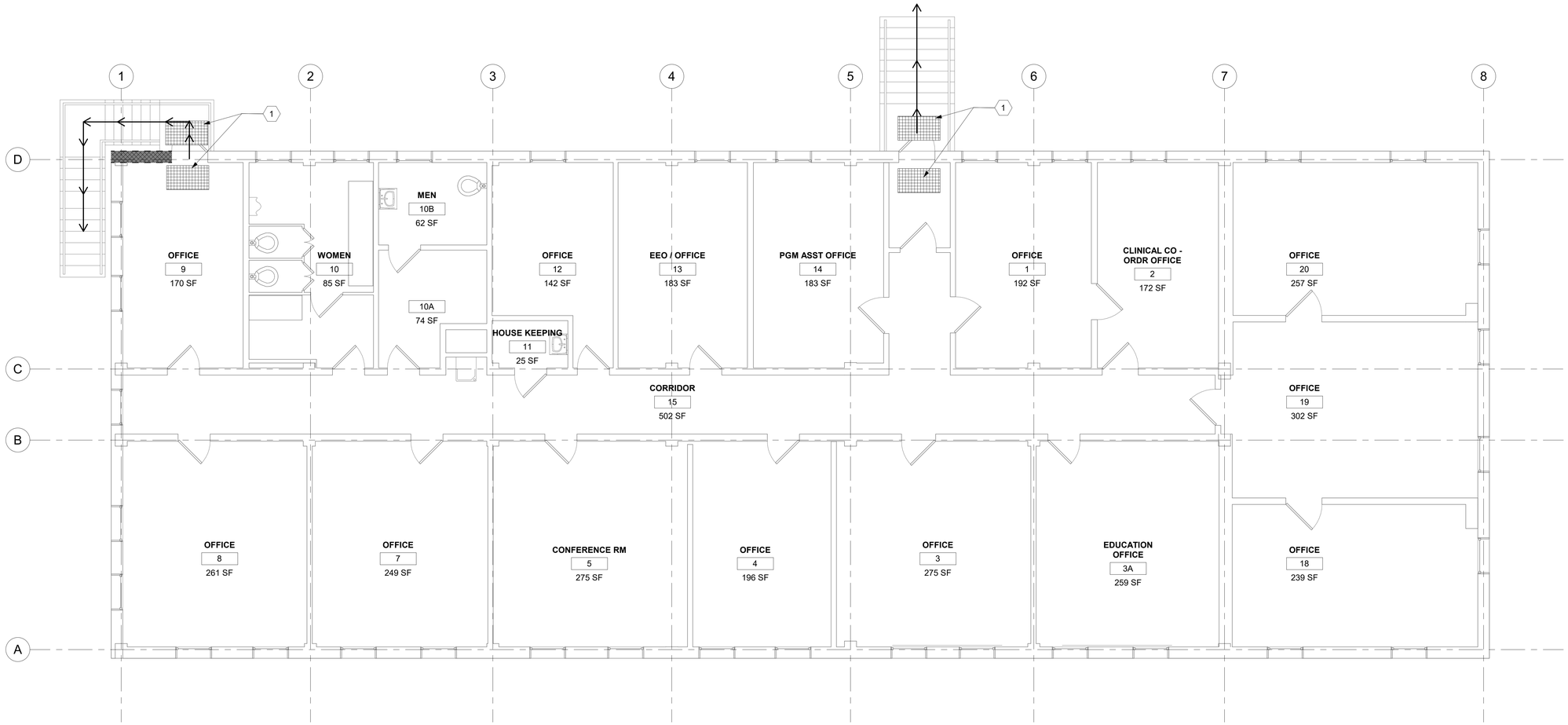
Drawing Number: A-001

Dwg. 2 OF 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231



2 ICRA PLAN - FIRST FLOOR

1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH (DASHED)

LEGEND

- TEMPORARY ICRA AIR PRESSURE
- ADHESIVE WALK-OFF MATS
- CONTRACTOR PATH OF TRAVEL

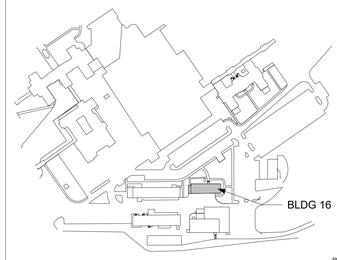
KEY NOTES (THIS SHEET ONLY)

1. WORK AREA ACCESS POINT WITH STICKY WALK OFF MATS.

GENERAL NOTES

1. ICRA **CLASS II** REQUIREMENTS MUST BE MET THROUGHOUT THE ENTIRE DURATION OF CONSTRUCTION.
2. COMPLY WITH ALL REQUIREMENTS IN SPECIFICATION SECTION 01 35 26 - SAFETY REQUIREMENTS.
3. CONSTRUCTION ZONE ENTRANCES AND EXITS SHALL BE LOCKED AT ALL TIMES UNLESS IN USE BY THE CONTRACTOR. WHEN IN USE, ACCESS WILL BE CONTROLLED AND MONITORED BY THE CONTRACTOR.
4. ADHESIVE WALK-OFF MATS TO BE USED AT ALL CONSTRUCTION ENTRANCES AND EXITS, INCLUDING ANTE ROOMS.
5. ENTIRE BUILDING UNOCCUPIED DURING CONSTRUCTION, NO ICRA CONCERNS.

KEY PLAN



AREA SHOWN

BID SET	02/28/2025
Revisions:	Date

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Drawing Title: ICRA

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

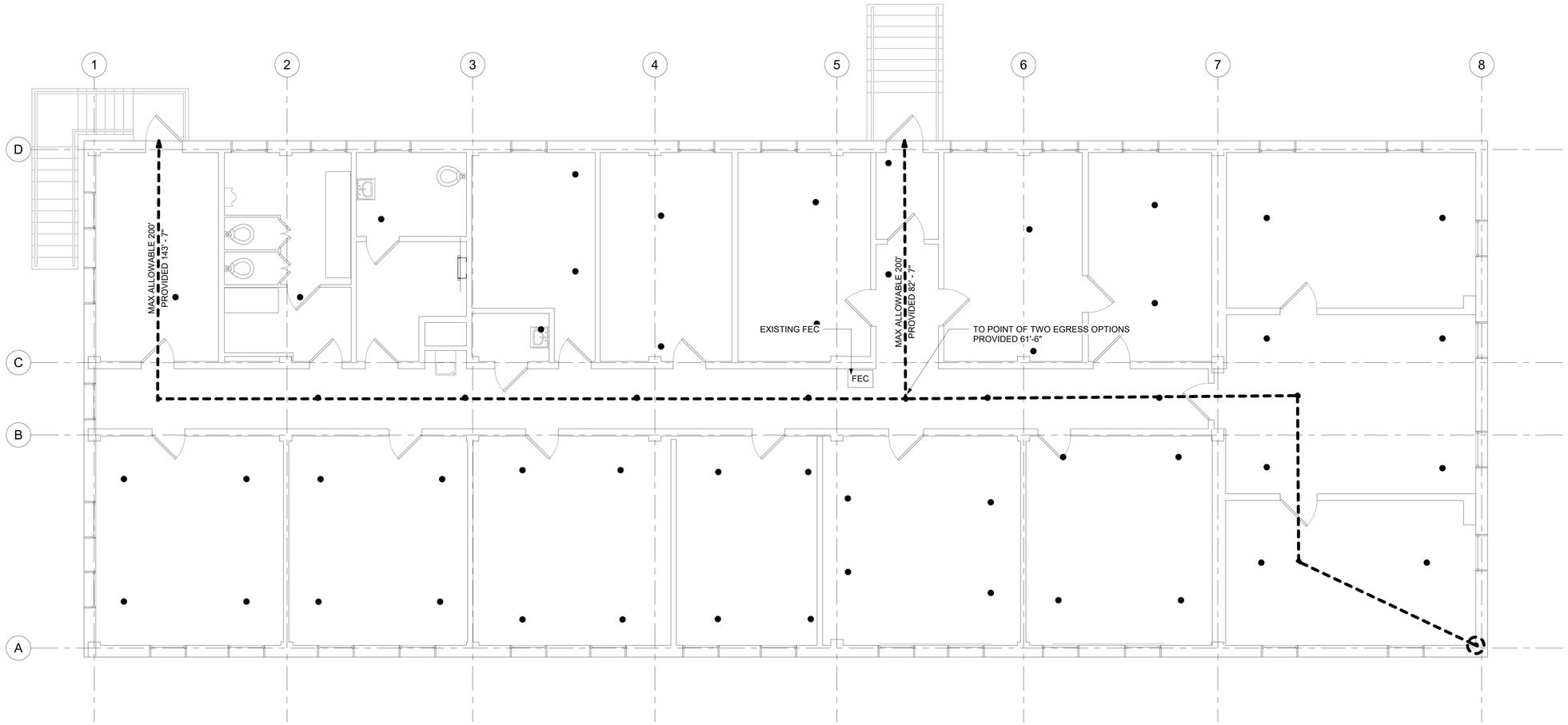
Drawing Number: AS101

Dwg 3 OF 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231



2 FIRE LIFE SAFETY PLAN - FIRST FLOOR

1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH (DASHED)

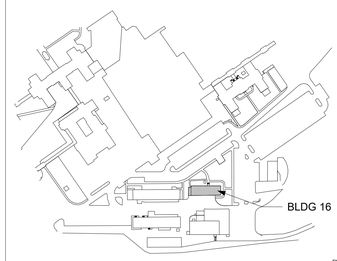
LEGEND

- EMERGENCY EGRESS ROUTE
- FEC — FIRE EXTINGUISHER CABINET
- EXISTING FIRE SPRINKLERS

CODE ANALYSIS

1. PLEASE NOTE, AS AN AGENCY OF THE FEDERAL GOVERNMENT, THE VA IS NOT SUBJECT TO LOCAL IMPOSITIONS OF CODE ENFORCEMENT PROCEDURES (DRAWING REVIEWS, BUILDING PERMITS, INSPECTIONS, FEES, ETC). THE VA SHALL FUNCTION AS THE AUTHORITY HAVING JURISDICTION (AHJ).
2. THE BELOW CODES HAVE BEEN USED FOR ANALYSIS:
   A. NATIONAL FIRE PROTECTION AGENCY (NFPA) 101 LIFE SAFETY CODE, 2024. NFPA 101 TAKES PRECEDENCE OVER IBC.
   B. INTERNATIONAL BUILDING CODE (IBC), 2021.
3. EXISTING BUILDING CONSTRUCTION TYPE SHALL NOT BE ALTERED AS PART OF THIS PROJECT.
   A. ASSUMED NFPA 220 FIRE RESISTIVE RATING: TYPE III (332). (NFPA 220, 2024).
   B. ASSUMED IBC FIRE RESISTIVE RATING: TYPE III. (IBC, 2021).
4. EXISTING BUILDING OCCUPANCY TYPE SHALL NOT BE ALTERED AS PART OF THIS PROJECT.
   A. ASSUMED NFPA 101 OCCUPANCY TYPE: BUSINESS AND STORAGE USE. (NFPA 101, 2024 - CHAPTER 19).
5. OCCUPANT LOADS IN AREA OF WORK ARE EQUAL OR LESS THAN EXISTING, AND THEREFORE, EXISTING EXIT WIDTHS ARE NOT REQUIRED TO BE ALTERED AS PART OF THIS PROJECT. (NFPA 101, 2024 - TABLE 7.3.1.2).
   A. 8362 SF BUSINESS (GENERAL) AT 150 SF / OCCUPANT = 56 OCCUPANTS
   B. TOTAL NET OCCUPANT LOAD = 56 OCCUPANTS
6. MAX COMMON PATH OF TRAVEL BEFORE TWO PATHS ARE PROVIDED SHALL NOT EXCEED 100' (EXISTING BUSINESS, FULLY SPRINKLERED). (NFPA 101, 2021 - 39
7. MAX TRAVEL DISTANCE TO EXITS SHALL NOT EXCEED 300' - 0" (EXISTING BUSINESS, FULLY SPRINKLERED). (NFPA 101, 2021 - 39.2.6.2.2 & 3).

KEY PLAN



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Drawing Title: FIRE LIFE SAFETY

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Drawing Number: AS111

Dwg. 4 OF 36

Office of Construction and Facilities Management

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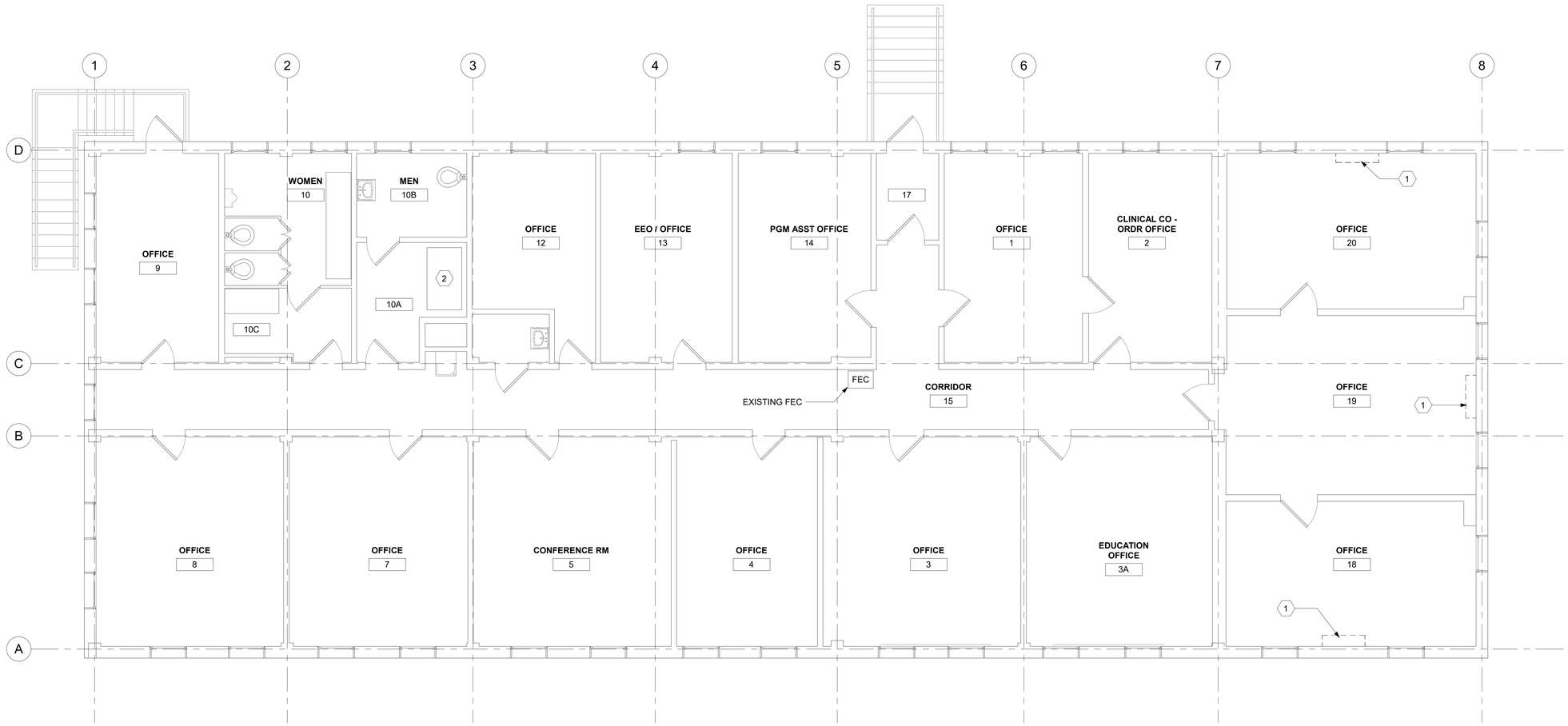


1 FIRST FLOOR - DEMO PLAN

1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH (DASHED)

LEGEND

- EXISTING DOOR TO REMAIN
- TO DEMOLISH
- EXISTING TO REMAIN

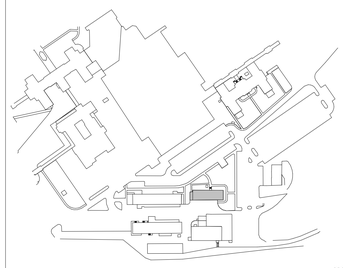
KEY NOTES (THIS SHEET ONLY)

1	DEMO EXISTING PTAC
2	EXISTING AHU TO BE DEMOLISHED

GENERAL NOTES

1. ENSURE CONSTRUCTION ZONE IS FULLY ENCLOSED, PRIOR TO BEGINNING ANY WORK. NO WORK SHALL BE DONE WITHOUT PROPERLY MEETING ALL ICRA REQUIREMENTS, SEE ICRA PLAN(S) FOR SPECIFIC ICRA CLASS LOCATIONS & REQUIREMENTS.
2. REMOVE WALL MOUNTED ACCESSORIES REQUIRED TO COMPLETE A CONSTRUCTION TASK. VERIFY WITH COR BEFORE DISPOSAL.
3. COORDINATE WITH VA COR PRIOR TO THE DEMOLITION OF ANY EXISTING EQUIPMENT.
4. CONTRACTOR TO PATCH AND REPAIR ANY DAMAGE TO THE FLOOR AND WALLS TO MATCH EXISTING FINISHES.
5. EXISTING WINDOWS AND BLINDS IN OFFICES 18, 19, AND 20 ARE EXISTING TO REMAIN. IF NEED TO REMOVE, CONTRACTOR TO REMOVE, STORE AND REINSTALL.

KEY PLAN



AREA SHOWN

PROJECT NORTH
TRUE NORTH (DASHED)

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Drawing Title: FIRST FLOOR DEMO PLAN

Approved: Project Director: -

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Date: 02/28/2025 | Checked: MK | Drawn: AJ

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Drawing Number: AD101

Dwg. 5 OF 36

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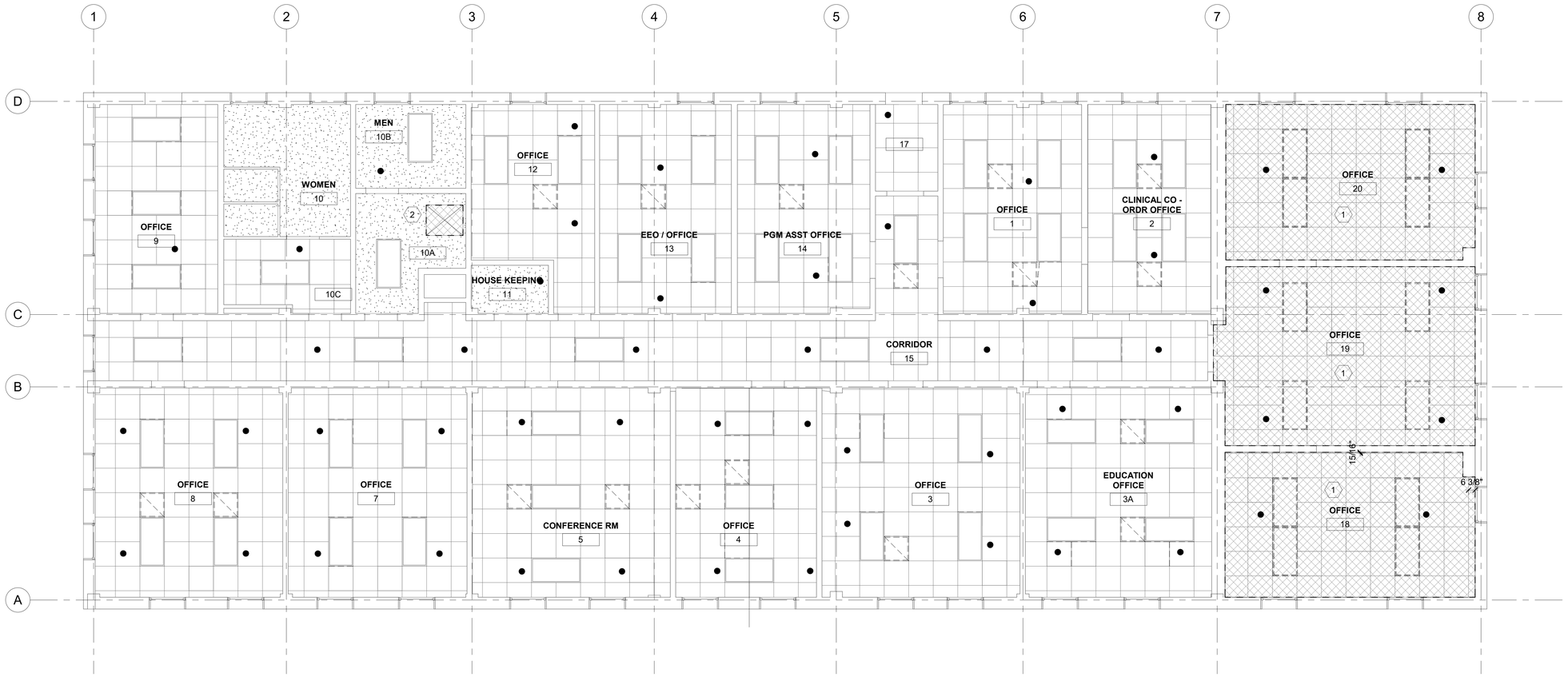


1 FIRST FLOOR - DEMO CEILING PLAN

1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH (DASHED)

LEGEND

- TO DEMOLISH
- TO DEMOLISH
- 2x2 ACOUSTICAL CEILING TILE
- GYPSUM BOARD ON METAL STUDS
- EXISTING FIRE EXTINGUISHERS

KEY NOTES (THIS SHEET ONLY)

1	DEMO EXISTING CEILING, SALVAGE EXISTING LIGHTS FOR REINSTALLATION.
2	CUT EXISTING GYP CEILING FOR NEW LADDER ROOF ACCESS.

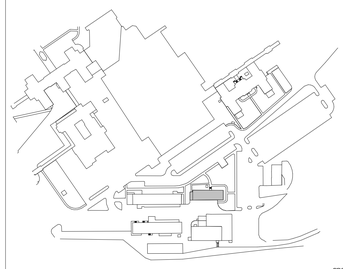
GENERAL NOTES

1. REMOVE AND STORE ANY CEILING TILES AND/OR ACT SUSPENSION GRID SYSTEM COMPONENTS WHERE REQUIRED TO COMPLETE ABOVE CEILING MECHANICAL AND ELECTRICAL WORK.
2. REMOVE ANY CEILING OR WALL MOUNTED EQUIPMENT, AS REQUIRED TO COMPLETE OTHER WORK. STORE UNTIL READY FOR REINSTALLATION.
3. TEMPORARILY PROVIDE FIRE PROTECTION WHERE CEILING IS DOWN BY ADJUSTING THE EXISTING FIRE SPRINKLERS HEADS AS REQUIRED TO MEET VA AND NFPA REQUIREMENTS.

INVERTED SPRINKLER HEADS PROCEDURE:

1. INITIAL INSTALLATION & PROTECTION:
   - A. SPRINKLER HEADS SHALL BE INSTALLED IN AN UPRIGHT POSITION DURING ROUGH-IN TO PREVENT ACCIDENTAL DAMAGE FROM CONSTRUCTION ACTIVITIES.
   - B. FIRE PROTECTION PIPING SHALL BE PROPERLY SUPPORTED AND SECURED TO AVOID DISPLACEMENT.
   - C. TEMPORARY PROTECTIVE COVERS SHALL BE USED ON SPRINKLER HEADS TO PREVENT DUST AND DEBRIS ACCUMULATION, IN ACCORDANCE WITH INFECTION CONTROL POLICIES.
2. INVERSION FOR CONSTRUCTION PHASE:
   - A. PRIOR TO CEILING INSTALLATION OR FINISHING WORK, SPRINKLER HEADS SHALL BE INVERTED (TURNED UPWARD) WITHIN ALLOWABLE PIPE FITTING CONFIGURATIONS.
   - B. TEMPORARY PROTECTIVE MEASURES, SUCH AS DUST-TIGHT COVERS, SHALL BE INSTALLED IN COMPLIANCE INFECTION CONTROL PROTOCOLS (ICRA – INFECTION CONTROL RISK ASSESSMENT).
   - C. COORDINATION WITH INFECTION CONTROL AND FACILITY MANAGEMENT TEAMS IS REQUIRED TO ENSURE COMPLIANCE WITH JOINT COMMISSION STANDARDS.
3. FINAL POSITIONING, TESTING & CERTIFICATION:
   - A. AFTER THE CEILING OR FINAL FINISHES ARE INSTALLED, SPRINKLER HEADS SHALL BE CORRECTLY ORIENTED (TYPICALLY PENDANT OR SIDEWALL) PER THE APPROVED FIRE PROTECTION DESIGN.
   - B. ALL PROTECTIVE COVERINGS SHALL BE REMOVED BEFORE SYSTEM TESTING.
   - C. SYSTEM FLUSHING, HYDROSTATIC TESTING, AND FINAL ACCEPTANCE TESTING SHALL BE PERFORMED PER NFPA 13, AND LOCAL FIRE CODES.
   - D. A FINAL INSPECTION SHALL BE COORDINATED WITH THE AUTHORITY HAVING JURISDICTION (AHJ) AND FACILITY REPRESENTATIVES BEFORE OCCUPANCY.

KEY PLAN



AREA SHOWN

PROJECT NORTH
TRUE NORTH (DASHED)

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

ENGINEERING DISCIPLINE:
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(206) 590-2118
RAY SPEES

SDB SPEESDESIGNBUILD

STAMP:

10000 REGISTERED ARCHITECT JAMES M. KING STATE OF WASHINGTON

ARCHITECT/ENGINEERS:

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WWW.DAVENERGY.COM

Drawing Title: DEMO CEILING PLAN

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER
1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

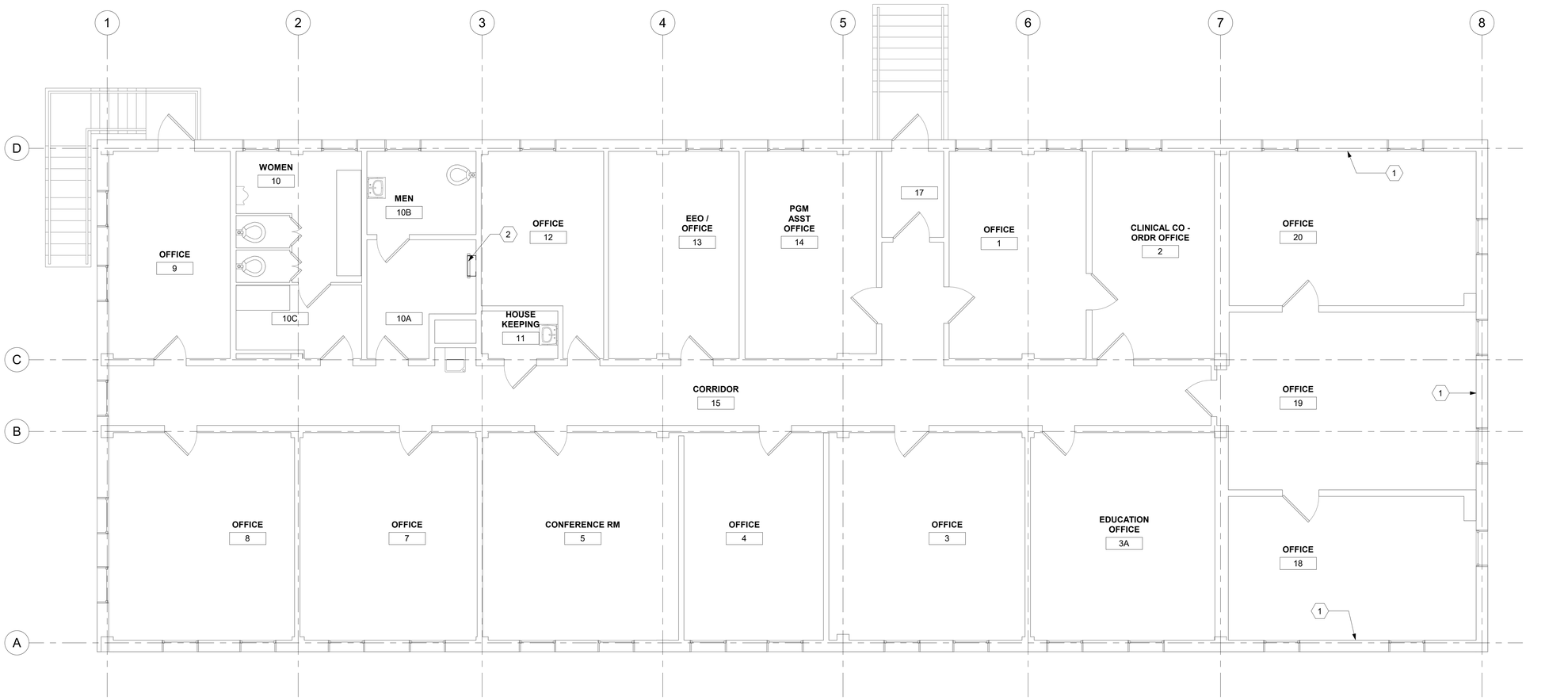
Drawing Number: AD102

Dwg. 6 OF 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231



1 FLOOR PLAN

1/4" = 1'-0"

PROJECT NORTH

TRUE NORTH (DASHED)

LEGEND

EXISTING DOOR TO REMAIN

EXISTING TO REMAIN

NEW

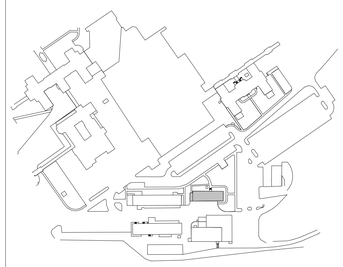
KEY NOTES (THIS SHEET ONLY)

1	INFILL WALL, PATCH AND REPAIR TO MATCH EXISTING WHERE PTAC WAS DEMOLISHED
2	INSTALL NEW LADDER FOR ROOF ACCESS

GENERAL NOTES

1. DIMENSIONS SHOWN ARE FROM GRID LINES TO FACE OF STUD, CENTERLINE OF STRUCTURAL COLUMNS, CENTERLINE OF OPENINGS, UNO.
2. ANY DOORS NOT DIMENSIONED SHALL BE INSTALLED 6" FROM THE INTERSECTING WALL OR CENTERED ON THE WALL, UNO.
3. ALL DIMENSIONS NOTED AS CLEAR SHALL MAINTAIN THE FULL SPACE INDICATED WITHOUT ENCROACHMENTS.
4. ENSURE THAT ALL REQUIRED BACKING IS INSTALLED IN WALLS PRIOR TO INSTALLING GYPSUM BOARD.
5. CONTRACTOR TO PATCH AND REPAIR ANY DAMAGE TO THE FLOOR, WALLS, AND CEILING TO MATCH EXISTING FINISHES.
6. EXISTING WINDOWS AND BLINDS IN OFFICES 18, 19, AND 20 ARE EXISTING TO REMAIN. IF NEED TO REMOVE, CONTRACTOR TO REMOVE, STORE AND REINSTALL.

KEY PLAN



AREA SHOWN

PROJECT NORTH

TRUE NORTH (DASHED)

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

ENGINEERING DISCIPLINE:
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STAMP:

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ARCHITECT/ENGINEERS:

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WWW.DAVENERGY.COM

Drawing Title: FIRST FLOOR PLAN

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

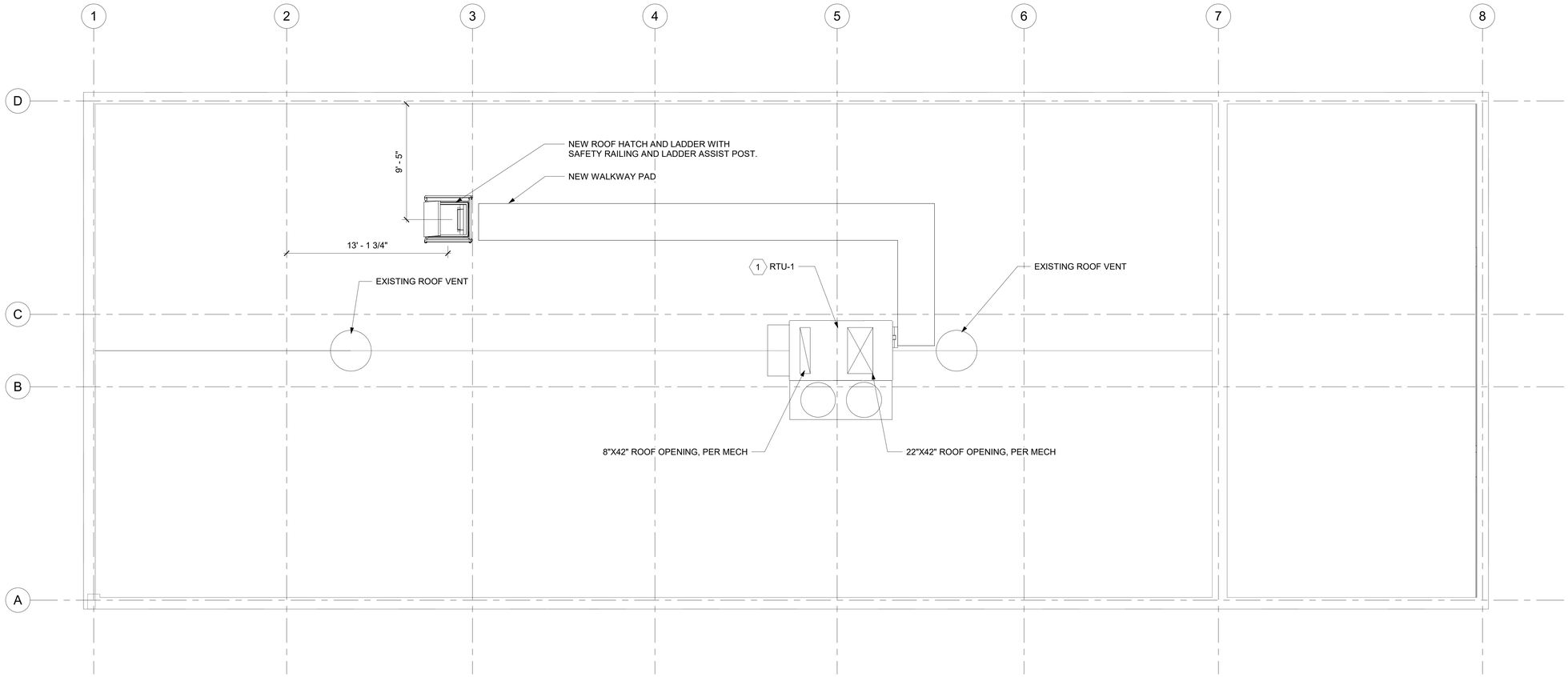
Drawing Number: AE101

Dwg. 7 OF 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231



1 ROOF PLAN

1/4" = 1'-0"

PROJECT NORTH

TRUE NORTH (DASHED)

LEGEND

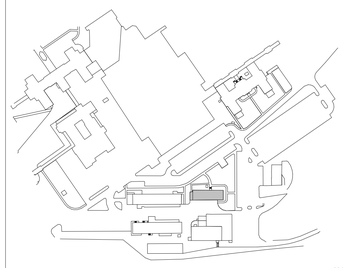
KEY NOTES (THIS SHEET ONLY)

1	NEW ROOFTOP AIR HANDLING UNIT

GENERAL NOTES

1. DIMENSIONS SHOWN ARE FROM GRID LINES TO FACE OF STUD, CENTERLINE OF STRUCTURAL COLUMNS, CENTERLINE OF OPENINGS, UNO.
2. ANY DOORS NOT DIMENSIONED SHALL BE INSTALLED 6" FROM THE INTERSECTING WALL OR CENTERED ON THE WALL, UNO.
3. ALL DIMENSIONS NOTED AS CLEAR SHALL MAINTAIN THE FULL SPACE INDICATED WITHOUT ENCROACHMENTS.
4. ENSURE THAT ALL REQUIRED BACKING IS INSTALLED IN WALLS PRIOR TO INSTALLING GYPSUM BOARD.
5. CONTRACTOR TO PATCH AND REPAIR ANY DAMAGE TO THE FLOOR, WALLS, AND CEILING TO MATCH EXISTING FINISHES.
6. EXISTING WINDOWS AND BLINDS IN OFFICES 18, 19, AND 20 ARE EXISTING TO REMAIN. IF NEED TO REMOVE, CONTRACTOR TO REMOVE, STORE AND REINSTALL.
7. IN LIUE OF DESTRUCTIVE SITE INVESTIGATION, AE HAS MADE ASSUMPTIONS SURROUNDING THE EXISTING ROOFING SYSTEM AT TIME OF CONSTRUCTION BASED ON VA PROVIDED DOCUMENTATION. COORDINATE WITH VA COR AND ALERT THEM OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS. THE DESIGN INTENT IS TO MATCH AND INTEGRATE INTO THE EXISTING CONDITIONS AT THE TIME OF CONSTRUCTION.

KEY PLAN



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PROJECT NORTH

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Revisions:	Date

CONSULTANTS:

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WWW.DAVENERGY.COM

Drawing Title: ROOF PLAN

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

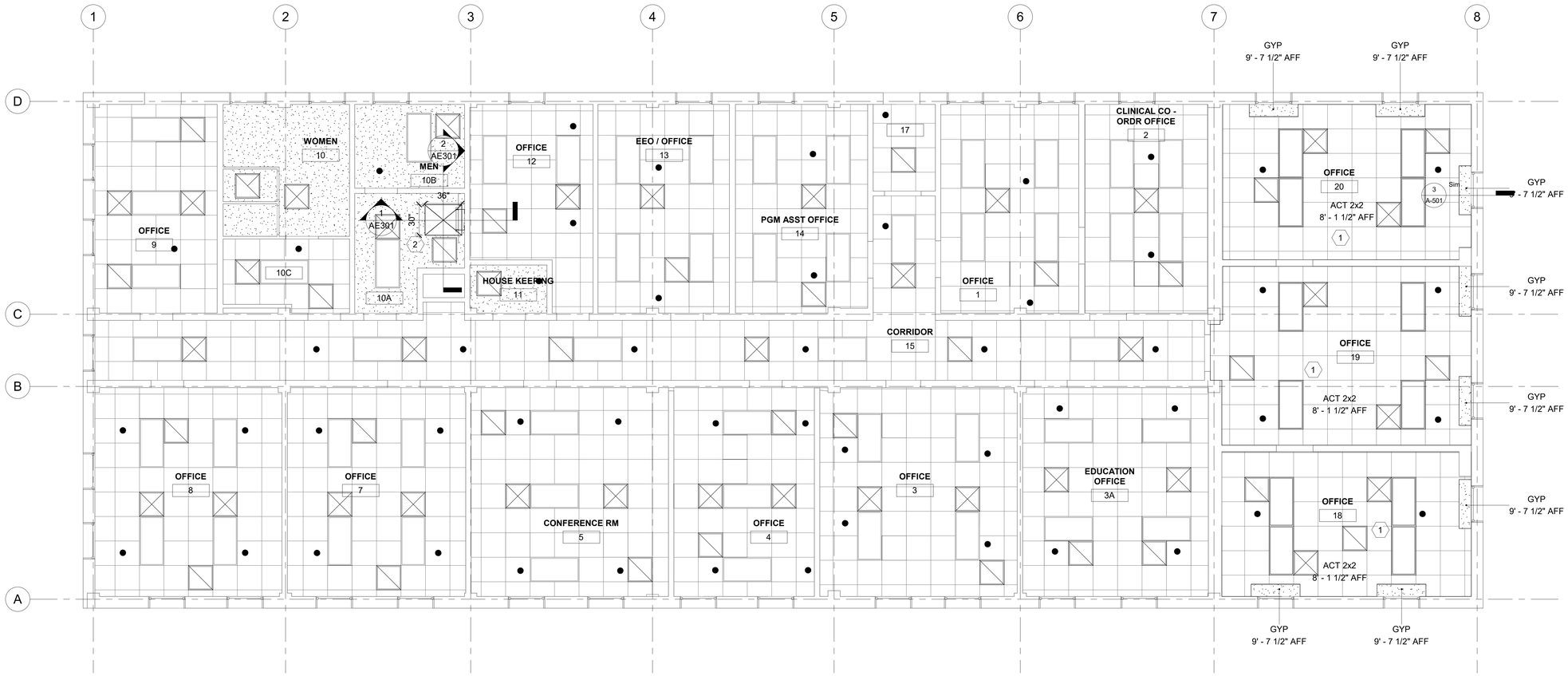
Drawing Number: AE102

Dwg. 8 OF 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231



1 CEILING PLAN

1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH (DASHED)

LEGEND

- 2x2 ACOUSTICAL CEILING TILE
- GYPSUM BOARD ON METAL STUDS
- DIFFUSER PER MECHANICAL (SIZE & PROPORTION MAY VARY)
- LIGHT FIXTURE PER ELECTRICAL (SIZE & PROPORTION MAY VARY)

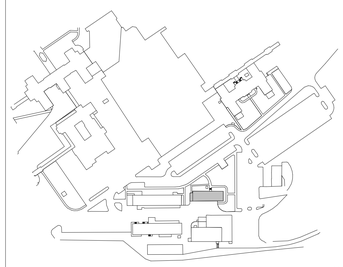
KEY NOTES (THIS SHEET ONLY)

1	INSTALL NEW ACT CEILING.
2	PATCH EXISTING GYP CEILING AS NEEDED WHERE NEW OPENING OCCURS.

GENERAL NOTES

1. REMOVE AND STORE ANY CEILING TILES AND/OR ACT SUSPENSION GRID SYSTEM COMPONENTS WHERE REQUIRED TO COMPLETE ABOVE CEILING MECHANICAL AND ELECTRICAL WORK. REINSTALL AFTER DISCIPLINE WORK IS COMPLETE. REPLACE ANY DAMAGED TILES OR SUSPENSION GRID SYSTEM COMPONENTS TO MATCH EXISTING.
2. REMOVE ANY CEILING OR WALL MOUNTED EQUIPMENT, AS REQUIRED TO COMPLETE OTHER WORK. STORE UNTIL READY FOR REINSTALLATION.
3. TEMPORARILY PROVIDE FIRE PROTECTION WHERE CEILING IS DOWN BY ADJUSTING THE EXISTING FIRE SPRINKLERS HEADS AS REQUIRED TO MEET VA AND NFPA REQUIREMENTS.

KEY PLAN



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PROJECT NORTH
TRUE NORTH (DASHED)

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Revisions:	Date

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WWW.DAVENERGY.COM

Drawing Title: FIRST FLOOR CEILING PLAN

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

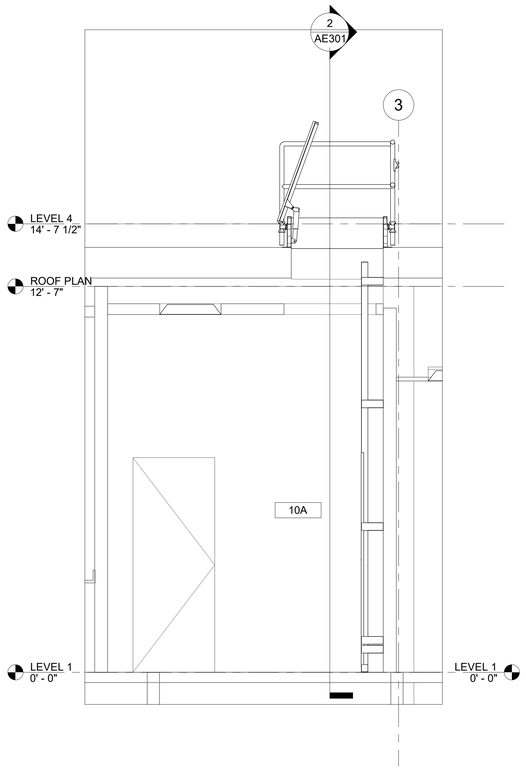
Drawing Number: AC101

Dwg. 9 OF 36

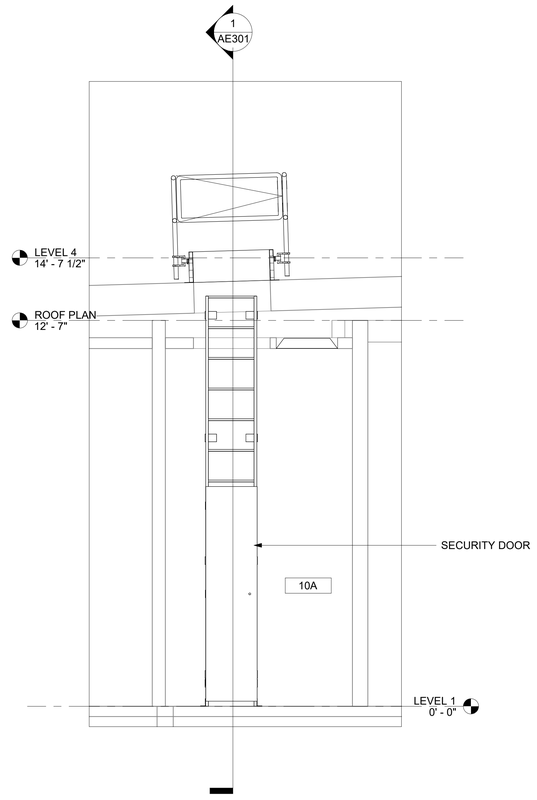
Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231



1 ROOM 10A - LADDER AND ROOF HATCH - EAST-WEST
1/2" = 1'-0"



2 ROOM 10A - LADDER AND ROOF HATCH - NORTH-SOUTH
1/2" = 1'-0"

GENERAL NOTES

1. GENERAL NOTES HERE.

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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Drawing Title: BUILDING SECTIONS

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER
1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

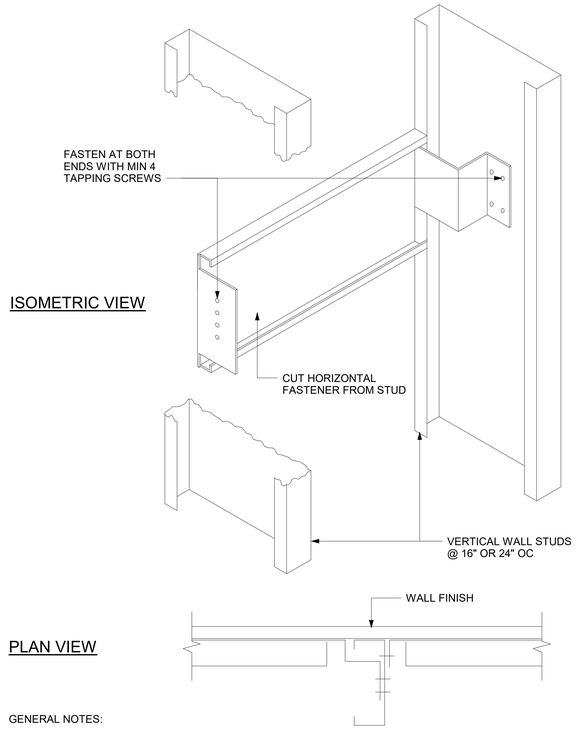
Drawing Number: AE301

Dwg. 10 OF 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

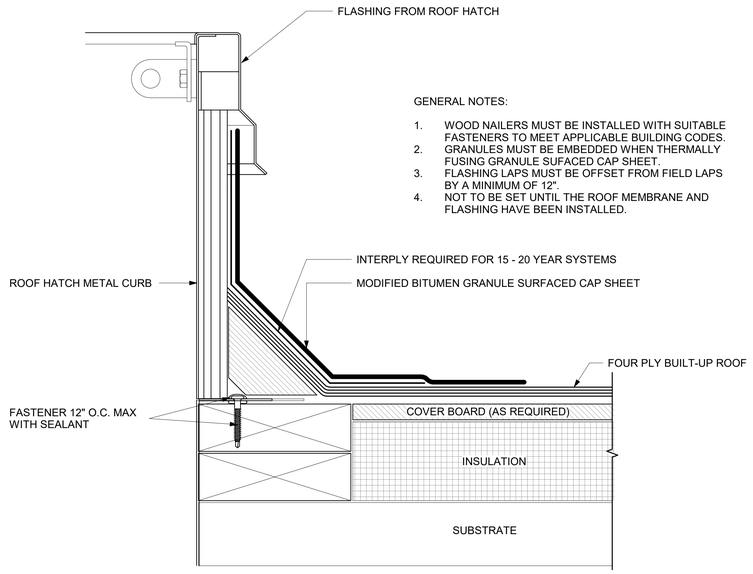


GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE LOCATIONS OF HORIZONTAL FASTENERS
2. ALL WALL MOUNTED EQUIPMENT SHALL HAVE METAL BLOCKING IN WALL BEHIND. ENSURE ALL REQUIRED BACKING IS INSTALLED PRIOR TO INSTALLING GYP.

1 TYPICAL BLOCKING DETAIL

NOT TO SCALE

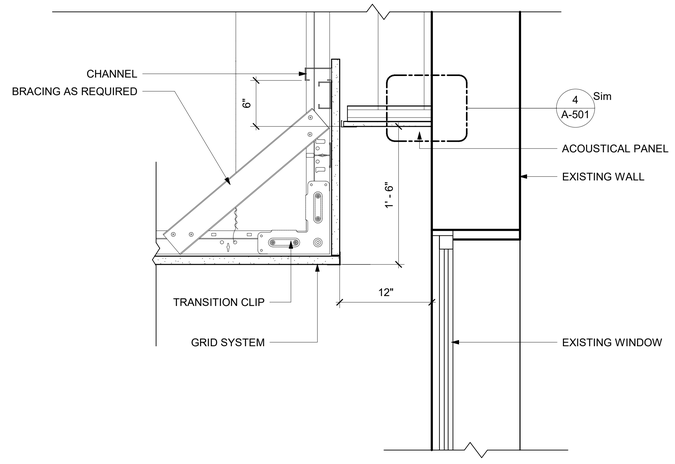


GENERAL NOTES:

1. WOOD NAILERS MUST BE INSTALLED WITH SUITABLE FASTENERS TO MEET APPLICABLE BUILDING CODES.
2. GRANULES MUST BE EMBEDDED WHEN THERMALLY FUSING GRANULE SUFACED CAP SHEET.
3. FLASHING LAPS MUST BE OFFSET FROM FIELD LAPS BY A MINIMUM OF 12".
4. NOT TO BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.

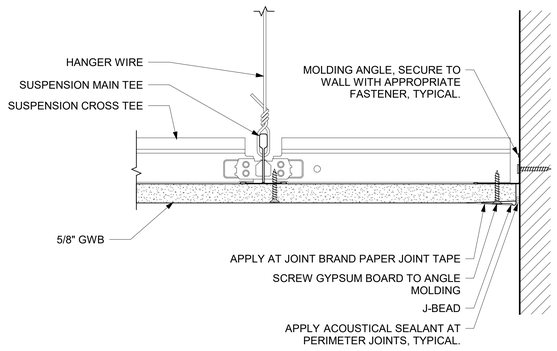
2 FLASHING @ ROOF HATCH

6" = 1'-0"



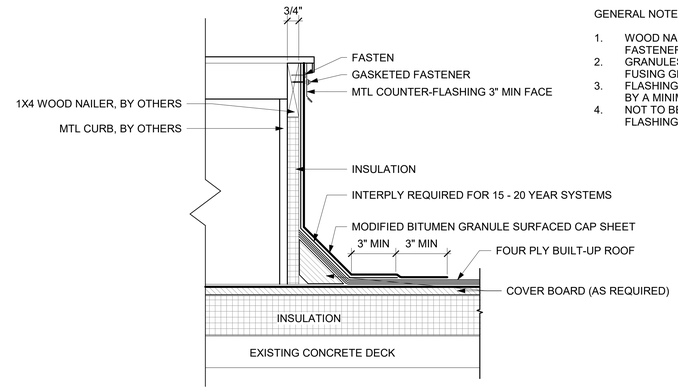
3 TYP SOFFIT WINDOW DETAIL

1 1/2" = 1'-0"



4 TYP SOFFIT CONNECTION TO WALL

6" = 1'-0"



GENERAL NOTES:

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2. GRANULES MUST BE EMBEDDED WHEN THERMALLY FUSING GRANULE SUFACED CAP SHEET.
3. FLASHING LAPS MUST BE OFFSET FROM FIELD LAPS BY A MINIMUM OF 12".
4. NOT TO BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.

5 FLASHING @ MTL CURB

3" = 1'-0"

GENERAL NOTES

1. IN LIUE OF DESTRUCTIVE SITE INVESTIGATION, AE HAS MADE ASSUMPTIONS SURROUNDING THE EXISTING ROOFING SYSTEM AT TIME OF CONSTRUCTION BASED ON VA PROVIDED DOCUMENTATION. COORDINATE WITH VA COR AND ALERT THEM OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS. THE DESIGN INTENT IS TO MATCH AND INTEGRATE INTO THE EXISTING CONDITIONS AT THE TIME OF CONSTRUCTION.

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Revisions:	Date

CONSULTANTS:

ENGINEERING DISCIPLINE:
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Drawing Title: DETAILS

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: MK | Drawn: AJ

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Drawing Number: A-501

Dwg. 11 OF 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

DESIGN BASIS

A. APPLICABLE CODES:

2024 INTERNATIONAL BUILDING CODE.
VA H-18-8 SEISMIC DESIGN REQUIREMENTS
ASCE 7-22, MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES

B. GRAVITY LOADS

	DEAD LOAD	UNIFORM LOAD
1. AIR HANDLING UNIT	2,473 LBS	
2. ROOF DEAD LOAD	-	45 psf
3. ROOF LIVE LOAD (REDUCIBLE)	-	20 psf

C. SNOW LOAD

	UNIFORM LOAD
GROUND SNOW LOAD, p_g	49 psf
WINTER WIND PARAMETER	0.35

D. ICE LOAD

ICE THICKNESS: 1.04 in.
CONCURRENT TEMPERATURE:15°F

E. LATERAL LOADS

1. WIND LOAD (ROOF TOP UNIT ONLY)

METHOD OF ANALYSIS	DIRECTIONAL PROCEDURE
BASIC WIND SPEED	108 mph
EXPOSURE CATEGORY	C
RISK CATEGORY	II
FORCE COEFFICIENT	GCr = 1.90 (AHU: HORIZANTAL) GCr = 1.50 (AHU: UPLIFT)

2. EARTHQUAKE LOADS - NON-STRUCTURAL COMPONENTS

SEISMIC DESIGN FORCE $F_p = 0.4 S_{DS} I_p W_p \left(\frac{H_r}{R_r}\right)\left(\frac{C_{AR}}{R_{Po}}\right)$

FACTOR FOR FORCE AMPLIFICATION	H_r = 3.5
STRUCTURE DUCTILITY REDUCTION FACTOR	R_r = 1.3
COMPONENT RESONANCE DUCTILITY FACTOR	C_{AR} = 1.4
COMPONENT STRENGTH FACTOR	Rpo = 2.0
RISK CATEGORY SEISMIC	II
IMPORTANCE FACTOR	I_p=1.0
SITE CLASS	D
SEISMIC DESIGN CATEGORY	B
SITE COORDINATES	
LATITUDE	32.274284
LONGITUDE	-80.018752
SEISMIC PARAMETERS	
S_s = 0.23g	
S_1 = 0.07g	
S_{DS} = 0.18g	
S_{D1} = 0.098g	
W_p = EQUIPMENT WEIGHT	

ABBREVIATIONS

#	NUMBER	DWG(S)	DRAWINGS	LB	POUND	SECT	SECTION
&	AND	DWL	DOWEL	LG	LONG	SEIS	SEISMIC
=	EQUAL, EQUALS			LL	LIVE LOAD	SEOR	STRUCTURAL ENGINEER OF RECORD
@	AT	EA	EACH	LLH	LONG LEG HORIZONTAL	SEP	SEPARATION
		EF	EACH FACE	LLV	LONG LEG VERTICAL	SHT	SHEET
A/C	AIR CONDITIONING	EFF	EFFECTIVE	LOC	LOCATE, LOCATION	SHTHG	SHEATHING
AB	ANCHOR BOLT	ELEC	ELECTRICAL	LONG	LONGITUDINAL	SIM	SIMILAR
ABV	ABOVE	ELEV	ELEVATION	LP	LOW POINT	SJI	STEEL JOIST INSTITUTE
ACI	AMERICAN CONCRETE INSTITUTE	EMBED	EMBEDDED, EMBEDMENT	LW	LIGHT WEIGHT	SMS	SHEET METAL SCREW
ADDL	ADDITIONAL	EN	EDGE NAIL			SOG	SLAB ON GRADE
ADJ	ADJACENT	EQ	EQUAL	MAS	MASONRY	SPEC(S)	SPECIFICATION(S)
AFF	ABOVE FINISHED FLOOR	EQN	EQUATION	MB	MACHINE BOLT	SPRT	SUPPORT
AHU	AIR HANDLING UNIT	EQUIP	EQUIPMENT	MBR	MEMBER	SQ	SQUARE
AHJ	AUTHORITY HAVING JURISDICTION	ES	EACH SIDE	MCJ	MASONRY CONTROL JOINT	SS	STAINLESS STEEL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	EW	EACH WAY	MECH	MECHANICAL	ST	SNUG TIGHT
ALT	ALTERNATE	EXIST	EXISTING	MED	MEDIUM	STD	STANDARD
APA	AMERICAN PLYWOOD ASSOCIATION	EXT	EXTERNAL, EXTERIOR	MEZZ	MEZZANINE	STIF/STIFF	STIFFENER
APPROX	APPROXIMATELY			MF	MOMENT FRAME	STL	STEEL
ARCH	ARCHITECTURAL	FF	FAR FACE/FINISH FLOOR	MFR	MANUFACTURER	STRUCT	STRUCTURAL, STRUCTURE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	FFE	FINISH FLOOR ELEVATION	MFG	MANUFACTURING	SUSP	SUSPENDED
AT/FP	ANTI-TERRORISM/ FORCE PROTECTION	FG	FINISH GRADE	MIN	MINIMUM	SYM	SYMMETRICAL
AWS	AMERICAN WELDING SOCIETY	FJ	FLOOR JOIST	MO	MASONRY OPENING		
		FRM	FRAME	MOD	MODIFY, MODIFIED	T&B	TOP AND BOTTOM
BTWN	BETWEEN	FRMG	FRAMING	MFR	MANUFACTURER	T&G	TONGUE AND GROOVE
BLW	BELOW	FN	FIELD NAIL			THK	THICK, THICKNESS
BM	BEAM	FND	FOUNDATION	NF	NEAR FACE	TL	TOTAL LOAD
BLKG	BLOCKING	FO	FACE OF	NOM	NOMINAL	TN	TOE NAIL
BN	BOUNDARY NAIL	FOC	FACE OF CONCRETE	NS	NEAR SIDE	TO	TOP OF
BOF	BOTTOM OF FOOTING	FOM	FACE OF MASONRY			TOB	TOP OF BEAM
BOT	BOTTOM	FOS	FACE OF STUD	OC	ON CENTER	TOC	TOP OF CONCRETE
BRG	BEARING	FS	FAR SIDE	OD	OUTSIDE DIAMETER	TOGB	TOP OF GRADE BEAM
BSFRM	BASE FRAME	FT, '	FOOT	OH	OPPOSITE HAND, OVERHEAD	TOF	TOP OF FOOTING
		FTG	FOOTING	OP	OPERATING	TOS	TOP OF STEEL
C	CHANNEL	Fy	YIELD STRESS	OPNG	OPENING	TOW	TOP OF WALL
CE	CARBON EQUIVALENT			OWSJ	OPEN WEB STEEL JOIST	TYP	TYPICAL
CENT	CENTERED	GA	GAUGE				
CFMF	COLD-FORMED METAL FRAMING	GLB	GLUED LAMINATED BEAM	P/C	PIN CONNECTED	UFC	UNITED FACILITES CRITERIA
CFS	COLD-FORMED STEEL	GT	GIRDER TRUSS	PAR	PARALLEL	UNO	UNLESS NOTED OTHERWISE
CIP	CAST IN PLACE	GUSS	GUSSET	PCC	PRECAST CONCRETE	UON	UNLESS OTHERWISE NOTED
CJ	CONTROL JOINT/CEILING JOIST	GYP BD	GYPSUM BOARD	PCF	POUNDS PER CUBIC FOOT		
CJP	COMPLETE JOINT PENETRATION			PEN	PENETRATION	VB	VAPOR BARRIER
CL	CENTERLINE	HD	HOLD DOWN	PFJ	PERIMETER FELT JOINT	VERT	VERTICAL
CLR	CLEAR	HDR	HEADER	PL	PLATE	VIF	VERIFY IN FIELD
CMU	CONCRETE MASONRY UNIT	HGR	HANGER	PLYWD	PLYWOOD		
COL	COLUMN	HK	HOOK	PNL	PANEL	W	WIDTH, WEST, WIDE FLANGE
CONC	CONCRETE	HORIZ	HORIZONTAL	PSF	POUNDS PER SQUARE FOOT	W/	WITH
COND	CONDITION	HP	HIGH POINT	PSI	POUNDS PER SQUARE INCH	W/O	WITHOUT
CONN	CONNECT, CONNECTION	HSS	HOLLOW STRUCTURAL SECTION	PT	PRESSURE TREATED, POINT, PRETENSIONED	WF	WIDE FLANGE
CONST	CONSTRUCTION	HT	HEIGHT			WPT	WORKING POINT
CONT	CONTINUOUS	HVAC	HEATNG/ VENTILATING/ AIR CONDITIONING	REINF	REINFORCING, REINFORCED	WWF	WELDED WIRE FABRIC
CONTR	CONTRACTOR			REQ	REQUIRE	WWM	WELDED WIRE MESH
COORD	COORDINATE	I	MOMENT OF INERTIA	REQD	REQUIRED		
COR	CORNER	IBC	INTERNATIONAL BUILDING CODE	REQMT	REQUIREMENT	x	BY, TIMES
CWB	CAPILLARY WATERBARRIER	ICF	INSULATED CONCRETE FORM	RET	RETURN, RETAINING		
		ID	INSIDE DIAMETER	REV	REVISION, REVISED		
D	DEEP, DEPTH	IN, "	INCH	RF	ROOF RFT RAFTERS		
DEG	DEGREE	INCL	INCLUDE	RPM	REVOLUTIONS PER MINUTE		
DEM	DEMOLISH, DEMOLITION	INFO	INFORMATION	RS	ROUGH SAWN		
DEP	DEPRESSED	INS	INSULATED, INSULATION	RT	ROOF TRUSS		
DET	DETAIL						
DIA	DIAMETER	JST	JOIST	S	SECTION MODULUS		
DIAG	DIAGONAL			SC	SLIP CRITICAL		
DL	DEADLOAD	K, KIPS	THOUSAND POUNDS	SCBRW	SEGMENTAL CONCRETE BLOCK RETAINING WALL		
DO	DITTO			SCHED	SCHEDULE		
DT	DRAG TRUSS	L	LENGTH, ANGLE	SDI	STEEL DECK INSTITUTE		

SUMMARY OF WORK

NEW AIR HANDLING UNIT (AHU) INSTALLATION AND ROOF PENETRATIONS. THE PROJECT IS LOCATED AT 1970 ROANOKE BLVD. SALEM, VA, 24153.

SHEET INDEX

SYMBOLS

GRID ID # — — GRID LINES - CENTER

GRID ID # GRID LINES - FACE

ELEVATION NO. 1" / S0.1 — ELEVATION INDICATOR — SHEET NO. WHERE ELEVATION IS SHOWN

DETAIL NO. # / S#.# — DETAIL INDICATOR — SHEET NO. WHERE DETAIL IS SHOWN

SECTION NO. # / S#.# — SECTION INDICATOR — SHEET NO. WHERE SECTION IS SHOWN

STRUCTURAL NOTES

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL STANDARDS AND APPLICABLE PROVISIONS OF THE CURRENT BUILDING CODES LISTED HEREIN. ASTM REFERENCES ARE FROM THE LATEST ISSUE AND LATEST REVISION, UNLESS OTHERWISE NOTED.
2. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE JOB SITE, AND SHALL BE RESPONSIBLE FOR CONDITIONS OF ALL WORK AND MATERIALS, INCLUDING THOSE FURNISHED BY SUB-CONTRACTORS. ANY DISCREPANCIES AND/OR VARIATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO FABRICATION OR CONSTRUCTION.
3. THE CONTRACT STRUCTURAL DRAWINGS AND REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE INDICATED, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKMEN, AND OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT LIMITED TO BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR THE BUILDING, SHORING FOR THE EARTH BANKS, FORMS, SCAFFOLDING, PLANKING, SAFETY NETS, SUPPORT AND BRACING FOR CRANES AND GIN POLES, ETC. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE ARCHITECT OR THE ENGINEER SHALL NOT INCLUDE THE INSPECTION OF THE ABOVE ITEMS. CONSTRUCTION MATERIALS, PLACED ON STRUCTURAL MEMBERS, SHALL BE POSITIONED SUCH THAT THE LOADING DOES NOT EXCEED DESIGN LOADS LISTED HEREIN.
4. DETAILS SHOWN ON DRAWINGS APPLY AT ALL LIKE CONDITIONS. THESE DRAWINGS SHOW ONLY REPRESENTATIVE AND TYPICAL DETAILS TO ASSIST THE CONTRACTOR. THE DRAWINGS DO NOT ILLUSTRATE EVERY CONDITION. ALL ATTACHMENT, CONNECTIONS, FASTENINGS, ETC. TO BE PROPERLY SECURED IN CONFORMANCE WITH BEST PRACTICE, AND THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING THEM.
5. DRAWINGS SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES.
6. NO PIPES, CONDUITS, OR DUCTS SHALL BE PLACED IN STRUCTURAL MEMBERS UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE ENGINEER.
7. REFER TO MECHANICAL DRAWINGS FOR ALL DIMENSIONAL INFORMATION AND NON-STRUCTURAL ITEMS NOT SHOWN HEREIN, INCLUDING:
   a. ALL FLOOR, ROOF, & WALL OPENINGS.
8. REFER TO MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR ALL INFORMATION RELATED TO MEP ITEMS & DISTRIBUTION SYSTEMS EXCEPT AS SHOWN OR NOTED HEREIN.
9. CONSTRUCTION MATERIALS, PLACED ON STRUCTURAL MEMBERS, SHALL BE POSITIONED SUCH THAT THE LOADING DOES NOT EXCEED DESIGN LOADS LISTED HEREIN.
10. DETERMINE THE LOCATION OF UTILITY SERVICES IN AREAS TO BE EXCAVATED BEFORE BEGINNING EXCAVATION. EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING. DAMAGE CAUSED AS A RESULT OF FAILING TO EXACTLY LOCATE AND PRESERVE ALL EXISTING UNDERGROUND UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
11. THE CAD DRAWING FILES ARE THE PROPERTY OF THE STRUCTURAL ENGINEER AND WILL NOT BE RELEASED TO THE CONTRACTOR OR SUBCONTRACTORS FOR THEIR USE.
12. STRUCTURAL DRAWINGS TO BE USED IN CONJUNCTION WITH MECHANICAL DRAWINGS BY: DAVENERGY SOLUTIONS

STRUCTURAL OBSERVATION NOTES

1. THE OWNER SHALL EMPLOY THE ENGINEER RESPONSIBLE FOR THE STRUCTURAL DESIGN, TO PERFORM STRUCTURAL OBSERVATION AS DEFINED IN IBC. OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, SPECIAL INSPECTOR, CONTRACTOR AND THE BUILDING OFFICIAL. ALL DOCUMENTED OBSERVED DEFICIENCIES MUST BE RESOLVED FOR THE STRUCTURAL SYSTEM TO BE DEEMED IN COMPLIANCE WITH THE APPROVED PLANS & SPECIFICATIONS. THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE AHJ A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFIED, REPORTED DEFICIENCIES HAVE, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE BEEN RESOLVED. THE CONTRACTOR SHALL CONTACT THE STRUCTURAL ENGINEER A MINIMUM OF 5 WORKING DAYS PRIOR TO THE PROJECT REACHING THE PRESCRIBED MILESTONES OF CONSTRUCTION LISTED BELOW. ADDITIONALLY, WITHIN TWO DAYS AFTER THE START OF CONSTRUCTION, THE CONTRACT SHALL PROVIDE A PROJECT SCHEDULE TO THE STRUCTURAL ENGINEER OUTLINING THE ESTIMATED DATES THE STRUCTURAL OBSERVATIONS WILL BE REQUIRED.
2. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM BY SEOR FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AT CONSTRUCTION STAGES LISTED BELOW SPECIAL INSPECTIONS SHALL ALSO BE PROVIDED AS REQUIRED HEREIN.
3. THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF THE DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE FOLLOWING SIGNIFICANT CONSTRUCTION STAGES REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER:

CONSTRUCTION STAGES:	ITEMS TO BE OBSERVED:
A. FRAMING	1. ANCHORAGE OF DOWELS WITH EPOXY (CONCRETE CURB)

4. NO STRUCTURAL DETAILS ARE TO BE COVERED PRIOR TO STRUCTURAL OBSERVATION. CONTRACTOR SHALL SCHEDULE PROJECT ACCORDINGLY TO ALLOW ALL STRUCTURAL DETAILS TO BE OBSERVE DURING ONE OF THE THREE STRUCTURAL OBSERVATIONS.

SHOP DRAWINGS/SUBMITTALS

1. THE FOLLOWING SUBMITTAL SHALL BE SUBMITTED TO THE SEOR PRIOR TO FABRICATION FOR APPROVAL:
   a. MIX DESIGN FOR:
      i. CONCRETE
   b. REINFORCING BAR LAYOUT FOR:
      i. CONCRETE
2. STRUCTURAL FRAMING AND REINFORCING LISTS, QUANTITIES AND LENGTHS OF ALL MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE COMPLIANCE WITH THE CONTRACT DOCUMENTS. THESE ITEMS ARE NOT INCLUDED IN SEOR REVIEW.
3. REVIEW OF SHOP DRAWINGS BY THE SEOR IS FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND STRUCTURAL DESIGN INTENT. ALL ERRORS IN DETAILING, FABRICATION, AND FOR CORRECT FITTING OF ALL STRUCTURAL MEMBERS INCLUDING COORDINATION WITH OTHER TRADES IS THE RESPONSIBILITY OF THE CONTRACTOR. SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER DO NOT CONSTITUTE CHANGE ORDERS. ANY PROPOSED CHANGES MUST BE SUBMITTED IN A LETTER OR DETAIL TO THE SEOR FOR APPROVAL.
4. SHOP DRAWINGS SHALL BE SUBMITTED AT LEAST TWO WEEKS PRIOR TO THE SCHEDULED FABRICATION DATE. A DIGITAL SET CLEARLY MARKED WITH ANY COMMENTS WILL BE RETURNED TO THE CONTRACTOR.
5. ANY SHOP DRAWINGS SHALL BE INDEPENDENTLY CREATED BASED ON THE INFORMATION SHOWN IN THE APPROVED STRUCTURAL DRAWINGS.

POST INSTALLED ANCHORS

1. USE ONLY NON-REBAR CUTTING DRILL BITS TO DRILL HOLES IN CONCRETE AND CONCRETE MASONRY UNITS. EXISTING REINFORCING STEEL SHALL BE POSITIVELY LOCATED BY NON-DESTRUCTIVE MEANS PRIOR TO DRILLING HOLES. DO NOT CUT OR DAMAGE EXISTING REINFORCING STEEL UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
2. WHERE EXISTING CONCRETE IS DAMAGED AND/OR DRILLED HOLES ABANDONED, THE DAMAGED CONCRETE OR ABANDONED HOLES SHALL BE REPAIRED OR FILLED WITH NON-SHRINK GROUT, RESPECTIVELY. BRING EACH CONDITION TO THE ATTENTION OF THE STRUCTURAL ENGINEER PRIOR TO IMPLEMENTING REPAIRS.
3. DO NOT DRILL HOLES WITHIN 4 INCHES OF EXISTING ELECTRICAL OUTLETS THAT ARE EMBEDDED IN SUBSTRATE.
4. BRING TO THE ATTENTION OF THE STRUCTURAL ENGINEER ANY POST-INSTALLED ANCHOR LOCATION THAT CANNOT COMPLY WITH THE PARAMETERS STATED HEREIN AND INDICATED ON THE DRAWINGS.

DEMOLITION NOTES

1. THESE PLANS REPRESENT INFORMATION TAKEN FROM THE ORIGINAL CONSTRUCTION DOCUMENTS WHERE AVAILABLE AND SITE OBSERVATION. DURING DEMOLITION ALL CONDITIONS LISTED AS EXISTING ARE TO BE CONFIRMED IN THE FIELD. ALL CONDITIONS FOUND TO BE DIFFERENT FROM THE CONDITIONS REPRESENTED IN THESE PLANS AND THOSE OF OTHER DISCIPLINES ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
2. THE CONTRACTOR SHALL SUPPLY ALL SHORING AND TEMPORARY BRACING AND STRUCTURAL ENGINEERING NECESSARY TO PERFORM WORK EXCEPT WHERE SPECIFICALLY DETAILED IN THESE DRAWINGS. ALL ENGINEERING IS TO BE PERFORMED BY A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.
3. ALL BUILDING COMPONENTS SUCH AS ROOF BEAMS, GIRDERS AND SUB-PURLINS SHALL BE PROPERLY SHORED AND BRACED AS DESIGNED PRIOR TO REMOVAL OF ANY SUPPORTING MEMBERS.
4. ALL TEMPORARY SHORING AND BRACING SHALL REMAIN IN PLACE UNTIL NEW SUPPORTING FRAMING IS PROPERLY SECURED AND/OR ANCHORED IN PLACE AND EXISTING SHORED BUILDING COMPONENTS ARE PROPERLY ATTACHED ACCORDING TO THE DETAILS SPECIFIED HEREIN.
5. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION OF UTILITIES SHUTDOWN PRIOR TO DEMOLITION (I.E. GAS, WATER, ELECTRICAL SUPPLIES). ANY SHUTDOWN OF THE FIRE PROTECTION SYSTEM IS TO BE COORDINATED WITH THE LOCAL FIRE DEPARTMENT AND THE FIRE PROTECTION SYSTEM CONSULTANT.
6. IN PREPARATION OF THESE DRAWINGS IT HAS BEEN NECESSARY TO ASSUME SOME AS-BUILT CONDITIONS TO EXIST TO COMPLETE THE DESIGN WORK. WHERE THESE ASSUMPTIONS ARE MADE THE CONDITION IS IDENTIFIED AS "ASSUMED" OR "VERIFY IN FIELD (V.I.F)" ON THE DRAWINGS. CONTRACTOR SHALL VERIFY THESE CONDITIONS AND REPORT ANY DISCREPANCIES TO THE SEOR IF THE WORK REQUIRES MODIFICATION OF THESE AS- BUILT CONDITIONS.

CONCRETE

1. CEMENT SHALL CONFORM TO ASTM C150, TYPE II/V.
2. CONDUITS EMBEDDED HORIZONTALLY IN THE SLAB SHALL HAVE AN OUTSIDE DIAMETER NO GREATER THAN 1/3 THE THICKNESS OF THE SLAB. CONDUIT SHALL NOT BE EMBEDDED IN A SLAB THAT IS LESS THAN 3 1/2" THICK. EXCEPT FOR LOCAL OFFSETS, MIN. CLEAR DISTANCE BETWEEN CONDUITS SHALL BE 6". REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION OF ALL PIPES, CONDUITS, ETC. NO PIPES OR DUCTS SHALL BE PLACED IN CONCRETE BEAMS, FOOTINGS, OR SLABS, UNLESS SPECIFICALLY DETAILED IN THESE PLANS, OR AS APPROVED BY THE STRUCTURAL ENGINEER.
3. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33. 1 1/2" MAXIMUM SIZE. AGGREGATES FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO ASTM C330, 1" MAXIMUM SIZE.
4. THE MAXIMUM CONCRETE SLUMP SHALL BE PER SCHEDULE BELOW PRIOR TO THE ADDITION OF ANY PLASTICIZING ADMIXTURES.
5. ADMIXTURES MAY BE USED WITH PRIOR WRITTEN APPROVAL OF THE ENGINEER. APPROVAL MUST BE RECEIVED DURING THE BUILDING PERIOD. ADMIXTURES SHALL COMPLY WITH ASTM A494 AND BE OF THE TYPE THAT INCREASE THE WORKABILITY OF THE CONCRETE, BUT SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT. (CALCIUM CHLORIDE SHALL NOT BE USED).
6. READY-MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C94.
7. ALL REINFORCING BARS AND INSERTS SHALL BE SECURED IN PLACE PRIOR TO CONCRETE, POUR.
8. NON-STRUCTURAL STEEL MEMBERS EMBEDDED IN CONCRETE SHALL BE GALVANIZED OR PAINTED. ALL DAMAGED GALVANIZED AREAS SHALL BE REPAIRED PRIOR TO EMBEDMENT.
9. LIGHT-WEIGHT CONCRETE FILL SHALL HAVE A MAXIMUM DRY DENSITY OF 110 pcf. ALL OTHER CONCRETE SHALL HAVE A MAXIMUM DRY DENSITY OF 150 pcf.
10. MINIMUM CONCRETE COMPRESSIVE STRENGTH AND MAXIMUM SLUMPS:

	MIN f'c (28 DAYS)	MAX SLUMP	W/C
ALL NEW CONCRETE	3,000 psi	4" +/- 1"	0.55

*2500 PSI DESIGNED STRENGTH, SPECIAL INSPECTION NOT REQUIRED, SEE INTERIOR FLOOR SLAB NOTES ON THIS SHEET FOR ADDITIONAL REQUIREMENTS

11. PROVIDE (2) #4 DIAGONAL BARS AT CORNERS OF ALL OPENINGS IN CONCRETE FLOORS AND ROOFS.
12. PROVIDE CONSTRUCTION AND CONTROL JOINTS AS SHOWN ON PLANS AND IN TYPICAL DETAILS UNLESS SPECIFIED OTHERWISE. LOCATION OF JOINTS NOT SPECIFICALLY INDICATED SHALL BE REVIEWED BY THE SEOR PRIOR TO PLACING REINFORCING STEEL.
13. DRY PACK SHALL BE ONE PART CEMENT AND 2 3/4 PARTS SAND WITH SUFFICIENT WATER TO HYDRATE CEMENT AND FORM A BALL SHOWING MOISTURE ON THE SURFACE WHEN SQUEEZED. IT SHALL BE RAMMED IN TIGHT TO MAXIMUM DENSITY ATTAINABLE, AND SHALL HAVE A MINIMUM STRENGTH OF 5000 PSI AT 28 DAYS.
14. NON-SHRINK GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 7,000 psi PER ASTM C109. GROUT BASE PLATES AFTER PLUMBING OF COLUMN.
15. CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4 INCH.
16. ALL CONCRETE WHICH DURING THE LIFE OF THE STRUCTURE WILL BE SUBJECT TO FREEZING TEMPERATURES WHILE WET, SHALL HAVE A WATER CEMENT RATIO NOT EXCEEDING 0.45 BY WEIGHT AND SHALL CONTAIN ENTRAINED AIR PER ACI 613. SUCH CONCRETE SHALL INCLUDE EXTERIOR SLABS, PERIMETER FOUNDATIONS, EXTERIOR CURBS, ETC.
17. CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS, INCLUDING AGGREGATE GRADATION, FOR CONCRETE STRENGTH F'c > 2500 PSI.

REINFORCING STEEL

1. METAL REINFORCING:

BAR DIAMETERS OF #4 AND GREATER	ASTM A615 GRADE 60
OTHER DIAMETER	ASTM A615 GRADE 40

2. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE LATEST ACI STANDARDS AND THE LATEST EDITION OF THE GOVERNING CODES HEREIN.
3. ALL REINFORCING SHALL BE ADEQUATELY SUPPORTED TO PREVENT DISPLACEMENT BY CONCRETE PLACEMENT OR WORKERS.
4. FOR WELDING OF REINFORCING BARS SPECIAL INSPECTION IS REQUIRED. TESTING IS REQUIRED FOR ALL WELDS THICKER THAN 5/16".
5. WHERE REINF. BARS ARE CALLED OUT TO BE CONTINUOUS (CONT.) PROVIDE CONTINUOUS BARS OR FULL SPLICES PER SPLICE TABLE SCHEDULE. IT IS CONTRACTOR'S OPTION TO PROVIDE CONTINUOUS BARS WHERE SPLICES ARE SHOWN.
6. MESH SPLICES SHALL BE A MINIMUM OF TYPICAL GRID SPACING PLUS 2" (8" MINIMUM) MEASURED BETWEEN CROSS WIRES.
7. PROVIDE MINIMUM CONCRETE COVER FOR REINFORCING IN ACCORDANCE WITH THE LATEST ACI STANDARDS AND THE LATEST EDITION OF THE CURRENT BUILDING CODE HEREIN:

MINIMUM PROTECTIVE COVER FOR REINFORCING STEEL	
ON EARTH SIDE WHEN PLACED AGAINST EARTH	3"
ON EARTH SIDE WHEN FORMED	2"
EXTERIOR WALL STEEL	1 1/2"
INTERIOR WALL STEEL	3/4"
TIED COLUMNS (STIRRUPS) ABOVE GRADE	1 1/2"
BEAMS (STIRRUPS) ABOVE GRADE	1 1/2"
WELDED WIRE FABRIC	CENTERLINE OF SLAB

8. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS AND INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE OR GROUT.
9. FURNISH #3 SPACER TIES AT APPROXIMATELY 2'-6" ON CENTER IN ALL BEAMS AND FOOTINGS TO SECURE REINFORCING IN PLACE, UNLESS OTHERWISE NOTED.
10. ALL REINFORCEMENT SHALL BE BENT COLD. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT.
11. COORDINATE PLACEMENT OF CAST-IN-PLACE EMBEDS AND ANCHOR RODS. SET ANCHOR RODS WITH A TEMPLATE. SECURELY ATTACH EMBED ITEMS TO FORMWORK OR REINFORCING.
12. PROVIDE CLASS "B" REINFORCEMENT SPLICES FOR CONTINUOUS REINFORCEMENT. PROVIDE STANDARD 90-DEGREE HOOKS IN ACCORDANCE WITH ACI 318, UNLESS NOTED OTHERWISE.
13. DO NOT WELD OR BEND REINFORCEMENT IN THE FIELD UNLESS SPECIFICALLY SHOWN OR APPROVED BY STRUCTURAL ENGINEER.
14. WHERE REQUIRED, PROVIDE DOWELS TO MATCH SIZE AND SPACING OF MAIN REINFORCING, UNO.

EPOXY ANCHORS

1. ALL ADHESIVE ANCHOR INSTALLATIONS SHALL COMPLY WITH MANUFACTURER'S CURRENT ICC-ES REPORT PER GOVERNING CODES LISTED HEREIN.
2. WHEN INSTALLING DRILLED EPOXY ANCHORS IN EXISTING REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCEMENT.
3. MAINTAIN A MINIMUM CLEARANCE OF 1" BETWEEN REINFORCEMENT AND THE DRILLED EPOXY ANCHORS. EPOXY ANCHORS SHALL NOT BE USED AT CONCRETE CURBS
4. ADHESIVE SHALL ONLY BE APPLIED TO DRY SURFACES.
5. EPOXY ANCHORS SHALL BE INDICATED BELOW FOR EACH SUBSTRATE MATERIAL, ANY SUBSTITUTION SHALL BE SUBMITTED TO AND APPROVED BY SEOR:
   a. CONCRETE: HILTI HIT-HY 200 (ICC-ES ESR-3187).
6. ALL EPOXIED ANCHOR RODS SHALL BE INDICATED BELOW FOR EACH SUBSTRATE MATERIAL, ANY SUBSTITUTION SHALL BE SUBMITTED TO AND APPROVED BY SEOR:
8. HILTI HAS-E CONTINUOUSLY THREADED RODS OR HILTI HIS-N INTERNALLY THREADED INSERTS. ALL RODS SHALL BE ASTM A36 THREADED RODS WITH ASTM A563 GRADE A NUTS AND ANSI B18.22.1 TYPE A WASHERS, UNLESS OTHERWISE NOTED. ANCHORS DESIGNATED AS ASTM A193 GRADE B7 THREADED RODS SHALL USE ASTM A563 GRADE DH HEAVY HEX NUTS AND ASTM F436 WASHERS.
9. ALL EPOXIED REINFORCEMENT BARS SHALL BE: ASTM A615 GRADE 60 STEEL.
10. REMOVE GREASE, OIL, RUST AND ANY OTHER LAITANCE FROM RODS AND DOWELS PRIOR TO INSTALLATION.
11. SPECIAL INSPECTION REQUIREMENTS ARE PER ICC-ES EVALUATION SERVICES REPORT FOR EACH PRODUCT SPECIFIED.
12. THE SPECIAL INSPECTOR SHALL BE ON THE JOBSITE CONTINUOUSLY DURING ANCHOR INSTALLATIONS, UNLESS OTHERWISE NOTED IN ICC-ES ESR, TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DIMENSIONS ANCHOR SPACINGS, EDGE DISTANCES, SLAB THICKNESS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE.

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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LA MESA, CA 91942
DESI

STRUCTURAL NOTES, VERIFICATION & INSPECTION SCHEDULES

EXPANSION ANCHORS

1. ALL EXPANSION ANCHORS INSTALLATIONS SHALL COMPLY WITH MANUFACTURER'S CURRENT ICC-ES REPORT PER GOVERNING CODES LISTED HEREIN.
2. WHEN INSTALLING DRILLED EXPANSION ANCHORS IN EXISTING REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCEMENT.
3. MAINTAIN A MINIMUM CLEARANCE OF 1" BETWEEN REINFORCEMENT AND THE DRILLED EXPANSION ANCHORS. EXPANSION ANCHORS SHALL NOT BE USED AT CONCRETE CURBS.
4. EXPANSION ANCHORS SHALL BE INDICATED BELOW FOR EACH SUBSTRATE MATERIAL, ANY SUBSTITUTION SHALL BE SUBMITTED TO AND APPROVED BY SEOR:
   a. CONCRETE: HILTI KWIK BOLT KB-TZ2 ANCHOR (ICC-ES ESR-4266, LARR #25701).
5. WHERE THE MANUFACTURER'S INSTALLATION INSTRUCTIONS OR APPLICABLE ICC-ES EVALUATION SERVICES REPORT CALL FOR THE APPLICATION OF AN INSTALLATION TORQUE, THE SPECIFIED TORQUE SHALL BE APPLIED WITH CALIBRATED TORQUE WRENCH. THE SPECIFIED INSTALLATION TORQUE SHALL NOT BE EXCEEDED.
6. ANCHORS ARE TYPICALLY AVAILABLE IN ELECTRO-GALVANIZED CARBON STEEL, HOT DIPPED GALVANIZED CARBON STEEL, AND STAINLESS STEEL. USE OF ELECTRO-GALVANIZED CARBON STEEL ANCHORS IS TYPICALLY LIMITED TO DRY, INTERIOR LOCATIONS, UNLESS OTHERWISE NOTED. STAINLESS STEEL OR HOT-DIPPED GALVANIZED ANCHORS ARE GENERALLY SUITABLE FOR APPLICATIONS EXPOSED TO EXTERIOR WEATHER CONDITIONS. FINAL AUTHORITY ON TYPE OF ANCHOR COATING UTILIZED RESTS WITH THE SEOR AND MUST BE APPROVED BY SUCH.
7. EXPANSION ANCHORS FOR NON-VIBRATION ISOLATED MECHANICAL EQUIPMENT RATED OVER 10HP ARE NOT PERMITTED ANCHORS INSTALLED IN OVERHEAD CONDITIONS FOR NON- VIBRATION ISOLATED EQUIPMENT WITH RECIPROCATING OR ROTATING MECHANISMS SHALL BE UNDERCUT ANCHORS.
8. THE SPECIAL INSPECTOR SHALL BE ON THE JOBSITE CONTINUOUSLY DURING ANCHOR INSTALLATIONS, UNLESS OTHERWISE NOTED IN ICC-ES ESR, TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DIMENSIONS ANCHOR SPACINGS, EDGE DISTANCES, SLAB THICKNESS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE.

STATEMENT OF SPECIAL INSPECTIONS

THIS "STATEMENT OF SPECIAL INSPECTIONS" IS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS OF THE CURRENT GOVERNING CODES LISTED HEREIN.

THE VERIFCATION & INSPECTION SCHEDULESS SUMMARIZES THE SPECIAL INSPECTIONS AND TESTS REQUIRED. SPECIAL INSPECTORS WILL REFER TO THE APPROVED PLANS AND SPECIFICATIONS FOR DETAILED SPECIAL INSPECTION REQUIREMENTS. ANY ADDITIONAL TESTS AND INSPECTIONS REQUIRED BY THE APPROVED PLANS AND SPECIFICATIONS SHALL ALSO BE PERFORMED.

SPECIAL INSPECTIONS AND TESTING WILL BE PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, THIS STATEMENT AND IBC SECTIONS 1704, 1705. INTERIM REPORTS WILL BE SUBMITTED TO THE AHJ AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH IBC SECTION 1704.2.4.

A FINAL REPORT OF SPECIAL INSPECTIONS DOCUMENTING REQUIRED SPECIAL INSPECTIONS, TESTING AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED PRIOR TO ACCEPTANCE OF THE BUILDING BY AHJ. THE FINAL REPORT WILL DOCUMENT:

- REQUIRED SPECIAL INSPECTIONS.
- CORRECTION OF DISCREPANCIES NOTED IN INSPECTIONS.

THE CONTRACTOR RECOGNIZES HIS OR HER OBLIGATION TO ENSURE THAT THE CONSTRUCTION COMPLIES WITH THE APPROVED PERMIT DOCUMENTS AND TO IMPLEMENT THIS PROGRAM OF SPECIAL INSPECTIONS. IN PARTIAL FULFILLMENT OF THESE OBLIGATIONS, THE CONTRACTOR WILL RETAIN AND DIRECTLY PAY FOR THE SPECIAL INSPECTIONS AS REQUIRED IN RELEVANT SECTIONS OF THE GOVERNING CODES LISTED HEREIN.

THIS PLAN HAS BEEN DEVELOPED WITH THE UNDERSTANDING THAT THE CONTRACTING OFFICER WILL:

- REVIEW AND APPROVE THE QUALIFICATIONS OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE INSPECTIONS.
- MONITOR SPECIAL INSPECTION ACTIVITIES ON THE JOB SITE TO ASSURE THAT THE SPECIAL INSPECTORS ARE QUALIFIED AND ARE PERFORMING THEIR DUTIES AS CALLED FOR IN THIS STATEMENT OF SPECIAL INSPECTION.
- REVIEW SUBMITTED INSPECTION REPORTS.
- PERFORM INSPECTIONS AS REQUIRED BY THE LOCAL BUILDING CODE.

NOTICE TO THE APPLICANT/OWNER/ OWNER'S AGENT/ARCHITECT OR ENGINEER OF RECORD:

- BY USING THIS PERMITTED CONSTRUCTION DRAWINGS FOR CONSTRUCTION/INSTALLATION OF THE WORK SPECIFIED HEREIN, YOU AGREE TO COMPLY WITH THE REQUIREMENTS OF CITY OF SAN DIEGO FOR SPECIAL INSPECTIONS, STRUCTURAL OBSERVATIONS, CONSTRUCTION MATERIAL TESTING AND OFF-SITE FABRICATION OF BUILDING COMPONENTS, CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS AND, AS REQUIRED BY THE CALIFORNIA CONSTRUCTION CODES.

NOTICE TO THE CONTRACTOR/BUILDER/INSTALLER/SUB-CONTRACTOR/OWNER-BUILDER:

- BY USING THIS PERMITTED CONSTRUCTION DRAWINGS FOR CONSTRUCTION/INSTALLATION OF THE WORK SPECIFIED HEREIN, YOU ACKNOWLEDGE AND ARE AWARE OF, THE REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS. YOU AGREE TO COMPLY WITH THE REQUIREMENTS OF CITY OF SAN DIEGO FOR SPECIAL INSPECTIONS, STRUCTURAL OBSERVATIONS, CONSTRUCTION MATERIAL TESTING AND OFF-SITE FABRICATION OF BUILDING COMPONENTS, CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS AND, AS REQUIRED BY THE CALIFORNIA CONSTRUCTION CODES.
- THE SPECIAL INSPECTOR MUST BE CERTIFIED BY THE CITY OF SAN DIEGO, DEVELOPMENT SERVICES, IN THE CATEGORY OF WORK REQUIRED TO HAVE SPECIAL INSPECTION.
- THE CONSTRUCTION MATERIALS TESTING LABORATORY MUST BE APPROVED BY THE CITY OF SAN DIEGO, DEVELOPMENT SERVICES, FOR TESTING OF MATERIALS, SYSTEMS, COMPONENTS AND EQUIPMENT.
- THE SPECIAL INSPECTIONS IDENTIFIED ON PLANS ARE, IN ADDITION TO, AND NOT A SUBSTITUTE FOR, THOSE INSPECTIONS REQUIRED TO BE PERFORMED BY A CITY'S BUILDING INSPECTOR.
- DRILLING OPERATIONS, VERIFICATION OF PLACEMENT, PLUMBNESS, SHAFT DIAMETER, BELL DIAMETER, LENGTHS, EMBEDMENT INTO BEDROCK AND ADEQUATE END BEARING STRATA CAPACITY OF EACH CAST-IN-PLACE DEEP FOUNDATION ELEMENT SHALL BE PERFORMED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (SOILS ENGINEER OR GEOTECHNICAL ENGINEER OF RECORD), WHO HAS PREPARED THE APPROVED GEOTECHNICAL REPORT.
- A SPECIAL INSPECTION REPORT (SIGNED, STAMPED AND DATED BY THE SOILS ENGINEER OR GEOTECHNICAL ENGINEER OF RECORD) SHALL BE SUBMITTED TO, AND APPROVED BY THE CITY'S BUILDING INSPECTOR VERIFYING DEEP FOUNDATION SPECIAL INSPECTION ITEMS IN ACCORDANCE WITH THE STATEMENT OF SPECIAL INSPECTIONS PRIOR TO FOUNDATION CONCRETE PLACEMENT.

SPECIAL INSPECTION LEGEND

NOTATION USED IN TABLE:

COLUMN HEADERS:

FOR STRUCTURAL STEEL:

QC QUALITY CONTROL (QC) AS SPECIFIED IN THIS AISC 360 SHALL BE PROVIDED BY THE FABRICATOR AND ERECTOR.

QA QUALITY ASSURANCE (QA) AS SPECIFIED IN THIS CHAPTER SHALL BE PROVIDED BY THE SPECIAL INSPECTOR OR QUALITY ASSURANCE INDIVIDUAL IF QUALIFIED.

O OBSERVE THESE ITEMS ON A RANDOM BASIS AT A MINIMUM OF [10%, 15%, 20%, 25%] OF THE TASKS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.

PC PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER CONTINUOUSLY.

PP THESE INSPECTIONS SHALL BE PERFORMED PRIOR TO THE FINAL ACCEPTANCE OF THE ITEM.

D DOCUMENT – THE INSPECTOR SHALL PREPARE REPORTS INDICATING THAT THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE REPORT NEED NOT PROVIDE DETAILED MEASUREMENTS FOR JOINT FIT UP, WPS SETTINGS, COMPLETED WELDS, OR OTHER INDIVIDUAL ITEMS LISTED IN THE TABLES. FOR SHOP FABRICATION, THE REPORT SHALL INDICATE THE PIECE MARK OF THE PIECE INSPECTED. FOR FIELD WORK, THE REPORT SHALL INDICATE THE REFERENCE GRID LINES AND FLOOR OR ELEVATION INSPECTED. WORK NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS AND WHETHER THE NONCOMPLIANCE HAS BEEN SATISFACTORILY REPAIRED SHALL BE NOTED IN THE INSPECTION REPORT.

FOR OTHER MATERIALS:

C INDICATES CONTINUOUS INSPECTION IS REQUIRED DURING TASK LISTED. SPECIAL INSPECTION IS PRESENT WHEN AND WHERE THE WORK IS TO INSPECTED IS BEING PERFORMED.

P INDICATES PERIODIC INSPECTIONS ARE REQUIRED DURING TASK LISTED. SPECIAL INSPECTOR IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.

BOX ENTRIES:

X IS PLACED IN THE APPROPRIATE COLUMN TO DENOTE EITHER "C" CONTINUOUS OR "P" PERIODIC INSPECTIONS.

--- DENOTES NO SPECIAL INSPECTION IS REQUIRED.

1 DENOTES ONE TIME INSPECTION.

ADDITIONAL DETAIL REGARDING INSPECTIONS AND TESTS ARE PROVIDED IN THE PROJECT SPECIFICATIONS OR NOTES ON THE DRAWINGS.

REQUIRED VERIFICATION AND INSPECTION OF FABRICATORS

VERIFICATION AND INSPECTION	C	P	APPLICABLE	REFERENCED STANDARD	CBC/IBC REF.
1. VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR INSPECTION CONTROL WORKMANSHIP AND FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS. SPECIAL INSPECTION AS REQUIRED BY SECTION 1704.2.5 SHALL NOT BE REQUIRE WHERE THE FABRICATOR IS APPROVED IN ACCORDANCE WITH SECTION 1704.2.5.2		1	●		1704.2.5., 1704.2.5.2

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE

VERIFICATION AND INSPECTION	C	P	APPLICABLE	REFERENCED STANDARD	CBC/IBC REF.
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS AND PLACEMENT.	---	X	●	ACI 318: 3.5, 7.1-7.7	1910.4
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.2.2 ITEM 2B.	---	X	●	AWS D1.4 ACI 318:3.5.2	---
3. INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN METHOD IS USED.	---	X		ACI 318: 8.1.3, 21.2.8	1908.5, 1909.1
4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS --- X ACI 318: 3.8.6, 8.1.3, 21.2.8 1909.1	---	X	●	ACI 318: 3.8.6, 8.1.3, 21.2.8	1909.1
5. VERIFYING USE OF REQUIRED DESIGN MIX.	---	X	●	ACI 318: Ch. 4, 5.2-5.4	1904.2, 1910.2 1910.3
6. AT TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS,PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	---	●	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1910.1
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	---	●	ACI 318: 5.9, 5.10	1910.6, 1910.7, 1910.8
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	---	X	●	ACI 318: 5.11-5.13	1910.9
9. INSPECTION OF PRESTRESSED CONCRETE:					
A. APPLICATION OF PRESTRESSING FORCES.	X	---		ACI 318: 18.20	---
B. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC FORCE-RESISTING SYSTEM.	X	---		ACI 318: 18.18.4	---
10. ERECTION OF PRECAST CONCRETE MEMBERS.	---	X		ACI 318: Ch. 16	---
11. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	---	X	●	ACI 318: 6.2	---
12. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	---	X	●	ACI 318: 6.1.1	---
13. OTHER:					

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Revisions:	Date

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Drawing Title: STRUCTURAL NOTES, VERIFICATION & INSPECTION SCHEDULES

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/17/2025 | Checked: FC | Drawn: VL

Project Number: 658-24-106

Building No.: 16 | Floor No.: -

Drawing Number: S-002

Dwg. 13 of 36

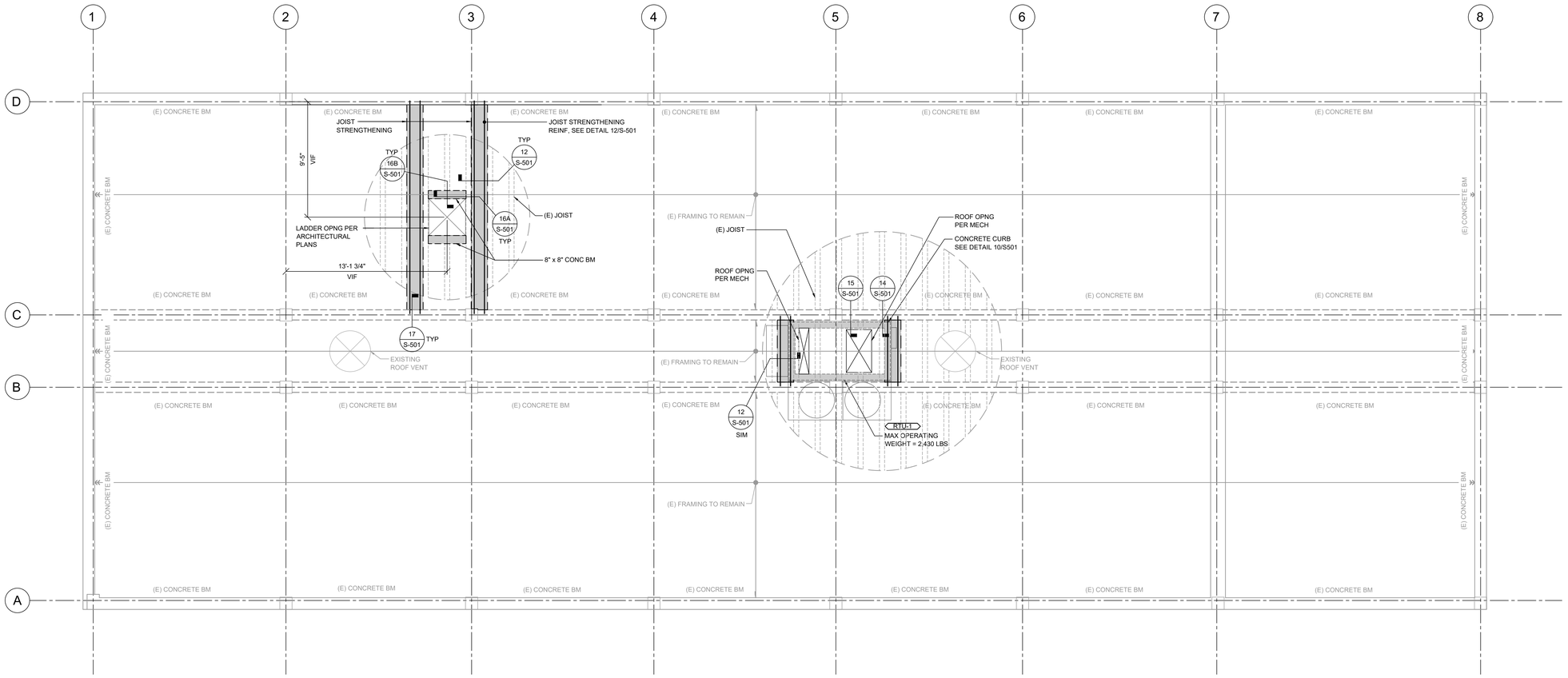
Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

SHEET NOTES:

1. SEE GENERAL NOTES AND TYPICAL DETAILS TO BE USED WHERE APPLICABLE WHETHER SPECIFICALLY REFERENCE OR NOT.
2. CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES WITH THE STRUCTURAL REQUIREMENTS INDICATED, REFER TO OTHER DISCIPLINE'S DRAWINGS.
3. LOCATIONS OF CONCRETE JOISTS AS SHOWN ON PLAN MAY NOT BE REPRESENTATIVE OF THE EXISTING CONDITION. LOCATIONS OF EXISTING CONCRETE JOISTS SHALL BE VIF BY THE CONTRACTOR.



1 STRUCTURAL NEW WORK ROOF PLAN
1/4" = 1'-0"

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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Drawing Title: STRUCTURAL ROOF PLAN
Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC
Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153
Date: 02/17/2025 | Checked: FC | Drawn: VL

Project Number: 658-24-106
Building No.: 16 | Floor No.: ROOF
Drawing Number: S-101
Dwg. 14 of 36

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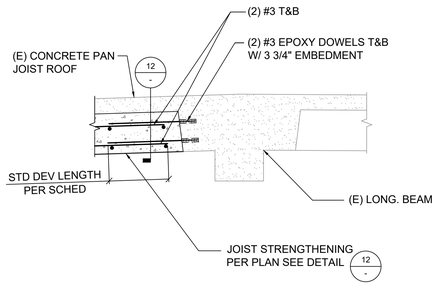
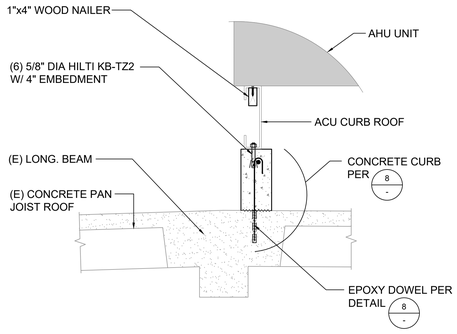
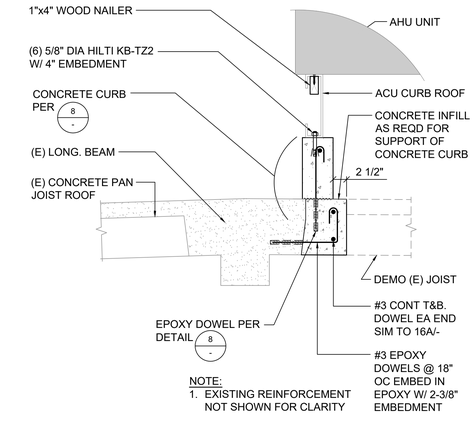


17 DETAIL - STRENGTHENING CONC BEAM TO TO (E) LONGITUDINAL BEAM
NTS

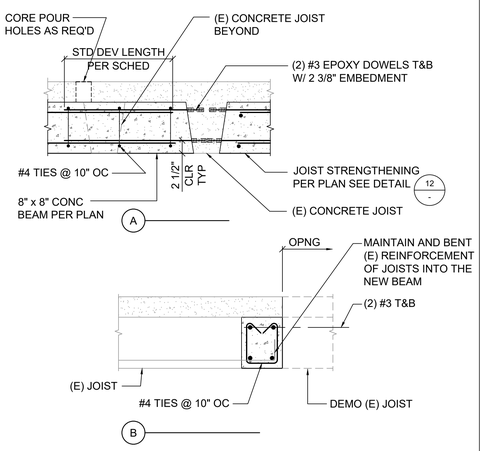


14 DETAIL
NTS

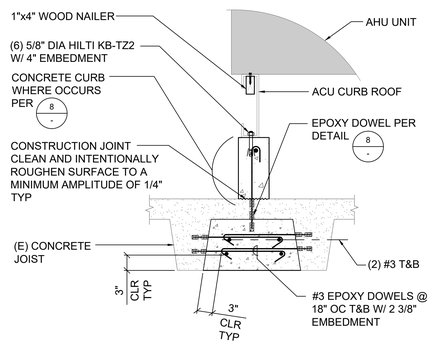


NOTE:
1. EXISTING REINFORCEMENT NOT SHOWN FOR CLARITY

15 DETAIL
NTS



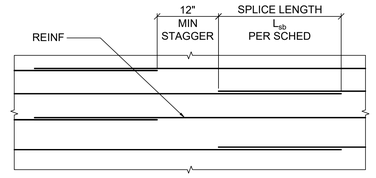
16 DETAIL - 8" x 8" CONC BEAM TO (E) JOIST
NTS



12 DETAIL - (E) CONC JOIST STRENGTHENING
NTS

NOTES:

1. DEVELOPMENT/SPLICE LENGTH LISTED IN TABLES ABOVE ARE FOR GRADE 60, UNCOATED, BOTTOM REINFORCEMENT IN NORMAL WEIGHT CONCRETE. BOTTOM BAR IS DEFINED AS HORIZONTAL REINF WITH A MIN OF 12" OF FRESH CONCRETE CAST ABOVE DEVELOPMENT/SPLICE LENGTH. MINIMUM DEVELOPMENT/SPLICE LENGTH IS 12".
2. FOR GRADE 40 STEEL, MULTIPLY DEVELOPMENT/SPLICE LENGTHS BY 0.67.
3. FOR LIGHTWEIGHT CONCRETE, MULTIPLY DEVELOPMENT/SPLICE LENGTHS BY 1.3.
4. FOR TOP BARS, MULTIPLY DEVELOPMENT/SPLICE LENGTH BY 1.3. TOP BAR IS DEFINED AS HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST BELOW DEVELOPMENT/SPLICE LENGTH.
5. ALL SPLICES SHALL BE STAGGERED PER FIGURE 1 BELOW EXCEPT FOOTING AND SLAB ON GRADE.
6. IN THE CASE OF TWO BARS WITH DIFFERENT DIAMETERS, THE SPLICE LENGTH SHALL BE BASED ON THE LARGER BAR SIZE.



DEVELOPMENT LENGTH FOR DEFORMED BARS (L_d)

	MIN f'_c psi	#6 & SMALLER BARS & DEFORMED WIRES	#7 AND LARGER BARS
CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN d_b , CLEAR COVER, NOT LESS THAN d_b , AND BEAM STIRRUPS OR COLUMN TIES THROUGHOUT L_d NOT LESS THAN THE CODE MINIMUM OR CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN $2d_b$ AND CLEAR COVER NOT LESS THAN d_b	3000	44 d_b	55 d_b
	4000	38 d_b	47 d_b
	5000	34 d_b	42 d_b
	6000	31 d_b	39 d_b
	8000	27 d_b	34 d_b
	10000	24 d_b	30 d_b
OTHER CASES	3000	66 d_b	82 d_b
	4000	57 d_b	71 d_b
	5000	51 d_b	64 d_b
	6000	46 d_b	58 d_b
	8000	40 d_b	51 d_b
	10000	36 d_b	45 d_b

d_b = NOMINAL DIAMETER OF BAR

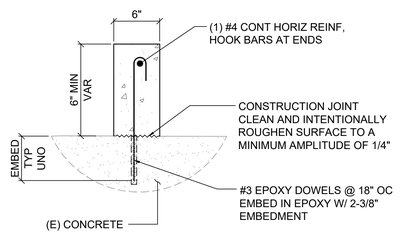
SPLICE LENGTH FOR DEFORMED BARS CLASS 'B' SPLICE (L_{sb})

	MIN f'_c psi	#6 & SMALLER BARS & DEFORMED WIRES	#7 AND LARGER BARS
CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN d_b , CLEAR COVER, NOT LESS THAN d_b , AND BEAM STIRRUPS OR COLUMN TIES THROUGHOUT L_d NOT LESS THAN THE CODE MINIMUM OR CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN $2d_b$ & CLEAR COVER NOT LESS THAN d_b	3000	58 d_b	72 d_b
	4000	50 d_b	62 d_b
	5000	45 d_b	55 d_b
	6000	41 d_b	51 d_b
	8000	36 d_b	45 d_b
	10000	32 d_b	39 d_b
OTHER CASES	3000	86 d_b	107 d_b
	4000	75 d_b	93 d_b
	5000	67 d_b	84 d_b
	6000	60 d_b	76 d_b
	8000	52 d_b	65 d_b
	10000	49 d_b	59 d_b

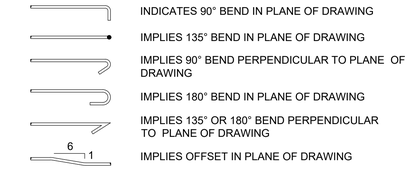
d_b = NOMINAL DIAMETER OF BAR

7 SPLICE LENGTHS
NTS

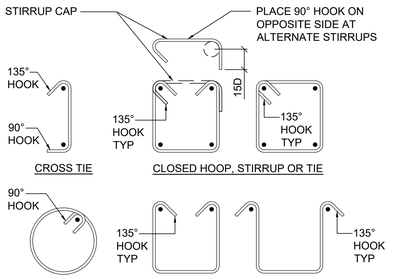
NOTES:
1. SEE ARCH FOR SIZE, HEIGHT AND LOCATION OF CURBS.
2. PROVIDE INSERTS AS REQ'D BY ARCH & MECH DRAWINGS.



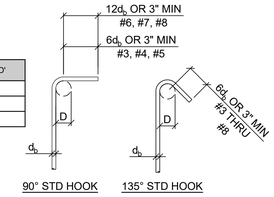
8 TYP CURB DETAIL
NTS



LEGEND - REINF BENDS (NTS)



TYPICAL CONFIGURATIONS FOR STIRRUPS, TIES, HOOPS AND CROSS TIES



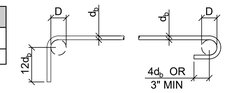
BAR SIZE	BAR DIA 'D'
#3 THRU #8	$6d_b$
#9 THRU #11	$8d_b$
#14 THRU #18	$10d_b$

D = BEND DIA
d_b = BAR DIA

BEND DIAMETERS | 90° STD HOOK | 135° STD HOOK

MIN BEND DIAMETERS & STANDARD HOOK LENGTHS FOR STIRRUPS, TIES, HOOPS AND CROSS TIES

BAR SIZE	BAR DIA 'D'
#5 & SMALLER	$4d_b$
#6 THRU #8	$6d_b$



D = BEND DIA
d_b = BAR DIA

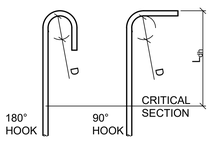
BEND DIAMETERS | 90° STD HOOK | 180° STD HOOK

MIN BEND DIAMETERS & STANDARD HOOK LENGTHS FOR TYPICAL REINFORCEMENT

3 TYP REINFORCING BAR BENDS
NTS

DEVELOPMENT LENGTH (L_{dh}) OF STANDARD HOOKS FOR GRADE 60 BAR IN TENSION

BAR SIZE NO.	f'_c (NORMAL WEIGHT CONCRETE), psi					
	3000	4000	5000	6000	8000	10,000
#3	9"	8"	7"	6"	6"	6"
#4	11"	10"	9"	8"	7"	6"
#5	14"	12"	11"	10"	9"	8"
#6	17"	15"	13"	12"	10"	9"
#7	20"	17"	15"	14"	12"	11"
#8	22"	19"	17"	16"	14"	12"
#9	25"	22"	20"	18"	16"	14"
#10	28"	25"	22"	20"	17"	16"
#11	31"	27"	24"	22"	19"	17"



NOTES:
1. FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE DEVELOPMENT LENGTH BY 1.3
2. FOR BAR BEND DIMENSIONS SEE TYPICAL BAR BEND DETAIL

4 DEV LENGTHS FOR STANDARD HOOKS
NTS

BID SET	02/28/2025
Revisions:	Date

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Drawing Title: TYPICAL DETAILS
Approved: Project Director: -
Project Title: REPLACE BUILDING 16 HVAC
Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153
Date: 02/17/2025 | Checked: FC | Drawn: VL
Project Number: 658-24-106
Building No.: 16 | Floor No.: -
Drawing Number: S-501
Dwg. 15 of 36

Office of Construction and Facilities Management
Department of Veteran Affairs

VA FORM 08-6231

CONTROL SYMBOLS

AT	BLIND TRANSMITTER
AT CO2	CARBON DIOXIDE TRANSMITTER
AT CO	CARBON MONOXIDE TRANSMITTER
AT OC	OCCUPANCY SENSOR
CT	CONDUCTIVITY TRANSMITTER
EPT	ELECTRONIC TO PNEUMATIC TRANSDUCER
FC	FLOW CONTROLLER
FE	FLOW ELEMENT
FS	FLOW SWITCH
FSH	FLOW SWITCH HIGH
FSL	FLOW SWITCH LOW
FT	FLOW TRANSMITTER
H	HUMIDISTAT
HS	HAND SWITCH
IT	CURRENT TRANSMITTER
KC	TIME CLOCK CONTROLLING EQUIP ON SCHEDULE
KR	LOCAL RECORDING TIME CLOCK (RUNTIME)
LC	LEVEL CONTROLLER
LT	LEVEL TRANSMITTER
MSH	HIGH LIMIT HUMIDITY SENSOR
MT	MOISTURE (HUMIDITY) TRANSMITTER
PC	PRESSURE CONTROLLER
PDS	PRESSURE DIFFERENTIAL SWITCH
PDT	PRESSURE DIFFERENTIAL TRANSMITTER
PI	PRESSURE GAUGE
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
PT	PRESSURE TRANSMITTER
SC	SPEED CONTROLLER
SD	SMOKE DETECTOR
SPS	STATIC PRESSURE SENSOR
T	THERMOSTAT
TC	TEMPERATURE CONTROLLER
TI	THERMOMETER
TS	TEMPERATURE SWITCH
TSH	TEMPERATURE SWITCH HIGH (FREEZESTAT)
TSL	TEMPERATURE SWITCH LOW (FREEZESTAT)
TT	TEMPERATURE TRANSMITTER
ZC	VALVE OR DAMPER POSITION CONTROLLER
ZS	POSITION SWITCH
ECC	INTEGRATE CONTROL POINT ON REMOTE GRAPHICS WORKSTATION AT ENERGY CONTROL CENTER
LTCP	LOCAL TEMPERATURE CONTROL PANEL
HVAC	HVAC CONTROL PANEL
VSMC	VARIABLE SPEED MOTOR CONTROLLER
	MOTOR STARTER
M	MOTOR OPERATOR FOR VALVE OR DAMPER
	PNEUMATIC OPERATOR FOR VALVE OR DAMPER
SV	SOLENOID VALVE
VFD	VARIABLE FREQUENCY DRIVE CONTROLLER
AI	ANALOG SIGNAL IN
AO	ANALOG SIGNAL OUT
ASC	APPLICATION SPECIFIC CONTROLLER
CAC	CUSTOM APPLICATION CONTROLLER
BAS	BUILDING AUTOMATION SYSTEM
BCP	BUILDING CONTROLLER PANEL
BMS	BUILDING MANAGEMENT SYSTEM
DI	DIGITAL SIGNAL IN
DO	DIGITAL SIGNAL OUT
FC	FAIL CLOSED
FL	FAIL LAST
FO	FAIL OPEN
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OWS	OPERATOR WORKSTATION

EQUIP. ABBREVIATIONS

AAHX	AIR TO AIR HEAT EXCHANGER
ACC	AIR COOLED CONDENSER
ACCH	AIR COOLED CHILLER
ACCU	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AF	AFTER FILTER
AHU	AIR-HANDLING UNIT
AS	AIR SEPARATOR
B	BOILER
BDR	BASE BOARD RADIATOR
BHW	HOT WATER HEATING BOILER
BHX	BOILER BLOWDOWN HEAT EXCHANGER
BT	BLOWOFF TANK
CC	COOLING COIL
CCD	COOLING COIL CONDENSATE DRAIN
CFP	CHEMICAL FEED PUMP
CH	CHILLER
CHP	CHILLED WATER PUMP
COMP	COMPRESSOR UNIT
CP	CONDENSATE PUMP
CS	CONDENSATE STORAGE TANK
CSG	CLEAN STEAM GENERATOR
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CWCC	CHILLED WATER COOLING COIL
CWP	CONDENSER WATER PUMP
DXCC	DIRECT EXPANSION COOLING COIL
EC	EVAPORATIVE COOLER
ECU	EVAPORATIVE CONDENSER UNIT
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EH	EXHAUST HOOD
ERC	ELECTRIC REHEAT COIL
ERP	ELECTRIC RADIANT PANEL
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EWC	EVAPORATIVE WATER COOLER
FCU	FAN COIL UNIT (4 PIPE)
FCUC	FAN COIL UNIT COOLING ONLY
FCUH	FAN COIL UNIT HEATING ONLY
FHX	FLUE GAS/FEEDWATER HEAT EXCHANGER
FPTU	FAN POWERED TERMINAL UNIT
FTR	FIN TUBE RADIATION
H	HUMIDIFIER
HC	HEATING COIL
HD	HOOD
HP	HEAT PUMP
HPDT	HIGH PRESSURE DRIP TRAP
HRC	HEAT RECOVERY COIL
HRD	HEAT RECOVERY DEVICE
HRP	HYDRONIC RADIANT (CEILING) PANEL
HRW	HEAT RECOVERY WHEEL
HUM	HUMIDIFIER UNIT MOUNTED
HVU	HEATING AND VENTILATING UNIT
HWC	HOT WATER COIL
HWHC	HOT WATER HEATING COIL
HWP	HEATING HOT WATER PUMP
HWUH	HOT WATER UNIT HEATER
HX	HEAT EXCHANGER
ICF	IN-LINE CENTRIFUGAL FAN
IU	INDUCTION UNIT
LLHX	LIQUID TO LIQUID HEAT EXCHANGER
MAU	MAKE-UP AIR UNIT
P	PUMP
PF	PRE-FILTER
PHC	PREHEAT COIL
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RAHX	ROTARY AIR HEAT EXCHANGER
RCCH	REMOTE CONDENSER CHILLER
RCU	RECIPROCATING CHILLER UNIT
RF	RETURN FAN
RHC	REHEAT COIL
SAD	SOUND ATTENUATING DEVICE
SF	SUPPLY FAN
SH	STEAM HUMIDIFIER
SHC	STEAM HEATING COIL
SSHX	STEAM TO STEAM HEAT EXCHANGER
ST	STEAM TRAP
SUH	STEAM UNIT HEATER
SWHX	STEAM TO WATER HEAT EXCHANGER
TU	TERMINAL UNIT
UC	UNIT COOLER
UH	UNIT HEATER
VUH	VERTICAL UNIT HEATER
WCCH	WATER COOLED CHILLER
WCCU	WATER COOLED CONDENSING UNIT
WCHP	WATER COOLED HEAT PUMPS
WCPU	WATER COOLED PACKAGED UNIT
WEF	WALL EXHAUST FAN
WF	WATER FILTER

ABBREVIATIONS

A/E	ARCHITECT / ENGINEER
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BD	BUTTERFLY DAMPER
BDD	BACKDRAFT DAMPER
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
C	CENTIGRADE (CELSIUS)
CAV	CONSTANT AIR VOLUME
CD	CEILING DIFFUSER
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CHW	CHILLER WATER
CHS/CHR	CHILLED WATER SUPPLY/RETURN
CO	CLEAN OUT
CO2	CARBON DIOXODE
COP	COEFFICIENT OF PERFORMANCE
CV	CONSTANT VOLUME
CW	COLD WATER (POTABLE)
CWS/CWR	CONDENSER WATER SUPPLY/RETURN (FROM/TO COOLING TOWER)
Db	DRY-BULB TEMPERATURE
DB	DECIBELS
DCW	DOMESTIC COLD WATER
DD-1	DESIGN DEVELOPMENT (SUBMISSION 1)
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
DIA	DIAMETER
DIW	DEIONIZED WATER
DP	DEW POINT TEMPERATURE
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
F	FAHRENHEIT
FACP	FIRE ALARM CONTROL PANEL
FSD	COMBINATION FIRE SMOKE DAMPER
FC	FLEXIBLE CONNECTION
FD	FLOOR DRAIN
FD	FIRE DAMPER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
FT WC	FEET OF WATER COLUMN
FT-LB	FOOT-POUND
GAL	GALLONS
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HP	HORSEPOWER
HW	HOT WATER
HWS/HWR	HEATING HOT WATER SUPPLY/RETURN
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IN	INCHES
IN HG	INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
IN-LB	INCH-POUND
KG	KILOGRAM
KG/HR	KILOGRAM PER HOUR
kPa	KILOPASCAL
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LPS	LOW PRESSURE STEAM
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAX	MAXIMUM
MBH	1,000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MIN	MINIMUM
N/A	NOT APPLICABLE
NC	NOISE CRITERIA
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
Pa	PASCAL
PD	PRESSURE DROP
PPM	PARTS PER MILLION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID LINE
RLA	RUN LOAD AMPERE
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION LINE
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SD	SMOKE DETECTOR
SD-1	SCHEMATIC DESIGN (SUBMISSION1)
SDPR	SMOKE DAMPER
SP	STATIC PRESSURE
SQ FT/SF	SQUARE FOOT (FEET)
TAB	TESTING, ADJUSTING, BALANCE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
UC	UNDER CUT
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER (MANUAL OPPOSED BLADE)
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
Wb	WET-BULB (TEMPERATURE)
YR	YEAR

MECHANICAL LAYERS

- BACKGROUND
- COLUMN LINE
- DEMOLITION
- EQUIPMENT
- EXISTING
- EXHAUST
- PIPING
- SPECIALITY PIPING (XX)
- SPECIALITY PIPING RETURN (XX)
- RELOCATE
- RETURN
- REVISION
- SCOPE
- SUPPLY
- TEXT

PLUMBING LAYERS

- COLD WATER
- HOT WATER
- HOT WATER RETURN
- SANITARY SEWER (WASTE)
- VENT
- EXISTING COLD WATER
- EXISTING HOT WATER
- EXISTING HOT WATER RETURN
- EXISTING SANITARY SEWER
- EXISTING VENT

PIPING SYMBOLS

- PIPE UP
- PIPE DOWN
- TEE
- FLOW DIRECTION
- FLOOR DRAIN
- FLOOR SINK
- PUMP
- REDUCER
- UNION
- TEMPERATURE GAGE
- PRESSURE GAGE
- TEST PLUG
- AUTOMATIC AIR VENT
- MANUAL AIR VENT
- ANGLED GLOBE
- AUTOMATIC BALANCING CONTROL
- BALANCING
- BALL
- BUTTERFLY
- CHECK
- CIRCUIT SETTER
- CONTROL - FLOAT OPERATED
- FLOW METER
- GATE
- GLOBE
- MODULATING CONTROL
- MODULATING CONTROL BUTTERFLY
- PLUG
- PNEUMATIC CONTROL
- PRESSURE REDUCING (PRV)
- PRESSURE REGULATING
- PRESSURE SAFETY
- SHUTOFF
- THREE-WAY MODULATING CONTROL
- THREE-WAY TWO POSITION CONTROL
- TWO POSITION CONTROL
- WATER BALANCE DEVICE
- WYE STRAINER

DRAWING SYMBOLS

- X — DRAWING NUMBER; X-XXX — DETAIL NUMBER
- X — DRAWING NUMBER; X-XXX — SECTION LETTER

MECHANICAL SYMBOLS

- S-# / NECK SIZE / CFM (TYP. #) — SUPPLY CEILING DIFFUSER
- S-# / SLOTS-SLOT WIDTH-LENGTH / CFM (TYP. #) — SUPPLY LINEAR DIFFUSER
- S-# / LxW / CFM (TYP. #) — SUPPLY SIDEWALL DIFFUSER
- #-FC-# — EQUIPMENT TAG (BUILDING NO - EQUIP NAME - EQUIP NUMBER)
- REVISION DELTAS
- VAV-T — T STATS
- P — ROOM PRESSURE MONITOR
- CO2 — CO2 SENSOR
- S — SHEET NOTES
- FSD — FIRE SMOKE DAMPER
- SD — SMOKE DETECTOR
- R — RELOCATE
- VOLUME DAMPER
- CAP
- POINT OF CONNECTION
- VAV BOX
- VAV BOX WITH REHEAT COIL
- CEILING DIFFUSER (SUPPLY, RETURN, EXHAUST)
- DEMOLITION CEILING DIFFUSER
- EXISTING CEILING DIFFUSER
- SUPPLY AIR SIDEWALL DIFFUSER
- RETURN/EXHAUST AIR SIDEWALL DIFFUSER
- HEPA DIFFUSERS
- LINEAR DIFFUSER (1-, 2-, 3-SLOT)
- RADIANT CEILING PANEL
- RISER
- STANDARD 45° TAP
- CONICAL TAP
- ELBOW (1R UNLESS OTHERWISE NOTED)
- MITERED ELBOW WITH TURNING VANES

TABLE OF CONTENTS

SCOPE OF WORK

REPLACE EXISTING AHU SERVING BUILDING 16 FLOOR 1 WITH A NEW RTU. NEW UNIT WILL BE DX COOLING.

DEMOLISH ALL EXISTING DUCTWORK AND REPLACE WITH NEW SUPPLY AND RETURN DUCTWORK SERVING NEW RTU.

PROVIDE (2) NEW EXHAUST FANS, ONE FOR EACH RESTROOM, AND ASSOCIATED EXHAUST GRILLES AND DUCTWORK. HAC TO HAVE NEW EXHAUST GRILLE AND BE CONNECTED TO ONE OF THE RESTROOM FANS.

PROVIDE NEW VARIABLE AIR TERMINAL UNIT AND THERMOSTAT FOR EACH OFFICE OR ZONE TO ALLOW FOR INDIVIDUAL ROOM TEMPERATURE CONTROL.

PROVIDE NEW STEAM CONTROL VALVES FOR THE RADIATORS.

NEW VAVS, THERMOSTATS, AND CONTROL VALVES TO BE INTEGRATED INTO CAMPUS'S EXISTING SIEMENS BAS SYSTEM.

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN A CLEAN AND WORKMANLIKE MANNER. CARE SHALL BE EXERCISED TO MINIMIZE ALL INCONVENIENCE OR DISTURBANCE TO OTHER AREAS OF THE BUILDING WHICH ARE TO REMAIN IN OPERATION. ISOLATE WORK AREAS BY MEANS OF TEMPORARY PARTITIONS AND/OR TARPS TO KEEP DUST AND DIRT WITHIN THE CONSTRUCTION AREA.
2. NO PIPING, EQUIPMENT, ETC. SHALL BE REMOVED, DISCONNECTED OR SHUT DOWN WITHOUT PRIOR REVIEW WITH THE COR AND/OR ENGINEER TO CONFIRM THAT AREAS TO REMAIN IN OPERATION WILL NOT BE AFFECTED. IF AREAS NOT WITHIN THE SCOPE OF WORK ARE AFFECTED BY ANY SHUTDOWN, REMOVAL OR DISCONNECTION, SUFFICIENT ADVANCE NOTICE SHALL BE GIVEN TO THE OWNER INDICATING WHICH AREAS WILL BE AFFECTED, WHEN THE PROPOSED SHUTDOWN WILL OCCUR, AND FOR HOW LONG A PERIOD OF TIME.
3. ALL ITEMS INDICATED AS BEING DEMOLISHED OR REMOVED SHALL BE DISPOSED OF OFF-SITE.
4. THE MECHANICAL CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ALL WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE COR AND/OR ENGINEER FOR RESOLUTION.
5. ALL SHUT DOWNS OF EXISTING SYSTEMS SHALL BE SCHEDULED AND APPROVED BY THE COR PRIOR TO COMMENCEMENT OF SAID WORK.
6. CLEAN THE JOB SITE DAILY AND REMOVE FROM THE PREMISES ALL DIRT AND DEBRIS CAUSED BY THE PERFORMANCE OF THE WORK INCLUDED IN THIS CONTRACT.
7. USE OF THE OWNER'S ELEVATORS AND BUILDING CORRIDORS FOR THE HANDLING OF NEW AND/OR REMOVED EQUIPMENT AND MATERIALS SHALL BE AT THE DIRECTION OF THE COR AND SHALL BE COORDINATED WITH HIS OPERATIONS.
8. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFEKEEPING OF HIS OWN PROPERTY ON THE JOB SITE. OWNER ASSUMES NO RESPONSIBILITY FOR PROTECTION OF PROPERTIES AGAINST FIRE, THEFT AND ENVIRONMENTAL CONDITIONS.
9. EXCEPT WHERE INDICATED AS BEING RELOCATED, EXISTING MATERIALS THAT ARE REMOVED SHALL NOT BE REUSED IN NEW SYSTEMS.
10. PROVIDE ALL NECESSARY TEMPORARY OR PERMANENT CAPS OR PLUGS FOR PIPING/DUCTWORK. DO NOT LEAVE PIPING/DUCTWORK OPEN ENDED.
11. WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
12. THE MECHANICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES PRIOR TO FABRICATION, PURCHASE AND/OR INSTALLATION OF ANY WORK.
13. THE BALANCING CONTRACTOR SHALL TAKE AIRFLOW (CFM) AND PRESSURE READINGS PRIOR TO THE START OF WORK ON ALL DUCTWORK THAT SERVES AREAS NOT PART OF THIS PROJECT BUT WHERE AIRFLOW TO THOSE AREAS IS AFFECTED BY THIS PROJECT'S WORK. AFTER MODIFICATIONS TO AIR SYSTEMS COVERED UNDER THIS PROJECT ARE COMPLETED, THE BALANCING CONTRACTOR SHALL BALANCE THE NON-AFFECTED AREAS TO THEIR ORIGINAL AIRFLOW AND PRESSURE OR NEW AIRFLOW AND PRESSURE IF NOTED.
14. IF MECHANICAL CONTRACTOR ENCOUNTERS WHAT APPEARS TO BE A HAZARDOUS OR QUESTIONABLE MATERIAL, HE SHALL DISCONTINUE WORK IMMEDIATELY AND CONTACT THE OWNER'S REPRESENTATIVE. THE CONTRACTOR IS LIABLE FOR ABATEMENT/CLEANUP/CONTROL OF ANY POTENTIALLY HAZARDOUS MATERIAL DISTURBED WITHOUT PRIOR DOCUMENTED NOTIFICATION AND APPROVAL OF THE COR.
15. USE OF OWNER'S UTILITIES (I.E. ELECTRICITY, WATER, HVAC, ETC.) FOR WORK INDICATED ON THESE DOCUMENTS SHALL BE APPROVED BY THE COR PRIOR TO COMMENCEMENT OF SAID WORK.
16. THE MECHANICAL CONTRACTOR SHALL CONFORM TO OWNER'S SAFETY AND SECURITY GUIDELINES IN THE PERFORMANCE OF ALL WORK INCLUDED IN THIS CONTRACT.
17. ALL BRANCH PIPING SHALL BE FURNISHED WITH SHUT OFF VALVES AND SHALL BE LOCATED IN ACCESSIBLE LOCATION BY OFFSETTING BRANCH PIPING WITH VALVES DOWN NEAR CEILING. PROVIDE ACCESS PANEL FOR ALL VALVES AND EQUIPMENT IN NON ACCESSIBLE CEILING AREAS.
18. ALL SUSPENDED PIPING, DUCTWORK, CONDUIT AND CABLE TRAYS SHALL BE PROVIDED WITH, SEISMIC SWAY BRACES IN ACCORDANCE WITH THE MASON INDUSTRIES SEISMIC RESTRAINT GUIDELINES FOR SUSPENDED PIPING, DUCTWORK AND ELECTRICAL SYSTEMS AND THE APPLICABLE CODES. INSTALLED SYSTEM SHALL MATCH EXISTING, RIGID OR CABLE TYPE.
19. ALL INDIVIDUAL INLET DUCTS TO CONSTANT AIR VOLUME BOXES (CAV) OR VARIABLE AIR VOLUME BOXES (VAV) SHALL BE SAME SIZE AS INLET CONNECTION OF CAV BOX, UNLESS NOTED OTHERWISE.
20. ALL INDIVIDUAL BRANCH PIPING TO CONSTANT AIR VOLUME BOXES (CAV) OR VARIABLE AIR VOLUME BOXES (VAV) SHALL BE 3/4" IN SIZE, UNLESS NOTED OTHERWISE.
21. PRIOR TO ANY MODIFICATIONS OF EXISTING DUCT SYSTEMS, TEST EXISTING AIRFLOWS AT TRAVERSE POINTS NOTED IN DRAWINGS AND SUBMIT TO ENGINEER FOR REVIEW. TEST REPORT SHALL INDICATE EXISTING CONDITION AIRFLOW VALUES. UPON COMPLETION OF NEW SYSTEMS, WITHIN THE SCOPE OF THE PROJECT, ALL PREVIOUSLY TESTED SYSTEM AIRFLOWS SHALL BE SET TO ORIGINAL CONDITIONS .
22. GENERAL LOCATION OF DIFFUSERS, REGISTERS AND GRILLES ARE INDICATED ON AIR CONDITIONING PLANS. REFERENCE ARCHITECTURAL REFLECTED CEILING PLANS AND INTERIOR ELEVATIONS FOR SPECIFIC LOCATIONS.
23. RESTORE EXISTING FIRE PROOFING TO BEAMS, DECKS AND ALL OTHER BUILDING ELEMENTS WHICH ARE DISTURBED OR MODIFIED AS A RESULT OF NEW WORK BEING INSTALLED. RESTORED CONDITIONS SHALL MATCH EXISTING PRIOR TO NEW WORK BEING PERFORMED.
24. ALL EXISTING DUCT INSULATION REMOVED, AS REQUIRED TO PERFORM SCOPE OF WORK, SHALL BE REPAIRED USING LIKE MATERIAL TO THAT WHICH IS EXISTING.
25. DUCT ROUTINGS ARE DIAGRAMMATIC IN NATURE. PROVIDE OFFSETS, DROPS AND RISERS AS NECESSARY TO AVOID EXISTING ELECTRICAL, HVAC, PLUMBING, FIRE PROTECTION, ETC. SYSTEMS WHICH MAY INTERFERE WITH GENERAL ROUTING SHOWN ON DRAWINGS. RESIZING OF DUCTS WILL BE ALLOWED PROVIDED REVISED DUCT SIZE DOES NOT EXCEED AIR VELOCITIES OF SYSTEM DESIGN AND DRAWING IS SUBMITTED FOR REVIEW, NOTING CHANGES PROPOSED, PRIOR TO DUCT SYSTEM FABRICATION AND INSTALLATION.
26. VERIFY EXISTING DUCT SYSTEM SIZES PRIOR TO FABRICATION OF NEW DUCT SYSTEMS. ANY EXISTING DUCT SYSTEMS DIFFERING IN SIZE FROM THAT NOTED ON DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE COR AND MECHANICAL ENGINEER.
27. PROVIDE INSULATION OVER EXISTING DUCT SECTIONS WHICH HAVE BEEN PATCHED. INSULATION TYPE, THICKNESS AND DENSITY SHALL MATCH EXISTING. SEE SPECIFICATIONS FOR REQUIREMENTS OF NEW DUCT SYSTEM INSULATION.
28. NOT ALL SYMBOLS, ABBREVIATIONS AND EQUIPMENT ABBREVIATIONS INDICATED APPEAR ON THESE CONTRACT DRAWINGS
29. ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR ABOVE HARD SUSPENDED CEILING, OR ACOUSTICAL CEILING.
30. THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED. DUCT SIZES ARE NET INSIDE DIMENSIONS.
31. ACCESS PANELS IN HARD SUSPENDED CEILINGS ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS. COORDINATE LOCATION WITH MECHANICAL INSTALLATION AND DEMONSTRATE ACCESS TO EQUIPMENT SERVED.
32. TOTAL STATIC PRESSURE NOTED IN THE SCHEDULES INCLUDES DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC, LOSS FOR FILTERS SHALL BE FOR FILTERS AT 50% LOADING.
33. FOR TYPICAL STEAM AND WATER PIPING CONNECTIONS TO EQUIPMENT, SEE STANDARD EQUIPMENT DETAILS.
34. DIFFUSER, REGISTER AND GRILLE SIZES SHOWN ON FLOOR PLANS ARE NECK SIZES.
35. WATER PIPE CONNECTIONS TO AIR HEATING AND COOLING COILS SHALL BE MADE TO PROVIDE COUNTER FLOW BETWEEN WATER AND AIR.
36. WALL TYPE EXHAUST REGISTERS NOTED AS "BR" ON DRAWINGS ARE TO BE INSTALLED WITH BOTTOM ELEVATION OF REGISTER AT 7" ABOVE FINISHED FLOOR.
37. ALL PRESSURES LISTED ARE GAGE PRESSURE, UNLESS OTHERWISE NOTED.
38. TERMINAL AIR UNIT INLET SIZES SHALL BE THOSE SHOWN ON THE SCHEDULES, UNLESS OTHERWISE NOTED.

GENERAL DEMOLITION NOTES

1. SCHEDULE ALL SHUTDOWNS THAT AFFECT UTILITIES AND PORTIONS OF THE BUILDING THAT MUST REMAIN IN OPERATION WITH THE COR .
2. DEMOLITION WORK AT ALL TIMES SHALL BE SUBJECT TO THE DIRECTION AND APPROVAL OF THE COR AND CARRIED OUT IN SUCH A MANNER SO AS NOT TO INTERFERE WITH THE NORMAL OPERATION OF THE BUILDING.
3. DISPOSE OF ALL REMOVED MATERIALS IN AN APPROVED MANNER.
4. ISOLATE, DRAIN, AND REFILL EXISTING SYSTEMS AS REQUIRED TO ACCOMMODATE INSTALLATION OF EXISTING AND NEW SYSTEMS.
5. PROVIDE ALL NECESSARY TEMPORARY/PERMANENT CAPS OR PLUGS FOR PIPING. DO NOT LEAVE PIPING OPEN ENDED.
6. ALL EXISTING PIPING SHALL BE FIELD VERIFIED FOR PROPER DEMOLITION. CONTRACTOR SHALL NOTIFY THE COR AND ENGINEER IMMEDIATELY IF ANY DISCREPANCIES FROM CONTRACT DOCUMENTS OCCUR THAT MAY EFFECT EXISTING OPERATIONS.
7. DEMOLITION OF PIPING INCLUDES ALL ASSOCIATED VALVES, ACCESSORIES, INSULATION, HANGERS, AND SUPPORTS.
8. COORDINATE WITH COR ON REMOVAL AND PLACEMENT OF EQUIPMENT NOTED TO BE TURNED OVER TO COR. FOR EQUIPMENT NOT DESIRED BY COR, CONTRACTOR SHALL REMOVE OFF SITE IN AN APPROVED MANNER.

BID SET	02/28/2025
Revisions:	Date

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Drawing Title	MECHANICAL COVER SHEET
Approved: Project Director	-
Project Title	REPLACE BUILDING 16 HVAC
Location	SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153
Date	02/28/2025
Checked	AB
Drawn	AD
Project Number	658-24-106
Building No.	16
Floor No.	1, ROOF
Drawing Number	M-001
	Dwg. 16 of 36

Office of Construction and Facilities Management

Department of Veteran Affairs

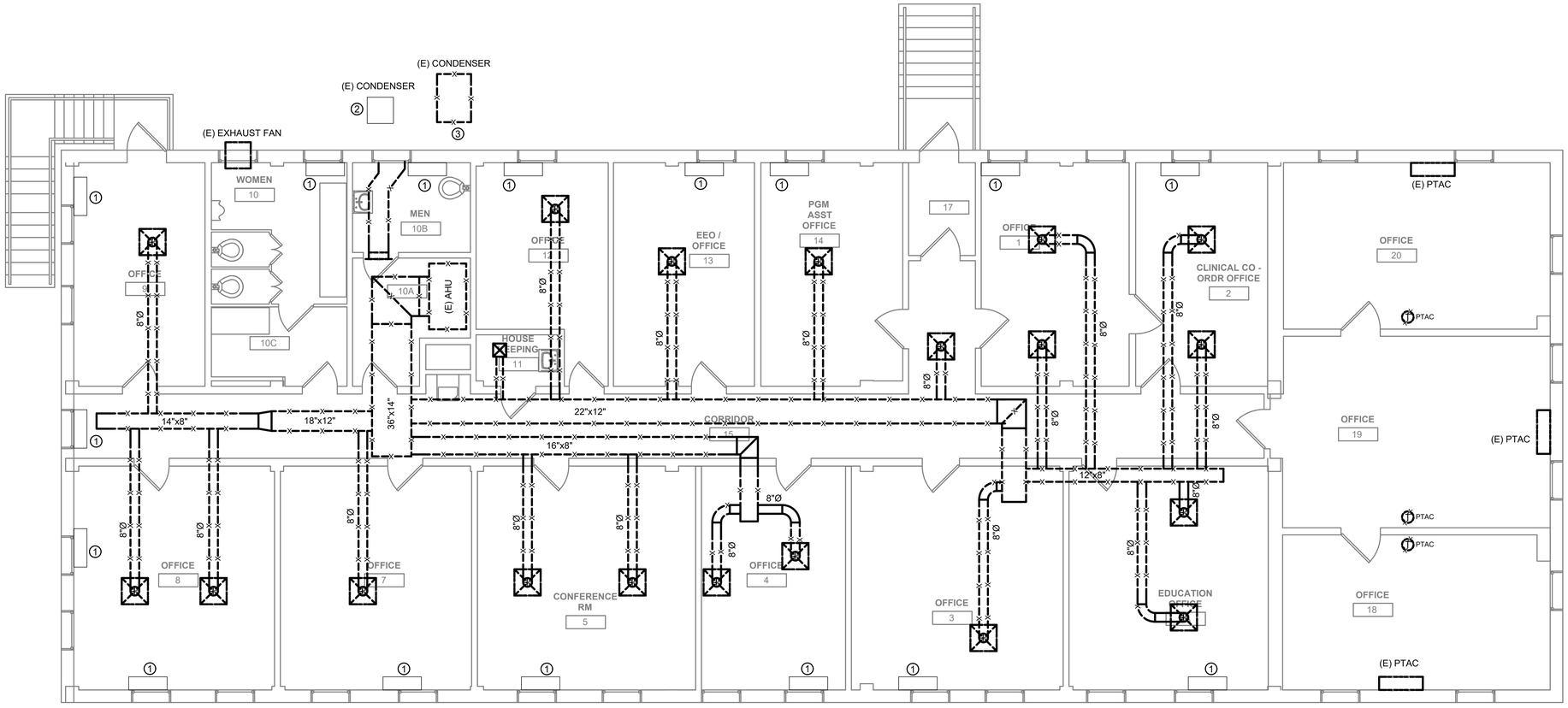
VA FORM 08-6231

SHEET NOTES

1. DRAWINGS ARE DIAGRAMMATIC IN NATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EXISTING PIPING AND EQUIPMENT LOCATIONS. REPORT ANY DISCREPANCIES BETWEEN PLANS AND SITE CONDITIONS TO A/E. CONTRACTOR SHALL COORDINATE INSTALLATION ROUTING WITH ALL OTHER TRADES AND EXISTING CONDITIONS.
2. CONTRACTOR SHALL REPORT ANY SUSPECTED ASBESTOS OR QUESTIONABLE MATERIAL TO VA BEFORE PERFORMING WORK ON THE AREA.

KEY NOTES

1. EXISTING STEAM RADIATOR. RADIATOR TO REMAIN, BUT EXISTING STEAM CONTROL VALVE SERVING RADIATOR TO BE DEMOLISHED AND REPLACED. NEW CONTROL VALVE TO INCLUDE POWER AND SIGNAL AND TO BE CONTROLLED NEW BY VAV UNIT SERVING THE ROOM.
2. EXISTING CONDENSER SERVING BASEMENT AREA TO REMAIN.
3. 10 TON CONDENSER UNIT SERVING AHU IN ROOM 10A. UNIT TO BE DEMOLISHED ALONG WITH ALL ASSOCIATED REFRIGERANT / CONDENSATE PIPING AND PIPE SUPPORTS / HANGERS.



1 / MD-101 MECHANICAL 1ST FLOOR DEMOLITION PLAN

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

BID SET	02/28/2025
Revisions:	Date

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Drawing Title: MECHANICAL 1ST FLOOR DEMOLITION PLAN

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: AB | Drawn: AD

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

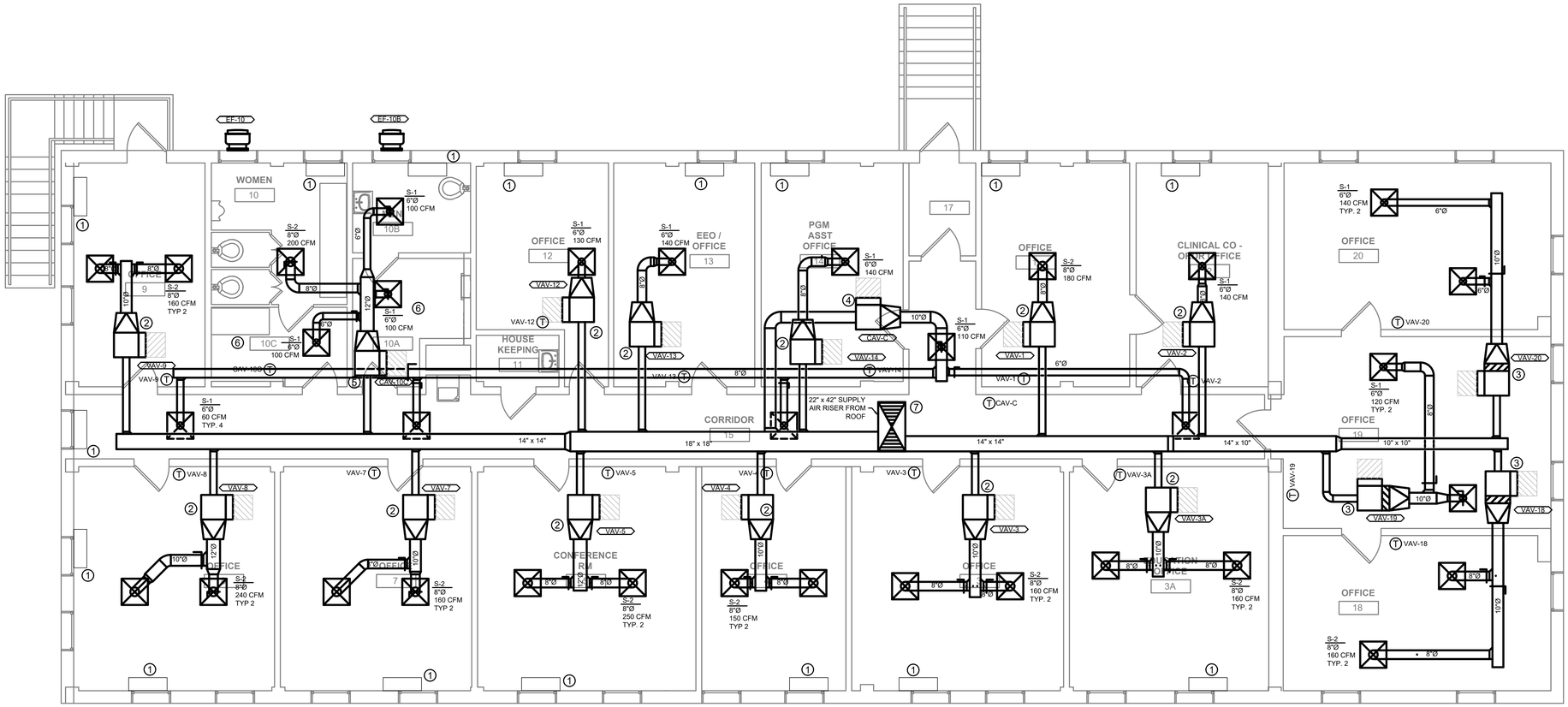
Drawing Number: MD-101

Dwg. 17 of 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231



SHEET NOTES

1. DRAWINGS ARE DIAGRAMMATIC IN NATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EXISTING PIPING AND EQUIPMENT LOCATIONS. REPORT ANY DISCREPANCIES BETWEEN PLANS AND SITE CONDITIONS TO A/E. CONTRACTOR SHALL COORDINATE INSTALLATION ROUTING WITH ALL OTHER TRADES AND EXISTING CONDITIONS.
2. CONTRACTOR SHALL REPORT ANY SUSPECTED ASBESTOS OR QUESTIONABLE MATERIAL TO VA BEFORE PERFORMING WORK ON THE AREA.
3. NEW VAVS, STEAM CONTROL VALVES, AND THERMOSTATS ARE TO BE COMPATIBLE WITH CAMPUS'S EXISTING SIEMENS BAS SYSTEM. COORDINATE LOCATION WITH VA.
4. ROOMS CURRENTLY ONLY HAVE TEMPERATURE CONTROL.

KEY NOTES

1. EXISTING STEAM RADIATOR. RADIATOR TO REMAIN, BUT EXISTING STEAM CONTROL VALVE SERVING RADIATOR TO BE DEMOLISHED AND REPLACED. NEW CONTROL VALVE TO INCLUDE POWER AND SIGNAL AND TO BE CONTROLLED NEW BY VAV UNIT SERVING THE ROOM.
2. NEW VAV TERMINAL UNIT. EACH OFFICE TO HAVE ITS OWN DEDICATED UNIT.
3. NEW VAV TERMINAL UNIT. INCLUDES ELECTRIC REHEAT.
4. NEW CAV TERMINAL UNIT.
5. NEW CAV TERMINAL UNIT. ROOMS 10, 10A, 10B, AND 10C TO SHARE A TERMINAL UNIT WITH TEMPERATURE CONTROL LOCATED IN 10C.
6. ROOM IS NOT EQUIPPED WITH A STEAM RADIATOR AND WILL BE COOLING ONLY.
7. USE ECCENTRIC REDUCER ON VERTICAL RUN FROM THE AIR HANDLER TO REDUCE TO 18" x 24".

1 / MH-101 MECHANICAL 1ST FLOOR HVAC SUPPLY PLAN

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

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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PROFESSIONAL ENGINEER No. 13433952 JUSTIN M. MILLERBERG 02/25/25 STATE OF UTAH

ARCHITECT/ENGINEERS:

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Drawing Title: MECHANICAL 1ST FLOOR HVAC SUPPLY PLAN

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: AB | Drawn: AD

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Drawing Number: MH-101

Dwg. 18 of 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

SHEET NOTES

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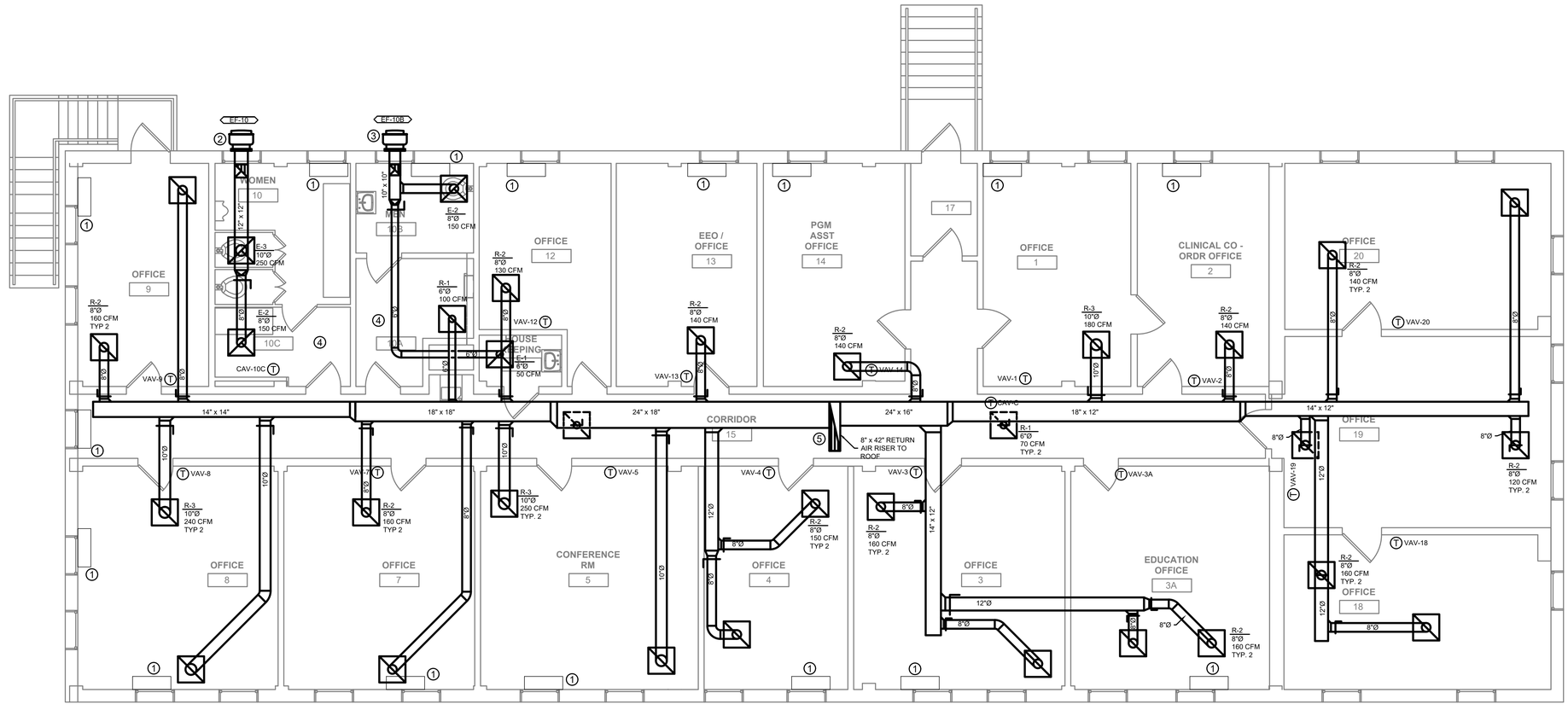
2. CONTRACTOR SHALL REPORT ANY SUSPECTED ASBESTOS OR QUESTIONABLE MATERIAL TO VA BEFORE PERFORMING WORK ON THE AREA.
3. NEW VAVS, STEAM CONTROL VALVES, AND THERMOSTATS ARE TO BE COMPATIBLE WITH CAMPUS'S EXISTING SIEMENS BAS SYSTEM. COORDINATE LOCATION WITH VA.
4. ROOMS CURRENTLY ONLY HAVE TEMPERATURE CONTROL.

KEY NOTES

1. EXISTING STEAM RADIATOR. RADIATOR TO REMAIN, BUT EXISTING STEAM CONTROL VALVE SERVING RADIATOR TO BE DEMOLISHED AND REPLACED. NEW CONTROL VALVE TO INCLUDE POWER AND SIGNAL AND TO BE CONTROLLED NEW BY VAV UNIT SERVING THE ROOM.
2. NEW WALL-MOUNTED EXHAUST FAN TO SERVE WOMEN'S ROOM 10 AS WELL AS BREAKROOM 10C.
3. NEW WALL-MOUNTED EXHAUST FAN. FAN TO SERVE MEN'S ROOM 10B AS WELL AS HOUSE KEEPING CLOSET 11.
4. ROOM IS NOT EQUIPPED WITH A STEAM RADIATOR AND WILL BE COOLING ONLY.
5. USE ECCENTRIC REDUCER ON VERTICAL RUN FROM THE AIR HANDLER TO REDUCE TO 22" x 18".



1 / MH-102 MECHANICAL 1ST FLOOR HVAC RETURN / EXHAUST PLAN

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

N

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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Drawing Title	MECHANICAL 1ST FLOOR HVAC RETURN / EXHAUST PLAN
Approved: Project Director	-
Project Title	REPLACE BUILDING 16 HVAC
Location	SALEM VA MEDICAL CENTER 1970 ROANOKE BLVD, SALEM, VA 24153
Date	02/28/2025
Checked	AB
Drawn	AD
Project Number	658-24-106
Building No.	16
Floor No.	1
Drawing Number	MH-102
	Dwg. 19 of 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

SHEET NOTES
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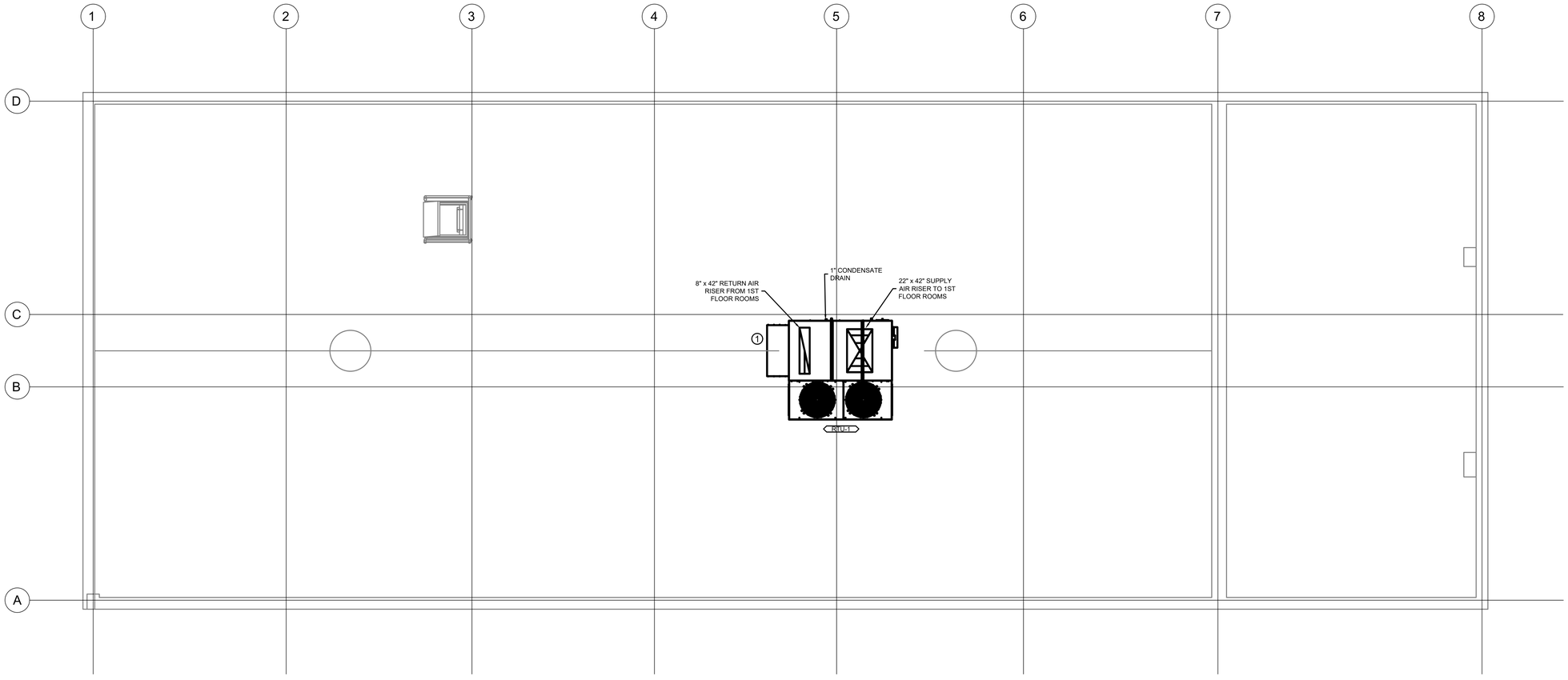
KEY NOTES
① NEW ROOFTOP AIR HANDLER TO SERVE FIRST FLOOR. UNIT IS A 12-TON DX UNIT.



1 / MH-201

MECHANICAL ROOF HVAC PLAN

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

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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Drawing Title	MECHANICAL ROOF HVAC PLAN
Approved: Project Director	-
Project Title	REPLACE BUILDING 16 HVAC
Location	SALEM VA MEDICAL CENTER 1970 ROANOKE BLVD, SALEM, VA 24153
Date	02/28/2025
Checked	AB
Drawn	AD
Project Number	658-24-106
Building No. / Floor No.	16 / ROOF
Drawing Number	MH-201
	Dwg. 20 of 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

SINGLE PACKAGED AIR CONDITIONER HEAT PUMP SCHEDULE (ROOFTOP)

MARK	LOCATION	TYPE	TOTAL SUPPLY AIR FLOW	MIN. OUTSIDE AIR FLOW	EXT STATIC PRESSURE	COOLING CAPACITY						HEATING CAPACITY			AIR FILTER MARK	ELECTRICAL DATA									REMARKS
						MIN. TOTAL CAPACITY	MIN. SENS CAPACITY	EER	MIXED EAT		SUPPLY TEMP	MIN. HEAT CAPACITY	MIXED EAT	LAT		SUPPLY FAN		UNIT POWER CONNECTION				ELECTRIC HEATING			
									Db	Wb	Db		Db	Db		HP	CONTROL	FLA	MCA	PHASE	VOLT	Kw	FLA	MCA	
			CFM	CFM	IN	TONS	MBH		°F	°F	°F	MBH	°F	°F											
RTU-1	ROOF	DX	4800	1400	2.09	12	125.5	12.4	81.9	66.5	56.1	39.3	56	81.7	F-1	5	VFD	124.1	155.1	3	208	48	109.1	136	1, 2, 3, 4

NOTES:

1. UNIT TO HAVE 48 KW ELECTRIC HEATING.
2. UNIT TO INCLUDE FACTORY-INSTALLED VFD FOR SUPPLY FAN CONTROL.
3. PROVIDE DUCT-MOUNTED SMOKE DETECTOR ON RETURN AIR DUCT. SEE "DUCT-MOUNTED SMOKE DETECTOR" DETAIL ON DRAWING M-501.
4. DDC CONTROLS INTEGRATION INTO EXISTING CAMPUS'S EXISTING SIEMENS BAS SYSTEM IS REQUIRED.

AIR FILTER SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	MERV RATING	AIR FLOW	APD	REMARKS
				CFM	IN	
F-1	RTU-1	COOLING COIL FITER	8	4800	0.51	-

DIRECT EXPANSION COOLING COIL SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	AIR FLOW	MAX FACE VELOCITY	APD	MIXED EAT		SUPPLY TEMP	MIN. TOTAL CAPACITY	MIN. SENSIBLE CAPACITY	REFRIGERANT	REMARKS
						Db	Wb	Db				
			CFM	FPM	IN WG	°F	°F	°F	TONS	MBH		
CC-1	RTU-1	BLDG 16, 1ST FLOOR	4800	351	0.24	81.9	66.5	56.1	12	125.5	LOW GWP	-

FAN SCHEDULE

MARK	LOCATION	MANUFACTURER	MODEL NO.	SYSTEM AND/OR SERVICE	AIR FLOW	TSP	FAN			MOTOR ELECTRICAL						REMARKS
							DIAMETER	DRIVE	FAN MAX RPM	NOMINAL POWER		PHASE	VOLT	RPM	SPEED CONTROL	
					CFM	IN	IN			BHP	HP					
SF-1	RTU-1	INTEGRAL TO RTU-1		SUPPLY	4800	2.09	22	DIRECT	1800	2.8	5	3	208	1246	VFD	---
EF-10	ROOM 10	GREENHECK	CUE-090-VG	EXHAUST	400	0.5	-	DIRECT	1550	0.08	1/6	1	115	1725	EC	1
EF-10B	ROOM 10B	GREENHECK	CUE-080-VG	EXHAUST	200	0.5	-	DIRECT	1680	0.06	1/6	1	115	1725	EC	1

NOTES:

1. PROVIDE WITH BACK DRAFT DAMPERS

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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ARCHITECT/ENGINEERS:

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Drawing Title: MECHANICAL SCHEDULES

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: AB | Drawn: AD

Project Number: 658-24-106

Building No.: - | Floor No.: -

Drawing Number: M-401

Dwg. 21 of 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

AIR TERMINAL UNIT SIZING SCHEDULE

SIZE	MIN DESIGN AIR FLOW	MAX DESIGN AIR FLOW	DUCT INLET SIZE	MAX APD	MAXIMUM SOUND POWER LEVEL (Re: 10^{-12} WATTS) FOR BOX DISCHARGE AT MAXIMUM INLET DUCT						REMARKS
					OCTAVE BANDS						
	CFM	CFM	IN	IN WG	2	3	4	5	6	7	
A	60	170	4	0.4	69	65	58	52	51	47	1, 2, 3, 4
B	90	260	5	0.4	69	63	59	52	51	47	1, 2, 3, 4
C	130	380	6	0.4	69	67	61	55	52	49	1, 2, 3, 4
D	160	490	7	0.4	70	68	63	57	53	49	1, 2, 3, 4
E	230	680	8	0.4	71	68	59	53	51	47	1, 2, 3, 4
F	270	790	9	0.4	71	69	60	54	51	47	1, 2, 3, 4
G	350	1050	10	0.4	74	68	61	57	54	52	1, 2, 3, 4
H	500	1500	12	0.4	73	69	64	59	57	53	1, 2, 3, 4
I	750	2250	14	0.4	73	68	65	61	61	59	1, 2, 3, 4
J	1000	3000	16	0.4	73	68	66	60	58	55	1, 2, 3, 4

NOTES

1. INLET STATIC BASED ON ARI 885-98.
2. THIS SCHEDULE IS USED WITH THE TERMINAL UNIT SCHEDULE.
3. CONTROL SEQUENCE SHALL BE AS INDICATED ON THE AIR TERMINAL UNIT SCHEDULE.
4. PROVIDE SOUND ATTENUATION AFTER-SECTION AS REQUIRED TO MEET ROOM NC LEVEL.

AIR DEVICE SCHEDULE (RETURN)

MARK	TYPE	AIR FLOW		MAX APD	MOUNTING	PANEL / FRAME SIZE	NECK SIZE	NC	DAMPER	FINISH	REMARKS
		MIN	MAX								
		CFM	CFM	IN WG		IN x IN	IN				
R-1	PERFORATED	60	100	0.088	CEILING	24 X 24	6	13	NONE	OFF-WHITE	-----
R-2	PERFORATED	110	170	0.088	CEILING	24 X 24	8	13	NONE	OFF-WHITE	-----
R-3	PERFORATED	170	250	0.088	CEILING	24 X 24	10	14	NONE	OFF-WHITE	-----

AIR DEVICE SCHEDULE (EXHAUST)

MARK	TYPE	AIR FLOW		MAX APD	MOUNTING	PANEL / FRAME SIZE	NECK SIZE	NC	DAMPER	FINISH	REMARKS
		MIN	MAX								
		CFM	CFM	IN WG		IN x IN	IN				
E-1	PERFORATED	60	100	0.088	CEILING	24 X 24	6	13	NONE	OFF-WHITE	-----
E-2	PERFORATED	110	170	0.088	CEILING	24 X 24	8	13	NONE	OFF-WHITE	-----
E-3	PERFORATED	170	250	0.088	CEILING	24 X 24	10	14	NONE	OFF-WHITE	-----

SINGLE DUCT AIR TERMINAL UNIT SCHEDULE

MARK	ROOM SERVED	SYSTEM AIR HANDLING	SIZE	AIR FLOW			ADDITIONAL SOUND ATTUNATION REQUIRED	CONTROL TYPE	ZONE HEATING		REMARKS
				MIN OA	COOLING	HEATING			ELEC REHEAT	STEAM CONVECTOR	
				CFM	CFM	CFM					
VAV-1	1	RTU-1	B	70	180	70	NONE	VAV		X	1
VAV-2	2	RTU-1	A	65	140	65	NONE	VAV		X	1
VAV-3	3	RTU-1	C	100	320	100	NONE	VAV		X	1
VAV-3A	3A	RTU-1	C	95	320	95	NONE	VAV		X	1
VAV-4	4	RTU-1	C	70	300	70	NONE	VAV		X	1
VAV-5	5	RTU-1	E	100	500	100	NONE	VAV		X	1
VAV-7	7	RTU-1	C	90	320	90	NONE	VAV		X	1
VAV-8	8	RTU-1	D	100	480	100	NONE	VAV		X	1
VAV-9	9	RTU-1	C	65	320	65	NONE	VAV		X	1
CAV-10C	10, 10A, 10B 10C	RTU-1	E	135	500	135	NONE	CAV		X	2
VAV-12	12	RTU-1	A	55	130	55	NONE	VAV		X	1
VAV-13	13	RTU-1	A	65	140	65	NONE	VAV		X	1
VAV-14	14	RTU-1	A	65	140	65	NONE	VAV		X	1
VAV-18	18	RTU-1	C	80	320	220	NONE	VAV	X		3
VAV-19	19	RTU-1	B	95	240	190	NONE	VAV	X		3
VAV-20	20	RTU-1	C	85	280	230	NONE	VAV	X		3
CAV-C	CORRIDOR	RTU-1	C	170	350	170	NONE	CAV		X	1

NOTES:

1. ZONE HEAT TO BE ACCOMPLISHED THROUGH EXISTING STEAM HEATERS CURRENTLY SERVING ROOMS. STEAM HEATERS TO BE EQUIPPED WITH NEW CONTROL VALVES WITH THE TERMINAL UNIT.
2. STEAM CONVECTOR HEATING FOR EXTERIOR ROOMS IN ZONE ONLY; 10 & 10B.
2. PROVIDE WITH 208 V/3-PHASE ELECTRIC REHEAT COIL.

AIR DEVICE SCHEDULE (SUPPLY)

MARK	TYPE	AIR FLOW		MAX APD	MOUNTING	PANEL / FRAME SIZE	NECK SIZE	NC	DAMPER	FINISH	REMARKS
		MIN	MAX								
		CFM	CFM	IN WG		IN x IN	IN				
S-1	LOUVERED FACE	60	160	0.080	CEILING	24 X 24	6	19	NONE	OFF-WHITE	1, 2
S-2	LOUVERED FACE	70	280	0.100	CEILING	24 X 24	8	23	NONE	OFF-WHITE	1, 2

NOTES

1. SEE FLOOR PLAN FOR THROW PATTERN.
2. SEE DETAIL FOR DAMPER IN BRANCH DUCT SERVING EACH DIFFUSER.

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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Drawing Title: MECHANICAL SCHEDULES

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: AB | Drawn: AD

Project Number: 658-24-106

Building No.: - | Floor No.: -

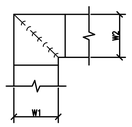
Drawing Number: M-402

Dwg. 22 of 36

Office of Construction and Facilities Management

Department of Veteran Affairs

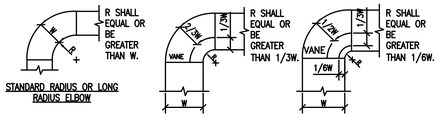
VA FORM 08-6231



NOTE:

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" [50mm] RADIUS, 1 1/2" [40mm] MAXIMUM SPACE BETWEEN VANES AND A 3/4" [20mm] TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" [500mm] VANES SHALL BE DOUBLE VANE TYPE.

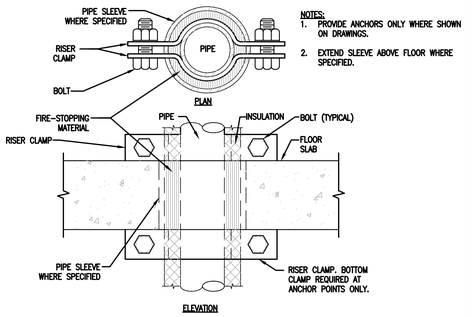
1 DUCTWORK SQUARE VANE ELBOWS
NTS



NOTE:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

2 DUCTWORK RADIUS ELBOWS
NTS



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

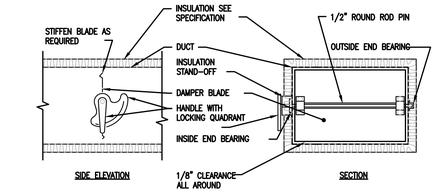
ELEVATION

3 SUPPORT/ANCHOR FOR PIPE RISERS
NTS

HANGER STRAPS OR RODS			
MAX. DUCT ø IN.	QUANTITY/SIZE IN.	MAX. LOAD LBS.	MAX. SPACING IN.
26	ONE 1 x 22 GA STRAP	280	144
36	ONE 1 x 18 GA STRAP	420	144
50	ONE 1 x 16 GA STRAP	700	144
60	TWO 3/8ø. RODS	1320	144
84	TWO 1/2ø RODS	2500	144

NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

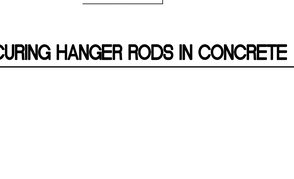
4 ROUND DUCT HANGERS
NTS



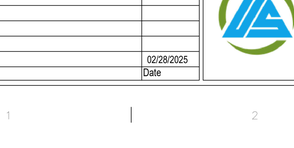
NOTE:

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.

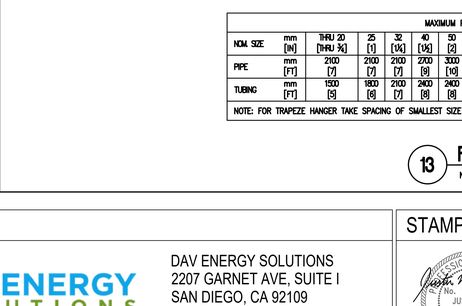
5 VOLUME DAMPER DETAIL
NTS



6 EXHAUST OR RETURN BRANCH DUCTWORK
NTS



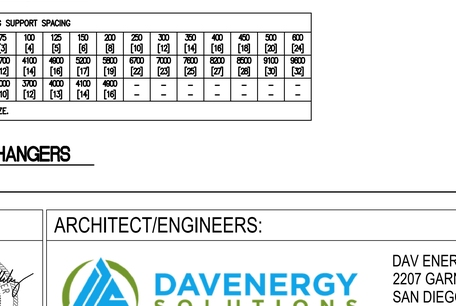
7 SUPPLY BRANCH DUCTWORK
NTS



NOTE:

1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET.
2. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS. MAXIMUM LENGTH 3'-0" [900mm].
3. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET (3 METERS). FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.2"/100' [1.64Pa/m].
4. FLEXIBLE AIR DUCT CONNECTORS, WHEN USED FROM TERMINAL UNIT SUPPLY AIR DUCT TO DIFFUSER, SHALL NOT EXCEED 5'-0" [1500mm]. USE RIGID ELBOWS FOR CHANGE OF DIRECTION GREATER THAN 45°.
5. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION W/VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.

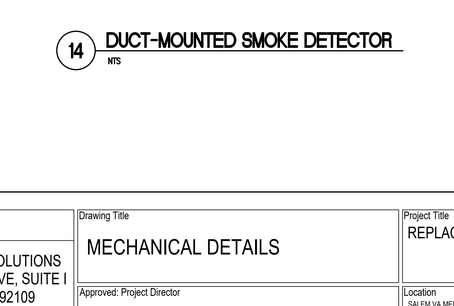
8 DUCT CONNECTIONS - AIR TERMINAL UNITS
NTS



RECTANGULAR FLEXIBLE CONNECTION

ROUND FLEXIBLE CONNECTION

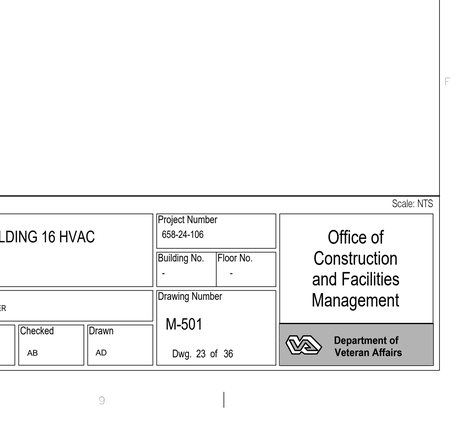
9 FLEXIBLE DUCT CONNECTIONS
NTS



10 VARIABLE VOLUME AIR TERMINAL UNIT CONTROL DIAGRAM
NTS

VAV BOX CONTROL SEQUENCE
W/DEADBAND

A. SET POINTS SHALL BE SET AS FOLLOWS: COOLING 75°F (ADJ) HEATING 70°F(ADJ) DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINTS WILL BE MAINTAINED.
B. UPON FALL IN SPACE TEMPERATURE THE VAV DAMPER WILL MODULATE TO MINIMUM POSITION.
C. UPON FURTHER DROP IN SPACE TEMPERATURE VALVE V-1 WILL MODULATE TO MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF ± .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING
D. THE REVERSE SHALL OCCUR ON THE RISE IN SPACE TEMPERATURE.



CV BOX CONTROL SEQUENCE
W/DEADBAND

A. SET POINTS SHALL SET AS FOLLOWS: COOLING 75° F (ADJ) HEATING 70° F (ADJ) DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINT WILL BE MAINTAINED
B. UPON FALL IN SPACE TEMPERATURE BELOW SET POINT VALVE V-1 WILL MODULATE TO MAINTAIN SET POINT ± .5°. THE ADJUSTABLE TOLERANCE OF ± .5° HAS BEEN SELECTED TO PREVENT VALVE HUNTING
C. THE REVERSE SHALL OCCUR ON RISE IN SPACE TEMPERATURE.

11 CONSTANT VOLUME AIR TERMINAL UNIT CONTROL DIAGRAM
NTS

12 SECURING HANGER RODS IN CONCRETE
NTS

NOTE:
SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS

MAXIMUM PIPE/TUBING SUPPORT SPACING																		
NOM. SIZE	mm [IN]	THRU 20 [THRU ¾]	25 [1]	32 [1¼]	40 [1½]	50 [2]	65 [2½]	75 [3]	100 [4]	125 [5]	150 [6]	200 [8]	250 [10]	300 [12]	350 [14]	400 [16]	450 [18]	500 [20]	600 [24]
PIPE	mm [FT]	2100 [7]	2100 [7]	2100 [7]	2700 [9]	3000 [10]	3400 [11]	3700 [12]	4100 [14]	4600 [16]	5200 [17]	5800 [19]	6700 [22]	7000 [23]	7600 [25]	8200 [27]	8500 [28]	9100 [30]	9800 [32]
TUBING	mm [FT]	1500 [5]	1800 [6]	2100 [7]	2400 [8]	2400 [8]	2700 [9]	3000 [10]	3700 [12]	4000 [13]	4100 [14]	4600 [16]	–	–	–	–	–	–	–
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.																			

13 PIPE HANGERS
NTS

NOTE:

1. PROVIDE MINIMUM 3/4" (19mm) (MIN.) EMT CONDUIT FOR ALL FIRE ALARM WIRING. PROVIDE BUSHINGS FOR ALL WIRING ENTRIES INTO JUNCTION BOXES.
2. PROVIDE DUCT SMOKE DETECTOR REMOTE INDICATOR TEST SWITCH AT 6 FEET (2m) ABOVE THE FINISH FLOOR INSIDE MECHANICAL ROOM ADJACENT TO DOOR..

14 DUCT-MOUNTED SMOKE DETECTOR
NTS

BID SET	02/28/2025
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Drawing Title: MECHANICAL DETAILS

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: AB | Drawn: AD

Project Number: 658-24-106

Building No.: - | Floor No.: -

Drawing Number: M-501

Dwg. 23 of 36

Scale: NTS

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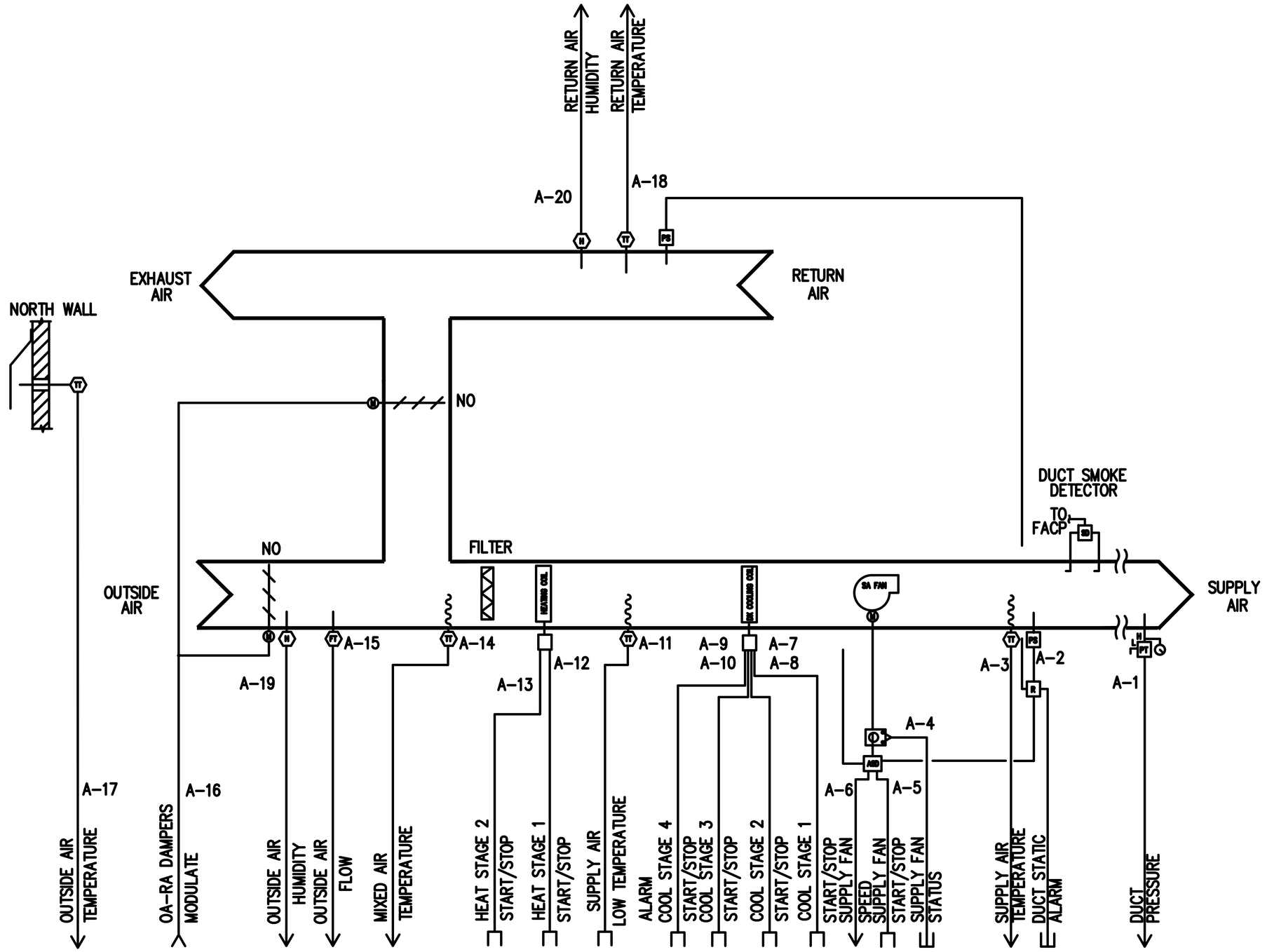

1 VARIABLE AIR VOLUME AIR HANDLING UNIT CONTROL DIAGRAM
NTS

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Drawing Title: MECHANICAL AHU CONTROL DIAGRAM

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: AB | Drawn: AD

Project Number: 658-24-106

Building No.: - | Floor No.: -

Drawing Number: M-502

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SEQUENCE OF OPERATION FOR VARIABLE AIR VOLUME AIR HANDLING UNIT

The occupancy mode (Occupied or Unoccupied) shall be determined through a user-adjustable, graphical, seven-day schedule with a holiday schedule.

OCCUPIED MODE

1. The supply fan shall be energized. The supply duct static pressure setpoint shall be slowly ramped from zero to the final setpoint value (adjustable) as determined by the TAB agent. The air handling units supply fan speed shall modulate to maintain duct static pressure setpoint as determined by the TAB agent (adjustable). The supply fan speed shall not drop below 30% (adjustable) to assure adequate fan motor cooling.
2. The outside air damper shall modulate to maintain the return airflow rate equal to the supply airflow rate minus a fixed cfm to account for building exhaust fans. This fixed exhaust cfm shall be determined by the TAB agent.
3. When free cooling is enabled, the heating shall stage, and the maximum outside air damper shall modulate, in sequence to maintain supply air temperature setpoint. When free cooling is unavailable, the maximum outside air damper shall be closed, the heating and DX shall stage as described below in sequence to maintain supply air temperature setpoint. Provide deadband between heating and cooling setpoints.
4. The supply air temperature setpoint shall be reset from T-min (53°F adjustable) when the outside air temperature is 70°F (adjustable) and above, up to T-max when the outside air temperature is 65°F (adjustable) and below. T-max shall range from 55°F to 65°F (adjustable). T-max shall vary such that the VAV box with the highest cooling demand is at 90% of its cooling max setpoint. The supply air temperature setpoint shall change slowly.
5. DX Cooling:
   - 5.1. If the outside air temperature is greater than 60°F (adjustable) and the system is not in morning warm-up or morning cool down, DX cooling shall be enabled.
   - 5.2. DX cooling shall cycle to satisfy the supply air temperature setpoint when cooling is enabled, the AHU has flow, and either the economizer is unavailable, or insufficient to achieve the supply temperature setpoint of 55°F (adjustable). The supply air temperature shall be maintained within ±2°F of setpoint when DX is operating.
     - 5.2.1. On a call for cooling, the controller shall activate the first stage of DX cooling. The first stage of cooling shall not shut down until the second stage has been disabled for at least 5 minutes.
     - 5.2.2. If additional cooling is required, and the first stage has been running for at least 5 minutes, the controller shall activate the second stage of DX cooling. The second stage of cooling shall not shut down until the third stage has been disabled for at least 5 minutes. Similar for stages 3 and 4.
     - 5.2.3. If additional cooling is required and the second stage has been running for at least 5 minutes, the controller shall activate the third stage of DX cooling. The third stage of cooling shall not shut down until the fourth stage has been disabled for at least 5 minutes.
     - 5.2.4. If additional cooling is required and the third stage has been running for at least 5 minutes, the controller shall activate the fourth stage of DX cooling.
     - 5.2.5. When a cooling stage is called to run, it will run for at least 5 minutes.
     - 5.2.6. When a cooling stage cycles off, it will remain off for at least 5 minutes.
   - 5.3. Safety trips and loss of fan status shall override the time delays and de-energize all cooling stages.
6. Heating Mode:
   - 6.1. If the outside air temperature is less than 50°F (adjustable) and the system is not in morning warm-up or morning cool down, heating mode shall be enabled.
   - 6.2. Heating is to be primarily provided by the existing steam radiators interconnected with the VAV controls, with the exception of VAV-18, VAV-19, and VAV-20.
   - 6.3. When heating mode is engaged, outside air damper shall be full open and supply fan shall energize to meet minimum VAV ventilation and heating airflows and pre-heating shall be provided to ensure a mixed air temperature of 80°F ±2°F (adjustable).
   - 6.4. Safety trips and loss of fan status shall override the time delays and de-energize all heating stages.
7. The outside air damper shall modulate to maintain the minimum outside air flow setpoint.
8. Economizer cooling is enabled whenever the outside air temperature is less than the return air temperature plus deadband. The mixed air dampers shall modulate as described above. When the outside air temperature is greater than the return air temperature economizer cooling is disabled.

UNOCCUPIED MODE

1. Unoccupied Off: The supply fan shall be de-energized except when operation is called for as described below. Outside air dampers shall be closed and return air damper open.
2. Unoccupied Setback: When the lowest space temperature drops below the unoccupied heating space temperature setpoint, the supply fan shall energize, the outside and exhaust dampers shall remain closed, and return damper open. The heating coil shall stage to maintain mixed air temperature setpoint of 80°F (adjustable) and the steam radiators shall engage until the lowest space temperature is above the unoccupied setpoint + differential. The supply fan speed shall be controlled as described in the occupied mode but with no offset for exhaust. When the unoccupied heating space temperature setpoint + differential is reached, then the unit shall return to Unoccupied Off Mode.
3. Morning Warm-up: The optimum start program shall start the unit at the latest possible time to reach the desired occupied space temperature setpoint at occupancy time. If the average space temperature is below the occupied space temperature setpoint, the supply fan shall energize, the outside and exhaust dampers shall remain closed and return damper open. The heating coil shall stage to maintain mixed air temperature setpoint of 80°F (adjustable) and the steam radiators shall engage until the average space temperature equals the occupied space temperature setpoint. The supply fan speed shall be controlled as described in the occupied mode but with no offset for exhaust. The VAV boxes shall modulate to maintain the occupied space temperature while the unit is delivering warm air. When the occupied space temperature setpoint is reached, the unit shall operate in the Occupied Mode. Morning warm-up shall occur only once in a day.
4. Morning Pre-cooling: If the month is between May and October (adjustable), the outside air temperature is below 55°F (adjustable) and the average of the three highest space temperatures exceeds Pre-Cool Space Temperature setpoint, Morning Pre-cooling may begin. The unit shall start in the pre-cool mode as determined by an optimum start program at the latest possible time to have the space at the occupied setpoint at occupancy time. The economizer cooling mode shall modulate the outside air and return air dampers to provide 55°F (adjustable) supply air. The pre-heating coils shall not energize and the DX cooling shall not cycle on. The supply fan speed shall be controlled as described in the occupied mode but with no offset for exhaust. When the average of the three highest space temperatures falls below the occupied space temperature setpoint, the unit shall return to unoccupied mode. When the space has reached this setpoint, the unit shall operate in the occupied mode. Morning cool-down shall occur only once in a day.

SAFETY SHUTDOWNS

1. Duct smoke detection, space smoke detection, duct pressure safety, and low temperature limit trips shall de-energize the supply fan and close the outside air dampers. Manual reset of the tripped device shall be required to restart the system.
2. When the outside air temperature is below the Outside Air Low Temperature Protection Setpoint 35°F (adjustable) and the air handler has shut down in alarm, the pre-heating coil shall be de-energized and the DX cooling shall not be enabled.

CONTROL MODE SUMMARY

Device	Occupied	Unoccupied				Safeties
		Off	Night Setback	Warm-up	Pre-Cool	
S fan	Modulate	Off	Off	Cycles	Modulate	Off
OA damper	Modulate in sequence with valves	Closed	Closed	Closed	Modulate	Closed
RA damper	Inversely tracks OA damper	Open	Open	Open	Modulate	Open
Heat	Stage	Off	Cycle	Stage	Off	Off
Cooling	Stage	Off	Off	Off	Off	Off

Scale: NTS

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Drawing Title: MECHANICAL SEQUENCE OF OPERATION

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER
1970 RAMONE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: AB | Drawn: AD

Project Number: 658-24-106

Building No.: - | Floor No.: -

Drawing Number: M-503

Dwg. 25 of 36

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JOB:658-24-106 SALEM VA MEDICAL CENTER REPLACE BUILDING 16 HVAC		POINT LEGEND	SYSTEM OUTPUTS		SYSTEM INPUTS				SYSTEM SOFTWARE/CONTROL		PAGE: 1
			BINARY	ANALOG	BINARY		ANALOG		ALARM PROCESSING	APPLICATION/FUNCTION	
SYSTEM VAV AIR HANDLER SYSTEM COMPONENTS	POINT ID	POINT ID PRIORITY/ADD-ALTERNATE NO. ... ELECTRIC DEVICE START/STOP OPEN/CLOSE ... SPEED COMMAND VALVE POSITION DAMPER POSITION STATUS ALARM PRESSURE HIGH HUMIDITY HIGH STATIC PRESSURE LOW TEMPERATURE ... TEMPERATURE (T) PRESSURE POSITION FLOW PERCENT STATIC PRESSURE CARBON MONOXIDE HUMIDITY VACUUM LOCAL ALARM PANRL AREA ALARM PANEL MASTER ALARM PANEL HIGH LIMIT LOW LIMIT ... SCHEDULE START/STOP FUNCTION DUTY CYCLE TEMPERATURE ECONOMIZER ENTHALPY ECONOMIZER TEMPERATURE RESET DEMAND LIMITING TEMPERATURE OVERRIDE STATIC PRESSURE RESET OA DEWPOINT ENABLE SETPOINT RA DEWPOINT ENABLE SETPOINT PRESSURE/VOLUME CONTROL FAILURE MODE SPACE TEMP CONTROL FULL COMMUNICATION TRENDING	REMARKS
SUPPLY AIR PRESSURE	A-1					●				●	●	●	
DUCT HIGH STATIC PRESSURE ALARM	A-2		●			●		●		●	●	●	
SUPPLY AIR TEMPERATURE	A-3				●						●	●	
SUPPLY FAN STATUS	A-4		●						●			●	●
SUPPLY FAN START/STOP	A-5	●									●	●	
SUPPLY FAN SPEED	A-6			●							●		●
DX STAGE 1	A-7	●	●							●		●	●
DX STAGE 2	A-8	●	●							●		●	●
DX STAGE 3	A-9	●	●							●		●	●
DX STAGE 4	A-10	●	●							●		●	●
LOW TEMPERATURE SENSOR	A-11		●	●					●	●		●	●
HEAT STAGE 1	A-12	●								●		●	●
HEAT STAGE 2	A-13	●								●		●	●
MIXED AIR TEMPERATURE	A-14				●					●			●
OUTSIDE AIR FLOW	A-15						●						
OA/RA DAMPERS	A-16			●									●
OUTSIDE AIR TEMPERATURE	A-17				●					●			●
RETURN AIR TEMPERATURE	A-18				●					●			●
OUTSIDE AIR HUMIDITY	A-19							●			●		●
RETURN AIR HUMIDITY	A-20							●			●		●

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Drawing Title: MECHANICAL POINTS LIST

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/28/2025 | Checked: AB | Drawn: AD

Project Number: 658-24-106

Building No.: - | Floor No.: -

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ABBREVIATIONS

1PH	SINGLE-PHASE	FVNR	FULL VOLTAGE NON-REVERSING
1P	SINGLE POLE	FVR	FULL VOLTAGE REVERSING
2/C	TWO-CONDUCTOR	G	ELECTRICAL GROUND
3/C	THREE-CONDUCTOR	GEN	GENERATOR
3PH	THREE-PHASE	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
4/C	FOUR-CONDUCTOR	GFP	GROUND FAULT PROTECTION
4W	FOUR-WIRE	GTB	GENERATOR TAP BOX
A/C UNIT	AIR CONDITIONING UNIT	HID	HIGH INTENSITY DISCHARGE
A/E	ARCHITECT/ENGINEER	HOA	HAND-OFF-AUTOMATIC
AAP	ALARM ANNUNCIATOR PANEL	HP	HORSEPOWER
AC	ALTERNATING CURRENT OR ARMORED CABLE	HT	HEIGHT
ACC	ACCESSIBLE	HZ	HERTZ
ADDL	ADDITIONAL	IESNA	ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
ADJ	ADJACENT, ADJOINING	IMC	INTERMEDIATE METAL CONDUIT
AF	AMPERE FRAME OR AMP FUSE	INCAND	INCANDESCENT
AFC	ABOVE FINISHED COUNTER, AUTOMATIC FREQUENCY CONTROL, OR AVAILABLE FAULT CURRENT	IR	INFRARED
		IWH	INSTANTANEOUS WATER HEATER
AFCI	ARC-FAULT CURRENT INTERRUPTER	J-BOX	JUNCTION BOX
AFF	ABOVE FINISHED FLOOR	kV	KILOVOLT
AFG	ABOVE FINISHED GRADE	kVA	KILOVOLT AMPERE
Ah	AMPERE HOUR	kVAh	KILOVOLT AMPERE PER HOUR
AHJ	AUTHORITY HAVING JURISDICTION	kVAR	KILOVOLT AMPERE REACTIVE
AIC	AMPERE INTERRUPTING CAPACITY	kW	KILOWATT
ALT	ALTERNATE	kWh	KILOWATT HOUR
AMB	AMBIENT	kWhM	KILOWATT HOUR METER
AMP	AMPERE	LED	LIGHT EMITTING DIODE
ASC	AMPS SHORT CIRCUIT	LF	LINEAR FEET (FOOT)
AT	AMPERE TRIP	LP	LIGHT POLE
ATS	AUTOMATIC TRANSFER SWITCH	LPS	LOW PRESSURE SODIUM
AUTO	AUTOMATIC	LRA	LOCKED ROTOR AMPS
AV	AUDIO VISUAL	LT	LIGHT
BAT	BATTERY	LTG	LIGHTING
BD	BOARD	LTG PNL	LIGHTING PANEL
BFF	BELOW FINISH FLOOR	LTNG	LIGHTNING
BLDG	BUILDING	LV	LOW VOLTAGE
BRKR	BREAKER	MAX	MAXIMUM
BYP	BY PASS	MC	METAL-CLAD
C	CONDUIT	MCA	MINIMUM CIRCUIT AMPS
CAB	CABINET	MCB	MAIN CIRCUIT BREAKER
CALC	CALCULATE	MCC	MOTOR CONTROL CENTER
CAP	CAPACITY	MECH	MECHANICAL
CAT	CATALOG	MH	MANHOLE
CATV	COMMUNITY ANTENNA	MIN	MINIMUM
CCR	CONTROL CONTACTOR	MOCP	MAXIMUM OVERCURRENT PROTECTION
CCTV	CLOSED CIRCUIT TELEVISION	MLO	MAIN LUGS ONLY
cd	CANDELA	MT	MOUNT
CD	CONSTRUCTION DOCUMENTS	MTD	MOUNTED
CF	CONTRACTOR FURNISHED	MTG	MOUNTING
CF/CI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	MTS	MANUAL TRANSFER SWITCH
		MV	MEDIUM VOLTAGE
CF/OI	CONTRACTOR FURNISHED OWNER INSTALLED	MVA	MEGAVOLT-AMPERE
		MW	MEGAWATT
PANEL	CONTRACTOR	NA	NOT APPLICABLE
CFE	CONTRACTOR FURNISHED EQUIPMENT	NC	NORMALLY CLOSED
		NEC	NATIONAL ELECTRICAL CODE
CHW	CHILLED WATER	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CHWP	CHILLED WATER PUMP		
CKT	CIRCUIT		
CKT BRKR	CIRCUIT BREAKER OR C/B	NEUT	NEUTRAL OR N
CLF	CURRENT LIMITING FUSE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CLG	CEILING		
COAX	COAX CABLE	NIC	NOT IN CONTRACT
COMM	COMMUNICATION	NL	NIGHT LIGHT
COMPT	COMPARTMENT	NO	NORMALLY OPEN
CONC	CONCRETE	NTS	NOT TO SCALE
CONT	CONTINUE	OC	ON CENTER
CONTR	CONTRACTOR	OD	OUTSIDE DIAMETER
COORD	COORDINATE	OL	OVERLOAD
CPT	CONTROL POWER TRANSFORMER	P	POLE RNISHED/CONTRACTOR
		PB	PULL BOX
CRI	COLOR RENDERING INDEX	PEC	PHOTOELECTRIC CELL
CT	CURRENT TRANSFORMER	PED	PEDESTAL
CTV	CABLE TELEVISION	PEND	PENDANT
CU	COPPER	PF	POWER FACTOR
CUR	CURRENT	PH	PHASE
dB	DECIBEL	PNL	PANEL
DC	DIRECT CURRENT	PT	POTENTIAL TRANSFORMER
DCP	DIMMER CONTROL PANEL	PVC	POLYVINYL CHLORIDE (PLASTIC)
DEG C	DEGREES CELSIUS	PWR	POWER
DEG F	DEGREES FAHRENHEIT	RCP	REFLECTED CEILING PLAN
DEMO	DEMOLITION	REC	RECESSED
DIAG	DIAGRAM	RECPT	RECEPTACLE
DISC	DISCONNECT	RM	ROOM
DISTR PNL	DISTRIBUTION PANEL	RMS	ROOT MEAN SQUARE
DMR SW	DIMMER SWITCH	REQD	REQUIRED
DPDT	DOUBLE POLE, DOUBLE THROW	SCC	SHORT CIRCUIT CAPACITY
DPST	DOUBLE POLE, SINGLE THROW	SD	SMOKE DETECTOR
DRSW	DOOR SWITCH	SF	SQUARE FOOT (FEET)
DS	DISCONNECT SWITCH	SHT	SHEET
DWG	DRAWING	SI	INTERNATIONAL SYSTEM OF
EL	ELEVATION	SPEC	SPECIFICATION
ELEC	ELECTRIC OR ELECTRICAL	SPST	SINGLE POLE, SINGLE THROW
ELEV	ELEVATOR	SURF	SURFACE
EMER	EMERGENCY	SW	SWITCH
EMI	ELECTROMAGNETIC INTERFERENCE	SWBD	SWITCHBOARD
		SWGR	SWITCHGEAR
EMT	ELECTRICAL METALLIC TUBING	TEL	TELEPHONE
ENCL	ENCLOSURE	TV	TELEVISION
EPO	EMERGENCY POWER OFF	TYP	TYPICAL
EPRF	EXPLOSION PROOF	UFD	UNDERFLOOR DUCT
ESMT	EASEMENT	UGND	UNDERGROUND
EWC	ELECTRIC WATER COOLER	UL	UNDERWRITERS LABORATORY
EWH	ELECTRIC WATER HEATER	UON	UNLESS OTHERWISE NOTED
EXIST	OR EXISTING	UPS	UNINTERRUPTIBLE POWER
FA	FIRE ALARM	UTIL	UTILITY
FAAP	FIRE ALARM ANNUNCIATOR PANEL	V	VOLT
		VA	VOLT AMPERE
FACP	FIRE ALARM CONTROL PANEL	VAR	VOLT AMPERE REACTIVE
FC	FOOTCANDLE	VFD	VARIABLE FREQUENCY DRIVE
FIXT	FIXTURE	VOLT	VOLTAGE
FLA	FULL LOAD AMPS	W	WATT
FLUOR	FLUORESCENT	WH	WATER HEATER
FP	FIRE PROTECTION	WP	WEATHERPROOF
FT	FEET OR FOOT	XFER	TRANSFER
FU SW	FUSED SWITCH	XFMR	TRANSFORMER

ELECTRICAL SYMBOLS - DIAGRAM

- DELTA CONNECTION
- MOTOR, SINGLE-PHASE
- MOTOR, THREE-PHASE
- TRANSFORMER
- WYE CONNECTION
- EARTH GROUND
- JUNCTION BOX
- PB — PULL BOX
- SWITCH, MULTIPOSITION
- SWITCH, SINGLE BREAK
- NORMALLY CLOSED RELAY CONTACT
- NORMALLY OPEN RELAY CONTACT
- HV DRAWOUT FUSE
- LV FUSE WITH RATING
- LV FUSE DISCONNECT
- CIRCUIT BREAKER
- DRAWOUT AIR CIRCUIT BREAKER
- PM — POWER METER
- L, E, N — AUTOMATIC TRANSFER SWITCH
- TK — TURN KEY
- 50 — RELAY; NUMBER INDICATES RELAY TYPE
  50 = INSTANTANEOUS OVERCURRENT OR RATE-OF-RISE
  51 = AC-TIME OVERCURRENT
  67 = AC-DIRECTIONAL OVERCURRENT
  86 = LOCKING OUT
- PUSH BUTTON
- DISCONNECT SWITCH, FUSED
- DISCONNECT SWITCH, UNFUSED
- STARTER, COMBINATION WITH DISCONNECT SWITCH
- STARTER OR MOTOR CONTROLLER
- BATTERY
- CAPACITOR
- METER BOXED
- M — METER LEFT
- M — METER RIGHT
- WH, M — METER
- A — AMMETER
- V — VOLTMETER
- W — WATTMETER
- WH — WATT-HOUR METER
- G — GENERATOR, POWER
- NOTE: OPEN TO ADD 2 LETTERS OF TEXT
- 1 — REVISION DELTAS
- # — SHEET NOTES
- ####-# — FEEDER TAG
- (E) OR BLANK; ####-# — SCHEDULE TAG
- CONDUIT CAP
- CONTINUATION
- DUCT SMOKE DETECTOR
- AIR TERMINAL

ELECTRICAL SYMBOLS - POWER PLAN

- MOTOR, SINGLE-PHASE
- MOTOR, THREE-PHASE
- TRANSFORMER, PLAN
- WYE CONNECTION
- DUCT, CELL FLOOR HEADER
- DUCT, TROLLEY
- DUCT, UNDERFLOOR JUNCTION BOX
- EARTH GROUND
- JUNCTION BOX
- LADDER CABLE TRAY
- BRANCH CIRCUIT HOMERUN. LINES INDICATE NUMBER OF CIRCUITS. NEUTRAL, AND SWITCH LEG CONDUCTORS. ONE SEPARATE GREEN GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH HOMERUN; NOT SHOWN
- PULL BOX
- WIREWAY
- SUBSTATION
- HI VOLTAGE SWITCH ON CONCRETE PAD
- LOW VOLTAGE SWITCH ON CONCRETE PAD
- BUSWAY
- PUSH BUTTON
- DISTRIBUTION PANEL
- PANELBOARD, FLUSH MOUNTED
- PANELBOARD, SURFACE MOUNTED
- RECEPTACLE, CLOCK HANGER
- RECEPTACLE, DUPLEX
- RECEPTACLE, DUPLEX ON EMERGENCY POWER
- RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER
- RECEPTACLE, QUADRAPLEX
- RECEPTACLE, SINGLE
- RECEPTACLE, SINGLE WITH SWITCH
- RECEPTACLE, SPECIAL PURPOSE
  A = 120V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 5-20R.
  B = 208V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 6-20R.
  C = 120V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 5-30R.
  D = 208V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 6-30R.
  E = 208V, 60A, 1 PHASE, 3-POLE, 4W, NEMA 14-60R.
  F = 208V, 30A, 3 PHASE, 3-POLE 4W, NEMA 15-30R.
  G = 208V, 50A, 3 PHASE, 3 POLE, 4W, NEMA 15-30R.
  H = 208V, 60A, 3 PHASE, 3 POLE, 4W, NEMA 15-60R.
- RECEPTACLE, SWITCHED DUPLEX
- DROP CORD, SINGLE CONVENIENCE OUTLET, 3-WIRE, GROUNDING TYPE, 20A, W#12 CONDUCTORS IN FLEXIBLE CORD (CENTER LINE OF OUTLET: 6'-6" [1981mm] AFF. MINIMUM).
- ELECTRICAL STRIP MOLD (OUTLETS ON 2'-0" [610mm] CENTERS OR AS DESIGNATED ON DRAWINGS), MTD 3'-6" [1067mm] AFF OR AS INDICATED.
- DISCONNECT SWITCH, FUSED
- DISCONNECT SWITCH, UNFUSED
- STARTER, COMBINATION WITH DISCONNECT SWITCH
- STARTER OR MOTOR CONTROLLER
- SWITCH
  F = FUSED SWITCH; K = KEY OPERATED
  L = LOCK; LM= LOW VOLTAGE MASTER
  M = MANUAL MOTOR STARTING; MC= MOMENTARY CONTACT
  MP= MOTOR SNAP WITH PILOT LIGHT (THERMAL TYPE); P = WITH PILOT LIGHT
  PB= PUSH BUTTON STATION; RC= REMOTE CONTROL
  WP= WEATHER PROOF; X = EXPLOSION PROOF
- 1 — REVISION DELTAS
- # — KEY NOTE
- ####-# — FAULT CURRENT TAG
- (E) OR BLANK; ####-# — SCHEDULE TAG
- ####-# — CONDUIT AND WIRE TAG

ELECTRICAL SYMBOLS - LIGHTING PLAN

- M — CEILING MOUNTED OCCUPANCY SENSOR
- $i — SWITCH (# SUBSCRIPT AS INDICATED BELOW):
  BLANK = SINGLE POLE; 2 = DOUBLE POLE
  3 = THREE-WAY; 4 = FOUR-WAY
  D = DIMMER; K = KEY OPERATED
  LV= LOW VOLTAGE; P = WITH PILOT LIGHT
  LM= LOW VOLTAGE MASTER; RC= REMOTE CONTROL
  PB= PUSH BUTTON STATION; WP= WEATHER PROOF
  T = TIMER OPERATED; Mo= OCCUPANCY SENSOR
- RECESSED DOWNLIGHT FIXTURE, LETTER INDICATES TYPE.
- LIGHT FIXTURE, RECESSED, 610x1220mm (2'x4'); LETTER INDICATES TYPE.
- LIGHT FIXTURE, RECESSED, 305x1220mm (1'x4'); LETTER INDICATES TYPE.
- LIGHT FIXTURE, RECESSED, 305x2439mm (1'x8'); LETTER INDICATES TYPE.
- LIGHT FIXTURE, SURFACE MOUNTED, 610x1220mm (2'x4'); LETTER INDICATES TYPE.
- LIGHT FIXTURE, SURFACE MOUNTED, 305x1220mm (1'x4'); LETTER INDICATES TYPE.
- LIGHT FIXTURE, SURFACE MOUNTED, 305x2439mm (1'x8'); LETTER INDICATES TYPE.
- LIGHT FIXTURE, EMERGENCY; LETTER INDICATES TYPE.
- LIGHT FIXTURE, RECESSED, 610x610mm (2'x2'); LETTER INDICATES TYPE.
- LIGHT FIXTURE, SURFACE MOUNTED, 2'x2' [610x610mm]; LETTER INDICATES TYPE.
- LIGHT TRACK WITH HEADS AS SHOWN
- LIGHT FIXTURE, STRIP; LETTER INDICATES TYPE.
- LIGHT FIXTURE, WALL MOUNTED
- LIGHTING, ONE HEAD EMERGENCY BATTERY POWER
- LIGHTING, TWO HEAD EMERGENCY BATTERY POWER
- LIGHTING, THREE HEAD EMERGENCY BATTERY POWER
- STREET LIGHT WITH BRACKET
- LIGHT POLE, ONE LUMINAIRE
- LIGHT POLE, TWO LUMINAIRES
- LIGHT POLE, POST TOP MOUNT LUMINAIRE
- LIGHTING WALL PACK, EXTERIOR BUILDING
- EXIT SIGN, WALL MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN
- EXIT SIGN, CEILING MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN
- LIGHT FIXTURE, BOLLARD
- 1 — REVISION DELTAS
- # — SHEET NOTES
- (E) OR BLANK; ####-# — SCHEDULE TAG

ELECTRICAL LAYERS

- BACKGROUND
- COLUMN LINE
- DEMOLITION
- EXISTING
- NEW
- DIAGRAM ENCLOSURE
- RELOCATE
- SCOPE
- TEXT
- FENCE
- SITE EQUIPMENT
- SITE PARKING / CURB
- SITE SIDEWALK
- BUILDING OUTLINE
- PLAN DRAWINGS - ABOVE GROUND CONDUIT
- PLAN DRAWINGS - BELOW GROUND CONDUIT
- DIAGRAM DRAWINGS - INTERLOCK CONNECTIONS

GENERAL NOTES

1. THE BUILDING IS TO REMAIN IN OPERATION AT ALL TIMES. ISOLATE WORK AREAS BY MEANS OF TEMPORARY PARTITIONS AND/OR TARPS TO KEEP DUST AND DIRT WITHIN THE CONSTRUCTION AREA.
2. ALL ITEMS INDICATED AS BEING DEMOLISHED OR REMOVED SHALL BE DISPOSED OF OFF-SITE.
3. ALL SHUT DOWNS OF EXISTING SYSTEMS SHALL BE SCHEDULED AND APPROVED BY THE COR PRIOR TO COMMENCEMENT OF SAID WORK.
4. CLEAN THE JOB SITE DAILY AND REMOVE FROM THE PREMISES ALL DIRT AND DEBRIS CAUSED BY THE PERFORMANCE OF THE WORK INCLUDED IN THIS CONTRACT.
5. USE OF THE OWNER'S ELEVATORS AND BUILDING CORRIDORS FOR THE HANDLING OF NEW AND/OR REMOVED EQUIPMENT AND MATERIALS SHALL BE AT THE DIRECTION OF THE COR AND SHALL BE COORDINATED WITH HIS OPERATIONS.
6. EXCEPT WHERE INDICATED AS BEING RELOCATED, EXISTING MATERIALS THAT ARE REMOVED SHALL NOT BE REUSED IN NEW SYSTEMS.
7. WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
8. DOCUMENT TO BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF WORK.
9. ALL SUSPENDED PIPING, DUCTWORK, CONDUIT AND CABLE TRAYS SHALL BE PROVIDED WITH, SEISMIC SWAY BRACES IN ACCORDANCE WITH THE MASON INDUSTRIES SEISMIC RESTRAINT GUIDELINES FOR SUSPENDED PIPING, DUCTWORK AND ELECTRICAL SYSTEMS AND THE APPLICABLE CODES. INSTALLED SYSTEM SHALL MATCH EXISTING, RIGID OR CABLE TYPE.
10. NOT ALL SYMBOLS, ABBREVIATIONS AND EQUIPMENT ABBREVIATIONS INDICATED APPEAR ON THESE CONTRACT DRAWINGS.
11. ALL FINAL LOCATIONS AND ARRANGEMENTS OF LIGHTING FIXTURES SHALL BE OBTAINED FROM THE ARCHITECTURAL REFLECTED CEILING PLAN.
12. EXISTING LIGHT FIXTURES TO BE REUSED, REMOVED, STORED, AND REINSTALLED IN SAME LOCATION IN NEW CEILING. EXISTING LIGHTING CONTROLS TO BE REUSED UNLESS OTHERWISE NOTED.
13. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.
14. MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.

GENERAL DEMOLITON NOTES

1. SCHEDULE ALL SHUTDOWNS THAT AFFECT UTILITIES AND PORTIONS OF THE BUILDING THAT MUST REMAIN IN OPERATION WITH THE COR.
2. DEMOLITION WORK ATALL TIMES SHALL BE SUBJECT TO THE DIRECTION AND APPROVAL OF THE COR AND CARRIED OUT IN SUCH A MANNER SO AS NOT TO INTERFERE WITH THE NORMAL OPERATION OF THE BUILDING.
3. DISPOSE OF ALL REMOVED MATERIALS IN AN APPROVED MANNER.
4. FOR EXISTING EQUIPMENT, SUCH AS LIGHTING FIXTURES, WIRING DEVICES, CONDUITS, ETC., SHOWN ON PLANS TO BE REMOVED, COMPLETELY CUT/CAP CONDUITS AT THE AREA OF WORK PERIMETER AND REMOVE CONDUIT WITHIN THE WORK AREA, DISCONNECT WIRING AT THE OVERCURRENT PROTECTIVE DEVICE AND REMOVE WIRING COMPLETELY FROM THE ABANDONED CONDUITS.
5. DISCONNECT ALL ABANDONED WIRING OF ALL TYPES AT THE OVERCURRENT PROTECTIVE DEVICE. COMPLETELY REMOVE ALL ABANDONED WIRING.
6. MAINTAIN AND RESTORE, IF INTERRUPTED, ALL CONDUITS AND CONDUCTORS PASSING THROUGH RENOVATED AREAS AND SERVICING UNDISTURBED AREAS.
7. COORDINATE WITH COR ON REMOVAL AND PLACEMENT OF EQUIPMENT NOTED TO BE TURNED OVER TO COR FOR EQUIPMENT NOT DESIRED BY , CONTRACTOR SHALL REMOVE OFF SITE IN AN APPROVED MANNER.

ALL ITEMS SHOWN AS THIN LINEWORK ARE EXISTING. ALL ITEMS SHOWN AS BOLD LINEWORK ARE NEW.

ALL ITEMS SHOWN WITH DIAGONAL HATCHING ARE TO BE DEMOLISHED. RE-USE EXISTING CONDUIT WHERE POSSIBLE.

TABLE OF CONTENTS

EQUIP. ABBREVIATIONS

AAHX	AIR TO AIR HEAT EXCHANGER	CUH	CABINET UNIT HEATER	HRC	HEAT RECOVERY COIL
ACC	AIR COOLED CONDENSER	CWCC	CHILLED WATER COOLING COIL	HRD	HEAT RECOVERY DEVICE
ACCH	AIR COOLED CHILLER	CWP	CONDENSER WATER PUMP	HRP	HYDRONIC RADIANT (CEILING)
ACCU	AIR COOLED CONDENSING UNIT	DXCC	DIRECT EXPANSION COOLING COIL	HRW	HEAT RECOVERY WHEEL
ACU	AIR CONDITIONING UNIT	EC	EVAPORATIVE COOLER	HUM	HUMIDIFIER UNIT MOUNTED
AF	AFTER FILTER	ECU	EVAPORATIVE CONDENSER UNIT	HVU	HEATING AND VENTILATING UNIT
AHU	AIR-HANDLING UNIT	EDH	ELECTRIC DUCT HEATER	HWC	HOT WATER COIL
AS	AIR SEPARATOR	EF	EXHAUST FAN	HWHC	HOT WATER HEATING COIL
B	BOILER	EH	EXHAUST HOOD	HWP	HEATING HOT WATER PUMP
BDR	BASE BOARD RADIATOR	ERC	ELECTRIC REHEAT COIL	HWUH	HOT WATER UNIT HEATER
BHW	HOT WATER HEATING BOILER	ERP	ELECTRIC RADIANT PANEL	HX	HEAT EXCHANGER
BHX	BOILER BLOWDOWN HEAT EXCHANGER	ET	EXPANSION TANK	ICF	IN-LINE CENTRIFUGAL FAN
		EUH	ELECTRIC UNIT HEATER	IU	INDUCTION UNIT
BT	BLOWOFF TANK	EWC	EVAPORATIVE WATER COOLER	LLHX	LIQUID TO LIQUID HEAT EXCHANGER
CC	COOLING COIL	FCU	FAN COIL UNIT (4 PIPE)	MAU	MAKE-UP AIR UNIT
CCD	COOLING COIL CONDENSATE DRAIN	FCUC	FAN COIL UNIT COOLING ONLY	P	PUMP
		FCUH	FAN COIL UNIT HEATING ONLY	PF	PRE-FILTER
CFP	CHEMICAL FEED PUMP	FHX	FLUE GAS/FEEDWATER HEAT EXCHANGER	PHC	PREHEAT COIL
CH	CHILLER			PTAC	PACKAGED TERMINAL AIR CONDITIONER
CHP	CHILLED WATER PUMP	FPTU	FAN POWERED TERMINAL UNIT		
COMP	COMPRESSOR UNIT	FTR	FIN TUBE RADIATION	RAHX	ROTARY AIR HEAT EXCHANGER
CP	CONDENSATE PUMP	H	HUMIDIFER	RCCH	REMOTE CONDENSER CHILLER
CS	CONDENSATE STORAGE TANK	HC	HEATING COIL	RCU	RECIPROCATING CHILLER UNIT
CSG	CLEAN STEAM GENERATOR	HD	HOOD		
CT	COOLING TOWER	HP	HEAT PUMP		
CU	CONDENSING UNIT	HPDT	HIGH PRESSURE DRIP TRAP		

SHEET LEGEND

▨	ALL ITEMS SHOWN WITH DIAGONAL HATCHING ARE TO BE DEMOLISHED

GENERAL NOTES

1. THIS FLOOR PLAN WAS DEVELOPED USING A COMBINATION OF AVAILABLE RECORDS DRAWINGS AND SITE DATA COLLECTION AND DOES NOT REPRESENT OR INTEND TO REPRESENT A SURVEY ACCURATE PLAN.
2. CONTRACTOR SHALL RE-USE EXISTING CONDUIT WHERE POSSIBLE.
3. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.
4. MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.
5. FOR EXISTING EQUIPMENT, SUCH AS LIGHTING FIXTURES, WIRING DEVICES, CONDUITS, ETC., SHOWN ON PLANS TO BE REMOVED, COMPLETELY CUT/CAP CONDUITS AT THE AREA OF WORK PERIMETER AND REMOVE CONDUIT WITHIN THE WORK AREA, DISCONNECT WIRING AT THE OVERCURRENT PROTECTIVE DEVICE AND REMOVE WIRING COMPLETELY FROM THE ABANDONED CONDUITS.
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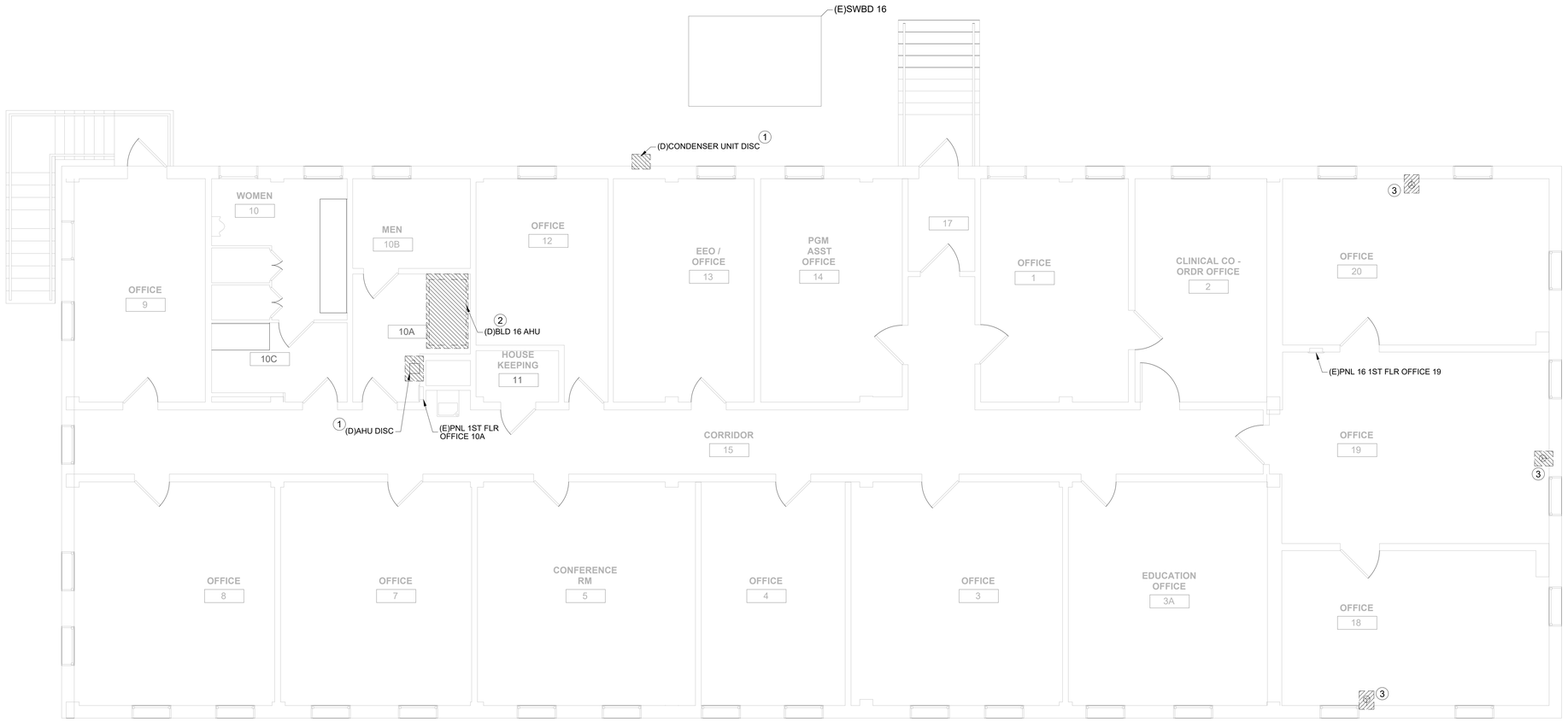
SHEET NOTES

1. DEMOLISH EXISTING ELECTRICAL EQUIPMENT.
2. RACEWAY AND CIRCUITS NEED TO BE RELOCATED FOR NEW ACCESS LADDER. SEE SHEET EP-101 FOR MORE INFORMATION.
3. REMOVE EXISTING PTAC CIRCUITS AND OUTLET BACK TO AND INCLUDING BREAKER IN EXISTING PANEL LOCATED IN ROOM 19



1 FIRST FLOOR PLAN
1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH (DASHED)

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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Drawing Title: FIRST FLOOR POWER PLAN-DEMO

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER
1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/17/2025 | Checked: DC | Drawn: SE

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Drawing Number: ED-101

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Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

SHEET LEGEND

▨	ALL ITEMS SHOWN WITH DIAGONAL HATCHING ARE TO BE DEMOLISHED

GENERAL NOTES

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5. FOR EXISTING EQUIPMENT, SUCH AS LIGHTING FIXTURES, WIRING DEVICES, CONDUITS, ETC., SHOWN ON PLANS TO BE REMOVED, COMPLETELY CUT/CAP CONDUITS AT THE AREA OF WORK PERIMETER AND REMOVE CONDUIT WITHIN THE WORK AREA, DISCONNECT WIRING AT THE OVERCURRENT PROTECTIVE DEVICE AND REMOVE WIRING COMPLETELY FROM THE ABANDONED CONDUITS.
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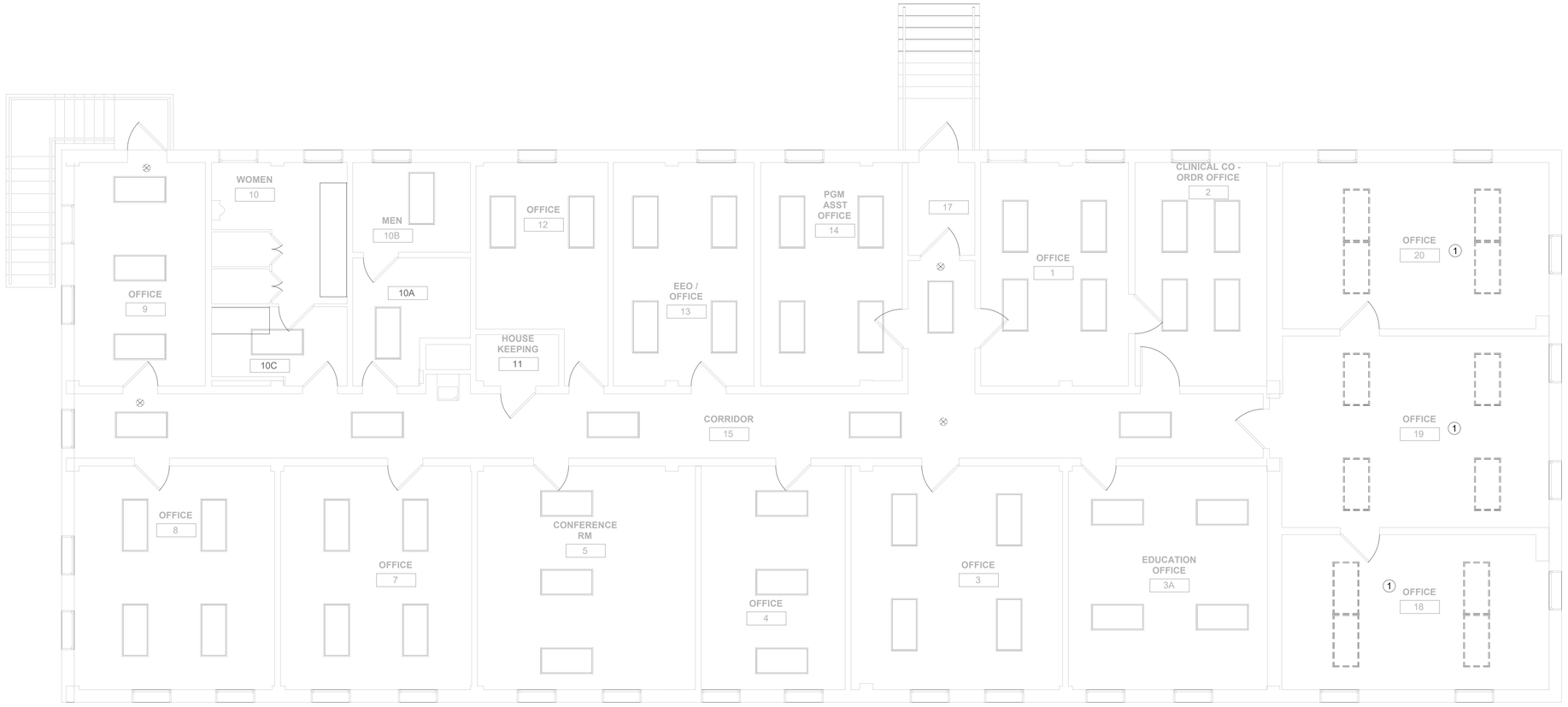
7. MAINTAIN AND RESTORE, IF INTERRUPTED, ALL CONDUITS AND CONDUCTORS PASSING THROUGH RENOVATED AREAS AND SERVICING UNDISTURBED AREAS.
8. REMOVE ALL ELECTRICAL DEVICES FROM CEILING AND REINSTALL WHEN NEW CEILING SYSTEM IS INSTALLED.

SHEET NOTES

1. REMOVE LIGHT FIXTURES FOR REUSE, STORE IN PROTECTED AREA. EXISTING CIRCUITS TO BE REUSED;RACEWAYS AND CONDUCTORS TO BE EXTENDED AS NEEDED TO CONNECT REINSTALLED LIGHT FIXTURES TO NEW CEILING HEIGHT AND INSTALLATION.



1 FIRST FLOOR PLAN

1/4" = 1'-0"

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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Drawing Title: FIRST FLOOR LIGHTING PLAN-DEMO

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Date: 02/17/2025 | Checked: DC | Drawn: SE

Drawing Number: ED-102

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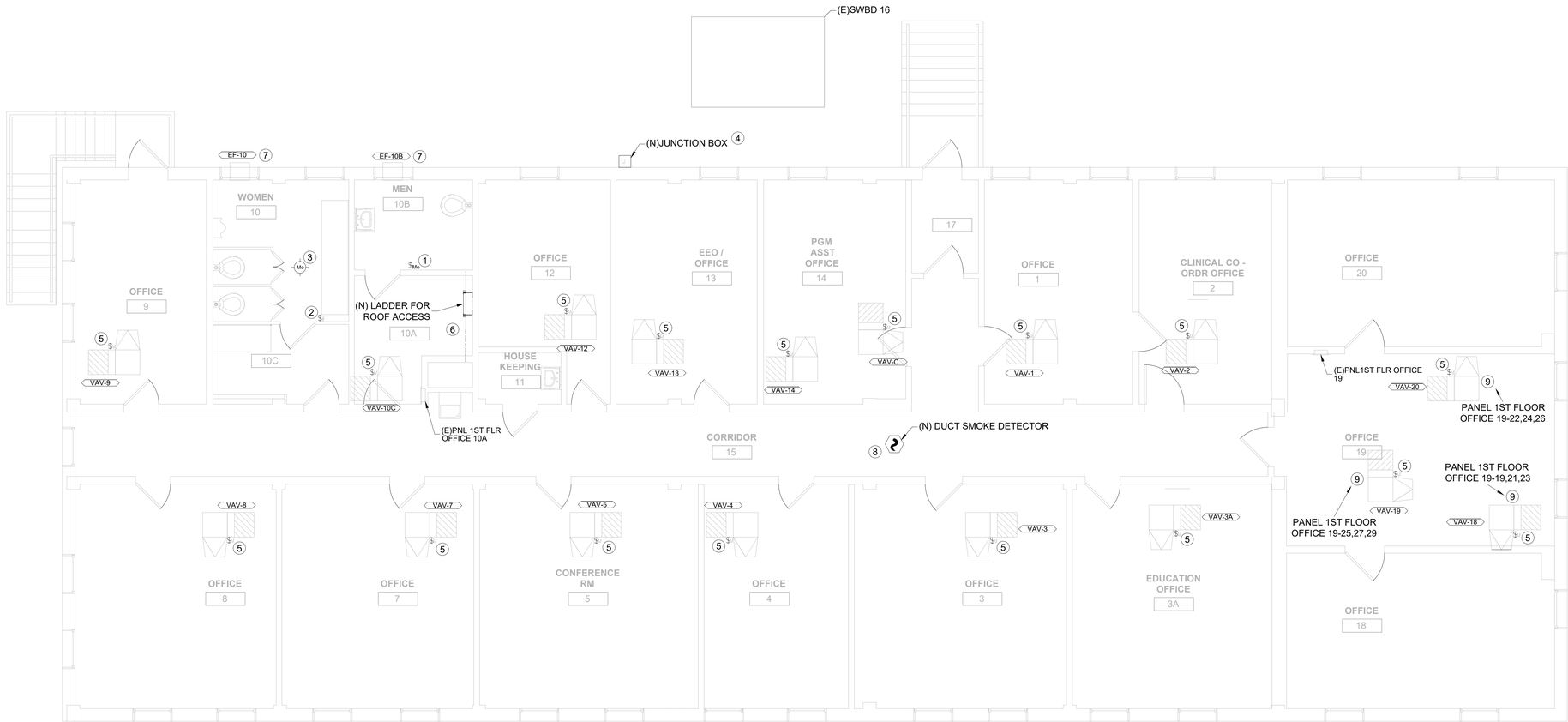
Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231



SHEET LEGEND

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SHEET NOTES

1. INSTALL NEW WALL MOUNTED SWITCH WITH OCCUPANCY SENSOR FOR LIGHT FIXTURE.
2. INSTALL NEW WALL MOUNTED SWITCH FOR LIGHT FIXTURE.
3. INSTALL NEW CEILING MOUNTED OCCUPANCY SENSOR FOR LIGHT FIXTURE.
4. INSTALL NEW NEMA 3R JUNCTION BOX FOR AHU FEEDER.
5. INSTALL NEW 20AMP 120/277V RATED SPEC GRADE SNAP SWITCH AS DISCONNECT FOR VAV BOXES. INSTALL NEW SINGLE POLE 20 AMP BREAKER IN PANEL "OFFICE 10A" CONNECT ALL VAV BOX POWER TO NEW BREAKER. CIRCUIT TO BE 120V #12 CONDUCTORS IN 3/4 CONDUIT. CONNECT TO PANEL 1ST FLOOR OFFICE 10A-42.
6. MOVE RACEWAY FOR THE INSTALLATION OF NEW ROOF HATCH; EXTEND RACEWAYS AND CIRCUITS AROUND NEW ROOF HATCH AND LADDER AS NEEDED.
7. INSTALL NEW SINGLE POLE 20 AMP BREAKER IN PANEL "OFFICE 10A" CONNECT EXHAUST FANS POWER TO NEW BREAKER. CIRCUIT TO BE 120V #12 CONDUCTORS IN 3/4 CONDUIT. CONNECT TO PANEL 1ST FLOOR OFFICE 10A-40.
8. INSTALL DUCT SMOKE DETECTOR IN SUPPLY AIR PLENUM FROM AHU-1. INTERCONNECT THROUGH FIRE ALARM CONTROL PANEL. DUCT SMOKE DETECTOR TO BE COMPATIBLE WITH CURRENT FIRE ALARM SYSTEM.
9. CONNECT 30 AMP 3 PHASE BRANCH CIRCUIT FROM EXISTING PANEL LOCATED IN OFFICE 19 NEW BREAKERS TO ELECTRIC HEAT PACKAGE ASSOCIATED WITH THE NEW VAV BOXES. RACEWAY AND CONDUCTORS TO CONSIST OF FOUR #10 CONDUCTORS IN AN 3/4" RACEWAY.

1 FIRST FLOOR PLAN

1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH (DASHED)

BID SET	02/28/2025
Revisions:	Date

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Drawing Title: FIRST FLOOR POWER PLAN-NEW

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/17/2025 | Checked: DC | Drawn: SE

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Dwg. 30 of 36

Office of Construction and Facilities Management

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SHEET LEGEND

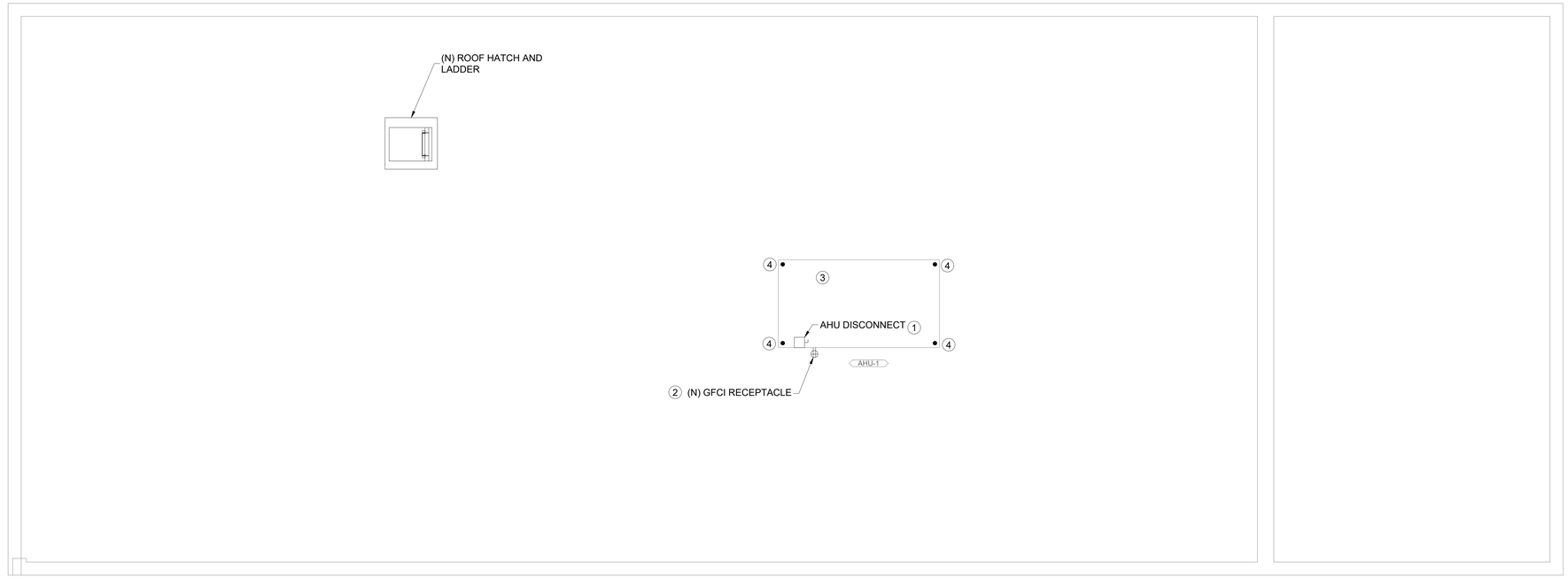
———	ALL ITEMS SHOWN AS BOLD LINEWORK ARE NEW.

GENERAL NOTES

1. THIS FLOOR PLAN WAS DEVELOPED USING A COMBINATION OF AVAILABLE RECORDS DRAWINGS AND SITE DATA COLLECTION AND DOES NOT REPRESENT OR INTEND TO REPRESENT A SURVEY ACCURATE PLAN.
2. CONTRACTOR SHALL RE-USE EXISTING CONDUIT WHERE POSSIBLE.
3. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.
4. MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.

SHEET NOTES

1. FACTORY INSTALLED DISCONNECT.
2. INSTALL 120V,1P,20A NEMA 5-20R DUPLEX GFCI RECEPTACLE. RECEPTACLE PROVIDED BY RTU MANUFACTURER AND WIRED BY ELECTRICAL. PROVIDE NEW 120V 20AMP CIRCUIT FROM PANEL 1ST FLOOR 19-17.
3. INSTALL FIRE ALARM RELAY TO SHUT DOWN RTU-1 ON THE EVENT OF ACTIVATION OF THE FIRE ALARM PANEL.
4. INSTALL LIGHTING AIR TERMINALS AS SHOWN, INTERCONNECT AIR TERMINAL WITH #4/0 COPPER CONDUCTOR AND CONNECT TO EXISTING LIGHTING PROTECTION SYSTEM.



1 ROOF PLAN
1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH (DASHED)

N
Scale: NTS

Revisions:	Date
BID SET	02/28/2025

CONSULTANTS:

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02/17/2025

ARCHITECT/ENGINEERS:

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Drawing Title: ROOF POWER PLAN-NEW
Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC
Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153
Date: 02/17/2025 | Checked: DC | Drawn: SE

Project Number: 658-24-106
Building No.: 16 | Floor No.: 1
Drawing Number: EP-102
Dwg. 31 of 36

Office of Construction and Facilities Management
Department of Veteran Affairs

VA FORM 08-6231

SHEET LEGEND

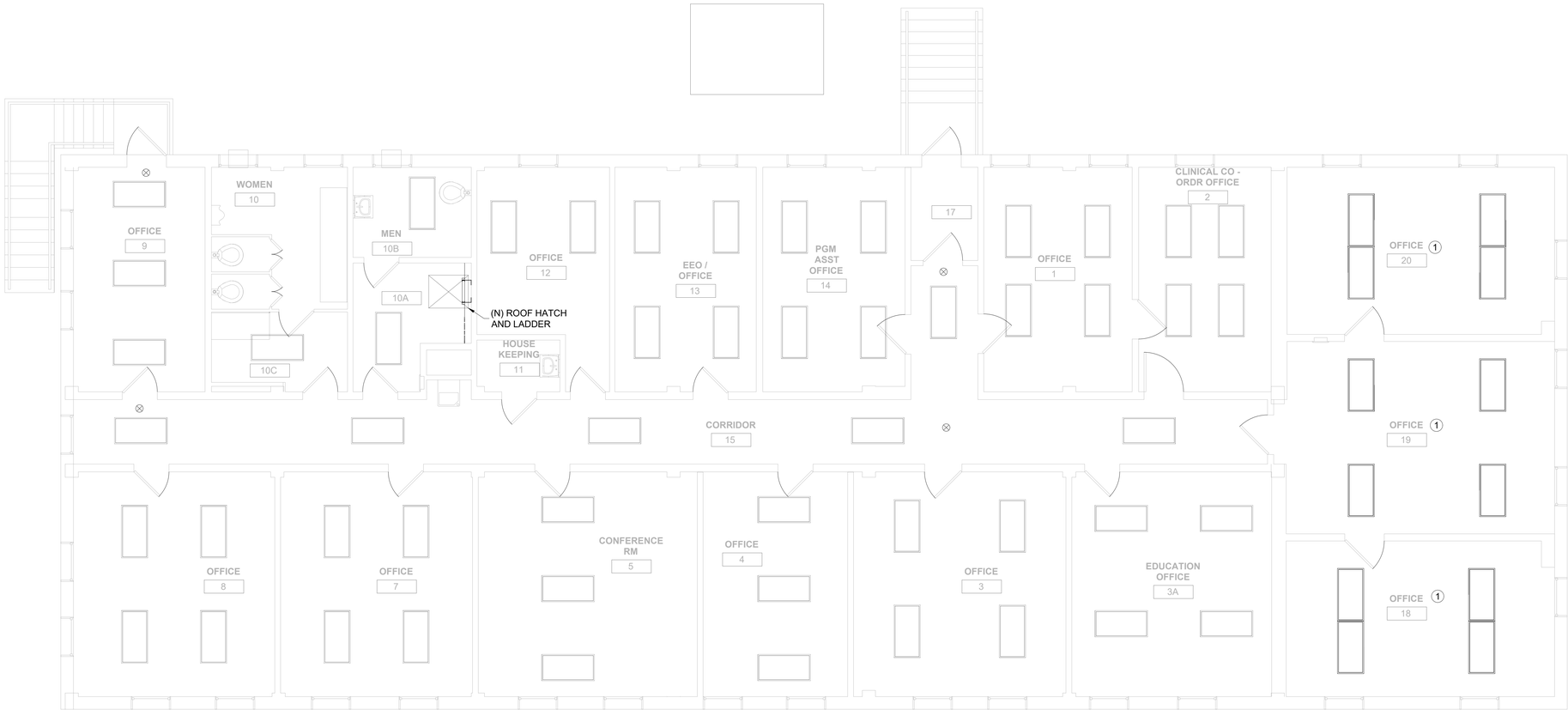
———	ALL ITEMS SHOWN AS BOLD LINEWORK ARE NEW.

GENERAL NOTES

1. THIS FLOOR PLAN WAS DEVELOPED USING A COMBINATION OF AVAILABLE RECORDS DRAWINGS AND SITE DATA COLLECTION AND DOES NOT REPRESENT OR INTEND TO REPRESENT A SURVEY ACCURATE PLAN.
2. CONTRACTOR SHALL RE-USE EXISTING CONDUIT WHERE POSSIBLE.
3. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.
4. MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.
5. INSTALL ELECTRICAL EQUIPMENT THAT WAS REMOVED TO FACILITATE THE INSTALLATION OF NEW CEILING IN SAME LOCATION AS REMOVED FROM.

SHEET NOTES

(1) INSTALL FIXTURES BACK INTO CEILING FROM ROOMS THAT THEY ORIGINATED FROM, CONNECT TO EXISTING CIRCUITS AFTER NEW CEILING GRID IS INSTALLED.



1 FIRST FLOOR PLAN

1/4" = 1'-0"

PROJECT NORTH

TRUE NORTH (DASHED)

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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Drawing Title: FIRST FLOOR LIGHTING PLAN-NEW

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/17/2025 | Checked: DC | Drawn: SE

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

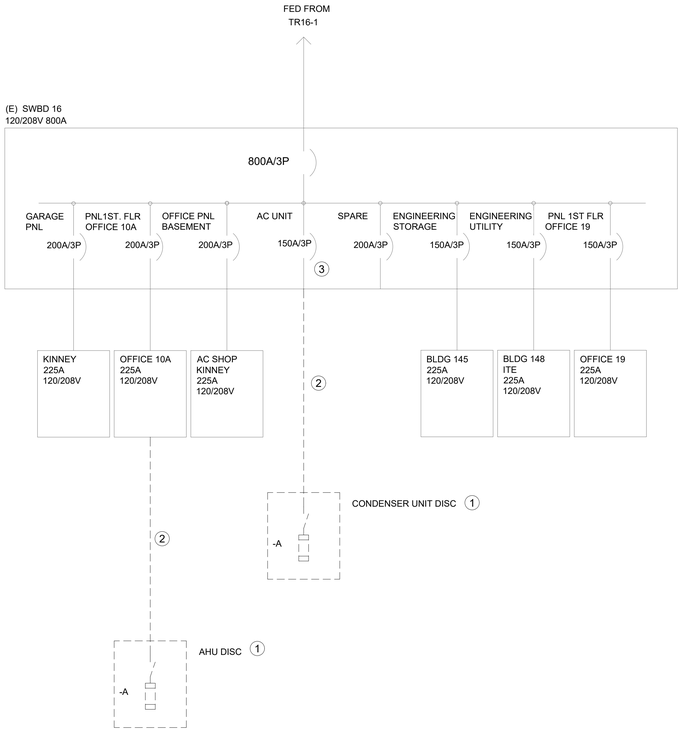
Drawing Number: EL-101

Dwg. 32 of 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231



1 SINGLE LINE DIAGRAM DEMO

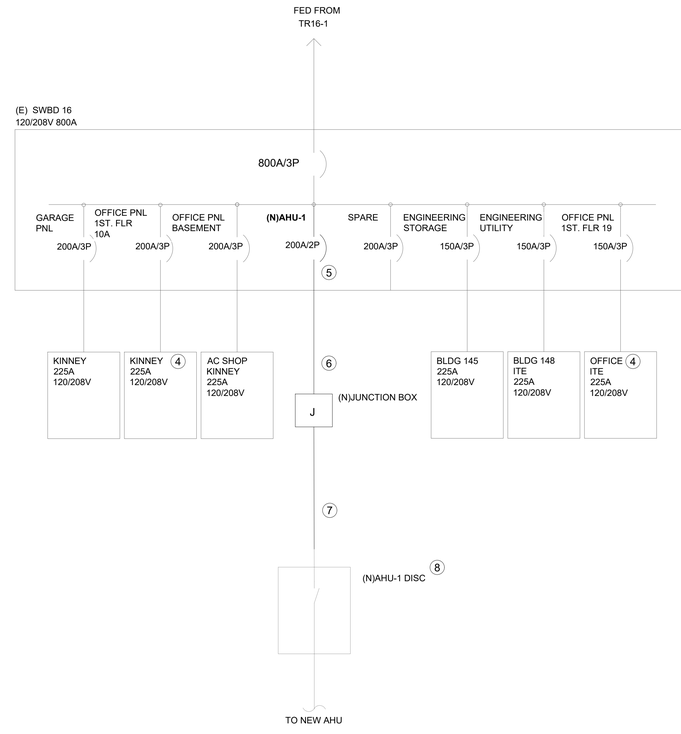
SHEET LEGEND	
– – – – –	ALL ITEMS SHOWN WITH DASHED LINE ARE TO BE DEMOLISHED

GENERAL NOTES

1. THIS SINGLE LINE DIAGRAM WAS DEVELOPED USING A COMBINATION OF AVAILABLE RECORDS DRAWINGS AND SITE DATA COLLECTION.
2. CONTRACTOR SHALL RE-USE EXISTING CONDUIT WHERE POSSIBLE.
3. CONTRACTOR SHALL COORDINATE WITH VA AND PROVIDE TEMPORARY POWER TO EXISTING EQUIPMENT PRIOR TO REMOVING ELECTRICAL EQUIPMENT.

SHEET NOTES

1. DEMOLISH EXISTING DISCONNECT. REMOVE UNITS POWER WHIP.
2. REMOVE FEEDER TO BREAKER.
3. BREAKER TO BE REUSED.
4. SEE PANEL SCHEDULE FOR NEW LOADS.
5. REUSE EXISTING BREAKER, INSTALL NEW 175 AMP RATED OCP PLUG INTO EXISTING BREAKER.
6. ROUTE BRANCH CIRCUIT BELOW GRADE FROM "SWBD 16" TO BUILDING 16.
7. ENTER FACILITY AT CONVENIENT LOCATION AND RUN RACEWAY THROUGH BUILDING ENTERING RTU-1 THROUGH CURB.
8. FACTORY INSTALLED DISCONNECT.



2 SINGLE LINE DIAGRAM NEW

N
Scale: NTS

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

DAVENERGY SOLUTIONS
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Drawing Title: SINGLE LINE DIAGRAM

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/17/2025 | Checked: DC | Drawn: SE

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Drawing Number: E-601

Dwg. 33 of 36

Office of Construction and Facilities Management

Department of Veteran Affairs

VA FORM 08-6231

Switchboard: (E)SWBD 16

Location: EXTERIOR BLDG 16 | **Volts:** 120/208 Wye | **A.I.C. Rating:** --
Supply From: TR16-1 | **Phases:** 3 | **Mains Type:** MCB
Mounting: FREE STANDING | **Wires:** 4 | **Mains Rating:** 800 A
Enclosure: Type 1 | **MCB Rating:** 800 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	GARAGE PANEL	200 A	3				3	200 A	SPARE	2
3	--	--	--				--	--	--	4
5	--	--	--				--	--	--	6
7	OFFICE PNL 1ST FLOOR	200 A	3				3	200 A	ENGINEERING STORAGE BLDG	8
9	--	--	--				--	--	--	10
11	--	--	--				--	--	--	12
13	OFFICE PANEL BASEMENT	200 A	3				3	225 A	ENGINEERING UTILITY BLDG	14
15	--	--	--				--	--	--	16
17	--	--	--				--	--	--	18
19	AC UNIT(1)	150 A	3				3	250 A	NEW OFFICE	20
21	--	--	--				--	--	--	22
23	--	--	--				--	--	--	24
		Total Load:		--- VA	--- VA	--- VA				
		Total Amps:		--- A	-- A	-- A				

Legend:
(1) CIRCUIT BREAKER TO BE REUSED AND SUPPLY NEW ROOF TOP UNIT (AHU-1).

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Motor	-- VA	100.00%	-- VA	
				Total Conn. Load: -- VA
				Total Est. Demand: -- VA
				Total Conn.: -- A
				Total Est. Demand: -- A

Notes:
NOTES TO BE ADDED TO PANELS PENDING METERING FOR FINALIZATION OF LOADS; PENDING INSTALLATION ON 12/23/2024

Branch Panel: (E)PNL 1ST FLR OFFICE 10A

Location: BLDG 16 RM 10A | **Volts:** 120/208 Wye | **A.I.C. Rating:** --
Supply From: SWBD BLDG 16 | **Phases:** 3 | **Mains Type:** MLO
Mounting: RECESSED | **Wires:** 4 | **Mains Rating:** 225 A
Enclosure: Type 1 | **MCB Rating:** -

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	SPARE	20 A	1				1	20 A	EXISTING LOAD	2
3	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	4
5	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	6
7	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	8
9	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	10
11	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	12
13	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	14
15	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	16
17	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	18
19	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	20
21	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	22
23	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	24
25	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	26
27	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	28
29	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	30
31	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	32
33	SPARE	20 A	1				1	20 A	EXISTING LOAD	34
35	SPARE	20 A	1				1	20 A	EXISTING LOAD	36
37	SPARE	20 A	1				1	20 A	EXISTING LOAD	38
39	SPARE	20 A	2				2	30 A	AHU DISC (1)	40
41	--	--	--				--	--	--	42
		Total Load:		--- VA	--- VA	--- VA				
		Total Amps:		--- A	-- A	-- A				

Legend:
(1) EXISTING AHU DISC LOAD WILL BE REMOVED. CIRCUIT BREAK SHALL BE MARKED AS SPARE AND PLACED IN THE OPEN POSITION.

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Motor	-- VA	100.00%	-- VA	
				Total Conn. Load: -- VA
				Total Est. Demand: -- VA
				Total Conn.: -- A
				Total Est. Demand: -- A

Notes:
NOTES TO BE ADDED TO PANELS PENDING METERING FOR FINALIZATION OF LOADS; PENDING INSTALLATION ON 12/23/2024

Branch Panel: (E)PNL 1ST FLR OFFICE 19

Location: BLDG 16 RM 19 | **Volts:** 120/208 Wye | **A.I.C. Rating:** --
Supply From: SWBD BLDG 16 | **Phases:** 3 | **Mains Type:** MLO
Mounting: RECESSED | **Wires:** 4 | **Mains Rating:** 225 A
Enclosure: Type 1 | **MCB Rating:** -

Notes: NO DEMO WORK FOR THIS PANEL

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	SPARE	20 A	1				1	20 A	EXISTING LOAD	2
3	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	4
5	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	6
7	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	8
9	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	10
11	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	12
13	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	14
15	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	16
17	SPACE						1	20 A	EXISTING LOAD	18
19	SPACE								SPACE	20
21	SPACE								SPACE	22
23	EXISTING LOAD	30 A	2				2	30 A	EXISTING LOAD	24
25	--	--	--				--	--	--	26
27	EXISTING LOAD	30 A	2						SPACE	28
29	--	--	--						SPACE	30
31	SPACE								SPACE	32
33	SPACE								SPACE	34
35	SPACE								SPACE	36
37	SPACE								SPACE	38
39	SPACE								SPACE	40
41	SPACE								SPACE	42
		Total Load:		--- VA	--- VA	--- VA				
		Total Amps:		--- A	-- A	-- A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Motor	-- VA	100.00%	-- VA	
				Total Conn. Load: -- VA
				Total Est. Demand: -- VA
				Total Conn.: -- A
				Total Est. Demand: -- A

Notes:
NOTES TO BE ADDED TO PANELS PENDING METERING FOR FINALIZATION OF LOADS; PENDING INSTALLATION ON 12/23/2024

1 PANEL SCHEDULES - EXISTING

Switchboard: (E)SWBD 16

Location: EXTERIOR BLDG 16 | **Volts:** 120/208 Wye | **A.I.C. Rating:** --
Supply From: TR16-1 | **Phases:** 3 | **Mains Type:** MCB
Mounting: FREE STANDING | **Wires:** 4 | **Mains Rating:** 800 A
Enclosure: Type 1 | **MCB Rating:** 800 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	GARAGE PANEL	200 A	3				3	200 A	SPARE	2
3	--	--	--				--	--	--	4
5	--	--	--				--	--	--	6
7	OFFICE PNL 1ST FLOOR	200 A	3				3	200 A	ENGINEERING STORAGE BLDG	8
9	--	--	--				--	--	--	10
11	--	--	--				--	--	--	12
13	OFFICE PANEL BASEMENT	200 A	3				3	225 A	ENGINEERING UTILITY BLDG	14
15	--	--	--				--	--	--	16
17	--	--	--				--	--	--	18
19	**(N)AHU-1**	**175 A**	3				3	250 A	NEW OFFICE	20
21	--	--	--				--	--	--	22
23	--	--	--				--	--	--	24
		Total Load:		--- VA	--- VA	--- VA				
		Total Amps:		--- A	-- A	-- A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Motor	-- VA	100.00%	-- VA	
				Total Conn. Load: -- VA
				Total Est. Demand: -- VA
				Total Conn.: -- A
				Total Est. Demand: -- A

Notes:

Branch Panel: (E)OFFICE PNL 1ST FLR OFFICE 10A

Location: BLDG 16 RM 10A | **Volts:** 120/208 Wye | **A.I.C. Rating:** --
Supply From: SWBD BLDG 16 | **Phases:** 3 | **Mains Type:** MLO
Mounting: RECESSED | **Wires:** 4 | **Mains Rating:** 225 A
Enclosure: Type 1 | **MCB Rating:** -

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	SPARE	20 A	1				1	20 A	EXISTING LOAD	2
3	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	4
5	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	6
7	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	8
9	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	10
11	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	12
13	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	14
15	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	16
17	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	18
19	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	20
21	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	22
23	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	24
25	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	26
27	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	28
29	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	30
31	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	32
33	SPARE	20 A	1				1	20 A	EXISTING LOAD	34
35	SPARE	20 A	1				1	20 A	EXISTING LOAD	36
37	SPARE	20 A	1				1	20 A	EXISTING LOAD	38
39	SPARE	20 A	2				1	**20 A**	**(N) EF-10, EF-10B**	40
41	--	--	--				1	**20 A**	**(N) VAV BOXES**	42
		Total Load:		--- VA	--- VA	--- VA				
		Total Amps:		--- A	-- A	-- A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Motor	-- VA	100.00%	-- VA	
				Total Conn. Load: -- VA
				Total Est. Demand: -- VA
				Total Conn.: -- A
				Total Est. Demand: -- A

Notes:

Branch Panel: (E)OFFICE PNL 1ST FLR 19

Location: BLDG 16 RM 19 | **Volts:** 120/208 Wye | **A.I.C. Rating:** --
Supply From: SWBD BLDG 16 | **Phases:** 3 | **Mains Type:** MLO
Mounting: RECESSED | **Wires:** 4 | **Mains Rating:** 225 A
Enclosure: Type 1 | **MCB Rating:** -

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	**(N)VAV 1ST FLOOR 5,7,8,9,10C,12**	**20 A**	1				1	20 A	EXISTING LOAD	2
3	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	4
5	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	6
7	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	8
9	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	10
11	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	12
13	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	14
15	EXISTING LOAD	20 A	1				1	20 A	EXISTING LOAD	16
17	**(N)NEW ROOFTOP RECEPTACLE**	**20 A**	1				1	20 A	EXISTING LOAD	18
19	**(N)VAV BOX 18**	**30 A**	3						SPACE	20
21	--	--	--				3	30 A	**(N)VAV BOX 20**	22
23	--	--	--				--	--	--	24
25	**(N)VAV BOX 19**	**30 A**	3				--	--	--	26
27	--	--	--						SPACE	28
29	--	--	--						SPACE	30
31	SPACE								SPACE	32
33	SPACE								SPACE	34
35	SPACE								SPACE	36
37	SPACE								SPACE	38
39	SPACE								SPACE	40
41	SPACE								SPACE	42
		Total Load:		--- VA	--- VA	--- VA				
		Total Amps:		--- A	-- A	-- A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Motor	-- VA	100.00%	-- VA	
				Total Conn. Load: -- VA
				Total Est. Demand: -- VA
				Total Conn.: -- A
				Total Est. Demand: -- A

Notes:

1 PANEL SCHEDULES - NEW

N
Scale: NTS

BID SET	02/28/2025
Revisions:	Date

CONSULTANTS:

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02/17/2025

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Drawing Title: PANEL SCHEDULES

Project Title: REPLACE BUILDING 16 HVAC

Project Number: 658-24-106
Building No.: 16 | Floor No.: 1

Approved: Project Director: -

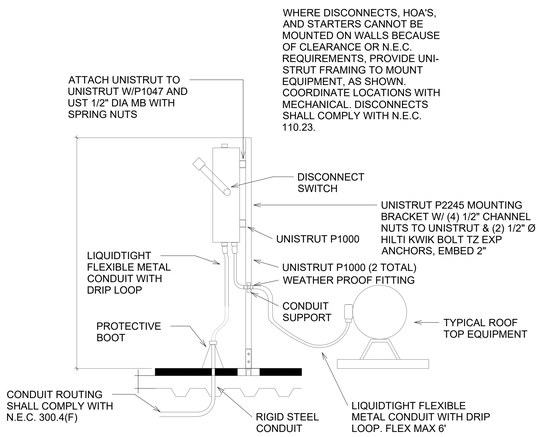
Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/17/2025 | Checked: DC | Drawn: SE

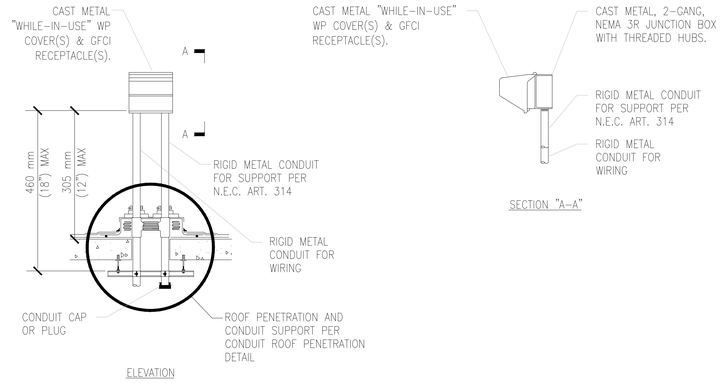
Drawing Number: E-701
Dwg. 34 of 36

Office of Construction and Facilities Management
Department of Veteran Affairs

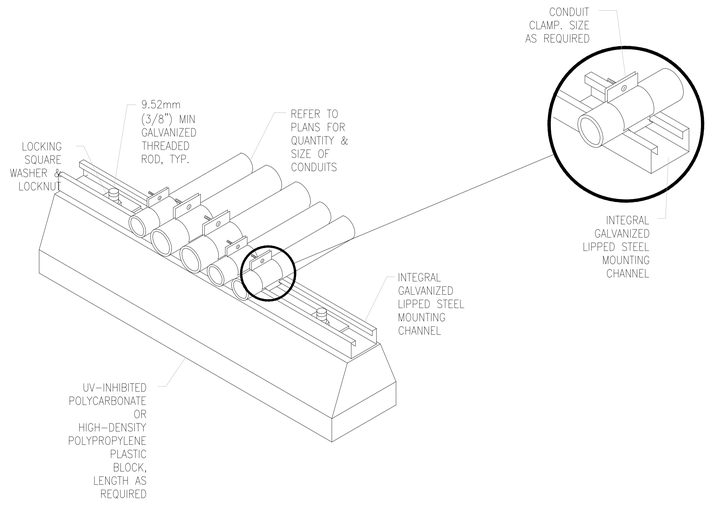
VA FORM 08-6231



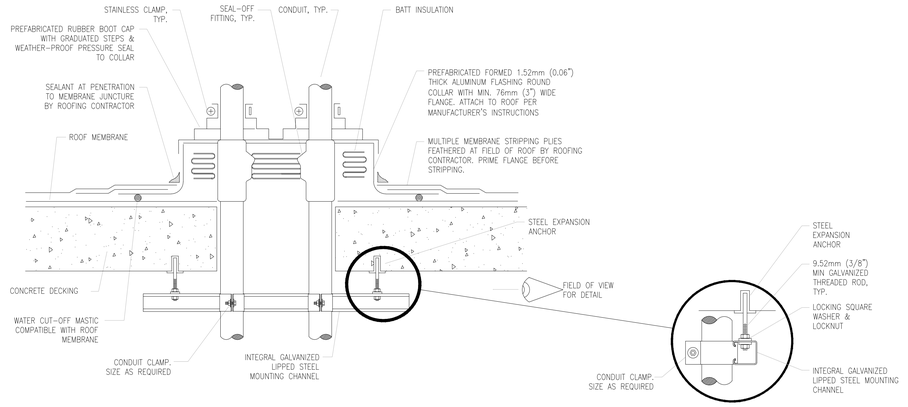
1 ROOF DISCONNECT MOUNTING



2 RECEPTACLE ROOF MOUNTING DETAIL



3 ROOF CONDUIT SUPPORT DETAIL



GENERAL NOTES:
1. MAINTAIN A MINIMUM CLEARANCE OF 305mm (12") ON ALL SIDES OF ROOF PENETRATION FROM WALLS, CURBS, AND OTHER PROJECTIONS TO FACILITATE PROPER FLASHING.
2. FLANGES OF ADJACENT FLASHINGS SHALL NOT BE CUT OR OVERLAPPED.
3. VERIFY ROOF & STRUCTURAL SYSTEM WITH ARCHITECT.
4. COORDINATE FLASHING INSTALLATION WITH ROOFING CONTRACTOR TO ENSURE PROPER METHODS & MATERIALS ARE USED TO MAINTAIN ROOF WARRANTY.

4 CONDUIT ROOF PENETRATION DETAIL

N
Scale: NTS

BID SET	02/28/2025
Revisions:	Date

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STATE OF NEBRASKA
02/17/2025

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Drawing Title: ELECTRICAL DETAILS

Approved: Project Director: -

Project Title: REPLACE BUILDING 16 HVAC

Location: SALEM VA MEDICAL CENTER, 1970 ROANOKE BLVD, SALEM, VA 24153

Date: 02/17/2025 | Checked: DC | Drawn: SE

Project Number: 658-24-106

Building No.: 16 | Floor No.: 1

Drawing Number: E-801

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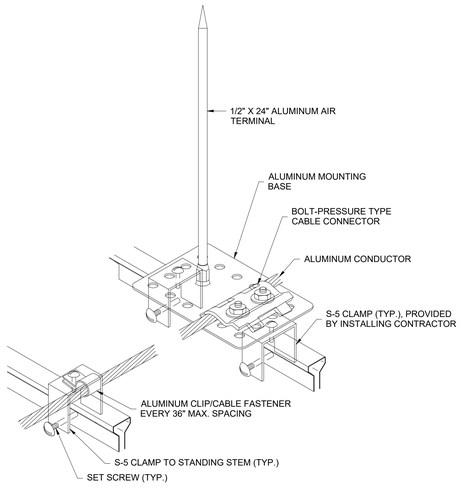
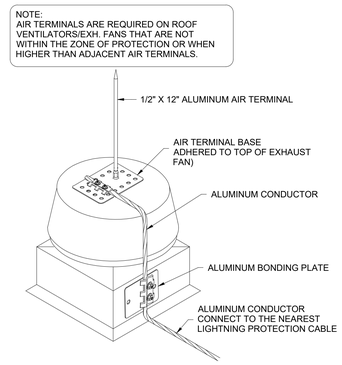
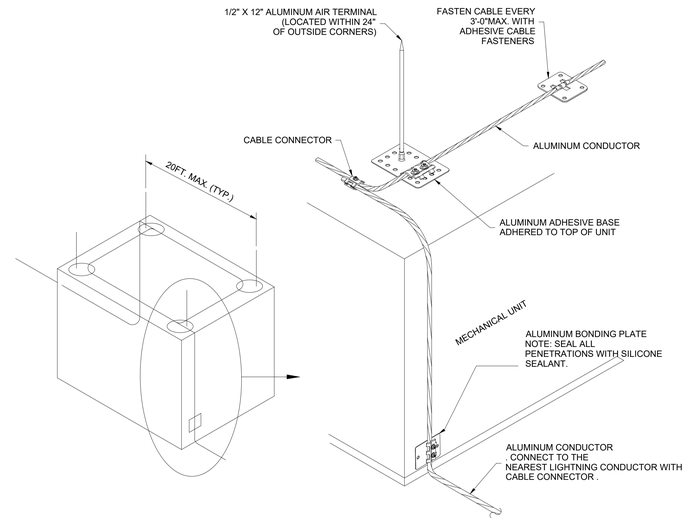
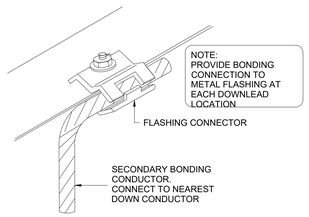
Department of Veteran Affairs

VA FORM 08-6231

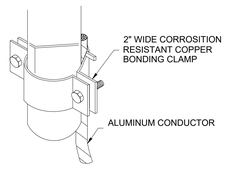




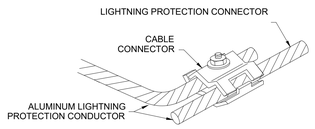




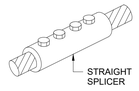
FLASHING CONNECTOR



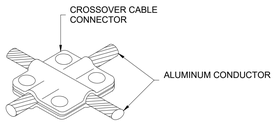
PIP CLAMP (RAILS, ANTENNAS, ETC.)



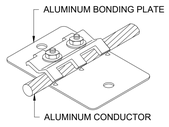
CABLE CONNECTOR



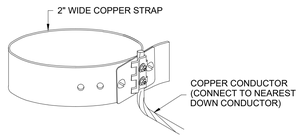
STRAIGHT SPLICER



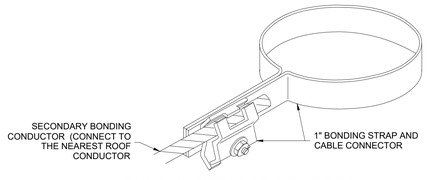
CROSSOVER CABLE CONNECTOR



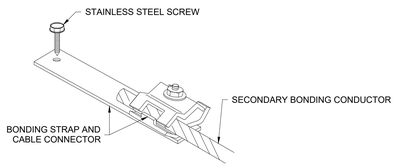
BONDING PLATE



WATERLINE BONDING STRAP



BONDING STRAP AT (VENT PIPES)



BONDING LUG (GUTTERS)

LIGHTNING PROTECTION GENERAL NOTES:

1. THE LIGHTNING PROTECTION SYSTEM AS SHOWN ON DRAWING HAS BEEN DESIGNED IN ACCORDANCE WITH UL96, US96A, & NFPA-780 LIGHTNING PROTECTION SYSTEM STANDARDS.
2. CONDUCTORS SHALL MAINTAIN A HORIZONTAL OR DOWNWARD COURSE, FREE FROM "U" OR "V" (DOWN AND UP) POCKETS.
3. NO BEND OF CONDUCTOR SHALL FORM AN ANGLE OF LESS THAN 90° NOR SHALL HAVE A RADIUS OF BEND LESS THAN 8".
4. AIR TERMINALS SHALL BE SPACED EVERY 20"-0" MAXIMUM AROUND THE ROOF PERIMETER AND/OR ALONG THE ROOF RIDGES. AIR TERMINALS SHALL BE LOCATED WITHIN 2'-0" OF OUTSIDE CORNERS.
6. ACTUAL JOBSITE CONDITIONS MA REQUIRE SLIGHT ALTERNATIONS IN AIR TERMINAL, DOWN CONDUCTOR AND GROUND ROD LOCATIONS.
7. BARE COPPER MATERIALS SHALL NOT BE INSTALLED ON ALUMINUM OR GALVALUM SURFACES, AND ALUMINUM MATERIALS SHALL NOT BE INSTALLED ON COPPER SURFACES.
8. ALL LIGHTNING PROTECTION CONDUCTORS SHALL BE FASTENED EVER 3'-0" MAX.
9. ALL BOLTS ON BOLT-PRESSURE CONNECTORS SHALL BE TORQUED AT 150 POUND-INCHES(17N-m).
10. ALL CONNECTIONS MUST BE USED WITH UL LISTED OR CLASS I OR CLASS II CABLE OF SAME METAL TYPE.
11. METALLIC BODIES OF INDUCTANCE SITUATED WITHIN 6'-0" OF LIGHTNING CONDUCTOR OR ANOTHER BONDED METL BODY SHALL BE INTERCONECTED TO THE LIGHTNING CONDUCTOR SYSTEM UNLESS INHERENTLY GROUNDED.
12. BOND TO ALL METAL BODES OF CONDUCTANCE WITHIN 6'-0" OF THE MAIN LIGHTNING CONDUCTOR SUCH AS EXHAUST FANS, ROOF METAL COOLING TOWERS, H.V.A.C UNITS, LADDERS, RAILINGS, ANTENNAS, SKYLIGHTS, METAL STACKS, AND ANY OTHER LARGE METAL BODY WHOSE HEIGHT EXCEEDS THAT OF THE AIR TERMINAL IN USE, UNLESS PROTECTED BY HIGHER ROOF ELEVATIONS.
16. TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS) OF SERVICE SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR. (I.E. COMPUTERS, COPIERS, TELEPHONES, ETC.)
17. UPON COMPLETION OF THE INSTALLATION, CERTIFICATION SHALL BE PROVIDED.

1 LIGHTNING PROTECTION

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