Department of Veterans Affairs

GEORGE E. WHALEN VAMC

500 FOOTHILL DRIVE, SALT LAKE CITY, UT 84148

PROJECT 660-15-103

REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9,13 and 14

PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle Suite #201, Louisville, KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

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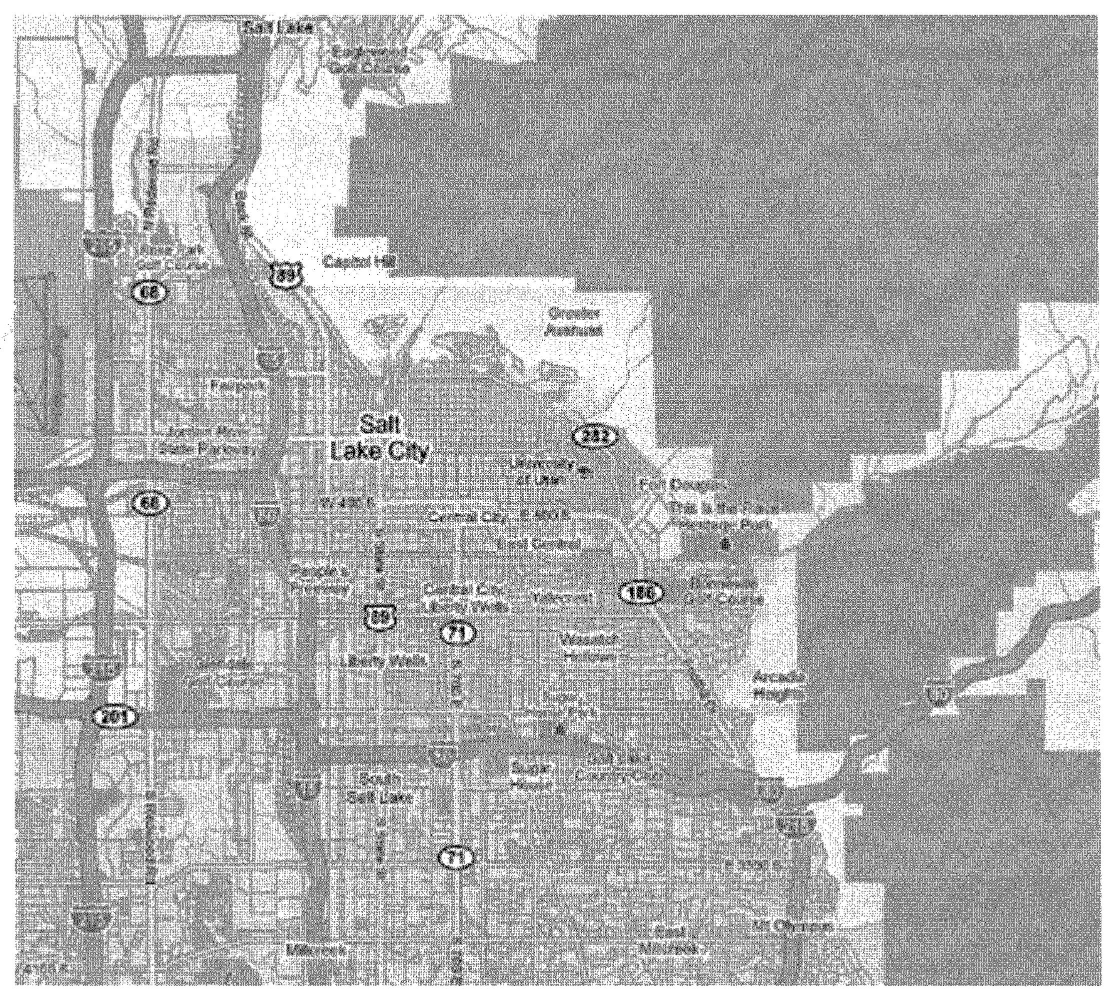
PROJECT LOCATION MAP



N

PROJECT SITE MAP

N

SIGNATURE BLOCK

DIRECTOR	DATE
ASSOCIATE DIRECTOR/ADMINISTRATIVE OPERATIONS	DATE
CHIEF OF STAFF	DATE
ASSOCIATE DIRECTOR/PATIENT SERVICES	DATE
ASSOCIATE DIRECTOR/CLINICAL OPERATIONS	DATE
FINANCIAL MANAGEMENT SERVICES	DATE
ENGINEERING SERVICES	DATE

CODES AND REGULATIONS

A. APPLICABLE CODES AND STANDARDS:

ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES, STANDARDS, AND GOVERNING AUTHORITIES: INCLUDING, BUT NOT LIMITED TO:

BUILDING/LIFE SAFETY:	NFPA 101 LIFE SAFETY CODE, CURRENT EDITION. BUILDING 9: BUSINESS BUILDING 13: DAYCARE BUILDING 14: HEALTHCARE
MECHANICAL:	NFPA 90A, CURRENT EDITION.
FIRE PREVENTION:	NFPA NATIONAL FIRE CODES WITH THE EXCEPTION OF NFPA 5000 AND NFPA 900, CURRENT ADDITION.
ELECTRICAL:	NATIONAL ELECTRICAL CODE (NEC), CURRENT EDITION.
ACCESSIBILITY:	ABAAS INCLUDING VA SUPPLEMENT, BARRIER FREE DESIGN.

B. OCCUPANCY USE: NFPA101
BUILDING 9: BUSINESS GROUP B
BUILDING 13: DAYCARE GROUP E
BUILDING 14: HEALTHCARE GROUP I2

C. CONSTRUCTION TYPE: NFPA 220, IBC CH6
FIRE SUPPRESSION: FULLY SPRINKLERED (100%)
HEIGHT: UNLIMITED
BUILDING 9: TYPE IB
BUILDING 13: TYPE IIIA
BUILDING 14: TYPE IB

D. OCCUPANCY LOAD: BUILDING 13 (DAYCARE) OCCUPANCY LIMIT 242 PEOPLE PER CALCULATION

STANDARDS:
- VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY – ASHRAE STANDARD 62.1.
- DEPARTMENT OF VETERANS AFFAIRS – VA DIRECTIVES, DESIGN MANUALS, MASTER SPECIFICATIONS
- MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATIONS FOR STRUCTURAL STEEL BUILDING, AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
- VA SEISMIC DESIGN REQUIREMENTS H-18-8.
- THE PROVISIONS FOR CONSTRUCTION AND SAFETY SIGNS STATED IN THE GENERAL REQUIREMENTS SECTION OF THE SPECIFICATIONS.

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions: | Date

ARCHITECT/ENGINEERS:
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9/25/2014
STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER

Drawing Title:	COVER SHEET
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	9, 13, and 14
Drawing Number:	GI001

DWG 1 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

INFECTION CONTROL CONSTRUCTION PRECAUTIONS

Class I

1. Execute work by methods to minimize raising dust.
2. Immediately replace ceiling tiles removed for inspection.
3. Transportation route or storage for clean supplies not near contaminated materials.
4. Worker traffic routes should minimize contact with patients.
5. Minimize exposure of patients to construction and maintenance.

Class II

In addition to Class I Precautions above:

1. Consult Inspection Control Nurse prior to beginning work.
2. Educate VA staff regarding construction activity.
3. Block and seal air vents before starting.
4. Coordinate air filter maintenance with operations.
5. Contain area to one room with walls from floor to ceiling. Visqueen wall barrier and door barrier.
6. Close non-access doors and duct tape frames to doors.
7. Transport debris in covered containers that are wiped down.
8. Wet mop area daily and place "tack" mats at all entrances/exits. Refresh tack mats frequently (at least daily).
9. Use HEPA vacuum to capture dust during dust-producing work.
10. Remove and replace wet ceiling tiles if the porous type.
11. If ceiling tiles are nonporous, remove and clean with hospital approved disinfectant and dry before replacement.
12. Use only designated elevators (e.g. utility) for debris removal.

Class III

In addition to Class I and II Precautions above:

1. Consult Infection Control Nurse prior to beginning work.
2. Install dust partitions (including work in ceilings) prior to start. Partitions must be well-sealed from floor to ceiling. Plastic seams must be sealed.
3. Remove dust partitions carefully to minimize spread of dust and dirt.
4. Mist debris-removal chutes and dumpsters.
5. Assure adjacent air filtering systems are functioning.
6. Maintain negative pressure in construction area.

Prior to Patient Occupancy:
Water lines flushed at site and adjacent areas.

Vent system cleaned and balanced after completion of construction.

Construction area thoroughly wet mopped and disinfected.

Check room temperatures and adjust if needed.

Class IV

1. Consult Infection Control Nurse.
2. Relocate patients to area remote from construction site.

INFECTION CONTROL DURING CONSTRUCTION

Design Issues:

HVAC:
Bottom of outdoor air intakes serving central system 6 feet above ground or 3 feet above roof.

Fresh air intakes 25 feet from exhaust outlets of vent system, combustion equipment, stacks, medical/surgical vacuum system, plumbing vents, or area near vehicle exhaust or other fumes.

Water:
Mains branch mains, risers, and branches to a group of fixtures have stop valves.

Floor drains should be avoided.

Sinks:
Easily accessible; nearby surfaces are nonporous to resist fungal growth.

Area specific Design Guidelines:
OR and Delivery Room:
Air supply from ceiling outlets near center of work area, returns (at least 2 and far apart as feasible) near floor.

Water:
Backflow prevention on all hose connections.

INFECTION CONTROL RISK ASSESSMENT FOR CONSTRUCTION

Project Name / EWO Description: BLDGS. 9,13, AND 14 AHU'S
Project #/EWO #: 660-15-103
Location of Activity: BUILDING, PENTHOUSE, AND DAYCARE
Estimated Duration: 16-18 WEEKS
Project Manager: MIKE OMER
ICN: ---
Project Manager Phone #:
ICN Phone #: ext ---

STEP #1: Select Risk Group below and mark bottom of column

A) INFECTION CONTROL RISK GROUPS

Group 0	Group 1	Group 2 – Medium Risk		Group 3 – Medium high Risk
Nonmedical	Nonmedical	Laboratories	Imaging	Emergency Room (ECU)
Associated spaces (no patient activity)	Therapeutic Pool (associated with patient activity)	3 West	Laundry	Post Anesthesia Care
		Acute Medicine (2 East, 2 North)	Nuclear Medicine	All ICU's
		B.2	Out Patient Clinics	
		B.3 Inpatient Mental Health Ward	Out Patient Surgery	
		Canteen Kitchen	Patient Kitchen & Dining	**Group 4 – Highest Risk**
		Cardiology	Pharmacy (In & Out Patient)	All OR's
		Decontamination	PT/ OT	Sterile Processing
		Dental	Public Corridor (patient activity)	Ambulatory Medicine Unit (2 West)
		Distribution	Pulmonary/Bronchoscopy	Cardiac Cath/Angiography
		G.I. Lab	Telemetry	Dialysis Unit
		Hoptel		Pharmacy IV Prep (Inpatient)

STEP #2: Select Activity type Below:

B) CONSTRUCTION ACTIVITY TYPES:

Type A Inspection and Non-Invasive Activities, includes but is not limited to, manipulation of ceiling tiles, painting (but not sanding), wallcovering, electrical trim work, minor plumbing, installation of telephone and computer cabling, and activities which do not (1) generate dust or (2) require cutting of walls.

Type B Small scale, short duration activities which create minimal dust. Includes, but is not limited to (1) access to chase spaces, and (2) cutting of walls or ceilings, which dust migration can be controlled.

Type C Any work which generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies. Includes, but is not limited to: (1) sanding of walls for painting or wall coverings, (2) removal of floor coverings, (3) multiple ceiling panels, (4) casework, (5) new wall construction, (6) minor duct work, (7) electrical work above ceilings, (8) major cabling activities, (9) any activity which can be contained within a single workshift, and (10) replacement of HVAC equipment.

Type D Major demolition and construction projects. Includes, but is not limited to, (1) activities which require consecutive work shifts, (2) requires heavy demolition, (3) removal of a complete cabling system, (4) new construction, and (5) any activity which cannot be contained within a single workshift.

STEP #3: Determine Class of Precautions Using Matrix Below:

CONSTRUCTION ACTIVITY/ INFECTION CONTROL MATRIX TO DETERMINE CLASS

** ICN must be consulted when the assessment indicates that Class II, III, or IV precautions are required.

Construction Activity Type

Risk Level	Type "A"	Type "B"	Type "C"	Type "D"
Group 0	Refer to OSHA requirements	Refer to OSHA requirements	II	II
Group 1	I	I	II	III
Group 2	I	II	III	IV
Group 3	I	II	III / IV	IV
Group 4	II	III	III / IV	IV

INTERIM LIFE SAFETY MEASURES ASSESSMENT

Project Name and Number: BLDGS. 9,13, AND 14 AHU'S 660-15-103	YES / NO	A) Notify Emergency Forces with Fire Alarm	B) Post signage identifying of alternate exits.	C) Special measures.	D) Inspect exits in affected area daily.	E) Ensure fire alarm and detection systems or equiv.	F) Additional portable fire fighting equipment.	G) Temporary construction barriers.	H) Increased surveillance of BLDGs., grounds, equipment	I) Enforce storage, housekeeping, and housing policies	J) Additional training on use of fire-fighting equipment.	K) Conducting one (1) additional fire drill per shift in area.	L) Inspect, test, and document temporary systems monthly.	M) Education of BLDG. staff on construction hazards, ILSM's
Patient room door latching problem	NO													
Locking a code complying fire or smoke barrier	NO													
Fire exit stairs discharge improperly	NO													
Excessive travel distance to an approved exit	NO													
Lack of two remote exits	N/A													
Nonconforming building construction type	NO													
Improperly protected vertical openings	NO													
Large penetrations in fire and smoke barriers	NO													
Corridor walls do not extend to the structure (or to drop ceiling smoke seal)	N/A													
Hazardous areas not properly protected	NO													
Blocking off an approved exit	NO													
Rerouting emergency room traffic	NO													
Major renovation of an occupied floor	N/A													
Replace fire alarm system (out of service) >4hrs./24 hr. period	NO													
Installing a sprinkler system (out of service) >4hrs./24 hr. period	NO													
Significantly modifying fire or smoke barrier walls	NO													
Adding an addition to an existing structure	NO													
Major renovation of an occupied floor	NO													
Taking a fire alarm system off-line	NO													
Taking a sprinkler system off-line	NO													
Disconnecting alarm devices	NO													
OTHER														
Misc.	YES									X				
Additional assessment notes:														

Assessment Performed By: KLP Date: 07-21-14

Safety Officer Review: _____ Date: _____

Construction Safety Risk Assessment Checklist, VA Salt Lake City Healthcare System

Project Name: BLDGS. 9,13, AND 14 AHU'S
Project #: 660-15-103
Date: XX-XX-14
COR: MIKE OMER

Hazardous Likelihood: High: 76% – 100% Medium: 51% – 75% Low: 0% – 50%

Identify Hazards	Evaluator	Is Hazard Likely? H-M-L	Severity H-M-L	Mitigation Needed Y/N	Mitigation Strategies	Mitigation Strategies Implemented?	Comments
Hazard Communication	KLP	M	L	N	MSDS requires to be maintained on site by contractor		
Respiratory Protection	KLP	L	L	N	Respiratory protection required when air debris is present		
Personal Protective Equipment	KLP	M	M	N	Hearing protection, steel toed boots, clothing when required		
Fire Protection	KLP	L	L	N	Contractor required to follow VA hot work permit procedure & VA Interim Life Safety Measure		
Traffic Control & Site Security	KLP	L	L	N	Work affecting traffic flow or site security must be coordinated with VA		
Wire Rope & Rigging Equipment	KLP	M	M	N	OSHA procedure to be followed		
Demolition	KLP	M	L	N	Any work causing noise or vibration to interior of Medical Center must be coordinated with VA		
Hand & Power Tools	KLP	M	M	N	OSHA procedure to be followed		
Electrical	KLP	L	L	N	All hot work on electrical systems must receive prior approval by VA		
Lockout/Tagout	KLP	L	L	N	Lockout tagout procedure required in contractor submitted Safety plan (preconstruction)		
Welding & Cutting	KLP	M	L	N	VA signed hot work permit required to be obtained by contractor		
Confined Spaces	KLP	L	L	N	OSHA Procedures & VA Confined Space Policy must be followed		
Tunnels & Shafts	KLP	N/A	N/A	N	OSHA Procedures & VA Confined Space Policy must be followed		
Process Safety Management – Piping Systems	KLP	L	L	N	Coordinate with VA for affects on existing systems		
Cranes & Hoists	KLP	M	L	N	Rigging Plan to be approved by VA Preventative maintenance logs required on site		
Steel Erection	KLP	N/A	N/A	N	OSHA procedures to be followed		
Fall Protection	KLP	M	L	N	OSHA procedures to be followed		
Scaffolds	KLP	L	L	N	OSHA procedures to be followed		
Ladders	KLP	L	L	N	OSHA procedures to be followed		
Trenching & Evacuation	KLP	N/A	N/A	N	OSHA procedures to be followed		
Motor Vehicles, Earthmoving, & Mechanized	KLP	N/A	N/A	N	Preventative maintenance logs required on site		
Concrete & Masonry	KLP	N/A	N/A	N	OSHA procedures to be followed		
Lead, Asbestos, & Silica	KLP	M	M	N	Coordination with VA required to identify all accessible suspect ACM building materials in affected facility where demolition will occur		
Utility Interruptions	KLP	M	L	N	Must receive approval from VA		
Dust	KLP	M	L	N	Respiratory protection required when air debris is present. Dust partitions must be utilized as needed		
Moisture/Water Leaks	KLP	M	L	N	Notification to VA required for all moisture/water leaks		
Vapors/Fumes	KLP	L	L	N	Anything that may introduce vapor fumes to to interior of Medical Center must be coordinated with VA prior to commencement		
Noise	KLP	L	L	N	Any work causing noise to interior of Medical Center must be coordinated with VA		
Vibration	KLP	M	L	N	Any work causing vibration to interior of Medical Center must be coordinated with VA		
Open Outside Walls	KLP	N/A	N/A	N	All site security deficiencies that may be introduced must be coordinated with VA		
Impact to Levels Above & Below	KLP	M	L	N	Coordinate with VA prior to impact to facility		
Proximity of Air Intakes	KLP	L	L	N	Cover and seal intakes		
Pest Control within Construction Area	KLP	N/A	N/A	N	Pest control precautions must be utilized for any openings introduced to existing facility		

COR: MIKE OMER Date: _____
Contractor: _____ Date: _____
Safety Manager: _____ Date: _____
Svc/Section/Program Director: _____ Date: _____

INFECTION CONTROL
EMERGENCY MANAGEMENT
SAFETY OFFICER
VA POLICE
AFGE REPRESENTATIVE
GEMS COORDINATOR
PATIENT SAFETY
CONTRACTING OFFICER
ENERGY ENGINEER

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions: Date

ARCHITECT/ENGINEERS:

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STATE OF KENTUCKY
BLAIRE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER

Drawing Title: ICRA AND SAFETY ASSESSMENT

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 Checked: KLP Drawn: JDM

Project Number: 660-15-103

Building Number: 9, 13, and 14

Drawing Number: GI100
DWG 2 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. FOR WORK IN BUILDING 9, REFER TO 9-SERIES SHEETS FOR DETAILS.

B. FOR WORK IN BUILDING 13, REFER TO 13-SERIES SHEETS FOR DETAILS.

C. FOR WORK IN BUILDING 14, REFER TO 14-SERIES SHEETS FOR DETAILS.

D. WORK WILL REQUIRE PERFORMANCE DURING NIGHTS AND WEEKENDS FOR ALL AREAS OF THIS PROJECT. ONLY THE WORK APPROVED BY THE COR SHALL BE COMPLETED DURING NORMAL BUSINESS HOURS OF THE FACILITY AND SHALL NOT BE CONSIDERED WITHOUT THE COD'S WRITTEN APPROVAL.

F1 SITE PLAN
SCALE 1"=100'

N

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
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LICENSED PROFESSIONAL ENGINEER
9-26-2014

Drawing Title: OVERALL SITE PLAN

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

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Building Number: 9, 13 and 14

Drawing Number: GS101
DWG 3 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

ABBREVIATIONS

(NOT ALL ABBREVIATIONS WILL APPLY TO THIS WORK)

A/E	ARCHITECT / ENGINEER
AAHX	AIR TO AIR HEAT EXCHANGER
AB	AIR BLENDER
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCH	AIR COOLED CHILLER
ACCU	AIR-COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
ACD	AUTOMATIC CONTROL DAMPER, MODULATING
ACD-TP	AUTOMATIC CONTROL DAMPER, TWO POSITION
AD	ACCESS DOOR
AF	AFTER FILTER
AFCV	AIR FLOW CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
AFMD	AIR FLOW MEASURING DEVICE
AFW	AIR FOIL WHEEL (FAN)
AHU	AIR-HANDLING UNIT
AMP	AMPERGE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
AS	AIR SEPARATOR
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AW	AIR WASHER
AXF	AXIAL FLOW
B	BOILER
BAS	BUILDING AUTOMATION SYSTEM
BD	BUTTERFLY DAMPER
BDD	BACKDRAFT DAMPER
BDR	BASE BOARD RADIATOR
BFP	BACKFLOW PREVENTER
BFT	BOILER PLANT FIRE TUBE
BG	BOTTOM GRILLE
BHP	BRAKE HORSEPOWER
BHW	HOT WATER HEATING BOILER
BHX	BOILER BLOWDOWN HEAT EXCHANGER
BIW	BACKWARD INCLINED WHEEL (FAN)
BMS	BUILDING MANAGEMENT SYSTEM
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BR	BOTTOM REGISTER
BSC	BIOLOGICAL SAFETY CABINETS
BT	BLOWOFF TANK
BTC	BLOWOFF TANK CONTROL VALVE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BWT	BOILER PLANT WATER TUBE
C	CENTIGRADE (CELCIUS)
CC	COOLING COIL
CCD	COOLING COIL CONDENSATE DRAIN
CD	CEILING DIFFUSER
CD-1	CONSTRUCTION DOCUMENTS (SUBMISSION1)
CD-2	CONSTRUCTION DOCUMENTS (SUBMISSION2)
CENT	CENTRIFICAL
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFT	CUBIC FEET
CFP	CHEMICAL FEED PUMP
CG	CEILING GRILLE
CH	CHILLER
CHP	CHILLED WATER PUMP
CHW	CHILLER WATER
CI	CAST IRON
CM	CARBON MONOXIDE
CM	CUBIC METER
CM/S	CUBIC METER PER SECOND
CO	CLEAN OUT
CO2	CARBON DIOXODE
COMP	COMPRESSOR UNIT
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CR	CEILING REGISTER
CS	CLEAN STEAM
CSG	CLEAN STEAM GENERATOR
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	CONSTANT VOLUME
CW	COLD WATER (POTABLE)
CWCC	CHILLED WATER COOLING COIL
CWP	CONDENSER WATER PUMP
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
(D)	EXISTING ITEM TO BE DEMOLISHED AND/OR REMOVED
D	DAMPER – AUTOMATIC, OR CONDENSATE DRAIN
D-1	OUTDOOR AIR DAMPER
D-2	RETURN AIR DAMPER
D-3	RELIEF AIR DAMPER
DB	DECIBELS
Db	DRY-BULB TEMPERATURE
DD-1	DESIGN DEVELOPMENT (SUBMISSION1)
DD-2	DESIGN DEVELOPMENT (SUBMISSION2)
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DF	DIFFUSER
DIA	DIAMETER
DIW	DEIONIZED WATER
DP	DEW POINT TEMPERATURE
DP	DIFFUSER PLATE
DPA	DIFFERENTIAL PRESSURE ASSEMBLY
DPS	DIFFERENTIAL PRESSURE SENSOR
DX	DIRECT EXPANSION
DXCC	DIRECT EXPANSION COOLING COIL
(E)	EXISTING ITEM TO REMAIN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EVAPORATIVE COOLER
ECC	ENGINEERING CONTROL CENTER
ECU	EVAPORATIVE CONDENSER UNIT
EDH	ELECTRIC DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EGS	EMERGENCY GAS SHUTOFF
EGT	ENTERING GLYCOL TEMPERATURE
EH	EXHAUST HOOD
EJ	EXPANSION JOINT
EMD	END OF MAIN DRIP (STEAM)
ENT	ENTERING
ER	EXHAUST REGISTER
ERC	ELECTRIC REHEAT COIL
ERP	ELECTRIC RADIANT PANEL
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETO	ETHYLENE OXIDE
EUH	ELECTRIC UNIT HEATER
EWC	EVAPORATIVE WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING
F	FAHRENHEIT
F&T	FLOAT AND THERMOSTATIC
F/SDPR	COMBINATION FIRE SMOKE DAMPER
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT (4 PIPE)
FCUC	FAN COIL UNIT COOLING ONLY
FCUH	FAN COIL UNIT HEATING ONLY
FCW	FORWARD CURVED WHEEL (FAN)
FD	FLOOR DRAIN
FD	FIRE DAMPER
FF	FINAL FILTER
FHX	FLUE GAS/FEEDWATER HEAT EXCHANGER
FM	FLOW METER
FOP	FUEL OIL PUMP
FOT	FUEL OIL TANK
FOHX	FUEL OIL HEAT EXCHANGER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPTU	FAN POWERED TERMINAL UNIT
FR	FLOOR REGISTER
FRP	FIBER REINFORCED POLYESTER
FS	FLOW SWITCH
FSTAT	FREEZESTAT
FT	FEET
FT-LB	FOOT-POUND
FTR	FIN TUBE RADIATION
FV	FACE VELOCITY
GA	GAUGE
GAL	GALLONS
GH	GRAVITY HOOD
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GS	GALVANIZED STEEL
H	HUMIDIFER
H&CW	HOT & COLD WATER
HAC	HOUSEKEEPING AID CLOSET
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HD	HOOD
HOA	HAND/OFF/AUTOMATIC
HP	HEAT PUMP
HP	HORSEPOWER
HPDT	HIGH PRESSURE DRIP TRAP
HPR	HIGH PRESSURE RETURN (STEAM CONDENSATE)
HPS	HIGH PRESSURE SUPPLY (STEAM)
HRC	HEAT RECOVERY COIL
HRD	HEAT RECOVERY DEVICE
HRP	HYDRONIC RADIANT (CEILING) PANEL
HRW	HEAT RECOVERY WHEEL
HSTAT	HUMIDISTAT
HTM	HUMIDIFIER TERMINAL
HUM	HUMIDIFIER UNIT MOUNTED
HVU	HEATING AND VENTILATING UNIT
HW	HOT WATER
HWC	HOT WATER COIL
HWHC	HOT WATER HEATING COIL
HWP	HEATING HOT WATER PUMP
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HWUH	HOT WATER UNIT HEATER
HVD	HOISTWAY VENT DAMPER
HX	HEAT EXCHANGER
HZ	HERTZ
I/O	INPUT/OUTPUT
IAQ	INDOOR AIR QUALITY
IBT	INVERTED BUCKET TRAP
ICF	IN-LINE CENTRIFUGAL FAN
ICU	INTENSIVE CARE UNIT
ID	INSIDE DIAMETER
IFB	INTEGRAL FACE AND BYPASS
IN	INCHES
IN HG	INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
IN-LB	INCH-POUND
IPLV	INTERGRATED PART LOAD VALUE
IRH	INTRARED HEATER
IS	INSECT SCREEN
IU	INDUCTION UNIT
IV	INLET VANES
J	*(INTENTIALLY LEFT BLANK)*
kg	KILOGRAM
kg/HR	KILOGRAM PER HOUR
kPa	KILOPASCAL
kW	KILOWATT
kWh	KILOWATT HOUR
L	LITER
L/h	LITERS PER HOUR (OR LITERS/HOUR)
L/m	LITERS PER MINUTE (OR LITERS/MINUTE)
L/s	LITERS PER SECOND (OR LITERS/SECOND)
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LGT	LEAVING GLYCOL TEMPERATURE
LH	LATENT HEAT
LPG	LIQUID PROPANE GAS
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LPRC	LOW PRESSURE STEAM RETURN (CLEAN)
LLHX	LIQUID TO LIQUID HEAT EXCHANGER
LPS	LOW PRESSURE STEAM
LPSC	LOW PRESSURE STEAM (CLEAN)
LSD	LINEAR SLOT DIFFUSER
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LVG	LEAVING
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
M	METER, SI UNIT
M/s	METERS PER SECOND (OR METERS/SECOND)
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MB	MIXING BOX
MBH	1000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MER	MECHANICAL EQUIPMENT ROOM
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MH	MANHOLE
MHP	MOTOR HORSEPOWER
MIN	MINIMUM
MM	MILLIMETER
MOV	MOTOR OPERATED VALVE
MPR	MEDIUM PRESSURE RETURN (STEAM CONDENSATE)
MPS	MEDIUM PRESSURE STEAM
MRI	MAGNETIC RESONANCE IMAGING
MTD	MEAN TEMPERATURE DIFFERENCE
MVD	MANUAL VOLUME DAMPER
MZ	MULTI-ZONE
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NG	NATURAL GAS
NGFM	NATURAL GAS FLOWMETER
NO	NORMALLY OPEN
NOAA	NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NOM	NOMINAL
NPLV	NON-STANDARD PART LOAD VALUE
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAG	OUTSIDE AIR GRILLE
OAI	OUTSIDE AIR INTAKE
OD	OUTSIDE DIAMETER
OFM	OIL FLOWMETER
OR	OPERATING ROOM
P	PUMP
PA	PASCAL
PC	PUMPED CONDENSATE
PCF	POUNDS PER CUBIC FOOT (FEET)
PD	PRESSURE DROP
PEF	PROPELLER (TYPE) EXHAUST FAN
PF	PRE-FILTER
PG	PRESSURE GAGE
PGW	PROPYLENE GLYCOL-WATER (SOLUTION)
PHC	PREHEAT COIL
PPM	PARTS PER MILLION
PRS	PRESSURE REGULATING (VALVE) STATION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
PSIG	POUNDS PER SQUARE INCH – GAGE
PSS	PRIMARY SECONDARY SYSTEM
PSV	PRESSURE SAFETY VALVE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
Q	*(INTENTIALLY LEFT BLANK)*
R/E	RETURN OR EXHAUST
RA	RETURN AIR
RAD	REFRIGERANT AIR DRYER
RAF	RADIO FREQUENCY
RAHX	ROTARY AIR HEAT EXCHANGER
RAT	RETURN AIR TEMPERATURE
RCCH	REMOTE CONDENSER CHILLER
RCU	RECIPROCATING CHILLER UNIT
RD	REFRIGERANT DISCHARGE
RDS	ROOM DATA SHEETS
REA	RELIEF AIR
RF	RETURN FAN
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID LINE
RLA	RUN LOAD AMPERE
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
RV	RELIEF VALVE
SA	SUPPLY AIR
SAD	SOUND ATTENUATING DEVICE
SAT	SUPPLY AIR TEMPERATURE
SC	SHADING COEFFICIENT
SCFM	STANDARD CUBIC FEET PER MINUTE
SCI	SPINAL CODE INJURY
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SD	SUPPLY AIR DIFFUSER
SD-1	SCHEMATIC DESIGN (SUBMISSION1)
SD-2	SCHEMATIC DESIGN (SUBMISSION2)
SDPR	SMOKE DAMPER
SDR	SMOKE DAMPER (RETURN)
SDS	SMOKE DAMPER (SUPPLY)
SEN	SENSIBLE HEAT
SF	SUPPLY FAN
SG	SUPPLY AIR GRILLE
SH	STEAM HUMIDIFIER
SHC	STEAM HEATING COIL
SI	SQUARE INCHES
SP	STATIC PRESSURE
SP GR	SPECIFIC GRAVITY
SPD	SUPPLY PROCESS AND DISTRIBUTION
SPRV	STEAM PRESSURE REDUCING VALVE
SPS	STATIC PRESSURE SENSOR
SQ FT	SQUARE FOOT (FEET)
SR	SUPPLY AIR REGISTER
SS	STAINLESS STEEL
SSHX	STEAM TO STEAM HEAT EXCHANGER
SSR	SOLID SEPARATOR
ST	STEAM TRAP
SUH	STEAM UNIT HEATER
SV	STEAM PRESSURE REDUCING VALVE
SVS	STEAM VENT SILENCER
SWHX	STEAM TO WATER HEAT EXCHANGER
T & PCV	TEMPERATURE AND PRESSURE CONTROL VALVE
TAB	TESTING, ADJUSTING, BALANCE
TD	TEMPERATURE DIFFERENCE
TDH	TOTAL DYNAMIC HEAD
TDS	TOTAL DISSOLVED SOLIDS
TG	TRANSFER GRILLE
TOD	TOP OF DUCT
TOP	TOP OF PIPE
TP	TRAP
TR	TOP REGISTER
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TU	TERMINAL UNIT
TWU	THRU-WALL UNIT
UC	UNDER CUT
UC	UNIT COOLER
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
URV	UPBLAST UNIT VENTILATOR
V	VALVE
VAF	VANE-AXIAL FAN
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER (MANUAL OPPOSED BLADE)
VFD	VARIABLE FREQUENCY DRIVE
VHA	VETERANS HEALTH ADMINISTRATION
VI	VIBRATION ISOLATOR
VIV	VARIABLE INLET VANES
VP	VACUUM PUMP
VPS	VARIABLE PRIMARY SYSTEM
VR	VACUUM (STEAM CONDENSATE) RETURN
VSD	VARIABLE SPEED DRIVE
VUH	VERTICAL UNIT HEATER
W	WATTS
WAG	WASTE ANETHESIA GAS
Wb	WET-BULB (TEMPERATURE)
WC	WATER COOLED
WCCH	WATER COOLED CHILLER
WCCU	WATER COOLED CONDENSING UNIT
WCHP	WATER COOLED HEAT PUMPS
WCPU	WATER COOLED PACKAGED UNIT
WEF	WALL EXHAUST FAN
WF	WATER FILTER
WFCV	WATER FLOW CONTROL VALVE
WFM	WATER FLOWMETER
WFMD	WATER FLOW MEASURING DEVICE
WG	WATER GAGE
WPD	WATER SIDE PRESSURE DROP
X	*(INTENTIALLY LEFT BLANK)*
YR	YEAR
Z	*(INTENTIALLY LEFT BLANK)*

CONTROLS SYMBOLS

(NOT ALL SYMBOLS WILL APPLY TO THIS WORK)

Symbol	Description
T	ROOM THERMOSTAT/TRANSMITTER – WALL MOUNT
M	ROOM HUMIDISTAT (MOISTURE)/TRANSMITTER – WALL MOUNT
TT	TEMPERATURE TRANSMITTER
TT	TEMPERATURE TRANSMITTER, AVERAGING ELEMENT
MT	MOISTURE (HUMIDITY) TRANSMITTER
PT	PRESSURE TRANSMITTER
SPS	STATIC PRESSURE SENSOR
FT	FLOW TRANSMITTER
IT	CURRENT TRANSMITTER
CT	CONDUCTIVITY TRANSMITTER
SD	SMOKE DETECTOR
PDT	PRESSURE DIFFERENTIAL TRANSMITTER
PDS	PRESSURE DIFFERENTIAL SWITCH
HS	HAND SWITCH (HAND-OFF-AUTO SWITCH)
ZC	VALVE OR DAMPER POSITION CONTROLLER
KR	LOCAL RECORDING TIME CLOCK RUNTIME)
TSL	TEMPERATURE SWITCH, LOW (FREEZESTAT)
TSH	TEMPERATURE SWITCH, HIGH FREEZESTAT)
LC	LEVEL CONTROLLER
LT	LEVEL TRANSMITTER
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
RAH	RETURN AIR HUMIDITY SENSOR
EPT	ELECTRONIC TO PNEUMATIC TRANSDUCER
AT CO2	CARBON DIOXIDE TRANSMITTER
AT CO	CARBON MONOXIDE TRANSMITTER
AT OC	OCCUPANCY SENSOR
ECC	ENGINEERING CONTROL CENTER
AFMD	AIR FLOW MEASURING DEVICE
LTCP	LOCAL TEMPERATURE CONTROL PANEL
HVAC	HVAC CONTROL PANEL
VSMC	VARIABLE SPEED MOTOR CONTROLLER
ECC	INTEGRATE CONTROL POINT ON REMOTE GRAPHICS WORKSTATION AT ENERGY CONTROL CENTER
TC	TEMPERATURE CONTROLLER; SEE SEQUENCE OF OPERATION
PC	PRESSURE CONTROLLER; SEE SEQUENCE OF OPERATION
SC	SPEED CONTROLLER; SEE SEQUENCE OF OPERATION
FC	FLOW CONTROLLER; SEE SEQUENCE OF OPERATION
FSH	FLOW SWITCH HIGH
FSL	FLOW SWITCH LOW
KC	TIME CLOCK CONTROLLING EQUIPMENT ON A SCHEDULE
MC	HUMIDIFIER CONTROL VALVE
	TEMPERATURE SENSING ELEMENT FOR TRANSMITTING TEMPERATURE TO EMCS (PROVIDE 12 INCHES MINIMUM LENGTH IN DUCT WHEN SPACE PERMITS.)
A	SENSOR WITH AVERAGING ELEMENT TO TRANSMIT TEMPERATURE TO EMCS
	MOTOR STARTER
M	ELECTRIC OPERATED CONTROL DAMPER/OR VALVE

DUCTWORK SYMBOLS

(NOT ALL SYMBOLS WILL APPLY TO THIS WORK)

Symbol	Description
UP / DN	SUPPLY DUCT (UP & DOWN)
UP / DN	EXHAUST DUCT (UP & DOWN)
UP / DN	RETURN DUCT (UP & DOWN)
	EXHAUST OR RETURN CEILING REGISTER OR GRILLE
	EXHAUST OR RETURN BOTTOM REGISTER OR GRILLE (WALL TYPE)
	EXHAUST OR RETURN REGISTER OR TOP GRILLE (WALL TYPE)
	VANED ELBOW & AIR SPLIT TYPE DUCT TAKE-OFF
	CONNECT NEW DUCT TO EXISTING DUCT
R	INCLINED RISE, IN DIRECTION OF AIR FLOW
D	INCLINED DROP, IN DIRECTION OF AIR FLOW
	LIMIT OF DEMOLITION
FC	FLEXIBLE CONNECTION, EQUIPMENT, VIBRATION, OR SEISMIC
	VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EVEN IF SYMBOL IS MISSING)
	VANED ELBOW (SHORT RADIUS)
	STANDARD RADIUS ELBOW (LONG RADIUS)
10x8	NEW DUCT (INSIDE DIMENSIONS: WIDTH x DEPTH)
	EXISTING DUCT TO REMAIN
	EXISTING DUCT TO BE REMOVED
	LOUVER (LOUVER SPECIFIED IN ARCHITECTURAL SECTION.)
	FLEXIBLE DUCTWORK (INSULATED)
	DUCT WITH SOUND LINING
VD	MANUAL VOLUME DAMPER
FD	FIRE DAMPER
BDD	BACK DRAFT DAMPER
F/S DPR, N	COMBINATION FIRE/SMOKE DAMPER
2 1, 4, 1/2	POINT OF CHANGE IN DUCT CONSTRUCTION BY STATIC PRESSURE CLASS. THE NUMBER ASSIGNS PRESSURE CLASS (IN. OF WATER) WHICH WILL ACCOMMODATE MAXIMUM OPERATING PRESSURE IN THE DUCT SUBSECTION. THE SYMBOL CONTINUES THE ASSIGNMENT UNTIL THE DUCT TERMINATES OR ANOTHER SYMBOL APPEARS. A "N" SUPERSCRIPT INDICATES NEGATIVE PRESSURE.
	AUTOMATIC CONTROL DAMPER MODULATING
	AUTOMATIC CONTROL DAMPER TWO POSITION
	STAINLESS STEEL DUCT
	MANUAL SPLITTER DAMPER
45° SUPPLY / 45° RETURN	STANDARD BRANCH SUPPLY OR RETURN, NO SPLITTER (45° TAP)
	DUCT MOUNTED COIL (HOT WATER OR STEAM COIL)
	DUCT MOUNTED COIL

MECHANICAL LEGEND

(REFER TO MECHANICAL DEMOLITION (MD SERIES), NEW WORK (MH SERIES), AND PIPING PLANS (MP SERIES) FOR LOCATIONS)

Symbol	Description
A1 / MD601	PHOTO INDICATOR
CWR	EXISTING CHILLED WATER RETURN
CWS	EXISTING CHILLED WATER SUPPLY
D	EXISTING CONDENSATE DRAIN
HWS	EXISTING HOT WATER SUPPLY
HWR	EXISTING HOT WATER RETURN
CWR	NEW CHILLED WATER RETURN
CWS	NEW CHILLED WATER SUPPLY
HWS	NEW HOT WATER SUPPLY
HWR	NEW HOT WATER RETURN
	DIRECTION OF PIPE PITCH (DOWN)
	DIRECTION OF FLOW
	ANCHOR
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	TOP CONNECTION, 45° OR 90°
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	CAPPED OUTLET
	RISE OR DROP IN PIPE
	UNION
	PIPE UP
	PIPE DOWN
	INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
	FLOAT & THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
	THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
	THERMOMETER
	PRESSURE GAGE
FE	FLOW ELEMENT
	REFRIGERANT SIGHT GLASS
	TEST PLUG (PRESSURE/TEMPERATURE)
AV	AUTOMATIC AIR VENT
MV	MANUAL AIR VENT
	QUICK-COUPLE HOSE CONNECTOR

ARCHITECTURAL LEGEND

(REFER ARCHITECTURAL DRAWINGS FOR LOCATIONS AND DETAILS)

Symbol	Description
	FIRE RESISTIVE RATED LINE, 2 HOUR
SR	NON-RATED SMOKE RESISTIVE
	AREA NOT IN CONTRACT

GENERAL NOTES

A. COORDINATE ALL WORK WITH EXISTING CONDITIONS, ALL OTHER TRADES, AND IN ACCORDANCE WITH ALL STATE, LOCAL AND NATIONAL CODES, AS WELL AS WITH ALL FEDERAL HEALTHCARE REGULATIONS.

B. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES, PERMITS AND LICENSES FOR THE COMPLETE INSTALLATION OF THEIR WORK.

C. CONTRACTOR TO COMPLETE A JOB CONDITIONS SURVEY PER SPECIFICATION SECTION 010000, 1.7. CONDUCT SURVEY WITH COR TO RECORD EXISTING CONDITIONS.

D. BEFORE ANY WORK IS STARTED, THE CONTRACTOR SHALL MAKE A THOROUGH SURVEY WITH THE COR IN WHICH ALTERATIONS OCCUR AND AREAS WHICH ARE ANTICIPATED ROUTES OF ACCESS, AND FURNISH A REPORT. REPORT SHALL BE SIGNED BY BOTH COR AND CONTRACTOR, AND SHALL BE PROVIDED TO THE CONTRACTING OFFICER.

E. ALL NEW HVAC EQUIPMENT AND DDC CONTROLS SHALL BE TIED BACK INTO EXISTING CONTROL SYSTEM AT NEAREST ETHERNET HUB.

F. ALL EXISTING SPRINKLER HEADS, PIPES, ALARMS, ETC. ARE TO REMAIN INTACT FOR USE AFTER RENOVATION. SPRINKLER SYSTEM SHALL REMAIN IN OPERATION THROUGHOUT PERIOD OF WORK. CONTRACTOR SHALL ENSURE THAT NO DAMAGE IS DONE TO EXISTING SPRINKLER SYSTEM – I.E. PROTECTIVE CAGES SHALL BE INSTALLED OVER SPRINKLER HEADS DURING RENOVATION, ETC.

G. CARE SHOULD BE TAKEN BY ALL CONTRACTORS TO AVOID DAMAGING OR DISTURBING EXISTING CONSTRUCTION WHICH IS TO REMAIN. CONTRACTORS SHALL BE RESPONSIBLE FOR MAKING ANY REPAIRS NECESSARY TO RECTIFY DAMAGED AND RESTORE EXISTING CONSTRUCTION TO UNDAMAGED STATE UPON COMPLETION OF WORK AT NO EXPENSE TO OWNER.

H. ALL ELBOWS IN DUCTWORK SHALL BE LONG RADIUS. RECTANGULAR ELBOWS SHALL BE SUPPLIED WITH TURNING VANES.

I. ALL NEW DEVICES, EQUIPMENT, CONTROLS, ETC. (INCLUDING BUT NOT LIMITED TO: VAV'S, COILS, GRILLES, REGISTERS, AND DIFFUSERS, HOT WATER PIPING, ETC.) SHALL BE TESTED AND BALANCED AS PART OF THIS WORK. EXISTING EQUIPMENT TO REMAIN SHALL BE TESTED AND BALANCED AS NOTED ON DRAWINGS.

J. ALL EQUIPMENT, PIPING, THERMOMETERS, GAGES, VALVES, ETC. THAT ARE LOCATED OUTSIDE SHALL BE OF OUTDOOR-USE QUALITY. THE WINTER ENVIRONMENT CAN BE COLD, ICY, AND THE PRESENCE OF SALT DURING PERIODS OF SNOW RENDERS IT CORROSIVE – CONTRACTOR SHALL SEEK APPROVAL FROM VA ENGINEERING STAFF AND PARADIGM ENGINEERS AND CONSTRUCTORS BEFORE PURCHASING ANY EQUIPMENT.

K. ALL DUCT WORK RUNS SHOWN ARE REPRESENTATIVE ONLY. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF NEW HVAC PIPING AND DUCTS COORDINATED WITH EXISTING CONDITIONS IN THE FIELD (EXISTING, OR PREDICATED BY LOCATION OF NEW EQUIPMENT) THAT MAKE NECESSARY OFFSETS OF DUCTWORK AND PIPING.

L. PIPING RUNS SHOWN ARE REPRESENTATIVE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CONDITIONS IN THE FIELD (EXISTING, OR PREDICATED BY LOCATION OF NEW EQUIPMENT) THAT MAKE NECESSARY ALTERNATE ROUTING OF PIPING.

M. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR TO PROVIDE POWER CONNECTIONS FOR ALL EQUIPMENT.

N. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING (PATCHING, SEALING, FIRE-STOPPING) ALL ABANDONED WALL PENETRATIONS AND ANY NEW PENETRATIONS CREATED FOR DUCT, PIPE, AND CONDUIT.

O. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY ARCHITECTURAL WORK CONDITION THEY WERE FOUND. ASSOCIATED CONTROL POINTS FOR DEVICES AND EQUIPMENT SHALL BE DECOMMISSIONED AND REMOVED FROM LON WORKS ENGINEERING CONTROL CENTER COMPLETE.

P. CONTRACTOR SHALL STOP WORK IF ASBESTOS CONTAINING MATERIAL (ACM) IS FOUND OR SUSPECTED IN WORK AREA. VAMC IS RESPONSIBLE FOR TESTING AND REMOVAL IF DETERMINED TO EXIST. IMPACT TO PROJECT WILL BE DETERMINED BEFORE WORK IN THE AREA IS TO RECOMMENCE.

Q. ALL CONTROL DEVICES DEMOLISHED SHALL BE TURNED OVER TO OWNER IN THE CONDITION THEY WERE FOUND. ASSOCIATED CONTROL POINTS FOR DEVICES AND EQUIPMENT SHALL BE DECOMMISSIONED AND REMOVED FROM LON WORKS ENGINEERING CONTROL CENTER COMPLETE.

R. ALL FIRE AND SMOKE DAMPERS SHALL BE SUPPLIED WITH END SWITCHES THAT REPORT BACK TO EXISTING CENTRAL LOCATION TO INDICATE DAMPER POSITION.

S. ALL CONTROLS COMPONENTS, SWITCHES, CONTROLLERS MOTORIZED DAMPERS VALVES SHALL BE OPERATED AND VIEWABLE ON THE EXISTING CONTROLS SYSTEM. ANY DEVIATION SHALL BE EXPLAINED AND PRE-APPROVED BY THE HOSPITAL UTILITIES DEPARTMENT.

T. CONTROL VALVES SHALL BE 0-10 VOLT.

U. CONTROL PANELS SHALL BE CONNECTED TO EMERGENCY POWER.

V. WATER COILS SHALL BE 100% DRAINABLE.

W. CHEMICALLY CLEAN AND FLUSH ALL NEW HVAC WATER LINES PRIOR TO FINAL CONNECTIONS TO EXISTING SYSTEMS. PROVIDE TAP-INS AND TEMPORARY PUMPS TO FACILITATE CIRCULATION OF CLEANING AGENT. REMOVE TEMPORARY PUMPS ONCE LINES HAVE BEEN TESTED AND APPROVED FOR CLEANLINESS.

X. MAINTAIN COMPLETE ACCESS TO ALL ASSOCIATED HVAC, ELECTRICAL AND PLUMBING CONTROLS, VALVES, SWITCHES, DISCONNECTS, ACCESS DOORS AND ACCESS PANELS. COMPLETED CONSTRUCTION SHALL ALLOW ACCESS TO THESE COMPONENTS FOR USE, MAINTENANCE, REPAIR AND REPLACEMENT.

Y. DOCUMENTATION: CONTRACTOR SHALL PROVIDE A MINIMUM OF (3) HARD COPIES OF TECHNICAL MANUALS, AS-BUILT DRAWINGS, AND MANUFACTURER'S OPERATION AND MAINTENANCE MANUALS. ALSO PROVIDE SAME INFORMATION ON COMPACT DISK.

Z. ALL PIPING ABOVE GRADE SHALL HAVE AN EXPOSED TAG TO IDENTIFY THE PIPE. EACH PIECE OF EQUIPMENT SHALL BE INSTALLED AS FREE FROM NOISE AND VIBRATION AS POSSIBLE.

AA. WORK WILL REQUIRE PERFORMANCE DURING NIGHTS AND WEEKENDS FOR ALL AREAS OF THIS PROJECT. ONLY THE WORK APPROVED BY THE COR SHALL BE COMPLETED DURING NORMAL BUSINESS HOURS OF THE FACILITY AND SHALL NOT BE CONSIDERED WITHOUT THE COD'S WRITTEN APPROVAL.

AB. BUILDING 13 WORK SHALL BE CONDUCTED AFTER HOURS AND ON WEEKENDS.

AC. BUILDING 14 WORK SHALL BE CONDUCTED ON WEEKENDS.

AD. WORK SCHEDULES SHALL TO PROVIDED TO VAMC COR FOR REVIEW AND APPROVAL BEFORE ANY WORK CAN BEGIN. WORK OTHER THAN AT NORMAL HOURS MUST BE APPROVED BY THE COR FIVE (5) WORKING DAYS PRIOR TO WORK START.

FULLY SPRINKLERED
BID DOCUMENTS FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

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9/22/2014
STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER

Drawing Title: MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 9, 13 and 14

Drawing Number: M-001

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

LEGEND

POWER

—NUE— UNDERGROUND WIRING
- 'NUE' INDICATES NEW UNDERGROUND ELECTRIC WIRING
- 'EUE' INDICATES EXISTING UNDERGROUND ELECTRIC WIRING
- 'NUC' INDICATES NEW UNDERGROUND COMMUNICATIONS WIRING
- 'EUC' INDICATES EXIST. UNDERGROUND COMMUNICATIONS WIRING

——— NEW INTERIOR WIRING – ABOVE GRADE – CONCEALED OR EXPOSED

—G— GROUNDING CONDUCTOR

HOMERUN – ARROWS INDICATE NUMBER OF CIRCUITS (GND NOT SHOWN) CONDUCTORS ARE #12 UNLESS NOTED OTHERWISE.

AGA–23 — CIRCUIT NUMBER DESIGNATION
└ PANELBOARD DESIGNATION

(J) JUNCTION BOX – SIZE AS INDICATED OR REQUIRED.

(T) THERMOSTAT

AGA PANELBOARD, RECESSED OR SURFACE MOUNT AS SPECIFIED. DESIGNATION PER CLIENT STANDARD

T1 [30] DRY–TYPE TRANSFORMER – KVA AS INDICATED, 'T1' INDICATES DESIGNATION

A/P/V/N SAFETY DISCONNECT SWITCH
- A INDICATES AMPS
- P INDICATES POLES
- V INDICATES LINE TO LINE VOLTS
- N INDICATES NEMA ENCLOSURE DESIGNATION
- \ (SLASH) INDICATES FUSIBLE

2 A/P/V/N MAGNETIC MOTOR STARTER – 'PR' INDICATES PROVIDE PHASE PROTECTION RELAY. NUMBER INDICATES NEMA SIZE

2 COMBINATION TYPE MAGNETIC MOTOR STARTER/DISCONNECT NUMBER INDICATES NEMA SIZE

(10) MOTOR – NUMBER INDICATES HORSEPOWER. WIRE COMPLETE WITH DISCONNECT SWITCH AS INDICATED OR REQUIRED, 'M' INDICATES FRACTIONAL HORSEPOWER

(1) INDICATES KEY NOTE

DUPLEX RECEPTACLE – 125V, 20A, GROUND TYPE MOUNT 18" AFF UNLESS NOTED OTHERWISE
- 'S' INDICATES TOP HALF SWITCHED
- 'IG' INDICATES ISOLATED GROUND
- 'WP' INDICATES WEATHER–PROOF. PROVIDE WEATHER–RESISTANT PER NEC 406.8.
- 'SS' INDICATES SURGE SUPPRESSION TYPE
- 'TR' INDICATES TAMPER RESISTANT TYPE
- 'HG' INDICATES HOSPITAL GRADE
- 'GF' INDICATES GROUND FAULT CIRCUIT INTERRUPTER

SINGLE RECEPTACLE – 125V, 20A, GROUND TYPE – MOUNT 18" AFF UNLESS NOTED OTHERWISE

DOUBLE DUPLEX RECEPTACLE – 125V, 20A, GROUND TYPE – MOUNT 18" AFF UNLESS NOTED OTHERWISE

14–30 SINGLE POWER RECEPTACLE – SPECIAL PURPOSE – NEMA CONFIGURATION AS INDICATED

$M 'M' INDICATES MANUAL MOTOR STARTER (WITH OVERLOAD PROTECTION)

POWER STRIP, INDICATES 4 SINGLE RECEPTACLES, UNLESS OTHERWISE NOTED.

ABBREVIATIONS

A	AMP
AC	ALTERNATING CURRENT
ADA	AMERICANS WITH DISABILITIES ACT
AF	AMP FRAME
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERES INTERRUPTING CAPACITY
AL	ALUMINUM
AT	AMP TRIP
ATC	AUTOMATIC TEMPERATURE CONTROL
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CEIL	CEILING
℄	CENTERLINE
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONT'D	CONTINUED
CR	CRITICAL
CU	COPPER
CUH	CABINET UNIT HEATER
DC	DIRECT CURRENT
DW	DISH WASHER
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EGC	EQUIPMENT GROUNDING CONDUCTOR
EM	EMERGENCY
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
FACP	FIRE ALARM CONTROL PANEL
GD	GARBAGE DISPOSAL
GEC	GROUNDING ELECTRODE CONDUCTOR
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND–OFF–AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ
JB	JUNCTION BOX
KAIC	THOUSAND AMP INTERRUPTING CAPACITY
KCMIL	THOUSAND CIRCULAR MIL
KV	THOUSAND VOLTS (KILOVOLT)
KVA	THOUSAND VOLT–AMPS
KW	THOUSAND WATTS (KILOWATT)
LC	LIGHTING CONTACTORS
LCP	LATERAL CONTROL PIT
LED	LIGHT EMITTING DIODE
LP	LIGHTING PANELBOARD
LTG	LIGHTING
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MCB	MAIN CIRCUIT BREAKER
MH	MANHOLE OR METAL HALIDE
MIC	MICROWAVE OR MICROPHONE
MLO	MAIN LUGS ONLY
MTS	MANUAL TRANSFER SWITCH
NC	NORMALLY CLOSED OR NURSE CALL
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN
NO.	NUMBER
OL	OVERLOAD
P	POLE
PA	PUBLIC ADDRESS
PB	PUSH BUTTON
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
REF	REFRIGERATOR
RSC	RIGID STEEL CONDUIT
RTU	ROOF TOP UNIT
SCCR	SHORT CIRCUIT CURRENT RATING
SF	SUPPLY FAN
SLD	SINGLE LINE DIAGRAM
SS	SOLID STATE
SWBD1	SWITCHBOARD, NUMBER AS INDICATED
TC	TIME CLOCK
TS	TRANSFER SWITCH
T&B	TOP AND BOTTOM
TYP	TYPICAL
TV	TELEVISION
UC	UNDER COUNTER
UG	UNDERGROUND
V	VOLT
VA	DEPARTMENT OF VETERAN AFFAIRS
VA	VOLT–AMPERE
VAMC	VA MEDICAL CENTER
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
W/	WITH
WP	WEATHERPROOF
WRG	WIRING
XFMR	TRANSFORMER
XP	EXPLOSION–PROOF
3PH	THREE PHASE (Ø)
3W	THREE WIRE
4W	FOUR WIRE
(R)	LOCATION OF RELOCATED DEVICE OR EQUIPMENT
(RR)	REMOVE AND RELOCATE EXISTING DEVICE OR EQUIPMENT
(RX)	REMOVE EXISTING DEVICE OR EQUIPMENT
(X)	EXISTING DEVICE OR EQUIPMENT TO REMAIN
(XR)	EXISTING DEVICE OR EQUIPMENT TO BE REMOVED AND REPLACED AT SAME LOCATION

GENERAL NOTES

A. NOT ALL SYMBOLS INDICATED IN THE LEGEND, OR LISTED ABBREVIATIONS, APPEAR ON THE DRAWINGS. COORDINATE WORK ACCORDINGLY. COMPLY WITH SPECIFICATIONS AND NOTES BELOW AS APPLICABLE.

B. ALL RECEPTACLES SHALL BE INSTALLED 18" AFF UNLESS NOTED OTHERWISE.

C. ALL WIRING SHALL BE COPPER. ALUMINUM WIRING IS NOT ALLOWED. UNLESS OTHERWISE NOTED, ALL WIRING SHALL BE 2#12 AWG AND 1#12 AWG EQUIPMENT GROUNDING CONDUCTOR IN EMT. HOMERUNS FED FROM A 20A–1P, 120V CIRCUIT IN EXCESS OF 70' SHALL BE #10 AWG SOLID. THERE SHALL BE NO SHARED NEUTRALS.

D. CONDUCTORS SHALL BE SOLID AND #8 OR SMALLER.

E. SEE MECHANICAL PLANS FOR HVAC UNITS, PUMPS AND FANS CONTROLLED BY THERMOSTATS AND OVERRIDE SWITCHES (PROVIDED BY ATC CONTRACTOR).

F. FUSES AND OVERLOAD UNITS FOR MOTORS SHALL BE SIZED BASED ON ACTUAL MOTOR NAMEPLATE DATA AND IN ACCORDANCE WITH NEC.

G. ALL WORK SHALL COMPLY WITH LATEST EDITION OF NFPA70, NFPA72, NFPA99, NFPA101, NEC & ALL FEDERAL REGULATIONS.

H. ALL PENETRATIONS THROUGH FLOORS, RATED WALLS AND PARTITIONS SHALL BE SEALED WITH UL APPROVED FIRE SEALANT SYSTEMS TO MAINTAIN FIRE RATING FOR THE SEPARATION.

I. ALL ENCLOSURES, CONDUIT BODIES AND THEIR COVERS CONTAINING FIRE ALARM SYSTEM CONDUCTORS SHALL BE PAINTED RED.

J. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED WITH ALL FEEDER AND BRANCH CIRCUITS. SIZE IN ACCORDANCE WITH NFPA 70 ARTICLE 250.

K. FLEXIBLE CONNECTIONS TO MOTORS SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT IN A 360° LOOP EXCEPT AS NOTED OTHERWISE.

L. COORDINATE INSTALLATION OF COMMUNICATION OUTLETS WITH THE VA.

M. LOCATE DISCONNECTS AT EQUIPMENT AS REQUIRED BY MANUFACTURER. LOCATIONS ON DRAWINGS ARE APPROXIMATE.

N. OPERATE ALL FLUORESCENT AND HID LAMPS FROM INITIAL INSTALLATION FOR 100 HOURS AT FULL OUTPUT (NO DIMMING) TO SEASON LAMPS AND STABILIZE LAMP COLOR.

O. THE CALCULATED LIGHTING POWER DENSITY (LPD) FOR THE INTERIOR PORTION OF THIS PROJECT IS 0.70 WATTS/SQUARE FOOT.

P. IDENTIFICATION:
RECEPTACLES CONNECTED TO THE ESSENTIAL ELECTRICAL SYSTEM SHALL BE RED WITH A WHITE LABEL CONTAINING THE WORD "EMERGENCY" IN BLACK ON THE TOP OF THE PLATE AND A WHITE LABEL WITH THE CIRCUIT NUMBER IN BLACK ON THE BOTTOM. "NORMAL" RECEPTACLES SHALL HAVE A WHITE LABEL WITH THE CIRCUIT NUMBER IN BLACK AT THE TOP OF PANEL AND DEVICE COVER.

Q. PROVIDE WIRE MARKERS TO IDENTIFY CABLES FOR ALL SYSTEMS AT THE ORIGIN, PULL BOXES, AND TERMINATION POINTS. LABELS SHALL BE SELF ADHESIVE OR HEAT SHRINK TYPE.

R. NO LIVE WORK WILL BE ALLOWED. EVERY CIRCUIT SHALL BE LOCKED–OUT AND TAGGED–OUT BEFORE COMMENCING WORK. PROVIDE LOCKOUT/TAGOUT PROCEDURES TO THE VAMC COR AS PART OF THE REQUIRED SAFETY PLAN SUBMISSION.

S. ALL WIRING SHALL BE IN RACEWAY.
–INSTALL CABLE TRAY FOR COMM / DATA WIRING.
–CONTROL SYSTEMS SHALL BE IN BLUE EMT.
–FIRE ALARM SYSTEMS SHALL BE IN RED EMT.
–NO "J" HOOKS

T. ALL PANEL DIRECTORIES SHALL BE UPDATED AND PLACED IN PANELS.

U. BUILDING 13 WORK SHALL BE CONDUCTED AFTER HOURS AND ON WEEKENDS.

V. BUILDING 14 WORK SHALL BE CONDUCTED ON WEEKENDS.

W. WORK SCHEDULES SHALL TO PROVIDED TO VAMC COR FOR REVIEW AND APPROVAL BEFORE ANY WORK CAN BEGIN. WORK OTHER THAN AT NORMAL HOURS MUST BE APPROVED BY THE COR FIVE (5) WORKING DAYS PRIOR TO WORK START.

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:
PARADIGM
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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/26/2014

Drawing Title: ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

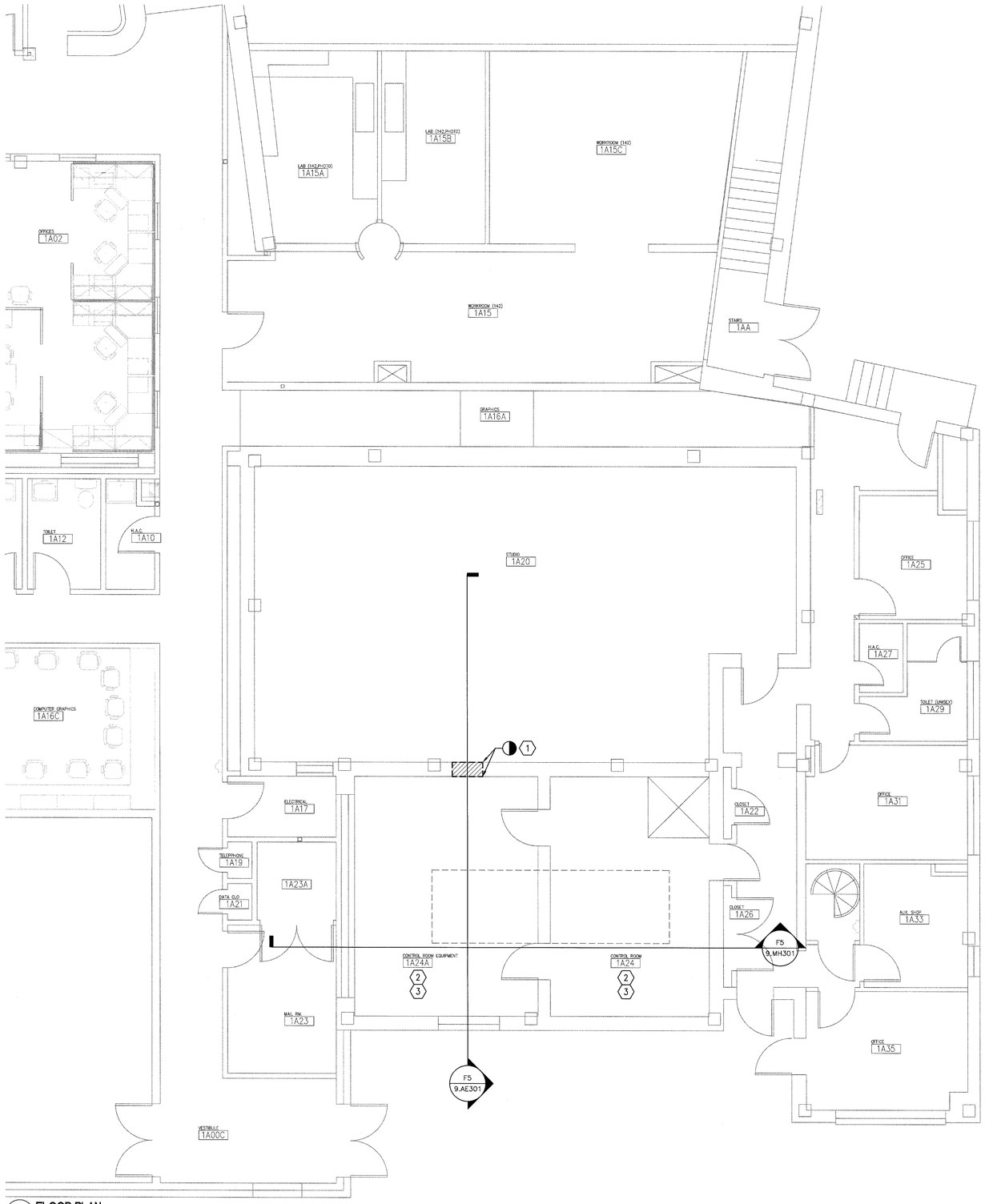
Project Number: 660-15-103

Building Number: 9, 13 and 14

Drawing Number: E-001
DWG 5 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



F2 FLOOR PLAN
SCALE 1/4" = 1'-0"

NOTES

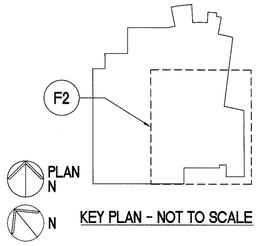
A. REFER TO DRAWINGS 9.MD101–9.MD301, 9.MH101–9.MH601, 9.MP102, AND 9.MP501 FOR MECHANICAL DRAWINGS.

KEY NOTES

1. REMOVE EXISTING BRICK WALL COMPONENTS AND INSTALL NEW STEEL LINTEL FOR MASONRY ABOVE; REFER TO 9.AE501 FOR DETAILS.
2. ALL AREAS WITHIN CONTROL ROOMS ARE ON A 12"± ELEVATED COMPUTER ROOM STYLE FLOOR.
3. DURING DEMOLITION AND CONSTRUCTION OF EXISTING EQUIPMENT, CONTRACTOR IS TO PROVIDE DUST COVERS TO PROTECT EQUIPMENT. MOVABLE EQUIPMENT MAY BE MOVED AND SET BACK IN PLACE BY THE CONTRACTOR PROVIDED THE COR PROVIDES APPROVAL FOR SUCH COORDINATION AND EXTENT.

LEGEND

◑	DEMOLITION
▨	EXISTING ITEMS TO BE DEMOLISHED
(E)	EXISTING ITEM
(D)	DEMOLISH ITEM
– / 9.AE301	SECTION INDICATOR



KEY PLAN - NOT TO SCALE

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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GAMSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/26/2014

Drawing Title: ARCHITECTURAL PLAN FIRST FLOOR

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 9

Drawing Number: 9.AE101
DWG 6 of 46

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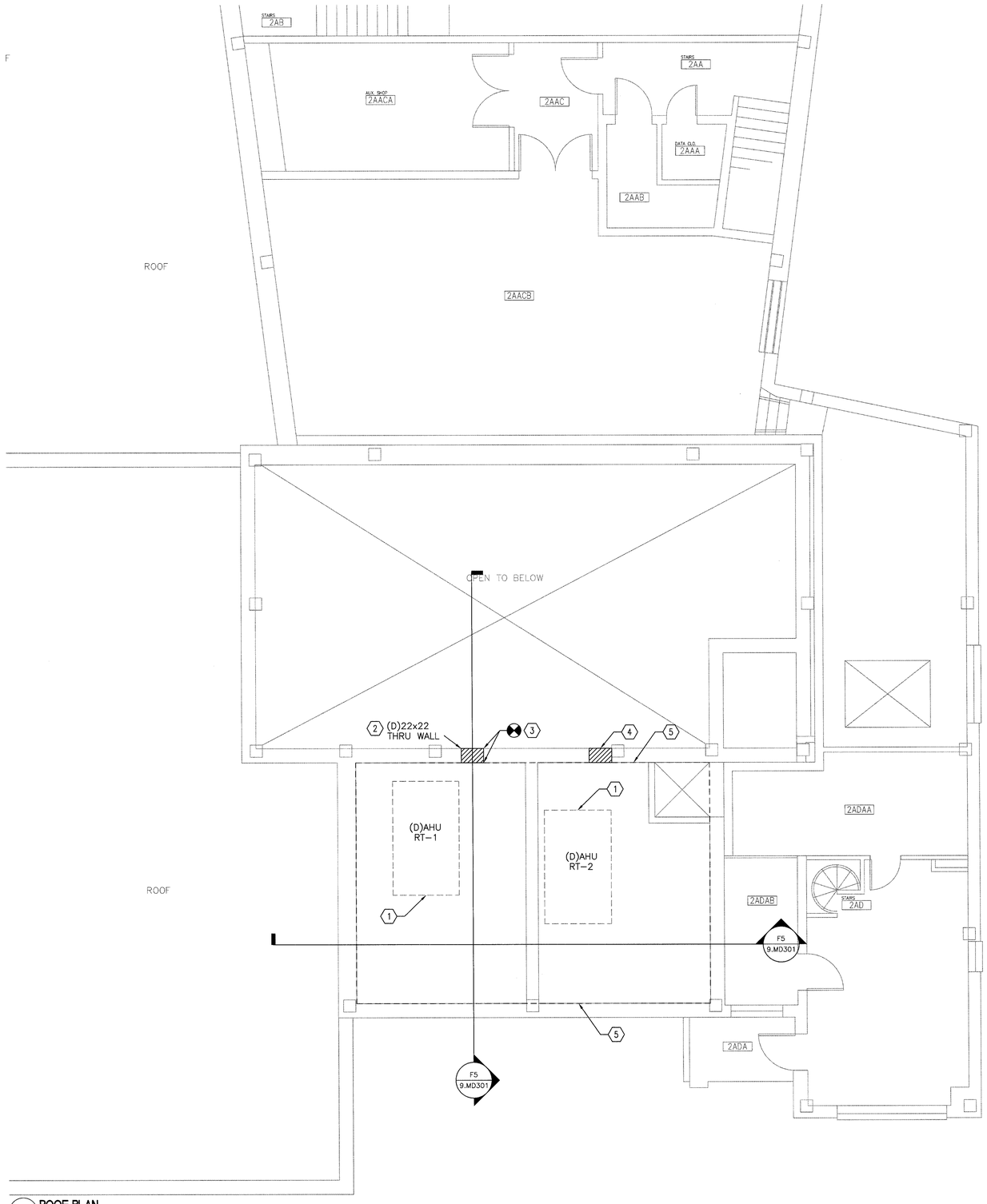


F2 ROOF PLAN
SCALE 1/4" = 1'-0"

NOTES

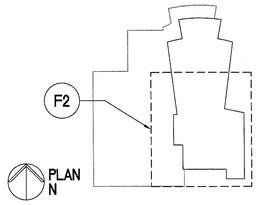
A. REFER TO DRAWINGS 9.MD101–9.MD301, 9.MH101–9.MH601, 9.MP102, AND 9.MP501 FOR MECHANICAL DRAWINGS.

KEY NOTES

1. EXISTING AHU–RT–1 AND AHU–RT–2 TO BE REMOVED; REFER TP 9.MD102 FOR DETAILS.
2. PORTION OF EXISTING DUCT TO BE REMOVED; REFER TO 9.MD301.
3. INFILL EXISTING WALL OPENING; REFER TO 9.AE501 FOR DETAILS.
4. REMOVE EXISTING RELIEF DAMPER (REFER TO 9.MD301), AND INFILL WALL; REFER TO 9.AE501 FOR DETAILS.
5. REMOVE AND REPLACE ENTIRE EXISTING ROOF SYSTEM WITHIN THE AREA DESIGNATED UPON COMPLETION OF NEW HVAC AND ELECTRICAL.

LEGEND

	NEW WORK
(E)	EXISTING ITEM
9.AE301	SECTION INDICATOR



PLAN N

N

KEY PLAN - NOT TO SCALE

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/26/2014

Drawing Title: ARCHITECTURAL PLAN SECOND FLOOR AND ROOF

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 9

Drawing Number: 9.AE102

DWG 7 of 46

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NOTES

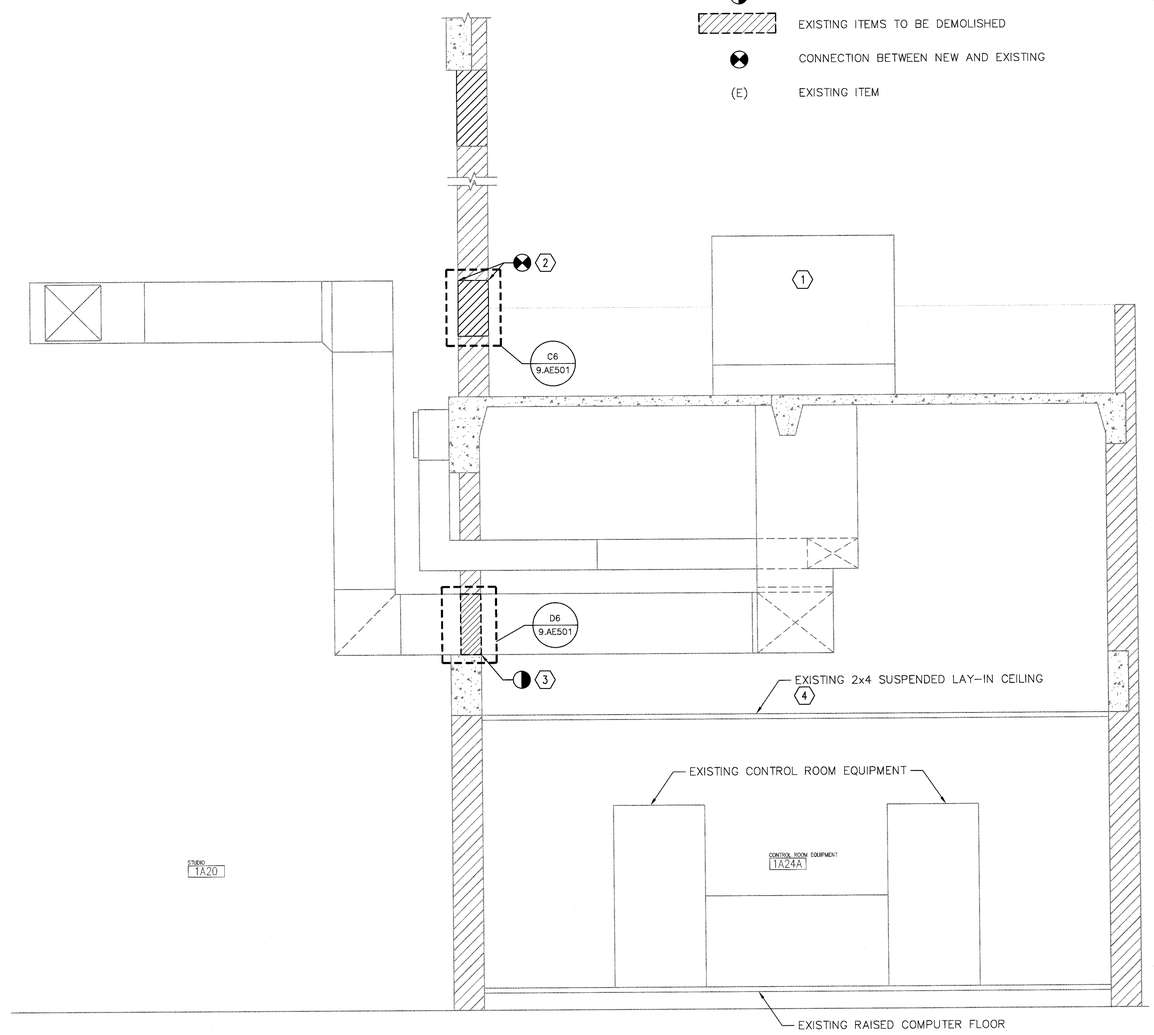
A. REFER TO DRAWINGS 9.MD101–9.MD301, 9.MH101–9.MH601, 9.MP102, AND 9.MP501 FOR MECHANICAL DRAWINGS.

KEY NOTES

1. NEW AHU; REFER TO 9.MH101 AND 9.MH102 FOR MECHANICAL DRAWINGS.
2. INFILL EXISTING OPENING; REFER TO 9.AE102 AND 9.AE501 FOR DETAILS.
3. REMOVE EXISTING BRICK WALL COMPONENTS AND INSTALL NEW STEEL LINTEL FOR MASONRY ABOVE; REFER TO 9.AE501 FOR DETAILS.
4. PATCH/REPLACE ANY DAMAGED CEILING/TILES AS REQUIRED.

LEGEND

◑	DEMOLITION
▨	EXISTING ITEMS TO BE DEMOLISHED
⊗	CONNECTION BETWEEN NEW AND EXISTING
(E)	EXISTING ITEM



F5 SECTION
SCALE 1/2" = 1'-0"

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12/2/2014
STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER

Drawing Title: ARCHITECTURAL SECTION

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 9

Drawing Number: 9.AE301
DWG 8 of 46

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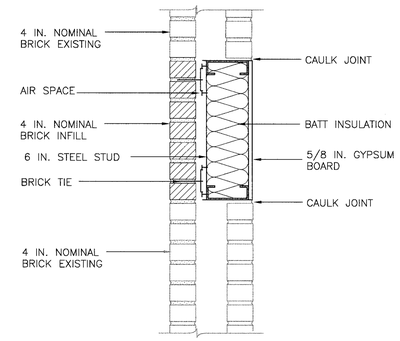
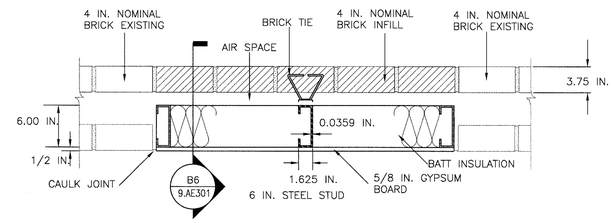
NOTES

A. PROVIDE ALL NECESSARY FLASHING REQUIRED FOR THE SHAFT WALL ASSEMBLY REPAIRS.

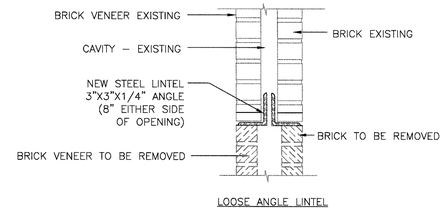
B. 5/8" 'TYPE A' GYPSUM BOARD TYPE AND THICKNESS WHERE PATCH WORK IS TO BE PERFORMED.



B6 BRICK INFILL SECTION DETAIL
NOT TO SCALE



C6 BRICK INFILL PLAN DETAIL
NOT TO SCALE



D6 BRICK LINTEL DETAIL
NOT TO SCALE

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LICENSED PROFESSIONAL ENGINEER
9/26/2014

Drawing Title:	ARCHITECTURAL DETAILS
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	9
Drawing Number:	9.AE501
	DWG 9 of 46

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Department of Veterans Affairs

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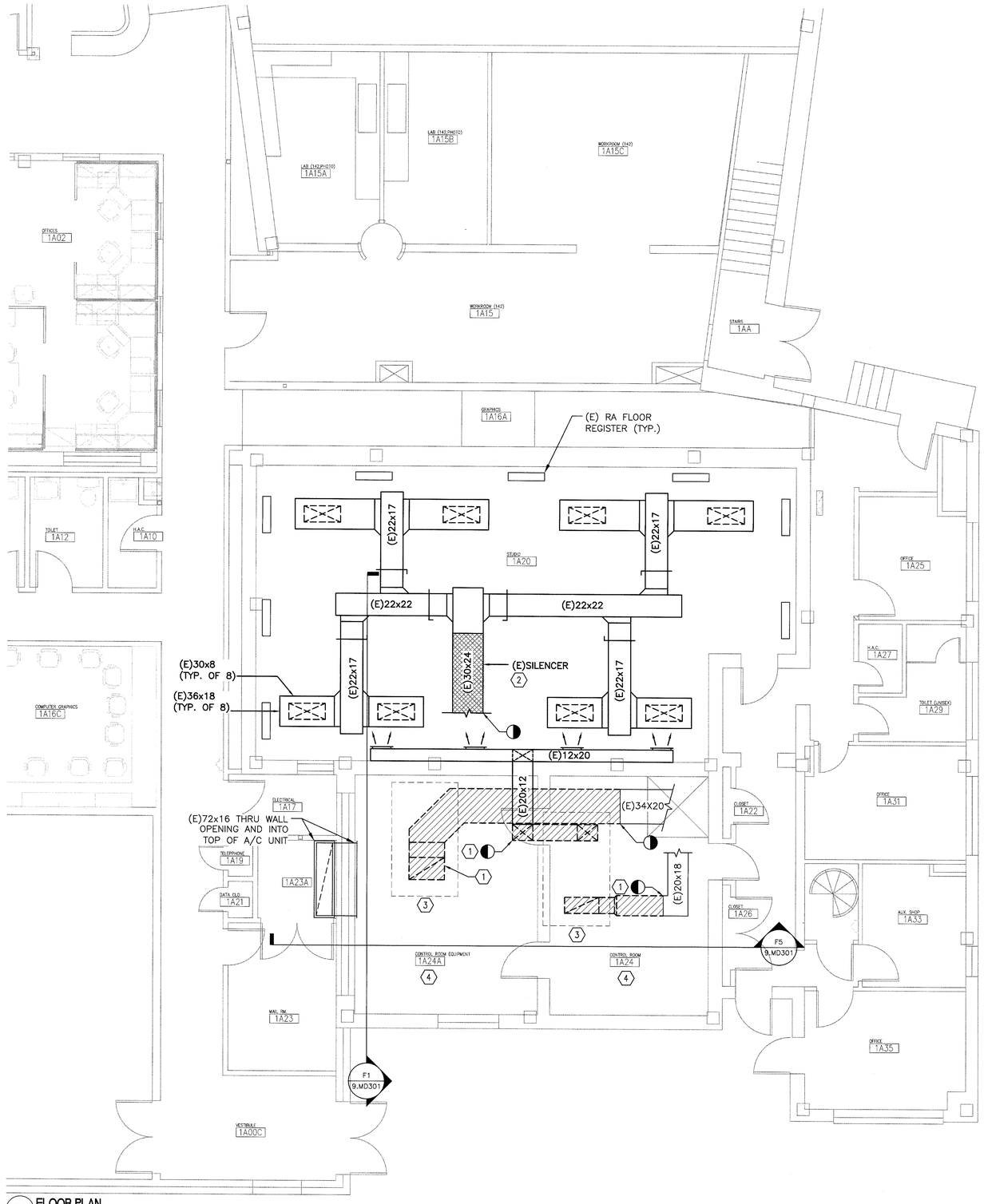


F2 FLOOR PLAN
SCALE 1/4" = 1'-0"

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

B. REFER TO SHEET 9.MD601 FOR PHOTOGRAPHS OF WORK AREA.

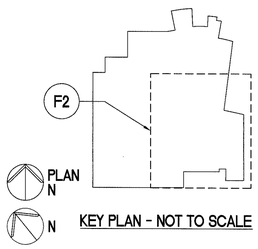
KEY NOTES ⟨⟩

1. REMOVE PORTION OF EXISTING DUCT; REFER TO 9.MD301.
2. EXISTING DUCT SILENCER TO REMAIN.
3. REMOVE EXISTING AHU-RT-1 AND AHU-RT-2; REFER TO 9.MD102.
4. DURING DEMOLITION AND CONSTRUCTION OF EXISTING EQUIPMENT, CONTRACTOR IS TO PROVIDE DUST COVERS TO PROTECT EQUIPMENT. MOVABLE EQUIPMENT MAY BE MOVED AND SET BACK IN PLACE BY THE CONTRACTOR PROVIDED THE COR PROVIDES APPROVAL FOR SUCH COORDINATION AND EXTENT.

LEGEND

◑	END OF DEMOLITION
▨	EXISTING ITEMS TO BE DEMOLISHED
(E)	EXISTING ITEM
(D)	DEMOLISH ITEM
A1 / 9.MD601	PHOTO INDICATOR

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



KEY PLAN - NOT TO SCALE

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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

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STATE OF KENTUCKY
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12/22/2014

Drawing Title:	MECHANICAL HVAC DEMOLITION PLAN FIRST FLOOR
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	9
Drawing Number:	9.MD101
DWG 10 of 46	

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Department of Veterans Affairs

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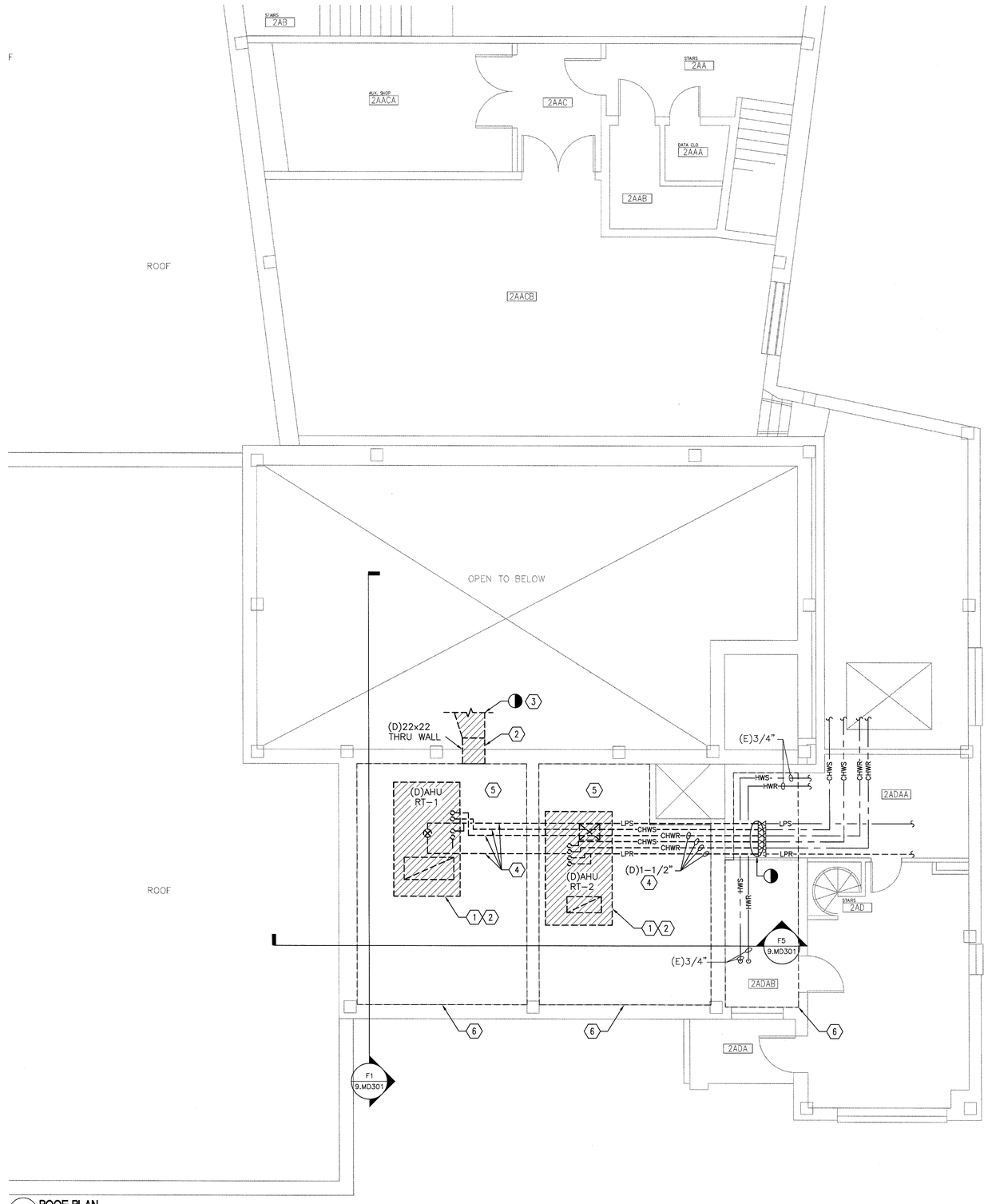


F2 ROOF PLAN
SCALE 1/4" = 1'-0"

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

B. REFER TO SHEET 9.MD601 FOR PHOTOGRAPHS OF WORK AREA.

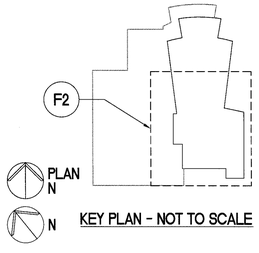
KEY NOTES

1. REMOVE EXISTING AHU-RT-1 AND AHU-RT-2.
2. REMOVE PORTION OF EXISTING DUCT; REFER TO 9.MD301.
3. DISCONNECT AT EXISTING SILENCER.
4. DEMOLISH ALL EXISTING CHILLED WATER AND STEAM PIPING BACK TO EXISTING VALVES AS INDICATED, BELOW ROOF.
5. DURING DEMOLITION AND CONSTRUCTION OF EXISTING EQUIPMENT, CONTRACTOR IS TO PROVIDE DUST COVERS TO PROTECT EQUIPMENT. MOVABLE EQUIPMENT MAY BE MOVED AND SET BACK IN PLACE BY THE CONTRACTOR PROVIDED THE COR PROVIDES APPROVAL FOR SUCH COORDINATION AND EXTENT.
6. REFER TO 9.AE102 FOR NEW ROOFING SYSTEM IN THIS AREA.

LEGEND

◑	END OF DEMOLITION
▨	EXISTING ITEMS TO BE DEMOLISHED
(E)	EXISTING ITEM
(D)	DEMOLISH ITEM
A1 / 9.MD601	PHOTO INDICATOR

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



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Revisions:	Date

ARCHITECT/ENGINEERS:

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
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LICENSED PROFESSIONAL ENGINEER
10/7/2014

Drawing Title:	MECHANICAL HVAC DEMOLITION PLAN SECOND FLOOR AND ROOF
Approved: Project Director	
Project Title:	REPLACE HVAC AND HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	9
Drawing Number:	9.MD102
DWG 11 of 46	

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Department of Veterans Affairs

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LEGEND

- END OF DEMOLITION
- EXISTING ITEMS TO BE DEMOLISHED
- (E) EXISTING ITEM
- (D) DEMOLISH ITEM

KEY NOTES

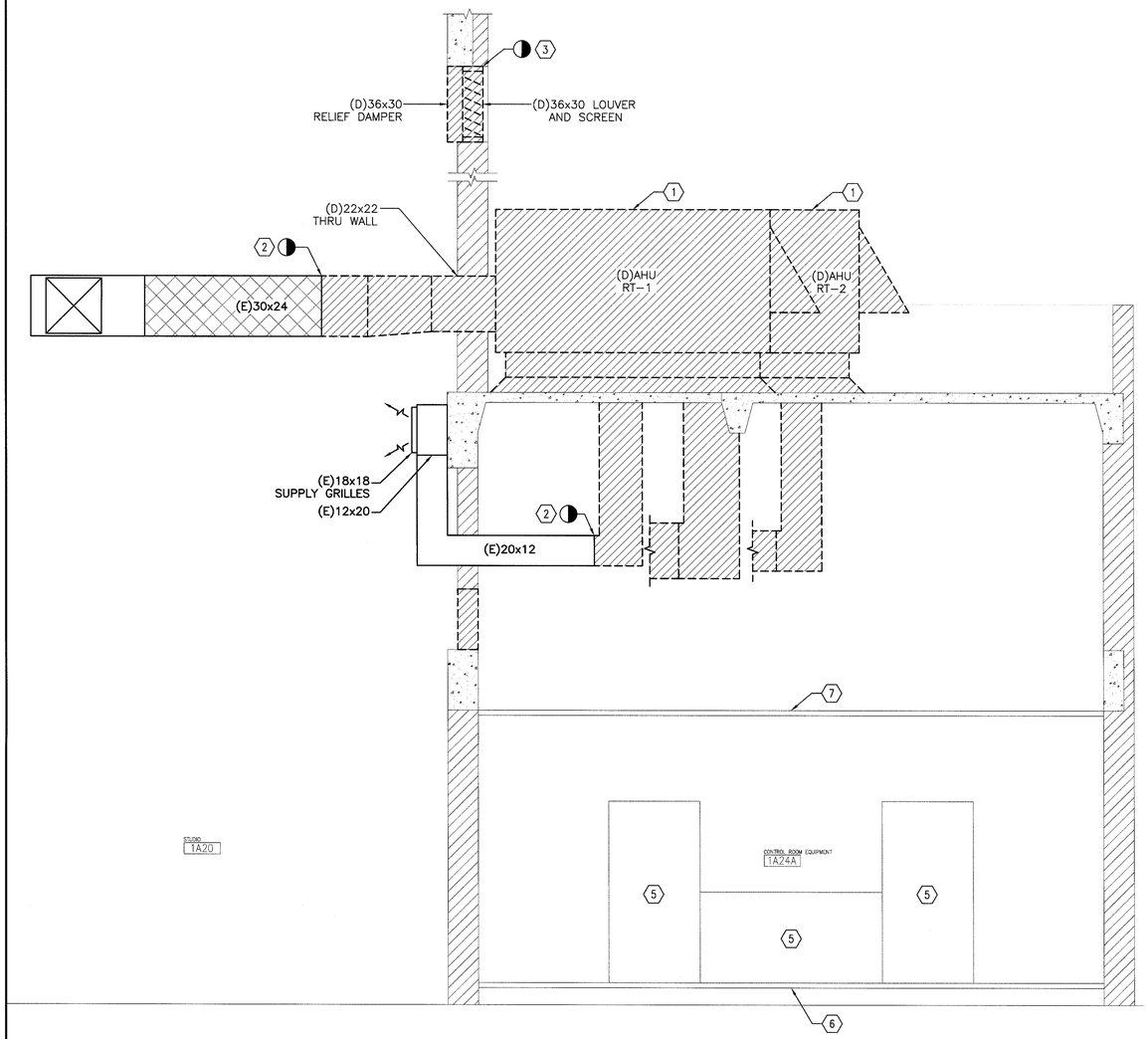
1. REMOVE EXISTING AHU–RT–2 AND AHU–RT–1.
2. REMOVE PORTION OF EXISTING DUCT; REFER TO 9.MD301.
3. REMOVE EXISTING RELIEF AIR DUCT AND DAMPER.
4. EXISTING CONTROL ROOM "COMPUTER STYLE" AC UNIT TO REMAIN.
5. EXISTING CONTROL ROOM EQUIPMENT TO REMAIN.
6. EXISTING RAISED "COMPUTER ROOM" STYLE FLOORING TO REMAIN.
7. EXISTING SUSPENDED LAY–IN CEILING; REFER TO 9.AE301 FOR REPAIR/REPLACEMENT SCOPE.

NOTES

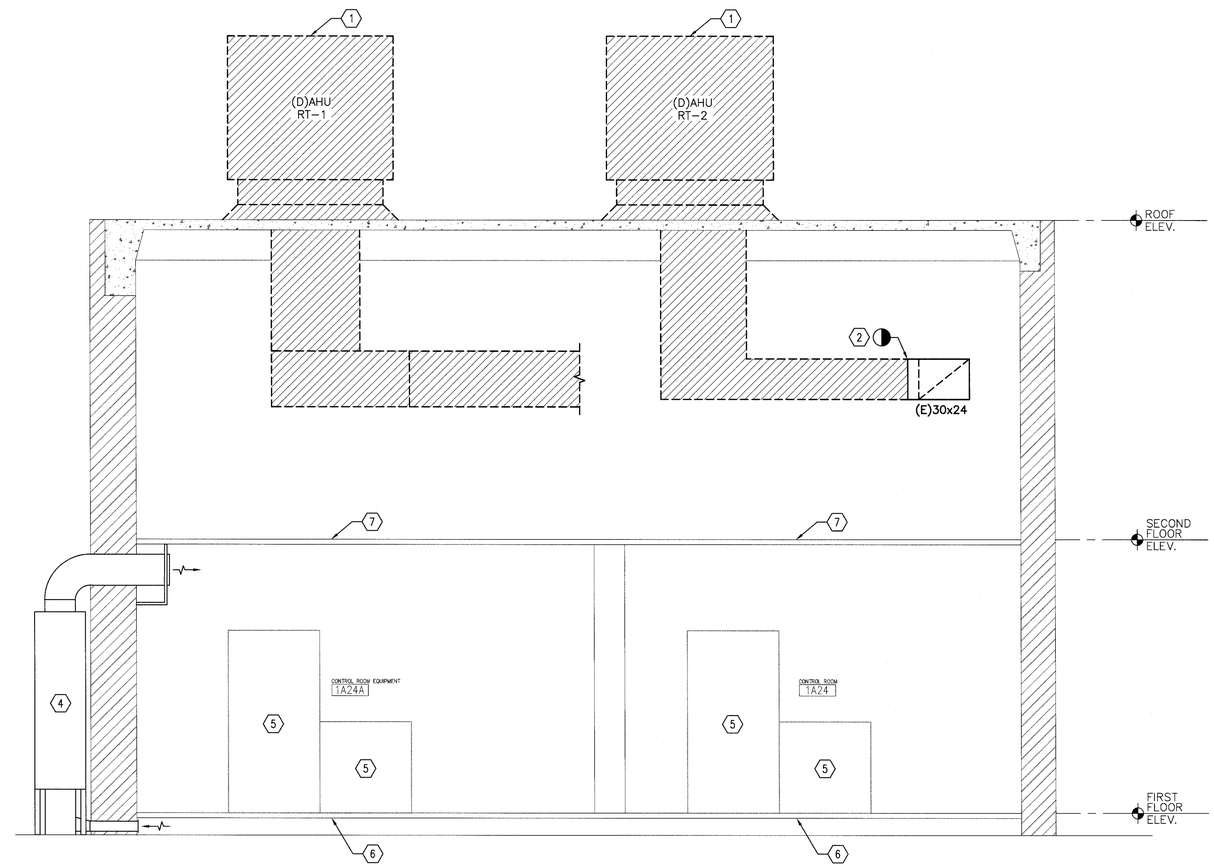
A. REFER TO M–001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

B. REFER TO SHEET 9.MD601 FOR PHOTOGRAPHS OF WORK AREA.

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



F1 SECTION
SCALE 1/2" = 1'-0"



F5 SECTION
SCALE 1/2" = 1'-0"

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:

PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER

Drawing Title: MECHANICAL HVAC DEMOLITION SECTION	Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14	Project Number: 660–15–103	Office of Construction and Facilities Management
Approved Project Director	Location: GEORGE E WAHLEN VAMC, 500 FOOTHILL DR SALT LAKE CITY, UT	Building Number: 9	
	Date: 09–26–2014 / Checked: KLP / Drawn: JDM	Drawing Number: 9.MD301	Department of Veterans Affairs
		DWG 12 of 46	

VA FORM 08–6231

NOTES

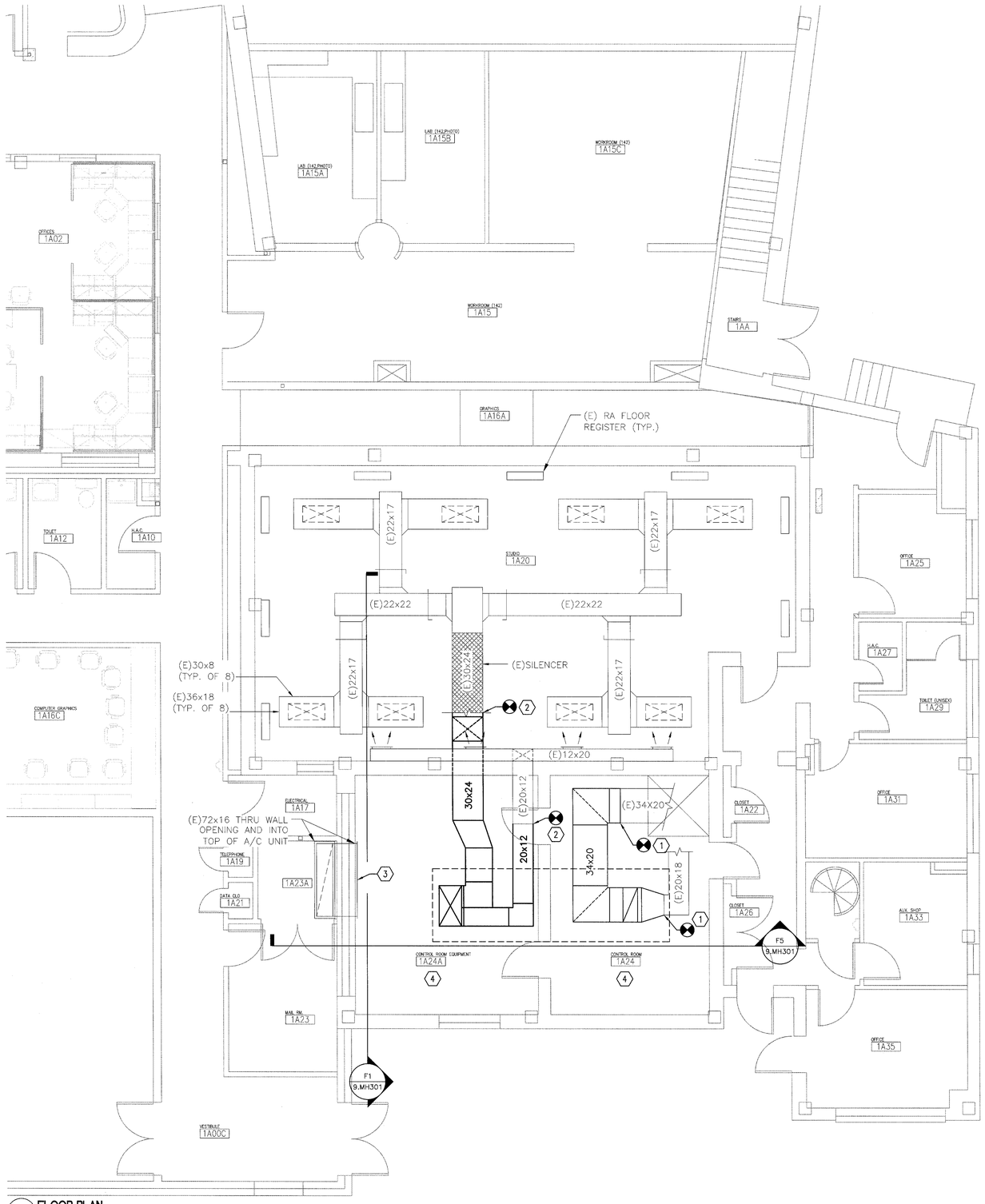
A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEY NOTES

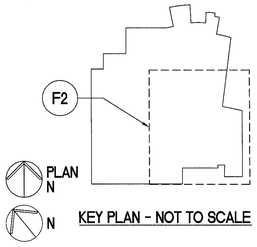
1. ROUTE NEW RETURN DUCT DOWN FROM ABOVE AND TIE INTO EXISTING RETURN DUCT.
2. ROUTE NEW SUPPLY DUCT DOWN FROM ABOVE AND TIE INTO EXISTING SUPPLY DROPS.
3. BID ALTERNATE:
   ADD PERFORATED PLATE BEHIND EXISTING GRILLE TO ALLEVIATE NOISE. PERFORATION SHALL BE AT LEAST 60% FREE AREA; REFER TO SPECIFICATIONS FOR TYPES OF SHEET METAL PLATES.
4. DURING DEMOLITION AND CONSTRUCTION OF EXISTING EQUIPMENT, CONTRACTOR IS TO PROVIDE DUST COVERS TO PROTECT EQUIPMENT. MOVABLE EQUIPMENT MAY BE MOVED AND SET BACK IN PLACE BY THE CONTRACTOR PROVIDED THE COR PROVIDES APPROVAL FOR SUCH COORDINATION AND EXTENT.

LEGEND

⊗	CONNECTION BETWEEN NEW AND EXISTING
(E)	EXISTING ITEM
– / 9.MH301	SECTION INDICATOR



F2 FLOOR PLAN
SCALE 1/4" = 1'-0"



KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

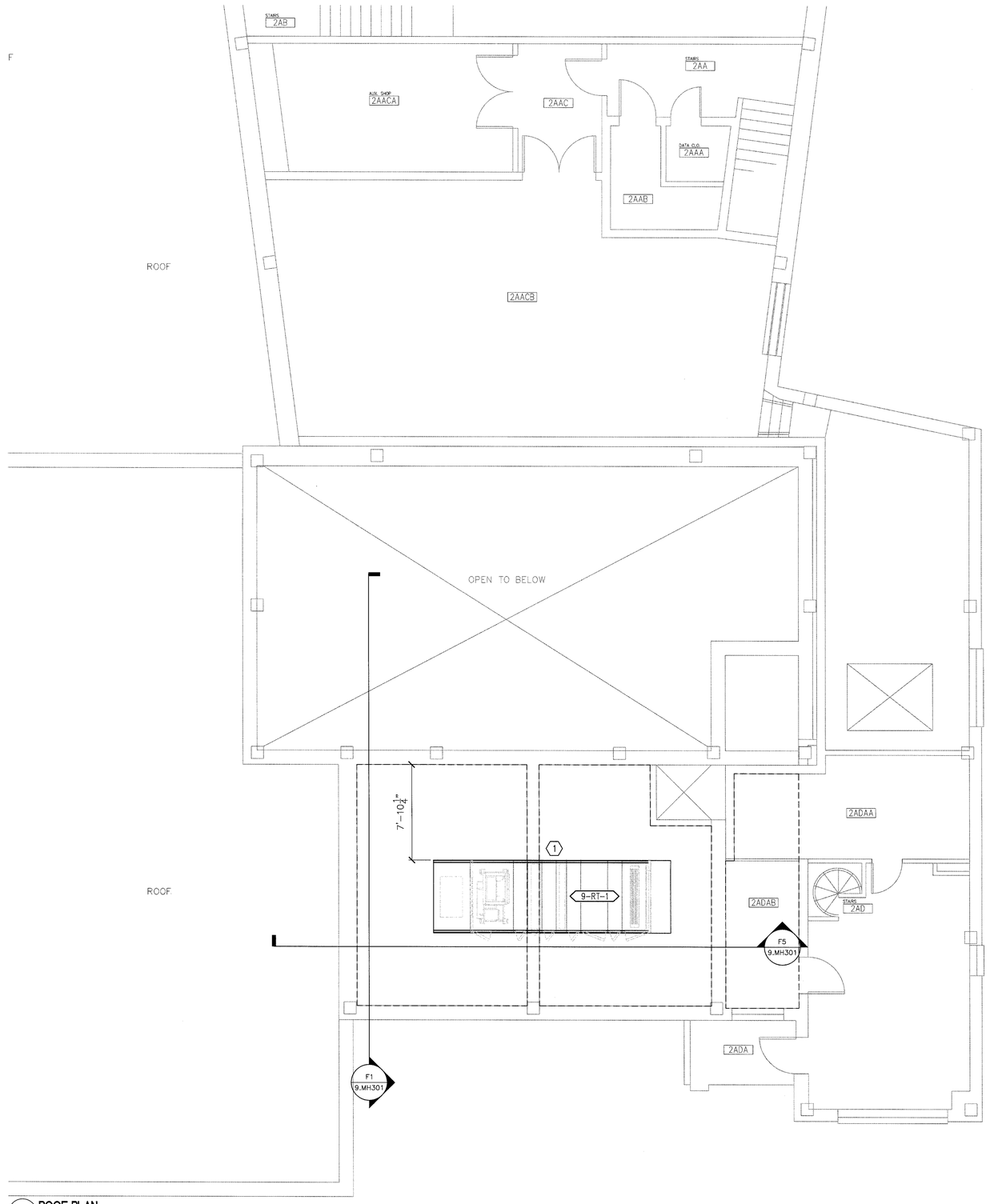
BLAINE CAMIEL VAN GANSBEKE 24,789 LICENSED PROFESSIONAL ENGINEER KENTUCKY

Drawing Title:	MECHANICAL HVAC PLAN FIRST FLOOR
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	9
Drawing Number:	9.MH-101
DWG 13 of 46	

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



F2 ROOF PLAN
SCALE 1/4" = 1'-0"

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

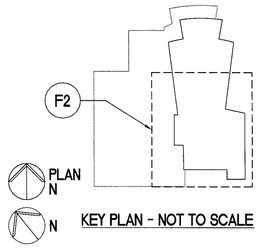
KEY NOTES

1. NEW AHU MOUNTED ON FULL PERIMETER ROOF CURB.

LEGEND

- CONNECTION BETWEEN NEW AND EXISTING
- (E) EXISTING ITEM
- SECTION INDICATOR (9.MH301)

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:

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ENGINEERS AND CONSTRUCTORS
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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
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LICENSED
PROFESSIONAL ENGINEER

Drawing Title:	MECHANICAL HVAC PLAN SECOND FLOOR AND ROOF
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	9
Drawing Number:	9.MH102
	DWG 14 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

LEGEND

⊗	CONNECTION BETWEEN NEW AND EXISTING
(E)	EXISTING ITEM
(N)	NEW ITEM

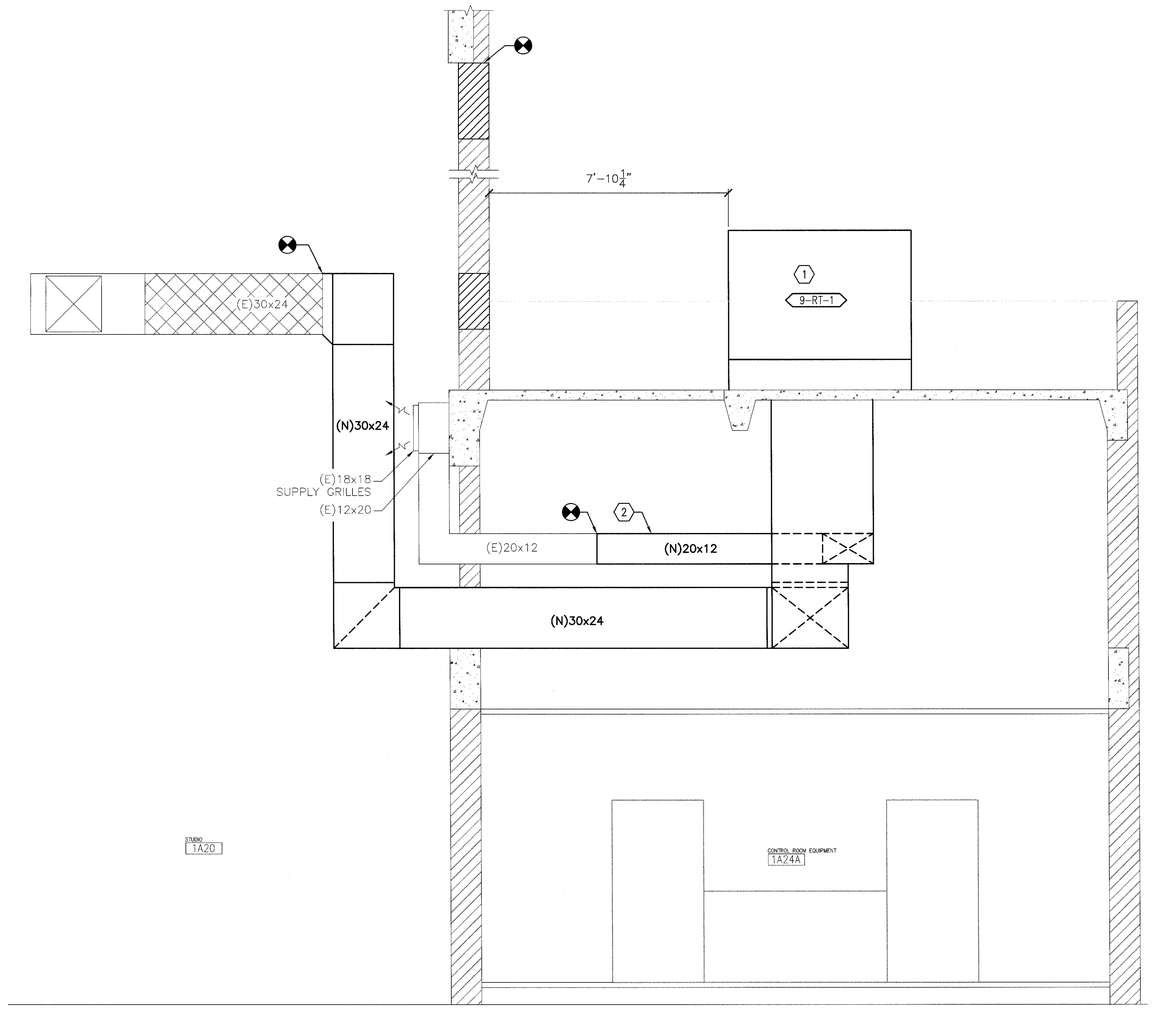
KEY NOTES

1. NEW AHU; REFER TO 9.MH601 FOR MECHANICAL SCHEDULE.
2. BID ALTERNATE:
   20x12 DUCT SILENCER TO BE INSERTED INTO DUCT AT THIS LOCATION.

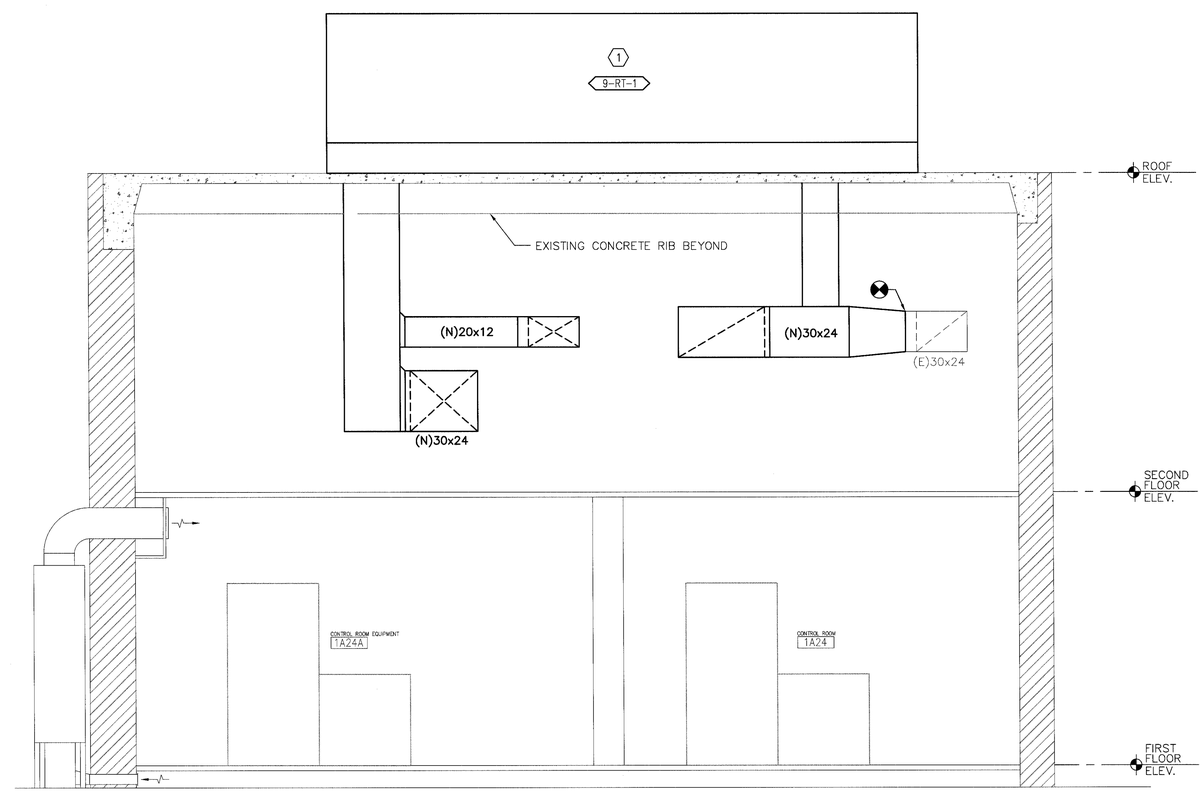
NOTES

A. REFER TO M–001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



F1 SECTION
SCALE 1/2" = 1'-0"



F5 SECTION
SCALE 1/2" = 1'-0"

FULLY SPRINKLERED
BID DOCUMENTS
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Revisions	Date

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GAMSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/26/2014

Drawing Title:	MECHANICAL HVAC SECTION
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	9
Drawing Number:	9.MH301
DWG 15 of 46	

Office of Construction and Facilities Management
Department of Veterans Affairs

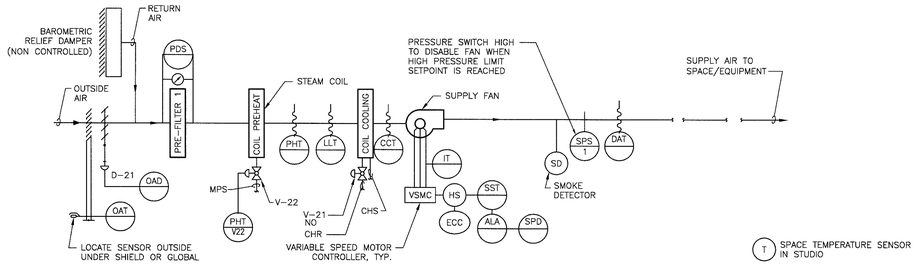
VA FORM 08–6231

JOB: SALT LAKE CITY AHU'S
BUILDING: 9

SYSTEM:
CV AIR HANDLER 9-RT-1

SYSTEM COMPONENT:	POINT ID	ABBREVIATION	POINT LEGEND: VARIABLE-ANALOG-ALARM-LIMIT	POINT LEGEND: BINARY-ALARM	POINT LEGEND: BINARY-CONTROL	POINT LEGEND: ANALOG-CONTROL	SYSTEM OUTPUTS: BINARY: START/STOP	SYSTEM OUTPUTS: BINARY: OPEN/CLOSE	SYSTEM OUTPUTS: ANALOG: POSITION	SYSTEM INPUTS: BINARY: HIGH SWITCH	SYSTEM INPUTS: BINARY: LOW SWITCH	SYSTEM INPUTS: ANALOG: TEMPERATURE	SYSTEM INPUTS: ANALOG: PRESSURE	SYSTEM INPUTS: ANALOG: HUMIDITY	SYSTEM INPUTS: ANALOG: FLOW	SYSTEM SOFTWARE/CONTROL: ALARM PROCESSING: DIFFERENTIAL (+/-)	SYSTEM SOFTWARE/CONTROL: ALARM PROCESSING: STATUS	SYSTEM SOFTWARE/CONTROL: ALARM PROCESSING: HIGH/LOW	SYSTEM SOFTWARE/CONTROL: ALARM PROCESSING: HIGH/LOW-ALARM DELAY	SYSTEM SOFTWARE/CONTROL: ALARM PROCESSING: HIGH/LOW-RESET	SYSTEM SOFTWARE/CONTROL: ALARM PROCESSING: HIGH/LOW-ALARM DELAY	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: STATUS-START/STOP	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: STATUS-OPEN/CLOSE	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: STATUS-ENABLE/DISABLE	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: PROGRAM-TIME/DATE	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: PROGRAM-SCHEDULE	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: PROGRAM-SETPOINT	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: PROGRAM-LOOP	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: PROGRAM-PID	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: PROGRAM-CONTROL	SYSTEM SOFTWARE/CONTROL: APPLICATION/FUNCTION: PROGRAM-OPTIMIZATION	REMARKS
LOW LIMIT TEMPERATURE	AI-1	LLT																												
PRE-HEAT TEMPERATURE	AI-2	PHT																												
COOILING COIL TEMPERATURE	AI-3	CCT																												
DISCHARGE AIR TEMPERATURE	AI-4	DAT																												
DISCHARGE STATIC PRESSURE	AI-5	SPS-1																												
SPACE TEMPERATURE	AI-6	STEMP																												
OUTSIDE AIR TEMPERATURE	AI-7	OAT																												
SUPPLY FAN STATUS	BI-1	SF-STS																												
STATIC PRESSURE HIGH LIMIT	BI-2	SPS-2																												
SUPPLY FAN VSMC ALARM	BI-3	SF-ALA																												
FILTER PRESSURE SWITCH	BI-4	PDS-1																												
SUPPLY FAN VSMC	AO-1	SF-SPD																												FULL COMMUNICATION
OUTSIDE AIR DAMPER	AO-2	OAD																												
PRE-HEAT VALVE V-22	AO-3	PHT-v22																												
COILING VALVE V-21	AO-4	CLG-V21																												
SUPPLY FAN START/STOP	BO-1	SF-SST																												

B5 NEW POINTS LIST FOR CV AIR HANDLING UNIT WITH MINIMUM OUTSIDE AIR AND ECONOMIZER (BUILDING 9, RT-1)
NOT TO SCALE



D5 CONSTANT AIR VOLUME AIR HANDLING UNIT WITH MINIMUM OUTSIDE AIR CONTROL DIAGRAM - 9-RT-1
NOT TO SCALE

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

SEQUENCE OF OPERATION FOR 9-RT-1

1. GENERAL
   1.1 FANS ARE STARTED ON BUILDING LOAD CONTROL AND OCCUPANCY AND NO CHANGES ARE TO BE MADE TO THESE SCHEDULES.

   1.2 ALL SETPOINTS DESCRIBED IN SEQUENCE SHALL BE ADJUSTABLE BY SYSTEM OPERATORS (CREATE REQUIRED VIRTUAL POINTS). APPROPRIATE DEADBANDS SHALL BE USED TO PREVENT SHORT CYCLING SITUATIONS. ALL FAN MOTOR CONTROL SWITCHES SHALL BE IN "AUTO" POSITION.

   1.3 UNIT IS NORMALLY STARTED AND STOPPED REMOTELY AT THE ECC. H-O-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HAND" AND "OFF" POSITIONS SHALL BE USED ONLY FOR MAINTENANCE. WHEN THE UNIT IS "OFF" D-21 SHALL BE FULLY CLOSED. WHEN THE UNIT IS "ON" D-21 SHALL BE FULLY OPEN.

2. TEMPERATURE CONTROL
   2.1 WHEN THE TEMPERATURE OF OUTSIDE AIR, SENSED BY OAT, IS ABOVE 50°F (ADJ), THE DIGITAL CONTROL PANEL SHALL MODULATE OPEN OPEN VALVE V-21 TO MAINTAIN SUPPLY AIR TEMPERATURE SENSED BY DAT AND BE CONTROLLED TO MAINTAIN 75°F IN THE STUDIO.

   2.2 SUPPLY AIR TEMPERATURE, SENSED BY DAT, SHALL BE MAINTAINED AT SETPOINT VIA DIGITAL CONTROL PANEL BY MODULATING V-21 OR D-21 IN SEQUENCE.

   2.3 WHEN THE TEMPERATURE OF THE OUTSIDE AIR, SENSED BY OAT, IS ABOVE 50°F (ADJ), THE DIGITAL CONTROL PANEL SHALL PREVENT THE MODULATION OF D-21. THE DIGITAL CONTROL PANEL SHALL MODULATE V-21 TO MAINTAIN THE SUPPLY AIR TEMPERATURE, SENSED BY CCT, ONLY WHEN OAT IS BELOW 50°F.

   2.4 WHEN THE TEMPERATURE OF THE OUTSIDE AIR, SENSED BY OAT, IS BELOW 50°F (ADJ), BUT ABOVE 40°F DAMPER D-21 SHALL MODULATE AT VALVE V-22 SHALL BE FULLY CLOSED. THE DIGITAL CONTROL PANEL SHALL MODULATE D-21 TO MAINTAIN THE SUPPLY AIR TEMPERATURE, SENSED BY PHT AT 50°F (ADJ).

   2.5 WHEN THE TEMPERATURE OF THE OUTSIDE AIR IS BELOW 40°F, DAMPER D-21 IS SET TO MINIMUM, AND V-22 SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE AT 70°F AND SUPPLY TEMPERATURE AT NO LESS THAN 60°F.

   2.6 WHEN HVAC UNIT IS DEACTIVATED, COOLING COIL VALVE V-21 SHALL REMAIN CLOSED AND HEATING COIL VALVE V-22 SHALL BE MODULATED TO MAINTAIN 50°F AT PHT.

3. AIR FLOW CONTROL
   3.1 THE SUPPLY AIR FLOW SHALL BE CONTROLLED BY THE DIGITAL CONTROL PANEL. THE SUPPLY FAN VARIABLE SPEED MOTOR CONTROLLER WILL BE FIELD SET TO MAINTAIN UNIT DESIGN AIRFLOW.

   3.2 USING HIGH PRESSURE SENSOR SPS-1 LOCATED AT THE SUPPLY FAN DISCHARGE, SHALL PREVENT THE SUPPLY FAN FROM DEVELOPING OVER 2" OF STATIC PRESSURE (FIELD ADJUSTABLE). IF STATIC PRESSURE AT SPS-1 DOES EXCEED 2" THE SUPPLY AIR FAN SHALL STOP. SPS-2 SHALL BE HARDWIRED TO THE SUPPLY FAN VSMC AND UNIT SHALL BE SHUTDOWN IN HAND,AUTO OR BYPASS MODE. SPS-1 WILL REQUIRE MANUAL RESET AT THE DEVICE.

4. FREEZE PROTECTION
   4.1 IF THE AIR TEMPERATURE AS SENSED BY PHT FALLS BELOW 45°F, AN ALARM SIGNAL SHALL INDICATE AT THE DCP AND ECC. IF THIS TEMPERATURE FALLS BELOW 40°F, AS SENSED BY THE PHT, THE SUPPLY AND RETURN FANS SHALL SHUT DOWN AND A CRITICAL ALARM SHALL INDICATE AT THE DIGITAL CONTROL PANEL AND ECC.

   4.2 WHEN A MANUAL TEMPERATURE CONTROL LLT IS TRIPPED FOR FALLING BELOW 33°F, THE UNIT SHALL SHUT DOWN AND PROVIDE IMMEDIATE ALARM TO THE ECC UNTIL MANUALLY RESET.

5. AUTOMATIC SHUTDOWN/RESTART
   5.1 WHEN SMOKE IS DETECTED BY DUCT SMOKE DETECTOR, SD, THE SUPPLY FAN SHALL SHUT "OFF" AND AN ALARM SIGNAL SHALL BE TRANSMITTED TO THE FIRE ALARM SYSTEM. ALL SMOKE DAMPERS IN THE SUPPLY DUCTS SHALL CLOSE.

6. FILTER STATUS
   6.1 FILTER STATUS SHALL BE MONITORED THROUGH A UNIT MOUNTED DPS SWITCH AND ALARMED BACK TO THE DDC SYSTEM.

   6.2 ALARMING:
   NORMAL
   - SUPPLY FAN FAILURE
   - FREEZESTAT
   - DISCHARGE AIR TEMPERATURE (+/- 5 DEGREES OF SETPOINT)
   - DISCHARGE HUMIDITY HIGH LIMIT (90%)
   - FILTER STATUS

GENERAL NOTE:
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Revisions: | Date

ARCHITECT/ENGINEERS:
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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
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PROFESSIONAL ENGINEER

Drawing Title: CONTROLS
Approved: Project Director
Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location: GEORGE E WAHLEN VAMC, 500 FOOTHILL DR SALT LAKE CITY, UT
Date: 09-26-2014
Checked: KLP
Drawn: JDM
Project Number: 660-15-103
Building Number: 9
Drawing Number: 9.MH501
DWG 16 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

AIR HANDLING UNIT SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	TYPE	AIR FLOW	AIR FLOW SUPPLY CFM	AIR FLOW MIN OA CFM	AIR FLOW RETURN CFM	SUPPLY FAN MARK	RETURN OR RELIEF FAN MARK	EXHAUST FAN MARK	PREFILTER MARK	AFTER FILTER MARK	FINAL FILTER MARK	HEAT RECOVERY MARK	PREHEAT COIL MARK	CHILLED WATER COIL MARK	REDUNDANT COOLING COIL MARK	HUMIDIFIER MARK	REMARKS
9-RT-1	RT-1	STUDIO	--	CV	7,100	1,400	5,700	9-RT-1-SC	N/A	N/A	9-RT-1-AF	N/A	N/A	N/A	9-RT-1-HC	9-RT-1-CC	N/A	N/A	NOTE 1, 2, 3

NOTES:
1. BASIS OF DESIGN IS TRANE CSAA014UB.
2. MAXIMUM UNIT WEIGHT 2,785 LBS.
3. BAROMETRIC RELIEF DAMPER IN RETURN AIR SECTION.

FAN SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	AIR FLOW CFM	TSP IN. W.C.	FAN: FAN	FAN: WHEEL	FAN: CLASS	FAN: ARRANGEMENT, ROTATION, AND DISCHARGE	FAN: DIAMETER IN	FAN: MIN. % EFF	FAN: DRIVE	FAN: FAN MAX. RPM	MOTOR ELECTRICAL: NOMINAL POWER BHP	MOTOR ELECTRICAL: NOMINAL POWER HP	MOTOR ELECTRICAL: VOLT	MOTOR ELECTRICAL: PHASE	MOTOR ELECTRICAL: RPM	MOTOR ELECTRICAL: SPEED CONTROL	CONTROL SEQUENCE	REMARKS
9-RT-1-SF	ROOF	STUDIO	9-RT-1	7,100	2.5	PLENUM	20"	--	--	20"	70%	--	2,261	11.5	15.0	208	3	1,800	VSD		

AIR FILTER SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	MERV RATING	AIR FLOW CFM	APD INTIAL IN	APD CHANGEOVER IN	HOUSING TYPE	CARTRIDGES #	CARTRIDGES SIZE IN	CARTRIDGES ARRANGEMENT	REMARKS
9-RT-1-AF	ROOF	STUDIO	9-RT-1	7	7,100	0.25	0.59	SLIDE TRAYS	--	--	BY MANUFACTURER	

STEAM HEATING COIL SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	APPLICATION	AIR FLOW CFM	MAX. FACE VELOCITY FPM	APD IN WG	TEMPERATURE EAT °F	TEMPERATURE LAT °F	TOTAL MIN. CAPACITY MBH	STEAM ENT CONT VALUE PSIG	STEAM ENT COIL PSIG	STEAM FLOW LBS/HR	STEAM TRAP MARK	STEAM TRAP LBS/HR	REMARKS
9-RT-1-HC	ROOF	STUDIO	9-RT-1	PREHEAT	7,100	570	0.09	48	90	322.1	15.0	12.0	340.5	9-TP-1	--	INTEGRAL FACE & BYPASS

NOTES:
1. DESIGN CAPACITY SHOWS THE REQUIRED CAPABILITY OF THE EQUIPMENT FOR CURRENT AND FUTURE HVAC LOADS. SELECT EQUIPMENT RATED FOR THESE VALUES (CALCULATED AT 35% OUTDOOR AIR).
2. BALANCE CAPACITY SHOWS THE REQUIRED CAPACITY FOR THE PRESENT DESIGN. BALANCE EQUIPMENT FOR THESE VALUES (CALCULATED AT 100% OUTDOOR AIR).

CHILLED WATER COOLING COIL SCHEDULE

MARK	LOCATION	AREA AND/OR ROOM SERVED	SYSTEM AIR HANDLING	AIR FLOW CFM	MAX. FACE VELOCITY FPM	MAX. APD IN WG	EAT Db °F	LAT Db °F	TOTAL CAPACILTY MBH	SENSIBLE CAPACITY MBH	CHILLED WATER FLOW GPM	CHILLED WATER EWT °F	CHILLED WATER LWT °F	CHILLED WATER WPD FT	REMARKS
9-RT-1-CC	ROOF	STUDIO	9-RT-1	7,100	520	0.7	80	67	274.2	195.7	31.2	45	55	3.6	

STEAM TRAP SCHEDULE

MARK	LOCATION	SYSTEM AND/OR SERVICE	CAPACITY OF MIN. DIFF PRESS LBS/HR	MIN. DIFF PRESS PSI	MIN. INLET PRESS PSI	TRAP SIZE IN	REMARKS
9-TP1	9-RT-1	9-RTI-HC	500	15	0.5	3/4"	
9-TP2	EOM	9-RT1-HC	200	15	0.5	0'-0 3/4"	

HVAC DESIGN DATA

DESIGN CONDITIONS	SUMMER TEMP °F	SUMMER WET BULB TEMP °F	SUMMER % HUMIDITY	WINTER TEMP °F	WINTER DEWPOINT TEMP °F	WINTER % HUMIDITY	LOWEST AVERAGE ANNUAL DEWPOINT
OUTDOOR	95.2	75.2	39%	8	5	70%	5

GENERAL NOTE:
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FULLY SPRINKLERED
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Revisions: | Date

ARCHITECT/ENGINEERS:
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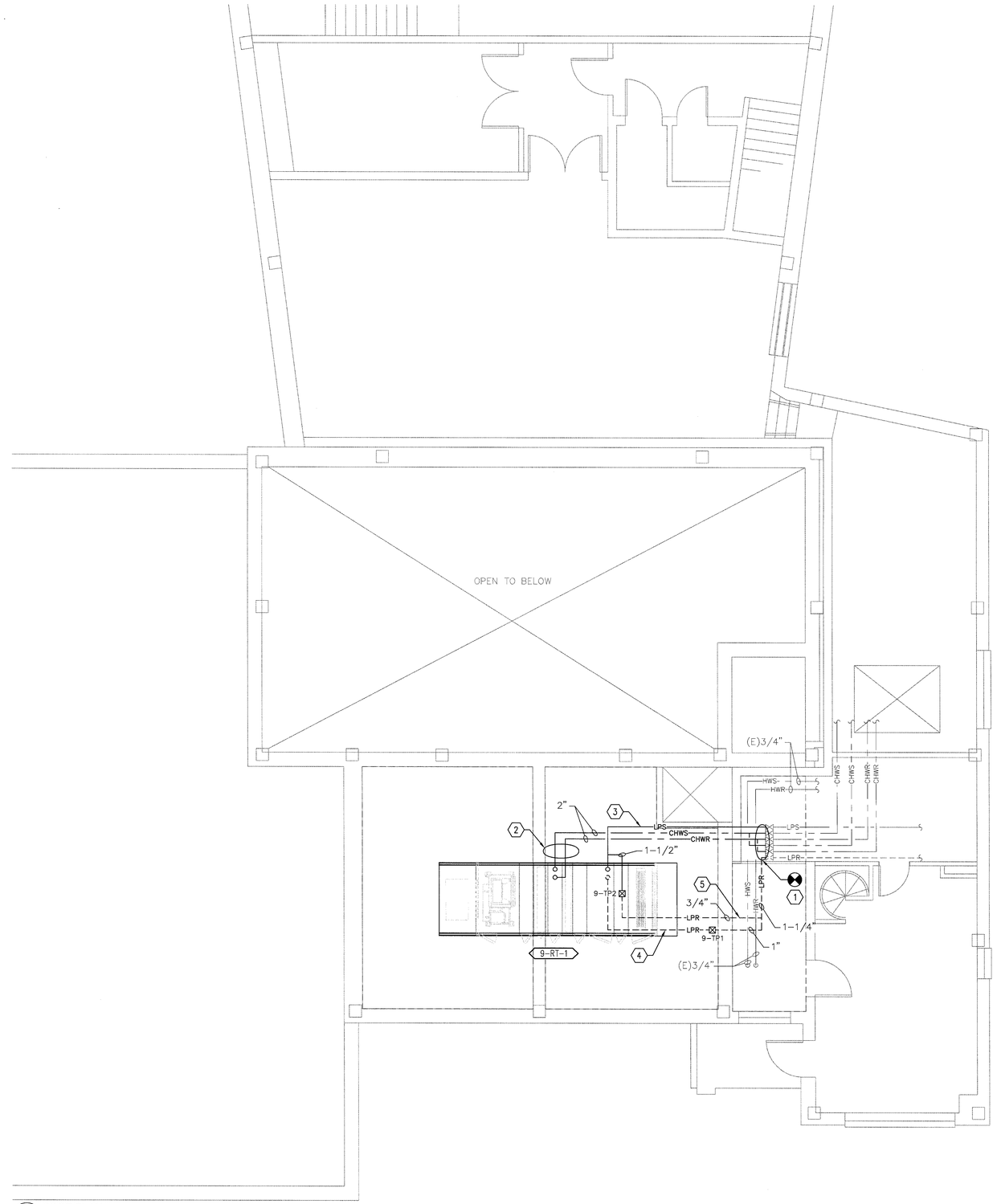
STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/22/2014

Drawing Title: MECHANICAL SCHEDULES
Approved: Project Director
Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location: GEORGE E WAHLEN VAMC, 500 FOOTHILL DR SALT LAKE CITY, UT
Date: 09-26-2014 | Checked: KLP | Drawn: JDM
Project Number: 660-15-103
Building Number: 9
Drawing Number: 9.MH601
DWG 17 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



F2 ROOF PLAN
SCALE 1/4" = 1'-0"

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

B. ANY NEW AHU DEVICE THAT REQUIRES SERVICING SHALL BE PLACED IN AN EASILY ACCESSIBLE LOCATION.

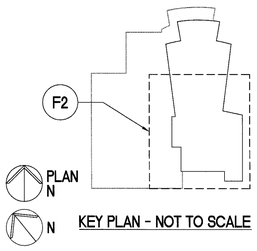
KEY NOTES

1. EXISTING VALVES BELOW ROOF. MANIFOLD (2) CHWS AND (2) CHWR TOGETHER AT THIS LOCATION; REFER TO 9.MD102 FOR DEMOLITION.
2. EXTEND NEW 2" CHILLED WATER SUPPLY AND RETURN LINES FROM EXISTING VALVES (BELOW ROOF) TO THE UNDERSIDE OF NEW AHU 9-RT-1. PENETRATE ROOF WITHIN FULL PERIMETER ROOF CURB. ALL DRAIN VALVES SHALL BE BELOW ROOF AND ACCESSIBLE.
3. EXTEND NEW 1-1/2" STEAM LINE FROM EXISTING VALVES (BELOW ROOF) TO UNDERSIDE OF NEW AHU 9-RT-1. PENETRATE ROOF WITHIN FULL PERIMETER ROOF CURB.
4. EXTEND NEW 1" STEAM CONDENSATE LINE FROM EXISTING VALVES (BELOW ROOF) TO THE UNDERSIDE OF NEW AHU 9-RT-1. PENETRATE ROOF WITHIN FULL PERIMETER ROOF CURB.
5. EXTEND NEW 3/4" CONDENSATE RETURN LINE FROM END OF MAIN TRAP BELOW UNIT.

LEGEND

⊗	CONNECTION BETWEEN NEW AND EXISTING
(E)	EXISTING ITEM

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



KEY PLAN - NOT TO SCALE

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BID DOCUMENTS
FOR CONSTRUCTION

Revisions:	Date

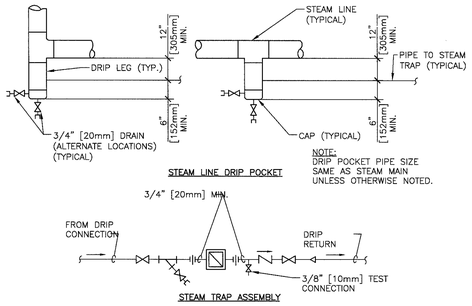
ARCHITECT/ENGINEERS:
PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/22/2014

Drawing Title:	MECHANICAL PIPING PLAN SECOND FLOOR AND ROOF
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	9
Drawing Number:	9.MP102
DWG 18 of 46	

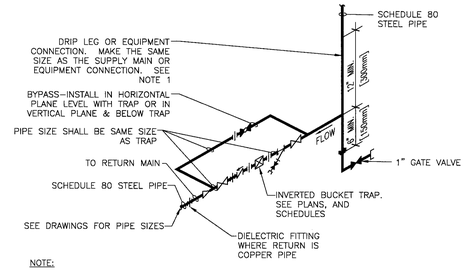
Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



B6 STEAM LINE DRIP POCKET STEAM TRAP ASSEMBLY

NOT TO SCALE

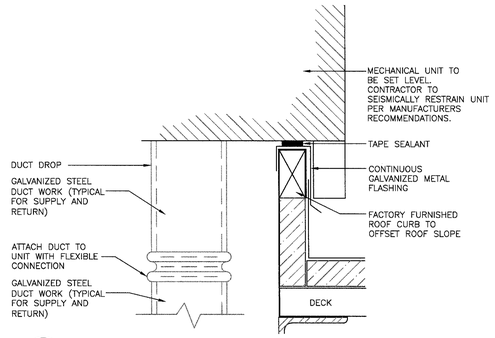


NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.
2. PROVIDE BYPASS PIPING.

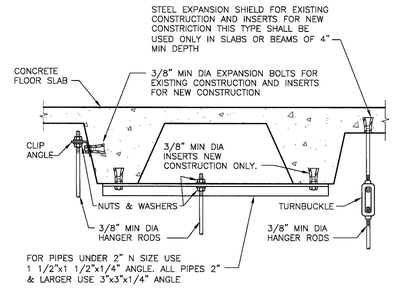
B8 INVERTED BUCKET STEAM TRAP ASSEMBLY

NOT TO SCALE



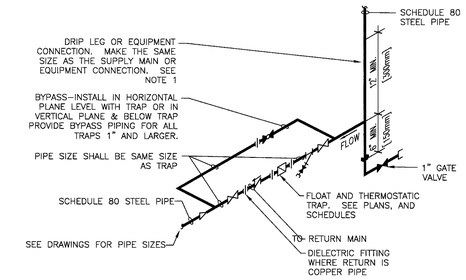
D3 ROOF CURB DETAIL

NOT TO SCALE



D6 SECURING HANGER RODS IN CONCRETE

NOT TO SCALE

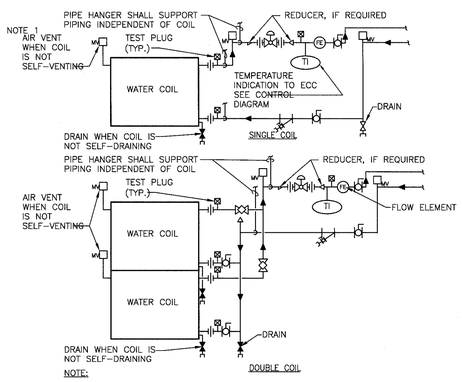


NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.

D8 FLOAT AND THERMOSTATIC STEAM TRAP ASSEMBLY

NOT TO SCALE

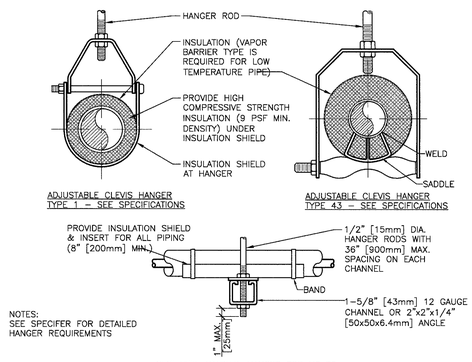


NOTE:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 4" [100mm]ø PIPE & SMALLER. TYPE "H–P" FOR 5" [125mm]ø PIPE & LARGER.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALES, OR EQUIPMENT.
3. THE FLOW ELEMENT MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

F1 WATER COILS - PIPING CONNECTIONS

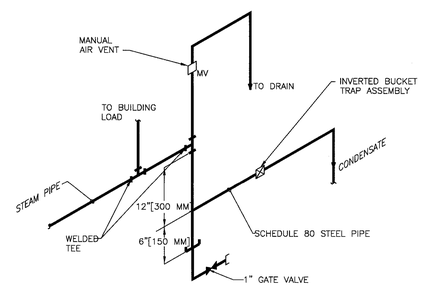
NOT TO SCALE



MAXIMUM PIPE/TUBING SUPPORT SPACING																		
NOM. SIZE	IN. [mm]	THRU 3/4 THRU [20]	1 [25]	1 1/4 [32]	1 1/2 [40]	2 [50]	2 1/2 [65]	3 [75]	4 [100]	5 [125]	6 [150]	8 [200]	10 [250]	12 [300]	14 [350]	16 [400]	18 [450]	20 [500]	24 [600]
PIPE	FT. [mm]	7 [2100]	7 [2100]	7 [2100]	9 [2700]	10 [3000]	11 [3400]	12 [3700]	14 [4100]	16 [4900]	17 [5200]	19 [5800]	22 [6700]	23 [7000]	25 [7600]	27 [8200]	28 [8500]	30 [9100]	32 [9600]
TUBING	FT. [mm]	5 FT [1500]	8 [1800]	7 [2100]	8 [2400]	8 [2400]	9 [2700]	10 [3000]	12 [3700]	13 [4000]	14 [4100]	16 [4900]	–	–	–	–	–	–	–
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.																			

F6 PIPE HANGERS

NOT TO SCALE



F8 END OF STEAM LINE DRIP TRAP

NOT TO SCALE

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER

Drawing Title: MECHANICAL DETAILS

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 9

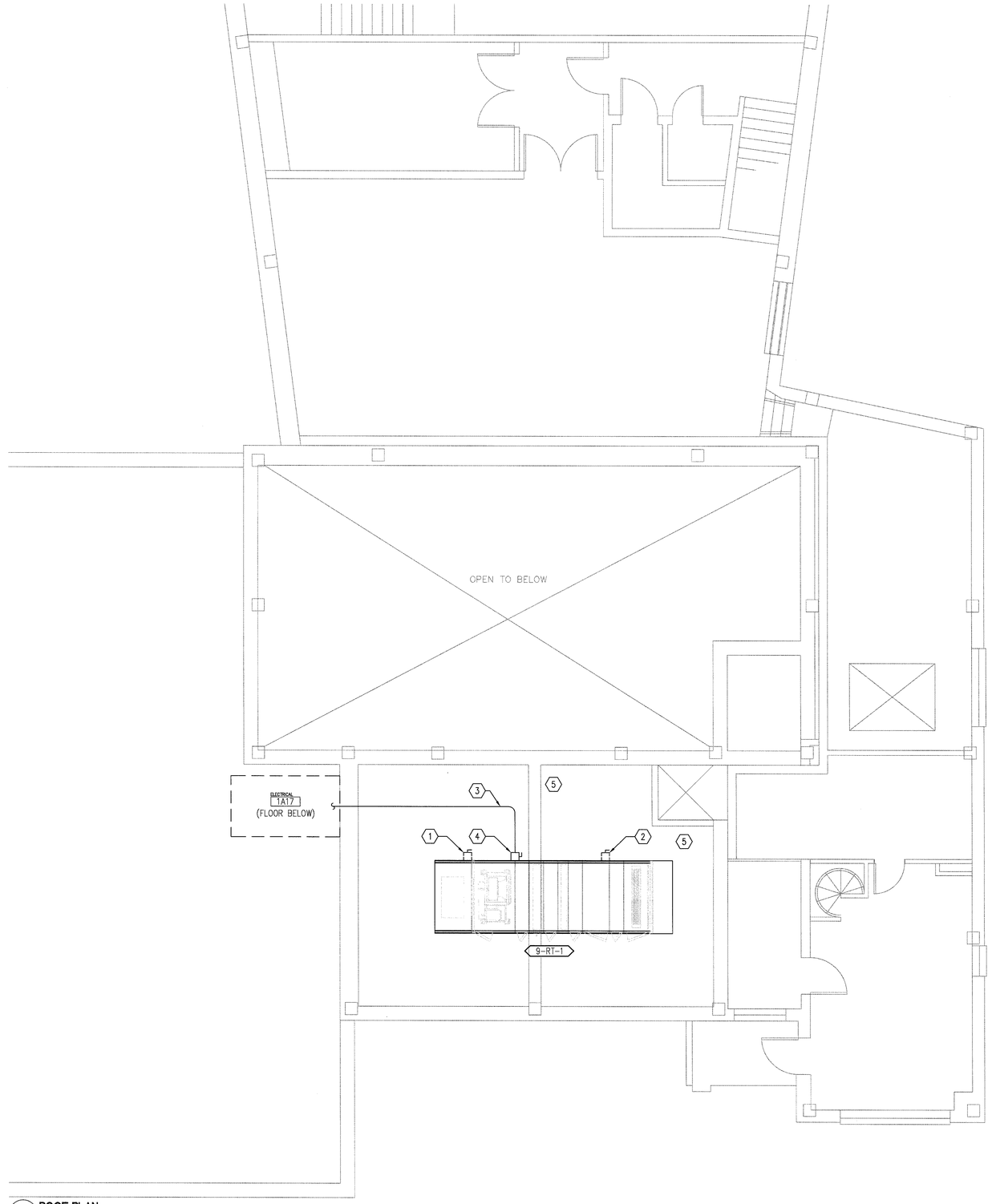
Drawing Number: 9.MP501

DWG 19 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



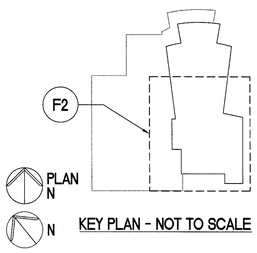
F2 ROOF PLAN
SCALE 1/4" = 1'-0"

NOTES

A. REFER TO E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEY NOTES

1. REMOVE EXISTING POWER CIRCUITS TO EXISTING AHU RT-1 BACK TO EXISTING PANEL, REMOVING EXISTING CONDUIT AND WIRE (EXISTING 30A, 208V. 3PH, 4W CIRCUIT).
2. REMOVE EXISTING POWER CIRCUITS TO EXISTING AHU RT-2 BACK TO EXISTING PANEL, REMOVING EXISTING CONDUIT AND WIRE (EXISTING 30A, 208V. 3PH, 4W CIRCUIT).
3. INSTALL NEW 1"C WITH 3#6 THWH AND 1#8 GND FROM EXISTING PANEL IN ROOM 1A17 BELOW. INSTALL NEW 60A, 3-POLE BREAKER IN EXISTING SPACE FOR NEW RT-1, 30A BREAKER LISTED ABOVE.
4. ON THE ROOF, MOUNT A NEW 60A, 208V, 3PH, 4W, FUSED NEMA 3R DISCONNECT ON NEW 9-RT-1 TO SERVICE THE NEW AHU UNIT.
5. EXISTING DUST SMOKE DETECTOR TO REMAIN AND BE INTERLOCKED TO NEW EQUIPMENT.



KEY PLAN - NOT TO SCALE

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Revisions:	Date

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LICENSED PROFESSIONAL ENGINEER
BLAINE CAMIEL VAN GANSBEKE
24,788
STATE OF KENTUCKY
9/22/2014

Drawing Title: ELECTRICAL POWER PLAN SECOND FLOOR AND ROOF

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

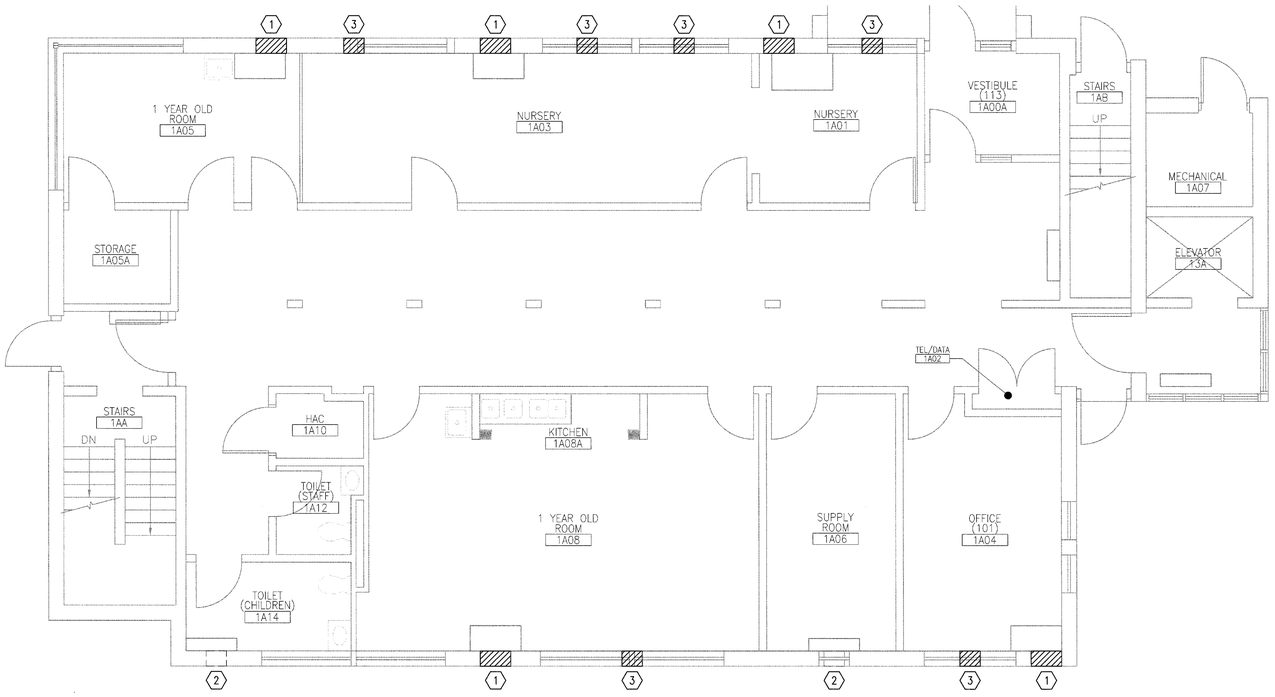
Project Number: 660-15-103

Building Number: 9

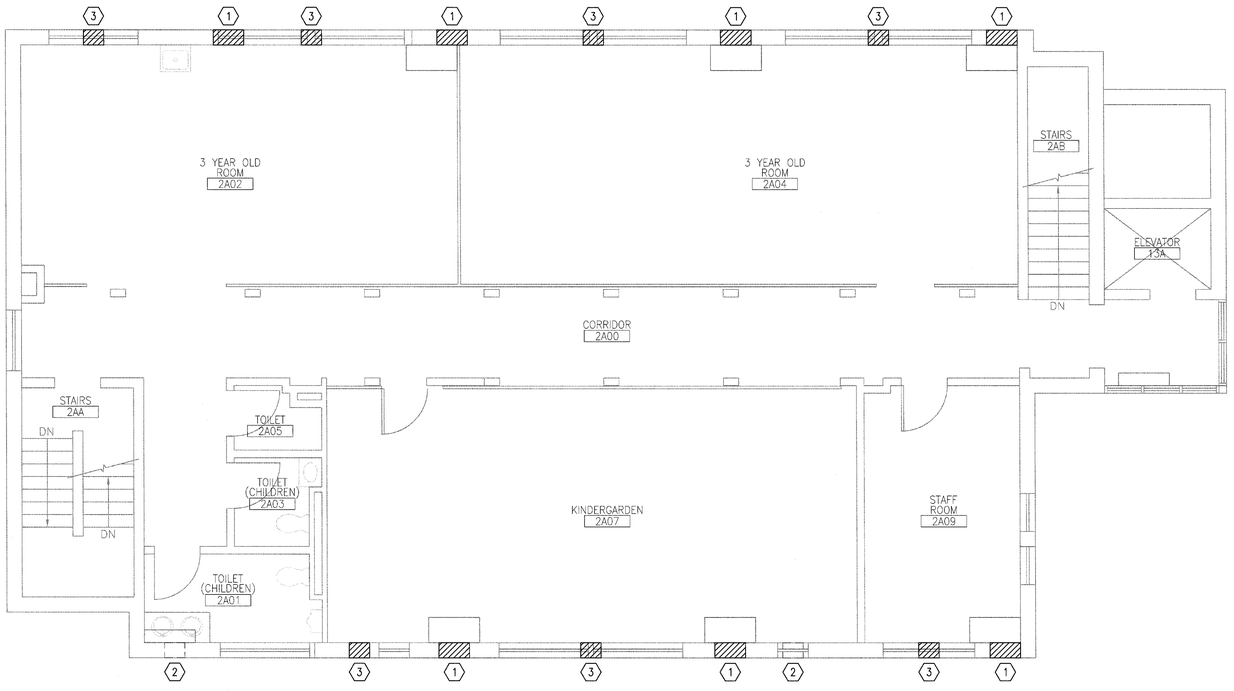
Drawing Number: 9.EP102
DWG 20 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



C2 FIRST FLOOR PLAN
SCALE 1/4" = 1'-0"



F2 SECOND FLOOR PLAN
SCALE 1/4" = 1'-0"

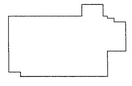
NOTES

A. REFER TO 13.S-501 FOR STRUCTURAL DETAILS.

KEY NOTES

1. NEW WORK PENETRATION. PROVIDE NEW 24 X 16 LOUVER HIGH AND LOW; REFER TO 13.AE101 AND 13.S-501 FOR DETAILS.
2. EXISTING VENTILATION OPENING TO REMAIN.
3. INFILL EXISTING VENTILATION OPENING WITH BRICK ON EXTERIOR AND GYPSUM BOARD ON INTERIOR; REFER TO 13.AE501 FOR DETAILS.

KEY PLAN - NOT TO SCALE
SECOND FLOOR



KEY PLAN - NOT TO SCALE
FIRST FLOOR

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Revisions:	Date

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,783
LICENSED
PROFESSIONAL ENGINEER

Drawing Title: ARCHITECTURAL FLOOR PLANS

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 13

Drawing Number: 13.AE101
DWG 23 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO 13.AE101 FOR FLOOR PLAN DETAILS.

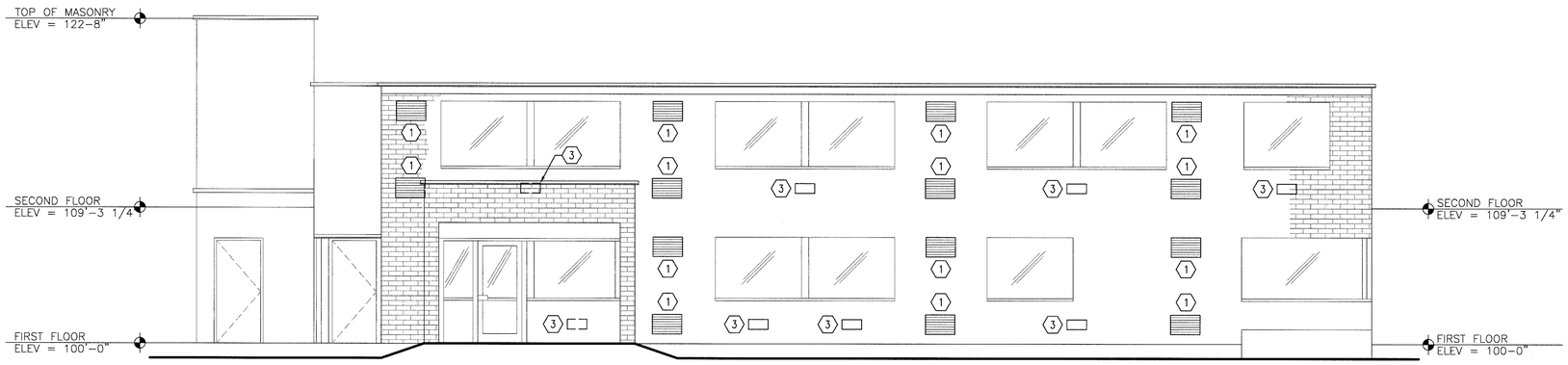
B. REFER TO 13.S-101 FOR STRUCTURAL PLAN DETAILS.

C. ALL REMOVED BRICK TO BE CLEANED FOR REUSE IN OPENINGS TO BE INFILLED.

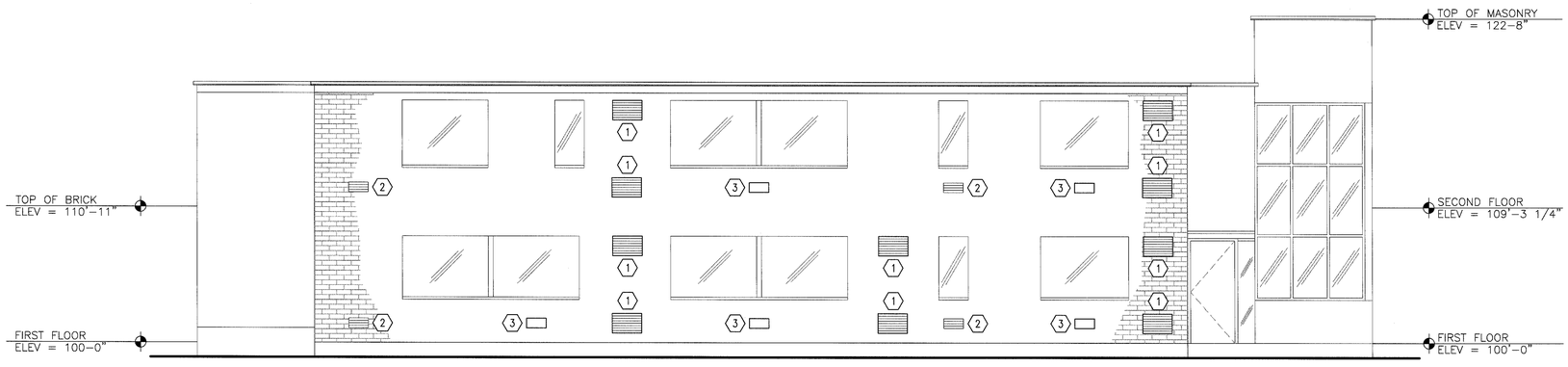
D. BRICK MAY BE CLEANED AND REUSED FOR MATCHING INFILL PANELS. COR SHALL BE SHOWN BRICK TO BE REUSED AND APPROVED BEFORE ANY WORK ON INFILLING OPENINGS IS STARTED.

KEY NOTES

1. NEW WORK PENETRATION. PROVIDE NEW 24 X 16 LOUVER HIGH AND LOW; REFER TO 13.AE101 AND 13.S-501 FOR DETAILS.
2. EXISTING VENTILATION OPENING TO REMAIN.
3. INFILL EXISTING VENTILATION OPENING WITH BRICK ON EXTERIOR AND GYPSUM BOARD ON INTERIOR; REFER TO 13.AE501 FOR DETAILS.



C2 NORTH ELEVATION
SCALE 1/4" = 1'-0"



F2 SOUTH ELEVATION
SCALE 1/4" = 1'-0"

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Revisions:	Date

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/22/2014

Drawing Title: ARCHITECTURAL ELEVATIONS

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 13

Drawing Number: 13.AE301

DWG 24 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

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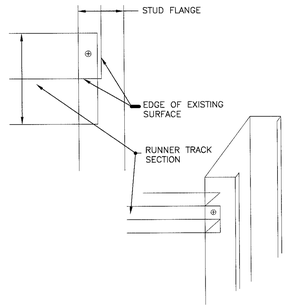
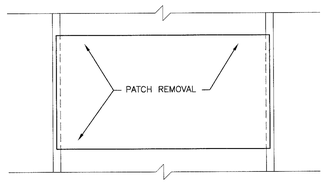
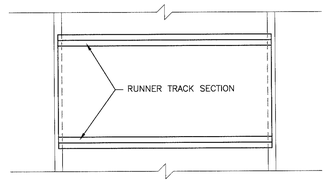
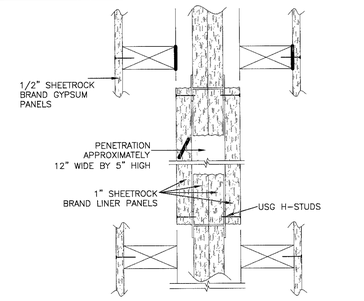




PARTIAL ELEVATION – 1

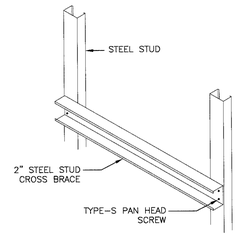


PARTIAL ELEVATION – 2

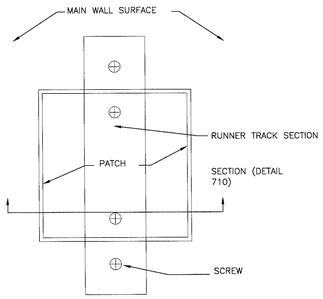


NOTES:
1. ATTACH 1" LINER PANELS OVER PENETRATION ON BOTH SIDES WITH 1-5/8" TYPE S SCREWS
2. PANELS EXTEND 12" VERTICALLY ABOVE AND BELOW PENETRATION

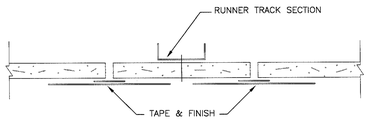
B6 SHAFT WALL PENETRATION REPAIR DETAIL
NOT TO SCALE



C6 INTERIOR WALL PIPING SUPPORT BRACE
NOT TO SCALE

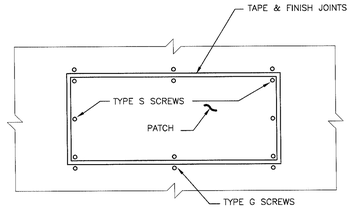


PARTIAL ELEVATION – 2



SECTION

E2 FLUSH PATCH - SMALL OPENING
NOT TO SCALE



PARTIAL ELEVATION – 3

E4 FLUSH PATCH - LARGE OPENING
NOT TO SCALE

NOTES

A. PROVIDE ALL NECESSARY FLASHING REQUIRED FOR THE SHAFT WALL ASSEMBLY REPAIRS.

B. MATCH EXISTING GYPSUM BOARD TYPE AND THICKNESS WHERE PATCH WORK IS TO BE PERFORMED.

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Revisions:	Date

ARCHITECT/ENGINEERS:

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
01/27/2014

Drawing Title: ARCHITECTURAL DETAILS

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 13

Drawing Number: 13.AE501
DWG 25 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

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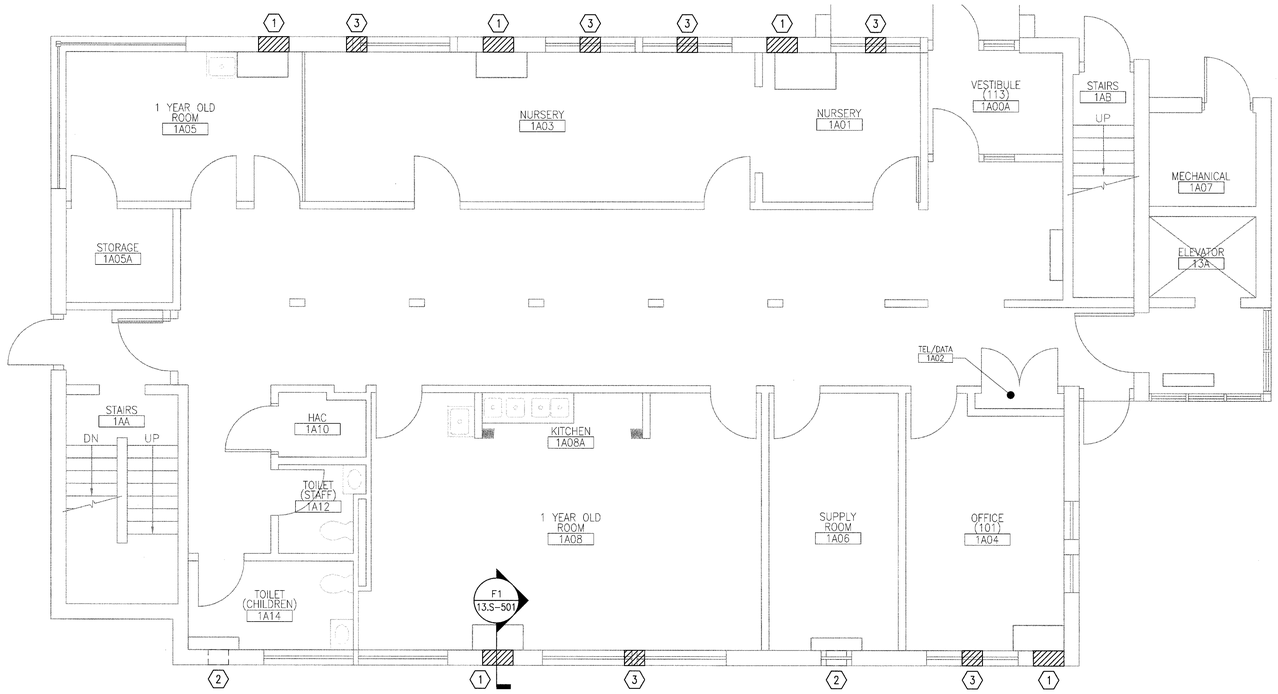
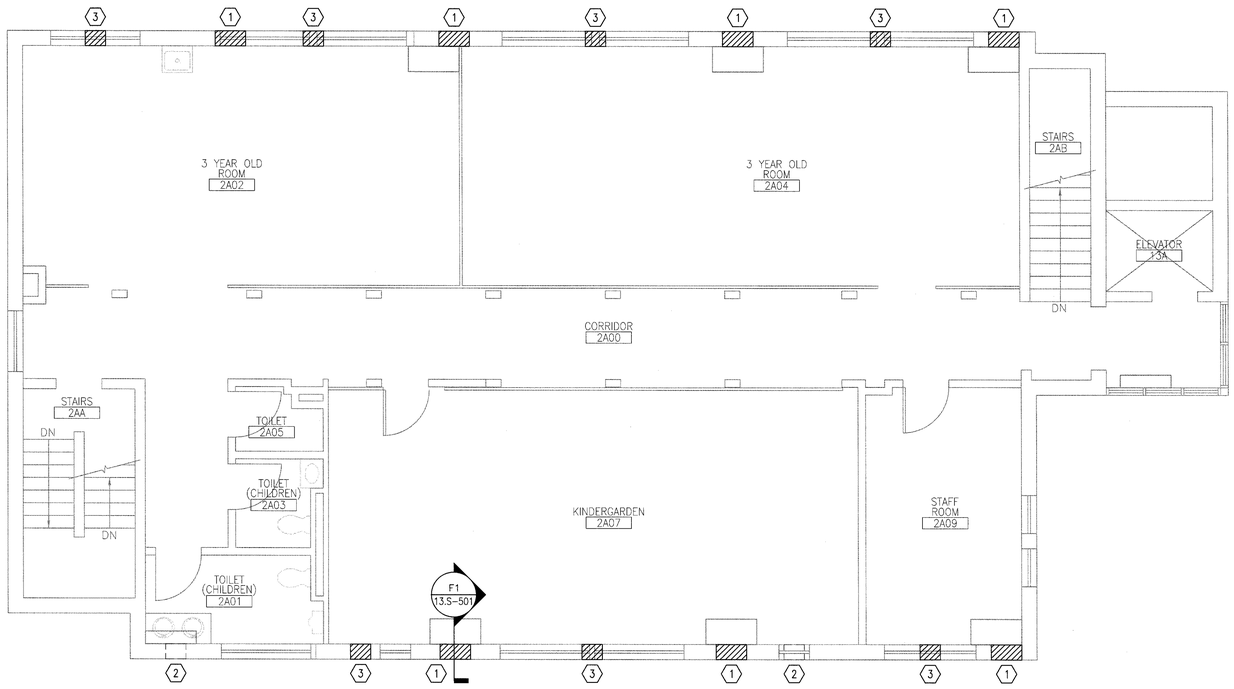


C2 FIRST FLOOR PLAN
SCALE 1/4" = 1'-0"



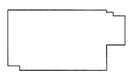
F2 SECOND FLOOR PLAN
SCALE 1/4" = 1'-0"

NOTES

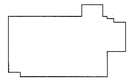
A. REFER TO 13.S-501 FOR STRUCTURAL DETAILS.

KEY NOTES

1. NEW WORK PENETRATION. PROVIDE NEW 24 X 16 LOUVER HIGH AND LOW; REFER TO 13.AE101 AND 13.S-501 FOR DETAILS.
2. EXISTING VENTILATION OPENING TO REMAIN.
3. INFILL EXISTING VENTILATION OPENING WITH BRICK ON EXTERIOR AND GYPSUM BOARD ON INTERIOR; REFER TO 13.AE501 FOR DETAILS.



N KEY PLAN - NOT TO SCALE
SECOND FLOOR



N KEY PLAN - NOT TO SCALE
FIRST FLOOR

FULLY SPRINKLERED
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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

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ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

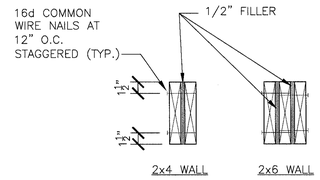
9/22/2014
STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,768
LICENSED PROFESSIONAL ENGINEER

Drawing Title: STRUCTURAL FLOOR PLANS	Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14	Project Number: 660-15-103	Office of Construction and Facilities Management
Approved: Project Director	Location: GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT	Building Number: 13	
	Date: 09-26-2014 / Checked: KLP / Drawn: JDM	Drawing Number: 13.S-101 DWG 21 of 46	Department of Veterans Affairs

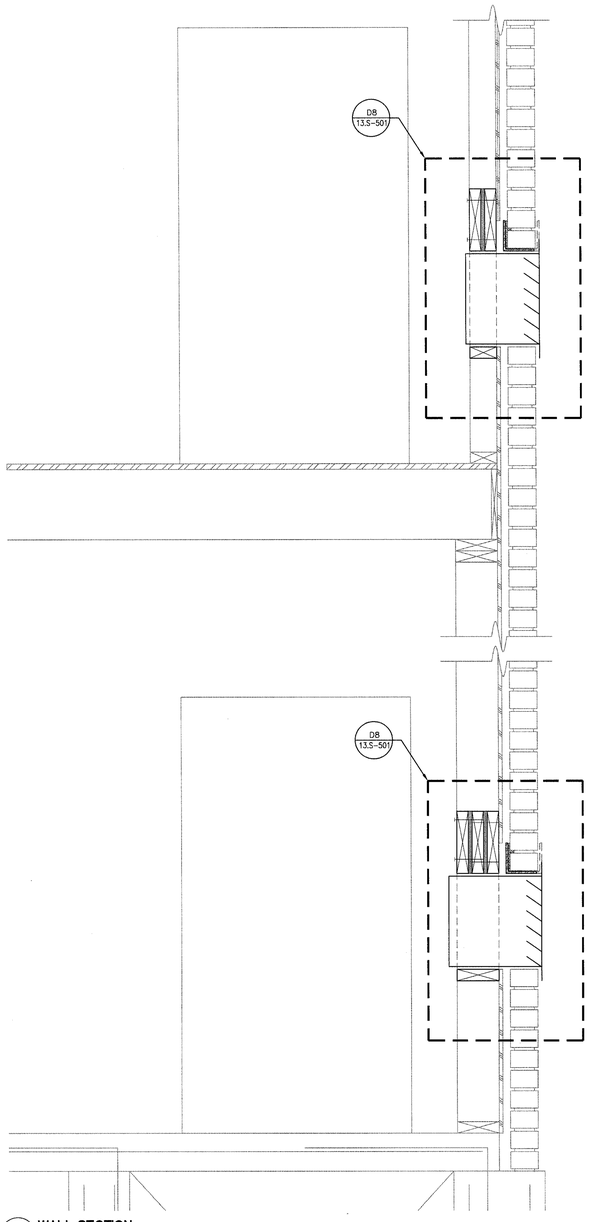
VA FORM 08-6231

NOTES

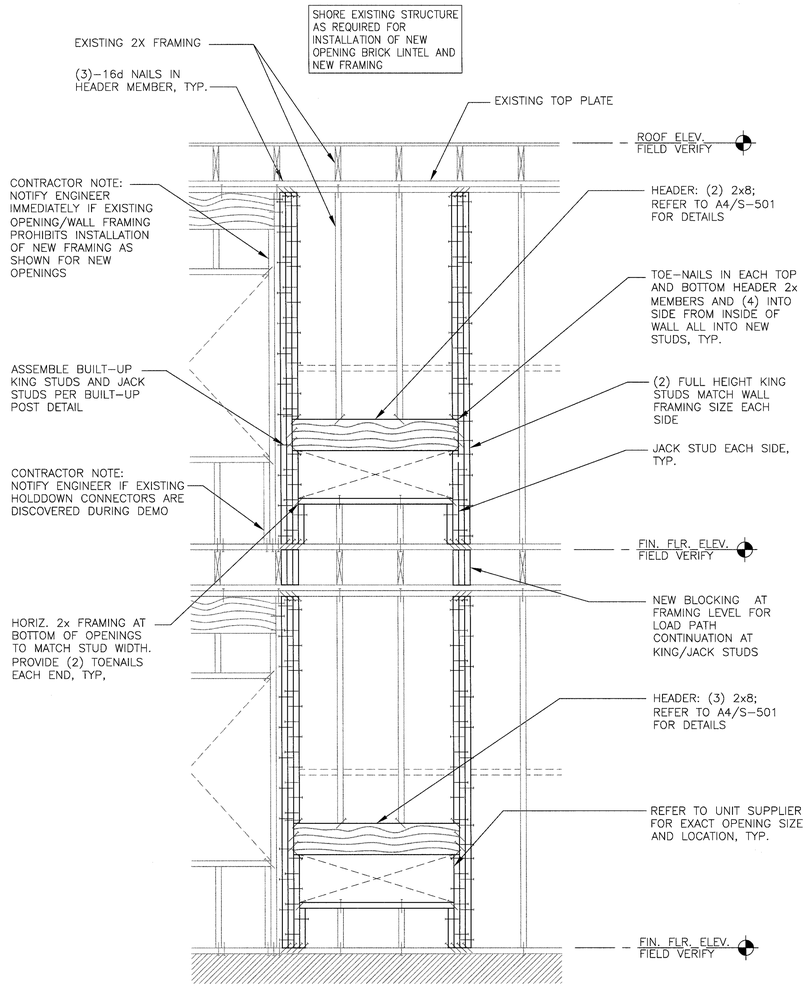
A. REFER TO 13.S-101 FOR FLOOR PLANS AND WALL SECTION.



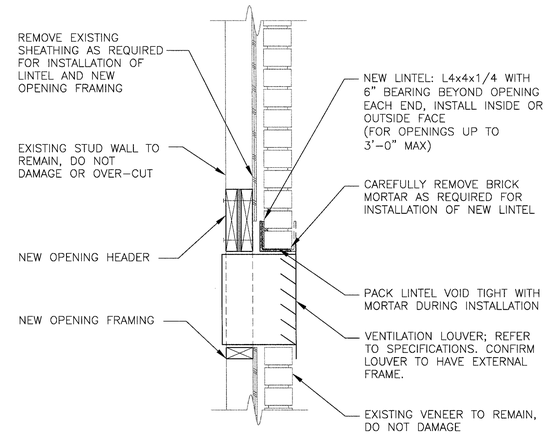
A4 TYPICAL HEADER DETAIL
SCALE 1-1/2" = 1'-0"



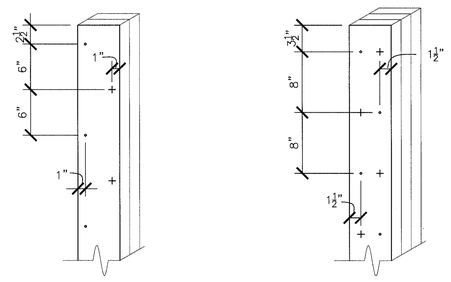
F1 WALL SECTION
SCALE 1-1/2" = 1'-0"



F4 TYPICAL NEW DUCT OPENING FRAMING DETAIL
SCALE 1-1/2" = 1'-0"



D8 NEW OPENING DETAIL
SCALE 1-1/2" = 1'-0"



(2)-2x LAMINATIONS WITH ONE ROW OF STAGGERED 10d COMMON WIRE NAILS. (D=0.148",L=3")

(3) OR MORE 2x LAMINATIONS WITH TWO ROWS OF 30d COMMON WIRE NAILS. (D=0.207",L=4 1/2")

" + " DENOTES NAILS DRIVEN FROM BACK FACE

F8 BUILT-UP POST DETAIL
SCALE 1-1/2" = 1'-0"

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:

PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,789
LICENSED PROFESSIONAL ENGINEER
9/22/2014

Drawing Title: STRUCTURAL SECTIONS AND DETAILS

Approved Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 13

Drawing Number: 13.S-501
DWG 22 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

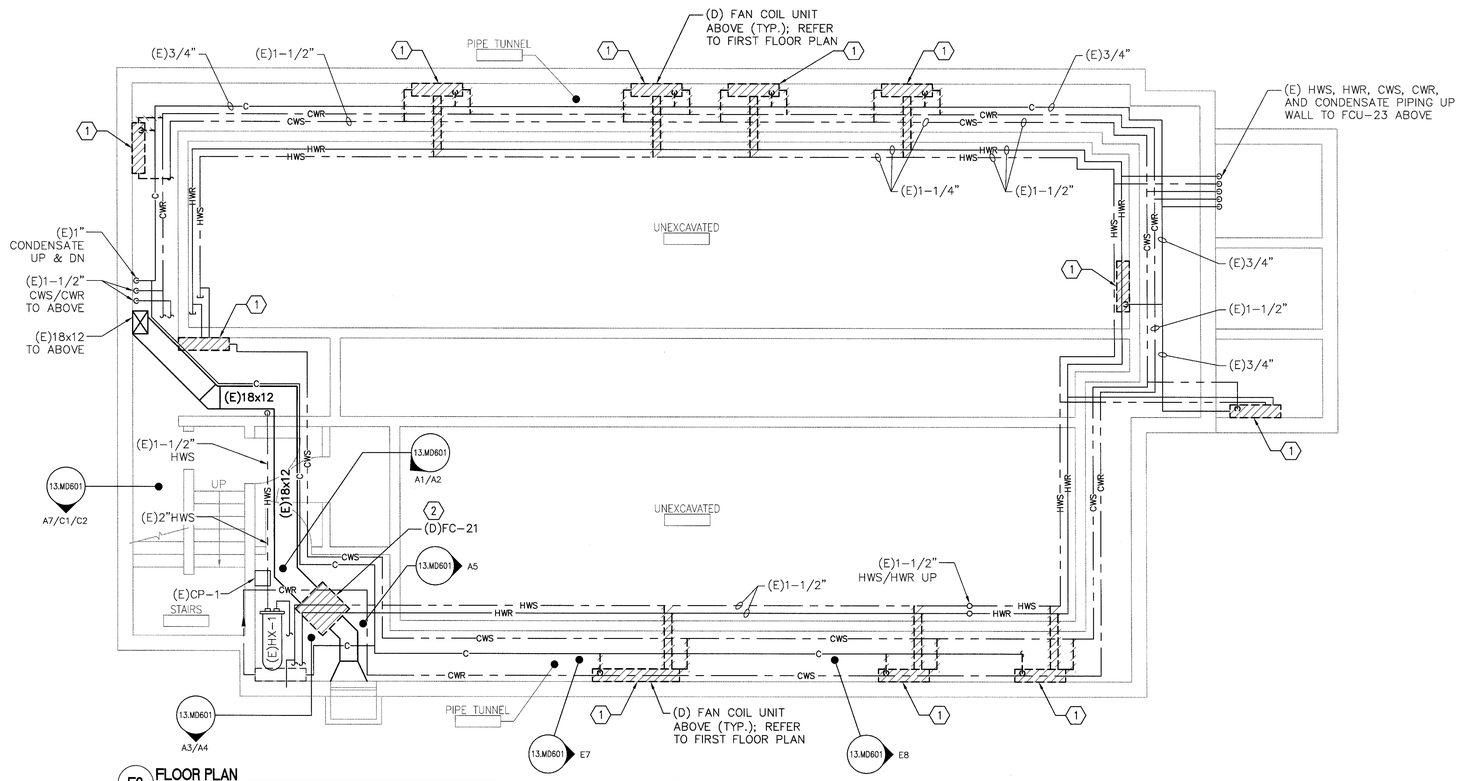
B. REFER TO SHEET 13.MD601 FOR PHOTOGRAPHS OF WORK AREA.

KEY NOTES

1. REMOVE EXISTING FAN COIL UNITS ABOVE. EXISTING PIPING CONNECTIONS TO REMAIN AND BE REUSED.
2. REMOVE EXISTING AHU.

LEGEND

◑	END OF DEMOLITION
▨	EXISTING ITEMS TO BE DEMOLISHED
(E)	EXISTING ITEM
(D)	DEMOLISH ITEM
A1 / 13.MD601	PHOTO INDICATOR



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.

KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:
PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY — BLAINE CAMIEL VAN GANSBEKE 24,788 — LICENSED PROFESSIONAL ENGINEER

Drawing Title: MECHANICAL HVAC DEMOLITION PLAN BASEMENT	Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14		Project Number: 660-15-103
Approved Project Director	Location: GEORGE E WAHLEN VAMC, 500 FOOTHILL DR SALT LAKE CITY, UT		Building Number: 13
	Date: 09-26-2014	Checked: KLP / Drawn: JDM	Drawing Number: 13.MD100 DWG 26 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

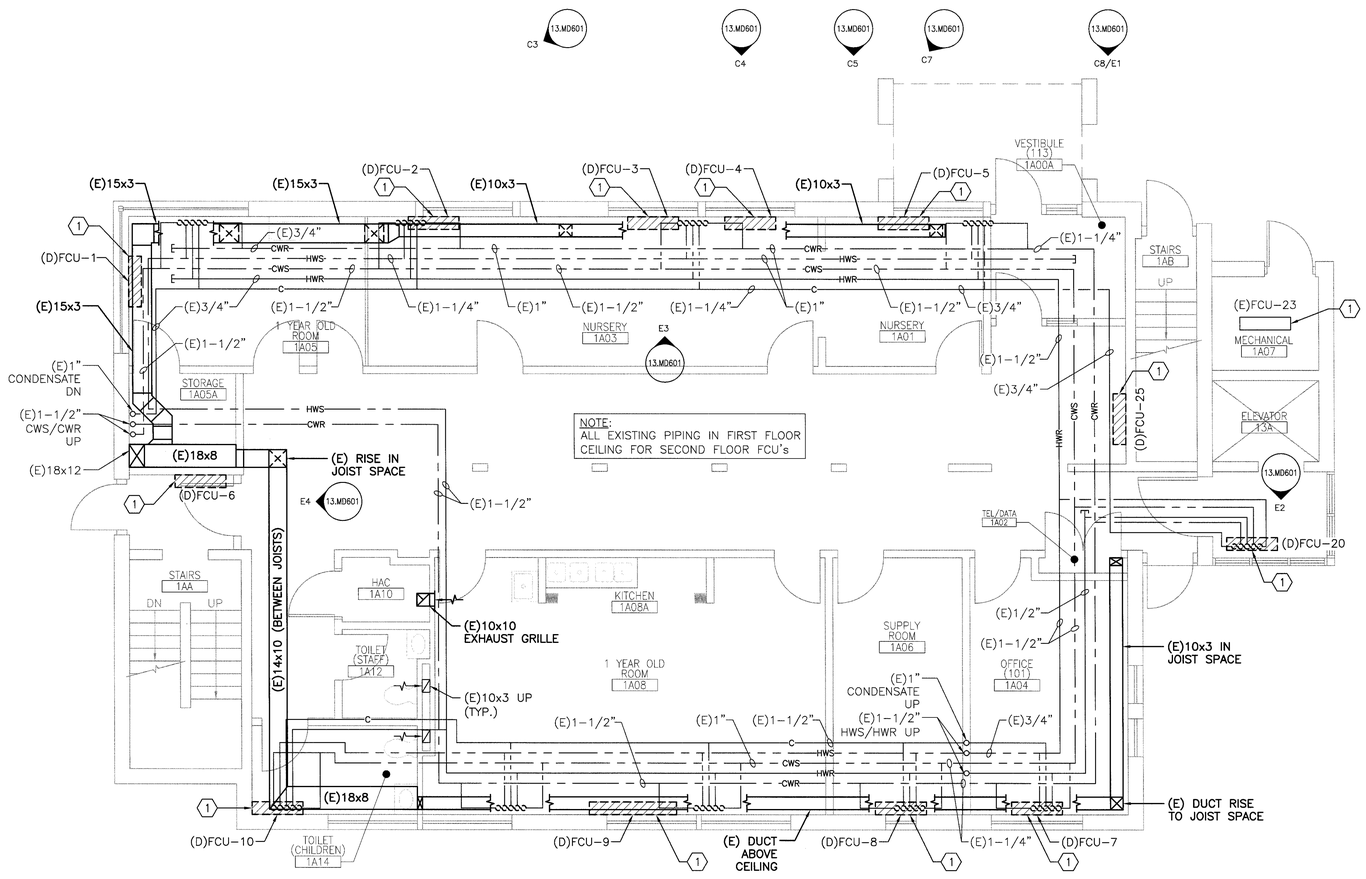
B. REFER TO SHEET 13.MD601 FOR PHOTOGRAPHS OF WORK AREA.

KEY NOTES

1. REMOVE EXISTING FAN COIL UNITS. EXISTING PIPING CONNECTIONS TO REMAIN AND BE REUSED.

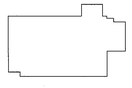
LEGEND

	END OF DEMOLITION
	EXISTING ITEMS TO BE DEMOLISHED
(E)	EXISTING ITEM
(D)	DEMOLISH ITEM
A1 / 13.MD601	PHOTO INDICATOR



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:
PARADIGM ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY — BLAINE CAMIEL VAN GANSBEKE 24,782 — LICENSED PROFESSIONAL ENGINEER — 9/22/2014

Drawing Title:	MECHANICAL HVAC DEMOLITION PLAN FIRST FLOOR
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	13
Drawing Number:	13.MD101
	DWG 27 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

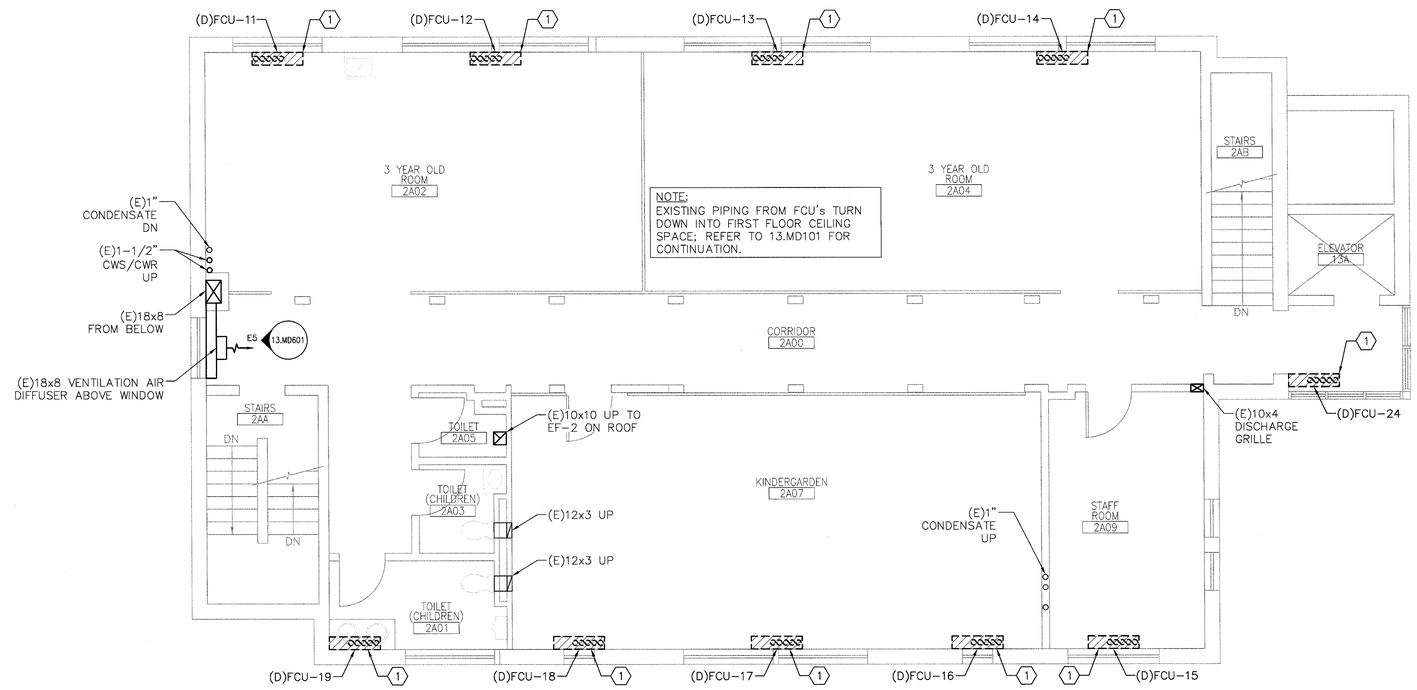
B. REFER TO SHEET 13.MD601 FOR PHOTOGRAPHS OF WORK AREA.

KEY NOTES

1. REMOVE EXISTING FAN COIL UNITS. EXISTING PIPING CONNECTIONS TO REMAIN AND BE REUSED.

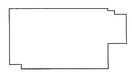
LEGEND

	END OF DEMOLITION
	EXISTING ITEMS TO BE DEMOLISHED
(E)	EXISTING ITEM
(D)	DEMOLISH ITEM
A1 / 13.MD601	PHOTO INDICATOR



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



N KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:
PARADIGM ENGINEERS AND CONSTRUCTORS
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STATE OF KENTUCKY BLAINE CAMIEL VAN GANSBEKE 24,738 LICENSED PROFESSIONAL ENGINEER 11/22/2014

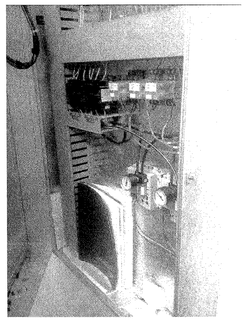
Drawing Title:	MECHANICAL HVAC DEMOLITION PLAN SECOND FLOOR
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	13
Drawing Number:	13.MD102
	DWG 28 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

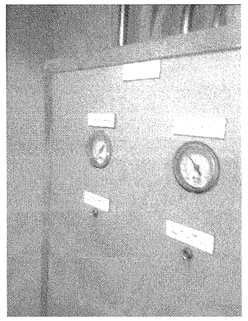
VA FORM 08-6231

NOTES

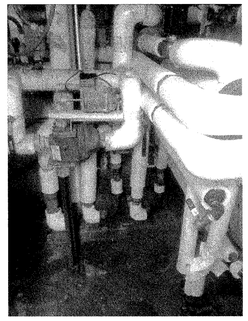
A. REFER TO 13.MD100, 13.MD101, AND 13.MD102 FOR SITE PHOTO LOCATIONS.



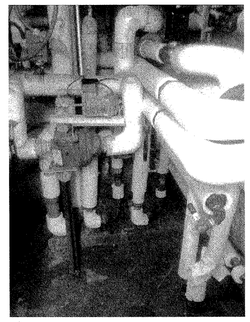
A1 INTERIOR OF CONTROL PANEL
NOT TO SCALE



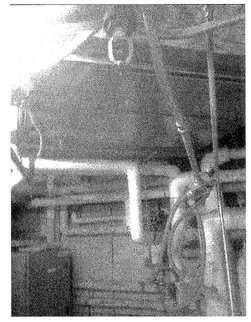
A2 EXTERIOR OF CONTROL PANEL
NOT TO SCALE



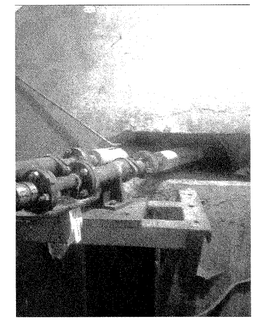
A3 PUMPS AND PIPING
NOT TO SCALE



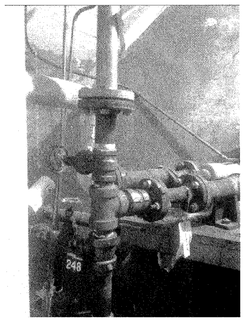
A4 PUMPS AND PIPING
NOT TO SCALE



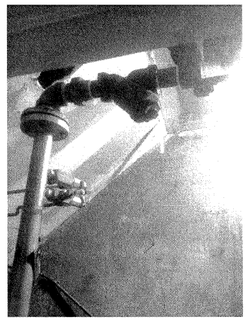
A5 AHU IN BASEMENT
NOT TO SCALE



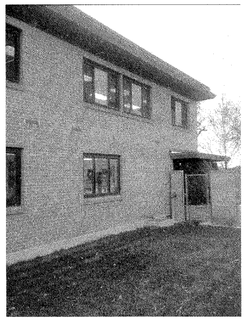
A7 STEAM ENTRANCE
NOT TO SCALE



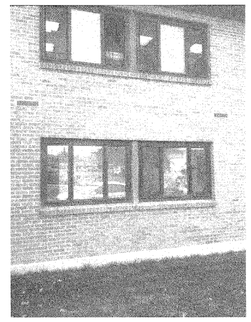
C1 STEAM SHIT OFF AND HEAT EXCHANGER
NOT TO SCALE



C2 STEAM STRAINER
NOT TO SCALE



C3 BUILDING 13 EXTERIOR
NOT TO SCALE



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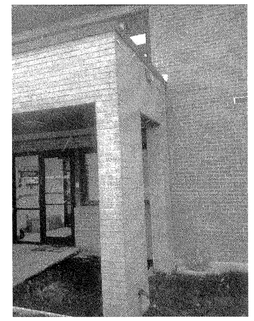
NOT TO SCALE



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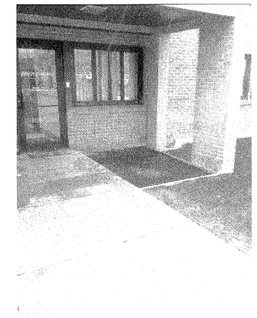
NOT TO SCALE



C7 BUILDING 13 EXTERIOR
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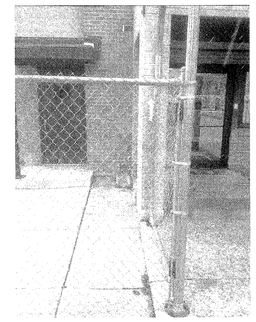
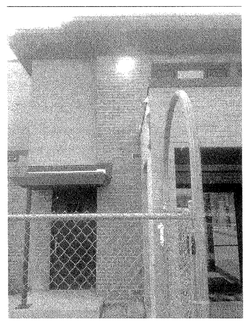


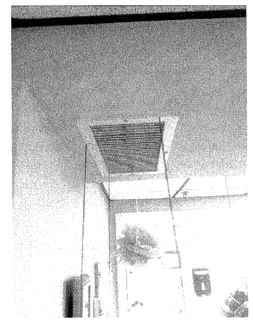
C8 BUILDING 13 EXTERIOR
NOT TO SCALE



E1 BUILDING 13 EXTERIOR
NOT TO SCALE

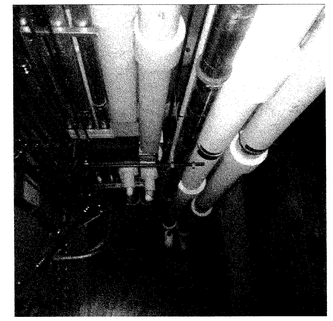
E2 EXISTING FCU
NOT TO SCALE

E3 EXISTING FCU
NOT TO SCALE

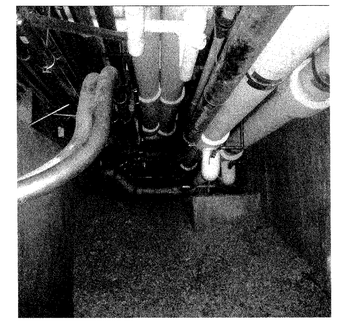


E4 ---
NOT TO SCALE

E5 EXISTING WINDOW DIFFUSER
NOT TO SCALE



E7 EXISTING CRAWLSPACE PIPING
NOT TO SCALE



E8 EXISTING CRAWLSPACE PIPING
NOT TO SCALE

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:
PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED
PROFESSIONAL ENGINEER
9/26/2014

Drawing Title: EXISTING SITE PHOTOS

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103
Building Number: 13
Drawing Number: 13.MD601
DWG 29 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

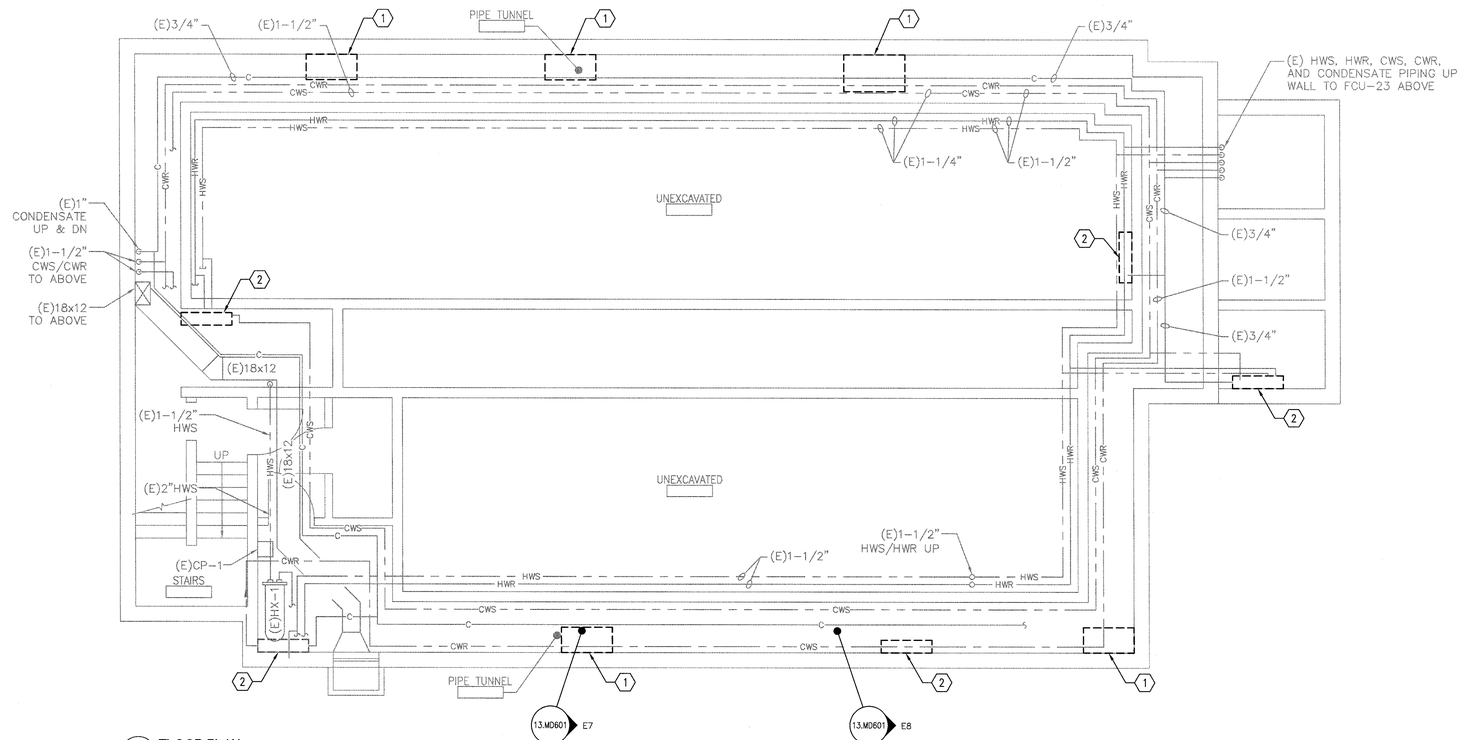
A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEY NOTES

1. NEW VERTICAL CLASSROOM UNIT ABOVE.
2. NEW FAN COIL UNIT ABOVE.

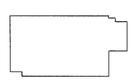
LEGEND

⊗	CONNECTION BETWEEN NEW AND EXISTING
(E)	EXISTING ITEM



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



N KEY PLAN - NOT TO SCALE

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BID DOCUMENTS
FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:

PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
BLAINE CAMEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/26/2014

Drawing Title:	MECHANICAL PIPING PLAN BASEMENT
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	13
Drawing Number:	13.MP100
DWG 30 of 46	

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

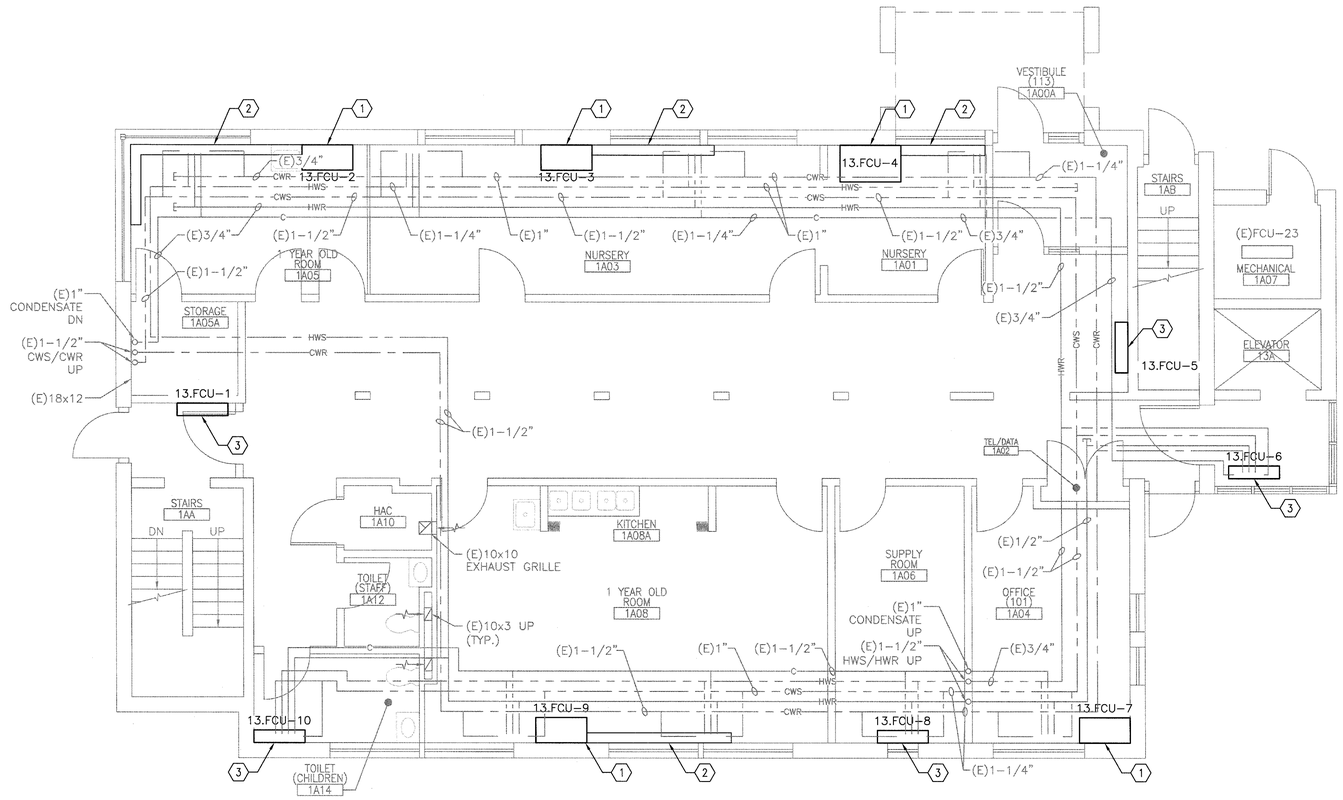
B. ANCHOR EQUIPMENT AS REQUIRED TO PROVIDE REQUIRED EQUIPMENT SEISMIC RESTRAINT.

KEY NOTES

1. NEW VERTICAL CLASSROOM UNIT.
2. BOX OUT ALONG FLOOR FOR NEW PIPING; REFER TO F1/13.MP501 FOR A 16 GA. SHEET METAL ENCLOSURE.
3. NEW FAN COIL UNIT.

LEGEND

⊗	CONNECTION BETWEEN NEW AND EXISTING
(E)	EXISTING ITEM



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"

GENERAL NOTE:
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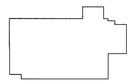


KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:
PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmuso.com

STATE OF KENTUCKY — BLAINE CAMIEL VAN GANSBEKE 24,768 — LICENSED PROFESSIONAL ENGINEER — 09-26-2014

Drawing Title:	MECHANICAL PIPING PLAN FIRST FLOOR
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	13
Drawing Number:	13.MP101
DWG 31 of 46	

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

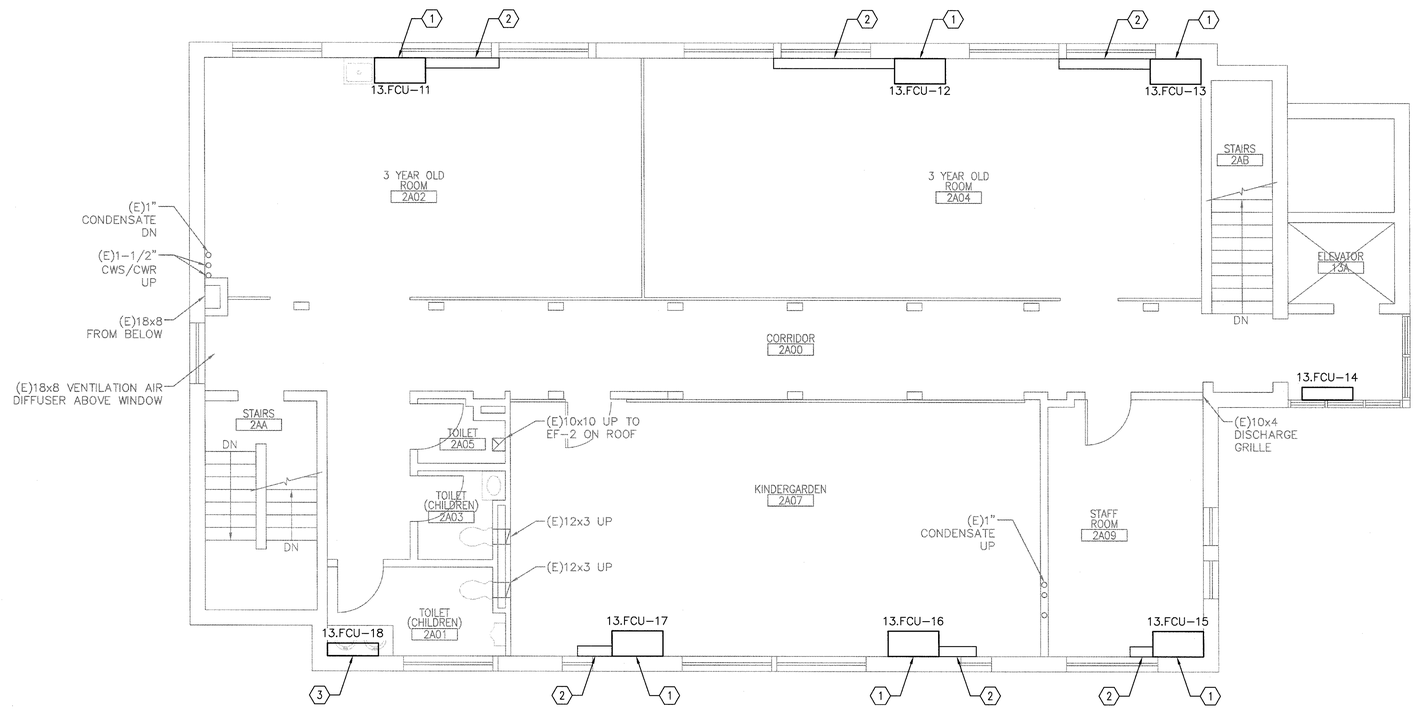
B. ANCHOR EQUIPMENT AS REQUIRED TO PROVIDE REQUIRED EQUIPMENT SEISMIC RESTRAINT.

KEY NOTES

1. NEW VERTICAL CLASSROOM UNIT.
2. BOX OUT ALONG FLOOR FOR NEW PIPING.
3. NEW FAN COIL UNIT.

LEGEND

⊗	CONNECTION BETWEEN NEW AND EXISTING
(E)	EXISTING ITEM



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.

N KEY PLAN - NOT TO SCALE

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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

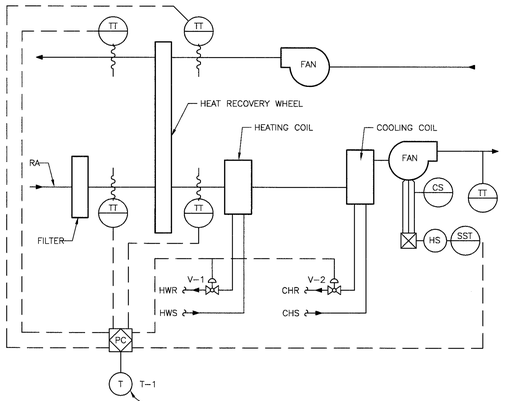
PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
9/23/2014
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER

Drawing Title: MECHANICAL PIPING PLAN SECOND FLOOR	Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14		Project Number: 660-15-103
Approved: Project Director	Location: GEORGE E WAHLEN VAMC 500 FOOTHILL DR. SALT LAKE CITY, UT		Building Number: 13
	Date: 09-26-2014	Checked: KLP / Drawn: JDM	Drawing Number: 13.MP102 DWG 32 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

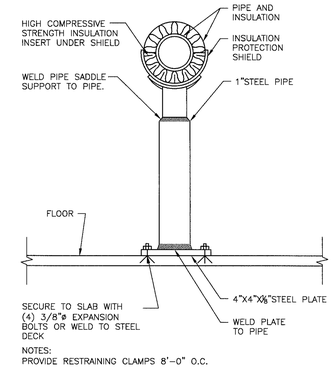


CLASSROOM FAN COIL SEQUENCE OF OPERATION
CLASSROOM FAN COIL UNIT SHALL OPERATE ON A SCHEDULE AS SET BY THE ECC. FAN SHALL RUN CONTINUOUSLY. SUPPLY FAN STATUS SHALL BE MONITORED AND AN ALARM MESSAGE SHALL BE GENERATED IN THE EVENT THE UNIT FAILS TO RUN. THE ADJUSTABLE ROOM TEMP SET POINT WILL BE 70°–75° WITH 0.5° HEATING/COOLING OFFSETS. VALVE V-1 & V-2 WILL NOT BE OPEN SIMULTANEOUSLY. ROOM OCCUPANT WILL HAVE ABILITY OF ADJUSTING ROOM TEMPERATURE BETWEEN 70°–75°.

RELIEF FAN WILL OPERATE AT THE SAME TIME AS THE SUPPLY AND BE MONITORED AND ALARMED AS WELL.

HEAT RECOVERY WHEEL SHALL OPERATE WITH FANS. HEAT RECOVERY SHALL BE MONITORED BY INLET AND DISCHARGE OF BOTH SIDES OF UNIT.

D3 FOUR PIPE VERTICAL FAN COIL UNIT CONTROLS
NOT TO SCALE

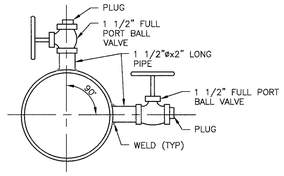


NOTES:
PROVIDE RESTRAINING CLAMPS 8'–0" O.C.

B6 DETAIL FOR SUPPORTING SINGLE PIPE ON FLOOR
NOT TO SCALE

NOTES

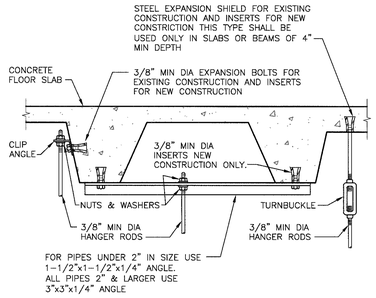
A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.



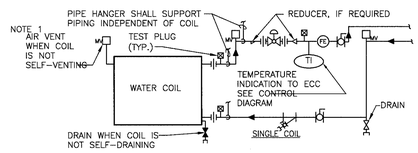
NOTE:

1. PROVIDE IN CHILLED WATER MAIN AND IN CONDENSER WATER MAIN.
2. LOCATE PILOT TUBE TAPS 20 PIPE DIAMETERS DOWNSTREAM AND 10 PIPE DIAMETERS UPSTREAM FROM THE NEAREST PIPE FITTING.
3. EITHER TOP OR SIDE LOCATION. BOTH ARE NOT REQUIRED AT SAME LOCATION.

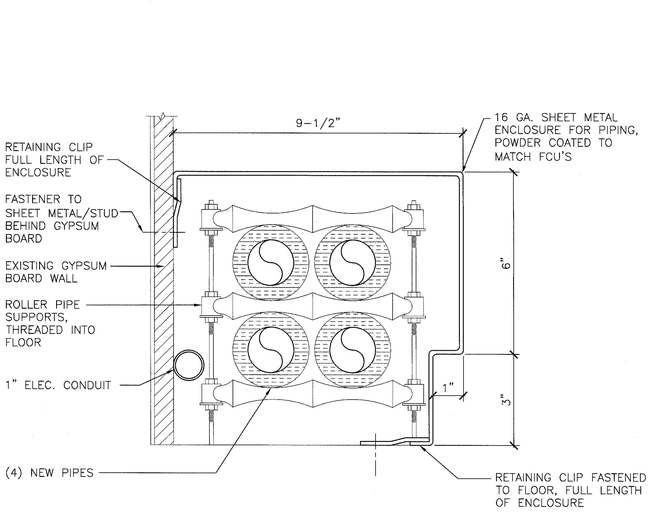
B8 PITOT TEST CONNECTIONS
NOT TO SCALE



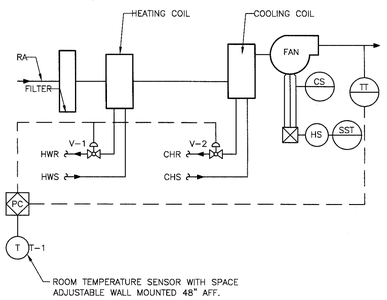
D6 SECURING HANGER RODS IN CONCRETE
NOT TO SCALE



D8 WATER COILS - PIPING CONNECTIONS
NOT TO SCALE

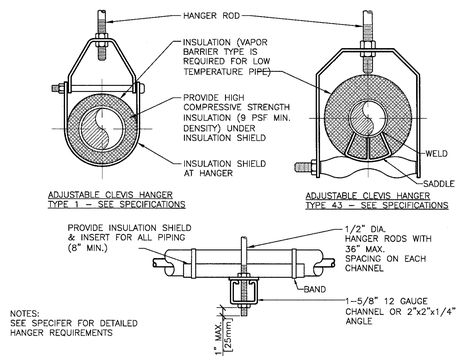


F1 PIPING ENCLOSURE
SCALE: 6" = 1'-0"



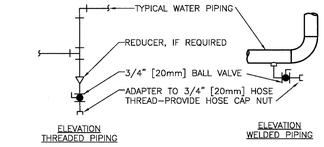
FAN COIL SEQUENCE OF OPERATION
FAN COIL SHALL OPERATE ON A SCHEDULE AS SET BY ECC. FAN SHALL RUN CONTINUOUSLY IN OCCUPIED MODE. FAN STATUS SHALL BE MONITORED AND AN ALARM MESSAGE SHALL BE GENERATED IN THE EVENT THE UNIT FAILS TO RUN BETWEEN THE RANGE OF 70°–75° SPACE TEMPERATURE BOTH V-1 & V-2 SHALL BE CLOSED. UPON RISE IN TEMPERATURE ABOVE 75° V-2 SHALL MODULATE OPEN TO MAINTAIN 75° F. UPON FALL IN TEMPERATURE BELOW 70° F. HEATING VALVE V-1 SHALL MODULATE TO OPEN TO MAINTAIN 70° F.

F3 FOUR PIPE FAN COIL UNIT CONTROLS
NOT TO SCALE



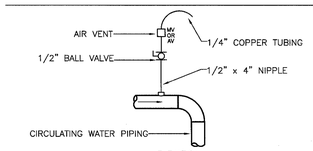
MAXIMUM PIPE/TUBING SUPPORT SPACING																		
NOM. SIZE IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24
PIPE FT.	7	7	7	9	10	11	12	14	16	17	19	22	23	25	27	28	30	32
TUBING FT.	5 FT	6	7	8	8	9	10	12	13	14	16	–	–	–	–	–	–	–
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.																		

F6 PIPE HANGERS
NOT TO SCALE



TYPICAL CHILLED AND HOT WATER PIPING DRAIN VALVE CONNECTIONS

NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.



TYPICAL MANUAL AIR VENT

NOTES:
1. VENT ALL HIGH POINTS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

F8 DRAIN VALVE AND AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)
NOT TO SCALE

GENERAL NOTE:
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FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:
PARADIGM ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY — BLAINE CAMIEL VAN GANSBEKE — 24,732 — LICENSED PROFESSIONAL ENGINEER — 9/22/2014

Drawing Title: MECHANICAL DETAILS
Approved: Project Director
Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location: GEORGE E WAHLEN VAMC, 500 FOOTHILL DR, SALT LAKE CITY, UT
Date: 09-26-2014 | Checked: KLP | Drawn: JDM
Project Number: 660-15-103
Building Number: 13
Drawing Number: 13.MP501
DWG 33 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

FOUR PIPE FAN COIL UNIT SCHEDULE

MARK	LOCATION	TYPE	MINIMUM FAN AIR FLOW	EXTERNAL AIR PRESSURE DROP	COOLING REQUIREMENTS							HEATING REQUIREMENTS						FILTER	FAN MOTOR					REMARKS
					MIN. SENSIBLE CAPACITY	MIN. TOTAL CAPACITY	EAT		FLOW	EWT	WPD	RUNOUT SIZE	MIN. CAPACITY	EAT Db	FLOW	EWT	WPD	RUNOUT SIZE		POWER	PHASE	VOLT	RPM	SPEED CONTROL	
			CFM	IN. W.C.	KBTUH	BTUH	Db (°F)	Wb (°F)	GPM	°F	FT	IN	KBTUH	°F	GPM	°F	FT	IN	MERV RATING	MCA					
13.FCU-1	1AA	HORIZONTAL	240	0.05	6.4	4.7	80	69	1.3	45	7.1	1.25	18.4	70	1.2	180	2.0	3/4	7	37W	1	120		CONSTANT	NOTES 1, 2, 4
13.FCU-2	1A05	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	NOTES 1, 2, 3
13.FCU-3	1A03	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-4	1A01	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-5	1A00A	HORIZONTAL	240	0.05	6.4	4.7	80	69	1.3	45	7.1	1.25	18.4	70	1.2	180	2.0	3/4	7	37W	1	120		CONSTANT	
13.FCU-6	13A	HORIZONTAL	240	0.05	6.4	4.7	80	69	1.3	45	7.1	1.25	18.4	70	1.2	180	2.0	3/4	7	37W	1	120		CONSTANT	
13.FCU-7	1A04	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-8	1A06	HORIZONTAL	240	0.05	6.4	4.7	80	69	1.3	45	7.1	1.25	18.4	70	1.2	180	2.0	3/4	7	37W	1	120		CONSTANT	
13.FCU-9	1A08	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-10	1A14	HORIZONTAL	240	0.05	6.4	4.7	80	69	1.3	45	7.1	1.25	18.4	70	1.2	180	2.0	3/4	7	37W	1	120		CONSTANT	
13.FCU-11	2A02	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-12	2A04	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-13	2A04	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-14	13A	HORIZONTAL	240	0.05	6.4	4.7	80	69	1.3	45	7.1	1.25	18.4	70	1.2	180	2.0	3/4	7	37W	1	120		CONSTANT	
13.FCU-15	2A09	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-16	2A07	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-17	2A07	VERTICAL	1,000	0.5	40.4	55.3	80	69	10.9	45	3.8	1.25	86.5	70	6.0	180	1.3	3/4	7	14.9	1	208		CONSTANT	
13.FCU-18	2A01	HORIZONTAL	240	0.05	6.4	4.7	80	69	1.3	45	7.1	1.25	18.4	70	1.2	180	2.0	3/4	7	37W	1	120		CONSTANT	

DESIGNER NOTES:

1. COOLING COILS SHALL BE SELECTED AT A MINIMUM OF 12°F WATER TEMPERATURE RISE.
2. HEATING COILS SHALL BE SELECTED AT A MINIMUM OF 20°F WATER TEMPERATURE DROP.
3. BASIS OF DESIGN: MARV-AIRE SVI 2000 A10 HCW OR EQUAL.
4. BASIS OF DESIGN: TRANE FEBB0201 OR EQUAL.

HVAC DESIGN DATA

DESIGN CONDITIONS	SUMMER			WINTER			LOWEST AVERAGE ANNUAL DEWPOINT
	TEMP	WET BULB TEMP	% HUMIDITY	TEMP	DEWPOINT TEMP	% HUMIDITY	
	°F	°F		°F	°F		
OUTDOOR	95.2	75.2	39%	8	5	70%	5

GENERAL NOTE:
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Revisions: | Date

ARCHITECT/ENGINEERS:
PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/26/2014

Drawing Title: MECHANICAL SCHEDULES

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103
Building Number: 13
Drawing Number: 13.MP601
DWG 34 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

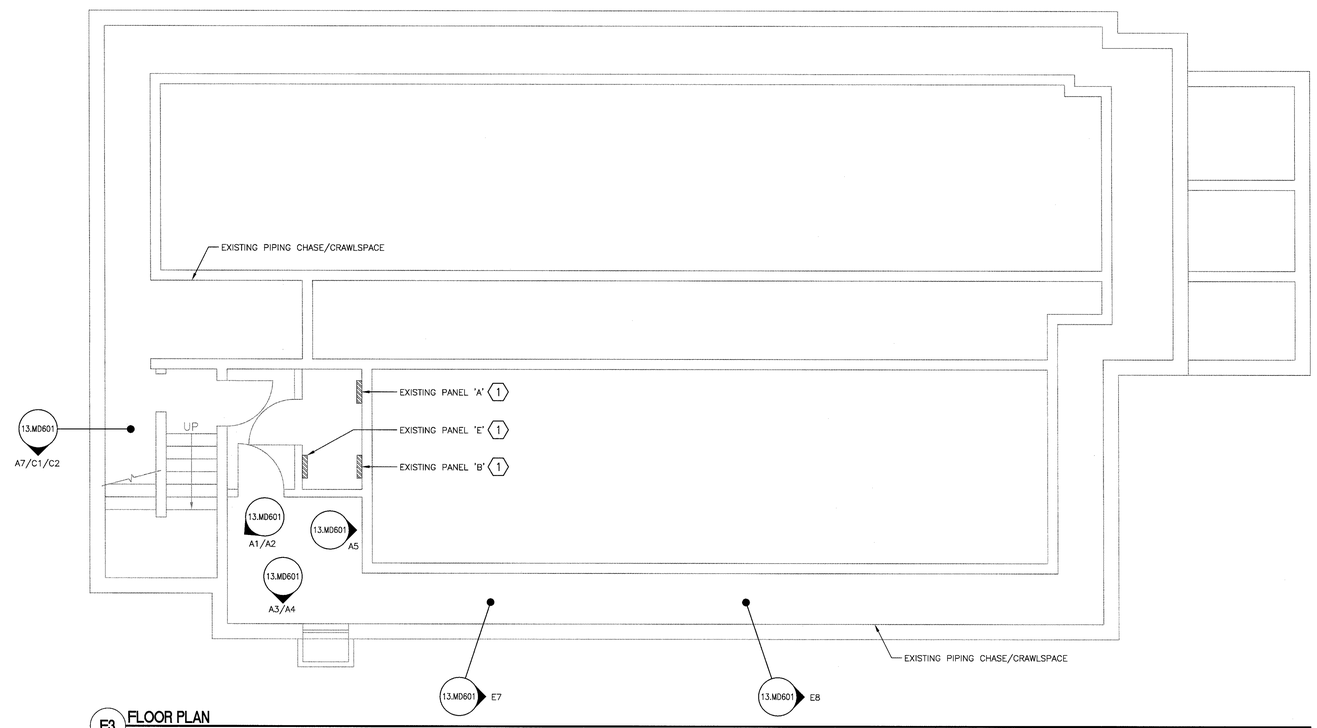
B. REFER TO SHEET 13.MD601 FOR PHOTOGRAPHS OF WORK AREA.

KEY NOTES

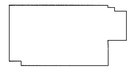
1. REFER TO PANEL SCHEDULES SHEET 13.EP601 FOR THESE EXISTING PANEL.S

LEGEND

A1
13.MD601 — PHOTO INDICATOR



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"



N KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:

PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/26/2014

Drawing Title:	ELECTRICAL DEMOLITION PLAN BASEMENT
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	13
Drawing Number:	13.ED100
DWG 35 of 46	

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

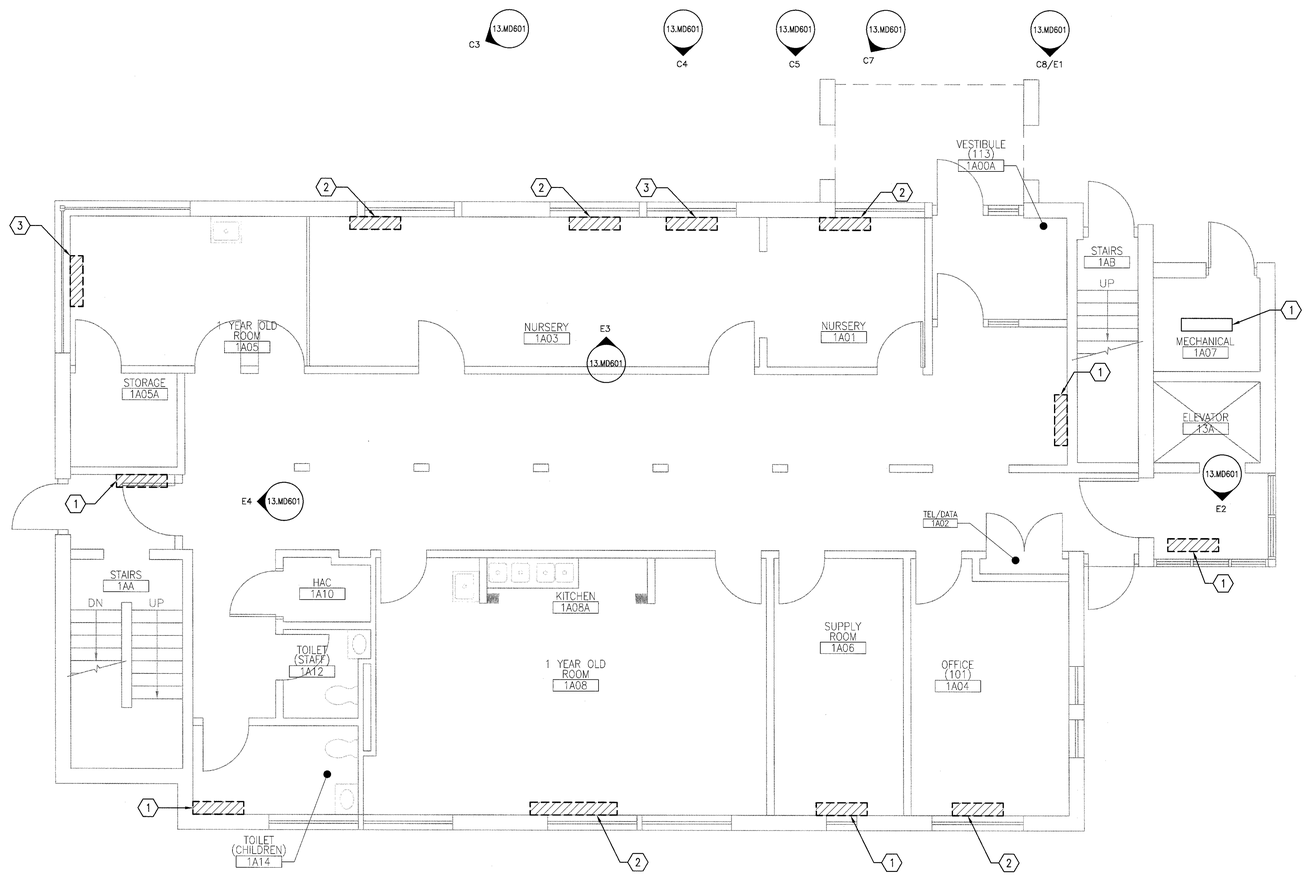
B. REFER TO SHEET 13.MD601 FOR PHOTOGRAPHS OF WORK AREA.

KEY NOTES

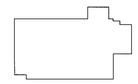
1. REMOVE EXISTING FAN COIL UNITS. EXISTING CIRCUITS TO REMAIN AND BE REUSED AS INDICATED UNLESS NOTED OTHERWISE.
2. REMOVE CIRCUIT BACK TO PANEL AND PREPARE FOR NEW 208V/1 PH CIRCUIT TO NEW FCU LOCATION.
3. REMOVE EXISTING FAN COIL UNITS. CIRCUITS TO BE PULLED BACK TO PANEL.

LEGEND

A1 / 13.MD601 — PHOTO INDICATOR



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"



N KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY — BLAINE CAMIEL VAN GANSBEKE 24,766 — LICENSED PROFESSIONAL ENGINEER

Drawing Title:	ELECTRICAL DEMOLITION PLAN FIRST FLOOR
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR BALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	13
Drawing Number:	13.ED101
	DWG 36 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

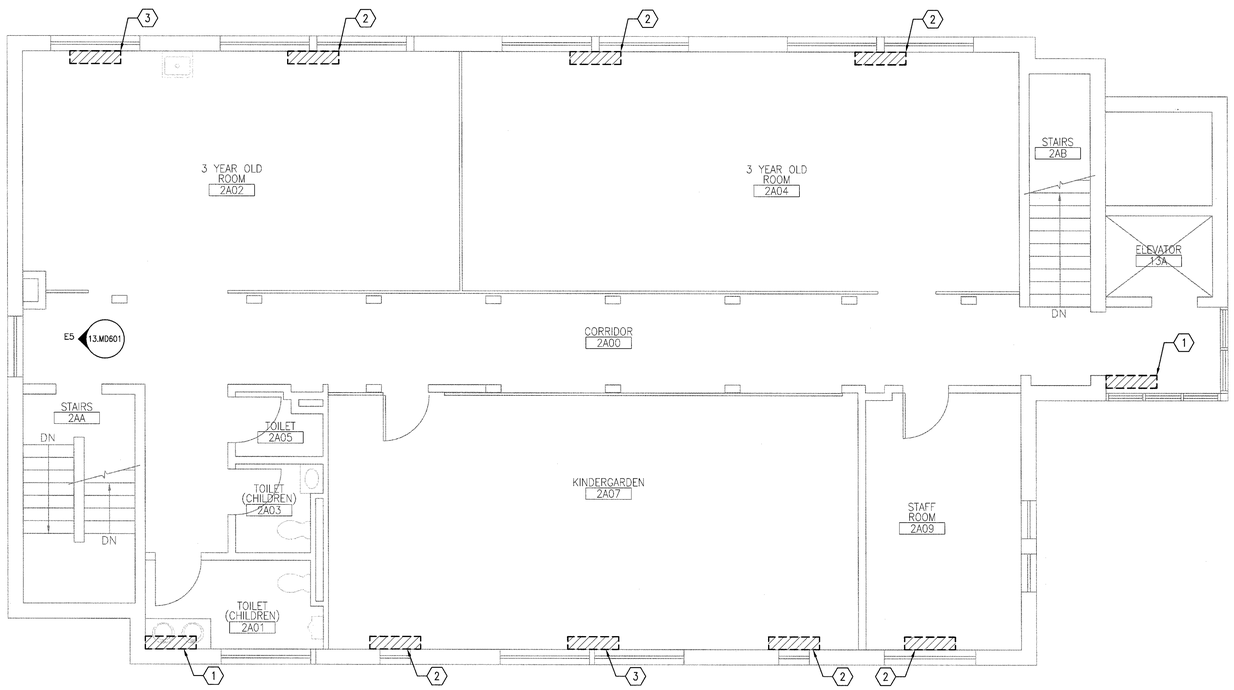
B. REFER TO SHEET 13.MD601 FOR PHOTOGRAPHS OF WORK AREA.

KEY NOTES

1. REMOVE EXISTING FAN COIL UNITS. EXISTING CIRCUITS TO REMAIN AND BE REUSED AS INDICATED UNLESS NOTED OTHERWISE.
2. REMOVE CIRCUIT BACK TO PANEL AND PREPARE FOR INSTALLATION OF NEW 208V/1 PH CIRCUIT TO NEW FCU LOCATION.
3. REMOVE EXISTING FAN COIL UNITS. CIRCUITS TO BE PULLED BACK TO PANEL.

LEGEND

A1
13.MD601 — PHOTO INDICATOR



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"

N KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
BID DOCUMENTS
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Revisions:	Date

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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER

Drawing Title: ELECTRICAL DEMOLITION PLAN SECOND FLOOR	Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14		Project Number: 660-15-103
			Building Number: 13
Approved: Project Director	Location: GEORGE E WAHLEN VAMC 500 FOOTHILL DR SALT LAKE CITY, UT		Drawing Number: 13.ED102
	Date: 09-26-2014	Checked: KLP	Drawn: JDM

DWG 37 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

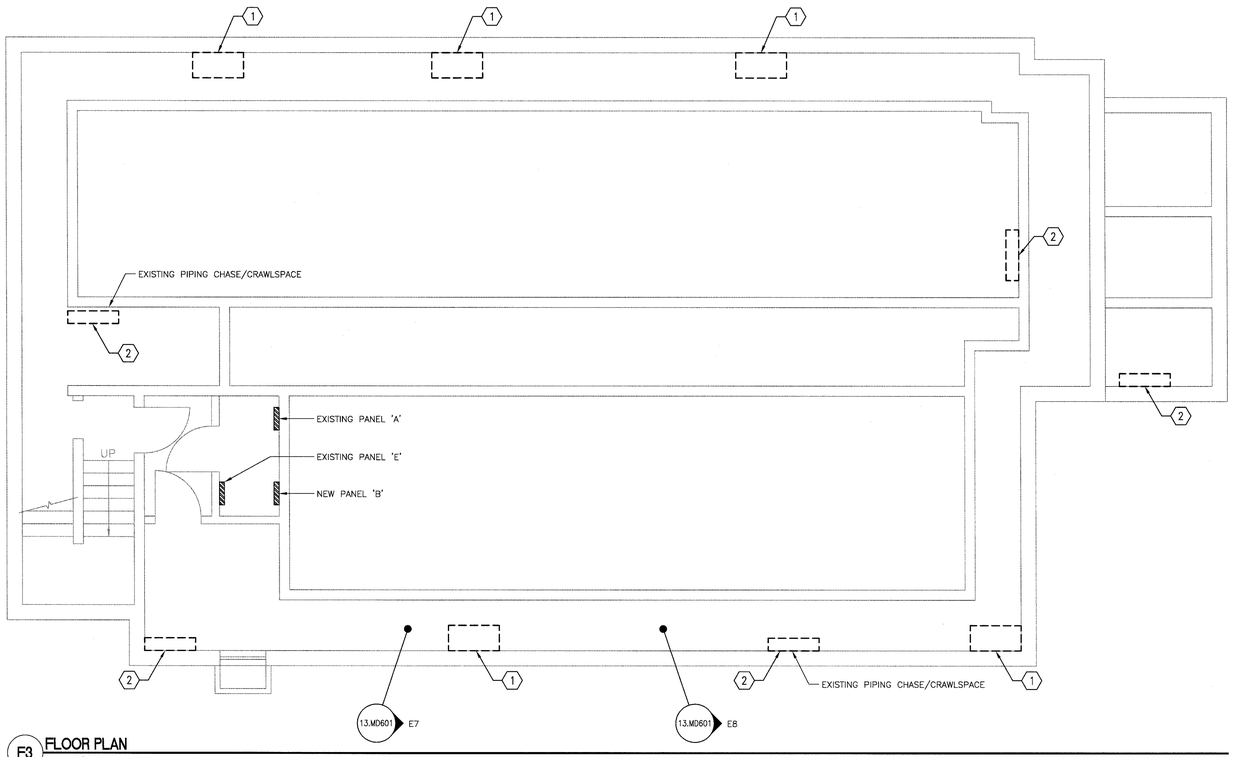
VA FORM 08-6231

NOTES

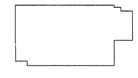
A. REFER TO E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEY NOTES

1. NEW VERTICAL CLASSROOM UNIT ABOVE; REFER TO 13.EP101.
2. NEW FAN COIL UNIT ABOVE; REFER TO 13.EP101.



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"



N KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,768
LICENSED PROFESSIONAL ENGINEER
11/22/2014

Drawing Title:	ELECTRICAL POWER PLAN BASEMENT
Approved: Project Director	
Project Title:	REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location:	GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT
Date:	09-26-2014
Checked:	KLP
Drawn:	JDM
Project Number:	660-15-103
Building Number:	13
Drawing Number:	13.EP100
	DWG 38 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

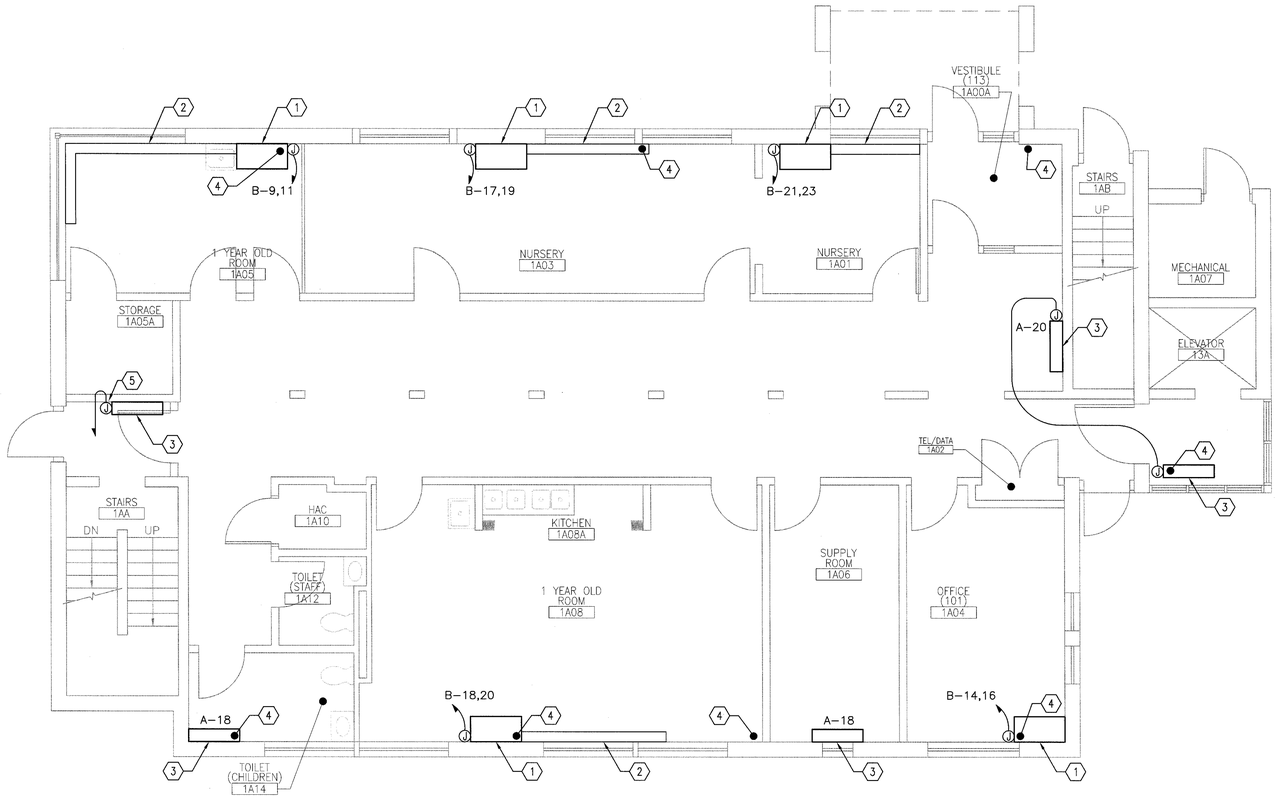
VA FORM 08-6231

NOTES

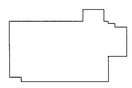
A. REFER TO E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEY NOTES

1. NEW VERTICAL CLASSROOM UNIT. ROUTE NEW 208V, 1PH CIRCUIT BACK TO PANEL IN BASEMENT AS INDICATED.
2. BOX OUT ALONG FLOOR FOR NEW PIPING AND ELECTRICAL; REFER TO 13.MP501 FOR BOX DETAILS.
3. NEW FAN COIL UNIT, 120V CIRCUIT TO REMAIN. RE-WIRE MAY BE REQUIRED TO CORRECT LOCATION IN PANEL.
4. ROUTE NEW CIRCUIT UP TO FCU ON FLOOR ABOVE.
5. ROUTE NEW CIRCUIT TO PANEL 'A', CIRCUIT 20 BELOW.



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"



N KEY PLAN - NOT TO SCALE

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FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:

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ENGINEERS AND CONSTRUCTORS
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STATE OF KENTUCKY
BLAINE CAMIEL VAN GAINSBEKE
24,780
LICENSED PROFESSIONAL ENGINEER
9/26/2014

Drawing Title: ELECTRICAL POWER PLAN FIRST FLOOR

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 13

Drawing Number: 13.EP101

DWG 39 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

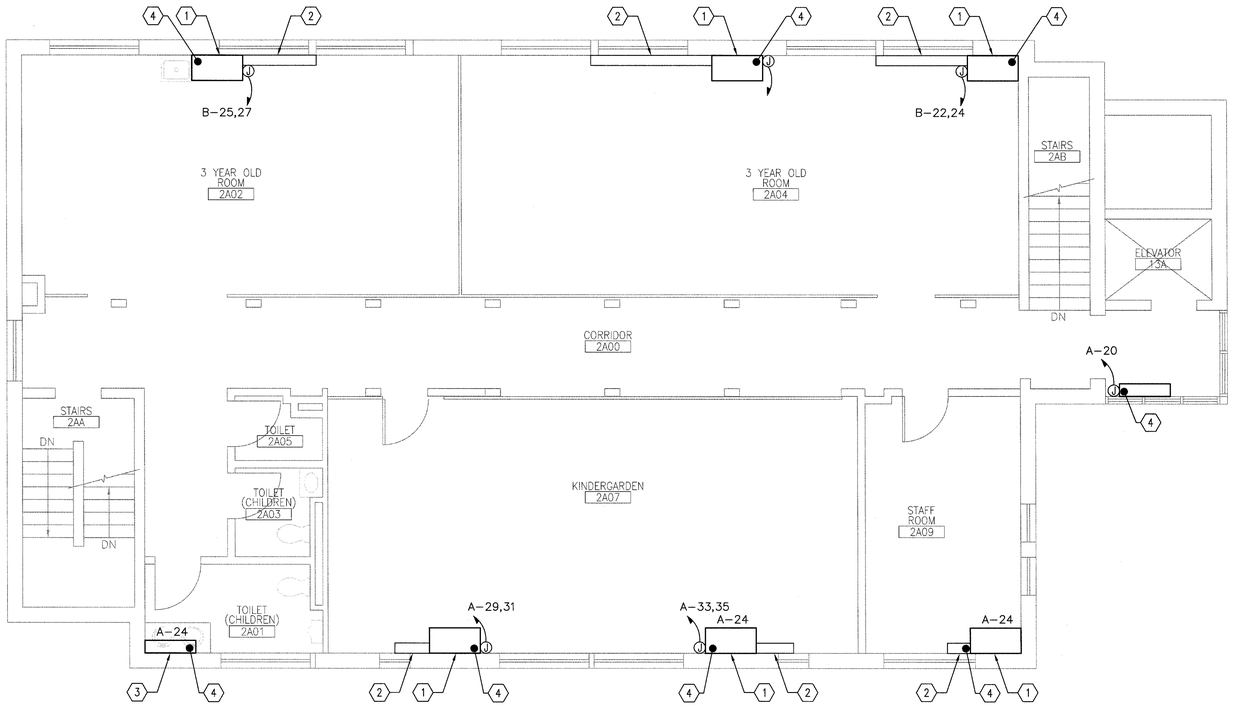
VA FORM 08-6231

NOTES

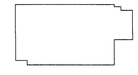
A. REFER TO E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEY NOTES

1. NEW VERTICAL CLASSROOM UNIT. ROUTE NEW 208V, 1PH CIRCUIT BACK TO PANEL IN BASEMENT AS INDICATED.
2. BOX OUT ALONG FLOOR FOR NEW PIPING AND ELECTRICAL.
3. NEW FAN COIL UNIT, 120V CIRCUIT TO REMAIN. RE-WIRE MAY BE REQUIRED TO CORRECT LOCATION IN PANEL.
4. ROUTE NEW CIRCUIT UP TO FCU BELOW AND CONNECT TO CIRCUIT A-20.



F3 FLOOR PLAN
SCALE 1/4" = 1'-0"



N KEY PLAN - NOT TO SCALE

FULLY SPRINKLERED
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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

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200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9/22/2014

Drawing Title: ELECTRICAL POWER PLAN SECOND FLOOR

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 13

Drawing Number: 13.EP102

DWG 40 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

PANEL DESIGNATION: A ROOM: BSMT ELECTRICAL SYSTEM:				VOLTS: 120/208 PHASES: 3 WIRES: 4				AMP: 200 MAIN: BREAKER AIC: 10K						
CKT	LOAD DESCRIPTION	AT	P	CA	DF	DA	PH	DA	DF	CA	P	AT	LOAD DESCRIPTION	CKT
1	RECEPT	20	1	540	.7	378	A	400	1.0	400	1	20	LIGHTING	2
3	RECEPT	20	1	1080	.7	756	B	1420	1.0	1420	1	20	LIGHTING	4
5	RECEPT	20	1	1080	.7	756	C	1230	1.0	1230	1	20	LIGHTING	6
7	RECEPT	20	1	900	.7	630	A	1240	1.0	1240	1	20	LIGHTING	8
9	RECEPT	20	1	1080	.7	756	B	1630	1.0	1630	1	20	LIGHTING	10
11	RECEPT	20	1	1080	.7	756	C	1680	1.0	1680	1	30	LIGHTING	12
13	RECEPT	20	1	1080	.7	756	A	1600	1.0	1600	1	30	LIGHTING	14
15	RECEPT	20	1	1080	.7	756	B	470	1.0	470	1	20	LIGHTING	16
17	RECEPT			1080	.7	756	C	136	.8	170	1	20	FCU-8,10	18
19	RECEPT			720	.7	504	A	204	.8	255	1	20	FCU-1,5,6	20
21	RECEPT			540	.7	378	B	1440	.8	1800	2	20	FCU-12	22
23	WATER COOLER			1000	.6	600	C	1440	.8	1800	2			24
25	EXHAUST FANS			200	1.0	200	A	1680	.6	2800	1	30	WATER HEATER	26
27	WATER COOLER			1000	.6	600	B	1656	1.0	1656	1	20	LP-1	28
29	ELEV CONTROL			1000	1.0	1000	C	2318	.4	5796	3	40	ELEVATOR	30
31	RECEPT			360	.7	252	A	2318.4	.4	5796	3			32
33	FCU-			1800	.8	1440	B	2318	.4	5796	3			34
35				1800	.8	1440	C	200.0	.4	500	1	20	RELO FROM A-33 TELEPHONE	36
37	FACP			1000	1.0	1000	A	11087	1.0	11087	3	125	PANEL B (NEW)	38
39	RECEPT			720	.7	504	B	12017	1.0	12017	3			40
41	RECEPT			540	.7	378	C	10079.0	1.0	10079	3			42

AT – AMP TRIP
P – POLES
A – AMPS
CA – CONNECTED AMPERES
DF – DEMAND FACTOR (1 – .1)
DA – DEMAND AMPERES
PH – PHASE

TOTAL CONNECTED LOAD:	88902
DEMAND FACTOR:	0.79
TOTAL AMPS/PH – DEMAND:	194
CONNECTED KVA:	88.9
DEMAND KVA:	69.9
PANEL SIZE (DEMAND)) – AMPERES:	194

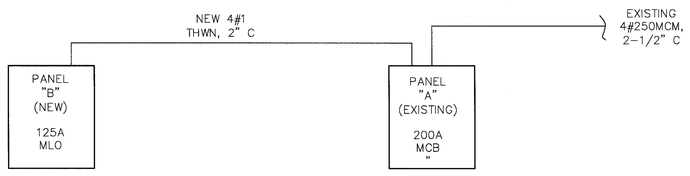
NOTES:

PANEL DESIGNATION: B ROOM: BSMT ELECTRICAL SYSTEM:				VOLTS: 120/208 PHASES: 3 WIRES: 4				AMP: 125A MAIN: MLO AIC: 10K						
CKT	LOAD DESCRIPTION	AT	P	CA	DF	DA	PH	DA	DF	CA	P	AT	LOAD DESCRIPTION	CKT
1	HWP-2	20	3	1319	.5	660	A	660	.5	1319	3	20	HWP-2	2
3			3	1319	.5	660	B	660	.5	1319	3	20		4
5			3	1319	.5	660	C	660	.5	1319	3	20		6
7	RECEPT	20	1	540	.7	378	A	400	.4	1000	1	20	ELEV PIT	8
9	FCU-2	20	2	1800	.8	1440	B	1680	1.0	1680	1	20	RELO FROM B-12 CP-1	10
11			2	1800	.8	1440	C	120	.4	300	1	30	RELO FROM B-14 OUTDOOR LTG	12
13	REFRIG	20	1	500	.7	350	A	1440	.8	1800	2	30	FCU-7	14
15	RECEPT	20	1	540	.7	378	B	1440	.8	1800	2			16
17	FCU-3	20	2	1800	.8	1440	C	1440	.8	1800	2	20	FCU-9	18
19			2	1800	.8	1440	A	1440	.8	1800	2			20
21	FCU-4	20	2	1800	.8	1440	B	1440	.8	1800	2	20	FCU-13	22
23			2	1800	.8	1440	C	1440	.8	1800	2			24
25	FCU-11	20	2	1800	.8	1440	A	1440	.8	1800	2	20	FCU-12	26
27			2	1800	.8	1440	B	1440	.8	1800	2			28
29	FCI-17	20		1800	.8	1440	C						SPACE	30
31	SPACE			1800	.8	1440	A						SPACE	32
33	SPACE						B						SPACE	34
35	SPACE						C						SPACE	36
37	SPACE						A						SPACE	38
39	SPACE						B						SPACE	40
41	SPACE						C						SPACE	42

AT – AMP TRIP
P – POLES
A – AMPS
CA – CONNECTED AMPERES
DF – DEMAND FACTOR (1 – .1)
DA – DEMAND AMPERES
PH – PHASE

TOTAL CONNECTED LOAD:	44874
DEMAND FACTOR:	0.71
TOTAL AMPS/PH – DEMAND:	89
CONNECTED KVA:	44.9
DEMAND KVA:	31.9
PANEL SIZE (DEMAND) – AMPERES:	89

NOTES:



F3 ELECTRICAL RISER DIAGRAM
NTS

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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:
PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmuso.com

STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,788
LICENSED PROFESSIONAL ENGINEER
9-26-2014

Drawing Title: ELECTRICAL POWER PANELS AND RISER DIAGRAM
Approved: Project Director
Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14
Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR SALT LAKE CITY, UT
Date: 09-26-2014
Checked: KLP
Drawn: JDM
Project Number: 660-15-103
Building Number: 13
Drawing Number: 13.EP601
DWG 41 of 46
Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.

LEGEND

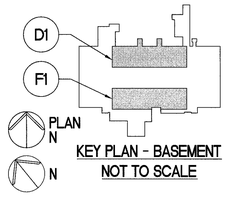
◑	END OF DEMOLITION
▨	EXISTING ITEMS TO BE DEMOLISHED
(E)	EXISTING ITEM
(D)	DEMOLISH ITEM

KEY NOTES

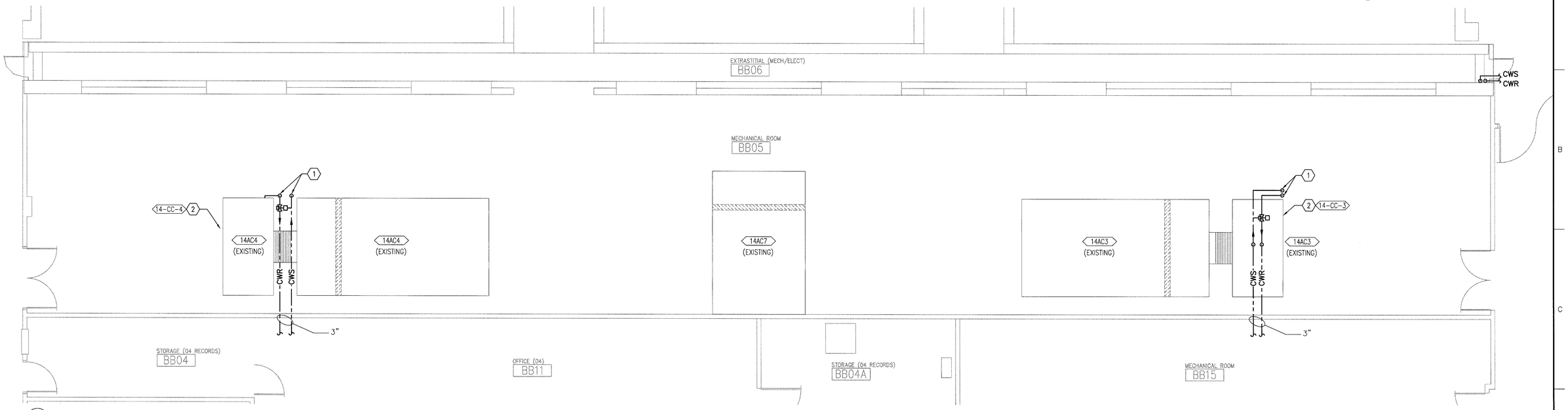
1. REMOVE ALL NECESSARY PIPING FOR REMOVAL AND REPLACEMENT OF EXISTING COOLING COIL. COORDINATE EQUIPMENT SHUTDOWN WITH COR FOR NIGHT/WEEKEND WORK.
2. REMOVE EXISTING COOLING COIL AND ANY ASSOCIATED SHEET METAL TO ALLOW FOR INSTALLATION OF NEW COOLING COIL OF GREATER CAPACITY. SIZE AND NUMBER OF ROWS MAY DIFFER IN NEW COIL. MODIFY ASSEMBLY AS REQUIRED TO FIT NEW COILS.

NOTES

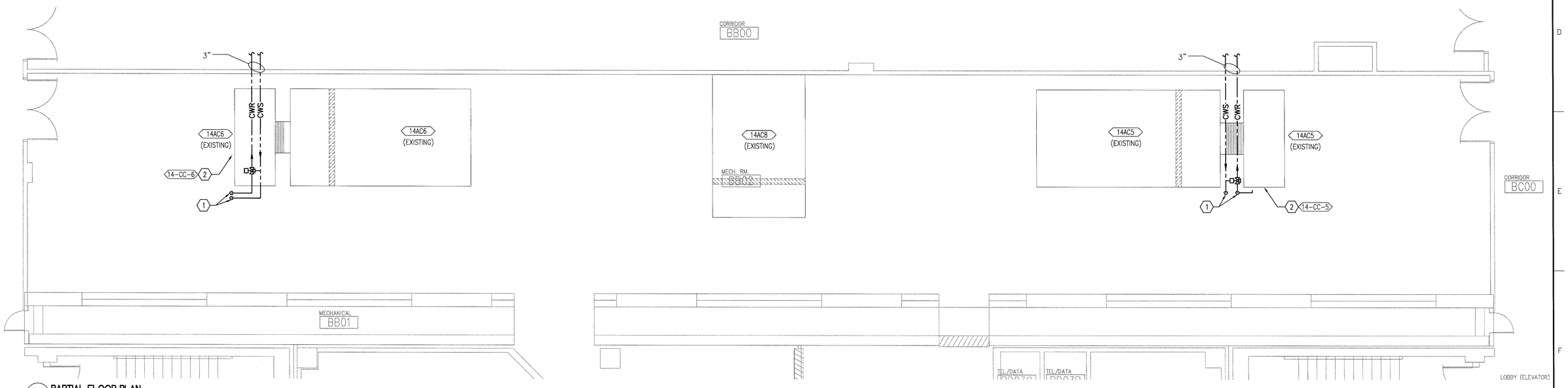
A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.



KEY PLAN - BASEMENT
NOT TO SCALE



D1 PARTIAL FLOOR PLAN
1/16" = 1'-0"



F1 PARTIAL FLOOR PLAN
1/16" = 1'-0"

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FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:
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STATE OF KENTUCKY
BLAINE CAMIEL VAN GANSBEKE
24,789
LICENSED PROFESSIONAL ENGINEER
9/22/2014

Drawing Title: MECHANICAL HVAC DEMOLITION PLAN BASEMENT

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103
Building Number: 14
Drawing Number: 14.MD100
DWG 42 of 46

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

NOTES

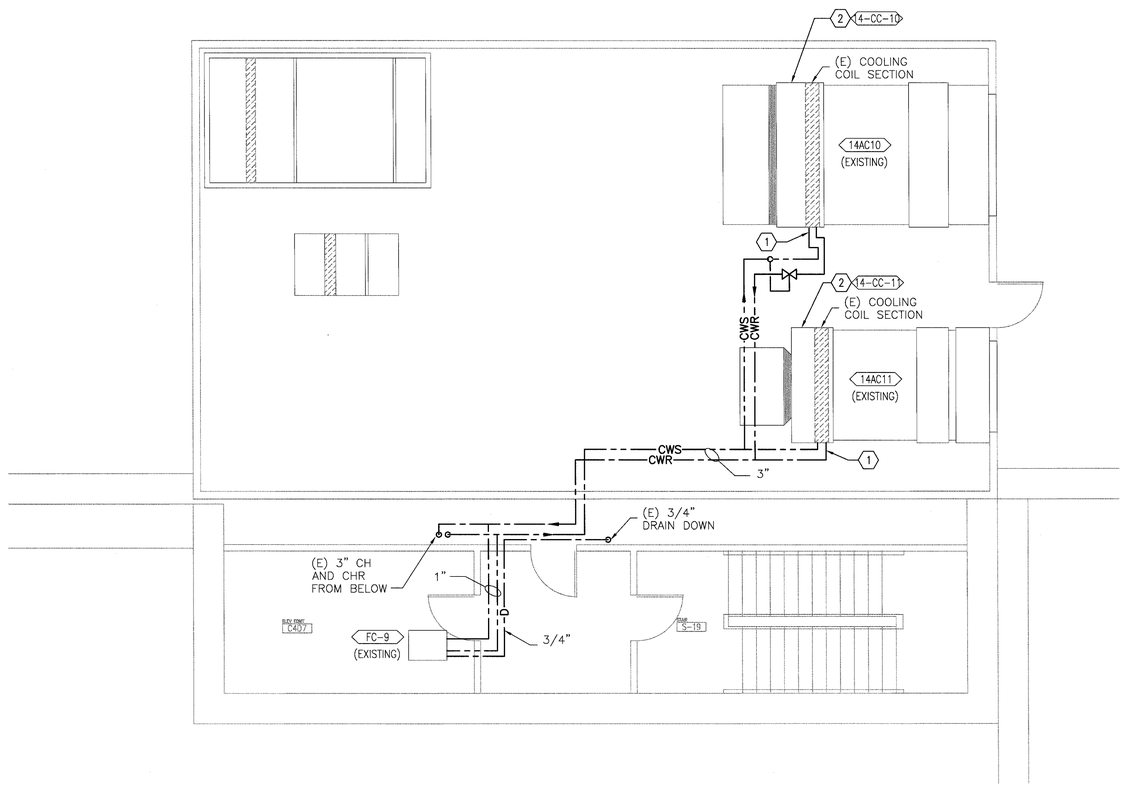
A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEY NOTES

1. REMOVE ALL NECESSARY PIPING FOR REMOVAL AND REPLACEMENT OF EXISTING COOLING COIL. COORDINATE EQUIPMENT SHUTDOWN WITH COR FOR NIGHT/WEEKEND WORK.
2. REMOVE EXISTING COOLING COIL AND ANY ASSOCIATED SHEET METAL TO ALLOW FOR INSTALLATION OF NEW COOLING COIL OF GREATER CAPACITY. SIZE AND NUMBER OF ROWS MAY DIFFER IN NEW COIL. MODIFY ASSEMBLY AS REQUIRED TO FIT NEW COILS.

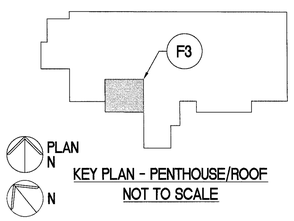
LEGEND

◑	END OF DEMOLITION
▨	EXISTING ITEMS TO BE DEMOLISHED
(E)	EXISTING ITEM
(D)	DEMOLISH ITEM
A1 / 14.MD601	PHOTO INDICATOR



F3 ENLARGED FLOOR PLAN
1/14" = 1'-0"

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



KEY PLAN - PENTHOUSE/ROOF
NOT TO SCALE

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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:
PARADIGM ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

9/22/2014 BLAINE CAMIEL VAN GANSBEKE 24,788 LICENSED PROFESSIONAL ENGINEER

Drawing Title: MECHANICAL HVAC DEMOLITION PLAN PENTHOUSE/ROOF	Project Title: REPLACE HVAC AND HANDLING UNITS, BUILDINGS 9, 13, and 14	Project Number: 660-15-103	Office of Construction and Facilities Management
Approved: Project Director	Location: GEORGE E WAHLEN VAMC 500 FOOTHILL DR. SALT LAKE CITY, UT	Building Number: 14	
	Date: 09-26-2014 / Checked: KLP / Drawn: JDM	Drawing Number: 14.MD104 DWG 43 of 46	Department of Veterans Affairs

VA FORM 08-6231

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.

LEGEND

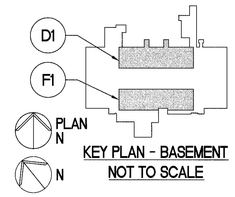
⊗	CONNECTION BETWEEN NEW AND EXISTING
(E)	EXISTING ITEM

KEY NOTES ⬡

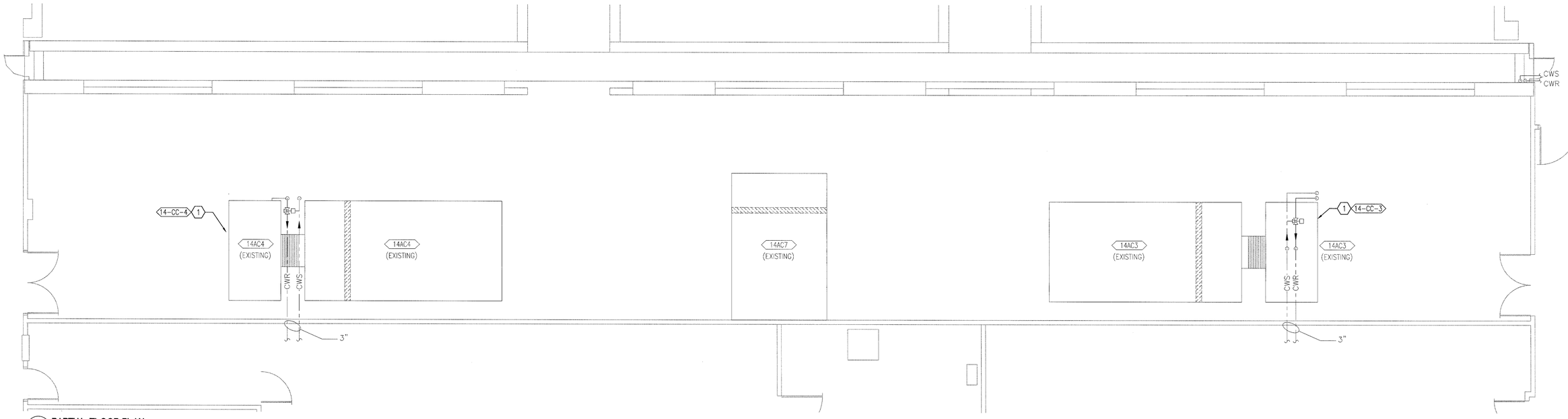
1. INSTALL NEW COOLING COILS AS SCHEDULED. REFER TO 14.MD100 FOR REMOVAL OF EXISTING COILS. RECONNECT CHILLED WATER PIPING AND INSULATE AS SPECIFIED UPON COMPLETION.

NOTES

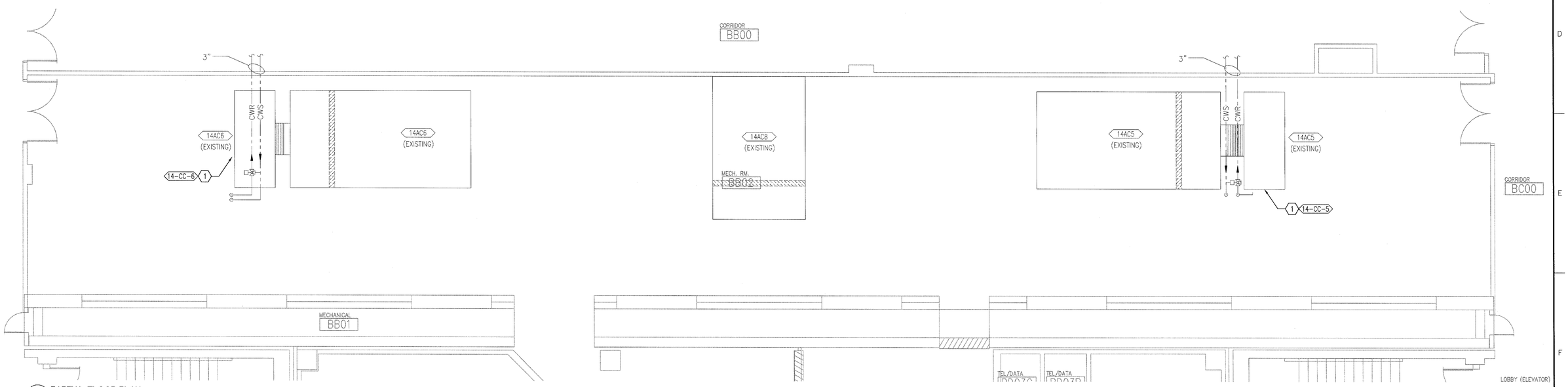
A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.



KEY PLAN - BASEMENT
NOT TO SCALE



D1 PARTIAL FLOOR PLAN
1/16" = 1'-0"



F1 PARTIAL FLOOR PLAN
1/16" = 1'-0"

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FOR CONSTRUCTION

Revisions:	Date

ARCHITECT/ENGINEERS:

PARADIGM
ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF UTAH
BLAINE CAMIEL VAN GANSBEKE
24,783
LICENSED PROFESSIONAL ENGINEER

Drawing Title: MECHANICAL HVAC PLAN BASEMENT

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 14

Drawing Number: 14.MH100

DWG 44 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

NOTES

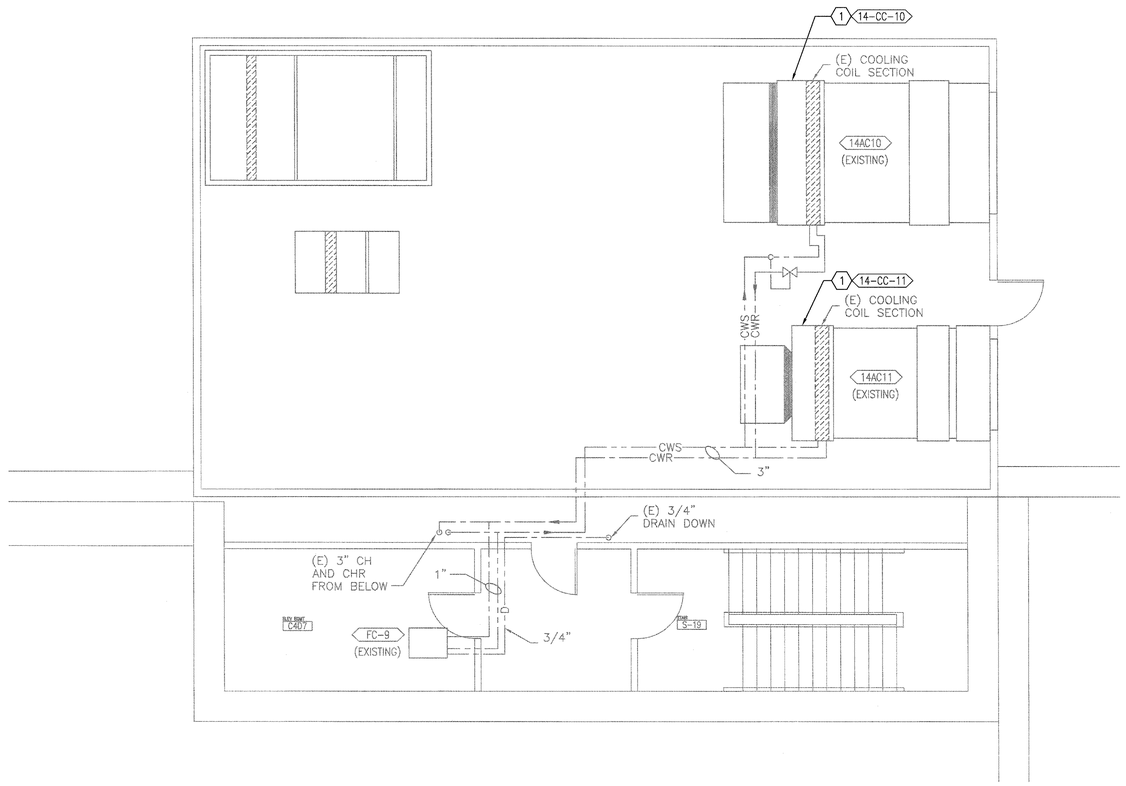
A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEY NOTES

1. INSTALL NEW COOLING COILS AS SCHEDULED. REFER TO 14.MD100 FOR REMOVAL OF EXISTING COILS. RECONNECT CHILLED WATER PIPING AND INSULATE AS SPECIFIED UPON COMPLETION.

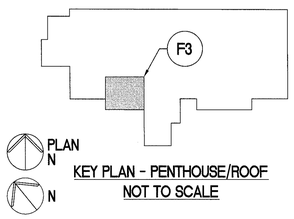
LEGEND

⊗	CONNECTION BETWEEN NEW AND EXISTING
(E)	EXISTING ITEM



F3 ENLARGED FLOOR PLAN
1/14" = 1'-0"

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.



KEY PLAN - PENTHOUSE/ROOF
NOT TO SCALE

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BID DOCUMENTS
FOR CONSTRUCTION

Revisions	Date

ARCHITECT/ENGINEERS:
PARADIGM ENGINEERS AND CONSTRUCTORS
200 Envoy Circle #201, Louisville KY 40299 – PH: 502.339.8511 – www.paradigmusa.com

STATE OF KENTUCKY BLAINE CAMIEL VAN GANSBEKE 24761 LICENSED PROFESSIONAL ENGINEER

Drawing Title: MECHANICAL HVAC PLAN PENTHOUSE/ROOF

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC, 500 FOOTHILL DR. SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 14

Drawing Number: 14.MH-104

DWG 45 of 46

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

NOTES

A. REFER TO M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

CHILLED WATER COOLING COIL SCHEDULE

MARK	LOCATION	AREA AND/OR ROOM SERVED	SYSTEM AIR HANDLING	AIR FLOW	MAX. FACE VELOCITY	EAT	LAT	TOTAL CAPACILTY	SENSIBLE CAPACITY	CHILLED WATER				REMARKS
						Db	Db			FLOW	EWT	LWT	WPD	
				CFM	FPM	°F	°F	MBH	MBH	GPM	°F	°F	FT	
14-CC-3	BASEMENT		AHU-3	19330	509	87.4	54.5	719.0	574.9	143.3	45.0	55.0	7.9	NOTE 1
14-CC-4	BASEMENT		AHU-4	17990	500	84.5	54.5	665.4	490.2	132.6	45.0	55.0	7.1	NOTE 1
14-CC-5	BASEMENT		AHU-5	18510	514	89.2	54.5	692.6	579.6	138.1	45.0	55.0	7.6	NOTE 1
14-CC-6	BASEMENT		AHU-6	14460	482	86.9	54.3	544.5	427.4	108.6	45.0	55.0	9.2	NOTE 1
14-CC-10	PENTHOUSE		AHU-10	11830	493	85.0	54.4	439.8	328.3	87.7	45.0	55.0	7.0	NOTE 1
14-CC-11	PENTHOUSE		AHU-11	5650	502	85.0	54.7	206.5	155.4	41.2	45.0	55.0	4.0	NOTE 1

NOTES:

1. COOLING COIL FAN SPACING SHALL NOT EXCEED 132 FINS PER FOOT (400 FINS PER METER).

HVAC DESIGN DATA

DESIGN CONDITIONS	SUMMER			WINTER			LOWEST AVERAGE ANNUAL DEWPOINT
	TEMP	WET BULB TEMP	% HUMIDITY	TEMP	DEWPOINT TEMP	% HUMIDITY	
	°F	°F		°F	°F		
OUTDOOR	95.2	75.2	39%	8	5	70%	5

GENERAL NOTE:
ALL EXISTING PIPING, DUCTWORK, SPRINKLERS, CONDUIT, LIGHTING OR OTHER CONSTRUCTION SHALL BE RELOCATED AS NECESSARY FOR ALL DEMOLITION AND INSTALLATION WORK.

FULLY SPRINKLERED
BID DOCUMENTS
FOR CONSTRUCTION

Revisions: | Date

ARCHITECT/ENGINEERS:

PARADIGM
ENGINEERS AND CONSTRUCTORS
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9/26/2014
STATE OF UTAH
BLAINE CAMIEL VAN GANSBEKE
24,763
LICENSED
PROFESSIONAL ENGINEER

Drawing Title: MECHANICAL SCHEDULES

Approved: Project Director

Project Title: REPLACE HVAC AIR HANDLING UNITS, BUILDINGS 9, 13, and 14

Location: GEORGE E WAHLEN VAMC
500 FOOTHILL DR SALT LAKE CITY, UT

Date: 09-26-2014 | Checked: KLP | Drawn: JDM

Project Number: 660-15-103

Building Number: 14

Drawing Number: 14.MH601

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Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231