

### AHU ELEVATION

GRAPHIC SCALE SUPERSEDES NUMERIC SCALE

0 4' 8' 16'

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

2  
M1.1 M1.1



### EXISTING VENTILATION FAN

GRAPHIC SCALE SUPERSEDES NUMERIC SCALE

0 4' 8' 16'

NOT TO SCALE

3  
M1.1 M1.1



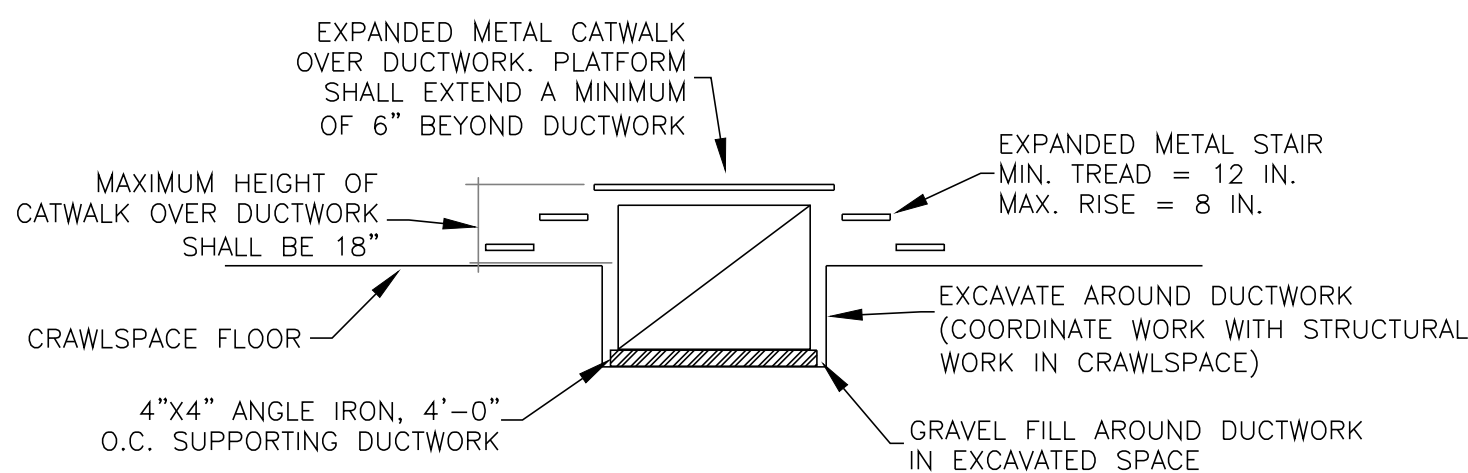
### UTILITIES TO BE RELOCATED

GRAPHIC SCALE SUPERSEDES NUMERIC SCALE

0 4' 8' 16'

NOT TO SCALE

4  
M1.1 M1.1



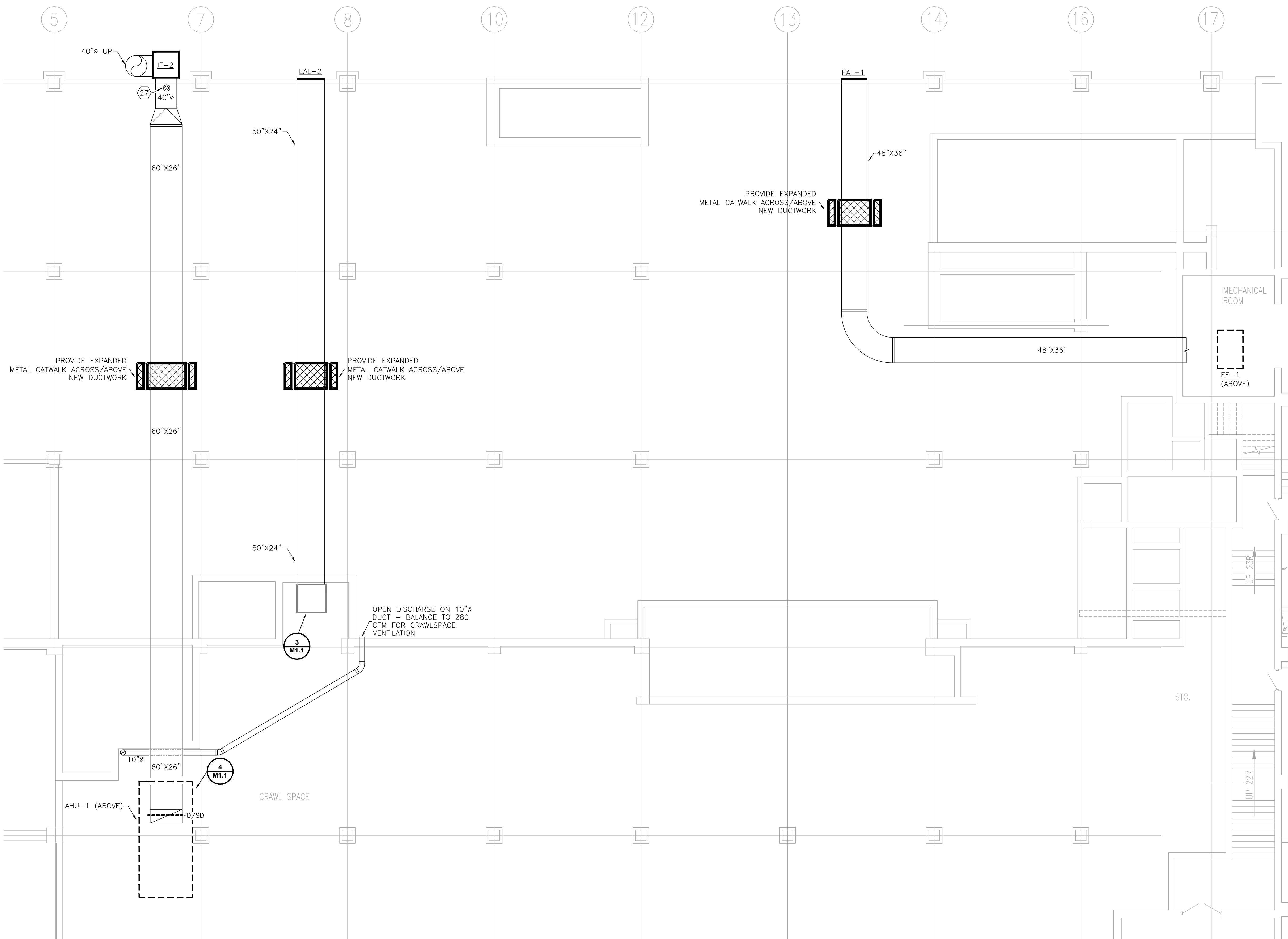
### CATWALK OVER DUCTWORK DETAIL

GRAPHIC SCALE SUPERSEDES NUMERIC SCALE

0 4' 8' 16'

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

5  
M1.1 M1.1



### NEW HVAC WORK - CRAWLSPACE

GRAPHIC SCALE SUPERSEDES NUMERIC SCALE

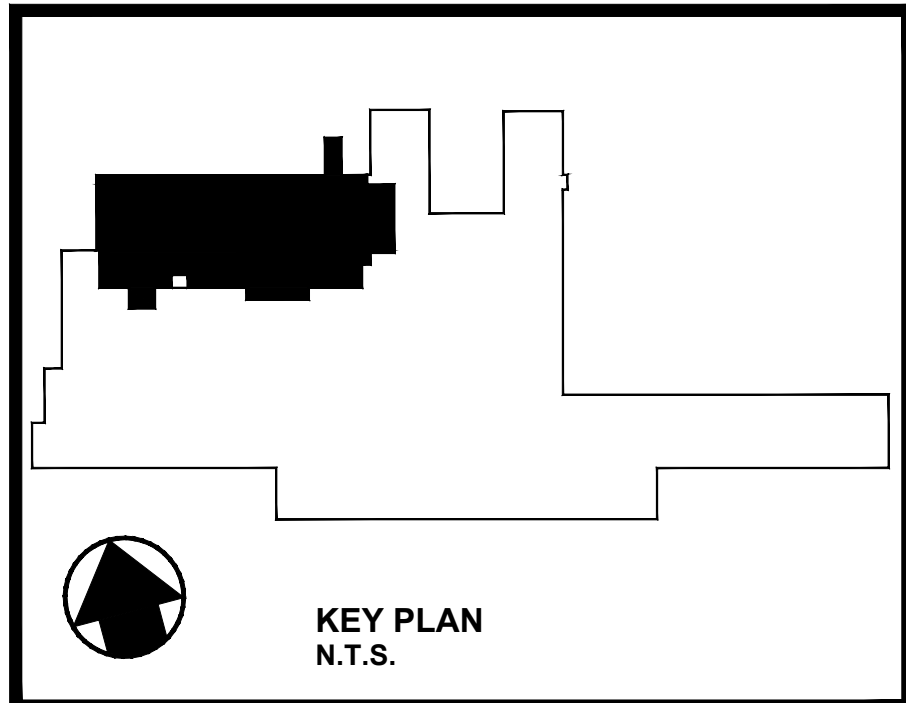
0 4' 8' 16'

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

1  
M1.1 M1.1

### GENERAL NOTES (COMMON TO ALL "M" SHEETS)

- SOME WORK UNDER THIS CONTRACT WILL REQUIRE WORK DUTIES TO BE PERFORMED AFTER NORMAL WORKING HOURS. DETERMINATION OF SPECIFIC WORK DUTIES TO BE PERFORMED AFTER HOURS SHALL BE MADE BY VA STAFF AT THEIR CONVENIENCE. POSSIBLE WORK REQUIRING AFTER HOURS APPROVAL INCLUDES, BUT IS NOT LIMITED TO: POWER OUTAGES AND DISRUPTION OF SERVICE, EXTREME NOISE AND/OR VIBRATION, CUTTING AND PATCHING OF CONCRETE, CONCRETE TRENCHING, AND DELIVERIES OF EQUIPMENT.
- NEW SUPPLY AND RETURN DUCTWORK FROM AHU-1 SHALL BE MEDIUM PRESSURE. EXHAUST DUCT SHALL BE MEDIUM PRESSURE.
- ALL NEW SUPPLY AIR GRILLES, REGISTERS, DIFFUSERS, ETC. AND ALL RETURN AIR GRILLES, REGISTERS, ETC. SHALL HAVE MATCHING FINISHES. FINISH TO BE SELECTED AND APPROVED BY VA PERSONNEL.
- ALL ELBOWS IN DUCTWORK SHALL BE SMOOTH, LONG RADIUS ELBOWS. ALL ELBOWS SHALL BE PROVIDED WITH TURNING VANES.
- MANUAL DAMPERS SHALL BE PROVIDED IN SUPPLY, EXHAUST AND RETURN AIR DUCTWORK (TYPICAL). DAMPERS SHALL BE LOCATED AS FAR AWAY FROM AIR TERMINAL DEVICE (REGISTER, DIFFUSER, ETC.) AS POSSIBLE, BUT MUST BE LOCATED IN THE SAME ROOM AS THAT DEVICE. FOR PURPOSES OF CLARITY, NOT ALL DAMPERS ARE SHOWN ON DRAWINGS.
- FIRE DAMPERS SHALL BE PROVIDED AT ALL DUCT PENETRATIONS OF 2-HOUR RATED FIRE BARRIERS/WALLS/PARTITIONS. SEE FIRE DAMPER LOCATIONS ON THIS SHEET AND LIFE SAFETY SHEET FOR MORE INFORMATION. ALL PIPING PENETRATIONS OF BOTH 1 AND 2-HOUR RATED STRUCTURES SHALL BE FIRE-STOPPED.
- ALL NEW DEVICES, EQUIPMENT, CONTROLS, ETC. (INCLUDING BUT NOT LIMITED TO: CAV'S, VAV'S, AHU, GRILLES, REGISTERS, AND DIFFUSERS, FANS, HOT WATER PIPING, ETC.) SHALL BE TESTED AND BALANCED AS PART OF THIS WORK.
- ALL FANS SUBMITTED, PURCHASED, INSTALLED, ETC. SHALL BE CAPABLE OF 110% OF INDICATED CFM AND PRESSURE CAPACITIES LISTED ON DRAWINGS AND IN SCHEDULES, PER VA REQUIREMENTS.
- ALL DUCT WORK 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 DUCTWORK.
- HYDRONIC PIPING RUNS TO EQUIPMENT 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.
- ALL PENETRATIONS IN EXTERIOR OF BUILDING SHALL BE SEALED WEATHER-TIGHT, AS WELL AS WITH APPROVED FIRE-STOPPING MATERIAL. SEE SPECIFICATIONS FOR MORE INFORMATION ON APPROVED PRODUCTS AND PROCEDURES.
- ALL HYDRONIC AND CONDENSATE DRAIN PIPING SHALL BE OF SWEATED COPPER CONSTRUCTION. FITTINGS SHALL BE PROVIDED PER SPECIFICATIONS AND AS INDICATED IN MECHANICAL DETAILS.
- ALL DUCT TAKE OFF'S WILL BE MADE WITH HARD METAL CONNECTIONS. FLEX DUCT SHALL NOT BE CONNECTED DIRECTLY TO BRANCH DUCTWORK.
- ALL EXTERIOR DUCTWORK SHALL BE OF DOUBLE-WALL INSULATED CONSTRUCTION. CONSTRUCTION SHALL BE PER SPECIFICATIONS AND PER SMACNA STANDARDS.
- DUCTWORK SHALL BE ROUTED HIGH AND TIGHT IN JOIST SPACES ABOVE CEILING WHEREVER POSSIBLE IN ORDER TO AVOID CONFLICT WITH OTHER UTILITIES, LIGHTS, DUCTWORK, ETC.
- ALL DUCTWORK EXPOSED TO WEATHER SHALL BE DOUBLE-WALLED INSULATED DUCTWORK.
- ALL CONNECTIONS BETWEEN MEDIUM PRESSURE MAINS AND VAV/CAV AIR TERMINALS SHALL BE MADE WITH HARD METAL CONNECTIONS - FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE.
- FOR CAV/VAV AIR TERMINALS LOCATED IN AREAS WHERE ACCESS AND/OR SERVICE WILL BE DIFFICULT, MECHANICAL CONTRACTOR SHALL PERMANENTLY REMOVE COVERS. THIS DETERMINATION SHALL BE COORDINATED WITH VA MAINTENANCE PERSONNEL.
- ALL AIR FILTERS IN AHU-1 SHALL BE PROVIDED WITH SLIDE TRAYS. NO CLIPS, BOLTS, FLANGES, OR OTHER MEANS OF MECHANICAL FASTENING ARE ACCEPTABLE.
- ACCESS PANELS FOR FAN BEARINGS/MOTORS SHALL BE LARGE ENOUGH FOR COMPLETE ACCESS BY VA MAINTENANCE PERSONNEL, AS WELL AS LARGE ENOUGH FOR REMOVAL/REPLACEMENT OF BEARINGS.
- ALL FIRE AND SMOKE DAMPERS SHALL BE EQUIPPED WITH END-SWITCHES INDICATING DAMPER POSITION AND OPERATION. END SWITCHES SHALL BE TIED-IN TO EXISTING CONTROLS SYSTEM FOR MONITORING.
- HOT WATER HEATING LINES SHALL BE PROVIDED WITH METAL FLEXIBLE JOINTS - RUBBER OR ELASTOMERIC MATERIALS ARE NOT ACCEPTABLE.
- ALL BALL VALVES SHALL BE "J" VALVE BRAND.
- HEATING AND COOLING HYDRONIC COILS SHALL BE 100% DRAINABLE.
- ALL NEW CONTROLS SHALL BE TIED-IN TO EXISTING ECC. ALL CONTROLLERS SHALL BE OPERABLE AND VIEWABLE FROM THE EXISTING CONTROL CENTER. ANY DEVIATION SHALL REQUIRE JUSTIFICATION FROM CONTRACTOR, AND APPROVAL SHALL BE GRANTED AT THE VA'S DISCRETION.
- ALL HYDRONIC PIPING SHALL BE CLEANED AND FLUSHED PRIOR TO INITIAL SYSTEM-FILL AND OPERATION OF ANY UNITS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY PUMPS FOR SYSTEM FLUSH, AS WELL AS ANY TAPS REQUIRED FOR THIS WORK. HYDRONIC SYSTEM SHALL BE PROVIDED WITH FILTRATION SYSTEM ON BOTH SUPPLY AND RETURN LINES. BASIS OF DESIGN: AMAD, SAF.
- ALL CONTROL VALVES SHALL BE LINEAR USE. WHEN VALVE IS AT 100% FLOW, TEMPERATURE RISE ACROSS COIL SHALL BE 100% OF DESIGN VALUE - WHEN VALVE IS AT 50% FLOW, 50% TEMPERATURE RISE ACROSS COIL SHALL BE 50% OF DESIGN VALUE. ALL CONTROL VALVES SHALL HAVE THREADED FITTINGS.
- CAV AND VAV AIR TERMINAL HOT WATER CONTROL VALVES SHALL BE NORMALLY CLOSED TYPE.
- ALL NEW MECHANICAL INSTALLATION SHALL BE COORDINATED WITH INSTALLATION OF ALL NEW ELECTRICAL WORK, INCLUDING, BUT NOT LIMITED TO: POWER FOR EQUIPMENT, SMOKE DETECTORS AND SMOKE DAMPERS, ETC. COORDINATE WITH ELECTRICAL CONTRACTOR AND FIRE PROTECTION/DETECTION CONTRACTOR.
- CONTRACTOR TO COORDINATE ALL WORK WITH THE EXISTING CONDITIONS FROM SHEETS NUMBERS AS106 AND SS701 FROM PROJECT NUMBER 646-10-108, TITLED VAPHS - UNIVERSITY DRIVE SITE PREP FOR ICU. THESE DRAWINGS ARE PROVIDED AS PART OF AMENDMENT #3.



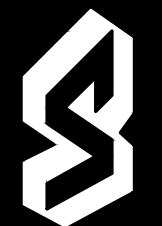
REVISIONS		DATE
1	AMENDMENT #3	8-20-2012
2		
3		
4		
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6		
7		
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9		

FULLY SPRINKLERED BUILDING  
BID DOCUMENTS

**PARADIGM**  
ENGINEERS AND CONSTRUCTORS  
PO BOX 496223  
Louisville, Kentucky 40293  
502-598-8511 www.paradigmusa.com

UPGRADE SPD AND SECURITY DOCK  
PROJECT: 646-367  
**VA PITTSBURGH**  
**HEALTHCARE SYSTEM**  
UNIVERSITY DRIVE C  
PITTSBURGH, PENNSYLVANIA 15240

Department of  
Veterans Affairs



MADE BY	CHECKED
DATE	7-28-11
<b>NEW HVAC WORK</b>	
<b>CRAWLSPACE PLAN</b>	
DRAWING NO.	BD PKG.
<b>M1.1</b>	<b>R1</b>