H.V.A.C. GENERAL NOTES

1. PROCURE AND PAY ALL NECESSARY PERMITS AND LICENSES REQUIRED TO CARRY OUT THE WORK SHOWN. OBTAIN AND PAY FOR ALL FEES.
2. COMPLY WITH ALL FEDERAL, STATE AND MUNICIPAL LAWS AND CODES, ORDINANCES, RULES AND REGULATIONS OF HEALTH, PUBLIC OR OTHER AUTHORITIES CONTROLLING OR LIMITING THE METHODS, MATERIALS TO BE USED OR ACTIONS OF THOSE EMPLOYED.
3. GUARANTEE H.V.A.C. SYSTEMS FOR A PERIOD OF ONE YEAR FROM OWNER'S ACCEPTANCE TO BE FREE FROM DEFECTS AND REPAIR OR REPLACE, AT NO COST TO OWNER, FAILURES OR DEFECTS.
4. H.V.A.C. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL HIS DEBRIS.
5. BALANCE AIR AND UNITS TO QUANTITIES INDICATED. CONTRACTOR TO SUBMIT SIX (6) SETS OF AIR AND UNIT BALANCING REPORT TO ARCH./ENGR./OWNER PRIOR TO FINAL ACCEPTANCE OF THE SYSTEM.
6. BIDDERS FOR THIS WORK SHALL VISIT THE PREMISES AND CAREFULLY EXAMINE ALL EXISTING CONDITIONS BEFORE SUBMITTING BIDS. NOT ALL EXISTING CONDITIONS HAVE BEEN IDENTIFIED ON DRAWINGS. CONTRACTOR SHALL NOTIFY ARCH. & ENGR. OF ALL DISCREPANCIES PRIOR TO SUBMITTING BID.
7. ALL BIDDERS SHALL ALSO FAMILIARIZE THEMSELVES WITH THE MEANS OF ENTRANCE AND EXIT AT THE PROPERTY AND ALL OTHER INFORMATION NECESSARY TO PROPERLY CARRY OUT THE WORK.
8. THE CONTRACTOR SHALL, WITH THE APPROVAL OF THE ENGINEER AND WITHOUT ADDITIONAL COST TO THE OWNER, MAKE ALL NECESSARY CHANGES OR MODIFICATIONS TO LOCATIONS AS MAY BE NECESSARY TO SUIT REQUIREMENTS AND CONDITIONS FOR THE PROPER AND CONVENIENTLY ACCESSIBLE LOCATIONS OF ALL PARTS OF EACH SYSTEM.
9. SMALL DETAILS ARE NOT USUALLY SHOWN OR SPECIFIED BUT ALL MATERIALS & COMPONENTS NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OR WORK SHALL BE FURNISHED AND INSTALLED AT NO ADDITIONAL COST.
10. THE CONTRACTOR SHALL NOTE THAT ALL SERVICE CONNECTIONS MAY NOT BE SHOWN IN TRUE POSITIONS. EACH BIDDER IS CAUTIONED, THEREFORE, TO VERIFY SAME WITH FIELD CONDITIONS.
11. CONTRACTOR SHALL CHECK FOR INTERFERENCE AND VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR INSTALLATION OF PIPING AND DUCTWORK.
12. IF AN ITEM OF EQUIPMENT OTHER THAN THE ITEM(S) SPECIFIED IS APPROVED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ADDITIONAL COST ARISING OUT OF ADDITIONAL OR CHANGED GENERAL CONSTRUCTION AND MECHANICAL WORK REQUIRED TO ACCOMMODATE THE SUBSTITUTED EQUIPMENT.
13. ALL EQUIPMENT INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS DIRECTIONS AND RECOMMENDATIONS.
14. PROVIDE ONE SET OF SPARE FILTERS FOR ALL INSTALLED HV/HVAC UNITS.
15. PROVIDE TWO YEAR MAINTENANCE SERVICE FOR ALL INSTALLED HV/HVAC/MECHANICAL SYSTEMS. THIS INCLUDES A MINIMUM OF THREE PERIODIC SERVICE VISITS TO INSPECT, TEST & CHECK ALL COMPONENTS OF HVAC/HV UNITS AND ANY ADDITIONAL VISITS REQUIRED IF ANY HVAC/HV UNIT FAILS. ALL NECESSARY BELT ALIGNMENTS, PROPER OPERATIONS OF ALL DAMPERS, ETC IS INCLUDED IN THIS SCOPE OF WORK.
16. PROVIDE FIRE DAMPERS/ACCESS DOORS AT ALL DUCT PENETRATIONS THROUGH CORRIDORS, SLABS AND OTHER RATED PARTITIONS, IRRESPECTIVE OF WHETHER IT IS INDICATED ON THE DRAWINGS OR NOT.
17. PROVIDE FIRE STOPPING AROUND ALL OPENINGS FOR DUCT, PIPING, CONDUIT, ETC. PENETRATIONS THROUGH CORRIDORS, SLABS AND OTHER RATED PARTITIONS.
18. CONTRACTOR IS RESPONSIBLE FOR ALL DEMOLITION AND RESTORATION OF AREAS OF MECHANICAL REMOVALS.
19. CONTRACTOR IS RESPONSIBLE FOR ALL CONTAINER SERVICES AND LABOR TO KEEP THE BUILDING FREE OF DEBRIS.
20. CONTRACTOR TO PROVIDE NEW WALL MOUNTED THERMOSTATS IN TAMPER PROOF ENCLOSURES FOR ALL AHU'S, RADIATORS ETC. IRRESPECTIVE OF WHETHER THEY ARE INDICATED ON ALL DRAWINGS OR NOT. CONTRACTOR TO INDICATE THERMOSTAT LOCATIONS ON ALL SHOP DRAWINGS.
21. CONTRACTOR IS TO PROVIDE TAGS FOR ALL NEW EQUIPMENT, STEAM & CONDENSATE PIPES, VALVES, ETC. PER SPEC SECTION 15075.

GENERAL CONSTRUCTION NOTES

1. CONTRACTOR IS RESPONSIBLE FOR THE CUTTING OF ALL WALLS, FLOORS, CEILING ETC. FOR ALL PIPE & DUCT PENETRATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING HOLES IN ROOF FOR EQUIPMENT AND DUCTWORK AND PROVIDING ROOF/FLOOR/WALL STRUCTURAL SUPPORT. GENERAL CONTRACTOR SHALL PROVIDE BLOCKING, ROOFING, DUNNAGE.
2. CONTRACTOR IS REQUIRED TO PATCH (TO MATCH EXISTING), IMMEDIATELY AFTER REMOVAL, ALL WALL, FLOOR & CLG. OPENINGS WHERE EXISTING PIPE, PNEUMATIC LINES, DUCT, RADIATORS, BASEBOARDS, ETC. ARE BEING REMOVED. SEAL OPENING WITH 3 HOUR FIRE BARRIER CAULK. SEE GENERAL LOCATIONS ON MECHANICAL DEMOLITION PLAN.
3. CONTRACTOR TO REFER TO MECHANICAL DRAWINGS FOR PAINTING OF DUCTWORK, FURNISHING AND INSTALLING ACCESS PANELS, CUTOUT LOCATIONS, ETC.
4. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING & RELOCATING EXISTING ELECTRICAL, FIRE ALARM & COMMUNICATION DEVICES TO ACCOMMODATE THE INSTALLATION OF NEW UNITS, PIPING & DUCTWORK. CHECK IN FIELD.
5. GENERAL CONTRACTOR SHALL REMOVE EXISTING CEILING TILES AND CEILING GRID TO ACCOMMODATE THE INSTALLATION OF NEW UNITS, PIPING & DUCTWORK. RE-INSTALL ALL CEILING TILES BACK TO MATCH EXISTING WHERE NEW CEILINGS ARE NOT CALLED FOR. REMOVE & REPLACE ALL DAMAGED TILES & CEILING GRID. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND LOCATIONS OF REPLACEMENT.
6. GENERAL CONTRACTOR SHALL PROVIDE ROOFING PATCH WORK AND TIE-IN FOR ALL NEW PLUMBING, MECHANICAL AND ELECTRICAL EQUIPMENT AND CONDUIT THAT PENETRATES THE EXISTING ROOF.
7. GENERAL CONTRACTOR TO PATCH FLOORS & WALLS WHERE EXISTING THERMOSTAT & PNEUMATIC TUBING IS BEING REMOVED W/ NON-SHRINK GROUT. PAINT TO MATCH EXISTING.
8. GENERAL CONTRACTOR IS RESPONSIBLE TO DEMOLISH EXISTING HOUSEKEEPING CONCRETE PADS FOR EXISTING MECHANICAL/PLUMBING EQUIPMENT WHICH ARE TO BE DEMOLISHED AND NOT TO BE USED.

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE NEW YORK STATE ENERGY CODE, INTERNATIONAL MECHANICAL CODE, ASHRAE GUIDELINES, SMACNA, WESTCHESTER COUNTY GUIDELINES, NEC, NATIONAL STANDARD PLUMBING CODE, AND ALL OTHER APPLICABLE CODES, ORDINANCES, ETC. FOR NEW YORK STATE AND THE LOCAL AUTHORITY HAVING JURISDICTION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE AND FAMILIARIZING HIMSELF WITH THE EXISTING CONDITIONS AND SCOPE OF THE WORK PRIOR TO SUBMITTING BIDS AND COMMENCING WORK, AND INCLUDE ALL SUCH NECESSARY WORK BASED ON THIS SITE FAMILIARIZATION IN THIS BID.
3. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL SAFE WORKING CONDITIONS AND SHALL OBSERVE ALL SAFETY REQUIREMENTS ESTABLISHED BY JURISDICTIONAL AGENCIES AND THE OWNER. WHERE CONFLICTS EXIST, THE MORE STRINGENT REQUIREMENT SHALL APPLY. CARE SHALL BE EXERCISED TO AVOID ENDANGERING PERSONNEL OR STRUCTURES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION METHODS, PROCEDURES AND JOB SITE CONDITIONS INCLUDING SAFETY. CONSTRUCTION SHALL BE PERFORMED IN SUCH A MANNER TO PROTECT WORKMEN, OCCUPANTS AND THE PUBLIC FROM INJURY AND ADJOINING PROPERTY SHALL BE PROTECTED FROM DAMAGE BY USE OF SCAFFOLDING, UNDERPINNING OR OTHER APPROVED METHOD. THE CONTRACTOR SHALL REPAIR ANY AND ALL DAMAGE CAUSED DURING OR RESULTING FROM HIS OPERATIONS IN KIND TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR SHALL MAINTAIN THE JOB SITE IN A CLEAN, DEBRIS FREE CONDITION. THE DUST RESULTING FROM REMOVALS SHALL BE CONTROLLED SO AS TO PREVENT ITS SPREAD TO OCCUPIED PORTIONS OF THE BUILDING AND TO AVOID CREATION OF A NUISANCE IN THE SURROUNDING AREA.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS, FEES, APPROVALS, ETC. PRIOR TO COMMENCING WORK AND SHALL SECURE CERTIFICATE OF OCCUPANCY UPON COMPLETION OF WORK.
7. CONTRACTOR SHALL BE RESPONSIBLE TO DISPOSE OF ALL DEMOLISHED MATERIAL OFF SITE IN AN APPROVED MANNER. THE OWNER SHALL BE CONSULTED PRIOR TO DISPOSAL OF ANY SALVAGED OR EXCESS MATERIALS AT THE COMPLETION OF THE PROJECT.
8. UPON COMPLETION OF WORK, ALL EXCESS MATERIAL, DEBRIS, ETC. SHALL BE REMOVED AND THE WORK AREA SHALL BE LEFT CLEAN TO THE OWNER'S SATISFACTION.
9. ALL WORK SHALL BE SCHEDULED IN COMPLIANCE WITH THE OWNER'S REQUIREMENTS FOR THE USE OF THE EXISTING FACILITY.
10. CONTRACTOR SHALL FURNISH ALL EQUIPMENT THAT MAY BE REQUIRED TO PERFORM THE WORK INDICATED IN A SAFE AND ORDERLY MANNER, AND AS NECESSARY FOR A PROPER OPERATIONAL SYSTEM.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION AND TEMPORARY SUPPORT OF ANY UTILITIES ENCOUNTERED DURING THE COURSE OF HIS WORK AND TO ENSURE THE OWNER'S FACILITY TO BE OPERATIONAL.
12. CONTRACTOR SHALL REVIEW DRAWINGS AND FIELD VERIFY ALL DIMENSIONS, CONDITIONS AND ELEVATIONS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES AND ADDRESS ALL QUESTIONS TO ARCHITECT PRIOR TO COMMENCING WORK.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING, PATCHING, FILLING AND CLEANING UPON COMPLETION OF WORK.
14. CONTRACTOR SHALL NOT SCALE DRAWINGS FOR DIMENSIONS. ALL WRITTEN OR DIMENSIONED INFORMATION TAKES PRECEDENCE OVER THE DRAWING.
15. CONTRACTOR SHALL SUBMIT, WHERE REQUIRED BY THE ARCH/ENGR, SHOP DRAWINGS AND SUBMITTALS FOR APPROVAL PRIOR TO THE START OF FABRICATION OF THOSE ITEMS. THIS INCLUDES ALL EQUIPMENT, SCHEMATIC DUCTWORK AND PIPING LAYOUT, ETC. CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL EQUIPMENT ETC WILL FIT (WITH PROPER MAINTENANCE CLEARANCES) AT ALL LOCATIONS. REVIEW OF SHOP DRAWINGS/SUBMITTALS BY THE ARCH/ENGR DOES NOT RELIEVE THE CONTRACTOR FROM PROVIDING THE CURRENT MODEL NUMBERS, TYPE, & FEATURES OF ALL EQUIPMENT'S & MATERIALS.
16. CONTRACTOR SHALL PROVIDE THE OWNER AND ARCHITECT WITH CERTIFICATES OF INSURANCE PRIOR TO STARTING THE WORK.
17. CONTRACTOR SHALL SHALL BE RESPONSIBLE FOR SHORING AND BRACING OF EXISTING STRUCTURES AS NEEDED TO COMPLETE THE NEW WORK.
18. ALL MANUFACTURER'S MATERIALS, COMPONENTS, FASTENERS, ASSEMBLIES, ETC. SHALL BE HANDLED AND INSTALLED IN ACCORDANCE TO WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS. WHERE BRAND NAMES AND MANUFACTURED PRODUCTS ARE CALLED FOR, APPROVED EQUALS WHICH MEET APPLICABLE STANDARDS AND SPECIFICATIONS MAY BE SUBSTITUTED WITH WRITTEN PERMISSION OF THE ARCHITECT AND THE OWNER. WHENEVER BRAND NAMES OR SPECIFIC PRODUCT SYSTEMS ARE INDICATED IT SHALL BE CLEARLY UNDERSTOOD THAT SUCH IDENTIFICATION IS FOR THE PURPOSE OF ILLUSTRATING THE TYPE OF PRODUCT AND DEGREE OF QUALITY DESIRED. SUCH IDENTIFICATION IN NO WAY PRECLUDES THE CONTRACTOR FROM USING PRODUCTS OF OTHER MANUFACTURERS WHICH CAN BE SHOWN IN ADVANCE TO BE OF LIKE AND OF EQUAL OR BETTER QUALITY.
19. ALL CHANGES SHALL BE REQUESTED IN WRITING AND MAY ONLY BE APPROVED IN WRITING BY THE ARCHITECT AND THE OWNER PRIOR TO ANY CHANGES BEING MADE.
20. THE ARCHITECT/ENGINEER HAS THE RIGHT TO REJECT ANY PORTION OF WORK THAT IS POORLY INSTALLED, DOES NOT MEET INDUSTRY STANDARD, UNAUTHORIZED, OR WORK DONE CONTRARY TO THE THE INTENT OF THE CONTRACT DOCUMENTS. SUCH WORK SHALL BE REPLACED, REPAIRED OR REMOVED AT THE CONTRACTOR'S EXPENSE.
21. CONTRACTOR SHALL GUARANTEE ALL HIS WORK AND THE WORK OF HIS SUBCONTRACTORS FOR A PERIOD TWO (2) YEARS AFTER RECEIVING FINAL ACCEPTANCE AND DO ALL REPAIR WORK AND REPLACEMENT AS NECESSARY DURING THAT PERIOD AT THE CONTRACTOR'S EXPENSE.
22. IN NO EVENT SHALL STRUCTURAL MEMBERS BE CUT OR DRILLED WITHOUT THE WRITTEN APPROVAL OF A LICENSED STRUCTURAL ENGINEER.
23. CONTRACTOR SHALL PROVIDE SAFE AND SANITARY CONDITIONS WHERE DEMOLITION AND WRECKING OPERATIONS ARE BEING CARRIED ON. WORK SHALL BE EXECUTED IN SUCH A MANNER THAT HAZARD FROM FIRE, POSSIBILITY OF INJURY, DANGER TO HEALTH AND CONDITIONS WHICH MAY CONSTITUTE A PUBLIC NUISANCE SHALL BE MINIMIZED.
24. ENGINEER/OWNER MAY ASK THE CONTRACTOR TO PROVIDE DETAILED SHOP DRAWINGS & SUBMITTALS OF ANY/ALL PARTS OF THIS PROJECT WHICH THE ENGINEER/OWNER DEEMS NECESSARY FOR.

H.V.A.C. MATERIALS

EQUIPMENT:

- REFER TO SCHEDULES FOR UNIT MANUFACTURER, SIZE, AND CAPACITY DATA.

DUCTWORK:

- INDOOR SUPPLY, RETURN AND EXHAUST DUCTWORK, EXCEPT AS INDICATED BELOW, SHALL BE GALVANIZED STEEL CONSTRUCTION. WEIGHTS AND CONSTRUCTION DETAIL SHALL BE IN ACCORDANCE WITH THE LATEST ASHRAE GUIDE AND/OR SMACNA STANDARDS.
- OUTDOOR AIR INTAKE DUCTWORK SHALL BE ALUMINUM CONSTRUCTION, CLASS "A" SEALED.
- FLEXIBLE DUCTWORK: SHALL NOT EXCEED FOUR (4) FEET IN LENGTH.
- FIRE DAMPER: PHILLIPS SERIES 2 U.L. LABELED DAMPER OR APPROVED EQUAL.

PIPING:

- LOW PRESSURE STEAM PIPING: SHALL BE SCHEDULE 80 BLACK STEEL WITH STANDARD WELDED FITTINGS.
- LOW PRESSURE CONDENSATE RETURN PIPING: SHALL BE HARD COPPER TYPE "L" WITH WROUGHT COPPER FITTINGS.
- AIR CONDITIONING CONDENSATE DRAIN PIPING: SHALL BE HARD COPPER TYPE "L" WITH WROUGHT COPPER FITTINGS. OR SCHEDULE 40 PVC WITH PVC FITTINGS (PRIMED & CEMENTED).
- REFRIGERANT PIPING: SHALL BE COPPER TYPE ACR

INSULATION:

- EXTERNAL DUCT INSULATION: 1" THICK, MIN. 2LB. DENSITY FLEXIBLE FIBERGLASS DUCT INSULATION WITH REINFORCED FOIL FACED FLAME RESISTANT KRAFT VAPOR BARRIER, ADHERED TO DUCT W/ SEALED LAPS AND TAPED JOINTS.
- FRESH AIR INTAKE AND EXPOSED DUCT: 1" THICK, MIN. 2 LB. DENSITY RIGID FIBERGLASS DUCT INSULATION WITH FOIL FACING VAPOR BARRIER FASTENED WITH WELDED CLIPS, CEMENTED JOINTS WITH ALUMINUM TAPE.
- STEAM/CD PIPES SHOULD BE INSULATED WITH FIBERGLASS PIPE INSULATION WITH FACTORY APPLIED ASJ JACKET. INSTALL WITH APPROVED ADHESIVE AND STAPLES. REFER TO SPECIFICATIONS FOR INSULATION THICKNESS.

AIR DEVICES:

- SAD – TITUS MAKE, MODEL TMS
- RAR – TITUS MAKE, MODEL 355-RL (PROVIDE 24x24 TYPE 3 BORDER FOR CEILING LAY IN APPLICATIONS)
- GRG – TITUS MAKE, MODEL 355-RL (PROVIDE 24x24 TYPE 3 BORDER FOR CEILING LAY IN APPLICATIONS)
- NOTES:
  1. ALL SAD, RAR, EAR SHALL BE PROVIDED WITH INTEGRAL OPPOSED BLADE DAMPERS FOR BALANCING.
  2. ALL CEILING DIFFUSERS LOCATED IN GYPSUM BOARD AND/OR CONCEALED SPLINE CEILINGS SHALL BE PROVIDED WITH FRAME TYPE FOR SURFACE MOUNTING
  3. PROVIDE FACTORY INSTALLED 90° BLANK-OFF PLATE(S) IN ALL 2 AND 3 WAY DIFFUSERS.
  4. COLOR OF AIR OUTLETS/INLETS SHALL MATCH THE CEILING COLOR. REFER TO MH101 FOR COLORS OF THE LSD IN GYPSUM BOARD CEILINGS.
  5. FOR ALL SAD, LSD, RAR THE NC RATING SHALL NOT BE GREATER THAN 22.

GENERAL MECH. ABBREVIATIONS:

A.D.	-	ACCESS DOOR
ADL	-	ACOUSTIC DUCT LINING
APD	-	AIR PRESSURE DROP
ALD	-	AUTOMATIC ELECTRICAL OPERATED DAMPER
A.F.F.	-	ABOVE FINISHED FLOOR
AC	-	WINDOW AIR CONDITIONING UNIT
AHU	-	AIR HANDLING UNIT
AL./ALUM.	-	ALUMINUM
AMS	-	AIR MEASURING STATION
APPROX.	-	APPROXIMATE
AT	-	AMPERE TRIP
ATS	-	AUTOMATIC TRANSFER SWITCH
AVG.	-	AVERAGE
BAS	-	BUILDING AUTOMATION CONTROL SYSTEM
BC	-	BARE COPPER
BHP	-	BRAKE HORSEPOWER
BR	-	BOTTOM REGISTER
BOT.	-	BOTTOM CONNECTION
BRIP	-	BOILER PLANT INSTRUMENTATION PANEL
BTU	-	BRITISH THERMAL UNIT
BTUH	-	BRITISH THERMAL UNIT PER HOUR
CAV	-	CONSTANT AIR VOLUME THERMAL UNIT
CC	-	COOLING COIL
CD	-	CEILING DIFFUSER
CFM	-	CUBIC FEET PER MINUTE
CG	-	CEILING GRILLE
CR	-	CEILING REGISTER
CP	-	CONDENSATE PUMP
CO	-	CLEAN OUT
CHWS	-	CHILLED WATER SUPPLY
CHWR	-	CHILLED WATER RETURN
CUH	-	CABINET UNIT HEATER
CWR	-	CONDENSATE WATER RETURN
CWS	-	CONDENSATE WATER SUPPLY
D	-	DRAIN
DA	-	DIRECT ACTING
DAC	-	DOOR AIR CURTAIN UNIT
DDC	-	DIRECT DIGITAL CONTROL
DIA	-	DIAMETER
DN	-	DOWN
DHWH	-	DOMESTIC HOT WATER HEATER
DPG	-	DIFFERENTIAL PRESSURE GAUGE
DPT	-	DIFFERENTIAL PRESSURE TRANSMITTER
DWG.	-	DRAWING
DWTR	-	DUMB WAITER
EA	-	EXHAUST AIR
EA E/A	-	EXHAUST ARE DUCT OPENING
EAT	-	ENTERING AIR TEMPERATURE
EB	-	EXISTING BUILDING
EC	-	EMPTY CONDUIT
EF	-	EXHAUST FAN
EG	-	EQUIPMENT GROUND
EXH	-	EXHAUST
EJ	-	EXPANSION JOINT
EL	-	ELEVATION
ELEC.	-	ELECTRIC
ELEV.	-	ELEVATOR
EMERG	-	EMERGENCY
EQPM	-	EQUIPMENT
EXP, XP	-	EXPANSION PROOF
EXT.	-	EXTERIOR
EXTG	-	EXISTING
EWC	-	ELECTRIC WATER COOLER
FA	-	FIRE ALARM
FACP	-	FIRE ALARM CONTROL PANEL
FCU	-	FAN COIL UNIT
FC	-	FLEXIBLE CONNECTION
FD	-	FLOOR DRAIN
FDAD	-	FIRE DAMPER ACCESS DOOR
FI	-	FILM ILLUSTRATOR
FIXT	-	FIXTURE
FLUOR	-	FLUORESCENT
FPM	-	FEET PER MINUTE
FT	-	FEET
FSCP	-	FLAME SAFEGUARD CONTROL SWITCH
FSS	-	FUSED SAFETY SWITCH
GAL	-	GALLON
GEN	-	GENERATOR
GFI	-	GROUND FAULT INTERUPTER
GND	-	GROUND
GPH	-	GALLON PER HOUR
GPM	-	GALLON PER MINUTE
GTB	-	GROUND TERMINAL BOX
GYP	-	GYPSUM
G.W.B.	-	GYPSUM WALL BOARD
HACR	-	HEATING AIR CONDITION REFRIGERATION
HH	-	HANDHOLE
HM	-	HOLLOW METAL
HOA	-	HAND OFF AUTOMATIC
HP	-	HOURSEPOWER
HPS	-	HIGH PRESSURE SYSTEM
HT	-	HEIGHT
HV	-	HIGH VOLTAGE
HVU	-	HEATING & VENTILATIONG UNIT
HWS	-	HOT WATER SUPPLY
HWR	-	HOT WATER RETURN
ID	-	INTERNAL DIAMETER
IN	-	INCH
INCAND	-	INCANDESCENT
INTR	-	INTERIOR
JB	-	JUNCTION BOX
KHEF	-	KITCHEN HOOD EXHAUST FAN
KW	-	KILOWATT
LD	-	LINEAR DIFFUSER OR SLOT-DIFFUSER WITH PLENUM
LL	-	LOW LIMIT
LLT	-	LOW LIMIT TEMPERATURE SENSOR
LTCP	-	LOCAL TEMPERATURE CONTROL PANEL
LTG	-	LIGHTING
LTS	-	LIGHTS
LV	-	LOW VOLTAGE
MATV	-	MASTER ANTENNA TELEVISION
MAX	-	MAXIMUM
MBH	-	THOUSAND BTU PER HOUR
MCB	-	MAIN CIRCUIT BREAKER
MCC	-	MOTOR CONTROL CENTER
MDP	-	MAIN DISTRIBUTION PANEL
MECH	-	MECHANICAL
MER	-	MECHANICAL EQUIPMENT ROOM
MIN	-	MINIMUM
MLO	-	MAIN LUGS ONLY
MH	-	MANHOLE
MIN	-	MINIMUM
MO	-	MASONRY OPENING
MOD	-	MOTORIZED OUTSIDE AIR DAMPER
MTD	-	MOUNTED
MTG HT	-	MOUNTING HEIGHT
N	-	NORTH
N/A	-	NOT APPLICABLE
NC	-	NORMALLY CLOSED
NFSS	-	NON-FUSED SAFETY SWITCH
N.I.C.	-	NOT IN CONTRACT
NL	-	NON-CONTROLLED 24 HR LIGHT
NO	-	NORMALLY OPEN
NUMB	-	NUMBER
N.T.S.	-	NOT TO SCALE
OAI O/A	-	OUTSIDE AIR INTAKE
OC	-	ON CENTER
OPP	-	OPPOSITE
P	-	POLE
PB	-	PULL BOX
PBPU	-	PREFABRICATED BEDSIDE PATIENT POWER UNIT
PC	-	PUMPED CONDENSATE
PCHWS	-	PRIMARY CHILLED WATER SUPPLY
PCHWR	-	PRIMARY CHILLED WATER RETURN
PD	-	PRESSURE DROP
PNL	-	PANEL
POD	-	POWER OPERATED
PRV	-	PRESSURE REDUCING VALVE
PSI	-	POUNDS PER SQUARE INCH
PSIG	-	POUNDS PER SQUARE INCH GUAGE
PTRV	-	POWER TYPE ROOF VENTILATION
PWR	-	POWER
RA R/A	-	RETURN AIR
RADO	-	RETURN AIR DUCT OPENING
RATO	-	RETURN AIR TRANSFER OPENING ABOVE CEILING
RECEPT	-	RECEPTACLE
REF	-	RETURN/EXHAUST FAN
RF	-	RETURN FAN
REG	-	REGISTER
ROGP	-	REFRIGERANT HOT GAS PIPE
RGIP	-	REMOTE GROUND INDICATOR PANEL
R.D.	-	ROOF DRAIN
RM	-	ROOM
RR	-	RETURN AIR REGISTER
S	-	SUPPLY
S/S	-	STATUS SENSOR
SA	-	SUPPLY AIR
SAR	-	SUPPLY AIR REGISTER
SADO	-	SUPPLY AIR DUCT OPENING
SCCU	-	SPLIT-SYSTEM COMPRESSURE/ CONDENSOR UNIY
SD	-	SMOKE DAMPER
SF	-	SUPPLY FAN
SIG	-	SIGNAL
SP	-	STATIC PRESSURE
SPT	-	STATIC PRESSURE TRANSMITTER, DUCT MOUNTED
SS	-	STAINLESS STEEL
SSAC	-	SPLIT-SYSTEM AIR CONDITIONING UNIT
SSW	-	SAFETY SWITCH
SR	-	STEAM RETURN LINE
ST	-	SOUND ATTENUATOR (SOUND TRAP)
STA	-	STATION
SQ. FT.	-	SQUARE FEET
T	-	TEMPERATURE
TCC	-	TEMPERATURE CONTROL CONNECTION
TCP	-	REMOTE TEMPERATURE CONTROL PANEL
TG	-	TOP GRILLE/ TRANSFER GRILLE
TH/THK	-	THICKNESS
TM	-	TERMINATION MODULE
TREG	-	TOP REGISTER
TSTAT	-	THERMOSTAT
TT	-	TEMPERATURE SENSOR (TEMP. TRANSMITTER)
TYP	-	TYPICAL
UH	-	UNIT HEATER
UON	-	UNLESS OTHERWISE NOTED
V	-	VOLTAGE
VAV	-	FAN-POWERED VARIABLE AIR VOLUME
V.C.A.	-	VINYL COMPOSITE TILE
VD	-	VOLUME DAMPER
VENT	-	VENTILATION
VEST	-	VESTIBULE
VFD	-	VARIABLE FREQUENCY DRIVE
V.I.F.	-	VERIFY IN FIELD
VTF	-	VENT THROUGH ROOF
VP	-	VAPOR PROOF
W	-	WIRE
W/	-	WITH
WG	-	WATER GAUGE
WM	-	WIRE MESH
WMS	-	WIRE MESH SCREEN
WPR	-	WORKING PRESSURE
WT	-	WATER TIGHT
XFMR	-	TRANSFORMER

GENERAL MECH. SYMBOLS

- M.P. STEAM HEAT PIPING (LABELED)
- H.P. STEAM SUPPLY PIPING (LABELED)
- M.P. STEAM SUPPLY PIPING (LABELED)
- VACUUM OR GRAVITY RETURN PIPING
- DRIP RETURN M.P. OR H.P. STEAM PIPING
- PUMPED RETURN PIPING
- V — VENT PIPING
- D — CONDENSATE DRAIN PIPE
- R — REFRIGERANT PIPING
- R — RETURN RISER
- S — STEAM RISER
- SR — STEAM SUPPLY AND RETURN RISER
- SIDE CONNECTIION
- TOP CONNECTION - 90° OR 45°
- BOTTOM CONNECTION - 90° OR 45°
- UNION CONNECTION
- CAPPED OUTLET
- ECCENTRIC REDUCER IN STEAM PIPING
- EXPANSION JOINT
- ANCHOR
- RISE OR DROP IN STEAM PIPING
- STRAINER, STRAINER WITH BLOW-OFF VALVE
- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- PRESSURE REDUCING VALVE AND BYPASS
- AUTOMATIC ZONE CONTROL VALVE AND BYPASS
- THERMOSTATIC STEAM TRAP
- FLOAT AND THERMOSTATIC STEAM TRAP
- TWO-WAY TEMPERATURE CONTROL (MODULATING) VALVE
- THERMOMETER
- PRESSURE GAUGE WITH NEEDLE VALVE COCK.
- CO — CARBON MONOXIDE GAS SENSOR
- CO_2 — CARBON DIOXIDE GAS SENSOR
- S — SMOKE DETECTOR
- ALD — AUTOMATIC ELECTRICAL OPERATING DAMPER
- PRESSURE GAUGE
- VOLUME DAMPER
- T — THERMOSTAT - ELECTRIC (24V) - NON-PROGRAMMABLE
- T7 — THERMOSTAT - 7 DAY PROGRAMMABLE
- TS — TEMPERATURE SENSOR
- H — SPACE HUMIDISTAT
- HT — SPACE HUMIDITY SENSOR
- CSP — UNIT CONTROL SYSTEM PILOT
- LOW/HIGH LIMIT DUCT THERMOSTAT
- PSH — PRESSURE SENSOR SWITCH HIGH
- PSL — PRESSURE SENSOR SWITCH LOW
- DROP IN DUCT
- RISE IN DUCT
- SET UP — PITCH DUCT UP
- SET DN. — PITCH DUCT DN
- SUPPLY DUCT SECTION
- EXHAUST/RETURN DUCT
- SUPPLY DIFFUSER
- RETURN GRILLE/REGISTER
- 3-WAY DIFFUSER
- 3" THICK TWO-HOUR FIRE-RATED INSULATED DUCTWORK (SHOWN IN SINGLE LINE DUCT REPRESENTATION)
- FLEXIBLE CONNECTION
- VOLUME DAMPER IN DUCT
- INDICATES SUPPLY AIR
- INDICATES EXHAUST OR RETURN AIR
- DOOR UNDERCUT
- DOOR LOUVER
- ACCESS DOOR IN DUCT
- DUCT MOUNTED SOUND ATTENUATOR
- FIRE DAMPER IN A DUCT WITH ACCESS DOOR
- FIRE/SMOKE DAMPER IN A DUCT WITH ACCESS DOOR
- DIRECTIONAL VANES
- UNIT HEATER
- ELECTRIC CABINET HEATER (ECH), CEILING MOUNTED
- ELECTRIC CABINET HEATER (ECH), RECESSED IN WALL
- SQUARE DIFFUSER WITH CYLINDRICAL NECK
- EXISTING SQUARE CEILING DIFFUSER
- EXISTING SQUARE CEILING REGISTER
- ROUND DIFFUSER WITH CYLINDRICAL NECK
- CR — RETURN OR EXHAUST GRILLE OR REGISTER
- CALIBRATED BALANCE AND SHUTOFF VALVE WITH MEMORY STOP AND PRESSURE PORTS
- THERMOMETER WITH WELL
- PRESSURE GAUGE
- TEST PLUG FOR PRESSURE/TEMPERATURE
- PRESSURE SENSOR INPUT SIGNAL TO DDC TEMPERATURE CONTROL
- NEW CONNECTION POINT
- DISCONNECTION POINT

KEY PLAN

Bid Documents Submission MI 000

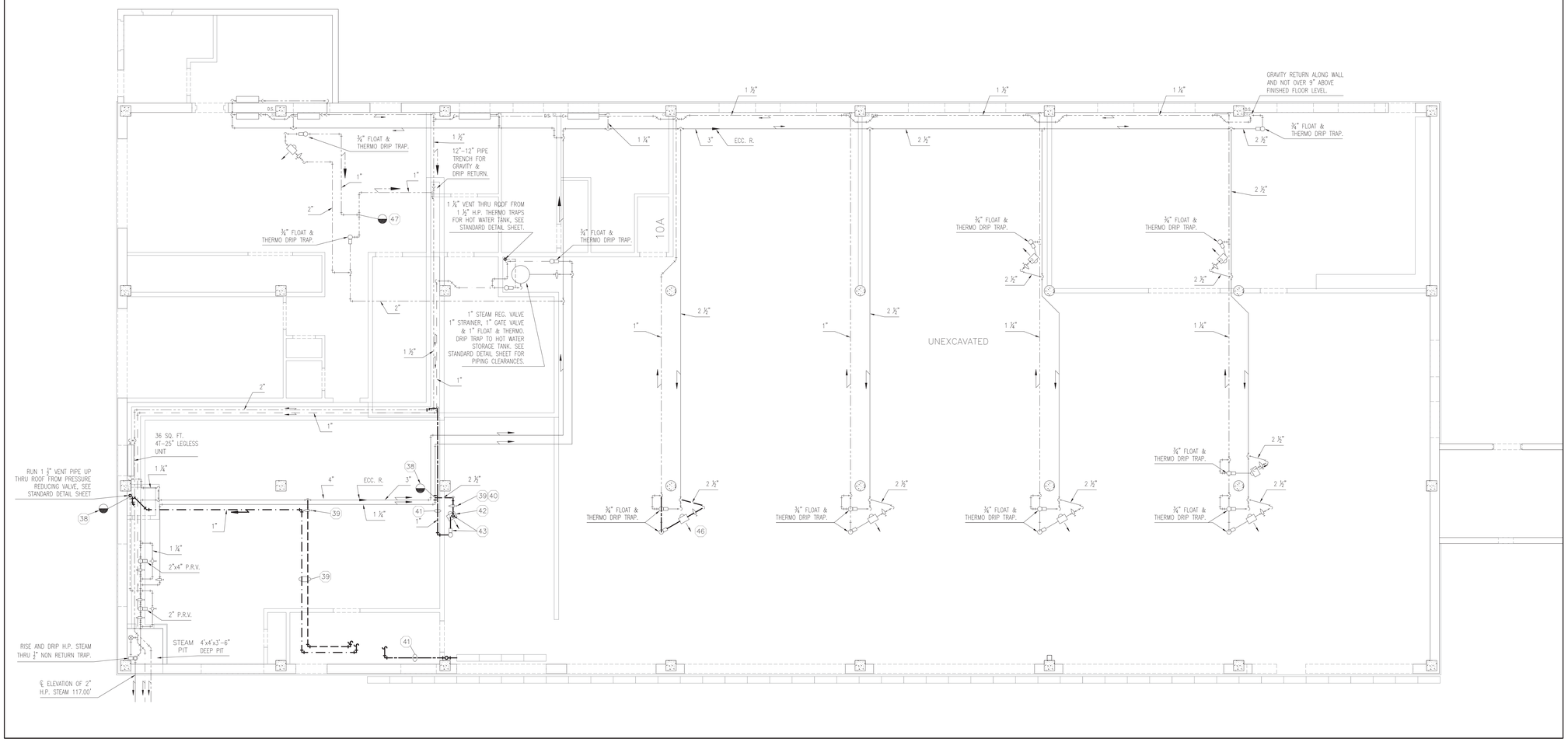
Bid Documents	08-17-2021
100% Working Drawings Submission	08-16-2021
95% Working Drawings Submission	05-21-2021
65% Working Drawings Submission	02-26-2021
35% Working Drawings Submission	08-25-2018
100% Preliminary Design Submission	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

APPROVED:	APPROVED:	Drawing Title: Mechanical Notes, Abbreviations, & Symbols Steam Distribution & HVAC Systems. Drawing Scale: N.T.S.	Project Title: Firehouse Enhancement at FDR
APPROVED:	APPROVED:		
APPROVED:	APPROVED:	Approved: Facility Director , VAHVHCS:	Location: Montrose, NY 10548
APPROVED:	APPROVED:	Approved: John C



BLDG. 19 EXISTING STEAM DISTRIBUTION PLAN

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

MECHANICAL DEMOLITION NOTES:

38. DISCONNECT LOCATION OF EXISTING STEAM SUPPLY AND CONDENSATE RETURN LINE.
39. REMOVE EXISTING STEAM, CONDENSATE PIPING, CONNECTIONS, SUPPORTS, AND ASSOCIATED EQUIPMENT OR COMPONANTS AS DESIGNATED ON THIS SHEET.
40. REMOVE EXISTING GATE VALVE.
41. REMOVE EXISTING CONDENSATE PIPING, CONNECTIONS, SUPPORTS, AND ASSOCIATED EQUIPMENT OR COMPONENTS.
42. EXISTING UNIT HEATING COIL TO BE REMOVED. REMOVE EXISTING SUPPORTS AND ASSOCIATED COMPONENTS. SEE DETAIL 5 ON SHEET "MD 600"
43. REMOVE EXISTING 3/4" FLOAT & THERMO DRIP TRAP AND ASSOCIATED COMPONENTS.
46. RELOCATE EXISTING HEATER TO GARAGE SIDE, RECONNECT EXISTING STEAM LINES AND CONDENSATE LINES AS REQUIRED. IF DAMAGED, PIPING AND EQUIPMENT SHALL BE REPLACE IN KIND.
47. CONTRACTOR SHALL REMOVE EXISTING HEATING UNIT AND SUPPORT, CUT AND CAP STEAM SUPPLY AND CONDENSATE LINES TO MAIN BRANCH LINE.

GENERAL MECH. SYMBOLS

- STEAM DISTROBUTION SUPPLY
- DRIP RETURN M.P. AND H.P. PIPING.
- VACUUM OR GRAVITY RETURN PIPING.
- SUPPLY AND VACUUM, OR GRAVITY RETURN PIPING DEMOLITION.
- V — VENT PIPE
- RUNNING TRAP
- R — RETURN RISER
- S — SUPPLY RISER
- SR — SUPPLY AND RETURN RISER
- CLEAN OUT (IN FLOOR)
- CLEAN OUT (IN PIPE)
- INCREASER OR REDUCER
- PLUGGED INLET
- BACK FLOW VALVE
- NATURAL GAS
- IW — ICE WATER
- IWR — ICE WATER RETURN
- CA — COMPRESSED AIR
- ANCHOR
- SIDE CONNECTION
- TOP CONNECTION, 90° OR 45°.
- BOTTOM CONNECTION, 90° OR 45°.
- VAC — VACUUM LINE
- RISE OR DROP IN STEAM PIPING
- STRAINER, STRAINER WITH BLOW-OFF VALVE
- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- ZONE CONTROL VALVE
- FLOAT AND THERMO TRAP
- NEW CONNECTION POINT
- DISCONNECTION POINT. CAP BRANCH AT MAIN.

KEY PLAN

Bid Documents Submission MD 100

Bid Documents	08-17-2021
100% Working Drawings Submission	08-16-2021
95% Working Drawings Submission	05-21-2021
65% Working Drawings Submission	02-26-2021
35% Working Drawings Submission	08-25-2018
100% Preliminary Design Submission	10-05-2017
Revisions:	Date:

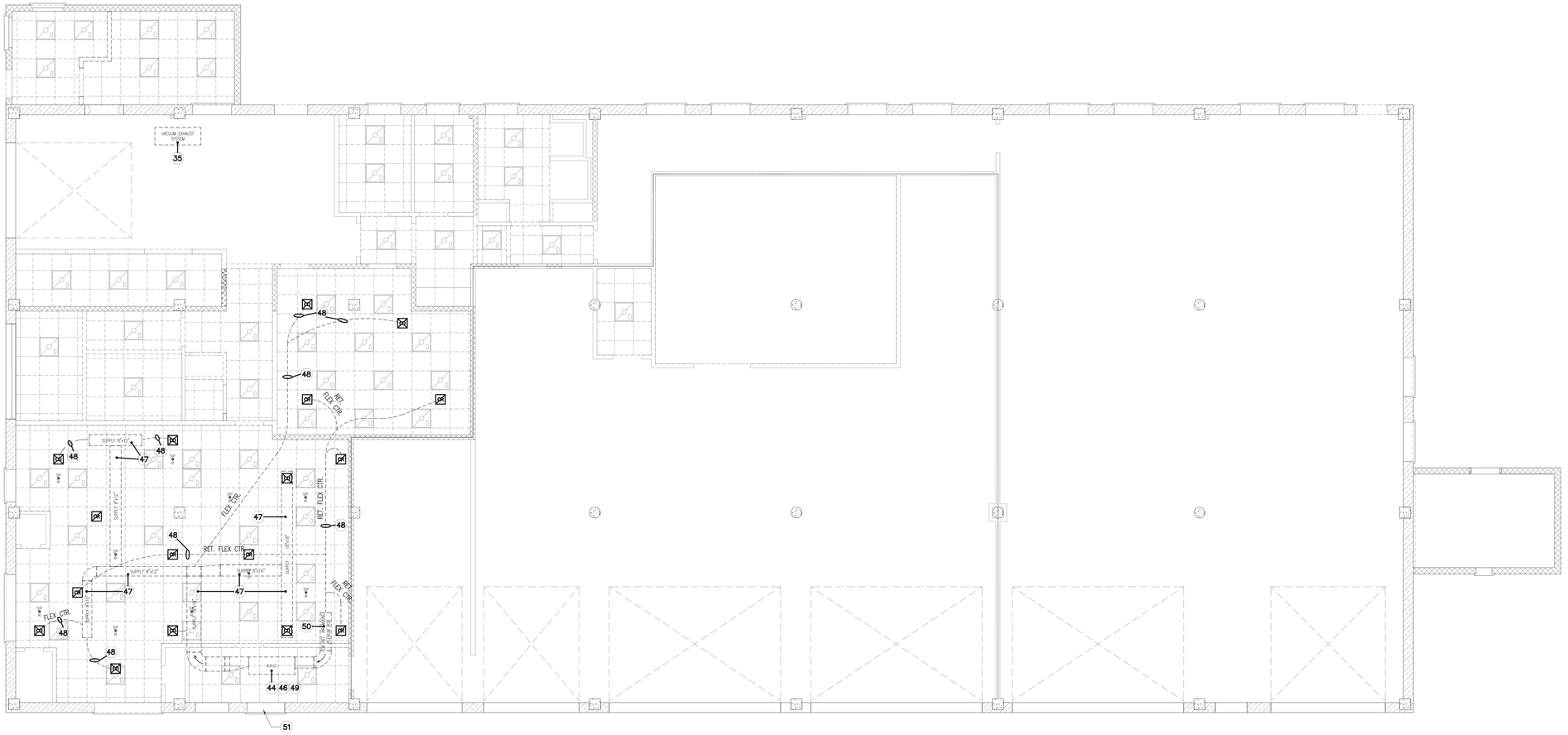
CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

APPROVED:	APPROVED:	Drawing Title: Existing Mechanical Plans Steam Distribution, Drawing Scale: 1/8" - 1'-0"	Project Title: Firehouse Enhancement at FDR	Project Number: 620-20-206	Engineering Service
APPROVED:	APPROVED:			Building(s) Number: 19	
APPROVED:	APPROVED:	Approved: Facility Director , VAHVHCS:	Location: Montrose, NY 10548	Drawing Number: MD 100	Department of Veterans Affairs
APPROVED:	APPROVED:	Approved: John Cliffe, Facility Chief of Engineering	Date: 08-30-2021 / Checked: LS / Drawn: AMI	Dwg. 26 of 61	

VA FORM 08-6231, OCT 1978



MECHANICAL DEMOLITION NOTES:

35. CONTRACTOR SHALL DEMOLISH EXISTING VACUUM EXHAUST SYSTEM IN IT'S ENTIRETY. REMOVE ALL SUPPORTS AND ASSOCIATED WIRING TO THE SOURCE. PATCH ALL PENETRATIONS W/FIRE RATED PLYWOOD AND FIRE–STOPPING

44. REMOVE EXISTING CEILING HUNG A.H.U. AND SUPPORTS.

45. REMOVE CONDINSATE LINE FROM EXISTING A.H.U. TO EXISTING TRENCH DRAIN IN CAR WASH BAY. PLUG HOLE IN SLAB WITH NON–SHRINK CONCRETE. SEE NOTE 41 ON SH. "MD 100".

46. REMOVE EXISTING STEAM SUPPLY AND CONDENSATE RETURN PIPIING. SEE NOTES 39 & 41 ON SH. "MD 100".

47. REMOVE ALL RIGID DUCTING, CEILING DIFFUSERS AND REGISTERS, AND DUCT SUPPORTS.

48. REMOVE ALL FLEX DUCTING AND SUPPORTS.

49. REMOVE ALL REFRIDGERANT LINES AND SUPPORTS FROM EXISTING A.H.U. TO ROOFTOP CONDENSERS.

50. REMOVE RETURN AIR AND OUTSIDE AIR MIXING PLENUM BOX.

51. DISCONNECT EXISTING OUTSIDE AIR DUCT FLANGE BY OUTSIDE AIR INTAKE LOUVER AND REMOVE DUCT FROM DISCONNECTED FLANGE TO R.A./O.A. MIXING PLENUM BOX.

BLDG. 19 EXISTING HVAC DISTRIBUTION PLAN

SCALE: ¼" = 1'-0"

KEY PLAN

Bid Documents Submission MD 101

Bid Documents	08-17-2021
100% Working Drawings Submission	08-16-2021
95% Working Drawings Submission	05-21-2021
65% Working Drawings Submission	02-26-2021
35% Working Drawings Submission	08-25-2018
100% Preliminary Design Submission	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

APPROVED: | APPROVED:

APPROVED: | APPROVED:

APPROVED: | APPROVED:

APPROVED: | APPROVED:

Drawing Title: Existing Mechanical HVAC Plan, Ground Floor, Drawing Scale: As Noted

Approved: Facility Director , VAHVHCS:

Approved: John Cliffe, Facility Chief of Engineering

Project Title: Firehouse Enhancement

Location: Montrose, NY 10548

Date: 08-30-2021 | Checked: LS | Drawn: AMI

Project Number: 620-20-206

Building(s) Number: 19

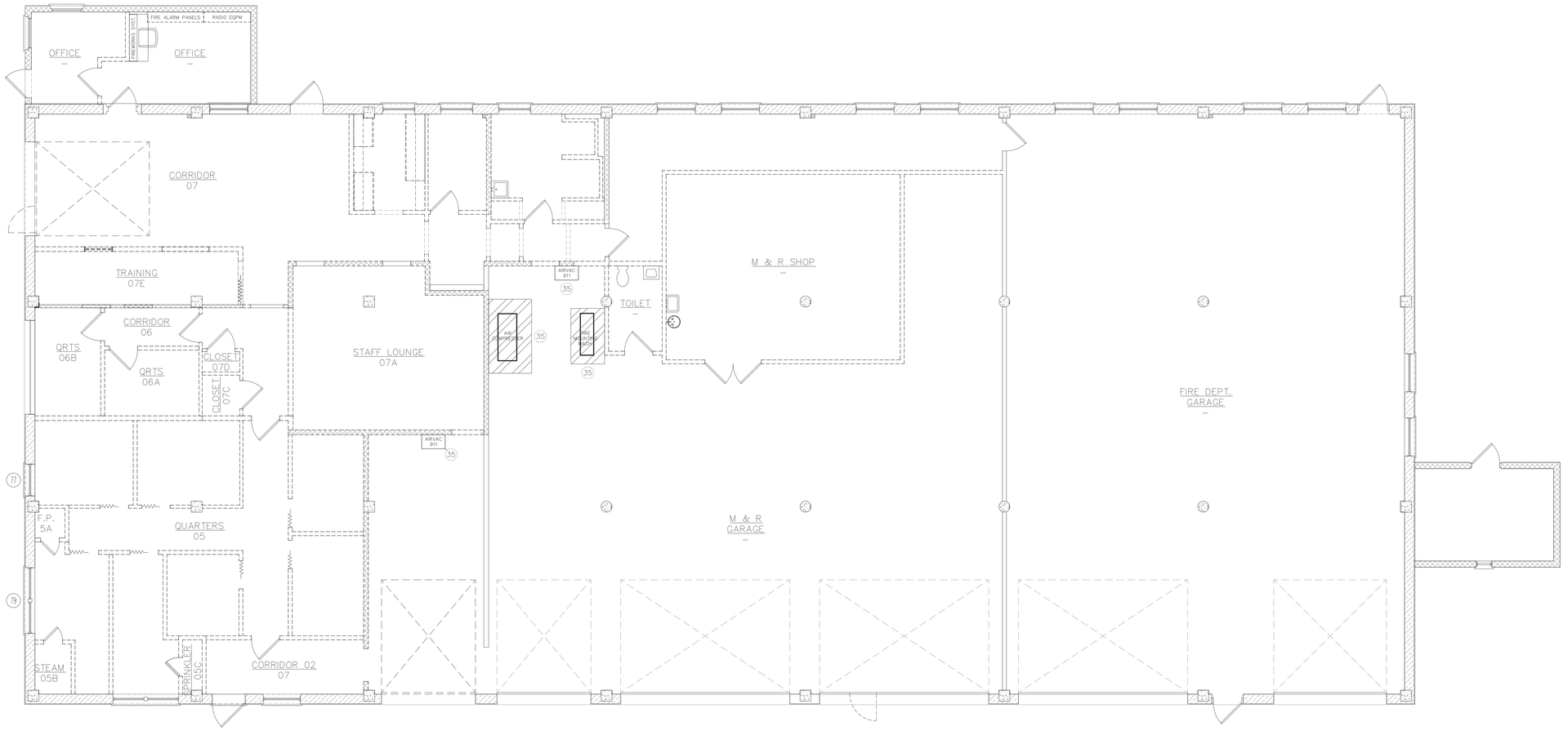
Drawing Number: MD 101

Dwg. 28 of 61

Engineering Service

Department of Veterans Affairs

VA FORM 08–6231, OCT 1978



DEMOLITION NOTES:

35 EXISTING FLOOR, WALL, OR CEILING MOUNTED MECHANICAL EQUIPMENT TO BE REMOVED AND TURNED INTO V.A. SHOPS. ALL ASSOCIATED WIRING, CONDUIT, CONDUIT SUPPORTS REMOVED TO THE SOURCE.

MECHANICAL EQUIPMENT DEMOLITION PLAN

SCALE: $^{3}/_{16}$" = 1'-0"

KEY PLAN

Bid Documents Submission MD 102

Bid Documents	08-17-2021
100% Working Drawing Submission	08-16-2021
95% Working Drawing Submission	05-21-2021
65% Working Drawing Submission	02-26-2021
35% Working Drawing Submission	06-25-2018
100% Preliminary Design	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

APPROVED: | APPROVED:
APPROVED: | APPROVED:
APPROVED: | APPROVED:
APPROVED: | APPROVED:

Drawing Title: Equipment Demolition Plan, Ground Floor, Scale: As Noted

Approved: Facility Director , VAHVHCS:

Approved: John Cliffe, Facility Chief of Engineering

Project Title: Firehouse Enhancement

Location: Montrose, New York

Date: 08-30-2021 | Checked: AMI | Drawn: AMI

Project Number: 620-20-206

Building(s) Number: 019

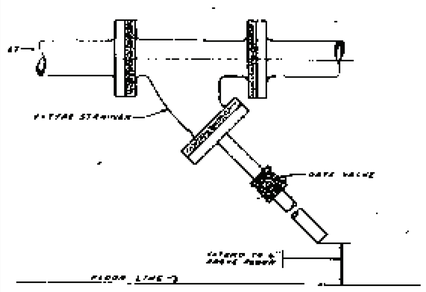
Drawing Number: MD 102

Dwg 28 of 61

Engineering Service

Department of Veterans Affairs

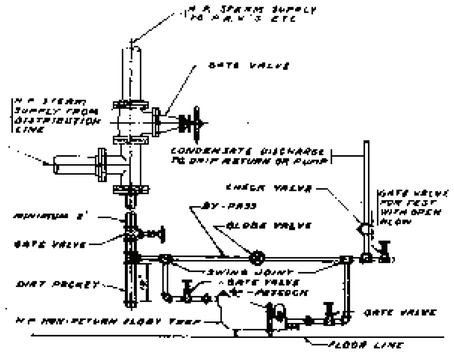
VA FORM 08-6231, OCT 1978



1- TYPICAL DETAIL OF BLOW-DOWN CONNECTION TO Y-TYPE STRAINER

NOT TO SCALE

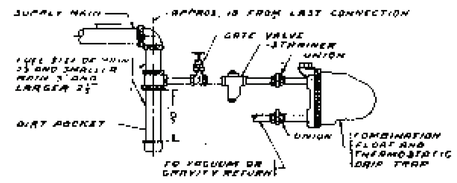
NOTE
NOT TO BE USED IN FINISHED ROOM OR STORAGE SPACES, SEE SPECIFICATIONS.
TO BE USED WITH FLANGED OR SCREWED FITTINGS.



2- TYPICAL DETAIL OF H.P. DRIP THRU NON-RETURN FLOAT TRAP

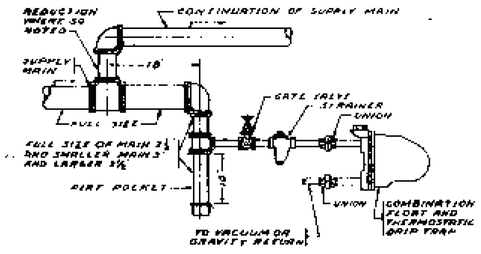
NOT TO SCALE

NOTE:
FOR SIZES OF PIPES, FITTINGS, VALVES, TRAP ETC. SEE HEATING DRAWINGS.
TRAP SHALL BE MOUNTED ON BRACKET WHERE SO SHOWN OR NOTED.



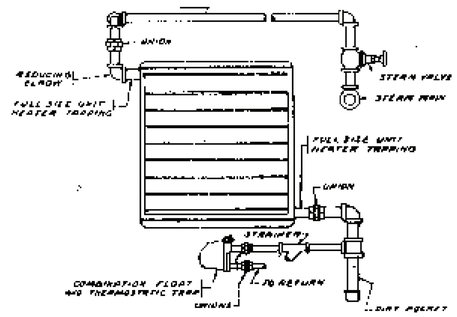
3- TYPICAL DETAIL OF DRIP AT END OF LOW PRESSURE STEAM MAIN

NOT TO SCALE



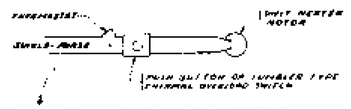
4- TYPICAL DETAIL OF INTERMEDIATE DRIP IN LOW PRESSURE STEAM MAIN

NOT TO SCALE



5- TYPICAL UNIT HEATER CONNECTIONS

NOT TO SCALE



6- CONTROL DIAGRAM FOR UNIT HEATER

NOT TO SCALE

Bid Documents Submission MD 500

KEY PLAN

Bid Documents	08-17-2021
100% Working Drawings Submission	08-16-2021
95% Working Drawings Submission	05-21-2021
65% Working Drawings Submission	02-26-2021
35% Working Drawings Submission	06-25-2018
100% Preliminary Design Submission	10-05-2017
Revisions:	Date:

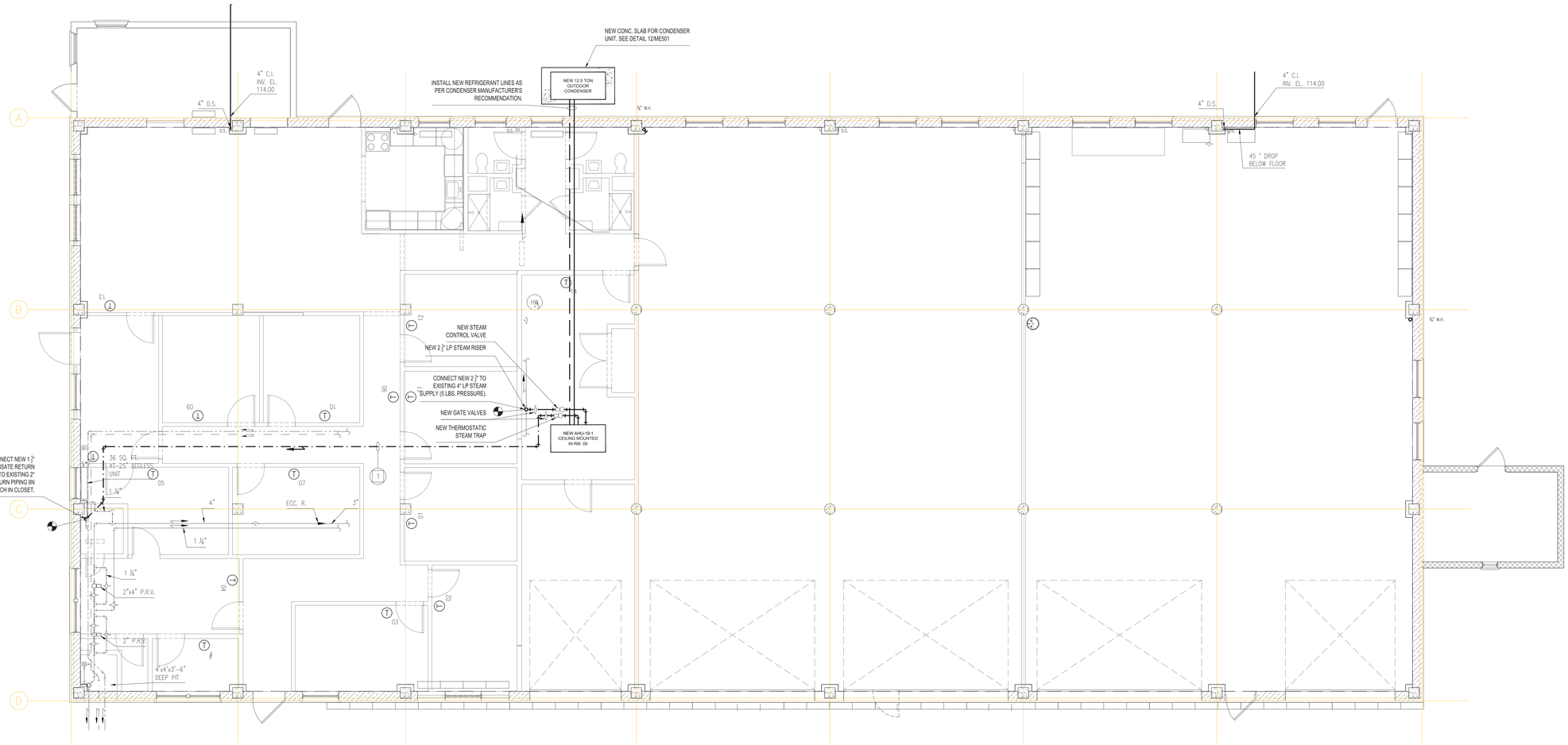
CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

APPROVED:	APPROVED:	Drawing Title: Existing Standard Mechanical Details Steam Distribution Drawing Scale: N.T.S.	Project Title: Firehouse Enhancement at FDR	Project Number: 620-20-206	Engineering Service	
APPROVED:	APPROVED:			Building(s) Number: 19		
APPROVED:	APPROVED:	Approved: Facility Director , VAHVHCS:	Location: Montrose, NY 10548	Drawing Number: MD 500		
APPROVED:	APPROVED:	Approved: John Cliffe, Facility Chief of Engineering	Date: 08-30-2021 / Checked: LS / Drawn: AMI	Dwg. 29 of 61	Department of Veterans Affairs	

VA FORM 08-6231, OCT 1978



NEW STEAM DISTRIBUTION PLAN

SCALE: 3/16" = 1'-0"

NEW MECHANICAL INSTALLATION NOTES:

1. INSTALL NEW 1 ½" STEAM CONDENSATE PIPING.

NEW STEAM CONDENSATE PIPING.

KEY PLAN

Bid Documents Submission ME 100

Bid Documents	08-17-2021
100% Working Drawing Submission	08-16-2021
95% Working Drawing Submission	05-21-2021
65% Working Drawing Submision	02-26-2021
35% Working Drawing Submission	06-25-2018
100% Preliminary Design	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

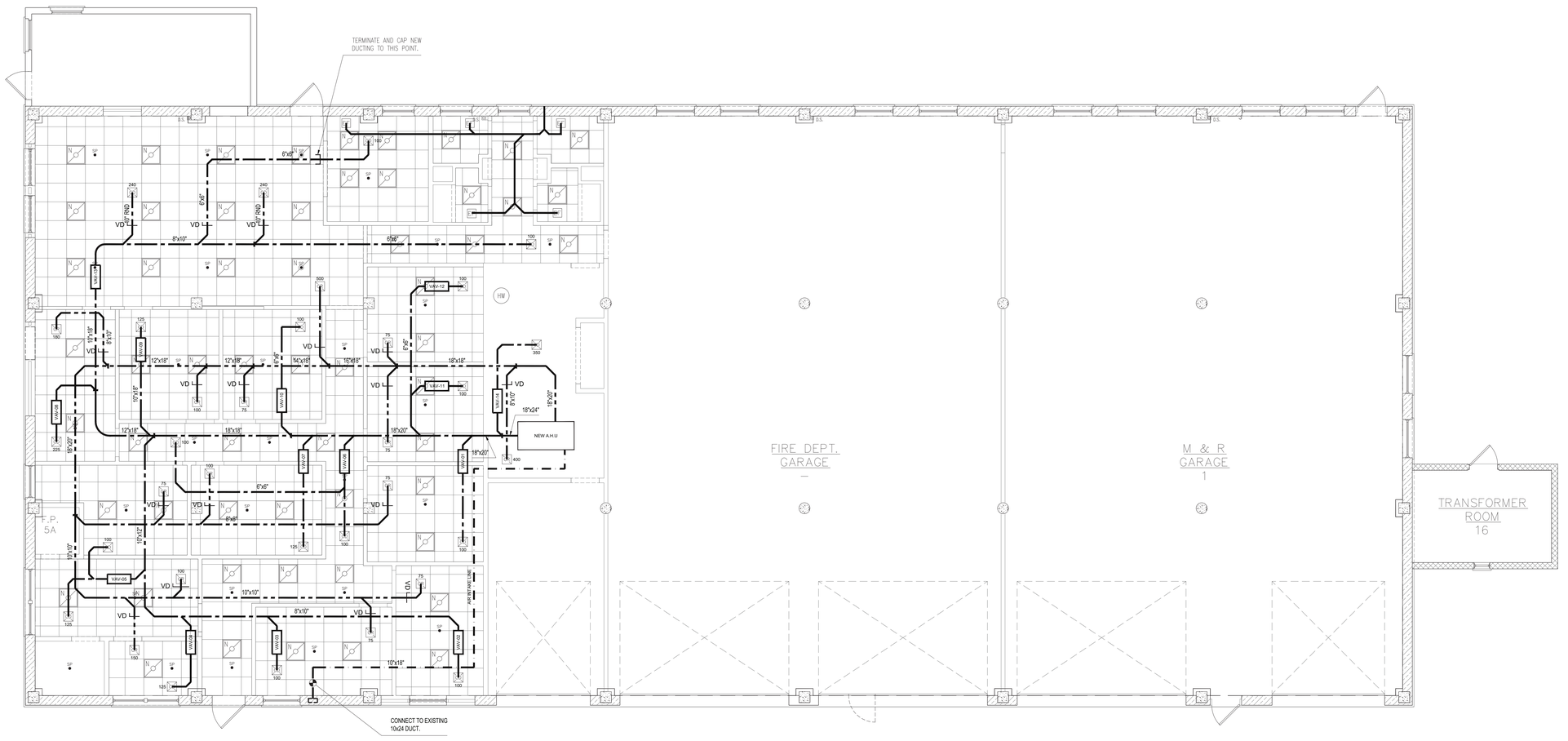
NORTH:

APPROVED:	APPROVED:	Drawing Title: New Steam Distribution Plan, Ground Floor, Scale: 1/8" = 1'-0"	Project Title: Firehouse Enhancement at FDR
APPROVED:	APPROVED:		
APPROVED:	APPROVED:	Approved: Facility Director , VAHVHCS:	Location: Montrose, New York
APPROVED:	APPROVED:	Approved: John Cliffe, Facility Chief of Engineering	Date: 08-30-2021 / Checked: LS / Drawn: AMI

Project Number: 620-20-206
Building(s) Number: 019
Drawing Number: ME 100
Dwg 30 of 61

Engineering Service
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



NEW MECHANICAL HVAC PLAN

SCALE: 3/16" = 1'-0"

EXHAUST LINE
AIR SUPPLY
FRESH AIR INTAKE
RETURN AIR

VAV-# HEATING COIL

(T) FOR THERMOSTATS SEE SHEET "ME 100".

KEY PLAN

Bid Documents Submission ME 101

Bid Documents	08-17-2021
100% Working Drawing Submission	08-16-2021
95% Working Drawing Submision	05-21-2021
65% Working Drawing Submission	02-26-2021
35% Working Drawing Submision	06-25-2018
100% Preliminary Design	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

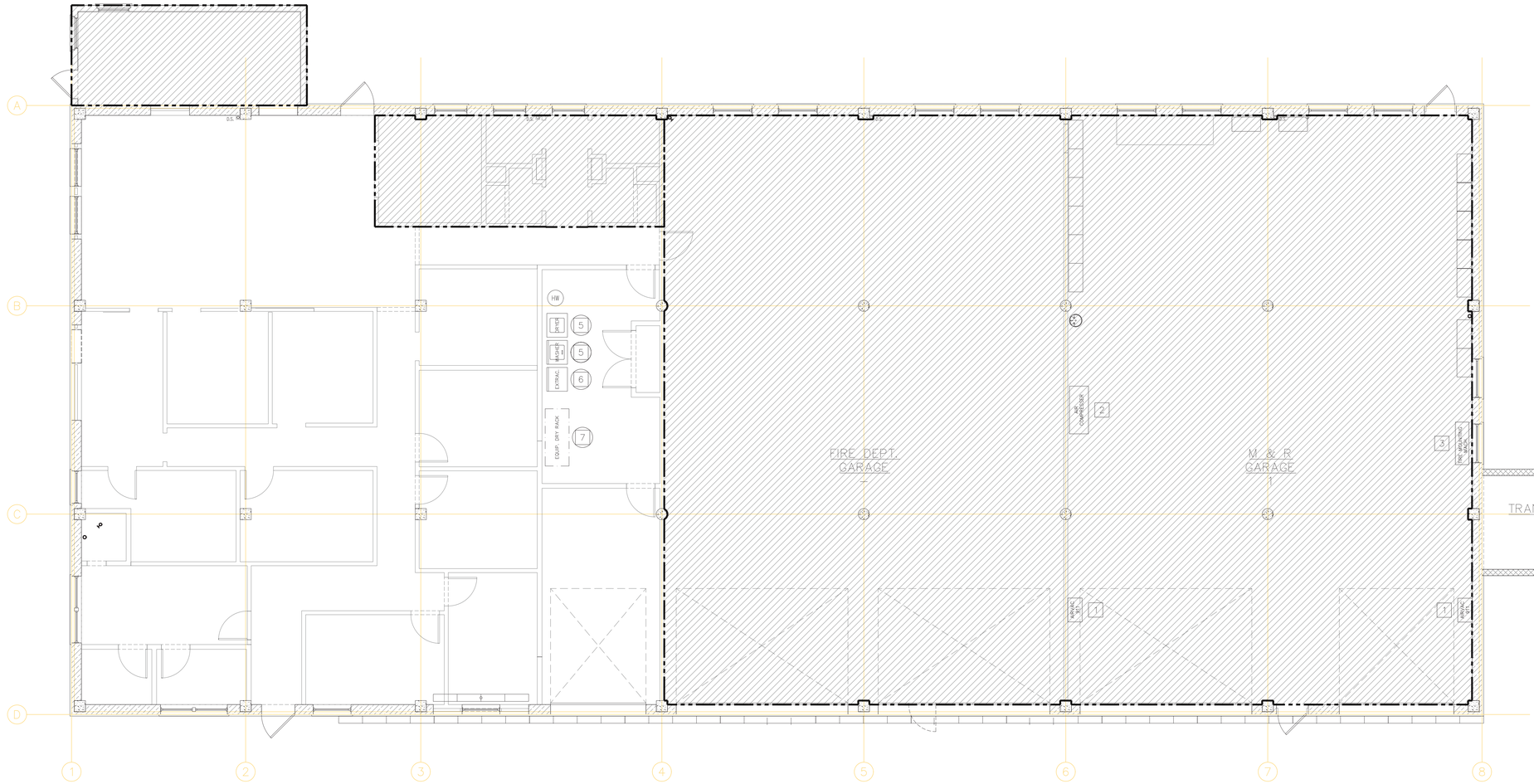
NORTH:

APPROVED: | APPROVED:
APPROVED: | APPROVED:
APPROVED: | APPROVED:
APPROVED: | APPROVED:

Drawing Title: New Mechanical HVAC Plan, Ground Floor, Scale: As Noted
Project Title: Firehouse Enhancement at FDR
Project Number: 620-20-206
Building(s) Number: 019
Drawing Number: ME 101
Dwg 31 of 61
Approved: Facility Director , VAHVHCS:
Approved: John Cliffe, Facility Chief of Engineering
Location: Montrose, New York
Date: 08-17-2021 | Checked: LS | Drawn: AMI

Engineering Service
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



NEW MECHANICAL INSTALLATION NOTES:

2. V.A. SHOP SHALL REINSTALL EXISTING "AIR VAC" WALL MOUNTED EQUIPMENT AS SPECIFIED ON THIS DRAWING. MOUNTING, ALL REQUIRED POWER AND MSC. CONNECTIONS WILL BE TASKED TO CORRESPONDING V.A. SHOP. **NOT IN CONTRACT (N.I.C.)**.
3. V.A. SHOP SHALL INSTALL EXISTING COMPRESSOR AS SPECIFIED ON THIS DRAWING. MOUNTING, ALL REQUIRED POWER AND MSC. CONNECTIONS WILL BE TASKED TO CORRESPONDING V.A. SHOP. **NOT IN CONTRACT (N.I.C.)**.
4. EXISTING COMPRESSOR TO BE RELOCATED AND INSTALLED AS SPECIFIED ON THIS DRAWING. MOUNTING, ALL REQUIRED POWER AND MSC. CONNECTIONS WILL BE TASKED TO CORRESPONDING V.A. SHOP. **NOT IN CONTRACT (N.I.C.)**.
5. EXISTING WASHER AND DRYER TO BE RELOCATED FROM BUILDING 31 TO LOCATION AS SPECIFIED ON THIS DRAWING. **NOT IN CONTRACT (N.I.C.)**.
6. EXISTING EXTRACTOR TO BE RELOCATED FROM BUILDING 31 TO LOCATION AS SPECIFIED ON THIS DRAWING. **NOT IN CONTRACT (N.I.C.)**.
7. EXISTING EXTRACTOR TO BE RELOCATED FROM BUILDING 31 TO LOCATION AS SPECIFIED ON THIS DRAWING. **NOT IN CONTRACT (N.I.C.)**.

KEY PLAN

Bid Documents Submission ME 102

Bid Documents	08-17-2021
100% Working Drawing Submision	08-16-2021
95% Working Drawing Submision	05-21-2021
65% Working Drawing Submision	02-26-2021
35% Working Drawing Submision	06-25-2018
100% Preliminary Design	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

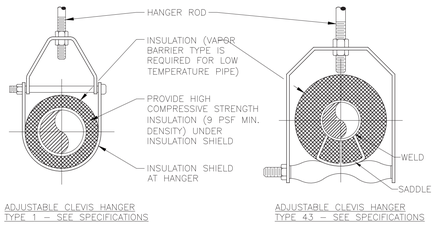
APPROVED:	APPROVED:	Drawing Title: New Equipment Location Plan Ground Floor Scale: As Noted	Project Title: Firehouse Enhancement at FDR
APPROVED:	APPROVED:		
APPROVED:	APPROVED:	Approved: Facility Director , VAHVHCS:	Location: Montrose, New York
APPROVED:	APPROVED:	Approved: John Cliffe, Facility Chief of Engineering	Date: 08-30-2021 / Checked: LS / Drawn: AMI

Project Number: 620-20-206
Building(s) Number: 019
Drawing Number: ME 102
Dwg 32 of 61

Engineering Service

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

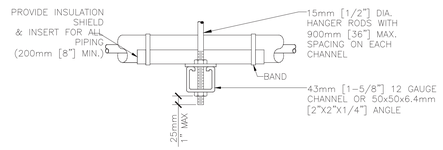


ADJUSTABLE CLEVIS HANGER TYPE 1 – SEE SPECIFICATIONS

ADJUSTABLE CLEVIS HANGER TYPE 43 – SEE SPECIFICATIONS

DESIGNER'S NOTE:
SHOW ON THE DRAWINGS OTHER SPECIFIED AND SPECIAL PIPE SUPPORTS WHERE REQUIRED.

NOTE:
SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS

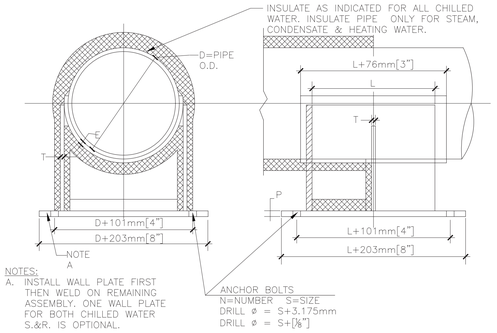


SIDE VIEW TRAPEZE HANGER FOR UP TO 453KG [1000 LB.] UNIFORM LOAD

MAXIMUM PIPE/TUBING SUPPORT SPACING																		
NOM. SIZE	mm [IN]	THRU 20 [THRU ¾]	25 [1]	32 [1¼]	40 [1½]	50 [2]	65 [2½]	75 [3]	100 [4]	125 [5]	150 [6]	200 [8]	250 [10]	300 [12]	350 [14]	400 [16]	450 [18]	500 [20]	600 [24]
PIPE	mm [FT]	2100 [7]	2100 [7]	2100 [7]	2700 [9]	3000 [10]	3400 [11]	3700 [12]	4100 [14]	4900 [16]	5200 [17]	5800 [19]	6700 [22]	7000 [23]	7600 [25]	8200 [27]	8500 [28]	9100 [30]	9600 [32]
TUBING	mm [FT]	1500 [5]	1800 [6]	2100 [7]	2400 [8]	2400 [8]	2700 [9]	3000 [10]	3700 [12]	4000 [13]	4100 [14]	4900 [16]	–	–	–	–	–	–	–
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.																			

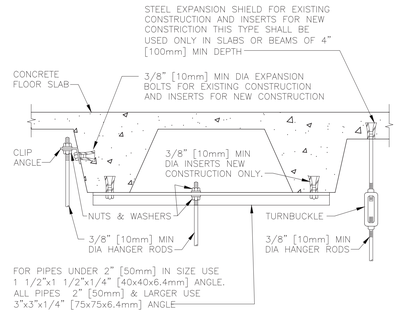
1 PIPE HANGERS
NTS

PIPE ANCHOR SCHEDULE														
D		L		P		T		E		N		S		BOLT PATTERN
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
152	6	216	8½	19	¾	10	⅜	6	¼	102	4	22	⅞	
203	8	254	10	19	¾	13	½	6	¼	102	4	22	⅞	
254	10	305	12	19	¾	13	½	6	¼	102	4	22	⅞	
305	12	356	14	19	¾	13	½	6	¼	102	4	22	⅞	
356	14	406	16	19	¾	13	½	13	½	102	4	22	⅞	
406	16	457	18	19	¾	13	½	13	½	102	4	22	⅞	
457	18	508	20	25	1	13	⅝	13	½	152	6	25	1	

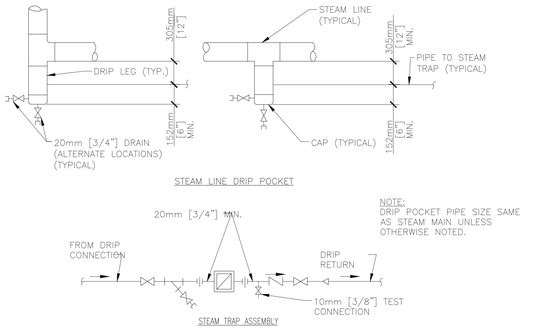


NOTES:
A. INSTALL WALL PLATE FIRST THEN WELD ON REMAINING ASSEMBLY. ONE WALL PLATE FOR BOTH CHILLED WATER S.&R. IS OPTIONAL.

2 LARGE PIPE ANCHOR 152-457mm [6" -18"]
NTS

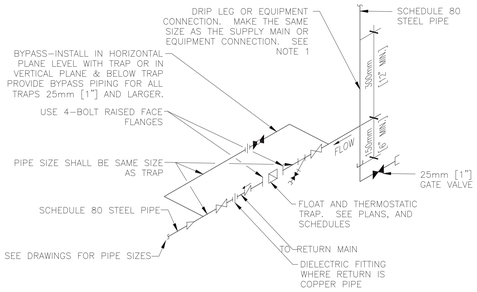


3 SECURING HANGER RODS IN CONCRETE
NTS



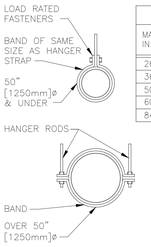
NOTE:
DRIP POCKET PIPE SIZE SAME AS STEAM MAIN UNLESS OTHERWISE NOTED.

5 STEAM LINE DRIP POCKET AND STEAM TRAP ASSEMBLY
NTS



NOTE:
ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 300mm [12"] MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 150mm [6"] SCALE POCKET BELOW TRAP INLET.

4 FLOAT AND THERMOSTATIC STEAM TRAP ASSEMBLY
NTS



HANGER STRAPS OR RODS			
MAX. DUCT ø IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX. SPACING IN. [mm]
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3600]
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3600]
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3600]
60 [1500]	TWO 3/8 [10]ø. RODS	1320 [598]	144 [3600]
84 [2100]	TWO 1/2 [13]ø RODS	2500 [1133]	144 [3600]

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

6 ROUND DUCT HANGERS
NTS

Bid Documents Submission AI 500

Bid Documents	08-17-2021
100% Working Drawing Submission	08-16-2021
95% Working Drawing Submission	05-21-2021
65% Working Drawing Submission	02-26-2021
35% Working Drawing Submission	06-25-2018
100% Preliminary Design	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

APPROVED: | APPROVED:
APPROVED: | APPROVED:
APPROVED: | APPROVED:
APPROVED: | APPROVED:

Drawing Title: New Mechanical Steam Distribution Details
Scale: As Noted

Approved: Facility Director , VAHVHCS:

Approved: John Cliffe, Facility Chief of Engineering

Project Title: Firehouse Enhancement at FDR

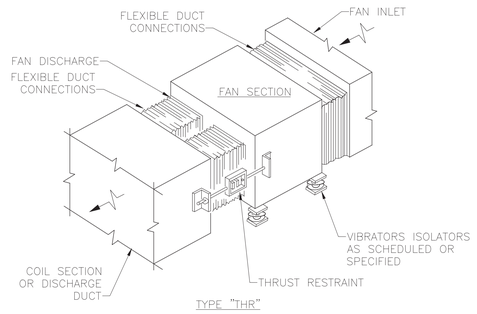
Location: Montrose, New York

Date: 08-30-2021 | Checked: LS | Drawn: AMI

Project Number: 620-20-206
Building(s) Number: 019
Drawing Number: ME 500
Dwg 33 of 61

Engineering Service
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

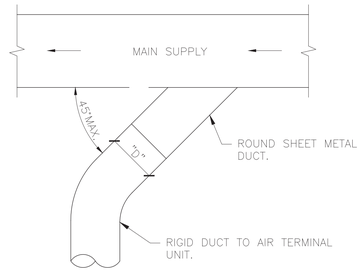


TYPE "THR"

NOTES:
1. ATTACH THRUST RESTRAINTS SYMMETRICALLY ON BOTH SIDES OF THE FAN DISCHARGE.
2. ADJUST RESTRAINT TO ALLOW 1/4" [6 mm] MOVEMENT OF FAN AT START AND STOP.

1 THRUST RESTRAINT FOR FANS

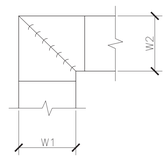
NTS



PLAN VIEW

2 SUPPLY DUCT TAKEOFF - AIR TERMINAL UNIT

NTS

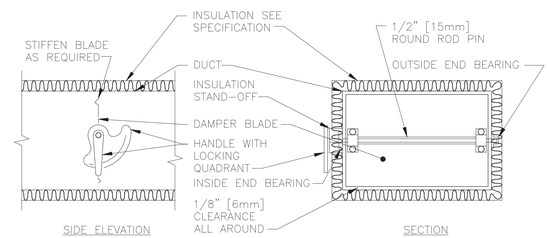


NOTE:

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

3 DUCTWORK SQUARE VANE ELBOWS

NTS

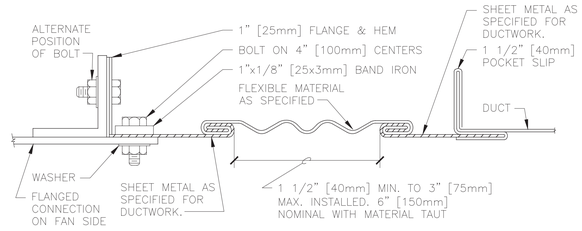


NOTE:

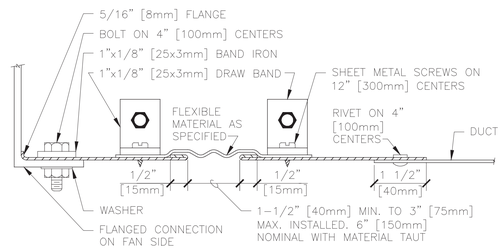
1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

4 VOLUME DAMPER DETAIL

NTS



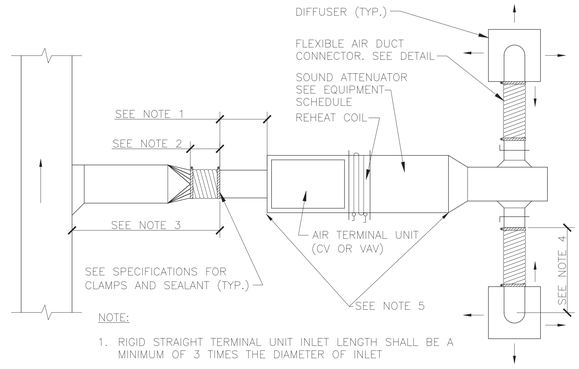
RECTANGULAR FLEXIBLE CONNECTION



ROUND FLEXIBLE CONNECTION

5 FLEXIBLE DUCT CONNECTIONS

NTS



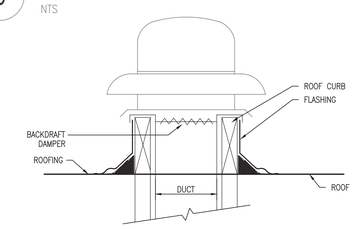
NOTE:

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

6 DUCT CONNECTIONS - AIR TERMINAL UNITS

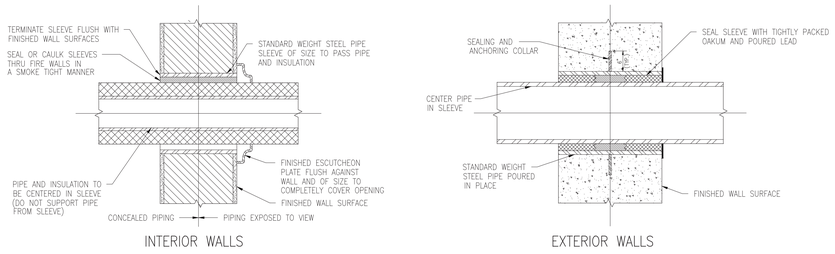
NTS

DESIGNER'S NOTE: 1.INDICATE SOUND ATTENUATOR AS REQUIRED BY ACOUSTICAL ANALYSIS



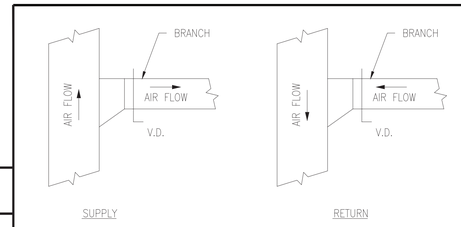
6A ROOF VENT DETAIL

NTS



7 PIPE SLEEVES THRU WALL DETAILS

NTS

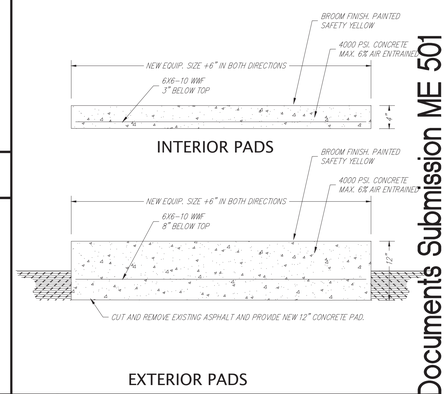


8 DUCT / DIFFUSER TAKE-OFF DETAIL

NTS

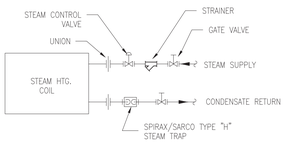
9 --

NTS



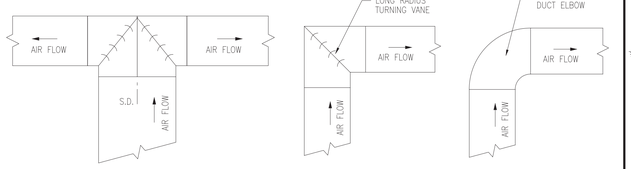
12 CONCRETE PAD DETAIL

NTS



10 STEAM COIL PIPING DTL

NTS



11 DUCT TURN DETAIL

NTS

Bid Documents Submission ME 501

Bid Documents	08-17-2021
100% Working Drawing Submission	08-16-2021
95% Working Drawing Submission	05-21-2021
65% Working Drawing Submission	02-26-2021
35% Working Drawing Submission	06-25-2018
100% Preliminary Design	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

APPROVED:	APPROVED:	Drawing Title: New Mechanical HVAC Details, Scale: As Noted	Project Title: Firehouse Enhancement at FDR
APPROVED:	APPROVED:		
APPROVED:	APPROVED:	Approved: Facility Director , VAHVHCS:	Location: Montrose, New York
APPROVED:	APPROVED:	Approved: John Cliffe, Facility Chief of Engineering	Date: 08-30-2021 / Checked: LS / Drawn: AMI

Project Number: 620-20-206
Building(s) Number: 019
Drawing Number: ME 501
Dwg 34 of 61

Engineering Service

Department of Veterans Affairs

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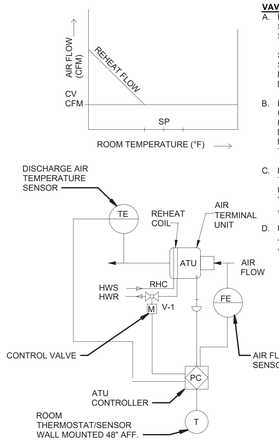

VAV AIR TERMINAL UNIT - SEQUENCE OF OPERATION

A. PROVIDE SPACE TEMPERATURE SETPOINTS ACCORDING TO INDOOR AREA SETPOINTS FROM HVAC DESIGN DATA SCHEDULE ON SHEET M-003. EXAMPLE OF SETPOINTS SHALL BE SET AS FOLLOWS:

SPACE COOLING SETPOINT: 70°F (ADJUSTABLE)
SPACE HEATING SETPOINT: 70°F (ADJUSTABLE)
DEADBAND OF 3°F BETWEEN HEATING AND COOLING SETPOINTS WILL BE MAINTAINED.

B. DURING OCCUPIED MODE OF OPERATION, MODULATE THE AIR CONTROL DAMPER AS NECESSARY TO MAINTAIN AIRFLOW SETPOINT. IF THE SPACE TEMPERATURE FALLS BELOW THE SPACE HEATING SETPOINT, MODULATE THE HEATING CONTROL VALVE AS NECESSARY TO MAINTAIN SPACE HEATING SETPOINT. ON A RISE IN SPACE TEMPERATURE, THE REVERSE SHALL OCCUR.

C. DURING UNOCCUPIED HOURS, MODULATE AIR CONTROL DAMPER AS NECESSARY TO MAINTAIN AIR FLOW SETPOINT. IF SPACE TEMPERATURE FALLS BELOW UNOCCUPIED SPACE HEATING SETPOINT, MODULATE THE HEATING CONTROL VALVE AS NECESSARY TO MAINTAIN UNOCCUPIED SPACE HEATING SETPOINT. ON A RISE IN SPACE TEMPERATURE, THE REVERSE SHALL OCCUR.

D. UPON ACTIVATION OF THE EMERGENCY CONSTANT SPEED OPERATION FOR THE ASSOCIATED AIR HANDLING UNIT, MODULATE AIR CONTROL DAMPER TO MAINTAIN AIR FLOW SETPOINT.

NOTES:
1. EACH TERMINAL UNIT SHALL BE CONTROLLED BY A DEDICATED, UNIT MOUNTED, STANDALONE CONTROLLER. THE CONTROLLER SHALL MONITOR AND CONTROL EACH UNIT IN STAND-ALONE MODE OR AS DIRECTED BY BUILDING AUTOMATION SYSTEM.
2. ALL AIR TERMINAL UNITS SHALL BE PRESSURE INDEPENDENT TYPE WITH VELOCITY RESET CONTROLLERS. ALL TERMINAL UNITS SHALL BE CAPABLE OF VARIABLE VOLUME ALTHOUGH SOME WILL ACT AS CONSTANT VOLUME.
3. COORDINATE SETPOINTS AND PERFORMANCE WITH TEST AND BALANCE CONTRACTOR.
4. SPACE TEMPERATURE SETPOINTS SHALL BE ADJUSTABLE FROM THE ECC FRONT END INTERFACE.
5. COORDINATE AND ADJUST OCCUPANCY SCHEDULES AND UNOCCUPIED TEMPERATURES WITH THE COR.

2 VARIABLE VOLUME AIR TERMINAL UNIT CONTROL DIAGRAM

NTS

POINTS LIST: 19-AHU-01

POINT TAG	POINT DESCRIPTION	UNITS	POINT TYPE						SETPOINTS			ALARM CONDITION	NOTES
			BINARY		ANALOG		VIRTUAL	ADJ.	INITIAL	HIGH	LOW		
			IN	OUT	IN	OUT							
	OCCUPIED MODE STATUS	ON/OFF											
	UNOCCUPIED MODE STATUS	ON/OFF											
	HUMIDIFICATION MODE STATUS	ON/OFF											
	DEHUMIDIFICATION MODE STATUS	ON/OFF											
	SUPPLY FAN START/STOP	ON/OFF		X									
C-1	SUPPLY FAN STATUS	ON/OFF	X									SUPPLY FAN PROOF FAILED	
	SUPPLY FAN SPEED COMMAND	%				X							
	SUPPLY FAN MINIMUM SPEED SETPOINT	%					X	X	50				
	SUPPLY FAN VFD ALARM	ON/OFF	X										
PSH-1	SUPPLY DUCT PRESSURE SWITCH HIGH LIMIT SAFETY	NORMAL/ALARM	X					X	5.0			ALARM	
DD-1	SUPPLY AIR DUCT SMOKE DETECTOR	NORMAL/ALARM	X									ALARM	
FT-1	SUPPLY AIR FLOW	CFM			X								
	SUPPLY AIR FLOW SETPOINT	CFM					X						
SPS-1	SUPPLY AIR STATIC PRESSURE	IN. W.G.			X							MORE THAN 20% ABOVE OR BELOW SETPOINT	
	SUPPLY AIR STATIC PRESSURE SETPOINT	IN. W.G.					X	X	2.0	2.5	1.0		
TT-1	SUPPLY AIR TEMPERATURE	DEG. F			X							MORE THAN 10 DEG F ABOVE OR BELOW SETPOINT	AVERAGING
	SUPPLY AIR TEMPERATURE SETPOINT	DEG. F					X	X	55	60	49		
DD-2	SUPPLY AIR DUCT SMOKE DETECTOR	NORMAL/ALARM	X									ALARM	
FT-3	RETURN AIR FLOW	CFM			X								
	RETURN AIR FLOW SETPOINT	CFM					X						
TT-4	RETURN AIR TEMPERATURE	DEG. F			X								
D-2	RETURN AIR DAMPER COMMAND	% OPEN				X							N.O.
ZC-2	RETURN AIR DAMPER POSITION	% OPEN	X										
FT-2	OUTSIDE AIR FLOW	CFM			X							OA FLOW LESS THAN 80% OF SETPOINT	
	OUTSIDE AIR FLOW SETPOINT	CFM					X	X	X				PER SCHEDULE
TT-2	OUTSIDE AIR TEMPERATURE	DEG. F			X								
PDS-1	PRE-FILTER 1 DIFFERENTIAL PRESSURE	IN. W.G.			X								
PDS-2	PRE-FILTER 2 DIFFERENTIAL PRESSURE	IN. W.G.			X								
TT-5	MIXED AIR TEMPERATURE	DEG. F			X								AVERAGING
TT-6	COOLING COIL LEAVING AIR TEMPERATURE	DEG. F			X							MORE THAN 10 DEG F ABOVE OR BELOW SETPOINT	AVERAGING
HCV-1	PREHEAT STEAM CONTROL VALVE COMMAND	% OPEN				X							N.O.

19-AHU-01 - SEQUENCE OF OPERATION

1. GENERAL
   a. 19-AHU-01 SHALL BE STANDALONE AND SHALL OPERATE WITH STANDALONE BACNET CONTROLS. UNIT SHALL BE STARTED AND STOPPED BY THE DIRECT DIGITAL CONTROL PANEL (DCP). DCP SHALL BE CAPABLE OF BEING CONNECTED TO FUTURE ENGINEERING CONTROL CENTER (ECC) AND ME MONITORED AND CONTROLLED VIA BACNET CONTROLS.
   b. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF COMPLETE HVAC CONTROLS SYSTEM TO VA COR FOR APPROVAL.
   c. INTERLOCK THE AIR HANDLING UNIT SYSTEM WITH THE EXISTING FIRE ALARM SYSTEM.
   d. ALL DIRECT DIGITAL CONTROL PANELS (DCP) SHALL BE FED FROM AN EMERGENCY POWER CIRCUIT.
2. RUN CONDITION
   a. COOLING MODE: IF SPACE TEMPERATURE IS ABOVE THE COOLING SETPOINT, ENTER COOLING MODE UNTIL TEMPERATURE FALLS BELOW SETPOINT MINUS A 2°F DEADBAND.
   b. HEATING MODE: IF SPACE TEMPERATURE IS BELOW THE HEATING SETPOINT, ENTER HEATING MODE UNTIL TEMPERATURE RISES ABOVE SETPOINT PLUS A 2°F DEADBAND.
3. AIR FLOW CONTROL
   a. THE SUPPLY AIR FLOW SHALL BE CONTROLLED BY THE DCP AND MODULATE THE SUPPLY FAN VARIABLE FREQUENCY DRIVE (VFD) SPEED TO MAINTAIN A SPACE TEMPERATURE SETPOINT, AS MEASURED BY FREQUENCY DRIVE (VFD) SPEED TO MAINTAIN A SPACE TEMPERATURE SETPOINT, AS MEASURED BY FREQUENCY DRIVE (VFD) SPEED TO MAINTAIN A SPACE TEMPERATURE SETPOINT, AS MEASURED BY TEMPERATURE SENSORS LOCATED IN THE SPACE. WHEN MULTIPLE SENSORS ARE INDICATED, POLL ALL SENSORS AND CONTROL TO THE MOST DEMANDING READING.
4. TEMPERATURE CONTROL
   a. SUPPLY AIR TEMPERATURE, SENSED BY TT-1, SHALL BE MAINTAINED AT SETPOINT (55 DEG F.) VIA DIGITAL CONTROL PANEL WHILE MINIMIZING THE FAN SPEED.
   b. A FIXED VOLUME OF OUTSIDE AIR FLOW SHALL BE MAINTAINED AT 20% (600 CFM) AT ALL TIMES.
7. SMOKE CONTROL AUTOMATIC SHUTDOWN/RESTART
   a. WHEN SMOKE IS DETECTED BY ANY ASSOCIATED DUCT MOUNTED SMOKE DETECTOR, THE SUPPLY FAN AND INTERLOCKED RETURN/EXHAUST FAN(S) SHALL SHUT "OFF", AN ALARM SIGNAL SHALL BE TRANSMITTED TO THE FIRE ALARM SYSTEM.
   b. SUPPLY FAN(S) SHALL AUTOMATICALLY RESTART WHEN FIRE ALARM CIRCUIT IS RESET.
8. EMERGENCY CONSTANT SPEED OPERATION
   a. UPON FAILURE OF SUPPLY FAN VFD(S), THE SUPPLY FAN(S) SHALL BE STARTED/STOPPED MANUALLY AT THE DCP AND ECC THROUGH A BY-PASS STARTER. ACTIVATION OF CONSTANT SPEED OPERATION SHALL CAUSE THE SUPPLY FAN(S) TO OPERATE AT CONSTANT SPEED.
9. SAFETIES
   a. HIGH PRESSURE LIMIT: THE DCP, USING HIGH PRESSURE LIMIT SWITCH PSH-1 LOCATED AT THE SUPPLY FAN DISCHARGE, SHALL PREVENT THE SUPPLY FAN(S) FROM DEVELOPING OVER 4 IN. W.G. OF POSITIVE STATIC PRESSURE (FIELD ADJUSTABLE). IF STATIC PRESSURE AT PSH-1 DOES EXCEED 4 IN. W.G., THE SWITCH WILL OVERRIDE ALL CONTROLS AND SHUT DOWN THE SUPPLY FAN(S), AND A "HIGH PRESSURE" ALARM SIGNAL SHALL BE INDICATED AT THE DCP AND ECC. PSH-1 SHALL BE HARDWIRED TO THE SUPPLY FAN VFD(S) AND UNIT SHALL BE SHUTDOWN IN HAND, AUTO, OR BYPASS MODE. PSH-1 WILL REQUIRE MANUAL RESET AT THE DEVICE.
   b. FILTER STATUS: THE DCP SHALL MONITOR AND INDICATE THE DIFFERENTIAL PRESSURE ACROSS EACH AIR HANDLING UNIT FILTER SECTION. PROGRAM A HIGH LIMIT SETPOINT FOR EACH FILTER SECTION IN ACCORDANCE WITH FILTER MANUFACTURER'S RECOMMENDATION. IF THE DIFFERENTIAL PRESSURE ACROSS A FILTER SECTION IS GREATER THAN THE HIGH LIMIT SETPOINT, THE DCP AND ECC SHALL REPORT A FILTER MAINTENANCE ALARM WITH MESSAGE INDICATING THAT THE FILTER NEEDS TO BE CHANGED.

Bid Documents Submission ME 502

Bid Documents	08-17-2021
100% Working Drawing Submission	08-16-2021
95% Working Drawing Submission	05-21-2021
65% Working Drawing Submission	02-26-2021
35% Working Drawing Submission	06-25-2018
100% Preliminary Design	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

APPROVED: | APPROVED:
APPROVED: | APPROVED:
APPROVED: | APPROVED:
APPROVED: | APPROVED:

Drawing Title: New Mechanical HVAC Controls Information
Scale: As Noted

Approved: Facility Director , VAHVHCS:

Approved: John Cliffe, Facility Chief of Engineering

Project Title: Firehouse Enhancement at FDR

Location: Montrose, New York

Date: 08-30-2021 | Checked: LS | Drawn: AMI

Project Number: 620-20-206
Building(s) Number: 019
Drawing Number: ME 502
Dwg 35 of 61

Engineering Service
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

HVAC ROOM SCHEDULE

GROUND FLOOR

ROOM #	ROOM NAME	FLOOR AREA	ROOM VOLUME	REQ'D AC/HR	REQ'S CFM**	DESIGN AIR VELOCITY	REQ'D AREA of DUCT	REQ'D AREA of DUCT	R²	R	REMARKS
		SQ. FT.	CU. FT.			FT./MIN.	SQ. FT.	SQ. IN.			
01	COMMINICATIONS ROOM	140	1,104 CU. FT.	12	224	600	.38	54	17	4	–
01A	CHIEF OFFICE	125 SQ. FT.	1,016 CU. FT.	6	100	600	.17	24	37	6	–
02	COMMUNITY ROOM	600 SQ. FT.	5,913 CU. FT.	6	480	600	.80	115.20	8	3	–
03	STAFF KITCHEN	120 SQ. FT.	1,089 CU. FT.	6	96	600	.16	23.04			N.I.C.
04	W. SHOWER ROOM	28 SQ. FT.	224 CU. FT.								N.I.C.
05	W. TOILET	28 SQ. FT.	224 CU. FT.								N.I.C.
06	M. TOILET	35 SQ. FT.	280 CU. FT.								N.I.C.
07	M. SHOWER ROOM	32 SQ. FT.	256 CU. FT.								N.I.C.
08	FIRE DEPT. GARAGE	2,584 SQ. FT.	33,592 CU. FT.								N.I.C.
09	LAUNDRY/EQIUIP ROOM	253 SQ. FT.	3,289 CU. FT.	10	352	600	.59	84.48	27	5	–
09A	ELEC. PANEL CLOSET	18 SQ. FT.	180 CU. FT.	–	–	–	–	–			–
10	AMBULANCE BAY	280 SQ. FT.	3,640 CU. FT.	–	–	–	–	–			–
11	BUNK 01	125 SQ. FT.	1,000 CU. FT.	6	100	600	.17	24	8	3	–
12	BUNK 02	125 SQ. FT.	1,000 CU. FT.	6	100	600	.17	24	8	3	–
13	BUNK 03	125 SQ. FT.	1'008 CU. FT.	6	100	600	.17	24	8	3	–
14	BUNK 04	130 SQ. FT.	1,032 CU. FT.	6	104	600	.17	24.96	8	3	–
15	BUNK 05	130 SQ. FT.	1,096 CU. FT.	6	104	600	.17	24.96	8	3	–
16	CHIEF BUNK	145 SQ. FT.	1,144 CU. FT.	6	104	600	.17	24.96	15	4	–
16A	TELECOMMINUCATION CLOSET	55 SQ. FT.	550 CU. FT.						10	3	
16B	STEAM PIT CLOSET	43 SQ. FT.	430 CU. FT.								
16C	FIRE SPRINKLER CLOSET	24 SQ. FT.	240 CU. FT.								
17	BUNK 06	133 SQ. FT.	1,064 CU. FT.	6	100	600	.17	24.96	10	3	–
18	BUNK 07	124 SQ. FT.	992 CU. FT.	6	100	600	.17	24	8	3	–
19	BUNK 08	125 SQ. FT.	1,000 CU. FT.	6	100	600	.17	24	8	3	–
20	NEW STORAGE	230 SQ. FT.	2,300 CU. FT.								N.I.C.
21	NEW M & R GARAGE	– SQ. FT.	– CU. FT.								N.I.C.
22	EXISTING TRANSFORMER RM.	184 SQ. FT.	2,392 CU. FT.								N.I.C.
C01	CORRIDOR A	103 SQ. FT.	824 CU. FT.	6	92	600	.15	22.08	8	3	–
C02	CORRIDOR B	58 SQ. FT.	464 CU. FT.	6	60	600	.10	14.40	6	2	–
C03	CORRIDOR C	108 SQ. FT.	864 CU. FT.	6	80	600	.13	19.20	8	3	–
C04	CORRIDOR D	146 SQ. FT.	536 CU. FT.	6	104	600	.17	24.96	8	3	–
C05	CORRIDOR E	90 SQ. FT.	720 CU. FT.	6	92	600	.15	22.08	8	3	–
	TOTAL	6,327 SQ. FT.	70,111 CU. FT.		2,592						

HVAC EQUIPMENT SCHEDULE - OUTDOOR AIR COOLED CONDENSING UNIT SCHEDULE

GROUND FLOOR

TAG #	LOCATION	UNIT SERVED	COOLING (TMBH)	AMBIENT TEMP. (°F)	SUCTION TEMP. (°F)	ELECTRIC VOLT./PH/HZ	COMPRESS. NO./RLA (EA)	COND. FAN NO./FLA	MCA	MOP	MODEL/MANUFACTURER	DIMENSIONS (L x W x H)	APPROX. UNIT WT. (LBS.)	EER	REMARKS
ACC-01	PAD MTD. PARKING SIDE	AHU-01	123.8	95	39.2	208/3/60	2/22.4	2/3	60.80	80	CARRIER 38AUD14A0AS-0A-0-C-0	60"x46"x50"	654	11.5	BASIS OF DESIGN AS LISTED. 0 DEGREES F LOW AMBIENT CONTROL. 6" HIGH CONCRETE PAD, DICONNECT SWITCH, GFI CONVENIENCE OUTLET, INTERLOCK WITH AHU-

HVAC EQUIPMENT SCHEDULE - AIR HANDLING UNIT SCHEDULE

GROUND FLOOR

GENERAL INFORMATION							DX COOLING								SUPPLY FAN DATA					DIMENSIONS (L x W x H)	APPROX. UNIT WT. (LBS.)	ELECTRICAL (V/PH/HZ)	REMARKS
TAG #	AREA SERVED	LOCATION	MFG'R	MODEL NO.	SUPPLY CFM	OUTSIDE AIR CFM	MAKE	MODEL	COOLING (TMBH)	COOLING (SMBH)	EADB (DEG. F)	EAWB (DEG. F)	LADB (DEG. F)	LAWB (DEG. F)	MAKE	MODEL	OUTPUT (MBH)	EAT (DEG. F)					
AHU-01	FIREHOUSE QUARTERS	LAUNDRY UTILITY ROOM	CARRIER	39LA06	3,000	600	CARRIER	28NE	131	89	82	68	55	54	CARRIER	28LZ	106	53	86	7'-10" x 4'-3"x 2'-5"	787	208/3/60	PROVIDE SUPPORT TO HANG AHU FROM UNDERSIDE OF ROOF DECK. SUPPORT ASSEMBLY SHALL HAVE VIBRATION ISOLATORS PER MANUFACTURER'S RECOMMENDATION. DISCONNECT SWITCH, DOUBLE WALL CONSTRUCTION WITH PERFORATED INNER WALL FOR FAN SECTION, ACCESS DOORS, AND HIGH EFFICIENCY MOTORS, VFD. PROVIDE 2-WAY CONTROL VALVES AND THERMOSTATS.

HVAC EQUIPMENT SCHEDULE - STEAM TRAP SCHEDULE

GROUND FLOOR

TAG #	LOCATION	UNIT SERVED	EQUIP. DEMAND (#/HR)	EQUIP. PRESSURE (PSI)	PIPE CONNECTION SIZE	REMARKS
ST-1	LAUNDRY ROOM UTILITY ROOM	AHU-01	115	5	1 ½" INLET	SPIRAX-SARCO BELL FLOAT-THERMOSTATIC TYPE "H"

HVAC EQUIPMENT SCHEDULE - VAV AIR TERMINAL UNIT SCHEDULE

GROUND FLOOR

TAG #	NOMINAL SIZE (IN.)	AREA SERVED	AIR FLOW MAX.	DESIGN AIR FLOW	MAX. PRESSURE DROP	CONTROL TYPE	CONTROL SEQUENCE	VOLT. FOR ELEC. HEAT COIL	POWER (KW) FOR ELEC. HEAT COIL	AMP. FOR ELEC. HEAT COIL	REMARKS
VAV-01	4"	BUNK 3	229	100	.25 IN.-WG	DDC	VAV	208-1-60	1	4.8	WITH ELECTRIC REHEAT
VAV-02	4"	BUNK 4	229	100	.25 IN.-WG	DDC	VAV	208-1-60	1	4.8	WITH ELECTRIC REHEAT
VAV-03	4"	BUNK 5	229	100	.25 IN.-WG	DDC	VAV	208-1-60	1	4.8	WITH ELECTRIC REHEAT
VAV-04	4"	TELE. CL. RM.16A	229	125	.25 IN.-WG	DDC	VAV	208-1-60	1	4.8	WITH ELECTRIC REHEAT
VAV-05	5"	CHIEF BUNK /OFFICE RM. 16	515	225	.25 IN.-WG	DDC	VAV	208-1-60	2	9.6	WITH ELECTRIC REHEAT
VAV-06	5"	CORR. CDE	515	200	.25 IN.-WG	DDC	VAV	208-1-60	2	9.6	WITH ELECTRIC REHEAT
VAV-07	4"	BUNK 6	229	120	.25 IN.-WG	DDC	VAV	208-1-60	1	4.8	WITH ELECTRIC REHEAT
VAV-08	5"	COMM. RM. 01	515	225	.25 IN.-WG	DDC	VAV	208-1-60	2	9.6	WITH ELECTRIC REHEAT
VAV-09	4"	BUNK 8	229	125	.25 IN.-WG	DDC	VAV	208-1-60	1	4.8	WITH ELECTRIC REHEAT
VAV-10	4"	BUNK 7	229	100	.25 IN.-WG	DDC	VAV	208-1-60	1	4.8	WITH ELECTRIC REHEAT
VAV-11	4"	BUNK 2	229	100	.25 IN.-WG	DDC	VAV	208-1-60	1	4.8	WITH ELECTRIC REHEAT
VAV-12	4"	BUNK 1	229	100	.25 IN.-WG	DDC	VAV	208-1-60	1	4.8	WITH ELECTRIC REHEAT
VAV-13	6"	COMM. RM. 02, KITCHEN RM. 03, & CORR. AB	916	580	.25 IN.-WG	DDC	VAV	208-1-60	4	19.25	WITH ELECTRIC REHEAT
VAV-14	5"	LAUNDRY/UTILITY	916	350	.25 IN.-WG	DDC	VAV	208-1-60	2	9.6	WITH ELECTRIC REHEAT

NOTE
1. ALL AIR TERMINAL UNITS SHALL BE PRESSURE INDEPENDENT TYPE WITH VELOCITY RESET CONTROLLER.
2. PROVIDE WITH ARI 880 RATED MAXIMUM DAMPER LEAKAGE OF 2% NOMINAL AIRFLOW AT 3 IN. W.G. INLETS STATIC PRESSURE.
3. INSTALL UNIT WITH CLEARANCE FOR ELECTRICAL AND MAINTAINANCE ACCESS. PROVIDE CEILING PANEL ACCESS WHERE NEEDED FOR ACCESS TO UNIT.
4. PROVIDE SPACE PRESSURE CPMTRPLLER AMD DISPLAY, PRESSURE DIFFERENTIAL SENSORS, AND INTERLOCKS TO MAINTAIN REQUIRED SPACE PRESSURE DIFFERENTIAL. SEE CONTROLS SHEET.
5. PROVIDE A STANDALONE DDC CONTROLS SYSTEM WITH THE CAPABILITY TO BE CONNECTED TO A BMS SYSTEM IN THE FUTURE.
6. SUSPEND VAV UNITS ABOVE ACCOUSTICAL CEIINGS FROM THE BUILDINGS STRUCTURE AS PER MANUFACTURER'S INSTALLATION IINSTRUCTIONS.
7. BASIS OF DESIGN: CARRIER AXIS 35E SINGLE DUCT TERMINALS.

KEY PLAN

Bid Documents Submission ME 600

Bid Documents	08-17-2021
100% Working Drawing Submission	08-16-2021
95% Working Drawing Submission	05-21-2021
65% Working Drawing Submission	02-26-2021
35% Working Drawing Submission	06-25-2018
100% Preliminary Design	10-05-2017
Revisions:	Date:

CONSULTANTS:

ARCHITECT/ENGINEERS:

NORTH:

APPROVED:	APPROVED:
APPROVED:	APPROVED:
APPROVED:	APPROVED:
APPROVED:	APPROVED:

Drawing Title: New HVAC Schedules Ground Floor
Scale: N.T.S.

Approved: Facility Director , VAHVHCS:

Approved: John Cliffe, Facility Chief of Engineering

Project Title: Firehouse Enhancement at FDR

Location: Montrose, New York

Date: 08-30-2021 | Checked: AMI | Drawn: AMI

Project Number: 620-20-206
Building(s) Number: 019
Drawing Number: ME 600
Dwg 36 of 61

Engineering Service
Department of Veterans Affairs

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