ABBREVIATIONS

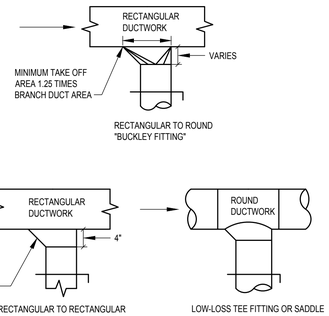
(ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)

A	AMP, AMPERE
ABV	ABOVE
A/C	AIR CONDITIONER, AIR CONDITIONING, ABOVE CEILING
ACC	AIR COOLED CHILLER
ACCU	AIR COOLED CONDENSING UNIT
ADJ	ADJUSTABLE
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ACOUSTIC LINING
ANSI	AMERICAN NAT'L STANDARDS INSTITUTE
APD	AIR PRESSURE DROP
ARCH	ARCHITECT, ARCHITECTURAL
ARI	AIR CONDITIONING & REFRIG INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION & AC ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGRS
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY OF TESTING & MATLS
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOC.
B/F	BELOW FLOOR
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BFW	BOILER FEED WATER
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
BTU	BRITISH THERMAL UNIT
CA	COMBUSTION AIR
CC	CONCRETE
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CHWR/CHWS	CHILLED WATER RETURN/SUPPLY
CIRC	CIRCULATING
CKT	CIRCUIT
CL	CENTERLINE
CLG	CEILING
CO	CLEANOUT
CONN	CONNECT, CONNECTION
COP	CLEANOUT PLUG
COL	COLUMN
CTE	CONNECT TO EXISTING
CW	DOMESTIC COLD WATER
CWR/CWS	CONDENSING WATER RETURN/SUPPLY
°C	DEGREES CELSIUS
D	DEPTH
DB	DRY BULB
dB	DECIBEL
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREES
DIA (OR Ø)	DIAMETER
DIM	DIMENSION
DISC	DISCONNECT
DN	DOWN
DOM	DOMESTIC
DS	DOWNSPOUT
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB
ELEV	ELEVATION
ELEC	ELECTRICAL
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EX	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FCO	FLOOR CLEANOUT
FD	FIRE DAMPER
FF	FINISHED FLOOR
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FT	FOOT, FEET
FW	FILTERED WATER
°F	DEGREES FAHRENHEIT
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GFI, GFIC	GROUND FAULT INTERRUPTER
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRD	GROUND
GW	GREASE WASTE
H	HEIGHT
HD	HEAD, HUB DRAIN
HHWR/HHWS	HEATING HOT WATER RETURN/SUPPLY
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER, HEAT PUMP
HSTAT	HUMIDISTAT
HTG	HEATING
HTR	HEATER
HVAC	HEATING, VENTILATING & A/C
HW	DOMESTIC HOT WATER
HWR	DOMESTIC RECIRCULATED HOT WATER
HYD	HYDRANT
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH, INCHES
IN WC	INCHES OF WATER COLUMN
KVA	KILOVOLT-AMPS
KW	KILOWATTS
KWH	KILOWATT-HOUR
L	INTERNALLY LINED
LAT	LEAVING AIR TEMPERATURE
LBS, #	POUNDS
LDB	LEAVING DRY BULB
LP	LOW PRESSURE
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE, METAL HALIDE
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
MTD	MOUNTED
MUA	MAKE-UP AIR
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NC	NOISE CRITERIA
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MFR'S ASSOC.
NFPA	NATIONAL FIRE PROTECTION ASSOC.
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
O/H	OVERHEAD
OA	OUTSIDE AIR (VENTILATION AIR)
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OVERFLOW DRAINAGE, OUTSIDE DIAMETER
OPNG	OPENING
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE STEM AND YOKE
OSHA	OCCUPATIONAL SAFETY &HEALTH ADMIN.
PB	PUSH BUTTON
PD	PRESSURE DROP
PH, Ø	PHASE
PIV	POST INDICATOR VALVE
PLBG	PLUMBING
PSI	POUNDS PER SQUARE INCH
PRV	PRESSURE RELIEF VALVE
RA	RETURN AIR
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RECIRC	RECIRCULATE
REINF	REINFORCING, REINFORCED
REL	RELOCATED
REQ	REQUIRED
REV	REVISION, REVISE
REX	REMOVE EXISTING
RH	RELATIVE HUMIDITY
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
RR	REMOVE AND RELOCATE
RS	REFRIGERANT SUCTION
RWC	RAIN WATER CONDUCTOR
SA	SUPPLY AIR
SAN	SANITARY
SD	SMOKE DETECTOR, STORM DRAIN
SECT	SECTION
SF	SQUARE FEET, SQUARE FOOT
SHT	SHEET
SM	SHEET METAL
SMACNA	SHEET METAL & A/C CONT NAT'L ASSOC.
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQ	SQUARE
ST	STORM WATER
STD	STANDARD
SURF	SURFACE
SUSP	SUSPEND
TDH	TOTAL DYNAMIC HEAD
TE	TENANT EXHAUST (TOILET)
THRU	THROUGH
TP	TOTAL PRESSURE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TWR/TWS	TOWER WATER RETURN/SUPPLY
TYP	TYPICAL
U/F	UNDERFLOOR
U/G	UNDERGROUND
U/S	UNDERSLAB
UL	UNDERWRITERS LABORATORIES, INC.
UON	UNLESS OTHERWISE NOTED
V	VOLT, VENT
VA	VOLT-AMPERE, VALVE
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VTR	VENT THROUGH ROOF
W	WATT, WIDTH
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN

HVAC SYMBOLS

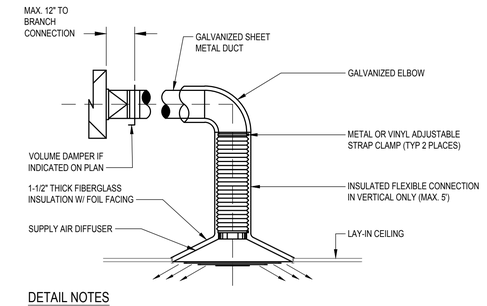
(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)

- SUPPLY AIR DIFFUSER - SHADING INDICATES PATTERN. NO PATTERN SHOWN EQUALS 4-WAY OR AS NOTED
- RETURN OR EXHAUST AIR GRILLE
- 12"Ø — ROUND DUCTWORK. DIAMETER IN INCHES
- 20/12 — RECTANGULAR DUCTWORK. SIZE IN INCHES, FIRST NUMBER IS SIDE SHOWN
- XX/XXXL — INTERNALLY LINED DUCT
- SUPPLY OR OUTSIDE AIR DUCT
- RETURN, RELIEF OR EXHAUST AIR DUCT
- DIFFUSER/GRILLE LABEL: A - TYPE/DESIGNATION; B - NECK SIZE (INCHES); C - AIRFLOW (CFM)
- 90 DEGREE DUCTWORK ELBOW W/ TURNING VANES
- TURNING VANES
- RADIUS DUCTWORK ELBOW - ROUND OR RECTANGULAR
- RECTANGULAR DUCTWORK BRANCH TAKE-OFF WITH 45 DEGREE BRANCH INLET
- HIGH EFFIECENY "BUCKLEY" TAP WITH DAMPER
- DUCTWORK SIZE TRANSITION
- SUPPLY OR OUTSIDE AIR DUCT UP
- SUPPLY OR OUTSIDE AIR DUCT DOWN
- RETURN OR EXHAUST AIR DUCT UP
- RETURN OR EXHAUST AIR DUCT DOWN
- IN-LINE 90 DEGREE RISE IN DUCT
- IN-LINE 90 DEGREE DROP IN DUCT
- RISE — INCLINED RISE IN DUCT
- POINT OF CONNECTION - NEW TO EXISTING
- MANUAL VOLUME DAMPER
- MD — MOTORIZED DAMPER
- F — FIRE DAMPER
- T — THERMOSTAT
- H — HUMIDISTAT
- S — SENSOR
- C — CARBON DIOXIDE SENSOR
- SD — DUCT SMOKE DETECTOR
- 1 — DRAWING NOTE REFERENCE
- ROUND
- OVAL OR FLAT OVAL
- UC — UNDERCUT DOOR 3/4" FOR AIRFLOW



1 DUCT BRANCH TAKE-OFF DETAIL

M001 SCALE: NONE

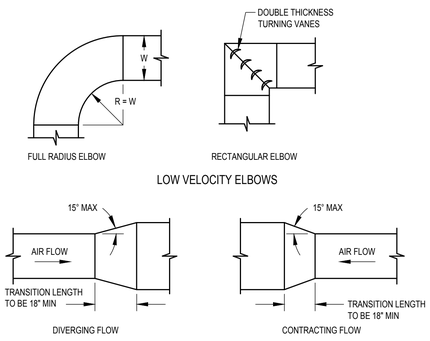


DETAIL NOTES

1. DO NOT LOCATE DAMPERS ABOVE DRYWALL/INACCESSIBLE CEILING LOCATIONS.

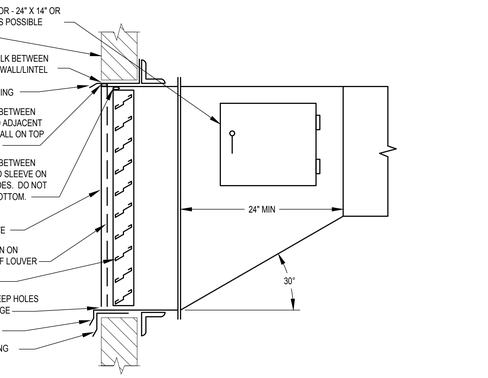
2 CEILING DIFFUSER MOUNTING DETAIL

M001 SCALE: NONE



3 LOW VELOCITY TRANSITIONS AND OFFSETS

M001 SCALE: NONE

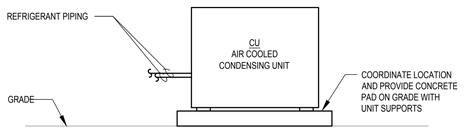


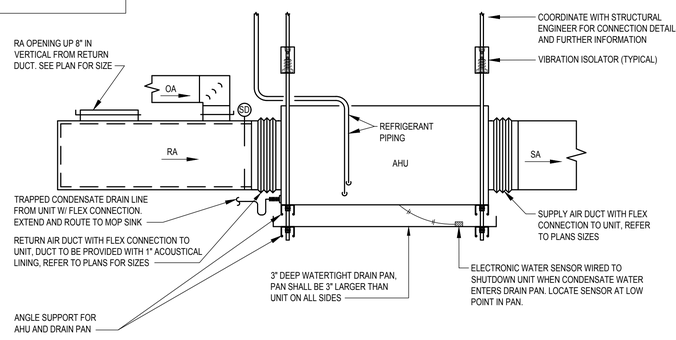
DETAIL NOTES

1. DO NOT ATTACH DUCT TO TOP OF LOWER LOUVER BLADE AS TYPICAL. THIS CREATES SEALING PROBLEMS AT MULLIANS AND OTHER VERTICAL MEMBERS.
2. CONSTRUCT SLEEVE AND DUCTWORK TO SUPPORT WEIGHT OF SERVICE TECHNICIAN.
3. SEAL JOINT BETWEEN DUCT AND SLEEVE WATER TIGHT ALL AROUND.
4. INSULATE DUCT AND SLEEVE AS SPECIFIED.

4 LOUVER INSTALLATION DETAIL

M001 SCALE: NONE



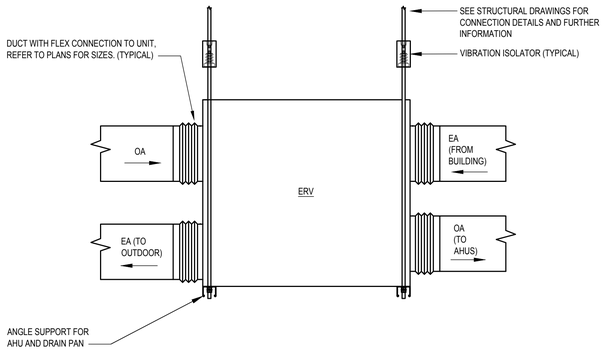


DETAIL NOTES

1. MC SHALL LOCATE AHU TO MAINTAIN A MINIMUM 30" SERVICE CLEARANCE IN FRONT OF UNIT FOR MOTOR ACCESS PANEL FROM ANY EXISTING BUILDING STRUCTURE OR PIPING EXTENDING DOWN TO CEILING PER MANUFACTURERS RECOMMENDATIONS. MC SHALL COORDINATE WITH OTHER TRADES TO KEEP THIS SERVICE AREA CLEAR OF ANY NEW PIPING OR CONDUIT.

5 SPLIT SYSTEM AHU DETAIL

M001 SCALE: NONE



5 INDOOR HORIZONTAL ERV DETAIL

M001 SCALE: NONE

CURRAN ARCHITECTURE
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CERTIFICATION

STATE OF LOUISIANA
LAWRENCE M. THOMAS
License No. 31622
PROFESSIONAL ENGINEER

PROJECT INFORMATION

ANIMAL MEDICAL CENTER OF MOSS BLUFF

150 SAM HOUSTON JONES PARKWAY
LAKE CHARLES, LA 70611

ISSUE DATES

PERMIT SET	08.09.21
REVISION 1	09.15.21

210121

MECHANICAL LEGEND AND DETAILS

M001

MECHANICAL SPECIFICATIONS

I. GENERAL PROVISIONS

A. GENERAL CONDITIONS, CODES & STANDARDS

1. GENERAL CONDITIONS OF THE CONTRACT FOUND IN THE ARCHITECTURAL DRAWINGS, GENERAL AND SPECIAL CONDITIONS OF THE AMERICAN INSTITUTE OF ARCHITECTS (AIA) AND ANY OF THE OWNER'S GENERAL REQUIREMENTS SHALL APPLY UNLESS NOTED OTHERWISE.
2. REFER TO THE GENERAL CONDITIONS ON THE ARCHITECTURAL DOCUMENTS AND THE GENERAL AND SPECIAL CONDITIONS OF THE AIA FOR ADDITIONAL REQUIREMENTS REGARDING: SAFETY, COORDINATION & COOPERATION, WORKMANSHIP, PROTECTION, CUTTING AND PATCHING, DAMAGE TO OTHER WORK, PRELIMINARY OPERATIONS, STORAGE, ADJUSTMENTS, CLEANING, ETC.
3. ALL WORK SHALL BE IN CONFORMANCE WITH ALL LOCALLY ENFORCED, FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES INCLUDING ANY SPECIAL THE OWNER REQUIREMENTS IN ADDITION TO THOSE SPECIFIED.
4. CONTRACTOR SHALL PAY FOR AND OBTAIN ALL NECESSARY LICENSES, PERMITS AND INSPECTIONS REQUIRED TO PROCEED WITH THE WORK. THIS SHALL INCLUDE ALL REQUIRED COORDINATION WITH THE LOCAL UTILITY COMPANIES AND THEIR ASSOCIATED FEES OR COSTS.

B. SCOPE OF WORK

1. THIS CONTRACT SHALL INCLUDE THE FURNISHING, INSTALLING, CONNECTING, AND OPERATION OF ALL EQUIPMENT WHICH IS A PART OF THE MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS AND AS REQUIRED BY SIMILAR INSTALLATIONS. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK AND WHICH IS USUALLY INCLUDED IN WORK OF A SIMILAR CHARACTER SHALL BE FURNISHED AND INSTALLED UNDER THIS CONTRACT AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS REQUIRED TO PROVIDE THE OWNER A COMPLETE, CODE APPROVED AND OPERATIONAL MECHANICAL SYSTEM.
2. CAREFULLY READ SPECIFICATION FOR ALL PARTS OF THE WORK SO AS TO BECOME FAMILIAR WITH ALL TRADES' WORK SCOPE. CONSULT WITH OTHER TRADES TO INSURE PROPER LOCATIONS AND AVOID INTERFERENCES. ANY CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER BEFORE WORK IS COMMENCED.
3. CONTRACTORS SHALL BE HELD TO HAVE EXAMINED THE PREMISES AND SITE SO AS TO COMPARE THEM WITH THE DRAWINGS AND SPECIFICATIONS, NOTE THE EXISTING CONDITIONS AND OTHER WORK THAT WILL BE REQUIRED, AND THE NATURE OF THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. NO ALLOWANCE SHALL BE MADE TO THE CONTRACTOR BY REASON OF THIS FAILURE TO HAVE MADE SUCH EXAMINATION OR OF ANY ERROR ON HIS PART.
4. ALL EXISTING UTILITY AND MECHANICAL SERVICES SHALL BE FIELD VERIFIED. CORRECTIONS TO THE DESIGN AND INSTALLATION SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.
5. PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF HVAC WORK. ALL CORE DRILLING OR CUTTING OF FIRE RATED FLOORS, AND WALLS SHALL BE FIRESTOPPED PRIOR TO FINISH PATCHING. ALL PENETRATIONS SHALL BE FIRE SEALED TO MATCH THE FIRE RATING OF THE FLOORS, SHAFTS, AND WALLS PENETRATED. THIS CONTRACTOR IS RESPONSIBLE TO COORDINATE OPENINGS IN WALLS AND FLOORS WITH THE GENERAL TRADES CONTRACTOR. THE FINAL LOCATIONS AND SIZES OF ALL DUCT, PIPE AND LOUVER OPENINGS SHALL BE PROVIDED BY THIS CONTRACTOR.
6. ALL WORK INCLUDING, BUT LIMITED TO PARTS, MATERIAL, EQUIPMENT AND LABOR SHALL BE GUARANTEED FOR ONE YEAR AFTER ACCEPTANCE BY THE ENGINEER AND OWNER. WHERE AN EQUIPMENT MANUFACTURER HAS A WARRANTY THAT EXCEEDS ONE YEAR, THAT WARRANTY PERIOD SHALL APPLY TO THIS PROJECT.

C. DOCUMENTS

1. THE DRAWINGS ARE DIAGRAMMATIC, ALL WORK SHALL BE PERFORMED AS INDICATED ON THE DRAWINGS UNLESS EXISTING CONDITIONS OR COORDINATION ISSUES REQUIRE CHANGES. THESE CHANGES SHALL BE MADE WITH NO ADDITIONAL COST TO THE OWNER.
2. ANY INCIDENTAL ITEMS OR LABOR, ETC. NOT INCLUDED IN THE SPECIFICATIONS OR THE DRAWINGS BUT REASONABLY IMPLIED AS NECESSARY FOR THE COMPLETE INSTALLATION OF ALL APPARATUS SHALL BE INCLUDED IN BID.
3. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED EVEN THOUGH NOT MENTIONED IN BOTH.
4. IF ERRORS ARE FOUND IN THE DRAWINGS OR SPECIFICATIONS OR DISCREPANCIES OCCUR BETWEEN THE SAME, OR BETWEEN THE FIGURES ON THE DRAWINGS, AND THE SCALE OF SAME OR BETWEEN THE LARGER AND SMALLER DRAWINGS, OR IN THE DESCRIPTIVE MATTER ON THE DRAWINGS SHALL BE REFERRED TO THE OWNER FOR REVIEW AND FINAL DECISION PRIOR TO THE BID DUE DATE.
5. THE BIDDING OF THIS WORK WILL CONTEMPLATE THE USE OF EQUIPMENT AND MATERIALS EXACTLY AS SPECIFIED HEREIN. WHERE MORE THAN ONE MANUFACTURER IS MENTIONED ANY ONE MAY BE UTILIZED. SUBSTITUTE MANUFACTURERS MAY BE OFFERED ONLY AS AN ALTERNATE TO THE SPECIFIED EQUIPMENT AND MATERIAL AND MUST BE SUBMITTED AS SPECIFIED IN THE ARCHITECTURAL DOCUMENTS.
6. MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THE SYSTEMS CAN BE OF ANY RECOGNIZED MANUFACTURE PROVIDED THESE ITEMS MEET MINIMUM STANDARDS AS SET IN THESE SPECIFICATIONS. REFER TO EACH SECTION FOR ANY SPECIFIC REQUIREMENTS.

D. COORDINATION

1. CONTRACTOR SHALL LOCATE, IDENTIFY AND PROTECT ANY EXISTING SERVICES WHICH ARE REQUIRED TO BE MAINTAINED OPERATIONAL AND SHALL EXERCISE EXTRA CAUTION IN THE PERFORMANCE OF ALL WORK TO AVOID DISTURBING SUCH FACILITIES. ALL COSTS FOR REPAIR OF DAMAGES TO SUCH SERVICES SHALL BE PAID BY THE CONTRACTOR CAUSING THE DAMAGE.
2. EACH CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO OTHER WORK CAUSED BY HIS WORK OR THROUGH THE NEGLECT OF HIS, OR HIS SUB-TRADE'S PERSONNEL. ALL PATCHING, REPAIRING, REPLACEMENT AND PAINTING, ETC. SHALL BE DONE AS DIRECTED BY THE OWNER BY THE CRAFTSMEN OF THE TRADES INVOLVED. THE COSTS OF SUCH WORK SHALL BE PAID BY THE CONTRACTOR CAUSING THE DAMAGE.

E. METHODS

1. EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL NOT BE SUPPORTED FROM ANY CEILINGS, OTHER PIPING, CONDUIT OR DUCTWORK, ROOF DECK, OR JOIST BRIDGING. ITEMS SHALL BE SUPPORTED FROM ACCEPTABLE STRUCTURAL BUILDING COMPONENTS AS DETERMINED BY THE ARCHITECT AND STRUCTURAL ENGINEER.
2. ALL ROOF PENETRATIONS, FLASHINGS AND COUNTER FLASHINGS SHALL BE PERFORMED BY THE OWNER'S ROOFING CONTRACTOR AT THE REQUESTING CONTRACTOR'S COST.

F. SUBMITTALS

1. SHOP DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT OF ALL EQUIPMENT AND ACCESSORIES PROVIDED FOR THE PROJECT WHETHER SPECIFIED HERE-IN OR ON THE DRAWINGS. REVIEW OF THE SHOP DRAWINGS SHALL BE FOR GENERAL DESIGN CONCEPT AND ADHERENCE WITH THE SPECIFICATIONS. QUANTITY OF SHOP DRAWINGS SUBMITTED SHALL BE AS SPECIFIED BY THE ARCHITECT. SHOP DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR SHOWING LOCATIONS AND MEASUREMENTS FROM COLUMNS OF ALL CONCEALED AND EXPOSED PIPING, DUCTWORK, CONDUIT, EQUIPMENT, ACCESSORIES, ETC., AND SUBMITTED PRIOR TO INSTALLATION. THE OWNER MAY MAKE REPRODUCIBLE COPIES OF THEIR DRAWINGS AVAILABLE FOR USE IN PREPARATION OF SHOP DRAWINGS, HOWEVER THE OWNER SHALL NOT BE HELD RESPONSIBLE FOR NOT CONFIRMING ALL INFORMATION ON THE DRAWINGS PRIOR TO FABRICATION AND/OR INSTALLATION.
2. PROJECT RECORD DOCUMENTS - MAINTAIN AT THE JOBSITE ONE COPY OF ALL CONTRACT DOCUMENTS CLEARLY MARKED AS "PROJECT RECORD COPY". THESE DRAWINGS ARE TO BE MAINTAINED IN GOOD CONDITION, UPDATED DAILY FOR CHANGES ENCOUNTERED AND AVAILABLE AT ALL TIMES FOR INSPECTION BY THE OWNER. DO NOT USE FOR FIELD CONSTRUCTION! PROJECT RECORD DOCUMENTS ARE TO BE KEPT CURRENT WITH EXACT DIMENSIONS OF ALL WORK, EQUIPMENT, PIPING, VALVES, DUCTWORK, ETC. MARK ALL INFORMATION IN RED LINES AND NOTES SO AS TO BE EASILY IDENTIFIED FROM THE BASE DRAWING. UPON COMPLETION OF THE WORK, ONE SET OF THESE DOCUMENTS SHALL BE TURNED OVER TO THE OWNER AS ONE QUALIFICATION FOR FINAL PAYMENT.
3. AFTER THE BALANCING AND ACCEPTANCE TESTS ARE COMPLETED AND ACCEPTED BY THE OWNER, THREE COMPLETE SETS OF AS-BUILT DOCUMENTATION SHALL BE PROVIDED. IT SHALL INCLUDE, BUT NOT BE LIMITED TO ACCURATE PLAN DRAWINGS, SYSTEM AND CONTROL SCHEMATICS, SEQUENCE OF OPERATION, WIRING DIAGRAMS AND OPERATION AND MAINTENANCE MANUALS.

II. INSULATION

A. GENERAL

1. INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES.
2. CLEAN AND DRY SURFACES PRIOR TO INSULATING.
3. EXTEND INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS, HANGERS AND SIMILAR PENETRATIONS.
4. INSULATION JACKET AND FITTING COVER MUST BE PLENUM RATED.
5. IT IS ESSENTIAL THAT THE INTEGRITY OF THE VAPOR-BARRIER BE MAINTAINED. SEAL ALL PENETRATIONS OF THE VAPOR BARRIER BY STAPLES, HANGERS OR WHERE OTHERWISE DAMAGED.
6. MAINTAIN ACCESS TO BALANCING DAMPERS AND VALVES.
7. INSULATION SHALL BE BY OWENS-CORNING, KNAUF, OR MANVILLE.

B. HVAC PIPING

1. PIPING SHALL BE INSULATED WITH FIBERGLASS PIPING INSULATION WITH AN ALL SERVICE JACKET AND SELF SEALING LAP (ASJ/SSL).
   a. INTERIOR APPLICATION
      (1)CONDENSATE WATER PIPING - 1/2 INCH THICK
2. REFRIGERATION PIPING SUCTION PIPE SHALL BE INSULATED WITH 1/2 INCH CLOSED CELL INSULATION AS MANUFACTURED BY ARMAFLEX OR EQUAL. COAT ALL EXTERIOR INSULATION WITH 2 COATS OF U.V. STABILIZED PAINT SPECIFICALLY DESIGNED FOR THE CLOSED CELL INSULATION.
3. EXTERIOR PIPING FIBERGLASS PIPING INSULATION WILL BE COMPLETELY COVERED WITH VENTURECLAD 1577CW JACKETING SYSTEM "SKIN". THE EXTERIOR COLOR OF THE SKIN SHALL BE WHITE. TRANSVERSE JOINTS SHALL BE KEPT TO A MINIMUM. LONGITUDINAL JOINTS SHALL BE MADE ON THE BOTTOM OF THE PIPNG. INSTALLATION SHALL BE COMPLETELY WATER TIGHT.

C. HVAC DUCTWORK

1. INTERNALLY INSULATE WITH 1 INCH THICK, 1-1/2# DENSITY ACOUSTICAL INSULATION (AIR SIDE BLACK COATED TO MEET NFPA) ALL DUCTWORK NOTED AS REQUIRING SUCH. INTERNAL INSULATION SHALL BE INSTALLED PER THE REQUIREMENTS OF THE SMACNA GUIDE AND THE MANUFACTURER'S RECOMMENDATIONS. DUCT SIZES NOTED ON DRAWING ARE SHEET METAL DIMENSIONS.
2. ALL SUPPLY AND OUTSIDE AIR DUCTWORK SHALL BE WRAPPED WITH 1-1/2 INCH OF 0.75 LB/CU.FT. FIBERGLASS, FOIL BACKED DUCT WRAPPING AND COMPLY WITH ENERGY CODE REQUIREMENTS.

III. HVAC

A. GENERAL

1. THE PROJECT CONSISTS OF NEW HVAC SYSTEMS AND THEIR RELATED CONTROLS DUCTWORK AND OTHER COMPONENTS.

B. PIPING

1. INDOOR CONDENSATE PIPING SHALL BE TYPE 'L' COPPER CONDENSATE DRAIN FOR THE INDOOR AIR HANDLING UNIT INSTALLED PER THE MANUFACTURERS REQUIREMENTS AND DETAILS. DRAIN SHALL DISCHARGE INTO AN EXISTING FLOOR DRAIN
2. REFRIGERATION PIPING SHALL BE COPPER TYPE ACR WITH SILVER BRAZED JOINTS OR INDUSTRY STANDARD "LINE SETS" SPECIFICALLY MANUFACTURED FOR THE APPLICATION. ROUTE PIPING THROUGH ROOF WITH PREFABRICATED PIPE CURBS. SEAL ROOF PENETRATIONS WEATHER TIGHT.
3. PIPE HANGERS SHALL BE ADJUSTABLE CLEVIS HANGERS WITH APPROPRIATE CLAMP (DEPENDING ON STRUCTURE). PROVIDE OVERSIZED HANGERS FOR PIPING SYSTEMS THAT ARE TO BE INSULATED, COORDINATE INSTALLATION WITH INSULATOR FOR RIGID INSULATION UNDER HANGERS.
4. ALL PIPING SHALL BE SUPPORTED ON A MAXIMUM OF 10' CENTERS EXCEPT COPPER PIPING 1-1/4" AND SMALLER SHALL BE SUPPORTED ON A MAXIMUM OF 6' CENTERS.
5. FIRE STOPPING - FOR INSULATED PIPES THROUGH RATED MASONRY WALL AND FLOOR ASSEMBLIES, PROVIDE A UL APPROVED THROUGH-PENETRATION 3M INTUMESCENT FIRE STOP SYSTEM #C-AJ-1175. FOR RATED GYPSUM BOARD ASSEMBLIES PROVIDE A UL APPROVED THROUGH-PENETRATION FIRE STOP SYSTEM NUMBER W-L-1003. OTHER PRODUCTS BY NATIONALLY APPROVED MANUFACTURERS AS USG AND HILTI.

C. DUCTWORK AND AIR DISTRIBUTION

1. DUCTWORK (ROUND OR RECTANGULAR OR SPIRAL) SHALL BE OF GALVANIZED STEEL
2. CONSTRUCTION AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA "HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE" MANUAL AND THE FOLLOWING PRESSURE / SEAL SCHEDULE:
   a. SUPPLY AIR DUCTWORK - 2" W.G. POSITIVE PRESSURE, SEAL CLASS B.
   b. RETURN DUCTWORK - 2" W.G. NEGATIVE PRESSURE, SEAL CLASS B.
   c. EXHAUST DUCTWORK - 2" W.G. NEGATIVE PRESSURE, SEAL CLASS A.
3. ROUND DUCT ELBOWS SHALL BE LONG SWEEP, 1-1/2 TIMES THE CENTERLINE RADIUS UNLESS CLEARANCE IS NOT AVAILABLE AT WHICH TIME MITERED ELBOWS WITH TURNING VANES SHALL BE UTILIZED.
4. RECTANGULAR ELBOWS SHALL BE FURNISHED WITH DOUBLE THICKNESS TURNING VANES. TURNING VANES SHALL BE FASTENED WITH A DOUBLE ROW OF SCREWS.
5. FLEXIBLE CONNECTIONS AT THE INLET AND OUTLET OF AHU'S, RTU'S AND CENTRIFUGAL FANS. INSTALL FLEXIBLE CONNECTIONS WITH 3" WIDE DOUBLE NEOPRENE COATED FLAME RETARDANT, NFPA 90A APPROVED, FIBERGLASS FLEXIBLE CONNECTION. FLEXIBLE CONNECTION TO HAVE A MINIMUM OF 24 GAGE, 3" WIDE SHEET METAL COLLARS PERMANENTLY ATTACHED TO EACH SIDE.
6. MITERED OFFSETS GREATER THAN 30 DEGREES IN EITHER DIRECTION SHALL NOT BE PERMITTED.
7. CHANGES IN DUCT SIZES SHALL BE MADE BY UNIFORM TAPER SECTION WITH A MAXIMUM INCLUDE ANGLE OF DIVERGENCE OF 15DEGREES.
8. RECTANGULAR BALANCING DAMPERS - RUSKIN MD25 SHALL BE SINGLE BLADE UP TO 6" IN HEIGHT AND 36" IN WIDTH, AND RUSKIN MD35 MULTI-BLADE FOR LARGER SIZES. ALL ROUND BALANCING DAMPERS SHALL BE COMMERCIAL GRADE SINGLE BLADE UP TO 16" IN DIAMETER SHALL INCORPORATE LOCKING TYPE INDICATING ADJUSTMENT. BALANCING DAMPERS SHALL BE INSTALLED IN ALL BRANCH DUCTS OFF MAIN AND ON ALL TAPS OFF DUCTS TO DIFFUSERS UNLESS OTHERWISE NOTED ON DRAWINGS.
9. FINAL CONNECTIONS TO DIFFUSERS MAY BE MADE WITH FLEXIBLE AIR DUCTWORK BUT ITS USE IS LIMITED TO STRAIGHT HORIZONTAL OR VERTICAL RUNS. ALL CHANGES OF DIRECTION IN A DUCT SYSTEM (GALVANIZED OR FLEXIBLE) SHALL BE MADE WITH AN APPROPRIATE GALVANIZED ELBOW. MAXIMUM LENGTH OF ANY FLEXIBLE AIR DUCT IS 5'-0".
10. FLEXIBLE AIR DUCTS TO DIFFUSERS SHALL BE ATCO RUBBER PRODUCTS, INC. MODEL UPC #070, INSULATED (R=4.2), U.L. 181 RATED AND CLASS 1 AIR CONNECTOR. MAXIMUM LENGTH OF FLEXIBLE AIR DUCT TO DIFFUSER TO BE 5'-0".
11. FLEXIBLE CONNECTOR DUCTS AT THE INLETS OF THE NEW VAV BOXES SHALL BE ATCO RUBBER PRODUCTS, INC. MODEL UPC #050, UN-INSULATED, U.L. 181 RATED AND CLASS 1 AIR CONNECTOR. MAXIMUM LENGTH OF FLEXIBLE DUCT AT BOX INLET TO BE 3'-0".
12. FIRE DAMPERS SHALL BE RUSKIN AND SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND SMACNA REQUIREMENTS FOR A U.L. APPROVED INSTALLATION. FIRE DAMPERS SHALL BE TYPE "B" (BLADES AND FRAME COMPLETELY OUT OF THE AIRSTREAM) FOR ALL WALL ASSEMBLIES AND SHALL BE INSTALLED WITH THE APPROPRIATE WALL SLEEVE AND ANGLES PER UL 555. FIRE DAMPERS SHALL BE INSTALLED IN ALL FIRE RATED WALLS. VERIFY FIRE RATED WALL LOCATIONS AND RATINGS ON THE ARCHITECTURAL DOCUMENTS. FOR ALL FLOOR PENETRATIONS PROVIDE RUSKIN TYPE "LR" FIRE DAMPERS. SEE DETAILS ON DRAWINGS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
13. DOUBLE THICKNESS INSULATED ACCESS DOORS SHALL BE PROVIDED AT ALL FIRE DAMPERS FOR ACCESS TO FUSIBLE LINK. DOOR SHALL BE SIZED TO ALLOW FOR EASY SERVICE AND ACCESSIBILITY. ACCESS DOORS SHALL BE A MINIMUM OF 24" IN THE LONGEST DIMENSION.
14. PROVIDE 3"X3"X1/4" ANGLE FRAMING AROUND THE ROOF OPENINGS FOR THE SUPPLY AND RETURN AIR DUCTWORK.
15. SUPPORT ALL SHEET METAL AND EQUIPMENT FROM ANGLE IRON CONNECTED TO STRUCTURAL STEEL. DO NOT SUSPEND DUCT OR EQUIPMENT FROM METAL DECK OR JOIST BRIDGING.

IV. HVAC EQUIPMENT

A. GENERAL

1. INSTALLATION OF ALL EQUIPMENT SHALL COMPLY WITH THE MANUFACTURER'S INSTALLATION INFORMATION AND INSTRUCTIONS, REQUIREMENTS AND ANY ADDITIONAL GUIDELINES. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL REQUIRED ACCESSORIES REQUIRED TO COMPLETE THE INSTALLATIONS.
2. HVAC EQUIPMENT SHALL BE "STARTED UP" BY A FACTORY TRAINED AND AUTHORIZED SERVICE TECHNICIAN.
3. ALL FACTORY STARTUP FORMS SHALL BE COMPLETED AND TURNED OVER TO THE OWNER WITH ALL COMPLETED WARRANTY CARDS PRIOR TO FINAL APPROVAL.

B. AIR COOLED CONDENSING UNITS

1. SEE DRAWINGS FOR INDIVIDUAL UNIT PERFORMANCE REQUIREMENTS.
2. FURNISH AND INSTALL INSULATED REFRIGERATION TUBING BETWEEN EVAPORATOR COILS AND CONDENSING UNITS PER MANUFACTURERS RECOMMENDATIONS. CONTRACTOR MAY UTILIZE REFRIGERANT LINE SETS AS FURNISHED BY THE CONDENSER MANUFACTURER.
3. REFRIGERANT LINE SET PENETRATIONS THROUGH THE OUTSIDE WALL SHALL BE LOCATED AND COORDIANTED PER THE BUILDING OWNER AND ARCHITECT'S REQUIREMENTS. SEE PLANS FOR DETAILS.

C. AIR HANDLING UNIT

1. SEE DRAWING FOR INDIVIDUAL UNIT PERFORMANCE REQUIREMENTS.

VI. CONTROLS

A. CONTROL WIRING SHALL BE PLENUM RATED CABLE WITH COLOR CODED 18 AWG WIRES (MINIMUM).
B. CONTRACTOR SHALL PROVIDE ALL WIRING BETWEEN THERMOSTAT AND EQUIPMENT (AIR HANDLER, CONDENSING UNIT, ETC.).
C. LOCAL CONTROL PANELS SHALL BE PROVIDED FOR ALL RELAYS, TRANSDUCERS, AND OTHER FIELD INTERFACE DEVICES.
   1. PANELS SHALL BE NEMA TYPE SUITABLE FOR EACH APPLICATION.
   2. ALL WIRING IN PANEL SHALL BE ROUTED IN WIRING TRAYS.
   3. PROVIDE FINAL, AS-BUILT CONTROL DRAWING MOUNTED INSIDE THE PANEL.
   4. CONTRACTOR SHALL PROVIDE ALL WIRING AND/OR TUBING BETWEEN CONTROL PANEL(S) AND REMOTE CONTROL DEVICES.

D. THERMOSTATS

1. FURNISH AND INSTALL A HONEYWELL 7 DAY PROGRAMMABLE HEATING/COOLING THERMOSTAT AND CLEAR LOCKABLE COVER WITH APPROPRIATE CONTROL WIRING BETWEEN THERMOSTAT AND EQUIPMENT AS REQUIRED TO PROVIDE A COMPLETE OPERATING SYSTEM. WIRING SHALL BE MINIMUM 18 AWG.
2. THERMOSTATS SHALL BE MOUNTED WHERE INDICATED ON THE DOCUMENTS.
3. CONTRACTOR SHALL PROGRAM THERMOSTAT PER THE OWNER'S REQUIREMENTS AND TRAIN OWNER'S PERSONNEL IN THE OPERATION AND PROGRAMMING OF THE THERMOSTAT AND SYSTEM.

E. TEMPERATURE SENSORS

1. FURNISH AND INSTALL THE TEMPERATURE SENSORS WITH APPROPRIATE CONTROL WIRING AS REQUIRED TO PROVIDE A COMPLETE EQUIPMENT AND SYSTEMS INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS.
2. WIRING SHALL BE MINIMUM 18 AWG.

VII. TESTING AND BALANCING

A. TESTING AND BALANCING SHALL NOT BEGIN UNTIL THE SYSTEM HAS BEEN COMPLETED, IS IN FULL WORKING ORDER AND ALL EQUIPMENT START-UP HAS BEEN COMPLETED. ALL HVAC SYSTEMS AND EQUIPMENT SHALL BE PUT INTO FULL OPERATION AND THE OPERATION OF SAME CONTINUED DURING EACH WORKING DAY OF THE TESTING AND BALANCING.

B. AN INDEPENDENT "AABC" OR "NEBB" CERTIFIED AIR AND WATER BALANCE CONTRACTOR SHALL TEST AND BALANCE THE SYSTEM AND REPORT RESULTS TO THE ENGINEER AND THE OWNER.
   1. ALL WORK SHALL BE DONE UNDER DIRECT SUPERVISION OF THE CERTIFIED BALANCING ENGINEER AND BY QUALIFIED BALANCING TECHNICIANS.
   2. METHODS AND FORMS SHALL BE IN ACCORDANCE WITH THE CERTIFICATION AGENCIES RECOMMENDATIONS AND REQUIREMENTS.
   3. COMPLY WITH ASHRAE RECOMMENDATIONS PERTAINING TO MEASUREMENTS, INSTRUMENTS, TESTING, ADJUSTING AND BALANCING.
   4. ALL QUANTITIES SHALL BE WITHIN 10% OF THE DESIGN VALUES.
   5. CONTRACTOR SHALL PROVIDE ANY SHEAVE CHANGES REQUIRED ON THE HVAC UNIT.

C. PERFORMANCE TEST

1. AFTER ALL HVAC EQUIPMENT IS INSTALLED, TESTED AND BALANCED AS SPECIFIED HEREIN THEY SHALL BE OPERATED AND PLACED UNDER SURVEILLANCE FOR A PERIOD OF AT LEAST ONE (1) DAY, THIS MAY INCLUDE THE DAY OF STARTUP, TO VERIFY THAT ALL EQUIPMENT IS PRODUCING THE REQUIRED CAPACITY. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR THE OPERATION OF THE EQUIPMENT DURING THE ENTIRE PERIOD.
2. TEST SHALL BE PERFORMED WITH ALL CONTROLS IN THE AUTOMATIC POSITION AND BUILDING LIGHTS, DAMPERS, ETC. POSITIONED TO SIMULATE NORMAL OPERATION OF THE HVAC SYSTEM.
3. DURING THE TEST, CONTROL SETTINGS MAY REQUIRE ADDITIONAL ADJUSTMENTS TO PRODUCE THE BEST BALANCED SYSTEM OPERATION. THEIR FINAL SETTING OF EACH OPERATING AND SAFETY CONTROL SHALL BE RECORDED, THEY SHALL INCLUDE, BUT NOT LIMITED TO, THERMOSTATS, LIMIT CONTROLS, AND OTHER SIMILAR ITEMS.
4. SHOULD COMPLETION OF THE INSTALLATION OCCUR AT SUCH TIME THAT THE REQUIRED PERFORMANCE TEST MUST BE CONDUCTED DURING A SEASON WHEN THE FULL OPERATION OF EITHER THE HEATING OR COOLING SYSTEM CAN NOT BE CHECKED, THE CONTRACTOR SHALL PERFORM THE TEST AND RECORD ALL SUCH DATA AS IS AVAILABLE WITH SYSTEM OPERATING AUTOMATICALLY UNDER THE PREVAILING WEATHER CONDITIONS. THAT PART OF THE SYSTEM WHICH CAN NOT BE TESTED SHALL BE DELAYED UNTIL THE WEATHER IS APPROPRIATE, AT WHICH TIME THE REMAINING PART OF THE REQUIRED TESTS SHALL BE CONDUCTED AND DATA RECORDED ACCORDINGLY.

D. ACCEPTANCE AND CHECK-OUT - CONTRACTOR SHALL PROVIDE QUALIFIED PERSONNEL, AT NO ADDITIONAL COST TO THE OWNER, AS MAY BE REQUIRED BY THE ENGINEER FOR THE PURPOSE OF VERIFYING PROPER OPERATION AND INSTALLATION OF THEIR WORK AT THE TIME OF REQUEST FOR ACCEPTANCE.

VIII. LABELING

A. SUMMARY

1. SECTION INCLUDES NAMEPLATES, TAGS, STENCILS AND PIPE MARKERS.

B. REFERENCES

1. ASME A13.1 (AMERICAN SOCIETY OF MECHANICAL ENGINEERS) - SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS.

C. NAMEPLATES

1. PRODUCT DESCRIPTION: LAMINATED THREE-LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR.

D. TAGS

1. METAL TAGS:
   a. BRASS WITH STAMPED LETTERS, TAG SIZE MINIMUM 1-1/2 INCHES DIAMETER.
2. INFORMATION TAGS:
   a. CLEAR PLASTIC WITH PRINTED "DANGER," "CAUTION," OR "WARNING" AND MESSAGE; SIZE 3-1/4 X 5-5/8 INCHES WITH GROMMET AND SELF-LOCKING NYLON TIES.
3. TAG CHART: TYPEWRITTEN LETTER SIZE LIST OF APPLIED TAGS AND LOCATION IN ANODIZED ALUMINUM FRAME.

E. STENCILS

1. STENCILS: WITH CLEAN CUT SYMBOLS AND LETTERS OF FOLLOWING SIZE:
   a. DUCTWORK 1-3/4 INCHES HIGH LETTERS.
2. STENCIL PAINT: SEMI-GLOSS ENAMEL, COLORS AND LETTERING SIZE CONFORMING TO ASME A13.1.

F. PIPE MARKERS

1. COLOR AND LETTERING: CONFORM TO ASME A13.1.
2. PLASTIC PIPE MARKERS:
   a. FACTORY FABRICATED, FLEXIBLE, SEMI-RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING. LARGER SIZES MAY HAVE MAXIMUM SHEET SIZE WITH SPRING FASTENER.

G. LABELS

1. DESCRIPTION: POLYESTER OR LAMINATED MYLAR, SIZE 1.9 X 0.75 INCHES, ADHESIVE BACKED WITH PRINTED IDENTIFICATION.
2. CONTRACTOR TO PROVIDE LABELS AT EACH ENTRANCE DOOR TO CHILLER ROOM - "DO NOT ENTER ROOM WHEN BEACON IS FLASHING"

H. PREPARATION

1. DEGREASE AND CLEAN SURFACES TO RECEIVE ADHESIVE FOR IDENTIFICATION MATERIALS.

I. INSTALLATION

1. INSTALL IDENTIFYING DEVICES AFTER COMPLETION OF COVERINGS AND PAINTING.
2. INSTALL NAMEPLATES WITH CORROSIVE-RESISTANT MECHANICAL FASTENERS, OR ADHESIVE.
3. INSTALL LABELS WITH SUFFICIENT ADHESIVE TO ENSURE PERMANENT ADHESION AND SEAL WITH CLEAR LACQUER. FOR UNFINISHED CANVAS COVERING, APPLY PAINT PRIMER BEFORE APPLYING LABELS.
4. INSTALL TAGS USING CORROSION RESISTANT CHAIN. NUMBER TAGS CONSECUTIVELY BY LOCATION.
5. IDENTIFY EQUIPMENT WITH PLASTIC NAMEPLATES.
6. IDENTIFY CONTROL PANELS AND MAJOR CONTROL COMPONENTS OUTSIDE PANELS WITH PLASTIC NAMEPLATES.
7. IDENTIFY VALVES IN MAIN AND BRANCH PIPING WITH TAGS.
8. TAG AUTOMATIC CONTROLS, INSTRUMENTS, AND RELAYS. KEY TO CONTROL SCHEMATIC.
9. IDENTIFY PIPING, CONCEALED OR EXPOSED, WITH PLASTIC PIPE MARKERS, PLASTIC TAPE PIPE MARKERS OR STENCILED PAINTING. IDENTIFY SERVICE, FLOW DIRECTION, AND PRESSURE. INSTALL IN CLEAR VIEW AND ALIGN WITH AXIS OF PIPING. LOCATE IDENTIFICATION NOT TO EXCEED 20 FEET ON STRAIGHT RUNS INCLUDING RISERS AND DROPS, ADJACENT TO EACH VALVE AND TEE, AT EACH SIDE OF PENETRATION OF STRUCTURE OR ENCLOSURE, AND AT EACH OBSTRUCTION.

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PROJECT INFORMATION

ANIMAL MEDICAL CENTER OF MOSS BLUFF

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LAKE CHARLES, LA 70611

ISSUE DATES

PERMIT SET	08.09.21
REVISION 1	09.15.21

210121

MECHANICAL SPECIFICATIONS

M002

ENERGY RECOVERY VENTILATOR SCHEDULE

TAG	MFR	MODEL No.	FAN DATA						SUMMER PERFORMANCE DATA			WINTER PERFORMANCE DATA			UNIT CHARACTERISTICS				NOTES/ ACCESSORIES
			SUPPLY AIR FLOW (CFM)	SUPPLY ESP (IN WC)	SUPPLY FAN MOTOR (HP)	EXHAUST AIR FLOW (CFM)	EXHAUST ESP (IN WC)	EXHAUST FAN MOTOR (HP)	OA EAT (°F)	SUPPLY LAT (°F)	RETURN EAT (°F)	OA EAT (°F)	SUPPLY LAT (°F)	RETURN EAT (°F)	VOLTAGE (V-φ-Hz)	UNIT MCA	UNIT MOCP	OPERATING WEIGHT (LBS)	
ERV-1	RENEWAIRE	HE3X	3100	0.4"	3	2820	0.4"	3	94.4/77.8	81.8/71.7	75/62.6	30.3/25.5	56/42.6	70/51.5	208-3-60	21.1	25	1000	1-12

NOTES/ACCESSORIES

1. UL LISTED
2. INDOOR, HORIZONTAL INSTALLATION
3. FACTORY TIMECLOCK OPERATON SCHEDULED FOR OWNERS OCCUPIED HOURS
4. HINGED ACCESS PANELS
5. DIRECT DRIVE SUPPLY AND EXHAUST FANS
6. SINGLE POINT POWER
7. NON-FUSED DISCONNECT SWITCH
8. INTERLOCK LOUVER DAMPER OPERATION WITH TIMECLOCK OCCUPIED HOURS
9. MERV 8 SUPPLY FILTERS, MERV 13 EXHAUST FILTERS
10. SUSPENDED ISOLATION KIT
11. MOTORIZED OUTSIDE AIR DAMPER
12. ALTERNATES APPROVED BY ENGINEER

AIR HANDLING UNIT HEAT PUMP SCHEDULE

TAG	MFR	MODEL No.	NOMINAL TONS	MIN OA (CFM)	SUPPLY FAN DATA			DX COOLING DATA					HEATING CAPACITY			UNIT CHARACTERISTICS				NOTES/ ACCESSORIES
					AIR FLOW (CFM)	ESP	MOTOR	EAT (DB/WB)	LAT (DB/WB)	SENSIBLE (MBH)	TOTAL (MBH)	STAGES	EAT/LAT (DB)	OUTPUT (MBH)	STAGES	VOLTAGE (V-φ-Hz)	UNIT MCA	UNIT MOCP	OPERATING WEIGHT (LBS)	
AHU-1	TRANE	BCHD054	4.0	650	1420	0.80	0.50	76.2/64.8	53.8/52.9	34.8	48.0	2	62.4/86.5	37.4	2	208-1-60	5.3	15	200	1-6
AHU-2	TRANE	BCHD036	3.5	725	1150	0.80	0.50	77.8/68.1	53.4/53.1	30.7	42.0	2	59.4/91.6	40.2	2	208-1-60	5.3	15	200	1-6
AHU-3	TRANE	BCHD054	4.0	900	1150	0.80	0.50	79.1/68.1	51.5/51.2	37.7	48.0	2	57.0/92.6	48.4	2	208-1-60	5.3	15	200	1-6
AHU-4	TRANE	BCHD054	4.0	825	1450	0.80	0.50	77.8/66.6	54.5/53.6	36.9	48.0	2	59.4/87.2	42.9	2	208-1-60	5.3	15	200	1-6

NOTES/ACCESSORIES

1. REFRIGERANT - R410A
2. HEAT PUMP HEATING OPERATION
3. MERV 8 FILTERS
4. CASED COIL DESIGN TO FIT TOP OF FURNACE
5. CONDENSATE PUMP (LITTLE GIANT VCMA)
6. 7-DAY PROGRAMMABLE THERMOSTAT WITH REMOTE SENSOR.
7. DISCONNECT SWITCH BY EC.

CONDENSING UNIT HEAT PUMP SCHEDULE

TAG	SERVICE	LOCATION	MFR	MODEL No.	SEER	HSPF	COOLING TONS	HEATING CAPACITY @47°F AMBIENT (MBH)	ELECTRICAL DATA			WEIGHT (LBS)	NOTES/ ACCESSORIES
									VOLTAGE (V-φ-Hz)	MCA	MOCP		
CU-1	AHU-1	GRADE	TRANE	4TWA4048	14	8.2	4	36	208-3-60	18	30	300	1-7
CU-2	AHU-2	GRADE	TRANE	4TWA4048	14	8.2	4	36	208-3-60	18	30	300	1-7
CU-3	AHU-3	GRADE	TRANE	4TWA4048	14	8.2	4	36	208-3-60	18	30	300	1-7
CU-4	AHU-4	GRADE	TRANE	4TWA4048	14	8.2	4	36	208-3-60	18	30	300	1-7

NOTES/ACCESSORIES

1. UNIT CAPACITY SHALL BE BASED ON AHRI CONDITIONS
2. R410A REFRIGERANT
3. 2-STAGE COMPRESSORS
4. 1 YEAR PARTS & LABOR WARRANTY
5. 5 YEAR EXTENDED COMPRESSOR PARTS & LABOR WARRANTY
6. TXV VALVE
7. DSCONNECT SWITCH BY EC

OUTSIDE AIR SCHEDULE

ZONE DATA										SYSTEM DATA			
ZONE NAME	FLOOR AREA (SF)	REQUIRED OUTSIDE AIR (CFM/SF)	OCCUPANCY	REQUIRED OUTSIDE AIR (CFM/PERSON)	BREATHING ZONE OUTSIDE AIR (CFM)	ZONE AIR DISTRIBUTION EFFECTIVENESS	REQUIRED OUTSIDE AIR (CFM)	SUPPLY AIR (CFM)	OUTDOOR AIR FRACTION	SYSTEM NAME	SYSTEM VENTILATION EFFICIENCY	REQUIRED OUTSIDE AIR (CFM)	DELIVERED OUTSIDE AIR (CFM)
113 OFFICE	98	0.06	2	5.0	16	0.8	20	100	0.800	AHU-1	0.853	237	650
118 BREAK	315	0.12	6	5.0	57	0.8	72	300	0.794				
120 ADVM OFFICE	256	0.06	4	5.0	29	0.8	37	250	0.852				
122 DVM OFFICE	265	0.06	2	5.0	16	0.8	21	250	0.916				
112 CORRIDOR	63	0.06	0	0.0	10	0.8	12	70	0.829				
123/124 PREP/CORR	106	0.06	1	5.0	15	0.8	19	100	0.810				
101 RECEPTION DESK	198	0.18	3	7.5	44	0.8	56	200	0.720				
104 FELINE WARD	171	0.18	2	7.5	31	0.8	38	250	0.848	AHU-2	0.610	271	725
106 LAUNDRY	160	0.18	1	7.5	24	0.8	30	200	0.850				
109 CORRIDOR	72	0.06	0	0.0	13	0.8	16	100	0.840				
110 ISOLATION	56	0.18	1	7.5	29	0.8	36	100	0.640				
116 CANINE WARD	158	0.18	4	7.5	86	0.8	107	250	0.572				
117 GROOMING	141	0.18	2	7.5	36	0.8	44	250	0.824				
107 EXAM	92	0.18	1	7.5	22	0.8	27	100	0.730	AHU-3	0.795	361	900
108 EXAM	92	0.18	1	7.5	22	0.8	27	100	0.730				
125 RADIOLOGY	156	0.18	2	7.5	37	0.8	46	200	0.770				
126 DENTAL	119	0.18	2	7.5	47	0.8	58	150	0.613				
127 PHARMACY	127	0.18	2	5.0	36	0.8	46	150	0.693				
128 TREATMENT	238	0.18	3	7.5	82	0.8	103	250	0.588				
134 EXAM	93	0.18	1	7.5	22	0.8	27	100	0.730				
135 EXAM	93	0.18	1	7.5	22	0.8	27	100	0.730				
129 SURGERY	256	0.18	3	7.5	69	0.8	86	250	0.656	AHU-4	0.812	383	825
131 CORRIDOR	147	0.06	0	0.0	9	0.8	11	50	0.780				
136 COMFORT	106	0.18	2	7.5	34	0.8	43	200	0.785				
137 DOG WAITING	220	0.18	6	7.5	85	0.8	106	350	0.697				
102 CAT WAITING	159	0.18	5	7.5	66	0.8	83	250	0.668				
101 RECEPTION ENTRY	156	0.18	2	7.5	43	0.8	54	350	0.846				

NOTES

1. SPACE OUTSIDE AIR REQUIREMENTS BASED ON IMC 2015

AIR DISTRIBUTION SCHEDULE

TAG	SERVICE	MOUNTING	MFR	MODEL No.	MODULE/ DIFFUSER SIZE	FRAME/BORDER	NOTES/ ACCESSORIES
S1	SUPPLY	CEILING	TITUS	OMNI	24" X 24"	#3 LAY-IN	1,2
S2	SUPPLY	CEILING	TITUS	OMNI	24" X 24"	#1 SURFACE	1,2,4
S3	SUPPLY	CEILING	TITUS	OMNI	24" X 24"	#3 LAY-IN	1,2,5
R1	RETURN	CEILING	TITUS	350RL	24" X 12"	#3 LAY-IN	1,3
R2	RETURN	CEILING	TITUS	350RL	24" X 12"	#1 SURFACE	1,3,4
E1	EXHAUST	CEILING	TITUS	350RL	12" X 12"	#3 LAY-IN	1,3

NOTES/ACCESSORIES

1. FINISH - WHITE POWDER COAT
2. SECTORIZING BAFFLE (SB) AS REQUIRED BY DIRECTIONAL ARROWS ON PLAN, OTHERWISE FOUR (4) WAY BLOW
3. SQUARE TO ROUND NECK ADAPTER. REFER TO PLANS FOR NECK SIZE AND DUCT SIZE
4. RAPID MOUNT FRAME
5. OPPOSED BLADE DAMPER, AG-15

LOUVER SCHEDULE

TAG	SERVICE	MFR	MODEL No.	AIR FLOW (CFM)	SIZE W/H/D (IN)	FREE AREA (SQ. FT.)	FREE AREA VELOCITY (FPM)	PRESSURE DROP (IN WC)	NOTES/ ACCESSORIES
L-1	EXHAUST	RUSKIN	ELC6375	2920	48/38/6	5.37	544	0.05	1-7
L-2	INTAKE	RUSKIN	ELC6375	3000	48/38/6	5.37	558	0.05	1-7

NOTES/ACCESSORIES

1. INSECT SCREEN
2. 120V COMBINATION DAMPER. CONTROL INTERLOCK WITH ERV BY MC. 120V BY EC.
3. FINISH: STANDARD MILL
4. EXTENDED SILL
5. DRIP CAP
6. FRAME: STANDARD FLANGE
7. INSTALLATION ANGLES

EXHAUST FAN SCHEDULE

TAG	SERVICE	MFR	MODEL No.	AIRFLOW (CFM)	ESP (IN WC)	MOTOR	SONES	VOLTAGE (V-φ-Hz)	OPERATING WEIGHT (LBS)	NOTES/ ACCESSORIES
EF-1	ISO	COOK	70W17	110	0.30	.167 HP	4.2	120-1-60	40	1-4,6
EF-2	TANK	COOK	70W17	100	0.30	.167 HP	4.2	120-1-60	40	1-5

NOTES/ACCESSORIES

1. DISCONNECT SWITCH - NEMA 3- FACTORY MOUNTED & WIRED
2. AMCA SEAL & U.L. LISTED
3. FAN SPEED CONTROLLER - FACTORY MOUNTED & WIRED
4. WALL MOUNT SUPPORTS
5. POWERED TO OPERATE 24/7
6. PROVIDE TIMECLOCK FOR OPERATION ALL HOURS AS REQUIRED BY OWNER.

ELECTRIC UNIT HEATER SCHEDULE

TAG	MFR	MODEL No.	MOUNTING	ELECTRIC HEATING DATA			FAN DATA	UNIT CHARACTERISTICS			NOTES/ ACCESSORIES
				INPUT (W)	OUTPUT (BTUH)	HEATING STAGES	AIR FLOW (CFM)	VOLTAGE (V-φ-Hz)	UNIT AMPS	OPERATING WEIGHT (LBS)	
EUH-1	QMARK	CWH3150F	VERTICAL	1500	5118	1	100	120-1-60	12.5	25	1-5

NOTES/ACCESSORIES

1. INTEGRAL DISCONNECT
2. INTEGRAL THERMOSTAT
3. HIGH LIMIT SWITCH
4. WALL RECESSED MOUNTING BRACKET
5. MARKEL, BERKO, TRANE ACCEPTABLE ALTERNATE MANUFACTURES

EXHAUST AIR SCHEDULE

ZONE NAME	FLOOR AREA (SF)	QTY OF FIXTURE	MINIMUM EXHAUST AIR				
			CFM PER SF	CFM PER FIXTURE	MINIMUM CFM	SERVICE	EXHAUST AIR (CFM)
114 RR	52	1	-	50	50	ERV-1	75
115 JANITOR	37	1	-	50	50		75
123/124 PREP/CORR	166	0	0.9	-	149		150
103 RR	49	1	-	50	50		75
104 FELINE WARD	87	0	0.9	-	78		80
116 CANINE WARD	309	0	0.9	-	278		280
117 GROOMING	114	0	0.9	-	103		105
107 EXAM	80	0	0.9	-	72		75
108 EXAM	80	0	0.9	-	72		75
125 RADIALOGY	120	0	0.9	-	108		110
126 DENTAL	176	0	0.9	-	158		160
127 PHARMACY	147	0	0.9	-	132		135
128 TREATMENT	332	0	0.9	-	299		300
134 EXAM	80	0	0.9	-	72		75
135 EXAM	80	0	0.9	-	72		75
101 RECEPTION ENTRY	156	0	0.9	-	140		140
102 CAT WAITING	159	0	0.9	-	143		145
129 SURGERY	256	0	0.9	-	230		385
136 COMFORT	106	0	0.9	-	95		95
137 DOG WAITING	220	0	0.9	-	198		75
TANK STORAGE	70	0	-	-	50	EF-2	100
110 ISOLATION	120	0	0.9	-	108	EF-1	110
MINIMUM EXHAUST AIR REQUIRED = 2888						DELIVERED EXHAUST AIR = 3020	

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CERTIFICATION

STATE OF LOUISIANA
LAWRENCE M. THOMAS
License No. 31622
PROFESSIONAL ENGINEER

PROJECT INFORMATION

ANIMAL MEDICAL CENTER OF MOSS BLUFF

150 SAM HOUSTON JONES PARKWAY
LAKE CHARLES, LA 70611

ISSUE DATES

PERMIT SET	08.09.21
REVISION 1	09.15.21

210121

MECHANICAL SCHEDULES

M003

COMcheck Software Version 4.1.5.0

Mechanical Compliance Certificate

Project Information

Energy Code:	2015 IECC
Project Title:	ANIMAL MEDICAL CENTER OF MOSS BLUFF
Location:	Lake Charles, Louisiana
Climate Zone:	2a
Project Type:	New Construction

Construction Site:	Owner/Agent:	Designer/Contractor:
150 SAM HOUSTON JONES PARKWAY LAKE CHARLES, LA 70611		TES ENGINEERING 25760 FIRST STREET CLEVELAND, OH 44145

Additional Efficiency Package(s)

Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

Mechanical Systems List

Quantity	System Type & Description
1	AHU-1 (Single Zone): Split System Heat Pump Heating Mode: Capacity = 37 kBtu/h, Proposed Efficiency = 8.20 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 48 kBtu/h, Proposed Efficiency = 14.00 SEER, Required Efficiency: 14.00 SEER Fan System: AHU-1 -- Compliance (Motor nameplate HP method) : Passes Fans: AHU1 Supply, Constant Volume, 1420 CFM, 0.5 motor nameplate hp, 97.0 fan efficiency grade
1	AHU-2 (Single Zone): Split System Heat Pump Heating Mode: Capacity = 40 kBtu/h, Proposed Efficiency = 8.20 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 42 kBtu/h, Proposed Efficiency = 14.00 SEER, Required Efficiency: 14.00 SEER Fan System: AHU-2 -- Compliance (Motor nameplate HP method) : Passes Fans: AHU2 Supply, Constant Volume, 1150 CFM, 0.5 motor nameplate hp, 97.0 fan efficiency grade
1	AHU-3 (Single Zone): Split System Heat Pump Heating Mode: Capacity = 48 kBtu/h, Proposed Efficiency = 8.20 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 48 kBtu/h, Proposed Efficiency = 14.00 SEER, Required Efficiency: 14.00 SEER Fan System: AHU-3 -- Compliance (Motor nameplate HP method) : Passes Fans: AHU3 Supply, Constant Volume, 1150 CFM, 0.5 motor nameplate hp, 97.0 fan efficiency grade
1	AHU-4 (Single Zone): Split System Heat Pump Heating Mode: Capacity = 43 kBtu/h, Proposed Efficiency = 8.20 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 48 kBtu/h, Proposed Efficiency = 14.00 SEER, Required Efficiency: 14.00 SEER

Quantity	System Type & Description
	Fan System: AHU-4 -- Compliance (Motor nameplate HP method) : Passes Fans: AHU4 Supply, Constant Volume, 1450 CFM, 0.5 motor nameplate hp, 97.0 fan efficiency grade

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2015 IECC requirements in COM*check* Version 4.1.5.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Stephen Krupar - Mechanical Engineer — Stephen Krupar — 08/09/21
Name - Title — Signature — Date

COMcheck Software Version 4.1.5.0

Inspection Checklist

Energy Code: 2015 IECC

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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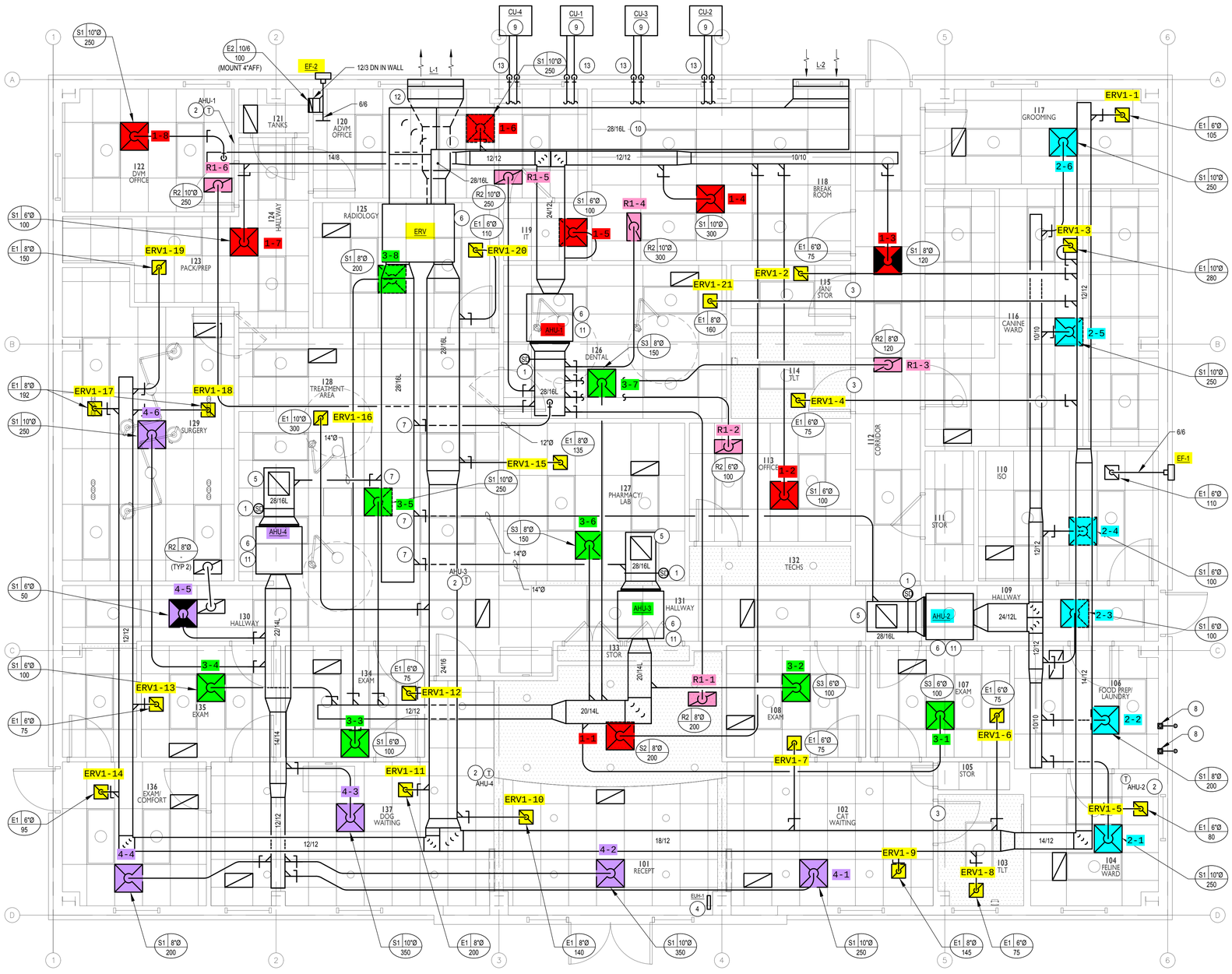
MECHANICAL
COMPLIANCE

M004



1	MECHANICAL PLAN
M101	SCALE: 1/4"=1'-0"

GENERAL SHEET NOTES

1. EXISTING MECHANICAL INFORMATION IS BASED ON LIMITED EXISTING BUILDING DRAWINGS AND FIELD WORK. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING CONDITIONS FOR ACCURACY. CONTRACTOR SHALL NOTIFY OWNER, ARCHITECT AND ENGINEER OF ANY SITUATIONS THAT MODIFY OR INCREASE THE SCOPE OF WORK FROM THAT IS DESCRIBED IN THE DOCUMENTS.
2. REFER TO DRAWINGS AND PROJECT SPECIFICATIONS OF OTHER DISCIPLINES FOR ADDITIONAL PROJECT INFORMATION AND REQUIREMENTS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN THE INFORMATION PRESENTED AND FIELD CONDITIONS.
3. PRIOR TO ANY ISOLATION OF SYSTEMS, SHUTDOWNS OR DEMOLITION THE CONTRACTOR SHALL PROVIDE NECESSARY INVESTIGATION AND NOTIFY THE FACILITIES ENGINEERING/MAINTENANCE PERSONNEL OF WORK TO BE PERFORMED SO AS TO AVOID ANY DETRIMENTAL SHUTDOWN OF SYSTEMS TO ADJACENT SPACES.
4. MECHANICAL SYSTEMS INSTALLATION MUST MAINTAIN INTEGRITY OF WALLS, PARTITIONS AND FLOORS DESIGNATED AS EITHER FIRE RATED OR "SMOKE TIGHT". SEAL AROUND ALL PENETRATIONS THROUGH RATED OR SMOKE TIGHT ASSEMBLIES. COORDINATE W/ARCHITECTURAL PLANS AND GENERAL CONTRACTOR.
5. LIMITED ABOVE CEILING CLEARANCES EXIST. COORDINATE LOCATION AND ELEVATION OF MECHANICAL WORK WITH ALL DUCTWORK, SPRINKLERS, LIGHT FIXTURES, AND OTHER CEILING BUILT-IN FIXTURES. CONTACT ENGINEER OR ARCHITECT IMMEDIATELY SHOULD ANY CONFLICT ARISE.
6. ALL ROOF PENETRATIONS, PATCHING AND FLASHING SHALL BE PERFORMED BY A LANDLORD APPROVED ROOFING CONTRACTOR AT THIS CONTRACTOR'S EXPENSE. COORDINATE ROOF PENETRATIONS AND ROOFTOP EQUIPMENT LOCATIONS WITH LANDLORD AND GENERAL CONTRACTOR.
7. NOTHING IS PERMITTED TO BE ATTACHED TO, SUSPENDED FROM, OR PENETRATE THE ROOF DECK. CONTRACTOR MAY ATTACH TO OR SUSPEND FROM THE TOP CHORD OF THE JOIST OR THE STRUCTURAL STEEL WHICH EXISTS ABOVE THE SPACE.
8. GENERAL CONTRACTOR TO LABEL ALL EQUIPMENT WITH TENANT NAME, SPACE NUMBER AND EQUIPMENT IDENTIFICATION (CU-1, ETC.), PER MALL SPECIFICATIONS AND STANDARDS.
9. COORDINATE ALL THERMOSTAT AND SENSOR LOCATIONS WITH FURNITURE LAYOUT AND ARCHITECTURAL PLANS. DEVICES ARE TO BE INSTALLED AND WIRED BY THE HVAC CONTRACTOR, MOUNT PER ADA REQUIREMENTS.
10. CHANGES IN DUCT SIZES SHALL BE MADE BY UNIFORM TAPER SECTION WITH A MAXIMUM INCLUDE ANGLE OF DIVERGENCE OF 15 DEGREE.
11. DUCT SIZES INDICATED REPRESENT EXTERNAL SHEET METAL DIMENSIONS AND INCLUDE ALLOWANCE FOR INTERNAL INSULATION.
12. ALL SUPPLY AND MAKE-UP AIR DUCTWORK NOT EXPOSED SHALL BE EXTERNALLY INSULATED.
13. BRANCH DUCTS SERVING DIFFUSERS SHALL BE SIZED TO MATCH DIFFUSER NECK SIZE INDICATED UNLESS NOTED OTHERWISE.
14. PITCH POCKETS ARE NOT PERMITTED ON THE ROOF FOR CONDENSATE DRAINS, POWER OR CONTROL WIRING. ALL CONNECTIONS ARE TO BE MADE INSIDE THE EQUIPMENT CURB OR THROUGH PRE-MANUFACTURED PIPING CURB.
15. CONTRACTOR MUST REPLACE ALL AIR FILTERS IN UNITS WITH NEW CLEAN FILTERS BEFORE AIR BALANCING AND PRIOR TO FINAL TURNOVER TO TENANT.

SHEET KEYNOTES

1 SMOKE DETECTOR PROVIDE IN RETURN DUCT, FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR, MOUNTED BY MECHANICAL CONTRACTOR. COORDINATE REQUIRED LENGTH OF SAMPLING TUBE WITH ELECTRICAL CONTRACTOR.

2 THERMOSTAT MOUNTED ON WALL AT 48" AFF TO BOTTOM. COORDINATE EXACT LOCATION WITH FURNITURE LAYOUT AND ARCHITECTURAL PLANS. THERMOSTAT SHALL BE WIRED TO CONTROL INTERFACE ON ASSOCIATED AIR HANDLING UNIT.

3 COORDINATE WITH G.C. TO PROVIDE 1" DOOR UNDERCUT FOR TRANSFER AIR.

4 WALL MOUNTED ELECTRIC HEATER 1' AFF FROM BOTTOM OF HEATER. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.

5 PROVIDE 18/20 RA OPENING ON TOP OF RETURN MAIN WITH BALANCING DAMPER PER DETAIL.

6 HVAC UNIT SUSPENDED FROM STRUCTURE. CONNECT SUPPLY AND RETURN DUCTS TO FULL SIZE OF SUPPLY AND RETURN CONNECTIONS WITH FLEX CONNECTION AT UNIT. TRANSITION AS REQUIRED. REFER TO DETAIL ON SHEET M001 FOR CONNECTIONS TO THE UNIT.

7 OPPOSED BLADE MANUAL BALANCING DAMPER MOUNTED IN OUTSIDE AIR DUCT. SET MANUAL BALANCING DAMPER TO OUTSIDE AIRFLOW LISTED FOR ASSOCIATED UNIT PER SHEET M003.

8 PROVIDE DRYER VENT WALL BOX. TRANSITION FROM DRYER BOX CONNECTION IN WALL AND ROUTE 4"Ø TO EXTERIOR WALL. TERMINATE WITH DOWNTURN.

9 CONDENSING UNITS MOUNTED ON CONCRETE PAD OUTSIDE OF BUILDING. ROUTE AND SIZE ALL REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT ROUTING IN FIELD. CONTRACTOR TO CONFIRM PROPOSED LOCATION IS WITHIN EQUIPMENT MANUFACTURER'S LIMITATIONS FOR REFRIGERANT LINE LENGTH. CONTRACTOR SHALL NOTIFY OWNER IF PLACEMENT IS BEYOND MANUFACTURER'S GUIDELINES.

10 OUTSIDE AIR DUCTWORK FROM LOUVER TO ERV SHALL BE ROUTED HIGH ABOVE OTHER DUCTWORK.

11 EXTEND AND ROUTE 3/4" TRAPPED CONDENSATE PIPING SLOPED AT 2%, TO MOP SINK WITH INDIRECT WASTE DISCHARGE.

12 TRANSITION TO FULL SIZE OF LOUVER CONNECTION. PROVIDE ALUMINUM OR STAINLESS STEEL DUCT FOR THE FIRST 3'-0" AND SLOPE DOWN TOWARDS LOUVER.

13 SIZE AND ROUTE REFRIGERANT PIPING PER MANUFACTURER RECOMMENDATIONS AND REQUIREMENTS. ROUTE UP ALONG EXTERIOR OF BUILDING AND PENETRATE INTO BUILDING ABOVE CEILING LEVEL.

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M101