

10411 Meeting Street
Louisville, KY 40059
T 502.326.3065
F 859.326.2691

ENERGY SOLUTIONS
emta

WIDYER ELEMENTARY SCHOOL
GUARANTEED ENERGY SAVINGS CONTRACT
MORGAN COUNTY BOARD OF EDUCATION
MORGAN COUNTY, KY

MECHANICAL SCHEDULES AND DETAILS
REVISIONS
A: BIDDING

DATE: 3/13/2017
DRAWN: REL
CHECKED: KCE
PROJECT: ZMAM17

SET NO.

M1.0

WORKER

GENERAL NOTE
A. REFER TO SHEET M10 FOR MECHANICAL LEGEND, GENERAL NOTES, ETC.
B. REGISTERED PROFESSIONAL ENGINEER AND ARCHITECT'S SEAL AND LICENSE NO. TO BE PROVIDED BY OWNER/ARCHITECT.
C. CONTRACTOR

VAV BOX W/ELECTRIC REHEAT SCHEDULE

MARK	MFR./MODEL	BOX TYPE	TOTAL AFD @ MAX CFM (100%)	CFM (100%)	LEAKAGE RATE (100%)	ELECTRIC HEATER TYPE	HEIGHT (IN)	WIDTH (IN)	REMARKS
WV-10	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-20	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-30	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-40	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	6	350/99	2.0%	3	277/1	407X12X9" 32 ALL
WV-50	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	6	350/99	2.0%	3	277/1	407X12X9" 32 ALL
WV-60	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-70	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-80	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	8	650/159	2.0%	7	277/1	407X12X10" 34 ALL
WV-90	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-100	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-110	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-120	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-130	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-140	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-150	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	6	300/89	2.0%	3	277/1	407X12X9" 32 ALL
WV-160	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	6	300/89	2.0%	3	277/1	407X12X9" 32 ALL
WV-170	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-180	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-190	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-200	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-210	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-220	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-230	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-240	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-250	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-260	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-270	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-280	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-290	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL
WV-300	CARRIER 35E	VARIABLE VOLUME WITH INTERNAL ELECTRIC REHEAT	0.20" WG	10	850/248	2.0%	10	277/1	407X14X13" 44 ALL

REMARKS:
1. BOX SHALL BE PROVIDED WITH 1/2" THICK INSULATION.
2. PROVIDE WITH INTERNAL DISCONNECT LOCATED IN FACTOR-ADJUTED ENCLOSURE.
3. PROVIDE WITH PRESS AND FUSED DISCONNECT.
4. PROVIDE PRESSURE INDEPENDENT CONTROLS.
5. ELECTRIC HEATER SHALL BE PROVIDED WITH SCR MODULATING CONTROLS.

VARIABLE FREQUENCY DRIVE SCHEDULE

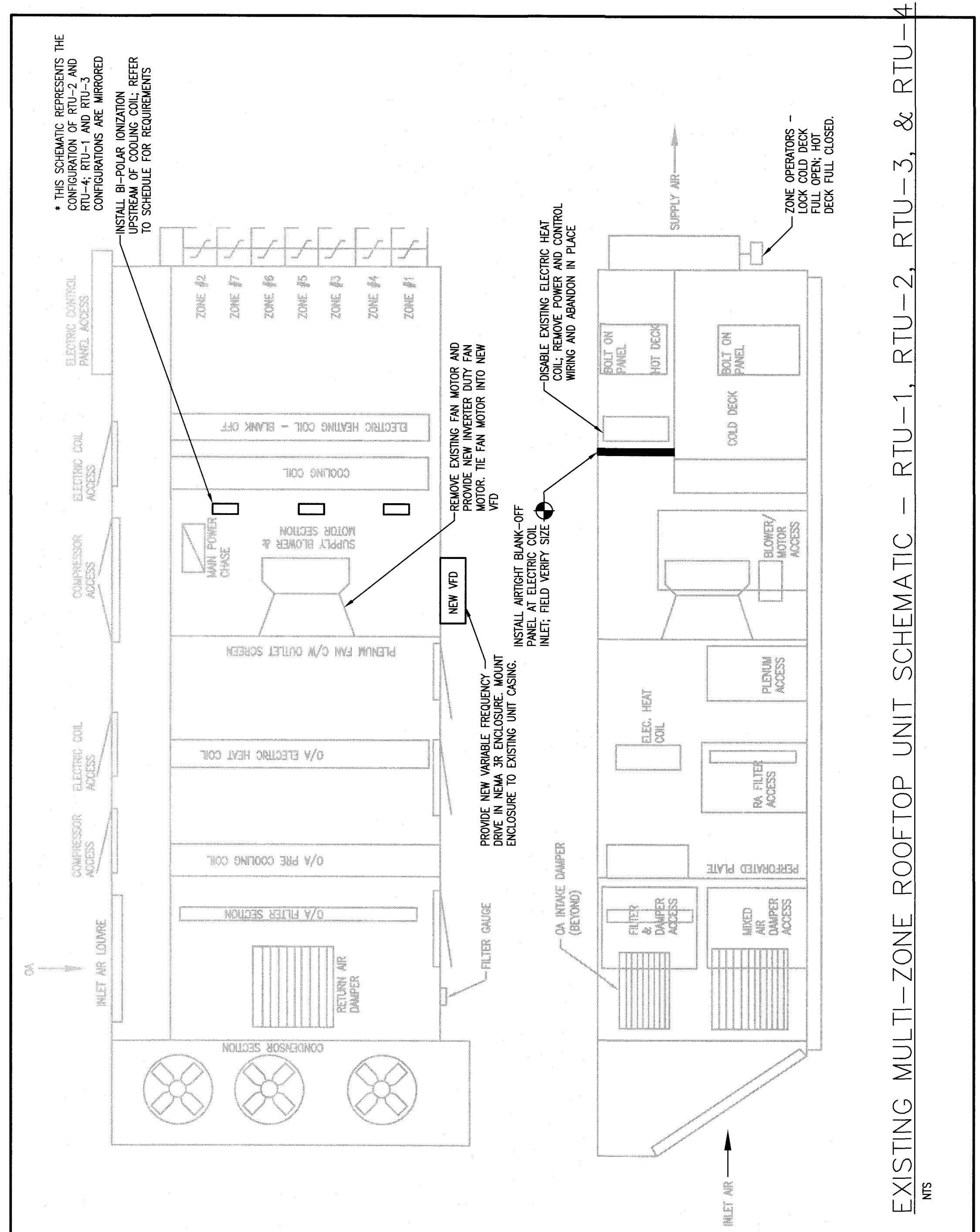
MARK	MANUFACTURER	MODEL	SERVICE	ELECTRICAL MOTOR HP	REMARKS
VFD-1	ABB	ACH550	RTU-1	10	480/2/60
VFD-2	ABB	ACH550	RTU-2	15	480/2/60
VFD-3	ABB	ACH550	RTU-3	15	480/2/60
VFD-4	ABB	ACH550	RTU-4	10	480/2/60
VFD-5	ABB	ACH550	RTU-5	5	480/2/60
VFD-6	ABB	ACH550	RTU-6	15	480/2/60
VFD-7	ABB	ACH550	RTU-7	3	480/2/60
VFD-8	ABB	ACH550	RTU-8	3	480/2/60

REMARKS:
1. PROVIDE NEMA 3R RATED ENCLOSURE.
2. PROVIDE WITH PRESS AND FUSED DISCONNECT.
3. INTEGRATE INTO BUILDING AUTOMATION SYSTEM.

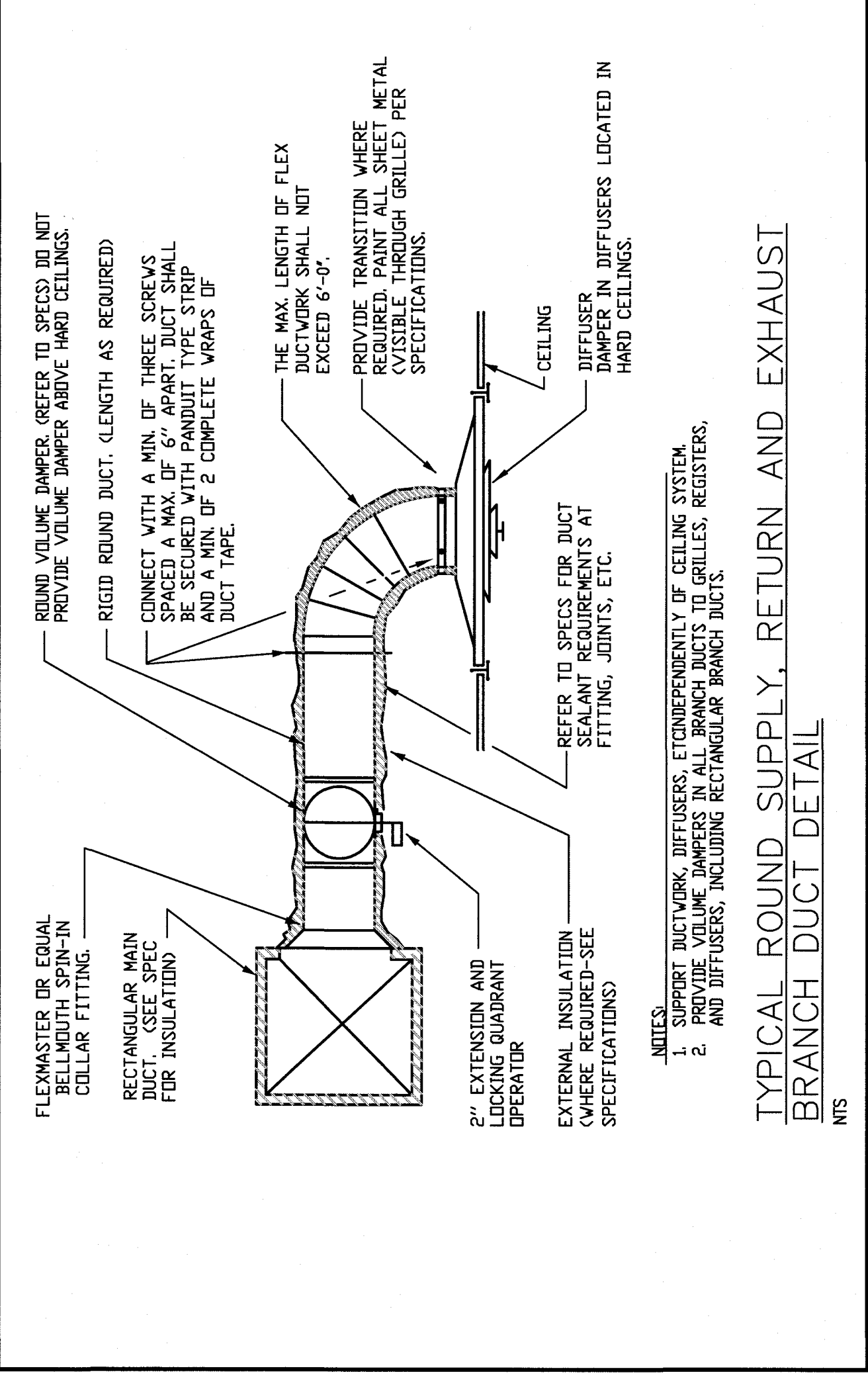
BIPOLAR IONIZATION SCHEDULE

EXISTING UNIT TAG	MANUFACTURER	MODEL	QUANTITY	ELECTRICAL CONNECTION TYPE	REMARKS
RTU-1	PLASMA ARE	7300	2	POWER SUPPLY	ALL
RTU-2	PLASMA ARE	7300	3	POWER SUPPLY	ALL
RTU-3	PLASMA ARE	7300	3	POWER SUPPLY	ALL
RTU-4	PLASMA ARE	7300	2	POWER SUPPLY	ALL
RTU-5	PLASMA ARE	7300	1	POWER SUPPLY	ALL

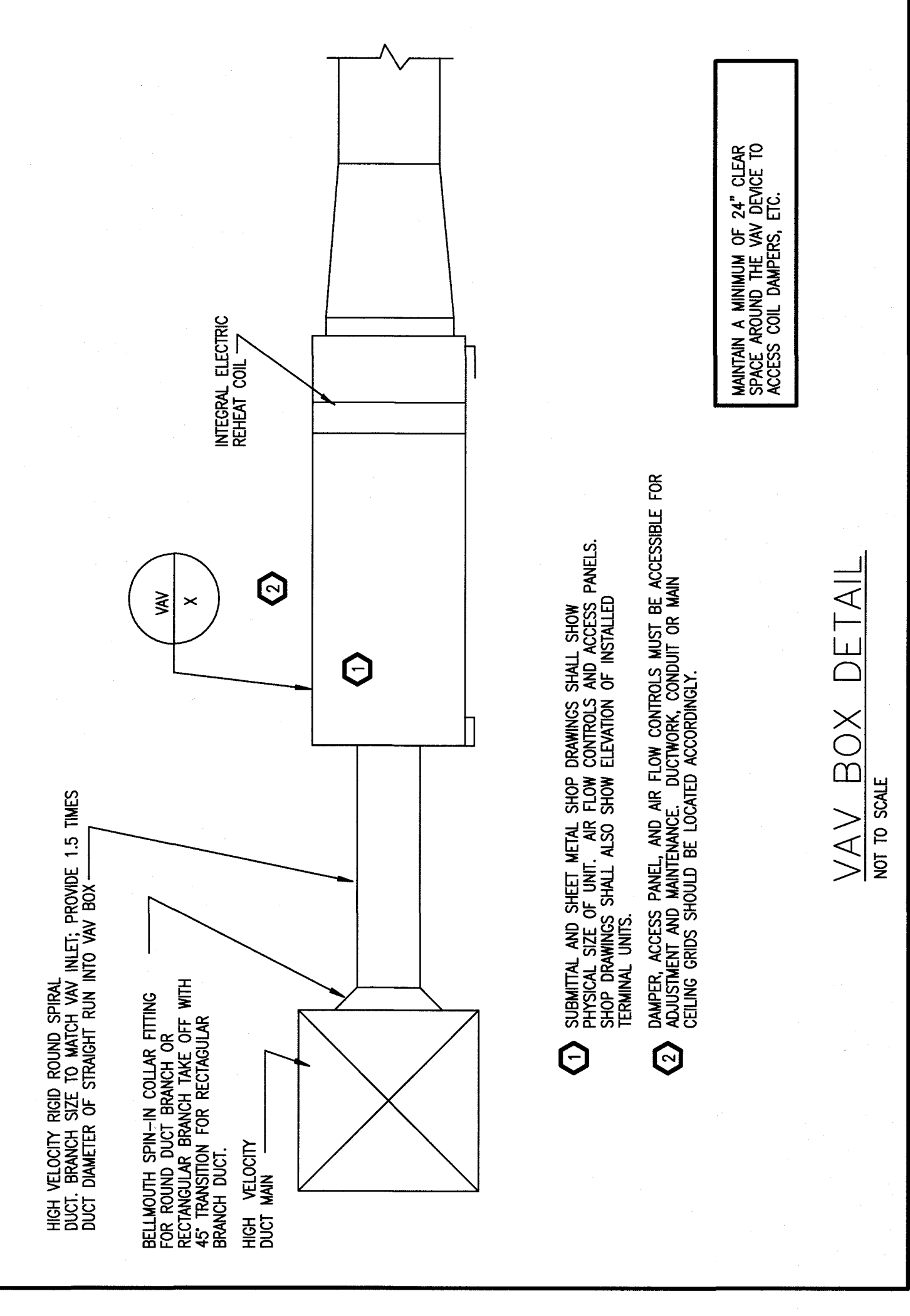
REMARKS:
1. PROVIDE NEMA 3R RATED ENCLOSURE.
2. PROVIDE WITH PRESS AND FUSED DISCONNECT.
3. MECHANICAL CONTRACTOR TO INSTALL.



EXISTING MULTI-ZONE ROOFTOP UNIT SCHEMATIC -- RTU-1, RTU-2, RTU-3, & RTU-4



TYPICAL ROUND SUPPLY, RETURN AND EXHAUST BRANCH DUCT DETAIL



VAV BOX DETAIL
NOT TO SCALE

1. SUBMITTAL AND SHEET METAL SHOP DRAWINGS SHALL SHOW THE LOCATION OF THE VAV BOXES AND THE LOCATION OF THE DAMPERS. THE DAMPERS SHALL ALSO SHOW DETAILS OF INSTALLATION.
2. DAMPER ACCESS PANEL, AND AIR FLOW CONTROLS MUST BE ACCESSIBLE FOR MAINTENANCE AND REPAIR. THE DAMPERS SHALL BE LOCATED ACCORDING TO THE CEILING GRID SHOULD BE LOCATED ACCORDINGLY.

1. BELLMOUTH SPIN-IN COLLAR FITTING SHALL BE USED TO CONNECT THE DUCT BRANCH TO THE HIGH VELOCITY DUCT MAIN.
2. THE DUCT BRANCH SHALL BE SECURED WITH PANLUT TYPE STRIP BEING SPACED AT A MAX OF 6" FROM THE DUCT MAIN.
3. THE DUCT BRANCH SHALL BE SPACED AT A MAX OF 6" FROM THE DUCT MAIN.
4. THE DUCT BRANCH SHALL BE SPACED AT A MAX OF 6" FROM THE DUCT MAIN.

1. THE MAX LENGTH OF FLEX SHALL EXCEED 6'-0".
2. PROVIDE TRANSITION WHERE REQUIRED. PAINT ALL SHEET METAL DAMPERS IN DIFFUSERS LOCATED IN CEILING.
3. REFER TO SPECS FOR DUCT FITTING, JOINTS, ETC.

1. EXTENSION AND DURANT UPSTREAM.
2. EXTERNAL INSULATION UPSTREAM.
3. REFER TO SPECS FOR DUCT FITTING, JOINTS, ETC.

1. PROVIDE VOLUME DAMPERS IN ALL BRANCH DUCTS TO GELLES, REGISTERS, AND DIFFUSERS, INCLUDING RECTANGULAR BRANCH DUCTS.