

ROOFTOP UNIT SCHEDULE																																				
MARK	SERVICE	MODEL NO.	CFM	O/A MIN	FAN MOTOR (HP) (SUPPLY)/(EXHAUST)	COOLING									HEATING							ELECTRICAL								REMARKS						
						TYPE	TEMPERATURE (°F)				CAPACITY				GPM	ENT. WATER (°F)	LVG. WATER (°F)	EER	TYPE	TEMPERATURE (°F)			CAPACITY MBH	GPM	ENT. FLUID (°F)	LVG. FLUID (°F)										
							ENT. AIR		LVG. AIR		OD AMB DB/WB	TONS NOM.	MBH TOTAL	SENS.						ENT. AIR	LVG. AIR	TOTAL														
							DB	WB	DB	WB																	DB	WB	DISC.		VFD	GFCI OUTLET	ECONOMIZER	UNIT WEIGHT (LB)		
(HS)	RTU-7	WRESTLING ROOM	AAON-RN-008	2400	517	(1.77)/(1.2)	PKG. DX -- R410A REFRIG.	80	66	56	53	95/75	8	10	68.	--	--	--	12.5	HOT WATER	56	94	102	20	180	170	208/3/60	50	70	FACTORY DISC.	YES	YES	YES	YES	1279	SEE NOTES 1-7

NOTE 1: PROVIDE DAMPERS SHOWN ON THE DRAWINGS AND ADDITIONAL DAMPERS AS NECESSARY FOR AIR BALANCING OR AS NEEDED TO COMPLY WITH ECCCNS C403.7.7 REQUIREMENTS FOR INTAKES AND EXHAUST OPENINGS

NOTE 2: OBSERVE REQUIRED AND RECOMMENDED CLEARANCES FOR UNIT DURING PLACEMENT. INSTALL UNIT ACCORDING TO MANUFACTURER RECOMMENDATIONS.

NOTE 3: MAINTAIN MINIMUM OF 10' FROM ROOF EDGE WHEN PLACING UNIT.

UNIT VENTILATOR SCHEDULE (30)																						
MARK	SERVICE	MFR / MODEL	TYPE	TOTAL CFM	O/A MIN	DX COOLING COIL			HEATING COIL					MOTOR (ECM)		ELECTRICAL				LOUVER SIZE	REMARKS	
						TOT. MBH	SENS. MBH	ROWS	MBH	ROWS	FLUID	EWT	LWT	QTY	HP	VOLTAGE	FLA	MCA	MOP			
BASEMENT																						
UV-70-A	ART CLASS. 70	MAUVF3-P1FFB223	VERTICAL	1000	282	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9	ALT. H-D
UV-70-B		MAUVF3-P1FFB223	VERTICAL	1000	282	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9	ALT. H-D

[illegible]

NOTE 1: PROVIDE ADDITIONAL DAMPERS AS NECESSARY TO AID IN AIR BALANCING.
NOTE 2: DAMPERS CONTROLLING OUTDOOR AIR INTAKE VOLUME TO BE MOTORIZED.
NOTE 3: CONNECT NEW UNIT VENTILATOR TO EXISTING LOUVER/INTAKE. PROVIDE NEW SLEEVE AND SEAL CONNECTIONS TO BE WEATHER TIGHT. PROVIDE NECESSARY MODIFICATIONS NEEDED FOR NEW CONNECTION.
NOTE 4: SECURELY HANG FROM STRUCTURE USING STEEL THREADED RODS AND FRAMING. MUST INSTALL UNIT TO ALLOW FOR MAINTENANCE CLEARANCES AND FILTER CHANGES. REFER TO MANUFACTURER'S RECOMMENDATIONS.
NOTE 5: NOT USED
NOTE 6: PROVIDE CONDENSATE PAN. PITCH DRAIN LINE WITH MINIMUM 1/8" PER 12" SLOPE. PROVIDE CONDENSATE PUMP WHEN MINIMUM PITCH CANNOT BE MET. DISCHARGE TO A NEARBY VENT LINE OR TO EXTERIOR WHEN POSSIBLE. SEE DETAIL.
NOTE 7: NOT USED
NOTE 8: PROVIDE VRF COMPATIBLE UNITS, WHICH INCLUDE VRF ELECTRONIC EXPANSION VALVE KITS, VRF COMMUNICATION BOXES, ETC. PROVIDE 12" MINIMUM EXTENDED UTILITY CABINET FROM SAME MANUFACTURER TO MATCH NEW UV CABINET. HOUSE EEV AND CONTROLS IN UTILITY CABINET.
NOTE 9: SEE PLANS FOR CONDENSATE PIPING AND ASSOCIATED. COORDINATE WITH PLUMBING CONTRACTOR.
NOTE 10: BOTTOM RETURN, BOTTOM SUPPLY, REAR OA CONFIGURATION.

PTAC SCHEDULE																					
MARK	SERVICE	BRAND/MODEL NO.	TYPE	MAX CFM	MIN OA CFM	MAX OA CFM	COOLING COIL				HEATING COIL				ELECTRICAL				UNIT WEIGHT (LB)	LOUVER SIZE	REMARKS
							EAT		OUTPUT (MBH)	EER	EAT DB (°F)	OUTPUT (MBH)	GPM	EWT	V/PH/Hz	MCA (A)	MOP (A)	FACTORY DISC.			
							DB	WB													
PTAC-1	CLASSROOM 237	AMANA/PTC092G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	60	65	78.0	85.0	9.0	11.3	42.0	16.9	1	180	115/1/60	8.3	15	YES	102	16"x42"	SEE NOTES 1-7

PTAC-1	CLASSROOM 237	AMANA/PTC092G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	60	65	78.0	85.0	9.0	11.3	42.0	16.9	1	180	115/1/60	8.3	15	YES	102	16"x42"	SEE NOTES 1-7
PTAC-2	DET. OFFICE 236.A	AMANA/PTC092G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	55	65	78.0	85.0	9.0	11.3	42.0	16.9	1	180	115/1/60	8.3	15	YES	102	16"x42"	SEE NOTES 1-7
PTAC-5	OFFICE 154.1	AMANA/PTC092G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	35	65	78.0	85.0	9.0	11.3	42.0	16.9	1	180	115/1/60	8.3	15	YES	102	16"x42"	SEE NOTES 1-7 ALT. H-1
PTAC-4	OFFICE 154.2	AMANA/PTC072G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	25	65	78.0	85.0	7.0	11.9	42.0	14.9	1	180	115/1/60	6.9	15	YES	98	16"x42"	SEE NOTES 1-7 ALT. H-1
PTAC-3	OFFICE 154.3	AMANA/PTC072G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	25	65	78.0	85.0	7.0	11.9	42.0	14.9	1	180	115/1/60	6.9	15	YES	98	16"x42"	SEE NOTES 1-7 ALT. H-1

NOTE 1: PROVIDE NEW WALL SLEEVE (WS900E). REPAIR OR ALTER EXISTING WALL PENETRATION AS NEEDED. MAINTAIN STRUCTURAL INTEGRITY. SEAL CONNECTIONS TO BE WEATHER TIGHT.
NOTE 2: PROVIDE REQUIRED AND RECOMMENDED CLEARANCES FOR UNIT BEFORE CUTTING OR INSTALLING. INSTALL UNIT ACCORDING TO MANUFACTURER RECOMMENDATIONS.
NOTE 3: PROVIDE DRAIN KIT (DK900D). DRAIN ALL CONDENSATE TO EXTERIOR.
NOTE 4: PROVIDE HYDRONIC WATER KIT (HWK03E) WITH 1/2" I.D. (5/8" O.D.) CONNECTIONS.
NOTE 5: PROVIDE HARD WIRE KIT AND TIE INTO EXISTING CIRCUIT.
NOTE 6: PROVIDE EXTRUDED ALUMINUM AMAANA PTAC LOUVER (AGK01). COLOR TO MATCH NEAREST ADJACENT LOUVER COLORS OR AS SELECTED BY DISTRICT.
NOTE 7: DAMPER THAT MODULATES OA MUST BE MOTORIZED AND CONTROLLED TO AUTOMATICALLY CLOSE WHEN THE UNIT FAN IS DE-ENERGIZED.

VRF SCHEDULE																
MARK	SERVICE	BRAND/MODEL NO.	TYPE	CAPACITY (TONS)	AMBIENT TEMP. (°F)	TOTAL UNIT POWER (KW) COOLING/HEATING	EER AIR	REFRIG.	CONNECTIONS		UNIT ELECTRICAL DATA				WEIGHT LBS.	REMARKS
									L	G	VOLTAGE	MOPD	MCA			
VRF-1	SEE DWG M-111	LG ARUM28BBT5E	AIR SOURCE HEAT PUMP	24	95	18.94 / 22.20	12.2	R410A	3/4"	1-3/8"	208/3PH	40+80	29+58	534+694	SEE NOTES 1,2,3,4,5,6	ALT. H-D
VRF-2	SEE DWG M-111	LG ARUM264BT5E	AIR SOURCE HEAT PUMP	22	95	17.56 / 20.72	12.5	R410A	3/4"	1-3/8"	208/3PH	40+80	29+54	534+666	SEE NOTES 1,2,3,4,5,6	ALT. H-D
VRF-3	SEE DWG M-111	LG ARUM336BT5E	AIR SOURCE HEAT PUMP	28	95	23.09 / 26.95	10.8	R410A	3/4"	1-3/8"	208/3PH	40+80	31+61	534+688	SEE NOTES 1,2,3,4,5,6	
VRF-4	SEE DWG M-111	LG ARUM264BT5E	AIR SOURCE HEAT PUMP	22	95	17.56 / 20.72	11.5	R410A	3/4"	1-3/8"	208/3PH	40+80	29+54	534+666	SEE NOTES 1,2,3,4,5,6	

VRF-1	SEE DWG M-111	LG ARUM268BT5E	AIR SOURCE HEAT PUMP	24	95	18.94 / 22.20	12.2	R410A	3/4"	1-3/8"	208/3PH	40+80	29+58	534+694	SEE NOTES 1,2,3,4,5,6	(ALT. H-1)
VRF-2	SEE DWG M-111	LG ARUM264BT5E	AIR SOURCE HEAT PUMP	22	95	17.06 / 20.72	12.5	R410A	3/4"	1-3/8"	208/3PH	40+70	29+54	534+666	SEE NOTES 1,2,3,4,5,6	(ALT. H-1)
VRF-3	SEE DWG M-111	LG ARUM336BT5E	AIR SOURCE HEAT PUMP	28	95	23.09 / 26.95	10.8	R410A	3/4"	1-3/8"	208/3PH	40+80	31+61	534+688	SEE NOTES 1,2,3,4,5,6	
VRF-4	SEE DWG M-111	LG ARUM264BT5E	AIR SOURCE HEAT PUMP	22	95	17.56 / 20.72	11.5	R410A	3/4"	1-3/8"	208/3PH	40+70	29+54	534+666	SEE NOTES 1,2,3,4,5,6	

NOTE 1: MAINTAIN REQUIRED AND RECOMMENDED CLEARANCES FOR UNIT DURING PLACEMENT. INSTALL AND CHARGE UNIT ACCORDING TO MANUFACTURER RECOMMENDATIONS.

NOTE 2: PROVIDE WEATHERPROOF PAD FOR UNIT AND 24" CURB.

NOTE 3: PROVIDE APPLICABLE SUCTION AND LIQUID LINES, PROVIDE INSULATION, SUPPORT, AND ENCLOSURES AS NOTED. PROVIDE ALL PIPING ENCLOSURES, WIRING ENCLOSURES, AND PENETRATIONS.

NOTE 4: MAINTAIN MINIMUM OF 10'-0" FROM ROOF EDGE AND AIR INTAKES WHEN PLACING UNIT. COORDINATE ALL TRADES BEFORE PLACEMENT.

NOTE 5: COORDINATE TRADES TO MINIMIZE NUMBER OF ROOF PENETRATIONS. PROVIDE ONE PIPING PORTAL TO HOUSE ALL PENETRATIONS ASSOCIATED WITH UNIT.

NOTE 6: UNIT TO BE EITHER IN ALL COOLING OR ALL HEATING MODE. COOLING SEASON: UNIT IN USE UNTIL CHANGEOVER TO CENTRAL BOILER HYDRONIC HEAT. REFER TO MANUFACTURER FOR SEASONAL DEACTIVATION AND PROTECTION.

GRILLES AND SUPPLY DIFFUSER SCHEDULE									
MARK	TYPE	MODEL	GRILLE/ DIFFUSER FACE SIZE	MODULE SIZE	NECK SIZE	FRAME TYPE	MATERIAL	FINISH	REMARKS
SD-1	SUPPLY	TITUS TMS	24"x24"	24"x24"	10"x	FULL FACE, 1" LAY-IN	STEEL	WHITE	SEE NOTES 1,2
RG-1	RETURN	TITUS TMR	24"x24"	24"x24"	20"x20"	FULL FACE, 1" LAY-IN	STEEL/ALUMINUM	WHITE/ALUM.	SEE NOTE 1

NOTE 1: PROVIDE VOLUME DAMPERS SHOWN ON THE DRAWINGS AND ADDITIONAL DAMPERS AS NECESSARY FOR AIR BALANCING.
NOTE 2: PROVIDE WITH MODEL-SPECIFIC BUILT-IN STEEL MANUAL DAMPER AND TOP INSULATION.

MARK	TYPE	MODEL	GRILLE / DIFFUSER FACE SIZE	MODULE SIZE	NECK SIZE	FRAME TYPE	MATERIAL	FINISH	REMARKS
SD-1	SUPPLY	TITUS TMS	24"x24"	24"x24"	10"ø	FULL FACE, 1" LAY-IN	STEEL	WHITE	SEE NOTES 1,2
RG-1	RETURN	TITUS 50R	24"x24"	24"x24"	20"x20"	FULL FACE, 1" LAY-IN	STEEL/ALUMINUM	WHITE/ALUM.	SEE NOTE 1

NOTE 1: PROVIDE VOLUME DAMPERS SHOWN ON THE DRAWINGS AND ADDITIONAL DAMPERS AS NECESSARY FOR AIR BALANCING.
NOTE 2: PROVIDE WITH MODEL-SPECIFIC BUILT-IN STEEL MANUAL DAMPER AND TOP INSULATION.

ALTERNATE NOTE

ALT. H-1 EQUIPMENT AND ASSOCIATED WORK WITH THIS MARK
TO BE PROVIDED AS PART OF ALTERNATE H-1 ONLY.
ALL OTHER UNMARKED WORK TO BE PROVIDED AS
PART OF BASE BID.

INSULATION SCHEDULE													
TYPE	EQUIPMENT OR SYSTEM SERVED	INSULATION CLASS (a)			JACKETING CLASS (b)			THICKNESS (IN)					DUCTWORK (c)
		INTERIOR CONCEALED	INTERIOR EXPOSED	EXTERIOR	INTERIOR GENERAL	EQUIPMENT ROOMS	EXTERIOR	<1"	1"~<1½"	1½" ~ <4"	4" ~-<8"	≥8" & UP	
A	RS, RL	FE	FE	FE	0	0	4	0.5	1.5	1.5	1.5	1.5	
B	DCW, COOLING COIL, CONDENSATE	FE	--	--	0	--	--	0.5	0.5	1.0	1.0	1.0	
		--	FE	--	--	4	--	--	0.5	0.5	1.0	1.0	1.0
C	HWS, HWR	FG	--	--	1	--	--	1.5	1.5	2	2	2	
		--	FG	--	1	1	--	--	1.5	1.5	2	2	2
		--	--	UR	--	--	6	1.5	1.5	2	2	2	
D	DUCTWORK	FG (d)	--	--	2	--	--	--	--	--	--	--	1.5(g)
		--	FG (e)	--	2	2	--	--	--	--	--	--	2 (f)(g)
		--	--	UR(e) R-12	--	--	3	--	--	--	--	--	2 (i)
(a) FG -- FIBROUS GLASS FE -- FLEXIBLE ELASTOMERIC UR -- URETHANE CS -- CALCIUM SILICATE FR -- FIRE RATED		(b) 0 -- NONE 2 -- ALUMINUM FOIL 4 -- POLYVINYL CHLORIDE 6 -- ALUMINUM		1 -- ALL SERVICE 3 -- CANVAS 5 -- STAINLESS STEEL 7 -- EPDM		(c) SUPPLY AIR OUTSIDE AIR MIXED AIR RETURN AIR		(e) RIGID BOARD (d) BLANKET		(f) EXCEPT SUPPLY AIR WITHIN CONDITIONED SPACE (g) INSULATE EXHAUST AIR 15'-0" FROM EXTERIOR PENETRATION (i) TWO LAYERS, 3 IN TOTAL			
ALL INSULATION TO COMPLY WITH 2020 NYS ENERGY CONSERVATION CONSTRUCTION CODE													

		CEASED	EXPENSE	EXTENSION	GENERAL	ROOMS	EXTENSION	ST	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37-38	39-40	41-42	43-44	45-46	47-48	49-50	51-52	53-54	55-56	57-58	59-60	61-62	63-64	65-66	67-68	69-70	71-72	73-74	75-76	77-78	79-80	81-82	83-84	85-86	87-88	89-90	91-92	93-94	95-96	97-98	99-100	101-102	103-104	105-106	107-108	109-110	111-112	113-114	115-116	117-118	119-120	121-122	123-124	125-126	127-128	129-130	131-132	133-134	135-136	137-138	139-140	141-142	143-144	145-146	147-148	149-150	151-152	153-154	155-156	157-158	159-160	161-162	163-164	165-166	167-168	169-170	171-172	173-174	175-176	177-178	179-180	181-182	183-184	185-186	187-188	189-190	191-192	193-194	195-196	197-198	199-200	201-202	203-204	205-206	207-208	209-210	211-212	213-214	215-216	217-218	219-220	221-222	223-224	225-226	227-228	229-230	231-232	233-234	235-236	237-238	239-240	241-242	243-244	245-246	247-248	249-250	251-252	253-254	255-256	257-258	259-260	261-262	263-264	265-266	267-268	269-270	271-272	273-274	275-276	277-278	279-280	281-282	283-284	285-286	287-288	289-290	291-292	293-294	295-296	297-298	299-300	301-302	303-304	305-306	307-308	309-310	311-312	313-314	315-316	317-318	319-320	321-322	323-324	325-326	327-328	329-330	331-332	333-334	335-336	337-338	339-340	341-342	343-344	345-346	347-348	349-350	351-352	353-354	355-356	357-358	359-360	361-362	363-364	365-366	367-368	369-370	371-372	373-374	375-376	377-378	379-380	381-382	383-384	385-386	387-388	389-390	391-392	393-394	395-396	397-398	399-400	401-402	403-404	405-406	407-408	409-410	411-412	413-414	415-416	417-418	419-420	421-422	423-424	425-426	427-428	429-430	431-432	433-434	435-436	437-438	439-440	441-442	443-444	445-446	447-448	449-450	451-452	453-454	455-456	457-458	459-460	461-462	463-464	465-466	467-468	469-470	471-472	473-474	475-476	477-478	479-480	481-482	483-484	485-486	487-488	489-490	491-492	493-494	495-496	497-498	499-500	501-502	503-504	505-506	507-508	509-510	511-512	513-514	515-516	517-518	519-520	521-522	523-524	525-526	527-528	529-530	531-532	533-534	535-536	537-538	539-540	541-542	543-544	545-546	547-548	549-550	551-552	553-554	555-556	557-558	559-560	561-562	563-564	565-566	567-568	569-570	571-572	573-574	575-576	577-578	579-580	581-582	583-584	585-586	587-588	589-590	591-592	593-594	595-596	597-598	599-600	601-602	603-604	605-606	607-608	609-610	611-612	613-614	615-616	617-618	619-620	621-622	623-624	625-626	627-628	629-630	631-632	633-634	635-636	637-638	639-640	641-642	643-644	645-646	647-648	649-650	651-652	653-654	655-656	657-658	659-660	661-662	663-664	665-666	667-668	669-670	671-672	673-674	675-676	677-678	679-680	681-682	683-684	685-686	687-688	689-690	691-692	693-694	695-696	697-698	699-700	701-702	703-704	705-706	707-708	709-710	711-712	713-714	715-716	717-718	719-720	721-722	723-724	725-726	727-728	729-730	731-732	733-734	735-736	737-738	739-740	741-742	743-744	745-746	747-748	749-750	751-752	753-754	755-756	757-758	759-760	761-762	763-764	765-766	767-768	769-770	771-772	773-774	775-776	777-778	779-780	781-782	783-784	785-786	787-788	789-790	791-792	793-794	795-796	797-798	799-800	801-802	803-804	805-806	807-808	809-810	811-812	813-814	815-816	817-818	819-820	821-822	823-824	825-826	827-828	829-830	831-832	833-834	835-836	837-838	839-840	841-842	843-844	845-846	847-848	849-850	851-852	853-854	855-856	857-858	859-860	861-862	863-864	865-866	867-868	869-870	871-872	873-874	875-876	877-878	879-880	881-882	883-884	885-886	887-888	889-890	891-892	893-894	895-896	897-898	899-900	901-902	903-904	905-906	907-908	909-910	911-912	913-914	915-916	917-918	919-920	921-922	923-924	925-926	927-928	929-930	931-932	933-934	935-936	937-938	939-940	941-942	943-944	945-946	947-948	949-950	951-952	953-954	955-956	957-958	959-960	961-962	963-964	965-966	967-968	969-970	971-972	973-974	975-976	977-978	979-980	981-982	983-984	985-986	987-988	989-990	991-992	993-994	995-996	997-998	999-1000	1001-1002	1003-1004	1005-1006	1007-1008	1009-1010	1011-1012	1013-1014	1015-1016	1017-1018	1019-1020	1021-1022	1023-1024	1025-1026	1027-1028	1029-1030	1031-1032	1033-1034	1035-1036	1037-1038	1039-1040	1041-1042	1043-1044	1045-1046	1047-1048	1049-1050	1051-1052	1053-1054	1055-1056	1057-1058	1059-1060	1061-1062	1063-1064	1065-1066	1067-1068	1069-1070	1071-1072	1073-1074	1075-1076	1077-1078	1079-1080	1081-1082	1083-1084	1085-1086	1087-1088	1089-1090	1091-1092	1093-1094	1095-1096	1097-1098	1099-1100	1101-1102	1103-1104	1105-1106	1107-1108	1109-1110	1111-1112	1113-1114	1115-1116	1117-1118	1119-1120	1121-1122	1123-1124	1125-1126	1127-1128	1129-1130	1131-1132	1133-1134	1135-1136	1137-1138	1139-1140	1141-1142	1143-1144	1145-1146	1147-1148	1149-1150	1151-1152	1153-1154	1155-1156	1157-1158	1159-1160	1161-1162	1163-1164	1165-1166	1167-1168	1169-1170	1171-1172	1173-1174	1175-1176	1177-1178	1179-1180	1181-1182	1183-1184	1185-1186	1187-1188	1189-1190	1191-1192	1193-1194	1195-1196	1197-1198	1199-1200	1201-1202	1203-1204	1205-1206	1207-1208	1209-1210	1211-1212	1213-1214	1215-1216	1217-1218	1219-1220	1221-1222	1223-1224	1225-1226	1227-1228	1229-1230	1231-1232	1233-1234	1235-1236	1237-1238	1239-1240	1241-1242	1243-1244	1245-1246	1247-1248	1249-1250	1251-1252	1253-1254	1255-1256	1257-1258	1259-1260	1261-1262	1263-1264	1265-1266	1267-1268	1269-1270	1271-1272	1273-1274	1275-1276	1277-1278	1279-1280	1281-1282	1283-1284	1285-1286	1287-1288	1289-1290	1291-1292	1293-1294	1295-1296	1297-1298	1299-1300	1301-1302	1303-1304	1305-1306	1307-1308	1309-1310	1311-1312	1313-1314	1315-1316	1317-1318	1319-1320	1321-1322	1323-1324	1325-1326	1327-1328	1329-1330	1331-1332	1333-1334	1335-1336	1337-1338	1339-1340	1341-1342	1343-1344	1345-1346	1347-1348	1349-1350	1351-1352	1353-1354	1355-1356	1357-1358	1359-1360	1361-1362	1363-1364	1365-1366	1367-1368	1369-1370	1371-1372	1373-1374	1375-1376	1377-1378	1379-1380	1381-1382	1383-1384	1385-1386	1387-1388	1389-1390	1391-1392	1393-1394	1395-1396	1397-1398	1399-1400	1401-1402	1403-1404	1405-1406	1407-1408	1409-1410	1411-1412	1413-1414	1415-1416	1417-1418	1419-1420	1421-1422	1423-1424	1425-1426	1427-1428	1429-1430	1431-1432	1433-1434	1435-1436	1437-1438	1439-1440	1441-1442	1443-1444	1445-1446	1447-1448	1449-1450	1451-1452	1453-1454	1455-1456	1457-1458	1459-1460	1461-1462	1463-1464	1465-1466	1467-1468	1469-1470	1471-1472	1473-1474	1475-1476	1477-1478	1479-1480	1481-1482	1483-1484	1485-1486	1487-1488	1489-1490	1491-1492	1493-1494	1495-1496	1497-1498	1499-1500	1501-1502	1503-1504	1505-1506	1507-1508	1509-1510	1511-1512	1513-1514	1515-1516	1517-1518	1519-1520	1521-1522	1523-1524	1525-1526	1527-1528	1529-1530	1531-1532	1533-1534	1535-1536	1537-1538	1539-1540	1541-1542	1543-1544	1545-1546	1547-1548	1549-1550	1551-1552	1553-1554	1555-1556	1557-1558	1559-1560	1561-1562	1563-1564	1565-1566	1567-1568	1569-1570	1571-1572	1573-1574	1575-1576	1577-1578	1579-1580	1581-1582	1583-1584	1585-1586	1587-1588	1589-1590	1591-1592	1593-1594	1595-1596	1597-1598	1599-1600	1601-1602	1603-1604	1605-1606	1607-1608	1609-1610	1611-1612	1613-1614	1615-1616	1617-1618	1619-1620	1621-1622	1623-1624	1625-1626	1627-1628	1629-1630	1631-1632	1633-1634	1635-1636	1637-1638	1639-1640	1641-1642	1643-1644	1645-1646	1647-1648	1649-1650	1651-1652	1653-1654	1655-1656	1657-1658	1659-1660	1661-1662	1663-1664	1665-1666	1667-1668	1669-1670	1671-1672	1673-1674	1675-1676	1677-1678	1679-1680	1681-1682	1683-1684	1685-1686	1687-1688	1689-1690	1691-1692	1693-1694	1695-1696	1697-1698	1699-1700	1701-1702	1703-1704	1705-1706	1707-1708	1709-1710	1711-1712	1713-1714	1715-1716	1717-1718	1719-1720	1721-1722	1723-1724	1725-1726	1727-1728	1729-1730	1731-1732	1733-1734	1735-1736	1737-1738	1739-1740	1741-1742	1743-1744	1745-1746	1747-1748	1749-1750	1751-1752	1753-1754	1755-1756	1757-1758	1759-1760	1761-1762	1763-1764	1765-1766	1767-1768	1769-1770	1771-1772	1773-1774	1775-1776	1777-1778	1779-1780	1781-1782	1783-1784	1785-1786	1787-1788	1789-1790	1791-1792	1793-1794	1795-1796	1797-1798	1799-1800	1801-1802	1803-1804	1805-1806	1807-1808	1809-1810	1811-1812	1813-1814	1815-1816	1817-1818	1819-1820	1821-1822	1823-1824	1825-1826	1827-1828	1829-1830	1831-1832	1833-1834	1835-1836	1837-1838	1839-1840	1841-1842	1843-1844	1845-1846	1847-1848	1849-1850	1851-1852	1853-1854	1855-1856	1857-1858	1859-1860	1861-1862	1863-1864	1865-1866	1867-1868	1869-1870	1871-1872	1873-1874	1875-1876	1877-1878	1879-1880	1881-1882	1883-1884	1885-1886	1887-1888	1889-1890	1891-1892	1893-1894	1895-1896	1897-1898	1899-1900	1901-1902	1903-1904	1905-1906	1907-1908	1909-1910	1911-1912	1913-1914	1915-1916	1917-1918	191
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FG -- FIBROUS GLASS	(b) 0 -- NONE	1 -- ALL SERVICE	(c) SUPPLY AIR	(e) RIGID BOARD	(f) EXCEPT SUPPLY AIR WITHIN CONDITIONED SPACE
FE -- FLEXIBLE ELASTOMERIC	2 -- ALUMINUM FOIL	3 -- CANVAS	OUTSIDE AIR	(d) BLANKET	(g) INSULATE EXHAUST AIR 15'-0" FROM EXTERIOR
UR -- URETHANE	4 -- POLYVINYL CHLORIDE	5 -- STAINLESS STEEL	MIXED AIR		(h) PENETRATION
CS -- CALCIUM SILICATE	6 -- ALUMINUM	7 -- EPDM	RETURN AIR		(i) TWO LAYERS, 3 IN. TOTAL
FR -- FIRE RATED					

ALL INSULATION TO COMPLY WITH 2020 NYS ENERGY CONSERVATION CONSTRUCTION CODE

ASHRAE-15 CONFORMANCE CALCULATIONS

HIGH SCHOOL							
EQUIPMENT MARK(S)	HOLDING REFRIGERANT CHARGE (LBS)	EST. ADDITIONAL REFRIG. CHARGE (LBS)	EST. TOTAL REFRIG. (LBS)	[A]	SMALLEST OCCUPIED ROOM IN SYSTEM	[B]	NOTES
				CALCULATED MIN. FLOOR AREA (FT2)		FLOOR AREA (FT2)	
VR#-1	54.10	15.96	70.06	317	CLASSROOM 164	561	8'-6" C.H., R-410A, NON-INST
VR#-2	49.70	15.74	65.44	296	CLASSROOM 162	673	8'-6" C.H., R-410A, NON-INST
VR#-3	60.70	15.59	76.29	345	CLASSROOM 130	550	8'-6" C.H., R-410A, NON-INST
VR#-4	49.70	11.94	61.64	224	SCIENCE LAB 241	678	8'-6" C.H., R-410A, NON-INST

MINIMUM ALLOWED FLOOR AREA (FT²) = $\frac{\text{TOTAL SYSTEM REFRIGERANT CHARGE (LBS)}}{\text{MINIMUM ALLOWED RCL (LBS/1000 FT}^3\text{)} \times \text{CEILING HEIGHT}} \times 1000$	VERIFY: SMALLEST RM. > CALCULATED MIN. ACTUAL SQFT. ALLOWABLE RM. SQFT.
R-410A REFRIGERANT CONCENTRATION LIMIT (RCL) FOR OCCUPIED SPACES: ASHRAE 34-2010 ADDENDUM L. RCL FOR NON-INSTITUTIONAL OCCUPANCY APPLICATIONS = 26 LBS/1000 FT³ RCL FOR INSTITUTIONAL OCCUPANCY APPLICATIONS = 13 LBS/1000 FT³	NOTE: REFER TO MFR. SPECIFICATIONS AND PROCEDURES FOR PROPER CHARGING OF EQUIPMENT AND SYSTEM. DO NOT INSTALL REFRIGERANT PIPING IN LOCATIONS THAT VIOLATE ASHRAE-15 REQUIREMENTS.

OUTDOOR AIR DESIGN REQUIREMENTS

HIGH SCHOOL												
EQUIPMENT MARK(S)	ROOM	ROOM TYPE	OCCUPANTS /1000 FT2	RP	APPROX. PZ	RA	APPROX. AZ	VBZ	EZ	MIN. O.A. V.OZ.	(CFM)	NOTES
UV-70A UV-70B	70	ART	20	10	27	0.18	1317	507.1	0.9	563		
UV-128	128	CLASSROOM	35	10	19	0.12	542	255.0	0.9	283		
UV-130	130	CLASSROOM	35	10	20	0.12	561	267.3	0.9	297		
UV-132	132	CLASSROOM	35	10	21	0.12	577	279.2	0.9	310		
UV-147	147	CLASSROOM	35	10	28	0.12	793	375.2	0.9	417		
UV-149	149	CLASSROOM	35	10	28	0.12	772	372.6	0.9	414		
UV-151	151	CLASSROOM	35	10	28	0.12	778	373.4	0.9	415		
UV-153	153	CLASSROOM	35	10	29	0.12	809	387.1	0.9	430		
RTU-7	154	WEIGHT ROOM	10	20	18	0.06	1752	465.1	0.9	517		
PTAC-5	154.1	OFFICE	5	5	2	0.06	304	28.2	0.9	31		
PTAC-4	154.2	OFFICE	5	5	1	0.06	186	16.2	0.9	18		
PTAC-3	154.3	OFFICE	5	5	1	0.06	160	14.6	0.9	16		
UV-155	155	CLASSROOM	35	10	29	0.12	801	386.1	0.9	429		
UV-157	157	CLASSROOM	35	10	27	0.12	764	361.7	0.9	402		
UV-159	159	CLASSROOM	35	10	27	0.12	754	360.5	0.9	401		
UV-162	162	CLASSROOM	35	10	24	0.12	673	320.8	0.9	356		
UV-164	164	CLASSROOM	35	10	20	0.12	561	267.3	0.9	297		
UV-166	166	CLASSROOM	35	10	28	0.12	795	375.4	0.9	417		
UV-168	168	CLASSROOM	35	10	28	0.12	778	373.4	0.9	415		
UV-170	170	CLASSROOM	35	10	28	0.12	780	373.6	0.9	415		
UV-171	171	CLASSROOM	35	10	44	0.12	1234	588.1	0.9	653		
UV-231	231	SCL. LAB	25	10	23	0.18	894	390.9	0.9	434		
UV-232	232	SCL. LAB	25	10	24	0.18	928	467.9	0.9	520		
UV-233	233	SCL. LAB	25	10	32	0.18	1266	547.9	0.9	609		
UV-234	234	SCL. LAB	25	10	20	0.18	775	339.5	0.9	377		
UV-235	235	SCL. LAB	25	10	29	0.18	1159	498.6	0.9	554		
UV-236	236	SCL. LAB	25	10	18	0.18	712	308.2	0.9	342		
PTAC=1	237	SCL. LAB	25	10	7	0.18	249	114.8	0.9	60		
UV-238	238	SCL. LAB	25	10	24	0.18	960	412.8	0.9	459		
UV-239	239	SCL. LAB	25	10	21	0.18	818	357.2	0.9	397		
UV-240	240	SCL. LAB	25	10	23	0.18	911	394.0	0.9	438		
UV-241	241	SCL. LAB	25	10	18	0.18	686	303.5	0.9	337		
UV-243	243	SCL. LAB	25	10	21	0.18	814	356.5	0.9	396		
UV-245	245	SCL. LAB	25	10	20	0.18	766	337.9	0.9	375		
PTAC-2	236.A	DET. OFFICE	5	5	6	0.06	320	49.2	0.9	55		PZ UPPED FROM 2 TO 6 TO HANDLE EXPECTED SHORT TERM LOADS

NYSMC TABLE 403.3.1.1.1.2 ZONE AIR DISTRIBUTION EFFECTIVENESS a,b,c,d		
AIR DISTRIBUTION CONFIGURATION		EZ
CEILING OR FLOOR SUPPLY OF COOL AIR		1.0(e)
CEILING OR FLOOR SUPPLY OF WARM AIR AND FLOOR RETURN		1.0
CEILING SUPPLY OF WARM AIR AND CEILING RETURN		0.8(f)
FLOOR SUPPLY OF WARM AIR AND CEILING RETURN		0.7
MAKEUP AIR DRAWN IN ON THE OPPOSITE SIDE OF THE ROOM FROM THE EXHAUST OR RETURN		0.8
MAKEUP AIR DRAWN IN NEAR TO THE EXHAUST OR RETURN LOCATION		0.5

OCCUPANCY CLASSIFICATION DERIVED FROM NYSCM TABLE 403.3.1.1
 RP=OUTDOOR AIRFLOW RATE PER PERSON (NYSCM TABLE 403.3.1.1)
 PZ=QTY. OF OCCUPANTS IN SPACE
 RA=OUTDOOR AIRFLOW RATE PER UNIT AREA (NYSCM TABLE 403.3.1.1)
 RZ=OCCUPABLE FLOOR AREA
 VBZ=REQUIRED OUTDOOR AIRFLOW RATE IN BREATHING ZONE
 VZ=ZONE AIR DISTRIBUTION EFFECTIVENESS (NYSCM TABLE 403.3.1.1.2)
 VOZ=ZONE OUTDOOR AIRFLOW RATE

$$VBZ = (RP \times PZ) + (RA \times AZ) \quad VOZ = VBZ / EZ$$

- a. "COOL AIR" IS AIR COOLER THAN SPACE TEMPERATURE.
- b. "WARM AIR" IS AIR WARMER THAN SPACE TEMPERATURE.
- c. "CEILING" INCLUDES ANY POINT ABOVE THE BREATHING ZONE.
- d. "FLOOR" INCLUDES ANY POINT BELOW THE BREATHING ZONE.
- e. ZONE AIR DISTRIBUTION EFFECTIVENESS OF 1.2 SHALL BE PERMITTED FOR SYSTEMS WITH A FLOOR SUPPLY OF COOL AIR AND CEILING RETURN, PROVIDED THAT LOW-VELOCITY DISPLACEMENT VENTILATION ACHIEVES UNIDIRECTIONAL FLOW AND THERMAL COMFORT CRITERIA ARE MET.
- f. ZONE AIR DISTRIBUTION EFFECTIVENESS OF 1.0 SHALL BE PERMITTED FOR SYSTEMS WITH A CEILING SUPPLY OF WARM AIR, PROVIDED THAT SUPPLY AIR TEMPERATURE IS LESS THAN 15° ABOVE SPACE TEMPERATURE AND PROVIDED THAT THE 150-FPM SUPPLY AIR JET REACHES TO WITHIN 4-1/2 FEET OF FLOOR LEVEL.

NYSED EZ CLASSIFICATION NOTE: "FLOOR" REFERS TO THE AREA LOCATED 0-3 INCHES AFF, "CEILING" REFERS TO THE AREA LOCATED 72 INCHES AFF AND ABOVE. THOSE LOCATED BETWEEN 3 INCHES AND 72 INCHES AFF ARE NOTED ABOVE.

ENGINEER:



Eisenbach & Ruhmkorff Engineering, P.C.
291 Glenis Street - Utico, NY 13501
TEL 518.598.1554 FAX 518.598.6386
www.eandrueng.com

CONSULTANT(S):



45 KNOWLEDGE ROAD
ELMSHOF NEW YORK 10523
TEL 914.598.1554
FAX 914.598.1544
WWW.FULLERDANGELO.COM
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STATE OF NEW YORK
JACK EISENBACH
LICENSED PROFESSIONAL ENGINEER
No. 059445

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND
AIR CONDITIONING UPGRADE
223 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL - 89 SANFORDVILLE ROAD, WARWICK, NY 10990

PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED
SHEET TITLE	

SCHEDULES

SHEET NO.

M-502