

COOLING TOWER SCHEDULE																				
EQUIPMENT	MANUFACTURER (OR ACCEPT. EQUAL)	MODEL		SERVES	EWT (°F)	LWT (°F)	AMBIENT WB (°F)	FLOW RATE ((GPM)	SUMP CAPACITY (GAL)	DRY O WEIGHT (LBS)	OPERATING WEIGHT (LBS)	SHELL MATERIAL		FAN MOTORS					NOTES	
TAG			LOCATION										QTY.	NOM. H.P.	VOLT.	PHASE	HZ.	RPM	FLA	
CT-1	DELTA	TM-203312	ROOF	EXISTING CHILLER	95	85	75	1,650	960	13,000	24,400	POLYETHYLENE (HDPE)	4	3.0	480	3	60	900	4.8	1-7
1. PROVIDE W/ PREMIUM EFFICIENT VFD RATED MOTORS 5. PROVIDE W/ NEMA 4X VIBRATION CUT OFF SWITCH W/ MANUAL RESET 2. PROVIDE W/ ALUMINUM LADDER AND OSHA SAFETY CAGE 6. PROVIDE W/ ANTI-MICROBIAL HDPE BLUE RESIN 3. PROVIDE W/ UPPER SAFETY HANDRAIL SYSTEM & SAFETY GATE 7. PROVIDE W/ NEMA 3R VFD W/ MANUAL BYPASS PACKAGE 4. PROVIDE W/ PVC MESH SCREEN OUTLET STRAINER 5. PROVIDE W/ NEMA 3R VFD W/ MANUAL BYPASS PACKAGE																				

	REDUCER OR INCREASER
<u>N</u>	ECCENTRIC REDUCER
U	TOP CONNECTION, 45° OR 90°
<u></u>	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
Ţ	CAPPED OUTLET
````````````````````````````````	RISE OR DROP IN PIPE
	UNION
o	PIPE UP
C	PIPE DOWN
	THERMOMETER
$ \bigcirc \underline{-} \circ \underline{]} $	PRESSURE GAGE
	VENTURI FLOW METER
©	REFRIGERANT SIGHT GLASS
	TEST PLUG (PRESSURE/TEMPERATURE)
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
———С	QUICK-COUPLE HOSE CONNECTOR

POINT OF CONNECTION BETWEEN NEW

AND EXISTING WORK

DIRECTION OF PIPE PITCH (DOWN)

DIRECTION OF FLOW

ANCHOR

Valve Symbols:

General Symbols:

	GATE VALVE - THREADED/FLANGED		STEEL PL
	GLOBE VALVE - THREADED/FLANGED	14	
	GATE VALVE WITH 3/4" HOSE ADAPTER		SHALL BE
	CHECK VALVE		BUILDING
	WYE STRAINER (WITH BALL VALVE & HOSE CONNECTION)		TO BE US
-K	WYE STRAINER WITH VALVED DRAIN AND QUICK-COUPLE HOSE CONNECTOR	15.	INSTALL A
	FLEXIBLE CONNECTION	16	
₽ -	ANGLE GLOBE VALVE	10.	AIRFLOW
/ /	BUTTERFLY VALVE	17.	THE CON
—Ŕ—	BALL VALVE		INSTALLE BY THE C
—Ā—	MODULATING CONTROL VALVE	18.	THE CON
	MODULATING CONTROL BUTTERFLY VALVE		ORDER T
	TWO POSITION CONTROL VALVE		PROJECT
	THREE-WAY MODULATING CONTROL VALVE	19.	
	THREE-WAY TWO POSITION CONTROL VALVE		SYSTEMS
		Н	vdron
	PRESSURE REGULATING VALVE	1	
一 译	PRESSURE SAFETY VALVE	1.	MOLDED 1-1/2" THI
	AUTOMATIC BALANCING CONTROL VALVE		DIAMETE
	WATER BALANCE DEVICE	2.	ALL PIPII BUILDING
			MISCELL
	CIRCUIT SETTER VALVE	3.	HYDRONI
	GATE VALVE WITH GLOBE-VALVED BYPASS	3.1	1. PIPIN ACC
	PLUG VALVE		ASMI
	CONTROL VALVE (CV) - FLOAT-OPERATED	З [,]	
	PRESSURE REDUCING VALVE (PRV)	0.2	MADI JOIN JOIN
		3.:	3. FURM

	NOTES	MOTOR								
`		FLA	RPM	HZ.	PHASE	VOLT.	Р.			
)	MC TO FURNISH VFD W/ INTEGRAL BYPASS FOR INSTALLATION BY EC	52	1760	60	3	480				
))∕₁	MC TO FURNISH VFD W/ INTEGRAL BYPASS FOR INSTALLATION BY EC	52	1760	60	3	480				
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	VENT	S.
5.	TEST PRES	PIPII SURE

OBTAINED.

- SYSTEM.
- PROCEEDING.

Mechanical Notes:

1. ALL MATERIALS AND EQUIPMENT ARE TO BE NEW, UNUSED, AND FREE FROM DEFECTS OF ANY KIND. THE BASIS OF QUALITY SHALL BE THE LATEST REVISION OF ASTM, ANSI, OR OTHER ACCEPTABLE STANDARDS.

2. THESE DRAWINGS ARE DIAGRAMMATIC, AND INDICATE GENERAL ARRANGEMENT OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE TO HAVE REVIEWED THE SITE FOR HIS WORK PRIOR TO HAVING SUBMITTED HIS PROPOSAL. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR CONDITIONS FOUND DURING THE COURSE OF THE CONTRACT.

3. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF ALL OTHER TRADES.

4. ALL WORK INCLUDING LABOR AND MATERIALS SHALL BE FULLY GUARANTEED FOR ONE (1) YEAR FROM THE DATE OF PAYMENT AND FINAL ACCEPTANCE BY THE OWNER AND ENGINEER.

5. ALL CUTTING, PATCHING, FIRE-STOPPING, AND SURFACE RESTORATION IN CONNECTION WITH THIS TRADE SHALL BE COMPLETED BY THIS CONTRACTOR.

6. A MINIMUM OF FOUR (4) COPIES OF SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING AND INSTALLATION OF THE EQUIPMENT AND/OR MATERIALS. BY SUBMITTING SHOP DRAWINGS, THE CONTRACTOR REPRESENTS THAT ACTUAL FIELD CONDITIONS ARE VERIFIED BY HIM AND ARE REFLECTED ON HIS SUBMITTALS.

7. THIS CONTRACTOR SHALL PAY ALL FEES, GIVE ALL NOTICES, FILE ALL NECESSARY DRAWINGS, AND OBTAIN ALL PERMITS, INSPECTIONS AND CERTIFICATES OF APPROVAL REQUIRED IN CONNECTION WITH WORK UNDER THIS CONTRACT.

8. ALL WORK IN ASSOCIATION WITH THIS CONTRACT SHALL BE COMPLETED IN STRICT COMPLIANCE WITH THE 2020 BUILDING CODE OF NEW YORK STATE, 2020 MECHANICAL CODE OF NEW YORK STATE & 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE.

9. ALL DUCTWORK IS TO BE CONSTRUCTED OF GALVANIZED SHEET STEEL (EXCEPT WHERE OTHERWISE SPECIFIED) WITH GAUGES, BRACING AND CONSTRUCTION IN ACCORDANCE WITH THE LATEST SMACNA DUCT MANUAL STANDARDS AND ALL OTHER AUTHORITIES HAVING JURISDICTION.

10. PROVIDE MANUAL DAMPERS AT EACH SPLIT OR TAP CONNECTION TO TRUNK DUCTS FOR BALANCING PURPOSES WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS. EACH DAMPER SHALL BE OF THE OPPOSED BLADE DAMPER TYPE INSTALLED WITH AN OPERATOR AND LOCKING DEVICE. ALL DAMPERS LOCATED ABOVE HARD OR INACCESSIBLE CEILINGS SHALL BE INSTALLED WITH REMOTE GEAR OPERATORS.

11. FURNISH & INSTALL FUSIBLE LINK FIRE DAMPERS AT ALL LOCATIONS WHERE DUCT PENETRATES FIRE-RATED FLOOR OR CEILING ASSEMBLY WHETHER OR NOT SPECIFICALLY SHOWN. INSTALL DUCTWORK CASING ACCESS DOORS AND FRAMES AHEAD OF EACH FIRE DAMPER FOR INSPECTION AND MAINTENANCE. DOORS SHALL BE A MINIMUM OF 20 GA. DOUBLE PANEL INSULATED TYPE.

12. INSTALL TURNING VANES ON ALL RECTANGULAR TURNS. TURNING VANES SHALL BE DOUBLE THICKNESS TYPE CONSTRUCTED IN ACCORDANCE WITH SMACNA MANUAL.

13. ROUND SHEET STEEL ELBOWS ARE TO BE INSTALLED AT THE DUCT CONNECTION TO ALL SUPPLY AIR DIFFUSERS. SHEET STEEL PLENUM BOXES ARE TO BE INSTALLED AT THE DUCT CONNECTION TO ALL AND EXHAUST AIR GRILLES. THE CONTRACTOR IS TO PAINT THE INSIDE OF THE SHEET LENUM BOXES FLAT BLACK.

> PPLY AND RETURN DUCTWORK LOCATED IN UNCONDITIONED SPACES OR ABOVE CEILINGS E INSULATED WITH A MINIMUM OF R-6 INSULATION. ALL DUCTWORK LOCATED OUTSIDE THE G ENVELOPE SHALL BE INSULATED WITH A MINIMUM OF R-12 INSULATION. INSULATION SHALL RGLASS DUCT WRAP WITH VAPOR SEAL SECURELY TAPED AROUND DUCT. IF DUCT LINING IS SED, ALL DUCT SIZES SHOWN SHALL BE CONSIDERED TO BE INSIDE CLEAR DIMENSIONS.

> ALL DUCTWORK AS HIGH AS POSSIBLE PROVIDING RISERS, DROPS AND OFFSETS TO CLEAR URAL MEMBERS, LIGHT FIXTURES, OTHER PIPING, AND OTHER OBSTRUCTIONS. WHERE CTS ARISE, IT SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO PROCEEDING.

> TIRE AIR DISTRIBUTION SYSTEM IS TO BE BALANCED TO WITHIN 10% OF THE SPECIFIED V REQUIREMENTS.

> NTRACTOR IS RESPONSIBLE TO TEST ALL EQUIPMENT, PIPING, FIXTURES, AND SYSTEMS ED UNDER THIS CONTRACT TO ENSURE PROPER OPERATION PRIOR TO FINAL ACCEPTANCE WNER AND ENGINEER.

> NTRACTOR IS RESPONSIBLE TO DETERMINE WHETHER SPECIAL LICENSING IS REQUIRED IN O PERFORM THE REQUIRED WORK IN THE MUNICIPALITY WHERE THE PROJECT IS LOCATED. CONTRACTOR CANNOT OBTAIN THE REQUIRED LICENSING TO COMPLETE THE WORK WITHIN OJECT SCHEDULE, THEN THE CONTRACTOR SHALL NOT BE PERMITTED TO BID ON THIS

> CTOR IS RESPONSIBLE TO CREATE AND SUBMIT RED-LINE "AS-BUILT" PLANS TO THE ER AT THE END OF THE PROJECT. AS-BUILT PLANS SHALL ACCURATELY REPRESENT THE S AS THEY WERE INSTALLED.

nic Piping Notes:

DRONIC HOT WATER PIPING AND FITTINGS ARE TO BE INSULATED WITH RIGID ONE-PIECE SECTIONAL FIBERGLASS PIPE COVERING WITH UNIVERSAL JACKET. INSULATION SHALL BE ICK FOR PIPING UP THRU 1-1/2" DIAMETER, AND 2" THICK FOR PIPING GREATER THAN 1-1/2" ER. ALL JOINTS ARE TO BE COMPLETELY SEALED A MINIMUM OF 6" BEYOND JOINT ENDS.

ING SHALL BE PROPERLY SUPPORTED AND ROUTED PARALLEL OR PERPENDICULAR TO WALLS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL SUPPORT HANGERS AND ANEOUS METALS REQUIRED FOR PROPER INSTALLATION OF WORK.

IC PIPING SYSTEM MATERIALS ARE TO BE AS FOLLOWS:

NG UP THRU 3" DIAMETER IS TO BE TYPE L HARD DRAWN SEAMLESS COPPER TUBING MADE IN CORDANCE WITH ASTM B 88 WITH WROUGHT COPPER FITTINGS MADE IN ACCORDANCE WITH IE B 16.22. JOINTS SHALL BE MADE BY APPLYING A FLUX CONFORMING WITH ASTM B 813, AND DERED WITH A 95-5 LEAD-FREE SOLDER CONFORMING TO ASTM B 32.

NG GREATER THAN 3" DIAMETER IS TO BE SCHEDULE 40 GRADE B SEAMLESS CARBON STEEL DE IN ACCORDANCE WITH ASTM A 53 WITH FITTINGS MADE IN ACCORDANCE WITH ASTM B 16.9. VTS SHALL BE WELDED, OR MAY BE MADE USING GROOVED AND SHOULDERED MECHANICAL ITS CONFORMING TO THE REQUIREMENTS OF ASTM F 1476.

NISH & INSTALL DIELECTRIC UNIONS WHERE JOINING STEEL TO COPPER PIPING.

4. ALL PIPING SHALL BE PITCHED SUCH THAT AIR IN THE SYSTEM CAN BE VENTED THROUGH MANUAL AIR

NG AND PROVE TIGHT FOR AT LEAST TWO HOURS TO TWICE THE SYSTEM WORKING TEST SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER AND LOCAL INSPECTOR. TEST SHALL BE REPEATED IF NECESSARY UNTIL FINAL APPROVAL OF SYSTEM IS

6. SUPPORT HORIZONTAL PIPING UTILIZING A SPACING PER PIPING MANUFACTURER'S REQUIREMENTS.

7. INSTALL VALVES ON THE ENTIRE DISTRIBUTION SYSTEM, SO LOCATED AS TO GIVE COMPLETE CONTROL TO ALL FIXTURES AND EQUIPMENT.

8. INSTALL DRAIN VALVES AT BASE OF ALL RISERS AND AT LOW POINTS OF PIPING SYSTEM. INSTALL MANUAL AIR VENT VALVE FACILITIES AT THE TOP OF ALL RISERS AND AT HIGH POINTS OF THE PIPING

9. PROVIDE PROPER PROVISION FOR EXPANSION/CONTRACTION OF PIPING TO PREVENT STRAIN ON THE SYSTEM AND/OR THE BUILDING STRUCTURE.

10. INSTALL ALL HYDRONIC PIPING AS HIGH AS POSSIBLE PROVIDING RISERS, DROPS AND OFFSETS TO CLEAR STRUCTURAL MEMBERS, LIGHT FIXTURES, OTHER PIPING, AND OTHER OBSTRUCTIONS. WHERE CONFLICTS ARISE, IT SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO

11. THE ENTIRE HYDRONIC SYSTEM IS TO BE BALANCED TO WITHIN 10% OF THE SPECIFIED WATER FLOWRATE REQUIREMENTS. A CERTIFIED BALANCING REPORT AND VERIFICATION IS TO BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.



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