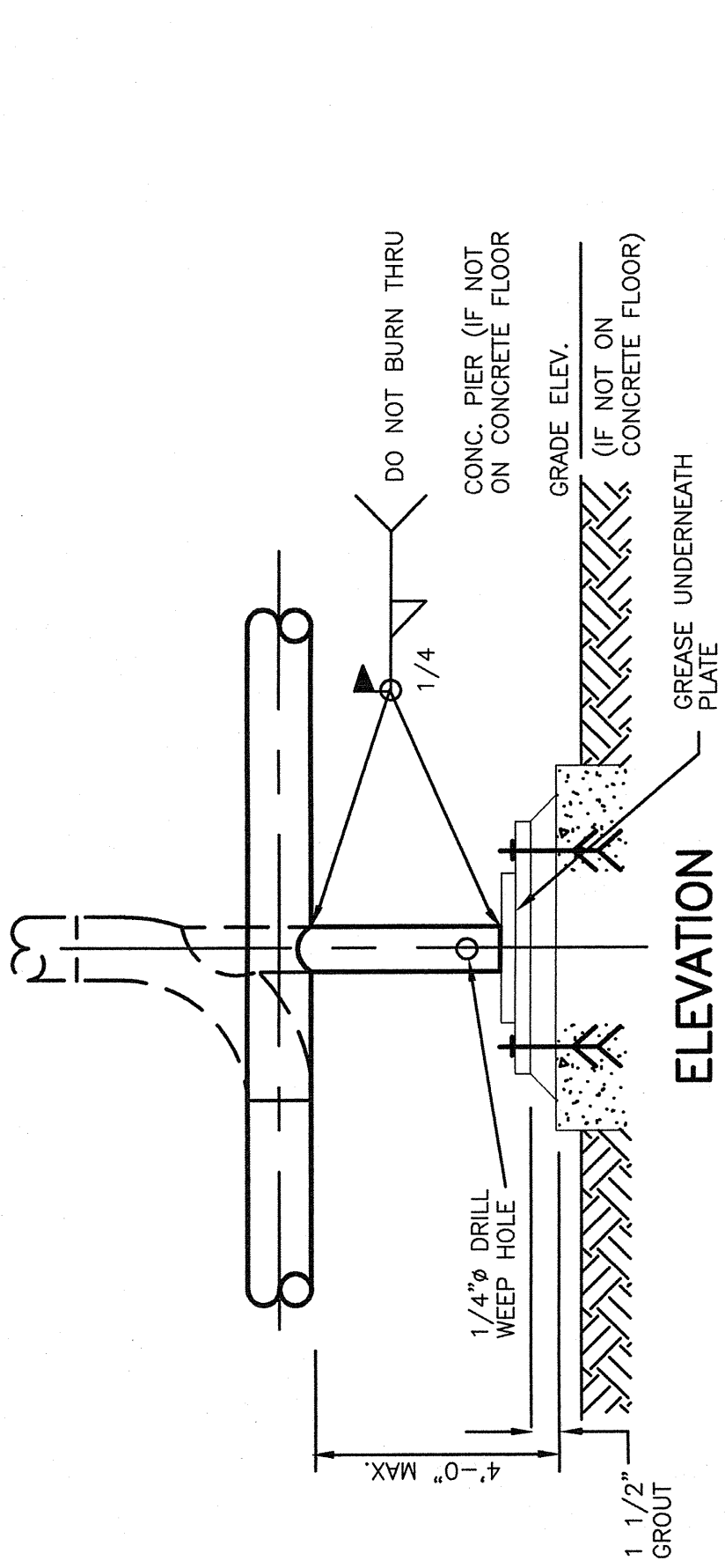


General Notes:

- PART 1 GENERAL
- 1.1 SUMMARY
- A. THESE DRAWINGS AND SPECIFICATIONS DESCRIBE THE SCOPE OF WORK REQUIRED FOR PROJECT MECHANICAL, HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL REQUIRED FOR COMPLETE, FULLY FUNCTIONING MECHANICAL SYSTEMS COMPLYING WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.
- 1.2 CONTRACTOR: THE WORD "CONTRACTOR" AS USED HEREIN SHALL MEAN THE HVAC INSTALLER UNLESS OTHERWISE QUALIFIED.
- 1.3 DRAWINGS: DRAWINGS, DIMENSIONS, AND ANY NOT COMPLETELY RESOLVE EVERY DETAIL OF THE CONTRACTOR'S OBLIGATION TO THE OWNER. CONTRACTOR IS RESPONSIBLE FOR TRANSMITTING COMPLETE SYSTEMS INCLUDING ALL REQUIRED EQUIPMENT AND ACCESSORIES TO OPERATE FULLY FUNCTIONING HVAC SYSTEMS.
- 1.4 CODE COMPLIANCE – COMPLY WITH THE LATEST EDITIONS OF THE FOLLOWING STANDARDS AND CODES, INSOFAR AS THEY APPLY:
1. NORTH CAROLINA STATE BUILDING CODE, LATEST EDITION AND REVISIONS
2. LOCAL JURISDICTION REQUIREMENTS
- 1.5 INCLUDE ALL WORK TO COMPLY WITH CODES WHETHER INDICATED ON DRAWINGS OR NOT. NOTIFY ENGINEER OF ANY VIOLATIONS BEFORE PROCEEDING. CORRECTIONS SHALL BE MADE AT CONTRACTOR'S EXPENSE. ETC. REQUIRED FOR THE WORK AND PAY FOR SAME. FINISH A FINAL CERTIFICATE OF INSPECTION AND APPROVAL FROM THE AUTHORITY HAVING JURISDICTION PRIOR TO ACCEPTANCE OF THE WORK.
- 1.6 MANUFACTURER'S RECOMMENDATIONS – INSTALL ALL EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 1.7 WORKMANSHIP – UTILIZE SKILLED MECHANICS TO OBTAIN A HIGH QUALITY PROFESSIONAL FINISH. INSTALLATION OF ALL EQUIPMENT SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IN ADDITION, ANY EXISTING CONSTRUCTION DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR AT NO ADDITIONAL COST.
- 1.8 SEQUENCE OF WORK – CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SEQUENCE OF WORK FROM THE BEGINNING TO THE END OF THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, AND FINAL INSPECTIONS.
- 1.9 PROGRESS OF WORK – PERFORM WORK IN ACCORDANCE WITH SCHEDULE AND REQUIREMENTS OF THE OWNER. UNDER NO CIRCUMSTANCES SHALL THIS CONTRACTOR DELAY THE OVERALL PROJECT SCHEDULE.
- 1.10 COORDINATION: COORDINATE MECHANICAL WORK WITH THE WORK OF OTHER TRADES. LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE UNLESS SPECIFICALLY DIMENSIONED. LAYOUT MECHANICAL WORK SO AS TO AVOID INTERFERENCE WITH ELECTRICAL, PLUMBING, AND OTHER TRADES. COORDINATE ALL MECHANICAL WORK WITH DUCT FABRICATION AND ADJUST ARRANGEMENT AS REQUIRED. INCLUDE ALL OFFSETS IN DUCTS, FITTINGS, PIPING, ETC. AS REQUIRED TO PROPERLY INSTALL EQUIPMENT.
- 1.11 EQUIPMENT LOCATIONS: DETERMINE EXACT EQUIPMENT AND MATERIALS LOCATIONS TO PROVIDE BEST ARRANGEMENT AND TO FACILITATE PROPER MAINTENANCE AND SERVICING OF EQUIPMENT.
- 1.12 LISTING AND LABELING: ALL EQUIPMENT SHALL BE LABELED OR LISTED BY UL OR OTHER APPROVED TESTING AGENCY WHERE REQUIRED.
- 1.13 STORAGE SPACE: CONSULT WITH THE OWNER REGARDING JOB SITE STORAGE FOR MECHANICAL MATERIALS AND EQUIPMENT. MATERIALS AND EQUIPMENT SHALL BE PROTECTED FROM WEATHER AND CONTRACTOR'S REPRESENTATIVE MUST BE ON JOB BEFORE ANY MATERIAL MAY BE RECEIVED.
- 1.14 CLEANUP: REMOVE ALL DEBRIS GENERATED IN THE ACCOMPLISHMENT OF WORK UNDER THIS PROJECT. CLEAN, REPLACE OR REPAIR ALL SURFACES SOILED OR DAMAGED DURING THE COURSE OF THE WORK. REMOVE DEBRIS UNTIL SO TO MAINTAIN SAFE WORKING CONDITIONS.
- 1.15 ELECTRICAL WORK
- A. PERFORM ELECTRICAL WORK FOR MECHANICAL EQUIPMENT IN COMPLIANCE WITH PROJECT ELECTRICAL CODES AND STANDARDS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, AND FINAL INSPECTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, AND FINAL INSPECTIONS.
- B. ELECTRICAL DRAWINGS ARE BASED ON ELECTRICAL CHARACTERISTICS INDICATED IN DRAWINGS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, AND FINAL INSPECTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, AND FINAL INSPECTIONS.
- C. LOW VOLTAGE CONTROL WIRING FOR MECHANICAL SYSTEMS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR.
- 1.16 SUBMITTALS: A. EQUIPMENT SUBMITTALS: SUBMIT FOUR (4) COPIES OF DESCRIPTIVE DATA FOR MECHANICAL EQUIPMENT AND MATERIALS INCLUDING GRILLES AND DAMPERS FOR APPROVAL BY THE ENGINEER. CLEARLY IDENTIFY ALL ITEMS.
- 1.17 OPERATING AND MAINTENANCE MANUALS: SUBMIT TWO COPIES OF COMPLETE OPERATING AND MAINTENANCE MANUALS FOR EACH MECHANICAL EQUIPMENT. MANUALS SHALL BE SUBMITTED TO THE OWNER PRIOR TO THE START OF WORK. MANUALS SHALL BE SUBMITTED TO THE OWNER PRIOR TO THE START OF WORK. MANUALS SHALL BE SUBMITTED TO THE OWNER PRIOR TO THE START OF WORK.
- 1.18 RECORD DRAWINGS: MAINTAIN ONE SET OF "RED-LINED" RECORD DRAWINGS ON SITE AT ALL TIMES AND PROVIDE DRAWINGS TO ENGINEER PRIOR TO FINAL INSPECTION.
- 1.19 WARRANTY – WARRANTY THE MATERIALS AND WORKMANSHIP COVERED BY THESE DRAWINGS AND SPECIFICATIONS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. REPAIR OR REPLACE ALL DEFECTIVE MATERIALS AND WORKMANSHIP AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, AND FINAL INSPECTIONS. PROVIDE 5 YEAR WARRANTY FOR ALL AIR CONDITIONING COMPRESSORS. FURNISH WARRANTY CERTIFICATES FOR ALL MECHANICAL EQUIPMENT. WARRANTY TO COMMENCE UPON DATE OF ACCEPTANCE OF WORK BY OWNER.
- 1.20 EXISTING BUILDINGS AND CONSTRUCTION –
- A. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTING BUILDING, BUILDING LAYOUT, AND EXISTING MECHANICAL SYSTEMS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTING MECHANICAL SYSTEMS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTING MECHANICAL SYSTEMS.
- B. PERFORM ALL WORK IN ACCORDANCE WITH SAFETY REGULATIONS.
- C. DO NOT CUT ANY STRUCTURAL MEMBERS WITHOUT EXPRESS WRITTEN INSTRUCTIONS FROM ENGINEER. PROVIDE CUTTING AND PATCHING FOR EXISTING FINISHES AS REQUIRED.
- D. COORDINATE INSTALLATION OF NEW MECHANICAL SYSTEMS WITH EXISTING BUILDING SYSTEMS. ADJUST ARRANGEMENT AS REQUIRED TO ACCOMMODATE INTERFERENCES.

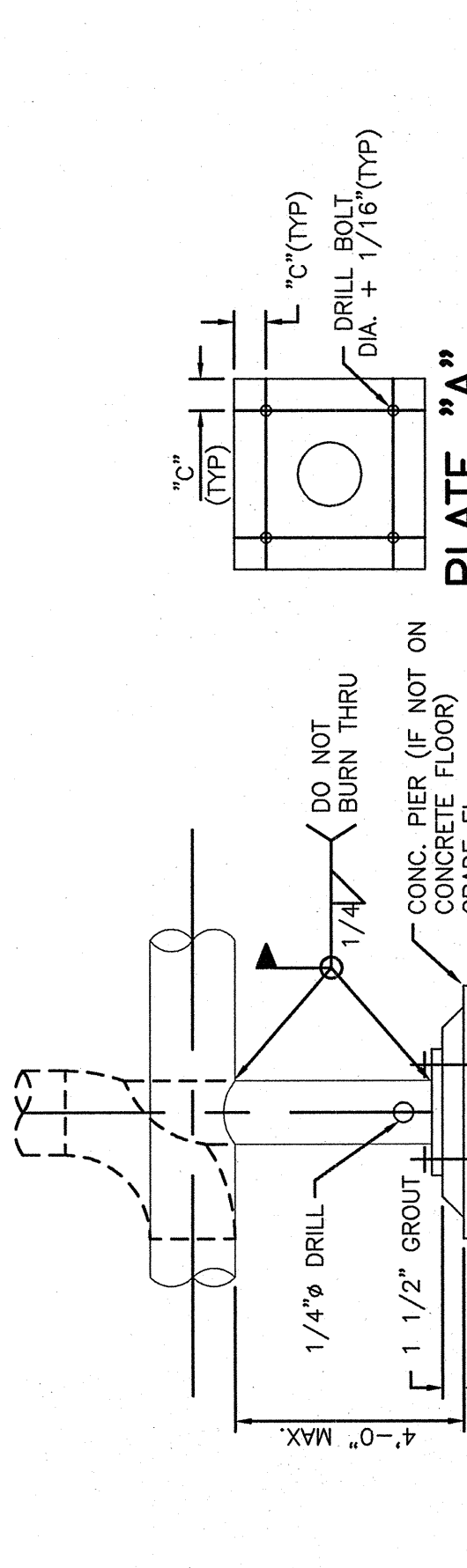
Pipe Supports



PIPE SIZE	STANCHION SIZE	PLATE "A" DIM "A"	R _L "B" DIM "B"	ANCHOR BOLT SIZE
2"	1 1/2" SCH 40	10" X 1 1/2" X 10"	6" X 1 1/2" X 6"	1"
3" - 4"	2" SCH 40	12" X 1 1/2" X 12"	8" X 1 1/2" X 8"	1 1/2"
6" - 8"	3" SCH 40	14" X 3/4" X 14"	10" X 1 1/2" X 10"	1"
10" - 12"	4" SCH 40	14" X 3/4" X 14"	10" X 1 1/2" X 10"	5/8"
14" - 20"	6" SCH 40	18" X 1" X 18"	12" X 3/4" X 12"	1 1/2"
				3/4"

NOTE: 1. WHEN SETTING ON STEEL DELETE ANCHOR BOLTS & WELD BASE PLATE TO STEEL WITH 1/4" FILLET ALL AROUND.

PS-204



NOTE: 1. WHEN SETTING ON STEEL DELETE ANCHOR BOLTS & WELD BASE PLATE TO STEEL WITH 1/4" FILLET ALL AROUND.

PIPE SIZE	STANCHION SIZE	PLATE "A" DIM "A"	ANCHOR BOLT SIZE
2"	1 1/2" SCH 40	6" X 1 1/2" X 6"	1"
3" - 4"	2" SCH 40	6" X 1 1/2" X 6"	1 1/2"
6" - 8"	3" SCH 40	10" X 3/4" X 10"	1"
10" - 12"	4" SCH 40	10" X 3/4" X 10"	5/8"
14" - 20"	6" SCH 40	12" X 1" X 12"	1"
			3/4"

PA-415

Sequence of Construction

- Nothing in this procedure relieves the contractor of the responsibility to follow all safety procedures and to coordinate all procedures with the Owner's representative.
1. Lock out the north cooling tower and associated condenser water pump, chiller and demineral treatment system.
 2. Install the piping at the north tower and demo the tower and associated components as shown on drawings.
 3. Connect a temporary make-up source to the south tower and make piping modifications to the new tower as shown on the drawings.
 4. Connect the south tower and all associated auxiliaries as shown on the drawings. Lower field representative and controls technicians shall test the new tower functions and interconnections to the existing building management system.
 5. The south tower, condenser pump, chiller and chemical feed system should be locked out and the new tower and equipment associated with the demo'd north tower should be removed.
 6. Demo the south tower and all associated auxiliaries as shown on the drawings. Connect south tower piping to the new piping as shown on drawings.
 7. The equipment associated with the south tower shall be brought on line after all piping is installed and tested.
 8. All piping systems at pumps shall be cleaned and cleaned as required.

Sequence of Operation

1. The tower shall be started by a signal from the existing management system that allows either of the two towers to operate.
2. Once the flow switch in the tower inlet is made, the fan speed will be controlled by return water temperature from the tower (set points to be determined by the Owner).
3. The basin heater shall control basin water temperature to a minimum of 40F. The basin heaters shall not function when there is flow through the tower.
4. They shall be interlocked with the tower inlet flow switch.
5. A flow switch shall be installed in the line between the two towers. The signal shall be sent to the building management system.
6. Status of the lower and basin water temperature shall be sent to the existing building management system.

Cooling Tower Schedule

DRAWING CODE	LOCATION	MANUFACTURER	ALTERNATE MFRS	MODEL	FAN NUMBER OF FANS	AIRFLOW (CFM)	HP EA	CAPACITY TONS	WATER USE GPM	EVP. RATE GPM	PRES. DROP PSI	VOLTS	PHASE	HERTZ	REMARKS
C71	SEE PLANS	TOWER TECH	BAC, MARLEY, EMCO	TTM-01075	10	143589	7.5	1800	1800	15.8	5.6	480	3	60	1,2,3,4

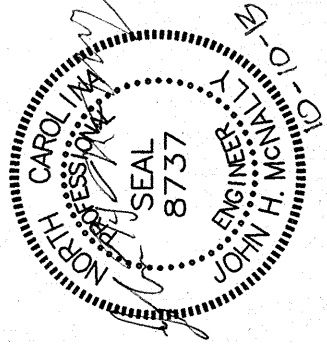
- NOTES:
1. CONTRACTOR SHALL FURNISH INVERTER DUTY MOTORS WITH COMPATIBLE DRIVES.
 2. COMPACTOR CONDENSER PUMPS (10) 7.5 HP MOTORS, ONE FOR EACH FAN. THESE MOTORS SHALL BE PREMIUM EFFICIENCY.
 3. EACH BASIN HAS ONE 9 IN. HEATER.
 4. EACH BASIN HAS ONE 9 IN. HEATER.

Cooling Tower Schedule



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Mechanical
General Notes, Schedules and Details

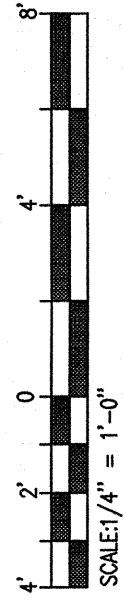
Job No.: 10032
Drawn: RMC
Designed: RMC
Checked: JRM

Drawing No: M0.1
Revision: 1

RECORD DRAWING

These Record Documents have been prepared based on information provided by the contractor. The contractor warrants the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions result.

Dated: 10/10/13
By: [Signature]



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

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