GENERAL NOTES

1. MATERIALS ARE FURNISHED TO REFLECT THE GENERAL SCOPE OF WORK ONLY. IT IS THE CONTRACTORS RESPONSIBILITY TO VISIT THE SITE AND UNDERSTAND THE SCOPE OF WORK PRIOR TO SUBMITTING A BID. REQUESTS FOR CLARIFICATION MUST BE SUBMITTED TO THE ENGINEER NO LESS THAN 14 DAYS PRIOR TO BID.
2. THE CONTRACTORS ATTENTION IS DIRECTED TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. ANY CONFLICTS IN THE SPECIFICATIONS AND DRAWINGS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE BID FOR CLARIFICATION. CONFLICTS NOT CLARIFIED PRIOR TO THE BID SHALL BE INTERPRETED SUCH THAT THE MOST STRINGENT REQUIREMENT (MOST COSTLY) SHALL APPLY.
3. THE CONTRACTOR SHALL VISIT THE SITE DURING BIDDING PERIOD. IF QUESTIONS ARISE AT THAT TIME, CONTACT THE ENGINEER FOR CLARIFICATION. FIELD VERIFY ALL CONDITIONS AT THE SITE AFFECTING THE WORK, INCLUDING BUT NOT LIMITED TO SIZES, CLEARANCES, DIMENSIONS, LOCATIONS, ETC. REPORT ALL DISCREPANCIES TO ENGINEER MINIMUM 14 DAYS PRIOR TO BID.
4. CONTRACTOR MUST COORDINATE ALL WORK SCHEDULING WITH THE OWNER. OWNER MUST APPROVE ALL WORK SCHEDULES. ALL COSTS ASSOCIATED WITH PREMIUM TIME DURING OFF-HOURS, ETC. MUST BE INCLUDED IN THE BID. THE CONTRACTOR WILL EXPEDITE WORK AT BUILDING CONNECTIONS TO MINIMIZE DOWNTIME TO THE OWNER.
5. THE BUILDINGS WILL BE OCCUPIED DURING THE WORK. CONTRACTOR SHALL PROVIDE FOR THE SAFETY OF THE OCCUPANTS, PEDESTRIAN TRAFFIC AND ACCESS TO FACILITY AREAS DURING ALL ASPECTS OF THE WORK. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
6. CONTRACTOR WILL PROTECT THE BUILDINGS, EQUIPMENT, FLOORING, CEILING, DOCUMENTS, ETC. FROM DAMAGE AND HARM DURING THE WORK OF THIS PROJECT. ANY DAMAGE RESULTING FROM WORK OF THE CONTRACTOR MUST BE REPAIRED/REPLACED AT CONTRACTOR EXPENSE. CONTRACTOR SHALL INSTALL DUST BARRIERS. CONTRACTOR MUST CLEAN BUILDING DAILY.
7. ALL EXCAVATION MUST BE DONE WITH EXTREME CAUTION TO PREVENT DAMAGE TO EXISTING UNDERGROUND UTILITIES. ANY DAMAGE TO EXISTING ACTIVE UTILITIES MUST BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND TO THE OWNER'S SATISFACTION. UTILITY SITE PLANS ARE AVAILABLE TO THE CONTRACTOR UPON REQUEST. THE CONTRACTOR MUST FIELD VERIFY THE CONDITIONS PRIOR TO EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE OWNER, UTILITY COMPANIES, REMOVING EXISTING PLANS, AND OBTAIN ALL AVAILABLE METHODS TO DETERMINE EXACT LOCATIONS OF UTILITIES. WORK EXISTING UTILITY ROUTING ON GROUND WITH SPRAY PAINT PRIOR TO EXCAVATION. ALL UTILITY CROSSINGS SHALL BE EXCAVATED AND EXPOSED PRIOR TO CONSTRUCTION OF IMPROVEMENTS TO AVOID CONFLICTS.
8. EXCAVATION NEAR TREES WILL BE DONE BY HAND TO PREVENT DAMAGE TO ROOT SYSTEM. ALL TREE ROOTS 1" AND LARGER MUST NOT BE CUT AND MUST BE WRAPPED IN BURLAP AND KEPT MOIST AS LONG AS ROOTS ARE EXPOSED TO AIR. ALL REMOVED SHRUBBERY MUST BE CAREFULLY DUGED FOR AND REPLANTED AS DIRECTED BY OWNER. REPLACE ALL DAMAGED LANDSCAPING. NO TREES SHALL BE REMOVED WITHOUT PERMISSION OF ENGINEER.
9. EROSION/SEDIMENTATION CONTROL MUST BE MAINTAINED AROUND EXCAVATION AND ALL OTHER WORK AREAS AT ALL TIMES.
10. CONTRACTOR WILL REPLACE AREAS DISTURBED DURING THE COURSE OF CONSTRUCTION. ITEMS TO BE REPLACED INCLUDE, BUT ARE NOT LIMITED TO CONCRETE PAVEMENT, BASE, ASPHALT PAVEMENT, SOD, SHRUBBERY, LANDSCAPING, WALLS, CURB, SIDEWALKS, PAVEMENT MARKINGS, ETC. ALL REPLACEMENT ITEMS WILL BE INSTALLED TO MATCH EXISTING REMAINDER WITH REGARD TO COLOR, TYPE AND FINISH. FOR SIZE, DEPTH, THICKNESS AND QUALITY, REFER TO DETAILS AND SPECIFICATIONS.
11. PROTECT THE STRUCTURAL INTEGRITY OF ALL THE EXISTING BUILDINGS AND STRUCTURES DURING CONSTRUCTION.
12. PROVIDE FILL SUCH THAT THE FINISHED GRADE (INCLUDING SOD) IS AT LEVEL OF CURBS AND ADJACENT PAVEMENT.
13. NEW SIDEWALKS TO MATCH PLAIN WITH EXISTING.
14. WHERE NEW GRADES BLEND INTO EXISTING GRADES IN LANDSCAPE AREA, PROVIDE A UNIFORM TRANSITION. PROTECT ALL REMAINING PLANT MATERIAL FROM DAMAGE.
15. EDGE OF PAVEMENT AND CONCRETE SHALL BE IN A NEAT STRAIGHT LINE IN ALL LOCATIONS.
16. PIPING SHALL BE PITCHED TOWARDS DRAIN POINTS WITH A GRADE OF NOT LESS THAN 1 INCH IN 40 FEET (FOR DRAINING PURPOSES) UNLESS OTHERWISE INDICATED ON DRAWINGS. ALL HIGH POINTS OF UNDERGROUND PIPING MUST BE VENTED BY INSTALLING AN AIR VENT BOX AS DETAILED.
17. ELEVATIONS REFER TO NATIONAL GEODETIC VERTICAL (MEAN SEA LEVEL) DATUM (SLVD).
18. CONTRACTOR SHALL COORDINATE PLANNED SHUTDOWNS OF ANY EQUIPMENT WITH OWNER AND PLANT OPERATION PERSONNEL TO START EQUIPMENT DOWNTIME WILL BE MINIMAL AND AT NON-CRITICAL HOURS.
19. ALL UNDERGROUND CONDUIT INSTALLATIONS SHALL BE IN COMPLIANCE WITH LATEST EDITION OF NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES.
20. ALL ELECTRICAL OR CONTROL WIRING CONDUITS SHALL BE INSTALLED WITH PULL STRINGS.
21. PROVIDE TEMPORARY FENCES ON BOTH SIDES OF ALL OPEN TRENCHES. FENCE FABRIC SHALL BE 2' X 4' MESH, MESH, 4'-0" HIGH, SUPPORTED AT MAXIMUM 10'-0" INTERVALS ON 1" X 4" PRESSURE TREATED WOOD POSTS ON GALVANIZED STEEL FENCE POSTS. ATTACH FLASHING LIGHT/REFLECTIVE DEVICES TO FENCE POSTS AT MAXIMUM 40'-0" INTERVALS. PROVIDE PEDESTRIAN CROSSINGS AT MAXIMUM 200'-0" INTERVALS.
22. INSIDE OF ALL PIPES SHALL BE KEPT CLEAN. ENDS OF PIPE SECTIONS SHALL BE KEPT CLOSED WHILE STORED ON SITE. WHEN PIPE IS PLACED IN TRENCH, IT SHALL BE SUPPORTED ON BLOCKS AND HEMAN CAPPED AT ALL TIMES.
23. THE CONTRACTOR SHALL VIST THE SITE AND DETERMINE THE EXACT EXTENT OF REVISION TO EXISTING PIPING TO ACCOMMODATE THE WORK. ALL THE NECESSARY REROUTING, RELOCATING AND/OR REMOVAL OF EXISTING PIPING AND COMMUNICATIONS CONDUIT SHALL BE INCLUDED IN THE SCOPE OF WORK.
24. CONTRACTOR SHALL VERIFY SUPPLY AND RETURN PIPES PRIOR TO PIPING BUILDING CONNECTIONS TO ELIMINATE CROSS CONNECTING SUPPLY AND RETURN PIPES. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PIPE CONNECTIONS. ALL COSTS ASSOCIATED WITH CORRECTING IMPROPER CONNECTIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
25. CONTRACTOR SHALL LEGALLY DISPOSE OF ALL DEBRIS OFF-SITE.
26. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 6 FEET. EXTEND HARD DUCT FROM TRUNK DUCT IF REQUIRED TO COMPLY WITH MAXIMUM LENGTH REQUIREMENT.
27. ALL NEW DUCT SIZES ARE INSIDE CLEAR DIMENSIONS.
28. CONDENSATE DRAIN LINE WILL BE TYPE L COPPER. PITCH TOWARD DRAIN. INSULATE ALL PIPING NOT ENCLOSED IN THE STRUCTURE.
29. CONTRACTOR WILL COMPLY WITH ALL APPLICABLE LAWS AND RULES REGARDING HANDLING OF REFRIGERANTS. RECOVER REFRIGERANT FROM EXISTING SYSTEMS SCHEDULED FOR DEMOLITION. DISPOSE OF IN A LAWFUL MANNER. PROVIDE DOCUMENTATION TO OWNER OF DISPOSAL.
30. REMOVE/REPOSIT DUCTS, PIPES, ETC. AS REQUIRED TO MEET FIELD CONDITIONS. RELOCATE EXISTING CONDUIT, SUPPORTS, PIPING, ETC. AS REQUIRED TO ACCOMPLISH SCOPE OF WORK. DUCT SIZES MAY BE CHANGED TO MEET FIELD CONDITIONS PROVIDED THEY ARE REDESIGNED AND ENGINEERS WRITTEN APPROVAL IS RECEIVED. COORDINATE WITH ALL DISCIPLINES BEFORE ANY CONSTRUCTION WORK. LOCATE DIFFUSERS/GRILLES AROUND EXISTING LIGHTS.
31. REPAIR WALLS TO MATCH EXISTING CONSTRUCTION AND FINISH WHERE THERMOSTATS ARE SCHEDULED FOR REMOVAL, WALL PENETRATIONS, ETC.
32. SEAL ALL DUCT SEAMS AND JOINTS WITH GENEROUS COATING OF HIGH PRESSURE DUCT SEALANT.
33. INSTALL AIR HANDLERS, PUMPS, VENTS, ETC. TO PROVIDE EASY ACCESS FOR MAINTENANCE.
34. CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EQUIPMENT FURNISHED.
35. VERIFY VOLTAGES WITH ELECTRICAL CONTRACTOR BEFORE ORDERING.
36. ALL DUCT SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS.
37. MANUFACTURER/INSTALLER DIRECTION SO AS NOT TO LOOK EXISTING DIAGONALLY. ALL NOZZLE MUST BE AUTHORIZED & APPROVED BY ENGINEER. ALL DIFFUSERS/GRILLES/SUPPLY DUCTWORK SHALL BE COORDINATED WITH PLUMBING, ELECTRICAL, STRUCTURAL, AND ARCHITECTURAL WORK.
38. INDICES OF DUCTS VISIBLE THROUGH GRILLES, REGISTERS OR DIFFUSERS SHALL BE PAINTED FLAT BLACK.
39. ACCESS PANELS IN DUCTWORK AND CEILINGS SHALL BE PROVIDED WHERE REQUIRED FOR OPERATION AND MAINTENANCE OF ALL FANS, DAMPERS, VALVES, VAV BOXES, AND MECHANICAL EQUIPMENT.
40. COORDINATE WITH EXISTING CORP MANUFACTURER & INSTALLER AND INSTALL ALL ROOF WORK FOR EXISTING ROOF BY EXISTING ROOF MANUFACTURER & INSTALLER. ALL EQUIPMENT INSTALLED ON THE ROOF SHALL BE ATTACHED TO THE STRUCTURE IN A MANNER APPROVED BY THE MANUFACTURER AND SHALL BE DESIGNED TO WITHSTAND 140 MPH WINDS. ALL WORK MUST BE COMPLETELY WATERTIGHT. PROTECT ROOF DURING CONSTRUCTION. REPAIR DAMAGE OCCURING DURING CONSTRUCTION.
41. PROTECT THE STRUCTURAL INTEGRITY OF ALL THE EXISTING BUILDINGS AND STRUCTURES DURING CONSTRUCTION.
42. EXISTING UTILITIES SHOWN ON THESE DRAWINGS WERE COMPILED FROM EXISTING MAPS AND FIELD OBSERVATIONS. EACH OFFICE HAS BEEN MADE TO VERIFY THE ACCURACY OF THE INFORMATION SHOWN. HOWEVER, MANY OF THESE UTILITIES ARE UNDERGROUND AND EXACT LOCATION CANNOT BE DETERMINED WITHOUT EXCAVATION. CONTRACTOR SHALL VERIFY ALL UTILITIES IN FIELD BEFORE PROCEEDING WITH WORK. ALL EXCAVATION SHALL BE DONE WITH EXTREME CAUTION. DAMAGE TO EXISTING ACTIVE UTILITIES WHICH THE CONTRACTOR COULD HAVE KNOWN ABOVE BY THESE PLANS, SITE INSPECTION, COORDINATION WITH THE OWNER, OR ANY AVAILABLE METHOD SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND TO THE OWNER'S SATISFACTION.
43. CAREFULLY REMOVE, STORE & REINSTALL CEILING TILES AS REQUIRED TO ACCOMPLISH SCOPE OF WORK. REPLACE DAMAGED TILES W/FILES THAT MATCH EXISTING.
44. ALL OUTSIDE AIR ADDRESS MUST BE MIN. 10 FEET FROM EXHAUST FANS, PLUMBING VENTS, ETC. REMOVE BRANCH, VENTS OR FANS TO MAINTAIN CLEARANCE.
45. THE CONTRACTOR IS PUT ON NOTICE THAT ASBESTOS MAY BE LOCATED IN THE BUILDINGS. THE OWNER WILL BE RESPONSIBLE FOR REMOVING ASBESTOS. VERIFY WITH OWNER PRIOR TO DISMANTLING WORK THAT ASBESTOS HAS BEEN REMOVED. ANY SUSPECTED MATERIAL SHOULD BE REPORTED TO THE OWNER FOR TESTING PRIOR TO PROCEEDING WITH WORK.
46. THE CONTRACTOR IS FULLY RESPONSIBLE FOR RELOCATING, STORAGE, PROTECTING FROM DAMAGE & REINSTALLING EXISTING BUILDING CHAIRS, TABLES, SHELVES, CABINETS, EQUIPMENT, ETC. AS REQUIRED TO ACCOMPLISH SCOPE OF WORK. COVER ALL ITEMS TO PREVENT DAMAGE. ALL DAMAGED ITEMS MUST BE REPAIRED/REPLACED AT CONTRACTORS EXPENSE. COORDINATE & SCHEDULE ALL RELOCATION WORK WITH OWNER.
47. MOVABLY EXISTING HOUSEKEEPING PADS AS REQUIRED FOR NEW HVAC EQUIPMENT. DEMO AND REMOVE ALL ABANDONED CONCRETE PADS.
48. CONTRACTOR TO COORDINATE WITH OWNER MAINTENANCE ON SHUTDOWN OF HVAC EQUIPMENT AND/OR PARTS. CONTRACTOR SHALL ALLOW TIME TO "TURNS" PARTS, DELIVER TO OWNER MAINTENANCE "AND EQUIPMENT OWNER PROVIDES. POSSESSION CERTIFICATE AT MAXIMUM 20'-0" INTERVALS.
49. INSIDE OF ALL PIPES SHALL BE KEPT CLEAN. ENDS OF PIPE SECTIONS SHALL BE KEPT CLOSED WHILE STORED ON SITE. WHEN PIPE IS PLACED IN TRENCH, IT SHALL BE SUPPORTED ON BLOCKS AND HEMAN CAPPED AT ALL TIMES.
50. THE CONTRACTOR SHALL REMOVE ALL EXISTING MECHANICAL EQUIPMENT, CONTROLS, PIPING, DUCTWORK AND VENTS. THIS INCLUDES THE EXISTING EQUIPMENT ON THE ROOF AND IN THE ATTIC SPACE ABOVE THE SECOND FLOOR EQUIPMENT ROOMS. EQUIPMENT TO BE REMOVED ACCORDING TO THE PLANS AS SHOWN ON THE DRAWINGS.
51. THE CONTRACTOR SHALL FURNISH AND INSTALL ADDITIONAL INSULATION WRAP ON INSULATING TAPE ON ALL SURFACES THAT HAVE CONDENSATION OR SWEATING FROM HIGH HUMIDITY AIR. THIS INCLUDES FACTORY INSULATED EQUIPMENT SUCH AS AIR HANDLING UNITS, FANS, VAV BOXES, PUMPS, WATER AND DRAIN PIPING ETC.
52. INSTALL ALL THERMOSTATS OR ROOM SENSORS 54" AFF ON THE LOCK SIDE OF THE DOORS(NOT SHOWN OTHERWISE).
53. THE CONTRACTOR SHALL FURNISH AND INSTALL ADDITIONAL INSULATION WRAP ON INSULATING TAPE ON ALL SURFACES THAT HAVE CONDENSATION OR SWEATING FROM HIGH HUMIDITY AIR. THIS INCLUDES FACTORY INSULATED EQUIPMENT SUCH AS AIR HANDLING UNITS, FANS VAV BOXES, PUMPS, WATER AND DRAIN PIPING ETC.
53. THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC IN NATURE. THEY ARE, HOWEVER, AS ACCURATE AS SCALE PERMITS AND THE CONTRACTOR SHALL FOLLOW THEM AS CLOSELY AS POSSIBLE. IF SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL CONDITIONS RELATING TO THE WORK IN ANY FIELD PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL VERIFY ALL WALLS, PARTITIONS, AND STRUCTURAL SYSTEMS BEFORE INSTALLATION AND FABRICATION OF ANY DUCTWORK OR PIPING SYSTEMS. ALL OFFSETS REQUIRED FOR INSTALLATION OF DUCTWORK, OR PIPING SHALL BE INCLUDED IN THE SCOPE OF WORK AT NO ADDITIONAL COST TO THE OWNER.
54. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE SIZE AND LOCATION OF ALL EXISTING EQUIPMENT, PARTITIONS, PIPING, DUCTWORK AND MECHANICAL SYSTEMS. IF THE ACTUAL LOCATION IS SUCH THAT PARTITIONS, PIPING, DUCTWORK, AND EQUIPMENT UNDER THIS CONTRACT CANNOT BE ROUTED OR INSTALLED AS SHOWN ON THE PLANS, THEN THE CONTRACTOR SHALL TAKE CORRECTIVE ACTION AS DIRECTED BY THE ENGINEER AND PROVIDED FOR ADDITIONAL COSTS, NEEDED TO OBTAIN WRITTEN APPROVAL IS RECEIVED. COORDINATE WITH ALL DISCIPLINES BEFORE ANY CONSTRUCTION WORK. LOCATE DIFFUSERS/GRILLES AROUND EXISTING LIGHTS.
55. FAILURE TO MAKE REFERENCES IN THE SPECIFICATIONS TO ANY ITEM OF THE WORK SHOWN ON THE DRAWINGS, AND NECESSARY TO THE COMPLETION OF THE WORK SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO FURNISH THE MATERIALS AND PERFORM THE WORK OF SUCH ITEMS, IN A MANNER COMPARABLE TO OTHER ITEMS OF SIMILAR NATURE FOR WHICH REFERENCE IS SPECIFICALLY MADE.
56. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO CLEARLY SET FORTH ALL WORK, AND THE DETAILED DESCRIPTION IS ADDED TO ASSIST IN DEFINING THE SCOPE AND THE LOCATION OF ITEMS. SHOULD ANY DETAIL OR DESCRIPTION BE ADDED, OMITTED OR BE FOUND TO BE UNCLEAR, THE SCOPE, CHARACTER AND DESIGN OF THE WORK, AND ANY ITEM CALLED FOR BY ANY ONE OF THE DOCUMENTS SHALL BE DEEMED SUCH AS TO BE INCLUDED IN ALL.
57. ALL CUTTING AND PATCHING SHALL BE DONE BY WORKMEN SKILLED IN THE TRADES INVOLVED. ALL CUTTING SHALL BE DONE IN SUCH A MANNER AS NOT TO DAMAGE OR DEGRADE THE FACILITIES. ALL BUILDING SHALL FINISH FLUSH AND SMOOTH AND SHALL BE COMPLETELY REPAIRED.
58. ALL FINISHED FIELD INSTALLED PIPINGS DURING SYSTEMS SHALL BECOME A HYDROSTATIC TEST OF 1 1/2 TIMES THE OPERATING PRESSURE FOR A PERIOD OF NOT LESS THAN EIGHT (8) HOURS WITH NO SIGNIFICANT ENERGY DURING THE TEST. MISCELLANEOUS PIPING SHALL BE TESTED AT A LESSER PRESSURE IF SO DIRECTED BY THE ENGINEER AND APPROVED BY THE LOCAL BUILDING INSPECTOR DEPARTMENT.
59. ALL PIPING SYSTEMS, EQUIPMENT, SPECIALTIES, ETC. SHALL ALSO BE TESTED UNDER ACTUAL OPERATING CONDITIONS AFTER COMPLETION OF INSTALLATION OF THE ALL PIPING, EQUIPMENT, SPECIALTIES, ETC. IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. DURING THIS TEST, THE PUMPS, TRAPS, VALVES, STRAINERS, SPECIALTIES AND ALL ACCESSORIES SHALL BE GIVEN A THOROUGH INSPECTION AND ALL ISSUES SHALL BE LEFT IN FIRST CLASS WORKING ORDER. THE DURATION OF THE TEST SHALL BE FOR NOT LESS THAN EIGHT (8) HOURS AND WHILE THE COMPLETE INSTALLATION IS OPERATING IN A SATISFACTORY MANNER AS APPROVED BY THE ENGINEER AND THE OWNER.
60. WORK CONSISTS OF FURNISHING ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, SCAFFOLDING, SERVICES, SUPERVISION, PLANT, AND PERFORMING ALL OPERATIONS REQUIRED TO PROPERLY COMPLETE ALL WORK IN ACCORDANCE WITH THESE SPECIFICATIONS AND AS INDICATED ON THE APPLICABLE DRAWINGS, SUBJECT TO TERMS AND CONDITIONS OF THE CONTRACT.
61. THE CONTRACTOR SHALL NOTE THAT VARIOUS DRAWINGS AND DETAILS ORIGINATED IN GENERAL AND DEPICT THE CHARACTER AND LOCATION OF THE WORK INCLUDED. MORE INTENSELY, THE WORKS MORE DETAILS OBVIOUSLY OMITTED OR NOT SHOWN, SHALL BE FURNISHED AND INSTALLED COMPLETE TO PERFORM THE FUNCTIONS DESIRED.
62. ARRANGEMENTS OF DUCTWORK, PIPING, CONDUIT, AND OTHER CONSTRUCTION THAT DIFFER MATERIALLY FROM THE OBVIOUS INTENT OF THE DRAWINGS WILL NOT BE PERMITTED EXCEPT WHERE NECESSARY TO AVOID INTERFERENCES, AND ONLY WHERE SPECIFICALLY APPROVED BY THE ENGINEER. THE DRAWINGS SHALL BE FURNISHED SHOWING ALL SUCH CHANGES.
63. THERMOSTAT/SENSOR WIRING TO BE RUN INSIDE WALLS/COLUMNS OR IN ATTIC SPACE. THE USE OF WIREMOLD OR EXTERNAL RACEWAY SHALL BE APPROVED BY THE ENGINEER.
64. A COMPLETE CERTIFIED TEST AND BALANCE REPORT SHALL BE SUPPLIED BY AN INDEPENDENT CERTIFIED TEST AND BALANCE AGENCY TO THE ENGINEER IN WRITING FOR HVAC TEST AND BALANCE REPORT MANUAL. (LATEST EDITION). PRIOR TO JOB ACCEPTANCE BY OWNER.
65. THE SUBMISSION OF A BID OR PROPOSAL WILL BE CONSIDERED AS EVIDENCE THAT THE CONTRACTOR HAS EXAMINED THOROUGHLY HIMSELF/ HERSELF WITH THE PLANS, SPECIFICATIONS AND BUILDING SITE. CLAIMS MADE SUBSEQUENT TO THE PROPOSAL FOR MATERIALS AND OR LABOR DUE TO DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED, UNLESS DIFFICULTIES COULD NOT HAVE BEEN FORESEEN EVEN THOUGH PROPER EXAMINATION HAD BEEN MADE.
66. ALL POWER WIRING, RELAYS, PANELS, TRANSFORMERS, DISCONNECT SWITCHES, MOTOR STARTERS FOR HVAC EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL CONTROL WIRING, RELAYS, PANELS SENSORS (OR THERMOSTATS) SHALL BE FURNISHED AND INSTALLED BY THE HVAC CONTRACTOR. ALL WIRE SHALL BE FURNISHED BY THE HVAC CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
67. ALL DUCTS TO HAVE AIR EXTRACTORS (ADJUSTABLE TYPE) ON SQUARE OR RECTANGULAR TAKEOFFS WITH SPIN-IN VOLUME DAMPERS ON ROUND OR OVAL TAKE-OFFS. SPIRAL DUCT TAKE-OFFS HAVE NO EXTRACTORS INSTALL FLEXIBLE DUCT CONNECTIONS AT ALL FANS AND FAN COIL UNITS.
68. FLEXIBLE DUCTS MUST COMPLY WITH UL 181 AND SHALL NOT EXCEED EIGHT FEET IN LENGTH, REMAINING BRANCH LINE SHALL BE GALVANIZED METAL WITH 2" EXTERNAL INSULATION. FLEXIBLE DUCTS SHALL HAVE FULL BACKING (FOIL TYPE).
69. ANY CONSIDERATION ON SURFACES OF HVAC EQUIPMENT, DUCTWORK OR PIPING WILL BE CONSIDERED BY THE CONTRACTOR. WRAP WITH INSULATING TAPE OR EXTERNAL INSULATION (WRAND) & VAPOUR BARRIER INSULATION OUTSIDE OF THE BUILDING SHALL BE WRAPPED WITH ALUMINUM.
70. ALL LOUVERS AND GRILLES ON OUTSIDE WALLS SHALL BE REMOVED AND THE OUTSIDE WALLS BLOCKED WITH CONCRETE GROUT AND FINISHED WITH SMOOTH STUCCO, PAINT TO MATCH EXISTING SURFACE.
71. UNITS REQUIRING INCLINE SMOKE DETECTORS (SEE DRAWINGS) SHALL BE TYPE AS APPROVED EQUAL. CONTRACTOR SHALL VERIFY THAT DETECTORS ARE COMPATIBLE WITH FIRE ALARM SYSTEMS. IF UNIT SELECTION IS NOT COMPATIBLE THE CONTRACTOR SHALL PURCHASE AND INSTALL PROPER UNIT TO INSURE LIFE SAFETY PROTECTION. SMOKE DETECTORS SHALL AUTOMATICALLY SOUND AUDIBLE ALARM, TURNOFF FAN.
72. FURNISH AND INSTALL ACCESS DOORS(14"x18" MINIMUM) IN ALL DRYWALL CEILINGS FOR ACCESS TO MECHANICAL EQUIPMENT.
73. COORDINATE THE INSTALLATION OF ALL ACU, COND. DRAINS LOCATED IN WALLS WITH THE GENERAL CONTRACTOR.
74. COORDINATE THE INSTALLATION OF ALL MAIN COND. DRAINS LOCATED IN WALLS AND CHASES WITH THE PLUMBING CONTRACTOR.

HEAT PUMPS

SYMBOL		HP-1	HP-2	HP-3	HP-4	HP-5	HP-6	HP-7	HP-8
DESIGN MANUFACTURER		TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
MODEL NUMBER		TWA072	TWA072	TWA060	TWA090	TWN024	TWA048	TWN018	TWA072
REFRIGERATION CAPACITY	BTU/HR.	72,000	72,000	60,000	90,000	24,000	48,000	18,000	72,000
REFRIGERATION CIRCUITS	NUMBER REQUIRED	1	1	1	1	1	1	1	1
COMPRESSOR	NUMBER	1	1	1	1	1	1	1	1
SPEED	RPM	825	825	825	3450	825	825	825	825
REFRIGERANT		R-22	R-22	R-22	R-22	R-22	R-22	R-22	R-22
LOCKED ROTOR AMPS		124	124	118	164	57	101	45	124
RUN LOAD AMPS		21.9	21.9	18.6	26.5	9	14.5	8	21.9
CONDENSER FAN	NUMBER	1	1	1	1	1	1	1	1
DISCHARGE		VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL
DRIVE		DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
FULL LOAD AMPS (TOTAL)		2.7	2.7	1.9	3.1	0.9	2.2	0.5	2.7
UNIT ELECTRICAL CHARACTERISTICS	VOLTS-PHASE	208/3	208/3	208/3	208/3	208/1	208/3	203/1	208/3
UNIT ELECTRICAL SINGLE POINT CONNECTION	MCA	30.7	30.7	25.2	36.2	15	20	11	30.7
OPERATING WEIGHT (APPROX.)	POUNDS	350	350	330	380	240	360	160	350
ENERGY EFFICIENCY RATIO	SEER	8.35	8.35	9.4	11.2	10.65	8.45	10.5	8.35
TOTAL WATTS		7,777	7,777	6,730	8,300	2,190	5,100	1,710	7,777
SOUND RATING (ARI)		8.5	8.5	8.5	8.8	8.5	8.5	8.5	8.5
HEATING CAPACITY (ARI) 47 F	BTU/HR	72,000	72,000	60,000	85,000	24,000	48,000	18,000	72,000
HEATING COP		2.9	2.9	3.12	3.0	3.00	3.00	3.24	2.9
REFRIGERANT LINES	ACR L COPPER								
LIQUID O.D.	INCHES	3/8	3/8	3/8	1/2	5/16	3/8	5/16	3/8
SUCTION O.D.	INCHES	1 1/8	1 1/8	1 1/8	1 3/8	3/4	1 1/8	5/8	1 1/8
ACCESSORIES		1. PROVIDE OUTDOOR THERMOSTATS FOR STAGING OF ELECTRIC HEATERS				2. PROVIDE PROGRAMMABLE INDOOR THERMOSTATS FOR EACH SYSTEM.			

AIR HANDLING UNITS

SYMBOL		AHU-1	AHU-2	AHU-3	AHU-4	AHU-5	AHU-6	AHU-7	AHU-8
DESIGN MANUFACTURER		TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
MODEL NUMBER		TWE060	TWE060	TWE060	TWE090	TWV024	TWE048	TWV018	TWE060
ARRANGEMENT		VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL
AIR FLOW RATE	CFM	2200	2200	2000	3000	800	1600	600	2200
O/A FLOW RATE	CFM	300	300	300	450	120	240	90	360
EXTERNAL STATIC PRESSURE	INCHES W.G.	.70	.70	.70	1.3	0.41	0.58	0.27	.70
FANS – NUMBER OF WHEELS		1	1	1	1	1	1	1	1
DRIVE		BELT	BELT	BELT	BELT	DIRECT	DIRECT	DIRECT	BELT
SPEED	RPM	920	920	920	915	1075	1075	1075	920
MOTOR	HP – FLA	3/4 – 3.1	3/4 – 3.1	3/4 – 3.1	1 1/2 – 6.4	1/4 – 1.7	1/2 – 4.2	1/4 – 1.4	3/4 – 3.1
ELECTRICAL CHARACTERISTICS	VOLTS/PHASE	208/3	208/3	208/3	208/3	208/1	208/1	208/1	208/3
SINGLE POINT ELECTRICAL CONNECTION	MCA	34	34	34	47	*	45	*	34
COOLING COIL CAPACITY (ARI)	BTU/HR	72,000	72,000	60,000	90,000	24,000	48,000	18,000	72,000
SUCTION TEMPERATURE	DEG. F.	45	45	45	45	45	45	45	45
ROWS/F.P.I.		3/12	3/12	3/12	3/12	3/12	3/12	3/12	3/12
REFRIGERANT LINES, NO. OF CIRCUITS	ACR L COPPER	1	1	1	1	1	1	1	1
SUCTION O.D.	INCHES	1 1/8	1 1/8	1 1/8	1 3/8 (EACH)	3/4	1 1/8	5/8	1 1/8
LIQUID O.D.	INCHES	3/8	3/8	3/8	1/2 (EACH)	5/16	3/8	5/16	3/8
HEATING COIL – ELECTRIC RESISTANCE									
CAPACITY REQUIRED	BTU/HR	32,800	32,800	32,800	51,043	16,400	49,400	16,400	32,800
KW AT 240 VOLTS		9.6	9.6	9.6	14.96	4.8	7.69	4.8	9.6
STAGES		1	1	1	2	1	1	1	1
ELECTRICAL CHARACTERISTICS	VOLTS-PHASE	208-3	208-3	208-3	208-3	208-1	208-1	208-1	208-3
UNIT WEIGHT		265	265	265	350	105	165	95	265

* NOT AVAILABLE – PROVIDE CIRCUIT TO AIR HANDLER AND DUCT HEATER – SEE ELECTRICAL.

FAN SCHEDULE

SYMBOL	FAN TYPE	LOCATION	ELECTRICAL V/PH/HZ	CFM	S.P.	WHEEL DIA.	CURB SIZE	MIN. MOTOR	DRIVE ARRANG.	MAX. RPM	DESCRIPTION
EF-1	CE