

**A/C GENERAL NOTES**

- DRAWINGS ARE DIAGRAMMATIC. DO NOT SCALE DRAWINGS FOR EXACT LOCATION OF EQUIPMENT, PIPING, DUCTWORK, ETC. THESE DRAWINGS ARE NOT INTENDED TO SHOW EVERY MINOR DETAIL, BUT THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS REQUIRED FOR A COMPLETE AND ACCEPTABLE WORKING INSTALLATION.
- ALL WORKMANSHIP AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH APPLICABLE NATIONAL, STATE, AND LOCAL CODES, RULES AND REGULATIONS, NFPA, ASHRAE, AND SMACNA.
- ALL MATERIALS SHALL BE NEW AND BEAR THE UL LABEL WHERE APPLICABLE.
- PROVIDE THERMOSTAT CONTROLS ON ALL FANS THAT EXHAUST MECHANICAL AND ELECTRICAL ROOMS.
- PROVIDE TURNING VANES IN ALL 90 DEGREE ELBOWS.
- HVAC&R TESTING SHALL INCLUDE ENTIRE HVAC&R INSTALLATION, FROM CENTRAL EQUIPMENT FOR HEAT GENERATION AND REFRIGERATION THROUGH DISTRIBUTION SYSTEMS TO EACH CONDITIONED SPACE. TESTING SHALL INCLUDE MEASURING CAPACITIES AND EFFECTIVENESS OF OPERATIONAL AND CONTROL FUNCTIONS.
- CONTRACTOR SHALL COMPLY WITH THE COMMISSIONING REQUIREMENTS OF SPECIFICATION SECTION 01810. COMMISSIONING SHALL BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS ESTABLISHED IN THE 2104 FECC, SECTION C408.2
- NON FIRE-RATED CEILING SUPPLY DIFFUSERS AND RETURN AIR GRILLES TO BE ALUMINUM. ALL SUPPLY DIFFUSERS SHALL HAVE OPPOSED BLADE DAMPERS.
- ALL CUTTING, PATCHING, STRUCTURAL STEEL, WEATHER PROOFING, PAINTING AND WALL OPENINGS SHALL BE BY THE GENERAL CONTRACTOR.
- ALL OPENINGS IN THE BUILDING STRUCTURE, FOR DUCTWORK, PIPING, ETC. TO BE 1/2" LARGER (ON ALL SIDES) THAN THE OUTSIDE DIMENSIONS. FILL VOIDS WITH FIRE RETARDANT SILICONE FOAM (I.E CHASE-FOAM CTC PR-855 BY CHASE TECHNOLOGY CORP.)
- PROVIDE SMOKE DETECTORS IN ALL SUPPLY AIR DUCTS FOR FANS AND AHU'S SERVING A COMMON PLENUM OF 2000 CFM OR ABOVE.
- PROVIDE FIRE DAMPERS IN ALL DUCTS PENETRATING FIRE RATED WALLS, PARTITIONS, FLOORS OR ROOF SLABS.
- PROVIDE INDEPENDENT TEST AND BALANCE OF ALL MECHANICAL EQUIPMENT AND AIR DEVICES, EXTRACTORS, DAMPERS, AHU'S, & FANS. PROVIDE FINAL BALANCING FOR ALL SYSTEMS TO THE SATISFACTION OF THE OWNER.
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT TO INSTALL A COMPLETE AND OPERATING A/C SYSTEM.
- CONTRACTOR TO PROVIDE ALL REQUIRED HVAC PERMITS.
- CONTRACTOR SHALL PROVIDE EQUIPMENT OF THE CAPACITIES SCHEDULED ON PLAN.
- COMPLY WITH NFPA-90A AND ALL APPLICABLE CODES. THIS IS THE CONTRACTOR'S RESPONSIBILITY.
- SUPPLY, EXHAUST AND OUTSIDE AIR DUCTWORK SHALL BE SHEET METAL CONSTRUCTION, INSTALLED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS. FLEX DUCT SHALL BE MINI SERIES OR APPROVED EQUAL.
- HVAC CONTRACTOR SHALL PROVIDE ALL CONTRACTORS, RELAYS AND THERMOSTATS. THE ELECTRICAL SUB-CRONTACTOR SHALL PROVIDE ALL SWITCHES, DISCONNECTS AND CONTROL WIRING. THERMOSTATS SHALL BE APPROVED BY EQUIPMENT MANUFACTURER.
- ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.
- PROVIDE FLEXIBLE DUCT CONNECTORS TO ALL FANS, A/C UNITS OR MECHANICAL EQUIPMENT.
- PROVIDE MAINTENANCE AND OPERATION MANUALS ON ALL MECHANICAL EQUIPMENT OR SYSTEMS. PROVIDE FIVE SETS OF SUBMITTALS ON ALL HVAC EQUIPMENT.

**AC LEGEND AND ABBREVIATION**

NOTES ON DRAWINGS & SCHEDULES	DIRECTION OF FLOW	THERMOSTAT
REVISIONS	FLEXIBLE CONNECTION	SMOKE DETECTOR
AHU AIR HANDLING UNIT	THERMOMETER	HUMIDISTAT OR HUMIDITY SENSOR
ADT ACCESS DOOR (DUCT)	PRESSURE GAUGE WITH GAUGE COCK (DIAL RANGE)	
AP ACCESS PANEL (CEILING MOUNTED)	CEILING SUPPLY AIR DEVICE -ARROW DENOTES DIRECTION OF THROW	ELECTRIC DUCT HEATER WITH CONTROL AND TERMINAL CABINET. (DASHED LINE INDICATES REQUIRED CLEARANCE SPACE)
AC PACKAGED TERMINAL AIR CONDITIONER	RECTANGULAR DUCT SIZE DESIGNATION. FIRST DESIGNATION IS SIDE SHOW	GATE VALVE
AFF ELEVATION / ABOVE FINISHED FLOOR	FLAT OVAL DUCT SIZE DESIGNATION	SWING TYPE CHECK VALVE
BAS BUILDING AUTOMATION SYSTEM (CONTRACTOR)	TYPE 316 STAINLESS STEEL EXHAUST DUCT WITH ALL WELDED JOINTS AND FITTINGS	BUTTERFLY VALVE (TAPPED LUG BODY)
BE BOTTOM ELEVATION	TURNING VANES (NUMBER OF VANES SHALL BE BASED ON ACTUAL DUCT SIZE & NOT ON SCHEMATIC SYMBOL ON DRAWING)	BALL VALVE
CE CENTERLINE	RETURN OR OUTSIDE AIR DUCT	VENTURI FLOW METER
CH CHILLER	DISCHARGE OR SUPPLY DUCT	PRESSURE REDUCING VALVE
CV CONTROL VALVE	EXHAUST FAN OR GRILLE	STRAINER
DH DUCT HEATER	FLEXIBLE DUCT CONNECTION	MOTORIZED 3 WAY VALVE
EA EXHAUST AIR	MANUAL VOLUME DAMPER	DOUBLE WALL DUCT MYLAR ENCAPSULATED K - 27
EF EXHAUST FAN	FIRE DAMPER WITH DUCT ACCESS DOOR	DUCT STATIC PRESSURE SENSOR
FM FLOW MEASUREMENT VENTURI	DROP IN DIRECTION OF AIR FLOW	LIFT TYPE CHECK VALVE
P PUMP	RISE IN DIRECTION OF AIR FLOW	PIPE REDUCER / INCREASER
QA OUTDOOR AIR	FLEXIBLE AIR DUCT	PIPE WELL
RA RETURN AIR	SPIN COLLAR WITH MANUAL DAMPER	EQUIPMENT DESIGNATION SYMBOL
RBJ RUN BETWEEN JOISTS	AUTOMATIC DAMPER (MOTORIZED OR PNEUMATICALLY OPERATED AS NOTED)	DOOR UNDERCUT CFM AND AIR FLOW DIRECTION DESIGNATION
RV ROOF VENTILATOR	GLOBE VALVE	SQUARE TO ROUND / OVAL TRANSITION
SA SUPPLY AIR	PRESSURE RELIEF VALVE	POINT OF NEW CONNECTION
SF SUPPLY FAN		
TB VARIABLE AIR VOLUME TERMINAL BOX		
C CONDENSATE DRAIN LINE		
CHS CHILLED WATER SUPPLY		
CHR CHILLED WATER RETURN		
SA SHOCK ABSORBER		
S.O.V. SHUT-OFF VALVE		
UNION JOINT		
FLANGE JOINT		
TEE - BRANCH OUT OF TOP		
TEE - BRANCH OUT OF BOTTOM		
ELBOW - UP		
ELBOW - DOWN		
TRANSITIONS, F.O.T. = FLAT ON TOP OR F.O.B. = FLAT ON BOTTOM		
A.F.G. ABOVE FINISH GRADE	EXISTING	FIN. FINISH
MT. MOUNT	NEW	N. NEW
MTD. MOUNTED	EXISTING TO BE REMOVED	
U.O.N. UNLESS OTHERWISE NOTED		
WT WATERTIGHT	TG TRANSFER AIR GRILL	
TYP. TYPICAL		

**HVAC DESIGN CHART**

HVAC DESIGN REQUIRES:	YES	NO
DUCT SMOKE DETECTOR	✓	
FIRE DAMPER(S)		✓
SMOKE DAMPER(S)		✓
FIRE RATED ENCLOSURE		✓
FIRE RATED ROOF/FLOOR		✓
FIRE RATED CEILING ASSEMBLY		✓
FIRE STOPPING		✓
SMOKE CONTROL		✓

**SCOPE OF WORK**

THE SCOPE OF WORK CONSISTS OF FURNISHING ALL MATERIALS, LABOR, SERVICES, SUPERVISION, TOOLS, EQUIPMENT, INCLUDING ALL ASSOCIATED PERMITS, AND ALL OTHER ITEMS NECESSARY FOR THE SUCCESSFUL COMPLETION OF THE PROJECT, WHICH SHALL INCLUDE PURCHASING AND INSTALLING THE SPECIFIED MECHANICAL EQUIPMENT AND MATERIALS.

SCOPE OF WORK INCLUDES BUT IS NOT LIMITED TO:

- AIR HANDLER UNITS TO BE REPLACED IN BUILDING 1, 2 AND 3.
- COMPLETE TEST AND BALANCE OF BUILDING 1, 2, 3, 4, 5 AND 6 HVAC SYSTEM.
- REPLACEMENT OF THE FAN COIL UNITS AT BUILDING 1, 2, 3, 4, 5 AND 6.
- 2X2 EXHAUST HOODS TO BE REPLACED IN BUILDING 2.
- DUCT HEATERS TO BE REPLACED IN BUILDING 2, 3, 4 AND 5.
- REPLACEMENT OF HVAC CIRCULATING PUMPS AT BUILDING 2.
- REPLACEMENT OF THE HVAC CONTROLS AT BUILDING 1, 2, 3, 4, 5 AND 6.
- REPLACEMENT OF THE EXTERIOR CONDENSER AND INTERIOR AIR HANDLER AT BUILDING 1.
- REPLACEMENT OF THE PACKAGE ROOF TOP UNIT AT BUILDING 3.
- REPLACEMENT OF THE ELECTRIC UNIT HEATERS AT BUILDING 2 AND 6.
- PROVIDE NEW MINI-SPLIT FOR SERVER ROOM 407A LOCATED IN BUILDING 4.

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REVISIONS	BUILDING DEPARTMENT COMMENTS
02/23/18	

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MECHANICAL GENERAL NOTES  
& SYMBOLS

100% SUBMITTAL  
JOB PHASE: P.001632  
988C PROJECT: AS SHOW  
DATE: 12.13.16 SCALE: HA  
DRAWN BY: E.H.  
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CAE PROJECT No. 201555

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