

Order Plans @

HVAC LEGEND & ABBREVIATIONS	
SYMBOL	DESCRIPTION
	RECTANGULAR AIR DUCT - FIRST DIMENSION IS SIDE SHOWN
	ROUND DUCT (A")
	LINED DUCTWORK, DIMENSIONS ARE OUTER METAL TO OUTER METAL
	AIR DUCT FLEXIBLE CONNECTOR
	SUPPLY OR OUTSIDE AIR RECTANGULAR DUCT RISE OR DROP
	RETURN AIR RECTANGULAR DUCT RISE OR DROP
	EXHAUST AIR RECTANGULAR DUCT RISE OR DROP
	45° BRANCH TAKE-OFF WITH SPLITTER DAMPER AND CONTROL ROD
	SINGLE BLADE DAMPER
	DOUBLE ELBOW WITH SPLITTER DAMPER WITH CONTROL ROD
	FIRE DAMPER
	SMOKE DAMPER
	COMBINATION FIRE/SMOKE DAMPER
	MOTOR OPERATED DAMPER SAME SIZE AS DUCT UNLESS OTHERWISE NOTED
	DUCT-MOUNTED STATIC PRESSURE SENSOR
	MANUAL VOLUME DAMPER
	REMOTE BALANCING DAMPER
	SMOKE DETECTOR
	AIR FLOW STATION
	IONIZATION UNIT
	SQUARE ELBOW WITH TURNING VANES
	DUCT TRANSITION, RECTANGULAR TO ROUND OR OVAL
	DUCT TRANSITION, RECTANGULAR TO RECTANGULAR
	FLEX DUCT DIFFUSER
	ELECTRIC REDUCER FLAT SIDE ON BOTTOM
	ELECTRIC REDUCER FLAT SIDE ON TOP
	CONCENTRIC REDUCER
	PIPE DRAIN
	CAP ON END OF LINE
	ISOLATION BALL VALVE
	PIPE FLOW ARROW
	BUTTERFLY VALVE
	TWO WAY MODULATING MOTORIZED CONTROL VALVE
	STRAINER
	THERMOMETER
	PRESSURE GAUGE
	DRIP LEG

HVAC LEGEND & ABBREVIATIONS	
SYMBOL	DESCRIPTION
	GRADE ARROW INDICATES RISE OR DROP IN DUCT OR PIPE
	TEMPERATED WATER RETURN
	TEMPERATED WATER SUPPLY
	COOLING TOWER WATER RETURN
	COOLING TOWER WATER SUPPLY
	CONDENSATE DRAIN
	REFRIGERANT LIQUID
	REFRIGERANT SUCTION
	EMERGENCY FAN SHUTDOWN SWITCH
	EMERGENCY BOILER SHUTDOWN SWITCH
	BAS HUMIDITY SENSOR
	BAS CARBON DIOXIDE SENSOR
	BAS TEMPERATURE SENSOR
	THERMOSTAT
	EXHAUST FAN WALL SWITCH
	SPACE STATIC PRESSURE SENSOR (WALL MOUNTED)
	SPACE STATIC PRESSURE SENSOR (MOUNTED ABOVE CEILING)
	CARBON MONOXIDE SENSOR
	DIFFERENTIAL PRESSURE SENSOR
	CUBIC FEET PER MINUTE
	BUILDING AUTOMATION SYSTEM
	EXHAUST AIR
	ENTERING AIR TEMPERATURE
	ENERGY RECOVERY UNIT
	EXTERNAL STATIC PRESSURE
	EXPANSION TANK
	ELECTRIC UNIT HEATER
	ELECTRIC WALL HEATER
	ENTERING WATER TEMPERATURE
	GRAVITY VENTILATOR
	LEAVING AIR TEMPERATURE
	LEAVING WATER TEMPERATURE
	OPPOSED BLADE
	OUTSIDE AIR
	RETURN AIR
	SUPPLY AIR
	DUCTWORK TO BE REMOVED
	PIPING OR EQUIPMENT TO BE REMOVED
	EXTENT OF DEMO / CONNECT TO EXISTING

**GENERAL NOTES (APPLICABLE TO ALL HVAC SHEETS)**

- PROVIDE INSULATED FLEXIBLE DUCT TO DIFFUSER SAME SIZE AS DIFFUSER NECK SIZE WITH SINGLE BLADE DAMPER AND STAND-OFF BRACKET AT DIFFUSER TAKE-OFF.
- RUNOUTS TO DIFFUSERS SHALL BE SAME SIZE AS DIFFUSER NECK, UNLESS OTHERWISE NOTED.
- ROUTE DUCTWORK AS TIGHT TO STRUCTURE AS POSSIBLE, UNLESS OTHERWISE NOTED.
- MAXIMUM FLEXIBLE DUCT RUNOUT TO BE SEVEN FEET. USE GALVANIZED STEEL DUCT FOR INDIVIDUAL RUNOUTS OVER SEVEN FEET.
- BALANCE AIR DISTRIBUTION SYSTEMS AS NOTED.
- UNLESS OTHERWISE NOTED, WALL MOUNTED THERMOSTAT SENSORS SHALL BE MOUNTED AT 4'-0" AFF.
- COORDINATE ALL LAY-IN CEILING DIFFUSERS WITH ARCHITECTURAL REFLECTOR CEILING PLAN.
- PROTECT ALL MATERIALS AND EQUIPMENT FROM DAMAGE.
- CONTRACTOR SHALL PROTECT DUCTWORK VISIBLE THROUGH SUPPLY AND RETURN AIR OPENINGS AND GRILLES WITH BLACK PAINT.
- FLEXIBLE DUCT SHALL NOT BE INSTALLED ABOVE INACCESSIBLE CEILINGS.
- FLEXIBLE DUCT SHALL NOT BE INSTALLED IN EITHER RETURN OR EXHAUST AIR SYSTEMS.
- ALL HVAC CONDENSATE PIPING SHALL BE 1" UNLESS OTHERWISE NOTED.
- ALL SUPPLY AIR DIFFUSERS SHALL BE TYPE S-1 UNLESS OTHERWISE NOTED.
- ALL RETURN AIR GRILLES SHALL BE TYPE R-1 UNLESS OTHERWISE NOTED.
- EQUIPMENT ABOVE CEILINGS SHALL BE LOCATED WITH BOTTOM OF THE UNIT ACCESSIBLE FROM CEILING LEVEL; NOT TO EXCEED 24" ABOVE CEILING.
- DUCT SIZES SHOWN ON DRAWINGS PROVIDE THE MINIMUM CROSS-SECTIONAL AREA REQUIRED. INCREASE OVERALL DUCT DIMENSIONS AS NECESSARY TO ACCOMMODATE DUCT LINER THICKNESS.

**WORK SCOPE & OWNER REQUIREMENTS**

- MECHANICAL WORK SCOPE INCLUDES THE FOLLOWING MAJOR ITEMS:
  - CENTRAL PLANT EQUIPMENT WILL BE REPLACED INCLUDING PUMPS, BOILERS, COOLING TOWER, HEAT EXCHANGER, WATER TREATMENT SYSTEM, AND ASSOCIATED VALVES, FITTINGS, PIPING AND CONTROLS. VFDs FOR 3 LOOP PUMPS AND 2 COOLING TOWER PUMPS SHALL BE REUSED.
  - NATURAL DRAFT TYPE BOILERS WILL BE REPLACED WITH CONDENSING TYPE. EXHAUST FLUES WILL BE REPLACED WITH CATEGORY IV POSITIVE PRESSURE TYPE.
  - REPLACEMENT OF EXISTING WSHIP WITH SAME OR NEW SIZE IN BUILDING 5011.
  - REPLACEMENT OF ROOF-MOUNTED ENERGY RECOVERY VENTILATORS WITH NEW PACKAGED DX ERUS WITH HOT GAS REHEAT FOR SUPPLY OF ROOM NEUTRAL VENTILATION AIR. EXISTING DUCTWORK TO BE EXTENDED OUT TO INDIVIDUAL WSHPS FOR DIRECT SUPPLY TO EACH ZONE VS. ONLY IN THE FLENUM.
  - REBALANCE AIR DISTRIBUTION SYSTEMS WITH REPLACEMENT AND NEW EQUIPMENT THROUGHOUT 5011 BUILDING.
- CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOR AND MATERIAL TO ACCOMMODATE REPLACEMENT OF THE EXISTING WSHPS FOR INSTALLATION OF NEW 100% OUTSIDE AIR VENTILATION AND EXHAUST AIR DUCTWORK. THIS INCLUDES MODIFICATION OF EXISTING BUILDING LOOP PIPING AND CONDENSATE DRAINS FOR REUSE. CONTRACTOR SHALL FIELD VERIFY ROUTING OF DUCTWORK AFTER REMOVAL OF CEILINGS AND ALTER THE DIMENSIONS AS NEEDED TO FIT WITHIN THE AVAILABLE SPACE. MODIFICATIONS OF DUCT SIZE DIMENSIONS SHALL BE PROPOSED IF REQUIRED TO FIT WITHIN THE CORRIDOR CEILINGS. ALL DUCTWORK SHALL BE RIGID.
- CONTRACTOR SHALL INCLUDE LABOR/MATERIAL TO OFFSET AT LEAST 2 SECTIONS OF 2" OR LESS DOMESTIC WATER PIPES CROSSING THE CORRIDOR WITHOUT CHARGE TO THE OWNER.
- ADDITIONAL GWINNETT COUNTY PUBLIC SCHOOL PROJECT REQUIREMENTS:
  - ALL OLD MECHANICAL SYSTEMS, PIPING AND HANGERS ARE TO BE DEMOLISHED BACK TO THE FURTHEST POINT OF CONNECTION POSSIBLE.
  - ALL ABANDONED ELECTRICAL EQUIPMENT IS TO BE REMOVED. THIS INCLUDES ALL CONDUIT AND WIRING BACK TO FURTHEST POINT OF CONNECTION POSSIBLE. ALL EXISTING BREAKERS SERVING ABANDONED EQUIPMENT SHOULD BE RELABELLED AS "SPARE" IN AN UPDATED PANEL SCHEDULE FOR ALL CIRCUITS.
  - ALL OLD EMS CONTROL PANELS, DEVICES, CONDUIT AND WIRING ARE TO BE REMOVED (APPLIES THROUGHOUT THE PROJECT, ALSO).
  - ALL COMBUSTION AIR DUCTING AND ASSOCIATED ROOF CURBING AND CAPS/HOODS SHOULD BE REMOVED AND COVERED OVER BY THE NEW ROOF.
  - ALL OTHER ABANDONED EQUIPMENT'S ROOF CURBING AND CAPS SHOULD BE REMOVED AND COVERED OVER BY THE NEW ROOF.
  - ALL ABANDONED COPPER DOMESTIC WATER LINES SHOULD BE REMOVED AND CAPPED AT THE FURTHEST POSSIBLE POINT OF CONNECTION. AN ISOLATION BALL VALVE SHOULD BE INSTALLED JUST AHEAD OF THE CAP.
  - ALL LINE VOLTAGE POWER CIRCUITRY NEEDED FOR ALL NEW EMS CONTROL PANELS ARE TO BE FURNISHED BY THE ELECTRICAL CONTRACTOR.
  - ANY BRANCH PIPING AIR BLEED DEVICES ON THE BUILDING WATER LOOP SHOULD BE LOCATED AND REPLACED. CONTRACTOR SHALL INCLUDE REPLACEMENT OF AT LEAST 10 MANUAL VENTS AND 5 AUTOMATIC TYPE. TURN OVER ANY REMAINING VENTS TO OWNER REPRESENTATIVE.

**DESIGN NOTES:**

- THE CORRIDOR WALLS ARE FIRE RATED AND THE CEILING SERVES AS PART OF THE SMOKE BOUNDARY OF THE EGRESS PATH. SMOKE DAMPERS ARE NOT PROVIDED IN DUCT PENETRATIONS AND OPENINGS OF THE CORRIDOR WALLS (ABOVE THE CEILING). THE CODE REQUIREMENT TO MAKE THE WALL RESISTANT TO THE PASSAGE OF SMOKE WHENEVER THE FIRE RATING IS OMITTED DOES NOT APPLY SINCE THE CORRIDOR WALLS ARE FIRE RATED. ALL DUCT PENETRATIONS THROUGH THE CORRIDOR WALLS ARE SHOWN AS BEING PROTECTED WITH A FIRE DAMPER AS INSTALLED DURING ORIGINAL CONSTRUCTION. ANY WSHIP THAT SERVES BOTH A CLASSROOM AND THE CORRIDOR MUST BE PROVIDED WITH A SMOKE DETECTOR.
- OUTSIDE AIR RATES FOR CLASSROOMS WERE CALCULATED USING 7.5 CFM PER PERSON BASED ON ADDITION OF BI-POLAR IONIZATION FILTERS MOUNTED IN SUPPLY AIR DUCT. OCCUPANCY DENSITY IS 35 PEOPLE/1000 SF.
- ALL MECHANICAL TRAP PRIMERS TO BE REPLACED WITH BAS CONTROLLED UNITS.



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Revisions:	

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