

CONSTANT VOLUME SUPPLY/EXHAUST VALVES:

AN INTEGRALLY MOUNTED PRESSURE INDEPENDENT DDC CONTROLLER SENSES THE AIRFLOW IN THE ASSOCIATED DUCT SYSTEM, THE CONTROLLER MANIPULATES THE DAMPER AS REQUIRED TO ACHIEVE THE DESIRED SETPOINT (ADJ.). VARIATIONS IN THE DUCT SYSTEM STATIC PRESSURE WILL AUTOMATICALLY BE RECOGNIZED, AND THE BOX MOUNTED CONTROLLER WILL READJUST THE FLOW AS REQUIRED.

SINGLE FUME HOOD LABS:

THE FUME HOOD WILL BE CONTROLLED VIA DIRECT FACE VELOCITY MEASUREMENT. A SENSOR LOCATED IN THE SIDEWALL OF THE FUME HOOD WILL TRANSMIT THE ACTUAL FACE VELOCITY TO THE LAB'S ASSOCIATED DDC CONTROLLER. DEVIATIONS FROM SETPOINT (ADJ.) WILL BE CORRECTED VIA MANIPULATION OF THE FUME HOODS ASSOCIATED PNEUMATIC DAMPER AS REQUIRED BY THE DDC CONTROLLER TO BRING THE ACTUAL FACE VELOCITY WITHIN SETPOINT DEAD BAND LIMITS.

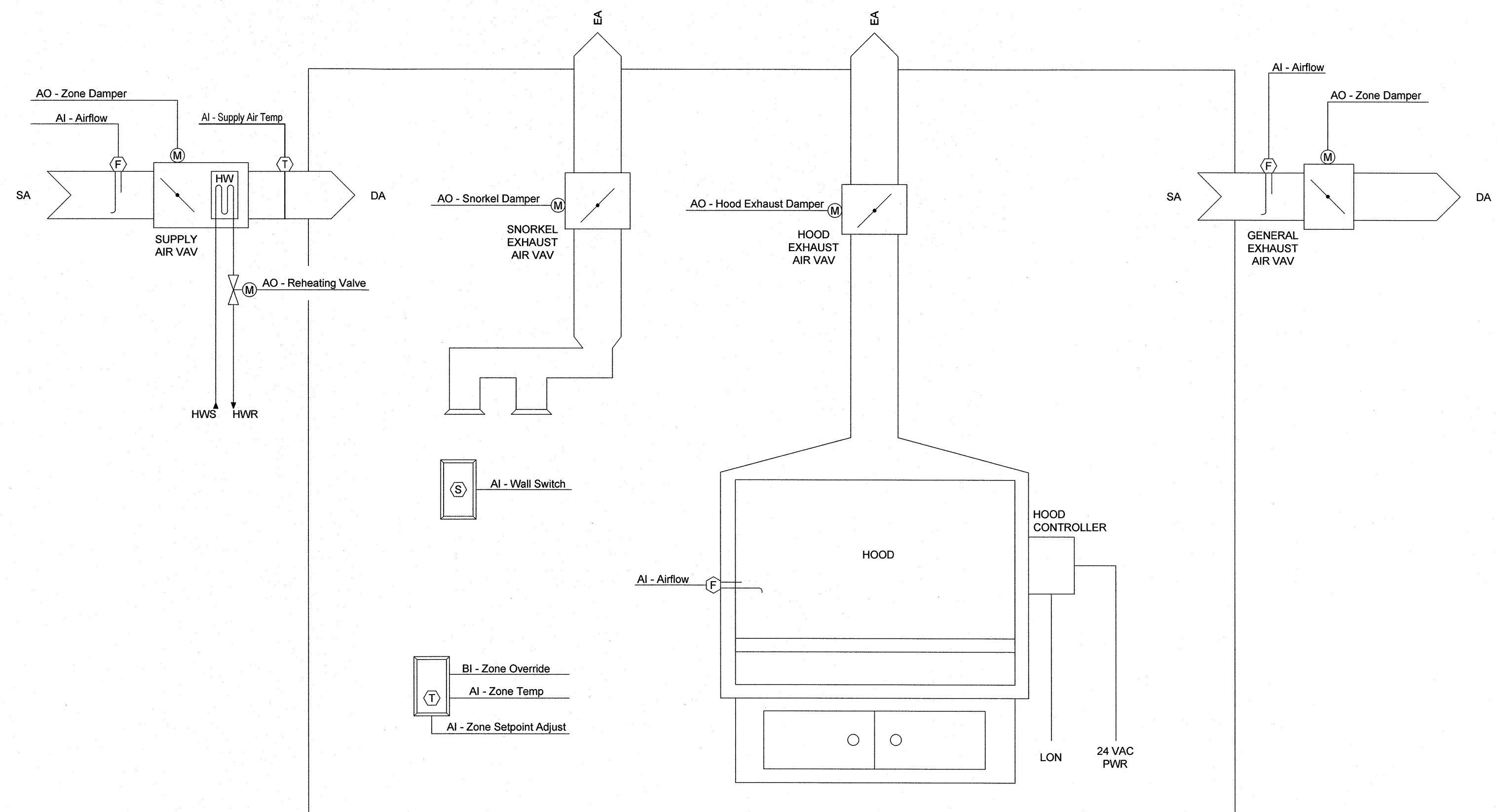
IN CONJUNCTION WITH THE FACE VELOCITY CONTROL OF EACH FUME HOOD, THE LABS DDC CONTROLLER WILL ALSO MAINTAIN EACH ASSOCIATED SPACE'S PRESSURIZATION VIA DIRECT FLOW OFFSET. THE SUM TOTAL OF THE SPACE'S SUPPLY AND EXHAUST FLOWS IS UTILIZED BY THE DDC CONTROLLER TO SET THE CONSTANT NET DIFFERENCE BETWEEN THE TWO. THE EXHAUST FLOW WILL PREDICATE THE CORRESPONDING SUPPLY FLOWS RESPONSE.

EACH FUME HOOD WILL BE EQUIPPED WITH AN IAM (INTELLIGENT ALARM MODE), THE ALARM MODE, IN ADDITION TO PROVIDING DATA RELATIVE TO THE FUME HOODS OPERATING STATUS, WILL ALSO BE THE USER LOCAL INTERFACE CAPABILITY FOR CHANGING FACE VELOCITY SET POINTS, OVERRIDING THE NIGHT SETBACK, AND ACTIVATING THE FUME HOODS EMERGENCY PURGE MODE. THE IAM IS PROVIDED WITH BOTH VISUAL AND AUDIBLE ALARM INDICATION. ALARMS HAVE PREPROGRAMMED (ADJ.) LIMITS WHICH ACTIVATE THE HILO ALARM FUNCTIONS. UPON RETURN TO NORMAL, THE ALARM(S) ARE AUTOMATICALLY CLEARED LOCALLY FROM THE IAM. THE IAM CAN BE PASSWORD PROTECTED LOCALLY TO LIMIT ACCESSIBILITY OF CHANGEABLE PARAMETERS.

TEMPERATURE CONTROL IS ACCOMPLISHED VIA MODULATION OF THE ASSOCIATED LAB'S REHEAT VALVE IN SEQUENCE WITH THE ROOM GENERAL EXHAUST. ON A CALL FOR HEAT, THE ROOM THE ROOM GENERAL EXHAUST IS CLOSED TO ITS RESPECTIVE MINIMUM SETPOINT. IF THERE IS AN ADDITIONAL HEATING REQUIREMENT, THE REHEAT VALVE ASSOCIATED WITH THE SPACE BEGINS OPENING UNTIL THE SPACE LOAD REQUIREMENTS HAVE BEEN SATISFIED. SINCE THE TEMPERATURE ALGORITHM UTILIZES A BTU SUMMARY, CHANGES WHICH MAY OCCUR DUE TO VARIATIONS IN THE FUME HOOD SASH POSITION WILL QUICKLY BE ANTICIPATED BY THE TEMPERATURE CONTROL SYSTEM, MINIMIZING VARIATIONS IN THE FUME HOOD SPACE TEMPERATURE. THE TEMPERATURE'S COOLING CONTROL OPERATES IN AN INVERSE MANNER THAN THAT OF HEATING PREVIOUSLY DESCRIBED. OCCUPIED SETPOINTS SHALL BE 74° F COOLING AND 71° F HEATING. UNOCCUPIED SETPOINTS SHALL BE 77° F COOLING AND 60° F HEATING.

LABORATORIES WITH SNORKELS:

A EACH SNORKEL DEVICE ASSOCIATED WITH A LABORATORY WILL BE PROVIDED ITS OWN DDC CONTROLLER. THE CONTROLLER WILL BE SET TO OPERATE BETWEEN ITS ASSOCIATED MAXIMUM AND MINIMUM SETPOINT. A TWO POSITION SWITCH WILL TOGGLE BETWEEN ITS ASSOCIATED MAXIMUM AND MINIMUM SETPOINTS. SINCE THE LABORATORY'S DDC CONTROLS ALSO SENSE THE FLOW THROUGH EACH OF THE DEVICES IN THE SPACE, CHANGES IN THE LABORATORY'S TOTAL EXHAUST FLOW ASSOCIATED WITH ACTIVATION/DEACTIVATION OF ANY SNORKEL WILL BE RECOGNIZED BY THE DDC SYSTEM AND THE SUPPLY SETPOINT ADJUSTED AUTOMATICALLY TO MAINTAIN THE SPACES REQUIRED INSULATION. SINCE SNORKEL DEVICES HAVE MULTIPLE DEVICES IN THE SPACE, IT WILL MEET THE CFM REQUIREMENT OF ALL ASSOCIATED DROPS. WHATEVER THE OPERATOR POSITION OF ANY OF THE DROPS ARE CLOSED, THE INCREASED STATIC WILL CAUSE THE VALVE TO THROTTLE TO A REDUCED FLOW, HENCE MAINTAINING THE DESIGNED FLOW OF THE DROPS WHICH REMAIN OPEN.



ROOM	SUPPLY TERMINAL UNIT			EXHAUST TERMINAL UNIT			HOOD		SNORKEL		ROOM AIR BALANCE
	UNIT	MAX FLOW	MIN FLOW	UNIT	MAX FLOW	MIN FLOW	MAX FLOW	MIN FLOW	MAX FLOW	MIN FLOW	
119	(X)ATU04	1125	1125	ETU05	1325	0	955	0	360	0	-190.0
117	(X)ATU01	820	820	ETU01	1020	455	565	0	-	-	-200.0

ROOM	SUPPLY TERMINAL UNIT			EXHAUST TERMINAL UNIT			HOOD		ROOM AIR BALANCE
	UNIT	MAX FLOW	MIN FLOW	UNIT	MAX FLOW	MIN FLOW	MAX FLOW	MIN FLOW	
117A, 119A, 119B	ATU03	780	780	ETU03	780	780	N/A	N/A	0.0

**RECORD DRAWING**

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Dated: 2017-10-13

By: