

## COORDINATION NOTE:

1. COORDINATION- IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL AND MECHANICAL CONTRACTORS TO COORIDNATE THEIR WORK. THE HVAC CONTRACTOR SHALL TAKE THE LEAD IN THE COORDINATION EFFORT AND PRODUCE THE COORDINATION DRAWINGS. COORDINATION DRAWINGS SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO STARTING ANY WORK. CEILING SPACE IS VERY LIMITED AND DUCTWORK/PIPING INSTALLATION AND LOCATION IS CRITIAL. THE PURPOSE OF THESE DRAWINGS IS TO COORDINATE THE LOCATIONS OF ALL PIPING, DUCTWORK, AND ASSOCIATED ELECTRICAL EQUIPMENT. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED AND LOCATED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC). MECHANICAL EQUIPMENT CANNOT INFILTRATE THE ELECTRICAL EQUIPMENTS WORKING CLEARANCE AND WORKING SPACE, NOR CAN IT BE INSTALLED DIRECTLY ABOVE OR BELOW TO THE STRUCTURE, AS IDENTIFIED WITHIN THE NEC, ARTICLE 110 -"REQUIREMENTS FOR ELECTRICAL INSTALLATION". THIS COORDINATION IS REQUIRED FOR ALL PHASES OF THIS PROJECT. FAILURE TO FOLLOW THIS PROCEDURE DOES NOT RELIEVE THE CONTRACTOR FROM THE DUTIES AND WILL NOT CONSTITUTE A REASON FOR A CHANGE ORDER.

				INS	SULATION	SCHEDU	JLE						
		110		(~)	LACKETING CLASS (L)			THICKNESS (IN)					
TYPE	EQUIPMENT OR SYSTEM SERVED	INSULATION CLASS (a)			JACKETING CLASS (b)			NOMINAL PIPE SIZE (IN) DUC				DUCTWORK	
		INTERIOR CONCEALED	INTERIOR EXPOSED	EXTERIOR	INTERIOR GENERAL	EQUIPMENT ROOMS	EXTERIOR	<1"	1"-<11"	1½"- <4"	4 "- <8"	≥8" & UP	(c)
	DCW, COOLING COIL CONDENSATE	FE			0			0.5	0.5	1.0	1.0	1.0	
A			FE			4		0.5	0.5	1.0	1.0	1.0	
	HWS, HWR	FG			1			1.5	1.5	2	2	2	
В			FG		1	1		1.5	1.5	2	2	2	
				UR			6	1.5	1.5	2	2	2	
	DUCTWORK	FG (d)			2								1.5(g)(J)
С			FG (e)		2	2							2 (f)(g)(J)
				UR(e)			3						2 (i)(J)
	LPS,LPC	FG			1			1.5	1.5	3	3	3	
D			FG		1	1		1.5	1.5	3	3	3	
				UR			6	1.5	1.5	3	3	3	
(a)	FG — FIBROUS GLASS FE — FLEXIBLE ELASTOMER UR — URETHANE CS — CALCIUM SILICATE FR — FIRE RATED	IC	(b)	) 0 NONE 1 ALL SERV 2 ALUMINUM 3 CANVAS 4 POLYVINY 5 STAINLESS 6 ALUMINUM 7 EPDM	FOIL  CHLORIDE  STEEL	(d)	SUPPLY AIR OUTSIDE AIR MIXED AIR RETURN AIR BLANKET  1" RIGID BOARD			SP (g) INS EX (i) TW	ACE SULATE EXHATERIOR PENI O LAYERS,	AUST AIR 15'- ETRATION 3 IN TOTAL	N CONDITIONED  -0" FROM  D HAVE PVC WRAF

ALL INSULATION TO COMPLY WITH 2015 NYS ENERGY CONSERVATION CONSTRUCTION CODE

AIR HANDLING UNIT SCHEDULE	
MODEL NOMINAL CAPACITY TYPE VOLTS/HERTZ/PHASE/HP FLA ASSOCIATED EQUIPMENT NOTES	S
S DAIKIN 1500 CFM STEAM 208V/60/3/2.0 7.8 LAH007A 1,2,3,4,5	3,4,5
IS   DAIKIN   1500 CFM   STEAM   208V/60/3/2.0   7.8   LAH007A   1,2,3,4,5  ABOVE USING STEEL THREADED RODS AND SUPPORT FRAMING W/ VIBRATION ISOLATORS. MUST INSTALL UNIT TO ALLOW FOR MAINTENANCE CLE  DETECTOR AND TIE INTO UNIT POWER FEED AND AIR INTAKE DAMPERS. CONNECT TO EXISTING BMS  URE ENTERING DB 35 DEGREES, LEAVING DB 114.4 DEGREES, STEAM PRESSURE 5 PSI, CONDENSATE 135.5 LB/H	

NOTE 4: PROVIDE MERV 14 FILTER NOTE 5: PROVIDE (2) 24"x24"x4" THICK FILTERS

FIXTURE AND EQUIPMENT CONNECTION SCHEDULE											
DESIGNATION	DESCRIPTION	COLD WATER	HOT WATER	WASTE OR SANITARY	VENT	CARRIERS & ACCESSORIES	NOTES				
SK-A	SINK	1/2"	1/2"	1 1/2"	2"	YES	NOTE 1				
SK-B	SINK(HANDICAPPED)	1/2"	1/2	1 1/2"	2"	YES	NOTE 1				

1. PROVIDE ELKAY SINK LRAD 2022 WITH FAUCET ELKAY LK4101, WATER SUPPLIES MCGUIRE 2167-LK-F AND TRAP MCGUIRE 8912-F ADA COMPLIANT. PROVIDE SOLID INTERCEPTOR MIFAB MI-SOLIDS-S WITH ALL APPURTENANCES. 2. ALL PLUMBING FIXTURES TO BE PROVIDED WITH 1/4 TURN SHUT-OFF VALVES AS SPECIFIED

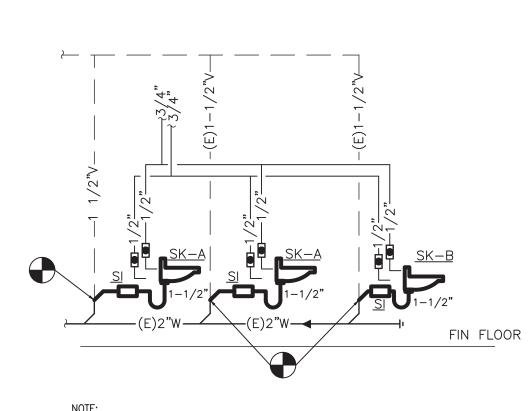
	LOUVER SCHEDULE											
LINIT NO	LOCATION	CED/40E	OFM	LOUNTED	AF	PROXIMATE	SIZE	MAX PD IN	BIRD SCREEN	DECION FOUNDMENT		
UNIT NO.	LOCATION	SERVICE	CFM	LOUVER	LENGTH	DEPTH	HEIGHT	W.G.		DESIGN EQUIPMENT		
L—1	ROOM 1	EXHAUST	SEE PLAN	ALUMINUM LOUVER	132	4	36	.05	YES	RUSKIN ELF375XH		
L-2	ROOM 1	AIR INTAKE	SEE PLAN	ALUMINUM LOUVER	36	4	36	.05	YES	RUSKIN ELF375XH		
L-3	ROOM 2	EXHAUST	SEE PLAN	ALUMINUM LOUVER	60	4	36	.05	YES	RUSKIN ELF375XH		
L-4	STOR. 4B	AIR INTAKE	SEE PLAN	ALUMINUM LOUVER	42	4	20.625	.05	YES	RUSKIN ELF375XH		

NOTE: PROVIDE FACTORY PAINTED FINISH (COLOR BY OWNER) ALL LOUVERS TO HAVE ALUMINUM BIRD SCREENS

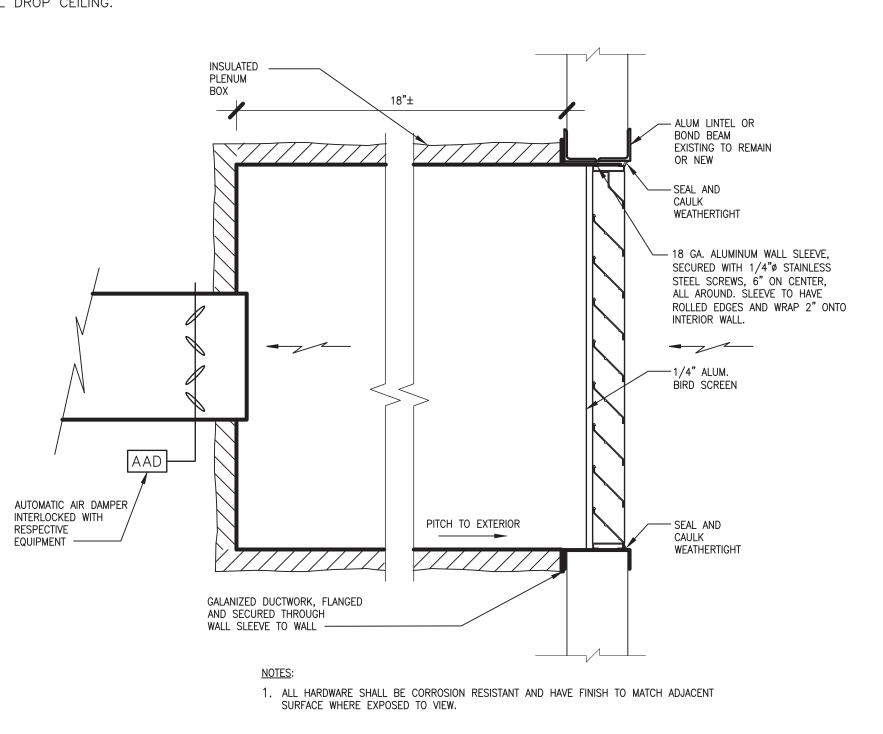
	REGISTER,	GRILLE	AND DIFF	USER SCHEDUL	_E
TYPE	APPLICATION	MATERIAL	FINISH	DESIGN EQUIPMENT	NOTES
SD-1	SUPPLY	STEEL	WHITE	TITUS MODEL TMS	1,2,3
SD-2	SUPPLY	STEEL	WHITE	TITUS MODEL R-OMNI	1,3
EG-1	EXHAUST	STEEL	WHITE	TITUS MODEL 350 RL	1,2,3
EG-2	EXHAUST	STEEL	WHITE	TITUS MODEL 350-ZRL	3

NOTE 1: PROVIDE APPROPRIATE SIZED NECK TO CONNECT TO NEW OR EXISTING DUCT. SEAL AND MAKE CONNECTIONS AIR TIGHT.

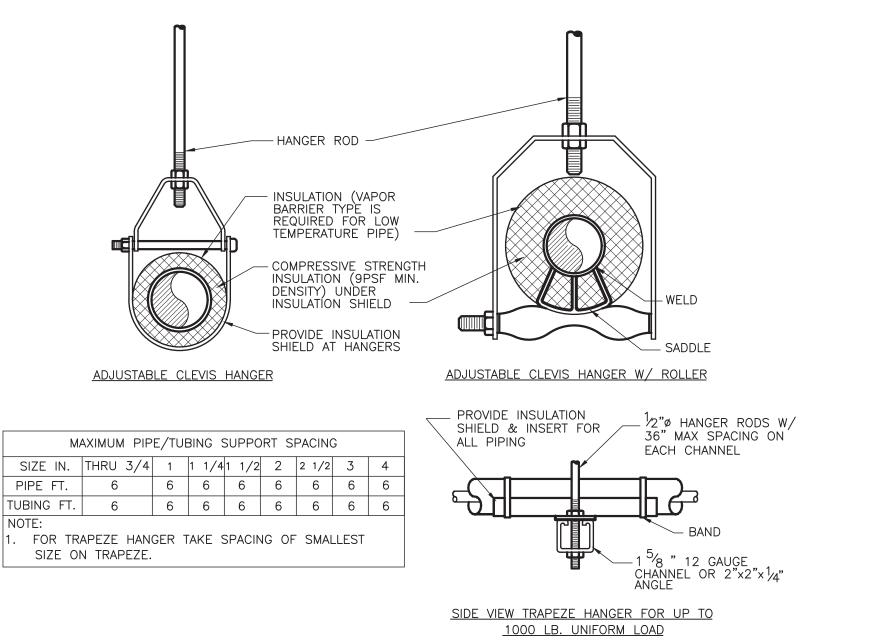
NOTE 2: PROVIDE GRILLE OR DIFFUSER TO FIT IN A FULL 2X2 CEILING TILE IN ALL DROP CEILING. NOTE 3: PROVIDE VOLUME DAMPERS FOR AIR BALANCING.

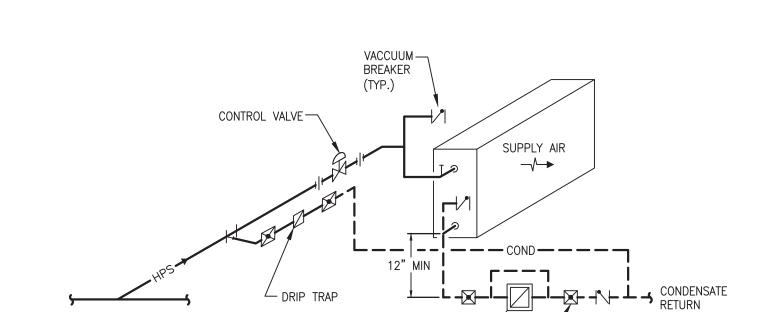


NOTE:
PROVIDE SOLID INTERCEPTOR (SI) MIFAB MI—SOLIDS—S AND APPURTENANCES OR APPROVED EQUAL 5 PLUMBING RISER DIAGRAM SCALE: NONE









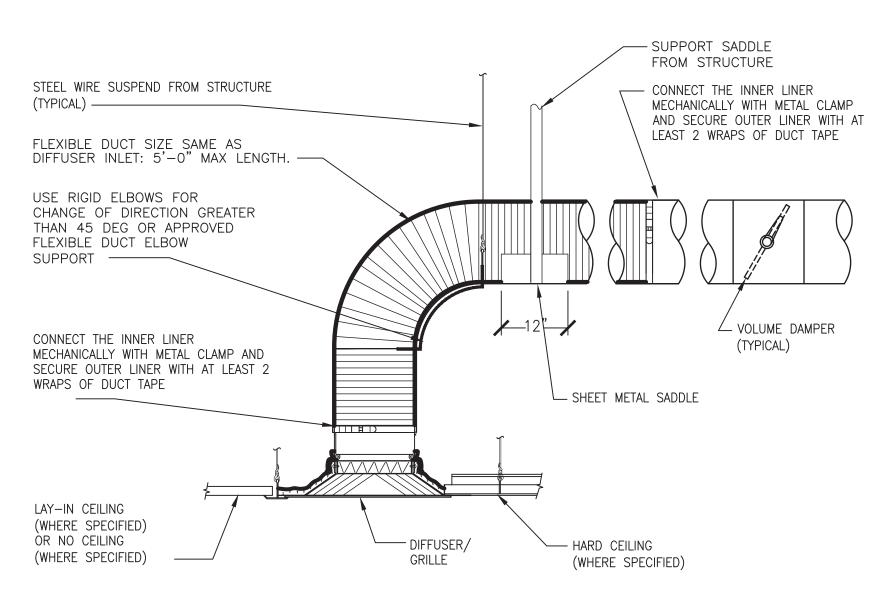
F/T TRAP —

BALL VALVE (TYP.)—

1 PIPE SUPPORT DETAIL
SCALE: NONE



STEAM MAIN



3 FLEXIBLE AIR DUCT CONNECTOR SCALE: NONE

ENGINEER: Eisenbach & Ruhnke Engineering, P.C Ph: 315-735-1916 Fax: 315-735-6365 www.erengpc.com CONSULTANT(S):

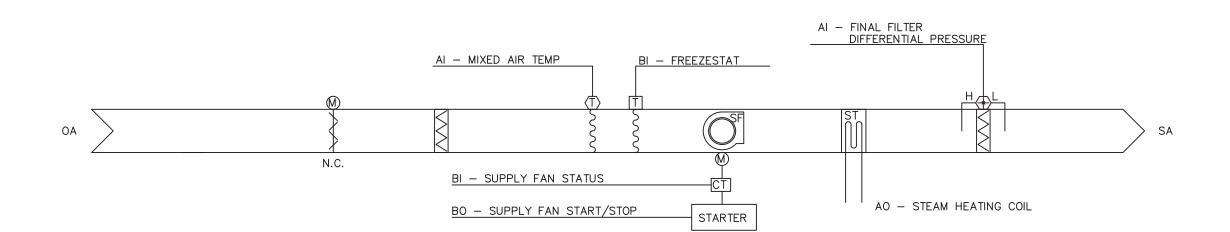
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YONKERS PUBLIC SCHOOL FIRE RESTORATIONS CROSS HILL ACADEMY

E&R PROJECT NO. Y21CH01 YPS NO. 10929 REVISION DATE BY ISSUED FOR BID MWh? DRAWN BY CHECKED BY JIE

ARCH E1 30" x 42" SHEET SIZE SCALE AS NOTED SHEET TITLE **DETAILS AND** SCHEDULES

SHEET NO. CHA MP-500



RUN CONDITIONS - SCHEDULED: THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING OCCUPIED MODE: THE UNIT SHALL MAINTAIN 75 DEG. F (ADJ.) COOLING SETPOINT

70 DEG. F (ADJ.) HEATING SETPOINT. UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN 80 DEG. F (ADJ.) COOLING SETPOINT. 65 DEG. F (ADJ.) HEATING SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.). LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

ZONE OPTIMAL START: THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.

ZONE UNOCCUPIED OVERRIDE: A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZESTAT STATUS.

SUPPLY FAN:
THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

ALARMS SHALL BE PROVIDED AS FOLLOWS: SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE ELECTRIC HEATING COIL TO MAINTAIN ITS HEATING SET POINT.

THE HEATING SHALL BE ENABLED WHENEVER:

OUTSIDE AIR TEMPERATURE IS LESS THAN 65 DEG.F (ADJ.).
AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.

AND THE SUPPLY FAN STATUS IS ON. THE HEATING COIL SHALL OPEN WHENEVER THE FREEZESTAT (IF PRESENT) IS ON.

MINIMUM OUTSIDE AIR VENTILATION - FIXED PERCENTAGE: THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM POSITION (ADJ.) DURING BUILDING OCCUPIED HOURS AND BE CLOSED DURING UNOCCUPIED HOURS.

FINAL FILTER DIFFERENTIAL PRESSURE MONITOR:
THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FINAL FILTER.

ALARMS SHALL BE PROVIDED AS FOLLOWS: FINAL FILTER CHANGE REQUIRED: FINAL FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

MIXED AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE MIXED AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL (IF PRESENT) OR PREHEATING CONTROL (IF PRESENT).

ALARMS SHALL BE PROVIDED AS FOLLOWS: HIGH MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90 DEG. F (ADJ.). LOWMIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS LESS THAN 45 DEG. F (ADJ.).

ENGINEER:

CONSULTANT(S):

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Eisenbach & Ruhnke Engineering, 1

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YONKERS PUBLIC SCHOOL FIRE RESTORATIONS CROSS HILL ACADEMY

E&R PROJECT NO. Y21CH01 10929 YPS NO.

DATE BY REVISION ISSUED FOR BID DRAWN BY CHECKED BY JIE ARCH E1 30" x 42"

SHEET SIZE AS NOTED SHEET TITLE

CONTROL SCHEMATICS

SHEET NO.

AIR HANDLING UNIT CONTROL SCHEMATIC

SCALE: NONE

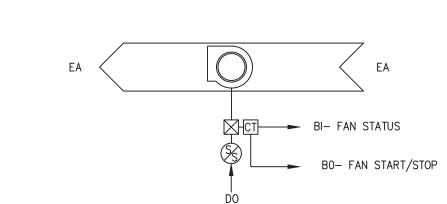
## SEQUENCE OF OPERATION

EXHAUST FAN(S):

RUN CONDITIONS INTERLOCKED: THE FAN(S) EF-1, EF-2 SHALL BE INTERLOCKED TO RUN WHENEVER AHU-1 RUNS UNLESS SHUTDOWN ON SAFETIES.

THE FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME

THE CONTROLLER SHALL MONITOR THE FAN STATUS. ALARMS SHALL BE PROVIDED AS FOLLOWS: FAN FAILURE: COMMANDED ON BUT THE STATUS IS OFF. FAN IN HAND: COMMAND OFF, BUT THE STATUS IS ON. FAN RUNTIME EXCEEDED: FAN STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.)



2 EXHAUST FAN(S) CONTROL SCHEMATIC SCALE: NONE

CONTROL DIAGRAMS LEGEND

AI = ANALOG INPUT. A PHYSICAL INPUT TO THE CONTROL MODULE.

AO = ANALOG OUTPUT. A PHYSICAL OUTPUT FROM THE CONTROL MODULE.

AV = ANALOG VALUE. AN INTERMEDIATE (SOFTWARE) POINT THAT MAY BE EDITABLE OR READ—ONLY. EDITABLE AVS ARE TYPICALLY USED TO ALLOW THE USER TO SET A FIXED CONTROL PARAMETER, SUCH AS A SETPOINT. READ ONLY AVS ARE TYPICALLY USED TO DISPLAY THE STATUS OF A CONTROL OPERATION.

BI = BINARY INPUT. A PHYSICAL INPUT TO THE CONTROL MODULE.

BO = BINARY OUTPUT. A PHYSICAL OUTPUT FROM THE CONTROL MODULE.

BV = BINARY VALUE. AN INTERMEDIATE (SOFTWARE) POINT THAT MAY BE EDITABLE OR READ—ONLY. EDITABLE BVS ARE TYPICALLY USED TO ALLOW THE USER TO SET A FIXED CONTROL PARAMETER, SUCH AS A SETPOINT. READ ONLY BVS ARE TYPICALLY USED TO DISPLAY THE STATUS OF A CONTROL OPERATION.