

### AIR DISTRIBUTION SYMBOLS

- 12x16 RECTANGULAR DUCT. (FIRST NUMBER IS SIDE SHOWN) DIMENSIONS IN INCHES
- 12"Ø 12 INCH ROUND DUCT
- MD MOTORIZED DAMPER
- FLEXIBLE DUCT
- DUCT FLEXIBLE CONNECTOR (FC)
- DUCT DROPS AND RISES IN DIRECTION OF AIR FLOW
- RETURN DUCT TURNED UP OR DOWN (DASHED)
- SUPPLY DUCT TURNED UP OR DOWN (DASHED)
- EXHAUST DUCT TURNED UP OR DOWN (DASHED)
- ACOUSTICAL LINING (DUCT DIM. FOR NET FREE AREA)
- ROUND DUCT ELBOW DOWN
- ROUND DUCT ELBOW UP
- SQUARE TO ROUND TRANSITION
- CAP (DUCT AND/OR PIPE)
- INDICATES DUCT, PIPING, EQUIPMENT TO BE REMOVED.
- EA EXHAUST AIR
- RA RETURN AIR
- SA SUPPLY AIR
- VOLUME DAMPER
- FIRE DAMPER
- SMOKE DAMPER
- TAG NO.
- COMBINATION SMOKE/FIRE DAMPER
- TAG NO.
- RECTANGULAR ELBOW W/TURNING VANES
- DIRECTION OF AIR FLOW (IN)
- DIRECTION OF AIR FLOW (OUT)
- HUMIDISTAT OR HUMIDITY SENSOR
- THERMOSTAT (T'STAT) OR TEMP. SENSOR
- SMOKE DETECTOR
- S-3 DIFFUSER, REGISTER OR GRILLE TAG
- 300 CFM AIR FLOW QUANTITY
- TYP. 3
- FIR-2 FINNED TUBE TAG
- 20 LENGTH OF FINNED ELEMENT
- A1 DETAIL NO.
- MH401 SHEET NO. WHERE DETAIL IS LOCATED
- CUH EQUIPMENT TAG
- 2 EQUIPMENT NO.

### PIPING SYMBOLS

- UNION
- FLANGE
- PIPE ANCHOR
- PIPE GUIDE OR SLEEVES
- PIPE ELBOW TURNED DOWN
- PIPE ELBOW TURNED UP
- PIPING TEE-DOWN
- PIPING TEE-UP
- PIPE RISER
- FCO FLOOR CLEAN OUT
- CLEAN OUT
- WCO WALL CLEAN OUT
- PIPE PITCHES DOWN
- GENERIC VALVE, SEE SPECIFICATIONS FOR TYPE
- GATE VALVE
- BALL VALVE
- BUTTERFLY VALVE (MANUAL)
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- BALANCING VALVE (CIRCUIT SETTER)
- CHECK VALVE
- PLUG VALVE
- GLOBE VALVE
- NEEDLE VALVE
- BACK FLOW PREVENTER
- SOLENOID VALVE
- PRESSURE REDUCING OR REGULATING VALVE
- PRESSURE RELIEF VALVE
- STRAINER
- STRAINER W/BLOWDOWN
- MANUAL AIR VENT
- AUTOMATIC AIR VENT
- PRESSURE SWITCH
- FLOW SWITCH
- PG PRESSURE GAUGE AND COCK
- THERMOMETER AND WELL
- TEMPERATURE & PRESSURE TAP (PETE'S PLUG)
- HOSE END DRAIN VALVE WITH CAP
- ORIFICE FLOWMETER
- FLEXIBLE PIPE CONNECTOR EXPANSION JOINT
- F&T STEAM TRAP (FLOAT AND THERMOSTATIC INDICATED T.T. THERMOSTAT, B.T. BUCKET TRAP, T.D. THERMODYNAMIC TRAP)
- CONCENTRIC REDUCER/INCREASER
- ECCENTRIC REDUCER/INCREASER
- HOSE BIBB
- WH WALL HYDRANT
- DIRECTION OF FLOW
- FIRE DEPARTMENT CONNECTION
- PUMP
- WATER HAMMER SUPPRESSER
- FINNED TUBE BASEBOARD
- HUMIDIFIER
- DIFFERENTIAL PRESSURE TRANSMITTER
- SPRINKLER HEAD
- GAS TURRET
- MEDICAL OXYGEN OUTLET
- MEDICAL VACUUM INLET
- MEDICAL AIR OUTLET
- NITROUS OXIDE OUTLET

### ABBREVIATIONS

AAV	AUTOMATIC AIR VENT	DIW	DOWN IN WALL	OA	OUTSIDE AIR
ACC	AIR COOLED CONDENSER	DN	DOWN	OBD	OPPOSED BLADE DAMPER
ACU	AIR CONDITIONING UNIT	DS	DOWNSPOUT	OED	OPEN ENDED DUCT
AD	ACCESS DOOR	DT	DROP AND TRANSITION	P-#	PLUMBING FIXTURE TAG
AE	ACID EXHAUST	DWG	DRAWING	PAE	PROCESS ACID EXHAUST
AFF	ABOVE FINISHED FLOOR	DWH	DOMESTIC WATER HEATER	PHE	PROCESS HEAT EXHAUST
AFMS	AIR FLOW MEASURING STATION	EA	EXHAUST AIR	PSE	PROCESS SOLVENT EXHAUST
AHU	AIR HANDLING UNIT	EF	EXHAUST FAN	PP	POLY-PROPYLENE
AP	ACCESS PANEL	ENC	ENCLOSURE	PPE	PRE PURCHASED EQUIPMENT
ATC	AUTOMATIC TEMPERATURE CONTROL	ER	EXHAUST REGISTER	PRS	PRESSURE REDUCING STATION
AV	AIR VENT	(E)	EXISTING	PRV	PRESSURE REDUCING VALVE
BA	BREATHING COMPRESSED AIR	EXIST.	EXISTING	PVD	PNEUMATIC VOLUME DAMPER
BB	BASEBOARD	FBO	FURNISHED BY OWNER	(R)	REMOVE
BDD	BACKDRAFT DAMPER	FBP	FACE AND BYPASS	RA	RETURN AIR
BG	BLAST GATE	FC	FLEXIBLE CONNECTION	RD	ROOF DRAIN
BFP	BACKFLOW PREVENTER	FCO	FLOOR CLEANOUT	(REL.)	RELOCATED
BLDG	BUILDING	FD-#	FLOOR DRAIN TAG	RF	RETURN FAN
BOD	BOTTOM OF DUCT	FD	FIRE DAMPER	RG	RETURN GRILLE
BOP	BOTTOM OF PIPE	FG	FIBERGLASS	RH	REHEAT COIL
BTU	BRITISH THERMAL UNIT	F & T	FLOAT AND THERMOSTATIC	RM	ROOM
CBD	COUNTER BALANCED DAMPER	FO	FLAT OVAL	RPZ	REDUCED PRESSURE ZONE BFP
CD	CEILING DIFFUSER	FRHB	FREEZE RESISTANT HOSE BIBB	RR	RETURN REGISTER
CFF	CAPPED FOR FUTURE	FTR	FINNED TUBE RADIATION	RV	RELIEF VALVE
CFM	CUBIC FEET PER MINUTE	FS	FLOW SWITCH	SA	SUPPLY AIR
CLG	CEILING	GC	GENERAL CONTRACTOR	SCV	SELF CONTAINED VALVE
CO	CLEANOUT	GPM	GALLONS PER MINUTE	SD	SMOKE DETECTOR
CONT	CONTINUATION	H	HUMIDIFIER	SF	SUPPLY FAN
COORD	COORDINATE	HB	HOSE BIB	SG	SUPPLY GRILLE
CP	CONDENSATE PUMP & RECEIVER	HRU	HEAT RECOVERY UNIT	SR	SUPPLY REGISTER
CT	COOLING TOWER	HTR	HEATER	SS	STAINLESS STEEL
CTE	CONNECT TO EXISTING	H & V	HEATING AND VENTILATION	TE	TEMPERATURIZED ELEMENT (SENSOR)
CU	COPPER	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	TG	TRANSFER GRILLE
CUH	CABINET UNIT HEATER	HW	HOT WATER	TOD	TOP OF DUCT
CV	CONTROL VALVE	HX	HEAT EXCHANGER	TOP	TOP OF PIPE
CW	COLD WATER	IN WG	INCHES WATER GAUGE	TTS	TIGHT TO STEEL
CW-P	CITY WATER-PROCESS	LD	LINED DUCT	TV	TURNING VANE(S)
DC	DOUBLE CONTAINED	MAU	MAKE UP AIR UNIT	TYP	TYPICAL
DDC	DIRECT DIGITAL CONTROL	MAX	MAXIMUM	UH	UNIT HEATER
DIA	DIAMETER	MBH	1000 BTU/HR.	UIC	UP IN CHASE
DIC	DOWN IN CHASE	ME	MECHANICAL ENGINEER	UIW	UP IN WALL
		MFR	MANUFACTURER	UV	UNIT VENTILATOR
		MIN	MINIMUM	VAV	VARIABLE AIR VOLUME BOX
		MD	MOTOR OPERATED DAMPER	VB	VACUUM BREAKER
		MPV	MULTI-PURPOSE VALVE	VTR	VENT THRU ROOF
		MTD	MOUNTED	VD	MANUAL VOLUME DAMPER
		MUA	MAKE UP AIR	VCFF	VALVED AND CAPPED FOR FUTURE
		NPW	NON-POTABLE WATER	VOC	VOLATILE ORGANIC COMPOUNDS
		NTS	NOT TO SCALE	VFD	VARIABLE FREQUENCY DRIVE
		P-#	PLUMBING FIXTURE TAG	W/	WITH
		PEA	ALKALI EXHAUST	WCO	WALL CLEANOUT
		PEH	HEAT EXHAUST	WH	WALL HYDRANT

### PIPING SYSTEMS

10:1 HF	10:1 HF	---GCR---	GRAVITY STEAM CONDENSATE RETURN	MV	MEDICAL VACUUM	TW	TEMPERED WATER
AV	ACID VENT	GLY	GLYCOL	N2NP	NON-PROCESS NITROGEN	TWS	TEMPERED CHILLED WATER SUPPLY
AD	ACID DRAIN	GV	GAS VENT	N2	PROCESS NITROGEN	---TWR---	TEMPERED CHILLED WATER RETURN
---AD---	ACID DRAIN (BELOW SLAB)	H	HYDROGEN	NG	NATURAL GAS	VAC	PLANT VACUUM
BA	BREATHING AIR	H202	HYDROGEN PEROXIDE	HNG	HIGH PRESSURE NATURAL GAS	ZB	ZONE VALVE BOX
CD	CONDENSATE DRAIN	---HCR---	HOT/ CHILLED WATER RETURN	NO2	NITROUS OXIDE	---TEMP---	DOMESTIC HOT WATER (TEMP °F)
CDA	COMPRESSED DRY AIR	HCS	HOT/ CHILLED WATER SUPPLY	---NEG. SOLV.---	NEGATIVE SOLVENT DRAIN	---TEMP---	RECIRC. DOMESTIC HOT WATER (TEMP °F)
CHWS	CHILLED WATER SUPPLY	HCV	HOUSE CLEAN VACUUM	NPW	NON POTABLE COLD WATER	CW	DOMESTIC COLD WATER
---CHWR---	CHILLED WATER RETURN	HG	HOT GAS	O2	OXYGEN	HW	DOMESTIC HOT WATER (120° F)
CWS	CONDENSER WATER SUPPLY	HPS	HIGH PRESSURE STEAM	OFA	OIL FREE COMPRESSED AIR	---RHW---	RECIRCULATED DOMESTIC HOT WATER (120° F)
---CWR---	CONDENSER WATER RETURN	---HPR---	HIGH PRESSURE CONDENSATE RETURN	PCWR	PROCESS COOLING WATER RETURN	S, W or KW	S SANITARY, W WASTE & KW KITCHEN WASTE
DB	DISTRIBUTION VALVE BOX	HWS	HOT WATER SUPPLY	PC	PUMPED STEAM CONDENSATE	S, W or KW	S SANITARY, W WASTE & KW KITCHEN WASTE (EXIST.)
DIS	DEIONIZED WATER SUPPLY	---HWR---	HOT WATER RETURN	PD	PUMPED DISCHARGE	S, W or KW	S SANITARY, W WASTE & KW KITCHEN WASTE (BELOW SLAB)
---DIR---	DEIONIZED WATER RETURN	ID	ISOPROPYL ALCOHOL DRAIN	---POS. SOLV.---	POSITIVE SOLVENT DRAIN	S, W or KW	S SANITARY, W WASTE & KW KITCHEN WASTE (BELOW SLAB-EXIST.)
EKCD	EKC DRAIN	LP	LIQUID PROPANE GAS	PW	POTABLE WATER	SD	SD STORM DRAIN
ESEW	EYEWASH	HLP	HIGH PRESSURE LIQUID PROPANE GAS	R	RELIEF LINE	SD	SD STORM DRAIN (EXIST.)
FCS	FREE COOLING SUPPLY	LPS	LOW PRESSURE STEAM	RL	REFRIGERANT LIQUID	SD	SD STORM DRAIN (BELOW SLAB)
---FCR---	FREE COOLING RETURN	---LPR---	LOW PRESSURE RETURN	RS	REFRIGERANT SUCTION	SD	SD STORM DRAIN (BELOW SLAB-EXIST.)
FOS	FUEL OIL SUPPLY	MA	MEDICAL AIR	SLD	MIXED SOLVENT DRAIN	V	V SANITARY VENT
---FOR---	FUEL OIL RETURN	MPS	MEDIUM PRESSURE STEAM	SV	SOLVENT	V	V SANITARY VENT (EXIST.)
FOV	FUEL OIL VENT	---MPR---	MEDIUM PRESSURE RETURN	SP	SPRINKLER	V	V SANITARY VENT (BELOW SLAB)
						V	V SANITARY VENT (BELOW SLAB-EXIST.)

**GENERAL NOTE**  
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ISSUED FOR CONSTRUCTION  
 3-30-09

NO.	DATE	DESCRIPTION
0	REV	
1	3-30-09	ISSUED FOR CONSTRUCTION

GRAPHIC SCALE:  
 0' 1'

SCALE: NOT TO SCALE

PROJECT MANAGER: KD  
 K/DRAWN BY: BAL  
 A/E OF RECORD: PMB  
 CAD FILE: M-001-09009  
 PROJECT NO.: 09009  
 DATE: 3-30-09

SHEET TITLE:  
 LEGEND AND ABBREVIATIONS

SHEET No.  
**M-001**  
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