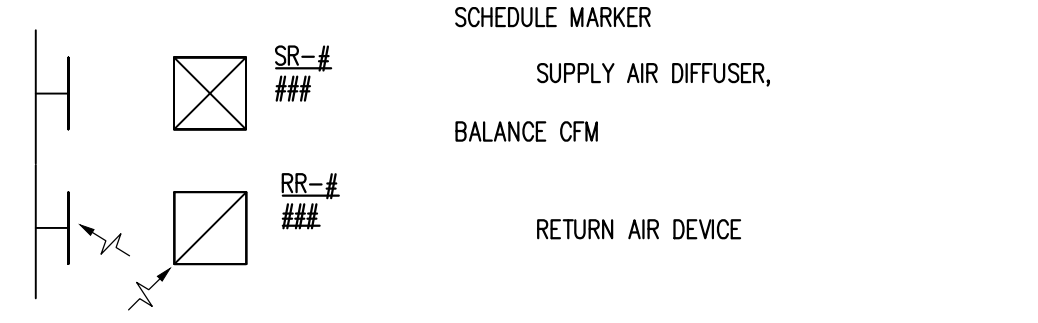
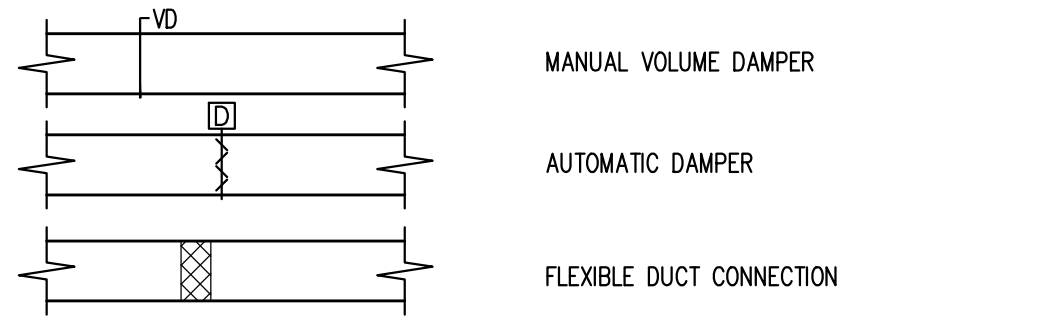
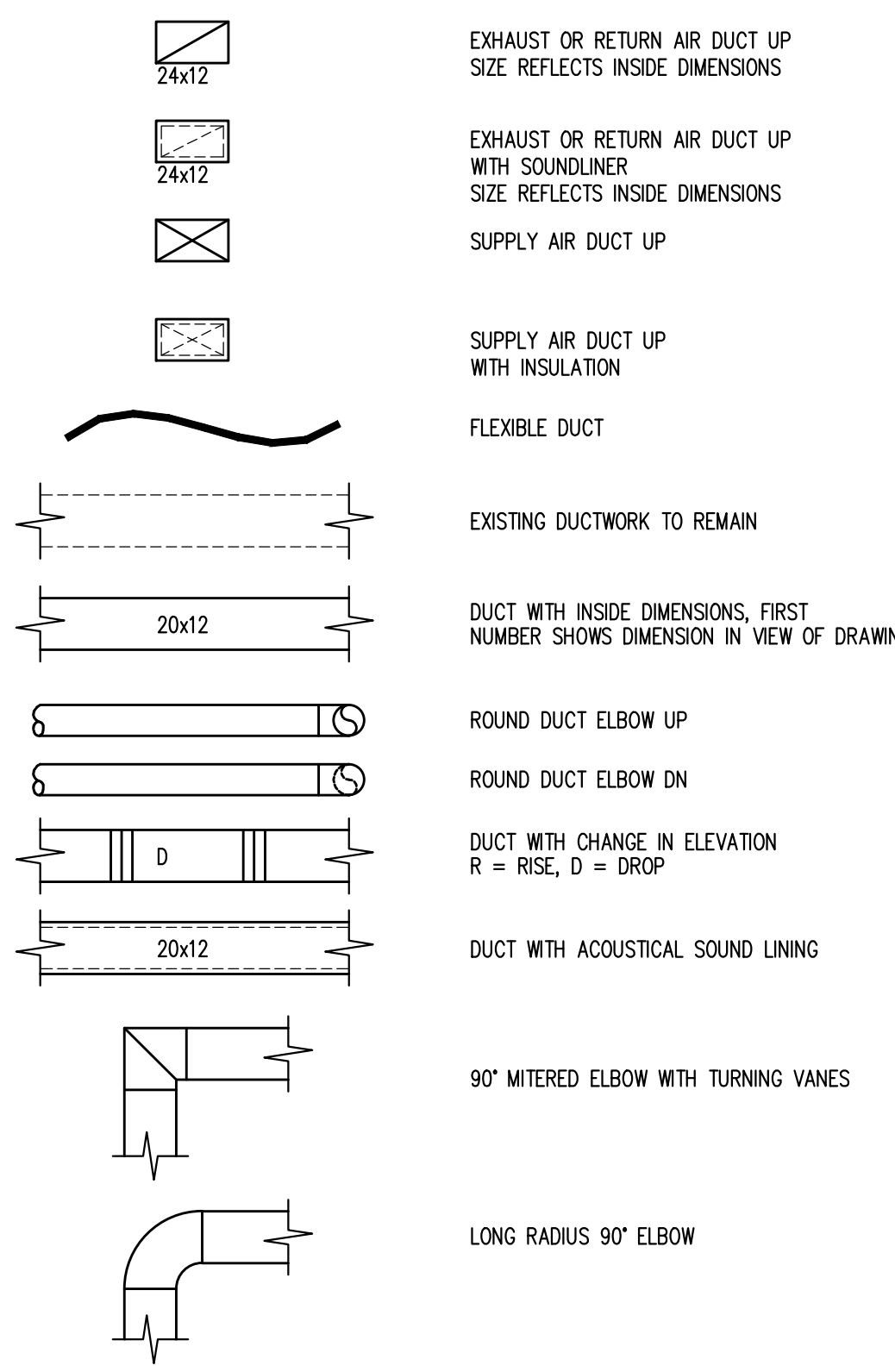
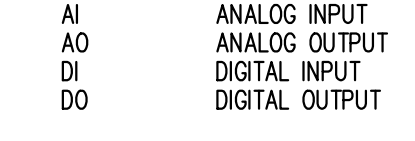
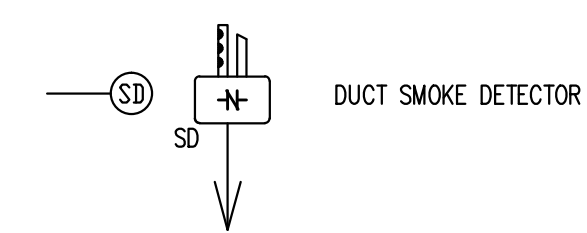
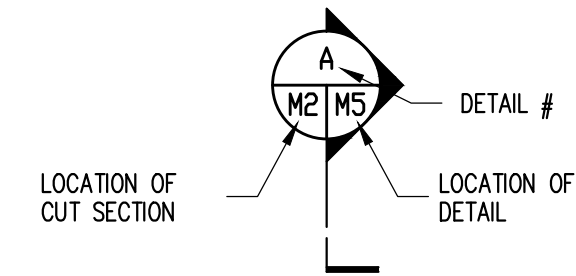
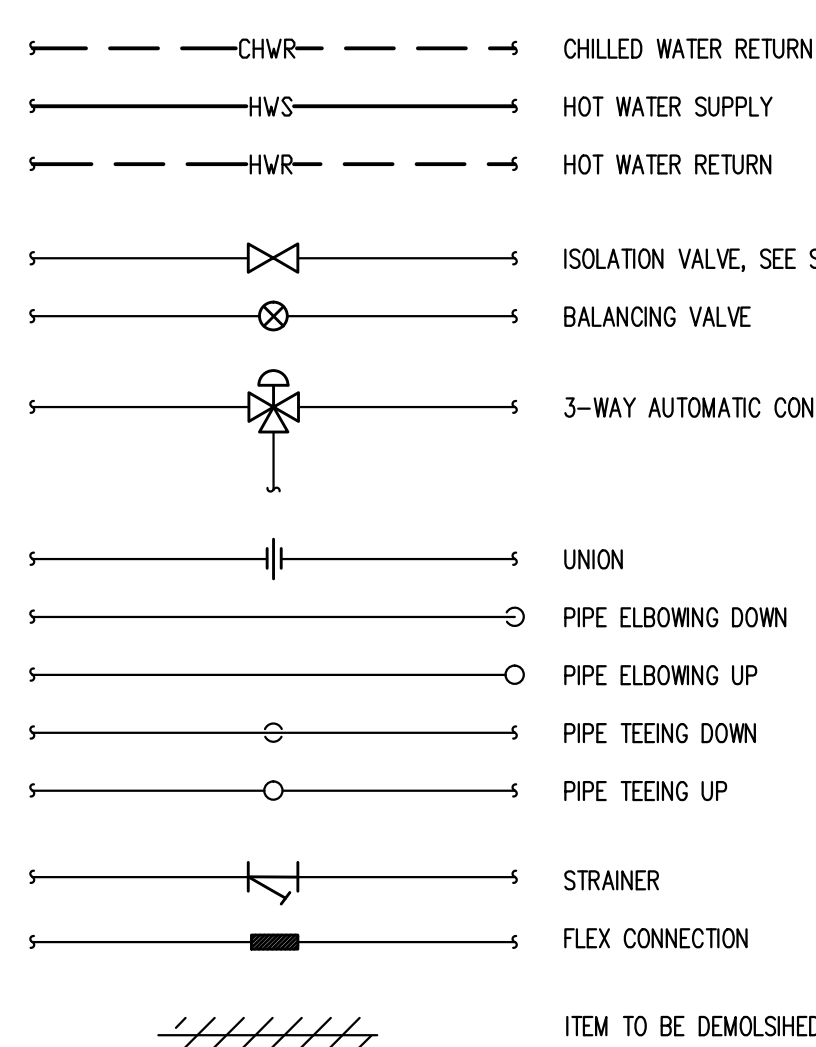


A
CM-1
MECHANICAL GENERAL NOTES

- DUCTWORK SHALL BE FABRICATED FROM FIELD VERIFIED DIMENSIONS. CEILING CLEARANCES PRIOR TO DUCT FABRICATION SHALL BE VERIFIED WITH STRUCTURE, PIPES, ETC. COORDINATE THE INSTALLATION OF DUCTWORK MODIFICATIONS WITH THE SPRINKLER PIPING. NEW DUCTWORK SHALL BE INSTALLED PRIOR TO PIPING, PLUMBING, SPRINKLER AND ELECTRICAL WORK TO MINIMIZE CONFLICTS. HOLD ALL DUCTWORK AS HIGH AS POSSIBLE. ADJUSTMENT OF DUCTWORK SHALL BE COMPENSATED ON A PER POUND BASIS AND UNIT PRICING PER THE LATEST VERSION OF MEANS MECHANICAL COST GUIDE. INCLUDE AN ALLOWANCE OF 20% ADDITIONAL POUNDS TO ACCOMPLISH ANY MOD.
- THE WORD 'PROVIDE' SHOWN ANYWHERE ON THE CONTRACT DOCUMENTS SHALL MEAN 'TO FURNISH AND INTALL'.
- PROVIDE LONG RADIUS ELBOWS, UNLESS NOTED OTHERWISE. ALL MITERED ELBOWS SHOWN ON THE PLANS SHALL BE PROVIDED WITH TURNING VANES.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND CERTIFICATES OF INSPECTION AND INCLUDE THE COST OF SAME IN HIS CONTRACT.
- ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER.
- TEST AND BALANCE ALL DIFFUSERS AND DAMPERS TO +/- 10%. PROVIDE 7 COPIES OF WRITTEN TEST REPORT OF RESULTS FOR APPROVAL. TESTING AND BALANCING CONTRACTOR SHALL BE AABC OR NEBB CERTIFIED.
- THE SUPPORT WIRES FOR THE SUSPENDED CEILING TEE GRIDS SHALL NOT BE USED TO SUPPORT PIPE, DUCTWORK, CONDUIT, JUNCTION BOXES OR ARMORED CABLE (BX).
- ALL EQUIPMENT SUPPLIED SHALL CARRY UNDERWRITERS LABEL OR OTHER APPROVED AGENCY CERTIFICATION. CUT AND PATCH ALL DUCT OPENINGS MADE DURING CONNECTION TO MAIN DISTRIBUTION SYSTEM.
- EXISTING ITEMS ARE DRAWING WITH LIGHT LINEWORK, NEW WORK ITEMS ARE DRAWING WITH DARK LINES ON NEW WORK PLANS. DEMOLITION ITEMS ARE DRAWN WITH HASHED, TRACK STYLE LINES ON DEMOLITION WORK PLANS.
- ALL CONTROL WIRING SHALL BE PLENUM RATED.
- CONTRACTOR MAY OFFSET, JOG, TRANSITION, OR DIVIDE DUCTWORK TO AVOID CONFLICTS PROVIDED EQUIVALENT DIAMETER.
- THESE DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY AND ALL ACCESSORIES IN ORDER TO MAKE THE SYSTEMS WORK.
- ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE DESIGNED AT A MINIMUM OF 2 INCH WATER GAUGE PRESSURE CLASS.
- ALL EXHAUST AIR DUCTWORK SHALL BE DESIGNED AT A MINIMUM 1 INCH WATER GAUGE PRESSURE CLASS.
- ALL WORKMANSHIP, MATERIALS AND EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF 1 YEAR AFTER ACCEPTANCE BY OWNER AS DOCUMENTED BY THE SUBSTANTIAL COMPLETION CERTIFICATE.
- CLEAN ALL EXISTING DUCTWORK PER SPECIFICATIONS.
- PROVIDE CONDENSATE DRAINS AND TRAPS ON ALL NEW COOLING UNITS. TRAPS SHALL BE AT LEAST 1 INCH DEEPER THAN THE STATIC PRESSURE RATING OF THE ASSOCIATED FAN.
- ALL NEW CONTROL WIRING IN FINISHED SPACES SHALL BE INSTALLED CONCEALED. CUT AND PATCH WALLS AND OTHER SURFACES AS REQUIRED. OBTAIN APPROVAL FROM COUNTY'S ASBESTOS CONSULTANT BEFORE PENETRATING ANY WALLS.
- PROVIDE ALL NECESSARY CUTTING AND PATCHING AT NO ADDITIONAL COST.
- CLOSE ALL OPENINGS ASSOCIATED WITH DEMOLITION OF MPE ITEMS AND REPAIR ALL CUT SURFACES, RESTORING SURFACES TO MATCH ADJACENT SURFACES AND FINISH. SEAL ALL OPENINGS THROUGH WALLS AND DECK WITH UL APPROVED FIRE SAFING MATERIAL.
- THE CONTRACTOR SHALL PROVIDE A COMPLETE AND OPERATIONAL CONTROL SYSTEM. COORDINATE ALL POWER REQUIREMENTS FOR CONTROLS AND PROVIDE ALL REQUIRED: CONTROL POWER CIRCUITS, BREAKERS, CONDUCTORS, CONDUIT, TRANSFORMERS, ETC... AS REQUIRED FOR CONTROL SYSTEM OPERATION.
- DO NOT INSTALL PIPING OVER ELECTRICAL EQUIPMENT.
- ALL DEMOLISHED ITEMS/MATERIALS SHALL BE REMOVED FROM THE JOB SITE AND DISPOSED OF IN AN APPROPRIATE MANNER. ALL WASTE, DEBRIS AND TRASH SHALL BE REMOVED AT THE END OF EACH WORK DAY AND THE JOB SITE SHALL BE KEPT CLEAN AND NEAT. ALL EXISTING SURFACES (BUILDING SURFACES, FURNITURE, BOOKS, ETC...) SHALL BE PROTECTED FROM DAMAGE.
- MANUFACTURERS LISTED ON THE PLANS AND SCHEDULES SHALL BE USED AS A "BASIS OF DESIGN". OTHER MANUFACTURERS OF EQUAL QUALITY AND CAPACITY SHALL BE CONSIDERED AS AN APPROVED EQUAL. THE CONTRACTOR MAY USE ANY MANUFACTURER'S PRODUCT MEETING THE DESIGN INTENT OF THE DRAWINGS AND SPECIFICATIONS. THE LISTED MANUFACTURER IS THERE PRINCIPALLY TO AID THE CONTRACTOR IN BIDDING THE PROJECT AND DOES NOT GIVE PREFERENCE.
- DUCTWORK LAYOUTS ARE BASED AROUND THE EQUIPMENT USED FOR BASIS OF DESIGN. CLEARANCES HAVE BEEN ALLOWED TO PROVIDE FOR ANY UNIT OF SIMILAR CONFIGURATION. ANY INCREASE OF REDUCTION IN DUCTWORK SHALL BE INCLUDED AS PART OF THE PROJECT CONTRACT, RESULTING FOR DIFFERENT DUCT CONFIGURATIONS.

B
CM-1
SYMBOLS AND ABBREVIATIONS



EQUIPMENT DESIGNATIONS

- AHU-# AIR HANDLING UNIT
- HWC-# HOT WATER CONVECTOR
- RR-# RETURN REGISTER
- RG-# RETURN GRILLE
- SD-# SUPPLY DIFFUSER
- SR-# SUPPLY REGISTER

B
CM-1
INDEX OF DRAWINGS

- CM-001 MECHANICAL COVER SHEET
- MD-101 MECHANICAL DEMOLITION PLAN
- M-101 MECHANICAL PLAN
- M-201 MECHANICAL DETAILS AND DIAGRAMS
- M-301 MECHANICAL SCHEDULES

24x12	EXHAUST OR RETURN AIR DUCT UP SIZE REFLECTS INSIDE DIMENSIONS	AFF	ABOVE FINISHED FLOOR
24x12	EXHAUST OR RETURN AIR DUCT UP WITH SOUNDLINER SIZE REFLECTS INSIDE DIMENSIONS	APD	AIR PRESSURE DROP
24x12	SUPPLY AIR DUCT UP	ARI	AMERICAN REFRIGERATION INSTITUTE
		AWH	ARCHITECTURAL WALL HEATER
		BBH	BASEBOARD HEATER
		BD	BACKDRAFT DAMPER
		BHP	BRAKE HORSEPOWER
		BRD	BAROMETRIC RELIEF DAMPER
		BTU	BRITISH THERMAL UNIT
		CAP	CAPACITY
		CD	CONDENSATE DRAIN
		CFM	AIRFLOW IN CUBIC FEET PER MINUTE
		COND	CONDENSING UNIT
		CONN	CONNECTION
		CU	CONDENSING UNIT
		DB	DRY BULB TEMPERATURE
		D _b	DECIBELS
		DW	DOMESTIC WATER
		DWG	DRAWING
		EA	EXHAUST AIR / EACH
		EAT	ENTERING AIR TEMPERATURE
		EF	EXHAUST AIR FAN
		EFF	EFFICIENCY
		ELEC	ELECTRICAL
		ESP	EXTERNAL STATIC PRESSURE
		ETR	EXISTING TO REMAIN
		EWT	ENTERING WATER TEMPERATURE
		EWB	ENTERING WET BULB TEMPERATURE
		F (DEF)	DEGREES FAHRENHEIT
		F	FURNACE
		FD	FIRE DAMPER
		FLA	FULL LOAD AMPS
		FFM	FEET PER MINUTE
		FT	FEET
		FT-HD	FEET OF HEAD
		GALV	GALVANIZED
		GPH	GALLONS PER HOUR
		GPM	GALLONS PER MINUTE
		HP	HORSEPOWER
		Hz	HERTZ
		ID	INSIDE DIMENSIONS / INSIDE DIAMETER
		IN	INCHES
		IN-WG	INCHES WATER GAUGE
		IPLV	INTEGRATED PART LOAD VALUE
		Kw	KILOWATTS
		KWH	KILOWATT HOURS
		LAT	LEAVING AIR TEMPERATURE
		LF	LINEAR FOOT
		LRA	LOCKED ROTOR AMPS
		LWB	LEAVING WET BULB TEMPERATURE
		LWT	LEAVING WATER TEMPERATURE
		MAX	MAXIMUM
		MBH	THOUSANDS OF BTU PER HOUR
		MCA	MINIMUM CIRCUIT AMPACITY
		MFR	MANUFACTURER
		MIN	MINIMUM
		MOC	MAXIMUM OVER-CURRENT PROTECTION
		NC	NORMALLY CLOSED / NOISE CRITERIA
		NO	NORMALLY OPEN / NUMBER
		NOM	NOMINAL
		NTS	NOT TO SCALE
		OA	OUTSIDE AIR
		OBD	OPPOSED BLADE DAMPER
		OD	OUTSIDE DIAMETER
		OED	OPEN ENDED DUCT
		PD	PRESSURE DROP
		Ph	PHASE
		PS	PRESSURE SENSOR
		QTY	QUANTITY
		RA	RETURN AIR
		REFRIG	REFRIGERANT
		RG	RETURN GRILLE
		RH	RELATIVE HUMIDITY
		RL	REFRIGERANT LIQUID
		RLA	RUNNING LOAD AMPS
		RPM	REVOLUTIONS PER MINUTE
		RR	RETURN REGISTER
		RS	REFRIGERANT SUCTION
		RTU	ROOFTOP UNIT
		SA	SUPPLY AIR
		SD	SMOKE DETECTOR / SUPPLY AIR DIFFUSER
		SEER	SEASONAL ENERGY EFFICIENCY RATIO
		SENS	SENSIBLE
		SF	SUPPLY AIR FAN
		S/L	ACOUSTICAL SOUNDLINER
		SL	ACOUSTICAL SOUNDLINER
		SP	STATIC PRESSURE
		SPD	STATIC PRESSURE DROP
		SR	SUPPLY REGISTER
		TEMP	TEMPERATURE
		TYP	TYPICAL
		UD	UNDERCUT DOOR
		UH	UNIT HEATER
		UL	UNDERWRITERS LABORATORY
		UNO	UNLESS NOTED OTHERWISE
		VAV	VARIABLE AIR VOLUME
		V/Ph/Hz	VOLTS/PHASE/HERTZ
		VD	VOLUME DAMPER
		WB	WET BULB TEMPERATURE
		WG	WATER GAUGE
		WPD	WATER PRESSURE DROP
		WTD	WATER TEMPERATURE DIFFERENCE
		WTR	WATER
		W/	WITH

REVISION	DATE
PERMIT SET	10/13/11
BID SET	12/09/11

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12 SOUTH SUMMIT AVENUE, SUITE 200 GATHERSBURG, MARYLAND 20877
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HVAC RENOVATION
DAVID M. BROWN PLANETARIUM
MECHANICAL COVER SHEET

SCALE:	SHEET NUMBER
AS NOTED	CM-001
DATE:	
09 DEC. 2011	
JOB NO:	
WAI JOB #	
11041.00	

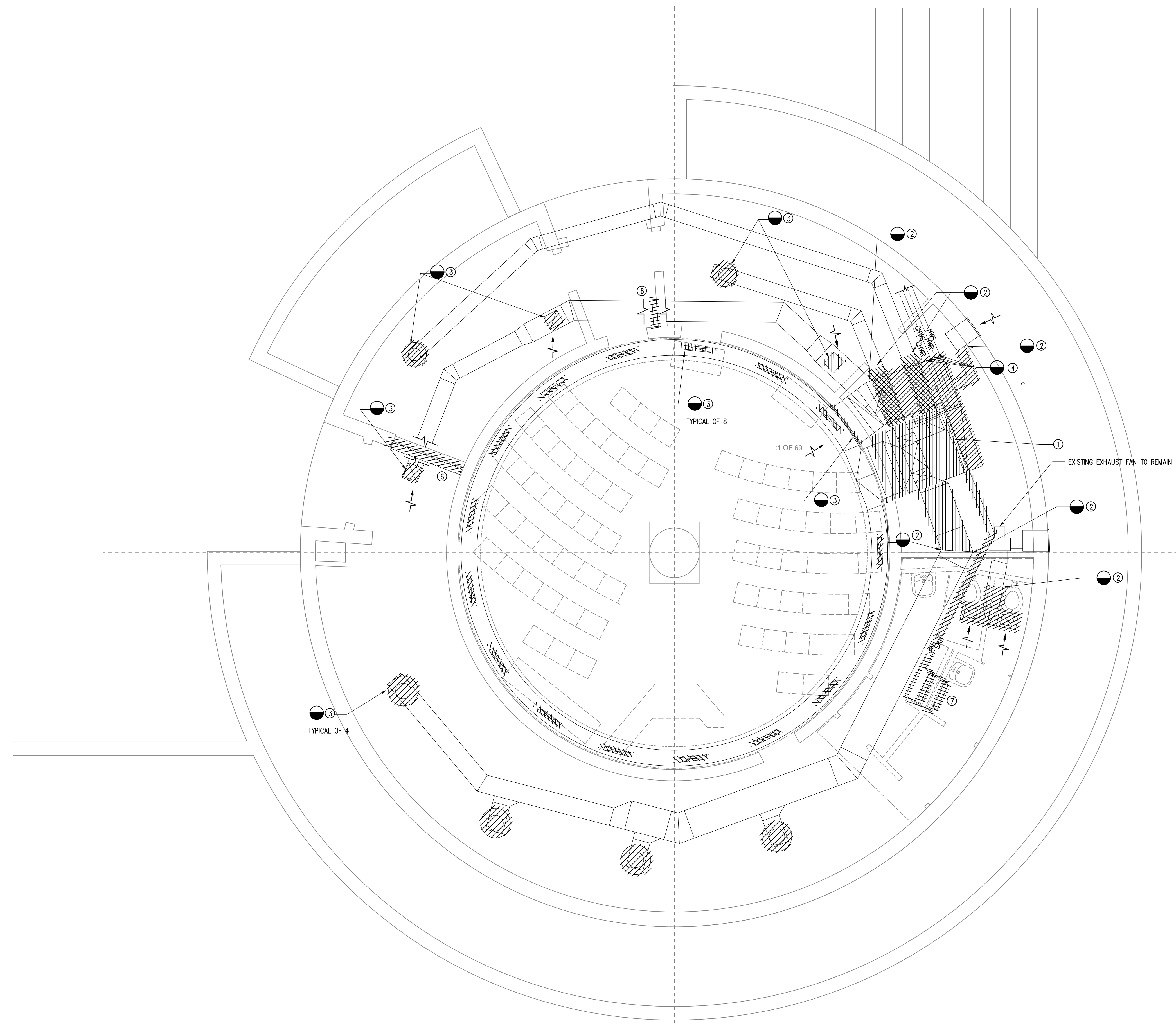
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PERMIT SET	10/13/11
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**HVAC RENOVATION
 DAVID M. BROWN PLANETARIUM
 MECHANICAL DEMOLITION PLAN**

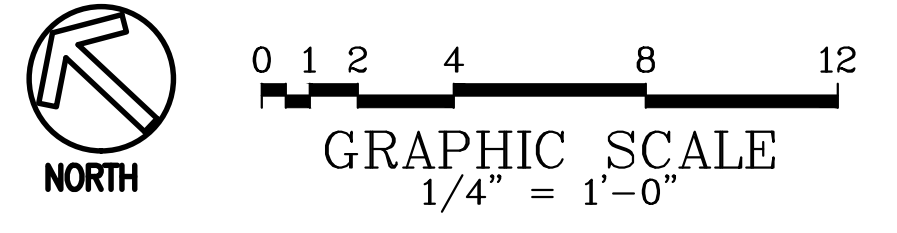
SCALE: AS NOTED	SHEET NUMBER MD-101
DATE: 09 DEC. 2011	
JOB NO: WAI JOB # 11041.00	



KEY NOTES

- ① DEMOLISH EXISTING MULTIZONE AIR HANDLER, DISCONNECT FROM PIPING AS SHOWN AND DISCONNECT FROM EXISTING ELECTRICAL FEEDERS.
- ② DISCONNECT DUCTWORK AS SHOWN AND PREPARE DUCTWORK FOR RECONNECTION TO NEW DUCTWORK.
- ③ REMOVE EXISTING AIR DEVICE FROM EXISTING DUCTWORK, LEAVE DUCTWORK INTACT FOR CONNECTING NEW AIR DEVICE.
- ④ DISCONNECT HEATING WATER AND CHILLED WATER PIPING AS REQUIRED TO ALLOW NEW AHU TO BE INSTALLED. REQUEST OUTAGE AND DRAIN SYSTEM AS REQUIRED TO INSTALL NEW ISOLATION VALVES.
- ⑤ NOT USED.
- ⑥ DISCONNECT EXISTING HOT WATER CONVECTORS FROM PIPING AT ISOLATION VALVES AND REMOVE CONVECTOR.
- ⑦ DISCONNECT EXISTING HOT WATER CONVECTORS, DEMOLISH BRANCH PIPING AS SHOWN.

1 MECHANICAL DEMOLITION PLAN
 MD-101 SCALE: 1/4"=1'



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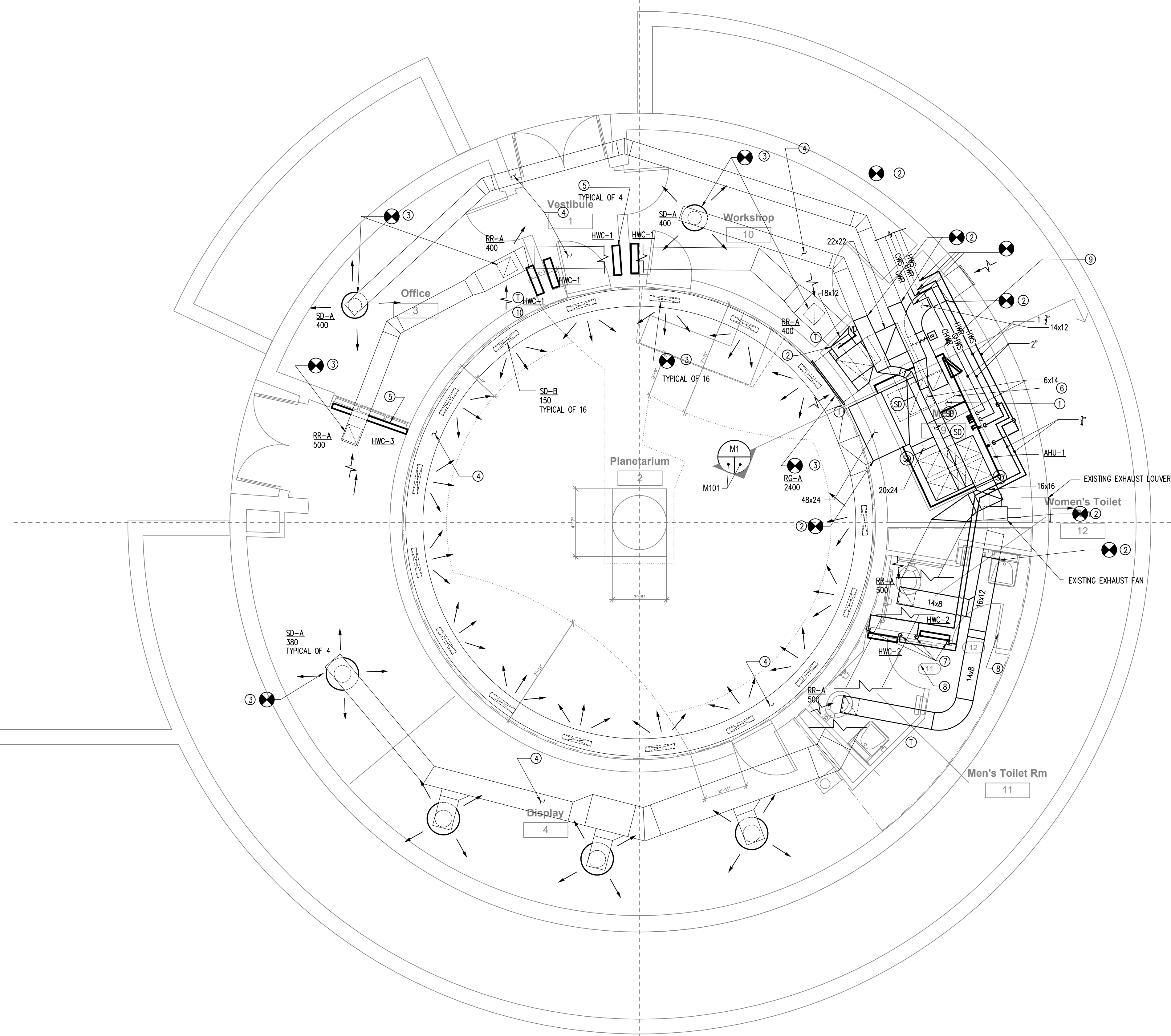
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**HVAC RENOVATION
 DAVID M. BROWN PLANETARIUM**

MECHANICAL PLAN

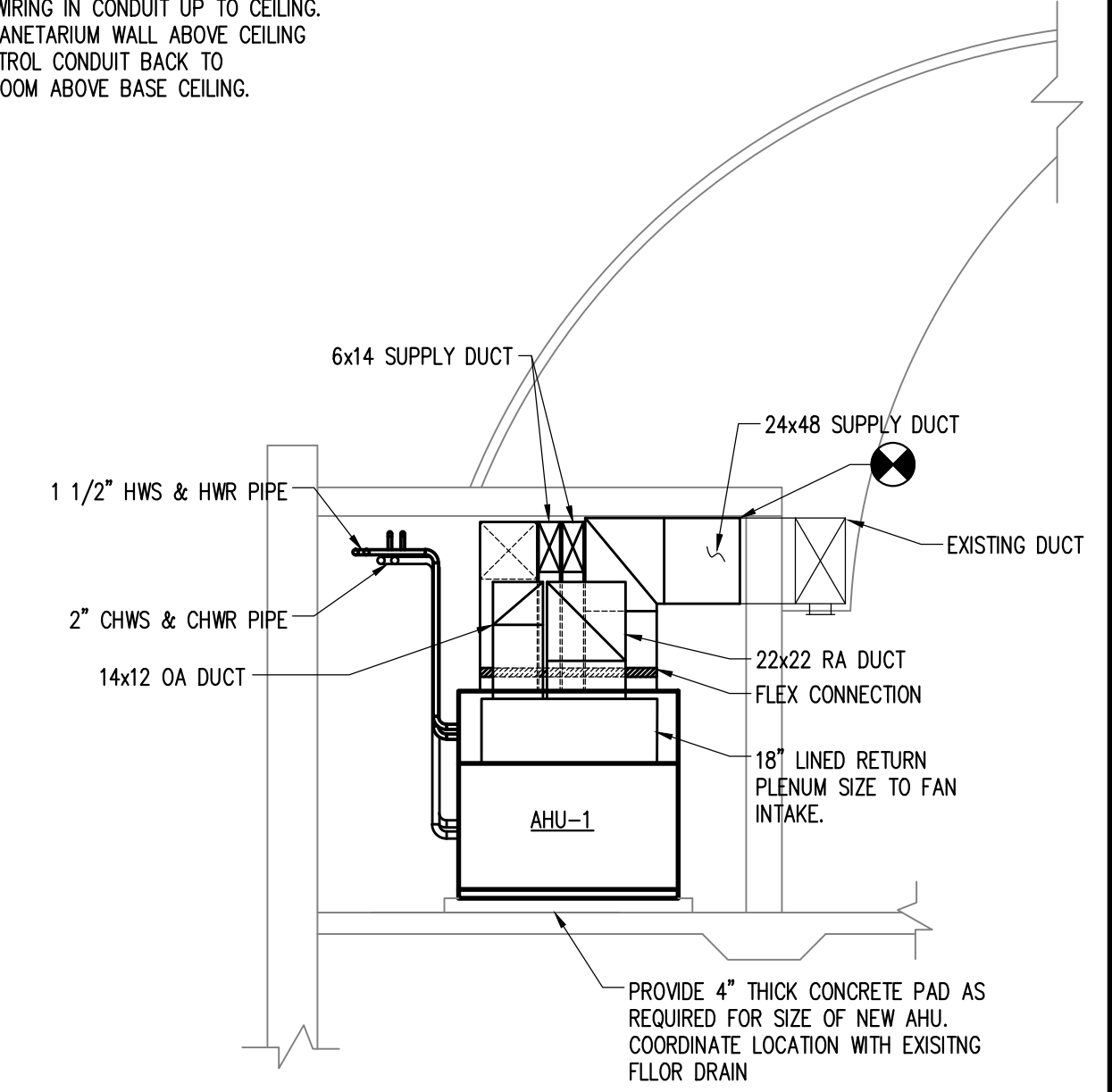
SHEET NUMBER
M-101

SCALE:
 AS NOTED
 DATE:
 09 DEC. 2011
 JOB NO:
 WAI JOB #
 11041.00



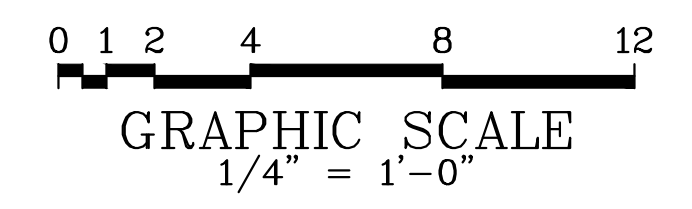
KEY NOTES

- 1 MOUNT NEW AIR ON NEW 4" THICK CONCRETE PAD. EXTEND EXISTING ELECTRICAL FEEDERS AS REQUIRED TO FEED NEW MOTOR. REPLACE THERMAL OVERLOADS IN STARTER TO MATCH CHARACTERISTICS OF NEW MOTOR. LOCATE AS CLOSE AS POSSIBLE TO INTERIOR WALL. CONTRACTOR MUST DISASSEMBLE AIR HANDLER TO FIT THROUGH 3' WIDE DOORWAY AND REASSEMBLE AIR HANDLER IN THE MECHANICAL ROOM.
- 2 CONNECT NEW DUCTWORK TO EXISTING. ALL NEW DUCTWORK SHALL BE SOUNDLINED.
- 3 CONNECT NEW AIR DEVICE TO EXISTING DUCTWORK. CONTRACTOR SHALL INCLUDE IN BID ADJUSTING THE HEIGHT OF EACH 24x6 RUN OUT UP TO 12" IF THE NEW BASE CHANGES THE RUNOUT LENGTH.
- 4 CLEAN ALL EXISTING DUCTS PER SPECIFICATIONS.
- 5 CONNECT NEW CONVECTOR AND RADIATOR VALVE TO EXISTING PIPING.
- 6 18" LINED RETURN PLENUM, SIZE TO THE DIMENSIONS OF UNIT INTAKE.
- 7 RUN NEW PIPING TO CONVECTORS CONCEALED IN WALL. RUNOUTS TO CONVECTORS SHALL BE 2".
- 8 DOOR LOUVERS TO BE PROVIDED BY ARCHITECT.
- 9 COORDINATE PAD LOCATION WITH EXISTING FLOOR DRAIN.
- 10 RUN SENSOR WIRING IN CONDUIT UP TO CEILING. PENETRATE PLANETARIUM WALL ABOVE CEILING AND RUN CONTROL CONDUIT BACK TO MECHANICAL ROOM ABOVE BASE CEILING.



M1 MECHANICAL SECTION
 SCALE: 1/4"=1'

1 MECHANICAL PLAN
 M-101 SCALE: 1/4"=1'



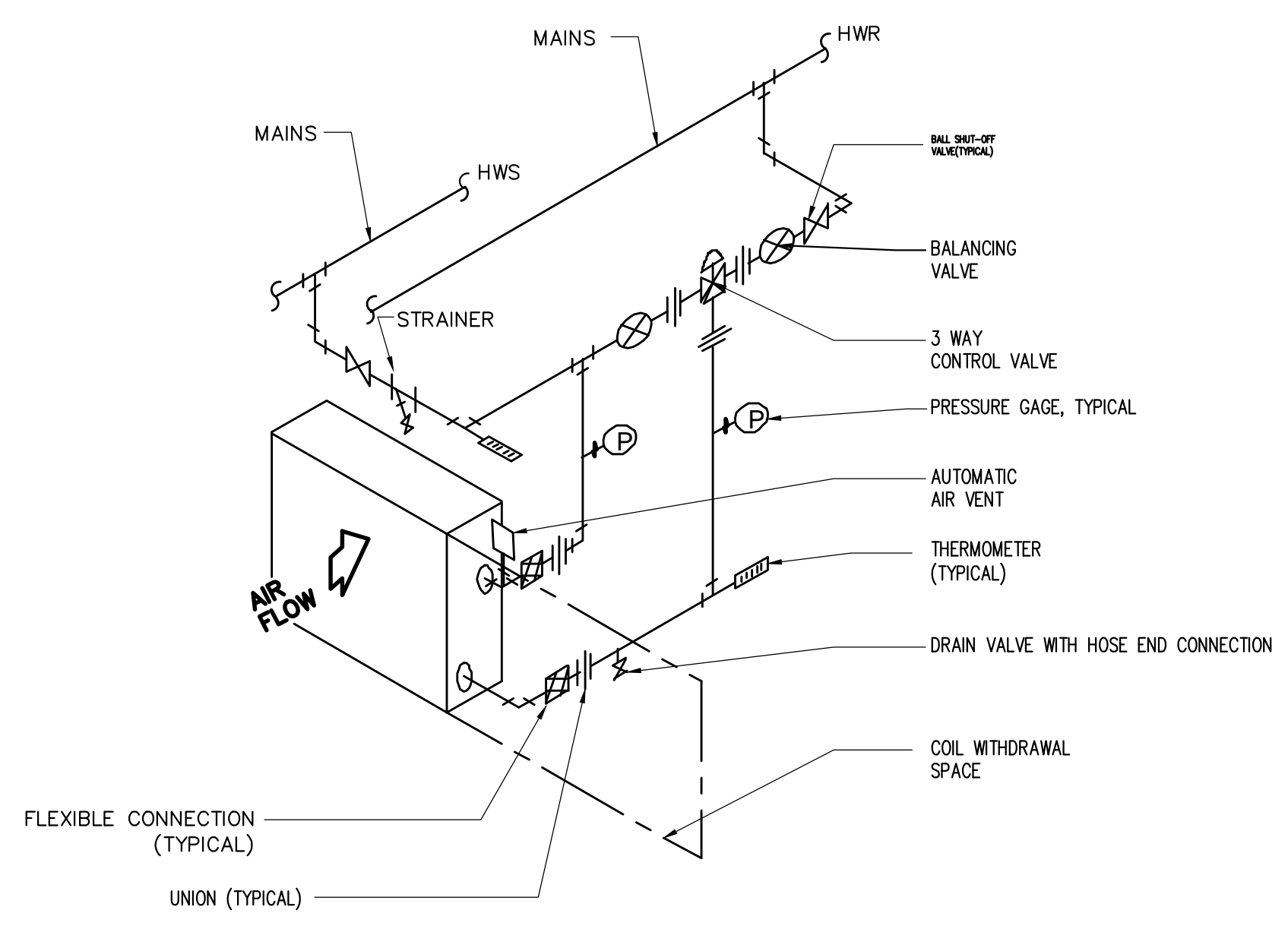
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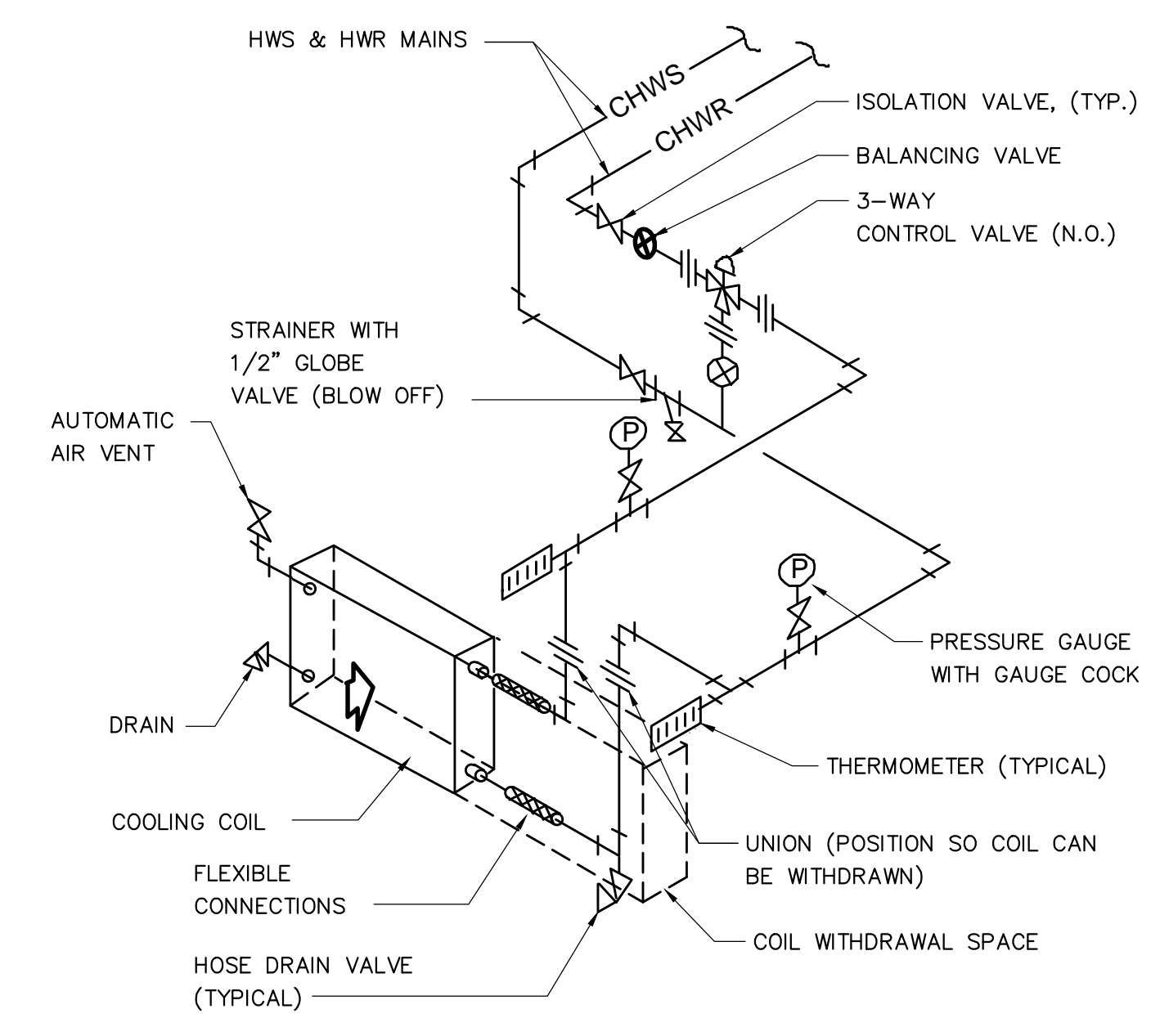
HVAC RENOVATION
DAVID M. BROWN PLANETARIUM
MECHANICAL DETAILS & CONTROL DIAGRAM

SCALE: AS NOTED	SHEET NUMBER M-201
DATE: 09 DEC. 2011	
JOB NO: WAI JOB # 11041.00	



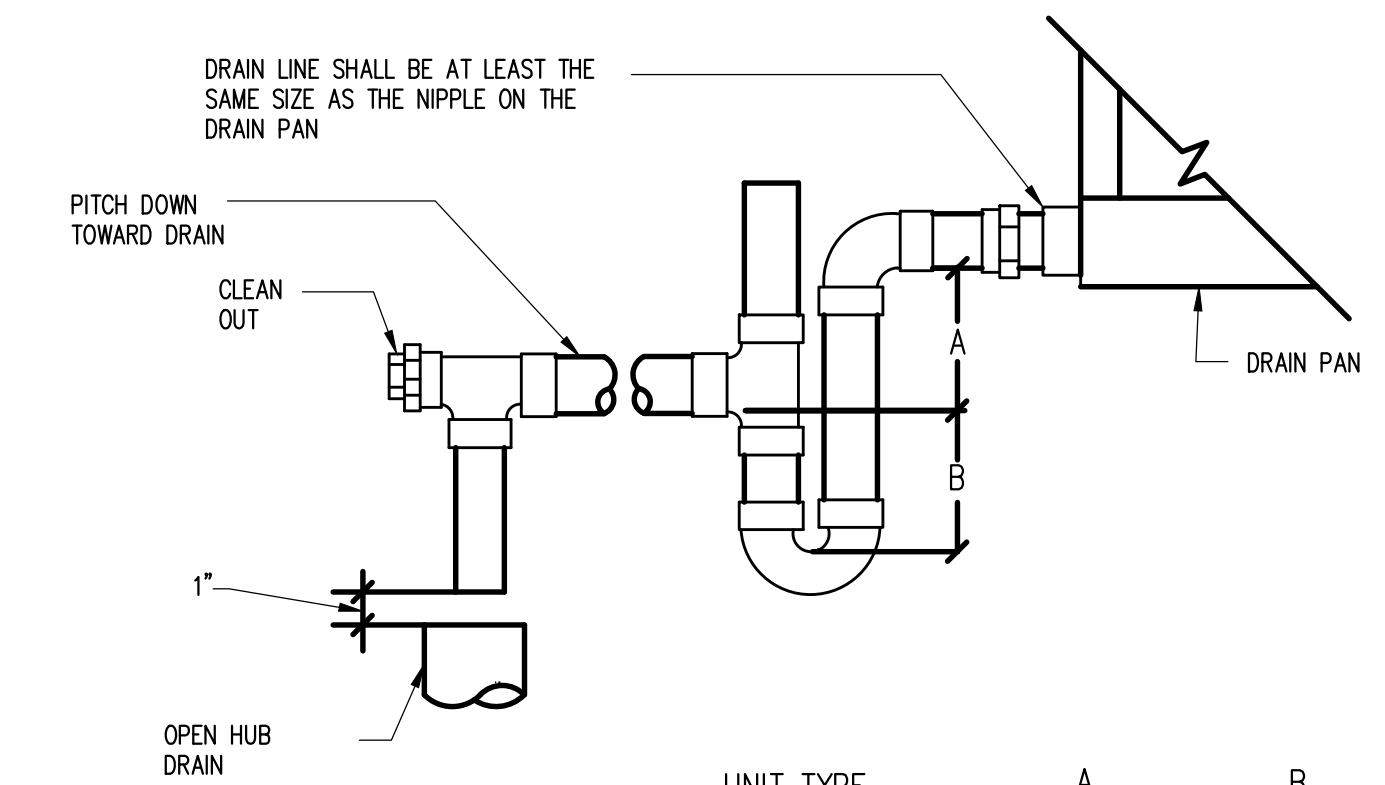
**AHU HEATING COIL
 3 WAY CONTROL VALVE PIPING DETAIL**
 NOT TO SCALE

- NOTES:
- ON AIR HANDLING UNITS WITH MORE THAN ONE COIL EACH COIL SHALL BE PROVIDED WITH A BALANCING VALVE ON THE RETURN LINE.
 - FLEXIBLE CONNECTION MAY BE DELETED WHERE AIR HANDLING UNIT SUPPLY FAN IS VIBRATION ISOLATED FROM COIL.
 - ALL COILS SHALL BE PIPED COUNTERFLOW TO AIR FLOW (WATER IN AT AIR OUT).
 - STRAINER TO HAVE BLOW DOWN VALVE WITH HOSE END CONNECTION.
 - SET PRESSURE DROP OF BALANCING VALVE IN COIL BY-PASS LEG EQUAL TO COIL PRESSURE DROP.
 - POSITION UNIONS SO THAT THE COIL CAN BE WITHDRAWN.



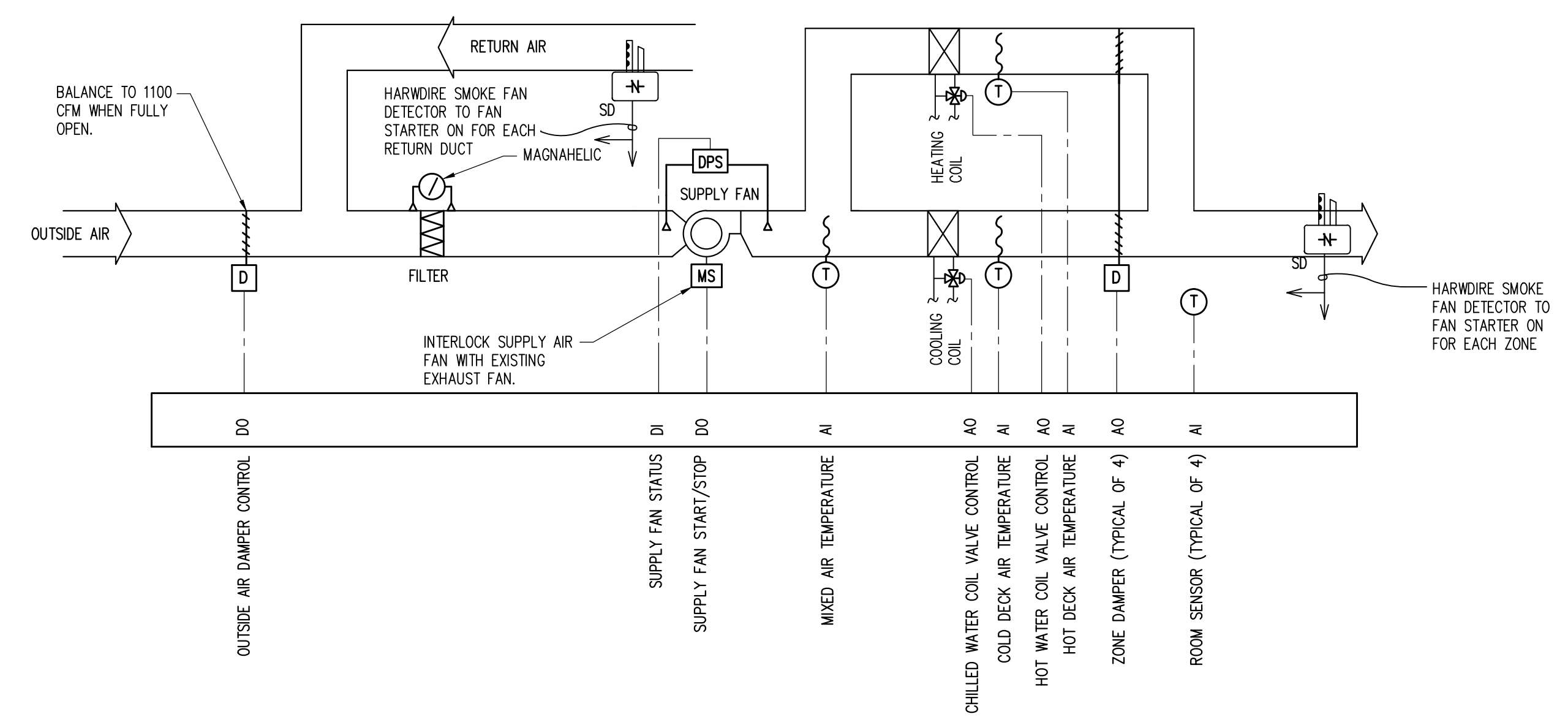
**AHU COOLING COIL
 3 WAY CONTROL VALVE PIPING DETAIL**
 NOT TO SCALE

- NOTES:
- ON AIR HANDLING UNITS WITH MORE THAN ONE COIL EACH COIL SHALL BE PROVIDED WITH A BALANCING VALVE ON THE RETURN LINE.
 - FLEXIBLE CONNECTION MAY BE DELETED WHERE AIR HANDLING UNIT SUPPLY FAN IS VIBRATION ISOLATED FROM COIL.
 - ALL COILS SHALL BE PIPED COUNTERFLOW TO AIR FLOW (WATER IN AT AIR OUT).
 - STRAINER TO HAVE BLOW DOWN VALVE WITH HOSE END CONNECTION.
 - SET PRESSURE DROP OF BALANCING VALVE IN COIL BY-PASS LEG EQUAL TO COIL PRESSURE DROP.
 - POSITION UNIONS SO THAT THE COIL CAN BE WITHDRAWN.

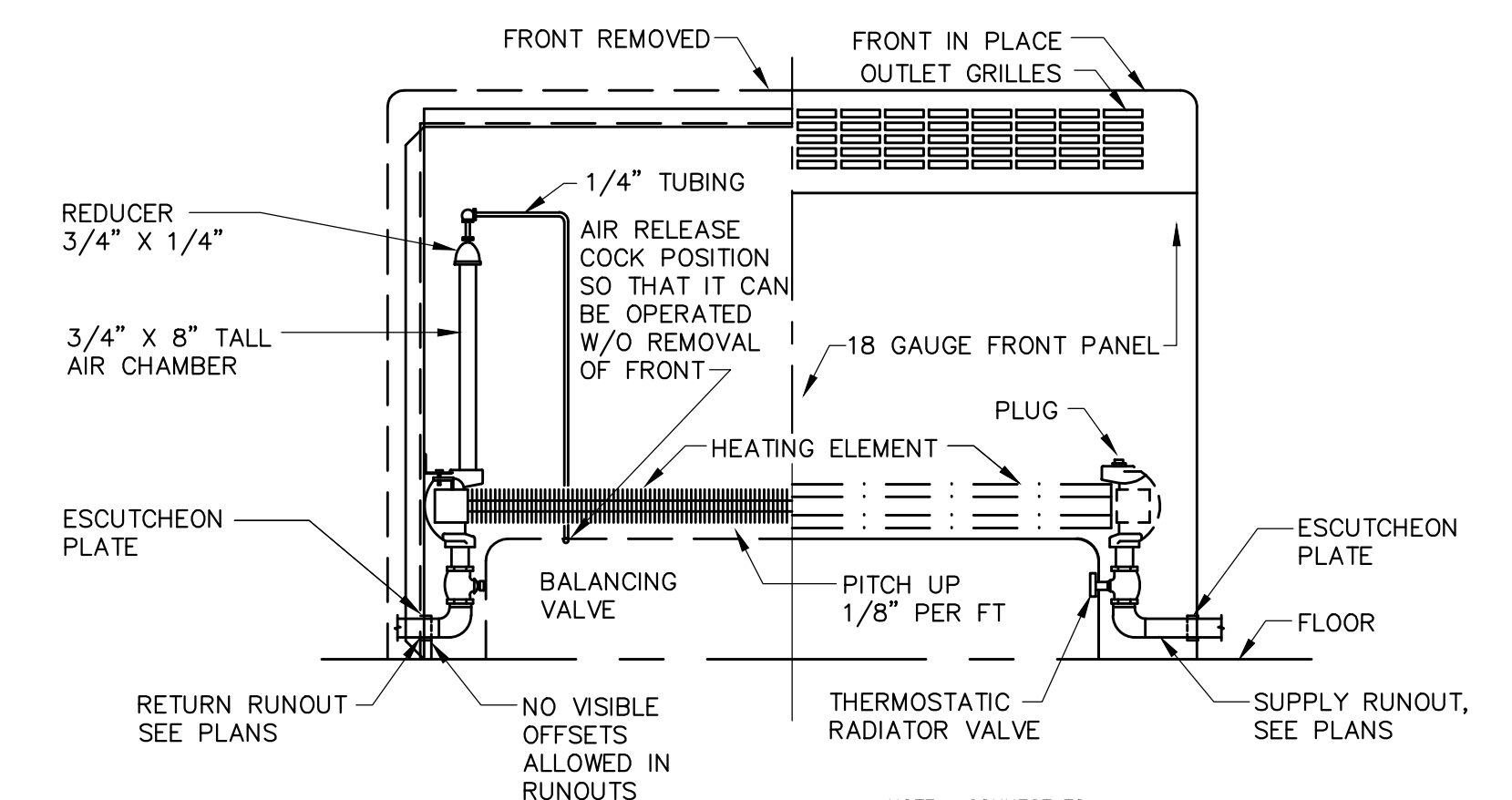


UNIT TYPE	A	B
DRAW THRU	2" PLUS X	X
BLOW THRU	1" MINIMUM	2X

WHERE X = MAXIMUM STATIC PRESSURE RATING OF FAN
AHU TRAP DETAIL



A CONTROL SCHEMATIC, AHU-1
 M-502 NO SCALE



HOT WATER CONVECTOR DETAIL
 NOT TO SCALE

REVISION	DATE
PERMIT SET	10/13/11
BID SET	12/09/11

AIR HANDLING UNIT SCHEDULE

MARK	SERVICE	AIRFLOW		FILTER		SUPPLY FAN										HEATING WATER COIL						CHILLED WATER COIL						REMARKS				
		TOTAL	OUTDOOR AIR	PREFILTER	MERV	FAN				MOTOR ELECTRICAL						AIRSIDE			WATER SIDE			AIRSIDE			WATER SIDE							
						CFM	CONFIGURATION	TSP (INCHES)	ESP (INCHES)	DRIVE TYPE	FAN MOTOR HP	FAN MOTOR RPM	VFD	VOLTAGE	PHASE	EAT (DEGF)	LAT (DEGF)	AIR VELOCITY (FPM)	AIR PRESSURE DROP	HWS GPM	HWS EWT (DEGF)	ROWS	WATER PRESSURE DROP (FT)	EAT (DB/WB)	LAT (DB/WB)	AIR VELOCITY (FPM)	AIR PRESSURE DROP (INCHES H2O)		ROWS	GPM	EWT (DEGF)	WATER PRESSURE DROP (FT)
AHU-1	PLANETARIUM	4800	1100	2" FLAT	8	4,800	BLOW THRU	3.8	2	BELT	7.5	1750	NO	460	3	56	85	600	0.4	11	160	2	1	80/67	54/53	540	0.7	6	42	45	13	TRANE CLIMATE CHANGER 2- DECK MULTIZONE

1) CONTRACTOR SHALL ARRANGE SHIPPING SPLITS OR WALL MODIFICATION TO BRING THE UNIT INTO THE MECHANICAL ROOM

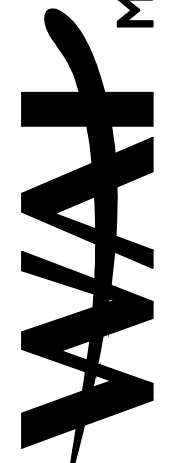
AIR DEVICE SCHEDULE

MARK	DESCRIPTION	THROAT SIZE	FACE SIZE	INSTALLATION	MAX CFM	THROW PATTERN	THROW (FT.)	TOTAL SP (IN.H2O)	MAX NC	MATERIAL	FINISH	BASIS OF DESIGN
SUPPLY												
SD-A	CIRCULAR- RAISED OUTER CONE WITH OPPOSED BLADE DAMPER	10 ROUND	18" ROUND	SURFACE MOUNTED	380	CIRCULAR	12	0.14	25	ALUMINUM	ANODIZED	TITUS TMR-AA
SD-B	CEILING SUPPLY REGISTER WITH OPPOSED BLADE DAMPER, DOUBLE DEFLECTION ADJUSTABLE BLADES WITH FRONT BLADES PARALLEL TO LONG DIMENSION.	24x6	THROAT SIZE PLUS 1" BORDER	SURFACE MOUNTED	150	RATINGS BASED ON 2-WAY THROW PATTERN AT 22.5 DEGREES.	16	0.02	8	ALUMINUM	ANODIZED	TITUS 300 FL
RETURN/EXHAUST												
RR-A	CEILING RETURN REGISTER WITH OPPOSED BLADE DAMPER AND FIXED 0 DEGREE BLADES	12x12	THROAT SIZE PLUS 1" BORDER	SURFACE MOUNTED	440	N/A	N/A	0.03	15	ALUMINUM	ANODIZED	TITUS 350 FL
RG-A	WALL RETURN GRILLE WITH FIXED 35 DEGREE BLADES	40x36	THROAT SIZE PLUS 1" BORDER	SURFACE MOUNTED	2500	N/A	N/A	0.01	8	ALUMINUM	ANODIZED	TITUS 350 FS

1) Throw based on 50 FPM terminal velocity.

HOT WATER CONVECTOR SCHEDULE

MARK	LENGTH (INCHES)	DEPTH (INCHES)	EAT (DEGF)	AVERAGE WATER TEMPERATURE (DEGF)	GPM	TOTAL HEATING (MBH)	TYPE	BASIS OF DESIGN
HWC-1	24	4	65	170	0.74	3.7	FREE STANDING, SLOPED TOPE CABINET	VULCAN SF-A
HWC-2	28	8	65	170	1.14	5.7	FREE STANDING, SLOPED TOPE CABINET	VULCAN SF-A
HWC-3	64	4	65	170	1.56	7.8	FREE STANDING, SLOPED TOPE CABINET	VULCAN SF-A


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PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF VIRGINIA, LICENSE NO. 21746, EXPIRATION DATE DECEMBER 31, 2011."

**HVAC RENOVATION
 DAVID M. BROWN PLANETARIUM
 MECHANICAL SCHEDULES**

SCALE: AS NOTED	SHEET NUMBER M-301
DATE: 09 DEC. 2011	
JOB NO: WAI JOB # 11041.00	