AIR HANDLING UNIT SCHEDULE EXTERNAL STATIC **PRESSURE** LOCATION AREA SERVED (NOTE 4) SYSTEM (NOTE 1) 0.A. SUPPLY 2-SF1 ELECTRICAL ROOM ELECTRICAL ROOM 1.0 2275 CAV 2-SF2 ELECTRICAL ROOM ELECTRICAL ROOM 1.0 6500 120 CAV

1. EXTERNAL STATIC PRESSURE REQUIRED AT DUCT CONNECTIONS TO INLET & OUTLET OF AHU. MEASUREMENTS SHALL BE TAKEN WITHIN 3 FT. OF INLET AND OUTLET AT A POINT OF MAX. ACCURACY.

- 2. TOTAL OF MAX. PRESSURE DROPS OF COMPONENTS WHICH ARE SPECIFIED SEPARATELY, IE., FILTER, COOLING COIL.
- 3. INTERNAL LOSS ALLOWANCE SHALL INCLUDE LOSSES DUE TO ENTRANCE & EXIT OF AHU, INCLUDING LOSSES DUE TO FAILURE TO PROPERLY CONVERT FAN DISCHARGE VELOCITY PRESSURE TO STATIC PRESSURE, FAN INLET CONDITIONS, CASINGS, DAMPERS, ETC.
- 4. TOTAL FAN S.P. = EXTERNAL STATIC PRESSURE + SPECIFIED INTERNAL LOSSES + UNSPECIFIED INTERNAL LOSSES. MANUFACTURER SHALL PROVIDE SUBMITTAL SHOWING ACTUAL LOSSES OF ALL EQUIPMENT PROVIDED. REFER TO FAN SCHEDULE FOR ADDITIONAL FAN SELECTION INFORMATION.

			SUPPLY FAN SCHEDULE														
			- C D			WHEEL					MOTOR						
FAN NO	LOCATION	CFM	E.S.P. IN	FAN TYPE	TYPE	MIN. DIA. IN	MAX. RPM	DRIVE	MAX. BHP	NOM. HP	PHASE VOLT.						
2-SF1	BUILT-IN 2-AH1	2275	1.0	CF	AF- PLN	ı	1425	BELT	1.2	3	3/460						
2-SF2	BUILT-IN 2-AH2	6500	1.0	CF	AF- PLN	ı	1798	BELT	4.5	2X6.63	3/460						

1. PROVIDE CONTROLS SYSTEMS TO INTERLOCK BUILDING AUTOMATION SYSTEMS. 2. 2-SF1: MCA = 4.7 A, MOCP = 15 A & 2-SF2: MCA = 15.6 A, MOCP = 20 A

		CHILL	ED WAT	ER (IG (. SCHE	DUL	E		
				ENT.	AIR °F	LVG. AIR °F			CIRCULAT	ING FLUI)		
COIL	SYSTEM	CFM	MAX. FACE		-		MIX 1		TEMP. IN	TEMP.	MAX. LOSS	MIN.	
NO.			VEL. FPM	Db	Wb	Db	Wb	GPM	*F	OUT *F	FT. FLUID	BTUH	
2-CC1	2-AH1	2275	377	90.9	62.2	54.3	48.0	18.2	45	55	5.9	90,973	
2-CC1	2-AH2	6500	538	90.9	66.4	57.3	54.8	47.3	45	55	9.33	238,862	

1. COOLING COIL DATA SHOWN IN THE SCHEDULE REPRESENT THE VALVE SETTINGS.

					AIR F	LTE	R SCI	HEDU	LE	
FILTER NO.	CFM	SYSTEM	VA GRADE	DEPTH IN	TYPE	RATED EFF %	MAX. S.P. DROP FINAL IN	HOUSING TYPE	NO.	ARRANGEMENT
2-AF1	2275	2-AH1	D	4	PLEATED	85%	0.56	SIDE SERVICE	8	SIZE AND ARRANGEMENT SHALL BE DETERMINED BY AHU MANUFACTURER
2-AF2	6500	2-AH2	D	4	PLEATED	85%	0.56	SIDE SERVICE	8	SIZE AND ARRANGEMENT SHALL BE DETERMINED BY AHU MANUFACTURER

AIR HANDLING UNIT PERFORMANCE DATA INDICATED BASIS OF DESIGN: 2-AH1: DAIKIN MFR'S CO-MODEL NO. BCHD0301 (OR) APPROVED EQUAL 2-AH2: DAIKIN MFR'S CO-MODEL NO. BCHE0601 (OR) APPROVED EQUAL

TEMPERATURE TRANSMITTER

SMOKE DETECTOR

TT - TEMPERATURE TRANSMITTER, AVERAGING ELEMENT

HAND SWITCH (HAND-OFF-AUTO SWITCH)

VALVE OR DAMPER POSITION CONTROLLER

	AIR	DEVICE S	CHEDULE		
SYMBOL	TYPE	CFM RANGE	FACE SIZE (INCH)	NOISE CRITERIA	PRESSURE DROP (IN WG)
← ⊢	SUPPLY AIR GRILLE	1200-1500	30"X16"	22	0.05
← ⊢	SUPPLY AIR GRILLE	1501–1750	36"X16"	22	0.05
← ⊢	SUPPLY AIR GRILLE	1751–2300	36"X20"	23	0.05
SUPPLY AIR GRILLE RETURN AIR GRILLE		2000-2500	36"X28"	18	0.04
	RETURN AIR GRILLE	2501-3250	36"X34"	19	0.04

GENERAL NOTES:

1. ALL FINISH SELECTIONS SHALL BE BY ARCHITECT.

THE AIR DEVICE PERFORMANCE DATA INDICATED BASIS OF DESIGN: TITUS MFR'S CO-MODEL NO. 301RS SERIES (OR) APPROVED EQUAL

	_	UCT LEAKAGE CLASSIFICATION D ALLOWABLE LEAKAGE TAI		
DUCT PRESSURE	0511	1991101915	SMACNA LEA	KAGE CLASS
CLASS, W.G. IN[mm]	SEAL CLASS	APPLICABLE SEALING	RECTANGULAR DUCT	ROUND DUCT
1/2", 1", 2"	С	TRAVERSE JOINTS ONLY	24	12
3"	В	TRAVERSE JOINTS AND SEAMS	12	6
4", 6"	А	JOINTS, SEAMS AND ALL WALL PENETRATIONS	6	

ENE	RGY EF	FICIE	OTOM TV	R SC	EDULE
HP	NOM. EFF.	HP	NOM. EFF.	HP	NOM. EFF.
1.0	82.5	10	89.5	50	93.0
1.5	84.0	15	91.0	60	93.6
2.0	84.0	20	91.0	75	94.1
3.0	86.5	25	91.7	100	94.1
5.0	87.5	30	92.4	125	94.5
7.5	88.5	40	93.0	150	95.0

REFER TO SECTION 16150, MOTORS SECTION OF THE SPECIFICATIONS.

HVAC CONTROL PANEL

M M ELECTRIC OPERATED CONTROL DAMPER/OR VALVE

		С			3ATI	E Pl	JMP S	CHEC	ULE				
	DUMD					ELE	ECTRICAL DA	ATA		LITTLE GIANT			
UNIT NO	PUMP DESCRIPTION	CAPACITY (GPM)	HEAD (FT.)	HP	P AMPS	WATTS	(CONNECTION		MODEL #			
		, ,					VOLTS	PHASE	CYCLE				
2-CP1	HEAVY DUTY	0.24	9	1/5	3.5	185	115	1	60	VCL-45S			

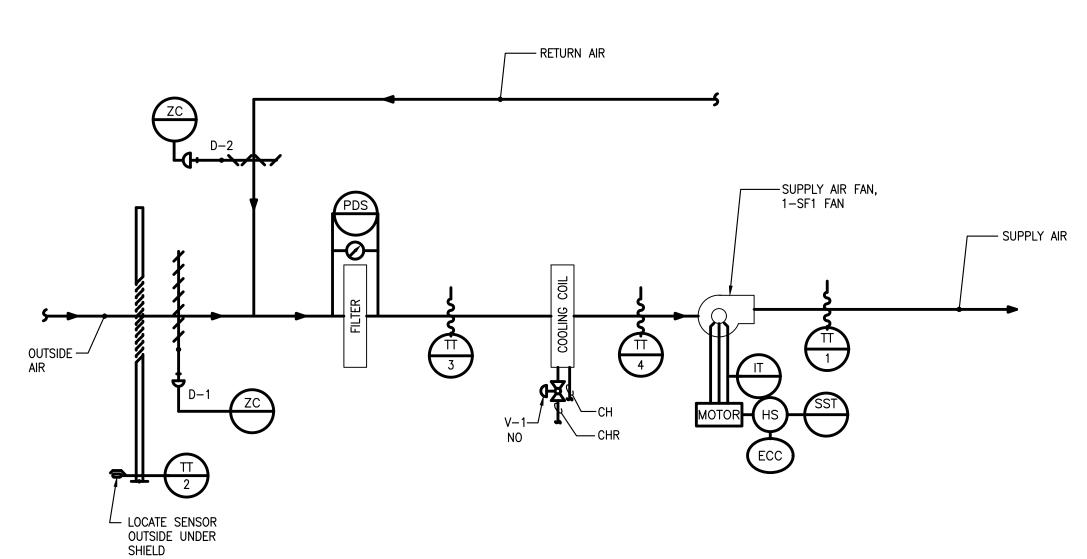
1. PROVIDE COMPLETE ACCESSORIES FOR PROPER OPERATION AND INSTALLATION OF THE PUMP. 2. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.

INTEGRATE CONTROL POINT ON REMOTE GRAPHICS WORKSTATION AT ENERGY CONTROL CENTER

TEMPERATURE CONTROLLER. SEE SEQUENCE OF OPERATION

TEMPERATURE SENSING ELEMENT FOR TRANSMITTING TEMPERATURE TO EMCS

(PROVIDE 12 INCHES [200mm] MINIMUM LENGTH IN DUCT WHEN SPACE PERMITS.)



AIR HANDLING UNIT, 2-AH1 AND 2-AH2 (CONSTANT AIR VOLUME)

MINIMUM DURING OCCUPIED MODE.

MAINTENANCE.

TEMPERATURE CONTROL

1. <u>GENERAL</u>

IF THE AIR TEMPERATURE AS SENSED BY TT-3 FALLS BELOW 45°F [7°C], AN ALARM SIGNAL SHALL INDICATE AT THE DCP AND ECC. IF THIS TEMPERATURE FALLS BELOW 40°F [4.4°C], AS SENSED BY THE TSL THE SUPPLY SHALL SHUT DOWN AND A CRITICAL ALARM SHALL INDICATE AT THE DIGITAL CONTROL PANEL AND ECC. TSL SHALL BE HARDWIRED TO THE SUPPLY FAN AND UNIT SHALL BE SHUTDOWN IN HAND, AUTO. TSL WILL REQUIRE MANUAL RESET AT THE DEVICE.

SEQUENCE OF OPERATION:

UNIT IS NORMALLY STARTED AND STOPPED REMOTELY AT THE ECC. H-O-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HAND" AND "OFF" POSITIONS SHALL BE USED ONLY FOR

FAN SHALL RUN CONTINUOUSLY IN OCCUPIED MODE. FAN STATUS

SHALL BE MONITORED AND AN ALARM MESSAGE SHALL BE GENERATED IN THE EVENT THE UNIT FAILS TO RUN BETWEEN THE RANGE OF 70°-80° SPACE TEMPERATURE V-1 SHALL BE

UPON RISE IN TEMPERATURE ABOVE 80° (ADJUSTABLE) V-1

OUTDOOR AIR DAMPER, (D-1), (MOTORIZED) SHALL OPEN TO

SHALL MODULATE OPEN TO MAINTAIN 80° F (ADJUSTABLE).

AIR HANDLING UNIT (2-AH1 AND 2-AH2)-SCHEMATIC CONTROL DIAGRAM

MJ101

		S'	YSTEM	OUTPU	JTS				SY:	STEM II	NPUTS						SYSTEM SOFTWARE/CONT					.OL
		BIN	ARY	ANA	ALOG	BINA	ARY				P	NALOC	}				PRO	ALARM DCESS	NG	APPLI FUN	CATION CTION	1/
SYSTEM COMPONENT	POINT ID	ELECTRIC	PNEUMATIC	ELECTRIC	PNEUMATIC	STATUS		TEMPERATURE	PRESSURE	DIFFERENTIAL PRESSURE	LEVEL	HUMDITIY	FLOW	CURRENT	PERCENT	DATA	EQUIPMENT STATUS	LOW LIMIT	HIGH LIMIT	LEAD/LAG	START/STOP	
				Al	R HAN	DLING	SYSTE	MS (2	–AH1)	& (2	-AH2)											
AIR HANDLING SYSTEMS (2-AH1) & (2-AH2)																						
SUPPLY FANS (2-SF1 & 1-SF-2)																						
ON/OFF						Х								Χ			Х					
START/STOP		Х																			Χ	
DAMPER END SWITCH		Х																				
OUTSIDE AIR TEMPERATURE																						
MIXED AIR TEMPERATURE								Х										Χ	Х			
CHILLED WATER COIL TEMPERATURE								Х										Х	Χ			
SUPPLY AIR TEMPERATURE								Х										Х	Х			
SPACE TEMPERATURE								Х										Χ	Х			
FILTER STATUS						Х											Х					
FREEZSTAT STATUS						Х											Х					
RETURN AIR DAMPER POSITION															Х							
OUTSIDE AIR DAMPER POSITION															Х							
AUXILIARY DRAIN PAN SENSOR											Χ					Х	Х					
CONDENSATE DRAIN PUMP (2-CP1)																						
ON/OFF						Х								Х			Х					

- 1. ALL POINTS SHALL BE TRENDED. TRENDING TYPE SHALL BE EITHER INTERVAL OR CHANGE-OF-VALUE AS APPROPRIATE FOR THE POINT TYPE. DATA SHALL BE PERIODICALLY UPLOADED TO A CENTRAL SERVER AND MAINTAINED FOR A MINIMUM OF 180 DAYS BEFORE BEING DELETED.
- 2. ALL ANALOG INPUTS AND DIGITAL INPUTS SHALL BE CONFIGURED TO BE ALARMABLE. OPERATORS SHALL HAVE THE OPTION TO SELECT AND CONFIGURE THE POINTS THEY WANT TO ALARM.
- 3. THE CONTRACTOR SHALL PROVIDE ENTIRE CONTROL COMPONENTS AND DDC CONTROL POINTS FOR A FULLY OPERATIONAL SYSTEM.
- 4. THE CONTRACTOR SHALL COORDINATE WITH EXISTING BUILDING CENTRAL MONITORING DDC SYSTEMS. THE NEW DDC SYSTEMS SHALL BE COMPATIBLE AND FULLY OPERATIONAL WITH EXISTING CENTRAL DDC SYSTEMS.
- 4. ALL LOW VOLTAGE WIRING SHALL BE FURNISHED BY CONTROL CONTRACTOR AND MEDIUM VOLTAGE WIRING SHALL BE FURNISHED BY ELECTRICAL CONTRACTOR.

CONTROL SYMBOLS

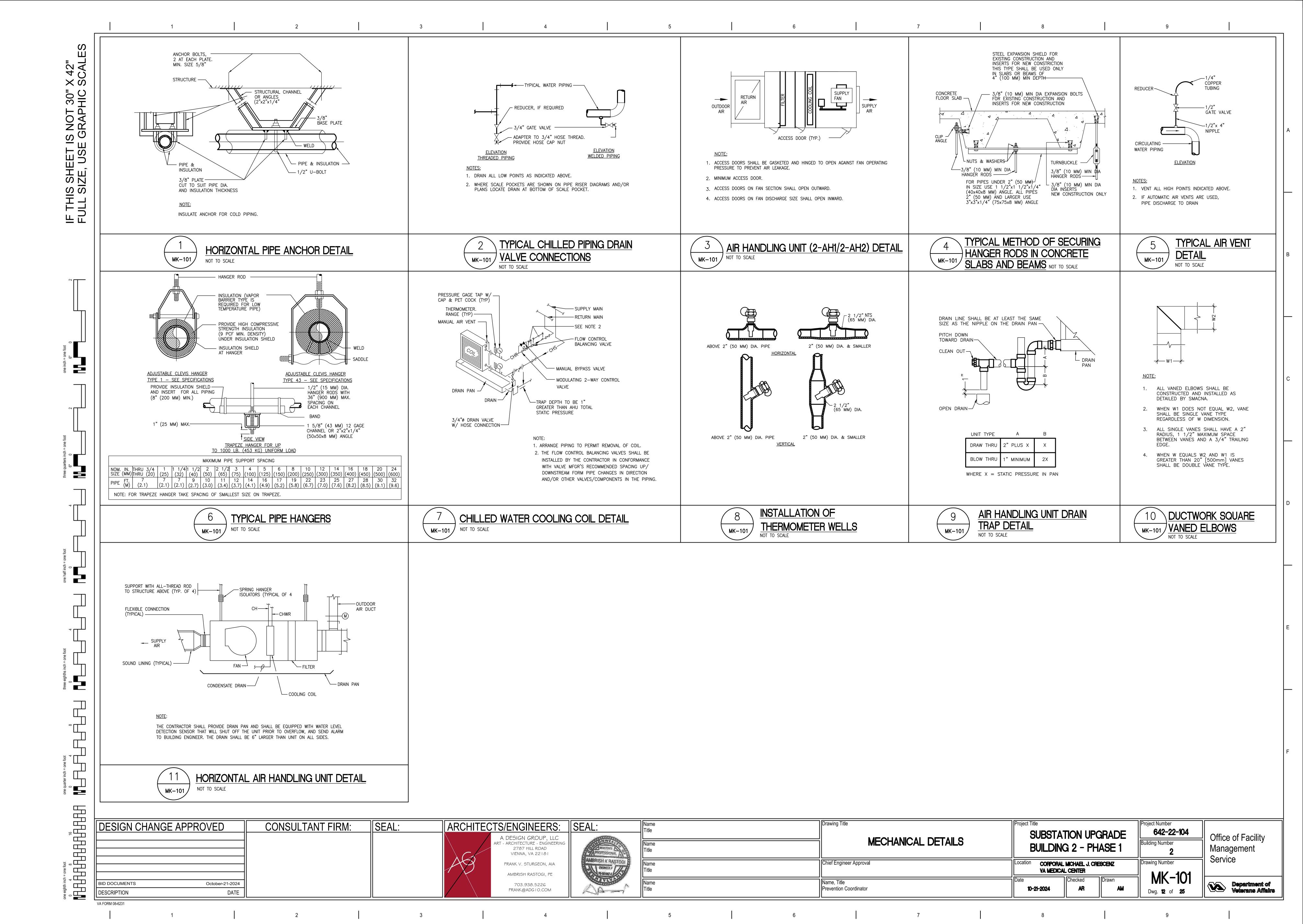
3

ROOM THERMOSTAT/TEMPERATURE SENSOR/TRANSMITTER-WALL MOUNT

DDC POINT SCHEDULE

DESIGN CHANGE APPROVED	CONSULTANT FIRM: SEAL:	ARCHITE	ECTS/ENGINEERS:	SEAL:	Name Title	Drawing Title		Project Number	
			A DESIGN GROUP, LLC ART - ARCHITECTURE - ENGINEERING	TO TOWN TO THE PARTY OF THE PAR	Name	MECHANICAL SCHEDULES AND CONTROLS	II .		│ Office of Facility
			2787 HILL ROAD VIENNA, VA 22181	PROFESSIONAL PROFESSIONAL	Title		BUILDING 2 - PHASE 1	2	Management
			FRANK V. STURGEON, AIA	AMBRISH K RASTOGI	Name	Chief Engineer Approval	Location CORPORAL MICHAEL J. CRESCENZ	Drawing Number	Service
			AMBRISH RASTOGI, PE	PE-051867-E	Title			⊣ MJ-101	
			703.938.5226 FRANK@ADG10.COM	AA	Name Title	Prevention Coordinator	10-21-2024 AR AM		Department of Veterans Affairs
		BID DOCUMENTS October-21-2024		A DESIGN GROUP, LLC ART - ARCHITECTURE - ENGINEERING 2787 HILL ROAD VIENNA, VA 22 8 FRANK V. STURGEON, AIA AMBRISH RASTOGI, PE 703.938.5226 FRANK OUTPING ARCHITECTURE - ENGINEERING 2787 HILL ROAD VIENNA, VA 22 8 FRANK V. STURGEON, AIA AMBRISH RASTOGI, PE	A DESIGN GROUP, LLC ART - ARCHITECTURE - ENGINEERING 2787 HILL ROAD VIENNA, VA 22181 FRANK V. STURGEON, AIA AMBRISH RASTOGI, PE BID DOCUMENTS October-21-2024	A DESIGN GROUP, LLC ART - ARCHITECTURE - ENGINEERING 2787 HILL ROAD VIENNA, VA 22181 FRANK V. STURGEON, AIA AMBRISH RASTOGI, PE BID DOCUMENTS October-21-2024 BID DOCUMENTS October-21-2024	A DESIGN GROUP, LLC ART - ARCHITECTURE - ENGINEERING 2787 HILL ROAD VINNA, VA 22181 FRANK V. STURGEON, AIA AMBRISH RASTOGI, PE 703.938.52266 BID DOCUMENTS October-21-2024 A DESIGN GROUP, LLC ART - ARCHITECTURE - ENGINEERING 2787 HILL ROAD VINNA, VA 22181 FRANK V. STURGEON, AIA AMBRISH RASTOGI, PE 703.938.52266 BID DOCUMENTS October-21-2024 A DESIGN GROUP, LLC Name Title Name Title Name Title Name Title Prevention Coordinator	APPROVED CONSOLIANT FIRM: SEAL. ARCHITECTS/ENGINEERS. APPROVED CONSOLIANT FIRM: SEAL. Title APPROVED CONSOLIANT FIRM: SEAL. Title APPROVED APPROVED CONSOLIANT FIRM: SEAL. Title APPROVED CONSOLIANT FIRM: SEAL. Title APPROVED APPROVED CONSOLIANT FIRM: SEAL. Title Name Title Nam	DESIGN CHANGE APPROVED CONSULTANT FIRM: SEAL: ARCHITECTS/ENGINEERS: SEAL: Title Name

4 5 7



ID DOCUMENTS

ESCRIPTION (

VA FORM 08-6231

DESIGN CHANGE APPROVED

October-21-2024

DATE

A DESIGN GROUP, LLC

ART - ARCHITECTURE - ENGINEERING

2787 HILL ROAD VIENNA, VA 22181

FRANK V. STURGEON, AIA

AMBRISH RASTOGI, PE

703.938.5226

FRANK@ADGIO.COM

3

ELECTRICAL SYMBOLS

642-22-104

rawing Number

Dwg. **13** of **2**4

Office of Facility

Department of Veterans Affairs

Managemen

Service

SUBSTATION UPGRADE

BUILDING 2 - PHASE 1

CORPORAL MICHAEL J. CRESCENZ

VA MEDICAL CENTER

10-21-2024

ELECTRICAL COVER SHEET

Chief Engineer Approval

Prevention Coordinator

Name, Title

3

