REQUEST FOR QUOTATIONS AMP ROOMS - ADD COOLING FOR CAPITAL IMPROVEMENT TO U.S. BANK STADIUM

IN MINNEAPOLIS, MINNESOTA

August 10, 2018

A. <u>Project Background and Objectives</u>

In 2012, the State of Minnesota enacted 2012 Minnesota Laws, Chapter 299 (the "Act"), to establish the Minnesota Sports Facilities Authority ("Authority") and to provide for the construction, financing, and long-term use of a new stadium now known as U.S. Bank Stadium (the "Stadium") and related stadium infrastructure (the "Stadium Infrastructure") as a venue for professional football and a broad range of other civic, community, athletic, educational, cultural and commercial activities. As set forth in the Act, the Authority may make capital improvements to design, development and construction of the Stadium and the Stadium Infrastructure, and the certain capital improvements that that Authority is soliciting in this Request for Quotations ("RFQ") shall be referred to in this RFQ as the "Project". To that end, the Authority has prepared this RFQ for the Amp Room Cooling project. Those who respond to this RFQ shall be referred to as "Proposers".

The Project is located at the Stadium [and other additional adjacent land that has been acquired by the Authority in Minneapolis, Minnesota]. The Specification Documents identifying and indicating the scope of the Project are also incorporated within this RFQ as **Exhibit 1**. The Specifications Documents meet the standards required for a National Football League ("NFL") franchise, as well as additional standards established by the Authority. The Project must be completed by November 13, 2018 (the "Required Completion Date").

B. Intent and Process of the Request for Quotations

This RFQ is focused on the selection of a Proposer who will provide the best value to the Authority.

Proposers should have experience in similar projects to those that are the subject of this RFQ. It is the desire of the Authority to consider as part of its selection criteria, the commitment of the Proposer to exert good faith efforts to comply with the plan of the Authority to ensure equitable opportunities for Minority Owned Business Enterprises ("MBE") and Women Owned Business Enterprises ("WBE") to participate in the Project. The successful Proposer or Proposers must also demonstrate the ability to exert good faith efforts to comply with workforce goals and targeted zip code hiring goals, and work with organizations to develop effective MBE, WBE and workforce recruitment efforts during the Project. The Authority has developed an Equity Plan and each Proposer should provide a plan describing how they will encourage the participation and utilization of appropriate workforce, MBEs and WBEs in the Proposers' performance of their services. MBEs and WBEs that are interested in acting as the Proposers for the Project are encouraged to respond to the RFQ.

C. <u>Scope of the Project Requirements</u>

Please see Exhibit 1 for project specifications.

D. <u>Requested Qualifications</u>

The Authority reserves the right and discretion to determine the qualifications and responsibility of the Proposers to perform the work and services that are the subject of the RFQ.

E. <u>RFQ Timeline</u>

Advertise and Issue Request for QuotationsAugust 14, 2018Site Walk Through (By Appointment Only)August 25, 2018 to August 30, 2018Contact Curtis Schmillen at cschmillen@usbankstadium.com for an appointment

Questions Due	September 6, 2018 by 3PM
Quotations Due	September 11, 2018 by 1PM
Interviews and Final Negotiations	September 13-14, 2018
Selection of Provider	September 17, 2018
Project Completion	November 13, 2018

By submitting a Quotation, the Proposer affirms that this timeline can be met.

F. <u>Proposer Qualifications</u>

The following items shall be included in a Proposal executive summary:

• Proposer's name and address of office that would have central responsibility for the work. Identify the business form of Proposer. If the proposed form of entity is a joint venture, please identify each joint venture participant and their respective percentage of participation. Provide a summary, on one page or less, describing why the Proposer is the most qualified to be the Provider for the Project.

• Proposer agrees that if it is proposing any services including installation work, it shall obtain worker's compensation insurance, vehicle insurance, and any other insurance required by applicable law or regulation. Proposer also agrees that it shall maintain commercial general liability insurance in commercially reasonable amounts, and that proposer shall provide upon request a certificate of insurance evidencing such coverage and additional insured status as requested. The Authority may terminate this purchase order if it determines in its sole discretion that the proposer's insurance coverage is not adequate for this project.

• Exhibit 1 – <u>Scope and Specification Documents</u>. The Authority will complete the Scope and Specification Documents.

• Exhibit 2 – <u>Proposal Scope of Services and Pricing Information</u>. There are two pages for this Exhibit. The first page is for the Proposer to define the scope of professional services, if any, that will be provided to the MSFA. The second page is for the Proposer

to describe the equipment, materials, and installation labor, if any, that will be provided to the MSFA.

- Exhibit 3 Equity Plan Targeted Business Commitment and Information Form. Proposer must complete the Targeted Business Commitment and Information Form.
- Exhibit 4 Equity Report. Proposer must complete this form at the completion of the project for all workforce services.
- Exhibit 5 <u>Purchase Order Form</u>. The Authority will complete this form.

G. <u>Quotations</u>

Quotations are due by September 5, 2018 by 1PM, CT. Two bound copies of each quote and should be enclosed in a sealed envelope addressed to:

Minnesota Sports Facilities Authority Attention: James Farstad 1005 4th Street South Minneapolis, Minnesota 55415

An electronic copy should be sent via email to the following parties:

1. Curtis Schmillen: cschmillen@usbankstadium.com.

2. Elizabeth Brady: Elizabeth.brady@msfa.com

3. James Farstad: james.farstad@msfa.com

<u>Questions or Inquiries</u>. All questions must be submitted via email to the following parties:

- 1. James Farstad at james.farstad@msfa.com
- 2. Curtis Schmillen at cschmillen@usbankstadium.com

H. Minnesota Government Data Practices

All Quotations are eventually subject to the Minnesota Government Data Practices Act, Minn. Statutes, Chapter 13, but the Act prohibits disclosure of any information derived from Quotations submitted by competing Proposers, and the content of all Quotations is nonpublic data under Chapter 13 until such time as notice to award a contract to the successful Proposer is given by the Authority. Proposers shall note with their Quotation any data in their Quotation that they consider proprietary information or otherwise private and confidential.

Scope and Specification Documents

Add cooling in two amp (audio) rooms. See attached drawings.

Proposal Scope of Services and Pricing Information

roposer:	
roposer Address:	
roposer Phone Number:	
ontact Name:	
roposer Email Address:	

Scope of Professional Services and Fees

Define the scope of professional services, if any, that will be provided to the MSFA and detail all hourly rates and fees.

Total Professional Fees

Proposal Scope of Services and Pricing Information

oposer:	
oposer Address:	
oposer Phone Number:	
ontact Name:	
oposer Email Address:	_

Describe the equipment and materials, if any, that will be provided to the MSFA and detail all quantities and unit prices for the equipment and materials proposed below. In addition, include installation labor costs, freight, and Minnesota sales tax.

Quantity	Materials Description	Price
	Subtotal Materials	
	Installation Labor	
	Freight	
	Minnesota Sales Tax (6.875%)	
	Total	

EQUITY PLAN

TARGETED BUSINESS COMMITMENT AND INFORMATION FORM

Proposer Company Name:

Check ONE of the following:

____No Targeted Business participation is committed on this project

The following Targeted Business (MBE & WBE) participation is committed on this project:

Firm Name (Legal business name used for Targeted Business certification)	WBE (Chec	MBE k one)	How will firm participate? (subcontractor,consortium,joint venture)	Description of work	Estimated dollar value of participation	Estimated percentage of total bid

Total WBE %_____ Total MBE % _____

TARGETED BUSINESSES WHO WERE CONSIDERED BUT WERE NOT SELECTED:

Firm Name	Address	Telephone Number

Certification

On behalf of the proposer identified below, I certify that the information provided in this form is true and correct.

Proposer Name: _____

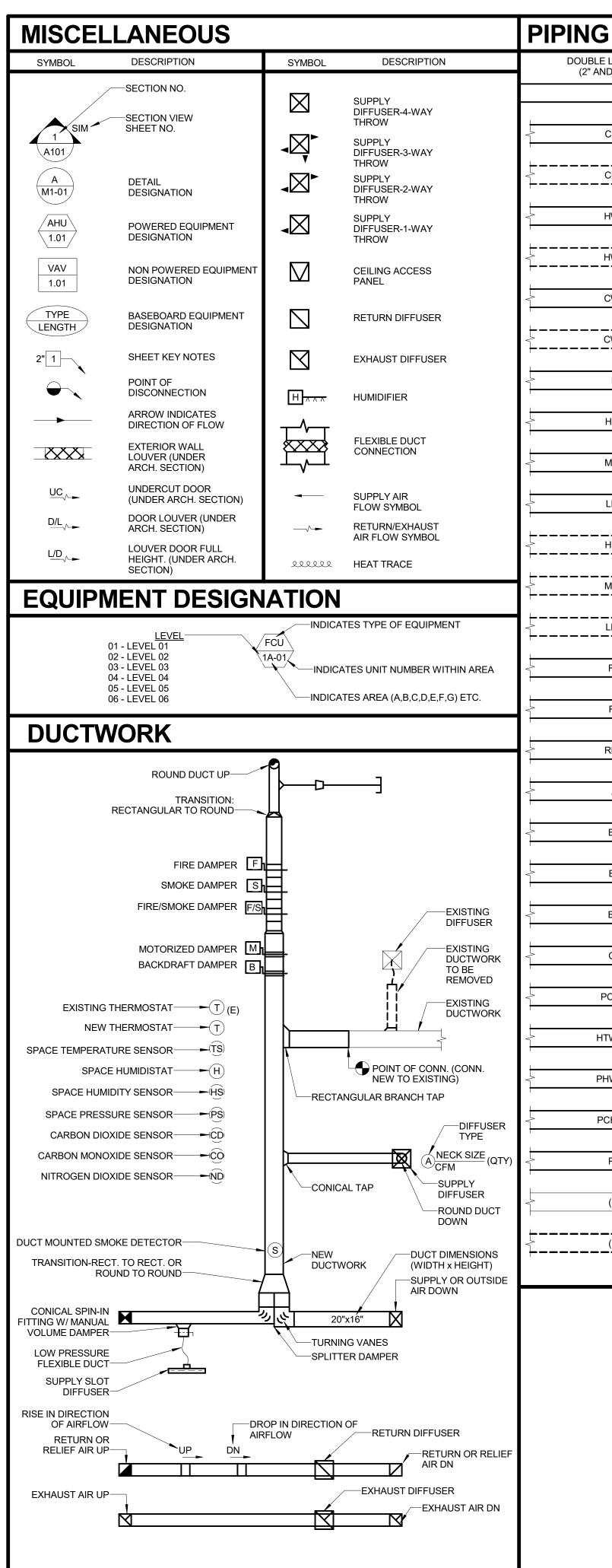
Signature: _____

Date:

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1 1	a		iC	٠

Title: _____

Minnesota Sports Facilities Authority														
Equity Report - Monthly														
				WORK FORCE:										
PROJECT NAME	CONTRACT DATE	PRIME CONTRACTOR NAME	SUBCONTRACTOR NAME	LAST NAME	FIRST NAME	ZIP CODE	ETHNICITY	GENDER	VETERAN STATUS	UNION	WORK START DATE	WORK FINISH DATE	TOTAL HOURS	TOTAL WAGES



G TYPES			PIPI	NG SYMBOLS		BREVIATIONS:						
BLE LINE PIPING	SINGLE LINE PIPING	PIPE			ABBREVIA		ABBREVIA	TION DESCRIPTION	ABBREVIATIO	N DESCRIPTION	ABBREV	IATION DESCRIPTION
' AND ABOVE)	(UP TO 2")	TYPE	SYMBOL FITTINGS:	ABBREVIATION DESCRIPTION		A	EDR EER	EFFECTIVE DIRECT RADIATION ENERGY EFFICIENCY RATIO		Μ	SFCS	SPRINKLER FLOOR CONTROL STATION
				P&T PRESSURE/TEMPERATURE	A ABV A/C	AIR (COMPRESSED) ABOVE AIR CONDITIONING	EF EFF EJ	EXHAUST FAN EFFICIENCY EXPANSION JOINT	MA MAT	MAKE-UP AIR MIXED AIR TEMPERATURE	SH SHT SIM	SHOWER SHEET SIMILAR
CHS <	CHS	CHILLED WATER SUPPLY		PORT TAPS	AC	ALTERNATING CURRENT AIR COMPRESSOR	EL EMRG	ELEVATION EMERGENCY	MAX MBH MC	MAXIMUM THOUSAND BTUH MECHANICAL CONTRACTOR	SK SKVA SKW	SINK STARTING KILOVOLT AMPS STARTING KILOWATTS
CHR	CHR	CHILLED WATER		CR CONCENTRIC REDUCER	ACCH ACCU AD	AIR COOLED CHILLER AIR COOLED CONDENSING UNIT ACCESS DOOR	ENCL ENGR ENT	ENCLOSURE ENGINEER ENTERING	MCA MCC	MINIMUM CIRCUIT AMPACITY MOTOR CONTROL CENTER	SM SP	SHEET METAL STATIC PRESSURE
		RETURN		ER ECCENTRIC REDUCER	ADJ AF	AREA DRAIN ADJUSTABLE AIR FILTER	ES ESP	END SUCTION EMERGENCY SHOWER EXTERNAL STATIC PRESSURE	MECH MFR MH	MECHANICAL MANUFACTURER MANHOLE	SPEC SPR	SUMP PUMP SPECIFICATION SPRINKLER
HWS	HWS	HEATING WATER SUPPLY	EJ	EJ EXPANSION JOINT	AFC AFF AFG	ABOVE FINISHED CEILING ABOVE FINISHED FLOOR ABOVE FINISHED GRADE	ET ETR EVAP	EXPANSION TANK EXISTING TO REMAIN EVAPORATOR	MI MIN MOCP	MALLEABLE IRON MINIMUM MAXIMUM OVER CURRENT	SQ SS	SQUARE STAINLESS STEEL SERVICE SINK
HWR	HWR	HEATING WATER RETURN		U UNION	AHU AL AMB	AIR HANDLING UNIT ALUMINUM AMBIENT	EWB EWT	ENTERING WET BULB ENTERING WATER TEMPERATURE	MP MS	PROTECTION MEDIUM PRESSURE MOP SINK	SSD SSFU	SUBSURFACE DRAIN SANITARY SEWER FIXTURE UNITS
CWS <	CWS	CONDENSER	μ	T THERMOMETER W/ THERMOWELL	AP APD ARI	ACCESS PANEL AIR PRESSURE DROP AMERICAN REFRIGERANT INSTITUTE	EX EXT EXTG	EXPLOSION PROOF EXTERNAL EXISTING	MTD MTL MU	MOUNTED METAL MAKE-UP	SSSC STD STL	SOLID STATE SPEED CONTROL STANDARD STEEL
		WATER SUPPLY	 	AV AIR VENT	ARCH AS ASHRAE	ARCHITECT AIR SEPARATOR AMERICAN SOCIETY OF HEATING AND		F	MUA MVD	MAKE-UP AIR UNIT MANUAL VOLUME DAMPER	STR SURF SUSP	STRAINER SURFACE SUSPEND
CWR	CWR	CONDENSER WATER RETURN		FC FLEXIBLE PIPE	ASME	REFRIGERATION ENGINEERS AMERICAN SOCIETY OF MECHANICAL	F FBO FCO	DEGREE FAHRENHEIT FURNISHED BY OTHERS FLOOR CLEAN OUT	(N)	New	SV ST	SANITARY VENT SOUND TRAP
D	D	CONDENSATE DRAIN	FS	FS FLOW SWITCH	ASTM	ENGINEERS AMERICAN SOCIETY OF TESTING AND MATERIALS	FCS FCU	FLOOR CONTROL SWITCH FAN COIL UNIT	NC NFP	NORMALLY CLOSED NATIONAL FIRE PROTECTION		
HPS <		HIGH PRESSURE	 [PS]		AV AVG	ACID VENT AIR VENT AVERAGE	FD FDS	FLOOR DRAIN FIRE DAMPER FIRE DEPARTMENT SIAMESE	NIC NO	ASSOCIATION NOT IN CONTRACT NORMALLY OPEN	TD TDH	TEMPERATURE CONTROL TRENCH DRAIN TOTAL DYNAMIC HEAD
		STEAM SUPPLY		PS PRESSURE SWITCH	AW AWS AUX	ACID WASTE AMERICAN WELDING SOCIETY AUXILIARY	FDV FG FF	FIRE DEPARTMENT VALVE FIBERGLASS FINAL FILTER	NO NTS	NUMBER NOT TO SCALE	TF TG TH BLK	TRANSFER FAN TRANSFER GRILLE THRUST BLOCK
MPS <	MPS	MEDIUM PRESSURE STEAM SUPPLY		PG GAUGE COCK		В	FH FHC FHR	FIRE HYDRANT FIRE HOSE CABINET FIRE HOSE RACK	OA	OUTSIDE AIR	TOD TOP TP	TOP OF DUCT (AFF) TOP OF PIPE (AFF) TRAP PRIMER
LPS	LPS	LOW PRESSURE STEAM SUPPLY	<u> </u>	ELBOW UP	B BC B/C	BOILER BELOW COUNTER BACK OF CURB	FIXT FLA FLEX	FIXTURE FULL LOAD AMPS FLEXIBLE	oaf oahu obd	OUTSIDE AIR FAN OUTSIDE AIR HANDLING UNIT OPPOSED BLADE DAMPER	TPD TSP TSTAT	TRAP PRIMER DEVICE TOTAL STATIC PRESSURE THERMOSTAT
	HPR	HIGH PRESSURE	<u> </u>	ELBOW DOWN	BFV BH BHP	BUTTERFLY VALVE BOX HYDRANT BRAKE HORSEPOWER	FL FLR FP	FLOW LINES FLOOR FAN POWERED MIXING BOX	OC OD	ON CENTER OUTSIDE DIAMETER OVERFLOW DRAIN	ТҮР	
	///	CONDENSATE RETURN		TEE UP	BLDG BM BOD	BUILDING BENCHMARK BOTTOM OF DUCT (AFF)	FPI FPM	FIRE PUMP FINS PER INCH FEET PER MINUTE	OFCU OPG OS&Y	OUTSIDE AIR FAN COIL UNIT OPENING OPEN STEM AND YOLK	U U/F	URINAL UNDERFLOOR
MPR	MPR	MEDIUM PRESSURE CONDENSATE RETURN		TEE DOWN	BOF BOS BT	BOTTOM OF DOCT (AFF) BOTTOM OF FOOTING BOTTOM OF STRUCTURE BATH TUB	FRIC FRZR FS	FRICTION FREEZER FLOW SWITCH		P	U/S UCD UG	UNDERSLAB UNDERCUT DOOR UNDERGROUND
LPR	LPR	LOW PRESSURE		PIPE CAP OR PLUG	BTU	BREAK TANK BRITISH THERMAL UNIT	FSK FT	FIRE SPRINKLER FLOOR SINK FOOT	P	PUMP PLUMBING EQUIPMENT	UH UL	UNIT HEATER UNDERWRITERS LABORATORIES
RS	RS	CONDENSATE RETURN REFRIGERANT		IV ISOLATION VALVE, RE: SPECS	BV BWV	BALL VALVE BACK WATER VALVE	FTWC	FEET FEET, WATER COLUMN	PC PCR	PLUMBING CONTRACTOR PUMPED CONDENSATE RETURN		UNLESS NOTED OTHERWISE UP THROUGH ROOF
		SUCTION		OS&Y OUTSIDE STEM AND	С	CELSIUS	FUT	FUTURE	PD PF	PRESSURE DROP PLANTER DRAIN PRE-FILTER		V
RL	RL	REFRIGERANT LIQUID		YOKE	CAB CAV CB	CABINET CONSTANT AIR VOLUME CATCH BASIN	G GA	GAS GAUGE	PH PIV	PHASE POST HYDRANT POST INDICATOR VALVE	V VA VAC	VOLT, VENT VOLT-AMPERE VACUUM
RHG <	RHG	REFRIGERANT		DV DRAIN VALVE W/ HOSE END CONNECTION	CC CD CFH	COOLING COIL CONDENSATE DRAIN LINE CUBIC FEET PER HOUR	GAL GALV GC	GALLON GALVANIZED GENERAL CONTRACTOR	PLBG PNEU PNL	PLUMBING PNEUMATIC PANEL	VAV VB	VARIABLE AIR VOLUME VALVE BOX VACUUM BREAKER
	٨			BALL VALVE W/ HOSE CONNECTION	CFM CFS CI	CUBIC FEET PER MINUTE CUBIC FEET PER SECOND CAST IRON	GLV GND GPD	GLOBE VALVE GROUND GALLONS PER DAY	PNTH PP PPM	PENTHOUSE POLYPROPYLENE PARTS PER MILLION	VCP VD VEL	VITRIFIED CLAY PIPE VOLUME DAMPER VELOCITY
A	A	CONTROL AIR (PNEUMATIC)		CHECK VALVE WITH	CIRC CL CLG	CIRCULATING CENTERLINE CEILING	GPM GSH GV	GALLONS PER MINUTE GRAND SENSIBLE HEAT GATE VALVE	PRESS PRI PRS	PRESSURE PRIMARY PRIMARY REDUCING STATION	VERT VFD VIB	VERTICAL VARIABLE FREUENCY DRIVE VALVE IN BOX
BD	BD	BOILER BLOW DOWN		CV INDICATION OF FLOW DIRECTION	CLR CMP CMU	CLEAR CORRIGATED METAL PIPE CONCRETE MASONRY UNIT		Н	PRV PSF PSI	PRESSURE REDUCING VALVE POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH	VOV VP VR	VALVE ON VERTICAL VACUUM PUMP VARIABLE AIR VOLUME
BF	BF	BOILER FEED		PRV PRESSURE REDUCING	CPI CPVC	CAST IRON PIPE INSTITUTE CHLORINATED POLYVINYL CHLORIDE	HB HC HD	HOSE BIBB HEATING COIL HEAD	PSIG	POUNDS PER SQUARE INCH, GAUGE PLUMBING TRIM	VSD	REHEAT VARIABLE SPEED DRIVE VENT THROUGH ROOF
			s	VALVE	CO COL COMB	CLEANOUT COLUMN COMBINATION	HF	HUB DRAIN HUMIDIFIER	PV PVC PWL	PLUG VALVE POLYVINYL CHLORIDE SOUND POWER LEVEL		VENT THROUGH ROOF
BO	во	BLOW OFF		SV SOLENOID VALVE	COMP CON CONC	COMPRESSOR CONVERTER CONCRETE	HORIZ HP	HORIZONTAL HORSEPOWER HALON PANEL		Q	-	
CF	CF	CHEMICAL FEEDER	FC	FCV AUTO FLOW CONTROL VALVE W/ TEST PORTS	COND	CONCENTRIC CONDENSER CONDENSATE	HPU HKP HSC	HEAT PUMP UNIT HOUSEKEEPING PAD HORIZONTAL SPLIT CASE	QTY	QUANTITY R	W/ W/ W/O	WATT, WASTE, WIDTH WITH WITHOUT
PCS/R	PCS/R	PROCESS COOLING WATER		CS, BV CIRCUIT SETTER OR BALANCING VALVE	CONN CONT	CONNECTION CONTINUOUS CONTINUATION	HSTAT HT HTG	HUMIDISTAT HEIGHT HEATING	(R)	REMOVE	WB WC WCO	WETBULB WATER CLOSET WALL CLEANOUT
		SUPPLY/RETURN		GLV GLOBE VALVE (STRAIGHT PATTERN)	CONTR	CONTROLLER CONTRACTOR COEFFICIENT OF PERFORMANCE	HTR HU HW	HEATER HUMIDIFIER SECTION HOT WATER	RA RAD	RELOCATE RETURN AIR REFRIGERATED AIR DRYER	WF WH WM	WATER FILTER WALL HYDRANT WATER METER
HTWS/R	HTWS/R	HIGH TEMP. HOT WATER SUPPLY/RETURN		GLV GLOBE VALVE (ANGLE PATTERN)	CRAC CRT CRU	COMPUTER ROOM A/C UNIT CATHODE RAY TUBE CONDENSATE RETURN UNIT	HWC HWP HWR	HOT WATER CIRCULATOR HOT WATER PUMP HOT WATER RETURN	RAF RAG RAT	RETURN AIR FAN RETURN AIR GRILLE RETURN AIR TEMPERATURE	WP WPD WWF	WEATHERPROOF WATER PRESSURE DROP WELDED WIRE FABRIC
PHWS/R <	PHWS/R	PRIMARY OR DISTRICT HEATING WATER		BFV BUTTERFLY VALVE	CT CTR CU	COOLING TOWER CENTER COPPER	HWS HX HZ	HOT WATER SUPPLY HEAT EXCHANGER HERTZ	RCP RD	REFLECTED CEILING PLAN REINFORCED CONCRETE PIPE ROOF DRAIN	WT	WATER TIGHT WEIGHT
PCHS/R	PCHS/R	SUPPLY/RETURN PRIMARY OR DISTRICT		BV BALL VALVE	CW CWP CWR	COLD WATER CONDENSER WATER PUMP CONDENSER WATER RETURN			RE RECIRC	REFERENCE REFER RECIRCULATE	Y	YARD HYDRANT
		CHILLED WATER SUPPLY/RETURN	A A		CWS CV	CONDENSER WATER SUPPLY CONSTANT VOLUME	ID IE IH	INSIDE DIAMTER INVERT ELEVATION INFRARED HEATER	RED REFR REG	REDUCER REFRIGERATOR REGISTER		Z
PR <>	- O PR O -	PUMPED CONDENSATE RETURN		TCV AUTOMATIC TEMPERATURE CONTROL VALVE, 2-WAY	dB	D	IN IN WC INSUL	INCH INCH, WATER COLUMN INSULATION	REINF REQD REV	REINFORCING REQUIRED REVISION	Z	ZONE
(E)	(E)	EXISTING PIPING		TCV AUTOMATIC TEMPERATURE CONTROL VALVE, 3-WAY	DB DC	DRY-BULB DOUBLE DUCT CONSTANT VOLUME DIRECT CURRENT	INT	INTERNAL INTERIOR INDIRECT WASTE	RF RH	REVISE RETURN FAN RELATIVE HUMIDITY		
(E)	(E)	EXISTING PIPING TO		BV BALANCING VALVE	DDC DESIG DEFL	DIRECT CORRENT DIRECT DIGITAL CONTROL DESIGNATION DEFLECTION		J	RHG RKVA RKW	REFRIGERANT HOT GAS RUNNING KILOVOLT AMPS RUNNING KILOWATTS		
		BE REMOVED	Ĩ.	TMP TEMPERATURE/PRESSURE	DEFL DTL DF DIA	DEFLECTION DETAIL DRINKING FOUNTAIN DIAMETER	JB JP	JUNCTION BOX JOCKEY PUMP	RL RLA RM	REFRIGERANT LIQUID RUNNING LOAD AMPS ROOM		
					DIFF DIM	DIFFUSER DIMENSION	KEC	KITCHEN EQUIPMENT	RPM RS	REFRIGERANT MACHINE REVOLUTIONS PER MINUTE REFRIGERANT SUCTION		
					DISC DN DP	DISCONNECT DOWN DISCHARGE PLENUM	ко`	CONTRACTOR KNOCKOUT	RTU RV	ROOFTOP UNIT RELIEF VALVE		
				STR STRAINER W/ BLOW-OFF & CAPPED HOSE END CONNECTION	DPR DS	DAMPER DOUNSPOUT DOUBLE SUCTION	KVA KW	KILOVOLT AMPS KILOWATT	SV			
				ST STEAM TRAP	DV DW DWG	DOUBLE DUCT VAV DISHWASHER DRAWING	L		SA SAF SAG	SUPPLY AIR SUPPLY AIR FAN SUPPLY AIR GRILLE		
					DWH DWP DX	DOMESTIC WATER HEATER DOMESTIC WATER PUMP DIRECT EXPANSION	LAT LAV LBS	LEAVING AIR TEMPERATURE LAVATORY POUNDS	SAN SAR SCHED	SANITARY SEWER SUPPLY AIR REGISTER SCHEDULE		
						E	LBS/HR LF LP	POUNDS PER HOUR LINEAR FEET LOW PRESSURE	SCFM SCR	STANDARD AIR CUBIC FEET PER MINUTE SILICON CONTROLLED		
					(E) EA EAT	EXISTING EACH ENTERING AIR TEMPERATURE	LRA LVG LVL	LOCKED ROTOR AMPS LEAVING LEVEL	SD SE	RECTIFIER STORM DRAIN SEWAGE EJECTOR		
					EC ECC EDB	ELECTRICAL CONTRACTOR ECCENTRIC ENTERING DRY BULB	LWB LWCO LWT	LEAVING WET BULB LOW WATER CUT OFF LEAVING WATER	SEC SECT SENS	SECONDARY SECTION SENSIBLE		
					EDB EDF EDH	ELECTRIC DRINKING FOUNTAIN ELECTRIC DUCT HEATER		TEMPERATURE	SF	SQUARE FEET		

me
engineers

US BANK STADIUM - AMP ROOM COOLING

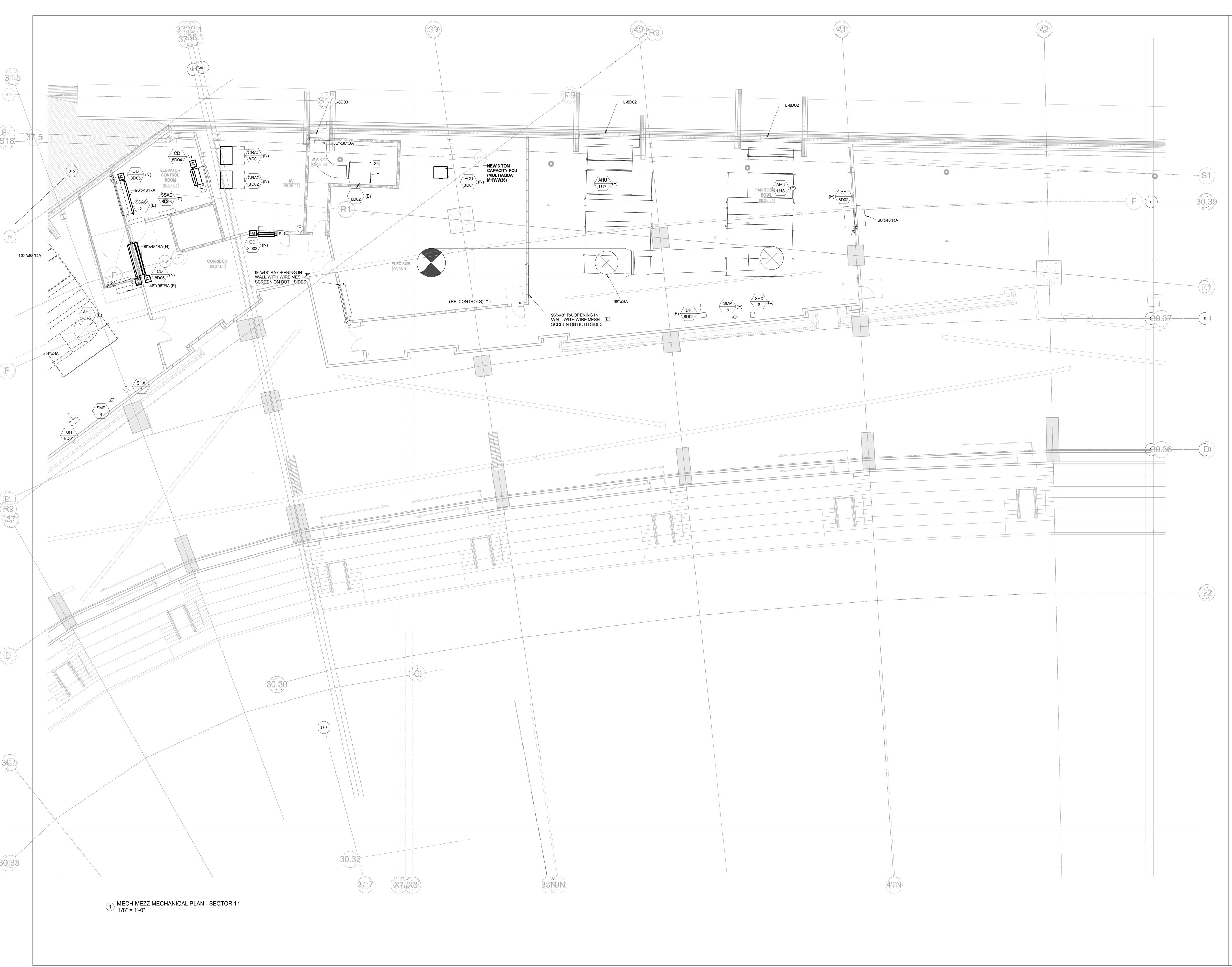
No.	Desc	ription	Date			
ME	MECHANICAL LEGEND					
Project N	umber					
Date		Projec	ct Number			
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	Ву		ssue Date ME ME			





US BANK STADIUM - AMP ROOM COOLING

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	2.08.	06
Scale	1/8	3" = 1'-0"





US BANK STADIUM - AMP ROOM COOLING

No.	Description	Date
	IANICAL MEZ	
MECH	ANICAL - SEC	TOR 11
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Date	ls	sue Date
Drawn By Checked By		ME
		ME
	2.08.	11
Scale	1/	8" = 1'-0"

GENERAL MECHANICAL CONTRACT REQUIREMENTS:	ELECTRICAL COORDINATION:
GENERAL: 1. UNLESS OTHERWISE NOTED, THE WORK DESCRIBED ON THE PLANS AND	 VERIFY THE ELECTRICAL SERVICE PROVIDED BY THE ELECTRICAL CONTRACTOR BEFORE ORDERING ANY MECHANICAL EQUIPMENT REQUI ELECTRICAL CONNECTIONS.
SPECIFICATIONS SHALL INCLUDE THE FURNISHING AND INSTALLATION OF ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE AND OPERATIONAL HVAC, FIRE PROTECTION AND PLUMBING SYSTEMS. CONTRACTOR SHALL FURNISH THESE EVEN IF ITEMS REQUIRED TO ACHIEVE THIS (I.E.	 PROVIDE PREMIUM EFFICIENCY MOTORS WITH 1.15 SERVICE FACTOR ON EQUIPMENT, MOTORS SHALL BE CAPABLE OF OPERATING CONTINUOUSI 105°F UNDER JOBSITE CONDITIONS AND ALTITUDE.
OFFSETS, ISOLATION AND BALANCING DEVICES, MAINTENANCE CLEARANCES, ETC.) ARE NOT SPECIFICALLY SHOWN. 2. DATA GIVEN ON THE DRAWINGS IS AS EXACT AS COULD BE SECURED.	3. UNLESS NOTED OTHERWISE, ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH HOA SWITCH AND STARTER COMPATIBLE WITH EQUIPM AND BMS SYSTEM. STARTERS SHALL BE PROVIDED BY DIVISION 21,22 AN
ABSOLUTE ACCURACY IS NOT GUARANTEED AND THE CONTRACTOR SHALL OBTAIN AND VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS WITH OTHER TRADES, ETC. AT THE SITE AND SHALL SATISFACTORILY ADAPT HIS WORK TO THE ACTUAL	UNLESS IN A MOTOR CONTROL CENTER. ALL DISCONNECTS SHALL BE FURNISHED BY DIVISION 26. 4. THE ELECTRICAL POWER FOR CERTAIN EQUIPMENT PROVIDED UNDER
CONDITIONS OF THE JOB. 3. THE DRAWINGS ARE DIAGRAMMATICAL IN NATURE AND SHALL NOT BE SCALED. THEY SHOW CERTAIN PHYSICAL RELATIONSHIPS WHICH MUST BE ESTABLISHED WITHIN THE DIVISION 21,22 AND 23 WORK AND ITS INTERFACE WITH OTHER	DIVISION 21,22 AND 23 HAS NOT BEEN SPECIFICALLY INDICATED ON THE ELECTRICAL DRAWINGS AND MUST BE PROVIDED BY AND FIELD COORDINATED BY THE DIVISION 21,22 AND 23 TRADE REQUIRING SUCH POWER.
WORK. ESTABLISHING THIS RELATIONSHIP IN THE FIELD IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. THIS DIVISION SHALL COORDINATE ITS WORK WITH ALL DIVISIONS OF THE WORK AND ADJUST ITS WORK AS REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT.	SUFFICIENT POWER FOR THIS PURPOSE SHALL BE FURNISHED AS "SPAR DEDICATED CIRCUIT CAPACITY IN DIVISION 26'S PANELBOARDS. ALL WIR CONDUIT AND ELECTRICAL DEVICES DOWNSTREAM OF THE PANELBOARI THE RESPONSIBILITY OF THE DIVISION 21,22 AND 23 TRADE REQUIRING T POWER UNLESS OTHERWISE SHOWN ON THE ELECTRICAL DRAWINGS.
A. THE CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING A BID TO BECOME THOROUGHLY FAMILIAR WITH THE ACTUAL CONDITIONS OF THE PROJECT. NO EXTRAS WILL BE ALLOWED DUE TO LACK OF	SUCH EQUIPMENT IS HEREBY DEFINED AS:
KNOWLEDGE OF EXISTING CONDITIONS. B. CERTAIN SYSTEMS REQUIRE ENGINEERING OF INSTALLATION DETAILS BY CONTRACTOR. UNLESS FULLY DETAILED IN THE CONTRACT	A. ELECTRICAL HEAT TRACE. REQUIRED HEAT TRACE LOCATIONS, CAPACITIES AND SPECIFICATION ARE SHOWN OR INDICATED ON THE DRAWINGS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATI
DOCUMENTS, SUCH ENGINEERING IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE WHERE	B. FIRE PROTECTION AIR COMPRESSORS, DRY-PIPE CONTROL PANELS VALVES. REQUIRED CONNECTIONS ARE INCLUDED IN THE DIVISION 2 WORK, AND WILL BE SHOWN BY THAT CONTRACTOR'S ENGINEERED SYSTEM DESIGN DRAWINGS.
CLEARANCES ARE LIMITED, AND WHERE INSTALLATION DRAWINGS OR SCHEMATICS, "CONSTRUCTION DRAWINGS", OR COORDINATION DRAWINGS MAY BE REQUIRED IN ACCORDANCE WITH, OR IN EXCESS OF, THOSE REQUIRED BY THE SPECIFICATIONS. THE CONTRACTOR SHALL PREPARE	(1) PRE-ACTION SYSTEM INITIATION SIGNALS (SUCH AS SMOKE DETECTORS, OR GENERAL ALARM CONDITIONS IN A PRE-ACTION ZONE) SHALL BE PROVIDED UNDER DIVISION 28 FIRE-ALARM WO
ALL SUCH COORDINATION DRAWINGS AS PART OF THE BASE CONTRACT. SUCH DRAWINGS MAY BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR RECORD AND COMMENT. ANY WORK INSTALLED WITHOUT APPROVED COORDINATION DRAWINGS IS DONE AT THE CONTRACTOR'S RISK.	(2) DIVISION 21 SHALL PROVIDE PRE-ACTION CONTROL PANEL AND INTERCONNECTION BETWEEN NEAREST SUITABLE FIRE ALA PANEL AND LOCATION OF PRE-ACTION VALVE(S).
THESE NOTES ONLY SUPPLEMENT, AND DO NOT REPLACE, THE SPECIFICATIONS.	(3) DIVISION 28 SHALL PROVIDE INTERCONNECTION BETWEEN FIRE COMMAND CENTER ALARM PANEL (PROVIDED UNDER DIVISION 2 AND REMOTE COMMUNICATION FIRE ALARM PANEL (PROVIDED
A. THE DEFINITIONS OF DIVISION 1 AND THE GENERAL CONDITIONS OF THIS SPECIFICATION ALSO APPLY TO THE DIVISION 21,22 AND 23 CONTRACT DOCUMENTS.	UNDER DIVISION 28). C. TEMPERATURE CONTROL PANELS, CONTROL AIR COMPRESSORS AN VOLTAGE POWER FOR 24V CONTROL TRANSFORMERS. REQUIRED
B. "CONTRACT DOCUMENTS" CONSTITUTE THE DRAWINGS, SPECIFICATIONS, GENERAL CONDITIONS, PROJECT MANUALS, ETC., PREPARED BY ENGINEER (OR OTHER DESIGN PROFESSIONAL IN ASSOCIATION WITH ENGINEER) FOR CONTRACTOR'S BID OR CONTRACTOR'S NEGOTIATIONS WITH THE OWNER. THE	CONNECTION ARE INCLUDED IN DIVISION 230900 AND WILL BE SHOW BY THAT CONTRACTOR'S CONTROL SUBMITTAL DRAWINGS. D. IT IS NOT PERMISSIBLE TO UTILIZE "SPARE" POWER FROM ADJACENT POWER CIRCUITS TO SERVE ANY OF THE ABOVE LOADS. ALL POWER
DIVISION 21,22 AND 23 DRAWINGS AND SPECIFICATIONS PREPARED BY THE ENGINEER ARE NOT CONSTRUCTION DOCUMENTS.	MUST COME FROM DEDICATED CIRCUITS. 5. SMOKE DETECTORS:
C. "CONSTRUCTION DOCUMENTS", "CONSTRUCTION DRAWINGS", AND SIMILAR TERMS FOR DIVISION 21,22 AND 23 WORK REFER TO INSTALLATION DIAGRAMS, SHOP DRAWINGS AND COORDINATION DRAWINGS PREPARED BY THE CONTRACTOR USING THE DESIGN INTENT INDICATED ON THE ENGINEER'S CONTRACT DOCUMENTS. THESE SPECIFICATIONS DETAIL THE CONTRACTOR'S RESPONSIBILITY FOR "ENGINEERING BY	FOR AIR HANDLING UNITS AND AIR SYSTEMS WITH A CAPACITY EXCEEDIN 2000 CFM, PROVIDE UL LISTED SMOKE DETECTORS IN RETURN AIR SYSTI IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE AND ELSEWHERE AS SHOWN ON THE DRAWINGS.
CONTRACTOR" AND FOR PREPARATION OF CONSTRUCTION DOCUMENTS. D. "(N)" INDICATES "NEW" EQUIPMENT TO BE PROVIDED UNDER THIS CONTRACT.	SMOKE DETECTORS WILL BE FURNISHED AND SET IN PLACE UNDER THIS DIVISION. DETECTORS WILL BE WIRED UNDER DIVISION 28. SMOKE DETECTORS MUST BE OF THE SAME MANUFACTURER, AND COMPATIBLE WITH THE FIRE ALARM SYSTEM PROVIDED UNDER DIVISION 28 (IF APPLIC
E. "(E)" INDICATES "EXISTING" EQUIPMENT ON SITE WHICH MAY OR MAY NOT NEED TO BE RELOCATED AS A PART OF THIS WORK.	CONNECT RELAY(S) TO FAN CONTROL CIRCUIT TO STOP FAN WHEN SMO DETECTED.
F. "(R)" INDICATES EXISTING EQUIPMENT TO BE RELOCATED AS PART OF THIS WORK.	INSTALLATION: 1. SUSPEND EACH TRADE'S WORK SEPARATELY FROM THE STRUCTURE.
G. "FURNISH" MEANS TO "SUPPLY" AND USUALLY REFERS TO AN ITEM OF EQUIPMENT.	DUCTWORK SHALL BE HELD TIGHT TO STRUCTURE EXCEPT WHERE OTHERWISE SHOWN.
H. "INSTALL" MEANS TO "SET IN PLACE, CONNECT AND PLACE IN FULL OPERATIONAL ORDER".	2. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATE OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDE
I. "PROVIDE" MEANS TO "FURNISH AND INSTALL".	 PROVIDE MANUFACTURER'S RECOMMENDED SERVICE CLEARANCE ARO ALL EQUIPMENT REQUIRING SAME.
J. "EQUIVALENT" MEANS "MEETS THE SPECIFICATIONS OF THE REFERENCE PRODUCT OR ITEM IN ALL SIGNIFICANT ASPECTS." SIGNIFICANT ASPECTS SHALL BE AS DETERMINED BY THE ARCHITECT/ENGINEER.	 PROVIDE FOR SAFE CONDUCT OF THE WORK, CAREFUL REMOVAL AND DISPOSITION OF MATERIALS AND PROTECTION OF PROPERTY WHICH IS REMAIN UNDISTURBED.
K. "WORK BY OTHER(S) DIVISIONS"; "RE: XX DIVISION", AND SIMILAR EXPRESSIONS MEANS WORK TO BE PERFORMED UNDER THE CONTRACT DOCUMENTS, BUT NOT NECESSARILY UNDER THE DIVISION OR SECTION	5. PROVIDE ACCESS DOORS FOR ALL EQUIPMENT, VALVES, CLEANOUTS, A AND CONTROLS WHICH REQUIRE ACCESS FOR ADJUSTMENT OR SERVICE WHICH ARE LOCATED IN OTHERWISE INACCESSIBLE LOCATIONS.
OF THE WORK ON WHICH THE NOTE APPEARS. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COORDINATE THE WORK OF THE CONTRACT BETWEEN HIS/HER SUPPLIERS, SUBCONTRACTORS AND EMPLOYEES. IF CLARIFICATION IS REQUIRED, CONSULT ARCHITECT/ENGINEER BEFORE SUBMITTING BID.	A. FOR EQUIPMENT LOCATED IN "ACCESSIBLE LOCATIONS" SUCH AS LA CEILINGS: LOCATE EQUIPMENT TO PROVIDE ADEQUATE SERVICE CLE FOR NORMAL MAINTENANCE WITHOUT REMOVING ARCHITECTURAL, E OR STRUCTURAL ELEMENTS SUCH AS THE CEILING SUPPORT SYSTEM ELECTRICAL FIXTURES, ETC. "NORMAL MAINTENANCE" INCLUDES, BU
L. BY INFERENCE, ANY REFERENCE TO A "CONTRACTOR" OR "SUB- CONTRACTOR" MEANS THE ENTITY WHICH HAS CONTRACTED WITH THE OWNER FOR THE WORK OF THE CONTRACT DOCUMENTS.	NOT LIMITED TO:FILTER CHANGING; GREASING OF BEARINGS; USING PORTS FOR PRESSURE OR TEMPERATURE MEASUREMENTS; SERVICI CONTROL VALVES AND SERVICING CONTROL PANELS.
M. "ENGINEER" MEANS THE DESIGN PROFESSIONAL FIRM WHICH HAS PREPARED THESE CONTRACT DOCUMENTS. ALL QUESTIONS, SUBMITTALS, ETC. OF THIS DIVISION SHALL BE ROUTED THROUGH THE	 6. ISOLATE ALL PRESSURIZED PIPE (WATER, ETC.) AT EACH RISER, BRANCH PIECE OF EQUIPMENT, AND AREA SERVED. 7. PROVIDE PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS SHOWN CONTRACT STREET STREET.
ARCHITECT TO THE ENGINEER (THROUGH PROPER CONTRACTUAL CHANNELS). EXISTING BUILDING:	7. PROVIDE PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS SHOWN C DRAWINGS. PRIMERS MAY BE CONNECTED TO FLUSH FIXTURES OR BE S ALONE. SEE SPECIFICATIONS.
. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE EXISTING BUILDING WILL BE OCCUPIED BY THE OWNER DURING CONSTRUCTION. CONTINUED OPERATION OF THE FACILITY SHALL NOT BE HINDERED BY THIS	 NO DOMESTIC WATER, CHILLED WATER, OR HEATING WATER LINES SHA LOCATED EXPOSED IN FINISHED SPACES OR BELOW THE BUILDING SLAB UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
WORK. THE CONTRACTOR SHALL ACCOUNT FOR ALL ADDITIONAL COSTS WHICH MAY BE INCURRED BY HIM DUE TO THE DIFFICULTY OF WORKING OVER AND AROUND EMPLOYEES, DESKS, EQUIPMENT, ETC.; AND DUE TO THE HOURS OF THE DAY IN WHICH AN AREA MAY BE AVAILABLE WHEN SUBMITTING HIS BID.	9. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CONC EQUIPMENT PAD DIMENSIONS, BASED ON THE FINAL EQUIPMENT SELEC TO THE STRUCTURAL AND GENERAL CONTRACTOR FOR INCLUSION IN T CONTRACTOR'S WORK AS DESCRIBED BY THE GENERAL CONTRACTOR.
. MAINTAIN A MARK-UP SET OF DRAWINGS WHICH INDICATE VARIATIONS IN THE ACTUAL INSTALLATION FROM THE ORIGINAL DESIGN. SURRENDER DRAWINGS TO OWNER UPON COMPLETION.	10. WARRANTY: AT A MINIMUM, THE ENTIRE MECHANICAL SYSTEM SHALL E WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FO PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE OF THE SYSTEM BY THE
 ALL CAPACITIES ARE SCHEDULED AT JOBSITE ALTITUDE OF 1000 FT. ABOVE SEA LEVEL. 	REFER TO INDIVIDUAL SPECIFICATION SECTIONS FOR SPECIFIC WARRA REQUIREMENTS.
4. COORDINATE ALL PENETRATIONS OF THE FLOOR SLAB PRIOR TO COMMENCING WORK UTILIZE X-RAY AND VISUAL INVESTIGATION OF EXISTING CONDITIONS AS REQUIRED PRIOR TO DRILLING OR CUTTING. COORDINATE ALL NEW PENETRATIONS WITH OTHER DIVISIONS OF THE WORK. ALL CONTRACTORS ARE INDIVIDUALLY RESPONSIBLE FOR ALL PENETRATIONS REQUIRED BY THEIR DIVISIONS.	
5. ALL WORK TO COMPLY WITH BASE BUILDING SPECIFICATIONS. NOTIFY ENGINEER IF CONTRACTOR DOES HAVE ACCESS TO BASE BUILDING SPECIFICATIONS.	

									CRAC SCH	EDULE (CH	IL
					S	UPPLY FA	N			COO	LI
				-		ESP		EAT DB	EAT WB	TOTAL	
TYPE	MARK	MANUFACTURER	MODEL NO.	AREA SERVED	CFM	(IN.)	HP	(°F)	(°F)	(MBH)	
CRAC	8C01	SCHNEIDER	TDCV1200G	AMP RM 08.22.01	6320	0.08	2.5	75	58	112.3	
CRAC	8C02	SCHNEIDER	TDCV1200G	AMP RM 08.22.01	6320	0.08	2.5	75	58	112.3	
CRAC	8D01	SCHNEIDER	TDCV1200G	AMP RM 08.38.02	6320	0.08	2.5	75	58	112.3	
CRAC	8D02	SCHNEIDER	TDCV1200G	AMP RM 08.38.02	6320	0.08	2.5	75	58	112.3	

1) TOP RETURN AND BOTTOM FRONT DISCHARGE CONFIGURATION. 2) UNIT TO COME WITH WALL MOUNTED MICROPROCESSOR CONTROLLER, SMOKE DETECTOR, 2 LEAK DETECTORS, CONDENSATE PUMP, COOLING COIL WITH 2-WAY CONTROL VALVE. 3) CHILLED WATER RUNNING 30% P.G., 44/54 EWT/LWT.
4) PROVIDE BMS CONNECTION FOR SETPOINT CONTROL, ON/OFF, STATUS AND ALARM.

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				FA	AN .			COOLI	NG COIL	_		
				AIRFLOW		EAT	(°F)	TOTAL	SENS	FLOW	WPD	Т
TYPE	MARK	MANUFACTURER/ MODEL NO.	AREA SERVED	(CFM)	ESP (IN.)	DB	WB	(MBH)	(MBH)	(GPM)	(FT)	(
FCU	8C01	MULTIAQU MHWW36	ELEC SUB 08.23.01	850	0.00	80.0	63.0	33.1	24.1	7.7	11.8	
FCU	8D01	MULTIAQU MHWW36	ELEC SUB 08.38.01	850	0.00	80.0	63.0	33.1	24.1	7.7	11.8	
GENERAL NOTES 1. CHILLED WATER: EWT=42F, LWT=52F, 30% PROPLYNE GLYCOL.												

2. HEATING WATER: EWT:180F, LWT=160F, 30% PROPLYNE GLYCOL. 3. PROVIDE 1" THROW AWAY FILTERS. (TYPE A.)

GENERAL NOTES:

4. JOBSITE ELEVATION = 1200 FT. 4. JOBSITE ELEVATION - 1200 FT. 5. PROVIDE CONDENSATE PUMP AT MATCHING VOLTAGE POWERED FROM EQUIPMENT. IF TRANSFORMER IS PROVIDED FOR CONDENSATE PUMP OPERATION PROVIDE LINE ITEM COST. GRAVITY DRAINAGE ACCEPTABLE WHERE POSSIBLE. 6. PROVIDE FACTORY PIPING AND CONTROL PACKAGE. 7. PROVIDE CONDENSATE SWITCH.

8. PROVIDE 2-WAY CONTROL VALVES ON HW (IF APPLICABLE) AND CHW COIL CONNECTIONS. 9. ALL DUCTED UNITS TO BE PROVIDED WITH SUPPLY AND RETURN DUCT COLLARS

Sciences SPECIFICATIONS Control Description Control 2 Description Control Description		DUCTWORK INSTALLATION:	STRUCTURE:
 I DATA MANUAL INCLUSION IN CONTRACT AND AND AND AND AND AND AND AND AND AND	EQUIRING		 DO NOT PENETRATE STRUCTURAL MEMBERS. ALL EQUIPMENT SUPPORTS SHA BE ATTACHED TO THE LOAD BEARING MEMBERS OF STRUCTURAL ELEMENTS. DO NOT OVER-STRESS ANY STRUCTURAL MEMBERS. CONTACT STRUCTURAL
 A LANDA DEPARTMENT ALL ALL ADDRESS AND RECOVERED ALL ADDRESS AND RECOVERED ALL ADDRESS AND ALL AD			ENGINEER FOR ALLOWABLE LOADS FOR SPECIFIC MEMBERS.
 Part of the second secon		4. UNLESS OTHERWISE NOTED, ALL CHANGES IN DIRECTION SHALL BE MADE WITH	REQUIRE THE LOAD TO BE HELD IN TENSION. SEE STRUCTURAL DIVISION
 A MARKA DEPARTMENT AND TARGET A	JIPMENT 2 AND 23	5. WHERE REQUIRED FOR SPACE CONSTRAINTS, PROVIDE MITERED ELBOWS WITH	 SEE ALSO STRUCTURAL DIVISION FOR ACCEPTABLE ANCHORING AND SUPPOR MEANS, METHODS, AND LOCATIONS.
64 9. Conjugation 0. Conjugation <	ER	A. FOR DUCT WIDTHS OF 36" OR LESS, PROVIDE MANUFACTURED SINGLE WIDTH TURNING VANES, WITH NO TRAILING EDGES AND SPACING IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS FOR	ADDITIONAL FITTINGS OR EQUIVALENT TO ACCOMMODATE THE THERMAL EXPANSION OF THE BUILDING THROUGH STRUCTURAL EXPANSION JOINTS. PROVIDE SUCH FITTING AT EVERY PIPE, DUCT, CONDUIT, ETC. CROSSING
 A. A. BOLTA THE ALL OLD THE ALL OWNER THAN ALL OWNER	СН	B. USE DOUBLE THICKNESS (AIRFOIL) BLADES WITHOUT TRAILING EDGES	
and a set of the se	WIRING,	6. ALL FLEXIBLE DUCTS SHALL NOT BE LESS THAN 4', OR MORE THAN 10' IN	
BioMANULY DIS OF THE MUNICIP STRUEED OF: BioMANULY DIS OF THE MUNICIPAL STRUED OF: BIOMANULY DIS OF	NG THE		ADJUST AND PUT IN NEW CONDITION BEFORE BUILDING OCCUPANCY. PARTS
THE O O MUMUNE CALLOFF - 1.C. Products of the count of th		B. MAXIMUM OF 135° OF TOTAL TURNING IN ENTIRE LENGTH OF FLEXIBLE DUCT.	
E AND NY CONTROL OF C			THROUGHOUT THE CONSTRUCTION. REMOVE FILTERS ONLY FOR BALANCING / FINAL TURNOVER. INSPECT ALL NON-CONSTRUCTION FILTERS AND REPLACE /
AD Internet statutes internet statutes and sta	ELS AND	* D = FLEXIBLE DUCT DIAMETER	
DBM ACA M INTRODUCTION OF ADDRAMMAN INTRODUCTION OF ADDRAMAN INTRO		CEILING AS A RETURN AIR PLENUM. CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF NFPA AND LOCAL CODE REQUIREMENTS FOR ALL MATERIAL	FIRE PROTECTION NOTES
A Mori Materia Marka Mar			
 Albard Liss Albard Liss Albar		AIR PATH BETWEEN ALL RETURN AIR DEVICES (GRILLES ETC.) AND THEIR RESPECTIVE HVAC UNIT. MAXIMUM VELOCITY OF RETURN AIR IN PLENUM SHALL GENERALLY NOT EXCEED 250 FEET PER MINUTE, NOR EXCEED 750	DIMENSIONS AND HYDRAULIC CALCULATIONS. SHOP DRAWINGS SHALL BE APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO
Aug. Pail 1983 TO AUGUIDAD In Aug. Pail 1983 TO AUGUIDAD In Common aug. Pail 1983 TO AUGUIDAD Aug. Pail Pail 1983 TO AUGUIDAD In Common aug. Pail 1983 TO AUGUIDAD In Common aug. Pail 1983 TO AUGUIDAD Aug. Pail Pail 1983 TO AUGUIDAD In Common aug. Pail 1983 TO AUGUIDAD In Common aug. Pail 1983 TO AUGUIDAD Aug. Pail Pail 1983 TO AUGUIDAD DE AUGUIDAD DE AUGUIDAD DE AUGUIDAD DE AUGUIDAD In Common aug. Pail 1983 TO AUGUIDAD DE AU	ON 28)		B. SHOW THE CONNECTING MAIN AND BRANCH PIPE SIZES FOR ALL RELOCAT
A Definition of the Constraint		B. MAKE ALL TAPS TO RECTANGLE DUCTWORK WITH 45° ENTRY OR CONICAL	
 B. DICUSTRIANT COLLED ON TAKEN HER TORONG TAKEN HER TORONG TAKEN TO BE THE TORONG TAKEN HER TORONG TAKEN HER TORONG TAKEN HER TORONG TAKEN TAKE	ED		2. THE ENTIRE BUILDING IS SERVED BY A WET PIPE TYPE FIRE SPRINKLER
 Hans of a set of	CENT		REQUIREMENTS CAREFULLY BEFORE PROCEEDING WITH INSTALLATION.
NUMBER PRE-INSTALLATION HERR PRE-INSTALLATION	WER	11. ASSUME ROUND OR OVAL DUCTS IN EXPOSED AREAS.	SPRINKLER HEADS IN ACCORDANCE WITH NFPA 13, ALL APPLICABLE CODES AND ORDINANCES AND PROJECT REQUIREMENTS TO COMPLETELY PROTECT
Name Definition Definition Note: 1.4.L. FINIS DALLA DE ADDOLATELY SUPPORTED FINIS THE SULDIO NAME DE ADDOLATELY SUPPORTED PROVINCE SURDIALS 1.4.M. FINIS DALLA DE ADDOLATELY SUPPORTED FINIS THE SULDIALS NAME DE ADDOLATELY SUPPORTED PROVINCE SURDIALS 1.4.M. FINIS DALLA DE ADDOLATELY SUPPORTED PROVINCE SUPPORTED PROVINCE PLANAMANIA OF DIFFE CARE DEFINISION OF SUPPORTED PROVINCE DE ADDOLATELY SUPPORTED PROVINCE DE ADDOLATELY SUPPORTED PROVINCE ADDOLATELY SUPPORTED PROVED PROVINCE ADDOLATELY SUPPORTED PROVINCE ADDOLATELY	FDING		4. SYSTEM SHALL BE INSTALLED COMPLETE AND OPERATIONAL, INCLUDING WAT
Hile 		PIPE INSTALLATION:	
High constraints CLORENTIAL Constraints E. CLORENTIAL Constraints Micro in State	THIS	STRUCTURE TO PREVENT SAGGING, POCKETING, SWAYING OR DISPLACEMENT BY	5. WORK SHALL BE PERFORMED BY A QUALIFIED FIRE SPRINKLER INSTALLER WI MINIMUM OF (5) FIVE YEARS EXPERIENCE IN SIMILAR INSTALLATIONS.
Market 3 Market 3 <!--</td--><td>PLICABLE).</td><td>EQUIPMENT.</td><td></td>	PLICABLE).	EQUIPMENT.	
e 4 Visition Transmission Transmission PLANEE AND INTERCENT FOR THE EQUIPED LATER OF THE MILLION CONTROL FOR THE EXCENTION OF THE EQUIPED LATER OF THE EXCENTION OF THE EXCENTIO	SMOKE IS		1. FIRE STOPPING REQUIREMENT: PENETRATIONS THROUGH RATED WALLS AND
VELORES SHALL BE CRETIFIED FOR TYPE OF WORK BENO PERFORMED. India differentiation to an and the theory of the tensor behavior to the tensor behavior to the tensor behavior of the tensor behavior to the tensor behavior tensor behavior to the tensor behavior to the tensor behavior tensor behavior to the tensor behavior to tensor behavior	E.		FLAMES AND HOT GASSES WHEN SUBJECTED TO THE REQUIREMENTS OF THE STANDARD SPECIFIC FOR FIRE STOPS ASTM-E-814. ACCEPTANCE MATERIALS
PRESSURE TEST. DO NOT USE PIPING SOFTEM 4/4/157 TO SIGN ATE GECTIONS INSULATED PIPES, PLASTEM 4/4/15/15 ALERCE. WHERE TEST PRESSURE NOFTEXCEED 1/10 OF TEST PRESSURE REVEAL PERMINE PARAMETERS ALERCE. COMPENSATED PRESSURE NOFTEXCEED 1/10 OF TEST PRESSURE REVEAL PERMINE AROUND B. PROVIDE SUPPORT UNDER ELEDONS ON PUMP SUCTION AND DISCHARGE LINES. NO COMPENSATED PRESSURE NOFTEXCEED 1/10 OF TEST PRESSURE REVEAL PLANS S. ACTUATORS STATEMA 2/11 OF PUMPINT UNDER ELEDONS ON PUMP SUCTION AND DISCHARGE LINES. NO TAL ESTEMATION OF ALEDONS ON PUMP SUCTION AND DISCHARGE LINES. S. ACTUATORS STATEMA 2/11 OF PUMPINT UNDER ELEDONS ON PUMP SUCTION AND DISCHARGE LINES. S. ACTUATORS STATEMA 2/11 OF PUMPINT UNDER ELEDONS ON PUMP SUCTION AND DISCHARGE LINES. S. ACTUATORS STATEMA 2/11 OF PUMPINT UNDER ELEDONS ON PUMP SUCTION AND DISCHARGE STATEMA 2/11 OF PUMPINT DIAGONESTIC VATER S. ACTUATORS STATEMA 2/11 OF PUMPINT DIAGONESTIC VATER <td></td> <td></td> <td>AND ELECTRICAL CABLE; 3M FIRE DAM 21,22 AND 230 CAULK FOR BARE PIPE, M CONDUIT, AND BUILDING CONSTRUCTION; GAPS 3M FS-195 INTUMESCENT STR</td>			AND ELECTRICAL CABLE; 3M FIRE DAM 21,22 AND 230 CAULK FOR BARE PIPE, M CONDUIT, AND BUILDING CONSTRUCTION; GAPS 3M FS-195 INTUMESCENT STR
NN PAD 0. PROVIDE SUPPORT UNDER ELBOVS ON PUMP SUCTION AND DISCHARCE LINES. HIS TO 7. ALL STRAMENTS SHALL BE LUTURISHED WITH A TOLIGHING'S SCREEN AND TWO S. ACTUATORS SCREEN AND OPERATE SYSTEM TO ALH COURS INITIAL TOBUS HINKING SCREEN AND TWO S. ACTUATORS SCREEN AND OPERATE SYSTEM TO ALH COURS INITIAL TOBUS HINKING WITH SOUTH S	CEDENCE.	PRESSURE TEST. DO NOT USE PIPING SYSTEM VALVES TO ISOLATE SECTIONS WHERE TEST PRESSURE EXCEEDS VALVE PRESSURE RATING. PRESSURIZE PIPING AT 100 PSIG. IF LEAKAGE IS OBSERVED OR IF TEMPERATURE	INSULATED PIPES, PLASTIC PIPE OR CONDUIT, AND ELECTRICAL CABLE.
His To A. L.STRANERS SHALL BE FURNISHED WITH A TROUGHNO'S GREEN AND TWO S. ACTUATORS S. ACTUATOR	AROUND		
SACTUATORS SOCIETS AND OPERATE SYSTEM FOR 24 HOURS MINIMUM (IN DOMESTIC WATER SOCIED AND OPERATE INSTALL NORMALL SCHEEN, AFTER TWO WEEKS OF NGMAL OPERATOR INSTALL NEW HOMMALL SCHEEN, ILENGTH *LOCATION SALES SHALL BE BASED ON 2' OR LESS HEAD LOSS PER 100 FEET OF ILENGTH *LOCATIONES SHALL DE LESS HEAD LOSS PER 100 FEET OF STEM STEM STEM STEM STEM STEM STEM STEM			
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		ROUTED AS NECESSARY TO PREVENT "DEAD-ENDS" IN THE PIPING. ALL PIPING SHALL DRAIN TO ACTIVE SANITARY WASTE LINES AND ALL BRANCHES	

CHI	LLED WATER CO	DOLED)										
DO	LING COIL					El	LECTRICA	AL.				
-		FLOW								E-PWR		
)	SENS (MBH)	(GPM)	WPD (FT)	VOLT	PH	MCA	FUSE	DISCON.	FEEDER	(Y/N)	WEIGHT	REMARKS
	112.3	26.4	17.4	460	3	3.3				N	800	
	112.3	26.4	17.4	460	3	3.3				N	800	
	112.3	26.4	17.4	460	3	3.3				N	800	
	112.3	26.4	17.4	460	3	3.3				N	800	

ELECTRICAL			
DISCON. BRANCH CIRCUIT	E-PWR FUSE (Y/N)	WEIGHT (LBS)	REMARKS
		0	
		0	
	BRANCH	BRANCH E-PWR	DISCON. BRANCH CIRCUIT FUSE E-PWR (Y/N) (LBS)

S. ALL EQUIPMENT SUPPORTS SHALL ERS OF STRUCTURAL ELEMENTS. EMBERS. CONTACT STRUCTURAL

EPTABLE ANCHORING AND SUPPORT

STEMS ARE USED FOR TEMPORARY NICAL EQUIPMENT INSTALLER AINTAIN EQUIPMENT, AND CLEAN, E BUILDING OCCUPANCY. PARTS

ED AT ALL AIR MOVING DEVICES E FILTERS ONLY FOR BALANCING AND RUCTION FILTERS AND REPLACE ALL

EER PRIOR TO ACCEPTANCE OF THE

POSED LAYOUT OF FIRE PROTECTION AL EQUIPMENT TO BE USED, IONS. SHOP DRAWINGS SHALL BE

NCH PIPE SIZES FOR ALL RELOCATED

UIREMENTS OF NFPA 13. PIPE TYPE FIRE SPRINKLER ROTECTION AND MECHANICAL SPACE

RELOCATE EXISTING AND ADD NEW IFPA 13, ALL APPLICABLE CODES ENTS TO COMPLETELY PROTECT THE

ND OPERATIONAL, INCLUDING WATER NG ALARM, DRAIN PIPING, IDENTIFICATION

ED FIRE SPRINKLER INSTALLER WITH A SIMILAR INSTALLATIONS. RADES.

ONS THROUGH RATED WALLS AND FLOORS E OF PREVENTING THE PASSAGE OF D TO THE REQUIREMENTS OF THE TEST -E-814. ACCEPTANCE MATERIALS AM FOR BARE PIPE, METAL CONDUIT,

AND 230 CAULK FOR BARE PIPE, METAL APS 3M FS-195 INTUMESCENT STRIPS FOR T, AND ELECTRICAL CABLE.

CONTROL DAMPER MATRIX							
TYPE		MODE					
MARK	MARK	NORMAL	EMERGENCY				
CD	8C03	OPEN	CLOSED				
CD	8C04	CLOSED	OPEN				
CD	8C05	CLOSED	OPEN				
CD	8C06	CLOSED	OPEN				
CD	8D03	CLOSED	OPEN				
CD	8D04	CLOSED	OPEN				
CD	8D05	CLOSED	OPEN				
CD	8D06	OPEN	CLOSED				

MEC	HANICAL NOT	ES &				
Project Num	^{ber} Project I	Number				
Date		ue Date				
Drawn By		ME				
Checked By		ME				
M0.01						
Scale	1/8'	" = 1'-0"				

Description Date

No.

