

SYMBOL	ABBREVIATION	DESCRIPTION
-	AD	
-		ABOVE FINISHED FLOOR
-	AP	ACCESS PANEL
-	BDD	BACKDRAFT DAMPER
-	BHP	BRAKE HORSEPOWER
-	BTU	BRITISH THERMAL UNIT
-	CA	COMBUSTION AIR
-	CFM	CUBIC FEET PER MINUTE
-	Ģ	CENTERLINE
-	DB	DRY BULB TEMPERATURE
	DIA. OR Ø	DIAMETER
-		
-	EA	
-	EAI	
-	EF-	EXHAUST FAN
-	EL	ELEVATION
-	ER	EXHAUST REGISTER
-	ESP	EXTERNAL STATIC PRESSURE
-	EWT	ENTERING WATER TEMPERATURE
-	FPM	FEET PER MINUTE
-	FPS	FEET PER SECOND
-	GPM	GALLONS PER MINUTE
	HP	HORSE POWER
	LAT	
-		
-		
-	MBH	1000 BRITISH THERMAL UNITS PER HOUR
-	MER	MECHANICAL EQUIPMENT ROOM
-	NC	NORMALLY CLOSED
-	NIC	NOT IN CONTRACT
-	NO	NORMALLY OPEN
-	OAI	OUTSIDE AIR INTAKE
-	PSI	POUNDS PER SQUARE INCH
	RPM	REVOLUTIONS PER MINUTE
	SP	STATIC PRESSURE
-		
-	TVD	
-	IYP.	
-	U.O.N.	UNLESS OTHERWISE NOTED
-	WB	WET BULB TEMPERATURE
-	WG	INCHES OF WATER GAUGE
-	WMS	WIRE MESH SCREEN
£ ₽	-	3-WAY VALVE
	-	STEEL BRAIDED FLEXIBLE CONNECTION
	-	2-WAY VALVE
	-	
¥	-	LOCK SHIELD VALVE
×	-	GATE VALVE
	-	GLOBE VALVE
	-	TEE DOWN
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 	-	ELBOW DOWN
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				GENERAL NOTES
	SYMBOL	ABBREVIATION	DESCRIPTION	1. CONTRACT DRAWINGS, AS I OF EQUIPMENT. SHEET ME
	-	-	FLOW ARROW	CHANGES TO EQUIPMENT INTERFERENCE WITH OTH
		-	BUTTERFLY VALVE	APPROVED BY THE ENGINE
	۱۵۱ . <del>۲</del>	-		2. PROVIDE ALL PIPE OPEN     PENETRATING FIRE RATED     DE SEALED WITH FIRE STOR
	  	-	SQLENOID VALVE	DRILLING WHENEVER POSS
	X	-	MOTORIZED VALVE	3. ALL MOTOR STARTERS AND BY THE MECHANICAL CONT
	 	_	ANGLE GLOBE VALVE	OTHERWISE NOTED. ALL S ELECTRICAL CONTRACTOR.
	д	_	ANGLE GATE VALVE	4. THE MECHANICAL CONTRA
	R	-	T&P RELIEF VALVE	BEGINNING OF WORK, AND
		-	FILTER DRYER	5. DUCT DIMENSIONS SHOW DIMENSIONS. WHERE DUCT
		-	FILTER	6 LOCATE THERMOSTATS AN
	8	-	FLOAT AND THERMOSTATIC TRAP	OTHERWISE NOTED. COC LOCKING TAMPERPROOF CO
	F	-	FLOAT TRAP	6. THE CONTRACTS SHALL S
	Ĭ	-	BALL VALVE	FULLY COORDINATED WIT EQUIPMENT, PIPING, ELEC
	Р H	-	PRESSURE GAGE	
	Ш Т	-		BELOW EXCEPT WHERE OTH
		-		8. <u>MASONRY OPENING</u>
		-		4'-11" OR LESS 4"x3 5'-0" TO 7'-0" 5"x3
				A.) 3-1/2" LEGS ARE HORIZ
				B.) PROVIDE ONE ANGLE ANGLE FOR 5-5/8" OR 6" TH
	CHWS	-	CHILLED WATER SUPPLY	C.) LENGTH OF LINTELS = N
	CHWR	-	CHILLED WATER RETURN	9. ALL WORK SHALL COMPLY CODE, AND ENERGY CODE DOCUMENTS AND A GOVER
	cws	-	CONDENSER WATER SUPPLY	APPLY.
	CWR	-	CONDENSER WATER RETURN	10. THE OWNER'S PERMANENT CONTRACTOR DURING CON
	D	-	DRAIN	TEMPORARY HEATING, CO CONSTRUCTION, THE CO
	OD	-	OVERFLOW DRAIN	
	dts	-	DUAL TEMPERATURE SUPPLY	11. THE CONTRACTOR SHALL EXHAUST AIR WHEN WELDI
	DTR	-	DUAL TEMPERATURE RETURN	
	HWS	-	HOT WATER SUPPLY	THAT IS DISTURBED OR INSTALLATION OF HANGERS
	HWR	-	HOT WATER RETURN	UL AND FM APPROVED FIRE
	PD	-	PUMP DISCHARGE, CONDENSATE	13. THE MECHANICAL CONTRA NECESSARY PERMITS AND F
	CD	-	CONDENSATE DRAIN	14. THE MECHANICAL CONTRA
	LPS	-		INSTALLATION OF HVAC I
		-		WORK RELATED TO THIS PR AND PATCH SHAFTS AND W
		_	REFRIGERANT I FAK DETECTOR	15. ALL ROOF WORK ASSOCIAT
	<u> </u>	_	REFRIGERANT ALARM / HORN STROBE	BE MADE BY THE BONDED R
	M	-	MOTORIZED DAMPER	16. THIS PROJECT SHALL BE CO REQUIREMENTS. THIS CON
	M	-	MOTORIZED VALVE	DELIVERIES, SHUT DOWNS,
	Ś	-	SMOKE DETECTOR	17. WHERE THE DEMOLITION O
	Ψ	-	DOOR UNDER CUT	REMAIN PNEUMATIC LINES A
	÷	-	DOOR LOUVER	COMMISSIONING
	<b>⊸</b> -∕/-	-	AIR INTO REGISTER	1. REFER TO SPECIFICATION S
	S	-	SPEED CONTROLLER	FOR COMMISSIONING OF ME COMMISSIONING AGENT.
	$\mathbf{\Theta}$	-	POINT OF CONNECTION DISCONNECTION	2. PRIOR TO COMMISSIONING,
		TR	TOP REGISTER SUPPLY	BELOW HAVE BEEN SUCCES
	 رقبر	TR		3. PRE-FUNCTIONAL TESTS AN
		UH		THE CONTRACTOR SHALL
		P-1		ENSURE THAT ALL SUBI COMMISSIONING AGEN
		-		CERTIFY THAT ALL SYS     BEEN INSTALLED, CALIE     COMPLETE ALL MANY
		-		COMPLETE: ALL MANUF     CERTIFY THAT ALL RELI     COMPLETED AND CAUB
		_	RETURN DUCT DOWN	• SET SYSTEMS SUBSYS
		_	TRANSITION FROM SQUARE TO ROUND	NORMAL SHUT DOWN, N CONDITIONS).
		_	TRANSITION	VERIFY EACH OF THE S     REFER TO THE SEQUEN
		_	DUCT TRANSITION	INSPECT AND VERIFY TI     CHECKLISTS. SIGN OFF
		VD	VOLUME DAMPER	OPERATING CYCLE THA     SIMULATE CONDITIONS
		FD	FIRE DAMPER	
		-	DUCT SIZE - 1ST FIGURE IS SIDE SHOWN	ANNOTATE CHECKLIST     VERIFY EQUIPMENT INT
		FC	FLEXIBLE CONNECTION	4. AFTER PRE-FUNCTIONAL TE TESTING IN THE PRESENCE
_	SEC# WG#		SECTION CALLOUT	ACCORDANCE WITH THE CO • BOILERS
	XXX X	-	DETAIL CALLOUT	BOILER CIRCULATION P     CHILLERS
	XXX XX	-	EQUIPMENT TAG	CHILLER CIRCULATION     COOLING TOWERS
	DESIGN INTEN	NT NOTES		CONDENSER WATER PL     DUAL TEMPERATURE SE     SIDESTREAM SEDADAT

# D

IT IS THE INTENT OF THIS PROJECT TO REPLACE THE EXISTING HEATING AND COOLING PLANT, STAND-BY POWER GENERATOR SYSTEM, THE ELECTRICAL DISTRIBUTION EQUIPMENT, PLANT AREA LIGHTING SYSTEMS AND FIRE ALARM SYSTEMS. THESE SYSTEMS SHALL BE REPLACED IN TOTALITY. THIS WORK SHALL TAKE PLACE IN A PHASED APPROACH THAT WILL ALLOW UNINTERRUPTED HEATING / COOLING AND POWER TO ALL THE BUILDINGS AND EQUIPMENT. THE CONTRACT DOCUMENTS INDICATE THE MINIMUM PHASING REQUIREMENTS TO CONVEY THE DESIGN INTENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL PHASING OF WORK INCLUDING ALL NECESSARY LABOR AND MATERIALS, TEMPORARY WORK, PIPING FEEDERS AND EQUIPMENT IN ORDER TO PROPERLY PHASE THE WORK AND MEET THE DESIGN INTENT.

THE SCOPE OF WORK SHALL INCLUDE TEMPORARY SERVICES. THE CONTRACTOR SHALL PROCURE TEMPORARY BOILERS AND CHILLERS FOR AS LONG AS IS NECESSARY IN ORDER TO PROVIDE TEMPORARY HOT WATER AND CHILLED WATER. THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER FOR EQUIPMENT INCLUDING GENERATORS FOR POWER AND ALL FUEL REQUIRED. PROVIDE TEMPORARY PIPING CONNECTIONS AND MODIFICATIONS TO EXISTING PIPING SYSTEMS. PROVIDE TEMPORARY CONTROLS AND MODIFICATIONS TO EXISTING CONTROLS IN ORDER TO FACILITATE THE INTEGRATION OF TEMPORARY AND NEW SYSTEMS SO THAT THE BUILDINGS ARE CONTINUALLY SERVED WITH HOT WATER AND OR CHILLED WATER. ALL TEMPORARY EQUIPMENT SHALL BE SIZED TO MATCH EXISTING EQUIPMENT INCLUDING FLOW RATES, PRESSURE REQUIREMENTS, ETC. SUCH THAT EXISTING BUILDING OPERATION IS MAINTAINED.

IN GENERAL, IT WILL BE NECESSARY TO DEMOLISH ALL ABANDONED MECHANICAL, PLUMBING, AND ELECTRICAL EQUIPMENT PIPING AND CONDUITS IN THE MAIN PLANT AND IN THE ORIGINAL PLANT TO MAKE SPACE FOR NEW EQUIPMENT. THE INTENT IS TO INSTALL THE NEW CHILLER AND BOILER PLANT AS WELL THE NEW PRIMARY/SECONDARY PIPING SYSTEMS AS WELL AS ALL NECESSARY SUNDRY ITEMS SUCH AS PUMPS, COOLING TOWERS, BREECHING, COMBUSTION AIR DAMPERS, FUEL OIL PIPING, GAS PIPING, OIL PUMPS, POWER, AND CONTROLS SO THAT THE NEW PLANT IS FULLY FUNCTIONAL BEFORE REMOVAL OF THE TEMPORARY HEATING AND COOLING EQUIPMENT. THE EXISTING BUILDINGS AND SECONDARY PUMPS SHALL REMAIN CONNECTED TO EXISTING PIPING AND TEMPORARY HEATING/COOLING PLANT UNTIL SUCH TIME AS THE PLANT IS OPERATIONAL.

WHEN THE NEW HEATING/COOLING PLANT IS OPERATIONAL INCLUDING SECONDARY PUMPS AND CONTROLS, EACH BUILDING'S SECONDARY PIPING SYSTEM CAN BE CONNECTED TO THE NEW SECONDARY PIPING SYSTEMS AND PUMP SETS SO AS TO CAUSE THE MINIMUM AMOUNT OF SYSTEM DOWN TIME FOR EACH BUILDING. WHEN ALL BUILDINGS ARE CONNECTED TO THEIR NEW SECONDARY PUMP SETS AND THE NEW PLANT, DEMOLITION OF THE REMAINING EXISTING PUMPS, POWER AND CONTROLS CAN BEGIN.

WHEN DEMOLITION OF THE EXISTING ABANDONED EQUIPMENT IS COMPLETE THE NEW DOMESTIC WATER HEATING SYSTEM SHALL BE CONSTRUCTED ALONG WITH MODIFICATIONS TO THE DOMESTIC WATER, SANITARY, STORM AND GAS SYSTEMS. WHEN THE NEW DOMESTIC WATER HEATING SYSTEM HAS BEEN CONSTRUCTED AND IS FULLY OPERATIONAL AND CONNECTED TO THE EXISTING DISTRIBUTION SYSTEM, THE EXISTING HEATING SYSTEM MAY BE DEMOLISHED. IN SUPPORT OF THE PROJECT'S MECHANICAL, PLUMBING AND ELECTRICAL WORK THERE IS A CERTAIN

AMOUNT OF GENERAL CONSTRUCTION THAT IS REQUIRED. THIS WORK SHALL BE PHASED AS NECESSARY IN ORDER TO FACILITATE THE CONSTRUCTION OF NEW MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND SYSTEMS. THIS SHALL INCLUDE SITE WORK AND RESTORATION AS WELL AS CUTTING, PATCHING, PAINTING, CONCRETE, FIRE STOPPING, DOORS AND HARDWARE.

GI	ENERAL NOTES	
1.	CONTRACT DRAWINGS, AS FAR AS THEY RELATE TO THE GENERAL ARRANGEMENT AND LOCATION OF EQUIPMENT, SHEET METAL, AND PIPING, SHALL BE UNDERSTOOD AS DIAGRAMMATIC. ANY CHANGES TO EQUIPMENT, SHEET METAL, AND PIPING LOCATIONS NECESSARY TO AVOID INTERFERENCE WITH OTHER TRADES SHALL BE MADE AT NO EXTRA COST, AND MUST BE APPROVED BY THE ENGINEER.	Facilities Management Robert H. Gruffi, P.E., LEED AP Director Facilities Management
2.	PROVIDE ALL PIPE OPENINGS THROUGH PARTITIONS WITH PIPE SLEEVES. FOR PIPES PENETRATING FIRE RATED PARTITIONS, THE SPACE BETWEEN THE PIPE AND THE SLEEVE SHALL BE SEALED WITH FIRE STOPPING MATERIAL. PENETRATIONS FOR PIPING SHALL BE MADE BY CORE DRILLING WHENEVER POSSIBLE.	Dr. Robert L. Yeager Health Center 50 Sanatorium Road Building A, 2nd Floor Pomona, NY 10970
3. 4. 5.	ALL MOTOR STARTERS AND DISCONNECT SWITCHES FOR HVAC EQUIPMENT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED. ALL STARTERS IN THE MCC SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO THE BEGINNING OF WORK, AND SHALL COORDINATE ALL WORK WITH OTHER TRADES. DUCT DIMENSIONS SHOWN ON MECHANICAL DRAWINGS REFER TO INSIDE CLEAR DUCT DIMENSIONS. WHERE DUCTWORK IS LINED, THE MECHANICAL CONTRACTOR SHALL INCREASE THE SIZE OF DUCT TO COMPENSATE FOR LINING.	MEP ENGINEER OLA Consulting Engineers 50 Broadway Hawthorne, NY 10532 914.747.2800 8 West 38th Street, Suite 501 New York, NY 10018 646.849.4110 olace.com
6. 7. 8.	OTHERWISE NOTED       COORDINATE LOCATION WITH FURNITURE, CABINETS, ETC. FURNISH         OTHERWISE NOTED       COORDINATE LOCATION WITH FURNITURE, CABINETS, ETC. FURNISH         LOCKING TAMPERPROOF COVER FOR ALL NEW THERMOSTATS IN PUBLIC AREAS.         THE CONTRACTS SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPOSITE SHOP DRAWING,         FULLY       COORDINATED WITH ALL OTHER TRADES INDICATING ALL DUCTWORK, MECHANICAL         EQUIPMENT, PIPING, ELECTRICAL EQUIPMENT, PLUMBING PIPING AND EQUIPMENT, LIGHTS,         CONDUITS, DIFFUSERS, GRILLES AND FIRE ALARM DEVICES.         PROVIDE LOOSE LINTELS OVER ALL OPENINGS IN EXTERIOR AND INTERIOR WALLS AS LISTED         BELOW EXCEPT WHERE OTHERWISE DETAILED ON DRAWINGS.         MASONRY OPENING       LINTEL         4'-11" OR LESS       4"x3-1/2"x5/16"         5'-0" TO 7'-0"       5"x3-1/2"x5/16"	STRUCTURAL ENGINEER STRUCTURAL ENGINEER BROOKER ENGINEERING, PLLC 74 Lafayette Avenue, Suite 501 Suffern, NY 10901 845.357.4411 brookerengineering.com
9.	<ul> <li>B.) PROVIDE ONE ANGLE FOR EACH 3-3/4" OF WALL THICKNESS OR LESS. PROVIDE 5x5x5/16" ANGLE FOR 5-5/8" OR 6" THICK WALLS OR PARTITIONS.</li> <li>C.) LENGTH OF LINTELS = MASONRY OPENINGS + 12".</li> <li>ALL WORK SHALL COMPLY WITH THE PREVAILING NY STATE BUILDING CODE, LOCAL BUILDING CODE, AND ENERGY CODE REQUIREMENTS. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE, THE MORE STRINGENT STANDARD SHALL APPLY.</li> <li>THE OWNER'S PERMANENT HVAC EQUIPMENT (NEW AND EXISTING) SHALL NOT BE USED BY ANY</li> </ul>	ASBESTOS ABATEMENT Quality Environmental Solutions & Technologies, Inc. 1376 Route 9, Wappingers Falls, NY 12590
	CONTRACTOR DURING CONSTRUCTION FOR TEMPORARY HEATING, COOLING, OR VENTILATION. IF TEMPORARY HEATING, COOLING, OR VENTILATION IS REQUIRED AT ANY POINT DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE TEMPORARY HEATING, COOLING, OR VENTILATION EQUIPMENT, DUCTWORK, CONTROLS, AND POWER AT HIS OWN EXPENSE.	845.298.6031 qualityenv.com
11.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY VENTILATION AND EXHAUST AIR WHEN WELDING OR SOLDERING OPERATIONS ARE PERFORMED, AS REQUIRED BY OSHA. WHERE EXISTING BUILDING STRUCTURAL COMPONENTS HAVE FIREPROOF MATERIAL, ANY AREA THAT IS DISTURBED OR DAMAGED AS A RESULT OF MECHANICAL WORK, INCLUDING THE INSTALLATION OF HANGERS FOR PIPING, DUCTWORK, OR EQUIPMENT, SHALL BE PATCHED WITH UL AND FM APPROVED FIREPROOFING TO MATCH EXISTING. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL NECESSARY PERMITS AND FOR PAYING RELATED FEES.	ESTIMATING DALAGOS Z102 ESTIMATING DALAGOS Z102 ESTIMATING DALAGOS Z102 ESTIMATING CONSULTING
4.	THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CUTTING, PATCHING, CORE DRILLING, ACCESS PANELS, PAINTING, AND FINAL RESTORATION REQUIRED TO FACILITATE THE INSTALLATION OF HVAC DUCTWORK, CONTROL CONDUITS, AND PIPING, INCLUDING ABOVE CEILINGS AND IN SHAFTS THAT WILL NOT BE REPLACED OR OPENED UNDER ANY OTHER SCOPE OF WORK RELATED TO THIS PROJECT. CONTRACTOR TO REMOVE AND REPLACE CEILINGS, AND OPEN	dackconsulting.com
15. 16. 17.	AND PATCH SHAFTS AND WALLS, AS REQUIRED TO EXECUTE THE MECHANICAL WORK. ALL ROOF WORK ASSOCIATED WITH NEW PENETRATIONS FOR PIPING & CONTROL WIRING SHALL BE MADE BY THE BONDED ROOF CONTRACTOR. THIS PROJECT SHALL BE COMPLETED IN PHASES. REFER TO THE BID DOCUMENTS FOR PHASING REQUIREMENTS. THIS CONTRACTOR SHALL COMPLETE THE MECHANICAL WORK IN SEQUENCE WITH THOSE REQUIREMENTS. PLAN AND SCHEDULE NEW WORK, DEMOLITION, EQUIPMENT DELIVERIES, SHUT DOWNS, AND START UP OF SYSTEMS ACCORDINGLY. WHERE THE DEMOLITION OF EXISTING PNEUMATIC CONTROL EQUIPMENT, THERMOSTATS, AND TUBING IS INDICATED IN THE PLANS, THE CONTRACTOR SHALL CAP THE ENDS OF ALL EXISTING TO REMAIN PNEUMATIC LINES AIRTIGHT.	
	DMMISSIONING SCOPE NOTES	
2.	FOR COMMISSIONING OF MECHANICAL SYSTEMS. THE OWNER SHALL HIRE A THIRD PARTY COMMISSIONING AGENT. PRIOR TO COMMISSIONING, THE CONTRACTOR SHALL PROVIDE A STATEMENT CONFIRMING THAT ALL SYSTEMS ARE FULLY OPERATIONAL AND ALL PRE-FUNCTIONAL TESTS AND CHECKS LISTED BELOW HAVE BEEN SUCCESSFULLY COMPLETED. SUBMIT A COPY OF ALL CHECK SHEETS FOR ENGINEER REVIEW AND APPROVAL	
3.	<ul> <li>PRE-FUNCTIONAL TESTS AND CHECKS (PREREQUISITES FOR COMMISSIONING):</li> <li>THE CONTRACTOR SHALL PERFORM THE FOLLOWING INCLUDING BUT NOT LIMITED TO -</li> <li>ENSURE THAT ALL SUBMITTALS ARE COMPLETED AND APPROVED BY ENGINEER AND COMMISSIONING AGENT.</li> <li>CERTIFY THAT ALL SYSTEMS TO BE COMMISSIONED, SUBSYSTEMS AND EQUIPMENT HAVE BEEN INSTALLED, CALIBRATED AND STARTED; ACCORDING TO THE CONTRACT DOCUMENTS COMPLETE. ALL MANUFACTURER STARTUP REQUIREMENTS.</li> <li>CERTIFY THAT ALL RELEVANT INSTRUMENTATION AND CONTROL SYSTEMS HAVE BEEN COMPLETE. ALL MANUFACTURER STARTUP REQUIREMENTS.</li> <li>CERTIFY THAT ALL RELEVANT INSTRUMENTATION AND CONTROL SYSTEMS HAVE BEEN COMPLETED AND CALIBRATED; ARE OPERATING ACCORDING TO CONTRACT DOCUMENTS; AND THAT PRETEST SET POINTS HAVE BEEN RECORDED.</li> <li>SET SYSTEMS, SUBSYSTEMS AND EQUIPMENT TO OPERATING MODE TO BE TESTED (E.G., NORMAL SHUT DOWN, NORMAL AUTO POSITION, NORMAL MANUAL POSITION, AND ALARM CONDITIONS).</li> <li>VERIFY EACH OF THE SYSTEMS ONCE IT IS OPERATING IN A STEADY STATE CONDITION. REFER TO THE SEQUENCE OF OPERATIONS.</li> <li>INSPECT AND VERIFY THE POSITION OF EACH DEVICE AND INTERLOCK IDENTIFIED ON CHECKLISTS. SIGN OFF EACH ITEM AS ACCEPTABLE OR FAILED. REPEAT THIS TEST FOR EACH OPERATING CYCLE THAT APPLIES TO SYSTEM BEING TESTED.</li> <li>SIMULATE CONDITIONS REQUIRED IN ORDER TO TEST ALL SAFETY CUTOUTS, ALARMS AND INTERLOCKS WITH LIFE SAFETY SYSTEMS DURING EACH MODE OF OPERATION WHEN APPLICABLE.</li> <li>ANNOTATE CHECKLIST OR DATA SHEET WHEN A DEFICIENCY IS OBSERVED.</li> <li>VERIFY FOLUPMENT INTERFACE WITH MONITORING AND CONTROL SYSTEM</li> </ul>	CAMPUS - KEYPLAN
1.	AFTER PRE-FUNCTIONAL TESTING IS COMPLETE, THE CONTRACTOR SHALL PERFORM FUNCTIONAL TESTING IN THE PRESENCE OF THE COMMISSIONING AGENT FOR THE SYSTEMS LISTED BELOW IN ACCORDANCE WITH THE COMMISSIONING SPECIFICATIONS: • BOILERS • BOILER CIRCULATION PUMPS • CHILLERS • CHILLER CIRCULATION PUMPS • COOLING TOWERS	
5.	<ul> <li>DUAL TEMPERATURE SECONDARY PUMPS</li> <li>SIDESTREAM SEPARATOR</li> <li>UNIT HEATERS</li> </ul> AFTER FUNCTIONAL TESTING, THE COMMISSIONING AGENT (CX) SHALL ISSUE A REPORT OF TEST RESULTS AND DOCUMENT ANY DEFICIENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTION OF ALL DEFICIENCIES. THE CONTRACTOR SHALL SEND A WRITTEN RESPONSE TO THE OWNER/ENGINEER/CX AGENT THAT AN OPEN ISSUE HAS BEEN RECTIFIED. THE DEFICIENCY SHALL NOT BE CONSIDERED RESOLVED UNTIL THE APPROPRIATE RETESTING IS DEPEODMED WITH	
ð. 7.	THE CX AGENT. PRIOR TO TURNOVER (OWNER ACCEPTANCE), A COMPLETE AND SUCCESSFUL DEMONSTRATION OF ALL SYSTEM OPERATING FUNCTIONS AND ALARMS SHALL BE PERFORMED BY THIS CONTRACTOR IN THE PRESENCE OF THE OWNERS REPRESENTATIVE AND COMMISSIONING AGENT. IN ADDITION TO THE ABOVE, THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING: PARTICIPATE IN MAINTENANCE ORIENTATION AND INSPECTION MEETING. PARTICIPATE IN PROCEDURES MEETING FOR TESTING. EXECUTE INSTALLATION PRE-FUNCTIONAL CHECK SHEETS. SUPPORT FUNCTIONAL TESTING WITH QUALIFIED TECHNICIANS. RESPOND TO CX DEFICIENCIES IN ACCORDANCE WITH OWNER SCHEDULE. PARTICIPATE IN FINAL REVIEW AT ACCEPTANCE MEETING.	Image: Second system       Image: Second system         1       ISSUED FOR BID       11/01/2021         NO.       DESCRIPTION       DATE         No use, reproduction or dissemination may be made of this drawing and the concepts set forth without the prior written consent of OLA Consulting Engineers, PC. Copyright © 2021         PROJECT       Image: PROJECT
		DRAWING TITLE DRAWING TITLE DRAWING TITLE DRAWING TITLE DRAWING TITLE DRAWING TITLE DRAWING TITLE DRAWING TITLE MECHANICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
		SEAL SCALE PROJECT NO. NONE PROJECT NO. NRCK0016.00 DRAWN BY DRAWING NO. NW CHECKED BY RS DATE

04-28-2020





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	EX GRAVIT	TY VENT	EX VEN	т)		EX GRAVI	ITY VENT						 



![](_page_3_Picture_2.jpeg)

<ul> <li>MECHANICAL DEMOLITION NOTE</li> <li>DEMOLISH EXISTING PRESSURE RELIEF PIPES ON ROOF. REFER TO GENERAL CONSTRUCTION FOR ROOF PATCHING. TYPICAL FOR 24.</li> <li>DEMOLISH EXISTING COOLING TOWERS AND ALL ASSOCIATED PIPING AN WIRING COMPLETE. REFER TO STRUCTURAL DRAWINGS FOR STEEL FRAMING WORK.</li> <li>DEMOLISH EXISTING CONDENSER WATER, VALVES, FITTINGS, CONTROL WIRING COMPLETE. PATCH ROOF TO MATCH ADJACENT ROOFING.</li> <li>DEMOLISH EXISTING EXHAUST FANS ON ROOF. EXISTING ROOF CURBS SHALL REMAIN.</li> </ul>	S Rockland County Facilities Management Robert H. Gruffi, P.E., LEED AP Director Facilities Management Dr. Robert L. Yeager Health Center 50 Sanatorium Road Building A, 2nd Floor Pomona, NY 10970
<ul> <li>5. DEMOLISH EXISTING EXHAUST FAN SERVING THE EXISTING SWITCH ROO EXISTING ROOF CURB SHALL REMAIN.</li> <li>6. DEMOLISH EXISTING EXHAUST PENTHOUSE LOUVER FOR THE GENERATOR REMOVE DAMPERS AND ALL MECHANICAL EQUIPMENT AND CONTROLS COMPLETE.</li> </ul>	M. MR. MEP ENGINEER OLA Consulting Engineers 50 Broadway Hawthorne, NY 10532 914.747.2800 8 West 38th Street, Suite 501 New York, NY 10018 646.849.4110 olace.com
	<b>BROOKER ENGINEERING</b> , PLLC 74 Lafayette Avenue, Suite 501 Suffern, NY 10901 845.357.4411 brookerengineering.com
	ASBESTOS ABATEMENT Quality Environmental Solutions & Technologies, Inc. 1376 Route 9, Wappingers Falls, NY 12590 845.298.6031 qualityenv.com
	ESTIMATING DACCK CONSULTING SOLUTIONS, INC 2 William St, suite 202 White Plains, NY 10601 914.686.7102 dackconsulting.com
	KEYPLAN BULDING E AREA OF WORK
	CAMPUS - KEYPLAN NORTH NORTH K
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	PROJECT CAPITAL PROJECT 4466 BUILDING E UTILITY PLANT RENOVATION & IMPROVEMENTS DR. ROBERT L. YEAGER HEALTH CENTER 50 SANATORIUM ROAD, POMONA, NY 10970
	DRAWING TITLE MECHANICAL DEMOLITION ROOF PLAN
	SEALSCALE 1/4" = 1'-0"PROJECT NO. NRCK0016.00DRAWN BY NWDRAWING NO.CHECKED BY RSDRAWING NO.DATE 04-28-2020DATE 04-28-2020

CLIENT

![](_page_4_Figure_0.jpeg)

INSTALLED BY THE ELECTRICAL CONTRACTOR.

EX EX VFD AND DISCONNECT SWITCH, PROVIDED BY COOLING TOWER MANUFACTURER AND MOUNTED SUPPLEMENTAL STEEL. TYPICAL F	
ROUTED TO INDIRECT DISCHARGE ROOF DRAIN. RE: PLUMBING PLAN TYPICAL FOR (3) TOWERS.	
EXISTIN VENT TO NEW ROOF EXHAUST FAN MOUNT PROVIDE TRANSITION CURB AS RE	EX GRAVITY VENT

![](_page_5_Figure_1.jpeg)

NORTH

MECHANICAL - NEW WORK ROOF PLAN SCALE: 1/4" = 1'-0" WITH ROOF DRAIN LOCATIONS SO ROOF DRAINAGE IS NOT AFFECTED. DO NOT STORE MATERIALS ON ROOF.

### THE ROOF SHALL BE PROTECTED DURING ALL PHASES OF WORK. PROVIDE MINIMUM 1/2" PLYWOOD SHEETS LAYED END-TO-END IN ALL AREAS OF WORK. COORDINATE ALL WORK

		Robert H. Gruf Director Facilit Dr. Robert L. Ye 50 Sanat Building A	Anagement fi, P.E., LEED AP ies Management ager Health Center orium Road A, 2nd Floor
		IEP ENGINEER OLA CONSULTING ENGINEERS	Consulting Engineers 50 Broadway Hawthorne, NY 10532 914.747.2800 8 West 38th Street, Suite 501 New York, NY 10018 646.849.4110 olace.com
		74 Lafayette Ave Suffern, N	ENGINEERING, PLLC enue, Suite 501 NY 10901 845.357.4411 pokerengineering.com
		SBESTOS ABATEMENT Quality Environmental Sol 1376 Route 9 Falls, N	<b>US&amp;T</b> utions & Technologies, Inc. Wappingers (12590 845.298.6031 qualityenv.com
	E	STIMATING DA CONSULTING S 2 William S White Plains	CK t, suite 202 s, NY 10601 914.686.7102 dackconsulting.com
EX VENT			
	K	EYPLAN	
EY		AMPUS - KEYPLAN NORTH	AREA OF WORK
		Image: state	11/01/2021 TION DATE
	P	lo use, reproduction or dissemina rawing and the concepts set forth onsent of OLA Consulting Engine ROJECT CAPITAL PR BUILDING E U RENOVATION & DR. ROBERT L. YEAG 50 SANATOI POMONA,	tion may be made of this without the prior written ers, PC. Copyright © 2021 OJECT 4466 ITILITY PLANT IMPROVEMENTS SER HEALTH CENTER RIUM ROAD, NY 10970
		RAWING TITLE MECHANICAL ROOF	ALE PROJECT NO
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DESIGNATION
LOCATION
MODEL
CFM
HP
CAPACITY (MBH)
GPM
E.W.T. / L.W.T.
AMPS
VOLTS/Ø/Hz
NOTES: 1. UNIT HEATERS I 2. PROVIDE THE F DISCONNECT S WALL THERMOS ADJUSTABLE AI WALL MOUNTEE STRAP ON AQU/ 3. HANG UNIT FRO

-----

# HOT WATER UNIT HEATER SCHEDULE

UH-A	UH-B	UH-C
BOILER ROOM	BOILER ROOM	BOILER ROOM
HV-84	HV-120	HV-36
1400 / 1100	1900 / 1600	550 / 480
1/12	1/12	25 WATT
52.5 / 47.2	74.9 / 67.4	22.4/20.2
6.1	8.8	2.7
180°F/160°F	180°F/160°F	180°F/160°F
2.2	2.2	1.2
115/1/60	115/1/60	115/1/60

#### BASED ON VULCAN. FOLLOWING FOR EACH UNIT: SWITCH

### STAT AIR DEFLECTION LOUVER O SPEED CONTROLLER

JASTAT HOT WATER SENSOR OM BUILDING STRUCTURE WITH VIBRATION ISOLATORS.

## COOLING TOWER SCHEDULE DESIGNATION LOCATION MANUFACTURER MODEL INTERLOCKED SHIPPING WEIGHT (LBS) OPERATING WEIGHT (LBS) NOMINAL UNIT SIZE (TONS) (EACH) AMBIENT DB/WB (°F) GPM (EACH) W.P.D. (FT H₂O) APPROACH (°F): EWT/LWT (°F) FANS No. OF FANS FAN MOTOR HP (EACH) TOTAL FAN CFM VOLTS/Ø/Hz STARTER TYPE STARTER LOCATION CONNECTION SIZES INLET (IN) OUTLET (IN) COLD WATER MAKE-UP (IN) DRAIN (IN)

EQUALIZER (IN)

**PROVIDE THE FOLLOWING FEATURES & OPTIOI** 1. UNITARY CONTROLLER BY AUTOMATIC TEMPERATUR MANUFACTURER, COMPATIBLE WITH BUILDING AUTOMA 2. VIBRATION CUTOUT SENSOR WIRED TO FAN MOTOR S 3. STAINLESS STEEL BASIN. 4. LOCAL WEATHERPROOF DISCONNECT SWITCH AT UNIT BY THE MECHANICAL CONTRACTOR AND INSTALLED BY T CONTRACTOR. 5. MOTOR STARTERS AND DISCONNECT SWITCHES NOT LOCATED IN THE MOTOR CONTROL CENTER (MCC) SHALL BE FURNISHED BY THE MECHANICAL

CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL MOTOR STARTERS LOCATED IN THE MOTOR CONTROL CENTER (MCC) SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. 6. ALL MOTORS FURNISHED WITH VARIABLE FREQUENCY DRIVES SHALL BE INVERTER DUTY RATED & APPROVED FOR VARIABLE SPEED AND TORQUE APPLICATIONS. 7. SERVICE PLATFORM WITH 42" HANDRAILS AROUND TOP OF TOWER, SAFETY

GALVANIZED STEEL. 8. AIR INLET SCREENS. 9. ELECTRIC WATER LEVEL CONTROL PACKAGE.

10. PREMIUM EFFICIENCY MOTORS WITH VARIABLE SPEED DRIVE. 11. EXTENDED LUBRICATION LINES.

12. LOW AND HIGH LEVEL ALARM FLOAT SWITCHES. 13. LOW SOUND FAN.

14. MOTORIZED VALVES ON TOWER INLET AND OUTLET CONNECTIONS. 15. PROVIDE VIBRATION ISOLATION AS PER SPECIFICATIONS. 16. VFD STARTER SHALL BE PROVIDED BY THE MANUFACTURER.

17. SINGLE POINT POWER CONNECTION.

PUMP SCHEDULE													
DESIGNATION	HWPP-1, HWPP-2, HWPP-3, HWPP-4, HWPP-5, HWPP-6, HWPP-7, HWPP-8, HWPP-9	CHWPP-1, CHWPP-2	CHWPP-3	CWP-1, CWP-2	CWP-3	P-AH-1, P-FC-1, P-FC-2	P-C-1, P-C-2	P-L-1, P-L-2	P-D-1, P-D-2	P-F-1, P-F-2	P-JKR-1, P-JKR-2	P-G-1, P-G-2	P-UH-1, P-UH-2
LOCATION	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM
SYSTEM SERVED	BOILERS	CHILLERS	CHILLERS	CONDENSER WATER	CONDENSER WATER	"AH" UNITS	BUILDING "C"	BUILDING "L"	BUILDING "D"	BUILDING "F"	BUILDINGS "J&K"	BUILDINGS "G&H"	UNIT HEATERS
PRIMARY OR SECONDARY	PRIMARY	PRIMARY	PRIMARY	-	-	SECONDARY	SECONDARY	SECONDARY	SECONDARY	SECONDARY	SECONDARY	SECONDARY	SECONDARY
MANUFACTURER	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG
MODEL	4380 6X6X8	4300 10X10X13	4300 8X8X10	4030 10X8X15	4030 10X8X15	4030 8X6X13	4030 4X3X13	4030 4X3X13	4030 4X3X13	4030 3X2X6	4030 4X3X10	4030 3X2X10	4030 3X2X10
ТҮРЕ	INLINE	INLINE	INLINE	END SUCTION	END SUCTION	END SUCTION	END SUCTION	END SUCTION	END SUCTION	END SUCTION	END SUCTION	END SUCTION	END SUCTION
NOMINAL DESIGN FLOW RATE (GPM)	560	1600	800	2400	2400	1400	400	450	355	260	325	160	165
MINIMUM FLOW RATE (GPM)	-	-	-	-	-	490	140	160	125	90	115	55	55
COOLING SEASON FLOW RATE (GPM)	-	1600	800	2400	1200	943	383	302	355	260	173	160	-
HEATING SEASON FLOW RATE (GPM)	560	-	-	-	-	981	354	279	328	238	160	149	130
TOTAL DYNAMIC HEAD (FT H₂O)	20	30	25	80	80	135	135	140	140	100	85	80	33
RPM	1200	1200	1200	1200	1200	1800	1800	1800	1800	3600	1800	1800	1586
NPSH (FT. H₂O)	5	10	7	9	9	10	5	5	5	10	7	5	7.81
MOTOR BHP	3.5	16	7	58	58	58	20	23	18	8	8	4.5	1.85
MOTOR HP	5	20	7.5	75	75	75	30	30	30	15	15	7.5	3
VOLTAGE/Ø/Hz	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60
STARTER TYPE	VFD	VFD	VFD	VFD	VFD	VFD	VFD	VFD	VFD	VFD	VFD	VFD	VFD
STARTER LOCATION	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM	BOILER ROOM
INTERLOCK	BOILERS	CHILLERS	CHILLERS	COOLING TOWERS / CHILLERS	COOLING TOWERS / CHILLERS	BMS	BMS	BMS	BMS	BMS	BMS	BMS	BMS

NOTES: 1. ALL PUMPS SHALL BE CAST IRON BODY, BRONZE FITTED, BRONZE IMPELLER. REFER TO SPECIFICATION FOR PUMP CONSTRUCTION.

2. ALL MOTORS 1 HP OR GREATER SHALL BE PREMIUM EFFICIENCY. 3. ALL MOTORS FURNISHED WITH VARIABLE FREQUENCY DRIVES SHALL BE INVERTER DUTY RATED & APPROVED FOR VARIABLE SPEED AND TORQUE APPLICATIONS. 4. MOTOR STARTERS AND DISCONNECT SWITCHES NOT LOCATED IN THE MOTOR CONTROL CENTER (MCC) SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL MOTOR STARTERS LOCATED IN THE MOTOR CONTROL CENTER (MCC) SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. 5. REFER TO THE SPECIFICATIONS FOR VIBRATION ISOLATION REQUIREMENTS.

6. PROVIDE GROUNDING FOR EACH PUMP FOR LIGHTNING PROTECTION.

HEATING AND \	/ENTILATING UNIT SCH	EDULE		FAN SCHE	DULE	
DESIGNATION:	HV-1		DESIGNATION	GEF-1, GEF-2, GEF-3	GEF-4	REF-1
LOCATION	BOILER ROOM		LOCATION	ROOF	ROOF	ROOF
MANUFACTURER	CARRIER		AREA SERVED	BOILER ROOM	ELECTRICAL ROOM	BOILER ROOM - CHILLERS
MODEL	39SHK05		MANUFACTURER	СООК	СООК	СООК
UNIT DIMENSIONS -	45x42x22		MODEL	490C8B	120C17DEC	195C8B
WIDTH x HEIGHT x DEPTH (IN)			WEIGHT (LBS)	700	55	150
FILTERS:			FAN TYPE	MUSHROOM	MUSHROOM	MUSHROOM
ТҮРЕ	MERV 8		DRIVE TYPE	BELT	DIRECT - EC MOTOR	BELT
QUANTITY/SIZE	2 / 20x20		CFM	12,600	1,000	4,500
HOT WATER COIL:			ВНР	1.5	0.15	1.22
FACE AREA (SQ. FT.)	5		HP	1.5	0.166	1.5
E.W.T./L.W.T. (°F)	180/160		RPM	263	1316	1145
E.A.T./L.A.T. (°F)	42.7/85		SP (IN H <sub>2</sub> O)	0.375	0.5	0.5
CAPACITY (MBH)	100.1		VOLTS/Ø/Hz	480/3/60	120/1/60	480/3/60
GPM	6.7		STARTER LOCATION	MCC	ELECTRICAL ROOM WALL	MCC
SUPPLY FAN:	· · · · ·		STARTER TYPE	VFD	VFD	VFD
CFM	2200		INTERLOCK	BMS/THERMOSTAT	BMS/THERMOSTAT	BMS
OAI CFM	1000		NOTES:			
FAN MOTOR HP	0.5		1. ALL MOTORS 1 HP OR GREATER SHA	LL BE PREMIUM EFFICIENCY.		
FAN MOTOR TYPE	VFD		3. FURNISH WALL MOUNTED SPEED CO	ING VIBRATION ISOLATORS AS P INTROLLER OR THERMOSTAT AS	S INDICATED ON PLAN.	
ESP (IN H₂O)	.25		4. TRANSITION CURB ADAPTER TO FIT	ON EXISTING ROOF CURB.		
VOLTS/Ø/Hz	460/3/60		6. WHERE REQUIRED, MOTOR STARTER	R AND DISCONNECT SWITCH FO	R EACH FAN SHALL BE FURNIS	HED BY THE MECHANICAL
			CONTRACTOR AND INSTALLED BY THE WEATHERPROOF UNIT-MOUNTED LOCA	ELECTRICAL CONTRACTOR. EA	CH ROOFTOP FAN SHALL BE F	JRNISHED WITH

 PROVIDE THE FOLLOWING FEATURES & OPTIONS FOR EACH UNIT:
 UNITARY CONTROLLER BY AUTOMATIC TEMPERATURE CONTROLS MANUFACTURER, COMPATIBLE WITH THE BUILDING AUTOMATION SYSTEM. • COORDINATE RIGHT-HAND/LEFT-HAND COIL CONNECTIONS IN THE FIELD. • FURNISH 2-WAY MODULATING CONTROL VALVE FOR EACH COIL. 5 PSI MAX AT

CONTROL VALVE. • WALL MOUNTED THERMOSTAT. • FACTORY FURNISHED LOCAL DISCONNECT SWITCH.

• COIL AIR VENT. • (2) SETS OF SPARE FILTERS FOR EACH UNIT.

• FINISH SHALL BE CUSTOM ENAMEL - SUBMIT COLOR CHART FOR APPROVAL. • VFD STARTER SHALL BE PROVIDED BY MANUFACTURER.

• ALL MOTORS FURNISHED WITH VFD'S SHALL BE INVERTER DUTY RATED AND APPROVED FOR VARIABLE SPEED AND TORQUE APPLICATIONS.

CT-1, CT-2, CT-3	DESIGNATION
UTILITY PLANT ROOF	LOCATION
BALTIMORE AIRCOIL	
XES3E-1424-13N	
CHILLER OPERATION	
21,780	
45,610 (EACH)	
838	
-/78	
2400	
19.5	NPLV (KW/TON)
7	EVAPORATOR:
05/85	GPM
33/03	E.W.T./L.W.T. (°F
1	W.P.D. (FT H₂O)
	No. PASSES
25	CONDENSER:
198,630	GPM
480/3/60	E.W.T./L.W.T. (°F
VFD	W.P.D. (FT H₂O)
MCC	No. PASSES
10	ELECTRICAL DA
12	VOLTS/Ø/Hz
12	MCA
3	FLA
2	MOCP
12	PROVIDE THE F
<u>NS:</u> RE CONTROLS ATION SYSTEM. STARTER. NIT SHALL BE FURNISHED Y THE ELECTRICAL	1. PROVIDE CHILL LOCAL DISCONNE 2. SHIPPED FACTO 3. HOT GAS BYPAS 4. THERMAL INSUI 5. CUSTOMER FAC 6. EXTENDED WAR 7. REFRIGERANT I

LOCATION	BOILER ROOM	BOILER ROOM
AREA SERVED	YEAGER CAMPUS	YEAGER CAMPUS
MANUFACTURER	CARRIER	CARRIER
MODEL	19XRV6567C49VEG64	19XRV454634HUDT64
INTERLOCKED	COOLING TOWER OPERATION	COOLING TOWER OPERATION
OPERATING WEIGHT (LBS)	37,907 (EACH)	23,705
NOMINAL SIZE (TONS)	800	400
FULL LOAD EFF. (KW/TON)	0.5763	0.6144
NPLV (KW/TON)	0.3618	0.3688
EVAPORATOR:		
GPM	1600	800
E.W.T./L.W.T. (°F)	54/42	54/42
W.P.D. (FT H <sub>2</sub> O)	19	14.3
No. PASSES	2	2
CONDENSER:	•	
GPM	2400	1200
E.W.T./L.W.T. (°F)	85/95	85/95
W.P.D. (FT H <sub>2</sub> O)	21	16.9
No. PASSES	2	2
ELECTRICAL DATA:		
VOLTS/Ø/Hz	460/3/60	460/3/60
MCA	757	401
FLA	605	353
МОСР	1200	700
PROVIDE THE FOLLOWING FEAT 1. PROVIDE CHILLER WITH SINGLE PO LOCAL DISCONNECT SWITCH. 2. SHIPPED FACTORY CHARGED WITH 3. HOT GAS BYPASS / ENVELOPE STA 4. THERMAL INSULATION. 5. CUSTOMER FACTORY PERFORMAN 6. EXTENDED WARRANTY. 7. REFRIGERANT ISOLATION VALVES. 8. SOLEPLATE PACKAGE. 9. BACNET COMPATIBLE - SHALL BE IN 10. ACOUSTICAL SOUND INSULATION 44. EUDNICLY UPDATION VALVES.	URES & OPTIONS: DINT EXTERNAL POWER CONNECTION & HREFRIGERANT. BILITY CONTROL. ICE TESTING. NTEGRATED WITH THE BUILDING AUTOI KIT.	FACTORY FURNISHED VFD WITH

WATER COOLED ELECTRIC CHILLER SCHEDULE

C-1, C-2

C-3

CHILLERS SHALL BE EQUIPPED WITH THE FOLLOWING: 1. MICROPROCESSOR CONTROLS.

2. LOSS OF CHILLED WATER FLOW SENSOR.

5. SAFETY CUTOUTS.

3. TEMPERATURE AND PRESSURE GAUGES.

4. LOSS OF CONDENSER WATER FLOW SENSOR.

GATES AND ACCESS LADDER BY MANUFACTURER. ALL COMPONENTS SHALL BE

7. PROVIDE BIRDSCREEN FOR ALL FANS.

8. REF-1 SHALL BE PROVIDED WITH REMOTE WALL-MOUNT AIR BALANCE KIT (VFABK). 9. PROVIDE GROUNDING FOR EACH FAN FOR LIGHTNING PROTECTION.

E	QUIPMENT NOTES
1.	LISTED SPECIAL GAS VENTING NON-CONDENSING APPLIANCES "SAF-T VENT CI PLUS". DOUBLE STAINLESS STEEL. SPECIAL VEN 15"WC. PRODUCT IS RATED FO SECTIONS, ELBOWS, OFFSETS TERMINATIONS.

- 10
- 11.

12.

LISTED SPECIAL GAS VENTING: FOR ALL GAS FIRED DIRECT VENTING CONDENSING & NON-CONDENSING APPLIANCES (BOILERS, DOMESTIC HOT WATER HEATERS) SHALL BE HEATFAB "SAF-T VENT CI PLUS". DOUBLE WALL CONSTRUCTION, 1" FIBERGLASS INSULATION, AL-29-4C STAINLESS STEEL. SPECIAL VENT UL 1738 FOR POSITIVE, NEUTRAL, AND NEGATIVE DRAFT UP TO 15"WC. PRODUCT IS RATED FOR ZERO CLEARANCE TO COMBUSTIBLES. PROVIDE STRAIGHT SECTIONS, ELBOWS, OFFSETS, CONNECTION ADAPTERS, WALL SLEEVES, AND SCREENED TERMINATIONS. <u>OUTSIDE AIR INTAKE:</u> FOR ALL GAS FIRED DIRECT VENTING CONDENSING & NON-CONDENSING APPLIANCES (BOILERS, DOMESTIC HOT WATER HEATERS) SHALL BE SINGLE-WALL SPIRAL GALVANIZED STEEL BY SHEET METAL CONNECTORS, INC. ALL DUCTWORK IS 4-PLY SPIRAL	Facilities Management Robert H. Gruffi, P.E., LEED AP Director Facilities Management Dr. Robert L. Yeager Health Center 50 Sanatorium Road Building A, 2nd Floor Pomona, NY 10970
LOCKSEAM MEETING ASTM A-653. ALL DUCT CONNECTIONS SHALL BE MADE WITH A DOUBLE LEGGED EPDM GASKET CREATING AN AIR-TIGHT CONNECTION MEETING ASTM A-653. SINGLE-WALL DUCT GUAGE SHALL BE SELECTED FOR POSITIVE, NEUTRAL, AND NEGATIVE DRAFT UP TO 15"WC WITH A MINIMUM GAUGE OF 24. PRODUCT IS RATED FOR ZERO CLEARANCE TO COMBUSTIBLES. PROVIDE STRAIGHT SECTIONS, ELBOWS, OFFSETS, CONNECTION ADAPTERS, WALL SLEEVES, AND SCREENED TERMINATIONS. <u>EXPANSION TANKS:</u> SHALL BE WESSELS / ARMSTRONG NLA-SERIES VERTICAL EXPANSION TANK MODEL NLA-800L WITH PRE-CHARGED STEEL TANK WITH HEAVY-DUTY BUTYL BLADDER, SYSTEM CONNECTIONS, CHARGING VALVE, DRAIN PLUG, PRESSURE GAUGE AND BLADDER INTEGRITY MONITOR. TANKS SHALL BE 211 GAL WITH 189 GAL ACCEPTANCE. 240°F MAX OPERATING TEMPERATURE, 125 PSI MAX WORKING PRESSURE, FACTORY PRE-CHARGED TO 40 PSIG AND FIELD ADJUSTABLE. UNIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ASME SECTION VIII.	MEP ENGINEER OLA Consulting Engineers 50 Broadway Hawthorne, NY 10532 914.747.2800 8 West 38th Street, Suite 501 New York, NY 10018 646.849.4110 olace.com
<ul> <li>TEMPERATORE, 109 POIG MAXIMUM WORKING PRESSORE, INCET AND COTLET CONNECTIONS WITH 150# ANSI FLANGES, BLIND FLANGE FOR STRAINER PULL, AIR OUTLET, AND DRAIN. SIZE SHALL BE VAS-8 OR VAS-10 TO MATCH THE PIPE SIZE SHOWN ON PLAN. UNIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ASME CODE.</li> <li><u>AUTOMATIC AIR ELIMINATOR:</u> SHALL BE ARMSTRONG MODEL AAE-750, WITH 250°F MAXIMUM OPERATING TEMPERATURE, 2-133 PSIG AIR PRESSURE OPERATING RANGE, 100% SPRING ACTION POSITIVE SHUTOFF, 3/4" NPT SYSTEM CONNECTION.</li> <li><u>CONDENSER WATER SIDE STREAM SEPARATOR</u>: SHALL BE LAKOS MODEL TBI-0400-SRV, 69½" HIGH, 30" WIDE, 48" LONG, 150 PSIG MAXIMUM WORKING PRESSURE, 6" INLET &amp; 4" OUTLET CONNECTIONS WITH 150# ANSI FLANGES, 1/4" NPT PRESSURE GAUGES AT INLET &amp; OUTLET, 1½" PURGE OUTLET WITH MANUAL ISOLATION VALVE, 7.5 HP END SUCTION PUMP WITH PREMIUM EFFICIENCY MOTOR, 460/3/60, 11AMPS AND NEMA4X CONTROL ENCLOSURE WITH DISCONNECT SWITCH. PROVIDE A 1½" AUTOMATIC BALL VALVE MODEL #ABV2-15 WITH ASSOCIATED WALL MOUNTED LAKOS CONTROL PANEL. LAKOS CONTROL PANEL AND VALVE SHALL BE 120V HARDWIRED. PROVIDE INLET AND OUTLET VALVE KIT. UNIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ASME CODE.</li> <li><u>PIPE LABELS</u>: SHALL BE SETON ULTRA-MARK WEATHER RESISTANT FOR OUTDOOR APPLICATION AND OPTI-CODE FOR INDOOR APPLICATION. LETTERS AND ARROWS SHALL BE 2 1/2" HIGH AND SHALL BE WHITE ON A GREEN BACKGROUND AND SHALL CONFORM TO ANSI AND OSHA STANDARDS. APPLY OVER INSULATION ONLY.</li> </ul>	STRUCTURAL ENGINEER STRUCTURAL ENGINEER STRUCTURA
PIPEINSULATIONJACKETING:SHALLBEWHITEZESTON2000PVCCOVERSFORPIPINGANDFITTINGS.JACKETALLPIPINGANDFITTINGSTHATAREEXPOSEDINANYROOM.NEWANDEXISTINGFROM FLOOR UP TO 10'-0"ABOVE FINISHED FLOOR.HEAVYDUTYSIDEWALLRETURNAIRREGISTERS:SHALLBETITUSMODEL33RL,STEELCONSTRUCTION,WITH1/2"SPACING,38"FIXEDDEFLECTION,16-GAUGEBORDER,14-GAUGEBLADES,SUPPORTBARS6"ONCENTER,OPPOSEDBLADEVOLUMEDAMPERINNECK,SIZEANDCFMASNOTEDONPLANS.FINISHSHALLBEBAKEDONENAMEL.SUBMITCOLORCHARTFORAPPROVAL.FRAMESHALLBETITUSMODEL300FL,ALUMINUMCONSTRUCTION,WITH3/4"SPACING,DOUBLEDEFLECTIONAIRFOILBLADES,OPPOSEDBLADEVOLUMEDAMPERINNECK,SIZEANDCFMASNOTEDONPLANS.FINISHSHALLBESUBMITCOLORCHEWALLSUPPLYAIRREGISTERS:SHALLBETITUSMODEL300FL,ALUMINUMCONSTRUCTION,WITH3/4"SPACING,DOUBLEDEFLECTIONAIRFOILBLADES, <td>IS 76 Route 9, Wappingers Falls, NY 12590 845.298.6031 qualityenv.com ESTIMATING DAACK CONSULTING SOLUTIONS, INC 2 William St, suite 202 White Plains, NY 10601</td>	IS 76 Route 9, Wappingers Falls, NY 12590 845.298.6031 qualityenv.com ESTIMATING DAACK CONSULTING SOLUTIONS, INC 2 William St, suite 202 White Plains, NY 10601
<ul> <li>PEEDER SHALL BE RATED AT 300 PSI. TANK &amp; SUPPORT STANDS SHALL BE EPOXY COATED.</li> <li>DUAL-FUEL HOT WATER BOILERS (B-1, B-2, B-3, B-4, B-5, B-6, B-7, B-8, B-9): SHALL BE FULTON VANTAGE-6000DF, DUAL-FUEL, CONDENSING HOT WATER BOILER, RATED AS FOLLOWS: <ul> <li>42.8 GPH LIGHT OIL CONSUMPTION (5,736 MBH OUTPUT).</li> <li>6,000 MBH GAS INPUT - GAS PRESSURE 18 MIN / 42 MAX W.C.</li> <li>5,640 MBH GROSS OUTPUT.</li> <li>460V/3Ph/60Hz, 15 FLA.</li> <li>7.5 HP BLOWER MOTOR.</li> <li>14,900 LBS OPERATING WEIGHT.</li> <li>480 GAL WATER CONTENT.</li> <li>12.7 FT HEAD PRESSURE DROP AT 20°F ΔT.</li> <li>THE BOILER SHALL BE IN COMPLIANCE WITH CSD-1.</li> </ul> </li> <li>STANDARD CONTROLS AND FEATURES: <ul> <li>160 PSIG MAXIMUM ALLOWABLE WORKING PRESSURE.</li> <li>210°F MAXIMUM ALLOWABLE WORKING PRESSURE.</li> <li>210°F MAXIMUM ALLOWABLE WORKING PRESSURE.</li> <li>MINIMUM RETURN WATER TEMPERATURE OF 140°F (#2 FUEL OIL); NO MINIMUM RETURN WATER TEMPERATURE ON NATURAL GAS.</li> <li>FACTORY RECOMMENDED MAXIMUM SETPOINT 190°F.</li> <li>DUAL FUEL (GAS/OIL) BURNER.</li> <li>SKP25 COMBINATION GAS VALVE &amp; REGULATOR.</li> <li>TEMPERATURE LOAD CONTROLLER WITH MODBUS.</li> <li>LOW WATER CUT OFF PROBE WITH MANUAL RESET.</li> <li>HIGH AND LOW GAS PRESSURE SWITCHES.</li> <li>AUTOMATIC RESET HIGH LIMIT AQUASTAT.</li> </ul> </li> </ul>	dackconsulting.com
<ul> <li>WARDAL RUSET INIGH LIMIT ARDASIAN (2007)</li> <li>OUTLET WATER TEMPERATURE SENSOR.</li> <li>VENTLESS GAS TRAIN UTILIZING VENT LIMITERS.</li> <li>ALARM CONTACT AND ALARM HORN.</li> <li>STATUS (GAS VALVE ENABLED) CONTACT.</li> <li>REMOTE ENABLE/DISABLE CONTACT.</li> <li>LOCAL/OFF/REMOTE 3-POSITION SWITCH.</li> <li>TIME DELAY RELAY FOR PRIMARY (BOILER) PUMP.</li> <li>TIME DELAY RELAY FOR PRIMARY (BOILER) PUMP.</li> <li>TIME DELAY RELAY FOR MOTORIZED ISOLATION VALVE.</li> <li>TWO (2) INTERLOCK CONTACTS.</li> <li>EMERGENCY STOP (E-STOP) CONTACTS BACNET INTEGRATION.</li> <li>ASME SAFETY RELIEF VALVE (60 PSIG).</li> <li>PRESSURE &amp; TEMPERATURE GAUGES.</li> <li>INSTALLATION AND OPERATION MANUAL.</li> <li>RUBBER COMBUSTION AIR INTAKE COUPLING.</li> </ul> FURNISH THE FOLLOWING FEATURES & OPTIONS FOR EACH BOILER: <ul> <li>BACNET INTEGRATION.</li> <li>SINGLE BOILER CONDENSATE DRAIN TRAP.</li> <li>CONDENSATE PH NEUTRALIZATION KIT.</li> <li>SECONDARY LOW-WATER CUTOFF</li> <li>120V MOTORIZED ISOLATION VALVE.</li> <li>DISCONNECT SWITCH</li> </ul> BOILER SEQUENCING CONTROLLER: <ul> <li>FULTON MOD SYNC SE CONTROL PANEL.</li> </ul> REFRIGERANT LEAK DETECTION SYSTEM: SHALL BE THERMAL GAS SYSTEMS INC MODEL# HALOGUARD II WITH LCD DISPLAY, AUDIBLE ALARM, RELAYS AND OUTPUTS FOR INTERFACE WITH	KEYPLAN CAMPUS - KEYPLAN
BUILDING MANAGEMENT SYSTEM AND 2 REMOTE IR SENSOR MODULES. REPERT O SPECIFICATION FOR DETAILS. PROVIDE THE FOLLOWING OPTIONS: STROBE LIGHT ALARM, GAS TEST KIT, BATTERY BACK-UP, AUTOMATIC CALIBRATION. PROVIDE REMOTE HORN STROBE ALARMS AT EACH ENTRANCE TO THE BOLLER ROOM. <u>MOTORIZED DAMPERS</u> SHALL BE RUSKIN MODEL CD40, 4" DEEP EXTRUDED ALUMINUM AIRFOL DAMPER DAMPER SHALL HAVE OPPOSED BLADES, MOTOR AND LINKAGE. DAMPERS SHALL BE 120V/14/60Hz, 3 AMPS MAX. FURNISH DISCONNECT SWITCH. <u>BOILER DRAFT CONTROL SYSTEM</u> : SHALL BE US DRAFT CO. WITH CDS2 DRAFT CONTROLLERS FOR EACH BOILER. CDS2 SHALL BE 120V/1PH/60HZ AND SHALL INCLUDE OPTIONAL GAS FLOW SWITCHES. THE SYSTEM SHALL RECEIVE (2) REMOTE TERMINAL UNITS MODEL #RTU1 WHICH WILL COMMUNICATE WITH THE BOLLER CD52 CONTROLLERS AND THE BMS SYSTEM. SEE FLOOR PLAN FOR LOCATION, DETAIL FOR SEQUENCE OF OPERATION AND SPECIFICATIONS FOR MORE INFORMATION.	Image: Second
	DRAWING TITLE MECHANICAL SCHEDULES AND EQUIPMENT NOTES SEAL SEAL SCALE NONE DRAWN BY NW CHECKED BY RS DATE NOS DRAWING NO. MG6.1

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OR TUBING TO B	TRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY W E BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING OR SLEEVE SHALL BE MIN 0 IN. (POINT CON E RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIP
USED: A. STEEL PIPE - B. IRON PIPE - DUCTILE IRC C. CONDUIT - N	NOM 24 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. NOM 24 IN. DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 24 IN DIAM (OR S N PRESSURE PIPE. OM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT OR NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUB
<ul> <li>D. COPPER TUE</li> <li>E. COPPER PIP</li> <li>4. FIRESTOP SYSTE</li> <li>A. PACKING MA</li> </ul>	BING - NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. E - NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. EM - THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS: TERIAL - MIN 4 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING A
B. FILL,VOID OF OF FLOOR OF	ERIAL. R CAVITY MATERIALS* - CAULK OR SEALANT - MIN 1/4 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANN R WITH BOTH SURFACES OF WALL. MIN 1/4 IN. DIAM BEAD OF CAULK APPLIED TO THE PENETRANT/CONCRETE OF
AT THE POIN 3M COMPANY - CP 25 (THE W RATING APPL *BEARING THE UL CL	T CONTACT LOCATION ON THE TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL. WB+ CAULK OR FB-3000 WT SEALANT. IES ONLY WHEN FB-3000 WT IS USED.) ASSIFICATION MARKING
10 UNINS SCALE: NO	SULATED PIPE AND CONDUIT FIRE STOPPING DETAIL
I. FLOOR OR WALL ASSE CONSTRUCTED OF ANY M OPENING TO BE NOM 2 IN HOLLOW-CORE CONCRET	EMBLY - MIN 4-1/2 IN. (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M³) CONCRETE. IN 6 IN. (152 MM) THICK UL CLASSIFIED HOLLOW-CORE PRECAST CONCRETE UNITS*. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFI . (51 MM) LARGER THAN OUTSIDE DIAM OF PIPE COVERING MATERIAL (ITEM 3). MAX DIAM OF OPENING 12 IN. (305 MM). MAX DIAM OF OPENI E IS 7 IN. (178 MM).
SEE CONCRETE BLOCKS ( 2. THROUGH PENETRANT FLOOR OR WALL ASSEMB A. STEEL PIPE - NOM 4 IN. ( 3. IRON PIPE - NOM 4 IN. (	CAZT) AND PRECAST CONCRETE UNITS (CFTV) CATEGORIES IN FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. S - ONE METALLIC PIPE OR TUBING TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN OPENING. PENETRANT TO BE RIGIDLY LY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBES MAY BE USED: (102 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. 102 MM) DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
2. COPPER TUBING - NOM 2. COPPER PIPE - NOM 4 I 3. PIPE COVERING - NOM SEALED WITH METAL FAS SPACE BETWEEN THE PIP (76 MM), T RATING IS 0 HR SEE PIPE AND EQUIPMEN	A INCOLOGINING DIAWLOR SWALLER) IT PEIM (OR HEAVIER) COPPER FUBE. N. (102 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. 3 IN. (76 MM) THICK (OR LESS) HOLLOW CYLINDRICAL HEAVY DENSITY GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVIC TENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SU E COVERING AND PERIPHERY OF OPENING OR SLEEVE SHALL BE MIN 3/8 IN. (10 MM) TO MAX 1-1/2 IN. (38 MM). WHEN PIPE COVERING MATER IT COVERING - MATERIALS (BRGU) CATEGORY IN THE BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE CO
4BOVE SPECIFICATIONS A 4. FIRESTOP SYSTEM A. PACKING MATERIAL PACKED INTO OPENING A REQUIRED THICKNESS OF AS REQUIRED TO ACCOM	AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LE THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS: - (OPTIONAL, NOT SHOWN) - POLYETHYLENE BACKER ROD OR NOM 1 IN. (25 MM) THICKNESS OF TIGHTLY-PACKED MINERAL WOOL BATT OR S A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS RI FILL MATERIAL. IN FLOORS CONSTRUCTED OF HOLLOW-CORE CONCRETE, PACKING MATERIAL TO BE RECESSED FROM TOP AND BOTTOM MODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
A1. FORMING MATERIAL* AND STACKED TO A THIC FORMING MATERIAL TO B N FLOORS CONSTRUCTE REQUIRED THICKNESS OF	AS AN ALTERNATE TO THE PACKING MATERIAL IN ITEM 5A, NOM 4 IN. (102 MM) WIDE STRIPS OF MIN 1/2 IN (13 MM) THICK COMPRESSIBLE M KNESS GREATER THAN THE WIDTH OF THE ANNULAR SPACE AND COMPRESSIONFITTED, EDGE-FIRST, TO FILL THE ANNULAR SPACE TO A E RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS NECESSARY TO ACCOMMODATE THE REQUIRED THIC D OF HOLLOW-CORE CONCRETE, FORMING MATERIAL TO BE RECESSED FROM TOP AND BOTTOM SURFACES OF FLOOR OR SLEEVE AS RI
3M COMPANY - FIRE BARF B. FILL, VOID OR CAVI WALL. IN FLOORS CONST	RIER PACKING MATERIAL TY MATERIALS* - SEALANT - MIN 2 IN. (51 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLO RUCTED OF HOLLOW-CORE CONCRETE, MIN 2 IN. (51 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP AND B
SLEEVE. 3M COMPANY - FB-3000 W 'BEARING THE UL CLASSI	T FICATION MARK
9 INSUL SCALE: NO	ATED PIPE FIRE STOPPING DETAIL
<b>U</b>	
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Т. ВMS	POWER       FROM
Т ВМS	POWER SUPPLY 120V AC REMOTE EXMINAL UNIT ONTROLLER COMMON BOLLER CONTROLLER C
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Т. ВМS	VEI COMMON BREECHING COMMON BREECHING POMER SUPPLY 120 / CC PERMINAL UNIT DONTROLLER FROM BOULER CONTROLLER CON
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BMS	PONER SUPPY 120 VAC REMOTE FROM BOLER CORR CORR CORR CORR CORR CORR CORR CO
SYSTEM CONT 1. THE HEATIN DAMPER (SBI STATUS, ONC 2. IN TRIAL MO PRESSURE BY 3. ONCE THE ACTIVE. 4. WHENT THE	POWER SUPPLY SUPVAC TEMOTE FEMOTE ENTROLER FIGURE FEMOTE ENTROLER FIGURE FIG
SYSTEM CONT 1. THE HEATIN DAMPER (SHI STATUS ONCE 2. IN TRIAL MO PRESSURE BY 3. ONCE THE ACTIVE. 4. WHEN THE FLUE GASES. 5. ONCE THE F 6. IF PROPER INTEGRATED	POWER SUPPLY SUPVAC REMOTE SUPVAC REMOTE SUPVAC REMOTE SUPVAC REMOTE SUPVAC REMOTE SUPVAC REMOTE SUPVAC REMOTE SUPVAC REMOTE SUPVAC BOLLER BOL

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