	2014 STATE OF OREGON ENERGY EFFICIENCY CODE COMPLIANCE NOTES
	UO HOUSING CENTRAL KITCHEN & WOODSHOP
THE N CONS ⁻ REQUI	DTES AND REQUIREMENTS DETAILED BELOW ARE PROVIDED TO BE USED AS THE MANDATORY MINIMUM BASIS FOR MECHANICAL SYSTEMS DESIGN, RUCTION, STARTUP, AND PROJECT CLOSEOUT. THE INTENT OF THESE NOTES IS TO ENSURE COMPLIANCE WITH SPECIFICALLY REFERENCED REMENTS WITHIN THE 2010 STATE OF OREGON ENERGY EFFICIENCY SPECIALTY CODE (OESC)
503.1 (SENERAL: SYSTEM DEFINITION
PROP	SED MECHANICAL SYSTEMS QUALIFY AS COMPLEX SYSTEMS UNDER OESC GUIDELINES
503.2.1	HVAC LOAD CALCULATIONS: HVAC LOAD CALCULATIONS FOR THIS PROJECT HAVE BEEN COMPLETED USING TRANE TRACE LOAD ANALYSIS PROGRAM IN ACCORDANCE WITH ASHRAE STANDARD 183 REQUIREMENTS.
503.2.2	EQUIPMENT AND SYSTEM SIZING: HVAC EQUIPMENT HAS BEEN SELECTED TO CLOSELY MATCH HEATING AND COOLING LOADS CALCULATED PER 5
503.2.3 EFFICI ON AP	HVAC EQUIPMENT PERFORMANCE REQUIREMENTS: HVAC EQUIPMENT HAS BEEN SELECTED AND SPECIFIED TO COMPLY WITH MINIMUM ENERGY ENCY REQUIREMENTS DETAILED IN OESC TABLES 503.2.3.(1-8) BASIS OF COMPLIANCE IS REVIEW OF MANUFACTURERS REPORTED EFFICIENCY BASI PLICABLE CODE MANDATED TEST PROCEDURES SPECIFIC UNITS AND PERFORMANCE ARE DETAILED BELOW:
• M.	AU-1 (MAKEUP AIR UNIT) TABLE 503.2.3.(4) GAS FIRED DUCT FURNACE
C	REQUIRED: 80% COMBUSTION EFFICIENCY ACTUAL: 92% COMBUSTION EFFICIENCY
503.2.4 Conti	HVAC SYSTEM CONTROLS: ALL HVAC SYSTEMS HAVE BEEN SPECIFIED AND DETAILED TO BE CONTROLLED BY AN INTEGRATED DIRECT DIGITAL COL (DDC) BUILDING AUTOMATION SYSTEM (BAS). SPECIFIC CONTROL FEATURES INCLUDE:
• 50 C(3.2.4.1 THERMOSTATIC CONTROLS : SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE IS CONTROLLED BY INDIVIDUAL THERMOSTATIC ONTROLS RESPONDING TO TEMPERATURE WITHIN THE ZONE. REFERENCE ZONE PLAN (SHEET M1.1) FOR ZONE DESIGNATION AND CORRESPONDING IERMOSTAT LOCATIONS
• 50 IN T(3.2.4.2 SET POINT OVERLAP RESTRICTION : ZONE THERMOSTATS WHICH CONTROL HEATING AND COOLING OPERATION HAVE BEEN PROGRAMMED T CORPORATE A 5° F. DEADBAND WITHIN WHICH THE SUPPLY OF HEATING OR COOLING ENERGY TO A ZONE IS CAPABLE OF BEING SHUTOFF OR REDU O A MINIMUM.
• 50 Yi	3.2.4.3 OPTIMUM START CONTROLS : THE HOUSE HVAC SYSTEM HAS INTEGRATED CONTROLS WHICH VARY THE START-UP TIME (BASED ON TIME OF EAR AND OUTDOOR AIR TEMPERATURE) TO JUST MEET THE TEMPERATURE SETPOINT AT SCHEDULED TIME OF OCCUPANCY.
• 50 C(3.2.4.4 OFF HOUR CONTROLS : THE DDC BAS SHALL BE PROGRAMMED TO PROVIDE UNOCCUPIED SETBACK CONTROLS FOR EACH THERMOSTAT AND DRRESPONDING ZONE BASED ON A TIME SCHEDULE IDENTIFIED BY OWNER. SETBACK CONTROLS SHALL BE PROGRAMMED FOR UNOCCUPIED HEATI 55° F. AND UNOCCUPIED COOLING OF 85° F.
• 50	3.2.4.5 SHUTOFF DAMPER CONTROLS : ALL OUTDOOR SUPPLY AND EXHAUST SYSTEMS (WITH AIRFLOW EXCEEDING 300 CFM) WILL BE EQUIPPED CLA R BETTER MOTORIZED DAMPERS WITH AMPCA 500 D RATED LEAKAGE OF MAXIMUM 4 CFM/SQUARE FOOT.
5 03.2. 5	VENTILATION: PROJECT SYSTEMS HAVE BEEN DESIGNED TO PROVIDE MECHANICAL VENTILATION IN ACCORDANCE WITH THE REQUIREMENTS OF ON MECHANICAL SPECIALTY CODE (OMSC) CHAPTER 4. SPECIFIC VENTILATION RELATED SYSTEM FEATURES INCLUDE:
• 50 Sł	3.2.5 VENTILATION COMPLIANCE: OUTDOOR AIR VENTILATION SCHEDULE DEMONSTRATING COMPLIANCE WITH OMSC REQUIREMENTS IS LOCATED (IEET M0.0
• 50	3.2.5.1: DEMAND CONTROL VENTILATION: DEMAND CONTROL VENTILATION CONTROLS (CO2 BASED) PROVIDED FOR ALL HIGH OCCUPANCT AREAS.
• 50 BE	3.2.5.2: KITCHEN HOODS: KITCHEN EXHAUST AND ASSOCIATED MAKEUP AIR SYSTEMS EXCEED 5,000 CFM CAPACITY. FOR THAT REASON THEY HAV EN DESIGNED TO COMPLY WITH THE FOLLOWING SPECIFIC CODE REQUIREMENTS:
(MINIMUM 50% OF MAKEUP AIR IS HEATED ONLY TO 60° F. AND UNCOOLED (SEE SHEET M0.1 MAU-1 SCHEDULE AND SHEET M5.0 ANALYSIS) KITCHEN HOOD SYSTEM INCLUDES MANUFACTURERS DEMAND CONTROL SYSTEM DESIGNED TO VARY EXHAUST AIRFLOW FOR 100% OF HOODS UP TO 50% MAXIMUM FLOW.
503.2.7 WITH (DUCT AND PLENUM INSULATION: DUCTWORK INSULATION SCHEDULE ON SHEET M0.1 DETAILS DUCT INSULATION REQUIREMENTS IN ACCORDANCE DESC REQUIREMENTS
• 50 W	3.2.7.1 DUCT CONSTRUCTION: DUCTWORK SCHEDULE ON SHEET M0.1 DETAILS DUCT CONSTRUCTION AND SEALING REQUIREMENTS IN ACCORDANC TH OESC & OMSC REQUIREMENTS
503.2.9 REQUI	HVAC SYSTEM COMPLETION: PROJECT SYSTEMS HAVE BEEN DESIGNED AND DETAILED TO ACCOMMODATE THE FOLLOWING OESC MANDATED REMENTS FOR BALANCING, START-UP AND OWNER DOCUMENTATION:
• 50 C/	3.2.9.1 AIR SYSTEM BALANCING: EACH SUPPLY AIR OUTLET AND ZONE TERMINAL DEVICE HAS BEEN PROVIDED WITH MANUAL DAMPER AND/OR ALIBRATED FLOW CONTROL TO ENABLE SYSTEM BALANCING. REFER TO FLOOR PLANS AND SCHEDULES FOR SPECIFIC DETAILS.
• 50	3.2.9.3 MANUALS: ALLIANT SYSTEMS WILL FURNISH A COMPLETE OPERATING AND MAINTENANCE MANUAL AND RECORD SET OF CONSTRUCTION

- DOCUMENTS TO THE PROJECT OWNER AT THE COMPLETION OF CONSTRUCTION. 503.2.10 AIR SYSTEM DESIGN AND CONTROL: PROJECT SYSTEMS WITH FAN MOTORS EXCEEDING 5 HP HAVE BEEN DESIGNED AND DETAILED TO ACCOMMODATE THE FOLLOWING OESC MANDATED REQUIREMENTS FOR ALLOWABLE FAN HORSEPOWER.
- 503.2.10.1 ALLOWABLE FAN HORSEPOWER: COMPLIANCE PER OESC TABLE 503.2.10.1(1) BELOW:
- o MUA-1 VARIABLE FLOW, XXXX CFM: ALLOWED HP=XX, ACTUAL HP=XX COMPLIES o EF-1 VARIABLE FLOW, XXXX CFM: ALLOWED HP=XX, ACTUAL HP=XX - COMPLIES
- 503.2.10.2 MOTOR NAMEPLATE HORSEPOWER: EQUIPMENT SPECIFICATION FOR EACH FAN SELECTION HAS BEEN REVIEWED TO CONFIRM THAT MOTOR SELECTION IS NO LARGER THAN THE FIRST AVAILABLE MOTOR SIZE GREATER THAN THE IDENTIFIED BREAK HORSEPOWER.

NOTES

ICAL SYSTEMS DESIGN, ALLY REFERENCED

ADS CALCULATED PER 503.2 VITH MINIMUM ENERGY ORTED EFFICIENCY BASED

E BEEN PROGRAMMED TO EING SHUTOFF OR REDUCED

EACH THERMOSTAT AND FOR UNOCCUPIED HEATING

1) WILL BE EQUIPPED CLASS 1

HE REQUIREMENTS OF IREMENTS IS LOCATED ON

GH OCCUPANCT AREAS. THAT REASON THEY HAVE

FM5.0 ANALYSIS) N FOR 100% OF HOODS BY

EMENTS IN ACCORDANCE

NATUR	AL G	AS CALCUL	ATION
MECH EQUIP	QTY	INPUT (BTUH)	TOTAL (BTUH)
RTU-1	1	200,000	200,000
RTU-2	1	200,000	200,000
RTU-3	1	160,000	160,000
RTU-4	1	300,000	300,000
RTU-5	1	80,000	80,000
RTU-6	1	80,000	80,000
RTU-7	1	80,000	80,000
MAU-1	1	1,040,000	1,040,000
F-1	1	120,000	120,000
SB-1	1	1,969,000	1,969,000
GWH-1	1	199,000	199,000
GWH-2	1	199,000	199,000
GWH-3	1	199,000	199,000
		SUBTOTAL	4,826,000
KITCHEN EQUIP			
K-69	1	250,000	250,000
K-97	1	85,000	85,000
K-98	1	260,000	260,000
K-102	1	242,000	242,000
K-103	1	242,000	242,000
K-116	1	104,000	104,000
K-117	1	104,000	104,000
K-118	1	144,000	144,000
K-129	1	120,000	120,000
K-130	1	120,000	120,000
K-132	1	95,000	95,000
K-133	1	95,000	95,000
K-135	1	240,000	240,000
		SUBTOTAL	2,101,000
		TOTAL	6,927,000
EQUIVALENT LENGTH: 300 F	т	TOTAL CFH (BTUH/1,000)	6927.0
PIPE SIZES PER 2 OREGON MECHAN	2014 ICAL	PIPE SIZE	CAPACITY (CFH)
C402.4(5)	ADLE	0.5"	253
		0.75"	528
2 PSIG SERVIC	E	1"	945
1.0 PSIG LOSS		1.25"	1940
		1.5"	2,910
		2"	5,600
		2.5"	8,920

A	COMPRESSED AIR LINE	I/O	INPUT / OUTPUT
AC	AIR CONDITIONING UNIT	KW	KILOWATT
ADJ	ADJUSTABLE	LAT	LEAVING AIR TEMPERATURE
AFF		LBS	
	ACCESS PANEL	MAX	
APD	AIR PRESSURE DROP	MBH	ONE THOUSAND BTUH
AVG	AVERAGE	MCA	MINIMUM CIRCUIT AMPACITY
BAS	BUILDING AUTOMATION SYSTEM	MD	MOTORIZED DAMPER
BDD	BACKDRAFT DAMPER	MFR	MANUFACTURER
BOD	BOTTOM OF DUCT	MISC	MISCELLANEOUS
BOTT	BOTTOM	MIN	MINIMUM
BSB			
BTUH	BRITISH THERMAL UNITS PER HOUR	N	NEW
BWG	BOTTOM WALL GRILLE	NC	NORMALLY CLOSED, NOISE CRITERIA
BWR	BOTTOM WALL REGISTER	NG	NATURAL GAS
CAP	CAPACITY	NIC	NOT IN CONTRACT
CFH	CUBIC FEET PER HOUR	NO	NORMALLY OPEN, NUMBER
CFCI	CONTRACTOR FURNISHED CONTRACTOR	NOM	NOMINAL
		NR	NOISE REDUCTION
CHWS	CHILLED WATER SUPPLY	OAF	
CLG	CEILING	OBD	OPPOSED BLADE DAMPER
COMB	COMBUSTION	OD	OUTSIDE DIMENSION
COND	CONDENSER, CONDENSATE	OFCI	OWNER FURNISHED CONTRACTOR
CONN	CONNECTION		INSTALLED
CP	CONTROLS PANEL	PD	PRESSURE DROP
CU		PH	PHASE
CWR			
DB	DUCT BOARD	PSIA	PRESSURE PER SQUARE INCH ABSOLUTE
DDC	DIRECT DIGITAL CONTROL	PSIG	PRESSURE PER SQUARE INCH GAGE
DIA	DIAMETER	QTY	QUANTITY
DIFF	DIFFUSER	R	RELOCATE
DMPR	DAMPER	RA	RETURN AIR
DN	DOWN	RE	
DX F			
	ENISTING ENTERING AIR TEMPERATURE	REQU	
FC	EGGCRATE	RIO	ROUGH IN ONLY
EER	ENERGY EFFICIENCY RATIO	RL	REFRIGERANT LIQUID
EF	EXHAUST FAN	RPM	REVOLUTIONS PER MINUTE
EFF	EFFICIENCY	RTU	ROOF TOP UNIT
ELEV	ELEVATION	SA	SUPPLY AIR
EMS	ENERGY MANAGEMENT SYSTEM	SAT	
		SEER	SOUND LINING
FWT	ENTERING WATER TEMPERATURE	SM	SHEET METAL
EXH	EXHAUST	SP	STATIC PRESSURE
EXST	EXISTING	SQ	SQUARE
EXTR	EXTRACTOR	STL	STEEL
F	FAHRENHEIT	SSTL	STAINLESS STEEL
FD	FIRE DAMPER	SUC	SUCTION LINE
		SUSP	
FOT	FLAT ON TOP	TEMP	TEMPERATURE
FPB	FAN POWERED BOX	TOD	TOP OF DUCT
FPM	FEET PER MINUTE	TSP	TOTAL STATIC PRESSURE
FSD	FIRE SMOKE DAMPER	TV	TURN VANES
FUT	FUTURE	TWG	TOP WALL GRILLE
GAL	GALLONS	TWR	
GALV			
GPH	GALLONS PER HOUR	UH	UNIT HEATER
GPM	GALLONS PER MINUTE	UNO	UNLESS NOTED OTHERWISE
GR	GRILLE	V	VOLTS
GRD	GRILLE/DIFFUSER	VAV	VARIABLE AIR VOLUME
GWB	GYPSUM WALL BOARD	VD	VOLUME DAMPER
HG	HOT GAS LINE	VEL	
НР Цр			
HTG	HEATING	VTR	
HVAC	HEATING VENTILATION AND AIR	W	WRAP
	CONDITIONING	WB	WET BULB
HWR	HEATING WATER RETURN	WG	WATER GAUGE
HWS	HEATING WATER SUPPLY	WPD	WATER PRESSURE DROP
HZ		Ø	VOLTAGE PHASE & DUCT DIAMETER
IN	INCHES		

HVAC ABBREVIATIONS

ABBV

FULL NAME

HVAC DUCT LEGEND								
DUCT UP	DUCT DOWN	DESCRIPTION						
	X X X X X X	RECTANGULAR SUPPLY						
	$\bigcirc i \qquad \bigcirc i$	ROUND SUPPLY						
		RECTANGULAR RETURN						
	$\bigcirc 1 $	ROUND RETURN						
		RECTANGULAR EXHAUST						
	$\bigcirc 1 $	ROUND EXHAUST						
		RECTANGULAR OUTSIDE AIR						
	<u>(61</u>)	ROUND OUTSIDE AIR						
<u>2-LINE</u>	<u>1-LINE</u>	DESCRIPTION						
\$ 12/10 W \$	<u>, 12/10 ₩</u>	RECTANGULAR DUCT INSULATION WRAP						
2 12ØW	<u>12ØW</u>	ROUND DUCT INSULATION WRAP						
12/10 SLSM	2 ^{12/10} SLSM	RECTANGULAR DUCT SOUND LINED WRAP						
12/10 K-27	₹12/10 K-27	RECTANGULAR DUCT K-27 SOUND INSULATED						
12Ø K-27	<u>} 12∅ K-27</u>	ROUND DUCT K-27 SOUND INSULATED						
\sim	120	FLEX DUCTWORK						

FULL NAME
INPUT / OUTPUT
KILOWATT
LEAVING AIR TEMPERATURE
POUNDS
LIQUID INSIDE
LEAVING WATER TEMPERATURE
MAXIMUM
ONE THOUSAND BTUH
MINIMUM CIRCUIT AMPACITY
MOTORIZED DAMPER
MANUFACTURER
MISCELLANEOUS
MINIMUM
MOUNT
NORMALLI OPEN, NUMBER
NOT TO SCALE
OUTSIDE DIMENSION
OWNER FURNISHED CONTRACTOR
INSTALLED
PRESSURE DROP
PHASE
PLUMBING

HVAC GENERAL NOTES - STATE OF OREGON

- THESE PLANS ARE SCHEMATIC AND DO NOT SHOW EXACT ROUTING OR EVERY OFFSET WHICH MAY BE REQUIRED. THE HVAC CONTRACTOR IS TO COORDINATE WITH ALL OTHER TRADES AND IS TO VERIFY ALL CLEARANCES BEFORE COMMENCING WORK.
- MATERIALS, METHODS, AND INSTALLATION SHALL COMPLY WITH THE PROVISIONS OF THE MOST RECENTLY ADOPTED VERSIONS OF -- THE 2014 OREGON MECHANICAL SPECIALTY CODE (2012 IMC W/ STATE OF OREGON AMENDMENTS) - THE 2014 STATE OF OREGON STRUCTURAL SPECIALTY CODE (2012 IBC W/ STATE OF OREGON AMENDMENTS)
- THE 2014 STATE OF OREGON ENERGY EFFICIENCY SPECIALTY CODE - THE 2014 INTERNATIONAL FIRE CODE AND ALL OTHER APPLICABLE LOCAL CODES, AMENDMENTS, AND ORDINANCES.
- DUCT CONSTRUCTION AND HANGING SHALL COMPLY WITH CHAPTER 6 OF THE OREGON MECHANICAL SPECIALTY CODE (IMC) AND WITH CURRENT SMACNA STANDARDS. EARTHQUAKE BRACE ALL DUCTS 28" DIA AND LARGER WHICH ARE SUSPENDED MORE THAN 12" BÈLOW STRUCTURAL SYSTEM.
- DUCTS SHALL BE INSULATED AS INDICATED ON PLANS, OR AS OTHERWISE REQUIRED BY THE STATE OF OREGON ENERGY CODE - DUCT WRAP, WHERE INDICATED, SHALL BE 1 1/2" 0.6 LB/CU FT FIBERGLASS DUCT INSULATION WITH A FACTORY APPLIED REINFORCED ALUMINUM FOIL VAPOR BARRIER. - SOUND LINING, WHERE INDICATED, SHALL BE 1" 1.5 LB/CU FT FIBERGLASS DUCT LINING COATED TO PREVENT FIBER EROSION AT VELOCITIES UP TO 4000 FPM.
- FLEXIBLE DUCTS SHALL CONSIST OF A REINFORCED VAPOR BARRIER, 1 1/2" FIBERGLASS INSULATION, AND NON-PERFORATED INTERIOR LINER WITH WIRE HELIX. DUCT SHALL BE A UL 181 LISTED CLASS 1 AIR DUCT. FLEXIBLE DUCTS SHALL ONLY BE USED WHERE SHOWN AND SHALL NOT EXCEED 8' IN LENGTH UNLESS NOTED OTHERWISE.
- 6. PROVIDE EARTHQUAKE RESTRAINT FOR HVAC EQUIPMENT IN ACCORDANCE WITH SECTION 1621 OF THE OR STRUCTURAL SPECIALTY CODE (IBC) PROVIDE FIRE DAMPERS AND/OR FIRE/SMOKE DAMPERS WHERE INDICATED ON PLANS AND AS REQUIRED BY SECTION 716 OF THE OREGON STRUCTURAL SPECIALTY CODE. INSTALL FIRE DAMPERS AND FIRE/SMOKE DAMPERS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, THE TERMS OF THEIR LISTINGS, AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING, MECHANICAL, AND FIRE CODES AND ORDINANCES
- PIPING PENETRATIONS OF FIRE RATED WALLS OR FLOORS SHALL BE SLEEVED AND FIRE STOPPED WITH LISTED MATERIALS SO AS TO MAINTAIN THE INTEGRITY AND RATING OF THE FLOOR OR WALL.
- PROVIDE RETURN DUCT SMOKE DETECTOR CONFIGURED TO PROVIDE AUTOMATIC SHUT DOWN OF ALL HEATING, COOLING, OR VENTILATION EQUIPMENT DELIVERING IN EXCESS OF 2000 CFM IN ACCORDANCE WITH SECTION 606 OF THE OREGON MECHANICAL SPECIALTY CODE POWER WIRING AND INTERLOCK WIRING WITH THE BUILDING FIRE ALARM SYSTEM SHALL BE BY THE ELECTRICAL CONTRACTOR.
- HVAC EQUIPMENT, VALVES AND DAMPERS SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS. ACCESS PANELS REQUIRED FOR MECHANICAL EQUIPMENT SHALL BE IDENTIFIED AND LOCATED BY THE MECHANICAL CONTRACTOR FOR ULTIMATE INCLUSION IN ARCHITECTURAL DRAWINGS. ACCESS PANELS SHALL BE PROVIDED AND INSTALLED BY THE WALL-CEILING CONTRACTOR PER SPECS
- HVAC TEMPERATURE SET POINTS, DEAD BANDS, AND SCHEDULES SHALL BE PROGRAMMED TO MEET OREGON ENERGY CODE SECTION 1317.4.2.1 THROUGH 1317.4.3.2
- ALL WIRING EXPOSED WITHIN A PLENUM SHALL MEET THE REQUIREMENTS OF THE OMSC 602.2.1.1. ALL COMBUSTABLE ELECTRICAL EQUIPMENT EXPOSED 12. WITHIN A PLENUM SHALL MEET THE REQUIREMENTS OF 602.2.1.4.

SYUBOL ABBREVIATION DESCRIPTION AAV AAV ALTOMATIC FLOW CONTROL VALVE AUTOMATIC TARE MENT ALTOMATIC FLOW CONTROL VALVE AUTOMATIC TARE MAY VALVE ALTOMATIC THREE MAY VALVE BAL BALL CHECK OR DRIP VALVE BAL BALL CHECK OR DRIP VALVE BY BALL CHECK OR DRIP VALVE BY BALL CHECK OR DRIP VALVE CV DOCV DOCV DOCK PALVE DOCV DOCK PORTIC CHECK VALVE DOCV DOUBLE DETECTOR CHECK VALVE DOCV POBLE DORT PEXENDE DETECTOR CHECK VALVE ST FASTERIOR REDUCER DOCV POBLE DORT PERSUBE DEPE CONNECTOR PEXENDE DORTOC VALVE ST FASTERIOR REDUCER COV GARS GOCK ST FASTERIOR REDUCER PERSUBE SCHWERAUNALINE VERTOR PERSUBE CONTROL VALVE ST FASTERIOR REDUCER ST FASTERIOR REDUCER ST PERSUBE CONTROL VALVE ST FASTE		PIPING S	YMBOL LEGEND
▲AW AUTOMATIC AIR VENT ▲UTOMATIC FLOW CONTROL VALVE ▲UTOMATIC TWO-WAY VALVE ▲UTOMATIC TREE-WAY VALVE ▲UTOMATIC TREE-WAY VALVE ▲B ▲B BY BALL VALVE BY BALL VALVE BY BALL VALVE BY BALL VALVE CONCENTRIC REDUCER CONCENTRIC REDUCER DDCY DOUBLE DETECTOR CHECK VALVE CONCENTRIC REDUCER CONCENTRIC REDUCER BY FAT STEAM TRAP FAT FAT STEAM TRAP FAT FAT STEAM TRAP FAT FLOW AND CONBINATION FIRE SMOKE DAMPER FLOW AND CONBINATION FIRE SMOKE FAT FLOW AND CONTROL VALVE FLOW AND CONTROL VALVE FLOW AND CONTROL VALVE FLOW AND CONSTROL VALVE FLOW AND VALVE GC GAS COCK GL HOOSE END DRAIN VALVE GL PIE SUBLE AULVE <t< th=""><th>SYMBOL</th><th>ABBREVIATION</th><th>DESCRIPTION</th></t<>	SYMBOL	ABBREVIATION	DESCRIPTION
AUTOMATIC FLOW CONTROL VALVE AUTOMATIC TWO-WAY VALVE AUTOMATIC TWO-WAY VALVE AUTOMATIC THREE-WAY VALVE BAL CHECK OR DRIP VALVE BAL ONECK OR DRIP VALVE BAL DITERFLY VALVE BAL ONECK OR DRIP VALVE BAL ONECK OR DRIP VALVE BALY BALY BALY BALY BALY CONCENTRIC REDUCER CONCENTRIC REDUCER BALY PATSTEMATRAP FSD PATSTAT FATSTA	<u></u> ДААУ	AAV	AUTOMATIC AIR VENT
AUTOMATIC INCOMAT VALVE AUTOMATIC INCOMAT VALVE AUTOMATIC INCOMAT VALVE AUTOMATIC INCOMATIVALVE BALL ONLOCK ON DRIP VALVE BALL VALVE BALL VALVE BALL VALVE BALL VALVE BALL VALVE BALL VALVE BALV VALVE BALV VALVE BALVE BALVE BALVE BALVE CV CHECK VALVE CONCENTRIC REDUCER BOCU DOCU CONCENTRIC REDUCER BALVE FSD DIX STANDARC COMBINATION FIRE SMOKE DIX STANDARC COMB			
AUTOWATIC THREE WAY VALVE BALL VALVE BAL CV CHECK VALVE COV DECV DOCV DOCV DOCV DOCV COV COV COV COV DOCV ST FSD MAV FLEXIBLE JOINT FLEXIBLE JOINT </th <th></th> <th></th> <th>AUTOMATIC TWO-WAT VALVE</th>			AUTOMATIC TWO-WAT VALVE
N BALL CHECK ORD RDP VALVE BALV BALANCING VALVE BFV BUTTERFLY VALVE CV CHCCK VALVE CONCENTRIC REDUCER CONCENTRIC REDUCER CDCV DOUBLE DETECTOR CHCCK VALVE CC FSD MARCHAR VALVE ECCENTRIC REDUCER ST PAT STEAM TRAP MARCHAR VALVE ECCENTRIC REDUCER ST PAT STEAM TRAP MARCHAR VALVE ECCENTRIC REDUCER MARCHAR VALVE DAMPER MARCHAR VALVE FLOW AROW, DIRECTION OF FLOW EGC GAS COCK GC GAS COCK GL GL V GL V GLOBE VALVE GL V GLOBE VALVE GL GC GAS COCK GL V GLOBE VALVE P	₩ <u>₩</u>		AUTOMATIC THREE-WAY VALVE
BAL BALL VALVE BAL BALL VALVE BAL BALL VALVE BFV BUTTERFLY VALVE CONCENTRIC REDUCER CONCENTRIC REDUCER DECV DOUBLE DETECTOR OHECK VALVE CONCENTRIC REDUCER CONCENTRIC REDUCER CONCENTRIC REDUCER ECCENTRIC REDUCER ST FAT STEAM TRAP ST FAT STEAM TRAP ST FLOW MEMON DIRECTOR FLOW ADOW, DIRECTOR OF FLOW DAMPER PLOW MADOW, DIRECTOR OF FLOW BELE PIPE CONNECTOR FLOW MADOW, DIRECTOR OF FLOW BELE PIPE CONNECTOR FLOW MADOW, DIRECTOR OF FLOW BELE PIPE CONNECTOR FLOW MEASURING DEVICE ST FLOW MADOW MALV MAUVE ST FLOW MEASURING DEVICE ST FLOW MEASURING DEVICE ST FLOW MEASURING DEVIC			BALL CHECK OR DRIP VALVE
Deck Deck Deck BULTRENT VALVE Deck DUTTRENT VALVE Deck DECK Deck DECK Deck DECK Deck DECK Deck<		BV	
● BFV BUTTERTY VALVE ● CV CHECK VALVE ● DDCV DOUBLE DETECTOR CHECK VALVE ● ECCENTRIC REDUCER ECCENTRIC REDUCER ● ST FAT STEAM TRAP ● ST FAT STEAM TRAP ● ST FAT STEAM TRAP ● FSD 1½ A TOUR COMBINITION FIRE SMOKE ● FSD 1½ A TOUR COMBINITION FIRE SMOKE ● FSD 1½ A TOUR COMBINITION FIRE SMOKE ● FELSUBLE PIPE CONNECTOR FLOW ARROW, DIRECTON OF FLOW ● FLOW ARROW, DIRECTON OF FLOW Elexible PIPE CONNECTOR ● FLOW MASURING DEVICE ● ● ● GL V GLOBE VALVE ● ● OL Ø OLYSE VALVE ● Ø PIPE ANCHOR ● ● PIPE ANC		DALV	BALANCING VALVE
N CV CHECK VALVE → CONCENTRIC REDUCER CONCENTRIC REDUCER → CONCENTRIC REDUCER ECCENTRIC REDUCER → FSD 1/4 a PURR COMBINATION FIRE SMOKE → FSD 1/4 a PURR COMBINATION FIRE SMOKE → FEEDENTRIC REDUCER FEEDENT → FLEXIBLE PEE CONNECTOR FLEXIBLE PEE CONNECTOR → FLEXIBLE JOINT FLEXIBLE ONT → FLOW ARROW, DIRECTION OF LOW FLEXIBLE ONT → FLOW MAROW, DIRECTION OF LOW FLEVENDE CONNECTOR → FLOW MAROW, DIRECTION OF LOW FLEVENDE → FLOW BAROW AND YOKE VALVE FLOW BAROW AND YOKE VALVE → PIPE ANCHOR FLEVENDN → PIPE ANCHOR FLEVENDN </th <th>φ</th> <th>BFV</th> <th>BUTTERFLY VALVE</th>	φ	BFV	BUTTERFLY VALVE
CONCENTRIC REDUCER CONCENTRIC REDUCER ECCENTRIC REDUCER ECCENTRIC REDUCER FSD FSD FSD FSD FSD FSD FSD FSD	N	CV	CHECK VALVE
■ DUCU DUCU DUCUCER ■ ECCENTING REDUCER ● ST FAT STEAM TRAP ● FSD 1½ as 10 UR COMBINITION FIRE SMOKE DAMPER PLEXIBLE JOINT ■ FLOW ARROW, DIRECTON OF FLOW ■ FLOW ARROW, DIRECTON OF ARROW ■ FLOW ■ FLOW ARROW ■ FLOW ARROW ■ FLOW ARROW ■ FLOW ■ FLOW ■ FLOW ARROW ■ FLOW ■ FLO		DDCV	
Image: Still Steam TRAP Image: Still Steam Strain		DDCV	
FSD 1/Å & 3 HOUR COMBINATION FIRE SMOKE MAM PLEXIBLE JOINT FLEXIBLE FIPE CONNECTOR F	8	ST	F&T STEAM TRAP
Image: Section of the section of t		FSD	11/2 & 3 HOUR COMBINATION FIRE SMOKE
PLEXIBLE PIPE CONNECTOR ■ FLEXIBLE PIPE CONNECTOR ■ FLOW ARROW, DIRECTION OF FLOW ■ FLOW CONTROL VALVE ■ FLOW CONTROL VALVE ■ FLOW MASSURING DEVICE ■ GC GASS COCK ■ GLV GLOBE VALVE ■ PIPE AUCHOR ■ PIPE OUDE ■ PIPE OUND ● PIPE PUNON ● PIPE OUND ● PIPE OUND ● PIPE OUND ● PIPE PUNON ● PIPE OUND ● PIPE OUND ● PIPE OUND ● PIPE OUND ● PIPE OUN			
■ FLOW ARROW, DIRECTION OF FLOW ■ FLOW CONTROL VALVE ■ FLOW CONTROL VALVE ■ FLOW CONTROL VALVE ■ GV GATE VALVE ■ GU GLOBE VALVE ■ GU GLOBE VALVE ■ GLV GLOBE VALVE ■ GLV GLOBE VALVE ■ GLV GLOBE VALVE ■ MAV MANU MANUAL AIR VENT ■ PIPE GUIDE ■ ■ PIPE GUIDE ■ ■ PIPE GUIDE ■ ■ PIPE GUIDE ■ ■ PV PLUG VALVE ■ PV PLUS VALVE ■ PV PLUS VALVE ■ PV PLUS VALVE ■ PS PRESSURE SUCE VERSURE SENSOR ■ PS PRESSURE SUCE VERSURE VALVE ■ TPT PRESSURE SUCE PRESSURE BACKFLOW PREVENTOR SLOPE PS PRESSURE SUCE PRESSURE SUCE VALVE ■ TPT PRESSURE SUCE PRESSURE SUCE VALVE			
■ FCV FLOW CONTROL VALVE FLOW MEASURING DEVICE FLOW MEASURING DEVICE ■ GC GAS COCK ■ GC GAS COCK ■ GUV GLOBE VALVE ■ GLV GLOBE VALVE ■ MAV MANUAL AIR VENT ■ QMAV MAV ■ PIPE ANCHOR PIPE ANCHOR ■			FLOW ARROW, DIRECTION OF FLOW
Image: state of the second	⊠	FCV	FLOW CONTROL VALVE
→R GV GAS COCK →R GV GATE VALVE QIV GLOBE VALVE QIV MAV MANUAL AIR VENT →R OSAY OUTSIDE SCREW AND YOKE VALVE →R OSAY MAV →R OSAY OUTSIDE SCREW AND YOKE VALVE →R OSAY PUTSIDE SCREW AND YOKE VALVE →R OSAY PUTSIDE SCREW AND YOKE VALVE → PV PLUG VALVE Q PRESSURE GAUGE WITH GAUGE COCK → PV PLUG VALVE Q PRESSURE SWITCH OR PRESSURE SENSOR → PV PRESSURE SWITCH OR PRESSURE SENSOR → PV PRESSURE TEMPERATURE RELIEF VALVE → PV PRESSURE TEMPERATURE RELIEF VALVE → RV RELIEF VALVE → PUMP REDUCED PRESSURE BACKFLOW PREVENTOR SLOPE SLOPE PIPE DOWN IN DIRECTION OF ARROW SUPE STRAINER WIND TAT → STRAINER STRAINER → STRAINER SCOPE PIPE DOWN IN DIRECTION OF ARROW SUPE <			FLOW MEASURING DEVICE
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GH HOSE END DRAIN VALVE QMAV MAV MAV MANUAL AIR VENT MAV MAV MAV MANUAL AIR VENT MAV OSAY OUTSIDE SCREW AND YOKE VALVE PIPE GUIDE Image: Provide the answer of the answe		GLV	GLOBE VALVE
↓ Index End Draw Value ■ MAV MAV ANUAL AIR VENT ■ OSSY OUTSIDE SCREW AND YOKE VALVE ■ PIPE ANDOR ■ PV PLUG VALVE ● PRV PRESSURE CAUGE WITH GAUGE COCK ● PRV PRESSURE SWITCH OR PRESSURE SENSOR ● PRV PRESSURE TEMPERATURE RELIEF VALVE ● PV PLMP ■ RV RELIEF VALVE ■ PPP ■ RV RELIEF VALVE ■ PIMP ■ RV RELIEF VALVE ■ RV RELIEF VALVE ■ RV ■ RV ■ RV ■ RV ■ RV ■ STRAINER ■ STRAINER ■ STRAINER ■ STRAINER ■ THERMOSTAT			
↓ ₩AV MAVU MANUAL AIR VENT → BAL OS&Y OUTSIDE SCREW AND YOKE VALVE ↓ PIPE ANCHOR PIPE AUDE ↓ UN PIPE UNION ↓ PV PLUG VALVE ↓ PV PLUG VALVE ↓ PR PRESSURE GAUGE WITH GAUGE COCK ↓ PV PRESSURE CAUGE WITH GAUGE COCK ↓ PR PRESSURE SWITCH OR PRESSURE SENSOR ↓ PR PRESSURE TEMPERATURE RELIEF VALVE ↓ PR PRESSURE/TEMPERATURE TEST PLUG ↓ PY PRESSURE/TEMPERATURE TEST PLUG ↓ PY PRESSURE/TEMPERATURE TEST PLUG ↓ RV RELIEF VALVE ↓ RV RELIEF VALVE ↓ RV RELIEF VALVE ↓ RV RELIEF VALVE ↓ STRAINER STRAINER ↓ STRAINER STRAINER ↓ STRAINER STRAINER ↓ THERMOMETER SCOPE PIPE DOWN NALVE ↓ THERMOSTAT THERMOSTAT ↓ <td< th=""><th></th><th></th><th></th></td<>			
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Image: Second Secon	 		PRESSURE/TEMPERATURE TEST PLUG
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Image: Construction of the second		CO2	CARBON DIOXIDE SENSOR
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O 90 DEGREE ELBOW UP 90 DEGREE ELBOW DOWN TEE UP TEE DOWN BREAK IN LINE - SHOWN FOR CLARITY PIPE CAP SECTION TAG # DEMOLITION NOTE BY SYMBOL # POC POINT OF CONNECTION # POC POINT OF CONNECTION # EQUIPMENT TAG			PIPE TAKE OFF - DOWN
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HYDRONIC PIPING LEGEND								
SYMBOL	ABBREVIATION	DESCRIPTION						
HWS	HWS	HEATING WATER SUPPLY						
————HWR————	HWR	HEATING WATER RETURN						
CD	CD	INDIRECT CONDENSATE DRAIN						
CHWS	CHWS	CHILLED WATER SUPPLY						
——————————————————————————————————————	CHWR	CHILLED WATER RETURN						
HPS	HPS	HIGH PRESSURE STEAM						
MPS	MPS	MEDIUM PRESSURE STEAM						
LPS-	LPS	LOW PRESSURE STEAM						
	PCR	PUMPED CONDENSATE RETURN						



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M0.3	ME	ECH
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M2.1	MECHANICAL FI	RS
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	F-1 CODE REQUIRED OA VENTILATION (BASED ON 2014 OREGON MECHANICAL SPECIALTY CODE STANDARDS)										
			OMSC CODE REQUIR	REMENTS - TABLE 403	.3	1	ZONE	AIR	ZONE	CRITICAL	REMARK
ROOM(S)	FLOOR AREA			OA REQUI Rp (CFM / PFR)	REMENTS Ra (CFM / SF)	MIN. EXHAUST	OCCUPANTS		DISTRIBUTION	SPACE	
	125		5	5			1		0.8		13
	2 530		3	10	0.00	-	0		0.0	v	1,0
	2,330	WOOD/METAL SHOP	20	10	0.18	-	ð	CSCRH	0.8	×	1,5
ROOM UOK-101B	455	WOOD/METAL SHOP	20	10	0.18	-	2	CSCRH	0.8		1,3
ROOM UOK-101C	230	WOOD/METAL SHOP	20	10	0.18	-	2	CSCRH	0.8		1,3
TOTALS	3,340			35		0	13				

RESULTS OF ASHRAE STANDARD 62.1 2007 ANALYSIS BASED ON DATA ABOVE

OUTDOOR AIR AS A % OF DESIGN PRIMARY SUPPLY AIR	44%	OA
OUTDOOR AIR PER PERSON SERVED (Vot/Ps)	63.5	CFM / P
OUTDOOR AIR PER UNIT FLOOR AREA (Vot/As)	0.25	CFM / SF
OUTDOOR AIR INTAKE REQUIRED FOR SYSTEM (Vot)	826	CFM
VENTILATION SYSTEM EFFICIENCY (Ev)	86%	

REMARKS (OA SOURCE)

1. REQUIRED DESIGN MINIMUM OA (44%) PROVIDED FROM F-1 W/ ACTUAL MINIMUM OA (44%) 2. AVERAGE ZONE OCCUPANCY REPORTED USING REDUCTION OF UP TO MAXIMUM 50% AS ALLOWED PER OMSC SECTION 403.3 3. AVERAGE ZONE OCCUPANCY REPORTED BASED ON ARCHITECT/OWNER INPUT AND FIXED SEATING ALLOWANCES PER OMSC SECTION 403.3 4. OUTSIDE AIR REQUIREMENT MET BY TRANSFER AIR IN ACCORDANCE WITH SECTION 403.2.2.

	RTU-1 CODE REQUIRED OA VENTILATION (BASED ON 2014 OREGON MECHANICAL SPECIALTY CODE STANDARDS)										
ROOM(S)		OCCUPANCY		REMENTS - TABLE 403	.3 REMENTS	MIN EXHALIST				CRITICAL	REMARK
	SQ FT	ТҮРЕ	PEOPLE/1000 SF	Rp (CFM / PER)	Ra (CFM / SF)	(CFM / SF)		TYPE	EFFECT. (Ez)		
ROOM H103-104	480	CORRIDORS	0	0	0.06	-	1	CSCRH	0.8		
ROOM UOK-110C	1,145	RESTAURANT DINING ROOMS	70	7.5	0.18	-	6	CSCRH	0.8	Х	
ROOM116	180	SHIPPING/RECEIVING	0	0	0.12	-	0	CSCRH	0.8		
ROOM 117	690	SHIPPING/RECEIVING	0	0	0.12	-	0	CSCRH	0.8		
	2 405			7 5		0	7				├──── ┨
TOTALS	2,495			/.5		0	/				

RESULTS OF ASHRAE STANDARD 62.1 2007 ANALYSIS BASED ON DATA ABOVE						
VENTILATION SYSTEM EFFICIENCY (Ev) 92%						
OUTDOOR AIR INTAKE REQUIRED FOR SYSTEM (Vot)	419	CFM				
OUTDOOR AIR PER UNIT FLOOR AREA (Vot/As)	0.17	CFM / SF				
OUTDOOR AIR PER PERSON SERVED (Vot/Ps) 59.9 CFM / P						
OUTDOOR AIR AS A % OF DESIGN PRIMARY SUPPLY AIR	10%	04				

REMARKS (OA SOURCE)

1. REQUIRED DESIGN MINIMUM OA (19%) PROVIDED FROM RTU-1 W/ ACTUAL MINIMUM OA (65%) 2. AVERAGE ZONE OCCUPANCY REPORTED USING REDUCTION OF UP TO MAXIMUM 50% AS ALLOWED PER OMSC SECTION 403.3 3. AVERAGE ZONE OCCUPANCY REPORTED BASED ON ARCHITECT/OWNER INPUT AND FIXED SEATING ALLOWANCES PER OMSC SECTION 403.3 4. OUTSIDE AIR REQUIREMENT MET BY TRANSFER AIR IN ACCORDANCE WITH SECTION 403.2.2.

			RTU-1 ((BASED ON 2014 C	CODE REQUIR	ED OA VENT	ILATION	5)				
	OMSC CODE REQUIREMENTS - TABLE 403.3						ZONE	AIR	ZONE	CRITICAL	REMARK
ROOM(S)	FLOOR AREA	OCCUPANCY	OCCUPANT LOAD	OA REQUI	REMENTS	MIN. EXHAUST	IN. EXHAUST OCCUPANTS		DISTRIBUTION	SPACE	
SQ FT	ТҮРЕ	PEOPLE/1000 SF	Rp (CFM / PER)	Ra (CFM / SF)	(CFM / SF)		ТҮРЕ	EFFECT. (Ez)			
ROOM-H105	415	CORRIDORS	0	0	0.06	-	1	CSCRH	0.8		1
ROOM-H106	340	CORRIDORS	0	0	0.06	-	0	CSCRH	0.8		
ROOM-118A&B	1,170	LAUNDRY ROOMS, CENTRAL	10	5	0.12	-	6	CSCRH	0.8		
ROOM-119	430	COFFEE STATIONS	20	5	0.06	-	1	CSCRH	0.8		
ROOM-121	770	SHIPPING/RECEIVING	0	0	0.12	-	0	CSCRH	0.8		1
ROOM-H121A	285	SHIPPING/RECEIVING	0	0	0.12	-	0	CSCRH	0.8	Х	
											+
TOTALS	3,410			10		0	8				

RESULTS OF ASHRAE STANDARD 62.1 2007 ANALYSIS BASED ON DATA ABOVE						
VENTILATION SYSTEM EFFICIENCY (Ev)	87%					
OUTDOOR AIR INTAKE REQUIRED FOR SYSTEM (Vot)	429	CFM				
OUTDOOR AIR PER UNIT FLOOR AREA (Vot/As)	0.13	CFM / SF				
OUTDOOR AIR PER PERSON SERVED (Vot/Ps)	53.6	CFM / P				
OUTDOOR AIR AS A % OF DESIGN PRIMARY SUPPLY AIR	14%	OA				

REMARKS (OA SOURCE)

1. REQUIRED DESIGN MINIMUM OA (14%) PROVIDED FROM RTU-2 W/ ACTUAL MINIMUM OA (64%) 2. AVERAGE ZONE OCCUPANCY REPORTED USING REDUCTION OF UP TO MAXIMUM 50% AS ALLOWED PER OMSC SECTION 403.3 3. AVERAGE ZONE OCCUPANCY REPORTED BASED ON ARCHITECT/OWNER INPUT AND FIXED SEATING ALLOWANCES PER OMSC SECTION 403.3 4. OUTSIDE AIR REQUIREMENT MET BY TRANSFER AIR IN ACCORDANCE WITH SECTION 403.2.2.

			RTU-3 ((BASED ON 2014 C	CODE REQUIR	ED OA VENT	ILATION	S)				
ROOM(S) FLOOR AREA OCCUPANCY OCCUPANT LOAD OA REQUIREMENTS				MIN. FXHAUST				CRITICAL	REMARK		
	SQ FT	ТҮРЕ	PEOPLE/1000 SF	Rp (CFM / PER)	Ra (CFM / SF)	(CFM / SF)		ТҮРЕ	EFFECT. (Ez)		
ROOM-110B	940	RESTAURANT DINING ROOMS	70	7.5	0.18	-	8	CSCRH	0.8		
ROOM-111	220	OFFICE SPACE	5	5	0.06	-	8	CSCRH	0.8	X	
TOTALS	1,160			12.5		0	16				

RESULTS OF ASHRAE STANDARD 62.1 2007 ANALYSIS BASED ON DATA ABOVE							
VENTILATION SYSTEM EFFICIENCY (Ev)	92%						
OUTDOOR AIR INTAKE REQUIRED FOR SYSTEM (Vot)	307	CFM					
OUTDOOR AIR PER UNIT FLOOR AREA (Vot/As)	0.26	CFM / SF					
OUTDOOR AIR PER PERSON SERVED (Vot/Ps)	19.2	CFM / P					
OUTDOOR AIR AS A % OF DESIGN PRIMARY SUPPLY AIR	15%	OA					

REMARKS (OA SOURCE)

1. REQUIRED DESIGN MINIMUM OA (15%) PROVIDED FROM RTU-3 THRU 7 W/ ACTUAL MINIMUM OA (67%)

2. AVERAGE ZONE OCCUPANCY REPORTED USING REDUCTION OF UP TO MAXIMUM 50% AS ALLOWED PER OMSC SECTION 403.3 3. AVERAGE ZONE OCCUPANCY REPORTED BASED ON ARCHITECT/OWNER INPUT AND FIXED SEATING ALLOWANCES PER OMSC SECTION 403.3

4. OUTSIDE AIR REQUIREMENT MET BY TRANSFER AIR IN ACCORDANCE WITH SECTION 403.2.2.

			RTU-4 C	CODE REQUIR							
ROOM(S)	FLOOR AREA SQ FT	OCCUPANCY	MIN. EXHAUST	ZONE OCCUPANTS	AIR DISTRIBUTION TYPE	ZONE DISTRIBUTION EFFECT. (Ez)	CRITICAL SPACE	REMARK			
ROOM-110A	1,655	RESTAURANT DINING ROOMS	70	7.5	0.18	- · ·	8	CSCRH	0.8	Х	
TOTALS	1,655			15		0	8				

VENTILATION SYSTEM EFFICIENCY OUTDOOR AIR INTAKE REQUIRED F OUTDOOR AIR PER UNIT FLOOR ARI OUTDOOR AIR PER PERSON SERVE OUTDOOR AIR AS A % OF DESIGN P

REMARKS (OA SOURCE)

1. REQUIRED DESIGN MINIMUM OA (11%) PROVIDED FROM RTU-1 THRU 7 W/ ACTUAL MINIMUM OA (64%) 2. AVERAGE ZONE OCCUPANCY REPORTED USING REDUCTION OF UP TO MAXIMUM 50% AS ALLOWED PER OMSC SECTION 403.3

	RTU-5 CODE REQUIRED OA VENTILATION (BASED ON 2014 OREGON MECHANICAL SPECIALTY CODE STANDARDS)										
ROOM(S)		OMSC CODE REQUIREMENTS - TABLE 403.3						AIR		CRITICAL	REMARK
	SQ FT	TYPE	PEOPLE/1000 SF	Rp (CFM / PER)	Remeinins Ra (CFM / SF)	(CFM / SF)	OCCUPANTS	TYPE	EFFECT. (Ez)	JFACE	
ROOM-109	680	OFFICE SPACE	5	5	0.06	-	6	CSCRH	0.8		
ROOM UOK-109B	100	OFFICE SPACE	5	5	0.06	-	1	CSCRH	0.8		
ROOM-109C	100	OFFICE SPACE	5	5	0.06	-	1	CSCRH	0.8		
ROOM-109D	100	OFFICE SPACE	5	5	0.06	-	1	CSCRH	0.8		X
TOTALS	980			20		0	9				

RESULTS OF ASHRAE STANDARD 62.1 2007 ANALYSIS BASED ON DATA ABOVE							
VENTILATION SYSTEM EFFICIENCY (Ev)	92%						
OUTDOOR AIR INTAKE REQUIRED FOR SYSTEM (Vot)	113	CFM					
OUTDOOR AIR PER UNIT FLOOR AREA (Vot/As)	0.12	CFM / SF					
OUTDOOR AIR PER PERSON SERVED (Vot/Ps)	12.6	CFM / P					
OUTDOOR AIR AS A % OF DESIGN PRIMARY SUPPLY AIR	10%	OA					

REMARKS (OA SOURCE)

	RTU-6 CODE REQUIRED OA VENTILATION										
	(BASED ON 2014 OREGON MECHANICAL SPECIALTY CODE STANDARDS)										
			OMSC CODE REQUIR	REMENTS - TABLE 403	.3		ZONE	AIR	ZONE	CRITICAL	REMARK
ROOM(S)	FLOOR AREA	OCCUPANCY	OCCUPANT LOAD	OA REQUI	REMENTS	MIN. EXHAUST	OCCUPANTS	DISTRIBUTION	DISTRIBUTION	SPACE	
	SQ FT	ТҮРЕ	PEOPLE/1000 SF	Rp (CFM / PER)	Ra (CFM / SF)	(CFM / SF)		TYPE	EFFECT. (Ez)		
ROOM-109A	380	CONFERENCE/MEETING	50	5	0.06	-	11	CSCRH	0.8		Х
ROOM 109B	235	CORRIDORS	0	0	0.06	-	1	CSCRH	0.8		
ROOM #	0	OFFICE SPACE	5	5	0.06	-	0	CSCRH	0.8		
TOTALS	615			10		0	12				

RESULTS OF ASHRAE STA

VENTILATION SYSTEM EFFICIENCY OUTDOOR AIR INTAKE REQUIRED F

OUTDOOR AIR PER UNIT FLOOR ARI

OUTDOOR AIR PER PERSON SERVE OUTDOOR AIR AS A % OF DESIGN P

REMARKS (OA SOURCE)

3. AVERAGE ZONE OCCUPANCY REPORTED BASED ON ARCHITECT/OWNER INPUT AND FIXED SEATING ALLOWANCES PER OMSC SECTION 403.3

			(BASED ON 2014 C	REGON MECHANI	CAL SPECIALTY C	ODE STANDARDS	S)				
		OMSC CODE REQUIREMENTS - TABLE 403.3						AIR	ZONE	CRITICAL	REMARK
ROOM(S)	FLOOR AREA	OCCUPANCY	OCCUPANT LOAD	OA REQUI	REMENTS	MIN. EXHAUST	OCCUPANTS	DISTRIBUTION	DISTRIBUTION	SPACE	
	SQ FT	ТҮРЕ	PEOPLE/1000 SF	Rp (CFM / PER)	Ra (CFM / SF)	(CFM / SF)		TYPE	EFFECT. (Ez)		
ROOM UOK-101A	125	OFFICE SPACE	5	5	0.06	-	1	CSCRH	0.8		
ROOM UOK-102	310	STORAGE ROOMS	0	0	0.12	-	5	CSCRH	0.8	X	
ROOM UOK-H101-102	405	CORRIDORS	0	0	0.06	-	0	CSCRH	0.8		
ROOM UOK-106	305	BREAK ROOMS	25	5	0.06	-	6	CSCRH	0.8		
TOTALS	1,145			10		0	12				

RESULTS OF ASHRAE STANDARD 62.1 2007 ANALYSIS BASED ON DATA ABOVE

VENTILATION SYSTEM EFFICIENC OUTDOOR AIR INTAKE REQUIRED OUTDOOR AIR PER UNIT FLOOR AF OUTDOOR AIR PER PERSON SERV OUTDOOR AIR AS A % OF DESIGN

REMARKS (OA SOURCE)

1. REQUIRED DESIGN MINIMUM OA (12%) PROVIDED FROM RTU-7 W/ ACTUAL MINIMUM OA (22%) 2. AVERAGE ZONE OCCUPANCY REPORTED USING REDUCTION OF UP TO MAXIMUM 50% AS ALLOWED PER OMSC SECTION 403.3

RESULTS OF ASHRAE STANDARD 62.1 2007 ANALYSIS BASED ON DATA ABOVE

PRIMARY SUPPLY AIR	11%	OA
ED (Vot/Ps)	45.9	CFM / P
EA (Vot/As)	0.22	CFM / SF
OR SYSTEM (Vot)	368	CFM
(Ev)	97%	

3. AVERAGE ZONE OCCUPANCY REPORTED BASED ON ARCHITECT/OWNER INPUT AND FIXED SEATING ALLOWANCES PER OMSC SECTION 403.3

4. OUTSIDE AIR REQUIREMENT MET BY TRANSFER AIR IN ACCORDANCE WITH SECTION 403.2.2.

1. REQUIRED DESIGN MINIMUM OA (10%) PROVIDED FROM RTU-5 W/ ACTUAL MINIMUM OA (17%)

2. AVERAGE ZONE OCCUPANCY REPORTED USING REDUCTION OF UP TO MAXIMUM 50% AS ALLOWED PER OMSC SECTION 403.3 3. AVERAGE ZONE OCCUPANCY REPORTED BASED ON ARCHITECT/OWNER INPUT AND FIXED SEATING ALLOWANCES PER OMSC SECTION 403.3

4. OUTSIDE AIR REQUIREMENT MET BY TRANSFER AIR IN ACCORDANCE WITH SECTION 403.2.2.

NDARD 62.1 2007 ANALYSIS BASED ON DATA ABOVE						
(Ev)	97%					
OR SYSTEM (Vot)	95	CFM				
EA (Vot/As)	0.15	CFM / SF				
ED (Vot/Ps)	7.9	CFM / P				
PRIMARY SUPPLY AIR	11%	OA				

1. REQUIRED DESIGN MINIMUM OA (11%) PROVIDED FROM RTU-6 W/ ACTUAL MINIMUM OA (23%)

2. AVERAGE ZONE OCCUPANCY REPORTED USING REDUCTION OF UP TO MAXIMUM 50% AS ALLOWED PER OMSC SECTION 403.3

4. OUTSIDE AIR REQUIREMENT MET BY TRANSFER AIR IN ACCORDANCE WITH SECTION 403.2.2.

RTU-7 CODE REQUIRED OA VENTILATION

Y (Ev)	92%	
FOR SYSTEM (Vot)	133	CFM
REA (Vot/As)	0.12	CFM / SF
/ED (Vot/Ps)	11.1	CFM / P
PRIMARY SUPPLY AIR	12%	OA

3. AVERAGE ZONE OCCUPANCY REPORTED BASED ON ARCHITECT/OWNER INPUT AND FIXED SEATING ALLOWANCES PER OMSC SECTION 403.3

4. OUTSIDE AIR REQUIREMENT MET BY TRANSFER AIR IN ACCORDANCE WITH SECTION 403.2.2.

CON	Const Const	ruction
		umbia Street JR 97403
erwood Architects _{pc}	P 541 342.8077 www.robertsonsherwood.com F 541 345.4302	Kitchen & Woodshop Eugene, C
Robertson She	132 East Broadway, Suite 540 Eugene, Oregon 97401	UO Housing Central]
MALLIANT	ALLIANT SYSTEMS, LLC 1600 NW 167th PL, STE 330 BEAVERTON, OR 97006	PHONE: 503/619-4000 FAX: 503/230-9238 WWWW.ALLIANT-SYSTEMS.COM CCB# 153420
awn By JH MECHANICAL	tecked NS SCHEDULES	7 NOV 2014 Jject 1407

MECHANICAL PIPING SCHEDULE									
SERVICE	LOCATION	SIZE	PIPE	PIPE MATL STANDARD	FITTINGS	JOINTS	WORKING PRESSURE	TEST PRESSURE	NOTES
		1/2" - 2"	BLACK STEEL SCHEDULE 40	ASTM A106	300 LB MALLEABLE IRON	THREADED	80 PSIG	150 PSIG	
MEDIUM PRESSURE STEAM SUPPLY	ABOVE GRADE	2-1/2" - 6"	BLACK STEEL SCHEDULE 40	ASTM A106	STANDARD WIEGHT STEEL	WELDED	80 PSIG	150 PSIG	
	ABOVE GRADE	1/2" - 2"	BLACK STEEL SCHEDULE 80	ASTM A106	300 LB MALLEABLE IRON	THREADED	80 PSIG	150 PSIG	
MEDIUM PRESSURE STEAM CONDENSATE		2-1/2" - 6"	BLACK STEEL SCHEDULE 80	ASTM A106	EXTRA STRONG STEEL	WELDED	80 PSIG	150 PSIG	
	ABOVE GRADE —	1/2" - 2"	BLACK STEEL SCHEDULE 40	ASTM A53	BLACK STEEL SCHEDULE 40	THREADED	2 PSIG	60 PSIG	EXPOSED ROOF PIPING SHALL BE PAINTED
NATURAL GAS		2-1/2" - 4"	BLACK STEEL SCHEDULE 40	ASTM A53	BLACK STEEL SCHEDULE 40	WELDED	2 PSIG	60 PSIG	EXPOSED ROOF PIPING SHALL BE PAINTED
	BELOW GRADE	1/2" - 2"	CSST PRE-SLEEVED	ANSI LC1	BRASS AUTOFLARE	THREADED	2 PSIG	60 PSIG	TRACPIPE PS-II

MECHANICAL VALVE SCHEDULE									
SERVICE	SIZE	PIPE	FUNCTION	ТҮРЕ	CLASS	CONN	MFG	MODEL NO.	
	1/2 - 2"	BRONZE	STEAM ISOLATION	RISING STEM BRONZE GATE VALVE	150	THREADED	APOLLO	107T	
	2-1/2 - 6"	STEEL	STEAM ISOLATION	RISING STEM BRONZE GATE VALVE	150	FLANGED	APOLLO	610F	
MEDIUM PRESSURE STEAM SUPPLY MEDIUM PRESSURE STEAM CONDENSATE	1/2 - 2"	BRONZE	CHECK	SWING CHECK VALVE	150	THREADED	APOLLO	164T	
	2-1/2 - 6"	STEEL	CHECK	SWING CHECK VALVE	150	FLANGED	APOLLO	910F	
	1/2 - 2"	BRONZE	STRAINER	Y-STRAINER WITH 304SS 40 MESH SCREEN	125	THREADED	APOLLO	SERIES 59	
NATURAL GAS	1/2 - 2"	STEEL	SHUT OFF	BALL VALVE	125	THREADED	APOLLO	50GB SERIES	
ACCEPTABLE ALTERNATE M	ANUFACTURER	S: HAMMOND,	MILWAUKEE						

MECHANICAL INSULATION SCHEDULE										
INSULATION THICKNESS TABLE:										
SYSTEM	FLUID OPER. TEMP. F	INSULATION TYPE	INSULATION CONDUCTIVITY (BTU/IN)/ (HR-FT2-F)	1-1/2" AND LESS	2" AND ABOVE					
STEAM SUPPLY	324	FIBERGLASS W/ ASJ	0.27	1-1/2"	3"					
STEAM CONDENSATE RETURN	200	FIBERGLASS W/ ASJ	0.27	1-1/2"	3"					

MECHANICAL PIPE HANGER SCHEDULE										
HORIZONTAL SPACING:	STEEL PIPE - 12 F	ΓΜΑΧ								
	PIPE MATERIAL	PIPE SIZE	GALV. ROD	MFG.	FIG.	INSUL SHIELD				
	SCHEDULE 40 STEEL	1/2" - 2"	3/8"	ANVIL	-	-				
	SCHEDULE 40 STEEL	2-1/2" - 4"	3/8"	ANVIL	-	-				
HANGER SCHEDULE:	SCHEDULE 80 STEEL	1/2" - 2"	3/8"	ANVIL	-	-				
	SCHEDULE 80 STEEL	2-1/2" - 4"	1/2"	ANVIL	-	-				

MECHANICAL P	IPING IDEN	ITIFICATION AND F	PIPE LABELING SC	HEDULE
PIPE LABELLING				
SERVICE	SYMBOL	MARKER	MARKER COLOR	TEXT COLOR
MEDIUM PRESSURE STEAM SUPPLY	MPS	80# STEAM	GREEN	WHITE
PUMPED CONDENSATE RETURN	PCR	STEAM CONDENSATE RETURN	GREEN	WHITE
NATURAL GAS	GAS		YELLOW	BLACK
NOTES: 1. INSTALL LABEL ON PIPING MA	INS EVERY 20 FT	AND AT ALL EQUIPMENT CO	NNECTIONS	
2. WRAP PIPING LABEL END WITH	I FLOW ARROW	TAPE AROUND PIPE.		
3. LABEL PIPING WITHIN 3 FT OF	EACH SHUT OFF	VALVE, WALL/FLOOR PENET	RATION, BRANCH TAKE OFF.	
EQUIPMENT IDENTIFICATION:				
1. BLACK PLASTIC NAME PLATE V	VITH WHITE ENG	RAVED LETTERS.		
2. MINIMUM 1/2" HIGH LETTERS W	/ITH EQUIPMENT	TAG DESIGNATION.		
3. INSTALL TO EQUIPMENT WITH	ADHESIVE, RIVE	TS, CHAIN, OR QUICK TIES.		
VALVE TAGGING:				
1. TAG CONTROL VALVES AND BU	JILDING MAIN SH	IUTOFF VALVES.		
2. 1-1/2" DIAMETER BRASS VALVE	TAG WITH STAM	IPED LETTERS ON CHAIN.		

HVAC DAMPER SCHEDULE									
DRAWING TAG	CONFIGURATION	DESCRIPTION	GREENHECK MODEL NUMBER	ACTUATOR	APPLICATION	COMMENTS			
	RECTANGULAR		VCD-33	MOTORIZED (BY CONTROL CONTR.)		1			
MD	ROUND		VCDR-53	MOTORIZED (BY CONTROL CONTR.)	2-POSITION OA CONTROL	2			
BDD	RECTANGULAR	GRAVITY BACKDRAFT DAMPER	WD-300	GRAVITY (INTEGRAL)	PRESSURE RELIEF	3			
	RECTANGULAR		MBD-10	MANUAL QUADRANT / LOCKING INDEX		4			
٧D	ROUND	MANUAL VOLUME CONTROL DAMPER	MBDR-50	MANUAL QUADRANT / LOCKING INDEX	MANUAL BALANCING	5			
FSD	RECTANGULAR	1-1/2 HOUR VERTICAL COMBINATION FIRE/SMOKE DAMPER	FSD-311	MOTORIZED (INTEGRAL)	FIRE/SMOKE SEPARATION	6			
DTES:									

2	ROUND SINGLE BLADE DAMPER: LOW LEAKAG
3	RECTANGULAR GRAVITY BACKDRAFT DAMPER
4	RECTANGULAR MANUAL BALANCING DAMPER:
5	ROUND MANUAL BALANCING DAMPER: STEEL (
6	RECTANGULAR COMBINATION FIRE/SMOKE DA

			LO	UVER	SCHED	ULE					
UNIT				DIM	ENSION (IN	ICH)	FREE	AIRFLOW	AIRLFOW		
NO.	SERVICE:	MFG, MODEL:	CFM:	Н	L	W	AREA	VELOCITY	STATIC LOSS	BDD:	NOTES:
L-1	WOODSHOP 101	GREENHECK ESD-635	700	40	18	6	2.00 SF	500	.05" WC	Y	1,2,3,4
L-2	BOILER RM 127	GREENHECK ESD-635	-	48	30	6	5.67 SF	500	.01" WC	NO	1,2,3
L-3	ELECTRICAL RM 126	GREENHECK ESD-635	2,500	40	30	6	4.40 SF	570	.01" WC	NO	1,2,3,4,5
ACC ALT MFO	G: GREENHECK, PENN, ARRO	W, METALAIRE, OR APPVD EQU	JAL			1		1			I
1. PROVIDE 2. COORDIN	WITH BIRDSCREEN ATE AND ORDER STANDARD (COLOR PER ARCHITECT									

I. PROVIDE W/ MOTORIZED DAMPER INTERLOCKED W/ HVAC EQUIPMENT SERVED

3. STAMP CONTROL VALVE NUMBER AND/OR PIPING SYSTEM SERVICE SYMBOL.

GE, STEEL CONSTRUCTION, SINGLE BLADE, EPDM BLADE SEAL, MOTORIZED OR MANUAL QUADRANT OPERATOR

R: LOW LEAKAGE, STEEL FRAME / ALUM BLADE CONSTRUCTION, START OPEN AT 0.05" WG PD R: STEEL CONSTRUCTION, SINGLE BLADE, PROVIDE W/ LOCKING INDEXED QUADRANT OPERATOR

CONSTRUCTION, SINGLE BLADE, PROVIDE W/ LOCKING INDEXED QUADRANT OPERATOR AMPER 1-1/2 HOUR RATED: STEEL CONSTRUCTION, UL555 RATED, LEAKAGE CLASS 1, AIRFOIL BLADE

. PROVIDE W/ INTERIOR FILTER FRAME TO HOLD 2" THICK MERV-8 FILTER





SYMBOL SIZE CFM \square

SIZE
CFM
SIZE
CFM
SIZE
℃FM

R2SIZE CFM
R3 <u>SIZE</u> CFM
E1 <u>SIZE</u> CFM
E2SIZE CFM

		DUCTWORK SO	CHEDULE			
SERVICE / USAGE	LOCATION	MAT'L	WORKING PRESURE (IN. WC)	SMACNA PRESSURE CLASS (IN. WC)	SMACNA SEAL CLASS	NOTES
DUTDOOR AIR INTAKE	BETWEEN AMBIENT AND AHU	GALV. STEEL	LOW PRESSURE	1	В	1,3
PRESSURE SUPPLY AIR	FROM ROOFTOP & MAKEUP AIR UNITS TO GRD & HOODS	GALV. STEEL	LOW PRESSURE	1	В	1,3
FLEXIBLE DUCT	CONNECTIONS TO GRD'S	PREINSUL. FLEX	LOW PRESSURE	RATED +6", -1"	NA	MAX LENGTH 8 FT, THERMAFLEX "GKM" OR EQUAL
-PRESSURE RETURN AIR	FROM GRD'S TO AHU	GALV. STEEL	LOW PRESSURE	1	В	1,3
TRANSFER AIR	FROM GRD TO GRD	GALV. STEEL	LOW PRESSURE	1	В	1,3
GENERAL EXHAUST	FROM GRD TO FAN AND AMBIENT	GALV. STEEL	LOW PRESSURE	1	В	1,3
CHEN HOOD EXHAUST FROM HOOD TO FAN		FACTORY BUILT, ZERO CLEARANCE, DOUBLE-WALL GREASE DUCT W/ INTEGRAL FIRE RATED CHASE	1	2	N/A	3, AMPCO Z - CLEAR W/ MECHANICAL JOINTS SS EXTERIOR, UL 1978 & UL 2221 RATING & 3 WALL THICKNESS
VET VAPOR EXHAUST	FROM HOOD TO EXHAUST FAN	ALUM. OR TYPE 304 SSTL, # 2 FINISH	1	2	A	1,3 SEAL JOINTS WATER TIGHT WITH SILICONE CAULK
DSHOP DUST COLLECTION	FROM WOODWORKING EQUIP TO DUST COLLECTOR	MIN. 22 GAUGE GALVANIZED SPIRAL DUCT	1	2	В	1,3, PROVIDE W/ STAMPED ELBOWS & FITTINGS W/ WELDED SEAMS
VITY TYPE BOILER VENT	FROM BOILER VENT CONN TO AMBIENT	MANUF. DOUBLE-WALL FLUE: SS LINER, ALUM OUTER	N/A	N/A	N/A	3, FLUE PROVIDED W/ BOILER PKG

1. SHEET METAL GAGES AND FITTINGS PER SMACNA AND ALLIANT DUCT CONSTRUCTION STANDARDS 2. SEAL ALL LONGITUDINAL AND TRANSVERSE DUCT JOINTS WITH WELDS, GSKETS, MASTICS, TAPES, OR OTHER APPROVED SYSTEMS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS

3. INSTALL PER MANUFACTURER GUIDELINES AND INSTRUCTIONS

DUCTWORK INSULATION SCHEDULE														
SERVICE:	DUCT LOCATION/TYPE:	FIBERGLASS INSULATION TYPE:	THICKNESS:	NOTES:										
ROOFTOP EQUIPMENT SUPPLY MAIN	MAIN SUPPLY DUCT RISER OR DROP FROM RTU	ACOUSTIC DUCT LINER	1"	1,5,6										
SUPPLY AIR DUCT	LOW PRESSURE SUPPLY AIR BETWEEN ROOFTOP UNIT MAIN/DROP AND GRDs	DUCT WRAP WITH MYLAR VAPOR BARRIER	1-1/2"	2,5,6										
KITCHEN HOOD MAKEUP AIR	LOW PRESSURE SUPPLY AIR BETWEEN MAKEUP AIR UNIT AND HOODS	DUCT WRAP WITH MYLAR VAPOR BARRIER	1-1/2"	2,5,6										
ROOFTOP EQUIPMENT RETURN MAIN	MAIN RETURN DUCT RISER OR DROP FROM RTU	ACOUSTIC DUCT LINER	1"	7										
RETURN AIR	FROM GRD TO RTU MAIN/DROP	N/A	N/A	8										
RETURN AIR	RA GRILLE BOOT	SHOP-BUILT ACOUSTIC DUCT DUCT BOARD BOOT OR CAN	1"	4										
TRANSFER AIR	TRANSFER GRILLE BOOT	SHOP-BUILT ACOUSTIC DUCT DUCT BOARD BOOT OR CAN	1"	4										
EXHAUST AIR	FROM GRD TO FAN OR TERMINATION	N/A	N/A	8										
TYPE-1 GREASE EXHAUST	FROM KITCHEN HOOD TO FAN	NA	NA	9										

INSULATION SPECIFICATION: KNAUF, CERTAINTEED, OWENSCORNING, OR APPROVED EQUAL.

1. FIBERGLASS ACOUSTIC DUCT LINER - 1.5 PCF - 1"THICKNESS, R=4.0, GLASS FIBERS SHALL HAVE AIRSTREAM COATING TO PREVENT EROSION. 2. FIBERGLASS DUCT WRAP INSULATION - 0.6 PCF - 1-1/2" THICKNESS, R=5.6-8.3, EXTERIOR FOIL SCRIM REINFORCED VAPOR BARRIER COVERING

3. FIBERGLASS RIGID BOARD INSULATION - 2" THICKNESS, R=8.0-9.0, EXTERIOR FOIL SCRIM REINFORCED VAPOR BARRIER COVERING

4. FIBERGLASS DUCT BOARD - 1" THICKNESS, R=4.0, EXTERIOR FOIL SCRIM REINFORCED VAPOR BARRIER COVERING, AIRSTREAM FIBERGLASS COATING 5. ALL INSULATION SHALL BE INSTALLED PER SMACNA GUIDELINES, AND MFG. INSTALLATION INSTRUCTIONS 6. DUCTWORK INSULATION SHALL BE INSTALLED AS INDICATED ON DRAWINGS, AND AS REQUIRED PER CODE.

7. INSULATION NOT REQUIRED BY ENERGY CODE, PROVIDED FOR ACOUSTIC BENEFIT

B. INSULATION NOT REQUIRED BY ENERGY CODE 9. FACTORY FABRICATED TYPE-1 GREASE EXHAUST SYSTEM INCLUDES INTEGRAL INSULATION

	GRILLE REGISTER & DIFFUSER SCHEDULE SYMBOL DEVICE TYPE MANUFACTURER BORDER TYPE SIZE NOTES														
SYMBOL	DEVICE TYPE AND SERVICE	MANUFACTURER & MODEL NUMBER	BORDER TYPE	SIZE	NOTES										
SIZE	SUPPLY - MODULAR CORE LAY-IN CEILING DIFFUSER	PRICE SMCD	STYLE 36 (LAY-IN)	AS NOTED	SEISMIC RESTRAINT REQUIRED TO CEILING GRID										
Ν	RETURN - EGGCRATE LAY-IN CEILING GRILLE	PRICE 80	TYPE-F (W/FRAME)	24 x 12	SEISMIC RESTRAINT REQUIRED TO CEILING GRID										
	RETURN - EGGCRATE LAY-IN CEILING GRILLE	PRICE 80	TYPE-F (W/FRAME)	24 x 24	SEISMIC RESTRAINT REQUIRED TO CEILING GRID										
ST SIZE CFM	SUPPLY - MODULAR CORE SURFACE MOUNT DIFFUSER	PRICE SMCD	STYLE 1 (SURFACE MOUNT)	AS NOTED	24/24 W/ NECK DIA. AS INDICATED. ORDER SQ TO RND TRANS OR DIFFUSER CAN										
S2SIZE CFM	SIZE CFM SUPPLY - SURFACE MOUNT GRILLE PRICE 500 TYPE-N (SURFACE MOUNT) AS NOTED SIZE SIZE SUPPLY - SIDEWALL DUCT MOUNT GRILLE (RECT TAR) PRICE 500 TYPE-F (DIRECT MOUNT) AS NOTED														
Size Supply - Sidewall DUCT MOUNT GRILLE (RECT. TAP) PRICE 500 TYPE-F (DIRECT MOUNT) AS NOTED															
S4 <u>SIZE</u> CFM	SUPPLY - ROUND CEILING DIFFUSER	PRICE RCDA	N/A	AS NOTED											
	RETURN - SURFACE MOUNT RETURN GRILLE	PRICE 500	TYPE-N (SURFACE MOUNT)	AS NOTED											
R2 <u>SIZE</u> CFM	RETURN - PERFORATED FACE RETURN GRILLE	PRICE PDDR	TYPE-3 (LAY-IN)	AS NOTED	SEISMIC RESTRAINT REQUIRED TO CEILING GRID										
R3 <u>SIZE</u> CFM	RETURN - HEAVY-DUTY BAR GRILLE	PRICE 90	TYPE-F (SURFACE MOUNT)	AS NOTED											
	RETURN - EGGCRATE LAY-IN CEILING GRILLE	PRICE 80	TYPE-F (W/FRAME)	24 x 24	SEISMIC RESTRAINT REQUIRED TO CEILING GRID										
R5 <u>SIZE</u> CFM	RETURN - EGGCRATE LAY-IN CEILING GRILLE	PRICE 80	TYPE-F (W/FRAME)	24 x 12	SEISMIC RESTRAINT REQUIRED TO CEILING GRID										
E1 <u>SIZE</u> CFM	EXHAUST - (STEEL) SURFACE MOUNT EXHAUST GRILLE	PRICE 530	TYPE-F (SURFACE MOUNT)	AS NOTED											
E2SIZE CFM	EXHAUST - (ALUMINUM) SURFACE MOUNT EXHAUST GRILLE	PRICE 630	TYPE-F (SURFACE MOUNT)	AS NOTED											
E3SIZE CFM	EXHAUST - SURFACE MOUNT EXHAUST GRILLE	PRICE 80	TYPE-F (SURFACE MOUNT)	AS NOTED											
	TRANSFER - SURFACE MOUNT TRANSFER GRILLE	PRICE 530	TYPE-F (SURFACE MOUNT)	AS NOTED											





											PACKA	AGED	ROOFT
	UNIT NO.		AREA SERV	ED	MFG & MODEL 1	NO. TO	OM NS	NET COC	DLING, (MBH)				
	RTU-1	COOK CHILL	PROCESSIGN, DR. WAYS - 109C, 116	Y STORAGES, & HALL 5, & H104	DAIKIN/ DPS00	7A 7	.5	85	82	88	67	95	53.0
	TU-2	DISH WASH, S	TORAGES & POT P	AN WASH - 117A, & 117B	DAIKIN/ DPS01	0A 10).0	118.8	116	88	67	95	53.4
	RTU-3 RTU-4 RTU-5	OFFICES	COOKING - 1 & HALLWAY - 108.	109B, & 110 09A 108B, 108B, & 108C	DAIKIN/ DPS00 DAIKIN/ DPS01 DAIKIN/ DPS00	5A 5 0A 10 3A 3	.0).0 0	60.1 123 34 1	60 123 33	89 88 #RFF!	67 67 67	95 95 95	55.6 55.1 54 1
	TU-6	TAST OCKER RM, B	ING RM/ CONFERE	NCE RM - 108A AY & TOILETS - 102, 105,	DAIKIN/ DPS00	3A 3	.0	32	26	80	67	95	51.0
<text></text>	ES: NGLE 2000 2", 30 FACT NON DOW STAN COVIDE ROVID JILDIN ECHAN	POINT POWEF MIZER UNIT - F OA ECONOM WEFFICIENT FORY INSTALL FUSED DISCC NFLOW CONF NDARD 12" HIG UNIT W/ 1009 E W/ MANUFA G AUTOMATIC NICAL CONTRA	R CONNECTION BY FURNISH COMPLET IZER (DRY-BULB) V (MERV-7) THROW-, ED (EBTRON) OUT ONNECT SWITCH IGURATION 6H MANUFACTUREI 6 POWER EXHAUS CTURER'S INTEGR ON SYSTEM BASED ACTOR TO FURNIS ACTOR TO INTERL	ELECTRICAL CONTRAC E WITH THE FOLLOWING W BAROMETRIC RELIEF AWAY FILTERS AND FILT SIDE AIRFLOW MONITOF R'S CURB T. AL OPERATING CONTRO CONTROLS - COORDIN/ H AND INSTALL RETURN OCK WITH UNIT CONTRO	TOR (CONFIRM VOL G FACTORY INSTALI (UNLESS NOTED TO ER FRAME RING STATION AND O DLS AND BACNET IN ATE CONTROL REQU AIR DUCT MOUNTE DLS TO SHUTDOWN	TAGE PRIO LED OPTIOI HAVE POV CONTROLS TERFACE T UIREMENTS ED SMOKE I UNIT ON A	TO INTE S AND DETEC LARM	ORDERIN XHAUST) ERLOCK ACCESS(TOR	UNIT START/S ORIES	STOP, ALARM	I, AND MONITO	ORING FU	
	IF BU	ILDING DOES I	RACTOR TO INTER	LOCK UNIT SMOKE DETE AL FIRE ALRM SYSTEM, N IDE POWER TO SMOKE I	MECHANICAL TO PR	JIRED	DKE DE	ETECTOR	REQUIRED R W/ AUDIO-VI	SUAL ALARM			
	UNIT	ever				SUF				HEATING			
<text></text>	MAU-1	TYPE I KI	TCHEN HOODS	GREENHECK/ DGX-12	5-H35-II 17200) 6947	2	460/	3 20 2	21 70	MOD GAS	6 989.4	910.2
	Rovid Rovid Rovid Tchei Apaci Tchei Rovie	E MANUF 13" (E INVERTOR E E W/ MODULA N VENDOR TO TY CONTROL. N HOOD CONT DE UNIT W/ EV/ NG CONTRAC	CURB, INTAKE HOC DUTY RATED FAN M TING CONTROLS T PROVIDE TYPE-1 I MECH CONTRACT ROLS VENDOR TO APORATIVE COOLI TOR TO PROVIDE 1	DD, MOTORIZED DAMPER MOTOR O MAINTAIN DISCHARGE HOOD CONTROL PANEL OR TO PERFORM CONTR PROVIDE REMOTE VAR NG SECTION W/ INCLUE /2" NON-POTABLE WATE	R E TEMPERATURE AC W/ ASSOCIATED GF ROLS INTERLOCK W IABLE FREQUENCY DING UNIT CONTROL ER AND 2' DRAIN TO	CROSS RAN REASE HOO /IRING - CO DRIVE FOR _S, CELDEC EVAPORAT	ige of DS TC Ordin R Mau R Mee Tive C	F FAN MC) PROVID IATE REG SUPPLY DIA, LOUV OOLING S	DULATION E FAN & BURI QUIREMENTS FAN MODULA /ERED INTAK SECTION.	NER START/S .TION E, AND 2" ALL	STOP AND MO JMINUM MESH		J
Δ Δητη επιγρητή Δητο Αυτορίη 1980, ΤΟ ΤΗ ΤΗ ΔΟΥ ΠΑΤΟ ΠΟΤΗ ΤΗ ΤΗ ΤΗ ΔΟΥ ΠΑΤΟ ΤΗ ΤΗ ΤΗ ΤΗ ΤΗ ΔΟΥ ΠΑΤΟ ΤΗ	JNIT				E	EXHAUS	ST F	AN SO	CHEDUL	Е	IRFLOW		
στο στo σto σto< σto<<	O. -1A		AREA SERV (TYPE I) GREASE (TYPE I) GREASE	ED HOOD	MFG & MOD GREENHECK CUE	EL NO. 3E-360HP-75	5	ROOF U	TYPE PBLAST CENT PBLAST CENT	MAX CF TRIF 10,600	FM MIN CFM 0 5,300 0 5,300	ESP + 2.0	HP/(W) VC 7.5 4
· ·	-2 -3	(TYPE II)	VAPOR HOOD, DIS	HWASHING AREA	GREENHECK/S GREENHECK/S	WD-13-VG G-098-A	5	ROOF C	ENTRIF UTIL	ITY 1450 ITY 575	1450 NA	1 0.75	7.5 4 3/4 1 1/4 1
Image: space of provide provide provide provide space of provide provid	;	М Е	ECHANICAL ROOM	EXHAUST	GREENHECK/ GREENHECK/	G-085-D G-163-B		ROOF C	ENTRIF UTIL	ITY 295 ITY 2500	NA NA	0.5	1/20 1 1/2 1 55(\M) 1
Image: bit is the second of the sec	, , ;	woo	DSHOP SPRAY RC BAXTER OVEN EX	OM EXHAUST CHAUST	GREENHECK/ CU GREENHECK/	BE-101HP-4 G-103-A	1	ROOF C	ENTRIF UTIL	ITY 500 ITY 1000	NA NA NA	0.75	1/4 2 1/4 2 1/4 2
			BOILER ROO	M	GREENHECK/	G-090-8		ROOF C	ENTRIF UTIL	ITY 700	NA	0.5	1/4 ^
NO. AREA GERVED MANUFACTURER MODEL TOTAL I as it is a structure in the isolation of t		DE FAN W/ SPA	ARK PROOF CONS				ISING)			ER SCH			F WT LIC
MEINE CONTRACTOR TO FURNISH AND INSTALL CONDENSATE PLAND PAND DRAIN PLPING EXTENDING TO APPROVED DISCHARGE POINT NATURAL GAS EQUIPMENT SCHEDULE MODEL #EV114b0, 27 SEMICO VALVE RATE DFOR ON PSIMAX PRESSURE REBULATOR - NATURAL GAS PRESSURE MODEL #EV14b0, 27 SEMICO VALVE RATE DFOR ON PSIMAX PRESSURE REBULATOR - NATURAL GAS PRESSURE CAS METER - LISTER AMERICAN METER NATURAL GAS PRESSURE REBULATOR - NATURAL GAS PRESSURE CAS METER - LISTER AMERICAN METER NATURAL GAS PRESSURE REBULATOR - NATURAL GAS PRESSURE METER FOR SCH WITH VISUAL READOUT. PRESSURE REBULATOR - NATURAL GAS PRESSURE METER FOR SCH WITH VISUAL READOUT. PRESSURE REBULATOR - NATURAL GAS PRESSURE METER FOR SCH WITH VISUAL READOUT. PRESSURE REBULATOR - NATURAL GAS PRESSURE NETER FOR SCH WITH VISUAL READOUT. PRESSURE REBULATOR - NATURAL GAS PRESSURE NETER FOR SCH POR CONCECTED LOLA ANAL GGO TOTALIZING PROVE NATURATOR PROVENTION OF NATURAL CONCENTRIC INFORMATION OF NATURAL GAS PRESSURE NETER FOR SCH PROVIDENT ON TO TO REGULATE 2 PSI NAL DISCONNECT BY MANUFACTURER DOLER ROOM 127 33 2081 159 14/17/36 12 100 INTEGRAL TSTAT 12.3 NAL DISCONNECT BY MANUFACTURER DOLER ROOM 127 33 2081 159	NO 	CU-1 NOTES E WITH T'STAT IN ACCORDA E 3/4" TYPE L C UNITS FACTO M EQUIPMENT	AREA SERVED TELECOM RM 126 (MT. ON WALL), W NCE WITH MANUF/ COPPER CONDENS ORY WIRED AND CI VOLTAGES ON SI	MANUFACTURE MITSUBISHI /HITE FINISH, LOW AMBI ACTURER'S RECOMMEN SATE DRAIN TO BUILDING RCUIT PROTECTED FOR TE, CONFIRM SINGLE PH	ENT CONTROLS DATIONS AND DETA G EXTERIOR OR NE. SINGLE POINT ELE IASE PRIOR TO EQU	TONS C 2 6 ALS ON DRA AREST SINI CTRICAL C JIPMENT OI	FM S 224 AWING K TAIL ONNE	GEER VO 16 2 GS. PIECE CTION.	LT/PH FLA 08/1 1.0	LBS MOI 37 MUZ-A	DEL VOLT, 24NA 208,	/PH MCA /1 17.1	LBS LII 152 1/
Introduct Cons Califormitter Schedult Setsing GAS SHUTCPF VALVE: KOSICALFORM VALVE MODEL 46/3/34-60, 7 SERVICE VALVE RATED FOR RO PSI MAX Sets Pressure Reculators - NATURAL GAS PRESsure reculators MAXITROL MODEL 200 TO RECULATE 2 PSI Service DOWN TO 7-11" W.C. AT 3000 CPH. CAS METER: BLETER ALREATING. CAS METER: BLETER ALREATING. CAS METER: BLETER ALREATING. METER SEED FOR CONNECTED LOND, ANALOG TOTALIZING BR.2 RESSURE RECULATOR MAXITROL MODEL 326-32 TO REGULATE 2 PSI SERVICE DOWN TO 5-11" W.C. AT 200 CPH. COLSPAN= PSI STREAMERICAN METER NATRIAL GAS METER FOR SCPH WITH VISUAL READOUT. BELECTRIC UNIT HEATER SCHEDULE ITECTRIC UNIT HEATER SCHEDULE ITE OR PS SCPH WITH VISUAL READOUT. BELECTRIC UNIT HEATER SCHEDULE ITE OR PS SCPH WITH VISUAL READOUT. ITE OR PS PHISTING LICCTRIC UNIT HEATER SCHEDULE ITE OR PS PHISTING UCCTION / SERVICE WITE OR & MODEL NO. ICC PS PHISTING NULL CEATION / SERVICE WITE OR P # FIFSION LICC TO PS PHISTING NULL READOUT. INTERVICE WITER METER OR PS SCO	UMBII	NG CONTRAC	TOR TO FURNISH A							DISCHARGE P	OINT		
BY-1 Model Result of the first of the		SEISMI					50						
METER FOR SCH WITH VISUAL READOUT. SERVICE DOWN TO 5-11* W.C. AT 200 CPH. ELECTRIC UNIT HEATER SCHEDULE MEG & MODEL NO. LOCATION / SERVICE KW VOLT/PH AMPS SIZE W' X H' MAX CFM CONTROL NOTES TPI CORP # FIF5103N ELECTRICAL ROOM 122 3.3 208/1 15.9 14*x17*x6-1/2' 100 INTEGRAL T-STAT 1.2.3 AL DISCONNECT BY MANUFACTURER IDE WITH THE FOLLOWING STANDARD ACCESSORIES: GRAL CONTROL TRANSPORMER AND 2-STAGE THERMOSTAT LOW SWITCH DUST COLLECTOR SCHEDULE VPE CELEFT FOR APPLICATION	<u>·1</u> 1	GAS PR OPEN/C CLOSU GAS ME METER	ESSURE VALVTE CLOSE INDICATOR, RE WITH SOFT SEA ETER - ELSTER AM	ERICAN METER NATED FOR MANUAL RESET AND PO SEATING. ERICAN METER NATRUA	UPSIMAX VISUAL DSITIVE L GAS OTALIZING	<u>PR-1</u> PR-2	PRE REG SER PRE REG	SSURE R SULATOR VICE DO SSURE R	EGULATOR - MAXITROL M WN TO 7-11" \ EGULATOR - MAXITROL M	NATURAL GA ODEL 210D T N.C. AT 3000 NATURAL GA	AS PRESSURE O REGULATE CFH. AS PRESSURE TO REGULAT	2 PSI	
MFG & MODEL NO. LOCATION / SERVICE KW VOLT/PH AMPS SIZE W' XH' MAX CFM CONTROL NOTES 1 TPI CORP # FIF5103N ELECTRICAL ROOM 126 3.3 208/1 15.9 14"x17"x6-1/2" 100 INTEGRAL T-STAT 1.2.3 2 TPI CORP # FIF5103N BOILER ROOM 127 3.3 208/1 15.9 14"x17"x6-1/2" 100 INTEGRAL T-STAT 1.2.3 UAL DISCONNECT BY MANUFACTURER. WODE WITH THE FOLLOWING STANDARD ACCESSORIES: TEGRAL CONTROL TRANSFORMER AND 2-STAGE THERMOSTAT RELOW SWITCH TO HIGH-LIMIT CONTROLS JUNTING BRACKET/FRAME AND TRIM TO BE UL LISTED FOR APPLICATION FLITERS MODULE VDIE WITH THE FOLLOWING BRACKET/FRAME AND TRIM TYPE RELIFF FAN ELECTRICAL DATA FLITERS MODULE 1 WOODSHOP STERVENT, BELFAB NBM-OP 2 MODULATE CLEAN AIR RECIRCULATED 2.200 460/3 5 99.9% @ 10 MICRONS 250 IDE STERNAVENT "OUST SWITCH" WIRELESS CONTROL INTERLOCK FROM EACH OF (6) REMOTE EQUIPMENT POINTS FOR UNIT START/STOP CONTROL GOUGENCIP 2.00 460/3 5 99.9% @ 10 MICRONS 250 <t< td=""><td></td><td>METER</td><td>FOR SCFH WITH V</td><td>ISUAL READOUT.</td><td>RIC UNIT HE</td><td></td><td>SER</td><td></td><td>WN TO 5-11" \ E</td><td>W.C. AT 200 C</td><td>FH.</td><td></td><td></td></t<>		METER	FOR SCFH WITH V	ISUAL READOUT.	RIC UNIT HE		SER		WN TO 5-11" \ E	W.C. AT 200 C	FH.		
1 TPI CORP # FIF5103N ELECTRICAL ROOM 126 3.3 208/1 15.9 14*x17*x6-1/2* 100 INTEGRAL T-STAT 1.2.3 12 TPI CORP # FIF5103N BOILER ROOM 127 3.3 208/1 15.9 14*x17*x6-1/2* 100 INTEGRAL T-STAT 1.2.3 12 UAL DISCONNECT BY MANUFACTURER. 0 INTEGRAL T-STAT 1.2.3 VIAL DISCONNECT BY MANUFACTURER. 0 INTEGRAL CONTROL TRANSFORMER AND 2-STAGE THERMOSTAT INFLOW SWITCH JTO HIGH-LIMIT CONTROLS 0 UNTING BRACKET/FRAME AND TRIM JTO DE UL LISTED FOR APPLICATION TYPE RELIEF FAN ELECTRICAL DATA FILTERS MODULE 1 WOODSHOP STERVENT, BELFAB NBM-OP 2 MODULATE CLEAN AIR RECIRCULATED 2.200 460/3 5 99.9% @ 10 MICRONS 250 10 STERVENT, BELFAB NBM-OP 2 MODULATE CLEAN AIR RECIRCULATED 2.200 460/3 5 99.9% @ 10 MICRONS 250 10 STERVENT, BELFAB NBM-OP 2 MODULATE CLEAN AIR RECIRCULATED 2.200 460/3 5 99.9% @ 10 MICRONS 250 10 STERVENT, BELFAB NBM-OP 2 MODULATE CLEAN AIR RECIRCULATED 2.	T).	MFG 8	MODEL NO.	LOCATION / S	ERVICE		PH	AMPS	SIZE W" x H"	MAX CFM	CONTRO	L	NOTES
IAL DISCONNECT BY MANUFACTURER. IDE WITH THE FOLLOWING STANDARD ACCESSORIES: EGRAL CONTROL TRANSFORMER AND 2-STAGE THERMOSTAT FLOW SWITCH O HIGH-LIMIT CONTROLS UNITING BRACKET/FRAME AND TRIM TO BE UL LISTED FOR APPLICATION DUST COLLECTOR SCHEDULE MFG, MODEL: TYPE RELIEF FAN ELECTRICAL DATA FILTERS MODULE OBE UL LISTED FOR APPLICATION CLEAN AIR RECIRCULATED ACK TO WOODSHOP STERVENT, BELFAB NBM-OP 2 MODULATE DESTERNAVENT "DUST SWITCH" WIRELESS CONTROL INTERLOCK FROM EACH OF (6) REMOTE EQUIPMENT POINTS FOR UNIT START/STOP CONTROL ISURELESS UNIT W/ EXHASUT FAN, PLENUM THAT SUPPORTS TOP MOUNTED FILTERS AND BOTTOM MOUNTED DUST STORAGE BAGS TO BE DESIGNED AND MANUFACTURED IN COMPLIANCE WITH NFPA 664 STANDARD FOR DUST COLLECTORS INSTALLED INDOORS. IDE UNIT W/ EXHASUT FAN, PLENUM THAT SUPPORTS TOP MOUNTED FILTERS AND BOTTOM MOUNTED DUST STORAGE BAGS TO BE DESIGNED AND MANUFACTURED IN COMPLIANCE WITH NFPA 664 STANDARD FOR DUST COLLECTORS INSTALLED INDOORS. IDE UNIT W/ EXHASUT FAN, PLENUM THAT SUPPORTS TOP MOUNTED FILTERS AND BOTTOM MOUNTED DUST STORAGE BAGS TO BE DESIGNED AND MANUFACTURED IN COMPLIANCE WITH NFPA 664 STANDARD FOR DUST COLLECTORS INSTALLED INDOORS. IDE UNIT W/ EXHASUT FAN, PLENUM THAT SUPPORTS TOP MOUNTED FILTERS AND BOTTOM MOUNTED DUST STORAGE BAGS TO BE DESIGNED AND MANUFACTURED IN COMPLIANCE WITH NFPA 664 STANDARD FOR DUST COLLECTORS INSTALLED INDOORS. IDE UNIT W/ EXHASUT FAN, PLENUM THAT SUPPORTS TOP MOUNTED FILTERS AND BOTTOM MOUNTED DUST STORAGE BAGS TO INCLUDE BASE MOUNTED FRAME TO ALLOW COLLECTED DUST TO BE DEPOSITED INTO TRANPARANT PLASTIC BAGS. RICAL CONTRACTOR TO PROVIDE UNIT POWER FEED AND MAGNETIC MOTOR STARTER WITH 120 VOLT CONTROL TRANSFORMER		TPI COF TPI COF	RP # F1F5103N RP # F1F5103N	ELECTRICAL R	OOM 126 3 M 127 3	3.3 208/ 3.3 208/	1	15.9 15.9	14"x17"x6-1/2" 14"x17"x6-1/2"	100 100	INTEGRAL T- INTEGRAL T-	STAT STAT	1,2,3 1,2,3
DUST COLLECTOR SCHEDULE SERVICE: MFG, MODEL: TYPE RELIEF FAN ELECTRICAL DATA FILTERS MODULE WOODSHOP STERVENT, BELFAB NBM-OP 2 MODULATE CLEAN AIR RECIRCULATED BACK TO WOODSHOP 2,200 460/3 5 99.9% @ 10 MICRONS 250 VE STERVENT, BELFAB NBM-OP 2 MODULATE CLEAN AIR RECIRCULATED BACK TO WOODSHOP 2,200 460/3 5 99.9% @ 10 MICRONS 250 VE STERNAVENT "DUST SWITCH" WIRELESS CONTROL INTERLOCK FROM EACH OF (6) REMOTE EQUIPMENT POINTS FOR UNIT START/STOP CONTROL SURELESS UNIT W/ EXHASUT FAN, PLENUM THAT SUPPORTS TOP MOUNTED FILTERS AND BOTTOM MOUNTED DUST STORAGE BAGS 0 BE DESIGNED AND MANUFACTURED IN COMPLIANCE WITH NFPA 664 STANDARD FOR DUST COLLECTORS INSTALLED INDOORS. 0 DE UNIT W/ SINGED POLYESTER TWILL TUBULAR FILTERS 0 INCUDE BASE MOUNTED FRAME TO ALLOW COLLECTED DUST TO BE DEPOSITED INTO TRANPARANT PLASTIC BAGS. 0 RICAL CONTRACTOR TO PROVIDE UNIT POWER FEED AND MAGNETIC MOTOR STARTER WITH 120 VOLT CONTROL TRANSFORMER INCAL CONTROL TRANSFORMER		L DISCONNEC DE WITH THE F GRAL CONTRO OW SWITCH HIGH-LIMIT CO NTING BRACKE BE UL LISTED	T BY MANUFACTU OLLOWING STANE DL TRANSFORMER ONTROLS ET/FRAME AND TRI D FOR APPLICATIO	RER. DARD ACCESSORIES: AND 2-STAGE THERMOS M N	STAT								
SERVICE: MFG, MODEL: CLEAN AIR RECIRCULATED BACK TO WOODSHOP CFM: VOLTS/ PH HP MIN EFF. WEIGHT .1 WOODSHOP STERVENT, BELFAB NBM-OP 2 MODULATE CLEAN AIR RECIRCULATED BACK TO WOODSHOP 2,200 460/3 5 99.9% @ 10 MICRONS 250 .1 WOODSHOP STERVENT, BELFAB NBM-OP 2 MODULATE CLEAN AIR RECIRCULATED BACK TO WOODSHOP 2,200 460/3 5 99.9% @ 10 MICRONS 250 .1 VIDE STERNAVENT "DUST SWITCH" WIRELESS CONTROL INTERLOCK FROM EACH OF (6) REMOTE EQUIPMENT POINTS FOR UNIT START/STOP CONTROL .0 .0 .10 .10 .10 .10 .10 <	 T	1			TYPF		RFI	DUST	COLLEC	CTOR SC	HEDULE	RS	MODUIF
IDENTION TO WOODSHOP	 ·1	SERVICE: WOODSHOP	MFC STERVENT, BELF	G, MODEL: AB NBM-OP 2 MODULATE		LATED	2,2	M: V(OLTS/ PH 460/3	HP 5	MIN EF 99.9% @ 10 N	FF. //ICRONS	WEIGHT 250
E STERNAVENT "DUST SWITCH" WIRELESS CONTROL INTERLOCK FROM EACH OF (6) REMOTE EQUIPMENT POINTS FOR UNIT START/STOP CONTROL SURELESS UNIT W/ EXHASUT FAN, PLENUM THAT SUPPORTS TOP MOUNTED FILTERS AND BOTTOM MOUNTED DUST STORAGE BAGS O BE DESIGNED AND MANUFACTURED IN COMPLIANCE WITH NFPA 664 STANDARD FOR DUST COLLECTORS INSTALLED INDOORS. DE UNIT W/ SINGED POLYESTER TWILL TUBULAR FILTERS O INCLUDE BASE MOUNTED FRAME TO ALLOW COLLECTED DUST TO BE DEPOSITED INTO TRANPARANT PLASTIC BAGS. RICAL CONTRACTOR TO PROVIDE UNIT POWER FEED AND MAGNETIC MOTOR STARTER WITH 120 VOLT CONTROL TRANSFORMER					DAGK TO WOODSHO	1	, -						
TO INCLUDE BASE MOUNTED FRAME TO ALLOW COLLECTED DUST TO BE DEPOSITED INTO TRANPARANT PLASTIC BAGS. TRICAL CONTRACTOR TO PROVIDE UNIT POWER FEED AND MAGNETIC MOTOR STARTER WITH 120 VOLT CONTROL TRANSFORMER	ide Os To /Id	E STERNAVEN URELESS UN BE DESIGNEI E UNIT W/ SIN	T "DUST SWITCH" \ T W/ EXHASUT FAN D AND MANUFACTU GED POLYESTER T	WIRELESS CONTROL INT I, PLENUM THAT SUPPO JRED IN COMPLIANCE W WILL TUBULAR FILTERS	ERLOCK FROM EAC RTS TOP MOUNTED ITH NFPA 664 STAN	CH OF (6) R FILTERS A DARD FOR	EMOTE ND BC DUST	E EQUIPM OTTOM M COLLEC	IENT POINTS OUNTED DUS TORS INSTAL	FOR UNIT ST ST STORAGE I LED INDOOR	FART/STOP CO BAGS S.	ONTROL	
	IT TO	INCLUDE BAS	SE MOUNTED FRAM CTOR TO PROVIDE	IE TO ALLOW COLLECTE	, ED DUST TO BE DEP ID MAGNETIC MOTO	POSITED IN OR STARTER	TO TRA	ANPARAN 1 120 VOL	NT PLASTIC B	AGS. TRANSFORM	ER		

TOF	OP GAS / ELECTRIC HEAT PUMP UNIT SCHEDULE																		
HEAT PUMP (DX) HEATING (17°F. DB) GAS HEATING SECTION										SUF	PLY FA	N	OSA	EER/	ELECT	RICAL	DIMENSIONS	WT	
ING CO	ONDITIONS	MIN EAT	MAX LAT	CAPACITY	MIN EAT	MAX LAT	INPUT	OUTPUT	MODULATING	CFM	ESP	ΗP	CFM	IEER	VOLT/PH	MCA	(L"xW"xH")	LBS	NOTES
DB	°F. WB	°F. DB	°F. DB	MBH	°F. DB	°F. DB	MBH	MBH	TURN DOWN										
0	52.7	45.0	67.0	51.6	35.5	114.7	200	184	5:1	2150	1.3	4.0	1400	12.2/17.2	460/3	17.4	91x96.5x55.8	2700	1,2,4,6
4	53.1	45.0	68.3	63.9	36.0	108.4	300	240	5:1	3070	1.3	4.0	1970	11.9/16.3	460/3	21.1	91x96.5x55.8	3000	1,2,4,6
6	54.3	45.0	64.3	35.9	34.1	114.2	160	147	5:1	1700	1.3	2.3	1150	12.3/15.8	460/3	10.8	67x87x40.8	1750	1,2,4
.1	54.1	45.0	66.6	64.2	36.2	123.3	400	320	5:1	3400	1.3	4.0	2170	11.9/16.3	460/3	21.1	91x96.5x55.8	3000	1,2,4,6
.1	53.8	58.0	79.6	20.0	60.8	112.3	80	64	5:1	1150	1.3	2.3	200	12.8/14.5	460/3	9.4	67x87x40.8	1700	1,2,3,4
0	51.0	61.0	75.6	20.3	57.5	127.2	80	64	5:1	850	1.3	1.3	200	12.8/14.5	460/3	8.5	67x87x40.8	1700	1,2,3,4
0	53.8	57.0	73.6	20.5	58.3	110.7	80	64	5:1	1130	1.3	1.3	250	12.8/14.5	460/3	8.5	67x87x40.8	1700	1,2,3,4

NS WITH DDC BUILDING AUTOMATION SYSTEM

SC	HEDULE							
MBH			EVAPORATIV	/E COOLING		WT		
PUT	TURNDOWN RATIO	TOTAL ENERGY	EAT DB/WB F.	LAT DB/WB F.	GPM FLOW	LBS	FILTERS	NOTES
).2	25:1	470 MBH	90.8/67.5	71.7/69.4	1.27	4000	2" ALUMINUM MESH	1,2,3,4,5,6,7
			<u> </u>					
								ſ

/OLT 460/	WT /PH LBS 3 520	NOTES ,2,3,4,8,9,11										2. ELECTRICA 3. FLOAT SWI	IDE OVERSIZE L CONTRACTO TCH CONTRTC	2.5" VEP DR TO PF DLS PUM	NI OUTLET FOR OVIDE POWE P ON/OFF LOO	DR CP-1. CF ER CONNEC CALLY. BMS	7-2 TO HAVE TION AND S TO MONITO	STANDA FARTER/I R STATU	RD VENT OU DISCONNEC S AND ALAF	JILEI T RATED RM.	FOR WASH	DOWN KIT	CHEN ENV	'IRONMEN ⁻	Г		
460/ 115/	3 520 '1 140	1,5													STE			HEDU	LE								—
115 115	(1 60 (1 25	<u>1,5,7</u> <u>1,6,7</u>												C			STEA	M	<u></u>	BURNER		FLUE	(OPERATIVI	-		PR
115 115	(1 80 (1 15	1,5,7 1,6,13					SY	MBOL	SERVICE		DESIGN E	BASIS FUEL	BOILER HP	INPU (MBF	T OUTPUT) (MBH)	EFF	PRESSURE (PSIG)	OUTPUT (LBS/HR)	TYPE	TURN DOWN	ELEC (V/PH/K W)	DIA	WEIGHT (LBS)	ELECT (V/PH)	RICAL (FLA)	EMER. POWER	REI (P\$
115. 115. 115.	130 160 160 160	1,5,7,10 1,5,7					I	B-1 ME FO	DIUM PRESSUF R KITCHEN EQI	RE STEAM JIPMENT	CLEAVER B CFH-700-{ PACKAGE SYSTE	ROOKS 50-150 NATUR D SKID GAS	AL 50	1,969	9 1,697	86.2%	80	1,725	POWER BURNER	5:1	120/1/120 0	10	8,100	460/3	13	NO	ç
REF QUII _INE 1/4"	RIG LINES D SUCTION LINE NO 5/8" 1,2,	DTES 3,4,5,6					REM 1. 2. 3. 4.	IARKS: PROVIDE CC -STE -FEE -WAT -CHE -BLO -SKII -ALL PROVIDE ST GC TO PROV PROVIDE W	OMPLETE SKID EAM BOILER: CE EDWATER SYST TER SOFTENER EMICAL FEED S OWDOWN SEPA D ENTRANCE C . COMPONENTS TACK AND BREI VIDE 3" HOUSE // EMERGENCY	MOUNT PA FALCON C EM: STAINL :: TWIN ALT YSTEM: 20 (RATOR: MO ONTROL PA PRE-PIPEC ECHING SYS KEEPING P/ SHUTOFF B G B NC 1. 2. 3.	CKAGE INCLUI ONTROL PANE ESS STEEL, 65 ERNATING GALLON MIXIN DEL A34B 1-1/4 NEL: NEMA 1 1 O AND PRE-WIF STEM: CLEAVE AD, MECH TO I SUTTON TO SE OTES PROVIDE 12" H PROVIDE 12" H	DING: EL, INTEGRAL ECONG GALLON TANK, DUF G TANK AND METER AND AFTERCOOLE PANEL WITH STARTE RED AT FACTORY FC R BROOKS SERIES O PROVIDE SEISMIC RA RVE BOILER: EATON FR & MODEL EENHECK FGI ENHECK FGR HIGH MANUFACTURE DSCREEN AT INTAKE VITY BACKDRAFT DA	DMIZER, GAS F PLEX PUMP, MA ING PUMP R ERS, OVERLOA R SINGLE POIL CBILA 10" DOU ATED ANCHOR CORP MODEL LOCATION ROOF ROOF ROOF ROOF	PRESSUF AKEUP V ADS, CIRC NT CONM BLE WAL BOLTS 10250T 10250T 1	RE REGULATO ALVE, GAUGE CUIT BREAKE IECTIONS OF L STACK SYS 3662-S106 AREA SE MECHANIO WOODSHOI	DR FOR 2 PS E GLASS, AN RS, INDICAT ELECTRICI STEM; 304SS GRA RVED CAL RM P RELIEF	GIG INLET, AN ID CONTROL TORS, AND H TY, STEAM, V SINNER WAL VITY VE LOW PF LOW PF	ND FACTO PANEL OA SWIT NATER, E L, ALUMI	CHES DRAIN, AND NIZED OUTE ATOR S ATOR S ATOR S 295 295	(RELIEF) CONDENS ER WALL) CHEDI F (CFM)	VALVE SATE RETU WITH 1" AIR ULE S.P. (IN. WG 0.01 0.01	RN GAP INSU .) THRC	DAT SIZE V (IN) 14" x 14" 14" x 14"		/EIGHT (LBS) 60 60	1,2,3 1,2,4	
— ר										4.	PROVIDE ADJ	JSTABLE BAROMETI	RIC RELIEF DA	MPER FO	OR F1 RELIEF	(SET TO 0.0	95" WC)		075								=
														<u>u</u> _					SIE								—
													NO ST	0. [-1	DEVICE BOILER ROO	SERVED	N SPI	//FG & MC RAX SAR	DDEL NO. CO FT1-125		TYPE	LOAD 250	SAFI 3:		DESIGN C	ONN SIZE 3/4"	:
													ST	-2	COOK/CH		SPI	RAX SAR	CO FT1-125	F	- & T	200	3:	.1	800	3/4"	+
													ST ST		KETTLE (>	E DROP	SPI SPI	RAX SAR RAX SAR	CO FT1-125 CO FT1-125	F	- & Т - & Т	250 200	3:	1 :1	800	3/4" 3/4"	\pm
]													NOTE 1.	ES: CAST-IR	ON F & T STE	AM TRAP DE	ESIGNED FO	R VERTIC	CAL INSTALI	_ATION, S	CREWED C	ONNECTIC	DNS				
			INSTANTANEO	OUS GAS V	VATER HEATE	R SCHE	DULE												ELE	CTRIC	DUCT	HEATE	R SCH		-		
	UNIT NO.	SERVICE & LOCATION	MANUFACTURER & MODEL NO.	HEAT IN E MBH	FFICIENCY CW TEMP	HW SET TEMP F	FLOW RANGE UNIT (GPM)	ELEC REQU	WEIGHT LBS	NOTES	<u> </u>				UNIT NO.	MFG	& MODEL NO). ł	KW VOLT/F	PH SIZE	W" x H" M	AX CFM	MIN CFM	STEPS N	IAX DT °F	CON	ITR
	GWH-1	DOMESTIC WATER - MECHANICAL ROOM DOMESTIC WATER - MECHANICAL	(KB327FFUD) RINNAI MODEL RU98i	199,000	92 60	140	0.26 - 5.4 @ 70 F DT	120V/1Pt	h 90 h 90	1, 2					ERC-1 ERC-2	NAILO NAILO	DR/ INDEECO		2.5 115/1 3 115/1	10	0x10 0x10	300 300	300 300	<u> </u>	25 25	SC SC	;RV ;RV
	GWH-3 NOTES: 1. PROVIDE UNITS V - WALL MOUNTIN	VITH THE FOLLOWING MANUFACTUR	(KB327FFUD) RINNAI MODEL RU98i (KB327FFUD) ER'S ACCESSORIES	199,000	92 60	140	0.26 - 5.4 @ 70 F DT	120V/1Pt	h 90	1, 2					ACC ALT NOTES: 1. DISC 2. PROV CON 3. PROV	MFG: INDE	ECO, CHRON EC. CONTROL T ND UL LISTI LY MODULA	ALUX RANSFOING. TING SCF	RMER, AIRF	LOW SWIT	TCH, AUTO	' HIGH LIMIT	Γ, MANUAL	. THERMO-	L DISC, SECON	IDARY HI	GH
	- REMOTE CONTI - MANUFACTURE - PROVIDE W/ MA 2. ELECTRICAL CON	RUL PANEL FOR SEQUENCING (3) TO R'S CONCENTRIC FLUE SYSTEM AND NUFACTURER'S GAS PRV FOR 2 PSI I ITRACTOR TO PROVIDE POWER FEEI	ROOF TERMINATION FOF INLET & 5-10.5" W.C. OUTL AND DISCONNSECT SW	ID-4-US) R COMBUSTION LET (ITCH AT EACH I	INTAKE AND EXHAUS JNIT	Т									NOTES	SERI UNIT NO. CV-1 S:	ES FAN MANUFAC MODEL TITUS	POWI TURER .NO. ESV	ERED A INLET SIZE 4	ND VA ZONE SF 895	RIABL PRIMA MAX C 100		VOLUN	IE TER E KW DE -	MINAL U	JNIT S HEAT CO CFM	

LE	ESP	FILTRATION	WEIGHT	DIMENSIONS	
ΗT	IN.WG	SURFACE SQ.FT.	LBS	(W"xD"xH") IN	NOTES:
	11"	330	700	72x48x130	1,2,3,4,5,6



	KITCHEN EC	QUIPN	IENT I	MECHA	NICAL		NECTIO	ON SCHEDULE
FIXTURE TAG	DESCRIPTION	GAS SIZE	GAS MBH	STEAM SUPPLY	STEAM RETURN	STEAM LBS/HR	STEAM PSIG	ACCESSORIES/REMAR
K-42	COOK / CHILL TANK	-	-	3/4"	3/4"	400	80	STEAM SAFETY VALVE :
K-48	TILTING KETTLE W/ INCLINE AGITATOR (100 GAL)	-	-	1"	3/4"	700	80	
K-50	STATIONARY KETTLE (80 GAL.)	-	-	1"	3/4"	376	80	
K-52	STATIONARY KETTLE (80 GAL.)	-	-	1"	3/4"	376	80	
K-69	REVOLVING OVEN (PICARD)	3/4"	250	-	-	-	-	GAS INLET PRESSURE 5.5" -
K-97	COMBI OVEN, STEAMER	3/4"	85	-	-	-	-	GAS INLET PRESSURE 5.5" -
K-98	BAKE OVEN (DOYON)	3/4"	260	-	-	-	-	NG INLET PRESSURE 7"
K-105	COMBI OVEN, STEAMER	3/4"	85	-	-	-	-	GAS INLET PRESSURE 5.5" -
K-116	TILTING SKILLET (23 GAL)	1/2"	104	-	-	-	-	NG INLET PRESSURE 4.5" -
K-117	TILTING SKILLET (30 GAL)	1/2"	104	-	-	-	-	NG INLET PRESSURE 4.5" -
K-118	TILTING SKILLET (40 GAL)	1/2"	144	-	-	-	-	NG INLET PRESSURE 4.5" -
K-119	STATIONARY KETTLE (80 GAL.)	1/2"	100	-	-	-	-	
K-129	CHAR-BROILER	3/4"	120	-	-	-	-	NG INLET PRESSURE 5" W.C., REAR G
K-130	CHAR-BROILER	3/4"	120	-	-	-	-	NG INLET PRESSURE 5" W.C., REAR G
K-132	4-BURNER RANGE	3/4"	140	-	-	-	-	NG INLET PRESSURE 5" W.C., REAR G
K-133	4-BURNER RANGE	3/4"	140	-	-	-	-	NG INLET PRESSURE 5" W.C., REAR G
K-135	FRYER SYSTEM (3 FRYERS)	3/4" (3)	240 (80 EA)	-	-	-	-	NG INLET PRESSURE 7" - 1

	STEAM CONDENSATE PUMP SCHEDULE														
UNIT				RECEIVER	INLET		PUI	MP		ELEC	WT	Γ			
NO.	DEVICE	SERVICE / UNIT SERVED	MFG & MODEL NO.	(GAL)	(LBS/HR)	(GPM)	(PSIG)	(HP)	(RPM)	(V/PH)	(LBS)				
CP-1	CONDENSATE PUMP	KETTLES, COOK/CHILL	STERLING 4326-G	15	1452	9	20	1/3	3450	120/1	165				
CP-2	CONDENSATE PUMP	KETTLE	E STERLING 4322-G		376	3	20	1/3	3450	120/1	165	Γ			
												Γ			

1. CONDENSATE PUMP TO BE INSTALLED AT FLOOR LEVEL IN COMMERICAL KITCHEN, PROVIDE W/ THE FOLLOWING CONSTRUCTION & ACCESSORIES TO ALLOW FOR WASHDOWN - STAINLESS STEEL RECEIVER

- WASHDOWN DUTY MOTORS (TEFC) - NEMA 4 FLOAT SWITCH

- PUMP SUCTION ISOLATION VALVE

- PROVIDE OVERSIZE 2.5" VENT OUTLET FOR CP-1 CP-2 TO HAVE STANDARD VENT OUTLET

1. SINGLE DUCT TERMINAL UNIT, SIZE AS LISTED, W/DDC CONTROL CARD,

DAMPER ACTUATOR PROVIDED BY CONTROL CONTRACTOR. CONTROL POWER PROVIDED BY CONTROL

CONTRACTOR. FACTORY OPTIONS INCLUDE: -1/2" MATT FACED INSULATION

FACTORY OPTIONS INCLUDE:

- FUSED UNIT DISCONNECT **NOTE TO ELECTRICAL ENGINEER** - SINGLE DUCT TERMINAL UNITS REQUIRE 120 V POWER CONN, 24V XFRMR BY CONTROLS

	GAS FURNANCE														
				F	AN		G	AS HEAT MBH		HEATING S	SUPPLY AIR	AMBIENT TEMP.	OA	WT	DI
SERVED	MFG & MODEL NO.	STAGES	CFM	CFM ESP VOLT/PH AMPS I				OUTPUT	AFUE	EAT (F)	LAT	(F)	CFM	LBS	L
DSHOP	LUXAIRE/ LP9C120D20MP12C	MODULATING	1880	1	115/1	14.5	120	117	98%	55.0	100	21	830	180	2

1. SINGLE POINT POWER CONNECTION BY ELECTRICAL CONTRACTOR (CONFIRM VOLTAGE PRIOR TO ORDERING UNIT) 2. BUILDING AUTOMATION SYSTEM BASED CONTROLS - COORDINATE CONTROL REQUIREMENTS AND ACCESSORIES

3. PROVIDE UNIT W/ 2" (30%) MERV-8 FILTER & FILTER RACK 4. PROVIDE UNIT W/ SHOP FABRICATED RETURN/OA AIR MIXING PLENUM TO INCLUDE 2X STANDARD FILTER AREA



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'85% Robertson | Sherwood | Architect

DUCT SWITCH SPECIFICATION ELECTRICALLY INTERLOCK EACH WOODWORKING MACHINE WITH THE DUST KITCHEN HOODS

COMMERCIAL KITCHEN EXHAUST SYSTEM NOTES

DD CONNECTION,
<u>EF-1</u> TO BE VOLUME CONTROL
CHANGE OF SLOPE MINIMUM
W CEILING AND DISCHARGE.
ALLED BY
EXH OUTLETS AS Y CONNECTION
N. FIELD VERIFY
NECTION SIZE AND
3 FT ABOVE ROOF.
S STERVENT DUST ENDATIONS.
PRINKLER SYSTEM
T INTERIOR SIDE
67 SQ IN FREE EILING
AIR VALVE.
D <u>RTU-1</u> ON ROOF.
0 <u>RTU-2</u> ON ROOF.
D <u>RTU-3</u> ON ROOF.
D <u>RTU-4</u> ON ROOF.
D <u>RTU-5</u> ON ROOF.
D <u>RTU-6</u> ON ROOF.
0 <u>RTU-7</u> ON ROOF.

HVAC NOTES BY SYMBOL

MECHANICAL PIPING NOTES BY SYMBOL $\langle 1 \rangle$ SEE DETAIL 1/M3.1 FOR STEAM SYSTEM AND PIPING AT BOILER ROOM. $\langle 2 \rangle$ SEE DETAIL 3/M3.1 FOR STEAM SYSTEM AND PIPING AT KITCHEN EQUIPMENT. $\langle 3 \rangle$ SEE DETAIL 7/M3.1 FOR NATURAL GAS PIPE SIZING AT KITCHEN EQUIPMENT. 4 1 ½" NG SOLENOID VALVE FOR KITCHEN EMERGENCY SHUT-OFF. PROVIDE EMERGENCY SHUT-OFF BUTTON AT KITCHEN EGRESS TO CONTROL SOLENOID

ROOF TOP CONDENSING UNIT DETAIL

STRUCTURAL SUPPORT AND SEISMIC RESTRAINT DEFERRED SUBMITTAL TO BE PROVIDED DETAILING

SEISMIC RESTRAINT REQUIREMENTS FOR ALL ROOF OR GRADE MOUNTED UNITS WEIGHING OVER 400 LBS

ANALYSIS/CALCS, STRUCTURAL SUPPORT, AND

M3.0 **/**

NO SCALE

NO SCALE

GC/ROOF CONTRACTOR -CANT STRIP, VERTICAL INSUL AND ROOFING EXTENDING VERTICALLY UP CURB BY GC/ ROOF CONTRACTOR - ANCHOR MANUF CURB TO STRUCTURAL SUPPORT OR STRUCTURAL MEMBER W/

-UNIT SEISMIC RESTRAINT 12" LONG, 16 GA. ANGLE (SIZE AS REQ, MIN 2 EA. SIDE) -MIN (2) NO. 10-16x¾" SELF TAPPING SMS @ EACH SEISMIC ANGLE BRACKET TO 16 GA CURB W/ 3/2" MIN. THREAD PENETRATION -COUNTER FLASHING BY

-ROOFTOP UNIT, REFER TO CONFIGURATION

MANUF DETAILS FOR EXACT

_____ CEILING-

3. DIFFUSER FRAME SHALL MATCH ARCHITECTURAL CEILING TYPE.

-HOOD MANUFACTURE EXHAUST INLET W/ MODULATING DAMPER FOR DEMAND MAKEUP CONTROL OPERATION AIR SUPPLY -HOOD/PLENUM SUPPORT ROD PER MANUAL BALANCE MANUF & STRUCTURAL DAMPER REQUIREMENTS (TYP) -HOOD MANUFACTURE UPPER BRACKET MOUNTING ASSEMBLY - WASHABLE GREASE FILTER COMPENSATING MAKEUP AIR SUPPLY PLENUM W/ PERFORATED GRILLE -INTEGRAL HOOD 'STAND OFF' ASSEMBLY HEAT AND PARTICULATE SENSOR FOR AUTOMATIC HOOD CONTROL -HOOD MANUFACTURE 12" MIN BOTTOM BRACKET OVERHANG MOUNTING ASSEMBLY UL LISTED TYPE-1 KITCHEN HOOD - GREASE TROUGH & DRIP CUP COOKING APPLIANCE -SUPPORT WALL W/ NON-COMBUSTIBLE

KITCHEN GREASE EXHAUST FAN DETAIL

-SEISMIC SPRING ISOLATORS -BASE CURB & FLASHING CAP BY MECH CONTR -RÓÓF

-FLEX CONNECTOR AT HORIZ DUCT CONNECTION

EXHAUST DISCHARGE NOZZLE (5' ABOVE ROOF)

MIN 5' ABOVE ROOF

-BIRD SCREEN TERMINATE

(BY MECH) SEE DETAIL (M3.0)

PROVIDE #8 SM SCREW

TO ANCHOR DIFFUSER

TO CEILING GRID (TYP.

REQUIRED BY INSPECTOR -

T-BAR MOUNT DIFFUSER ------

SURFACE MOUNT DIFFUSER

AT EACH CORNER) IF

LIGHT FIXTURE.

8

M3.0

(MIN) ACCESS DOOR.

NO SCALE

NOTES:

MECHANICAL PIPING - PVC THREADED BULKHEAD FITTING ADAPTER SHEET METAL ACCESS CAN'T STRIP & COVER PLATE ROOFING BY G.C.-SHEET METAL ENCLOSURE $\mathcal{M}\mathcal{M}\mathcal{M}$ - SHEET METAL

1. ACCESS TO BALANCING DAMPER MAY BE PROVIDED THRU REMOVABLE RETURN AIR REGISTER OR HINGED

2. FOR INACCESSIBLE CEILING USE REMOTE FLEXIBLE STEEL SHAFT DAMPER OPERATOR OR PROVIDE 18"X18"

4. IF FLEXIBLE DUCT SIZE INDICATED ON PLAN IS LARGER OR SMALLER THAN DIFFUSER NECK OR IF DIFFUSER

NECK IS SQUARE OR RECTANGULAR PROVIDE TRANSITION FITTING AT DIFFUSER NECK.

DIFFUSER MOUNTING DETAIL

L VOLUME DAMPER, UNLESS OTHERWISE SHOWN ON

PLANS. ONE PER BRANCH.

- TRANSITION ADAPTER AS

- PROVIDE #8 SM SCREW TO

ANCHOR DIFFUSER THRU

(TYP. AT EACH CORNER)

CEILING TO THE DIFFUSER BOX

CONSTRUCTION

DEFORMED.

REQUIRED.

DO NOT INSTALL KINKED OR

CANOPY TYPE-1 GREASE EXHAUST HOOD DETAIL 12 M3.0 NO SCALE

ABOVE ROOF SURFACE

MECH CONTRACTOR - TOP OF ROOF SURFACE

LOCATE FLUE 10'-0" MIN FROM OUTSIDE AIR

- UL RATED AL29-C FLUE FOR CONDENSING

UO Central Kitche	n/Woodshop - HVAC Controls Points List	INPUT	S	OU	TPUTS	Digital Tra	nsfer Points			UO Central Kitcher	n/Woodshop - HVAC Controls Points List		INPUTS		OUTPUTS	Digital Trans	sfer Points		
Equipment	Points Type/Description/Control System Name	Digital Input Analog I	nput Unive Inpu	rsal ut Digital Outpu	t Analog Outpu	BACnet Transferred Point	Modbus Transferred Point	Sub Totals	Other Notes	Equipment	Points Type/Description/Control System Name	Digital Input	Analog Input	Universal Input	Digital Output Analog Output	BACnet Transferred Point	Modbus Transferred Point	Sub Totals	Other Notes
RTU's Typical of 7	RTU's Typical of 7									Freezer Monitoring	Freezer Monitoring					I			
	Points										Points								
RTH	BTU enable/disable			7						Eroozor Alarm	Catering Receiving Freezer temp		1						
	Heating enable/disacle			7							Catering Receiving Cooler temp		1						
	Cooling enable/disable			7						1	Central Receiving Freezer temp		1						
	Emergency heat enable/disable			7						1	Central Receiving Cooler temp		1						
	Economizer enable/disable			7						1	Thaw Cooler temp		1						
	BTU status	7		,						1	Central Refrigerated Finished Goods/Cold Holding temp		1						
	Filter status	7								1	Control Frazen Einishad Caada temp		1						
	Disharge air temp	, 7								1			1						
	Space temp	7								1	Alchoholic Beverage Cooler temp		1						
Deinte Count Sub Tatala	Dejete Count Sub Tetele	14 14	0	35	0	0	0	63		-	Central Cook Chill Bank temp		1						
Points Count Sub-Totals	Points Count Sub-Totais	14 14	0		0	0	0	03		4	Blast Chilling temp		1						
										Alarm points to security system	Catering Receiving Freezer Alarm				1				
MAU-1, EF-1 & EF-2	MAU-1, EF-1 & EF-2									-	Catering Receiving Cooler Alarm				1				
	Points			· · · ·		-				4	Central Receiving Freezer Alarm				1				
MAU-1, EF-1 & EF-2	MAU start/stop			1						4	Central Receiving Cooler Alarm				1				
	OSA damper position			1						4	Thaw Cooler Alarm				1				
	EF-2 start/stop			1						4	Central Refrigerated Finished Goods/Cold Holding Alarm				1				
	EF-1 (Kitchen Hood) status	1								-	Central Frozen Finished Goods Alarm				1				
	Dish washer door status	1									Alchoholic Beverage Cooler Alarm				1				
	EF-2 Status	1									Central Cook Chill Bank Alarm				1				
	MAU filter status	1								4	Blast Chilling Alarm				1				
	MAU heating control				1					Points Count Sub-Totals	Points Count Sub-Totals	0	10	0	10 0	0	0	20	
	EF-2 speed				1										· · · · · · · · · · · · · · · · · · ·				
	MAU space temp	1								EF's Typical of 5	EF's Typical of 5								
	MAU discgarge air temp	1									Points								
Points Count Sub-Totals	Points Count Sub-Totals	4 2	0	3	2	0	0	11		EF's	EF start/stop				4				
											EF Status	4							
Dust Collector	Dust Collector										EF Space Temp (EF-4 & EF-5)		2						
	Points										Picard Oven Status	1							
DC-1	DC-1 start/stop			1						Points Count Sub-Totals	Points Count Sub-Totals	5	2	0	4 0	0	0	11	
	DC-1 Status	1														•			
	Equipment monitoring	6								Furnaces	Furnaces								
	AC-1 status	1									Points								
Points Count Sub-Totals	Points Count Sub-Totals	8 0	0	1	0	0	0	9		Furnaces	Furnace enable/disable				1				
											Heating stage 1				1				
ERC's	ERC's										Heating stage 2				1				
	Points										OSA Damper				1				
ERC	Space Temperature	2									Furnace status	1							
	H/C SCR Control				2						Space temp		1						
	H/C Enable			2						1	Discharge air temp		1						
	Discharge Air temp	2											1					_	
Deinte Count Out Totale		0 4	0	2	2	0	0	Q		Points Count Sub-Totals	Points Count Sub-Totals	1	2	0	4 0	0	0	7	
Points Count Sud-I otais	Points Count Sud-1 otais	0 4	0	2	Ζ	U	U	0		۹ <u>ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا</u>					1 1				
Hoating Water System	Heating Water System	I	I	I		1		1		Misc. systems/Global points	Misc. systems/Global points	ļ							
i realing waler system										4	Points	 			↓				
	Points									Misc	OSA temp		1						
Steam Boiler		1								Points Count Sub-Totals	Points Count Sub-Totals	0	1	0	0 0	0	0	1	
		1																	
		1								4									
		1		^			<u>^</u>			4									
Points Count Sub-Totals	Points Count Sub-Totals	2 2	0	U	U U	U	U	4	1										

M5.0 NO SCALE

	HVAC AIR E	BALANCE SU	MMARY			
TAG	DESCRIPTION	TYPE-1 GREASE EXHAUST (CFM)	TYPE-2 VAPOR EXHAUST (CFM)	GENERAL EXHAUST (CFM)	TEMPERED MAKEUP AIR SUPPLY (CFM) MAU	HOUSE OA COMPONENT SUPPLY (CFI
ITCHEN EXHAUST HOODS						
KH-46	TYPE-1 COMPENSATING HOOD	-3520			2816	
KH-125A	TYPE-1 COMPENSATING HOOD	-2703			2162	
KH-125B	TYPE-1 COMPENSATING HOOD	-2703			2162	
KH-113A	TYPE-1 COMPENSATING HOOD	-2973			2378	
KH-113B	TYPE-1 COMPENSATING HOOD	-2973			2378	
KH-101A	TYPE-1 COMPENSATING HOOD	-1785			1428	
KH-101B	TYPE-1 COMPENSATING HOOD	-1785			1428	
KH-94	TYPE-1 COMPENSATING HOOD	-2720			2176	
DITIONAL KITCHEN EXHAUST REQU	IIREMENTS		-			
BAKERY RM	BAKERY EXHAUST		-1000	-		
DISTRIBUTED EXH	GENERAL/HOUSE EXHAUST		-	-350		
WARE WASH RM	DISHWASHER EXHAUST		-1100			
IBTOTAL KITCHEN AIRFLOW REQUIR	REMENTS					
TYPE-1 GREASE EXHAUST		-21162				
TYPE-2 VAPOR EXHAUST			-1100	-		
GENERAL EXHAUST				-350		
BAXTER OVEN EXHAUST			-1000	-		
TEMPERED MUA SUPPLY AIR					16928	
	TYPE-1 GREASE EXHAUST FOR KITCHEN	0.1.100				
EF-1	HOODS	-21162				
EF-2	DISHWASHER EXHAUST/ GENERAL EXHAUST		-1450			
EF-8/EF-2	BAXTER OVEN EXHAUST		-1000	-		
MUA-1	TEMPERED MAKEUP AIR UNIT FOR COMPENSATING HOODS				16928	
RTU-1,2, 3, 4	HOUSE HVAC (E) PACKAGED VAV ROOFTOP UNIT (10320 CFM @ MIN. 60% OA)					6690
CALCULA	TION: TRANSFER AIR REQUIREMENT			CALCULATION: MA	KEUP AIR AS % OF	KITCHEN EXHAL
CALCULA OTAL EXHAUST	TION: TRANSFER AIR REQUIREMENT -23612	CFM		CALCULATION: MA	KEUP AIR AS % OF -21162	KITCHEN EXHAU CFM
CALCULA OTAL EXHAUST EMPERED MAKEUP AIR (FROM MAU-1	TION: TRANSFER AIR REQUIREMENT -23612 1) 16928	CFM CFM		CALCULATION: MA KITCHEN EXHAUST MAKEUP AIR	KEUP AIR AS % OF -21162 16928	KITCHEN EXHAL CFM CFM

