Certificate of Appropriateness

Milwaukee Historic Preservation Commission/841 N Broadway/Milwaukee, WI 53202/phone 414-286-5712

Property	**802 W. Historic Mitchell Street**
Description of work	Rooftop HVAC per attached plans.
Date issued	11/26/2024

Under the provisions of Section 320-21 (11) and (12) of the Milwaukee Code of Ordinances, the Milwaukee Historic Preservation Commission has granted a certificate of appropriateness for the work listed above. The work was found to be consistent with preservation guidelines. The following conditions apply to this certificate of appropriateness:

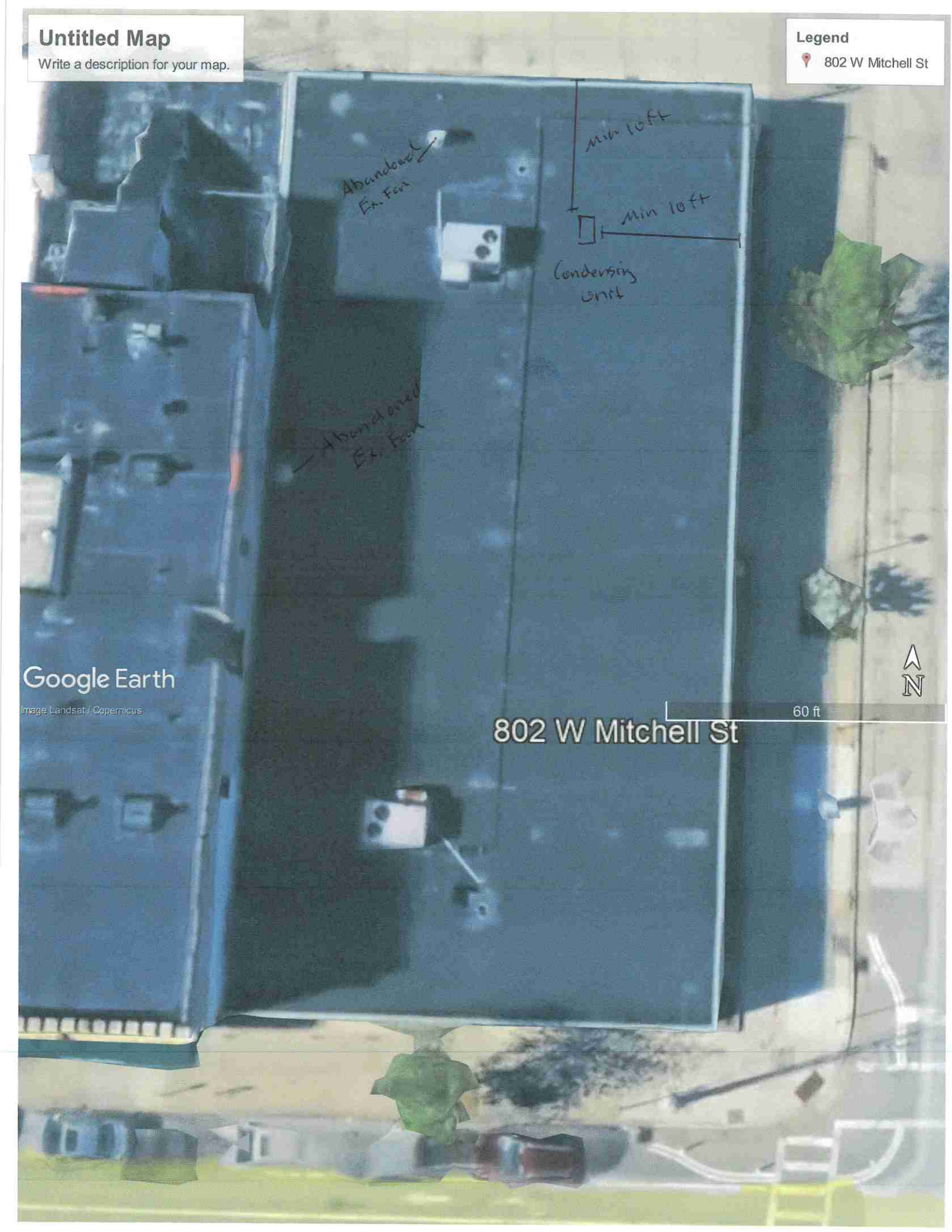
All new equipment to be minimum 10 feet from edges. Safety railings are not an acceptable alteration to the building.

All work must be done in a craftsman-like manner. Staff must approve any changes or additions to this certificate before work begins. Work that is not completed in accordance with this certificate may be subject to correction orders or citations. If you require technical assistance, please contact Historic Preservation staff as follows: Phone: (414) 286-5712 E-mail: hpc@milwaukee.gov.

Permits and timeline

You are responsible for determining if permits are required and obtaining them prior to commencing work. Consult the Development Center on the web or by telephone for details www.milwaukee.gov/lms (414) 286-8210. If permits are not required, work must be completed within one year of the date this certificate was issued. If permits are required, permits must be obtained within one year of the date this certificate was issued.

City of Milwaukee Preservation Staff


Untitled Map
Write a description for your map.
Legend
802 W Mitchell St
Min 10 ft
Abandoned Ex. Fen
Min 10 ft
Condensing unit
Abandoned Ex. Fence
Google Earth
Image Landsat / Copernicus
N
60 ft
802 W Mitchell St

H & H MECHANICAL
W145 N5789 SHAWN CIRCLE
MENOMONEE FALLS, WI. 53051

HUNGER TASK FORCE
802 W MITCHELL ST.
MILWAUKEE, WI 53204

H&H MECHANICAL CONTRACTORS
W145 N 5789 SHAWN CIRCLE
MENOMENEE FALLS, WI 53051

INDEX

10/15/2024

REGISTRATION STAMP & SIGNATURE

ROOFTOP UNIT SCHEDULE

NO.	MODEL	MFG.	HEATING		AFUE %	COOLING		CFM	ECONOMIZER WITH RELIEF	CFM OF O.A.	WEIGHT (LBS)	ELECTRICAL		
			INPUT	OUTPUT		BTU'S	EER					VOLT/PH/HZ	MCA	MOCP
RTU-1	48FCEM08A2A5-0A0A0	CARRIER	180,000	148,000	80%	90,000	15	3,400	YES	340	758	208-230/3/60	39	50
RTU-2	48FCEM12A2A5-0A0A0	CARRIER	224,000	181,000	80%	125,000	15	4,000	YES	400	835	208-230/3/60	45	60

NOTE:
1. RTU-1 & RTU-2 TO BE EQUIPPED WITH SMOKE DETECTION MOUNTED IN RETURN DUCTS.

DUCTLESS SPLIT OUTDOOR SCHEDULE

NO.	MODEL	MFG.	SERVING	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH)	SEER	REFRIGERANT	REFRIGERATION PIPING		ELECTRICAL	
								LIQUID	SUCTION	VOLT/PH/HZ	MOCP
DSO-1	RKS30LVJU	DAIKIN	DSI-1 (IT ROOM)	10,200-30,000	#N/A	19.3	410A	3/8"	5/8"	208/1/60	19.5/20

DUCTLESS SPLIT INDOOR UNIT SCHEDULE

NO.	MODEL	MFG.	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH)	CFM LOW-HI	ELECTRICAL	
						VOLT/PH/HZ	FLA
DSI-1	FTXS30LVJU	DAIKIN	10,200-30,000	#N/A	473-519-611-706	208/1/60	0.37

EXHAUST FAN SCHEDULE

NO.	MODEL	MFG.	CFM	S.P.	MOTOR		OUTLET DUCT	TYPE
					RPM	VOLT/PH/CY		
EF-1	L150	BROAN	150	0.5	710	120/1/60	6"	CEILING MOUNTED
EF-2	AE80	BROAN	80	0.5	640	120/1/60	4"	CEILING MOUNTED

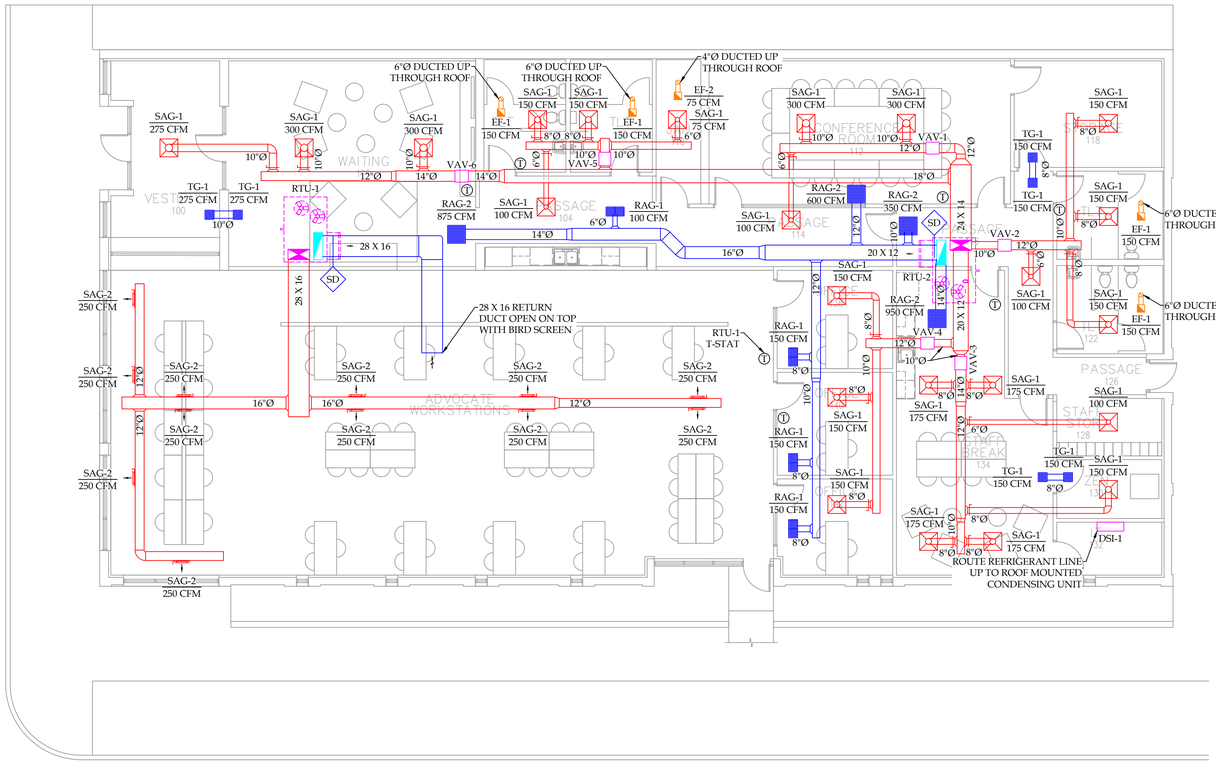
NOTE:
1. EF-1 TO BE INTERLOCKED WITH BLOWER ON RTU-2; WHEN BLOWER ON RTU-2 OPERATES, EF-1 WILL OPERATE TO PROVIDE VENTILATION DURING OCCUPIED PERIODS.
2. EF-2 TO BE INTERLOCKED WITH BLOWER ON RTU-2; WHEN BLOWER ON RTU-2 OPERATES, EF-2 WILL OPERATE TO PROVIDE VENTILATION DURING OCCUPIED PERIODS.

VARIABLE AIR VOLUME SCHEDULE

NO.	Model	Tag	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Min Oper PD (in. w.g.)	Max Dis NC	Max Rad NC	Reheat (CFM)	EC Capacity (kW)	EAT (°F)	LAT (°F)	Volts	Coil Amps	Steps
1	SDV	VAV-1	10	700	350	0.01	21 (2)	--	350	4.40	55.00	95.00	208-3	12.21	SCR
10 - Size 10 | 208-3 - 208 Volt / 3 Phase | SCR - Silicon Controlled Rectifier															
2	SDV	VAV-2	8	550	275	0.01	25 (2)	--	275	3.50	55.00	95.00	208-3	9.72	SCR
8 - Size 8 | 208-3 - 208 Volt / 3 Phase | SCR - Silicon Controlled Rectifier															
3	SDV	VAV-3	10	950	475	0.01	22 (2)	--	475	6.00	55.00	95.00	208-3	16.65	SCR
10 - Size 10 | 208-3 - 208 Volt / 3 Phase | SCR - Silicon Controlled Rectifier															
4	SDV	VAV-4	8	450	225	0.01	22 (2)	--	225	2.80	55.00	95.00	208-3	7.77	SCR
8 - Size 8 | 208-3 - 208 Volt / 3 Phase | SCR - Silicon Controlled Rectifier															
5	SDV	VAV-5	8	475	240	0.01	22 (2)	--	240	3.00	55.00	95.00	208-3	8.33	SCR
8 - Size 8 | 208-3 - 208 Volt / 3 Phase | SCR - Silicon Controlled Rectifier															
6	SDV	VAV-6	10	875	440	0.01	21 (2)	--	440	5.60	55.00	95.00	208-3	15.54	SCR
10 - Size 10 | 208-3 - 208 Volt / 3 Phase | SCR - Silicon Controlled Rectifier															

NOTE:
1. DASHES (--) INDICATE NC VALUES LESS THAN 20.
2. NC VALUES ARE CALCULATED BASED ON PROCEDURES OUTLINED IN AHRI STANDARD 558-2008, "A PROCEDURE FOR ESTIMATING OCCUPIED SPACE SOUND LEVELS IN THE APPLICATION OF AIR TERMINALS AND AIR OUTLETS."
3. SOUND POWER LEVELS ARE GIVEN IN DECIBELS (dB).
4. DASHES (--) INDICATE SOUND POWER LEVELS BELOW 36-29-26-22-19-17 FOR EACH OCTAVE BAND; VALUES BELOW THESE SOUND POWER LEVELS ARE CONSIDERED BELOW SIGNIFICANCE PER AHRI 880.
5. MINIMUM OPERATING PRESSURE IS THE MINIMUM STATIC PRESSURE REQUIRED TO OPERATE THE TERMINAL ITEM ASSEMBLY AT MAXIMUM PRIMARY FLOW WITH A WIDE OPEN DAMPER.
6. AIRFLOW IS GIVEN IN CUBIC FEET PER MINUTE (CFM).
7. AIR PRESSURE DROP IS GIVEN IN INCHES WATER GAUGE (IN. W.G.), AND WATER PRESSURE DROP IS GIVEN IN FEET OF WATER GAUGE (FT. W.G.).
7. NC VALUES ARE DERIVED FROM SOUND POWER LEVELS OBTAINED IN ACCORDANCE WITH ASHRAE STANDARD 130-2016 AND AHRI STANDARD 880-2017, WHICH INCLUDE DUCT END REFLECTION CORRECTIONS.

ALL DUCT DIMENSIONS
ARE FREE AREA DIMENSIONS



HVAC FLOOR PLAN

SCALE: 1/8" = 1'-0"

THE DESIGN INTENT IS TO PROVIDE FOR A CODE MINIMUM.

THESE DRAWINGS ARE DIAGRAMMATIC & ARE INTENDED TO SHOW THE INTENT OF THE SPECIFICATIONS. SOME FIELD CHANGES THAT DO NOT AFFECT THE PERFORMANCE OR INTENT OF THE DESIGN ARE ACCEPTABLE & SHOULD BE EXPECTED. DO NOT SCALE DRAWINGS, THE CONTRACTOR SHALL FIELD VERIFY ALL MEASURMENT & ACCEPT RESPONSIBILITY FOR THEIR ACCURACY.

H & H MECHANICAL
W145 N5789 SHAWN CIRCLE
MENOMONEE FALLS, WI. 53051

CONTRACTOR:
H&H MECHANICAL CONTRACTORS
W145 N 5789 SHAWN CIRCLE
MENOMENEE FALLS, WI 53051

PROJECT:
HUNGER TASK FORCE
802 W MITCHELL ST.
MILWAUKEE, WI 53204

PLOTTED ON: 10/15/2024
SCALE: 1/8" = 1'-0"
DRAWN BY: WCG
DESIGN ENGINEER: DAVE JOHNSON
DATE PLAN WAS CREATED: 10/7/2024
PLAN NAME: HVAC FLOOR PLAN & SCHEDULES
PROJECT NO: 242258
SHEET: M-1

NOTE: THE FOLLOWING SPECIFICATIONS TO APPLY WHEN SHADED

FRESH AIR AND COMBUSTION AIR INTAKES

Outside air intake openings shall be located a minimum of 10' horizontally from any hazardous or noxious contaminant.
Where a contaminant source is located within 10' horizontally of an intake opening, such openings shall be located a minimum of 2' below the contaminant source.
Air intake and exhausts shall be at least 10 feet from a property line or lot line of both or an adjacent building on the same property. This distance restriction does not apply to property lines along streets or alleys.
The lowest side of outside air intake openings shall be located at least 12 inches above the bottom of an areaway.
Screens: All outside air intakes shall be provided with a device to prevent the intake of foreign material of ½ inch size or larger.

Dampers: All required outside air intakes shall be equipped with a damper with automatic controls which will close the damper and prevent the intake of outside air into the building when the ventilating unit is not in operation. No manual dampers are allowed.

FIRE PROTECTION RATING (IBC 717.3.2.1)

FIRE DAMPERS shall have the minimum fire-protection rating specified in Table 716.3.2.1 for the type of penetration.

TYPE OF PENETRATION	MINIMUM DAMPER RATING (hour)
Less than 3-hour fire-resistance rated assemblies	1.5
3-hour or greater fire-resistance-rated assemblies	3

FIRE DAMPERS

Fire dampers to be included on all heating & ventilating ducts which pass through fire resistant partitions.

FIRE DAMPER ACTUATION DEVICE (IBC 717.3.3.1)

The fire damper actuating device shall meet one of the following requirements.

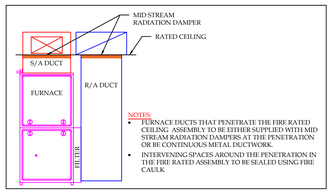
1) The operating temperature shall be approximately 50°F (10°C) above the normal temperature within the duct system, but not less than 160°F (71°).
2) The operating temperature shall be not more than 350° (141°) where located in a smoke control system complying with section 909.
3) Where a combination fire/smoke damper is located in a smoke-control system complying with section 909, the operating temperature rating shall be approximately 50°F (10°C) above the maximum smoke control system designed operating temperature, or a maximum temperature of 350°F (177°C). The temperature shall not exceed the UL 555S degradation test temperature rating for a combination fire/smoke damper.

CEILING RADIATION DAMPERS (CRD)

CRD's to be located where the terminal end of the duct penetrates the bottom membrane of the fire rated horizontal assembly.

CEILING RADIATION DAMPERS (MID DUCT)

In lieu of providing a CRD at the initial penetration between the furnace and the interstitial space associated with the floor/ceiling assembly;
The duct system (supply & return) will be constructed of metal.



SMOKE DAMPERS

Smoke Damper to be activated (closed) by building Fire or Fire & Smoke Detection system. Wiring by others.

ACCESS AND IDENTIFICATION (IBC 717.4)

Fire & Smoke dampers shall be provided with an approved means of access, large enough to permit inspection & maintenance of the damper & it's operating parts. The access shall not affect the integrity of fire-resistance-rated assemblies. The access openings shall not reduce the fire-resistance rating of the assembly. Access points shall be permanently identified on the exterior by a label having letters not less than 0.5 inch (12.7 mm) in height, reading: FIRE/SMOKE DAMPER, SMOKE DAMPER or FIRE DAMPER. Access doors in ducts shall be tight fitting & suitable for the required duct construction.

CHIMNEYS AND VENTS (IFGC 501-506)

A) Gravity Type. All chimneys and vents shall terminate not less than 3 feet above the highest point where they pass through the roof and at least 2 feet higher than any portion of the building within 10 feet horizontally.
B) A mechanical venting system, excluding direct-vent appliances, shall terminate not less than 4 feet (1219 mm) below, not less than 4 feet (1219 mm) horizontally, or 1 foot (305 mm) above any door, operable window or gravity air inlet into the building.
C) Type "B", "BW", and "L" vents: Type "B", "BW", and "L" vents and single wall vent pipes depending on a gravity principle for the removal of the products of combustion shall extend at least 2 feet above the highest point of the roof where the vents or pipes pass through the roof of the building and at least 2 feet higher than any portion of the building measured 10 feet horizontally from the vent or pipe.
D) Locate vent terminals for direct vent appliances with an input of 10,000 btuh/hr or less at least 6 inches form any air openings into the building. Those appliances with an input over 10,000 btu/hr but not over 50,000 btu/hr shall be installed with a minimum 9" clearance, and appliances with an input over 50,000 btu/hr shall have at least a 12" vent termination clearance. Plans shall address terminal locations with the understanding that the appliance/equipment listing may require greater or less clearance.

SEALED COMBUSTION FURNACES & BOILERS

Intake and exhaust shall be sized according to the manufacturer's specifications.

CONDENSATE DISPOSAL (IMC 307.1)

Provide drain for sealed combustion Equipment.

COMBUSTION AIR FAN

Combustion air fan must be running before the burner is in operation.

TRANSFER GRILLES

Install transfer duct and grille unless otherwise noted in all rooms without return air grille(s). As an alternative to transfers, Undercut all doors as required to provide proper return air flow.

(U.C.D.) UNDER CUT DOORS

Where indicated on plans undercut doors 1" above floor finished material.

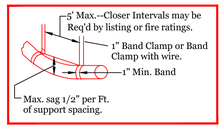
DUCT CONSTRUCTION (IMC 603)

(1) Metal Ducts. All sheet metal ducts, duct liners and fittings shall be constructed as specified in the SMACNA HVAC Duct Construction Standards - Metal & Flexable.
(2) Combustible Ducts. All ducts or airways of wood or other combustible material shall be lined with sheet metal or other approved noncombustible material unless specifically exempted by this code.
(3) Nonmetallic Ducts. Coated metal ducts or ducts constructed of other than metal shall conform to the following:

A) The method for fabricating, installing and supporting ducts shall be approved by the department;
B) The ducts shall resist puncture, deformation or collapse;
C) The ducts shall not be used where the air temperature exceeds 250° F, for kitchen or fume exhaust ducts, or to convey solids or corrosive gases.
D) All joints, Longitudinal & Transverse seams, & connections in ducts must be sealed with welds, gaskets, mastics (adhesives), or tapes.
E) Tapes & Mastics must be listed & labeled with UL 181A or 181B.
F) NO DUCT TAPE PERMITTED as a Sealant on metal ducts unless listed.

INSULATED FLEXIBLE DUCT

Where insulated flexible duct is used, runs shall not exceed 10 feet & be installed according to applicable codes. If runs exceed 10 feet contractor must insure proper air flow.



DUCT & PLENUM INSULATION IECC R403.3.1/IECC C403.2.9

Residential (Low rise - 3 stories or less)

Supply & return ducts in attics shall be insulated to a minimum of R-8 where 3 inches (76 mm) in diameter or greater and R-6 where less than 3 inches (76 mm) in diameter. Supply & return ducts in other portions of the building shall be insulated to a minimum of R-6 where 3 inches (76 mm) in diameter or greater and R-4.2 where less than 3 inches (76 mm) in diameter.

Exceptions:

Ducts or portions thereof located completely inside the building thermal envelope.

Commercial (All buildings not considered Residential)

All supply & return air ducts & plenums shall be insulated with a minimum of R-6 insulation when located in unconditioned spaces & a minimum of R-12 insulation when located outside the building. When located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned or exempt space by a minimum of R-12 insulation.

Exceptions:

1) When located within equipment.
2) When the design temperature difference between the interior & exterior of the duct or plenum does not exceed 15°F.

VOLUME DAMPERS

All supply takeoffs shall have volume dampers for system balancing.

DUCT LAYOUTS

Diagrammatic only and may vary slightly due to Structural Impediments.

Contractor is to insure the structural integrity of the roof before setting any rooftop equipment.

EQUIPMENT AND APPLIANCES ON ROOFS OR ELEVATED STRUCTURES (IMC 306.5)

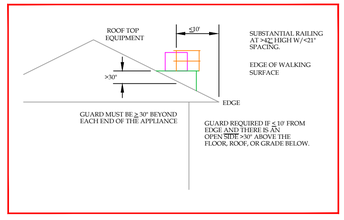
Where equipment requiring access and appliances are installed on roofs or elevated structures at a height exceeding 16 feet, such access shall be provided by a permanent approved means of access, the extent of which shall be from grade or floor level to the equipment and appliances' level service space.

GUARDS (IFGC 306.6)

Guards shall be provided where appliances or other components that require service and roof hatch openings are located within 10 feet of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches above the floor, roof or grade below.

Exception:

Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire lifetime of the roof covering.



CLEARANCE FOR GRADE (IMC 304.10)

Equipment & Appliances installed at grade level shall be supported on a level concrete slab or other approved material extending not less than 3 inches (76mm) above adjoining grade or shall be suspended not more than 6 inches (152mm) above adjoining grade. Such support shall be in accordance with the manufacturer's installation instructions.

INSTALLATION

All construction shall comply with all state and local codes and meet manufacturer's standards.

GAS PIPING (IFGC 401 / SPS 365.0400)

1) All Gas Piping must comply with The National Fuel Gas Code, NFPA 54-2015
2) SPS 365.0800 specifically adopts NFPA 54-2015 NFPA 54-2015 section 5.8.1 states "A line gas pressure regulator or gas equipment pressure regulator, as applicable, shall be installed where the gas supply pressure is higher then that at which the branch supply line or gas utilization equipment is designed to operate or various beyond design pressure limits.

All HVAC water piping to be Type L Copper or Approved equal.

BALANCE AND FINAL TEST (SPS 364.0313)

The installer shall be responsible for testing and balancing of the HVAC system. The person or agency responsible for the ventilating system shall document in writing the amount of outdoor air being provided and distributed for the building occupants and any other specialty ventilation. The document shall be retained at the site and shall be made available to DOC upon request.

An operating and maintenance manual shall be provided to the owner or operator of the building. The manual shall include basic data related to the operation and maintenance of the HVAC systems and equipment. Required routine maintenance actions shall be clearly identified. Where applicable, HVAC controls information such as diagrams, schematics, control sequence descriptions, and maintenance & calibration information shall be included.

National Environmental Balancing Bureau (NEBB) Procedural Standards, the Associated Air Balancing Council (AABC) National Standards or equivalent balancing procedures are acceptable.

TOILET, SHOWER, & LOCKER ROOMS, JANITOR CLOSETS (IBC 1210.2.1 / IMC 603.18)

All registers and grilles shall be a minimum of 4" above finished floor.

If supply air is provided to Toilet Rooms or Janitor Closets, the Exhaust must also be provided simultaneously.

HVAC Contractor to determine location of all Thermostats.

TEMPERATURE CONTROLS (IECC C403.2.4 / IECC R403.1)

Thermostatic setback controls shall have the capability to set back or temporarily operate the system to maintain zone temperatures down to 55°F or up to 85°F.

Thermostatic controls for both heating and cooling shall be capable of providing a temperature range, or deadband of at least 5°F within which the supply of heating and cooling energy to the zone is shut off or reduced to a minimum.

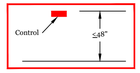
Deadbands may be omitted for thermostats that have manual changeover between heating and cooling modes.

The HVAC system shall be equiped with automatic controls capable of accomplishing a reduction of energy use through control setback or equipment shutdown during periods of nonuse.

Exceptions:

1) Zones that will be operated continuously.
2) Zones with a full HVAC load demand not exceeding 6,800 Btu/h (2kW) and having a readily accessible manual shutoff switch.

HVAC System Controls (thermostat, humidistat) to be <48" above the finished floor for accessibility purposes.
Measurement is taken from "TOP" of the control.

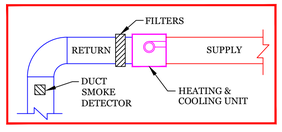


SMOKE DETECTOR (IMC 606.2.1 / IMC 606.4.1)

(1) Required in return air systems with > 2,000 cfm design capacity
(2) Must be connected to fire alarm system if a fire alarm system exists.
(3) Upon activation, smoke detectors shall shut down the air distribution system.
(4) If part of a smoke control system, the system shall switch to smoke control mode.
(5) Activation shall set off visible & audible supervisory signals.

Located in the return air duct or plenum upstream of any filters, exhaust air connections, outdoor air connections or decontamination equipment.

SMOKE DETECTION SYSTEM



Fireplace design & installation by others, not part of this plan.

HVAC Contractor to coordinate work with other trades.

ECONOMIZERS SPS363.0403 (3) W/ FAULT DETETECTION (IECC C403.2.4.7)

(1) Provide economizers on all RTU's and splits system DX cooling systems with a cooling capacity greater than or equal to 54,000 Btu/Hr. equipment listed in tables C403.2.3(1) thru C403.2.3(3)
(2) Economizer to be equipped with fault detection and diagnostics (FDD) system complying with the requirements of section C403.2.4.7. Provide Honeywell TH8321R1003 thermostat which meets the requirements of the following: Outside air, supply air & return air temperature sensors must be permanently installed. Temperature sensors must have an accuracy of +/- 2°F over the range of 40° to 80° Refrigerant pressure sensors, where used , must have an accuracy of +/- 3% of full scale Unit controller must be capable of providing system status, manually initiating each operating mode & reporting faults to a fault management application. FDD system must be capable of detections air temperature sensor faults, damper not modulating and excess outdoor air.

CLOTHES DRYER VENTING & LOCATION (IMC 504 / IFGC 613)

Owner, Architect & Builder to coordinate location of dryer & vent limits such that Section 613 of the Internation IFGC is met for Gas Dryers. Electric Dryers to meet Section 504 of the IMC.

CLOTHES DRYER CLOSETS (RESIDENTIAL MULTI-FAMILY)

Clothes dryer closets will require undercut doors (1-1/2"), louvered doors, or transfer grilles to provide make-up air per section 504 of the IMC

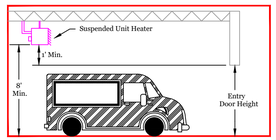
CLOTHES DRYER VENTING (IMC 504 / IFGC 613)

Provide clothes dryer exhaust ducts such that they meet listed requirements which include, but are not limited to, vertical cleanouts, required metal ducts, limited duct lengths, required label or tag addressing equivalent length of the exhaust duct located within 6 ft of the duct connection, minimum duct size, shield plate installation, and prohibition of screws to connect duct sections. In addition, clothes dryer exhaust ducts shall be independent of all other systems and shall convey moisture and products of combustion outside the building.

HANGING EQUIPMENT CLEARANCE (IBC 412 / IBC 1607.8.3/IBC 412.4.4 / IMC 304.6 & 304.7)

Suspended Unit Heaters shall be installed with minimum clearances as follows:

A) Public motor vehicle areas-Min. 8 ft above the floor OR if vehicles are capable of passing under appliance, appliance to be installed per manufacturer and not less 1 ft higher than tallest vehicle garage door opening; OR guarded (See IBC for criteria)
B) Private motor vehicle areas-Min. 6 ft above the floor
C) Aircraft Hanger: Suspended at least 10 ft above the upper surface of wings or engine enclosures of the highest aircraft which may be housed in the hangar; OR
D) 8 ft minimum AFF in shops, offices & other sections of the hangar communicating with storage or service areas.



SEASONAL OCCUPANCY (SPS 364.0309(2))

The heating requirements but not the ventilation requirements may be waived during the periods of May 1st through October 15th for the following or similar occupancies: drive-in eating places. club houses, outdoor toilets, camp lodge buildings, canning factories and migrant labor camps.

NATURAL VENTILATION (SPS 364.0402 / IMC 402.2)

For specific occupancies the minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

VENTILATION (SPS 364.0401(1))

Outdoor air ventilation by natural or mechanical means shall be permitted to be omitted in large volume spaces containing 5,000 or more cubic feet per occupant.

PIPE INSULATION (IECC R403.4 / IECC C403.2.10 / IMC 1204.1/SPS 363.0403(8)/2009 IECC 503.2.8)

Provide piping carrying fluids less then 55°F or more than 105°F with insulation to the R-values shown in 2009 IECC Table 503.2.8 based on SPS 363.0403(8) for all commercial buildings, except for those which are low rise residential buildings, 3 stories or less above grade, which are required to have a minimum of R-3, Per IECC R403.4

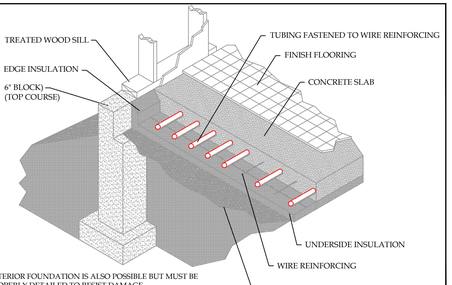
FLUID	NOMINAL PIPE DIAMETER			
	≤ 1.5"		> 1.5"	
	MIN. THICKNESS	R VALUE	MIN. THICKNESS	R VALUE
Steam	1-1/2	5.5	3	11.1
Hot water	1-1/2	5.5	2	7.4
Chilled water, brine or refrigerant	1-1/2	5.5	1-1/2	5.5

For SI: 1 inch=25.4mm, British thermal unit per inch/h . ft^2 .°F = W per 25 mm/K . m^2
A) Based on insulation having a conductivity (k) not exceeding 0.27 Btu per inch/h . ft^2 °F.

INSTALLATION REGISTRATION (SPS 341.41)

(1) BOILER OR PRESSURE VESSEL INSTALLATION REGISTRATION.
a) Except as provided in par. (b), the installation of any boiler or pressure vessel shall be registered with the department by the installer before the operation of the boiler or pressure vessel. Registration shall be on form SBD-6314-E.

SLAB ON GRADE (IMC 1208.1 & IMC 1209.2)



NOTES:
1: EXTERIOR FOUNDATION IS ALSO POSSIBLE BUT MUST BE PROPERLY DETAILED TO RESIST DAMAGE.
2: USE A MINIMUM OF R-10 INSULATION.
3: TYPICAL SLAB THICKNESS 4" TO 8" (COMMERCIAL)
4: TYPICAL TUBE SPACING 6" TO 18" ON CENTER DEPENDING ON LOAD & FLOORING.

KEY ITEM(s)

* IMC 1208.1 - HYDRONIC PIPING SYSTEMS, OTHER THEN GROUND SOURCE HEAT PUMP LOOP SYSTEMS, SHALL BE TESTED HYDRONICALLY AT 1-1/2 TIMES THE MAXIMUM SYSTEM DESIGN PRESSURE, BUT NOT LESS THAN 100 PSI. THE DURATION OF EACH TEST SHALL BE NOT LESS THAN 15 MINUTES. GROUND SOURCE HEAT PUMP LOOP SYSTEMS SHALL BE TESTED PER IMC 12081.1.
* IMC 1209.2 - PROVIDE TESTING OF HYDRONIC PIPING & TUBING PRIOR TO THE POURING OF CONCRETE. DURING THE POURING, THE PIPING/TUBING SHALL BE MAINTAINED AT THE PROPOSED OPERATING PRESSURE.

SYMBOL IDENTIFICATION

EBB-1	= ELECTRIC BASEBOARD	RD	= RADIATION DAMPER
HBB-1	= HYDRONIC BASEBOARD	FD	= FIRE DAMPER
EF-1	= EXHAUST FAN	SD	= SMOKE DAMPER
	= EGGCRATE RETURN GRILLE	SD	= SMOKE DETECTOR
	= SUPPLY DIFFUSER	FSD	= FIRE, SMOKE DAMPER
	= RETURN AIR GRILLE		= VOLUME DAMPER
FC	= FURNACE	ZD	= ZONE DAMPER
PRV	= POWER ROOF VENTILATOR	SAG	= SUPPLY AIR GRILLE
	= PROPELLER EXHAUST FAN	CD	= CEILING DIFFUSER
M	= MOTORIZED DAMPER	UH	= UNIT HEATER
		RAG	= RETURN AIR GRILLE
		RTU	= ROOFTOP UNIT
		UCD	= UNDERCUT DOOR
		EWH	= ELECTRIC WALL HEATER
		T.G.	= TRANSFER GRILLE
		PRV	= POWER ROOF VENTILATOR
		ACCU	= AIR COOLED CONDENSING UNIT
		MUA	= MAKE UP AIR
		HRV	= HEAT RECOVERY VENTILATOR

IMC 920 UNIT HEATERS

Unit heaters shall be installed in accordance with the listing and the manufacturer's instructions. Suspended-type unit heaters shall be supported by elements that are designed and constructed to accommodate the weight and dynamic loads. Hangers and brackets shall be of noncombustible material.

IMC 912 INFRARED RADIANT HEATERS

Infared radiant heaters shall be fixed in a position independent of fuel and electric supply lines. Hangers and brackets shall be of noncombustible material. Heaters shall be installed with clearances from combustible material in accordance with manufacturer's installation.

(ASHRAE 90.1 (6.7.2.4)) SYSTEM COMMISSIONING

HVAC Control systems shall be tested to ensure control elements are calibrated, adjusted, & in proper working condition.
HVAC Control system to be commissioned as required per ASHRAE 90.1 Section 6.7.2.4 based on appendix E.

H & H MECHANICAL
W145 N5789 SHAWN CIRCLE
MENOMONEE FALLS, WI. 53051

CONTRACTOR:
H&H MECHANICAL CONTRACTORS
W145 N 5789 SHAWN CIRCLE
MENOMENEE FALLS, WI 53051

PROJECT:
HUNGER TASK FORCE
802 W MITCHELL ST.
MILWAUKEE, WI 53204

PLOTTED ON: 10/15/2024
SCALE: N/A
DRAWN BY: WCG
DESIGN ENGINEER: DAVE JOHNSON
DATE PLAN WAS CREATED: 10/7/2024
PLAN NAME: SPECIFICATIONS
PROJECT NO: 242258
SHEET: M-S