

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018	<u>UMC- 2021</u>
CHAPTER 1 SCOPE AND ADMINISTRATION	
CHAPTER 2 ADMINISTRATION	
<u>203 AIR DISPERSION SYSTEMS.</u> New definition.	
203 Combustible Material. As pertaining to materials adjacent to or in contact with heat producing appliances, vent connectors, gas vents, chimneys, steam and hot water pipes, and warm air ducts, materials made of or surfaced with wood, compressed paper, plant fibers, or other materials that are capable of being ignited and burned. Such material shall be considered combustible even though flame proofed, fire retardant treated, or plastered. A material that, in the form in which it is used and under the conditions anticipated, will ignite and burn; a material that does not meet the definition of noncombustible. [NFPA 54: 3.3.64.1 3.3.67.1]	
<u>203 LINESET.</u> A set of two refrigerant pipes that extends from the condenser to the evaporator (cooling coil) in direct systems, consisting of a suction line and a liquid line.	
<u>203 REFRIGERANT DESIGNATION.</u> The unique identifying alphanumeric value assigned to an individual refrigerant.	
CHAPTER 3 GENERAL REGULATIONS	

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

<u>UMC- 2018</u>	<u>UMC- 2021</u>
<p>302.1 Minimum Standards. Listed pipe, pipe fittings, appliances, appurtenances, equipment, materials, and devices used in a mechanical system shall be listed or labeled (third party certified) by a listing agency (accredited conformity assessment body) and shall complying with the approved applicable recognized standards referenced in this code, and shall be free from defects. Unless otherwise provided for in this code, materials, appurtenances, or devices used or entering into the construction of mechanical systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval.</p>	
<p>302.1.1 Marking. Each length of pipe and each pipe fitting, material, and device used in a mechanical system shall have cast, stamped, or indelibly marked on it <u>any markings required by the applicable referenced standards and listing agency, and the manufacturer’s mark or name, which shall readily identify the manufacturer to the end user of the product.</u> Where required by the approved standard that applies, the product shall be marked with the weight and the quality of the product. Materials and devices used or entering into the construction of mechanical systems, or parts thereof, shall be marked and identified in a manner satisfactory to the Authority Having Jurisdiction. Such marking shall be done by the manufacturer. Field markings shall not be acceptable. Exception: Markings shall not be required on nipples created from cutting and threading of approved pipe.</p>	
	303.8.4.1 Guards and rails for appliances on roofs
303.10.1.1 Type I Hood Exhaust System. <u>New section.</u>	
303.10.1.2 Product Conveying Ducts. <u>New section</u>	304.3.1 Access to roof to appliances on roofs. NMAC 14.9.2.11 A. : except those designated as R-3 occupancies.
TABLE 303.10.1 REDUCTION OF CLEARANCES WITH SPECIFIED FORMS OF PROTECTION. <u>New</u>	

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018	<u>UMC- 2021</u>
TABLE 313.3 HANGER AND SUPPORTS. New section.	
CHAPTER 4 VENITLATION AIR	-
	401.1 Ventilation Air
402.2 Natural Ventilation. Exception: Revise- A mechanical ventilation is not required where: (a) <u>Natural ventilation openings comply with the requirements of Section 402.2 and are permanently open or have controls that prevent openings from being closed during period of expected occupancy, or</u> (b) <u>The zone is not served by heating or cooling equipment.</u> [ASHRAE 62:6.4	
	405 Indoor air quality for Residential Occupancies. - Laundry rooms no longer require ventilation - Mechanical ventilation for outdoor air now required - Formula provided for mechanical fresh air intake - Etc.

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018	UMC- 2021
<p>CHAPTER 5 EXHAUST SYSTEMS Sections and subsections have been renumbered and relocated within this Chapter, while the meaning and concept of the section have remained the same.</p>	<p>14.9.2.12 CHAPTER 4 VENTILATION AIR: See this chapter of the UMC except as provided below. A. 405.3 Bathroom Exhaust. See this section of the UMC except add the following: Exception: Residential Occupancies with an operable window located in the same room. B. 405.4 Kitchen Exhaust. See this section of the UMC except after the words "directly to the outdoors" add the following: unless listed for recirculation.</p>
<p>TABLE 506.10.4 Clearance Increases</p>	<p>510.9.1 Type 1 rooftop Terminations</p>

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
<p>511.2.2.2 Capture and Containment Test. The permit holder shall verify capture and containment performance of the <u>Type I</u> hoods. A field test shall be conducted with the <u>all</u> appliance under the hood at operating temperatures, with the source of outdoor air providing makeup air for all the hood operating- and with the source of recirculated air providing conditioning for the space in which the hood operating is located <u>at design airflows and with all sources of replacement air operating at design airflows for the restaurant.</u> Capture and containment shall be verified visually by observing smoke or steam produced by actual or simulated cooking operation or <u>by simulating cooking</u> using devices such as smoke candles or smoke puffers. Smoke bombs shall not be used. [ASHRAE 154:8.2.3 <u>154:8.2</u>]</p>

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018	<u>UMC- 2021</u>
<p>CHAPTER 6 DUCT SYSTEMS Sections and subsections have been renumbered and relocated within this Chapter, while the meaning and concept of the section have remained the same.</p>	
<p>601.2 Sizing Requirements. Duct systems used with blower type equipment that are portions of a heating, cooling, absorption, evaporative cooling, or outdoor air ventilation system shall be sized in accordance with <u>ACCA Manual D</u> an approved standard listed in Table 1701.1, or by other approved methods.</p>	<p><u>603.7</u> Support of Ducts</p>

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
602.2.4 Discrete products in Plenums
603.4 Flexible Air Ducts and Connectors. Revised.
TABLE 603.10 CLOSURE MARKINGS. New table.
603.12 Air Dispersion Systems. New section.

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
CHAPTER 7 COMBUSTION AIR
<u>702.0 Extra Device or Attachment.</u>
CHAPTER 8 CHIMNEYS AND VENTS
<u>802.2.2 Maximum Input Rating.</u> New section.
<u>802.2.3 Adjacent Room or Space.</u> New section.
<u>802.2.8 Incinerators.</u> New section.
<u>802.3.6 Above Ceiling or Non-ducted Air Handling System.</u> New section.
TABLE 802.4 TYPE OF VENTING SYSTEM TO BE USED. Revised.

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
802.6.1 Termination Requirements. Revised.
802.8.3 Category I Through Category IV and Noncategorized Appliances Nuisance and Hazard
803.2.6 Elbows in Connectors. New section.
CHAPTER 9 INSTALLATION OF SPECIFIC APPLIANCES
902.5 Safety Shutoff Devices for Unlisted LP-Gas Appliance Used Indoors. New section.

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
<u>902.7 Use of Air or Oxygen Under Pressure. New section.</u>
<u>902.13 Process Air. New section.</u>
<u>902.14 Gas Pressure Regulators. New section.</u>
<u>902.15 Venting of Gas Appliance Pressure Regulators. New section.</u>
<u>902.16 Bleed Lines for Diaphragm-Type Vents. New section.</u>
904.2 Clearances. Revised.

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UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
<u>904.2.1 Listed Units. New section.</u>
<u>904.2.2 Unlisted Units. New section.</u>
<u>904.2.3 Listed and Unlisted Units. New section.</u>
<u>904.2.4 Front Clearances. New section.</u>
<u>904.2.5 Adjacent to plaster or Noncombustible Materials. New section.</u>
<u>904.2.6 Interference. New section.</u>
<u>904.2.7 Supply Air Ducts to Listed Furnaces. New section.</u>
<u>904.2.8 Supply Air Ducts to Unlisted Furnaces. New section.</u>
<u>904.2.7 Central Heating Furnaces. New section.</u>

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
<u>904.13 Electric Heating Furnaces.</u> New section.
905.6 Duct Furnaces Used with Refrigeration Systems. Revised.
<u>905.6.1 In Conjunction with Cooling Appliances.</u> New section.
<u>905.6.2 Located Upstream from Cooling Coils.</u> New section.
<u>905.6.3 Heat Exchangers.</u> New section.
907.1 Installation. Revised.
<u>907.1.1 Unlisted Wall Furnaces.</u> New section.
<u>907.1.2 Vented Wall Furnaces.</u> New section.
<u>907.1.3 Direct Vent Wall Furnaces.</u> New section.
<u>907.1.4 Panels, Grilles, and Access Doors.</u> New section.
908.2 Gas-Fired Clothes Dryers. Revised.
911.2 Installation. Revised.
<u>911.2.1 Listed Decorative Appliance.</u> New section.
<u>911.2.2 In Manufactured Home.</u> New section.
<u>911.2.3 Unlisted Decorative Appliance.</u> New section.
914.3 Installation. Revised.

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
914.3.1 Industrial or Commercial Occupancies. New section.
914.3.2 Fresh Air Ventilation. New section.
914.3.3 Access Required. New section.
918.3 Mounting on Combustible Floors. Revised.
918.3.1 Not Listed for Mounting on Combustible Floors. New.

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
924.2.1 Open-Flame Type. <u>Clearances shall comply-</u> Open flame illuminating appliances shall be installed with clearances in accordance with the following:
927.3.1 Pressure Relief Valve. <u>New section.</u>
CHAPTER 10 BOILERS AND PRESSURE VESSELS
1002.5 Dual Purpose Water Heater. <u>New.</u>

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
CHAPTER 11 REFRIGERATOR
1103.1 Classification of Refrigerants. Refrigerants shall be classified in accordance with Table 1102.2 <u>or in accordance with ASHRAE 34 where approved by the Authority Having Jurisdiction.</u>
<u>1103.1.1 Safety Group.</u> New section.
1104.3 Institutional Occupancies. The amounts <u>shown in Table 1102.2 RCL value required in Section 1104.2</u> shall be reduced by 50 percent for the areas of institutional occupancies. The total of Group A2, B2, A3 and B3 refrigerants shall not exceed 550 pounds (249.5 kg) in the occupied areas and machinery rooms of institutional occupancies. {ASHRAE 15:7.2.1} <u>Exception:</u> <u>The total of all Group A2L refrigerants shall not be limited in machinery rooms of institutional occupancies.</u>



UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
<u>1106.2 Refrigeration Machinery Room, General Requirements.</u> New section inserted.
<u>1106.2.1 Access.</u> New section.
<u>1106.2.2 Openings.</u> New section.
<u>1106.2.2.1 Detectors and Alarms.</u> New section.
<u>1106.2.2.2 Refrigerant Detectors.</u> New section.
<u>1106.2.3 Mechanical Ventilation.</u> New section.
<u>1106.2.4 Ventilation.</u> New section.
<u>1106.2.5 Emergency Ventilation-Required Airflow.</u> New section.
<u>1106.2.5.1 Ventilation- A1, A2, A3, B1, B2L, B2 and B3 Refrigerants.</u> New section.
<u>1106.3 Normal Operations.</u> New section.
1107.3 <u>1106.4 Natural Ventilation.</u> Renumbered.
<u>1106.11 Restricted Access.</u> New section.
1106.8 Special Requirements.
1107.0 Refrigeration Machinery Room, Special Requirements Ventilation.
<u>1107.1 General.</u> New section.
<u>1107.1.1 Flame-Producing Devices.</u> New section.
<u>1107.1.2 Doors.</u> New section.
<u>1107.1.3 Walls, Floors, and Ceilings.</u> New section.
<u>1107.1.4 Machinery Rooms.</u> New section.
<u>1107.1.5 Exterior Openings.</u> New section.
<u>1107.1.6 Sealing.</u> New section.
<u>1107.1.7 Group A2L and B2L Refrigerants.</u> New section.
<u>1107.1.7.1 Mechanical Ventilation.</u> New section.
<u>1107.1.7.2 Refrigeration Detectors.</u> New section.
<u>1107.1.7.3 Machinery Rooms.</u> New section.
<u>1107.1.8 Group A2, A3, B2, or B3 Refrigerants.</u> New section.
<u>1107.9 Refrigeration Systems.</u> New section.
<u>1107.1.10 Remote Control.</u> New section.

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
1109.1.1 Copper Line sets. New section.
TABLE 1116.2 FIELD LEAK TEST PRESSURES. Revised.
CHAPTER 12 HYDRONICS
1202.3 Compatibility. Fluids used on hydronic systems shall be compatible with all components that will contact the fluid. Where materials in hydronic system are not suitable for use in a potable water system, such potable water shall not be used. Where a heat exchanger is installed with a dual-purpose water heater, such application shall comply with the requirements for a single wall heat exchanger in Section 1218.1.
1203.3 Tankless Water Heater. The output performance on Tankless water heaters shall be rated by the manufacturer for space-heating applications, and the output performance shall be determined by the temperature rise and flow rate of water through the unit. The ratings shall be expressed by the water temperature rise at a given

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018	
flow rate. Manufacturer flow rates shall not be exceeded.	
1207.3 Dual-Purpose Water Heaters. Water heaters used for combined space- and water-heating applications shall be in accordance with the standards referenced in Table 203.2, and shall be installed in accordance with the manufacturer’s installation instructions. The total heating capacity of a dual purpose water heater shall be based on the sum of the potable hot water requirements and the space heating design requirements corrected for hot water first hour draw recovery. <u>Water used in the heat transfer fluid in the hydronic heating system shall be isolated from the potable water supply and distributed in accordance with Section 312.1, Section 1202.0 and Section 1218.0</u>	14.9.2.20 CHAPTER 12 HYDRONICS: See this chapter of the UMC except as provided below. 1205.2 Pressure testing. See this section of the UMC except delete the first sentence and substitute: system piping shall be tested with a hydrostatic pressure or an air test of not less than 1.5 times operating pressure.
1208.0 Circulators and Pumps	
1208.1 General. Add- <u>Motor Operated pumps rated for 600V or less shall be listed and labeled in accordance with UL 778.</u>	
1209.1 General. New section.	
1209.2 Installation. New section.	
1209.3 Open-Type Expansion Tanks. New section.	
1209.4 Closed-Type Tanks. New section.	
1209.5 Sizing. New section.	
1210.4 Oxygen Diffusion Corrosion. New section.	
1211.3 CPVC/AL/CPVC Plastic Pipe and Joints. New section inserted.	
1211.7 Ductile Iron Pipe.	
1217.1.1 1201-4 Manifolds.	
1217.4 Tube Placement. Hydronic radiant panel tubing shall be installed in accordance with the manufacturer’s installation instructions and <u>with the tube layout and spacing in accordance with the system design. Except for distribution mains, tubing spacing and the individual loop lengths shall be</u>	

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018	UMC- 2021
<p><u>installed with a variance of not more than +/- 10 percent from the design.</u> The <u>maximum loop length</u> of continuous tubing from a supply-and-return manifold shall not exceed the lengths specified by the manufacture or, in the absence of manufacturer’s specifications, the lengths specified on Table 1217.5. Actual loop lengths shall be determined by spacing, number of loops, flow rate, and pressure drop requirements, as specified in the system design. For the purpose of system balancing, each individual loop shall have a tag securely affixed to the manifold to indicate the length of the loop, and the room(s) and area(s) served.</p> <p>In a single zone multiple manifold installation, balanced flow through manifolds shall be as specified in Section 1215.4.</p>	<p><u>1217.5.3 & 4</u> Radiant floor tube fastener requirements (concrete)</p>
<p>1217.6.3 1217.6 Joist Systems and Subfloors. Where tubing is installed below a subfloor, the tube spacing shall be in accordance with the system design and joist space limitations.</p> <p>Where tubing is installed above of in the subfloor, the tube spacing shall not exceed 12 inches (305 mm) center-to-center for living areas.</p> <p>Where tubing is installed in the joist cavity, the cavity shall be insulated with not less than R-12 material <u>below the heated space.</u></p> <p>An Air space of not less than 2 inches (51 mm) shall be maintained between the top of the insulation and the underside of the floor unless a conductive plate is installed <u>in accordance with the Manufacturer’s instructions.</u></p> <p>Where tubing is installed <u>in panels</u> above or in the subfloor and not embedded in concrete, the floor assembly shall be insulated with not less than R-12 <u>R-5</u> material <u>below the tubing when installed over habitable spaces.</u></p>	<p><u>1217.5.6</u> Radiant floor tube fastener requirements (subfloors)</p>

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
1221.1 General. Piping, fittings, and connections shall be installed in accordance with the conditions of their approval and <u>manufacturer's installation instructions.</u>
CHAPTER 13 FUEL GAS PIPING

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
1308.5.9 Flange Specifications. Revised.
1308.5.9.1 Steel Flanges. New section inserted.
1308.5.9.2 Non-Ferrous Flanges. New inserted.
1308.5. 9.3 Ductile Iron Flanges. New section inserted.
1308.5.9.4 Dissimilar Metal Flanges. New section inserted.
1308.5.11.1 Flange Gasket Materials. New section.
1308.5.11.2 Metallic Flange Gaskets. New section.
1308.5.11.3 Non-Metallic Flange Gaskets. New section.
1308.5.11.4 Full-Face Flange Gaskets. New section.
1308.5.11.5 Separated Flange. New section.
1310.1.3 1311.1.3 Protection Against Corrosion. Renumbered and revised.
1310.1.3.1 Zinc Coating. New section.
1310.1.3.2 Underground piping. New section.
1310.1.3.3 Cathodic Protection. New section.
1310.1.3.4 Sacrificial Anodes. New section.
1310.1.3.5 Systems Failing Tests. New section.
1310.1.3.6 Impressed Current Cathodic Protection. New section.
1310.1.3.7 Documentation. New section.
1310.1.3.8 Dissimilar Metals. New section.
1310.1.3.9 Steel Risers. New section.
1311.2.1 Bonding Jumper Connection. New.
1311.2.2 Bonding Jumper Size. New.
1311.2.3 Bonding Jumper Length. New.
1311.2.4 Bonding Connection. New.

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018	
1311.2.5 Devices Used for Bonding. New.	
1312.2 Suspended Low-Intensity Infrared Tube Heaters. New.	14.9.2.28 APPENDICES: See this section of the UMC except delete appendix A and appendix B.
APPENDIX D FUEL SUPPLY: MANUFACTURED/MOBILE HOME PARKS AND RECREATIONAL VEHICLE PARKS	
D 113.1 Flexible Gas Connector. <u>Except for manufactured homes located on all-weather wood, concrete, or concrete block foundation system or on a foundation constructed in accordance with the local building code, or in absence of a local code, with a recognized building code, with a recognized model code, each gas supply connector shall be listed for outside M/H manufactured home use, shall be not more than 6 feet (1829 mm) in length, and shall have a capacity rating to supply the connected load. Exception: Gas supply connections for manufactured homes located on all-weather wood, concrete, concrete block foundation system or on a foundation constructed in accordance with the local building code or, in the absence of a local code, with a recognized model building code. [NFPA 501A:4.4.1]</u>	
APPENDIX E SUSTAINABLE PRACTICES	

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
E 503.4.7.2 Ducts Ductwork and Plenum Leakage. Revised.
E 503.4.7.2.1 Duct Leakage Tests. Ductwork that is designed to operate at static pressures exceeding 3 inches water column (0.7 kPa) and ductwork located outdoors shall be leak-tested in accordance with industry accepted test procedures <u>the SMACNA HVAC Air Duct Leakage Test Manual</u> . Representative sections totaling not less than 25 <u>20</u> percent of the total installed duct area for the designated pressure class shall be tested. <u>Where the tested 20 percent fail to comply with the requirements of this section, then 40 percent of the total installed duct area shall be tested. Where the tested 40 percent fail to comply with the requirements of this section, then 100 percent of the total duct area shall be tested.</u> Sections to be tested shall be selected by the building owner or designated representative of the building owner. Positive pressure leakage test acceptable for negative pressure ductwork. The permitted duct leakage shall be not more than the following:

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
E 503.5.6.6 Ventilation Design. New section.
E 503.5.7.1 Hydronic Variable Flow Systems. HVAC pumping <u>Chilled and hot-water distribution</u> systems having a total pump system exceeding 10 hp (7.5 kW) that include <u>three or more</u> control valves designed to modulate or step open and close as a function of load shall be designed for variable fluid flow and shall be capable of <u>and configured to</u> reduce pump flow rates to 50 percent or less of the design flow rate <u>or the minimum flow rate required by the heating/cooling equipment manufacturer for the proper operation of equipment.</u> Individual <u>or parallel</u> chilled-water pumps serving variable flow <u>heating-water or chilled-water</u> systems having <u>where the nameplate horsepower of the motor or combined parallel</u> motors exceeding 5 hp (3.7 37.3 kW) shall have controls, devices, or both (such as variable speed control) that will respond in pump motor demand of not more than 30 percent of design wattage at 50 percent of design water flow. The controls or devices shall be controlled as a function of desired flow or to maintain a minimum required differential pressure. Differential pressure shall be measured at or near the most remote heat exchanger or the heat exchanger requiring the greatest differential pressure. The differential pressure setpoint shall not exceed 110 percent of that required to achieve design flow through the heat exchanger. Where differential pressure control is used to be in accordance with this section, and DDC controls are used, the setpoint shall be reset downward based on valve position until one valve is nearly wide open.

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018

Exceptions:

- (1) ~~Systems where the minimum flow is less than the minimum flow required by the equipment manufacturer for the proper operation of equipment served by the system, such as chillers, and where total pump system power is 75 hp (55.9 kW) or less.~~
- (2) ~~Systems that include not more than three control valves. [ASHRAE 90.1:6.5.4.2]~~
- (1) Differential pressure set-point reset is not required where valve position is used to comply with Section E 503.5.7.3.
- (2) Variable-pump flow control is not required on heating-water pumps where more than 50 percent of annual heat is generated by an electric boiler.
- (3) Variable flow is not required for primary pumps in a primary/secondary system.
- (4) Variable flow is not required for a coil pump provided in freeze protection.
- (5) Variable flow is not required for heat recovery coil runaround loops. [ASHRAE 90.1:6.5.4.2]

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018
E 503.5.8.1 Fan Speed Control. Revised.
E 503.5.10 Exhaust Air Energy Recovery. A fan system shall have an energy recovery system where the system's <u>design</u> supply airflow rate exceeds the value listed in Table E 503.5.10(1) and Table E 503.5.10(2), based on the climate zone and percentage of outdoor airflow rate at design conditions. Table E 503.5.10(1) shall be used for all ventilation systems that operate less than 8000 hours per year and Table E 503.5.10(2) shall be used for all ventilation systems that operate 8000 or more hours per year. Energy recovery systems required by this section shall have 50 percent or more energy recovery effectiveness. Fifty percent energy recovery effectiveness shall be the change in the enthalpy of

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018

the outdoor air supply equal to 50 percent of the difference between the outdoor air and return air enthalpies at design conditions. Provision shall be provided to bypass or control the energy recovery system to permit air economizer operation in accordance with Section E 503.5.1.

Exceptions:

- (1) Laboratory systems that are in accordance with Section E 503.5.11.3.
- (2) Systems serving spaces that are not cooled and that are heated to less than 60°F (16°C).
- (3) ~~Systems exhausting toxic, flammable, paint, corrosive fumes, or dust.~~
- (4) ~~Commercial kitchen hoods used for collecting and removing grease vapors and smoke.~~
- (5) ~~Where more than 60 percent of the outdoor air heating energy is provided from site-recovered or site-solar energy.~~
- (6) ~~Heating energy recovery in climate zones 1 and 2.~~
- (3) Cooling energy recovery in climate zones 3c, 4c, 5b, 5c, 6b, 7, and 8.
- (4) Where the largest exhaust source of air exhausted at a single location at the building exterior is less than 75 percent of the design outdoor airflow rate.
Where the sum of the airflow rates exhausted and relieved within 20 feet (6096 mm) of each other is less than 75 percent of the design outdoor airflow rate, excluding exhaust air that is:
 - (a) used for another energy recovery system.
 - (b) not allowed by ASHRAE 170 for use in energy recovery systems with leakage potential, or
 - (c) of Class 4 as defined in ASHRAE 62.1
- (5) Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
- (6) Systems expected to operate less than 20 hours per week at the outdoor air percentage in

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

<p>UMC- 2018</p> <p>containment of smoke, effluent, and combustion products during cooking and idle.</p> <p>Revise- Listed energy recovery devices with that <u>result in</u> a sensible heat recovery effectiveness of 40 percent or more on 50 percent or more of the total exhaust airflow. <u>A 40 percent sensible recovery ration shall mean a change in the dry-bulb temperature of the outdoor air supply equal to 40 percent of the difference between the outdoor air and entering exhaust air dry-bulb temperatures at design conditions.</u> [ASHRAE 90.1:6.5.7.1.4 <u>90.1:6.5.7.2.3</u>]</p>
<p>E 503.5.11.3 Laboratory Exhaust Systems.</p> <p>Revise- (1) VAV laboratory exhaust and room supply systems capable of <u>and configured to reduce</u> reducing exhaust airflow rated, makeup airflow rates, or bot incorporate a heat recovery system to precondition makeup air from laboratory exhaust and shall be in accordance with the following:</p> <p>Revise- VAV Laboratory exhaust and room supply systems required to have minimum circulation rates to be in accordance with the codes or standards shall be capable of reducing zone exhaust and makeup airflow rates to the regulated minimum circulation values, or the minimum required to maintain pressurization relationship requirements. <u>Systems serving nonregulated zones shall be capable of and configured to reduce</u> reducing exhaust and makeup airflow rates to 50 percent of the zone design values, or the minimum required to maintain pressurization relationship requirements.</p>

UNIFORM MECHANICAL CODE SIGNIFICANT CHANGE COMPARISON STUDY

UMC- 2018	<u>UMC- 2021</u>
E 605.1.3 Whole-Building Dwelling-Unit Ventilation. Revised.	
E 605.1.7 Intermittent Mechanical Ventilation.	
	<u>Appendix F</u> Geothermal Energy Systems
