Mechanical Code of New York State

New York State Department of State Division of Code Enforcement and Administration

George E. Pataki - Governor

Mechanical Code of New York State

New York State Department of State Division of Code Enforcement and Administration W E S

George E. Pataki - Governor

This is a preview of "ICC NY-IMC-2000". Click here to purchase the full version from the ANSI store.

Mechanical Code of New York State

Publication Date: May 2002

First printing

ISBN # 1-58001-087-3 (soft-cover edition) ISBN # 1-58001-094-6 (loose-leaf edition)

COPYRIGHT © 2002 by

International Code Council 5203 Leesburg Pike, Suite 600 Falls Church, VA 22041 New York State Department of State 41 State Street Albany, NY 12231 518.474-4073

ALL RIGHTS RESERVED. This work contains (1) portions of the International Code Council Codes (the "ICC Codes") and (2) New York modifications to the ICC Codes. The International Code Council has copyright ownership of the ICC Codes. The New York State Department of State has copyright ownership of the New York modifications. As to the ICC Codes, all rights, including the right of reproduction in whole or in part in any form, are reserved to the International Code Council. As to the New York modifications, all rights, including the right of reproduction in whole or in part in any form, are reserved to the New York State Department of State. For information on permission to copy material exceeding fair use, please contact: ICBO Publications Department, 5360 Workman Mill Rd., Whittier, CA 90601-2298, (800) 423-6587.

PRINTED IN THE U.S.A.

ACKNOWLEDGEMENTS

The Department of State gratefully acknowledges the following individuals who contributed to the development of the Plumbing, Mechanical and Fuel Gas Codes of New York State:

State Fire Prevention and Building Code Council

Randy A. Daniels, Secretary of State (Chair) Alexander F. Treadwell, former Secretary of State (Chair 1995 - 2001) John W. Hasper, Deputy Secretary of State (designee) James A. Burns, State Fire Administrator Ogden J. Clark (designee) Antonia Coello Novello, M.D., Commissioner of Health Barbara DeBuono, M.D., former Commissioner of Health Richard Svenson (designee) Linda Angello, Commissioner of Labor James McGowan, former Commissioner of Labor Denis Peterson (designee) Thomas V. Ognibene, Councilman, City of New York Roy A. Bernardi, former Mayor, City of Syracuse Nick Altieri (designee) James P. Griffin, Mayor, City of Olean Christopher Young (designee) Michael Behling, Legislator, County of Jefferson Paul Noto, Legislator, County of Westchester Kevin Donohue, Councilman, Town of LaGrange Scott Wohl, Trustee, Village of Goshen Stephen Brescia, Mayor, Village of Montgomery Carmen Dubaldi (designee) Gunnar Neilson, Fire Service Official Robert G. Shibley, AIA, Registered Architect Ronald Bugaj, Registered Architect (deceased) Dr. James J. Yarmus, P.E., Professional Engineer John H. Flanigan, Code Enforcement Official Robert Hankin, Builders' representative John J. Torpey, Trade union representative Terence J. Moakley, Persons with disabilities representative

Department of State

Frank Milano, First Deputy Secretary of State Dorothy M. Harris, Assistant Secretary of State (Project coordinator) George E. Clark, Jr., Director, Division of Code Enforcement and Administration Michael Saafir, Deputy Director Ronald Piester, Assistant Director of Code Development Richard DiGiovanna, Office of Counsel

Plumbing, Mechanical and Fuel Gas Codes Technical Subcommittee

Cheryl Fischer (Chair), John Addario, Michael Burnetter, Bill Richardsen, Kumar Vijaykumar (Department of State Staff) Lou Ackerman, Robert Cordell, Marsha Dollendorf, Dr. Larry Feeser, Jim Hart, Ron Monast, Michael Montysko

Administrative Task Group

Richard Thomson (Chair), James King, Thomas Romanowski, William Stewart, Robert Thompson

International Conference of Building Officials - Publications Staff

Kim Akhavan (Managing Editor), Alberto Herrera (Typesetter), Yolanda Nickoley (Typesetter), Suzane Nunes (Product Development Manager), Mary Bridges, Marje Cates, Greg Dickson, Carmel Gieson, Jessica Hoffman, Roger Mensink, Rhonda Moller, Cindy Rodriguez, Mike Tamai and Lisa Valentino

Cover Photograph

Dave Feiden

Content

The Mechanical Code of New York State combines language from the 2000 International Mechanical Code[®], 2001 Supplement to the International Mechanical Code, and New York modifications developed by the State Fire Prevention and Building Code Council and its Plumbing, Mechanical and Fuel Gas Code Technical Subcommittee. In addition, administrative modifications to the 2000 International Mechanical Code were developed by the Department of State's Administrative Task Group.

Marginal Markings

New York modifications to code language are indicated by NY tape ($\frac{N}{Y}$) in the margin, and New York text is underlined. Deletion of code language by New York is indicated by an arrow (\Rightarrow) in the margin.

"Reserved" indicates that a section or portion of the International Code[™] has been deleted, but its number or position has been retained.

Letter Designations in Front of Section Numbers

The content of sections in this code which begin with a letter designation are maintained by another code development committee in accordance with the following: [B] = International Building Code Development Committee; [F] = International Fire Code Development Committee; [M] = International Mechanical Code Development Committee; [P] = International Plumbing Code Development Committee; [RBE] = International Residential Code Building and Energy Development Committee; [RMP] = International Residential Code Building and Energy Development Committee; [RMP] = International Residential Code Mechanical/Plumbing Development Committee; and [E] = International Energy Conservation Code Development Committee.

TABLE OF CONTENTS

CHAPTER 1 GENERAL REQUIREMENTS 1

Section	
101 Gener	al 1
102 Applie	ability 1
103 Office	of Code Enforcement 1
104 Code	Enforcement Official 1
	val 2
106 Permit	s
107 Inspec	tions and Testing 2
108 Violat	ions 2
109 Variar	ce Procedures 2

CHAPTER 2 DEFINITIONS 3

Sectio	n	
201	General	3
202	General Definitions	3

CHAPTER 3 GENERAL REGULATIONS 15

Sectio	n
301	General
302	Protection of Structure
303	Equipment and Appliance Location 18
304	Installation
305	Piping Support 19
306	Access and Service Space 19
307	Condensate Disposal 20
308	Clearance Reduction 21
309	Temperature Control 22
310	Explosion Venting 22
311	Smoke and Heat Vents 22
312	Heating and Cooling Load Calculations 22

Section		
401	General	
402	Natural Ventilation	
403	Mechanical Ventilation	
404	Enclosed Parking Garages	
405	Systems Control	
406	Ventilation of Uninhabited Spaces	

CHAPTER 5 EXHAUST SYSTEMS 27

Sectio	n
501	General
502	Required Systems
503	Motors and Fans
504	Clothes Dryer Exhaust
505	Domestic Kitchen Exhaust Equipment
506	Commercial Kitchen Grease Ducts
	and Exhaust Equipment 34
507	Commercial Kitchen Hoods 37
508	Commercial Kitchen Makeup Air 39

509	Fire Suppression Systems	39
510	Hazardous Exhaust Systems	39
511	Dust, Stock and Refuse Conveying Systems	40
512	Subslab Soil Exhaust Systems	41
513	Smoke Control Systems	42
СНА	PTER 6 DUCT SYSTEMS	47
Sectio	m	

Scent	
601	General
602	Plenums
603	Duct Construction and Installation 48
604	Insulation
605	Air Filters
606	Smoke Detection Systems Control 50
607	Ducts and Air Transfer Openings 51

CHAPTER 7 COMBUSTION AIR 55

Section

701	General
702	Inside Air 55
703	Outdoor Air
704	Combined Use of Inside and Outdoor Air (Condition 1) . 57
705	Combined Use of Inside and Outdoor Air (Condition 2) . 57
706	Forced Combustion Air Supply 57
707	Direct Connection 57
708	Combustion Air Ducts 58
709	Opening Obstructions 58
710	Opening Location and Protection

CHAPTER 8 CHIMNEYS AND VENTS 59

801	General	59
802	Vents	60
803	Connectors	61
804	Direct-Vent, Integral Vent, and Mechanical Draft	
	Systems	63
805	Factory-Built Chimneys	64
806	Metal Chimneys	64

CHAPTER 9 SPECIFIC APPLIANCES, FIREPLACES AND SOLID FUEL-BURNING EQUIPMENT 65

Section

901	General
902	Masonry Fireplaces
903	Factory-Built Fireplaces
904	Pellet Fuel-Burning Appliances
905	Fireplace Stoves and Room Heaters
906	Factory-Built Barbecue Appliances
907	Incinerators and Crematories
908	Cooling Towers, Evaporative
	Condensers and Fluid Coolers

909	Vented Wall Furnaces
910	Floor Furnaces
911	Duct Furnaces
912	Infrared Radiant Heaters
913	Clothes Dryers
914	Sauna Heaters 67
915	Engine and Gas Turbine-Powered
	Equipment and Appliances
916	Pool and Spa Heaters
917	Cooking Appliances 67
918	Forced-Air Warm-Air Furnaces
919	Conversion Burners
920	Unit Heaters
921	Vented Room Heaters
922	Kerosene and Oil-Fired Stoves and Heaters 69
923	Small Ceramic Kilns 69
924	Stationary Fuel Cell Power Plants 69

CHAPTER 10 BOILERS, WATER HEATERS AND

PRESSURE	VESSELS		71
----------	---------	--	----

Sectio	on	
1001	General	71
1002	Water Heaters	71
1003	Pressure Vessels	71
1004	Boilers	71
1005	Boiler Connections	72
1006	Safety and Pressure Relief Valves and Controls	72
1007	Boiler Low-Water Cutoff	72
1008	Steam Blowoff Valve	73
1009	Hot Water Boiler Expansion Tank	73
1010	Gauges	73
1011	Tests	73

CHAPTER 11 REFRIGERATION 75

Sectio	n
1101	General
1102	System Requirements
1103	Refrigeration System Classification
1104	System Application Requirements
1105	Machinery Room, General Requirements
1106	Machinery Room, Special Requirements
1107	Refrigerant Piping
1108	Field Test
1109	Periodic Testing

CHAPTER 12 HYDRONIC PIPING 83

Sectio	n
1201	General
	Material
1203	Joints and Connections
	Pipe Insulation
1205	Valves
1206	Piping Installation
1207	Transfer Fluid
1208	Tests
1209	Embedded Piping 86

CHAPTER 13 FUEL OIL PIPING AND STORAGE 87

~	
5	ection
v	ccuon

Seem	
1301	General
1302	Material
1303	Joints and Connections
1304	Piping Support
1305	Fuel Oil System Installation
1306	Oil Gauging
1307	Fuel Oil Valves
1308	Testing

CHAPTER 14 SOLAR SYSTEMS 91

Sectio	on	
1401	General	1
1402	Installation	1
1403	Heat Transfer Fluids	2
1404	Materials	2

CHAPTER 15 REFERENCED STANDARDS 93

APPENDIX B RECOMMENDED PERMIT FEE SCHEDULE 101

APPENDI	X C STRUCTURAL	SAFETY	103
INDEX			105

CHAPTER 1 GENERAL REQUIREMENTS

SECTION 101 GENERAL

- N 101.1 Title. These provisions shall be known as the Mechanical
- N Code of New York State and shall be cited as such, and will be
- ^Y_N <u>referred to herein</u> as "this code."
- 101.2 Scope. The provisions of this code shall apply to the design, installation, maintenance, alteration and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions and related processes within buildings. This code shall also regulate those mechanical systems, system components, equipment and appliances specifically addressed in herein. The installation of fuel gas distribution piping and equipment, fuel gas-fired appliances and fuel gas-fired appliance venting systems shall
- ^N be regulated by the *Fuel Gas Code <u>of New York State</u>*.

Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *Residential Code* of New York State.

101.2.1 Appendices. <u>The following appendix has been</u> adopted and is made part of this code:

Appendix C - Structural Safety

101.3 <u>Purpose</u>. The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and
public welfare by regulating the design, construction, installation, quality of materials, location, operation and maintenance or use of mechanical systems.

101.4 Severability. If a section, subsection, sentence, clause or phrase of this code is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

SECTION 102 APPLICABILITY

102.1 General. The provisions of this code shall apply to all matters affecting or relating to structures and premises, as set forth in Section 101. Where, in a specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.2 Existing installations. Except as otherwise provided for in this chapter, a provision in this code shall not require the removal, alteration or abandonment of, nor prevent the continued utilization and maintenance of, a mechanical system lawfully in existence at the time of the adoption of this code.

102.3 Maintenance. Mechanical systems, both existing and new, and parts thereof shall be maintained in proper operating

condition in accordance with the original design and in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in compliance with the code under which they were installed.

102.4 Additions, alterations or repairs. Additions <u>or</u> alterations to a mechanical system shall conform to that required for a new mechanical system without requiring the existing mechanical system to comply with all of the requirements of this code. Additions <u>or</u> alterations shall not cause an existing mechanical system to become unsafe, hazardous or overloaded.

Repairs to existing mechanical systems shall meet the provi-

102.5 through 102.7. Reserved.

4

Ň

Ņ

Ņ

Ń

<=

Ņ

Ň

-NYNYNY

N Y N Y N

102.8 Referenced standards. The standards referenced herein \iff shall be those that are listed in Chapter 15 and such standards \iff shall be considered as part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and the referenced standards, the provisions of this code shall apply.

102.9 <u>Other laws and regulations.</u> The provisions of this code shall not be deemed to nullify any provisions of local, state or federal laws and regulations.

SECTION 103 OFFICE OF CODE ENFORCEMENT

103.1 General. <u>A city, town, village or county that is responsible for administration and enforcement of this code shall designate a code enforcement official in accordance with the applicable provisions of local law.</u>

<u>A state agency that is responsible for administration and enforcement of this code shall be in compliance with the applicable provisions of state agency regulations.</u>

SECTION 104 CODE <u>ENFORCEMENT</u> OFFICIAL

104.1 General. <u>A city, town, village or county that is responsible for administration and enforcement of this code shall establish its local program in accordance with the applicable provisions of local law.</u>

A state agency that is responsible for administration and enforcement of this code shall be in compliance with the applicable provisions of state agency regulations.

104.2 and 104.3 Reserved.

104.4 Inspections. <u>A city, town, village or county that is re-</u> sponsible for administration and enforcement of this code shall

⇒

provide for inspections in accordance with the applicable provisions of local law.

A state agency that is responsible for administration and en-

forcement of this code shall be in compliance with the applicable provisions of state agency regulations.

⇒ 104.5 through 104.7 Reserved.

104.8 Department records. <u>A city, town, village or county that</u> <u>is responsible for administration and enforcement of this code</u> <u>shall establish and maintain records in accordance with the applicable provisions of local law.</u>

A state agency that is responsible for administration and en-

forcement of this code shall keep records in compliance with the applicable provisions of state agency regulations.

SECTION 105 APPROVAL

⇒ 105.1 Reserved.

105.2 Alternative materials, methods, equipment and appliances. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material or method of construction shall be approved where the

State Fire Prevention and Building Code Council finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

⇒ 105.3 Testing. Reserved.

105.3.1 Test methods. Test methods shall be as specified in this code or by other recognized test standards.

105.4 Material, equipment and appliance reuse. <u>Material, equipment and devices shall not be reused unless they meet the requirements of this code for new materials.</u>

SECTION 106 PERMITS

106.1 When required. <u>A city, town, village or county that is re-</u> <u>sponsible for administration and enforcement of this code shall</u> <u>determine local permit requirements in accordance with the ap-</u>

plicable provisions of local law.

A state agency that is responsible for administration and enforcement of this code shall be in compliance with the applica-

 $\frac{N}{Y}$ ble provisions of state agency regulations.

⇒ 106.2 through 106.4 Reserved.

106.5 Fees. <u>A city, town, village or county that is responsible</u> for administration and enforcement of this code shall establish fees in accordance with the applicable provisions of local law.

<u>A state agency that is responsible for administration and enforcement of this code shall be in compliance with the applicable provisions of state agency regulations.</u>

SECTION 107 INSPECTIONS

107.1 Required <u>inspections and</u> testing. <u>A city, town, village</u> or county that is responsible for administration and enforcement of this code shall determine necessary inspections in accordance with the applicable provisions of local law.

A state agency that is responsible for administration and enforcement of this code shall be in compliance with the applicable provisions of state agency regulations.

107.2 Testing. Mechanical systems shall be tested as required in this code and in accordance with Sections 107.2.1 through 107.2.3.

107.2.1 New, altered, extended or repaired systems. New mechanical systems and parts of existing systems, which have been altered, extended, renovated or repaired, shall be tested as prescribed herein to disclose leaks and defects.

107.2.2 Reserved.

107.2.3 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code.

SECTION 108 VIOLATIONS

108.1 <u>Violations.</u> Violations of this code shall be dealt with in a manner appropriate to the applicable provisions of city, town, village or county and shall be in accordance with the applicable provisions of local law.

<u>Violations of this code on state property shall be dealt with in</u> <u>a manner appropriate to a state agency.</u>

108.2 through 108.6 Reserved.

108.7 Unsafe mechanical systems. A mechanical system that is unsafe, constitutes a fire or health hazard, or is otherwise dangerous to human life, as regulated by this code, by reason of inadequate maintenance, dilapidation, fire hazard, disaster, damage or abandonment shall be abated by repair, rehabilitation, demolition or removal.

 \sim

SECTION 109 VARIANCE PROCEDURES

109.1 Application for <u>variance or appeal</u>. <u>Variance or appeal</u> for any part of this code shall be in accordance with the provisions of 19 NYCRR, titled "Variance Procedures," which is administered by the Secretary of State. No town, village, city or county, nor any state agency charged with the administration and enforcement of this code may waive, modify or otherwise alter this code.

This is a preview of "ICC NY-IMC-2000". Click here to purchase the full version from the ANSI store.

CHAPTER 2 DEFINITIONS

SECTION 201 GENERAL

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings indicated in this chapter.

201.2 Interchangeability. Words used in the present tense include the future; words in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *Building Code of New York State, Fire Code of New York State, Fuel Gas Code of New York State* or the *Plumbing Code of New York State*, such terms shall have meanings ascribed to them as in those codes.

201.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

SECTION 202 GENERAL DEFINITIONS

ABRASIVE MATERIALS. Moderately abrasive particulate in high concentrations, and highly abrasive particulate in moderate and high concentrations, such as alumina, bauxite, ironsilicate, sand and slag.

ACCESS (TO). That which enables a device, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel, door or similar obstruction [see also "Ready access (to)"].

AIR. All air supplied to mechanical equipment and appliances for combustion, ventilation, cooling, etc. Standard air is air at standard temperature and pressure, namely, 70°F (21°C) and 29.92 inches of mercury (101.3 kPa).

AIR CONDITIONING. The treatment of air so as to control simultaneously the temperature, humidity, cleanness and distribution of the air to meet the requirements of a conditioned space.

AIR-CONDITIONING SYSTEM. A system that consists of heat exchangers, blowers, filters, supply, exhaust and return ducts, and shall include any apparatus installed in connection therewith.

AIR DISTRIBUTION SYSTEM. Any system of ducts, plenums and air-handling equipment that circulates air within a space or spaces and includes systems made up of one or more air-handling units.

AIR, EXHAUST. Air being removed from any space, appliance or piece of equipment and conveyed directly to the atmosphere by means of openings or ducts.

AIR-HANDLING UNIT. A blower or fan used for the purpose of distributing supply air to a room, space or area.

AIR, MAKEUP. Air that is provided to replace air being exhausted.

ALTERATION. A change in a mechanical system that involves an extension, addition or change to the arrangement, type or purpose of the original installation.

APPLIANCE. A device or apparatus that is manufactured and designed to utilize energy and for which this code provides specific requirements.

APPLIANCE, EXISTING. Any appliance regulated by this code which was legally installed prior to the effective date of this code, or for which a permit to install has been issued.

APPLIANCE, FUEL-FIRED. An appliance that burns solid, liquid and/or gaseous fuel, including but not limited to wood stoves, household cooking ranges, furnaces, boilers, water heaters, clothes dryers and gas-fired refrigerators.

APPLIANCE, GAS (EQUIPMENT). Any apparatus or equipment that uses gas as a fuel or raw material to produce light, heat, power, refrigeration, or air conditioning.

APPLIANCE TYPE.

High-heat appliance. Any appliance in which the products of combustion at the point of entrance to the flue under normal operating conditions have a temperature greater than 2,000°F (1093°C).

Low-heat appliance (residential appliance). Any appliance in which the products of combustion at the point of entrance to the flue under normal operating conditions have a temperature of 1,000°F (538°C) or less.

Medium-heat appliance. Any appliance in which the products of combustion at the point of entrance to the flue under normal operating conditions have a temperature of more than 1,000°F (538°C), but not greater than 2,000°F(1093°C).

APPLIANCE, UNVENTED. An appliance designed or installed in such a manner that the products of combustion are not conveyed by a vent or chimney directly to the outside atmosphere.

APPLIANCE, VENTED. An appliance designed and installed in such a manner that all of the products of combustion are conveyed directly from the appliance to the outside atmosphere through an approved chimney or vent system.

APPROVED. Acceptable to the code enforcement official.

APPROVED AGENCY. An established and recognized agency that is regularly engaged in conducting tests or furnishing inspection services.

AUTHORITY HAVING JURISDICTION. The local government, county government or state agency responsible for the

Ņ