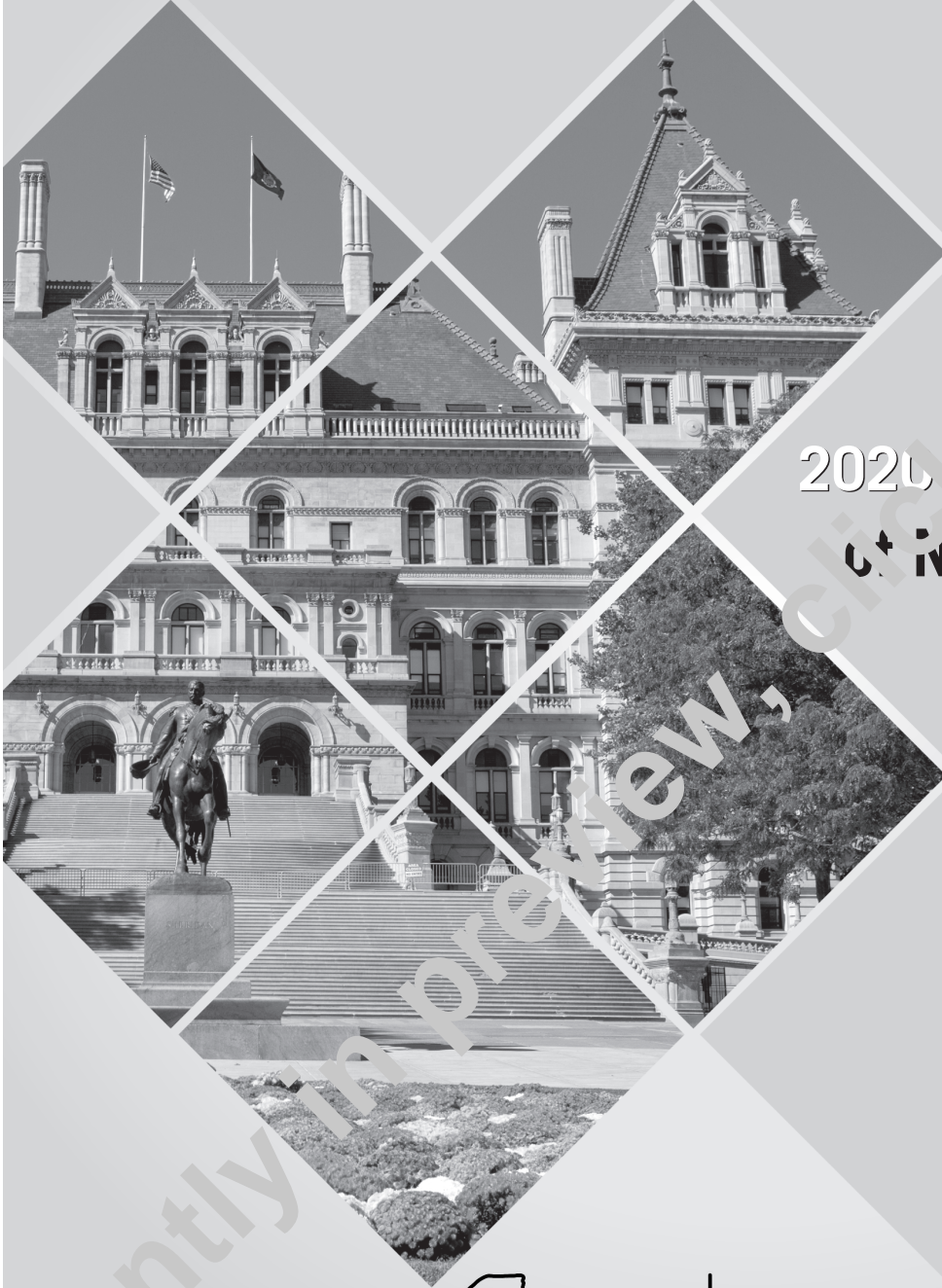


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2020 MECHANICAL CODE
of NEW YORK STATE



**Building Standards
and Codes**



2020 Mechanical Code of New York State

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PREFACE

Introduction

The 2020 *Mechanical Code of New York State* (MCNYS) establishes minimum requirements for mechanical systems using prescriptive and performance-related provisions. It is founded on research-based principles that make possible the use of new materials and new mechanical designs. This 2020 edition was developed as a derivative work of the 2018 edition of the *International Mechanical Code*® (IMC®) published by the International Code Council® (ICC®).

Intention

This code is founded on principles intended to establish provisions consistent with the scope of a mechanical code that adequately protects public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

Letter Designations in Front of Section Numbers

The bracketed letter designations for the party responsible for portions of this code are as follows:

ICC Code Development Committee

- [A] = Administrative Code Development Committee;
- [BE] = IBC—Means of Egress Code Development Committee;
- [BF] = IBC—Fire Safety Code Development Committee;
- [BG] = IBC—General Code Development Committee;
- [BS] = IBC—Structural Code Development Committee;
- [E] = International Energy Conservation Code Development Committee
- [EB] = International Existing Building Code Development Committee;
- [F] = International Fire Code Development Committee;
- [FG] = International Fuel Gas Code Development Committee;
- [M] = International Mechanical Code Development Committee;
- [P] = International Plumbing Code Development Committee; and

New York State Code Development

- [NY] = New York Department of State

Marginal Markings

Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the 2015 edition of the I-Codes®. Deletion indicators in the form of an arrow (➡) are provided in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted.

Italicized Terms

Word and terms defined in Chapter 2, Definitions, are italicized where they appear in code text and the Chapter 2 definitions applies. Where such words and terms are not italicized, common-sense definitions apply. The words and terms selected have code-specific definitions that the user should read carefully to facilitate better understanding of the code.

EFFECTIVE USE OF THE MECHANICAL CODE OF NEW YORK STATE

The *Mechanical Code of New York State* (MCNYS) is a code that regulates the design and installation of mechanical systems, appliances, appliance venting, duct and ventilation systems, combustion appliances, provisions, hydronic systems and solar systems. The purpose of the code is to establish the minimum acceptable level of safety and to protect life and property from the potential dangers associated with the installation and operation of mechanical systems. The code also protects the personnel that install, maintain, service and replace the systems and appliances addressed by this code.

The MCNYS is primarily a prescriptive code with some performance text. The code relies heavily on product specifications and listings to provide much of the appliance and equipment installation requirements.

Arrangement and Format of the 2020 MCNYS

The format of the 2020 MCNYS allows each chapter to be devoted to a particular subject with the exception of Chapter 3, which contains general subject matters that are not extensive enough to warrant their own independent chapter.

Chapter 1 Scope and Administration. Chapter 1 establishes the limits of applicability of the code and describes how the code is to be applied and enforced. A mechanical code, like any other code, is intended to be adopted as a legally enforceable document and it cannot be effective without adequate provisions for its administration and enforcement.

Chapter 2 Definitions. Chapter 2 is the repository of the definitions of terms used in the body of the code. Codes are technical documents and every word and term can impact the meaning of the code text and the intended results. The code often uses terms that have a unique meaning in the code and the code meaning can differ substantially from the ordinarily understood meaning of the term as used outside of the code.

The terms defined in Chapter 2 are deemed to be of prime importance in establishing the meaning and intent of the code text that uses the terms. The user of the code should be familiar with and consult this chapter because the definitions are essential to the correct interpretation of the code and because the user may not be aware that a term is defined.

Chapter 3 General Regulations. Chapter 3 contains broadly applicable requirements related to appliance location and installation, appliance and systems access, protection of structural elements, condensate disposal and clearances to combustibles, among others.

Chapter 4 Ventilation. Chapter 4 includes means for protecting building occupant health by controlling the quality of indoor air and protecting property from the effects of inadequate ventilation. In some cases, ventilation is required to prevent or reduce a health hazard by removing contaminants at their source.

Ventilation is both necessary and desirable for the control of air contaminants, moisture and temperature. Habitable and occupiable spaces are ventilated to promote a healthy and comfortable environment for the occupants. Uninhabited and unoccupied spaces are ventilated to protect the building structure from the harmful effects of excessive humidity and heat. Ventilation of specific occupancies is necessary to minimize the potential for toxic or otherwise harmful substances to reach dangerously high concentrations in air.

Chapter 5 Exhaust Systems. Chapter 5 provides guidelines for reasonable protection of life, property and health from the hazards associated with exhaust systems, air contaminants and smoke development in the event of a fire. In most cases, these hazards involve materials and gases that are flammable, explosive, toxic or otherwise hazardous. Where contaminants are known to be present in quantities that are irritating or harmful to the occupants' health or are hazardous in a fire, both

naturally and mechanically ventilated spaces must be equipped with mechanical exhaust systems capable of collecting and removing the contaminants.

This chapter contains requirements for the installation of exhaust systems, with an emphasis on the structural integrity of the systems and equipment involved and the overall impact of the systems on the fire safety performance of the building. It includes requirements for the exhaust of commercial kitchen grease- and smoke-laden air, hazardous fumes and toxic gases, clothes dryer moisture and heat and dust, stock and refuse materials.

Chapter 6 Duct Systems. Chapter 6 of the code regulates the materials and methods used for constructing and installing ducts, plenums, system controls, exhaust systems, fire protection systems and related components that affect the overall performance of a building's air distribution system and the reasonable protection of life and property from the hazards associated with air moving equipment and systems. This chapter contains requirements for the installation of supply, return and exhaust air systems. Specific exhaust systems are also addressed in Chapter 5. Information on the design of duct systems is limited to that in Section 603.2. The code is very much concerned with the structural integrity of the systems and the overall impact of the systems on the fire safety and life safety performance of the building. Design considerations such as duct sizing, maximum efficiency, cost effectiveness, occupant comfort and convenience are the responsibility of the design professional. The provisions for the protection of duct penetrations of wall, floor, ceiling and roof assemblies are extracted from the *Building Code of New York State*.

Chapter 7 Combustion Air. Complete combustion of solid and liquid fuel is essential for the proper operation of appliances, for control of harmful emissions and for achieving maximum fuel efficiency.

The specific combustion air requirements provided in previous editions of the code have been deleted in favor of a single section that directs the user to NFPA 31 for oil-fired appliance combustion air requirements and the manufacturer's installation instructions for solid fuel-burning appliances. For gas-fired appliances, the provisions of the *Fuel Gas Code of New York State* are applicable.

Chapter 8 Chimneys and Vents. Chapter 8 is intended to regulate the design, construction, installation, maintenance, repair and approval of chimneys, vents and their connections to solid and liquid fuel-burning appliances. The requirements of this chapter are intended to achieve the complete removal of the products of combustion from fuel-burning appliances and equipment. This chapter includes regulations for the proper selection, design, construction and installation of a chimney or vent, along with appropriate measures to minimize the related potential fire hazards. A chimney or vent must be designed for the type of appliance or equipment it serves. Chimneys and vents are designed for specific applications depending on the flue gas temperatures and the type of fuel being burned in the appliance. Chimneys and vents for gas-fired appliances are covered in the *Fuel Gas Code of New York State*.

Chapter 9 Specific Appliances, Fireplaces and Solid Fuel-burning Equipment. Chapter 9 sets minimum construction and performance criteria for fireplaces, appliances and equipment and provides for the safe installation of these items. It reflects the code's intent to specifically address many of the types of appliances that the code intends to regulate. Other regulations affecting the installation of solid fuel-burning fireplaces, appliances and accessory appliances are found in Chapters 3, 6, 7, 8, 10, 11, 12, 13 and 14.

Chapter 10 Boilers, Water Heaters and Pressure Vessels. Chapter 10 presents regulations for the proper installation of boilers, water heaters and pressure vessels to protect life and property from the hazards associated with those appliances and vessels. It applies to all types of boilers and pressure vessels, regardless of size, heat input, operating pressure or operating temperature.

Because pressure vessels are closed containers designed to contain liquids, gases or both under pressure, they must be designed and installed to prevent structural failures that can result in extremely hazardous situations. Certain safety features are therefore provided in Chapter 10 to reduce the potential for explosion hazards.

Chapter 11 Refrigeration. Chapter 11 contains regulations pertaining to the life safety of building occupants. These regulations establish minimum requirements to achieve the proper design, construction, installation and operation of refrigeration systems. Refrigeration systems are a combination of interconnected components and piping assembled to form a closed circuit in which a refrigerant is circulated. The system's function is to extract heat from a location or medium, and to reject that heat to a different location or medium. This chapter establishes reasonable safeguards for the occupants by defining and mandating practices that are consistent with the practices and experience of the industry.

Chapter 12 Hydronic Piping. Hydronic piping includes piping, fittings and valves used in building space conditioning systems. Applications include hot water, chilled water, steam, steam condensate, brines and water/antifreeze mixtures. Chapter 12 contains the provisions that govern the construction, installation, alteration and repair of all hydronic piping systems that affect reliability, serviceability, energy efficiency and safety.

Chapter 13 Fuel Oil Piping and Storage. Chapter 13 regulates the design and installation of fuel oil storage and piping systems. The regulations include reference to construction standards for above-ground and underground storage tanks, material standards for piping systems (both above-ground and underground) and extensive requirements for the proper assembly of system piping and components. The *Fire Code of New York State* (FCNS) covers subjects not addressed in detail here. The provisions in this chapter are intended to prevent fires, leaks and spills involving fuel oil storage and piping systems.

Chapter 14 Solar Thermal Systems. Chapter 14 establishes provisions for the safe installation, operation and repair of solar energy systems used for space heating or cooling, domestic hot water heating or processing. Although such systems use components similar to those of conventional mechanical equipment, many of these provisions are unique to solar energy systems.

Chapter 15 Referenced Standards. Chapter 15 lists all of the product and installation standards and codes that are referenced throughout Chapters 1 through 14. The standards are part of the code to the extent of the reference to the standard. Chapter 15 provides the full title and edition year of the standards and codes in addition to the address of the promulgators and the section numbers in which the standards and codes are referenced.

Appendix A Chimney Connector Pass-throughs. This appendix is informative and not part of the code. Appendix A provides figures that illustrate various requirements in the body of the code. Figure A-1 illustrates the chimney connector clearance requirements of Table 803.10.4.

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TABLE OF CONTENTS

CHAPTER 1 SCOPE AND ADMINISTRATION 1	CHAPTER 5 EXHAUST SYSTEMS 41
Section	Section
101 Title, Scope and Purpose 1	501 General 41
102 Applicability 1	502 Required Systems 42
103 Administration and Enforcement 3	503 Motors and Fans 49
104 Materials, Equipment and Methods of Construction 4	504 Clothes Dryer Exhaust 49
105 Building Permits, Construction Inspections, Stop Work Orders and Certificates of Occupancy 4	505 Domestic Cooking Exhaust Equipment 51
106 Submittal Documents 6	506 Commercial Kitchen Hood Ventilation System Ducts and Exhaust Equipment 51
107 Service Utilities 7	507 Commercial Kitchen Hoods 56
CHAPTER 2 DEFINITIONS 9	508 Commercial Kitchen Makeup Air 59
Section	509 Fire Suppression Systems 60
201 General 9	510 Hazardous Exhaust Systems 60
202 General Definitions 9	511 Dust, Stock and Refuse Conveying Systems 62
CHAPTER 3 GENERAL REGULATIONS 21	512 Subslab Soil Exhaust Systems 63
Section	513 Smoke Control Systems 63
301 General 21	514 Energy Recovery Ventilation Systems 67
302 Protection of Structure 22	CHAPTER 6 DUCT SYSTEMS 69
303 Equipment and Appliance Location 23	Section
304 Installation 23	601 General 69
305 Piping Support 25	602 Plenums 70
306 Access and Service Space 25	603 Duct Construction and Installation 72
307 Condensate Disposal 27	604 Insulation 74
308 Clearance Reduction 28	605 Air Filters 75
309 Temperature Control 28	606 Smoke Detection Systems Control 75
310 Explosion Control 29	607 Duct and Transfer Openings 76
311 Smoke and Heat Vents 29	CHAPTER 7 COMBUSTION AIR 81
312 Heating and Cooling Load Calculations 29	Section
CHAPTER 4 VENTILATION 31	701 General 81
Section	CHAPTER 8 CHIMNEYS AND VENTS 83
401 General 31	Section
402 Natural Ventilation 31	801 General 83
403 Mechanical Ventilation 32	802 Vents 84
404 Enclosed Parking Garages 35	803 Connectors 85
405 Systems Control 35	804 Direct-vent, Integral Vent and Mechanical Draft Systems 86
406 Ventilation of Uninhabited Spaces 35	805 Factory-built Chimneys 87
407 Ambulatory Care Facilities and Group I-2 Occupancies 35	806 Metal Chimneys 88

TABLE OF CONTENTS

**CHAPTER 9 SPECIFIC APPLIANCES,
FIREPLACES AND SOLID
FUEL-BURNING EQUIPMENT 89**

Section

901 General 89

902 Masonry Fireplaces 89

903 Factory-built Fireplaces 89

904 Pellet Fuel-burning Appliances 89

905 Fireplace Stoves and Room Heaters. 89

906 Factory-built Barbecue Appliances 89

907 Incinerators and Crematories 89

908 Cooling Towers, Evaporative
Condensers and Fluid Coolers 90

909 Vented Wall Furnaces 90

910 Floor Furnaces 90

911 Duct Furnaces. 91

912 Infrared Radiant Heaters 91

913 Clothes Dryers 91

914 Sauna Heaters. 91

915 Engine and Gas Turbine-powered
Equipment and Appliances. 91

916 Pool and Spa Heaters 91

917 Cooking Appliances 92

918 Forced-air Warm-air Furnaces 92

919 Conversion Burners 92

920 Unit Heaters 92

921 Vented Room Heaters 92

922 Kerosene and Oil-fired Stoves and Heaters 92

923 Small Ceramic Kilns 92

924 Stationary Fuel Cell Power Systems 92

925 Masonry Heaters. 93

926 Gaseous Hydrogen Systems. 93

927 Radiant Heating Systems 93

928 Evaporative Cooling Equipment 93

929 High-volume Large-diameter Fans 93

**CHAPTER 10 BOILERS, WATER HEATERS
AND PRESSURE VESSELS 95**

Section

1001 General 95

1002 Water Heaters 95

1003 Pressure Vessels 95

1004 Boilers 95

1005 Boiler Connections 96

1006 Safety and Pressure Relief Valves
and Controls 96

1007 Boiler Low-water Cutoff 97

1008 Bottom Blowoff Valve 97

1009 Hot Water Boiler Expansion Tank 97

1010 Gauges 98

1011 Tests 98

CHAPTER 11 REFRIGERATION 99

Section

1101 General 99

1102 System Requirements 99

1103 Refrigeration System Classification 100

1104 System Application Requirements 100

1105 Machinery Room, General Requirements. 107

1106 Machinery Room, Special Requirements 108

1107 Refrigerant Piping. 109

1108 Field Test 110

1109 Periodic Testing 111

CHAPTER 12 HYDRONIC PIPING 113

Section

1201 General 113

1202 Material. 113

1203 Joints and Connections 114

1204 Pipe Insulation 115

1205 Valves 116

1206 Piping Installation. 116

1207 Transfer Fluid 116

1208 Tests 116

1209 Embedded Piping 117

1210 Plastic Pipe Ground-source Heat Pump
Loop Systems 117

**CHAPTER 13 FUEL OIL PIPING
AND STORAGE 121**

Section

1301 General 121

1302 Material. 121

1303 Joints and Connections 121

1304 Piping Support 122

1305 Fuel Oil System Installation 122

1306 Oil Gauging. 122

1307 Fuel Oil Valves 123

1308 Testing 123

CHAPTER 14 SOLAR THERMAL SYSTEMS 125
Section
1401 General 125
1402 Design and Installation 125
1403 Heat Transfer Fluids 127
1404 Labeling 127

CHAPTER 15 REFERENCED STANDARDS 129

**APPENDIX A CHIMNEY CONNECTOR
PASS-THROUGHS 143**

APPENDIX B RESERVED 145

INDEX 147