AN AMERICAN NATIONAL STANDARD
IAPMO/ANSI UMC 1 – 2012

2012 UNIFORM MECHANICAL CODE®

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Notice

The 2012 edition of the *Uniform Mechanical Code* is developed through a consensus standards development process approved by the American National Standards Institute. This process brings together volunteers representing varied viewpoints and interests to achieve consensus on mechanical issues. While the International Association of Plumbing and Mechanical Officials (IAPMO) administers the process and establishes rules to promote fairness in the development of consensus, it does not independently test, evaluate, or verify the accuracy of any information or the soundness of any judgments contained in its codes and standards.

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An American National Standard

IAPMO/ANSI UMC 1-2012

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REVISION MARKINGS

Solid vertical lines in the margins indicate a technical change from the requirements of the 2009 edition. Where a section, paragraph or table has been relocated within the code, a solid vertical line appears next to the section number and title.

→ An arrow in the margin indicates where an entire section, paragraph, or table has been deleted.

TIA TIA indicates that the revision is the result of a Tentative Interim Amendment.
TIA For further information on tentative interim amendments see Section 5 of the IAPMO Regulations
TIA Governing Committee Projects available at http://www.iapmo.org/pages/codedevelopmentprocedures.aspx
TIA
TIA

NFPA A reference in brackets [ ] following a section or paragraph indicates material that has been extracted from
NFPA another document. This reprinted material is not the complete and official position of the source document
NFPA on the reference subject which is represented by the standard in its entirety. Text which has been extracted
NFPA pursuant to IAPMO's Extract Guidelines is denoted with the use of the source document in the margin.
NFPA This text has not been fully processed by IAPMO in accordance with ANSI's public announcement
NFPA consensus requirements for an American National Standard (ANS) nor approved by ANSI's Board of
NFPA Standards Review, but will be fully processed in accordance with those requirements as part of the next
NFPA revision cycle for this document.
NFPA

Information on referenced publications can be found in Chapter 17.

All pressures used in this code are gauge pressures unless otherwise indicated.

Twenty-Sixth Edition

First Printing, January 2012

ISSN 1081-0021
Published by the International Association of Plumbing and Mechanical Officials
4755 E. Philadelphia Street • Ontario, CA 91761-2816 – USA
Main Phone: (909) 472-4100 • Main Fax: (909) 472-4150

2012 UMC Foreword

The *Uniform Mechanical Code*™ (UMC™) provides complete requirements for the installation and maintenance of heating, ventilating, cooling, and refrigeration systems, while at the same time allowing latitude for innovation and new technologies.

This code was first published in 1967. With the publication of the 2003 edition of the *Uniform Mechanical Code*, another significant milestone was reached. For the first time in the history of the United States, a mechanical code was developed through a true consensus process. The 2012 edition represents the most current approaches in the mechanical field and is the third edition developed under the ANSI Consensus process. Contributions to the content of this code were made by every segment of the built industry, including such diverse interests as consumers, enforcing authorities, installers/maintainers, labor, manufacturers, research/standards/testing laboratories, special experts, and users.

The public at large is encouraged and invited to participate in IAPMO's open consensus code development process. This code is updated every three years. A code development timeline and other relevant information is available at IAPMO's website at www.iapmo.org.

The *Uniform Mechanical Code* is dedicated to all those who, in working to achieve "the ultimate mechanical code," have unselfishly devoted their time, effort, and personal funds to create and maintain this, the finest mechanical code in existence today.

The 2012 *Uniform Mechanical Code* is supported by the American Society of Sanitary Engineering (ASSE), Mechanical Contractors Association of America (MCAA), Plumbing-Heating-Cooling Contractors National Association (PHCC-NA), the United Association (UA), and the World Plumbing Council (WPC). The presence of these logos, while reflecting support, does not imply any ownership of the copyright to the UMC which is held exclusively by IAPMO. Further, the logos of these associations indicates the support of IAPMO's open, consensus process being used to develop IAPMO's codes and standards.

The addresses of the organizations are as follows:

ASSE – 901 Canterbury Road, Suite A • Westlake, OH 44145-7201 • (440) 835-3040

MCAA – 1385 Piccard Drive • Rockville, MD 20850 • (301) 869-5800

PHCC-NA – PO Box 6808 • Falls Church, VA 22046 • (800) 533-7694

UA – Three Park Place • Annapolis, MD 21401 • (410) 269-2000

WPC – World Plumbing Council Secretariat, P.O. Box 810, Lafayette, IN 47902 USA

Tentative Interim Amendment (TIA)

A Tentative Interim Amendment (TIA) to any Document may be processed if the Council Secretary determines, after a preliminary review, and consultation with the appropriate Chair, that the Amendment appears to be of an emergency nature requiring prompt action and has the endorsement of a Member of the involved Technical Committee.

For further information on Tentative Interim Amendments, see Section 5 of the IAPMO Rules Governing Committee Projects – www.iapmo.org.

COMMITTEE ON UNIFORM MECHANICAL CODE

These lists represent the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred.

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Ron George, Ron George Design & Consulting Services [SE]
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Phil Ribbs, PHR Consultants [SE]
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Nonvoting

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International Association of Plumbing and Mechanical Officials

Lynne Simnick, Recording Secretary
International Association of Plumbing and Mechanical Officials

IAPMO Uniform Mechanical Code Technical Committee

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Richard Church, Plastic Pipe & Fittings Association [M]
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Pennie Feehan, Copper Development Association [M]
Jeff Henning, Air Conditioning Contractors of America [I/M]
Harvey Kreitenberg, Harvey Kreitenberg & Associates [I/M]
Ted Lowe, Radiant Panel Association [I/M]
David Mann, Plumbers & Steamfitters Local [L]
Tim Orris, Air Movement and Control Association International, Inc. [M]
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Steven Taylor American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) [U]
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Osama Younan, City of Los Angeles - Department of Building and Safety [E]

Alternates

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TJ Dodd, Austin Area Plumbing & Pipe Fitters JATC [L]
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Ron Rice, Ex -Officio IAPMO [E]
Hugo Aguilar, IAPMO Staff Liaison

COMMITTEE MEMBERSHIP CLASSIFICATION ABBREVIATIONS

These classifications apply to Technical Committee members and represent their principal interest in the activity of a committee.

M *Manufacturer:* A representative of a maker or marketer of a product, assembly or system, or portion thereof, that is affected by the standard.

U *User:* A representative of an entity that is subject to the provisions of the standard or that voluntarily uses the standard.

I/M *Installer/Maintainer:* A representative of an entity that is in the business of installing or maintaining a product, assembly or system affected by the standard.

L *Labor:* A labor representative or employee concerned with safety in the workplace.

R/S/T *Research/Standards/Testing Laboratory:* A representative of an independent research organization; an organization that develops codes, standards or other similar documents; or an independent testing laboratory.

E *Enforcing Authority:* A reperesentative or an agency or an organization that promulgates and/or enforces standards.

C *Consumer:* A person who is, or represents, the ultimate purchaser of a product, system, or service affected by the standard, but who is not included in the *User* classification.

SE *Special Expert:* A person not representing any of the previous classifications, but who has special expertise in the scope of the standard or portion thereof.

FORM FOR PROPOSALS ON IAPMO UPC/UMC COMMITTEE DOCUMENTS

NOTE: All Proposals MUST be received by 5:00 PM PST on January 3, 2013.

For further information on the standards-making process, please contact the Codes and Standards Administration at 909-472-4110.

For technical assistance, please call IAPMO at 909-472-4111 or 909-230-5535.

FOR OFFICE USE ONLY

LOG # : _____

DATE REC'D: _____

PLEASE USE SEPARATE FORM FOR EACH PROPOSAL

IAPMO's green initiative is to lead the organization paper free by providing the Proposed Monographs, Annual Report on Proposals and Comments in digital Adobe PDF http://www.iapmo.org/Pages/RequestFormforROPROC.aspx

Note printed copies of Report on Proposals and Report on Comments will not be available at the hearings. All requested printed copies will be mailed 30 days prior to the hearing date. Please submit by the following dates listed by the code below on the request form.

Date _____ Name _____ Tel. No. _____

Company _____

Street Address _____ City _____ State ____ Zip. _____

Please Indicate Organization Represented (if any) _____

1. **IAPMO Document Title** _____ **IAPMO No. & Year** _____

   Section/Paragraph _____

2. **Proposal Recommends** (check one): ☐ New Text ☐ Revised Text ☐ Deleted Text

3. **Proposal** (Include proposed new wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format: i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).] Please note if you are referencing a standard or other publication, please provide two copies.

4. **Statement of Problem and Substantiation for Proposal**: [Note: State the problem that will be resolved by your recommendations: give the specific reason for your proposal including copies of tests, research papers, etc. If more then 200 words, it may be abstracted for publication.]

5. ☐ **This Proposal is original material**. [Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

   ☐ **This Proposal is not original material; its source (if known) is as follows**: _____

I hereby grant the IAPMO all and full rights in copyright, in this proposal, and I understand that I acquire no rights in any publication of IAPMO in which this proposal in this or another similar or analogous form is used.

Signature (Required): _____

PLEASE USE SEPARATE FORM FOR EACH PROPOSAL • IAPMO FAX • (909) 472-4198 or (877) 852-6337
Mail to: Code Development • IAPMO • 4755 E Philadelphia St • Ontario • CA • 91761-2816
Email to: codechange@iapmo.org

INSTRUCTIONS FOR SUBMITTING PROPOSALS
– **PLEASE READ CAREFULLY** –

1. Type or print in BLACK ink.

2. Indicate the title of the document and the document year. Also, indicate the specific section or paragraph that the proposed amendment applies to.

3. Check the appropriate box to indicate whether this proposal recommends adding new text, revising existing text, or deleting text.

4. In the space identified as “Proposal,” indicate the exact wording you propose as new or revised text, or the text you propose be deleted.

5. In the space titled, “Statement of Problem and Substantiation for Proposal,” state the problem that will be resolved by your recommendation and give the specific reason for your proposal. Include copies of test results, research papers, fire experience, or other materials that substantiate your recommendation. (See note below, item (f).)

6. Check the appropriate box to indicate whether or not this proposal is original material, and if it is not, indicate the source of the material.

7. Sign the proposal.

If supplementary material (photographs, diagrams, reports, etc.) is included, you may be required to submit sufficient copies for all members and alternates of the technical committee. For publication in the *Report on Proposals*, the technical committee is authorized to abstract the “Statement of Problem and Substantiation for Proposal” if it exceeds 200 words.

NOTE: The IAPMO Regulations Governing Committee Projects in Paragraph 4-3.3 state: Each proposal shall be submitted to the council secretary and shall include: (a) identification of the submitter and his or her affiliation (i.e., technical committee, organization, company), where appropriate; (b) identification of the document, edition of the document, and paragraph of the document to which the proposal is directed; (c) the proposed text of the proposal, including the wording to be added, revised (and how revised), or deleted; (d) a statement of the problem and substantiation for proposal; (e) the signature of the submitter; and (f) two copies of any document(s) (other than an IAPMO document) being proposed as a reference standard or publication (see 3-3.7).

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CHAPTER 1
ADMINISTRATION

Part I — General.

101.0 Title, Scope, and General.

101.1 Title. These regulations shall be known as the Uniform Mechanical Code, may be cited as such, and will be referred to herein as "this code."

101.2 Purpose. The purpose of this code is to provide minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation, and maintenance or use of heating, ventilating, cooling, and refrigeration systems; incinerators; and other miscellaneous heat-producing appliances within this jurisdiction.

The purpose of this code is not to create or otherwise establish or designate a particular class or group of persons who will or should be especially protected or benefited by the terms of this code.

101.3 Scope. The provisions of this code shall apply to the addition to or erection, installation, alteration, repair, relocation, replacement, use, or maintenance of heating, ventilating, cooling, refrigeration systems; incinerators; or other miscellaneous heat-producing appliances within this jurisdiction.

Additions, alterations, repairs to, and replacement of equipment or systems shall be in accordance with the provisions for new equipment and systems, except as otherwise provided in Section 102.0 of this code.

101.3.1 Conflicts. Where, in a specific case, different sections of this code or referenced standards specify different materials, methods of construction, or other requirements, the most restrictive shall govern as determined by the Authority Having Jurisdiction. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall prevail.

101.3.1.1 Conflicts Between Codes. Where the requirements within the jurisdiction of this mechanical code conflict with the requirements of the plumbing code, the plumbing code shall prevail.

101.3.2 Design and Testing. The design and testing of equipment regulated by this code shall be subject to the approval of the Authority Having Jurisdiction.

101.3.3 Appendices. The provisions in the appendices are intended to supplement the requirements of this code and shall not be considered part of this code unless formally adopted as such.

102.0 Application to Existing Mechanical Systems.

102.1 Additions, Alterations, or Repairs. Additions, alterations, or repairs shall be permitted to be made to a mechanical system without requiring the existing mechanical system to be in accordance with the requirements of this code, provided the addition, alteration, or repair is in accordance with that required for a new mechanical system. Additions, alterations, or repairs shall not cause an existing system to become unsafe or create unhealthy or overloaded conditions.

Minor additions, alterations, and repairs to existing mechanical systems shall be permitted to be installed in accordance with the law in effect at the time the original installation was made, where approved by the Authority Having Jurisdiction.

102.2 Existing Installations. Mechanical systems lawfully in existence at the time of the adoption of this code shall be permitted to have their use, maintenance, or repair continued where the use, maintenance, or repair is in accordance with the original design and location and no hazard to life, health, or property has been created by such mechanical systems.

102.3 Changes in Building Occupancy. Mechanical systems that are a part of a building or structure undergoing a change in use or occupancy, as defined in the building code, shall be in accordance with the requirements of this code that are applicable to the new use or occupancy.

102.4 Maintenance. Mechanical systems, materials, and appurtenances, both existing and new, and parts thereof shall be maintained in operating condition in accordance with the original design and in a safe and hazard-free condition. Devices or safeguards that are required by this code shall be maintained in accordance with the code edition under which installed. The owner or the owner's designated agent shall be responsible for maintenance of mechanical systems and equipment. To determine compliance with this subsection, the Authority Having Jurisdiction shall be permitted to cause a mechanical system or equipment to be reinspected.

102.4.1 Commercial HVAC Systems. Commercial HVAC systems both existing and new, and parts thereof shall be inspected and maintained in operating condition in accordance with ASHRAE/ACCA 180. The owner or the owner's designated agent shall be responsible for maintenance of mechanical systems and equipment. To determine compliance with this subsection, the Authority Having Jurisdiction shall be permitted to cause a HVAC system to be reinspected.

102.4.2 Residential HVAC Systems. Residential HVAC systems both existing and new, and parts thereof shall be inspected in accordance with ACCA 4 QM. The owner or the owner's designated agent shall be responsible for maintenance of mechanical systems and equipment. To determine compliance with this subsection, the Authority Having Jurisdiction shall be permitted to cause a HVAC system to be reinspected.

102.5 Moved Buildings. Mechanical systems or equipment that is a part of buildings or structures moved into or within this jurisdiction shall be in accordance with the provisions of this code for new installations.