

Introduction

A. Source.

The specifications, tolerances, and other technical requirements published herein comprise, in their latest form, all of the current codes as adopted by the National Conference on Weights and Measures (NCWM), Inc.¹ NCWM is supported by the National Institute of Standards and Technology (NIST), which provides the NCWM secretariat and publishes documents. NIST also develops technical publications for use by weights and measures agencies; these publications may subsequently be endorsed or adopted by the NCWM.

The NCWM Committee on Specifications and Tolerances², acting at the request of the NCWM or upon its own initiative, prepares with the technical assistance of NIST, proposed revisions, amendments, or additions to the material adopted by the NCWM (see paragraph C). Such revisions, amendments, or additions are then presented to the Conference as a whole, where they are discussed by weights and measures officials and representatives of interested manufacturers, industries, consumer groups and others. Eventually the proposals of the Committee are voted upon only by the weights and measures officials.

All of the specifications, tolerances, and other technical requirements given herein are recommended by the National Conference on Weights and Measures for official promulgation in and use by the states in exercising their control of commercial weighing and measuring apparatus. A similar recommendation is made with respect to the local jurisdictions within a state in the absence of the promulgation of specifications, tolerances, and other technical requirements by a state agency.

B. Purpose.

The purpose of these technical requirements is to eliminate from use, weights and measures and weighing and measuring devices that give readings that are false, that are of such construction that they are faulty (that is, that are not reasonably permanent in their adjustment or will not repeat their indications correctly), or that facilitate the perpetration of fraud, without prejudice to apparatus that conforms as closely as practicable to the official standards.

C. Amendments.

The Committee on Specifications and Tolerances of the NCWM provides a mechanism for consideration of amendments or additions to the specifications, tolerances, and other technical requirements.

D. Submission of Agenda Items - Preamble.

The Constitution of the NCWM requires that its Officers and Committees observe the principles of due process for the protection of the rights and interests of affected parties. Specifically, it requires that Committees and Officers: (a) give reasonable advance notice of contemplated studies, items to be considered for action, and tentative or definite recommendations for conference vote, and (b) provide that all interested parties have an opportunity to be heard.

E. Submission Process.

Anyone introducing an item to the Committee must use the regional weights and measures associations initially to consider its merits. Using the regional associations ensures discussion and evaluation of items at the grass-roots level by involving the regional members in the development, evaluation, and justification of proposals. The regions include the Central, Northeastern, Southern, and Western Weights and Measures Associations. For information on the regional

¹ When sitting as a voting body, the National Conference on Weights and Measures (NCWM) is made up of state and local weights and measures officials from all parts of the United States. The NCWM normally meets annually.

² Communications to this Committee may be addressed as follows: Executive Secretary, National Conference on Weights and Measures, National Institute of Standards and Technology, 100 Bureau Drive, Stop 2600, Gaithersburg, MD 20899-2600.

associations, or to submit a proposal to a regional association, complete Form 15 (Proposal to Change NIST Handbooks 44, 130, or 133) electronically at <http://www.ncwm.net/about/>, and select "Submit Proposal," or send to:

NCWM, Inc.
15245 Shady Grove Road, Suite 130
Rockville, MD 20850
Telephone: (240) 632-9454
E-mail: ncwm@mgmtsol.com
URL: <https://www.ncwm.net>

Note: The proposal should be submitted to a given regional association two weeks prior to its fall regional association meeting. For regional meeting dates, go to <http://www.ncwm.net>.

F. Procedures.

The Committee will consider issues according to the following procedures:

- (a) All issues to be considered by the Committee for action at the upcoming Interim Meeting must be submitted in writing to the Committee by November 1. Although use of NCWM Form 15 (see page 8) is not required, it is recommended for use in submitting proposals to the NCWM. Proposals shall be sent to the Committee at:

NIST Weights and Measures Division
100 Bureau Drive, Stop 2600
Gaithersburg, Maryland 20899-2600
Attention: Specifications and Tolerances Committee
E-mail: owm@nist.gov

- (b) A copy of the proposal must be sent to the NCWM's Executive Secretary at the same address, or by e-mail to owm@nist.gov.

G. Criteria for Inclusion in the Committee's Agenda.

- (a) Any item approved by at least one regional association and received by the November 1 deadline will be automatically placed on the Committee's Interim Meeting Agenda.
- (b) Items that have not been approved by a regional association, but which are received by November 1, will be evaluated by the Committee using the criteria in Section H, Exceptions to Policy and Section I, Committee Agenda.
- (c) Any proposal received after the November 1 deadline, but prior to the Interim Meeting, will be evaluated by the Committee according to Section H, Exceptions to Policy and Section I, Committee Agenda. Only those items determined to be a national "priority" will be included on its agenda.
- (d) Proposals must be in writing and must include:
 - (1) a concise statement of the item or problem outlining the purpose and national need for its consideration. When possible, an electronic copy of the background material and proposed amendment(s) should be submitted in a PC-compatible word processing document format (e.g., Microsoft Word) on a high density 8.9 cm (3.5 in) disk or CD Rom, or by electronic mail sent to owm@nist.gov;
 - (2) background material including test data, analysis of test data, or other appropriately researched and documented material for the Committee to evaluate when deciding its position or future activity on the proposal;
 - (3) proposed solutions to problems stated in specific language in amendment form as changes to NCWM documents; and

- (4) if a proposal involves a new area of weights and measures activity, practical, realistic, and specific recommendations for laws or regulations to be adopted and test methods to be utilized to provide for proper enforcement.

When proposals are to modify or add requirements to existing publications, such as Handbook 44, the proposal should:

- (i) Identify the pertinent portion, section, and paragraph of the existing publication that would be changed (e.g., Sec. 1.10. General Code, Paragraph G-A.1. Commercial and Law-Enforcement Equipment).
- (ii) Provide evidence of consistency with other NCWM publications such as with other specific device code sections.
- (iii) Provide evidence of consistency with federal laws and regulations (e.g., USDA).
- (iv) Relay the positions of businesses, industries, or trade associations affected by the proposal including supporting and opposing points of view.

H. Exceptions to Policy for Submission of Items to a Committee Agenda; Submission of “Priority” Items.

The Committee will use the following criteria to evaluate items that have not been approved by a regional association, but have been received by the November 1 deadline. If an issue is received after the November 1 deadline, it will be included on the agenda if the Committee determines that it is a national “priority.”

Criteria for Inclusion in the Committee’s Agenda when no Regional Association has Approved the Items.

- (a) Items must have significant legal impact on weights and measures laws and/or regulations involving:
 - (1) court cases/attorney general opinions; or
 - (2) pre-emption by federal statute or regulation; or
 - (3) conflicts with international standards; or
 - (4) items which could affect health and safety.
- (b) The Committee may contact parties that are potentially affected by an issue (e.g., trade associations, industry, and consumer groups) for comments. The Committee may consider these comments and any other information in determining if the item should be included on its agenda.
- (c) When the Committee determines that it should consider an item as a “priority” (using the criteria in (1)), the item will be handled in the following manner:
 - (1) A “priority” item received prior to the Interim Meeting may be added to the Interim Meeting agenda by a majority vote of the Committee.
 - (2) A “priority” item received after the Interim Meeting may be added to the Committee’s Annual Meeting agenda as:
 - (i) a discussion issue by majority vote of the Committee, or
 - (ii) as a voting item by majority vote of the Committee and the NCWM Board of Directors.

I. Committee Agenda.

- (a) The Committee will review issues that have been submitted and selected by majority vote to be included on its agenda. The Committee will only include those issues that have been:
 - (1) approved by at least one of the regional associations; or
 - (2) forwarded by other committees, subcommittees, NTETC Sectors, task forces, or work groups, or those issues that meet the criteria in Section H, Exceptions to Policy.
- (b) The Committee will publish an agenda (NCWM Publication 15) which identifies the issues to be discussed during the Interim Meetings. This agenda shall be distributed to members approximately 30 days prior to the meetings. The agenda will be provided upon request to all other interested parties.
(Amended 1998)

J. Interim Meeting.

- (a) The Committee shall hold public hearings at the Interim Meeting for the purpose of discussing and taking comments on all issues on its agenda.
- (b) Upon request, the Committee will provide the opportunity for presentations by government officials, industry representatives, consumer groups, or other interested parties during the Interim Meeting. Requests to make presentations must be received by the Committee Chairman or Technical Advisor at least two weeks prior to the start of the meetings.

K. Interim Meeting Report.

- (a) Items under consideration by the Committee and about which the Committee offers comments or recommendations to the NCWM to act upon during the Annual Meetings will be included in the Committee's Interim Reports published in the Annual Meeting Program and Committee Reports (NCWM Publication 16).
- (b) The Annual Meeting Program and Committee Reports will be prepared and distributed to Conference members approximately three months prior to the NCWM Annual Meeting.

L. Classifications for Agenda Items.

At the Interim Meeting, the Committee can classify proposals in one of the following ways:

- (a) as "Voting" – these are items proposed for a vote by the NCWM membership and are indicated with a "V" after the item number in the agenda;
- (b) as "Informational" – these are items which require further study, comment, and development and are indicated with an "I" after the item number in the agenda; or
- (c) as "Withdrawn" – these are items which will no longer be considered by the Committee and are indicated with a "W" after the item number in the agenda.

M. Developing Items.

In the past the Committee had either carried undeveloped proposals forward as informational, or withdrawn them. Conference members felt that carrying undeveloped informational items on its agenda for years posed an unnecessary drain on NCWM resources. Alternatively, the Conference was also concerned that withdrawing items prematurely resulted in the Committee discarding valuable work that had gone into identifying and presenting the items. The NCWM was also interested in providing a mechanism to inform parties about items that were developing in different localities or in the regional associations.

At the 1998 Annual Meeting, the NCWM established a process for disseminating information on items that may have merit but are insufficiently developed for Committee action. The NCWM established a new “Developing” designation to allow the Committee to notify the submitter that while this item may have merit, it has not been adequately developed for action at the national level. The NCWM agreed that “Developing” items should be submitted by the regional associations with a recommendation that they be presented as “D” items on the national agenda.

The Committees will present “D” items in list format at the end of their report and include a point of contact (including the name and telephone number of the submitter) so that interested parties can obtain additional information. No comments will be taken on a “Developing” item, unless the Committee agrees to receive the new information in advance of the hearing. In these cases, the Chairman will announce in advance that an item will be discussed in the session. The use of this “D” designator is seen as an item management tool, as well as a way to keep the membership informed of emerging items.

N. Comments on Interim Reports.

- (a) Weights and measures officials, industry representatives, and all others are encouraged to submit written comments on items in the Committees' Interim Reports.
- (b) All comments on the Interim Meeting Report must be submitted to the Committee with a copy to the Executive Secretary no later than one month preceding the opening of the Annual Meeting.

O. Annual Meeting.

- (a) The Committee will hold a public hearing at the Annual Meeting to discuss issues on its agenda.
- (b) Those who want to speak on an item during the public hearings should request time from the Committee Chairman. The Committee Chairman may impose time limits on presentations, the discussion of a question, or the discussion of a proposed amendment.

P. Final Committee Reports and Conference Action.

- (a) Following the public hearings, the Committee will prepare its final report for action by the voting membership of the Conference. Copies of the final report will be provided to the membership prior to the session during which it will be voted on.
- (b) The Chairman of the Committee will present the final report of the Committee to the Conference body. A vote will be taken on items, proposals, or sections in the report as circumstances require. The Conference will vote on the entire final report as presented in accordance with established Conference voting procedures. Parliamentary procedure according to Robert's Rules of Order as amended by NCWM Publication No. 1, Bylaws, will be adhered to in the presentation of, and any action on, a Standing Committee report.
(Amended 1998)

Q. System of Paragraph Designation.

In order that technical requirements of a similar nature, or those directed to a single characteristic, may be grouped together in an orderly fashion, and to facilitate the location of individual requirements, the paragraphs of each code are divided into sections. Each section is designated by a letter and a name, and each subsection is given a letter-number designation and a side title.

The letter that appears first in a paragraph designation has a specific meaning, as follows:

- G.** The letter G is a prefix and indicates that the requirement is part of the General Code.
- A. Application.** These paragraphs pertain to the application of the requirements of a code.
- S. Specification.** These paragraphs relate to the design of equipment. Specification paragraphs are directed particularly to manufacturers of devices.

- N. Note.** These paragraphs apply to the official testing of devices.
- T. Tolerance.** Tolerances are performance requirements. They fix the limit of allowable error or departure from true performance or value.
- Sensitivity.** The sensitivity requirements, applicable only to nonautomatic-indicating scales, are performance requirements and are lettered with a T.
- UR. User Requirement.** These paragraphs are directed particularly to the owner and operator of a device. User requirements apply to the selection, installation, use, and maintenance of devices.
- D. Definitions of Terms.** A definitions section appears in Appendix D to provide the definition of the terms having a special meaning.

The numerical designation after a letter follows the decimal system of paragraph identification that fixes both the relationship and the limitation of the requirements of the paragraph. For example, in the Scales Code, under Specifications, the following numerical designations occur:

S. Specifications

S.1. Design of Indicating and Recording Elements and of Recorded Representations.

S.1.1. Zero Indication.

S.1.1.1. Digital Indicating Elements.

S.1.1.2. No-Load Reference Value.

S.1.2. Value of Scale Division Units.

S.1.2.1. Weight Units.

S.1.3. Graduations.

S.1.3.1. Length.

S.1.3.2. Width.

S.1.3.3. Clear Space Between Graduations.

In this example, Paragraphs S.1.1., S.1.2., and S.1.3. are directed and limited to paragraph S.1., which pertains to the design of indicating and recording elements and of recorded representations. Paragraphs S.1.1.1. and S.1.1.2. are directly related to each other, but they are limited to the design of zero indication. Likewise, paragraphs S.1.3.1., S.1.3.2., and S.1.3.3. are directly related to each other, but they are limited to the design of graduations.

This handbook conforms to the concept of primary use of SI (metric) measurements recommended in the Omnibus Trade and Competitiveness Act of 1988 by citing SI metric units before inch-pound units where both units appear together and placing separate sections containing requirements for metric units before corresponding sections containing requirements for customary units. Occasionally, a paragraph or table carries the suffix "M" because the requirement in SI units is shown as a separate statement, rather than combined with the inch-pound units. In these few instances, separate requirements were judged to be more easily understood than attempting to combine SI and inch-pound units in a single paragraph or table. In some cases, however, trade practice is currently restricted to the use of customary units; therefore, some requirements in this Handbook will continue to specify only customary units until the Conference achieves a broad consensus on the permitted metric units.

R. Classification of Requirements.

The classification of requirements into "retroactive" and "nonretroactive" status is made in order that the requirements may be put into force and effect without unnecessary hardship and without wholesale condemnation of apparatus. Retroactive requirements are enforceable with respect to all equipment and are printed in upright roman type. Nonretroactive requirements are those that, while clearly desirable, are not so vital that they should at once be enforced with respect to all apparatus. **Nonretroactive requirements are printed in *italic type*.**

It is not expected that, after their promulgation in a given jurisdiction, nonretroactive requirements will always remain nonretroactive. It is entirely proper that a weights and measures official, following a careful analysis of existing

conditions, fix reasonable periods for the continuance of the nonretroactive application of particular requirements, after which such requirements will become retroactive. These periods should be long enough to avoid undue hardship to the owners or operators of apparatus and, in the case of some requirements, should approximate the average useful life of the apparatus in question.

In order that all interested parties may have timely and ample notice of impending changes in the status of requirements, the following procedure is suggested for the official who plans to change the classification of requirements. If sufficient data are available to make such action feasible, publish in combination with the codes themselves the date or dates at which nonretroactive requirements are to become retroactive. In other cases, give equally effective notice at the earliest practicable date.

A nonretroactive requirement, in italic type, will indicate the year from which it should be enforced and, in some cases, the date the requirement shall be changed to retroactive status. For example, [*Nonretroactive as of 1978 and to become retroactive on January 1, 1985*]. As a general rule, each nonretroactive requirement is reviewed after it has been in effect for 10 years to determine the appropriateness of its nonretroactive status.

S. Using the Handbook.

Handbook 44 is designed to be a working tool for federal, state, and local weights and measures officials, the equipment manufacturers, installers, and service agencies/agents. As noted in General Code Paragraph G-A.1. Commercial and Law-Enforcement Equipment, applicable portions of Handbook 44 may be used by the weights and measures official to test noncommercial weighing and measuring equipment upon request. Additionally, applicable language in Handbook 44 may be cited as a standard in noncommercial applications. For example, when the Handbook is referenced or cited as part of a quality system or in multiple party contract agreements where noncommercial weighing or measuring equipment is used.

The section on Fundamental Considerations (Appendix A) should be studied until its contents are well known. The General Code, with general requirements pertaining to all devices, obviously must be well known to a user of the Handbook. The makeup of the specific codes, the order of paragraph presentation, and particularly paragraph designation are worthy of careful study.

It is not deemed advisable for a user to attempt to commit to memory tolerances or tolerance tables, even though these are used frequently. For the Handbook to serve its purpose, it should be available when any of its requirements are to be applied. Direct reference is the only sure way to apply a requirement properly and to check whether other requirements may be applicable.

This Handbook supplies criteria which enable the user to determine the suitability, accuracy, and repetitive consistency of a weighing or measuring device, both in the laboratory and in the field. However, not all code sections can be appropriately applied in both settings. Since some sections are designed to be applied specifically to tests performed under laboratory conditions, it would be impractical or unrealistic to apply them to field tests. Not all tests described in the "Notes" section of the Handbook are required to be performed in the field as an official test. An inspector may officially approve or reject a device which has been tested in accordance with those sections applicable to the type of test being conducted.

(Paragraph added 1996)

NCWM Form 15
Proposal to Change NIST Handbook 44, 130 or 133

Date:	Regional Association (s) you wish to consider this proposal:
Name/Address of Contact Person	Regional Actions: (for use by regional standing committee-votes for and against)
Phone: Fax:	
Email:	
Please attach any background information, test data, research or additional documentation that will help the Committee consider the proposal.	
Proposal: (Proposed solutions to problems must be stated in the format and language used in the handbooks [i.e., Section 1.10 General Code, paragraph G-A.1 Commercial and Law-Enforcement Equipment]. If a proposal involves a new area of weights and measures activity, recommendations for both regulations and test methods for proper enforcement must be provided.)	
Problem/Justification: (Include a concise statement of the item or problem outlining the purpose and national need for its consideration.)	
Other Contacts: (Provide position statements, comments, etc. from names and addresses of individuals, firms, manufacturers, and/or trade associations included in developing the proposal.)	
Other Reasons For: (If none, please indicate none have emerged.)	
Other Reasons Against:	
Additional Considerations: (Provide cost estimates and state the anticipated benefits for all parties or indicate how the proposal may affect other requirements, programs, etc.)	
Attachments: (List the accompanying documents, data, studies, etc.)	Suggested Action: (Be specific on what actions the committee should take on the item.) Recommend NCWM: <input type="checkbox"/> Adopt <input type="checkbox"/> Withdraw <input type="checkbox"/> Designate as Developing Item <input type="checkbox"/> Designate as Informational Item <input type="checkbox"/> Other (Please describe) _____ _____
Send submissions for Regional Associations to: National Conference on Weights & Measures 15245 Shady Grove Road Suite 130 Rockville, MD 20850 Attention: Executive Director, ncwm@mgmtsol.com	Regional Standing Committees, Sectors, and other appropriate sources submit form to: National Institute of Standards & Technology Weights & Measures Division 100 Bureau Drive, Stop 2600 Gaithersburg, Maryland 20899-2600 Attention: _____ Committee cc: Attention: Executive Secretary, owm@nist.gov