

## 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.<sup>1</sup> 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 Tolerances<sup>2</sup>, acting at the request of the NCWM or upon its own initiative, with the technical assistance of NIST, annually prepares proposed revisions, amendments, or additions to the material previously 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 and industries. 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, issues 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 issue to the Committee shall use the regional weights and measures associations to initially consider its merits. Using the regional associations ensures discussion and evaluation of issues 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 associations contact NCWM, Inc., 15245 Shady Grove Road, Suite 130, Rockville, MD 20850 or by telephone at (240) 632-9454.

### **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 October 15. Although use of NCWM Form 15 (see page 6) is not required, it is recommended for use in submitting proposals to the NCWM. Proposals shall be sent to the Committee at:

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<sup>1</sup> 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.

<sup>2</sup> 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.

NIST Weights and Measures Division  
 100 Bureau Drive, Stop 2600  
 Gaithersburg, Maryland 20899-2600  
 Attention: Specifications and Tolerances Committee

- b. A copy of the proposal must be sent to the NCWM's Executive Secretary at the same address.

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

- a. Any issue 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. Issues 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 issues 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 issue 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., Corel WordPerfect or Microsoft Word) on electronic media or by electronic mail using the same format;
  - (2) background material including test data, analysis of test data, or other appropriately researched and documented material from which the Committee will be able to make a judgment for either a firm recommendation or consideration of the need for further study;
  - (3) proposed solutions to problems stated in specific language in amendment form to Conference documents; and
  - (4) practical, realistic, and specific recommendations for both regulations and test methods to provide for proper enforcement if a proposal involves a new area of weights and measures activity.

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 Issues to a Committee Agenda; Submission of "Priority" Issues.**

The Committee will use the following criteria to evaluate issues that have not been approved by a regional association, but has been received by the November 1 deadline. If an issue is received after the November 1 deadline, it will be included on an 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 Issues.**

- (1) Issues must have significant legal impact on weights and measures laws and/or regulations involving:
  - (a) court cases/attorney general opinions; or
  - (b) pre-emption by Federal statute or regulation; or
  - (c) conflict with international standards; or
  - (d) relationship to laws or regulations of an urgent nature which could affect health and safety.
- (2) 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 issue should be included on its agenda.
- (3) When the Committee determines that it should consider an issue as a "Priority" (using the criteria in (1), the issue will be handled in the following manner:
  - (a) A "Priority" issue received prior to the Interim Meeting may be added to the Interim Meeting agenda by majority vote of the Committee.
  - (b) A "Priority" issue 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 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. Issues under consideration by the Committee and upon which it offers comments or recommendations for Conference action during the Annual Meetings, will be included in the Committee's Interim Reports published in the Annual Meeting Program and Committee Reports.
- b. The Annual Meeting Program and Committee Reports will be prepared and distributed to Conference members approximately 3 months prior to the NCWM Annual Meeting.

**L. Classifications for Agenda Items.**

At the Interim Meeting, the Committee can classify items for voting by the NCWM membership (indicated with a “V” after the item number in the agenda or prior to the voting session). The Committee may also decide to carry issues over as “Informational” items for further study, comment, and development (indicated with an “I” after the item number). Items marked “W” in the agenda have been withdrawn from consideration.

**M. Developing Issues.**

At the 1998 Annual Meeting, the NCWM established a process for disseminating information on issues which may have merit but are insufficiently developed for Committee action. Past practice for handling these issues had been to either “carry” them forward as informational issues or withdraw them. Conference members felt that carrying undeveloped information items drained NCWM resources, but they also believed that withdrawn items were often prematurely discarded despite the valuable work that had gone into developing the issue. The NCWM was also interested in providing a mechanism to inform parties about issues that are developing in different localities or in the regional associations.

The NCWM established a new “Developing” designation to allow the Committees to notify the submitter of the issue, that, while it may have merit, it may not be adequately developed for action at the national level. The NCWM agreed that “Developing” issues should be submitted by the regional associations with a recommendation that they be presented as “D” issues on the national agenda. The Committees will present “D” issues in list format at the end of their reports 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” issue, 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 issue will be discussed in the session. The use of this “D” designator is seen as an issue management tool, as well as a way to keep the membership informed of emerging issues.

**N. Comments on Interim Reports.**

- a. Weights and measures officials, industry representatives, and all other parties are encouraged to submit written comments on issues in the Committees' Interim Reports.
- b. All comments on the Interim Meeting Reports must be submitted to the Committee, along with a copy to the Executive Secretary, no later than 1 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 issue during the public hearings should request time from the Committee Chairman. Time limitations on presentations, the discussion of a question, or amendments may be imposed by the Committee Chairman.

**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. Prior to the session during which it will be acted on, copies of each final report will be provided for study.
- b. The Chairman of the Committee will present the final report of the Committee to the Conference body. A vote will be taken on issues, 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 Roberts Rules of Order as amended by NCWM Publication No. 1, Bylaws, will be adhered to in the presentation of and action on Standing Committee reports.  
(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 the weights and measures official, the equipment manufacturer, installer, and repairman. 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 enables the inspector 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 a Standing Committee**  
**Committee: \_\_\_\_\_**

Date:	Regional Association:
Name/Address of Contact Person  Phone: Fax: email:	Regional Actions: (votes for and against)
<b>Please Attach Additional Pages and Information as Needed</b>	
Proposal: (Proposed solutions to problems stated in specific language in amendment form to handbooks, if a proposal involves a new area of weights and measures activity, the recommendations for both regulations and test methods for proper enforcement must be provided.)	
Problem/Justification: (Include a concise statement of the issue 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 action the committee should take on the issue.)  Recommend NCWM " Adoption " Withdraw " Developing Issue " Informational Issue " Other (Please describe)





