

Extracts from the CALIFORNIA CODE OF REGULATIONS TITLE 4, DIVISION 9 WEIGHTS AND MEASURES FIELD REFERENCE MANUAL (2023)

Chapter 1, Article 1. National Uniformity Exceptions and Additions Part 1: Sections 4000. – 4002.11.

Article 1. National Uniformity, Exceptions and Additions Sections 4000. Through 4002.11.

Introduction to NIST Handbook 44

Form 15: Proposal to Amend NIST Handbooks



CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE DIVISION OF MEASUREMENT STANDARDS

Article 1. National Uniformity, Exceptions and Additions

§§ 4000. through 4002.11.

DISCLAIMER

This document represents the Division of Measurement Standards' field manual for enforcing regulations pertaining to weights and measures in California. This field manual is not to be considered as the official Code of Regulations, as published by Barclays Law Publishers.

NOTE: Language in Handbook 44 that is not adopted is annotated "**[NOT ADOPTED]**" in this document.

NOTE: Requirements that are different from, or in addition to, the requirements of Handbook 44 are included in the appropriate section this document. They are shaded, bordered, and numbered in the 4002 series to differentiate them from the Handbook 44 requirements.

To find the latest online version of the California Code of Regulations (CCR) Title 4, Division 9, visit the California Office of Administration Law (OAL) at:

http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcome

The CCR may also be accessed at <u>http://oal.ca.gov/</u> by clicking the "Publications" tab at the top of the OAL home page.

For information concerning the contents of this document, please contact the Division of Measurement Standards by e-mail at <u>dms@cdfa.ca.gov</u>.

NIST Handbook 44 (2023 Edition) - Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices as adopted by the 107th National Conference on Weights and Measures in July 2022 is available at:

https://www.nist.gov/pml/owm/publications/nist-handbooks/handbook-44-currentedition

FIELD REFERENCE MANUAL CALIFORNIA CODE OF REGULATIONS - TITLE 4, DIVISION 9

Department of Food and Agriculture Division of Measurement Standards

CHAPTER 1.

TOLERANCES AND SPECIFICATIONS FOR COMMERCIAL WEIGHING AND MEASURING DEVICES

Article 1. National Uniformity, Exceptions and Additions

§ 4000. Application. See Barclays for actual Text

Commercial weighing and measuring devices shall, except where noted below, conform to the latest requirements set forth in the National Institute of Standards and Technology Handbook 44 "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices", which is herein incorporated by reference, and to the Additional Requirements listed herein. Copies of Handbook 44 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Note: Authority cited: Sections 12027 and 12107, Business and Professions Code. Reference: Section 12107, Business and Professions Code.

§ 4000.1. California Type Approval Fees.

Each person or business submitting for or seeking approval of a type or design of a weight, measuring, weighing, measuring or counting device or for a design or type of device used for commercial purposes, shall pay to the Department of Food and Agriculture, for deposit into the Food and Agriculture Fund, the following fees:

- (a) A nonrefundable application fee in the amount of \$500, submitted at the time of application. No evaluation work will begin until this fee is paid.
- (b) A deposit based on the evaluator's estimated time and per diem, travel and transportation costs, equipment needed, and type of tests to be performed. Any remaining costs not covered by the deposit(s) shall be charged and collected before the issuance of the Certificate of Approval.
- (c) At the time of issuance of a Certificate of Approval, all remaining deposit monies shall be refunded to the applicant.
- (d) An application will be considered abandoned after 90 days of inactivity, if an applicant has not paid the required deposit of fees or if the applicant is non-responsive to questions

asked or submission of additional information as required to start or finish the type approval process, or for nonpayment of fees within 90 days, and the applicant will be required to reapply and pay the required fees again.

NOTE: Authority cited: Sections 12027, 12107 and 12500.9 Business and Professions Code. Reference: Section 12107 and 12500.9 Business and Professions Code.

§ 4000.2. The fees for type evaluation are as follows:

- (a) Evaluator Time. The evaluator hourly rate (Department employee) is \$150 per hour. The overtime rate is one and a half times the hourly rate. If a non-Departmental evaluator is used, the applicant will be billed directly at a rate set by them.
- (b) Per Diem. The per diem rate shall be the current rate established by the California Department of General Services in the State Administrative Manual.
- (c) Travel and Transportation Costs. These shall be the actual round trip costs of transportation for the evaluator to and from the evaluator's home base and the test site, in the event that tests cannot be performed locally. Transportation costs include evaluator's time, airfare, rail or other fare, vehicle rental, tolls, parking and mileage costs.
- (d) Equipment.
 - (1) Environmental Chamber: \$600 per device per full cycle, which includes testing at four different temperatures at three hours per temperature. \$300 per device for less than a full cycle.
 - (2) Pickup Truck, Van, or other Light Duty Vehicle: \$48 per day plus \$0.55 per mile.
 - (3) Pickup Truck, Van, or other Light Duty Vehicle used for carrying or pulling standards or equipment: \$60 per day and \$0.72 per mile.
 - (4) Heavy Capacity Scale Test Truck, carrying standards up to 20,000 lb: \$200 minimum Liquid Propane Prover Trailer, 25 and 100 gallon sizes: \$240 per day.
 - (5) Compressed Natural Gas Prover Bottle, (9.33 GGE or 53 lbs.): \$120 per day.
 - (6) Electric Watt-Hour Meter Test Unit: \$100 per day.
 - (7) One, Three, or Five Gallon Test Measure: \$40 per day per test measure.
 - (8) 50 Gallon Prover: \$100 per day.
 - (9) 305 Gallon Prover: \$125 per day.
 - (10) Gravimetric Test Equipment: \$125 per day.
 - (11) Stillman Bottle: \$100 per day.
 - (12) Nozzle Test Vessel: \$75 per evaluation
 - (13) Bell Prover: \$125 per vapor meter evaluated.
 - (14) Water Meter Test Bench: \$100 per water meter evaluation.
 - (15) Repetitive Load Tester: $50 \text{ per device} \le 50 \text{ lb and } 75 \text{ per device} > 50 \text{ lb, per day.}$
 - (16) Other unspecified equipment necessary for the evaluation: \$100 per day.

- (e) Additional Tests: Utility Meters and Load Cells.
 - (1) Utility Meter Laboratory Throughput: \$125 per device for each vapor meter, \$20 per day for each water meter, \$15 per day for each electric meter.
 - (2) Load Cell Testing and Equipment: \$7,200 per evaluation and \$3,600 for each additional evaluation per application.
- (f) Certificate fees and other charges.
 - (1) Certificate of Approval: \$750 per application or device, up to two pages.
 - (3) Additional Pages, Certificate Updates, Amendments: \$180 per each page reviewed, modified, or changed.
 - (17) charge, \$600 per day, plus \$3.60 per mile.
 - (4) Letter of Certificate from California Air Resources Board: \$300 per device, component, or part reviewed.

NOTE: Authority cited: Sections 12027, 12107 and 12500.9 Business and Professions Code. Reference: Section 12107 and 12500.9 Business and Professions Code.

§ 4000.3. Annual Administrative Fee

Each person or business having an approved type or design of a weight, measuring, weighing, measuring or counting device or for a design or type of device used for commercial purposes, shall pay to the Department of Food and Agriculture, for deposit into the Food and Agriculture Fund, an annual administrative fee for the reasonable costs incurred for the maintenance of type approval certificates in hard copy and electronic formats of \$200 per Certificate. The annual administrative fee shall be paid on the first anniversary after a Certificate is issued, and each year thereafter that the design or type of device is being manufactured.

NOTE: Authority cited: Sections 12027, 12107 and 12500.9 Business and Professions Code. Reference: Section 12107 and 12500.9 Business and Professions Code.

§ 4001. – Exceptions. See Barclays for actual Text

NOTE: The following sections of Handbook 44 are not adopted and are annotated "**NOT ADOPTED**" in the text:

The following regulations in Handbook 44 are not adopted or incorporated by reference:

1.10. General Code.

G-S.1.2. Remanufactured Devices and Remanufactured Main Elements.

G.T.1. Acceptance Tolerances.

- (b) [NOT ADOPTED]
- (c) [NOT ADOPTED]
- (d) [NOT ADOPTED]

2.20. Scales.

S.1.8.4. Customer's Indications.

N.3. Minimum Test Weights and Test Loads*.

UR.2.6.1. Vehicle Scales.

UR.3.7. Minimum Load on a Vehicle Scale.

3.30. Liquid Measuring Devices.

N.4.1.1. Wholesale Devices Equipped With Automatic Temperature Compensating Systems.

3.31. Vehicle-Tank Meters.

UR.2.2. Ticket Printer; Customer Ticket.

3.32. Liquefied Petroleum Gas and Anhydrous Ammonia Liquid-Measuring Devices.

S.2.6. Automatic Temperature Compensation.

N.4.1.1. Automatic Temperature Compensation.

UR.2.3. Vapor Return Line.

3.33. Hydrocarbon Gas Vapor - Measuring Devices.

S.4.3. Temperature Compensation.

3.37. Mass Flow Meters.

S.1.2. Compressed Natural Gas Dispensers.

S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel.

S.1.3.1.2. Liquefied Natural Gas Used as an Engine Fuel.

S.5.2. Marking of Volume Equivalent Conversion Factors for Compressed Natural Gas.

S.5.3. Marking of Equivalent Conversion Factor for Liquefied Natural Gas.

UR.3.1.1. Marking of Equivalent Conversion Factors for Compressed Natural Gas.

UR.3.1.2. Marking of Equivalent Conversion Factor for Liquefied Natural Gas.

3.39. Hydrogen Gas-Measuring Devices.

A.2. Exceptions. (c). Devices used for dispensing a hydrogen gas with a hydrogen fuel index lower than 99.97 % and concentrations of specified impurities that exceed level limits.

A.4. Type Evaluation.

T.2. Tolerances.

Table T.2.

3.40. Electric Vehicle Fueling Systems

Section 3.40. Electric Vehicle Fueling Systems – Tentative Code

Article 1. National Uniformity, Exceptions and Additions §§ 4000. through 4002.11.

- 3.40. Electric Vehicle Fueling Systems Tentative Code.
- A.4. Type Evaluation.
- S.1.3.2. EVSE Value of Smallest Unit.
- S.2.4.1. Unit Price.
- S.2.4.2. Equipment Capacity and Type of Voltage.
- S.2.7. Indication of Delivery.
- S.3.5. Temperature Range for System Components.
- S.5.2. EVSE Identification and Marking Requirements.
- N.2. Starting Load Test.
- T.2. Load Test Tolerances.
- T.2.1. EVSE Load Test Tolerances.

5.60. Transportation Network Measuring System

Section 5.60. Transportation Network Measuring System – Tentative Code (*Pending Rulemaking*)

Appendix D. Definitions for:

Remanufactured Devices.

Remanufactured Element.

Repaired Devices.

Repaired Element.

Diesel Gallon Equivalent (DGE).

Gasoline Gallon Equivalent (GGE).

Note: Authority cited: Sections 12027 and 12107, Business and Professions Code. Reference: Section 12107, Business and Professions Code.

§ 4002. Additional Requirements. See Barclays for actual Text.

NOTE: These requirements are different than, or in addition to, the requirements of Handbook 44 and are included in the appropriate section of the text. They are shaded, bordered, and numbered in the 4002 series to differentiate them from the Handbook 44 requirements.

§ 4002.1. General Code (1.10.)

(a) Type Approval Use.

§ 4002.2. Scales (2.20.)

- (a) Minimum Load on a Vehicle Scale.
- (b) Class III, Class III L and Unmarked Devices Used for Recycling.
- (c) Livestock Scales Not Equipped with Balance Indicator.

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(d) Customer's Indications.

§ 4002.3. Vehicle-Tank Meters. (3.31.)

UR.2.2. Ticket Printer; Customer Ticket.

§ 4002.4. Liquefied Petroleum Gas and Anhydrous Ammonia Liquid-Measuring Devices (3.32.)

- (a) Temperature Compensation.
- (b) Non-applicable Provisions of Handbook 44, Section, 3.32., S.3.1 under certain conditions.
- (c) Wholesale Devices Equipped With Automatic Temperature Compensating Systems.
- (d) Vapor Return Line.
- (e) Signs.

§ 4002.5. Hydrocarbon Gas Vapor-Measuring Devices. (3.33.) Temperature Compensation

- (a) Leak Test.
- (b) Temperature Compensation.
- (c) Retention of Customer Invoices.
- § 4002.6. Water Meters (3.36.) [Repealed]
- § 4002.7. Farm Milk Tanks. (4.42.)
 - (a) Calibration and Installation.
- § 4002.8. Liquid-Measuring Devices. (3.30.)
 - (a) Wholesale Devices Equipped with Automatic Temperature Compensating Systems.
- § 4002.9. Hydrogen Gas-Measuring Devices. (3.39.)
 - A.4. Type Evaluation.

S.5.2. Location of Accuracy Class 2.0, 3.0, 5.0, 7.0, and 10.0 Information

T.2. Tolerances.

§ 4002.10. Mass Flow Meters

- S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel.
- S.1.3.1.2. Liquefied Natural Gas Used as an Engine Fuel.

S.5.2. Marking of Gasoline Volume Equivalent Conversion Factors for Compressed Natural Gas.

S.5.3. Marking of Diesel Volume Equivalent Conversion Factors for Liquefied Natural Gas.

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- UR.3.1.1. Marking of Equivalent Conversion Factor for Compressed Natural Gas.
- U.R.3.1.2. Marking of Equivalent Conversion Factor for Liquefied Natural Gas.

Appendix D – Definitions: diesel gallon equivalent (DGE).]

Appendix D – Definitions: gasoline gallon equivalent (GGE).

§ 4002.11. Electric Vehicle Fueling Systems.

Section 3.40. Electric Vehicle Fueling Systems. (TITLE)

- A.1.1. Effective Date for AC EVSE.
- S.1.3.2. EVSE Value of Smallest Unit.
- S.2.4.1. Unit Price.
- S.2.4.2. Equipment Capacity and Type of Voltage.
- S.2.7. Indication of Delivery.
- S.3.5. Temperature Range for System Components.
- S.5.2. EVSE Identification and Marking Requirements.

T.2. Load Test Tolerances.

Table T.2. Accuracy Classes and Tolerances for EVSE

NOTE: Authority cited: Sections 12027 and 12107, Business and Professions Code. Reference: Section 12107, Business and Professions Code.

Introduction (NIST Handbook 44)

A. Source.

The specifications, tolerances and other technical requirements in this handbook comprise all of those adopted by the National Conference on Weights and Measures, Inc. (NCWM). Contact NCWM at:

 1135 M Street, Suite 100
 Phone: (402) 434-4880
 E-mail: info@ncwm.com

 Lincoln, NE 68508
 Fax: (402) 434-4878
 URL: www.ncwm.com

The NCWM is supported by the National Institute of Standards and Technology (NIST), which provides its Executive Secretary and publishes some of its documents. NIST also develops technical publications for use by weights and measures agencies; these publications may subsequently be endorsed or adopted by NCWM or its members.

All of the specifications, tolerances, and other technical requirements given herein are recommended by NCWM 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 at the state level.

(Amended 2015)

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.

Proposed amendments to NIST Handbook 44 are deliberated and developed by NCWM's Committee on Specifications and Tolerances before presentation to the general membership for a vote. In some instances, amendments that significantly affect other NIST Handbooks may be processed jointly by two or more committees.

Amendments to the handbooks are made in accordance with NCWM procedures and policies. The process begins at the regional weights and measures association meetings in the fall of each year and is culminated at the NCWM Annual Meeting in July. After passing through one or more of the regional associations the proposed amendment is placed on the agenda of the appropriate NCWM committee for consideration at NCWM's Interim Meeting in January and after final deliberation and development by the committee the amendment may be presented to the membership for a vote at the annual NCWM meeting in July. NCWM policy provides for exceptions to the process to accommodate urgent or priority items. NIST staff provides technical assistance and advice throughout the process.

The policy is available on the NCWM website at **www.ncwm.com**. For information on the regional weights and measures associations, visit **www.ncwm.com/meetings/regions**.

(Amended 2015)

D. 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. Digital Indicating Scales.
- 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

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before U.S. customary 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 U.S. customary units. In these few instances, separate requirements were judged to be more easily understood than attempting to combine SI and U.S. customary 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.

E. 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.

F. 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 Section 1.10. General Code paragraph G-A.1. Commercial and Law-Enforcement Equipment, applicable portions of Handbook 44 may be used by the weights and measures

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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)

National Conference on Weights and Measures / National Type Evaluation Program

Form 15: Proposal to Amend NIST Handbooks, Guidance Documents, NCWM Bylaws or NCWM Publication 14



Figure 1 - NCWM -NTEP Logos

<u>Submit proposals by August 15, 2023</u>. See meeting dates at www.ncwm.com/meetings. If the item is deemed by a region to have merit, that region will forward the item to NCWM for national consideration. For more information on the Form 15 process, visit www.ncwm.com/standards-dev. Link to Form 15 (May 2021)</u>

Submit in Microsoft Word Format to the NCWM Executive Director via email at don.onwiler@ncwm.com for review and dispersal to selected regions. Link to:

Submit Form via Email to: don.onwiler@ncwm.com 1135 M Street, Suite 110 / Lincoln, Nebraska 68508 P. 402.434.4880 W. www.ncwm.com