Insect Wire Screening

U. S. DEPARTMENT OF COMMERCE
INSECT WIRE SCREENING
A Recorded Voluntary Standard of the Trade

COMMODITY STANDARDS

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the National Bureau of Standards. The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform bases for fair competition.

The adoption and use of a Simplified Practice Recommendation or Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or Commercial Standard originates with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The Division, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Division assures continuous servicing of each effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action. Simplified Practice Recommendations and Commercial Standards are printed and made available by the Department of Commerce, through the Government Printing Office.
1. PURPOSE

1.1 The purpose of this commercial standard is to provide a nationally recognized standard of quality for insect wire screening, and to promote fair marketing practices and a better understanding between manufacturers, distributors, and users of insect wire screening. It will also assist ultimate users in determining what sizes and types of insect wire screening are standard with the industry.

2. SCOPE

2.1 This standard gives the nomenclature, definitions, and general requirements for commercial standard insect wire screening designed and woven primarily for installation in or on any dwelling, building, or structure, for the purpose of preventing the ingress of flies, mosquitoes, or other insects. A recommended form for guaranteeing compliance with this standard is included.

3. DEFINITIONS

3.1 Insect wire screening.—16×16, 18×14, and 18×18 mesh woven wire screening (carbon steel, commercial bronze, and aluminum), for protection against mosquitoes as well as flies and larger insects. (See par. 5.1.)

3.2 Galvanized steel wire screening.—16×16, 18×14, and 18×18 mesh carbon steel insect wire screening for protection against mosquitoes as well as flies and larger insects. (See par. 5.1.) The metal used for the coating shall be zinc of at least 98 percent purity, and the thickness (by weight) of the zinc coating shall be equivalent to at least 5 percent of the weight of the bare steel wire used in weaving the screening.

3.3 Bronze screening.—16×16, 18×14, and 18×18 mesh commercial bronze insect wire screening for protection against mosquitoes as well as flies and larger insects; woven from wire containing 89 to 91 percent of copper and the remainder zinc; lead or iron occurring as impurities shall not exceed 0.05 percent each. (See par. 5.1.)

3.4 Aluminum screening.—16×16, 18×14, and 18×18 mesh aluminum insect wire screening for protection against mosquitoes as well as flies and larger insects; woven from aluminum alloy wire equal to, or
demonstrably better, for the purpose, than what is known in the trade as 56S–H392 cladded aluminum alloy wire having a minimum tensile strength of 50,000 pounds per square inch.

3.5 Mesh.—Mesh is the width of one opening plus the thickness of one wire; alternatively considered as being the distance from the center of one wire to the center of the next adjacent wire. The technical designation of the mesh count of insect wire screening is the number of meshes per linear inch, counted in the direction of both the warp and the filler wires. When used as a common designation of the “mesh size” of insect wire screening, the word “mesh” is generically accepted as meaning the number of open spaces per linear inch in both warp and filler directions.

4. MATERIAL AND WORKMANSHIP

4.1 All standard wire screening shall be made of high-grade material and with good workmanship. It shall be free from any defects that might affect its serviceability or appearance. Well-made splices not over 1 inch long and showing no tails are permissible at any point of any individual wire, provided, however, that the number of splices shall not exceed 30 in any stock roll nor two splices in any 1 square foot of finished screening.

5. GENERAL SPECIFICATIONS

5.1 Mesh and wire size.—The mesh counts, sizes and kinds of wire, and types or character of finishes for standard insect wire screening shall be as shown in table 1.

Table 1.—Standard insect wire screening

<table>
<thead>
<tr>
<th>Metal</th>
<th>Mesh</th>
<th>Diameter of wire</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>16X16</td>
<td>18X14</td>
<td>.011</td>
</tr>
<tr>
<td>Commercial bronze</td>
<td>16X16</td>
<td>18X14</td>
<td>Galvanized.</td>
</tr>
<tr>
<td>Aluminum</td>
<td>16X16</td>
<td>18X14</td>
<td>Bright or antique (dark)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18X18</td>
<td>Natural or dark.</td>
</tr>
</tbody>
</table>

5.2 Widths.—The stock widths of all types of standard insect wire screening shall be 24, 26, 28, 30, 32, 36, 42, and 48 inches.

5.2.1 Widths other than those listed in paragraph 5.2, when made to special order, may be labeled “standard” provided they conform with all requirements for mesh size, wire size, and kind of metal, as elsewhere set forth in this commercial standard for insect wire screening.

5.3 Roll length.—All standard stock rolls of insect wire screening shall be 100 linear feet in length; shall contain not more than two pieces per roll, and no piece shall be less than 10 linear feet in length.

5.4 Mesh count.—Accuracy of mesh count in the direction of the warp or filler wires shall be determined by counting the mesh openings for any interval of 1 continuous linear foot and dividing the result by 12.
5.5 Wire diameter.

5.5.1 Accuracy of the wire diameter of steel insect wire screening shall be determined by computing the average of the measured diameter of not less than 10 warp wires together with the same number of filler wires, taken at random from the finished screening, but with all coating or surface finish (if any) removed.

5.5.2 In commercial bronze and aluminum insect wire screening the same diameter of wire shall be used for both the warp and the filler, and accuracy of the wire diameter shall be determined by computing separately the average measured diameter of not less than 10 warp wires and of the same number of filler wires taken at random from the finished screening.

5.5.3 For standard galvanized insect wire screening a size of wire may be used for the warp that is different from the size employed for the filler. Such variations in size, however, shall not be excessive, and in all cases the average diameter of warp and filler wires for galvanized steel insect wire screening shall be 0.011 inch. For standard commercial bronze and aluminum insect wire screening, the same wire diameter shall be used for both the warp and the filler—0.011 inch for bronze and 0.013 inch for aluminum.

5.6 Selvage.—There shall be one or more wires in both selvage edges of all standard insect wire screening.

5.7 Tolerances.—Permissible variations shall be:

(a) For wire diameters: 0.0005 inch, plus or minus.

(b) For mesh count:

Warp, one-quarter mesh per linear inch, plus or minus.

Filler, one-half mesh per linear inch, plus or minus.

(c) For width: plus or minus 1/8 inch.

(d) For length: minus 2 inches.

6. PACKAGING

6.1 Unless otherwise specified, standard insect wire screening shall be enclosed in such standard commercial containers or wrappings as will insure their acceptance by common or other carriers for safe transportation to the ultimate point of delivery, at the lowest applicable rate.

7. LABELING

7.1 The mesh count, size, kind and finish of wire, the length and width of the screening enclosed shall be shown in a conspicuous place, preferably by means of a printed label, on the outside wrapping or covering of each roll of standard insect wire screening.

8. GUARANTEE

8.1 In order to assure the purchaser that he is receiving insect wire screening that complies with the requirements of this standard, it is recommended that the label on each roll carry the following guarantee:

The manufacturer declares that this insect wire screening complies with all requirements of Commercial Standard CS138–49, as developed by the trade under the procedure of the National Bureau of Standards and issued by the United States Department of Commerce.
9. EFFECTIVE DATE

9.1 Having been passed through the regular procedure of the Commodity Standards Division, and approved by the acceptors herein-after listed, this commercial standard was issued by the United States Department of Commerce, effective from December 28, 1949.

Edwin W. Ely,
Chief, Commodity Standards Division.

10. HISTORY OF PROJECT

10.1 First Edition.
10.1.1 On September 26, 1944, the wire screen manufacturers requested the cooperation of the National Bureau of Standards in the establishment of a commercial standard for insect wire screening. A preliminary draft of the proposed commercial standard was submitted to manufacturers for their review and comment. All comment was carefully considered at a meeting held in New York City on February 28, 1945. An adjusted draft was then prepared and submitted on March 28, 1945, to technical organizations, Government agencies, testing laboratories, manufacturers, and wholesale, retail, and user organizations for further review and comment. The standard was then modified in accordance with composite recommendations of those concerned, and circulated on July 16, 1945, to the trade for written acceptance.

10.1.2 Upon receipt of official acceptances estimated to represent a satisfactory majority of the production by volume, and in the absence of active valid opposition, the standard was promulgated on December 2, 1946, as Commercial Standard 138-47.

10.2 First Revision.
10.2.1 Pursuant to a request from the Insect Wire Screening Bureau dated July 22, 1949, and following approval by the standing committee, a revision of this standard was circulated to the trade on November 30, 1949, for written acceptance. The main purpose of the revision was to add aluminum wire screening as a standard stock item. Following acceptance by a satisfactory majority, the establishment of the revision was announced on December 28, 1949, as Commercial Standard 138-49.

Project Manager: E. C. Barrett, Commodity Standards Division, National Bureau of Standards.
Technical Adviser: Dr. L. V. Judson, Metrology Division, National Bureau of Standards.

11. STANDING COMMITTEE

11.1 The following individuals comprise the membership of the standing committee, as appointed by the National Bureau of Standards. This committee is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be
addressed to any member of the committee or to the Commodity Standards Division, National Bureau of Standards, which acts as secretary for the committee.

**Manufacturers:**

STUART M. JONES (chairman), New York Wire Cloth Co., 445 Park Avenue, New York 22, N. Y.
RALPH W. BACON, Insect Wire Screening Bureau, 74 Trinity Place, New York 6, N. Y.
E. B. FROCK, Hanover Wire Cloth Division, Continental Copper & Steel Industries, Inc., Hanover, Pa.
FRANK G. GILBERT, Chase Brass & Copper Co., 80 Lafayette Street, New York 13, N. Y.
W. F. SEWERT, American Wire Fabrics Corp., 500 Fifth Avenue, New York 18, N. Y.
JOHN D. STODDER, Cyclone Fence Division, American Steel & Wire Co., Waukegan, Ill.

**Distributors:**

T. W. MCALLISTER, Southern Wholesale Hardware Association, 814 Metcalf Bldg., Orlando, Fla.
RIVERS PETERSON, National Retail Hardware Association, 333 N. Pennsylvania Street, Indianapolis 4, Ind.
WALDO J. TASTET, Fries, Beall & Sharp Co., Inc., 734 10th Street, NW., Washington 1, D. C. (Representing the National Wholesale Hardware Assn.)

**Consumers:**

PRESTON B. BERGIN, American Retail Federation, 1627 K Street, NW., Washington 6, D. C.
E. W. DONAHUE, Wabash Screen Door Co., 310 S. Michigan Avenue, Chicago 4, Ill. (Representing National Woodwork Manufacturers Assn., Inc.)
ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Commodity Standards Division,
National Bureau of Standards,
Washington 25, D. C.

Gentlemen:

We believe that the Commercial Standard 138-49 constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production\(^1\) distribution\(^1\) purchase\(^1\) testing\(^1\)

of insect wire screening.

We reserve the right to depart from it as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer ____________________________

(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer ____________________________

Organization ____________________________________________

(Fill in exactly as it should be listed)

Street address __________________________________________

City, zone, and State ______________________________________

\(^1\) Underscore which one. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words “General Support” should be added after the signature.
TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance.

1. Enforcement.—Commercial standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. The acceptor’s responsibility.—The purpose of commercial standards is to establish for specific commodities, nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard where practicable in the production, distribution, or consumption of the article in question.

3. The Department’s responsibility.—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold; first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. Announcement and promulgation.—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.
ACCEP'TORS

The organizations listed below have individually accepted this standard for use as far as practicable in the production, distribution, testing or purchase of insect wire screening. In accepting the standard, they reserved the right to depart therefrom as they individually deem advisable. It is expected that articles which actually comply with the requirements of this standard in all respects will be regularly identified or labeled as conforming thereto, and that purchasers will require such specific evidence of conformity.

ASSOCIATIONS

(General Support)

American Retail Federation, Washington, D. C.
American Specification Institute, Chicago, Ill.
Boy Scouts of America, National Supply Service, New York, N. Y.
Insect Wire Screening Bureau, New York, N. Y.
National Association of Home Builders, Washington, D. C.
National Council of Farmer Cooperatives, Washington, D. C.
Virginia Retail Hardware Association, Scottsville, Va.

FIRMS AND OTHER INTERESTS

Abbott, L. R., Stores, Otsego, Ohio.
Abraham & Straus, Inc., Brooklyn, N. Y.
Agnew Hardware Co., Everett, Wash.
Albany Hardware & Iron Co., Albany, N. Y.
Allen, Walter H., Co., Inc., Dallas, Tex.
Allen & Jeremson Co., Tuscaloosa, Ala.
Allison Erwin Co., Charlotte, N. C.
Amarillo Hardware Co., Amarillo, Tex.
American Brass Co., Waterbury, Conn.
American Grille & Screen Works, Dallas, Tex.
American Hardware & Equipment Co., Charlotte, N. C.
American Sash & Door Co., Kansas City, Mo.
American Wholesale Hardware Co., Long Beach, Calif.
American Wire Fabrics Corp., New York, N. Y.
Anderson & Ireland Co., The, Baltimore, Md.
Arizona Hardware Co., Phoenix, Ariz.
Bader Paint & Hardware Stores, Inc., Milwaukee, Wis.
Baird Hardware Co., Gainesville, Fla.
Barl Hardware Co., Reading, Pa.
Barrett Hardware Co., Joliet, Ill.
Bay City Hardware Co., Bay City, Mich.
Beals, McCarthy & Rogers, Inc., Buffalo, N. Y.
Bentley Hardware Co., The, Great Bend, Kans.
Bering-Cortes Hardware Co., Houston, Tex.
Black, Mize & Silliman Hardware Co., Atchison, Kans.
Bluefield Hardware Co., Bluefield, W. Va.
Blumberg, Wm. L., Co., Inc., New York, N. Y.
Bestwick-Braun Co., The, Toledo, Ohio.
Brown-Camp Hardware Co., Des Moines, Iowa.
Buell & Co., Dallas, Tex.
Buffalo, City of, Architectural Service, Division of Buildings, Department of Public Works, Buffalo, N. Y.
Buhl Sons Co., Detroit, Mich.
Buhrman-Pharr Hardware Co., Texarkana, Ark.
Builders Supply Co., San Antonio, Tex.
California Hardware Co., Los Angeles, Calif.
Cameron, Wm., & Co., Waco, Tex.
Canton Hardware Co., The, Canton, Ohio.
Carolina Hardware Co., Inc., Raleigh, N. C.
Carpenter Hardware Co., Nelsonville, Ohio.
Ceco Steel Products Corp., Cicero, Ill.
Central Hardware Co., St. Louis, Mo.
Centre Hardware Co., Roslindale, Mass.
Chamberlin Co. of America, Detroit, Mich.
Charleston Hardware Co., Charleston, W. Va.
Chase Brass & Copper Co., Inc., Waterbury, Conn.
Chicago & Riverdale Lumber Co., Chicago, Ill.
Chillicothe Hardware & Supply, Inc., Chillicothe, Ohio.
Clark, Geo. A., & Son, Minneapolis, Minn.
Clark Witbeck Co., Schenectady, N. Y.
Cloverdale Hardware & Lumber Co., Cloverdale, Ind.
Coates, Henry T., & Associates, New York, N. Y.
Cole, Wm. H., & Sons, Baltimore, Md.
Colladay, Frank, Hardware Co., Hutchinson, Kans.
Collins, J. S., & Son, Inc., Moorestown, N. J.
Columbia Mills, Inc., The, Los Angeles, Calif.
Columbia University, Teachers College, New York, N. Y.
Corpus Christi Hardware Co., Corpus Christi, Tex.
Corry-Jamestown Manufacturing Corp., Corry, Pa.
Curtis Cos., Inc., Clinton, Iowa, and Topeka, Kans.
Cyclone Fence Division, American Steel & Wire Co., Waukegan, Ill.
Darol Co., Dayton, Ohio.
Davidson Sash & Door Co., Inc., Lake Charles, La.
Dean Sash & Door Co., Los Angeles, Calif.
Delaware Hardware Co., Wilmington, Del.
Delta Hardware Co., Escanaba, Mich.
Dinkins-Davidson Hardware Co., Atlanta, Ga.
Donlin Co., The, St. Cloud, Minn.
Towney Metal & Hardware Co., Kansas City, Mo.
Truscon Steel Co., Youngstown, Ohio.
Tyler, W. S., Co., Cleveland, Ohio.
Tyrrell Hardware Co., Beaumont, Tex.
Underwood Coal & Supply Co., Mobile, Ala.
United Cooperatives, Inc., Alliance, Ohio.
United Hardware & Supply Co., Titusville, Pa.
Valley Screen Co., Burbank, Calif.
Van Camp Hardware & Iron Co., Indianapolis, Ind.
Van Kleeck Co., Panama City, Fla.
Vetter Manufacturing Co., Stevens Point, Wis.
Wabash Railroad Co., St. Louis, Mo.
Wabash Screen Door Co., The, Chicago, Ill.
Wake Hardware Co., Greenwood, Miss.
Wagner Hardware Co., Mansfield, Ohio.
Wallace Sash & Door Co., Wichita, Kans.
Warren Lumber Co., The, Fort Morgan, Colo.
Watertown Sash & Door Co., Watertown, S. Dak.
Watson Manufacturing Co., Inc., Jamestown, N. Y.
Watts Hardware & Supply Co., San Antonio, Tex.
Wayne Hardware Co., Inc, Fort Wayne, Ind.
Weakley - Watson - Miller Hardware Co., Brownwood, Tex.
Weed & Co., Buffalo, N. Y.
Western Door & Sash Co., Oakland, Calif.
Western Metal Supply Co., San Diego, Calif.
Wiley Hardware Co., Painesville, Ohio.
Whitell, L. N., Lumber Co., Inc., Buffalo, N. Y.
White Pine Sash Co. of Illinois, Chicago, Ill.
Whitehead Metal Products Co., Inc., New York, N. Y.
Wholesale Hardware Co., Inc., New York, N. Y.
Wright & Barr Hardware Co., Parkersburg, W. Va.
Wickwire Bros., Inc., Cortland, N. Y.
Wiley & Haslip, Inc., Baltimore, Md.
Williams, Geo. A., & Son, New York, N. Y.
Williams Hardware Co., Fort Smith, Ark.
Williams R. E. Clustering Co., Cedar Rapids, Iowa.
Wilson & Pugh Co., Cumberland, Md.
Wise & Slichter Co., Inc., Hartford, Conn.
Witbeck, Clark, Co., Schenectady, N. Y.
Wolf & Dessour, Fort Wayne, Ind.
Wood Construction & Building Materialist Magazine, Xenia, Ohio.
Woodbury Hardware Co., Portland, Oreg.
Woodward Hardware Co., Cairo, Ill.
 Worthington, George, Co., The, Cleveland, Ohio.
Yardley Insulation Co., Columbus, Ohio.
Zero Weather Stripping Co., Inc., New York, N. Y.
Zork Hardware Co., El Paso, Tex.

UNITED STATES GOVERNMENT

Agriculture, U. S. Department of, Division of Purchase, Sales & Traffic, Washington, D. C.
Army, Department of the, Washington, D. C.
Federal Housing Administration, Washington, D. C. (General support.)
General Services Administration, Public Buildings Service, Washington, D. C. (General support.)
Justice, U. S. Department of, Bureau of Prisons, Washington, D. C.
Public Housing Authority, Washington, D. C.

COMMERCIAL STANDARDS

CS No.
2-30. Mopsticks.
4-29. Staple porcelain (all-clay) plumbing fixtures.
5-46. Pipe nipples; brass, copper, steel and wrought-iron (second edition).
7-29. Standard weight malicable iron or steel screwed unions.
16-29. Wall paper.
18-29. Hickory golf shafts.

CS No.
23-30. Fieldspar and new threads and tap-drill sizes.
26-30. Aromatic red cedar closet lining.
30-31. (Withdrawn.)
32-51. Cotton cloth for rubber and pyroxylin coating.
37-31. Steel bone plates and screws.
38-32. Hospital rubber sheeting.
39-37. (Withdrawn.)
40-32. Surgeons' rubber gloves.
41-32. Surgeons' latex gloves.
44-32. Apple wraps.
Where "(E)" precedes the CS number, it indicates an emergency commercial standard, drafted under war conditions with a view toward early revision.

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Notice.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice may secure copies of the above standards, while the supply lasts, by addressing the Commodity Standards Division, National Bureau of Standards, Washington 25, D. C.