1946

NEW ZEALAND

STANDARDS COUNCIL

(Department of Industries and Commerce)

ANNUAL REPORT FOR THE YEAR 1945–46

Presented to both Houses of the General Assembly by Leave

The Hon. D. G. SULLIVAN, Minister of Industries and Commerce.

SIR,—

I have the honour to submit herewith the annual report of the Standards Council for the year ended 31st March, 1946.

I have, &c.,

P. B. MARSHALL,

Permanent Head, Department of Industries and Commerce.

A. R. GALBRAITH, F.R.S.E., M.Inst.C.E., Chairman, Standards Council.

L. J. McDONALD, Secretary, Standards Council.

REPORT

MEETINGS

During the year 147 meetings of standing committees were held in addition to 16 formal conferences, a total of 163 meetings.

STANDARD SPECIFICATIONS

Regular Standard Specifications.—Thirty-seven regular standard specifications were adopted during the year, 31 relating to consumer commodities, 3 to electrical engineering, 1 to mechanical engineering, 1 to building construction, and 1 to conversion factors and tables. Of these, 5 were British standards which were endorsed as New Zealand standard specifications, in one case with a local amendment, as a result of careful examination by the appropriate committee and by the affected interests. In addition, a revised British standard was adopted as a revision of the corresponding New Zealand standard specification. Thirteen emergency amendments and 5 regular amendments to regular standard specifications were also adopted. Of these, all except 2 regular amendments were amendments to British standards previously adopted. Two regular standard specifications, which were superseded by emergency standard specifications, were withdrawn during the year, bringing the total number of existing regular New Zealand standard specifications to 468.

Emergency Standard Specifications.—Twenty-eight emergency standard specifications were adopted during the year, 9 relating to building construction and allied subjects, 6 to consumer commodities, 10 to mechanical engineering, 1 to electrical engineering, 1 to plumbing, and 1 to stretchers for Army use. Of these, 10 were British emergency standards adopted as New Zealand emergency standard specifications after examination

in relation to the requirements of this country. Four emergency standard specifications were revised, while amendments to 4 emergency standard specifications were also adopted. Thirty-five emergency standard specifications were withdrawn during the year, of which 28 were superseded by regular standard specifications, making the total number of existing New Zealand emergency standard specifications 190.

Summary.—The year's work has thus reduced the number of emergency standard specifications to 190, and increased the number of regular standard specifications to 468, making a grand total of 658 New Zealand standard specifications at the close of the year. Details of the standard specifications adopted, revised, amended, and withdrawn during the year are given in the Appendix hereto.

STANDARD MARK

During the year 241 applications for licenses to use the Standard Mark were received from applicants engaged in fourteen different industries. In the same period 232 licenses were issued, making a grant total of 425, particulars of which are set out in Table A hereunder. Ten applications were still under consideration when the year ended.

Table A.—Licenses to use the Standard Mark

Industry.	Licenses granted during 1945–46.	Total Number of Licenses granted.
Household furniture	193	343
Footwear	19	28
School paper stationery	2	11
Leather dress gloves	3	6
Regenerated lubricating-oil	1	5
Paints	..	4
Plywoods	1	3
Inks	3	3
Milking-machine rubberware	..	3
Flushing-cisterns	1	2
Preservative pre-treatment of timber	2	2
Creosote for the preservation of timber	2	2
Salt-glazed ware pipes	2	2
Soaps	..	2
Flock	..	2
Precast concrete drainage pipes	1	1
Precast concrete pressure pipes	1	1
Earthenware roofing-tiles	1	1
Lubricating-cup greases	..	1
Fencing-wire	..	1
Electric plugs and sockets and ceiling-roses	..	1
Fire-extinguishers	..	1
Totals	232	425

The position set out above evidences increasing recognition by traders generally of the advantages attaching to the use of the Standard Mark as a reliable certification that their products conform to established standards of quality, utility, and performance. The preponderance of licenses granted in respect of household furniture is due to the use of the standard specification for household furniture in connection with the expenditure of rehabilitation loans granted to ex-servicemen, and the consequent necessity that

furniture purchased with such loans should bear the Standard Mark. This procedure, by assisting ex-servicemen to obtain furniture which conforms to a standard of quality with the loans advanced to them, has also assisted to ensure effective expenditure of public moneys applied to this purpose. Apart, however, from these circumstances, the number of licenses issued during the initial two years indicates, on the part of both business and consumer interests, a growing appreciation of the purpose of the Standard Mark as the only satisfactory, final means of certifying and comparing the quality of commodities.

The growing use of the Standard Mark, together with the more frequent requests for the standardization of various commodities and the 50 per cent. increase in the sales of standard specifications compared with the previous year, as shown on page 26, evidences sound progress in the development of standardization in the Dominion. To bring the importance of this development into proper perspective it is necessary to draw attention to the increased production of commodities of optimum quality and utility and the reduction in unit production costs which experience has shown to result from standardization. Upon this consideration of maximum production at least cost substantially depends the sound development, and efficient and economic operation, of our industrial and service activities in successful competition with other countries, and the consequent maintenance of profitable employment at a high level. The application of the principle of standardization to the measurement of quality has also the same fundamental significance as the application of this principle to the measurement of quantity, since it provides the only contant means for determining and comparing quality, and for interpreting value on the basis of the three factors, quantity, quality, and price.

EMERGENCY DIVISIONAL COUNCIL

(One meeting)

The Emergency Divisional Council has continued to review all emergency specifications received from overseas and to direct these to various committees for examination, consideration, and report. It has also examined reports on all projects being developed under the emergency standards procedure and has endorsed the recommendations of the committees concerned, including recommendations for the adoption of emergency standard specifications, subject to its further direction when considered desirable.

EXECUTIVE COMMITTEE

(Three meetings)

The Executive Committee of the Standards Council has considered all requests for the development of standard specifications and reviewed all standard specifications received from overseas, directing the necessary action in connection therewith. It has also examined the reports of all meetings held during the year and has endorsed the recommendations contained in these reports concerning the adoption of standard specifications and related matters, subject to further direction as found necessary.

TECHNOLOGICAL STANDARDIZATION

Civil Engineering Sectional Committee

Cement and Concrete Committee	One meeting.
Septic Tanks Conference	One meeting.

Concrete Fencing-posts.—At the request of the Farmers' Union, a committee has been instituted to undertake the formulation of a standard specification for concrete fencing-posts. As these posts are precast, it is necessary to establish requirements acceptable to all affected interests, relating to the overall dimensions, including length, the amount and type of reinforcement, and the concrete mix. The only alternative is the uneconomic practice of making posts to a multiplicity of individual specifications,

each varying in relation to the factors referred to above. This would greatly increase the cost and make it virtually impossible to maintain stocks from which orders could be readily supplied. The standard specification will have the further advantage of providing farmers with an adequate and suitable specification to which they can work when making their own concrete posts. The specification will, of course, be of equal value and advantage to Government Departments, local authorities, property-owners, and to all people who have occasion to use this type of post for fencing purposes.

Septic Tanks.—Further progress has been made with the formulation of a standard specification for septic tanks for ordinary domestic use.

Roadmaking Materials Sectional Committee

(One meeting)

In view of the increasing number of standard specifications received from overseas relating to roadmaking materials and methods, and the need for preparing similar standard specifications in New Zealand, a special sectional committee has been set up to undertake this work. At its inaugural meeting the committee considered 24 British standards, 1 draft British standard, 3 Australian standards, and 8 American standards, and set up four committees to examine these in relaton to New Zealand's requirements in collaboration with the affected interests. The four committees will deal respectively with road-construction methods, road-binding materials, road aggregates, and the testing of road materials. In addition to examining specifications received from overseas, they will undertake the formulation of any original New Zealand standard specifications which may be found to be necessary. The importance of this work is readily apparent when it is realized that the standard specifications adopted will establish standards of quality for materials, and methods which will ensure that road construction will be carried out in a way that will avoid unnecessary expenditure on maintenance and renewal.

Mechanical Sectional Committee

(One meeting)

Motor-vehicle Servicing Committee	One meeting.
Fire-extinguishers Committee	One meeting.
Fusion-welded Steel Tanks Conference	Two meetings.

Parent Committee.—The parent committee reviewed the work being carried out under its control, and examined and directed 12 British standards, 4 draft British standards, 1 draft Australian standard, 27 American standards, 4 Indian standards, and 2 Canadian standards. Of the British standards considered, 3 were recommended for adoption as regular New Zealand standard specifications, and 5 for adoption as New Zealand emergency standard specifications.

Servicing of Motor-vehicles.—Following upon representations from the New Zealand Retail Motor Trades' Association, with the support of the Price Tribunal, a representative committee undertook the development of, and completed, a standard specification which stipulates and defines the various operations to be carried out in connection with the servicing of motor-vehicles. The clear definition of the operations which such servicing properly involves will be of considerable advantage both to service stations and garages and to owners of motor-vehicles, since it will eliminate differing practices and misunderstandings which have been the cause of considerable conflict. The value of the standard specification is soundly evidenced by the fact that some 2,000 copies were sold within a month of its publication.

Bucket-pump Fire-extinguishers.—The revision of the standard specification for bucket-pumps to provide for a $2\frac{1}{2}$-gallon size, in addition to the 4-gallon size, was completed by the Fire-extinguishers Committee. Arising out of wartime experience, bucket-pumps have come into more general use as first-aid fire-fighting equipment, and provision for this smaller unit was necessary because the larger and heavier one was often too cumbersome, particularly for women.

Fusion-welded Steel Tanks.—The drafting of a standard specification for fusion-welded steel tanks, as used in pressure water-supply systems in country districts, has been completed, and the specification is now being finally reviewed prior to being issued.

Electrical Sectional Committee

(Two meetings)

Electrical Accessories and Appliances Committee .. .. One meeting.

Parent Committee.—In addition to reviewing the work being carried out under its direction, the parent committee examined 17 British standards, 2 draft British standards, and 2 Canadian standards. Four of the British standards were recommended for adoption as New Zealand standard specifications. The committee also examined 20 amendment slips to British standards, 12 of which were recommended for incorporation in the corresponding New Zealand standard specifications.

Domestic Electrical Appliances.—With a view to reaching finality concerning the action that should be taken to raise the quality of electrical equipment and apparatus to a satisfactory standard, a conference was convened by the responsible Government authorities during the year. After fully examining all aspects of the matter, the conference decided that a programme of standardization should be undertaken with a view to establishing requirements that would ensure the sale and use of electrical equipment and apparatus which would conform to an adequate standard of efficiency, safety, and durability, and which would bear the Standard Mark as a certification of such conformity. A committee has been set up to undertake the necessary programme of work to give effect to these recommendations.

This work will involve the development of standard specifications for irons, radiators, toasters, immersion heaters, kettles, hand-lamps, and similar equipment, in addition to a range of standard specifications relating to various electrical accessories. Standard specifications for plugs and sockets, ceiling-roses, and the testing of water-heating elements have already been completed and issued, and good progress has been made with the preparation of draft specifications for jugs, cooking-ranges, and switches. The completion of this work will remove a cause of widespread complaint and dissatisfaction with the quality of electrical equipment and apparatus. In order not to convey a wrong impression in this connection, it should be pointed out that investigations have revealed that there is no justification for the conclusion that all the electrical equipment and apparatus found to be unsatisfactory is of New Zealand manufacture.

Radio Industry Sectional Committee

(One meeting)

Following the receipt of a wide range of radio standards from the national standards organizations of other countries, which had been issued to facilitate war production and development within the industry, the Radio Industrial Plan Committee, operating under the Bureau of Industry, resolved that such overseas standards should be examined and adopted as New Zealand standard specifications in so far as they were found to satisfy New Zealand conditions and requirements. The committee also decided that original New Zealand standard specifications should be prepared as found desirable. Consequently, a Radio Industry Sectional Committee was established within the Standards organization.

At its inaugural meeting the committee reviewed 13 British, 38 American, 5 Australian, and 21 Canadian standard specifications for radio components, materials, equipment, and performance. The committee decided that a Radio Components Committee and a Radio Performance Committee should be instituted to undertake a full examination of the specifications falling within their respective spheres, and after full consultation with the affected interests, to make recommendations concerning their adoption, in amended form or otherwise, as found advisable. This action will enable New Zealand to keep abreast of stage-to-stage advances which occur in radio science and technology in other countries.

Hearing Aids Sectional Committee

(Two meetings)

Hearing-aids Technical Committee .. .. One meeting.

Parent Committee.—At its two meetings the parent committee reviewed the New Zealand standard specification for valve-type hearing-aids in the light of comments offered by the interested parties as a result of initial experience of its use. After a thorough examination of these comments, the committee amended several of the technical provisions of the specification in order to improve the sensitivity of the microphone, enable proper amplification, reduce distortion and noise to the practicable minimum, and to ensure more efficient transduction by providing for correctly-fitting, individually moulded, insertion-type ear-pieces. It also incorporated in the specification provisions equivalent to those contained in the guarantees usually given by reputable manufacturers, and amplified the marking requirements so as to ensure that purchasers would be supplied with all the necessary information concerning the nature of replacement parts and similar essential information.

The Standard Mark on hearing-aids will therefore be a complete and reliable warranty concerning the quality of the component parts, the design of the sets, and their efficient performance. It will assist the hard-of-hearing to obtain hearing-aids which will afford them the greatest relief, and, in particular, will protect them against exploitation arising from the purchase of inefficient apparatus. That the standard specification is of equal value to reputable manufacturers is evidenced by the fact that, according to their own statements, most manufacturers base their production on the specification and intend to use the Standard Mark to certify that their sets conform to its requirements.

Testing of Hearing-aids.—The committee also set up a special technical committee to draft a separate standard code of practice for the testing of hearing-aids for conformity with the technical provisions of the standard specification. At its first meeting the technical committee made good progress with this work.

Chemical Sectional Committee

(Two meetings)

Fish-oils Committee .. .. One meeting.
Veterinary Oils Committee .. .. One meeting.
Household Insecticides Committee .. .. One meeting.
Insecticides Conference .. .. One meeting.

Parent Committee. During the year the parent committee considered 10 British standards, 10 draft British standards, 20 American standards, 3 Australian standards, 2 South African standards, and 2 Canadian standards. Of the British standards, 1 was recommended for adoption as a revision of a previous New Zealand standard specification. Another has been taken as the basis for an original New Zealand standard specification, 4 have been referred to other committees for attention, and 4 were deferred pending further circulation to affected interests. The parent committee also reviewed the reports of committees working under its direction.

Joiners' Glue. It has been recommended that N.Z.S.S. 184 for Joiners' Glue (being B.S. 745–1937) should be replaced by an original New Zealand emergency standard specification based upon the British standard but containing provisions more suitable to New Zealand, and, in particular, providing for the use of test slips made from New Zealand timber.

Fish-liver Oils. A special committee has completed the formulation of a standard specification for fish-liver oils suitable for human consumption. This standard specification provides a basis for the use of the Standard Mark as a reliable certification of the potency and quality of fish-liver oils. It will therefore be of valuable assistance to medical practitioners in prescribing preparations, and will benefit the consumer who obtains his vitamin requirements without a prescription. Variations in the vitamin

potency of fish-liver oils complicate the prescription of dosages since there is no means of readily knowing the vitamin content of the different oils which constitute the bases of prescriptions. Moreover, without a reliable and ready means of knowing the relative vitamin content of the different products, people are not in a position to know whether they are purchasing a preparation of high quality, or one so low in vitamin content as to be almost worthless.

The standard specification requires that the containers of preparations conforming to its provisions shall be clearly labelled with the type of oil, the vitamin content, and the normal dosage, in association with the Standard Mark as a certification in this respect. The Standard Mark may therefore be regarded as a reliable warranty of the accuracy of the statements on such labels. This warranty will have the added advantage of materially assisting to maintain and extend the valuable export market for fish-liver oils which has already been established, but which may well be lost unless adequate standards of quality are maintained.

Capsules containing Vitamins A and D.—Preliminary proposals have been completed for a standard specification for capsules containing vitamins A and D. This specification will incorporate requirements establishing methods of test to be used to determine whether the potency of such capsules is effectual. It will provide for proper packaging, since, even though capsules are of adequate potency when manufactured, they so deteriorate as to be worthless unless they are properly packed. It will also provide for reliable marking.

Vitamins A and D for Animal Feeding.—Good progress has been made with the formulation of a standard specification which will establish the necessary minimum requirements in respect of vitamins A and D in oil for animal feeding. This specification will provide for two types of oil, one for feeding both poultry and other stock and the other for feeding other stock only. Provision will also be made for a concentrated solution of calciferol, a valuable source of vitamin D which is used for the prevention of rickets in lambs in southern districts. By ensuring that the various preparations will be of the correct strength, the standard specification will greatly assist farmers and other users of stock foods and, in addition, will protect manufactures of genuine products from unfair competition.

Household Insecticides.—A committee has been instituted to undertake the preparation of a standard specification for household insecticides. A preliminary exploration of this subject has been made, and it is the intention of the committee to proceed with the development of the specification as soon as it is possible to formulate reliable test requirements for determining the toxicity and general efficacy of insecticides. The formulation of these requirements involves considerable investigatory and research work. The committee intends to deal similarly with rodent poisons at a later date, and will probably extend its work to include disinfectants.

Gas Industry Sectional Committee

(One meeting)

This committee was instituted during the year as a result of comments which were received from affected interests during the circulation of overseas standards relating to the gas industry and which expressed the need for similar standard specifications in New Zealand. At its inaugural meeting the committee confirmed the need for the adoption of New Zealand standard specifications for gas equipment and applicances, including testing. The representatives of the industry agreed that such standard specifications would materially assist the industry to give and maintain a more efficient and economic service, and emphasized that, when completed, they would be of considerable value as a means of ensuring that equipment ordered from overseas would prove efficient and economic in operation and maintenance.

The committee examined 5 British standards and 9 American standards, directing circulation of these to the affected interests for comment, and set up an Executive Committee to review the comments received and to make suitable recommendations to the parent committee. The value of this work is well evidenced by a statement from the United States of America to the effect that standardization increased the efficiency of gas appliances and resulted in raising the heating capacity of cookers by 50 per cent., and that of water heaters by 25 per cent., in relation to the quantity of gas used. The same statement emphasized that efficient apparatus is necesssary to avoid the hazard of carbon monoxide which is so dangerous to health.

Packaging Sectional Committee

(Two meetings)

As a result of representations from shipping interests, supported by commercial and workers' organizations, the development of standard codes and specifications for containers has been initiated. The substantial economic loss due to the use of inadequate and unsuitable containers and to poor packaging has demonstrated the absolute necessity for the development of such codes and specifications. Evidence brought forward has shown that loss and waste of valuable cargo occurs on a considerable scale, due to the use of cartons, cases, and metal containers inadequate to withstand the stresses of transit. Further instances quoted have shown that poisonous, corrosive, explosive, and inflammable substances, packed in inadequate or unsuitable containers, involve not only waste of these commodities, but a contamination of, and serious damage to, valuable adjoining cargo, and serious hazards to property and life through possible contamination of foodstuffs, inhalation of toxic substances, corrosive burns, fire, and explosion. The development of standard codes and specifications will assist to arrest and to minimize the serious cumulative loss arising from such damage to cargo and hazards to life and property, in addition to which it will make a positive contribution towards the solution of the vexed problem of pillaging.

Under the direction of a committee representative of all the interests concerned, the standard codes and specifications will be modelled on the corresponding documents issued by the British Standards Institution, and co-ordinated as far as practicable with similar documents issued by the national Standards organizations in the United States of America, Australia, and other countries. The importation and exportation of cargoes, and their transhipment, necessitates the closest possible co-ordination in this respect. Safe stowage, for instance, requires uniform, conspicuous marking of dangerous goods so that their nature may be readily identified, and, to be really effective, all such goods should bear the same marks, no matter where they are shipped. Hence the adoption of the standards procedure, which affords the machinery for the co-ordinated action necessary to grapple effectively with this problem.

Cost Accounting Terminology Committee

(Seven meetings)

This committee has continued the drafting of a standard code of cost accounting terminology, which has now been completed, subject to final review by the committee.

Statistical Methods of Quality Control Advisory Panel

(One meeting)

This advisory panel was instituted in view of the increasing number of standard specifications being received from overseas relating to statistical methods of quality control. These standards have demonstrated their outstanding advantages as a means of facilitating production and eliminating the waste which accrues from the production of sub-standard commodities, and their frequent rejection, because faults in the production line were not discovered until the finished goods became subject to inspection

and tests. The statistical control of quality rectifies this position by applying scientific statistical methods of production control at every stage of the production route, in order to detect trends which would incur substantial loss, and correspondingly reduce useful production, unless these trends were arrested before they developed to the point of causing the production of substandard commodities. This method of production control has the further valuable advantage of reducing the amount of inspection and testing that is required, frequently from 100 per cent. of the production units to 5 per cent. or less.

The use of this scientific method of production control is the logical counterpart to the use of standard specifications. Standard specifications for commodities, on the one hand, provide the producer with concise and definite statements of the detailed requirements relating to the material, equipment, or other goods he is to produce, and the exact limits within which these requirements must be adhered to. On the other hand, standard specifications which prescribe the principles of statistical quality control equip the producer with a clear statement of the production methods to be followed, the stage-to-stage check tests to be carried out, and the methods of recording these which, if faithfully adhered to, will ensure the production of commodities within the limits prescribed by the standard specification to which the work must conform.

The paramount importance that is attached to the statistical method of quality control by industrial engineers, and the most competent industrial authorities generally, provides the soundest evidence of its advantage and value as a means to efficient industrial organization. The importance attached to this form of quality control in connection with war production, in particular, is such that all English-speaking countries, with the exception of New Zealand, have adopted the American Defence Emergency Standards Z1. 1–1941 and Z1. 2–1941 for statistical methods of quality control. This subject had, of course, received much attention in Britain over a number of years prior to the issue of these American specifications. Indeed, B.S. 600—Application of Statistical Methods to Industrial Standardization and Quality Control, by Dr. E. S. Pearson which was published by the British Standards Institution in 1935, embodies the result of the years of study and examination of the subject which had preceded its issue. In Britain the importance which attached to statistical methods of quality control is emphasized by the fact that she took the unprecedented step of adopting the American Defence Emergency Standards for quality control, which were issued as B.S. 1008–1942 within a year of their publication in the United States. A little later Britain issued a revised edition of B.S. 600 in order to obtain the full advantages of the application of statistical quality control methods to her war production. Within the next year or so Canada, Australia, and South Africa had also adopted the American quality control standards.

From this it is clear that the subject of statistical methods of quality control is not one that New Zealand can afford to ignore if the Dominion is to keep abreast of the advances in industrial progress that are taking place in other countries. It is hoped, therefore, in the near future to secure the attention to this subject which is necessary to the industrial and economic interests of the Dominion. To this end the advisory panel recommended that a standing committee should be set up to sponsor the development of quality control and allied industrial subjects in New Zealand, and to recommend the adoption of standard specifications incorporating these principles. The panel also recommended that, in the meantime, an explanatory brochure should be prepared, setting out in simple terms the principles and application of quality control with particular reference to New Zealand conditions. The adoption of these principles in New Zealand will be of the utmost importance to the administration of the Standard Mark, since the use of these methods, as a condition precedent to the use of the mark in appropriate cases, would greatly assist to ensure that the commodities which are to bear the Standard Mark conform to the relevant standard specifications.

BUILDING STANDARDS

Building Code Sectional Committee

(One meeting)

Building Code Technical Committee	Fourteen meetings.
Structural Welding Committee	One meeting.
Fire-prevention Committee	One meeting.
Fire-resistance Ratings Subcommittee	One meeting.
Fire-resistance Ratings Panel	One meeting.
Measurement of Buildings Committee	Three meetings.

Parent Committee.—The Building Code Sectional Committee was mainly occupied with a review of the reports of the committees and sub-committees working under its direction. In addition, the committee considered 27 British standards, 4 amendments to British standards, 14 draft British standards, 1 Australian standard, and 1 Canadian standard. It referred these specification to appropriate committees for examination in consultation with the affected interests, with a view to recommending whether they should be adopted as New Zealand standard specifications. In the case of the British standards in particular, and in other appropriate cases, the comments obtained were, or will be, submitted to the originating bodies.

Survey of Buildings.—At the instigation of the Building Research Committee, the Building Code Sectional Committee also examined proposals put forward by the New Zealand Institute of Architects for the classification of existing buildings according to their structural stability in relation to earthquake stresses. The committee concurred in the view expressed in the architects' report that some such action was necessary as an approach to reducing the hazard to life and property which a heavy earthquake would involve, due to the fact that some buildings, erected before the general adoption of the principles incorporated in the Standard Code of Building By-laws, would not withstand the stresses of seismic forces of high intensity. A proposal of the Building Research Committee that the Building Code Sectional Committee should examine the proposed basis for the classification of buildings, and correlate it with the Standard Code of Building By-laws, was endorsed by the Committee, and this work will be undertaken in collaboration with the authority which is to carry out the survey and assemble the data. The Building Code Sectional Committee also agreed that, on completion of the Survey, it should examine the data obtained with a view to establishing a final classification of existing buildings, and recommending such action, as it may consider necessary, in relation to the buildings falling within any class.

Adoption of Standard Code.—The progress which has been made with the adoption of the various parts of the Standard Code of Building By-laws offers convincing evidence of the importance and value which local authorities attach to the work of the Building Code Sectional Committee. To date, nine parts of the Standard Code have been issued, as follows:—

Part I—Preliminary.
Part II—Building Permits.
Part III—General Design and Construction.
Part IV—Basic Loads and Stresses to be used in Design.
Part V—Reinforced and Plain Concrete Construction.
Part VI—Panel Walls in Framed Structures.
Part VII—Means of Egress.
Part VIII—Residential Buildings.
Part IX—Light Timber Construction.

At the close of the year, Parts I–VI of the Standard Code had been adopted by fifty-four local authorities, forty-five of which had also adopted Parts VII–IX, while the remaining nine had the adoption of these parts under consideration. In fourteen

cases minor local amendments have been made to the Standard Code, for the most part to bring its provisions into line with town planning schemes already in operation. The local authorities which have adopted the Standard Code are as follows:—

Local Authorities which have adopted Parts I–IX—

*Auckland.	Hastings.	*Nelson.	*Tauranga.
Balclutha.	Inglewood.	New Lynn	Te Aroha.
Birkenhead.	Invercargill.	*Newmarket.	Taradale.
Blenheim.	*Lower Hutt.	New Plymouth.	Te Kuiti.
Bluff.	*Masterton.	*Otahuhu.	Thames.
Carterton.	*Matamata.	Otaki.	*Timaru.
Dannevirke.	*Mosgiel.	Papakura.	Upper Hutt.
Devonport.	*Motueka.	Raetihi.	Waipukurau.
Feilding.	Mount Albert.	Rangiora.	Wanganui.
Gisborne.	Mount Maunganui.	Takapuna.	*Wellington.
Greymouth.	Napier.	Taumarunui.	Whangarei.
Hamilton.			

Local Authorities which have adopted Parts I–VI—

Christchurch.	Gore.	Picton.
Dargaville.	*Northcote.	Riccarton.
Ellerslie.	Onehunga.	Stratford.

* Subject to minor local amendments.

Masonry Buildings of Bearing Wall Construction.—The draft revision of Section IV of the original Standard Model Building By-law has now been reviewed, and the revision will be issued as a part of the Standard Code of Building By-laws as soon as investigations have been completed concerning the minimum length of solid wall which must be provided between a corner and an opening, in order to ensure safe construction. Further attention has also been given to various forms of unit masonry construction, in which there is a growing interest. This type of construction is being increasingly developed as an alternative to, and a means of supplementing, light timber construction. A supplement to the Standard Code of Building By-laws, which established requirements, under which hollow concrete-block construction would be deemed to conform to the Standard Code, has been revised to permit the use of blocks with a lower compressive strength. This was decided after full investigation, consequent upon comments received from affected interests, which showed that the lower compressive strength would afford adequate safety and considerably facilitate the use of this form of construction. A similar supplement has been issued in respect of masonry blocks laid to form continuous cavity-walls. Masonry construction consisting essentially of concrete studs covered with precast concrete sheets has also been approved in principle, and will be the subject of a further supplement. The provisions in respect of hollow concrete blocks will be supplemented by a standard specification for the blocks themselves, the formulation of which has been commenced.

Monolithic Concrete Construction.—Good progress has been made with the preparation of an additional part of the Standard Code of Building By-laws which will make provision for monolithic concrete construction, referred to in the last report. As this type of construction is a relatively recent development, the formulation of requirements relating to its use involves a considerable amount of investigational and research work. A special panel was appointed to undertake this work, and has formulated comprehensive principles upon which this part of the Standard Code will be based. The conclusions arrived at by the panel indicate that it will be necessary to draft the requirements in two sections, one setting out the general principles of design, and the other establishing arbitrary rules which may be used in lieu of detailed calculations in the design of structures not exceeding three stories in height. This type of construction offers such advantages, both in simplification of design and conservation of building materials, that this addition to the Standard Code is regarded as being of particular importance and urgency.

Steelwork.—As stated in the last report, the more pressing demands of other work have necessitated that the steelwork part of the Standard Code of Building By-laws and the related Code of Practice for the Workmanship of Metal Arc Welding be held in abeyance for some time. Towards the end of the year, however, some attention was given to both these projects, with the result that the final editing of both codes is well advanced, and it is hoped to issue them concurrently with the Masonry Code referred to above.

Fire-resistance.—Further progress has been made with the formulation of a standard specification for fire doors and windows. Preliminary work has also been carried out in connection with the preparation of a standard schedule of fire-resistance ratings for building materials and methods of construction, and this project will be proceeded with as soon as necessary testing equipment is available.

Measurement of Buildings.—The committee set up to formulate a standard method of measurement for building work has continued with this project, and has completed draft proposals for the following sections:—

Preliminary and General Requirements.
Excavation.
Demolition.
Piling.
Concreting.
Structural Steelwork.

These six sections have been approved by the committee for circulation to affected interests for comment, so that these comments may be obtained while the committee is continuing with the drafting of the remaining sections. Experience during the drafting of the first sections has confirmed the statement appearing in the last report concerning the advantages which will accrue from the adoption of a uniform method of measurement which will eliminate confusion and conflict.

Plumbing Sectional Committee

Plumbing By-laws Committee	Fifteen meetings.
Plumbing Supplies Committee	Two meetings.

Plumbing By-laws.—Under the ægis of the Plumbing Sectional Committee, the Plumbing By-laws Committee has continued with its review of the draft Standard Code of Plumbing and Drainage By-laws in the light of extensive comments received from affected interests. The committee has now considered eighty-two pages of comments, from over four hundred affected interests to whom the draft code was circulated, and is proceeding with the final editing of the proposed code, which should be ready for issue during the ensuing year. The formulation of this Standard Code has been a major undertaking, involving an examination of all existing by-laws of local authorities, and of the Drainage and Plumbing Regulations administered by the Health Department, with the object of incorporating the most suitable provisions from these and various other sources into one comprehensive co-ordinated code of plumbing by-laws based upon the most modern practice, suitable for use in New Zealand.

The Health Department has indicated that the Standard Code, when issued, will replace its present Drainage and Plumbing Regulations. It is anticipated that local authorities will also take advantage of the code. Regulatory authorities will thus benefit from the consensus of competent knowledge and experience which the code embodies, while architects, tradesmen, and property-owners will all be assisted by the knowledge that the same requirements apply throughout the country. By avoiding the necessity of stock to supply material and equipment to a multiplicity of specifications for one and the same purpose, each only immaterially different, manufacturing and distribution costs will be correspondingly reduced. By so eliminating the need to manufacture, plan, and work to different requirements in respect of each authority the code will yield substantial cumulative economies to the country.

Plumbing Supplies.—The Plumbing Supplies Committee has continued its work in connection with standard specifications required for citation in the Standard Code of Plumbing and Drainage By-laws. The existing standard specification for water-closet pans has been withdrawn and replaced by a corresponding British standard suitably amended. The adoption of the British standard establishes requirements which are more suitable and adequate, and, in addition, implements the policy of adopting uniform specifications throughout the British Commonwealth—an important trading and commercial consideration which avoids the necessity for British manufacturers to produce to a different specification for the New Zealand market.

The committee has also revised the New Zealand Standard Specification for W.C. Flushing Cisterns (N.Z.S.S. 245) to incorporate definitions of high and low-level cisterns. These definitions have been adopted from a draft revision of the British Standard for W.C. Flushing Cisterns (B.S. 1125-1943) which the committee found to be unsuitable for adoption in New Zealand.

Building Materials Sectional Committee

(One meeting)

Builders' Hardware Committee	Two meetings.
Builders' Hardware Panel	One meeting.
Metal Finishes Panel	One meeting.
Terrazzo Products Committee	Two meetings.
Building-boards Committee	One meeting.
Asbestos Cement Roofing Sheets Committee	One meeting.
Roofing-tiles Subcommittee	Three meetings.
Wire Nails and Staples Committee	One meeting.
Fibrous-plaster Committee	One meeting.
Gypsum Casting Plaster Panel	One meeting.
Second-hand Corrugated Roofing-iron Conference	One meeting.

Parent Committee.—The Building Materials Sectional Committee has continued to supervise and co-ordinate the work of the committees which function under its direction. In addition, it has reviewed 15 British standards, 17 draft British standards, 1 Australian standard, and 1 draft Australian standard, and has referred these, in appropriate cases, to committees for examination in relation to New Zealand's requirements.

Builders' Hardware.—Standard specifications have been issued during the year for butt and strap hinges, barrel and pad bolts, sash-pulleys, brackets for asbestos-cement guttering and downpipes, and washers for asbestos-cement roofing-sheets. In addition, a standard specification for protective metal finishes has been completed and will shortly be issued. These specifications for builders' hardware, and other similar specifications in the course of preparation, will provide a basis for converting the factories concerned from war to civilian production in a way that will facilitate maximum output at minimum production costs and so will assist the successful maintenance and development of these industries. In addition, the establishment of standard types permits the user to select economical hardware on the basis of comparable service types. The value of this work is demonstrated by a statement from the U.S. National Bureau of Standards to the effect that a similar programme of standardization there eliminated 26 per cent. of the items previously used, while the adoption of 25 standard finishes in place of 100 non-standard finishes yielded an estimated yearly saving of $10,000,000.

Terrazzo Products.—A standard specification for terrazzo work completed during the year incorporates minimum requirements in respect of terrazzo work generally, as well as special requirements relating to the manufacture of precast terrazzo slabs and the laying of terrazzo floors. This specification has been prepared in full consultation with the producers and building interests, including the Department of Housing Construction. It provides a reliable basis for the supply of this building material that will exclude inferior products which destroy user confidence and discredit an industry within which some manufacturing units have maintained a high standard of quality and afforded a valuable service to the building industry, and therefore to the country.

Building-boards.—A standard specification has been completed for three types of interior wallboard in common use—milled paper board, fibre board, and plaster-cored paper-covered wallboard. In addition to uniform dimensions, the specification establishes general and detailed requirements in respect of each type of wallboard, including minimum weights to the square yard, and minimum transverse strengths, these being the factors which primarily determine the quality of the board. Further investigational work is now being carried out with a view to supplementing the specification with provisions that will establish requirements relating to fire resistance, thermal conductivity, water permeability, thermal expansion and acoustical properties.

Asbestos-cement Roofing-sheets.—The standard code of practice for the fixing of asbestos-cement roofing-sheets, referred to in the last report, has now been completed and issued. This code supplements the standard specification for roofing-sheets by establishing minimum requirements for, and defining the practice to be followed in the fixing of such sheets. Adherence to both the standard specification and the code of practice will ensure that roofing-sheets will be of such a quality, and so fixed, that they will yield satisfactory service, and in particular will eliminate the undue hazards to workmen, firemen, and others called upon to work on roofs of asbestos-cement sheets.

Roofing-tiles.—The standard specification for earthenware roofing-tiles referred to in the last report was issued during the year. It specifies two size-patterns, one for the North Island and one for the South Island, and will thereby eliminate the confusion and waste which results from the indiscriminate use of tiles of different sizes and patterns. The specification will also enable manufacturers to reduce unit-production costs by confining their production to a minimum number of tile types. Users, on the other hand, will be assisted by the knowledge that tile replacements will be readily obtainable. The specification also lays down minimum requirements in respect of the factors which determine the quality of the tiles, including dimensions, transverse strength, absorption, workmanship and finish, and includes the necessary provisions in respect of testing and marking. A similar standard specification for concrete roofing-tiles, and a standard code of practice for the fixing of both concrete and earthenware tiles, have been completed during the year, and will be issued as soon as they have been finally edited.

Wire Nails and Staples.—A special committee set up to formulate standard specifications for wire nails and staples has taken as the basis for the specification for wire nails a draft British Standard which has been circulated to the interested parties in New Zealand for examination and comment. A special sub-committee is to review the draft specification in the light of the comments received, and will amend its provisions where necessary to bring them into line with New Zealand's requirements. A preliminary draft specification for staples has been prepared.

Fibrous Plaster Sheets.—A standard specification for fibrous plaster sheets for indoor use has been completed except for provisions relating to transverse strength, in respect of which tests are being conducted to determine the requirements which should be incorporated. The specification provides for two grades of sheet, one suitable for painting and the other suitable for papering. In addition to laying down strength requirements, the specification will establish standard dimensions and minimum requirements concerning composition and moisture content. A standard specification has been completed for gypsum casting plaster, and preliminary work has begun on the preparation of a specification for fibre for use in fibrous plaster products.

Second-hand Corrugated Roofing-iron.—At the request of the Price Tribunal, a standard specification has been issued establishing grades for second-hand corrugated roofing-iron.

Paints and Coatings Sectional Committee

(Four meetings)

Paints and Coatings Panel .. .. One meeting.

Parent Committee.—During the year the [illegible]committee examined 2 draft British standards, 1 British emergency st[illegible] A[illegible]erican standards, and 6 Canadian standards. The British emergency [illegible]da[illegible] [illegible]und to be unsuitable for adoption in New Zealand. One of the draft [illegible]ritish [illegible] and 3 of the Canadian standards

are still under consideration. In addition, the committee has carried out extensive preliminary work to ascertain the desirability and practicability of formulating standard specifications for further paint materials. Draft proposals for a code of practice for spray painting have been prepared, while some attention has also been given to the question of standard specifications for varnishes, driers, oil-base distemper, roof paint, protective paint for metals, paint suitable for *Pinus radiata*, and surface finishes. The standard specification for paint for use on service vehicles was also reviewed and amended in order to render its provisions more effective.

Ready-mixed Paints.—In view of the critical position concerning supplies of white lead it has been necessary to revise the existing standard specifications for ready-mixed paints so as to reduce the white-lead content to the absolute minimum that will give reasonable service. Owing to an improvement in the supplies of zinc oxide it has been possible to offset the effect of the reduction in white lead content, to a certain extent, by increasing the zinc oxide content. The amended standard specifications will ensure that the maximum use is made of the limited supplies of materials without resulting in the manufacture of paints below marginal utility.

Timber Sectional Committee

(Two meetings)

Joinery and Profiles Committee	One meeting.
Plywoods Committee	One meeting.
Timber Ladders Sub-committee	Two meetings.
Kiln-drying Practice Committee	Three meetings.
Pinus Radiata Grading Rules Committee	Four meetings.
Timber Preservation Committee	Two meetings.
Timber Preservation Investigatory Committee	One meeting.
Timber Preservation Investigatory Sub-committee	One meeting.

Parent Committee.—The Timber Sectional Committee considered 11 British standards, 2 draft British standards, 1 amendment to a British standard, 7 Australian standards, and 1 South African standard, and directed these to appropriate committees for examination in collaboration with the affected interests and for report back to the parent committee. The committee considered requests for grading rules for *Pinus radiata* (insignis pine) for use in building construction as a means of augmenting supplies of building timber, and set up a special committee to formulate the necessary provisions. The parent committee also instituted a working committee to undertake the preparation of a standard code of practice for the kiln-drying of timber. In addition, a panel was set up to consider comments on the standard specification for the classification and grading of New Zealand building timber (national grading rules) and to make recommendations to the main committee for any necessary revision of these rules which such comments may warrant.

Profiles.—The draft standard specification for profiles of joinery and mouldings referred to in the last report was circulated during the year to all affected interests for review and comment. The comments received have been collated, and now await consideration by the responsible committee during the course of the final review of the draft proposals. A draft standard specification for profiles of weatherboards, flooring, and matchlining was also completed and circulated during the year.

Plywoods.—As a result of representations received from user interests, the standard specification for plywoods was reviewed during the year, with the object of rendering its provisions more effective. A revised specification, which carries the concurrence of both producers and users of plywoods, has been now issued. All manufacturers of plywood have been granted licenses to use the Standard Mark upon their products as a certification of conformity with the requirements of the standard specification. In the course of inspections carried out during the year in connection with the use of the Standard Mark the co-operative attitude of the manufacturers made it

clear that they intend to conform to the requirements of the specification, and so gain and hold the full confidence of user interests as a basis for the sound and full development of this important industry.

Timber Ladders.—The special committee set up to draft a specification for timber ladders has continued with its work, and has completed a draft specification for consideration by its parent committee. Those responsibly concerned with the safety of workers engaged in occupations in which ladders are frequently used have displayed a very keen interest in the development of this specification.

Kiln-drying Practice.—The special committee set up to formulate a standard code of practice for the kiln-drying of timber has completed draft proposals for circulation to the interested parties for comment. This standard will define the practice by which the moisture content of timber should be reduced to its proper limits, without causing warping, splitting, or other damage. It will thus remove the causes of dissatisfaction and conflict which arise in the absence of such clarification of these considerations. The standard code of practice will therefore provide a reliable trade textbook for the kiln-drying of timber, while the use of the Standard Mark on timber treated in accordance with its provisions will assure users concerning the adequacy of the treatment and the quality of the treated timber.

Pinus Radiata *Grading Rules.*—Following upon the decision to use *Pinus radiata* (insignis pine) for building construction, the Department of Housing Construction requested the preparation of standard grading rules for this timber. After an examination of the available data, and the carrying-out of practical grading tests, the special committee set up to undertake this work completed tentative grading rules, which will be issued as an addendum to the National Grading Rules. It is intended to review these provisions in the near future in the light of experience gained during their initial use. In the meantime, the addendum will provide the best-known basis for the grading of *Pinus radiata* for building purposes, and will ensure the most satisfactory use of this timber as an alternative to other building timbers, thereby assisting to overcome the shortage of building timber.

Timber Preservation.—A standard code of practice for the preservative pre-treatment of timber by the cold-dipping process was completed and issued during the year. This specification lists approved preservatives, and stipulates a minimum concentration for each, together with the types of solvent to be used for different classes of timber. It also includes provisions concerning the preparation of timber prior to treatment, the methods by which the preservative shall be applied, and the marking which will certify conformity with the standard specification. In an introductory note to the specification it is acknowledged that its provisions are not complete or final, inasmuch as they may be inadequate to ensure permanent protection against insect and fungi attack, which, so far as is known, can be assured only by thoroughly impregnating timber with an effective toxic therapeutant. While the cold-dipping process, for which the specification provides, does not thoroughly impregnate the timber, it at least affords a partial protection if the materials specified are used in adequate concentrations as provided in the specification. It is intended to extend the specification to cover pressure and vacuum treatment as soon as necessary research work concerning these methods has been completed.

DOMESTIC COMMODITY STANDARDIZATION

Commodity Divisional Council

(Two meetings)

Tinned and Galvanized Utensils Committee	Two meetings.
Dust-bins Committee	One meeting.
Paua-shell Committee	Two meetings.
Soap Committee	One meeting.

Parent Committee.—At its two meetings the Commodity Divisional Council considered 1 British standard, 2 draft British standards, 22 Australian Commonwealth Food Control Specifications, 74 U.S. Department of Agriculture specifications, and

14 U.S. Federal specifications for consumer commodities, and directed the circulation of these to the interested parties for review and comment. The Council also considered reports of the various committees working under its direction, including those dealing with footwear, textiles, foodstuffs, and furniture, as referred to below.

Tinned and Galvanized Utensils.—The committee responsible for the development of this project has almost completed a standard specification which establishes requirements relating to the gauge of metal, the capacity and construction, including the methods of jointing, seaming, lugging, wiring, and reinforcing, to be used according to the nature of the utensil. The specification includes provisions for all household tinware such as bake-dishes, cake-tins, kettles, and the like used for domestic purposes. It also includes provisions relating to galvanized utensils such as buckets, dippers, and similar general-purpose vessels.

Paua-shell Jewellery and Ornaments.—Following upon representations from the Disabled Servicemen's Re-establishment League and the Rehabilitation Department, supported by the Returned Services' Association, a committee was instituted during the year to undertake the development of a standard specification for paua-shell jewellery and ornaments, with the object of protecting the interests of disabled returned servicemen who were undergoing training in this craft as a means of rehabilitation and gaining their future livelihood. It was represented by the organizations concerned that the manufacture and sale of paua-shell jewellery and ornaments made from inferior material, and faultily fabricated, would react against the establishment of this industry, which otherwise held good prospect of gaining and preserving a sound local market, in addition to an export trade if a standard of quality of such wares were soundly maintained. In view of the importance of this consideration to the rehabilitation and future economic security of disabled servicemen, the project was undertaken and a standard specification completed and issued during the year. It establishes requirements relating to the quality of the paua-shell to be used, its mounting and setting, workmanship, and finish.

Footwear Sectional Committee

(Two meetings)

Footwear Panel	One meeting.
Nurses' Footwear Committee	Two meetings.
Conference of Lasts Committee and Infants' Footwear Committee	One meeting.

Parent Committee.—In addition to considering the reports of the committees working under its direction, the parent committee revised the emergency standard specifications for footwear in the light of comments received as a result of their initial application, and recommended that the revised specifications should be issued as regular standard specifications. In the course of the revision, provision was made for the use of outsoles manufactured from wax chrome bend leather, and from approved rubber. Further minor amendments were made to bring the specifications into fuller accord with established trade practice, while at the same time maintaining adequate standards of quality and utility. After full consideration, it was decided to withdraw the standard specification for men's split and kip working boots, a class of footwear which the committee considered should not be permitted to bear the Standard Mark.

Nurses' Footwear.—The Nurses' Footwear Committee completed a standard specification for nurses' shoes manufactured by the cemented, veldtschoen, and pre-welt processes, with uppers of chrome tanned leather or canvas. The formulation of this specification was carried out with commendable thoroughness. The committee had sample shoes manufactured to the requirements of the draft specification and submitted to the four main training centres for nurses, in order to ensure that footwear manufactured to the requirements of the specification would be of the most suitable type for the purpose for which it was intended. In this way the consensus of knowledge and experience of both the manufacturers and distributors, and the nurses as users of the shoes, was obtained.

Infants' Footwear.—A standard specification for infants' footwear, sizes 3 to 6 inclusive, manufactured by the cemented, veldtschoen, and pre-welt processes, with upper leather of calf, yearling, kid, chrome, or patent leather, was completed during the year. There has been an insistent demand for such a specification for infants' footwear in order to ensure that this class of footwear will be manufactured to requirements that will ensure utility in service.

Footwear Lasts.—The standard specification stipulating uniform basic measurements for footwear lasts was completed by the Lasts Committee. The specification establishes heel to ball, ball, waist, and instep measurements over a sufficient range of sizes, and in adequate gradations, to ensure that footwear manufactured on the standard lasts will correctly fit feet that fall within the category of normal shapes and sizes. If footwear is manufactured on these lasts in sufficient quantity, and in correct proportions, the number of people who will be unable to obtain satisfactorily fitting footwear, it is considered, will not exceed some 5 per cent. The specification incorporates the following sizes and variations in size-widths:—

Class of Footwear.	Number of Sizes.	Number of Half-sizes.	Widths to each Size.	Total Gradations.
Infants'	3	3	6	36
Children's and small boys'	3	3	6	36
Maids'	5	4	9	81
Boys' and youths'	7	7	6	84
Women's	9	9	9	162
Men's	9	8	9	153
Totals	36	34	45	552

The comprehensive tables which incorporate these sizes and gradations are set out in the specification in a way that should facilitate their use by manufacturers. It will, of course, require some considerable time before lasts are available in sufficient numbers to permit an adequate supply of footwear manufactured to this range and gradation of sizes to become available to the public. It is intended that in due course the Standard Mark should be used to distinguish footwear which conforms to the size requirements of the standard specification from that which does not do so.

The importance and value of this work is soundly evidenced by the representations of orthopædic specialists, footwear-manufacturers, the Plunket Society, and various women's organizations, concerning the serious injury which incorrectly fitting footwear is causing to children's feet, in particular, and which so adversely affects their posture and general health in later life. In addition to being important from the point of view of the physique and health of the people, the matter has an economic aspect, since ill-fitting footwear has not the same service life as footwear that properly fits the wearer. In the past not only has an insufficient number of sizes and range of gradations within those sizes been manufactured, but, in addition to this, the basic measurements adhered to by one manufacturer in some cases have differed from those used by another, with the result that shoes designated the same size by two or more firms have not infrequently been made to different basic measurements. The standard specification for basic measurements for lasts will correct this by establishing uniform basic measurements in relation to sizes, and will at the same time provide for a gradation of these basic measurements adequate to fit the wide range of differing foot measurements.

Gum Boots.—The Gum Boots Committee has made good progress with the formulation of a standard specification for gum boots.

Survey of Children's Feet.—The measurements which are incorporated in the specifications relating to children's feet are to be subjected to the practical test of a survey of the actual measurements of children's feet falling within the groups that

correspond with the respective sizes incorporated in the standard specification. Similar work is being carried out on a comprehensive scale in overseas countries, and particularly in the United States of America and the U.S.S.R.

Value of Standardization.—The standardization of footwear, together with the standardization of basic measurements for footwear lasts, that has been carried out over the past few years in New Zealand, it is now found, corresponds with a similar undertaking carried out by the British Boot, Shoe, and Allied Research Association in England, an interesting report of which appeared in the Trade and Engineering Supplement of the London *Times* as follows:—

> Projects now under consideration indicate that those responsible for the well-being of the industry are desirous that it shall enter the post-war world fully equipped to grapple with new problems. The industry is asked to adopt a certification trade-mark as a hall-mark of quality. The proposed mark, "Satra," has been registered. Its use on a shoe would signify that components conformed to specifications, that construction was guaranteed, and that the last upon which it was made had been approved. The responsible character of the steps taken to establish "Satra" is indicated by the detailed and lengthy negotiations that have taken place between the British Boot, Shoe, and Allied Trades' Research Association—the originators of the scheme—and various Government Departments.
>
> The certification mark would not displace ordinary trade-marks, which could be used as additional indices of quality. Grades could be maintained within the scheme. The objective is that the consumer, even though compelled to buy cheaply, would still get guaranteed footwear to the extent of the grade purchased. It is assumed that the provision of guarantees will result in progressively diminishing demand for grades so low as not to qualify for the certification mark. Thus the public would be protected against shoddy, and the trade, to a large extent, would be protected against competition at the point of price.

The estimate of the importance of this work revealed in the above report indicates the significance of the corresponding work that has been carried out here. It is acknowledged, however, that there still remains a considerable amount of work to be carried out before this project can be considered to be complete.

Textiles Sectional Committee

(One meeting)

Textiles Testing Committee	Two meetings.
Oily Canvas Clothing Committee	One meeting.
Shirts and Pyjama Sizes Committee	One meeting.
Women's and Girls' Outerwear Simplification Committee	One meeting.
Gloves Committee	Two meetings.
Gloves Approvals Committee	Two meetings.
Flock Committee	One meeting.

Parent Committee.—The Textiles Sectional Committee considered the reports of the committees acting under its direction, and also reviewed 17 British standards, 1 draft Australian standard, 8 Australian standards, 8 specifications issued by the U.S. National Bureau of Standards, and 8 issued by the American Standards Association. Of the British standards, 4 were recommended for adoption as New Zealand standard specifications, while, in appropriate cases, the other specifications were referred to working committees for detailed examination. The parent committee also decided to institute a special committee to prepare standard specifications for uniform and other cloths used by local authorities and Government Departments.

Textiles Testing.—The Textiles Testing Committee has examined 3 overseas specifications relating to the testing of textile materials, with the object of determining the testing methods which are most suitable for adoption in New Zealand. The committee decided that the specifications issued by the Canadian Government Purchasing Standards Committee and the Standards Association of Australia afford the best basis from which to develop standard specifications that would establish the most suitable practice for the testing of such factors as tensile strength, tearing strength, fibre, identification, colour fastness to laundering, water and perspiration, &c., in this country. The committee

has initiated the preparation of a specification which will incorporate some twenty methods of testing in relation to these factors. It has also decided to carry out further investigations relating to shrinkage during laundering.

Oily Canvas Clothing.—The committee instituted to develop a standard specification for oily canvas clothing has made good progress with this project. The specification will establish minimum requirements for oily canvas clothing including the various types of waterproof coats, leggings, and sou'westers, in relation to basic measurements upon which sizes will be based, and the weatherproofness of three different grades of clothing as determined by the standard tests to be incorporated within the specification. The committee is also examining the question of including wearing and ageing tests. The manufacturing industry concerned fully recognizes the necessity for this specification, and the value it will have to both producer and consumer interests, with the result that the most active co-operation of all affected interests has been readily forthcoming.

Shirts and Pyjama Sizes.—The standard specification for sizes for shirts and pyjamas was reviewed in the light of comments received from the affected interests and was amended in minor respects in order to render its provisions more effective.

Leather Dress Gloves.—After careful consideration of the conditions under which the Standard Mark should be permitted to be used on leather dress gloves, the Gloves Committee decided that block-cut and semi block-cut gloves should not be provided for in the standard specification, which was accordingly amended to require all gloves to be table-cut by competent craftsmen.

Foodstuffs

Vegetables Conference	Two meetings.
Meat Grades Committee	One meeting.
Bread Approvals Committee	Four meetings.

Vegetable Grades.—The sixteen emergency standard specifications for vegetable grades were reviewed in the light of the experience gained as a result of their initial use. Some minor amendments were thus made to these specifications, which are now to be converted from emergency to regular standard specifications and issued in printed form. These specifications afford a sound basis for the purchase of vegetables to defined grades of quality by the purchasing officers of Government Departments, public institutions, and other large-scale buyers. In due course the specifications will, no doubt, become the basis for the purchase of vegetables by wholesalers and retailers and for their sale to the general public.

Meat Grades.—The standard specification for grades of meat for the retail market was reviewed during the year, and minor amendments made to its provisions as a result of comments received from the affected interests.

Bread.—The Bread Approvals Committee continued to consider applications for the approval of special breads not provided for by the standard specification.

Furniture

Household Furniture Committee	One meeting.
Household Furniture Executive Committee	Two meetings.
Government Office Furniture Committee	Five meetings.

Household Furniture.—The Household Furniture Committee met once during the year in order to convert the emergency standard specification for household furniture into a regular standard specification and to review some proposed amendments recommended for incorporation in the specification by its executive committee. These amendments were of a relatively minor nature, but important to the industry, inasmuch as they reconciled one or two requirements which conflicted unnecessarily with established trade practice. The increased use of the Standard Mark on furniture evidences the value that is being derived from this specification, and consequently the increased quantity of furniture which is being manufactured to its requirements.

Government Office Furniture.—A Government Office Furniture Committee was instituted during the year to develop a standard specification for departmental office furniture, with the object of ensuring that the most suitable and convenient furniture, from the point of view of efficient administration and the comfort and well-being of staff, would be manufactured at least cost. Sound progress has been made with the formulation of this specification, which will include provisions relating to tables, desks, chairs, cabinets, card-index cabinets, and other furniture for administrative purposes. The constructional requirements contained in the household furniture specification will be cited in the departmental furniture specification, and will thus be related to the types of furniture defined and stipulated in the latter specification.

PRIMARY INDUSTRIES

Dairy Products and Requisites Committee	One meeting.
Reductase Test Panel	One meeting.
Milking-machine Executive Committee	One meeting.
Produce Sacks Committee	One meeting.
Second-hand Sacks Committee	One meeting.
Cow-covers Committee	One meeting.

Dairy Products and Requisites. After being in recess during the war years, the Dairy Products and Requisites Committee has now resumed activity in collaboration with the corresponding committees of the British Standards Institution. By a special arrangement, the corresponding committees in the two countries work in the closest collaboration with the object of producing a uniform set of standards for dairy products and requisites throughout the Empire. The importance of this work can be fully appreciated from the fact that the projects being developed cover materials and equipment used in the manufacture of dairy products and the methods of test employed to determine the quality of these products. The work of the committee is therefore of vital importance to the maintenance of quality in the dairy industry, upon which the welfare of the country so substantially depends. The committee, during the year, examined 7 New Zealand standard specifications, 1 British standard, 2 draft British standards, 1 Australian standard, and 1 South African standard. In addition, it has resumed the development of several original New Zealand standard specifications which were under consideration when the committee went into recess. The projects at present receiving the attention of the committee are as follows:—

Methods and Apparatus for the Babcock and Gerber Tests.
Protected Type Dairy Thermometers.
Detergents for use in the Dairy Industry.
Methods for the Chemical Analysis of Cheese and Butter.
Methods for Testing the Coagulating Strength of Rennet.
Method for the Reductase Test.
Methods for the Sampling and Analysis of Casein.
Methods for the Microbiological Examination of Butter.
Methods for the Estimation of Acidity in Cream, Milk, and Whey.
Specifications for Cheese-cloth, Butter Muslin, Cheese-bandages, Cheese-caps, and Butter Parchment.

Produce Sacks.—The standard specification for produce sacks was reviewed and amended to provide for a larger sack for the packing of light produce. The revised standard specification stipulates a 46 in. by 23 in. sack for packing grain and other produce weighing more that 45 lb. to the bushel, and a 48 in. by 26½ in. sack for the packing of produce weighing 45 lb. or less to the bushel. This standard specification has been prepared in close collaboration with representatives of organizations representing the interests of farmers, transport workers, flour-millers, grain and seed merchants, and other interested parties. By establishing requirements which will ensure that loaded sacks can be handled without imposing undue strain on farmers, workers, and others called upon to handle them, while at the same time avoiding the

use of sacks so small as to prove uneconomic, the standard specification will do much to resolve the conflicts that have recurred from time to time in connection with excessive loaded weights. It will have the further value of reducing the inestimable social and individual loss involved in the disabilities and premature incapacitation caused, directly or indirectly, by lifting excessive weights, especially in the case of elderly people or immature youths, or those who are not physically robust. The specification carries the endorsement of all the interested parties and arrangements have been made for imported produce sacks to conform to the requirements of the specification.

Second-hand Sacks and Bags.—The standard specification for second-hand sacks and bags was revised during the year to provide for a further class of sacks and bags suitable for the packing of vegetables.

Cow-covers.—A standard specification for cow-covers has been completed and is being edited prior to being issued. In view of the wide variation in climatic conditions prevailing in New Zealand, this specification provides for eight different types of covers, five of which are made from ordinary jute canvas, and three from green wax-proofed jute canvas. Provision is also made for a range of sizes from 3 ft. 6 in. centre back length, rising by 2 in. or 3 in. gradations to 5 ft. 6 in. centre back length. In addition, the minimum weight of each type of material is specified, together with the necessary requirements in respect of stitching, strength of thread, and attachment of straps. The requirements are based upon the results of actual field tests and laboratory tests carried out on subsequent samples of covers made with different materials, and using different methods of attaching straps and buckles. As a result of these tests the committee was able to establish requirements which will ensure that cow-covers conforming to the specification will be properly made from adequate materials and will give satisfactory service. It is intended to supplement these provisions with requirements in respect of rot-proofing of the material as soon as investigations into this aspect have been completed. The use of the Standard Mark on cow-covers conforming to the standard specification will provide farmers with a means of ensuring that they receive full value and the best service in connection with this important item of their expenditure.

Hides Sectional Committee

(One meeting)

Hides, Yearlings, and Calf-skins.—A meeting of the Hides Sectional Committee was called during the year to consider proposals for amendment of the standard grades for hides, yearlings, and calf-skins to provide for the adoption of the same basis for the grading of skins received from all sources, freezing-works, abattoirs, and country butchers. After a full examination of this position the committee decided that the proposed revision should be deferred in view of the fact that any variation of the provisions of the standard specification at this stage would involve far-reaching changes in the price structure, since the marketing of hides is based upon the standard grades.

Farm Implements Sectional Committee

Tillage Machinery Parts Committee	One meeting.
Harvesting Machinery Committee	One meeting.
Garden Tools Committee	One meeting.

Tillage Machinery Parts.—The Tillage Machinery Parts Committee set up by the Farm Implements Sectional Committee during the previous year met to agree upon a programme of work for the standardization of tillage machinery parts. The committee endorsed this project and set up a panel to prepare a detailed list of the items which

should be standardized and the order in which these should be dealt with. The panel has recommended that standard specifications should be prepared for the following items :—

Cultivators.—Points. Attachments bolts and bolt-holes.
Drills.—Axles and wheels, including pitch of wheel, length of journal, and position of flange and bolt holes. Bevelled gearing. Coulter tips and tubes.
Harrows.—Number of tires in relation to width of tripod harrows.
Horse-hoes.—Head (shoe of the toe). Rollers.
Ploughs.—Shears and heads. Mould-boards. Wheels. Tail-plates.
Disc Ploughs.—Bearing-wheels. Steering-stems. Shafts for discs. Shafting for all axles and drives. Depth of fishing of discs.
Whipple Trees.—Quality and species of wood. Breaking-load of tree. Width of tree. Method of attachment of hooks.
Yokes.—Length and strength of compensating chain.
General.—Seats of all horse-drawn vehicles. Bolt holes in seat supports.

The committee realized that such a programme of standardization could not be fully effective unless facilities existed for the carrying-out of performance tests on implements to determine their suitability and their compliance with the standard specifications adopted. The committee has accordingly recommended that representations should be made urging the establishment of testing stations for farm implements and machinery.

Harvesting Machinery.—At the first meeting of the Harvesting Machinery Committee it was decided that any programme of standardization carried out in New Zealand should be developed in close collaboration with the machinery manufacturers in Great Britain and the United States of America. The committee has accordingly drawn up a list of harvesting machinery parts which it considers should be standardized and these have been referred to the British Standards Institution and the American Standards Association for consideration. The list of items includes the following :—

Ledger-plates.
Wearing-plates.
Knife clips.
Fingers.
Knife sections.
Seats, including brackets and bracket-holds.
Threads for screws and oil-cups.
Bale size of hay-pressers.
Teeth and other wearable parts of hay-sweeps.
Strength of wire rope and diameter of pulleys for stackers.

Garden Tools.—Standard specifications for shovels, rakes, spades, and hoes were completed during the year and will be issued as soon as they have been finally edited. These specifications establish minimum requirements in respect of the factors which determine the quality of the material from which the tools are made and the suitability and utility of the finished tools. They will thus provide a basis for the use of the Standard Mark as a certification that tools conform to these provisions, thereby safeguarding the interests of reputable manufacturers and enabling consumers to ensure that the tools they purchase will give satisfactory service.

INTERNATIONAL STANDARDIZATION

Prior to World War II several international standardization organizations were in existence. The most important of these was the International Federation of National Standardizing Bodies, frequently referred to as the International Standards Association (ISA). At the outbreak of the war the national standardizing bodies of continental Europe were more active in this organization than were the English-speaking countries and those of Latin America. Since it did not reflect in any large measure the industrial and trade attitudes of the leading trading nations, which now form part of the United Nations, this international organization did not play a very important role in international trade.

With the outbreak of the war the organization closed down its operations, and during the war it became defunct as the result of all the member bodies, except Spain, Sweden, and Switzerland, becoming engaged in hostilities. The necessities of war production, and the collaboration between the English-speaking countries, upon which the successful conduct of the war depended, quickly demonstrated the paramount importance of giving urgent attention to the question of co-ordinating the standards of the English-speaking members of the United Nations.

Ordnance engineers, and other authorities responsible for seeing that the Allies received the quantities of munitions and materials they needed for the most effective conduct of the war, have frequently stressed that vital war production has been seriously delayed and impeded because of the undue diversity of specifications. William L. Batt, member of the United States Raw Materials Board and the Combined Production Resources Board, Vice-chairman of the War Production Board, and President of SKF Industries, commenting on the seriousness of the position which existed in this regard, states that lack of unification of screw-threads alone added $100,000,000 approximately (£31,000,000) to the cost of the war, and, more important, correspondingly delayed servicing of equipment. This specific example of the increased cost of the war would represent but a fraction of the total increased cost of war production due to the lack of co-ordinated standard specifications. This is perhaps best illustrated by the tremendous increase in production, and the vast economies which were achieved because of the existence of standard specifications as a basis for war production as demonstrated by the reductions in production costs, varying from 23 per cent. to over 95 per cent., which have been quoted by the British Institution of Production Engineers. The importance of this aspect was emphasized in 1943 by Clifton E. Mack, Director of Procurement, U.S. Treasury Department, who was especially concerned with lend-lease operations. Mr. Mack stated :—

> The efficient operations are the direct result of the application of the principles of standardization. . . . Without standardization the United Nations could not even anticipate the overthrow of our opponents. . . . The termination of World War II will release to a world of peace new industrial techniques which we have lately been forced to squander in wasteful conflict.

The co-ordinating activity which took place during the war years finally led to the establishment of the United Nations Standards Co-ordinating Committee in 1944. With the conclusion of hostilities it was widely and increasingly recognized that, if post-war trade was to achieve its fullest measure of development, an organization for international standardization would be a vital necessity. Britain, Canada, and the United States, as members of the United Nations Standards Co-ordinating Committee, sponsored a proposal for a conference of all the member bodies, with a view to securing agreement to convert the United Nations Standards Co-ordinating Committee to a permanent international standards organization. This proposal was endorsed by a conference of all members held at New York in October, 1945. The conference also agreed upon the terms of a draft constitution which has been submitted to the member bodies for consideration and comment prior to being ratified at a further conference which it is proposed to call in London during October, 1946. Mr. A. R. Galbraith, F.R.S.E., M.Inst.C.E., Chairman of the Standards Council, and Mr. E. H. Langford, M.A., a member of the Council, were the New Zealand delegates.

At the conclusion of the United Nations Conference in New York, the New Zealand delegates, together with the delegates from Australia and other Empire countries, visited London, at the invitation of the British Standards Institution, in order to discuss standardization policy, in relation to international trade and otherwise, with the object of reaching conclusions concerning matters that should be presented for the endorsement of the newly constituted international standards organization at its first meeting, which it is proposed should take place in October of this year. It was also desired to take advantage of the opportunity that offered to discuss items for inclusion in the agenda for a British Commonwealth Standards Conference to be held in London to coincide with the meeting of the international standards organization.

EXCHANGE OF SPECIFICATIONS

The Standards Council has continued to exchange draft and standard specifications with the national standards organizations in other countries. Under this arrangement copies of all specifications formulated in New Zealand have been sent to the standardizing bodies in the English-speaking countries, as well as to those in certain other countries which maintain contact with New Zealand. In return, during the year under review, New Zealand has received 833 similar documents from 14 Standards organizations, as set out in Table B below. The draft and standard specifications received from the English-speaking countries are referred to the appropriate committees of the Standards Council to obtain comments based on New Zealand's requirements for transmission to the originating bodies. In addition, in the case of specifications received from Great Britain, these are circulated to all the affected interests in the Dominion in order to determine their suitability for adoption as New Zealand standard specifications. Similarly, each of the countries concerned receives copies of all original New Zealand specifications with the object of obtaining comments for transmission to New Zealand. This reciprocal arrangement ensures that, so far as practicable, uniform standard specifications will be adopted by the English-speaking nations and by the Empire countries in particular—a matter of the utmost importance, since the adoption of uniform standards obviates the necessity for manufacturers supplying markets in several countries to make to a different specification for each market.

Table B.—Specifications received from other Countries

Source of Supply.	New and Revised Standards.	Draft Standards.	Emergency Standards.	Draft Emergency Standards.	Totals.
National Standardizing Bodies					
British Standards Institution	101	131	3	2	237
Standards Association of Australia	1	10	9	1	21
Canadian Standards Association	6	1	..	..	7
American Standards Association	87	..	31	..	118
Association Francaise de Normalisation	67	55	..	..	122
Instituto Urugnayo de Normas Technicas	10	..	..	..	10
Other Organizations					
Australian Department of Commerce and Agriculture (Commonwealth Food Control)	11	..	..	..	11
American Society for Testing Materials	82	..	2	..	84
Canadian Government Purchasing Standards Committee	28	..	17	..	45
Indian Railway Board	14	..	..	..	14
U.S. Department of Commerce (National Bureau of Standards)	28	..	..	..	28
National Board of Fire Underwriters (U.S.)	64	..	..	..	64
Society of Automotive Engineers (U.S.)	17	..	..	..	27
U.S. Treasury Department (Federal Standard Stock Catalogue)	45	..	..	..	45
Totals	571	197	62	3	833

SALES OF STANDARD SPECIFICATIONS

Standard Specifications and related documents to the value of £1,462 1s. 5d. were sold during the year, as detailed in Table C below.

Table C.—Sales of Standard Specifications and Related Documents

	Number.	Amount.
		£ s. d.
*Original New Zealand Standard Specifications	12,810	583 0 6
New Zealand Emergency Standard Specifications	5,110	224 7 6
New Zealand Standard Specifications (being British Standards adopted)	1,121	160 15 3
Ordinary British Standards	2,883	424 10 6
British Standard Aircraft Specifications	9	0 11 3
British Standard A.R.P. Specifications	7	0 1 9
Australian Standards	98	12 2 6
Australian Reprints of D.T.D. Specifications	1,540	50 8 8
S.B.A.C. Standard Sheets	31	0 15 6
American Standards	24	1 2 0
Standard Mark Stereos	66	3 6 0
Meat Grade Charts	20	1 0 0
Totals	23,719	1,462 1 5

* Including 9,100 reprints of standard specifications in the form of local body by-laws.

The foregoing figures are based on sales of volumes of standard specifications. In many cases, however, several standard specifications appear in one volume. Taking this into account, the total sales of individual standard specifications amounted to approximately 40,000, an increase of 50 per cent. over the previous year.

ACKNOWLEDGMENTS TO MEMBERS OF COMMITTEES AND ORGANIZATIONS

In conclusion, it is desired to acknowledge and record appreciation of the valuable service rendered gratuitously by the members of the various committees of the Standards Council and by the many other persons representing Government Departments, local authorities, and professional, commercial, trading, and industrial interests, including the executives of their various organizations, all of whom have contributed so generously in time and effort towards the work reviewed in this report.

A. R. GALBRAITH, F.R.S.E., M.Inst.C.E.,
Chairman, Standards Council.

APPENDIX

NEW ZEALAND STANDARD SPECIFICATIONS ADOPTED, REVISED, AMENDED, AND WITHDRAWN DURING THE YEAR

1. New Zealand Standard Specifications adopted

Consumer Commodities

N.Z.S.S.	
452	Children's, Girls', and Maids' Shoes.
453	Children's, Boys' and Youths' Dress Boots.
454	Children's, Boys', and Youths' Chrome Lace Boots.
455	Children's, Boys', and Youths' Lace Shoes.
456	Men's Chrome Lace Boots.
457	Men's Chrome Lace Shoes.
458	Men's Welted Shoes.
459	Men's and Youths' Chrome Albert Slippers.
460	Men's Shooters and Ferntight Boots.
461	Women's Shoes.
462	Women's Welted Shoes.
463	Women's Chrome One-bar Ward Shoes.
464	Children's Sandals.
465	Men's and Women's Sandals.
468	Household Furniture.
469	Table Swedes.
470	Table Carrots.
471	Table Parsnips.
472	Table Kumaras.
473	Pumpkins and Squash.
474	Cabbages.
475	Silver Beet.
476	Cauliflowers and Broccoli.
477	Celery.
478	Peas.
479	Beans (*excluding* Broad Beans).
480	Leeks.
481	Rhubarb.
482	Beet-root.
483	Tomatoes.
484	Lettuce.

Electrical Engineering

490	Telegraph Material (Insulators, Pole Fittings, &c.); being B.S. 116–1937.
491	Synthetic-resin Bonded-paper Sheets for Use as Electrical Insulation at Power Frequencies; being B.S. 1137–1943, *amended to suit New Zealand requirements.*
492	Medium-hard Copper Strip, Bars, and Rods for Electrical Purposes: being B.S. 518–1933, including amendment slips Nos. CE 6828 PD 60.

Mechanical Engineering

489	B.S.W. and B.S.F. Open-ended Carbon Steel Spanners: being B.S. 192–1943.

Building Construction

485	New South Wales Hardwoods.

Miscellaneous

488	Conversion Factors and Tables: being B.S. 350–1944.

2. Revised New Zealand Standard Specification

71	Enamelled High-conductivity Annealed Copper Wire; being B.S. 156–1943.

3. Amendments to New Zealand Standard Specifications

N.Z.S.S. **Regular Amendments**

95 Code of Building By-laws, Parts V and VI (Amendment No. 2, dated July, 1945).
144 Dimensions of Bayonet Lamp Caps, Lampholders, and Lampholder Plugs, for Voltages not exceeding 250 volts; being B.S. 52–1941: Slip No. PD 204.
188 Synthetic-resin (Phenolic) Moulding Materials and Mouldings; being B.S. 771–1938: Slips Nos. PD 116 and PD 245.
245 Water-Closet Flushing Cisterns (Amendment No. 1, dated February, 1946).
258 Ferrous Pipes and Piping Installations for and in connection with Land Boilers: being B.S. 806–1942: Slips Nos. CG(ME) 10 and PD 44.

Emergency Amendments

54 Indicating Ammeter, Voltmeters, Wattmeters, Frequency, and Power Factor Meters: being B.S. 89–1937: Slip No. PD 84.
127 Steel Conduits and Fittings for Electrical Wiring; being B.S. 31–1940: Slip No. CF (EL) 9846.
144 Dimensions of Bayonet Lamp Caps, Lampholders, and Lampholder Plugs, for Voltages not exceeding 250 volts; being B.S. 52–1941: Slip No. PD 93.
211 Bus-bars and Bus-bar Connections in Air, Oil, or Compound; being B.S. 159–1932: Slip No. PD 73.
215 Electric Lamps for Railway Signalling; being B.S. 469–1939: Slip No. PD 106.
368 Miners' Lamp Bulbs; being B.S. 535–1938: Slip No. PD 104.
385 Rubber Mats for Electrical Purposes; being B.S. 921–1940: Slip No. PD 112.
395 Rubber-insulated Cables and Flexible Cords for Electric Power and Lighting for Working Voltages, including 11 Kv.: being B.S. 7–1939: Slip No. PD 118.
396 Dimensions of Metal-sheathed Impregnated Paper-insulated Plan Annealed Copper Conductors for Electricity Supply, including Voltage Tests: being B.S. 480–1942: Slip No. PD 120.
412 Traction Lamps (Series Burning); being B.S. 867–1939: Slip No. 108.
414 Electric Lamp Bulbs for Automobiles (6 v. and 12 v. Bulbs for Head, Side, and Rear Lamps); being B.S. 941–1941: Slip No. PD 90.
448 "High Carbon" Steel Cylinders for "Permanent" Gases; being B.S. 399–1930: Slip No. CF (CH) 9662.
449 "Low Carbon" Steel Cylinders for the Storage and Transport of "Permanent" Gases; being B.S. 400–1931: Slip No. CF (CH) 9662.

4. New Zealand Standard Specifications withdrawn

37 Friction Surface Rubber Transmission Belting; being B.S. 351–1929. *Superseded by* N.Z.S.S. E. 224; being B.S. 351–1944.)
139 Short Link Wrought Iron Crane Chain (*excluding* Pitched or Calibrated Chain): being B.S. 394–1936. *amended to suit New Zealand requirements.* (*Superseded by* N.Z.S.S. E. 225; being B.S. 394–1944.)

5. New Zealand Emergency Standard Specifications adopted

Building Construction and Related Subjects

E. 182 Earthenware Roofing-tiles.
E. 202 Code of Practice for the Preservative Pre-treatment of Timber by the Cold Dipping Process.
E. 208 Butt Hinges.
E. 209 Japanned or Galvanized Wrought Steel Barrell and Pad Bolts.
E. 210 Wrought Steel Sash Pulleys with Sash Wheel.
E. 211 Wrought Steel Brackets for Asbestos Guttering and Downpipes.
E. 212 Washers for Asbestos Roofing Sheets.
E. 214 Strap Hinges.
E. 215 Grades of Second-hand Corrugated Roofing Iron.

Consumer Commodities

E. 156 Shoe-polish.
E. 200 Correct-fitting Lasts.
E. 201 Sizes for Men's and Boys' Shirts and Pyjamas.
E. 203 Nurses' Shoes.
E. 204 Infants' Footwear.
E. 206 Beeswax.

Mechanical Engineering

N.Z.S.S.	
E. 195	Aluminium Bronze Ignots; being B.S. 1031–1942.
E. 196	Aluminium Bronze Castings; being B.S. 1032–1942.
E. 197	High Tensile Aluminium Bronze Ingots; being B.S. 1072–1942.
E. 198	High Tensile Aluminium Bronze Castings; being B.S. 1073–1942.
E. 219	Cotton Belting Ducks; being B.S. 1069–1942.
E. 223	Diamond-tipped Turning Tools; being B.S. 1148–1943.
E. 224	Friction Surface Rubber Transmission Belting; being B.S. 351–1944.
E. 225	Short Link Wrought Iron Crane Chain (*excluding* Pitched or Calibrated Chain); being B.S. 394–1944.
E. 226	Metric Screw Threads. Systemé-Internationale; being B.S. 1095–1943.
E. 227	Bolts, Nuts, and Set Screws (Machine Bolts), B.S.W. and B.S.F.; being B.S. 1083–1942.

Electrical Engineering

E. 184	Code of Practice for the Installation of Radios in Dwellinghouses.

Plumbing

E. 199	Simplified Practice for the Manufacture of Porcelain and Enamelled Fireclay Sanitary Ware.

Armed Services

E. 213	Army Stretchers for Ambulance Purposes, including Pillows and Slings.

6. New Zealand Emergency Standard Specifications revised

E. 106	Doors.
E. 153	Table-cut Leather Dress Gloves.
E. 154	Second-hand Sacks and Bags.
E. 158	Produce Sacks.

7. Amendments to New Zealand Emergency Standard Specifications

E. 79	Grades of Meat for Sale on the Local Market, and Definitions of Joints and Cuts. (Amendment No. 1, dated September, 1945.)
E. 101	Simplified Practice for the Manufacture of Corsetry. (Amendment No. 1, dated June, 1945.)
E. 102	White Traffic Paints. (Amendments Nos. 1 and 2, dated November, 1945, and February, 1946.)
E. 140	Paint for Use on Service Vehicles (Amendment No. 1, dated December, 1945).

8. New Zealand Emergency Standard Specifications withdrawn

E. 34	Girls' and Maids' Black Chrome Yearling Lace Shoes. (*Superseded by* N.Z.S.S. 452: Children's, Girls', and Maids' Shoes.)
E. 35	Girls' and Maids' Black Chrome One-bar Shoes. (*Superseded by* N.Z.S.S. 452: Children's, Girls', and Maids' Shoes.)
E. 36	Boys' and Youths' Black Chrome Lace Boots. (*Superseded by* N.Z.S.S. 454: Children's, Boys', and Youths' Chrome Lace Boots.)
E. 37	Boys' and Youths' Black Chrome Lace Shoes. (*Superseded by* N.Z.S.S. 455: Children's, Boys', and Youths' Lace Shoes.)
E. 38	Men's Black Chrome Lace Boots. (*Superseded by* N.Z.S.S. 456: Men's Chrome Lace Boots.)
E. 39	Men's Black Chrome Lace Shoes. (*Superseded by* N.Z.S.S. 457: Men's Chrome Lace Shoes.)
E. 40	Men's Water-proofed Printed and Plain Chrome Lace Boots. (*Superseded by* N.Z.S.S. 456: Men's Chrome Lace Boots.)
E. 41	Men's Black or Brown Yearling Lace Shoes. (*Superseded by* N.Z.S.S. 458: Men's Welted Shoes.)
E. 42	Men's and Youths' Black or Brown Chrome Albert Slippers. (*Superseded by* N.Z.S.S. 459: Men's and Youths' Chrome Albert Slippers.)
E. 43	Men's Split and Kip Working Boots.
E. 44	Women's Calf Gusset Court Shoes. (*Superseded by* N.Z.S.S. 461: Women's Shoes.)
E. 45	Women's Calf Tie Shoes (Black, Brown, or Blue). (*Superseded by* N.Z.S.S. 461: Women's Shoes.)
E. 46	Women's Yearling Lace Shoes. (*Superseded by* N.Z.S.S. 462: Women's Welted Shoes.)
E. 47	Women's Black Chrome One-bar Ward Shoes. (*Superseded by* N.Z.S.S. 463: Women's Chrome One-bar Ward Shoes.)

8. New Zealand Emergency Standard Specifications withdrawn—*continued*

N.Z.S.S.
E. 48 Children's Sandals. (*Superseded by* N.Z.S.S. 464: Children's Sandals.)
E. 80 Camouflage Paints.
E. 85 Aluminium Bars Containing Small Proportions of Copper and Zinc for General Engineering Purposes: being B.S. 918–1940.
E. 92 Simplified Practice for the Manufacture of Men's, Youths', and Boys' Outer Clothing.
E. 93 Simplified Practice for the Manufacture of Men's, Youths', and Boys' Shirts and Pyjamas.
E. 94 Simplified Practice for the Manufacture of Women's and Girls' Outer Clothing.
E. 104 Simplified Practice for the Manufacture of Household Furniture.
E. 121 Table Swedes. (*Superseded by* N.Z.S.S. 469.)
E. 122 Table Carrots. (*Superseded by* N.Z.S.S. 470.)
E. 123 Table Parsnips. (*Superseded by* N.Z.S.S. 471.)
E. 124 Kumaras. (*Superseded by* N.Z.S.S. 472: Table Kumaras.)
E. 125 Pumpkins. (*Superseded by* N.Z.S.S. 473: Pumpkins and Squash.)
E. 126 Cabbages. (*Superseded by* N.Z.S.S. 474.)
E. 127 Silver-beet. (*Superseded by* N.Z.S.S. 475.)
E. 170 Cauliflowers and Broccoli. (*Superseded by* N.Z.S.S. 476.)
E. 171 Celery. (*Superseded by* N.Z.S.S. 477.)
E. 174 Peas. (*Superseded by* N.Z.S.S. 478.)
E. 175 Beans. (*Superseded by* N.Z.S.S. 479: Beans, *excluding* Broad Beans.)
E. 176 Leeks. (*Superseded by* N.Z.S.S. 480.)
E. 178 Rhubarb. (*Superseded by* N.Z.S.S. 481.)
E. 181 Beetroot. (*Superseded by* N.Z.S.S. 482.)

Approximate Cost of Paper.—Preparation, not given; printing (1,490 copies), £57 10s.

By Authority: E. V. PAUL, Government Printer, Wellington.—1946.

Price 9d.]