1950

NEW ZEALAND

STANDARDS COUNCIL

(Department of Industries and Commerce)

ANNUAL REPORT FOR THE YEAR 1949–50

Presented in Both Houses of the General Assembly by Leave

The Hon. C. M. BOWDEN, 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, 1950.

I have, &c.,

R. T. WRIGHT, Executive Officer.

REPORT

OBITUARY

Mr. F. W. Furkert.—It is with deep regret that the death of Mr. F. W. Furkert, C.M.G., is recorded. Prominently associated with the establishment of the original Standards Institution under the ægis of the Society of Civil Engineers in 1932 and with its re-establishment as the present Standards Institute in 1936, Mr. Furkert was for thirteen years Deputy Chairman of the Standards Council and Chairman of its Executive Committee. He was a member of twenty of its major committees and Chairman of seven of these. Also he made an especially valuable contribution to the development of the Standard Code of Building By-laws. Mr. Furkert gave freely his high professional ability and wide experience in his work for the Standards Institute. No man did more to establish and develop the standardization activity on a sound basis in New Zealand.

It is regretted also to have to record the deaths of Messrs. J. O'Shea, P. E. Pattrick, and A. Fletcher. Mr. O'Shea made a valuable contribution to the first nine Parts of the Standard Code of Building By-laws (N.Z.S.S. 95). Mr. Pattrick, as Chairman of the

Cost Accounting Terminology Committee, contributed of his valuable time and knowledge freely in connection with the formulation of the Code of Cost Accounting Terminology. Mr. A. Fletcher made a similar valuable contribution to the Town Planning and Asbestos Cement Sectional Committees.

STANDARDS COUNCIL

During the year the late Mr. F. W. Furkert was replaced as a representative of the New Zealand Institution of Engineers on the Standards Council by Mr. W. L. Newnham. Also following the incorporation of the Standards Institute within the Standards and Technical Division of the Department of Industries and Commerce, Mr. R. T. Wright, who has been appointed Director of that Division and Executive Officer of the Council, replaced Mr. R. V. Jackson, who had previously represented the Department. At the close of the year the personnel on the Standards Council was therefore as follows :—

Member.	Representing
E. H. Langford (Chairman) ..	(Special appointment.)
G. A. Lawrence (Deputy Chairman)	New Zealand Institute of Chemistry.
R. C. Adams	Commissioner of Works.
Mrs. H. Barnicoat	Dominion Federation of New Zealand Women's Institutes.
W. Bryan	Associated Chambers of Commerce of New Zealand.
F. R. Callaghan	Council of Scientific and Industrial Research.
P. Ellerm	Stores Control Board.
J. Ferguson	New Zealand Federation of Labour.
Mrs. M. J. Forde	National Council of Women.
A. R. Galbraith	Municipal Association of New Zealand.
A. J. Inder	Post and Telegraph Department.
Mrs. P. C. Jordan	Women's Division of Federated Farmers of New Zealand.
J. I. King	New Zealand Institute of Architects.
R. C. Love	New Zealand Federated Builders' and Contractors' Industrial Association of Employers.
D. I. Macdonald	New Zealand Manufacturers' Federation.
L. J. McDonald	(Assistant Director.)
W. W. Mulholland	Federated Farmers of New Zealand.
W. L. Newnham	New Zealand Institution of Engineers.
K. Pallo	New Zealand Manufacturers' Federation.
G. S. J. Read	New Zealand Railways.
G. L. Riley	New Zealand Retailers' Federation.
J. E. Salmon	New Zealand Manufacturers' Federation.
J. H. Thompson	New Zealand Federation of Labour.
C. W. Turner	(Special appointment.)
R. T. Wright	(Director.)

MEETINGS

During the year 160 meetings were held, comprising 4 of the Standards Council, 4 of its Executive Committee, 129 of standard committees and formal conferences, and 23 of *ad hoc* subcommittees and panels.

STANDARD SPECIFICATIONS

During the year the following specifications were recommended to the Minister of Industries and Commerce for declaration as standard specifications or for withdrawal :—

Industry, Commodity, or Service.	New Standards.			Withdrawals.
	British.	New Zealand.	Total.	
Building	9	3	12	..
Chemical engineering	4	..	4	..
Chemical and scientific apparatus	7	..	7	..
Electrical engineering	12	1	13	1
Household commodities	..	6	6	..
Iron and steel	7	..	7	2
Mechanical engineering	12	..	12	1
Nomenclature, abbreviations, &c.	2	1	3	1
Non-ferrous metals	16	..	16	..
Paints, varnishes, colours, &c.	4	..	4	..
Plastics	2	..	2	..
Plumbing	9	..	9	..
Rubber	1	..	1	..
Safety	2	1	3	..
Textiles and clothing	..	2	2	..
Miscellaneous	6	3	9	..
Emergency standards	..	..	..	17
Totals	93*	17	110	22

* Includes 15 with amendment to suit New Zealand requirements.

In addition to the above standards, the revisions of 12 standards and 31 amendments to other standards were recommended for declaration.

New Zealand standards now total : Regular, 775 ; Government purchasing, 4 ; emergency, 123 : grand total, 902.

Details of new standards, revisions, amendments, and withdrawals are shown in the Appendix hereto.

STANDARD MARK

During the year 42 licences were granted and 280 were cancelled, mostly by businesses that had ceased operating, had changed their activities, or were working on a scale so limited as not to justify the continuance of their licences. The total of the licences in force at the end of the year was 825.

STANDARDS COUNCIL

General

The Standards Council and its Executive Committee considered all requests for the development of standard specifications, reviewed specifications received from overseas, examined the reports of all meetings held during the year, and directed the necessary action arising therefrom.

Standardization Projects

The Standards Council, in response to requests from responsible interests, authorized the following projects : fire fighting equipment in buildings ; fire alarm installations ; carbon dioxode fire extinguishers ; cast manhole covers, road gulley gratings and frames ; W.C. seats (wood and laminated) ; grading of ready-mixed paints for exterior use on

woodwork (white and light tints); cement water paint (white and light tints); linseed oil putty; inflammability ratings for textiles; shrink control treatment of woollens; children's hosiery sizes.

Standard Committees

During the year two new sectional committees were established, one to direct and supervise consideration of aeronautical standards; the other to consider and direct standard specifications relating to physics. In addition, a number of working committees and subcommittees were established to facilitate the current work of existing sectional committees.

Unified Screw Threads

Upon receipt of the tentative British standard for unified screw threads, which is based upon the international agreement referred to in the last report, the Standards Council set up a special committee to consider the action which should be taken in connection with it here. The widely representative committee recommended that it should be adopted as an interim New Zealand standard specification. It was realized that consequent change of design and production could take place only over a long term, but it was considered important that the British standard should be endorsed in New Zealand in order to encourage and assist the change, in so far as it was found practicable to introduce unified screw threads coincidentally with the change in other countries.

Wider Use of Standard Specifications by Public Authorities

Arising out of representations from the Electrical Accessories and Appliances Committee, the Standards Council set up a special committee to consider the wider use of standard specifications for administrative and regulatory purposes, in lieu of provisions formulated by each individual authority, when these relate to the same, or closely allied matters; or when they so affect professional, industrial, commercial, or trade practice that the formulation of the most practical provisions require full collaboration with the interests concerned. After considering this matter, the special committee reported as follows:—

> Citation of standard specifications or codes in regulations and administrative documents in lieu of arbitrary requirements, in so far as practicable, by avoiding the increased costs and loss of production which arises from the use of unnecessarily different specifications, would yield substantial economic benefit to the country and be of corresponding advantage to production, trading, and administrative interests. For this reason, the committee recommends the closest collaboration with Government Departments and public authorities to assist in securing the fullest advantage of standardization to the country generally.

The representatives of the three major departments—Post and Telegraph, Railways, and Works—assured the Council that its endeavour to bring about the wider use of standard specifications had the full support of their respective Departments which would reissue clear directives to this end. The Council adopted the report of the committee and resolved that it should remain in existence to collaborate with Departments and public authorities.

Procedure for the Development and Adoption of Standards

A further special committee was set up to review the procedure in connection with the consideration of British standards, and draft standards, to ensure that this aspect of the Council's functions was handled in the most effective way. The committee found that the existing procedure should be adhered to. This procedure is based upon a reciprocal arrangement between the British Standards Institution and the national standards organizations of other Commonwealth countries.

The committee considered the priority which should be given to different aspects of the work, and recommended :—

First Priority : Consideration of—

(*a*) Specifications received from the British Standards Institution :

(*b*) Such other specifications received from overseas as may warrant attention :

(*c*) The amendments and revisions of existing New Zealand standard specifications, including those relating to overseas specifications.

Second Priority : The development of original New Zealand standard specifications, arranged according to urgency.

Third Priority : The review of existing emergency standard specifications and their transfer, in appropriate circumstances, to the regular series of specifications.

Fourth Priority : Other work, including attention to international standardization activity.

Referring to the second priority the Executive Committee classified the current projects into five categories, the following being included in the first : fire doors and windows ; panic prevention in theatres ; fire resisting construction ; chimney construction ; sprinkler systems ; fire hydrants and hoses ; fire hydrants and surface box openings ; hose reels for fire protection ; fire resistance ratings ; installation of electric water heaters ; immersion heaters for electric water heaters ; thermostats for electric water heaters ; general by-laws for municipalities and counties ; building by-laws for counties.

TECHNOLOGICAL STANDARDIZATION

Civil Engineering Sectional Committee

The committee reviewed 4 draft British standards, 2 draft Australian standards, and 8 British standards, 5 of which it recommended for adoption. Three amendments to British standards previously adopted in New Zealand were endorsed.

Cement and Concrete Sectional Committee

The committee reviewed 4 draft British standards and examined 8 British standards which had been circulated in this country, recommending 5 of these for adoption. Three amendments to British standards previously adopted in New Zealand were endorsed.

Mechanical Sectional Committee

Parent Committee.—This committee reviewed 113 draft British standards, 7 draft Australian standards, and 1 draft South African standard in relation to New Zealand conditions. It also examined 98 British standards which had been circulated locally, and recommended that 50 of these should be adopted. Five amendments to British standards previously adopted in New Zealand were endorsed and 2 New Zealand standard specifications were recommended for withdrawal.

Motor-car Cleaning and Allied Servicing.—The emergency standard specification for definitions for use in motor-car cleaning, lubrication, and allied servicing was reviewed and, with minor amendments, recommended for inclusion in the regular series.

Spray Pumps.—The standard specification for hand-operated bucket type spray pumps was reviewed and amended to provide for alternative types of nozzles, specified in B.S. 1135 : 1943, spraying nozzles for horticultural purposes, which was also recommended for adoption, subject to minor amendments to meet local conditions.

Electrical Sectional Committee

Parent Committee.—This committee examined 45 draft British standards, 6 draft Australian standards, and 1 draft South African standard. It also considered 40 British standards which had been circulated for review and comment, and recommended that 19 be adopted. Sixteen amendments to British standards previously adopted were recommended for incorporation in the corresponding New Zealand standard specifications.

Electrical Accessories and Appliances.—The preparation of a series of standard specifications relating to thermal storage electric water heaters was advanced a stage further by circulating for comment a draft standard specification for the immersion heaters used with this equipment. Draft revisions of the existing standard specifications for plugs and sockets of the flat pin type and for flush-mounted wall switches, wall plates and metal outlet boxes, were also circulated for comment. An original standard specification for domestic electric appliance connectors was recommended for adoption, as was a British standard which, subject to amendment, was found suitable for New Zealand conditions.

Welding Sectional Committee

Parent Committee.—This committee considered 11 draft British and 5 draft Australian standards. It also examined 9 British and 3 Australian standards which had been circulated for comment. Two of the British standards were recommended for adoption.

Protective Filters.—The Optical Glass Committee considered 2 British standards which had been circulated for comment, and recommended that both should be adopted, in one case with minor amendments to meet local conditions, in lieu of the proposed original standard for protective filters for welding and other industrial operations. It was, however, considered that further attention should be given to the preparation of standard specifications for the protection of workers against the effects of infra-red radiation.

Fire Fighting Equipment Sectional Committee

Parent Committee.—Arising out of the formulation of standard by-laws dealing with fire prevention and protection, the Fire Fighting Equipment Sectional Committee was instituted to direct and supervise the development of standard specifications for citation in the standard by-laws. The sectional committee has laid down a comprehensive programme of projects and has set up working committees to undertake the detailed work involved.

Fire Extinguishers.—In the course of an examination of British standards for types of first aid fire extinguishers not covered by existing New Zealand standard specifications, the Fire Extinguishers Committee concluded that specifications for some of these types should not be adopted until there was adequate provision for their inspection and maintenance. Consequently, the committee has concentrated upon a revision and extension of the existing emergency code of practice for the installation, maintenance, and operation of first aid fire extinguishers, with a view to including the revision in the regular series of standard specifications.

Sprinkler Systems.—The parts of the standard code of building by-laws dealing with fire prevention provide for the installation of automatic sprinkler installations. To ensure that such systems will be reliable and efficient, the responsible committee recommended that the Rules of the Fire Offices' Committee (Foreign) for Automatic Sprinkler Installations, which have proved satisfactory, should be tentatively adopted as a standard specification.

Fire Alarms.—The Fire Alarms Committee is giving attention to the preparation of a standard code of practice covering all types of fire alarm systems required for citation in the standard by-laws.

Fire Fighting Equipment.—The Fire Fighting Equipment Technical Committee is undertaking the preparation of standard specifications for a miscellany of fire brigade and other equipment including hydrants, couplings, riser mains and hose reels.

Chemical Sectional Committee

Parent Committee.—This committee examined 49 draft British standards, 2 draft Australian standards, 3 draft South African standards, 1 draft New Zealand standard, and 2 draft Israeli standards. It also reviewed 41 British standards which had been circulated for comment, 24 of which were recommended for adoption. Three amendments to British standards previously adopted here were endorsed.

Metal Coatings.—The Electro-plating and Protective Metal Finishes Committee examined 4 draft British standards and 1 Australian standard. It also considered and recommended for adoption a British standard which had been circulated for comment.

Laundry Starch.—The Laundry Starch Committee gave preliminary consideration to a standard for laundry starch which, however, was deferred pending the completion of research work at the School of Home Science, University of Otago, and the conclusion of investigations in the United Kingdom by the Research Officer of the Research Institute of Launderers, Dry Cleaners, and Dyers of New Zealand (Inc.).

BUILDING STANDARDS

Building Code Sectional Committee

Amendments to Building Code.—During the year the Building Code Technical Committee considered several proposed amendments to N.Z.S.S. 95, Standard Code of Building By-laws, which experience had shown to be desirable. A special panel was set up to undertake a complete revision of Part IV, Basic Loads and Stresses. The inclusion of provisions for the use of air-entrained concrete was deferred until further information was obtained from overseas. Finally, the definition of "building" given in Part I of the standard code was reconsidered in the light of legal opinions, which suggested that it might not include all those structures which it was intended to cover.

Chimneys.—Good progress was made with draft proposals for building by-laws dealing with chimneys.

Fire Resisting Construction.—The Fire Prevention Committee has given much attention to requirements for fire resisting construction. This work has been given urgency following the recommendations of the Royal Commission on the fire at the premises of Messrs. J. Ballantyne and Co., Ltd., Christchurch. In the absence of any adequate fire protection by-laws suited to New Zealand conditions it was necessary to assemble and analyse all data available from within New Zealand and overseas as a basis for the formulation of an original and comprehensive code practical to administer and affording maximum protection without undue interference with rights of property owners and occupiers.

At the close of the year the draft code, subject to final review, was ready for circulation to the interested parties for comment. It establishes requirements relating to the location, design, construction, and occupancy of the buildings other than private dwellings and buildings for public meetings which are required to be licensed under the Municipal Corporations Act. The draft code divides buildings into five classes according to their degree of fire resistance. The classes range from Type I, "fully protected construction," to Type V, "wood frame construction," which offers the least degree of fire protection. Similarly, occupancies are classified as low, moderate, or high ratings according to the hazards involved. The draft code also prescribes fire zones within which only some classes of buildings are permitted, and stipulates maximum heights and floor areas for the various classes of buildings according to the occupancy rating.

The committee has now come to the conclusion that in due course the code for fire resisting construction should be amalgamated with the existing Egress Code and supplemented by further provisions relating to fire fighting equipment so as to form one comprehensive fire protection code.

Means of Egress.—It was decided to defer consideration of means of egress, in relation to existing buildings, until some aspects of the code for fire resisting construction had been clarified.

Panic Prevention.—A separate standard by-law for precautions against fire and panic in buildings for public meetings was completed during the year. It relates to all buildings which are required to be licensed under Section 312 of the Municipal Corporations Act. Its provisions ensure that adequate, properly trained staff will be available at all performances and that all necessary steps will be taken to ensure that exits, passageways, fire appliances, emergency lighting and signal systems, &c., are in proper working order.

Theatre By-law.—Some further progress has been made with the preparation of a separate part of the standard code of building by-laws dealing with all aspects of theatre construction. This work has, however, been necessarily delayed to give priority to the code of fire resisting construction generally.

Fire Resistance Ratings.—Ideally, these ratings should be determined by a standard test, and to this end the British standard definitions for fire resistance, incombustibility, and non-inflammability of building materials and structures (including methods of test) has been adopted as a New Zealand standard specification. Unfortunately, there is difficulty in providing the equipment to carry out the tests specified. In the meantime the Fire Resistance Ratings Subcommittee is endeavouring to prepare an arbitrary schedule which will allot ratings to the materials and constructions in general use. In respect of permanent construction materials, figures available from other countries can be accepted as being applicable to New Zealand conditions, but the lighter construction materials, and particularly the various types of wallboards, vary in different countries and this variation is important in view of the short fire resistance ratings which some of these constructions provide. The subcommittee is faced with the problem of producing tentative arbitary ratings without the factual data necessary to afford a scientific basis. Progress has been made and it is hoped that the schedule will be completed during the coming year.

County Building By-laws.—The standard code of building by-laws has been completely reviewed to determine its suitability for application in counties. It was found that, although a number of modifications were necessary, the technical provisions of the standard code were mainly applicable to all areas. A draft of the necessary modifications was circulated to all interested parties for comment.

Adoption of Standard Code.—Evidence of the value of the standard code of building by-laws is afforded by the extent to which local authorities are incorporating its various parts in their by-laws. At the end of the year no less than 63 cities and boroughs and 4 counties had adopted Parts I–VI of the standard code as their own by-laws. Sixty-two cities and boroughs and 4 counties had adopted Parts VII–IX. A further 30 local authorities had the code under consideration.

Town Planning Committee

Development over recent years necessitated a revision of the standard code of clauses for town planning schemes issued in 1941. Comments are now being sought from the various interested parties in the light of their experience.

Building Materials Sectional Committee

Parent Committee.—This committee examined 10 draft British standards in relation to New Zealand conditions and reviewed 17 British standards which had been circulated for comment, 7 of which were recommended for adoption. One amendment to a British standard previously adopted in New Zealand was endorsed.

Roofing Tiles.—The Roofing Tiles Committee reviewed the emergency standard specification for earthenware and concrete roofing tiles and for the methods of fixing them. Experience showed that they were soundly based and, subject to minor amendments, they were recommended for transfer to the regular series of standard specifications.

Building Boards.—The Building Boards Committee decided that transfer of the emergency standard specification to the regular series should be deferred for a year, during which it is hoped to make progress with tests for fire resistance, thermal conductivity, water absorption, dimensional stability, fungus decay, and vermin proofing.

Builders' Hardware.—The Builders' Hardware Committee reviewed 6 emergency standard specifications, of which it recommended 3 for withdrawal and 3 for issue in the regular series. It also examined 9 British standards, 3 of which were recommended for adoption.

Plumbing Sectional Committee

Plumbing By-laws.—During the year the standard code of plumbing and drainage by-laws was completed and issued. This code represents several years of most valuable and thorough work on the part of the responsible committees representative of local authorities, Government Departments, plumbers' merchants, master plumbers, sanitary inspectors, manufacturers, and workers. In the course of this work the existing by-laws should be representative of all local authorities and the Drainage and Plumbing Regulations of the Health Department were carefully examined and correlated with the most recent overseas plumbing and drainage codes and related information available from other countries. The circulation of the code in draft form brought comments from some three hundred local authorities and representative professional and trade organizations in New Zealand and overseas. These comments were carefully reviewed by the committee, with the result that the final standard code represents a consensus of the widest knowledge and experience available.

The standard code is subdivided into five sections—" Preliminary " establishes the necessary definitions and essential legal and machinery clauses. " Drainlayers and Plumbers " specifies the work which may be done only by a registered drainlayer or registered plumber, as the case may be. It also establishes the responsibilities of drainlayers and plumbers and provides for the inspection of their work. " Drains " stipulates the drains to be provided and the principles to be followed in this connection. It includes requirements relating to gradients, materials, quality and dimensions of pipes, methods of laying, jointing, provision of traps, inspection of fittings, and the effluents permitted to be discharged into each type of drain. " Sanitary fittings " requires the provision of conveniences in all types of buildings and sets out the minimum number of water closets, urinals, lavatory basins and baths required in each case. This section also covers the design and installation of such fittings. " General Plumbing " deals with miscellaneous plumbing matters, including the quality, jointing, trapping, and ventilation of pipes and drains. The provisions of the code are drafted in a form suitable for immediate incorporation in local body by-laws and are supplemented by seventeen separate standard specifications for materials and equipment.

Plumbing Supplies.—The Plumbing Supplies Committee examined 6 draft British standards, 2 draft Australian standards, and 1 draft South African standard in relation to New Zealand conditions. It also reviewed 1 Australian standard and 17 British standards, 9 of which were recommended for adoption, in 4 cases with amendments to meet local conditions. Two amendments to British standards previously adopted were endorsed.

W.C. Pans.—A minor amendment was made to the existing standard specification for ceramic wash-down W.C. pans.

W.C. Seats.—Following the adoption of a British standard for plastic W.C. seats, preliminary attention was given to the preparation of a New Zealand standard specification for wood and laminated seats.

Water Heaters.—The standard specification for thermal storage electric water heaters, referred to in the last report, was issued during the year. The need for this standard specification had been stressed by the Housing Division, the Ministry of Works, and by electric supply authorities, because of the very substantial saving of electricity which would be achieved by requiring all future equipment to conform to its provisions. A supplementary draft code of practice for the installation of the water heating systems was completed and circulated to the interested parties for comment. Consideration of the comments received has been completed and the standard code of practice should be issued in the coming year.

Timber Sectional Committee

Plywoods.—The Plywoods Committee considered the transfer of the existing emergency standard specification for commercial plywoods to the regular series. It decided that a special subcommittee should first compare the New Zealand standard with a later British standard.

Pinus radiata.—Arising out of experience of the initial use of the grading rules for *Pinus radiata* timber, set out in Part VII of the National Grading Rules (N.Z.S.S. 169), two amendments were made to remove minor inconsistencies. The committee also decided to investigate the possibility of issuing an interim standard specification for stress grading of timber which would be of great assistance to local authorities and builders.

Profiles of Joinery and Mouldings.—At the instigation of the master builders, the Joinery and Profiles Committee made several amendments to the standard specification for profiles of mouldings and joinery (N.Z.S.S. 496) which will facilitate practical building work.

Timber Preservation.—After considering the existing emergency standard for the preservative pre-treatment of timber by the cold dipping process (N.Z.S.S. E.202), the responsible subcommittee recommended that it should not be transferred to the regular series until provisions had been completed relating to the more effective pressure treatment and hot dipping processes.

Paints and Coatings Sectional Committee

Executive Committee.—The Executive Committee examined 6 draft British standards, 1 draft South African standard, and 18 British standards, of which 4 were recommended for adoption.

Ready Mixed Paints.—The standard specification for ready mixed paint for undercoats and finishing coats for exterior use on woodwork (white and light tints), (N.Z.S.S. 521), after it had been in use for a year, was amended in minor respects. A draft revision of the emergency standard specification for ready mixed paint for priming coats for woodwork (excluding totara) is now being circulated for comment.

Paint Undercoats.—Although there are separate standard specifications for most of the constituents generally used in the manufacture of paints, these are not quite complete. Consideration was therefore given to a number of overseas standards. It was decided to prepare original standard specifications for mica pigment, dehydrated castor oil and bodied linseed oil.

Code of Practice.—Following representations from the trades concerned the preparation of a standard code of practice has been undertaken which will cover all types of painting, including staining and finishing wood, painting and distempering wall and

ceiling boards, plaster, concrete, brick, and stone decoration. Consideration is being given to four draft British standard codes of practice for exterior painting which, although not entirely suitable for New Zealand, contain provisions that should assist the formulation of our own code.

DOMESTIC COMMODITY STANDARDIZATION

Commodity Divisional Council

Parent Committee.—The parent committee considered 2 draft British standards and 2 British standards, 2 of which were referred to other committees and 2 recommended for circulation for comment.

Garment Sizes.—The Commodity Divisional Council, unfortunately, has not been able to obtain the co-operation of manufacturers in the formulation of standard basic measurements for sizes in girls' and women's clothing. In view of the insistent demand for these from retailers and women's organizations, negotiations with manufacturers will be continued.

Meat Grades.—The Meat Grades Committee after examining a request for the removal of the weight limitation in respect of first and second grade pork decided that this would not be in the public interest.

Bread Approvals Committee.—This Committee dealt with applications for approval to make " special breads " in terms of the standard specification.

Soap.—The emergency standard specification for soaps was reviewed and endorsed for transfer to the regular series subject to amendments necessitated by later revisions of the Food and Drug Regulations.

Household Furniture.—This committee reviewed the standard specification for household furniture in the light of experience gained during inspection in connection with the use of the Standard Mark. A special subcommittee was set up to develop a standard specification for the preservative treatment of furniture timbers most susceptible to attack by insects, mainly *Anobium punctatum.*

Office Furniture.—The proposed standard specification for Government office furniture was further considered by a special conference which recommended that it should be issued in the Government purchasing series. Part I, dealing with desks, was completed and recommended for issue.

School Requisites.—Part I, school rulers, of the proposed standard specification for school requisites was completed and issued.

Flock.—The emergency standard specification for flock, with minor amendments, was recommended for transfer to the regular series.

Textile Testing.—The draft standard specification for general methods for the testing of woven textiles was reviewed and amended. It was decided to defer its adoption pending further investigation.

Industrial and Household Brushware.—The Industrial and Household Brushware Committee reviewed the emergency simplified practice for the manufacture of brooms, brushes, and mops, and the emergency standard specification for cotton mops. Due to the unsatisfactory supply of bristles it decided that the former specification should be withdrawn, but that the latter one should be transferred to the regular series, subject to minor amendments.

PRIMARY INDUSTRY STANDARDS

Primary Industries Divisional Committee

Garden Implements.—The existing emergency standard specifications for garden rakes, hoes, shovels, and spades were recommended for transfer to the regular series, subject to minor amendments.

Butchers' Knives.—The draft standard specification for butchers' and slaughtermen's knives was reviewed, and in amended form was recommended as a New Zealand standard specification.

Milk Bottles.—A standard specification for glass milk bottles and enclosing disks was completed for issue during the year. This will ensure correct capacities, adequate breaking strength, and hygienic shapes. It will also reduce the diversity of types which manufacturers will be called upon to produce.

COMMERCIAL STANDARDIZATION

Packaging Divisional Committee

Packaging Code.—The Packaging Divisional Committee drafted for circulation the first three parts of the proposed standard code for the packaging, marking, and identification of goods, as follows: Part I, Classification and Interpretation; Part II, Choice of Packaging and Containers; Part III, Marking and Identification of Containers Including Dangerous Goods.

Commercial Stationery Sectional Committee

Paper Sizes.—The proposed standard specification for cut and packed duplicator and typewriter papers was divided into two parts setting out sizes for commercial users and for Government Departments. The specification was then recommended for issue as a standard.

Personal Stationery.—The British standard for terms and sizes of personal stationery was recommended for adoption as a New Zealand standard specification.

Government Purchasing Standards Sectional Committee

Storage Batteries.—The standard specification for lead acid storage batteries, originally issued in the emergency series, was recommended for transfer to the Government purchasing series.

Carbon Paper.—A draft standard specification for carbon paper, with comments received in circulation, was referred to a special panel.

Domestic Electric Ranges.—A draft standard specification for domestic electric ranges has been reviewed and referred for approval.

Steel Wheelbarrows.—The comments of manufacturing interests on the proposed provisions in respect of steel wheelbarrows have been submitted to the Ministry of Works for examination. When this is completed it should be possible to issue the standard specification.

Paint for Service Vehicles.—The Government purchasing standard specification for paint for use on Service vehicles was revised at the request of the Stores Control Board to provide for both gloss and matt finishes. The opportunity was also taken to specifically define the paint colour.

Defence Services.—Following discussions with the three Services, the Defence Services Specifications Co-ordination Committee was instituted and called together to inaugurate a programme of work covering the formulation of specifications for the purchase of non-warlike stores for the armed forces. This important matter is being organized on a Commonwealth basis, and New Zealand is playing its part.

General By-laws Sectional Committee

Code of General By-laws.—Satisfactory progress was made with the formulation of a standard code of general by-laws for municipalities, referred to in the last report. Sixteen parts were reviewed for issue in the light of comments received following their circulation to municipalities and other interested parties. Parts recommended for issue were : good rule and government ; household refuse purchasers ; hawkers, pedlars, and itinerant traders ; billiard rooms ; shooting galleries ; nuisances ; offensive trades ; sale of secondhand clothing and bedding and hiring out of clothing ; removal of refuse ; cemeteries ; lawn cemeteries ; cremation and crematoria ; street stalls ; public baths and swimming pools ; water collection areas ; abattoirs. Parts completed in draft form circulated for comment were : interpretation ; public places, miscellaneous ; scaffolding and deposit of building materials ; street photographers ; baths, bathing and control ; signs and hoardings ; licensed vehicles and stands ; water supply ; parks and reserves.

Representations have been made by the Municipal Association of New Zealand concerning the desirability of a simpler procedure for the adoption of standard codes of by-laws by local authorities. Full discussions have been held with all interests concerned as to the amendments to the Standards Act, 1941, necessary to facilitate the adoption of the codes by local authorities by the citation method in accordance with the intention of the existing Sections 12 and 13 of the Act.

INTERNATIONAL STANDARDIZATION

Following the extension of the activities of the International Organization for Standardization (ISO), the Standards Council reviewed the extent to which New Zealand could participate effectively in the various international projects under consideration. As a result, full participating membership was accepted in 9 of the 71 technical committees of ISO, as follows :

ISO/TC/11—Test pressures for the acceptance of stationary boilers and unification of boiler construction codes.
ISO/TC/23—Agricultural machines.
ISO/TC/34—Agricultural products.
ISO/TC/35—Raw materials for paints, finishes, and lacquers.
ISO/TC/38—Textiles.
ISO/TC/52—Hermetically sealed metal food containers.
ISO/TC/59—Building construction.
ISO/TC/69—General definitions relating to chemical and physical test results.

The work of the foregoing committees is of direct interest to New Zealand, and full participation is justified. It is necessary to ensure that international standards are not adopted in a form that would involve costly handicap to this country. In respect of the majority of the other international committees, " + " membership has been accepted which means that we will be kept advised of all developments. We are at liberty to offer comments and may nominate observers. This limited participation will secure for New Zealand the benefits to be derived from international standardization

without imposing impracticable obligations. In the case of three international committees (ISO/TC/36, Cinematography; ISO/TC/42, Photography; ISO/TC/65, Manganese Ore) it has been decided not to participate at all. Instead, we will accept the submission of the British Standards Institution.

RECOGNITION OF ECONOMIC SIGNIFICANCE

Striking evidence of the greatly increased recognition of the technological and economic significance of standardization activity in other countries, in consequence of which it is continually gaining phenomenal impetus, is contained in two reports recently received from Great Britain; one by a committee appointed by the Right Hon. G. R. Strauss, Minister of Supply, in 1948; the other by a committee appointed by the Anglo-American Council on Productivity, formed in 1948 by Sir Stafford Cripps, Chancellor of the Exchequer in Britain, and Mr. Paul Hoffman, Economic Co-operation Administrator in the United States, which is composed of representatives of management and labour both in the United Kingdom and in the United States of America.

The references to the economic importance of standardization and simplification in both these reports throws emphasis on the value of the corresponding activity in this country.

The order of reference of the committee appointed by the Right Hon. G. R. Strauss was—

To investigate, in consultation with the British Standards Institution and appropriate organizations, the methods by which manufacturers and users of engineering products determine whether any reduction in the variety of products manufactured is desirable in the light of technical, commercial and other considerations; to report whether these methods are adequate and what, if any, further measures should be taken by industry or by the Government to ensure that such simplifications as are determined are put into effect.

Reference to the importance of simplification and standardization, on page 4 of this report, says:—

There can be no question that unnecessary variety of product at any stage of manufacture lowers efficiency. The loss is not confined to any one stage of manufacture, but extends to the supply of raw materials and components. It also applies to all phases of distribution and to the ultimate user. The latter is not only faced with the resulting higher prices, but often with related problems of non-interchangeability, delay in obtaining non-standard spare parts, increased stocks and unnecessary design and administrative work.

Because the technical and economic problems of standardization and reduction of variety are complex, it is often not realized how large are the overall savings which can be made by increasing the length of production runs as a result of eliminating or reducing the manufacture of specials or small batches.

On page 5 it continues:—

There can be no doubt that the relatively high degree of specialization and simplification in United States industry (including the smaller firms), is a major reason for their higher industrial productive efficiency. There are historical and other reasons for this difference, but in our view economic position makes it imperative that our manufacturers should, in general, aim at a greater degree of specialization and simplification.

In support of these statements it quotes (on page 9):—

The example of the standardization of paint tins, which the metal box industry carried out in close collaboration with the paint trade, and which reduced an inordinate number of containers to five significant sizes based on the most economical use of tinplate. This involved a decision to pack paint by volume rather than by weight, and the financial savings thus secured were substantial—some £100,000 was estimated to have been saved in 1948 for the paint trade by two factories of one metal box manufacturer alone. This saving illustrates the benefits which can flow from full collaboration between users and producers.

Referring to the British Standards Institution, on page 13, the report says :—

We are agreed that the British Standards Institution is the appropriate body to co-ordinate the views of the various interests concerned in drawing up standards on a national basis, but we believe that its staff and facilities must be strengthened and extended if it is to play its proper part in the work which has to be handled.

On page 22 it points out that—

The staff is inadequate to deal with the existing and contemplated load of work with a speed appropriate to the country's technical and economic requirements, and we recommend that the numbers should be substantially increased.

Three of the committee's most salient recommendations are—

(i) In order to reduce wasteful variety the principles of specialization, simplification and standardization should be considered and applied whenever this is possible and appropriate.

(iii) The production of national standards of wide applicability should be extended and speeded up. To this end all sections of industry should urge forward the work of the British Standards Institution.

(ix) All purchases should be to British standards wherever possible. To this end the Government should ensure that their departments, the nationalized industries, and other public bodies, take such action. The British Standards Institution should, through trade associations, seek undertakings from industry that they will, as a matter of policy, adopt a similar procedure.

The adoption of the recommendations contained in the report, the committee states, would—

A. Effect an overall improvement in productive efficiency in manufacture and distribution.

B. Benefit the ultimate user by lowered prices and improved maintenance and servicing.

The terms of reference of the report of the committee appointed by the Anglo-American Council on Productivity was as follows :—

To investigate and report upon the methods which industry in the United States has employed to limit the diversity of types and ranges of products and to consider the effect on productivity and cost.

To consider and recommend how far and by what methods the experience of industry in the United States in this matter can be applied with advantage in the United Kingdom.

This report quotes numerous examples of the advantages of simplification and standardization, including substantial reduction in costs, a few of which are quoted as follows :—

Pipe Fittings, Valves, &c.—In this industry a great deal of simplification has taken place both in the inter-war years and during the Second World War. It was found possible to reduce the existing variety very substantially since it was discovered that many of the items had very small sales. The following table summarizes in striking fashion the extent to which effort had been dissipated. Column 1 shows the percentage of items eliminated from the original list ; column 2 the percentage of sales attributable to those items.

Main Groupings.	Column 1. Per Cent.	Column 2. Per Cent.
Brass valves	.. 29	0·9
Iron valves	.. 53	1·8
Malleable fittings	.. 48	1·2
Cast iron fittings	.. 70	2·1
Brass fittings	.. 57	1·6

As to the effect on cost, during the period 1939–1948 prices of steel increased by more than 50 per cent., plumbing and heating materials by almost 90 per cent., while labour rates and other costs such as increased holidays, paid holidays, &c., rose over 100 per cent., but in spite of this the prices of iron valves and bronze valves were increased by slightly less than 50 per cent., while steel valve prices increased by little more than 50 per cent. Reduction in variety with all its production advantages was thought to have been a substantial factor in limiting the price increases of these products as compared with the prices of other building materials.

Steel.—Following work done in 1928, types of reinforcing bars for concrete work had been brought down from a wide range to fourteen. Apart from its benefits to the producer, the step was welcomed by designers of reinforced concrete structures and by erectors. In the Second World War steel compositions were reduced from some 5,000 down to 300, and there seemed no evidence of a wish to revert to greater variety. The view was expressed that simplification had been a significant factor in keeping prices down over a period of rising material and labour costs.

Grinding Wheels.—Through the active effort of the producer, users were persuaded to agree to reduction in variety, and so far the number of types of grinding wheels has fallen from 715,000 to well below 300,000, while in abrasive papers the reduction has been from 5,500 to 1,700. The opinion was expressed that but for this simplification the average unit of cost of the products of the industry would be double what it actually is.

Boots and Shoes.—A prominent manufacturer of boots and shoes expressed the opinion that simplification was "an essential and prime factor in raising production and lowering costs." This manufacturer had deliberately concentrated the greater part of his output of more than a dozen factories on six basic types of shoe, with a large degree of standardization of parts and fittings. Labour costs have been reduced by more than 25 per cent. While wages levels had risen subsequently by more than 100 per cent., continuing simplification had resulted in the production of a better quality shoe at a cost increase of less than 80 per cent.

Farm Machinery.—A large group of companies manufacturing farm machinery concentrated on standardization of components and on securing a wide variety of performance from the smallest range of equipment and accessories.

The committee reached the following conclusions:

All the evidence we have assembled endorses the advantages to be gained from simplification as set out in section 2 of this report. The producer benefits through longer runs, increased mechanization, simpler operations, more effective use of capital invested, concentration of sales and advertising effort, and in other ways. The result is higher productivity at lower cost, with consequent increased volume of sales. The consumer benefits through lower prices and ready availability of supplies.

As a result of our visit to the United States we are convinced that one of the main reasons for the high productivity and low cost, which are characteristics of industry there, is the ruthless elimination of unnecessary variety and the resultant concentration of manufacturing resources.

Simplification and standardization have been developed by some sections of industry and by some individual firms in the United Kingdom. We believe that those who have done most will be the first to assert that much more can and should be done.

No doubt there are a few industries in which the scope for simplification and standardization is small, but we are satisfied that such are the exceptions rather than the rule. For British industry in general we are convinced that there is great scope for raising productivity and lowering costs by more general adoption of the policies which have proved so successful in the United States.

Our dominant need to-day is for a greater volume of goods at lower cost from the present productive resources. The home consumer would gain a higher standard of living, both from greater availability of lower-priced goods at home and as a result of increased sales in export markets. Simplification can make a contribution at every level from mass-produced goods to the high-quality manufacturers into which some element of craftsmanship enters.

New Zealand cannot afford to ignore the observations contained in these two most authoritative reports based upon such competent and comprehensive investigations which confirm that no other single factor is so potent as a means of increasing production and correspondingly reducing production and distribution costs as standardization.

EXCHANGE OF STANDARD SPECIFICATIONS

The exchange of standard specifications among the English-speaking countries has been continued and extended with the development of the International Organization for Standardization. We now exchange standard specifications and related documents with the standards organizations of some twenty-eight countries. Under this arrangement 5,450 documents were received during the year from thirty-five organizations, as set out in the table below. This ensures that, as far as practicable, uniform standards will be adopted by the English-speaking countries, and in particular by the British Commonwealth of Nations. It also makes available to each organization the benefit of the investigations of the others.

Table B—Specifications Received from Other Countries

Source of Supply.	New, Revised, and Tentative Standards.	Draft Standards.	Total.
National Standardizing Bodies			
British Standards Institution	122	154	276
Standards Association of Australia	24	5	29
Canadian Standards Association	20	..	20
Indian Standards Institution	15	100	115
South African Bureau of Standards	46	35	81
South African Standards Institution	1	..	1
American Standards Association	316	4	320
Association Francaise de Normalisation (France)	191	21	212
Associacas Brasileira de Normas Tecnicas (Brazil)	5	2	7
Comisunea de Standardizare (Roumania)	152	6	158
Dansk Standardiseringsraad (Denmark)	9	8	17
Finlands Standardiserings Commission (Finland)	16	..	16
Hoofdcommissie Voor de Normalisatie in Nederland (Holland)	48	51	99
Institut Belge de Normalisation (Belgium)	22	17	39
Institute for Industrial Research and Standards (Eire)	4	9	13
Instituto Nacional de Investigaciones Tecnologicas y Normalizacion (Chile)	27	..	27
Instituto Nacional de Racionalizacion del Trabajo (Spain)	48	69	117
Instituto Uruguayo de Normas Tecnicas (Uruguay)	4	..	4
Japanese Standards Association	778	..	778
Magyar Onszagas Szabnanyok (Hungary)	345	2	347
Norges Standardiserings-Forbund (Norway)	11	30	41
Osterreichischer Normenausschuss (Austria)	32	..	32
Polski Komitet Normalizacyjny (Poland)	507	341	848
Schweizerische Normen-Vereinigung VSM-Normalienbureau (Switzerland)	95	..	95
Standards Institution of Israel	5	8	13
Sveriges Standardiseringskommission (Sweden)	130	..	130
Ente Nazionale Italiano di Unificazione (Italy)	484	..	484
Vsesojuznyj Komitet Standardtov (USSR)	571	..	571
Other Organizations			
American Society for Testing Materials	148	..	148
Canadian Government Specifications Board	28	..	28
Indian Railways Board	38	..	38
National Electrical Manufacturers' Association	19	..	19
Society of Automotive Engineers	117	..	117
United States Department of Commerce (National Bureau of Standards)	31	..	31
United States Treasury Department (Bureau of Federal Supply)	179	..	179
Totals	4,588	862	5,450

SALES OF STANDARD SPECIFICATIONS

Sales of standard specifications during the year totalled 16,887 volumes, representing a value of £2,416 6s. 3d.

ACKNOWLEDGMENTS

Again it is fitting that this report should conclude with an expression of appreciation of the valuable service rendered by the members of the committees of the Standards Council, and by officers of various Government Departments, local authorities, professional, commercial, industrial, trade, and consumer organizations. All these, including those who have been required to travel from distant centres, have given unstintingly of their time, knowledge, and experience whenever called upon to do so without thought of recognition or reward other than the satisfaction of contributing towards the welfare of the Dominion.

E. H. LANGFORD, Chairman, Standards Council.

APPENDIX

NEW ZEALAND STANDARD SPECIFICATIONS RECOMMENDED DURING THE YEAR FOR DECLARATION, REVISION, AMENDMENT, OR WITHDRAWAL

1. New Standards

Building

N.Z.S.S.

767 Air bricks and gratings (dimensions and workmanship); being B.S. 493–1945, *amended to suit New Zealand requirements.*

768 Natural stone for building (dimensions and workmanship); being B.S. 1232–1945.

769 Glazed earthenware wall tiles (dimensions and workmanship); being B.S. 1281–1945.

770 Clay tiles for flooring (dimensions and workmanship); being B.S. 1286–1945.

771 Synthetic-resin bonded-paper sheet (thermosetting) for use in the building industry; being B.S. 1323–1946.

772 Asphalt tiles for paving and flooring—natural rock asphalt; being B.S. 1324–1946.

781 Building limes; being B.S. 890–1940, *amended to suit New Zealand requirements.*

782 Low heat Portland cement; being B.S. 1370–1947.

783 Dimensions and properties of channels and beams for structural purposes; being B.S. 4–1932, *amended to suit New Zealand requirements.*

794 Earthenware roofing tiles. (*Superseding* N.Z.S.S. E.182.)

795 Concrete roofing tiles. (*Superseding* N.Z.S.S. E.217).

804 Code of practice for the fixing of concrete and earthenware roofing tiles. (*Superseding* N.Z.S.S. E.236.)

Chemical Engineering

701 Manhole openings for chemical plant: fixed and mobile. Size and position only. (Not applicable for pressures over 1·5 lb. per sq. in.); being B.S. 470–1932.

713 Oil suction discharge hose for use in the petroleum industry; being B.S. 1435–1948.

736 Methods for the analysis of iron and steel—

736, Part 4: Aluminium in permanent magnet alloys; being B.S. 1121, Part 4, 1948.

736, Part 6: Nickel present in small amounts in carbon and low-alloy steels; being B.S. 1121, Part 6, 1948.

736, Part 8: Chromium present in small amounts in carbon and low-alloy steel; being B.S. 1121, Part 8, 1948.

736, Part 11: Carbon in steel and low-carbon ferro-chromium; being B.S. 1121, Part 11, 1948.

800 Treatment of water for marine boilers; being B.S. 1170–1947.

Chemicals and Scientific Apparatus

693 Pigments for colouring cement, magnesium oxychloride and concrete; being B.S. 1014–1942.

718 Synthetic resins (phenol-aldehyde type) for the manufacture of boards, tubes and cylinders; being B.S. 474–1932.

739 Media for biological percolating filters; being B.S. 1438–1948.

740 Precipitated calcium carbonate; being B.S. 1460–1948.

755 Silver anodes and silver salts for electroplating; being B.S. 1561–1949.

797 Burettes and bulb burettes; being B.S. 846–1939.

796 Petri dishes; being B.S. 611–1940.

Electrical Engineering

697 Motor starters and controllers and resistors employed therewith (excluding liquid starters and controllers and single phase A.C. models); being B.S. 587–1940.

721 Recommendations for terminal markings for electrical machinery and apparatus; being B.S. 822–1938.

722 P.V.C. cables and cords for switchboard and panel wiring; being B.S. 1231–1945.

723 Synthetic-resin bonded-paper tubes, for use as electrical insulation, for power circuits; being B.S. 1314–1946.

1. New Standards—*continued*

Electrical Engineering—*continued*

N.Z.S.S.	
724	Insulated asbestos roved flexible cords; being B.S. 1327–1946.
725	Galvanized mild steel wire for armouring cables; being B.S. 1442–1948.
744	Intrinsically safe transformers for bell signalling apparatus; being B.S. 1538–1949.
762	Solid bituminous filling compounds for cable boxes on systems up to and including 11,000 volts; being B.S. 803–1938.
763	Transformers for use with electrically-operated toys; being B.S. 881–1939, *amended to suit New Zealand requirements.*
764	Battery-connectors for electric vehicles; being B.S. 1412–1947.
765	Impregnated asbestos-covered solid copper conductors; being B.S. 1497–1948.
790	Domestic electric appliance connectors.
802	Thermostats for electrically heated domestic hot water supply (A.C. only); being B.S. 1555–1948, *amended to suit New Zealand requirements.*

Household Commodities

681	Grades of meat for sale on the local market, and definitions of joints and cuts. (*Superseding* N.Z.S.S. E.79.)
759	Garden rakes. (*Superseding* N.Z.S.S. E.233.)
760	Garden hoes. (*Superseding* N.Z.S.S. E.234.)
761	Shovels and spades of the hollow back socket pattern. (*Superseding* N.Z.S.S. 235.)
792	Cotton mops. (*Superseding* N.Z.S.S. E.137.)
802	Soaps (toilet soap, laundry soap, soap-powder, and sandsoap). (*Superseding* N.Z.S.S. E.118.)

Iron and Steel

704	Capping metal for steel wire ropes; being B.S. 643–1935.
712	Annealed steel wire for oil-hardened and tempered springs; being B.S. 1429–1948.
738	High carbon oil-hardening steel (precision-finish); being B.S. 1423–1948.
752	Rust, acid and heat resisting steel wire; being B.S. 1554–1949.
766	Expanded metal (steel) for general purposes; being B.S. 405–1945.
785	Whiteheart malleable iron castings; being B.S. 309–1947.
798	Wrought steels; being B.S. 970–1947.

Mechanical Engineering

695, Part 3	Solid and split taper pins; being B.S. 46, Part 3, 1935.
696	Valve fittings for compressed gas cylinders; being B.S. 341–1945.
698	Engine testing equipment; being B.S. 412–1935.
703	Electrically welded mild steel chain, short link and pitched or calibrated, for lifting purposes; being B.S. 590–1949, *amended to suit New Zealand requirements.*
705	Pneumatic tools and accessories; being B.S. 673–1936.
706	Railway mechanical signalling apparatus (signal posts, semaphore signals, fittings and connections, and point connections and fittings); being B.S. 689–1936.
707	Sisal ropes for general purposes; being B.S. 908–1946, *amended to suit New Zealand requirements.*
708	Acid-resisting silicon iron pipes and pipe fittings (elbows, bends, tees, crosses); being B.S. 1333–1946.
711	Rotary shaft oil seals (related dimensions); being B.S. 1399–1947.
715	Picks, beater picks and mattocks; being B.S. 1421–1947.
747	Flanged steel outside-screw-and-yoke wedge gate valves for the petroleum industry; being B.S. 1414–1948.
788	Pressed steel sectional tank (rectangular); being B.S. 1564–1949.

Nomenclature, Abbreviations, &c.

748	Glossary of terms applicable to wrought products in copper, zinc, brass and other copper alloys; being B.S. 1420–1947.
801	Terms and sizes of personal stationery; being B.S. 1360–1947.
756	Definitions for use in motor-car cleaning, lubrication and allied servicing. (*Superseding* N.Z.S.S. E.220.)

1. New Standards — *continued*

Non-ferrous Metals

N.Z.S.S.	
699	Wrought light aluminium alloy sheets and strip (heat treated) for general engineering purposes; being B.S. 414–1931.
702	Y-alloy forgings for general engineering purposes; being B.S. 533–1934.
717	Regulus metal; being B.S. 335–1938.
749–751	Nickel and nickel alloy hot-rolled sheet, and cold-rolled sheet and strip for general purposes— 749, Hot-rolled malleable nickel sheet, and cold-rolled malleable nickel sheet and strip; being B.S. 1525–1949. 750, Hot-rolled nickel-copper alloy sheet, and cold-rolled nickel-copper alloy sheet and strip; being B.S. 1526–1949. 751, Hot-rolled nickel-chromium-iron alloy sheet, and cold-rolled nickel-chromium-iron alloy sheet and strip; being B.S. 1527–1949.
786	Light aluminium alloy forgings for general engineering purposes; being B.S. 532–1934.
805–807	Nickel and nickel alloy bars, rods and sections for general purposes— 805, Malleable nickel bars, rods and sections; being B.S. 1528–1949. 806, Nickel-copper alloy bars, rods and sections; being B.S. 1529–1949. 807, Nickel-chromium alloy bars, rods and sections; being B.S. 1530–1949.
808–810	Nickel and nickel alloy wire for general purposes— 808, Malleable nickel wire; being B.S. 1534–1949. 809, Nickel-copper alloy wire; being B.S. 1535–1949. 810, Nickel-chromium-iron alloy wire; being B.S. 1536–1949.
811–813	Zinc (fine, special and foundry); being B.S. 220, 221 and 222–1947.

Paints, Varnishes, Colours, &c.

742	Bleached lac; being B.S. 1284–1946.
663	Additional extenders for paints; being sections 2, 3, 6 and 7 of B.S. 926–1940, relating to precipitated barium carbonate, china clay, whiting (Paris white) and witherite, respectively.
692	Leaded zinc oxide; being B.S. 1481–1948, *amended to suit New Zealand requirements.*
694	Titanium pigments for paints; being B.S. 1269–1945.

Plastics

741	Polystyrene moulding materials; being B.S. 1493–1948.
776	Plastic water-closet seats; being B.S. 1254–1945, *amended to suit New Zealand requirements.*

Plumbing

716	Non-ferrous (excluding lead) traps and wastes; being B.S. 1184–1944, *amended to suit New Zealand requirements.*
773	Cast iron rainwater pipes; being B.S. 460–1944.
774	Small domestic hot water supply boilers, solid fuel; being B.S. 758–1945, *amended to suit New Zealand requirements.*
775	Caste iron baths for domestic purposes (dimensions and workmanship); being B.S. 1189–1944, *amended to suit New Zealand requirements.*
777	"Ready-to-fit" thermal insulating materials for hot and cold water supply and central heating installations for small dwellings; being B.S. 1304–1946.
778	Pre-formed thermal insulating materials for central heating and hot and cold water supply installations; being B.S. 1334–1947.
779	Mixing valves (manually operated) for ablutionary and domestic purposes; being B.S. 1415–1947.
780	Aluminium rainwater goods (cast and extruded); being B.S. 1430–1947.
784	Sluice valves for waterworks purposes; being B.S. 1218–1946, *amended to suit New Zealand requirements.*

Rubber

719	Methods of testing latex, raw rubber and unvulcanized compound rubber; being B.S. 902–1940.

Safety

753	Protective filters for welding and other industrial operations; being B.S. 679–1947, *amended to suit New Zealand requirements.*
754	Equipment for eye and face protection during welding; being B.S. 1542–1949.
789	By-law for precautions against fire and panic in theatres.

1. New Standards—*continued*

Textiles and Clothing

N.Z.S.S.	
648	Methods of testing textiles.
757	Flock. (*Superseding* N.Z.S.S. E.147.)

Miscellaneous

660, Part 1	School requisites: Part 1, School rulers.
667	Spraying nozzles for horticultural purposes; being B.S. 1135–1943, *amended to suit New Zealand requirements.*
672	Butchers' and slaughtermen's knives.
700	Tables of diamond pyramid hardness numbers; being B.S. 427–1931.
709	Architects', engineers' and surveyors' boxwood scales; being B.S. 1347–1947.
710	Log sheets for steel boiler plants; being B.S. 1374–1947.
743	Beeswax. (*Superseding* N.Z.S.S. E.206.)
746	Code of procedure in inspection of copper-base alloy sand castings; being B.S. 1367–1947.
787	Methods for sheet metal pattern development; being B.S. 1549, Part 1, 1949.

2. Revised Standards

38	The attachment and drive of circular metal cutting saws for cold working; being B.S. 387–1948.
43	Portland cement (ordinary rapid-hardening); being B.S. 12–1947, *amended to suit New Zealand requirements.*
64	Hard-drawn copper conductors for overhead transmission purposes; being B.S. 125–1947.
96	Electric reading-lamps; being B.S. 710–1948.
124	Moulded insulating materials for general electrical purposes; being B.S. 488–1948.
198	Plugs and sockets of the flat pin type for use on 10-amp. 250-volt circuits.
293	Cresylic acid of specified orthocresol content; being B.S. 517–1948.
294	Cresylic acid of specified metacresol content; being B.S. 521–1948.
295	Refined cresylic acid; being B.S. 524–1948.
296	Orthocresol, metacresol and paracresol; being B.S. 522–1948.
297	Phenol; being B.S. 523–1948.
349	Tung oil; being B.S. 391–1949.

3. Amended Standards

69	Steam turbines; being B.S. 132–1930. (PD 843, Amendment No. 2.)
73	Marking and arrangement for switchgear bus-bars, main connections and auxiliary wiring; being B.S. 158–1938. (PD 873, Amendment No. 1.)
91	Electric performance of large electric generators and motors (excluding alternators of the steam turbine driven type), continuous maximum rating; being B.S. 226–1925. (PD 301, Amendment No. 2.)
94	Mining-type transformers; being B.S. 355–1939. (PD 297, Amendment No. 2.)
122	Engineering symbols and abbreviations; being B.S. 560–1934. (PD 396, Amendment No. 1.)
191	Sampling and analysis of coal and coke for performance and efficiency tests on industrial plants; being B.S. 735–1944. (PD 828, Amendment No. 1.)
208	Methods for sampling and testing gelatines; being B.S. 757–1944. (PD 494, Amendment No. 1; PD 878, Amendment No. 2.)
257	Cast iron surface plates and tables for inspection and marking purposes; being B.S. 817–1938. (PD 765, Amendment No. 2.)
272	Titanium white pigments for paints; being B.S. 636–1935. (Amendment No. 2.)
286	Cast iron pipes (vertically cast) for water, gas and sewage, and special castings for use therewith; being B.S. 78–1938. (PD 750, Amendment No. 3.)
328	Steel straightedges of rectangular section; being B.S. 863–1939. (PD 788, Amendment No. 2.)
368	Miners' lamp bulbs; being B.S. 535–1938. (PD 166 and PD 888, Amendments Nos. 4 and 5.)
379	Flameproof enclosure of electrical apparatus; being B.S. 229–1946. (PD 886, Amendment No. 2.)
380	Flameproof electric lighting fittings (bulk-head and well-glass types); being B.S. 889–1947. (PD 887, Amendment No. 2.)
382	Cable glands and sealing boxes; being B.S. 542–1947. (PD 847, Amendment No. 1.)
383	Rubber gloves for electrical purposes; being B.S. 697–1940. (PD 705, Amendment No. 2.)

3. Amended Standards—*continued*

N.Z.S.S.	
431	Visual indicator lamps; being B.S. 1050–1945. (PD 734, Amendment No. 1.)
444	Flexible trailing cables for quarries and metalliferous mines; being B.S. 1116–1943. (PD 876, Amendment No. 1.)
486	Hearing aid equipment of the valve type. (Amendment No. 1.)
493	Ceramic washdown W.C. pans (dimensions and workmanship); being B.S. 1213–1945 *amended to suit New Zealand requirements.* (PD 769, Amendment No. 1.)
497	Methods for the analysis and testing of coal and coke; being B.S. 1016–1942. (PD 829, Amendment No. 2.)
498	Methods for the sampling of coal and coke; being B.S. 1017–1942. (PD 830, Amendment No. 2.)
508	Code for flow measurement; being B.S. 1043–1942. (PD 476 and PD 825, Amendments Nos. 1 and 2.)
509	Cast non-ferrous thimbles (spigot and socket) and ferrules (sleeve); being B.S. 1182–1944. (PD 623, Amendment No. 1.)
524	Cold rolled copper sheets and strip (half-hard and annealed) for general purposes (up to and including 3 S.W.G. [0·252 in.] thick and 42 in. wide); being B.S. 899–1940. (PD 659, Amendment No. 1.)
590	Wrought iron for general engineering purposes (grades A, B and C); being B.S. 51–1939. (PD 862, Amendment No. 1.)
644	Definitions for fire-resistance, incombustibility and non-inflammability of building materials and structures (including methods of test); being B.S. 476–1932. (PD 374, Amendment No. 2.)
716	Non-ferrous (excluding lead) traps and wastes; being B.S. 1184–1944. (PD 624, Amendment No. 1.)

4. Standards Recommended for Withdrawal

10	Lancashire and Cornish boilers; being B.S. 537–1934.
52	Voltages for three-phase transmission and distribution A.C. systems; being B.S. 77–1939.
108	Glossary of terms used in illumination and photometry; being B.S. 233–1932. (*Superseded by* N.Z.S.S. 126 Part 6, Section 8, being B.S. 205, Part 6, Section 8.)
111	Hot rolled mild steel strip (or hoop) not exceeding 10 in. wide, for general engineering purposes; being B.S. 725–1937. (*Superseded by* N.Z.S.S. 714; being B.S. 1449–1948.)
260	Cold rolled mild steel strip for general engineering purposes; being B.S. 847–1939. (*Superseded by* N.Z.S.S. 714; being B.S. 1449–1948.)
E.79	Grades of meat for sale on the local market and definitions of joints and cuts. (*Superseded by* N.Z.S.S. 681.)
E.109	Pure concentrated ammonia solution.
E.118	Soaps (toilet soap, laundry soap, soap-powder and sandsoap). (*Superseded by* N.Z.S.S. 803.)
E.120	Simplified practice for the manufacture of brooms, brushes and mops.
E.137	Cotton mops. (*Superseded by* N.Z.S.S. 792.)
E.145	Sulphuric acid.
E.147	Flock. (*Superseded by* N.Z.S.S. 757.)
E.182	Earthenware roofing tiles. (*Superseded by* N.Z.S.S. 794.)
E.206	Beeswax. (*Superseded by* N.Z.S.S. 743.)
E.207	Protective metal finishes, primarily for use indoors.
E.215	Grades of second-hand roofing iron.
E.217	Concrete roofing tiles. (*Superseded by* N.Z.S.S. 795.)
E.220	Definitions for use in motor-car cleaning, lubrication and allied-servicing. (*Superseded by* N.Z.S.S. 756.)
E.233	Garden rakes. (*Superseded by* N.Z.S.S. 759.)
E.234	Garden hoes. (*Superseded by* N.Z.S.S. 760.)
E.235	Shovels and spades of the hollow back socket pattern. (*Superseded by* N.Z.S.S. 761.)
E.236	Recommended code of practice for the fixing of concrete and earthenware roofing tiles. (*Superseded by* N.Z.S.S. 804.)

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