1943

NEW ZEALAND

NEW ZEALAND STANDARDS COUNCIL

(DEPARTMENT OF INDUSTRIES AND COMMERCE)

ANNUAL REPORT FOR THE YEAR 1942–43

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 New Zealand Standards Council for the year ended 31st March, 1943.

I have, &c.,

L. J. SCHMITT,
Permanent Head, Department of Industries and Commerce.

A. R. GALBRAITH, M.Inst.C.E., F.R.S.E., Chairman, New Zealand Standards Council.
L. J. MCDONALD, Secretary, New Zealand Standards Council.

REPORT

In view of the continuing necessity for the exercise of paper economy, this report is presented in a condensed form which does not permit the inclusion of lists of the personnel of the various committees or a full review of their activities.

ACTIVITIES DURING THE YEAR

Activities during the year have been predominantly concerned with work arising out of war conditions.

The work of the Standards organization has proceeded under the direction of the Emergency Divisional Council, to which the Standards Council has delegated the necessary authority in order to expedite the formulation and issue of Emergency Standard Specifications urgently required. As stated in last year's report, all major interests affected are represented on the Emergency Divisional Council. The same general principle has been adhered to in connection with the various committees operating under its direction. In this, as in other respects, the procedure and methods that are being followed are in accord with those that have been adopted by the national Standards organizations of other United Nations.

The authorities responsible for production, price control, rationing, and stabilization in other countries are placing increasing emphasis on the importance of standardization and simplification as a means of rendering their respective administrations most effective. The Standards organizations of these countries have assisted as the co-ordinating agencies of these wartime administrations. Similar trends are developing in the Dominion.

The importance of this aspect of war administration is evidenced by the fact that the Federal Government of the United States of America, in addition to operating the National Bureau of Standards at its fullest capacity, has taken over for the period of the war emergency the independent organizations known as the American Standards Association and the American Society for Testing Materials, with the object of increasing the scope and momentum of standardization and simplification activity.

The British Standards Institution has also become an instrument of the Board of Trade, through which this organization is used almost entirely in the service of various war administrative authorities, and the British Government has decreed that only specifications issued under the ægis of the British Standards Institution will be recognized as national specifications.

There can be little doubt that the work of the various committees of the Standards organization in this Dominion has made a similarly valuable contribution to the war effort.

Meetings of Committees

During the year 95 meetings of standing committees have taken place in addition to 27 formal conferences and approximately 40 informal conferences, a total of 162 meetings.

Standard Specifications issued

Regular Standard Specifications.—Thirty-eight Regular Standard Specifications were adopted during the year. Of these, 17 relate to electrical engineering, 12 to mechanical engineering, 5 to chemistry, and 4 to building materials and construction. Five of these 38 Standard Specifications originated, and were developed, in New Zealand. The remaining 33 are British Standards which have been carefully examined by appropriate committees and affected interests, with a view to determining their suitability for adoption as New Zealand Standards. In addition, 9 revisions of British Standards previously adopted as New Zealand Standards have been endorsed. Eight Standard Specifications were withdrawn during the year, bringing the total of existing Regular Standards to 387.

Emergency Standard Specifications.—Thirty-six War Emergency Standards were completed during the year. Of these, 11 are simplified practice specifications, 10 relate to overseas purchasing, 5 are commodity Standards, 4 relate to civil defence, and 4 to mechanical engineering, while 2 are paint Standards.

The total number of Standard Specifications adopted during the year is therefore 74, as listed in the appendix hereto. The year's work therefore increases the War Emergency Standards to 118 and the Regular Standards to 387, making a grand total of 505 Standard Specifications.

Standard Mark

Since the last report was presented, the Standard mark has been registered as a certification trade-mark in the thirty-four classes covering all marketable commodities, as provided in the Standards Act, 1941.

The registration of this mark gives effect in New Zealand to a recommendation of the Imperial Conference, 1930, in the following terms:—

> "The Conference recommends that each standardizing body should adopt a mark or brand to be applied under the license and control of such body to goods which comply with Standard Specifications issued by it and are produced or manufactured within the territory which it covers; and should take the necessary steps to secure for such mark or brand the full protection of law throughout the British Commonwealth of Nations, whether by its registration wherever possible as a standardization trade-mark or in some other appropriate way."

The Standard mark will be made available, under license, to manufacturers and other trading interests for use on commodities. In this way purchasers will be enabled to distinguish goods which conform to Standard Specifications from those which do not. The main advantages of a system whereby goods manufactured or produced according to a Standard Specification are identified by having the Standard mark affixed thereto may be summarized as follows:—

(*a*) It will give to the numerous small-quantity purchasers who cannot buy to specifications the maximum benefit of purchasing on a basis of known quality in relation to quantity and price.

(*b*) It will discourage the manufacture of goods of inferior quality and type, which simulate higher-quality goods in an endeavour to win the market on a basis of false confidence and lower prices.

(*c*) It will encourage the concentration of production on more legitimate lines and the elimination of redundant types, thus securing the fuller benefits of mass-production methods. It will also reduce the costs of distribution in proportion to the reduction of redundant types.

(*d*) It will bring about a general recognition that Standards Specifications afford the most sensible and economic basis for business transactions because they reduce to a minimum haphazard methods of specifying, manufacturing, testing, and buying.

Simplification

During the year the principle of simplification has been developed with the object of maximizing production by conserving materials, man-power, and plant capacity. The object of a simplified Practice Specification is to eliminate waste by the concentration of production on the optimum number of types, classes, and grades of commodities and by the use of the most economic processes and practices having regard for prevailing conditions.

A simplified Practice Specification differs from other Standard Specifications in that it eliminates certain existing types, according to the nature of the project, whereas Regular Standard Specifications define commodities, processes, or practices not necessarily on a basis of selection from existing types, but rather in terms of prescribed requirements affecting dimensions, strength, performance, efficiency, or other characteristics.

Of the 13 Emergency Standard Specifications issued during the year for purposes of simplification, 6 relate to clothing, while the remaining 7 relate to bread, footwear, glass containers, household furniture, doors, milking-machine rubberware, and filter pads for gas-producers.

The value and importance of simplification as a means of conserving material, plant capacity, and man-power in the clothing industry, for example, is soundly evidenced by statements of the War Production Board and the Office of Price Administration of the United States of America. These statements estimate that the simplification of clothing styles will save from 5 per cent. to 15 per cent. of the cloth used in each garment, according to the nature of the particular garment. This, it is stated, will represent a gain of

100,000,000 yards of material each year. An indication of the economies that have been gained by the adoption of similar measures in England is reported in the English trade journal, *Tailor and Cutter and Women's Wear*, of the 13th March, 1942, which reported that the simplification of suits would save 100,000 yards of material each week. It also stated that in the Leeds clothing trade the projected utility (simplified) suits would enable an additional 30,000 suits to be manufactured from the material normally required to produce 400,000 suits.

Clothing.—In New Zealand reliable reports from competent large-scale manufacturers indicate that the simplification of men's suits will save approximately 5 per cent. of the material normally used. On this basis it is estimated that the simplification will enable some 30,000 additional suits to be produced each year. Since the saving of material which the simplification of women's clothing would effect would almost certainly double that which would apply in the case of men's wear, the overall gain throughout the clothing industry should represent a very considerable economy and should therefore make a substantial contribution towards maintaining essential clothing-supplies.

Glass Containers.—The simplification of glass containers is a further example of the extensive economies gained from the application of this principle. Responsible trade interests estimate that the specification of the Simplified Practice for Glass Containers reduces the number of types and sizes from over 500 to some 250, or by approximately 50 per cent. The advantages of this project are greatly increased by the fact that the lines eliminated are those which make excessive demands on raw materials, plant capacity, labour, packing, and transport, amounting in many cases to double that which would be required for the manufacture of the more economic containers which the specification retains.

The general advantages illustrated by the two examples cited above, with differing interpretation, are derived also from the other eleven specifications for simplified practices.

The significance of this aspect of the activity of the Standards organization during the year is perhaps brought into its proper perspective in relation to the needs of the war effort by the following brief quotations from the statements of eminent overseas authorities:—

President Franklin D. Roosevelt—

"It is the responsibility of the Government to plan for more production of essential civilian goods and less of non-essential goods. Production and distribution of goods should be simplified and standardized; unnecessary costs and frills should be eliminated."

Howard Coonley, Director, Conservation Division, W.P.B.; former President of National Association of Manufacturers of the United States of America—

"The simplification to be carried out in 1943 will save thousands of carloads of valuable transportation space, millions of feet of factory warehouse space, will add to our stockpiles of raw materials, by reducing inventory requirements some 25 per cent., and will augment the productive capacity of our machines by 10 to 20 per cent.

"A nation-wide simplification and standardization programme is not only our best tool for increasing war production, but also is the best answer that the War Production Board can give to the business man's prayer for easier ways of doing business under wartime restrictions. Simplification intelligently ordered can forestall shortages in consumer's goods and often make rationing unnecessary. It is the best single way of upholding our standard of living in wartime."

James F. Byrnes, Economic Stabilization Director, United States of America—

"I have asked the chairman of the War Production Board to undertake a vigorous programme of simplification and standardization of production and distribution not merely to eliminate frills and wasteful practices, but, wherever necessary and advantageous, to concentrate on the production of relatively few type of goods of standardized quality, design, and price.

"Effectively carried through, such a programme can combat the rising costs that threaten ceilings, maintain at maximum the output of civilian goods that is possible, and bring the prices of some essentials down.

"Such a programme, too, would yield considerable savings in man-power, materials, machine capacity, transportation, fuel, and other acute war needs."

Arch Shaw, Director, Conservation Division, W.I.B., 1918—

"In winning this war through simplifying our industries we shall enter the peace with a production and distribution system geared to the very highest point of efficiency for whatever competition we may face. Our present necessity may well prove to be our future security."

Standardization and Stabilization

During the year increased attention has been given to the development of standardization as an integral part of stabilization. This aspect of standards activity falls under the following headings:—

Production.—Without the most economic use of materials, plant capacity, and man-power which standardization achieves, production cannot be maintained at that high level necessary to secure maximum essential supplies. Not only is the application of this principle the most potent means of increasing output, but it is the only agency that can be used to ensure the production of goods of optimum service value. In this connection the *Economist* of January, 1943, reports that British authorities have, "in consultation with manufacturers, endeavoured to embody in a series of specifications the best trade practices at each level, while also eliminating all uses of material and labour which do not measurably add to the utility of the product."

In the United States of America the needs of the position are similarly stated by James F. Byrnes, Director of Economic Stabilization, as follows: "There is an increasing need for a positive programme to combat the rising (production) costs that threaten price ceilings and to assure people the minimum essentials at prices they can pay. The most effective measure toward accomplishing this lies in the simplification and standardization of production and distribution so as to make the most efficient use of the materials, man-power, and facilities that can be spared for civilians."

Rationing.—The importance of standardization to the rationing of civilian commodities is self-evident. It is equally necessary, for example, that rationing coupons should secure goods of consistent and known quality as it is that they should secure goods of consistent and known quantity. Otherwise there is no effective basis for allotting coupons. Consequently, every endeavour is being made in this Dominion, in common with similar action by other United Nations, to expedite the development and issue of Standard Specifications which will ensure that the quality of rationed goods is maintained. The British Board of Trade, for instance, prescribes, through British Standard Specifications issued by the British Standards Institution, the various kinds of cloth and utility clothing to be produced, and the minimum specifications to be used in producing it. This same general principle applies to all essential commodities within the war administrations of the various countries concerned.

Price Control.—Similarly, price control, unless related to defined quality, cannot be effective. In this connection the *Economist* of January, 1943, reports that the British authorities have "found that prices cannot be effectively controlled unless products are clearly defined."

A recent report from the Office of Price Administration, United States of America, acknowledges that it is "worried about quality deterioration unaccompanied by a downward trend in prices." The report states: "Inflation consists of paying more money for the same or even less valuable merchandise. Really bad inflation means such runaway prices, or such abominable quality, that money loses its significance." The statement concludes that the Office of Price Administration must go a great deal further in the direction of relating quality to price in order to render its administration effective.

A counterpart of the above statement relating to the British position states that, by having the minimum quality of cloth and clothing specified, and prescribing prices specifically related to quality, the initial problem of hidden price increases, through quality deterioration, has been largely solved.

General.—The foregoing summary appears to completely justify the conclusion that the purpose of stabilization is to ensure the maintenance of production and the supply of essential commodities of optimum service value at the lowest unit cost, and consequently at prices which the people can afford to pay. The success of a stabilization policy is therefore contingent upon the principle of standardization being effectively related to the administration of production, rationing, and price control. It follows, then, that all the work that has been carried out during the year has a pertinent bearing on stabilization.

The following specific examples may be cited to illustrate the way in which standardization is being developed in support of stabilization.

Footwear.—With the full support of the footwear industry, fifteen Standard Specifications have already been issued covering various classes and types of men's, women's, and children's footwear. These specifications provide a reliable basis for the manufacture of footwear, in respect of which the quality of the materials, component parts, essential features of construction, workmanship, and finish are defined in a way that affords an assurance to purchasers concerning the utility of footwear complying with such Standards.

Meat.—The draft specification which establishes meat grades, and definitions of cuts and joints, for meat sold on the retail market represents a further useful illustration of the relationship of the two activities. With the completion of legal preliminaries, and the establishment of the necessary machinery for the carrying-out of the actual grading, this specification will establish clearly defined grades in a way that will greatly simplify and facilitate the relating of prices to defined quality. It will also prove a valuable means that will dispose of the confusion and conflict which almost inevitably arises in the course of trade in the absence of clear definitions which convey the same meaning and express the same value to all concerned.

Clothing.—The simplification of clothing, referred to earlier in this report, has also made a substantial contribution towards stabilization, by conserving material, plant capacity, and man-power, thereby reducing processing charges and so enabling some of the increased costs of constituent materials to be absorbed. A still more important aspect, of course, is that this comprehensive programme of work affords the means whereby essential civilian supplies can be substantially increased in relation to the materials and other production resources available.

The above illustrations indicate that the specifications issued during the year, as listed in the appendix, must considerably assist the purpose of economic stabilization.

New Zealand Standard Code of Building By-laws

Further progress has been made in the formulation of the New Zealand Standard Code of Building By-laws (N.Z.S.S. 95). Two further Parts of this Code have been completed—namely, Part VII, "Means of Egress," and Part VIII, "Residential Buildings."

Part VII, "Means of Egress," establishes the basic safety principles to be followed in the location, design, construction, alteration, repair, and maintenance of the means of egress from buildings other than private dwellings and those used for public meetings. The exclusion of these last-mentioned buildings has been decided upon not because less importance is attached to egress from such buildings, but because some provision has already been made by other authorities. Consequently, the urgency attached to this aspect of the work is somewhat lessened. It is intended, however, to co-ordinate and amplify the existing requirements in a separate part of the Code, as the more urgent work is disposed of.

Part VIII, "Residential Buildings," prescribes the minimum requirements for all buildings intended for human habitation. In the course of development of this Part of the Code it became apparent that, in the absence of suitable by-laws, local authorities were unable to deal satisfactorily with various undesirable features associated with boardinghouses, and the renting of rooms in premises entirely unsuitable for this purpose. The responsible committee has accordingly prepared a separate Code of By-laws for the Licensing and Control of Boardinghouses and Similar Premises (N.Z.S.S. 390). This will fulfil a need which has been widely and strongly represented by local authorities, which have stressed the urgent need for such a Code, especially under present conditions.

Plumbing and Drainage By-laws.—Good progress has also been made with a related Code for Plumbing and Drainage By-laws, which has been completed in draft form and circulated for comment.

Government Housing Standards.—A representative committee has been instituted to undertake the preparation of comprehensive Standard Specifications for housing. These specifications are being closely co-ordinated with Part XI, "Light Timber Construction," of the New Zealand Standard Code of Building By-laws, with the object of ensuring that resources applied to housing construction will be employed to most advantage, with the result that houses will be built on the most economic cost basis, having regard to the maintenance of sound standards of construction, hygiene, and general convenience.

Concomitantly with the preparation of the housing specifications related specifications for building-materials are being formulated.

Exchange of Specifications and Related Documents

In accordance with reciprocal arrangements with other national Standards organizations, the regular exchange of Draft and Standard Specifications has been continued during the year. As a result of this exchange, each country concerned has benefited from the investigation and research work carried out in the several other countries. This means that each individual country avoids the necessity of finding its own solutions to problems that have already been disposed of by the corresponding authorities overseas. In other words, the work associated with the war production effort of each country makes its contribution not only within the country concerned, but contributes to a more effective war effort on the part of all the nations involved. This result is achieved because each national Standards organization is an integral part of a world-wide organization which has established the procedure and machinery necessary to afford such reciprocal advantage and assistance.

The unstinted co-operation and assistance which have at all times been received from overseas organizations and institutions, together with valuable information obtained from their various publications and documents, merit the fullest appreciation.

Specifications received from other Countries

—	Standard Specifications.	Draft Specifications.	War Emergency Specifications.	War Emergency Draft Specifications.
British Standards Institution	43	41	67	18
Standards Association of Australia ..	13	1	44	..
Canadian Engineering Standards Association	25	..	4	..
South African Standards Institution ..	2	..	..	..
American Standards Association ..	8	2	10	..
U.S. Treasury Department (Federal Standards)	708	..	..	..
U.S. Department of Commerce (National Bureau of Standards)	12	..	..	..
National Electrical Manufacturers' Association (U.S.A.)	2	..	..	..
Society of Automotive Engineers (U.S.A.)	45	..	..	..
Totals	858	44	125	18
Grand total	1,045			

Other publications received during the year, including reports and data relating to standardization, number 405, which, together with 1,045 Standard Specifications, total 1,450 documents received.

Circulation of Draft and Standard Specifications

Draft and Standard Specifications received from other countries as shown on the above table have been circulated for comment as follows:—

Draft Standard Specifications

—	Great Britain.	Australia.	American Standards Association.	Totals.
Draft Standards received	41	1	2	44
Draft Standards circulated for comment by affected interests	16	1	1	18
Deferred pending receipt of final standard ..	9	..	..	9
Still under consideration	32	1	2	35

Standard Specifications

—	Great Britain.	Australia.	Totals.
Standards received	43	13	56
Standards circulated for comment by affected interests	40	4	44
Unsuitable for New Zealand	5	5	10
Adopted as New Zealand Standard Specifications	1	..	1
Still under consideration	37	8	45

War Emergency Standard Specifications

—	Great Britain.	Australia.	American Standards Association.	Totals.
Standards received	67	44*	10	121
Circulated for comment by affected interests	60	6	7	73
Adopted as New Zealand Standards	3	..	..	3
Considered unsuitable for New Zealand	16	..	..	16
Still under consideration	48	44	10	102

* Mostly British Standards adopted as Australian Standards.

SALES OF STANDARD SPECIFICATIONS

Standard Specifications to a value of £812 5s. 11d. were sold during the year, as detailed in the following table:—

	Copies.	Amount. £	s.	d.
Original New Zealand Standards	1,757	122	6	3
New Zealand Standards (being British Standards adopted)	355	51	7	6
New Zealand Emergency Standards	5,192	202	7	0
New Zealand Emergency Standards (being British A.R.P. Standards adopted)	1	0	0	9
Total sales of New Zealand Standards	7,305	376	1	6
British Standard Specifications (not adopted as New Zealand Standards)	1,530	251	7	9
British Standard Aircraft Specifications	168	10	10	0
British Standard A.R.P. Specifications	81	1	16	5
Australian Standard Specifications	130	10	1	0
British Air Ministry (D.T.D.) Specifications reprinted in Australia	3,716	161	16	6
American Standards	2	0	12	9
	12,932	812	5	11

ACKNOWLEDGMENTS TO MEMBERS OF COMMITTEES AND ORGANIZATIONS

In concluding this report it is fitting that there should be placed on record an acknowledgment and appreciation of the valuable services gratuitously rendered by members of committees during the year under review. The generous manner in which their time and knowledge are given to advancing the important work of standardization and simplification is worthy of the highest commendation. It is desired also to acknowledge the co-operation and assistance which has been freely given by other Government Departments, local authorities, professional, manufacturing, trading, and industrial organizations, and their executives.

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

APPENDIX

LIST OF NEW ZEALAND STANDARD SPECIFICATIONS ADOPTED DURING THE YEAR ENDING 31ST MARCH, 1943

N.Z.S.S.

95 New Zealand Standard Code of Building By-laws—Part VII: Means of Egress.
New Zealand Standard Code of Building By-laws—Part VIII: Residential Buildings.

126 Supplement No. 1: Glossary of Terms used in Electrical Engineering, Section 12, Radio Direction Finding; being supplement to B.S.S. 205–1936.

N.Z.S.S.

364 Ratings and Methods of Test for Electric Heating-elements for Hot-water Containers.
365 Salt-glazed Ware Pipes.
366 Building Bricks.
367 Sequence of Trade Headings and Specification Items for Building Work.
368 Miners' Lamp Bulbs; being B.S.S. 535–1938.
369 Rubber and Insertion Jointing for Flange and Similar Joints subject to Water Pressure; being B.S.S. 945–1941.
370 Silver Solder (Grades A, B, and C); being B.S.S. 206–1941.
371 Round Strand and Flattened Strand Steel Wire Ropes for Colliery Winding Purposes; being B.S.S. 236–1941.
372 Round Strand and Flattened Strand Steel Wire Ropes for Colliery Haulage Purposes; being B.S.S. 330–1941.
373 Brass Tubes, Tubes for Screwed Glands, and Screwed Glands for Condensers; being B.S.S. 378–1941.
374 Engineers' Squares; being B.S.S. 939–1941.
375 Dimensions, Limits, and Tolerances for Screwing Taps; being B.S.S. 949–1941.
376 Feeler Gauges; being B.S.S. 957–1941.
377 Precision Levels for Engineering Workshops; being B.S.S. 958–1941.
378 Test Code for Fuel-fired Melting Furnaces used in the Non-ferrous Metals Industry; being B.S.S. 992–1941.
379 Flame-proof Enclosure of Electrical Apparatus for Power and Lighting Plant; being B.S.S. 229–1940.
380 Flame-proof Electric-lighting Fittings for Use in Coal-mines and other Places where Inflammable Gas or Vapour may be present in the Surrounding Atmosphere; being B.S.S. 889–1940.
381 Slip (or Block) Gauges and their Accessories; being B.S.S. 888–1940.
382 Cable Glands and Sealing Boxes for Use in Mines; being B.S.S. 542–1941.
383 Rubber Gloves for Electrical Purposes; being B.S.S. 697–1940.
384 Bolted Flame-proof Cable-couplers; being B.S.S. 912–1940.
385 Rubber Mats for Electrical Purposes; being B.S.S. 921–1940.
386 Vulcanized Fibre (Natural Colour) Rods and Tubes for Electrical Purposes; being B.S.S. 934–1940.
387 Flexible Cords for Miners' Cap Lamps; being B.S.S. 937–1940.
388 Air-break Switches (including Isolating Switches Totally-enclosed and Flame-proof types) for Voltages not exceeding 660 volts; being B.S.S. 861–1939.
389 Air-break Circuit-breakers (including Totally-enclosed and Flame-proof Types) for Voltages not exceeding 660 volts; being B.S.S. 862–1939.
390 Code of By-laws for the Licensing and Control of Boardinghouses and Similar Premises.
391 Standard Methods for the Analysis of Fats (Internationally Agreed); being B.S.S. 684–1936.
392 Method for the Biological Assay of Vitamin D3 by the Chick Method; being B.S.S. 911–1940.
393 Density-composition Tables for Aqueous Solutions of Nitric Acid for Use in conjunction with British Standard Density Hydrometers; being B.S.S. 975–1941.
394 Density-composition Tables for Aqueous Solutions of Hydrochloric Acid for Use in conjunction with British Standard Density Hydrometers; being B.S.S. 976–1941.
395 Rubber Insulated Cables and Flexible Cords for Electric Power and Lighting for Working Voltages, including 11 kV.; being B.S.S. 7–1939.
396 Dimensions of Metal-sheathed Impregnated Paper Insulated Plain Annealed Copper Conductors for Electricity Supply, including Voltage Tests; being B.S.S. 480–1942.
397 Trailing Cables for Mining Purposes; being B.S.S. 708–1940.
398 Artificial Daylight Fittings for Colour-matching; being B.S.S. 950–1941.
399 Screw-threads, British Association, with Tolerances for Sizes Nos. 0 to 15; B.A., being B.S.S. 93–1919.
400 Internal Micrometers; being B.S.S. 959–1941.

REVISED NEW ZEALAND STANDARD SPECIFICATIONS

N.Z.S.S.

52 Voltages for Transmission and Distribution A.C. Systems; being B.S.S. 77–1939, with local amendment to meet New Zealand requirements.
55 Graphic (Recording or Chart Recording) Ammeters, Voltmeters, Wattmeters, Power Factor Meters, and Frequency Meters; being B.S.S. 90–1940.
77 Electrical Performance of Fractional Horse-power Electric Motors and Generators with Class A Insulation; being B.S.S. 170–1939.
94 Mining Type Transformers; being B.S.S. 355–1939.
121 Zinc Oxide (Types 1 and 2); being B.S.S. 254–1935, amended to suit New Zealand conditions.
123 Tungsten Filament Electric Lamps (other than General Service Lamps); being B.S.S. 555–1939.
127 Steel Conduits and Fittings for Electrical Wiring; being B.S.S. 31–1940.
144 Dimensions of Bayonet Lamp Caps, Lampholders, and Lampholder Plugs (B.C. Adaptors) for Voltages not exceeding 250 volts; being B.S.S. 52–1941.
177 Machine-cut Gears: A Helical and Straight Spur; being B.S.S. 436–1940.

NEW ZEALAND EMERGENCY STANDARD SPECIFICATIONS

N.Z.S.S	
E. 7	Rolled Steel Sections for Structural Purposes.
E. 49A	Memorandum to Consumers and Producers regarding the Standardization of Special and Alloy Steels; being B.S.S. 970A.
E. 73	Simplified Practice for the Manufacture of Women's Footwear.
E. 74	Milking-machine Rubberware.
E. 75	Diameters of Filter Pads for Gas-producers for Motor-vehicles.
E. 76	Free-cutting Brass Rod.
E. 77	Black Steel Bars for the Production of Machined Parts for General Engineering Purposes.
E. 78	Bright Steel Bars for the Production of Machined Parts for General Engineering Purposes.
E. 80	Camouflage Paints.
E. 81	Steel for Cooperage Hoops.
E. 82	Bread.
E. 83	Hearing-aid Equipment (Valve Type).
E. 84	Nylon Toothbrushes.
E. 85	Aluminium Bars containing Small Proportions of Copper and Zinc for General Engineering Purposes; being B.S.S. 918–1940.
E. 86	Screw-thread Gauge Tolerances; being B.S.S. 919–1940.
E. 87	Rot-proofing Sandbags (Code of Practice for).
E. 88	Limits and Fits for Engineering; being B.S.S. 164–1924, wartime issue, 1941.
E. 89	Cast Brass Bars (suitable for Forging) and Forgings; being B.S.S. 944–1941.
1 Vol.	E. 90 High Tensile Brass Bars and Sections (suitable for Forging) (also suitable for Soldering); being B.S.S. 1001–1941.
	E. 91 High Tensile Brass Bars and Sections (suitable for Forging) and Forgings (not suitable for Soldering); being B.S.S. 1002–1941.
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, Youth's, and Boys' Shirts and Pyjamas.
E. 94	Simplified Practice for the Manufacture of Women's and Girls' Outer Clothing.
E. 95	Rot-proofing Canvas Yarn and Cordage; being BS/ARP. 56.
E. 96	Rot and Water Proofing of Jute Canvas; being BS/ARP. 58.
E. 97	Simplified Practice for the Manufacture of Handkerchiefs.
E. 99	Simplified Practice for the Manufacture of Women's and Girls' Underwear.
E. 100	Battery Containers for Carbon-type Hearing-aids.
E. 101	Simplified Practice for the Manufacture of Corsetry.
E. 102	White Traffic Paints.
E. 103	Simplified Practice for the Manufacture of Glass Containers.
E. 104	Simplified Practice for the Manufacture of Household Furniture.
E. 105	Absorbent Cotton-wool.
E. 106	Doors.
E. 107	Combined Drills and Countersinks; being B.S.S. 985–1941.
E. 108	Water-closet Pans.

Approximate Cost of Paper.—Preparation, not given; printing (1,006 copies), £15.

By Authority: E. V. PAUL, Government Printer, Wellington.—1943

Price 6d.]