

COMMITTEE SF-004

DR 09062

(Project ID: 8648)

Draft for Public Comment Australian/New Zealand Standard

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**BEGINNING DATE
FOR COMMENT:** 18 September 2009

**CLOSING DATE
FOR COMMENT:** 20 November 2009

**Part 1: Garments for general use
(Revision of AS/NZS 4602:1999)**

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Draft for Public Comment **Australian/New Zealand Standard**

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Comments are invited on the technical content, wording and general arrangement of the draft.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Committee SF-004—Occupational Protective Clothing

Subcommittee SF-004-03—Light Reflective Protective Clothing

DRAFT

Australian/New Zealand Standard

High visibility safety garments

Part 1: Garments for general use

(Revision of AS/NZS 4602:1999)

(To be AS/NZS 4602.1:20X)

This draft has been prepared following a committee decision to revise the existing Standard and to bring it up to date in a number of respects, in particular, a more rigorous method of determining the amount of high visibility material in a garment. Separate specification on wet weather performance of high visibility materials is no longer made, and consequently, separate wet weather requirements for garments will not be specified herein.

Comment on the draft is invited from people and organizations concerned with this subject. It would be appreciated if those submitting comment would follow the guidelines given on the inside front cover.

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This document is a draft Australian/New Zealand Standard only and is liable to alteration in the light of comment received. It is not to be regarded as an Australian/New Zealand Standard until finally issued as such by Standards Australia/Standards New Zealand.

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Subcommittee SF-004-03, Light Reflective Protective Clothing, for Committee SF-004, Occupational Protective Clothing, and supersedes AS/NZS 4602:1999, *High visibility safety garments*.

EN 471, *High-visibility warning clothing for professional use—Test methods and requirements*, was consulted in the preparation of this Standard.

The principal change from the previous edition is the more rigorous specification of the amount of background material required on a garment for daytime visibility, and the way it is to be measured.

Provision is also made for a separate standard for firefighters' garments to be developed.

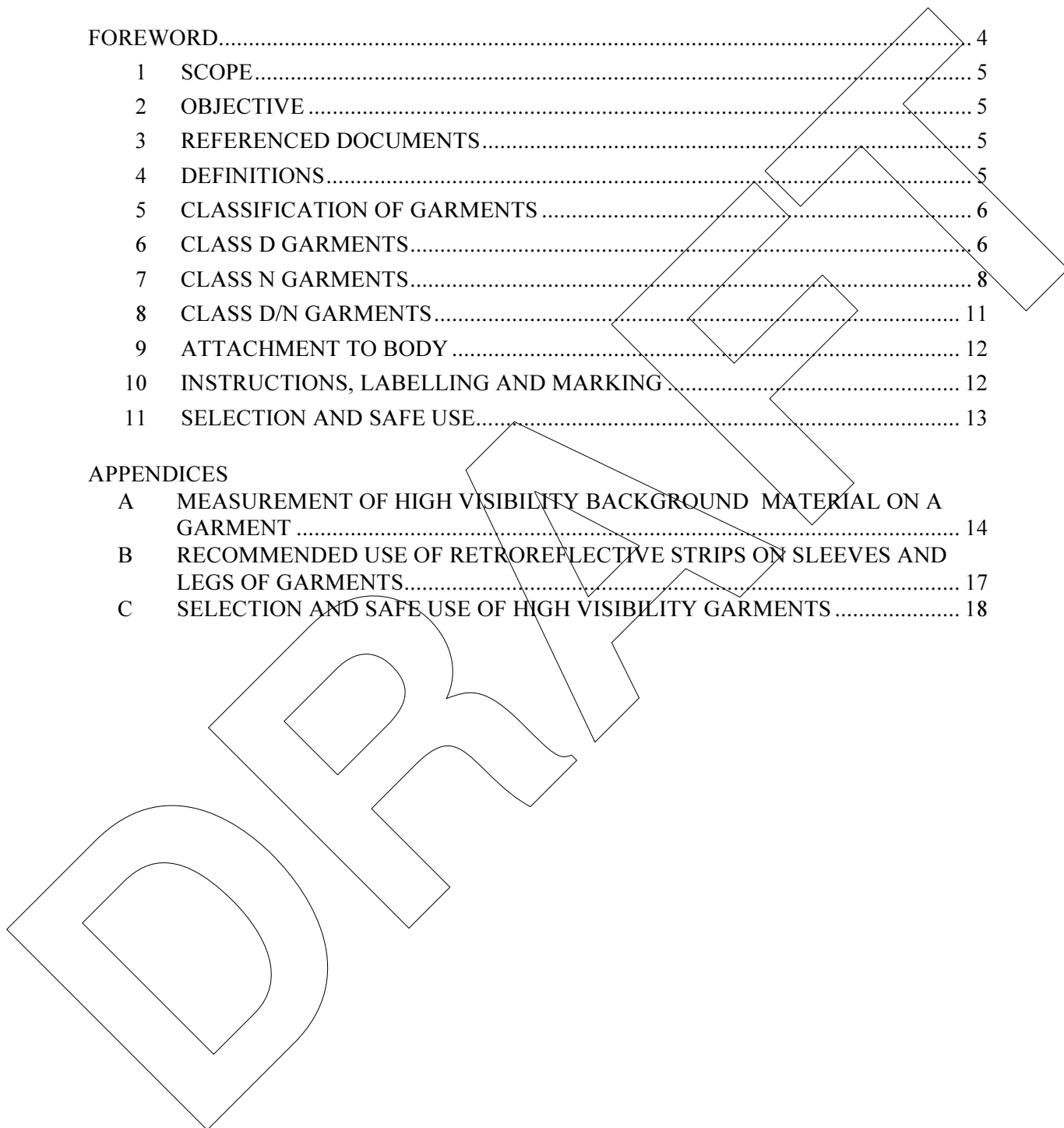
Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

DRAFT

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FOREWORD

This Standard specifies high visibility safety garment requirements without reference to particular types or styles. This has been done so as to give the designer as much flexibility as possible in selecting a suitable garment design to meet differing needs as regards weather conditions, type of work and the like, and to be innovative in devising means of encouraging users to wear the garments properly. More rigid requirements may apply to garments for fire services which are dealt with in AS/NZS 4602.2*.

The design of garments has been based primarily on the needs of workers in road and rail traffic situations to be seen in field situations by the operators of vehicles approaching them at speed, in time for any necessary safety action to be taken. Their use is, however, recommended in all industrial situations where workers need to be seen at distance, against a complex visual background, in conditions of poor visibility or where they may appear suddenly in the path of a vehicle or item of moving plant.

It is important that in order to gain the most effective use from high visibility garments users have some understanding of the way which fluorescent and retroreflective materials achieve high visibility. These mechanisms are explained as follows:

- (a) *Fluorescent material* is impregnated with a pigment that has the property of converting light in the UV spectrum to light in the visible spectrum, hence noticeably increasing the amount of visible light reflected from its surface. It will therefore only work where there is an appreciable amount of UV light, i.e. daylight, falling on the material. Artificial night-time light sources contain little UV light. Two important points to note are firstly that, in the process of UV light conversion, the pigment particles undergo change, often leading to fairly rapid fading of the colour. Secondly, the pigments can usually only be applied to man-made fibres. Garments made from some man-made fibres may not be as comfortable to wear under hot conditions as natural fibres.
- (b) *Retroreflective materials*, as the name suggests, cause practically all of the light reflected from their surface to be directed back along the path of the incoming light beam. An observer will not gain the benefit of a retroreflective article unless he/she is observing it from a position closely aligned with, usually just behind, the light source, e.g. a motor vehicle driver sitting almost directly behind the vehicle headlights.

* Yet to be prepared.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
High visibility safety garments**Part 1: Garments for general use****1 SCOPE**

This Standard specifies the visual requirements for high visibility safety garments for occupational wear by people who may be exposed to hazard from moving traffic or from moving plant or equipment. The Standard covers garments suitable for daytime wear, night-time wear where they will be seen by retroreflected light or for wear under both conditions but excludes garments for use by fire services.

NOTES:

- 1 This Standard covers only the visual requirements of garments. It does not cover their physical integrity or fitness for use in adverse physical environment.
- 2 Requirements for firefighters garments are specified in AS/NZS 4602.2*.

2 OBJECTIVE

The objective of this Standard is to provide both manufacturers of garments and persons responsible for workers in the relevant high risk situations, with minimum requirements for high visibility safety garments.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS

- 1906 Retroreflective materials and devices for road traffic control purposes
1906.4 Part 4: High visibility materials for safety garments
1957 Textiles—Care labelling
4399 Sun protective clothing—Evaluation and classification

4 DEFINITIONS

For the purpose of this Standard, the definitions in AS/NZS 1906.4 and the following apply.

4.1 Background material

Material providing high daytime visibility on either a daytime-only garment or a garment designed for use both day and night.

4.2 Garment reference points**(a) Elbow**

A point on the arm of a garment not more than 250 mm below the underarm point.

* Yet to be prepared.

(b) *Underarm point*

The underarm seam junction or a point on the side edge of the garment 200 mm vertically below the centre top of the shoulder, whichever is the greater distance from the centre top of the shoulder.

(c) *Waist level*

The vertical position of the centre line of a waist belt if one were worn by the wearer of the garment or a position 550 mm below the centre top of the shoulder of the garment, whichever location is higher.

4.3 Upper torso

That part of the wearer's body between shoulder level and waist level, and exclusive of the arms.

NOTE: Measurement of the area of a garment covering the upper torso is specified in Clause 6.4.

5 CLASSIFICATION OF GARMENTS

The garments specified in this Standard are classified as follows:

- (a) Class D—A garment designed for outdoor daytime use.
- (b) Class N—A garment designed for night use under retroreflected light.
- (c) Class D/N—A garment designed for day or night use.

6 CLASS D GARMENTS

6.1 General

Class D garments are intended to provide the wearer with high visibility under daylight viewing conditions* in outdoor situations.

NOTE: Users should take care that these garments are not mistakenly worn at night in situations that put the wearer at risk. Fluorescent materials are generally not effective when viewed under artificial light.

6.2 Fluorescent background material

Except as permitted in Clause 6.3 garments shall be made from background material meeting the requirements of AS/NZS 1906.4 for Class F or a combination of Class F and Class RF material.

NOTE: An optional subdivision of the colour orange-red into orange and red is shown in AS/NZS 1906.4 for the benefit of industries that require the distinction for colour coding purposes. Purchasers who require such distinction are advised to ensure by visual inspection that garment colours meet their requirements.

6.3 Non-fluorescent background materials

Where safety requirements in a particular industry require a garment to be made from a background material that is not capable of taking a fluorescent pigment, e.g. certain natural fibres, a non-fluorescent colour Class NF as specified in AS/NZS 1906.4 may be used in lieu. Users of such garments should be warned that such colours do not have the high visibility properties of fluorescent garments and hence will provide reduced visual protection.

* An account of the mechanism by which fluorescent and retroflective materials achieve high visibility is given in the Foreword.

6.4 Design of garments

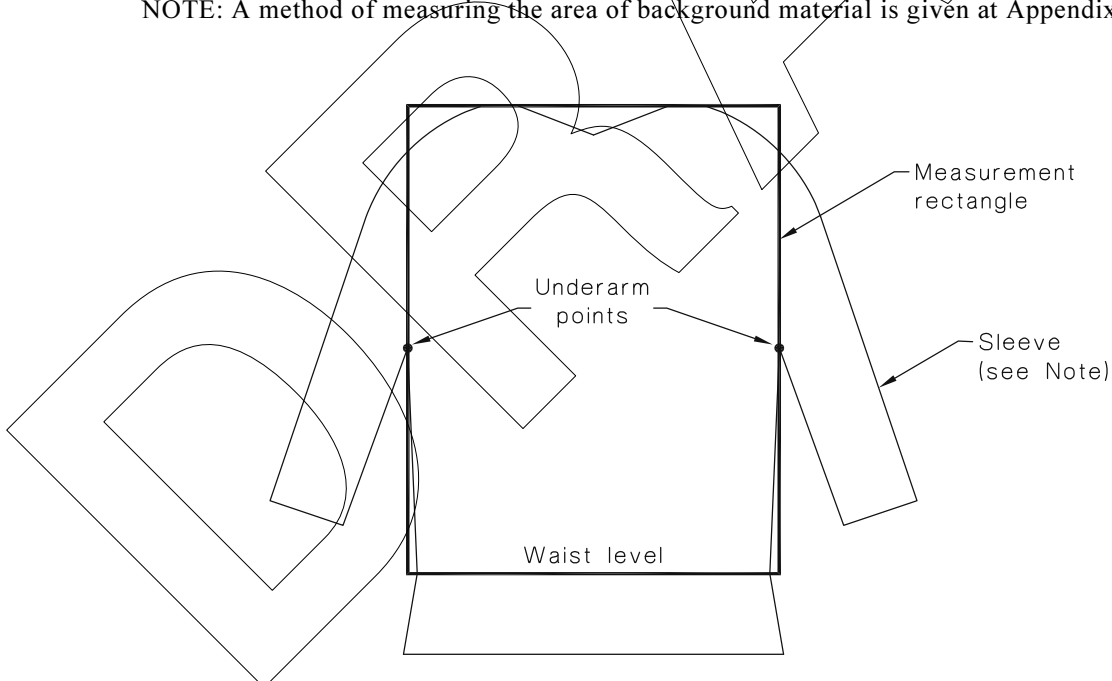
A Class D garment shall comprise a garment or combination of garments of any desired type or style which as a minimum, encircles the upper torso. High visibility background material as specified Clause 6.2 or 6.3 shall extend continuously downwards from the top of the garment for the entire circumference of the torso, permitted openings excepted, until at least the minimum specified area of material is provided on both the front and the back of the garment.

The area of background material covering the upper torso on each of the front and back of a garment to be measured for conformance with this requirement shall be determined as follows:

- (a) With the garment laid flat and not stretched in any direction, the area of all material covering the upper torso shall be that lying entirely within a rectangle bounded by a horizontal line through the mid points of the tops of the shoulders, vertical lines through the two underarm points and a horizontal line at waist level (see Figure 1).
- (b) The following shall be deducted from the total area of the upper torso material in Item (a):
 - (i) Any area below a discontinuity in the full width coverage of background material other than words, logos, pockets or permitted openings.
 - (ii) The area of any words, logos and pockets not qualifying as background material.
 - (iii) The area of any permitted openings.

The area of background material determined as above shall be not less than 0.2 m² on each of the front and the back of the garment.

NOTE: A method of measuring the area of background material is given at Appendix A.



NOTE: The area of qualifying material on sleeves may be taken into account on small size garments as permitted in Clause 6.4.

FIGURE 1 UPPER TORSO AREA MEASUREMENT

If on a small size garment it is not possible to accommodate the entire 0.2 m² of high visibility material on the front or back of the upper torso, the material may extend into sleeves as necessary to achieve at least this total area. This concession shall apply only after the entire upper torso down to waist level (permitted openings excepted) has been covered with conforming high visibility background material, i.e. there is no discontinuity as specified in Item (b)(i) above.

With the exception of neck and arm holes, there shall not be more than one opening visible from any viewing angle and such opening shall not be more than 50 mm wide.

7 CLASS N GARMENTS

7.1 General

Class N garments are intended to provide the wearer with high visibility at night when viewed under retroreflected light, such as by drivers of vehicles using headlight illumination.* The colour of background material is not specified.

NOTE: Users should take care that these garments are not mistakenly worn in daylight hours in vulnerable situations where the absence of high daytime visibility materials renders the garment less effective than Class D Series or Class D/N Series garments.

7.2 Retroreflective materials

Retroreflective material used on Class N garments shall meet the requirements specified in AS/NZS 1906.4 for Class R or Class RF material.

Retroreflective material shall be applied to garments in strips not less than 50 mm wide to at least the minimum pattern requirements specified in Clause 7.3. Retroreflective patches, words, symbols and the like shall be regarded as additional to, and not replacing, the specified patterns of retroreflective strips. A pair of 25 mm wide strips separate by a gap of 30 mm max. may be substituted for the 50 mm strip where specified in Clause 7.3.

NOTE: Colour of Class R material is not specified. Although white, yellow or orange materials are expected to be used most commonly, other colours are not precluded provided the specification for Class R material is met. The retroreflected colour of Class RF material is not specified, however, it will be required to meet a specified daytime colour.

Chequered patterns shall not be permitted on retroreflective strips except on garments to be worn by authorized persons. Where used, the photometric performance of the strips shall meet the requirements for Class R material after application of the chequered pattern.

7.3 Design of garments

A Class N garment shall comprise a garment or combination of garments of any desired type or style that, as a minimum, encircles the entire upper torso down to waist level (permitted openings excepted, see Clause 6.4). Strips of retroreflective material shall be applied as specified in Item (a) or (b) as follows:

- (a) A strip over each shoulder, placed symmetrically over the centre top of the shoulder, and of minimum length 400 mm, plus a complete horizontal hoop at approximately waist level plus either of the following:
 - (i) Approximately vertical strips connecting the shoulder strips to the waist hoop in the front located as shown in Figure 2(a) and either the same at the back or crossed, as shown in Figure 2(b).

* An account of the mechanism by which fluorescent and retroreflective materials achieve high visibility is given in the Foreword.

- (ii) A second horizontal hoop at approximately mid-chest level located as shown in Figure 2(c) if the vertical or crossed strips in Item (i) are likely to create confusing visual patterns in a particular situation.

In Australia only each 50 mm wide strip may be replaced by a pair of 25 mm strips with a maximum 30 mm gap between located as shown in Figure 2(d).

NOTES:

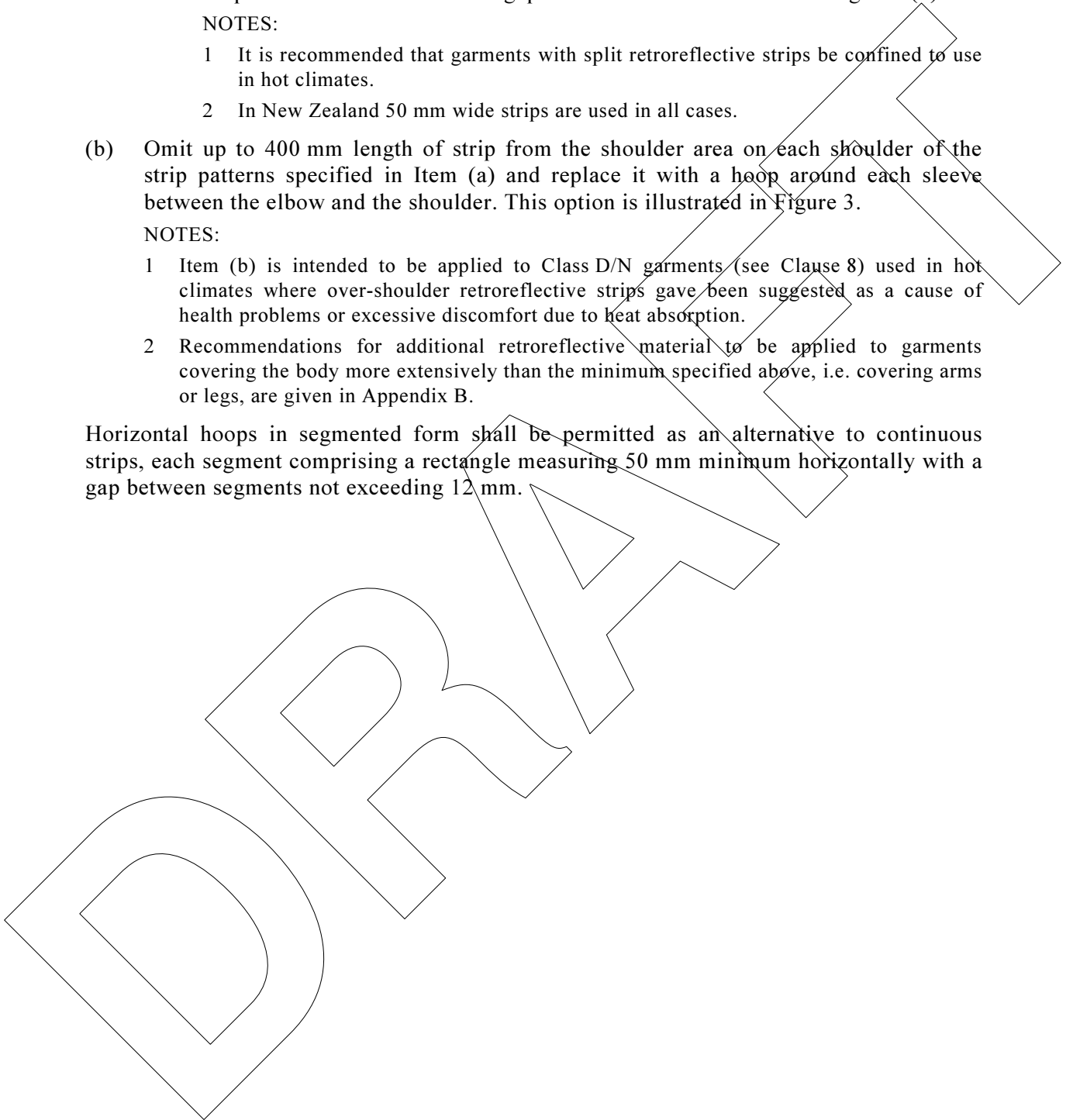
- 1 It is recommended that garments with split retroreflective strips be confined to use in hot climates.
- 2 In New Zealand 50 mm wide strips are used in all cases.

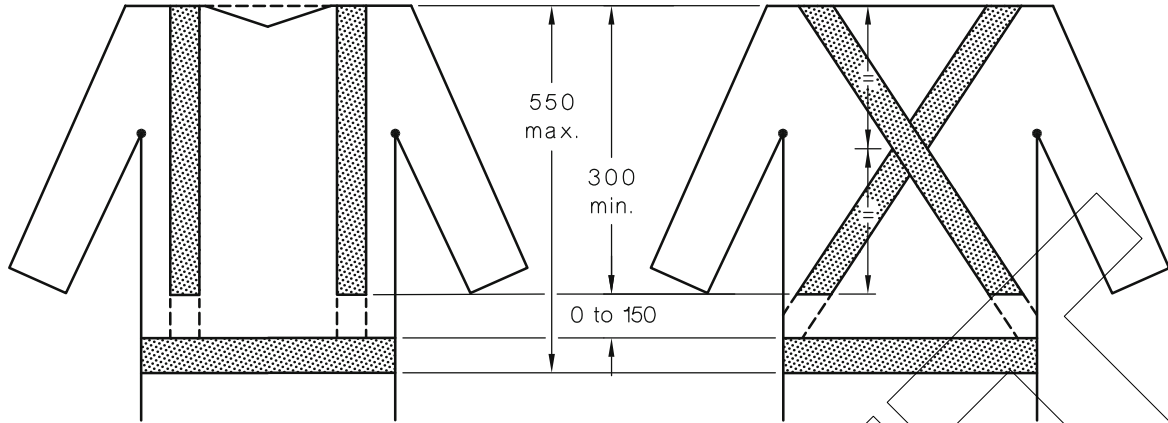
- (b) Omit up to 400 mm length of strip from the shoulder area on each shoulder of the strip patterns specified in Item (a) and replace it with a hoop around each sleeve between the elbow and the shoulder. This option is illustrated in Figure 3.

NOTES:

- 1 Item (b) is intended to be applied to Class D/N garments (see Clause 8) used in hot climates where over-shoulder retroreflective strips have been suggested as a cause of health problems or excessive discomfort due to heat absorption.
- 2 Recommendations for additional retroreflective material to be applied to garments covering the body more extensively than the minimum specified above, i.e. covering arms or legs, are given in Appendix B.

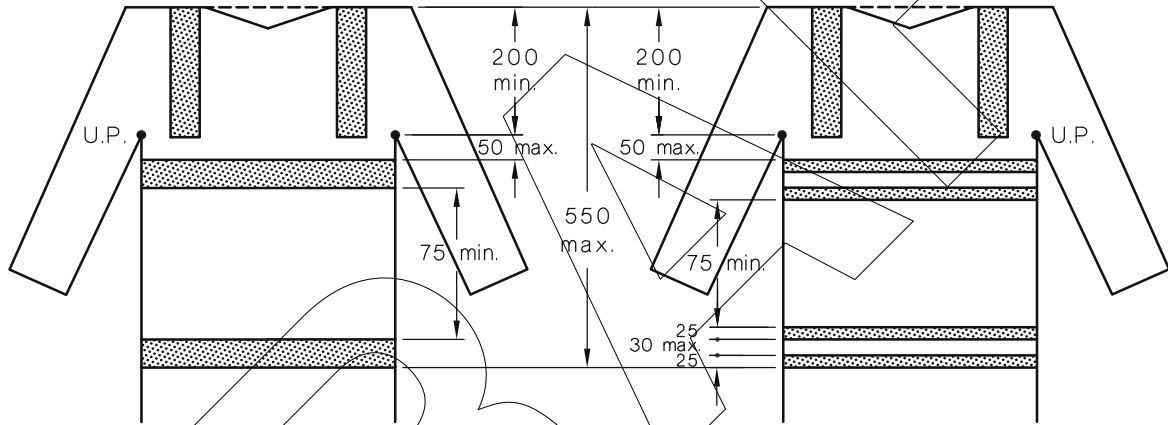
Horizontal hoops in segmented form shall be permitted as an alternative to continuous strips, each segment comprising a rectangle measuring 50 mm minimum horizontally with a gap between segments not exceeding 12 mm.





(a) 50 mm vertical strips-front or back +50 mm waist hoop

(b) 50 mm crossed strips-back only +50 mm waist hoop



(c) 50 mm shoulder strips and two 50 mm hoops-front or back

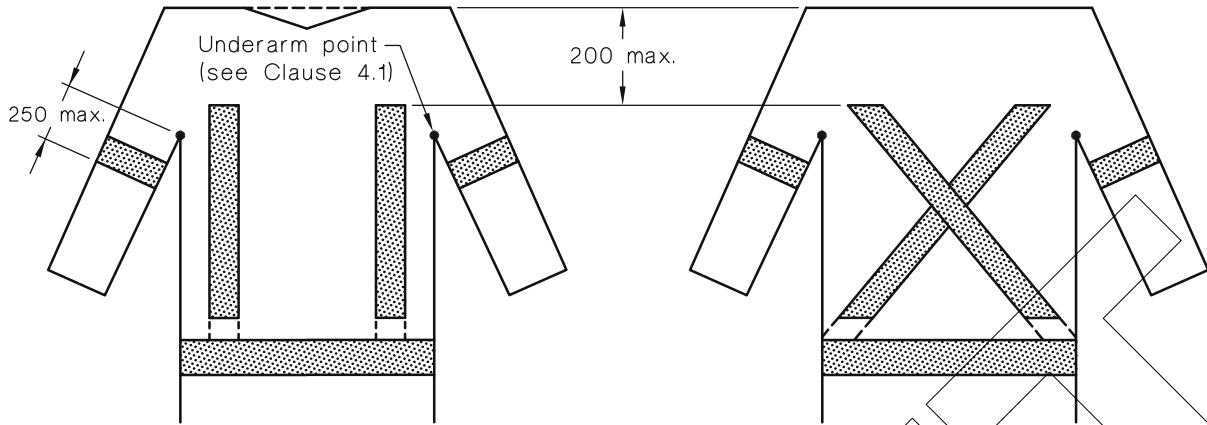
(d) 50 mm shoulder strips and two double 25 mm hoops-front or back

U.P.=Underarm point (See Clause 4.1)

DIMENSIONS IN MILLIMETRES

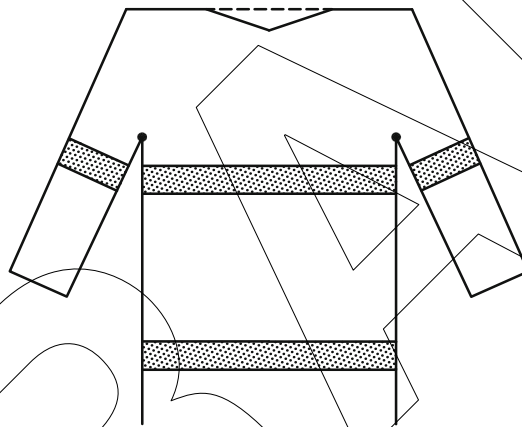
NOTE: This Figure illustrates the use of retroreflective material in diagrammatic form only. Small positional variations shall be permitted provided the layout conforms substantially to Clause 7.3.

FIGURE 2 RETROREFLECTIVE STRIP PATTERNS FOR N SERIES GARMENTS



(a) Front or back

(b) Back only



(c) Front or back

DIMENSIONS IN MILLIMETRES

FIGURE 3 USE AND LOCATION OF ALTERNATIVE SLEEVE HOOPS

8 CLASS D/N GARMENTS

Garments in this category are intended to provide the wearer with high visibility under both daylight viewing and night-time viewing under retroreflected light. The requirements for these garments are as follows:

- (a) The minimum design requirements shall be a garment as specified in Clause 6.4, made from background material (see Item (b)) with retroreflective strips attached as specified in Item (c).

- (b) Background material shall be high visibility material as specified in Clause 6.2 or 6.3 for Class D garments. Class RF material may be included if in the appropriate locations, for the purpose of determining the area of background material provided on a garment.
- (c) The minimum requirements for both the material and layout patterns for retroreflective strips shall be as specified for Class N garments in Clause 7.2.
- (d) The small size garment concession in Clause 6.4 may also be applied to a D/N garment. In this case, the existence of retroreflective strips will not be a bar to its application, but unless they are RF material they cannot be counted as part of the required area of background material.

9 ATTACHMENT TO BODY

Suitable means of securing the garment to the body under working conditions shall be provided.

10 INSTRUCTIONS, LABELLING AND MARKING

10.1 Instructions

Instructions provided with each garment (typically as a swing tag) shall include the following:

- (a) Recommendations for storage both during service and long term.
- (b) Inspection for serviceability, including as appropriate, checking the garment for faded fluorescent material and material that is cracked, mechanically damaged or excessively marked by dirt or other agents.
- (c) A warning against possible misuse as follows:
 - (i) The use of daytime-only garments at night and vice versa.
 - (ii) The use of dry-weather only garment in wet weather or otherwise when the garment is wet.
- (d) Care and maintenance in service.

10.2 Labelling

Labels permanently attached to garments in a prominent position shall include the following:

- (a) A usage label with the number of this Standard and one of the following messages, as appropriate:
 - (i) Class D: Day use only.
 - (ii) Class N: Night use only.
 - (iii) Class D/N: Day or night use.
- (b) Garment care labelling in accordance with AS/NZS 1957.
- (c) Where relevant, ultraviolet protection factor (UPF) rating in accordance with AS/NZS 4399.
- (d) Country of origin.
- (e) Size.

10.3 Marking

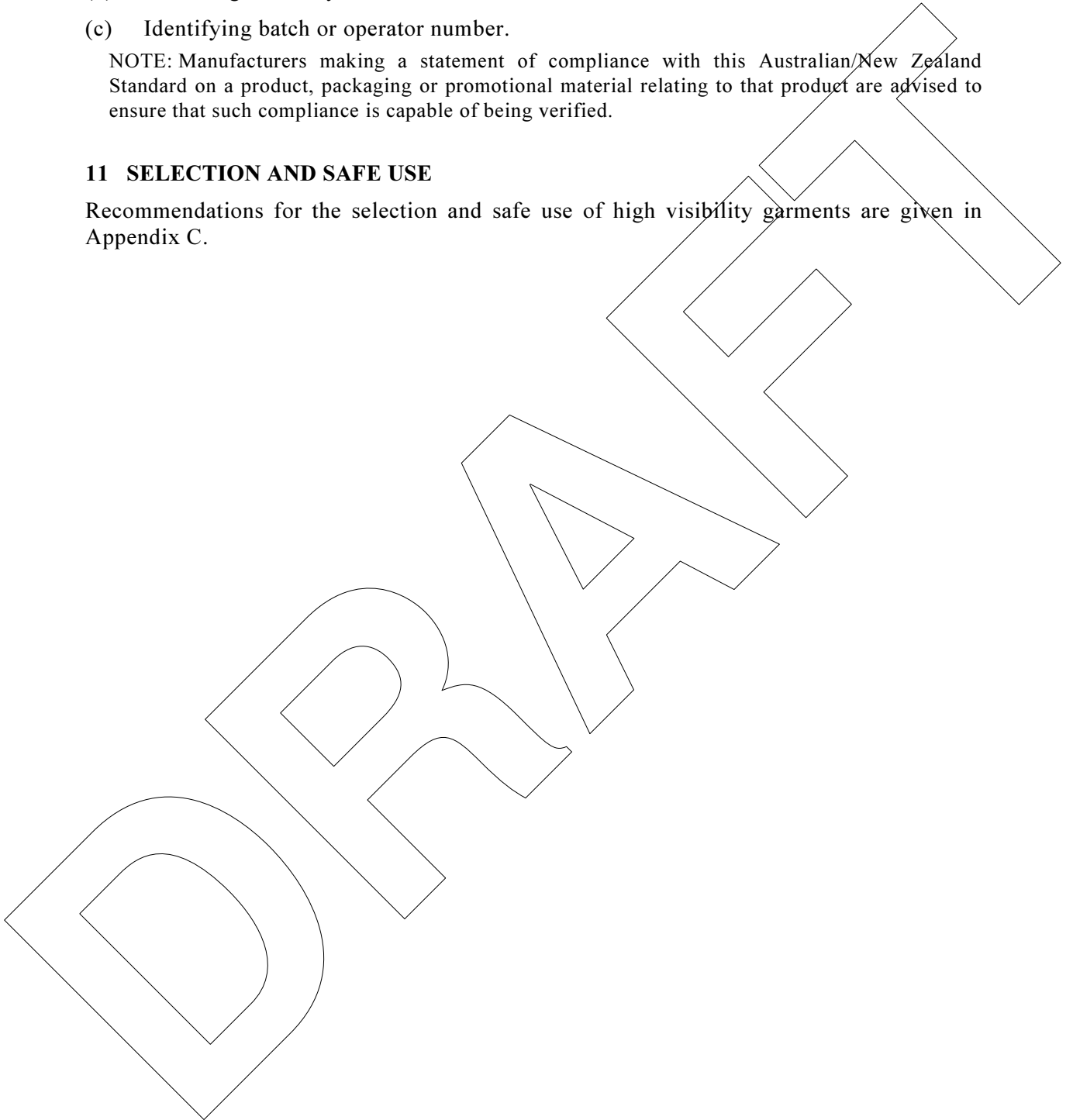
Packaging shall be clearly marked with the following:

- (a) Manufacturer's name or trademark, or if imported, importer's name or trademark.
- (b) Class of garment by reference to this Standard, and size.
- (c) Identifying batch or operator number.

NOTE: Manufacturers making a statement of compliance with this Australian/New Zealand Standard on a product, packaging or promotional material relating to that product are advised to ensure that such compliance is capable of being verified.

11 SELECTION AND SAFE USE

Recommendations for the selection and safe use of high visibility garments are given in Appendix C.



APPENDIX A
MEASUREMENT OF HIGH VISIBILITY BACKGROUND
MATERIAL ON A GARMENT

(Informative)

A1 SCOPE

This Appendix sets out a method for measuring the area of material on a garment which qualifies as high visibility background material on the upper torso of the garment in accordance with this Standard.

A2 TEST PIECE

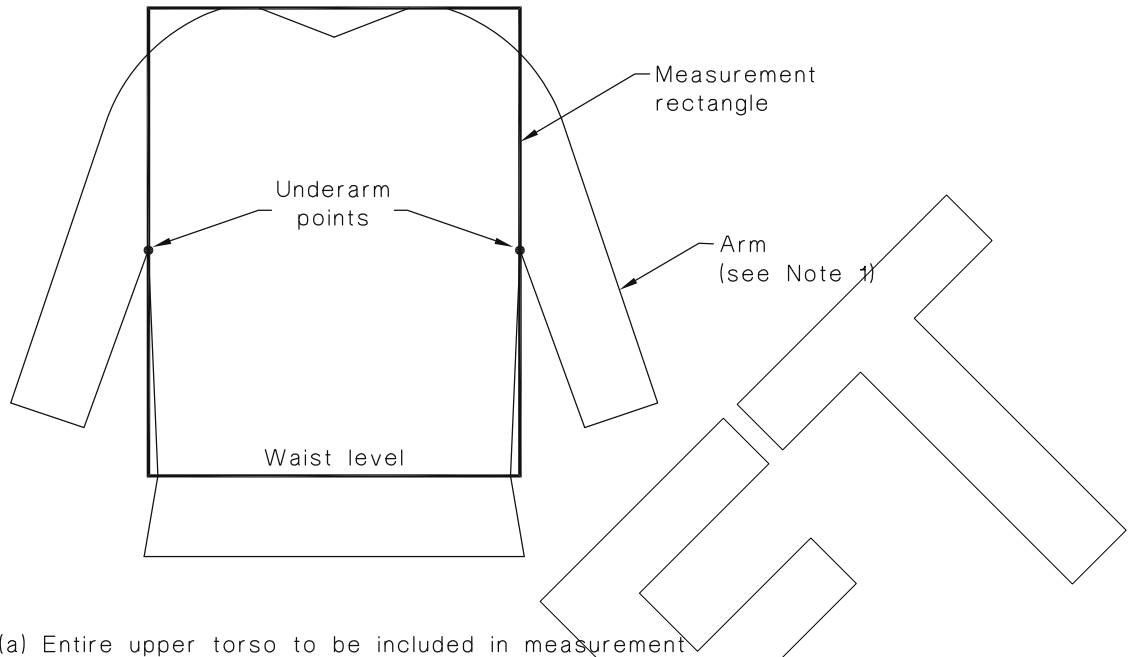
The required test piece is a garment in its ready-to-wear state, complete with all text characters, logos and other decoration.

NOTE: It is assumed that samples of each size of a garment in a size range will be dealt with as separately submitted test pieces.

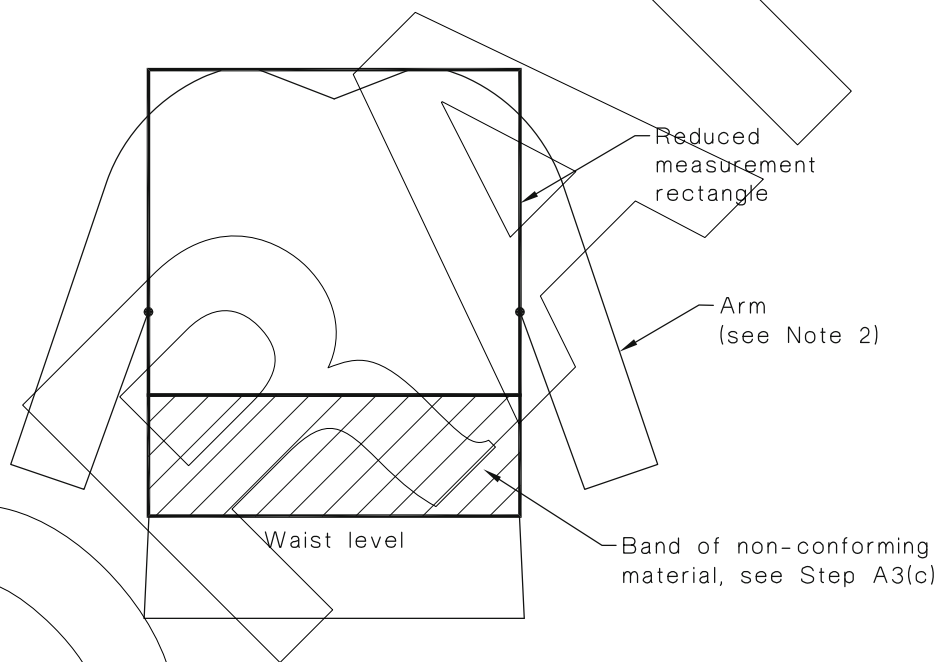
A3 PROCEDURE

The measurement procedure is as follows:

- (a) Lay the garment flat on a flat surface, front side up with any front opening fastened as it would be worn in service. The garment when laid flat is to be symmetrical about a vertical centre line.
- (b) Construct a rectangle over the garment with the bottom at waist level, the top at the shoulder level and the sides passing through the underarm points as shown in Figure A1(a).
- (c) Place a further horizontal line as shown in Figure A1(b) at the upper edge of any discontinuity in the full width coverage of high visibility background material other than words, logos or pockets. Retroreflective strips applied in accordance with this Standard are excluded from this requirement.
- (d) Measure the area of high visibility background material meeting the requirements of Clause 6.2 or 6.3. The measurement is taken within the rectangle constructed as in Step (b) and above any further horizontal line added in Step (c). The area of markings, logos, text characters or decoration not meeting the above requirements and the area of retroreflective strips not meeting the requirements for Class RF is deducted. Record the area to the nearest 0.0005 m^2 .
- (e) If the measured area in Step (d) is less than 0.2 m^2 , then provided no further horizontal line as in Step (c) was justified, measure the area of qualifying material outside the rectangle extending directly from the torso along the sleeves of the garment as far as the elbow.
- (f) Turn the garment over with the back facing upwards and repeat Steps (a) to (e).



(a) Entire upper torso to be included in measurement



(b) Reduced measurement area due to horizontal discontinuity

NOTES:

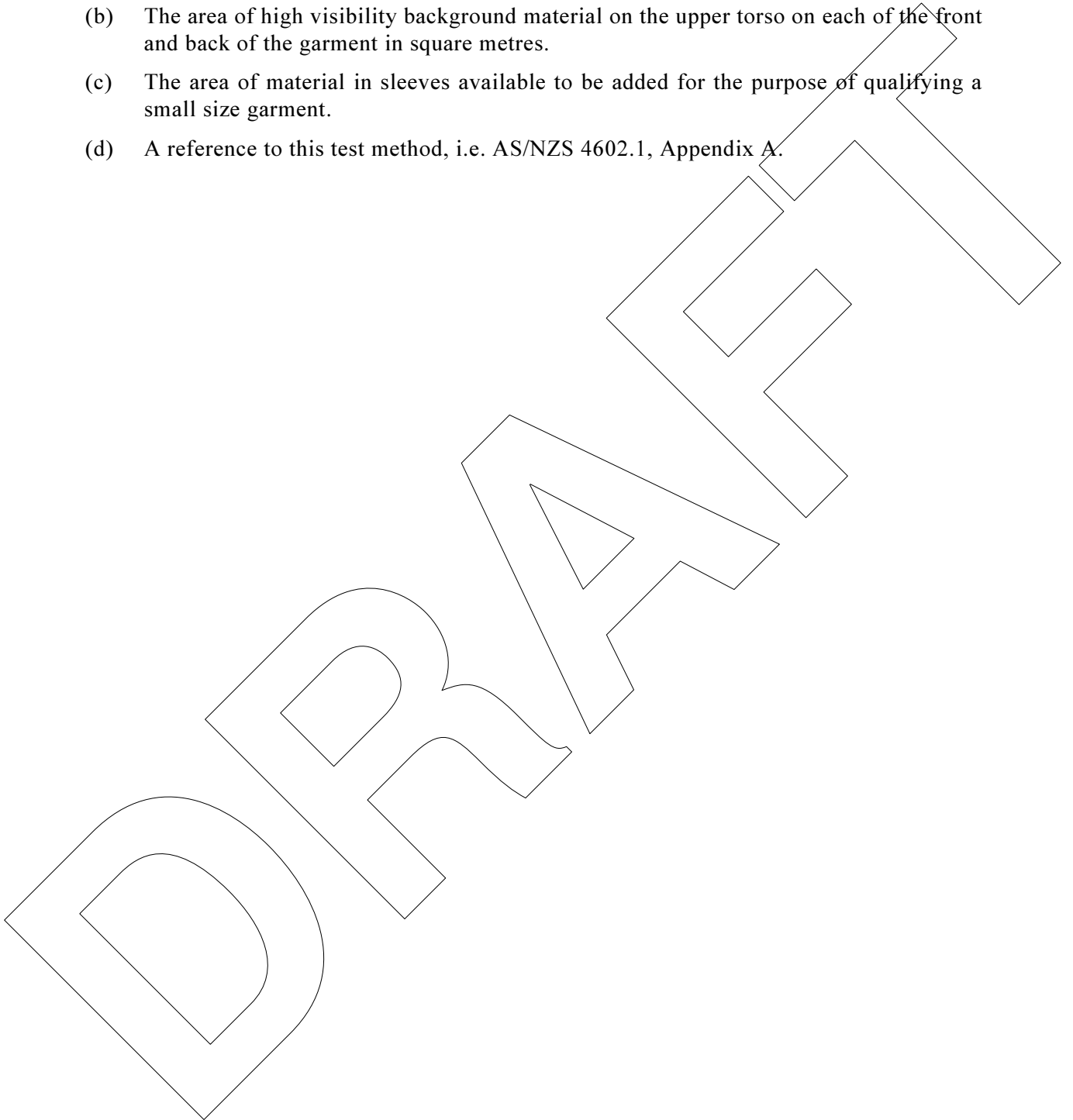
- 1 Area of qualifying material on sleeves may be taken into account on small size garments in Figure (a).
- 2 No part of sleeves outside the rectangle may be taken into account in Figure (b).

FIGURE A1 MEASUREMENT OF HIGH VISIBILITY BACKGROUND MATERIAL

A4 REPORT

The following is reported:

- (a) The manufacturer's name, the garment class, a description of the garment for identification purposes and any size information on the garment.
- (b) The area of high visibility background material on the upper torso on each of the front and back of the garment in square metres.
- (c) The area of material in sleeves available to be added for the purpose of qualifying a small size garment.
- (d) A reference to this test method, i.e. AS/NZS 4602.1, Appendix A.



APPENDIX B
RECOMMENDED USE OF RETROREFLECTIVE STRIPS ON
SLEEVES AND LEGS OF GARMENTS

(Informative)

Additional retroreflective strips should be placed on Class N and Class D/N garments having sleeves or legs as follows:

- (a) *Sleeves* A hoop of material around each forearm 50 mm wide.
- (b) *Legs* A hoop of material around each calf 50 mm wide.

Typical applications are illustrated in Figure A1. The figure shows only the option with vertical strips (front) and crossed strips (back) on the torso.

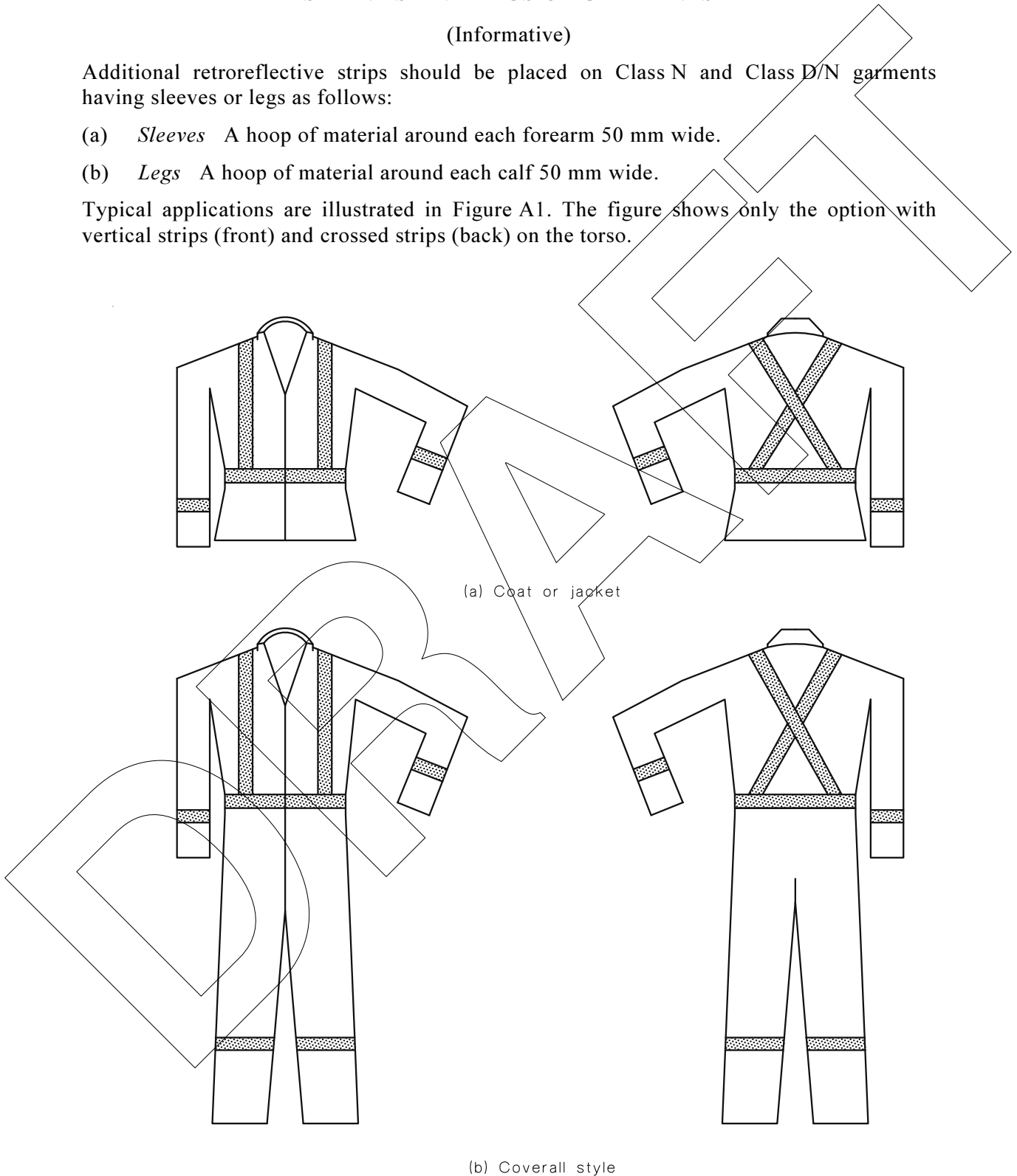


FIGURE B1 GARMENTS WITH SLEEVES AND/OR LEGS

APPENDIX C
SELECTION AND SAFE USE OF HIGH VISIBILITY GARMENTS
(Informative)

C1 GENERAL

The purpose of this Appendix is to provide guidance on the selection of suitable high visibility garments and their safe use.

C2 RISK ASSESSMENT

Users of high visibility garments as a risk control measure, need to be aware of the relatively low position this kind of measure occupies in the hierarchy of control of risk. Consideration should always be given as to whether a higher form of control or combination of controls such as eliminating traffic from a work site or barricading work areas off from moving traffic, can be achieved.

Selection of appropriate garments should be based on an identification of all possible risks to the wearer of not being adequately seen by approaching traffic in time for a collision to be avoided. Risk assessment should take into account all of the light conditions under which the garments might be used.

C3 GARMENT SELECTION

C3.1 General type selection

C3.1.1 Class D garments

The use of Class D garments should be confined to daylight hours only. Care will be needed to ensure workers supplied with Class D garments are made aware that the garment will be largely ineffective under night conditions including at dawn and dusk. It is also necessary to ensure that workers wearing these garments who are primarily working in daylight, are not given tasks that carry over into reduced daylight conditions without being provided with garments appropriate to night-time conditions.

The Standard provides for Class D garments to be made from either fluorescent or non-fluorescent materials. AS/NZS 1906.4 requires that non-fluorescent colours be confined to use in situations where for safety reasons garments made from natural fibres need to be used, noting that there are difficulties in incorporating fluorescent pigments into natural fibres. Despite the fact that natural fibre garments may be more comfortable to wear in hot weather and when doing manual labour, fluorescent garments are considerably more visible than non-fluorescent garments and should be provided and worn wherever possible. In particular, workers whose task requires them to be within or close to the path of oncoming traffic such as traffic controllers at roadworks or emergency road situations, or main line railway trackwork flagmen should always wear garments made with fluorescent material.

C3.1.2 Class N garments

The use of Class N garments should be confined to hours of darkness only, and then only in situation where the driver/controller of the vehicle or item of plant or equipment from which the wearer is at risk, can observe the wearer by retroreflected light, i.e. the vehicle or plant item has headlights or similar. Again, care will be needed to ensure workers supplied with Class N garments are made aware that the garments will be largely ineffective under daylight conditions or at night if they are not viewed under retroreflective light.

The minimum requirement specified in the Standard for a Class N garment is a pattern of retroreflective material on the upper torso only. Although the provision of extra retroreflective material on garments with legs or sleeves or both is not a normative requirement of the Standard, it is recommended that wherever possible night-time workers, especially those in more vulnerable situations be provided with such garments.

C3.1.3 Class D/N garments

Garments that are required to be worn at one time or another under both of the conditions described in the last two Paragraphs should be Class D/N garments. Wherever there is concern that a day-only or night-only garment will not be used under appropriate conditions, it is recommended that a Class D/N garment be provided. The Class D/N garment will also be needed if day work extends into dawn or dusk periods, or if poor weather reduces available daylight to a point where traffic is forced to use headlights.

All relevant recommendations given in Paragraphs C3.1.1 and C3.1.2 that would apply to Class D/N garments should be taken into account.

C3.2 Other selection matters

C3.2.1 Floodlit areas

In floodlit areas, such as factories or railway yards operating at night, where workers on foot may be at risk from moving vehicles or plant that do not have headlights, garments meeting the requirements of this Standard may not be satisfactory. Although a Class N garment will be advantageous if some vehicles have headlights, it is recommended that garments be predominantly white or bright yellow in such situations. The colour selected should, if necessary, contrast with any light coloured background.

C3.2.2 Colour

The colour of day-time use garments should be selected for best contrast with the prevailing background in the work area, for example, yellow-green material may stand out better in urban areas whereas orange-red may be better in rural situations. For added safety, workers should wear light coloured clothing on areas of the person not covered by the high visibility garment.

Where colour blindness may be a concern, people suffering from the most common form (protanopia) are best served by yellow-green.

The colour of retroreflected light from retroreflective materials is not specified, photometric performance being a more important attribute than colour. In practice, most of the materials used will be those which reflect white, yellow or orange, as these will more easily meet the photometric performance requirements of AS/NZS 1906.4.

C3.2.3 Type of work

In selecting garments suitable for various types of work, the following are recommended:

- (a) Traffic controllers should always wear fluorescent garments by day, and if required at night, should wear garments with retroreflective material on sleeves and legs in addition to that specified for the body.
- (b) Police and emergency service operators should likewise wear fluorescent garments by day and garments with additional retroreflective material on sleeves or legs, or both as appropriate, for night work. For signalling purposes at night, retroreflective cuffs or gauntlets should be used.
- (c) For people doing manual labour, especially those working in hot conditions, garments providing maximum working comfort should be selected.

- (d) For outdoor daytime work, garments made from fabrics with an appropriate ultraviolet protection factor (UPF) should be used. A balance between this recommendation and that given in Item (c) may need to be considered.

NOTES:

- 1 AS/NZS 4399 classifies UPF ratings in the range 15 to 24 as 'good protection' and ratings in the range of 25 to 39 as 'very good protection'.
- 2 UPF rating should not be confused with sun protection factor (SPF) which is not applicable to textiles.

- (e) Garments may also need to meet standards or other requirements for work in adverse physical environments.

C3.2.4 Size of garments

As high visibility garments will of necessity be worn as outer wear, larger sizes than would ordinarily be required by an individual may be needed to fit over other clothing.

C4 SAFE USE OF GARMENTS

Recommendations for the safe use of high visibility garments are as follows:

- (a) Procedures should be put in place to ensure that—
- (i) workers wear the items correctly, e.g. they are not allowed to remain unfastened in a way that only displays part of the surface of the garment towards oncoming traffic; and
 - (ii) workers not only observe the correct use of the three different types of garment but are given an understanding as to why garments will be ineffective if worn at an inappropriate time.
- (b) Garments should be stored in such a way as to limit fading of fluorescent material and to prevent degradation of retroreflective material by excessive heat. Typical temperatures reached within a parked car in the sun on a warm day are often sufficient to damage retroreflective material.
- (c) Garments should be kept clean by washing or cleaning in accordance with manufacturer's instructions.
- (d) Garments should be inspected on a regular basis and replaced if they are badly damaged, soiled or faded, or the retroreflective material has ceased to function. In constant daytime use, fluorescent garments should be critically examined at 3 to 6 months intervals.

*** END OF DRAFT ***

PREPARATION OF JOINT AUSTRALIAN/NEW ZEALAND STANDARDS

Joint Australian/New Zealand Standards are prepared by a consensus process involving representatives nominated by organizations in both countries drawn from all major interests associated with the subject. Australian/New Zealand Standards may be derived from existing industry Standards, from established international Standards and practices or may be developed within a Standards Australia, Standards New Zealand or joint technical committee.

During the development process, Australian/New Zealand Standards are made available in draft form at all sales offices and through affiliated overseas bodies in order that all interests concerned with the application of a proposed Standard are given the opportunity to submit views on the requirements to be included.

The following interests are represented on the committee responsible for this draft Australian/ New Zealand Standard:

Association of Accredited Certification Bodies
Australasian Fire Authorities Council
Australian Chamber of Commerce and Industry
Australian Industry Group
AWTA Textile Testing
CAMS(Confederation of Aust Motor Sports) d
Certification Interests (Australia)
Communications, Electrical and Plumbing Union
Council of Textile and Fashion Industries of Australia
Department of Defence (Australia)
Energy Networks Association
NZ Safety/Protector Safety
Office of the Australian Safety and Compensation Council
Safety Institute of Australia
Testing Interests (Australia)
Textile Clothing & Footwear Union of Australia
Textiles New Zealand
The Australasian Assembly of Volunteer Fire Brigades Association
University of Otago New Zealand

Standards Australia

Standards Australia is an independent company, limited by guarantee, which prepares and publishes most of the voluntary technical and commercial standards used in Australia. These standards are developed through an open process of consultation and consensus, in which all interested parties are invited to participate. Through a Memorandum of Understanding with the Commonwealth government, Standards Australia is recognized as Australia's peak national standards body.

Standards New Zealand

The first national Standards organization was created in New Zealand in 1932. The Standards Council of New Zealand is the national authority responsible for the production of Standards. Standards New Zealand is the trading arm of the Standards Council established under the Standards Act 1988.

Australian/New Zealand Standards

Under a Memorandum of Understanding between Standards Australia and Standards New Zealand, Australian/New Zealand Standards are prepared by committees of experts from industry, governments, consumers and other sectors. The requirements or recommendations contained in published Standards are a consensus of the views of representative interests and also take account of comments received from other sources. They reflect the latest scientific and industry experience. Australian/New Zealand Standards are kept under continuous review after publication and are updated regularly to take account of changing technology.

International Involvement

Standards Australia and Standards New Zealand are responsible for ensuring that the Australian and New Zealand viewpoints are considered in the formulation of international Standards and that the latest international experience is incorporated in national and Joint Standards. This role is vital in assisting local industry to compete in international markets. Both organizations are the national members of ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission).

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