

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Amendment No. 1
to
AS/NZS 4602.1:2011
High visibility safety garments
Part 1: Garments for high risk applications

REVISED TEXT

The 2011 edition of AS/NZS 4602.1 is amended as follows; the amendments should be inserted in the appropriate places.

SUMMARY: This Amendment applies to Clauses 1, 4.2, 4.3, 6.1, 6.3, 6.4.1, 6.4.2, 6.4.5, 7.2, 7.3, 10.1, 10.2, Figures 1, 2 and 3, and Appendices A and C.

Published on 23 November 2016.

Approved for publication in New Zealand on behalf of the Standards Council of New Zealand on 7 November 2016.

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Clause 1

Delete the asterisk on Note 2, and the corresponding Footnote text.

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Clause 4.2

Delete Clause text, including Note, and *replace* with the following:

(a) *Elbow reference point*

A point on the sleeve of a garment as measured not more than 400 mm below the highest shoulder point to the side seam.

(b) *Underarm point*

The underarm point is located at the junction of the armhole and the side of the body at the underarm. Where there is a Magyar or batwing design the junction point is measured 300 mm vertically below the highest shoulder point to the side seam.

(c) *Waist level*

For the purpose of measurement, for garments 530 ± 20 mm from the high point of the shoulder.

The waist level needs to be longer for garments designed to be worn over clothing or worn as outer clothing.

(d) *Sizing*

Evaluation to this Standard is conducted on a garment intended to fit a 100–105 cm body chest measurement. All other sizes in the range shall be graded according to this garment.

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Clause 4.3

Delete Clause text, including Note, and *replace* with the following:

That part of the wearer's body between high point of the shoulder 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.

Clause 6.1

Delete Clause text, including Note and corresponding Footnote, and *replace* with the following:

Garment compliance shall be measured on a finished garment intended to fit a body chest measurement of 100–105 cm. This design shall remain consistent throughout the garment size range, grading increasing or decreasing proportionately with the design integrity.

NOTES:

- 1 Users should take care that these garments are not mistakenly worn at night in situations that put the wearer at risk. Daytime high visibility materials are generally not effective when viewed under artificial light.
- 2 For selection and use information see Appendix C, Paragraph C3.1.
- 3 Class D garments are intended to provide the wearer with high visibility under daylight viewing conditions.

Clause 6.3

Delete Clause text and *replace* with the following:

Where specific, additional safety requirements in a particular industry require a garment to be made from a background material not capable of accepting fluorescent dyestuff to meet the requirements of Clause 6.2, other materials may be used in lieu.

Such other materials shall meet the requirements of AS/NZS 1906.4, Tables 2.1 and 2.3, and Clause 2.5.

NOTES:

- 1 Clause 2.4 of AS/NZS 1906.4 [Class NF (non-fluorescent colour)] applies to materials where for safety reasons a garment is made from a natural fibre. It is the intention of this Standard to not limit the use of other fibres that may have other safety benefits, e.g. metabolic heat-loss, and protection from heat and flame. It is not the intention of this Standard to allow the use of fibres that may be dyed with a fluorescent dyestuff but have not had the process applied.
- 2 Users of such garments should be warned that Class NF materials do not have the high daytime visibility properties of fluorescent (Class F) materials and therefore will provide reduced conspicuity for the wearer.

Materials capable of accepting fluorescent dyestuffs shall meet the requirements of Clause 6.2 and shall not be assessed against Clause 6.3.

Clause 6.4.1

Delete Clause text, including Note, and *replace* with the following:

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 in Clause 6.2 or Clause 6.3 shall extend continuously downwards from the top of the torso and for the entire circumference of the torso, permitted openings and gussets excepted, until at least the minimum specified area of material is provided on both the front and the back of the garment.

This requirement disallows the use of side panels of non-conforming background material other than permitted underarm gussets within the measurable area.

Contrasting thread is allowable for functional or structural seam purposes.

Clause 6.4.2

Delete Clause text and *replace* with the following:

The measurable area of background material covering the upper torso on each of the front and back of a garment shall be determined as follows:

- (a) With the garment laid flat and not stretched in any direction, the area of all high visibility material covering the upper torso shall be that lying entirely within a rectangle bounded by a horizontal line through the high points of the shoulders, vertical lines through the two underarm points and a horizontal line at waist level, as shown in Figure 1(a) and 1(b).
- (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, permitted openings or retroreflective tapes.
 - (ii) Area covered by retroreflective tapes not meeting Class RF, AS/NZS 1906.4.
 - (iii) The area of words, logos, pockets, or underarm ventilation gussets that does not qualify as background material.
 - (iv) The area of any permitted openings.
 - (v) A collar or any area covered by a collar.

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.

The background material is measured in accordance with Appendix A.

Figure 1

After Clause 6.4.2, *insert* the following new Figure:

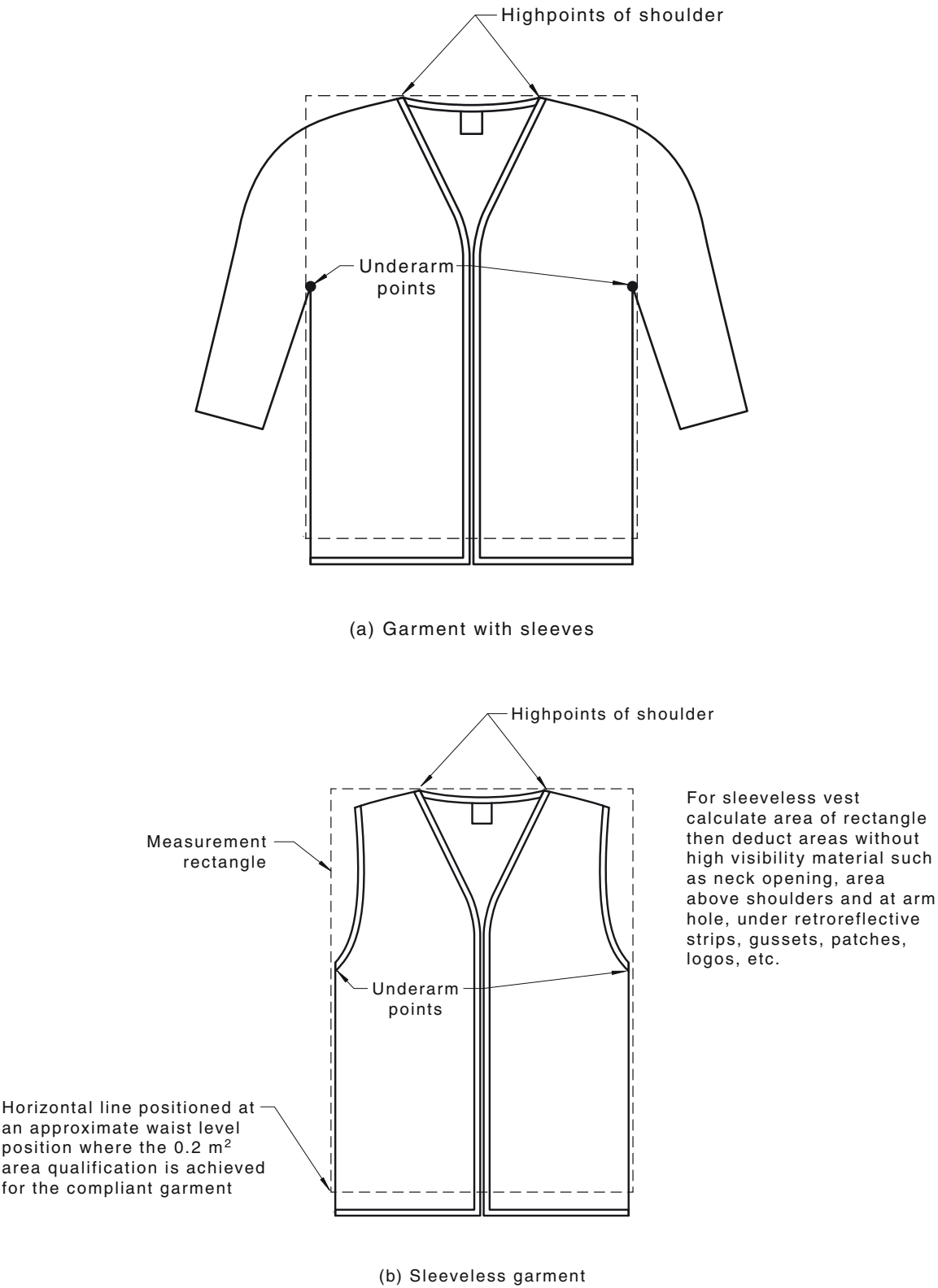


FIGURE 1 UPPER TORSO AREA MEASUREMENT

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Clause 6.4.5

Delete Clause.

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Figure 1 (following Clause 6.4.5)

Delete Figure.

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Clause 7.2

Delete Clause text and *replace* with the following:

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 at least 50 mm wide to at least the minimum pattern requirements specified in Clause 7.3. Retroreflective patches, words, logos and the like shall be regarded as additional to, and not replacing, the specified patterns of retroreflective strips.

A pair of at least 25 mm wide strips of retroreflective material separated by a gap of 30 mm maximum may be substituted for a strip not less than 50 mm wide where specified in Clause 7.3.

The retroreflective colour of Class RF material is not specified; however, it shall be required to meet a specified daytime colour.

NOTE: Colour of Class R material is not specified. Although white, silver, 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.

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. Testing of such strips shall be done so that approximately equal areas, $\pm 5\%$, of each colour in the pattern are exposed in the sample under photometric test.

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Clause 7.3

Delete Clause text, including Figures 2 and 3, and *replace* with the following text and figures:

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 Item (b) as follows:

- (a) A strip over each shoulder, placed symmetrically over 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 continuing 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).
 - (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.

NOTE: 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). In New Zealand, strips not less than 50 mm wide are used in all cases.