

# **PART E**

# **SPECIFICATIONS**

## PART E - SPECIFICATIONS

### GENERAL

#### E1. GENERAL

E1.1 These Specifications shall apply to the Work.

#### E2. GOODS

E2.1 The Contractor shall supply protective clothing in accordance with the requirements hereinafter specified.

E2.2 **Item No. 1** – Coveralls – Olive Green, Polyester/Cotton Drill shall be:

(a) Coverall Material:

(i) A blend of 65% polyester/35% cotton drill, 9.5 oz., permanent press will be accepted.

(b) Design & Construction of Garment:

(i) Front Closure by double-action, interlocking metal slide zipper;

(ii) Two breast pockets, two side pockets, two hip pockets;

(iii) Pass through side openings each side with a snap fastener.

(iv) Double stitched and/or bar tacked at all stress points;

E2.3 **Item No. 2** - Class 2 Level 2 Coverall Bright Orange-Red as per the CSA Z96-02 standard section 5.1.1 Table 2B or Blaze Orange shall be:

(a) Coverall Background Material:

(i) Coverall fabric shall be 65% polyester/35% cotton drill; 9.5 oz. Permanent press will be accepted;

(ii) Coverall fabric shall be bright Orange-Red per CSA Z96-02 Section 5.1.1 Table 2B;

(iii) Coverall fabric shall maintain colour and appearance when subjected to outdoor weathering, UV exposure and care label recommendations.

(b) Design & Construction of Garment:

(i) Front closure by double-action, interlocking metal slide fastener (zipper);

(ii) Two breast pockets; two side pockets, two rear hip pockets;

(iii) Pass through side openings each side with a snap fastener;

(iv) Double stitched and/or bar tacked at all stress points.

(c) Retroreflective Trim Requirements

(i) See E4 for requirements.

E2.4 **Item No. 3** - Bib Overalls, Dark Blue, Denim shall be:

(a) Bib Overall Material:

(i) 100 % Sanforized cotton Denim, 9.5 oz.

(b) Design & Construction of Garment:

(i) Plain front;

(ii) High back adjustable shoulder straps with non slip metal fasteners;

(iii) Front closure by double action interlocking slide with metal fastener (zipper), button side closure at waist;

(iv) One breast pocket, two side pockets, two hip pockets;

- (v) Double stitched and/or bar tacked at all stress points;

E2.5 **Item No. 4** - Class 2 Level 2 Bib Overall Bright Orange-Red as per the CSA Z96-02 standard section 5.1.1 Table 2B or Blaze Orange shall be:

- (a) Bib Overall Background Material:
  - (i) Bib Overall fabric shall be 65% polyester/35% cotton drill, 10 oz.;
  - (ii) Bib Overall fabric shall be bright Orange-Red per CSA Z96-02 Section 5.1.1 Table 2B;
  - (iii) Bib Overall fabric shall maintain colour and appearance when subjected to outdoor weathering, UV exposure and care label recommendations.
- (b) Design & Construction of Garment:
  - (i) Plain Front, High Back adjustable shoulder straps with metal teeth fasteners that hold straps into place;
  - (ii) Closure by double action interlocking slide with metal fastener (zipper);
  - (iii) Two breast pockets, two side pockets, pen pocket, two hip pockets;
  - (iv) Double stitched and/or bar tacked at all stress points.
- (c) Retroreflective Trim Requirements
  - (i) See E4 for requirements.

E2.6 **Item No. 5** – CSA Class 2 Level 2 Smock Bright Orange-Red per CSA Z96-02 Section 5.1.1 Section 2B or Blaze Orange shall be:

- (a) Smock Background Material:
  - (i) Smock fabric shall be 100% Sanforized cotton Denim, 9.5 oz.;
  - (ii) Smock fabric shall be bright Orange-Red per CSA Z96-02 Section 5.1.1 Table 2B;
  - (iii) Smock fabric shall maintain colour and appearance when subjected to outdoor weathering, UV exposure and care label recommendations.
- (b) Design & Construction of Garment:
  - (i) Front Closure by button;
  - (ii) 32" in length;
  - (iii) Two breast pockets, two lower front pockets;
  - (iv) Double stitched and/or bar tacked at all stress points.
- (c) Retroreflective Trim Requirements
  - (i) See E4 for requirements.

E2.7 **Item No. 6** - Parka Shells, Olive Green, Drill shall be:

- (a) Parka Shell Material:
  - (i) 100% Sanforized cotton drill 10 oz.
- (b) Design & Construction of Garment:
  - (i) Front closure by interlocking slide metal fastener (zipper);
  - (ii) Double layer of material at front;
  - (iii) Attached hood, with drawstring, sized to fit over hard hat;
  - (vi) Two suppressions at each side.

E2.8 **Item No. 7** - Smock, Dark Blue, Denim shall be:

- (a) Smock Material:
  - (i) 100% Sanforized cotton Denim, 9.5 oz.

- (b) Design & Construction:
  - (i) Front closure by button;
  - (ii) 32" length;
  - (iii) Two breast pockets, two lower front pockets;
  - (iv) Double stitched and/or bar tacked at all stress points;

**E2.9 Item No. 8 – CSA Class 2 Level 2 Parka Shells Bright Orange-Red as per the CSA Z96-02 standard section 5.1.1 Table 2B or Blaze Orange shall be:**

- (a) Parka Shell Background Material:
  - (i) Parka fabric shall be 100% cotton drill, 10 oz.;
  - (ii) Parka fabric shall be bright Orange-Red per CSA Z96-02 Section 5.1.1 Table 2B;
  - (iii) Parka fabric shall maintain colour and appearance when subjected to outdoor weathering, UV exposure and care label recommendations.
- (b) Design & Construction of Garment:
  - (i) Front closure by interlocking slide metal fastener (zipper);
  - (ii) Double layer of material at front;
  - (iii) Attached hood, with drawstring, sized to fit over hardhat;
  - (iv) Two suppressions at each side.
- (c) Retroreflective Trim Requirements
  - (i) See E4 for requirements.

**E2.10 Item No. 9 - Rain Suits, Fluorescent Orange, Jacket, Pants and Hood**

- (a) Rain Suit Material:
  - (i) PVC Polyester;
  - (ii) PVC coated on both sides;
  - (iii) All seams are to be ½" welted.
- (b) Design & Construction of 30" Jacket:
  - (i) Sturdy plastic snaps;
  - (ii) Corduroy collar
  - (iii) Plastic snaps for hood, back vent; and
  - (iv) Raglan sleeves;
  - (v) Two inch (2") Yellow or silver reflective material with a symmetric X on the back extending from the shoulders to the waist, two vertical stripes on the front extending over the shoulders and down to the waist and bands encircling both arms six inches (6") above the wrist.
- (c) Design & Construction of Pants
  - (i) Single bib pants;
  - (ii) Fully adjustable 1 ¼" suspenders elastic and PVC combination;
  - (iii) Fly front with plastic snap closure;
  - (iv) 30" inseam; and;
  - (v) Roomy legs with easy pull over work boots;
  - (vi) Two inch (2") Yellow reflective material 360 degrees around knee area.
- (d) Design & Construction of Hood
  - (i) Detachable type with snap for attaching to collar;
  - (ii) One size;
  - (iii) Adjusted with drawstring to fit hard hat.

**E2.11 Item No. 10 - Fluorescent Orange Raincoat**

- (a) Raincoat Material:
  - (i) PVC Polyester.
- (b) Design & Construction of Raincoat:
  - (i) Safety Orange approx. 42" length;
  - (ii) Storm flap front with sturdy plastic snaps;
  - (iii) Corduroy collar;
  - (iv) Heavy duty plastic snaps for hood;
  - (v) Raglan sleeves;
  - (vi) Vented back;
  - (vii) All seams are to be ½" welted;
  - (viii) Two inch (2") Yellow or silver reflective material with a symmetric X on the back extending from the shoulders to the waist, two vertical stripes on the front extending over the shoulders and down to the waist and bands encircling both arms six inches (6") above the wrist.

**E3. REPRESENTATIVE SAMPLES**

E3.1 Representative samples of products currently in use by the City of Winnipeg are available for viewing at:

Public Works Stores  
 1277 Pacific Ave  
 Winnipeg Manitoba  
 Attn: Rick Picklyk (204) 986-6856

**E4. RETROREFLECTIVE TRIM REQUIREMENTS**

E4.1 Trim shall consist of exposed lens, wide angle, silver fabric. 3M™ Scotchlite™ Reflective Material – 8925 Silver Fabric or equivalent.

- (a) Trim shall be 2 inches wide.
- (b) trim placement shall be as follows per the CSA Z-96-02 Section 4.2.2.1 Stripes/bands shall be laid out in the following position:
- (c) A symmetric X on the back extending from the shoulders to the waist, two vertical stripes on the front extending over the shoulders and down to the waist and a waist-level horizontal stripe extending entirely around the back to the bottom of the vertical stripes on the front to provide 360 degrees of visibility. Leg bands if required shall be one inch (1") above the knee position with a horizontal stripe to provide 360 degrees of visibility. Trim, before test exposure performance: Shall be CSA Z96-02 Level 2 compliant, see (Table 5).

**Table 5 – Minimum Coefficient of Retroreflection in cd/(lx m<sup>2</sup>) for Level 2 or Combined-Performance Material**

Observation angle	Entrance angle			
	5°	20°	30°	40°
12'	330	290	180	65
20'	250	200	170	60

<b>1°</b>	25	15	12	10
<b>1° 30'</b>	10	7	5	4

- (d) Trim, after test exposure performance:
- (i) Shall be CSA Z96 Section 6.2, Level 2 compliant. The coefficient of retroreflection ( $R_A$ ) measured at observation angle 12' and entrance angle 5°, shall exceed 100 cd/(lx m<sup>2</sup>) at one of the two orientations described in Clause 8.3 and shall be not less than 75% of the required value at the other orientation and meet the following performance tests:
  - (ii) Trim After Testing Physical and Performance Table

<u>Physical Test</u>	<u>Test Method</u>
Abrasion	EN 530, Method 2 (5000 cycles)
Flexing	ISO 7854, Method A (7500 cycles)
Folding at Cold Temperatures	ISO 4675 @ (-20±1)°C, (-5°F)
Temperature Variation	12 hours at (50±2)°C, (120° F) immediately followed by 20 hours at (-30±2)°C, (-20°F)
Wash	ISO 6330 Method 2A, 75 cycles @ 60°C (140°F)
Dry-clean	ISO 3175 Method 9.1 50 cycles
Influence of Rainfall	ANSI/ISEA 107-1999 Annex A EN 471, Annex A

**E5. TRIM CALCULATIONS**

<b>Proposed Garment Design: 2" 3M™ Scotchlite™ Reflective Material 8925 Silver Fabric or equivalent.</b>	<b>Length of Trim (inches)</b>
Front Vertical Stripes on Chest - Left and Right	(2 x 17") = 34
Back Diagonal Stripes - Left and Right	(2 x 24") = 48
Horizontal Stripe around Torso	(1 x 42") = 42

Total Number of inches of 2" 8925	124
Total Number of Feet of 2" 8925	11
Number of Square inches to meet CSA Z96-02 Class 2	201
Square inches of 2" 8925	248

**E6. CERTIFICATION OF CSA STANDARDS**

- E6.1 Upon request of the Contract Administrator, Bidders will provide certificates within two (2) Business Days to certify that the background and reflective material has been third part tested to exceed the requirements of the CSA Z96-02 standard. All garments must have a CSA Z96-02 label certifying that all components exceed the requirements of the standard per Section 10.2-10.4.

**E7. LABELLING**

- E7.1 Labels on goods shall indicate as a minimum; the manufacturers washing instructions and sizes:
- (a) The writing of various sizes on labels will not be acceptable;
  - (b) Goods shall have labels sewn to the inside collar of garment;
  - (c) For pants, labels shall be sewn inside the waist band.

**E8. DIMENSIONS AND PACKAGING**

- E8.1 Coverall dimensions shall meet the requirements of National Standard of Canada Can/CGSB 38.108-93.
- E8.2 Smock Dimensions shall meet the requirements of National Standard of Canada Can/CGSB 38.107-93.
- E8.3 Goods shall be packaged with garment label visible through the package to readily read sizes.

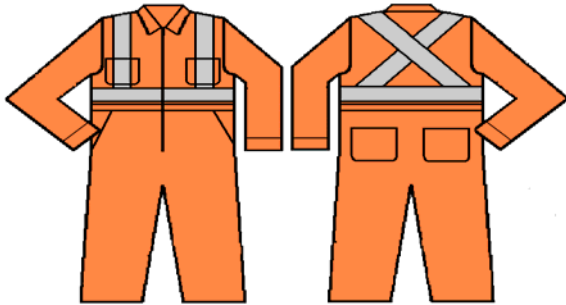
**E9. DELIVERY**

- E9.1 Goods shall be delivered on an "as required" basis during the term of the Contract, f.o.b. destination, freight prepaid, to various locations within the City.
- E9.1.1 Goods shall be delivered within five (5) Business Days of the placing of an order.
- E9.2 Goods shall be delivered between 7:00 a.m. and 3:00 p.m. on Business Days.
- E9.3 The Contractor shall off-load goods as directed at the delivery location.

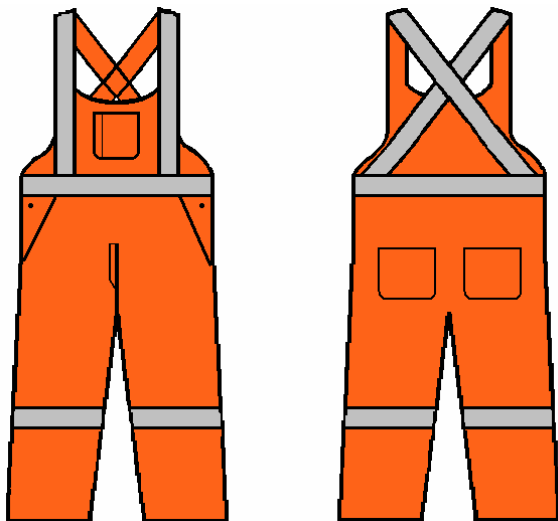
**E10. DRAWINGS**

E10.1 The drawings shown below are for placement of the desired required reflective material only.

E10.2 E2.3 (Item No. 2) Reflective positioning requirements:

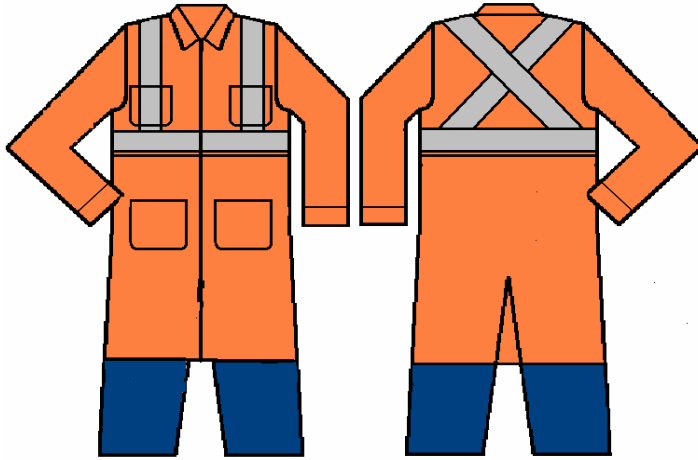


E10.3 E2.5 (Item No. 4) Reflective positioning requirements:





E10.4 E2.6 (Item No. 5) Reflective positioning requirements:



E10.5 E2.9 (Item No. 8) Reflective positioning requirements:

