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**REQUEST FOR PROPOSAL  
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**Proposition aux: Travaux Publics et Services  
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Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

<b>Title - Sujet</b> overalls, extreme cold weather FY	
<b>Solicitation No. - N° de l'invitation</b> W8486-123144/C	<b>Date</b> 2015-06-04
<b>Client Reference No. - N° de référence du client</b> W8486-123144	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$PR-707-67437	
<b>File No. - N° de dossier</b> pr707.W8486-123144	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2015-06-19</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Saving Time EDT
<b>F.O.B. - F.A.B.</b> Specified Herein - Précisé dans les présentes <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input checked="" type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Elder, Sylvie	<b>Buyer Id - Id de l'acheteur</b> pr707
<b>Telephone No. - N° de téléphone</b> (819) 956-3830 ( )	<b>FAX No. - N° de FAX</b> (819) 956-5454
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> See herein	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

**Vendor/Firm Name and Address**

**Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

<b>Delivery Required - Livraison exigée</b> See Herein	<b>Delivery Offered - Livraison proposée</b>
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<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

**Issuing Office - Bureau de distribution**

Clothing and Textiles Division / Division des vêtements et des textiles  
11 Laurier St./ 11, rue Laurier  
6A2, Place du Portage  
Gatineau, Québec K1A 0S5

Solicitation No. - N° de l'invitation

W8486-123144/C

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

pr707

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

W8486-123144

pr707W8486-123144

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NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

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Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

**Amendment to  
MANUFACTURING DATA  
for  
DSSPM 2-6-87-5421 PARKA, EXTREME COLD WEATHER, IMPROVED  
and  
DSSPM 2-6-87-5657 OVERALLS, EXTREME COLD WEATHER, IMPROVED**

**Annex B - DSSPM 2-6-87-5421 Parka, Extreme Cold Weather, Improved**

**1) Para 1.1 Scope. Delete:**

**NOTE:** The fur trimmed hood included in this manufacturing data is for this contract only. Future procurements of the fur trimmed hood will include its own manufacturing data.

**2) Para 1.2 Intended Use. Delete:**

...."The fur trimmed hood is intended for extreme cold weather conditions during Northern Operations"

**3) Para 1.3 Classification. Delete:**

Hood Type ii: Fur Trimmed Hood, Extreme Cold Weather, Improved  
NSN: 8415-20-007-5154

**4) Para 2.4 Figures. Delete:**

Figure 10 Hood Type i – Outside View

Figure 11 Hood Type i – Inside View

Figure 12 Hood Type ii – Fur Trimmed – Outside View

Figure 13 Hood Type ii– Fur Trimmed - Inside View

Figure 14 Care and Marking Label for Parka, Liner and Type i Hood

Figure 15 Care and Marking Label for Type ii Hood – Fur Trimmed

**Add:**

Figure 10 Hood – Outside View

Figure 11 Hood – Inside View

Figure 12 Care and Marking Label for Parka

Figure 13 Care and Marking Label for Liner and Hood

**5) Para 2.5 Sealed patterns. Delete:**

DSSPM 102-13 Hood, Type ii, Fur Trimmed, Extreme Cold Weather, Improved, CADPAT™ (TW), Integrated Clothing Ensemble (ICE) for Northern Operations.

**6) Para 3.2 Design. Delete:**

n. detachable hood (type ii) with face storm shield and coyote fur trim.

**7) Para 3.4.13 Slide fasteners. Delete:**

..." The slide fasteners for the front closure and chest patch pockets, must have moulded plastic interlocking members, automatic locking sliders and 100% polyester tape in accordance with D-83-001-005/SF-001. The slide fasteners used for the carrying pouch and hand warmer pockets must have monofilament (coil) members, automatic lock sliders and 100% polyester tape in accordance with D-83-001-005/SF-001."...

**Add:**

..."The slide fastener for the front closure must have moulded plastic interlocking members, automatic locking sliders and 100% polyester tape in accordance with D-83-001-005/SF-001. The slide fasteners used for the carrying pouch, chest pockets and hand warmer pockets must have monofilament (coil) members, automatic lock sliders and 100% polyester tape in accordance with D-83-001-005/SF-001."...

**8) Para 3.4.13 - Slide fasteners – Delete TABLE IV**

**Add:**

**TABLE IV – REQUIREMENTS FOR SLIDE FASTENERS**

<b>Chest patch pockets</b>	3	1	Monofilament (coil) with bridge stop at top	Regular pull	7-1/2 inches (19 cm) or length to produce a functional pocket opening of 7-inches ( 17.8 cm)
Handwarmer pockets	3	1	Monofilament (Coil)	Regular pull	7-1/2 inches (19 cm) or length to produce a functional pocket opening not less than 7-inches ( 17.8 cm)

**9) Para 3.4.21 Delete:**

**Fur Trim for Hood Type ii.** The fur trim for Hood Type ii must be a Coyote fur strip made from number one (1) grade, Western Canadian Coyote. The fur must be 3-inches ( 7.6 cm) wide and 25-inches (63.6 cm) in length.

**10) Para 3.7.22.8 Hood brim for Type i and ii. Delete:**

..." for Type i and ii".

**11) Para 3.7.22.9 Delete:**

**Fur trim for Hood brim Type ii.** The coyote fur must be taped with black 3/8-inch (9.5 mm) wide twill tape on all sides. The fur trim must be sewn to the shell fabric on the top portion of the brim.

**12) Para 3.7.23 Hood label (Type i and ii). Delete:**

..." (Type i and ii)."..."and Figure 13)"...

**13) Para 3.11 to 3.12 Delete entirely.**

**NOTE: 3.12 USER INSTRUCTIONS remain as is.**



**Add:**

**3.11 Marking Labels.** A marking label in accordance with D-80-001-055/SF-001 must be sewn on the inside of the parka shell, liner and hood and stitched around all edges at 1/16 (1.6 mm) gauge. Refer to Figures 12 and 13 for samples of the marking and care labels. The marking must be printed in black on a Canadian Average Green label. The label must give the following information printed in characters not less than 1/8-inch (3.2 mm) nor more than 1/4-inch (6.3 mm) in height, with the exception of the size identification which must be twice the height.

**3.11.1 Parka Shell.** The label for the parka shell shall be sewn to the inside of the left front in an area that will be covered by the lower pocket as illustrated in Figure 6.

- a. Nomenclature
  - Type I: SHELL, PARKA, COMBAT, IMPROVED, ICE  
EXTERIEUR, PARKA, COMBAT, AMÉLIORÉ, EVI
  - Type II: PARKA, EXTREME COLD WEATHER, IMPROVED, SAR TECH  
PARKA POUR TRÈS GRANDS FROIDS, AMÉLIORÉ, TECH RES
- b. The specific NATO stock number as designated in the contract by item and size
- c. Size by height and chest
- d. NATO size designation (See Scale of Measurements – Table I).
- e. Contract number
- f. Contractor name
- g. Month and year of production e.g. 05/2002
- h. Fibre content
- i. Care and marking symbols
- j. Care instructions
- k. User ID

**3.11.2 Parka Liner.** The label for the Type I and Type II parka liner shall be sewn to the left front inside chest as illustrated in Figure 8.

- a. Nomenclature
  - LINER, PARKA, COMBAT, IMPROVED, ICE  
DOUBLURE, PARKA, COMBAT, AMÉLIORÉ, EVI
- b. The specific NATO stock number as designated in the contract by item and size
- c. Size by height and chest
- d. NATO size designation (See Scale of Measurements – Table I).
- e. Contract number
- f. Contractor name
- g. Month and year of production e.g. 05/2002
- h. Fibre content
- i. Care and marking symbols
- j. User ID

**3.11.3 Parka Hood.** The label for the parka liner shall be centred on the hood centre seam, 1/2-inch (12.7 mm) above neck and flange seam as illustrated in Figure 11.

- a. Nomenclature
  - Type I: HOOD, PARKA, COMBAT, IMPROVED, ICE  
CAPUCHON, PARKA, COMBAT, AMÉLIORÉ, EVI
  - Type II: HOOD, EXTREME COLD WEATHER, IMPROVED, SAR TECH  
CAPUCHON POUR TRÈS GRANDS FROIDS, AMÉLIORÉ, TECH RES
- b. The specific NATO stock number as designated in the contract by item and size
- c. Sizes corresponding to parka by height and chest

- d. NATO size designation (See Scale of Measurements – Table I).
- e. Contract number
- f. Contractor name
- g. Month and year of production e.g. 05/2002
- h. Fibre content
- i. Care and marking symbols
- j. User ID

**3.12 User instruction label.** The liner component of the Type I and II parkas must have a user instruction label with the following information printed in English and French on a Canadian Average Green label in accordance with D-80-001-055/SF-001, centred on the lower back lining above the slide fastener as illustrated in Figure 8.

**14) Delete text from table title:**

...” - Type i”...

NSNs for Converged Parka Hood – Type i,  
Extreme Cold Weather, ICE,  
CADPAT™ TW (for Type I Parka)

**15) Delete entire table:**

NSNs for Converged Parka Hood, Fur Trimmed – Type ii,  
Extreme Cold Weather, ICE,  
CADPAT™ TW (for Type I Parka)

**16) Delete:**

Figures 3, 4, 6, 8, 10, 11, 12, 13, 14 and 15 dated March 2013

**Add:**

Figures 3, 4, 6, 8, 10, 11, 12 and 13 dated April 2015 as follows:

FIGURE 3: GARMENT COMPONENT - DIMENSIONS

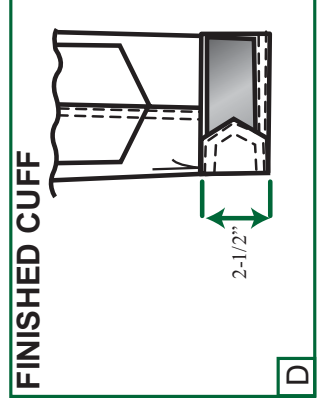
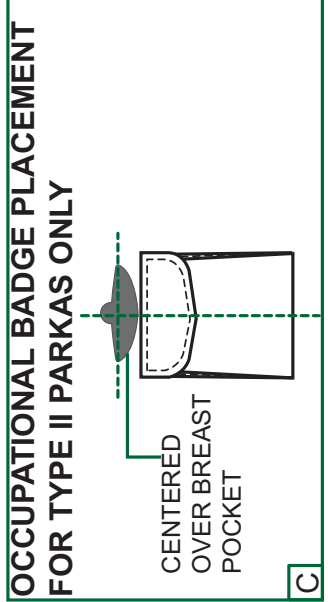
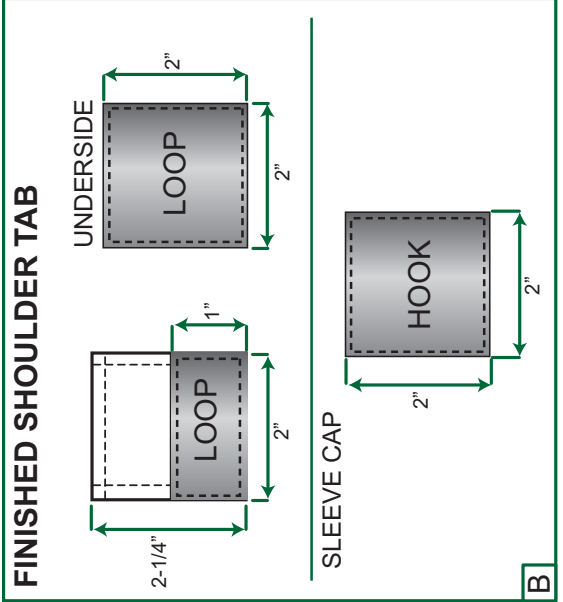
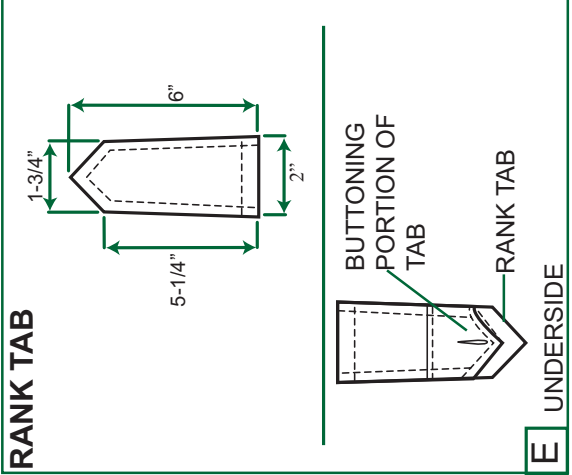
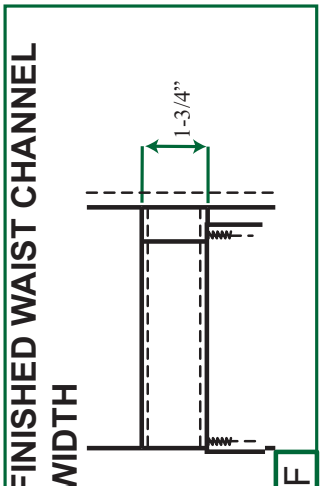
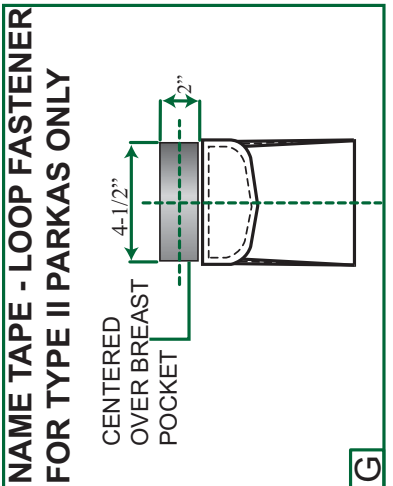
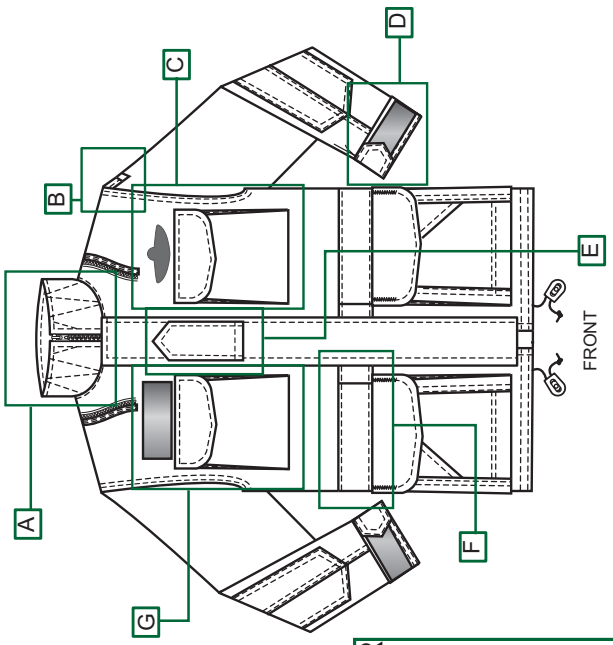
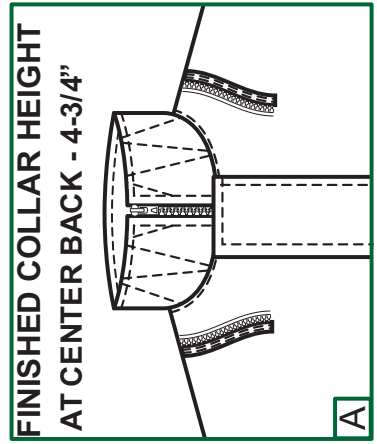


FIGURE 4: CHEST POCKET SYSTEM

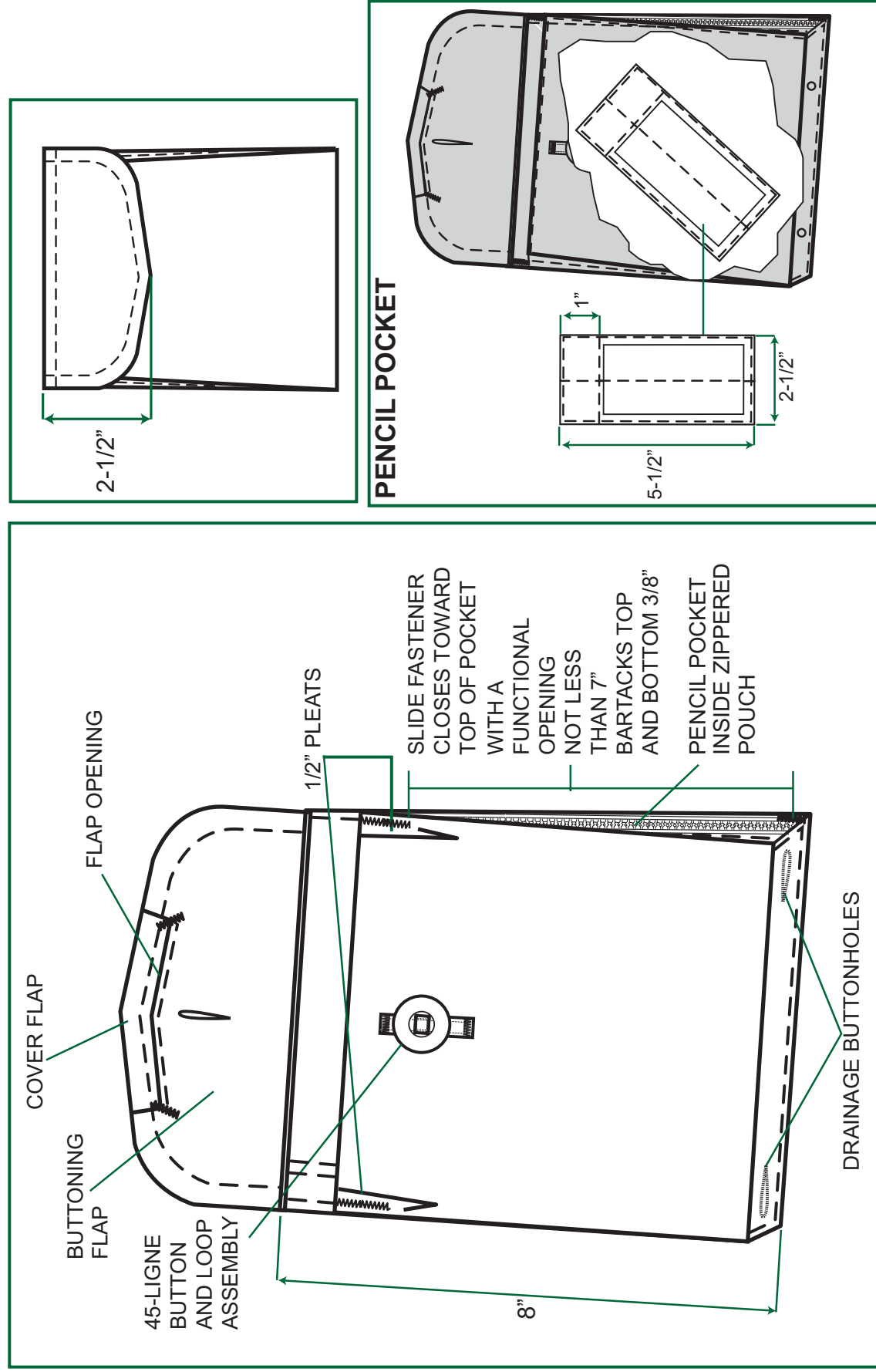


FIGURE 6: PARKA - INSIDE VIEW - RETAINING TABS

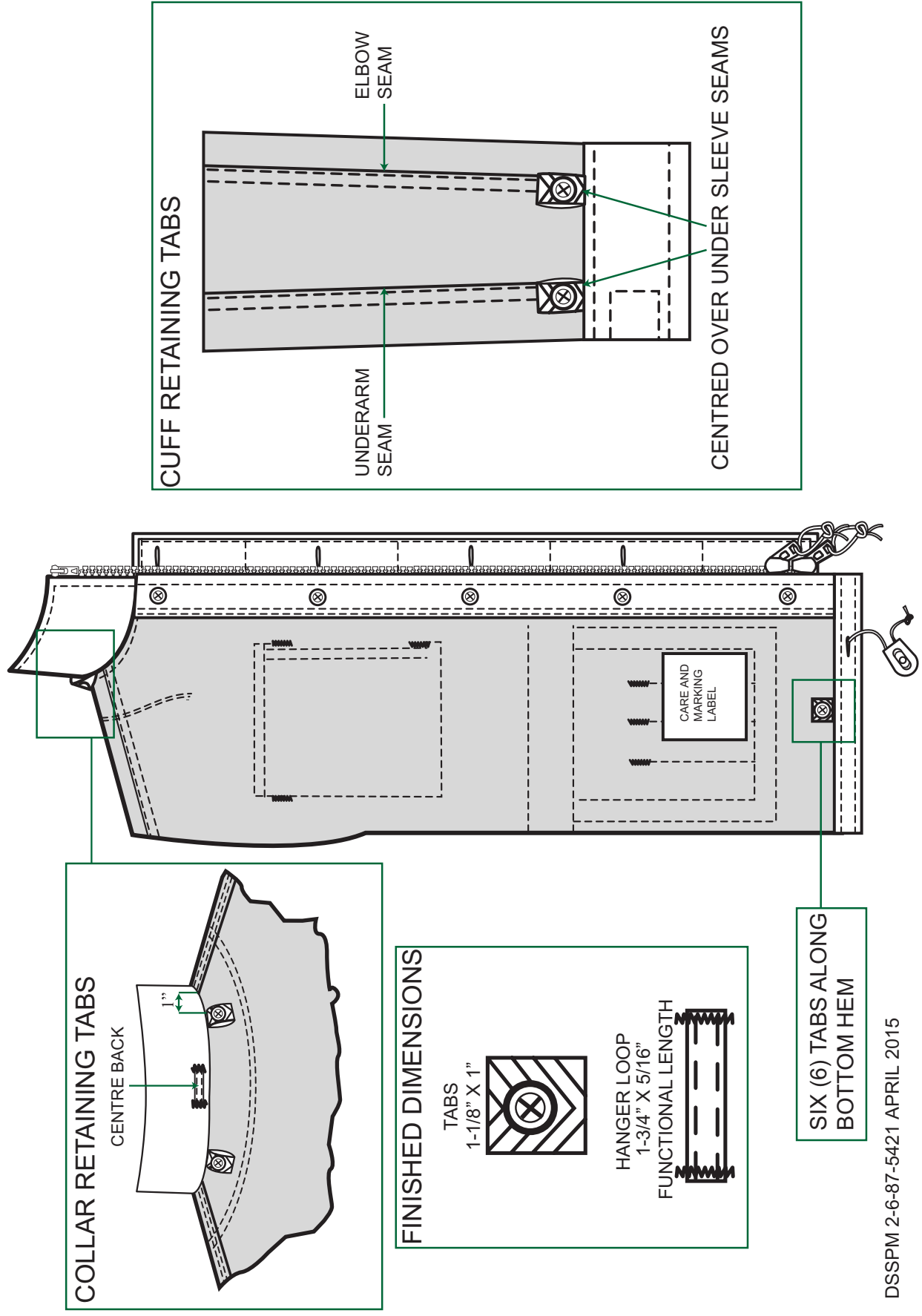




FIGURE 10: HOOD - OUTSIDE VIEW

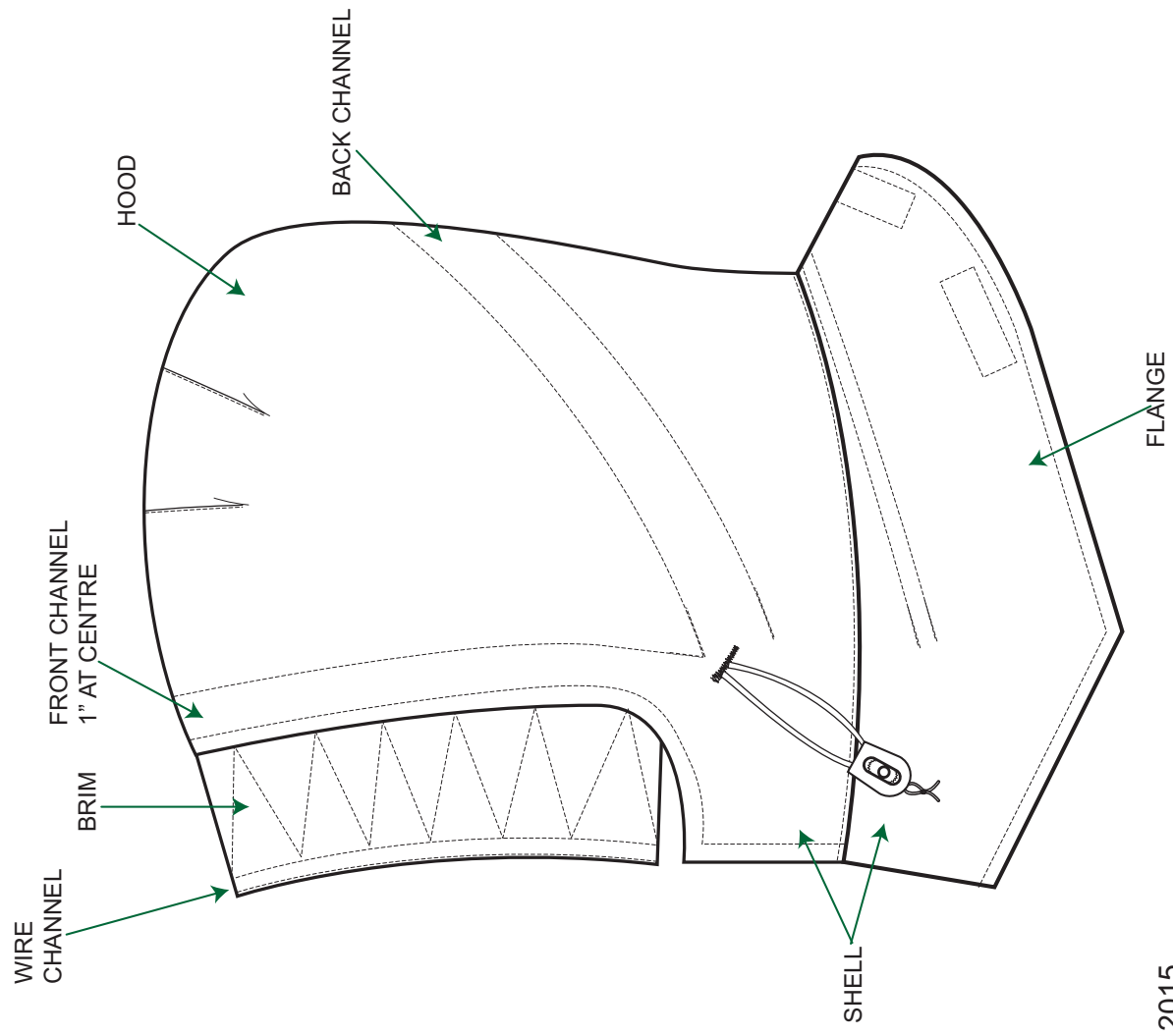
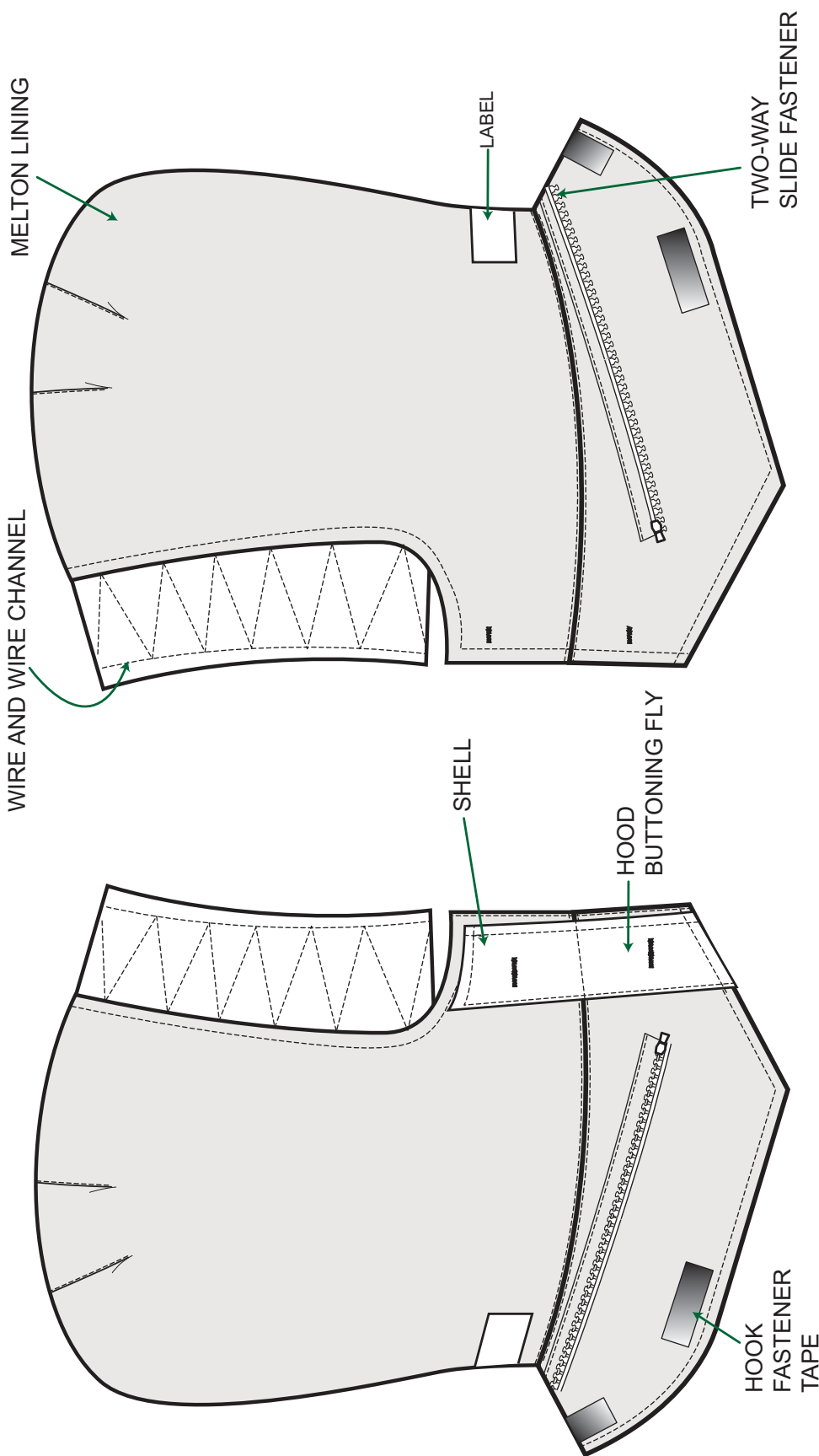


FIGURE 11: HOOD - INSIDE VIEW





# FIGURE 12: CARE AND MARKING LABEL FOR PARKA

ITEM & CONTRACT INFO	ARTICLE ET INFO SUR LE CONTRAT	<div> <div> PARKA, COMBAT, IMPROVED, ICE  PARKA, COMBAT, AMÉLIORÉE, EVI  NSN/NNO: 8415-20-XXX-XXXX  <b>SIZE/TAILLE : 7040</b>  NATO SIZE/TAILLE OTAN : XXXX-XXX  CONTRACT NO. / NO. DE CONTRAT: WXXXX-XXXXXX  CONTRACTOR NAME/NOM D'ENTREPRENEUR: Jones &amp; Company  DATE OF / DE MANUFACTURE: MM/YY  FIBRE CONTENT: XXXXXXXXXXXXX </div> <div> <div>  40°C </div> <div>  Tumble dry on low heat. / Séchage par culbutage à basse température. Do not steam press. / Repasser à T/basse. Ne pas repasser à la vapeur. </div> <div>  Iron at low temperature. Do not steam press. / Repasser à T/basse. Ne pas repasser à la vapeur. </div> <div>  Do not bleach. / Ne pas javéliser. </div> <div>  Do not dry-clean. / Ne pas nettoyer à sec. </div> </div> </div>	
CARE SYMBOLS	SYMBOLES D'ENTRETIEN	<div> 1. MACHINE WASH IN LUKEWARM WATER. (NOT EXCEEDING 40°)  2. DO NOT USE BLEACH.  3. TUMBLE DRY AT LOW TEMPERATURE.  4. DRY CLEAN ONLY WHEN PROPER LAUNDERING FAILS TO REMOVE SOIL.  5. DO NOT STITCH OR PUNCTURE THE MEMBRANE IN THIS GARMENT. </div>	
CARE INSTRUCTIONS	CONSIGNES D'ENTRETIEN	<div> 1. LAVAGE À L'EAU TIÈDE (TEMPÉRATURE MAXIMALE DE 40°C) DANS UNE LAVEUSE.  2. NE PAS UTILISER D'AGENTS DE BLANCHIMENT.  3. SÉCHAGE EN MACHINE À TAMBOUR À TEMPÉRATURE BASSE.  4. NETTOYAGE À SEC SI LE LINGE EST ENCORE SALE APRÈS LE BLANCHISSAGE.  5. NE PAS COUDRE OU PERFORER LA MEMBRANE INTERNE IMPERMÉABLE. </div>	
USER ID	ID DE L'UTILIS-ATEUR	<div>I.D. _____</div>	

# FIGURE 13: CARE AND MARKING LABEL FOR LINER AND HOOD

ITEM & CONTRACT INFO	ARTICLE ET INFO SUR LE CONTRAT	<div> <div>XXXX, COMBAT, IMPROVED, ICE</div> <div>XXXX, COMBAT, AMÉLIORÉE, EVI</div> <div>NSN/NNO: 8415-20-XXX-XXXX</div> <div>SIZE/TAILLE : 7040</div> <div>NATO SIZE/TAILLE OTAN : XXXX-XXX</div> <div>CONTRACT NO. / NO. DE CONTRAT: WXXXX-XXXXXX</div> <div>CONTRACTOR NAME/NOM D'ENTREPRENEUR: Jones &amp; Company</div> <div>DATE OF / DE MANUFACTURE: MM/YY</div> <div>FIBRE CONTENT: XXXXXXXXXXXXX</div> </div>	
CARE SYMBOLS	SYMBOLLES D'ENTRETIEN	<div> <div> <div>40°C</div> </div> <div> <div>Tumble dry on low heat. / Séchage par culbutage à basse température. / Do not steam press. / Repasser à T/basse.</div> </div> <div> <div>Iron at low temperature. / Do not steam press. / Repasser à T/basse. Ne pas repasser à la vapeur.</div> </div> <div> <div>Do not bleach. / Ne pas javéliser.</div> </div> <div> <div>Do not dry-clean. / Ne pas nettoyer à sec.</div> </div> </div>	
USER ID	ID DE L'UTILIS-ATEUR	<div>I.D. _____</div>	

**Annex C - DSSPM 2-6-87-5657 Overalls, Extreme Cold Weather, Improved**

**1) Para 3.4.2 Lining. Delete entirely**

**Add:**

**3.4.2 Lining.** The lining material shall be nylon taffeta lining in accordance with Type II of DSSPM 2-2-80-052, (**Annex E**) and Sealed Pattern DCGEM 290-73. The colour of the lining for the overalls shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**2) Section 3.6 Sewing. Add:**

**3.6.11 Hook and loop fastener tape.** Hook and loop fastener tape must be stitched around all edges 1/8-inch (3.2 mm) gauge. Care must be taken to ensure stitching is formed into the hook and loop portion of the tape.

**3.6.12** When tapes wider than 1-inch (2.5 cm) are used, they must be stitched around all edges and through the center or have a 'X' enclosed in the box.

**3) Para 3.4.8 Slide fasteners – Delete TABLE II**

**Add:**

**TABLE II - REQUIREMENTS FOR SLIDE FASTENERS**

Application	Class	Type	Chain Type	Pull Type	Length
Front fly	4	9	Moulded	Long pull	See Scale of Measurements – Table I
Side openings	4	9	Moulded	Long pull	See Scale of Measurements – Table I
Handwarmer pockets	3	1	Monofilament (Coil)	Regular pull	7-1/2 inches (19 cm) or length to produce a functional pocket opening not less than 7-inches (17.8 cm)

**4) Para 3.11 Marking label. Delete entirely**

**Add:**

**3.11 Marking label.** A marking label shall be sewn on the inside on the Overalls and stitched around all edges at 1/16 (1.6 mm) gauge. The label and markings shall be in accordance with Specification D-80-001-055/SF-001. Refer to Figure 8 for sample of the marking and care label. The marking must be printed in black on a Canadian Average Green label. The label must give the following information printed in characters not less than 1/8-inch (3.2 mm) nor more than 1/4-inch (6.3 mm) in height, with the exception of the size identification which must be twice the height.

a. Nomenclature

Type I: OVERALLS, COMBAT, IMPROVED, ICE  
SALOPETTE, AMÉLIORÉ, COMBAT, EVI

Type II: OVERALLS, EXTREME COLD WEATHER, IMPROVED, SAR TECH  
SALOPETTE, TEMPS FROID EXTRÊME, AMÉLIORÉ, TECH RES

The specific NATO stock number as designated in the contract by item and size

- b. Size by height and chest
- c. NATO size designation (See Scale of Measurements – Table I).
- d. Contract number
- e. Contractor name
- f. Month and year of production e.g. 05/2002
- g. Fibre content
- h. Care and marking symbols
- i. Care instructions
- j. User ID

No brand or product names shall be used on or attached to the garment in any way.

**5) Delete:** Figure 8 dated March 2013

**Add:** Figure 8 dated April 2015 as follows:

# FIGURE 8: CARE AND MARKING LABEL

ITEM & CONTRACT INFO	ARTICLE ET INFO SUR LE CONTRAT	OVERALLS, COMBAT, IMPROVED, ICE SALOPETTE, COMBAT, AMÉLIORÉE, EVI NSN/NNO: 8415-20-XXX-XXXX <b>SIZE/TAILLE : 7034</b> NATO SIZE/TAILLE OTAN : XXXX-XXX CONTRACT NO. / NO. DE CONTRAT: WXXXX-XXXXX CONTRACTOR NAME/NOM D'ENTREPRENEUR: Jones & Company DATE OF / DE MANUFACTURE: MM/YY FIBRE CONTENT: XXXXXXXXXXXXX	
CARE SYMBOLS	SYMBOLS D'ENTRETIEN	<div>  40°C  Tumble dry on low heat. / Séchage par culbutage à basse température. / Repasser à T/basse. Ne pas repasser à la vapeur. </div> <div>  Iron at low temperature. Do not steam press. / Repasser à T/basse. Ne pas repasser à la vapeur. </div> <div>  Do not bleach. / Ne pas javéliser. </div> <div>  Do not dry-clean. / Ne pas nettoyer à sec. </div>	
CARE INSTRUCTIONS	CONSIGNES D'ENTRETIEN	1. MACHINE WASH IN LUKEWARM WATER. (NOT EXCEEDING 40°) 2. DO NOT USE BLEACH. 3. TUMBLE DRY AT LOW TEMPERATURE. 4. DRY CLEAN ONLY WHEN PROPER LAUNDERING FAILS TO REMOVE SOIL. 5. DO NOT STITCH OR PUNCTURE THE MEMBRANE IN THIS GARMENT.	
USER ID	ID DE L'UTILIS-ATEUR	1. LAVAGE À L'EAU TIÈDE (TEMPÉRATURE MAXIMALE DE 40°C) DANS UNE LAVEUSE. 2. NE PAS UTILISER D'AGENTS DE BLANCHIMENT. 3. SÉCHAGE EN MACHINE À TAMBOUR À TEMPÉRATURE BASSE. 4. NETTOYAGE À SEC SI LE LINGE EST ENCORE SALE APRES LE BLANCHISSAGE. 5. NE PAS COUDRE OU PERFORER LA MEMBRANE INTERNE IMPERMÉABLE.	
		I.D. _____	

*Revised 5 July 2013*

**NOTICE**



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**AVIS**

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

**MANUFACTURING DATA  
FOR  
PARKA, EXTREME COLD WEATHER, IMPROVED**

**1. SCOPE**

**1.1 Scope.** This Manufacturing Data covers the materials, design, construction and inspection requirements for two types of parkas and a fur trimmed hood: Type I Parka, Combat, Improved, CADPAT™ (TW), Integrated Clothing Ensemble (ICE) and Hood Type ii, Fur Trimmed, Extreme Cold Weather, Improved, CADPAT™ (TW) for Northern Operations used by the Land and Air elements and Type II Parka, Extreme Cold Weather, Improved, International Orange used by Search and Rescue Technicians.

**NOTE:** The fur trimmed hood included in this manufacturing data is for this contract only. Future procurements of the fur trimmed hood will include its own manufacturing data.

**1.2 Intended use.** The parka is most effective worn with the Overalls, Extreme Cold Weather, Improved. The fur trimmed hood is intended for extreme cold weather conditions during Northern Operations.

**1.3 Classification.** The garment shall be supplied in one of the following types as specified in the contract:

Type I Parka, Combat, Improved, CADPAT™ (TW), Integrated Clothing Ensemble (ICE)  
NSN 8415-20-006-5421 A/A

Hood Type i: Hood, Extreme Cold Weather, Improved  
NSN: 8415-21-920-9963 A/A

Hood Type ii: Fur Trimmed Hood, Extreme Cold Weather, Improved  
NSN: 8415-20-007-5154

Type II Parka, Extreme Cold Weather, Improved, Canadian Forces, Search And Rescue Technicians, International Orange NSN 8415-XX-XXX-XXXX

**1.4 CADPAT™.** The information contained herein is Copyright to Her Majesty the Queen of Canada, as is its associated pattern. The term CADPAT™, with and without extensions, is a registered Trademark belonging to the Department of National Defence (DND). Any of the data contained in this specification, and its associated pattern, must be used only for goods for Canada. The printed textile and any items made therefrom must be for the sole end use of DND. There must be no selling or offering for sale of goods incorporating the CADPAT™ pattern and colours to any person or entity other than Canada without the Minister's prior written authorization. Explicit in this is that any goods of not first quality produced must not be released, sold, or offered for sale, directly or indirectly, to any person or corporation other than Canada without the Minister's prior written authorization.

**1.4.1** The information, data, know-how, formulas, algorithms, software, processes, systems, methods, designs, text, works, figures, tables, sketches, photographs, plans, drawings, specifications, samples, reports, names, inventions and/or ideas contained herein (hereinafter "Intellectual Property") is the exclusive property of Her Majesty The Queen in Right of Canada as represented by the Minister of National Defence (hereinafter referred as "DND"). No one has the right to reproduce, disclose, disseminate, or utilize, in any manner or in any form, this Intellectual Property, or any part thereof, without the prior written consent of DND. For further information on the restrictions applicable to this Intellectual Property, or to request consent from DND, please contact the Contracting Authority.

## **2. RELATED DOCUMENTS**

**2.1 Government documents.** The following documents form part of this Manufacturing Data to the extent specified herein. Unless otherwise specified, the issue or amendment of documents effective for a particular contract shall be that in effect on the date of the applicable invitation to tender or the contract.

## **SPECIFICATIONS AND STANDARDS**

CF-B-854	Buttons, Nylon (30 and 45 Ligne)
D-80-001-028/SF-001	Specification for Cord, Plaited, Spun, Synthetic Fibre
D-80-001-055/SF-001	Specification for Label, Clothing and Equipment
D-80-001-121/SF-001	Specification for Cloth, Twill, Nylon/Cotton (Oil and Water Repellent Treated)
D-83-001-005/SF-001	Specification for Fasteners, Slide, Interlocking

## **DRAWINGS**

2811	Strap and Button Assy 45 Ligne
373118	Button, Nylon, Slotted, 30 Ligne
389556	Button, Bar, Plastic, 45 Ligne

8790166

Strap and Button Argt, 30 ligne, Type I

**2.2 Other publications.** The following documents form part of this Manufacturing Data to the extent specified herein. Effective date shall be that in effect on the date of manufacture. Source is as shown:

Canadian General Standards Board Sale Unit  
11 Laurier Street  
Place du Portage, Phase III  
Hull, Québec K1A 1G6

CAN/CGSB-4.2-M	Textile Test Methods
CAN/CGSB-4.131-M	Cotton-covered or Polyester-covered Polyester Thread
CAN/CGSB-4.139	Polyester Staple Thread
CAN/CGSB-54.1-M	Stitches and Seams, Parts I and II
4-GP-80Ma	Cotton Thread
4-GP-85Ma	Nylon Thread

**2.3 DSSPM documents.** The following documents form part of this Manufacturing Data to the extent specified herein.

Annex D	DSSPM 2-2-80-042	Specification for Cloth, Melton, Wool, 375 g/m <sup>2</sup>
Annex E	DSSPM 2-2-80-052	Manufacturing Data for Cloth, Taffeta, Nylon, 88 g/m <sup>2</sup>
Annex F	DSSPM 2-2-80-091	Specification for Cloth, Plain Weave, Nylon, 195 g/m <sup>2</sup>
Annex G	DSSPM 2-2-80-214	Manufacturing Data for Cloth, Insulation, Types I and II
Annex H	DSSPM 2-2-80-215	Manufacturing Data for Waterproof Moisture Vapour Permeable (WMVP) Barrier Fabric
Annex I	DSSPM 2-2-80-500	Specification for CADPAT™ TW [Canadian Disruptive Pattern (Temperate Woodland)]
Annex N	CFTPO-GENERAL	Canadian Forces Transportation Packaging Order

**2.4 Figures.** The following Figures form part of this Manufacturing Data. Figures are not to scale.

Figure 1	Front and Back View - Type I Parka
Figure 2	Front and Back View - Type II Parka
Figure 3	Garment Components - Dimensions



Figure 4	Chest Pocket Systems
Figure 5	Lower Pocket System
Figure 6	Parka, Inside View – Retaining Tabs
Figure 7	Liner – Front and Back View
Figure 8	Lining Details
Figure 9	Fly Front System
Figure 10	Hood Type i – Outside View
Figure 11	Hood Type i – Inside View
Figure 12	Hood Type ii – Fur Trimmed – Outside View
Figure 13	Hood Type ii– Fur Trimmed - Inside View
Figure 14	Care and Marking Label for Parka, Liner and Type i Hood
Figure 15	Care and Marking Label for Type ii Hood – Fur Trimmed

## **2.5 Sealed patterns.**

DSSPM 123-11*	Parka, Extreme Cold Weather, Improved, CADPAT™ (TW), Integrated Clothing Ensemble (ICE)
DSSPM 102-13	Hood, Type ii, Fur Trimmed, Extreme Cold Weather, Improved, CADPAT™ (TW), Integrated Clothing Ensemble (ICE) for Northern Operations.
DSSPM 281-01	Cloth, Twist, Cotton/Nylon, 170 g/m2, Canadian Average Green (For Colour and IRR properties)
DCGEM 263-78	Cloth, Plain, Nylon, 5.75 oz/yd2, International Orange for colour only
DSSPM 259-01	Cloth, Twist, Nylon/Cotton, Lightweight, CADPAT™(TW), for colours, motif size, colour distribution, print quality, penetration, clarity, pattern
DCGEM 290-73	Cloth, Taffeta, Nylon, 88 g/m <sup>2</sup> , Type II, for Finish Only
DSSPM 255-04	Cloth, Twill, Nylon/Cotton, CADPAT (TW) (for construction, finish, and hand)
DCGE 275-66	Cloth, Plain Weave, Nylon, for Finish
DCGEM 260-85	Cloth, Melton, Wool, 375 g/m <sup>2</sup> (for finish)

DSSPM 251-02	Cloth, polyester, double-sided pile (veloured)
DCGEM 266-82	Cord, Plaited, Spun Synthetic Fibre, Lightweight
DCGEM 1043-85	Badge, Qualification. MOC 131; Search And Rescue Technician, Canadian Forces, Regular Size, Black Melton Background, Gold

**\*NOTE:** The following deviations to Sealed Pattern 123-11.

1. The functional opening on the chest patch pocket must be 7-inches, to accommodate an insulated gloved hand. See para 3.7.1.1.1 and Figure 4.
2. The functional opening on the handwarmer pocket must be 7-inches, to accommodate an insulated gloved hand. See para 3.7.2.4.1 and Figure 5.

**2.6 Paper patterns.** DND will provide the paper patterns for all sizes under Style Code PECWIA30. Size 7040 will be used for tendering purposes.

## **2.7 Order of precedence.**

**2.7.1** In the event of any inconsistency in contract documents such as the contract, manufacturing data, and sealed pattern, the order of precedence shall be contract, manufacturing data, and sealed pattern.

**2.7.2** In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

**2.7.3** In the event of any inconsistency within the technical data (i.e. within or between the manufacturing data, drawings, figures, paper patterns and sealed patterns), the contractor shall contact the Contracting Authority.

## **3. REQUIREMENTS**

**3.1 Sealed patterns.** A sealed pattern, when available, will be supplied to the successful tenderer. The sealed pattern shall constitute the standard in regard to any properties not specified in this Manufacturing Data.

**3.2 Design.** The design must be in accordance with Sealed Pattern 123-11 and must incorporate the following features:

- a. loose fitting;
- b. front closure with slide fastener and fly system with covered buttons;
- c. two-piece sleeves with elbow patches with band cuff finish;
- d. shoulder tab for Canadian flag on the left sleeve cap;
- e. chest pocket systems including cargo pocket, patch pocket and pencil pocket;
- f. cargo pockets with retainer tabs and hand warmer pockets;
- g. knit collar and storm cuff;
- h. drawcords in waist and hem;
- i. rank tab on outside front fly;
- j. waterproof-breathable liner;

- k. fully lined with removable quilted lining;
- l. carrying pouch in back lining;
- m. detachable hood (type i) with face storm shield;
- n. detachable hood (type ii) with face storm shield and coyote fur trim.

**3.2.1** Unless otherwise specified, this garment shall be governed by the Scale of Measurements (see Table I).

**3.3 Preproduction sample.** When specified in the contract, preproduction samples shall be completely representative of the final production garment, being made from parts and materials as specified and by equipment and processes which will be used in quantity production.

### **3.4 Materials**

**3.4.1 Shell.** The shell material must be nylon/cotton twill, in accordance with D-80-001-121/SF-001 and with Sealed Pattern DSSPM 255-04 (for construction, finish and hand). The fabric must be given a durable fluorocarbon, oil resistant and water repellent treatment. The colour for Type I parkas must be CADPAT™ (TW) in accordance with Specification DSSPM 2-2-80-500 (Annex I), Sealed Pattern DSSPM 259-01 and Sealed Pattern DSSPM 2-2-1000. The colour for Type II parkas must be international orange in accordance with Sealed Pattern DCGEM 263-78.

**3.4.2 Lining.** The lining material must be nylon taffeta lining in accordance with Type II of DSSPM 2-2-80-052, (Annex E) and Sealed Pattern DCGEM 290-73. The colour for Type I parkas must be CADPAT™ (TW) in accordance with Specification DSSPM 2-2-80-500 (Annex I), Sealed Pattern DSSPM 259-01, and Sealed Pattern DSSPM 2-2-1000. The colour for Type II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**3.4.3 Barrier.** The barrier must be waterproof moisture vapour permeable barrier fabric (WMVP), Type I in accordance with DSSPM 2-2-80-215 (Annex H). The fabric colour for Type I parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. The fabric colour for Type II Parkas must be international orange in accordance with Sealed Pattern DCGEM 263-78.

**3.4.4 Sealing tape.** The sealing tape shall be a commercially available tape compatible with the WMVP interlining material. The tape must be in accordance with DSSPM 2-2-80-215 (Annex H). The colour must match the barrier fabric.

**3.4.5 Handwarmer fleece.** The handwarmer fleece fabric must be knitted from 100% filament polyester yarns, the cloth must be double faced, veloured and sheared. The fabric structure and finish must be consistent with that of Sealed Pattern DSSPM 251-02, Cloth, polyester, double-sided pile (veloured), solid colour. The fabric must have a maximum mass of 275 g/m<sup>2</sup>. The fabric must have a maximum thickness of 6.3 mm and minimum thickness of 5.8 mm when measured under 0.03 kPa pressure according to CAN/CGSB-4.2 Method 37. When laundered according to the conditions prescribed for the garment, the fleece must have a maximum dimensional change of 7% in the warp direction and 5% in the weft direction, with the total shrinkage for both directions not to exceed 10%. The colour used in Type I parkas must be Canadian Average Green in accordance with with Sealed Pattern DSSPM 251-02. The colour used in Type II parkas must be black.

**3.4.6 Nylon.** The nylon used for pocket linings and the binding for the hand warmer pockets must be plain weave nylon, 195 g/m<sup>2</sup> in accordance with DSSPM 2-2-80-091 (Annex F) and Sealed Pattern DCGE 275-66. The colour used in the Type I parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. The colour used in Type II parkas must be international orange in accordance with Sealed Pattern DCGEM 263-78.

**3.4.7 Porous Nylon Tricot.** The material used as some pocket bags must be commercially available porous nylon tricot conforming to the requirements indicated in Table II. The colour used in Type I parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01 or black. The colour used in Type II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**TABLE II - REQUIREMENTS FOR POROUS NYLON TRICOT**

Description	100% dull nylon tricot, 2 bar knit	
Gauge	32	
Wales	40 per inch	Tolerance ± 3
Courses	41 per inch	Tolerance ± 2
Weight	85 g/m <sup>2</sup>	Tolerance ± 5%
Shrinkage length		Tolerance ± 6%
Shrinkage width		Tolerance ± 8%

**3.4.8 Melton.** The melton for the hood lining must be wool melton in accordance with DSSPM 2-2-80-042 (Annex D) and Sealed Pattern DCGEM 260-85. The colour used in Type I and II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**3.4.9 Insulation with scrim.** The insulation material must be in accordance with Type II (Heavyweight, 210 g/m<sup>2</sup>) of DSSPM 2-2-80-214 (Annex G).

**3.4.10 Rib knit for collar.** The knit for the knitted collar must be commercially available circular 1x1 rib knit, 100% worsted spun bi-component acrylic, in accordance with requirements indicated in Table III. The colour used for Type I and II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**TABLE III - REQUIREMENTS FOR RIB KNIT**

Property	Test Method*	Requirements
Construction	-	Circular 1x1 rib knit
Wales per inch	-	25 to 27
Courses per inch	-	14 to 16
Weight	-	9 to 11 oz. per yd
Colourfastness to light	18.1	Minimum L5
Colourfastness to water	20	No change in colour; no staining. Grey scale 5.
Colourfastness to crocking	22	Grey scale 5.

Property	Text Method*	Requirements
Colourfastness to perspiration	23	No change in colour; no staining. Grey scale 5.
Colourfastness to laundering	19.1 Test No. 1	No change in colour; no staining. Grey scale 5.
Colourfastness to dry cleaning	29.1	No change in colour; no staining. Grey scale 5.

\* CAN/CGSB-4.2-M Textile Text Methods

**3.4.11 Rib knit for the storm cuffs.** The rib knit for the storm cuffs must be commercially available 1x1 rib knit, 100% worsted spun bi-component acrylic. The knit must be 7-inches wide before doubling and must meet the requirements stated in the table of paragraph 3.4.10. The colour used for Type I and Type II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**3.4.12 Hook and loop fastener tape.** The tape must be Type II, Class 1, 100% nylon, hook and loop fastener tape in accordance with A-A-55126B. The colour used in Type I and Type II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. This Manufacturing Data specifies the use of the following widths:

- plain backed, 18 mm (3/4-inch) width;
- plain backed, 25 mm (1 inch) width;
- plain backed, 38 mm (1-1/2 inch) width; and
- plain backed, 50 mm (2 inch) width.

**3.4.13 Slide fasteners.** The slide fasteners for the front closure and chest patch pockets, must have moulded plastic interlocking members, automatic locking sliders and 100% polyester tape in accordance with D-83-001-005/SF-001. The slide fasteners used for the carrying pouch and hand warmer pockets must have monofilament (coil) members, automatic lock sliders and 100% polyester tape in accordance with D-83-001-005/SF-001. When tested in accordance with the applicable test methods, the slide fasteners must meet the requirements for colourfastness and strength. The colour used for Type I and II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. Length and detail requirements must be as indicated in Table IV.

**3.4.13.1 Slide fastener for the hood.** The slide fastener used to attach the hood must be a separating, Class 3, Type 4, moulded plastic interlocking fastener with automatic locking slider and swivel pull. The tape shall be of 100% polyester tape in accordance with D-83-001-005/SF-001. Due to long-term compatibility concerns with replacement hoods, the slide fastener must be interchangeable. **Product Number: #5 YKK (VSO 56 HRI) is available from YKK Canada** (3939 Thimens Blvd. St-Laurent, Quebec Tel: (514) 332-3350) **and must be used for this application.** The colour used for Type I and II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. Length and detail requirements must be as indicated in Table IV.

TABLE IV- REQUIREMENTS FOR SLIDE FASTENERS

Application	Class	Type	Chain Type	Pull Type	Length
Front closure	4	9	Moulded	Long pull	See Scale of Measurements – Table I
Carrying Pouch	3	3	Monofilament (Coil)	Metal loop pull trap with long pull	See Table V below
Chest patch pockets	3	15	Moulded with stops at both ends	Wire swivel pull	Length must be that to produce a functional pocket opening of 7-inches ( 17.8 cm)
Handwarmer pockets	3	1	Monofilament (Coil)	Regular pull	Length must be as per pocket opening on paper pattern to produce a functional pocket opening not less than 7-inches ( 17.8 cm)
Hood	3	4	Moulded	Wire swivel pull	See Scale of Measurements – Table I

TABLE V - LENGTH REQUIREMENTS FOR CARRYING POUCH

Size	Length
32	22-inches (55.8 cm)
36	24-inches (60.9 cm)
40	26-inches (66 cm)
44	28-inches (71.1 cm)
48	30-inches (76.2 cm)
52	32-inches (81.2 cm)

**3.4.14 Twill tape.** The tape for the pocket retainer tabs and reinforcement for snap fasteners (optional) must be commercially available 100% polyester woven edge twill tape, herringbone weave, 1-inch (2.5 cm) wide. The colour used for Type I and II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**3.4.15 Grosgrain ribbon.** The retainer tabs for the liner shall be commercially available 1-inch (2.5 cm) wide, 100% nylon type ribbon. The colour used for Type I and II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**3.4.16 Webbing.** The webbing tape shall be commercially available 100% polypropylene. The tape shall be 1-inch (2.5 cm) wide for the carrying pouch straps and 3/4-inch (19.1 mm) for the ear defenders retaining tabs. The colour for Type I and II parkas shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. The webbing must have a tensile strength of 166 kg when tested in accordance with CAN/CGSB-4.2-M. Test Method 9.1.

**3.4.17 Elastic cord.** The draw cord for the hem shall be commercially available elastic cord in accordance with the requirements as specified in Table VI. The colour used for Type I and II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**TABLE VI - REQUIREMENTS FOR ELASTIC CORD**

Description	Requirements
Diameter	3.5 mm
Weight	23.7 m/kg
Sheath	16 carriers
Core	16 ends of 34's square cut rubber
Pick per cm	28.4
Stretch	190% $\pm$ 10%
Covered yarn	600D polyester

**3.4.18 Cord.** The cord for the hood, waist and slide fastener pulls must be Cord, Plaited, Spun Synthetic Fibre, Type I in accordance with D-80-001-028/SF-001 and Sealed Pattern DSSPM 266-82. The colour used in Type I parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. The colour used in Type II parkas must be either Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01 or black.

**3.4.19 Draw cord locks.** The draw cord locks for the hood, waist and bottom hem must be commercially available wheel type, self-locking, acetal, colour Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. Six (6) draw cord locks are required for each type of parka. The draw cord locks must have the dimensions as indicated in Table VII.

**TABLE VII - REQUIREMENTS FOR DRAWCORD LOCKS**

Size	3/16-inch (4.8 mm)
Length	1-1/4 inch (3.2 cm)
Width	1-inch (2.5 cm)
Depth	1/4-inch (6.4 mm)

**3.4.20 Face shield wire.** The wire used for the hood storm shield shall be commercially available copper wire. Requirements are specified in the following table.

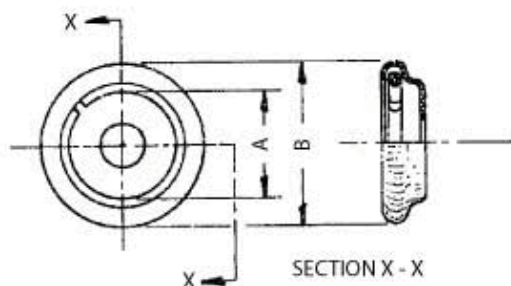
**TABLE VIII - REQUIREMENTS FOR FACE SHIELD WIRE**

Description	Requirements
Content	Copper
Diameter	11 to 12 gauge
Elongation	15%
Breaking strength	220 lbs
Tensile strength	34 000 psi

**3.4.21 Fur Trim for Hood Type ii.** The fur trim for Hood Type ii must be a Coyote fur strip made from number one (1) grade, Western Canadian Coyote. The fur must be 3-inches ( 7.6 cm) wide and 25-inches (63.6 cm) in length.

**3.4.22 Buttons.** Buttons must be slotted nylon 30-ligne and 45-ligne, in accordance with CF-B-854, Drawings 373118 and 389556. The colour used for Type I and II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. One (1) 30-ligne button and eleven (11) 45-ligne buttons are required for each type of parka.

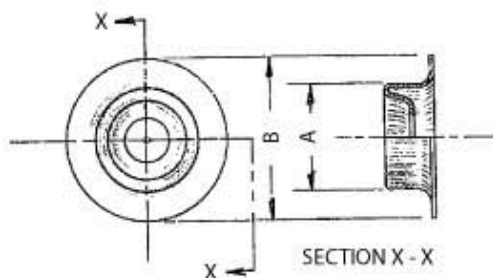
**3.4.23 Snap fasteners.** The snap fasteners must be regular spring clamp type in brass with a black finish with a phosphor bronze spring, conforming to the following information. Each type of parka requires Twenty-six (26) buttons, twenty-six (26) sockets, twenty-seven (27) studs and twenty-seven (27) posts.



Socket Fastener

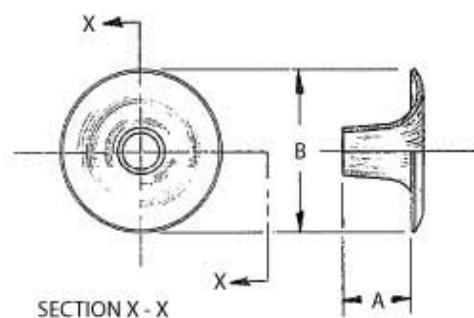
Inside diameter – Dim A	Outside diameter – Dim B
11/32- inch (8.7 mm)	9/16- inch (14.3 mm)





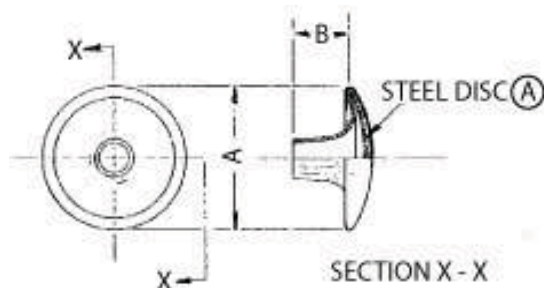
Stud Fastener

Diameter A	Flange diameter – Dim B
3/8- inch (9.5 mm)	9/16- inch (14.3 mm)



Eyelet Fastener

Barrel Length Dim A	Flange Diameter Dim B
1/4- inch (6.3 mm)	9/16- inch (14.3 mm)



CS-153 – Button Fastener

Dim A	Dim B	
Ligne	Dia	Barrel Length
24	39/64-inch (15.5 mm)	11/64- inch (4.4 mm)

**3.4.24 Thread for seaming, stitching, buttonholes and bartacks.** The thread for seaming, stitching, buttonholes and bartacks must be cotton-covered or polyester-covered, polyester thread (R50 tex) conforming to CAN/CGSB-4.131-M. When material with CAD PAT™ (TW) design is being sewn, the colour of the thread must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. Unless otherwise specified, all other garment components must be matched for thread colour.

**3.4.25 Thread for seaming and serging lining, interlining and pocket linings.** The thread used for seaming and serging the lining, interlining and pocket linings must be polyester staple thread (R40 tex) conforming to CAN/CGSB-4.139. When material with CAD PAT™ (TW) design is being sewn, the colour of the thread must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. Unless otherwise specified, all other garment components must be matched for thread colour.

**3.4.26 Thread for quilting of lining.** The thread for quilting the lining on the nylon taffeta side of the quilt, must be Nylon 70/2 conforming to 4-GP-85Ma. The thread for quilting the lining on the backing side of the quilt must be polyester staple thread in accordance with CAN/CGSB-4.139. The colour for both threads must match the colour of the lining material being used.

**3.4.27 Buttonhole gimp.** The buttonhole gimp must be 100% cotton, three (3) cord soft finish, R210 tex, conforming to 4-GP-80Ma, Type 2A. The colour used for Type I and II parkas must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**3.4.28 Qualification badge (Type II Parka only).** The qualification badge located over the pocket flap of the left breast pocket of the Type II parka must be Badge, Qualification. MOC 131; Search And Rescue Technician, Canadian Forces, Regular Size, Black Melton Background, Gold in accordance with Sealed Pattern DCGEM 1043-85. Unless otherwise stated in the contract, this insignia (one per garment) will be provided by the Government as NSN 8455-21-898-1332.

**3.4.29 Labels.** Type I and Type II parkas must be labelled with markings, care, and user information as indicated in paragraphs 3.11, 3.12, and 3.13. Unless otherwise specified in the contract or approved by the Technical Authority, the colour for all labels must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

### **3.5 Cutting**

**3.5.1** Garments must be cut using duplicates of Government supplied paper patterns. Paper patterns include seam allowance but do not include 'make-up' allowance. The contractor shall be responsible for any changes which may be required for 'make-up' allowance to suit his production methods, but the design, grade or the requirements specified herein must not be changed.

**Note:** Paper patterns will not be supplied to contractors involved with special sizes, except upon request. In these instances the contractor shall be responsible for adjusting the paper patterns to accommodate the measurements, stance, and figure of the individual to be fitted.

**3.5.2** The shell parts of the Parka must be cut in the direction of the warp as shown on the paper patterns.

**3.5.3** The shell parts of each Parka must be cut from the same piece of shell material with the exception of the pencil pockets, chest pocket facings, chest patch pockets, cargo pocket welts, all buttoning portion of the flaps including rank tab and buttoning fly, and button strap which may be cut from separate lay or ends of shell material.

**3.5.4** The specified materials must be cut and used in accordance with best commercial standards.

### 3.6 Sewing

3.6.1 All seams must be in accordance with CAN/CGSB-54.1-M.

3.6.2 Seams must be a minimum of 3/8-inch (9.5 mm) wide or as otherwise specified.

3.6.3 All stitching must be either lock stitch Type 301 or chain stitch Type 401 conforming to CAN/CGSB-54.1-M, having not less than 8 nor more than 10 stitches per inch (2.5 cm).

3.6.4 Where double-lapped seams are specified, numerical designation 2.04.03 of CAN/CGSB-54.1-M must be used. The needles must be set 1/4-inch (6.4 mm) apart.

3.6.5 When double-needle stitched is specified, needles must be set 1/4-inch (6.4 mm) apart.

3.6.6 The ends of all lock stitched seams and stitchings, also breaks in thread must be securely backstitched.

3.6.7 The stitches must present a regular even appearance without fabric pucker and must be free from skips that may result from faulty machine tension or other stitching malfunctions.

3.6.8 Where seaming, turning and stitching is specified, the edges must be properly worked out before stitching.

3.6.9 **Serging.** All exposed raw edges must be finished with any 500 series, with not less than 10 stitches per inch (2.5 cm).

3.6.10 Where seaming and serging is specified, this may be done in one or two operations.

3.6.11 Hook and loop fastener tape. Hook and loop fastener tape must be stitched around all edges 1/8-inch (3.2 mm) gauge. Care must be taken to ensure stitching is formed into the hook and loop portion of the tape.

3.6.11.1 When tapes wider than 1-inch (2.5 cm) are used, they must be stitched around all edges and through the center or have a 'X' enclosed in the box.

3.6.11.2 For best results, a ballpoint needle, size 110 (#18) should be used.

3.6.12 **Seam sealing.** When specified, seams must be sealed in a manner that will ensure the integrity of the waterproof barrier layer in the garment in accordance with DSSPM 2-2-80-215 (Annex H). When sealed areas are examined visually, the following criteria must be met:

**TABLE IX - REQUIREMENTS FOR VISUAL EXAMINATION**

Construction Details	Test Method	<u>FAULTS WHICH ARE NOT ACCEPTABLE</u>
Seams	Visual examination	<ol style="list-style-type: none"> <li>1. Tape which is not centered across the width of the seam;</li> <li>2. Delamination along edges of tape, over seam allowance and stitching or across</li> </ol>

Construction Details	Test Method	<u>FAULTS WHICH ARE NOT ACCEPTABLE</u>
		the width of the tape; 3. Bubbling; 4. Blistering; 5. Puckering; 6. Melting; and 7. Ends of threads which have not been trimmed.
Ends and joins	Visual examination	1. Loose ends and corners which have not bonded; 2. Rough edges or beads at the ends; and 3. An overlap at a join of less than 3/4-inch (19.1 mm).
Drill holes and stitching lines not in seams	Visual examination	1. Left uncovered without a designated exception.
Stiffness of seamed area		1. Marked increase of stiffness.

**3.6.13 Bartacks.** Unless otherwise specified, bartacks must be 1/2-inch (12.7 mm) long and must have not less than 20 cover stitches.

**3.6.14 Buttonholes.** Buttonholes must be gimp reinforced eyelet type, with not less than 22 stitches per inch (2.5 cm). The ends must be fishtailed or bartacked. When buttonholes are used for water drainage purposes, only the eyelet of the buttonhole shall be cut open.

**3.6.15 Button and strap assembly.** When specified, buttons must be threaded with a loop of shell material in accordance with Drawing 8790166 for 30-ligne buttons and Drawing 2811 for 45-ligne buttons. The button straps may be either seam type numerical designation 8.06.02 or 8.19.01. The finished width must be 5/16-inch (8 mm). The straps must be attached with bartacks.

**3.6.16 Snap fasteners.** When snap fasteners are being inlaid, the contractor may add reinforcement under the shell material as required. Careful consideration must be given to the attaching force of the snap fastener machine to ensure that all parts of the snap fastener will remain attached and functional for the life of the garment.

**3.6.17 Quilting.** The nylon lining and the insulation must be quilted together in accordance with the insulation supplier's instructions. Quilt stitching should be kept to a minimum to optimise the thermal value of the insulation. Ideally, the quilt pattern should not be smaller than a 12-inch (30 cm) diamond pattern. The quilt pattern is subject to the approval of the Design Authority.

### **3.7 Front construction.**

**3.7.1 Chest pocket system.** Each front must have a cargo style chest pocket with covered buttoning flap mounted over a patch pocket with vertical slide fastener closure. A pencil pocket must be placed inside each patch pocket.

**3.7.1.1** Patch pocket with inside slide fastener closure. The raw edges of the patch pocket must be serged.

**3.7.1.1.1** With slide fastener facing up, the patch pocket shall be placed over the slide fastener and seamed 1/4-inch (6.4 mm) gauge from teeth. The slide fastener must be located as per indicated on paper patterns. The pocket must have a functional opening of 7-inches (17.8 cm), to accommodate an insulated gloved hand. Note: The slider must be at the top when the pocket is closed.

**3.7.1.2 Pencil pockets.** A pencil pocket must be positioned on the front wall of each patch pocket as shown on Figure 4.

**3.7.1.2.1** Each pocket must be made of one piece of shell material. The top edge must be turned under 3/8-inch (9.5 mm) and stitched 1/4-inch (6.4 mm) gauge.

**3.7.1.2.2** With the raw edges folded under, the pencil pocket must be seamed 1/8-inch (3.2 mm) gauge to the wrong side of the patch pocket. The top corners must securely backstitched. A row of stitching must be centered on the pocket, parallel to the side edge. This topstitch must be securely backstitched.

**3.7.1.3 Cargo pockets.** A cargo pocket must be placed over each patch pocket forming three-pocket chest pocket assembly. Each cargo pocket must be made of one layer of shell material and one facing of shell material.

**3.7.1.3.1** Both the pocket and the facing must be serged along the raw edges.

**3.7.1.3.2** The top edge of the pocket must have two 1/2-inch (12.7 mm) pleats, as indicated on paper patterns and Figure 4.

**3.7.1.3.3** Two buttonholes must be placed at the bottom of each pocket as indicated on paper patterns. These buttonholes are for drainage purposes only.

**3.7.1.3.4** The shell and facing must be seamed along the top edge, turned under and stitched 1/8-inch (3.2 mm) gauge.

**3.7.1.3.5** The two bellows cuts at the corners must be seamed and serged.

**3.7.1.3.6** A button and loop assembly must be centered on the pocket with top of loop, 3/4-inch (19.1 mm) from top edge.

**3.7.1.4 Pocket assembly.** With cargo and patch pockets placed right to wrong side, the sides and bottom of the cargo pocket shall be seamed. The assembly shall be turned right side out. The raw edges of the top portion of the patch pocket must be properly worked out to the underside.

**3.7.1.5** The free edge of the pocket opening must be stitched 1/8-inch (3.2 mm) gauge.

**3.7.1.6** Each pocket assembly shall be placed on their respective fronts. The remaining slide fastener tape must be double stitched to the front 1/4-inch (6.4 mm) gauge from slide fastener teeth. A second row must be placed 1/8-inch (3.2 mm) gauge from original stitching.

**3.7.1.7** The pocket assembly must be stitched along the outside edge, bottom, bottom of the pocket opening and top portion of the patch pocket, through all layers. Two vertical bartacks must be placed at the top and bottom of the pocket opening.

**3.7.1.8 Chest pocket covered buttoning flaps.** Each flap must consist of two (2) integral parts: a covering flap and a buttoning flap. All must be made of shell material.

**3.7.1.8.1** With right sides together, the buttoning flap and buttoning flap facing must be seamed along the buttoning opening, turned inside out with corners properly worked out and stitched 1/4-inch (6.4 mm) gauge. A vertical buttonhole to fit a 45-ligne button must be placed 5/8-inch (15.8 mm) from pointed end.

**3.7.1.8.2** With right sides together, the buttoning flap facing and flap facing must be seamed along each side of the flap facing 3/8-inch (9.5 mm) gauge.

Note: Only the facings shall be caught in the stitching. A bartack must be placed at both corners of the opening.

**3.7.1.8.3** With right sides together, the flap shall be seamed along the outer edges to the flap facing. The buttoning flap assembly shall be sandwiched between the flap pieces during this operation and must be partially caught in the seam. The flap assembly must be turned inside out and stitched 1/4-inch (6.4 mm) gauge.

**3.7.1.8.4** The raw edge of the flap shall be placed at the top edge of the patch pocket, seamed, folded down and stitched 1/4-inch (6.4 mm) gauge to enclose all raw edges. Care must be taken to ensure flap effects proper closure with button assembly.

**3.7.2 Lower pocket system.** Each lower front must have a cargo pocket with covered buttoning flap. A hand warmer pocket with covered slide fastener closure shall be placed at the front of each cargo pocket and a double magazine holder pocket, ear defender retainer tab and two snap fastener tabs must be placed inside each cargo pocket.

**3.7.2.1 Shell label (Type I).** The marking and care label for the shell of Parka Type I only must be sewn on the inside of the left front in the area that will be covered by the lower pocket and stitched around all edges 1/16-inch (1.6 mm) gauge.

**3.7.2.2** With raw edges folded under, a back pocket wall of nylon must be stitched to each lower front 1/8-inch (3.2 mm) gauge. Location must be as indicated on paper patterns.

**3.7.2.3 Double magazine holder pocket.** Each magazine holder pocket must be made of nylon material.

**3.7.2.3.1** The top edge of the pocket must be folded over 1-inch (2.5 cm) with raw edge turned under and stitched to form a 1/2-inch (12.7 mm) hem. The side and bottom edges of the pockets must be serged. The bottom edge of each pocket must have four pleats.

**3.7.2.3.2** Each magazine holder pocket must be placed on the back pocket wall, the outside and bottom edge must be folded under and stitched 1/8-inch (3.2 mm) gauge. A row of stitching must be centered on the pocket, parallel to the side edge. The three top corners must be bartacked.

**3.7.2.4 Hand warmer pocket.** The hand warmer pockets must be lined with one layer of fleece on the top and one layer of tricot on the bottom.

**3.7.2.4.1 Pocket opening.** The pocket must have a slide fastener length cut to fit the opening as indicated on the paper pattern. The slider shall be attached. The slide fastener must be secured by back stitching across both ends. The pocket must have a functional opening not less than 7-inches (17.8 cm), to accommodate an insulated gloved hand. Note: The slider must be at the top when the pocket is closed.

**3.7.2.4.2** The fleece lining shall be placed on the right side of the lower pocket piece and with slide fastener sandwiched between both pieces and seamed along the bottom pocket opening. The pocket must be turned inside out; corners properly worked out and stitched 1/8-inch (3.2 mm).

**3.7.2.4.3** The slide fastener cover must be folded under to form a 1-inch (2.5 cm) hem.

**3.7.2.4.4** The back wall of the hand warmer pocket must be made of tricot. The hand warmer pocket and slide fastener cover shall be placed over the tricot. The slide fastener cover shall be centered over the slide fastener and stitched through all layers.

**3.7.2.4.5** The bottom edges of the tricot and fleece must be double-needle stitched to the front walls of the cargo pocket.

**3.7.2.4.6** The hand warmer pocket must be seamed on each side to the cargo pocket side walls. The side walls must be pressed outward and double-needle stitched.

**3.7.2.5** The cargo pocket assembly must be lined with nylon material. The edges may be seamed together for better handling.

**3.7.2.6** A 45-ligne button and loop assembly must be placed on the front wall of the lower pocket as indicated on paper pattern and shown on Figure 5.

**3.7.2.7 Envelope fold.** The top edge of the side walls must be folded down to form a 3/4-inch (19.1 mm) deep pleat, as indicated on paper patterns and Figure 5.

**3.7.2.8 Pocket welt.** The pocket welt must be made of one layer of shell material, folded in half with raw edges turned under and seamed to the top edge of the lower pocket assembly 1/8-inch (3.2 mm) gauge. The cargo pocket assembly, including the lining and pocket welt, must be serged together along side and bottom edges.

**3.7.2.8.1** Two buttonholes must be placed on the bottom of the lower pocket, through both layers. Note: The buttonholes are for drainage purposes only.



**3.7.2.8.2** The two bellows cuts must be seamed and serged. Both shell and lining must be caught in this seam.

**3.7.2.8.3** A female snap fastener must be inlaid, button facing outward and effecting proper closure with pocket tab.

**3.7.2.9** The lower pocket assembly must be centered over the nylon back pocket wall with side and bottom edges folded under and seamed 1/8-inch (3.2 mm) gauge. The stitching must start and end 1-1/4 inches (3.2 cm) below top edge of the welt. The pocket location must be as indicated on paper patterns.

**3.7.2.10 Cargo pocket covered buttoning flaps.** Each flap must consist of two (2) integral parts: a covering flap and a buttoning flap. All must be made of shell material.

**3.7.2.10.1** With right sides together, the buttoning flap and buttoning flap facing must be seamed along the buttoning opening, turned inside out with corners properly worked out and stitched 1/4-inch (6.4 mm) gauge. A vertical buttonhole to fit a 45-ligne button must be placed 5/8-inch (15.8 mm) from pointed end.

**3.7.2.10.2** With right sides together, the buttoning flap facing and flap facing must be seamed along each side of the flap facing 3/8-inch (9.5 mm) gauge. Note: Only the facings must be caught in the stitching. A bartack must be placed at both corners of the opening.

**3.7.2.10.3** With right sides together, the flap shall be seamed along the outer edges to the flap facing. The buttoning flap assembly shall be sandwiched between the flap pieces during this operation and must be partially caught in the seam. The flap assembly must be turned inside out and stitched 1/4-inch (6.4 mm) gauge.

**3.7.2.11 Ear defender retainer tabs.** A piece of webbing 12-1/2 inches (31.8 cm) long by 3/4-inch (19.1 mm) wide must be fused by heat at both ends. The top end of the ear defender retainer tab must have a female snap fastener inlaid facing down 1/2-inch (12.7 mm) behind the edge and a male snap fastener inlaid facing up 1-1/2 inches (3.8 cm) behind the edge. A second female snap fastener must be placed face down, 1/2-inch (12.7 mm) from bottom end.

**3.7.2.12 Pocket tabs.** Each pocket must have two tabs with snap fasteners. One is to be used to connect with the ear defender retainer tab and the other is to connect with pocket.

**3.7.2.12.1** Each tab must be made of twill tape, 4-inches (20 cm) long by 1-inch (2.5 cm) wide, folded in half. A male snap fastener must be inlaid 3/4-inch (19.1 mm) from folded edge.

**3.7.2.12.2** The pocket tabs shall be placed underneath the flap, as indicated on paper patterns and seamed for better handling. The snap fasteners must be facing up on the backside of the pocket flap.

**3.7.2.12.3** The flap must be centered above the pocket assembly, as indicated on paper patterns. Both ends of the welt must be folded under and securely backstitched or bartacked to the pocket flap, through all layers. Care must be taken to ensure flaps effect proper closure with button assembly on pocket.



**3.7.3 Back.** The back must be made of one layer of shell material.

**3.7.4 Shoulders.** The front and back shall be joined together along the shoulder seam with a double-lapped seam. The back must overlap the front.

**3.7.5 Sleeves.** The sleeves shall be two-piece, set-in sleeves with elbow patches of shell material. The bottom of each sleeve must be finished with a hook and loop closure band cuff. The left sleeve must have a subdued Canadian flag mounted on a shoulder tab.

**3.7.5.1 Shoulder tab** (Figure 3). A tab of two layers of shell fabric must be seamed, turned and stitched 1/4-inch (6.4 mm) gauge. The finished size of the tab must be 2-1/4 inches (5.7 cm) square.

**3.7.5.1.1** A 2-inch (5 cm) square piece of loop fastener tape must be centered underneath the tab and stitched around all edges.

**3.7.5.1.2** A 2-inch long by 1-inch wide (5 cm by 2.5 cm) piece of hook fastener tape must be placed over the bottom portion of the tab and stitched around all edges.

**3.7.5.1.3** The shoulder tab must be centered over the left sleeve cap and basted in place to facilitate joining. A 2-inch (5 cm) piece of hook fastener tape shall be seamed to the left sleeve cap. The tape must be placed to effect proper closure with the shoulder tab.

**3.7.5.1.4 Elbow patch.** Each elbow patch must be placed on their respective sleeve piece, face up with raw edges folded under and double-needle stitched.

**3.7.5.2** The top and under sleeve shall be joined together along the elbow seam with a double-lapped seam. The top sleeve must overlap the under sleeve on the outside.

**3.7.5.3 Armholes.** The sleeves must be joined to their respective armhole with a double-lapped seam. The body must overlap the sleeve on the outside.

**3.7.6 Side seams.** The side and underarm must be seamed together in a continuous seam using a double-lapped seam. The back must overlap the front on the outside.

**3.7.7 Cuff retaining tabs (for insulated liner)** (Figure 6). Two (2) cuff retaining tabs are required for each cuff, total of four (4) for each Parka. Each tab must be made of a 3-inch long by 1-inch wide (7.5 cm by 2.5 cm) grosgrain ribbon folded in half. A male portion of a snap fastener must be centered 1/2-inch (12.7 mm) from fold. The ends of the ribbon must be heat fused.

**3.7.8 Cuffs.** Each cuff shall be made of one layer of shell material.

**3.7.8.1** A 1-3/4 inches long by 1-1/2 inches wide (4.4 cm by 3.8 cm) piece of hook fastener tape cut to fit the shape of the cuff extension, must be centered on the under layer, 1-inch (2.5 cm) behind raw pointed edge, and stitched around all edges and reinforced along the center.

**3.7.8.2** The cuff shall be folded in half, wrong sides together, and seamed along both ends and cuff extension. The cuff must be turned right side out and double-needle stitched along bottom, sides and extension 1/8-inch (3.2 mm) gauge.

**3.7.8.3** A 4-1/2 inches long by 1-1/2 inches wide (11.4 cm by 3.8 cm) piece of loop fastener tape must be centered on the outside, 1/2-inch (12.7 mm) behind straight end. The tape must be stitched around all edges and reinforced along the center.

**3.7.8.4** With the pointed end of the cuff toward the elbow seam, the cuff must be double needle stitched to the lower edge of the sleeve, including the pleat in the sleeve and two cuff retaining tabs. The straight end of the cuff must be stitched to the cuff extension 2-1/2 inches (6.3 cm) from the point.

**3.7.8.5** The retaining tabs must be centered under the underarm seam and elbow seam with snap fastener facing up on the backside of the cuff. (Figure 6)

**3.7.8.6** The finished width of the cuff must be 2-1/2 inches (6.3 cm).

**3.7.9 Waist drawcord channel.** The waist channel and waist channel reinforcement must each be made of one layer of shell material.

**3.7.9.1** The reinforcement channel must have a buttonhole for the drawcord outlet. The buttonhole must be reinforced with a 3-1/2 inch (8.9 cm) long by 1-1/4 (3.2 cm) wide layer of shell material or barrier fabric. Only the eyelet of the buttonhole shall be cut. The location of the buttonhole must be as indicated on paper patterns.

**3.7.9.2** With raw edges together the channel, channel reinforcement and buttonhole reinforcement shall be seamed together.

**3.7.9.3** The channel must be folded back about 3-inches (7.5 cm) to form the pockets for the draw cord clamps.

**3.7.9.4** With top and bottom edges folded under, the channel must be centered on the waistline on the outside shell and stitched 1/16-inch (1.6 mm) gauge. The drawcord must be included in the channel but not included in the stitching. The top edges of the pocket flaps must be included in the bottom stitching of the waist channel. The draw cord must be securely stitched or bartacked through all plies, at center back.

**3.7.9.5** The draw cord must protrude 6-inches (15 cm) to 7-inches (17.5 cm) from each buttonhole. The ends must be threaded through the wheel locks, knotted and fused.

**3.7.10 Collar.** The finished collar must have three layers of shell material and one layer of barrier fabric.

**3.7.10.1 Under collar.** The under collar must be have two layers of shell material, stitched together with alternating rows of stitching. The under collar must be seamed and serged to the neck edge of the shell.

**3.7.11 Slide fastener for hood attachment.** The half portion of the slide fastener without the slider shall be centered and seamed with double-needle stitch to the outside of the shell. The bottom stop must be on the right front so that the slide fastener closes from right to left. The position of the slide fastener shall be determined by the other half portion of the slide fastener

sewn to the hood. Care must be taken to ensure the two halves effect proper closure, and the hood flange lies flat and evenly when hood and parka are joined together.

**3.7.11.1 Loop fastener tape for hood attachment.** Three 2-1/4 inch long by 1-inch wide (5.7 cm by 2.5 cm) piece of loop fastener tape must be placed on the outside of the back shell. One must be stitched on the center back and the two others 1/2-inch (12.7 mm) from shoulder seam, on the back side 1-1/2 inch (3.8 cm) from neck edge.

**3.7.12 Front facings** – closure for insulated liner (Figures 6 and 7). Each facing must be made of one layer of shell material and must be inlaid with five (5) snap fastener studs which will correspond with the removable liner.

**3.7.12.1** The facings must be folded in half lengthwise, wrong side together and stitched at 1/4-inch (6.4 mm) gauge along fold and across the ends. Five (5) male portions of a snap fastener must be inlaid in each facing, as indicated on paper patterns. The studs of the snap fastener must be facing inward.

**3.7.13 Top collar.** The interlining shall be placed on the wrong side of the top collar and seamed around all edges for better handling.

**3.7.13.1** The front facings and inside collar must be seamed along the neck edge, collar folded up with seam allowance pressed towards the collar.

**3.7.14 Collar retaining tabs** (for insulated liner) (Figure 6). Two (2) collar retaining tabs are required for each Parka. Each tab must be made of a 3-inch long by 1-inch wide (7.5 cm by 2.5 cm) piece of grosgrain ribbon folded in half. A male portion of a snap fastener must be centered 1/2-inch (12.7 mm) from fold. The ends of the ribbon must be heat fused.

**3.7.14.1** The tabs must be placed on the underside of the back portion of the shell, stud facing inward to connect with lining, and edge of tape against the shoulder seam. The tabs must be stitched in place for better handling.

**3.7.15 Front closure.** Both sides of the slide fastener shall be placed face down on the right side of their respective side of the center front and stitched into place.

**3.7.15.1** With right sides together, the shell and collar/facing assembly must be seamed along center fronts and collar raw edges with slide fastener sandwiched between both pieces. The assembly must be turned inside out and stitched at 1/4-inch (6.4 mm) along center fronts and collar. The raw edge of the inside collar must be turned under and stitched 1/8-inch (3.2 mm) gauge along the neckline.

**3.7.15.2** Each side at the bottom of the slide fastener must be reinforced with a horizontal bartack.

**3.7.16 Underfly.** The underfly shall be made of shell material and barrier fabric and must have five (5) 45-ligne button and loop assemblies.

**3.7.16.1** The underfly shall be folded lengthwise, right side together, including the barrier, and seamed across each end, turned inside out and stitched 1/4-inch (6.4 mm) gauge. The raw edge must be serged.

**3.7.16.2** The underfly shall be placed face down on the right front, 3/4-inch (19.1 mm) behind center front, the top edge directly under the collar seam. The underfly must be seamed to the front at 3/16-inch (4.8 mm) gauge, fly pressed over and stitched 1/4-inch (6.4 mm) gauge.

**3.7.16.3** Five (5) 45-ligne button and loop assemblies, in accordance with Drawing 2811 must be seamed to the underfly. The buttons must be centered in the width of the fly with the top and bottom loops at 1/4-inch (6.4 mm) from end edges. The third button must be centered between the top and bottom buttons and remaining buttons at equidistance.

**3.7.17 Rank tab.** The rank tab facing must be seamed along straight edge and pointed end, turned inside out and pointed end stitched 1/8-inch (3.2 mm) gauge.

**3.7.17.1** A buttonhole to accommodate a 30-ligne button must be centered 3/4-inch (19.1 mm) behind pointed end.

**3.7.17.2** The rank tab facing must be placed on the under piece of the rank tab, 1-inch (2.5 cm) behind raw pointed end and stitched along the straight end 1/8-inch (3.2 mm) gauge.

**3.7.17.3** With right sides together, the rank tab must be seamed along the sides and pointed end, turned inside out and stitched 1/4-inch (6.4 mm) gauge. The sides of the tab facing must be included in this seam.

**3.7.18 Left fly.** The left fly must have a buttoning fly and a fly cover.

**3.7.18.1** The rank tab must be placed as indicated on paper patterns, and seamed to both top layers of the top fly, 1/4-inch (6.4 mm) gauge. The rank tab must be pressed up and stitched 1/4-inch (6.4 mm) gauge.

**3.7.18.2 Button for rank tab.** A 30-ligne button and strap assembly must be sewn to the top fly to effect proper closure with the rank tab.

**3.7.18.3 Buttoning fly.** The buttoning fly must be made of shell material folded lengthwise, wrong side together and seamed across each end, turned inside out and stitched 1/4-inch (6.4 mm) gauge.

**3.7.18.4 Fly cover.** The fly cover must be made of shell material and one layer of barrier material. The buttoning fly must be centered under the fly cover. Four (4) separate rows of stitching must be centered between each buttonhole and across each end. The stitchings must extend for the width of the fly cover and must end 1/4-inch (6.4 mm) from folded edge

**3.7.18.4.1** The fly cover must be folded lengthwise, right sides together, including the barrier material seamed across each end, turned inside out and stitched 1/4-inch (6.4 mm) gauge. The raw edges must be serged together.

**3.7.18.5** The fly and buttoning fly assembly must be placed with top side facing down, on the left front 3/4-inch (19.1 mm) behind center front, the top edge directly under the collar seam. The fly must be seamed to the front at 3/16-inch (4.8 mm) gauge, fly pressed over and stitched 1/4-inch (6.4 mm) gauge.

**3.7.19 Hanger loop.** A hanger loop of shell material shall be made on an automatic looping machine. The width must be 5/16-inch (8 mm) with functional length of 1-3/4 inches (4.5 cm). The hanger loop must be centered at the base of the top collar and bartacked in place.

**3.7.20 Hem retaining tabs (for insulated liner)** (Figure 6). A piece of grosgrain ribbon measuring 3-inches long by 1-inch wide (7.5 cm by 2.5 cm) shall be folded in half. The male portion of a snap fastener must be centered 1/2-inch (12.7 mm) from fold. Six (6) retaining tabs are required for Parka hem. Two must be centered on the front portion of the shell, two must be placed directly behind the side seams, and two must be centered on the back portion of the shell. Retaining tabs may be positioned and stitched in place for easier handling. The ends of the ribbon must be heat fused.

**3.7.21 Hem draw cord channel.** The hem draw cord channel must have four (4) draw cord outlets. Two buttonholes must be placed 2-inches (5 cm) behind the front edge and two must be centered together at center back. All buttonholes must be 1-inch above raw bottom edge. The buttonholes must be reinforced with a 2-1/2 inch by 1-inch (6.3 cm by 2.5 cm) layer of shell material, twill tape or barrier membrane. Only the eyelet of the buttonhole shall be cut.

**3.7.21.1** An elastic draw cord shall be placed under the hem area and threaded through the intended holes. The hem must be folded up 1-1/2 inch (3.8 cm), with raw edge folded under and stitched 1/8-inch (3.2 mm) gauge. The drawcord must be included in the hem channel, but not caught in the stitching. The finished hem channel must be 1-1/8 inch (2.8 cm). The hem retaining tabs must be included in the stitching.

**3.7.21.2** The draw cord must protrude 6-inches (15 cm) to 7-inches (17.5 cm) from each buttonhole. The ends must be dipped in an acetate film for at least 3/4-inch (19.1 mm), threaded through wheel locks and knotted.

**3.7.22 Hood.** The darts in both hood shell pieces must be stitched and topstitched 1/16-inch (1.6 mm) gauge.

**3.7.22.1** The hood shell pieces must be seamed together along the centre seam, turned to one side and topstitched 1/16-inch (1.6 mm) gauge. The midpoint of the draw cord for the front channel of the hood must be fastened to the hood with this row of topstitching.

**3.7.22.2** A buttonhole must be worked in the hood shell at each end of the draw cord channel. Only the eyelet of the buttonhole shall be cut for draw cord outlet.

**3.7.22.3 Hood back channel.** The back channel pieces shall be seamed together at the centre back. The midpoint of the back draw cord must be securely stitched to the midpoint of the back channel. The back channel must be positioned on the inside of the hood and stitched in place along the outer edges. The ends of the draw cord must be threaded through the buttonhole.

**3.7.22.4 Shell flange.** The shell flange pieces must be seamed together at the centre back, turned to one side and topstitched 1/16-inch (1.6 mm) gauge. The shell flange must be seamed to the bottom of the hood shell. With the seam allowance turned up, the neckline must be topstitched 1/16-inch (1.6 mm) gauge.

**3.7.22.5 Hood barrier membrane.** The darts in the barrier shall be seamed. The hood barrier layer pieces shall be seamed together along the centre back seam. The barrier pieces for the flange shall be seamed together at the centre back. The flange barrier shall be seamed to the bottom of the hood barrier layer. All these seams, with the exception of the flange centre back seam must be sealed.

**3.7.22.6 Hood lining.** The hood shall be lined with wool melton. The darts in the lining shall be seamed, opened flat, and topstitched on each side of the seam 1/16-inch (1.6 mm) gauge. The hood lining pieces shall be seamed together at the center back, opened flat and topstitched on each side of the seam 1/16-inch (1.6 mm) gauge. The flange lining pieces shall be seamed together at the center back. The flange lining shall be seamed to the bottom of the hood lining, the seam opened and topstitched 1/16-inch (1.6 mm) gauge.

**3.7.22.6.1 Hood buttoning fly.** The hood buttoning fly must be folded in half, wrong sides together and stitched 1/4-inch (6.4 mm) gauge along fold. The raw edges must be serged. Two horizontal buttonholes to fit 45-ligne buttons must be worked in, 1/2-inch (12.7 mm) from the folded edge. One buttonhole must be centered on the flange portion of the fly; the second buttonhole must be centered on the neck portion. The buttoning fly shall be placed on the front left lining 1/4-inch (6.4 mm) behind front edge. With the side edge turned under, the buttoning fly shall be stitched 1/8-inch (3.2 mm) gauge to the lining. A horizontal row of stitching must be placed at the neck seam.

#### **3.7.22.7 Hood Brim**

**3.7.22.8 Hood brim for Type i and ii.** The hood brim pieces shall be seamed together around the outer edge, turned, properly worked out and topstitched 1/4-inch (6.4 mm) gauge. A second row of topstitching must be stitched 1/2-inch (12.7mm) from the edge, to form a channel for the hood brim wire. The hood brim plies must be stitched together with diagonal rows spaced 1-1/4 inch (3.2 cm) apart when measured at the base of the triangles formed. The brim wire must be threaded through the brim channel. The ends of the wire must be bent back to prevent a sharp edge from puncturing the channel.

**3.7.22.9 Fur trim for Hood brim Type ii.** The coyote fur must be taped with black 3/8-inch (9.5 mm) wide twill tape on all sides. The fur trim must be sewn to the shell fabric on the top portion of the brim.

**3.7.22.10 Hood assembly.** The hood shell, barrier and lining must be seamed together around the outer edge, including the hood brim in the front face edge, leaving a turning opening at the center back of the flange. The hood must be turned, properly worked out and stitched 1/4-inch (6.4 mm) gauge around the edges. The edges of the turning opening must be turned under and closed with the stitching.

**3.7.22.10.1** The front edge of the hood must be topstitched to form the front channel. The stitching must be 1-inch (2.5 cm) gauge at top center seam and meet the stitching of the back draw cord channel at the ends of the channel. The draw cord must be threaded through the channel buttonhole.

**3.7.22.11** The ends of the draw cords must be threaded through the wheel locks and knotted together at the end, twice. The ends of the draw cord must be fused to prevent ravelling. When

the channels are fully extended, the draw cord must extend from the opening by 4-inches (10 cm).

**3.7.22.12 Hood slide fastener.** The remaining side of the slide fastener tape must be centered face down on the hood lining, with the teeth 2-inches (5 cm) from the bottom edge of the flange, and double topstitched through all plies. When the slide fastener is closed, the hood must be correctly positioned on the shell.

**3.7.22.13 Hood fastener tape.** Three (3) 2-1/4 inch long by 1-inch wide (5.7 cm by 2.5 cm) pieces of hook fastener tape must be stitched on the flange lining, 1/2-inch (12.7 mm) from the edge, to align with the loop fastener tapes on the parka shell.

**3.7.22.14 Hood buttons.** Two button and strap assemblies must be sewn to the right front of the hood, 2-inches (5 cm) from the front edge, and spaced to align with the buttonholes on the left side of the hood.

**3.7.23 Hood label (Type i and ii).** The marking and care label for the Type I parka hood must be centered on the hood center seam, 1/2-inch (12.7 mm) above neck and flange seam (Figure 11 and Figure 13). The label must be topstitched 1/16-inch (1.6 mm) gauge around all edges.

#### **3.7.24 Lining.**

**3.7.24.1 Inside chest pocket - lining.** Two 5-inch long by 3/4-inch (12.7 cm by 19.1 mm) pieces of hook fastener tape must be seamed to the front lining, as indicated on paper patterns.

**3.7.24.1.1** The raw edges of the pocket must be serged and turned under. Two (2) 5-inch by 3/4-inch (12.7 cm by 19.1 mm) pieces of loop fastener tape must be stitched to the inside front corner for the pocket opening. The pocket must be double-needle stitched to the front lining up to 1/2-inch (12.7 mm) into loop tape on both sides of the pocket opening.

**3.7.24.2 Carrying pouch** (Figure 8). The top and bottom edges of the lower back lining must be serged. The bottom edge of the lower back lining must be turned under and double-needle stitched to the top slide fastener tape. The free edge of the slide fastener must be positioned face down on the back lining, and double topstitched through the tape.

**3.7.24.2.1 Carrying straps** (Figure 8). The short piece of webbing must be folded in half and positioned over one end of the slide fastener tape and securely stitched through all plies and reinforced with a bartack. One end of the long piece of webbing must be positioned over the other end of the slide fastener tape and securely stitched through all plies and reinforced with a bartack. The loose end of the long piece of webbing must be tied through the webbing loop and knotted.

**3.7.24.2.2** The top edge of the lower back lining must be turned under and double-needle stitched to the right face of the back lining. The side edges of the lower back lining and the back lining must be topstitched together, while forming a pleat, 2-inches (5 cm) deep, in the area over the slide fastener.

**3.7.24.3 Lining assembly.** The front and back lining must be seamed and serged together at the shoulders. The elbow seams of the sleeves must be seamed and serged together. The



sleeves must be seamed and serged to the lining armhole. The underarm seams must be seamed and serged together in a continuous seam through the side seams.

**3.7.24.4 Knitted cuffs.** The cuffing must be doubled over, seamed and serged to the bottom of the liner sleeve.

**3.7.24.5 Hanger loop.** The ends of the cord for the hanger loop must be stitched to the outer neckline of the liner collar. The functional length of the loop must be 2-inches (5 cm).

**3.7.24.6 Knit collar.** The knit collar piece must be folded up and with raw edges together, stitched to the neck edge of the liner.

**3.7.24.7 Liner label (Type I).** The marking and care label for the liner (Type I parka) or the parka ensemble (Type II parka), must be centered on the lower back lining above the slide fastener, and stitched around all edges, 1/16-inch (1.6 mm) gauge.

### **3.7.25 Front facings.**

**3.7.25.1 Right dome facing.** The right dome facing must be folded in half lengthwise and raw edge placed along the front edge of the barrier right front piece. The right dome facing must be stitched 1/16-inch (1.6 mm) and 1-3/8 inch (3.5 cm) gauge from the fold. Five (5) button portions of the snap fasteners must be inlaid through the right dome facing and positioned to align correctly with the corresponding snaps on the parka shell facing.

**3.7.25.2 Left dome facing.** The left dome facing must be folded in half lengthwise and raw edge placed along the front edge of the barrier left front piece. The left dome facing must be stitched 1/16-inch (1.6 mm) and 1-3/8 inch (3.5 cm) gauge from the fold. Five (5) button portions of the snap fasteners must be inlaid through the left dome facing and positioned to align correctly with the corresponding snaps on the parka shell facing.

**3.7.26 Barrier layer.** The fronts of the barrier membrane must be seamed to the back of the barrier membrane at the shoulders. The top sleeve of the barrier must be seamed to the under sleeve of the barrier along the elbow seam. The sleeve barrier layer must be joined to the body barrier layer at the armhole seam. The underarm seam on the barrier must be joined in a continuous operation through the side seams. All these seams sewn in the barrier membrane must be sealed.

**3.7.27 Liner retaining tabs for sleeves** (Figure 6 and 7). Four (4) snap fastening retainer tabs (two (2) for each sleeve) are required for the Parka liner. The tape of the retainer tabs must be doubled over and a female portion of the snap fastener must be centered on the tape, 1/2-inch (12.7 mm) from the folded edge when measured to the center of the snap. Each retainer tab must have a functional length of 1-inch (2.5 cm). A snap fastener retainer tab must be stitched to the lower edge of the barrier layer sleeves centered over both the elbow and underarm seams.

**3.7.28 Joining barrier and lining.** With the right sides together, the barrier layer and lining must be seamed together around the neck, front and sleeve edges. The bottom edges must be seamed together, leaving an opening for turning at center back. The liner must be turned right side out, properly worked out and topstitched 1/4-inch (6.4 mm) gauge around the neck seam, left and right front edges and across the bottom. The edges of the bottom opening must be



turned in and closed with the topstitching. The right front edge of the liner must be stitched 3-inches (7.5 cm) gauge through all plies. The left front edge of the liner must be stitched 1-3/4 inch (4.5 cm) gauge through all plies.

**3.7.29 Bottom edge and collar snap fasteners.** Six (6) female portions of the snap fasteners must be applied to the bottom of the liner with the button on the lining side of the liner. Two (2) female portions of the snap fasteners must be applied to the neck edge of the liner. These snap fasteners must be positioned to align with the corresponding snap fastener retaining tabs on the shell so that the liner fits to the shell without pulling or bunching between the snaps.

**3.7.30 Slide fastener thongs.** Each slide fastener pull must have a length of draw cord threaded through, tied with a single knot at the pull tab and knotted again at the thong end. The ends of the draw cord must be fused to prevent ravelling. The thongs must have a functional length of 2-1/2 inches (6.3 cm).

**3.8 Measurements.** Measurements must be as on the applicable Figures and the Scale of Measurements (see Table I).

### **3.9 Seam sealing.**

**3.9.1** The seam sealing equipment must be controlled and calibrated in accordance with the quality system requirement, to ensure process conformance. Time, pressure and heat must be verified periodically throughout the seam sealing operation and each time the equipment is started up.

**3.9.2** A hydrostatic test using 3-1/2 psi for 3 minutes must be conducted on straight seams, curved seams and joint seams after every two hours of continuous operation. Tests must also be conducted after every 10 minutes of down time. There must be no leakage.

**3.9.3** All seam sealing test results and verification must be recorded and documented as per the quality system requirements.

**3.10 Pressing.** The Parka must be properly pressed in accordance with good commercial practice.

**3.11 Marking labels - Type I Parka.** A marking labels for the Type I parka ensemble must be sewn on the inside on the Parka, Liner and Hood. The label and markings must be in accordance with D-80-001-055/SF-001. The marking must give the following information printed in characters not less than 1/8-inch (3.2 mm) nor more than 1/4-inch (6.4 mm) high:

For the **SHELL** –

- a. The specific NATO stock number for the Shell as required for each size. Applicable NSN's will be designated in the contract by item and size.
- b. The bar code for the specific NATO stock number for the Shell.
- c. Nomenclature in English and French as follows:  
SHELL, PARKA, COMBAT, IMPROVED, ICE  
EXTERIEUR, PARKA, COMBAT, AMÉLIORÉ, EVI

- d. Size by height and chest (Scale of Measurements – Table I).
- e. NATO size designation (Scale of Measurements – Table I).
- f. Contract number.
- g. Month and year of production e.g. 05/2002.
- h. The specific NATO stock number for the Parka as required for each size, preceded by the word “For”. Applicable NSN’s will be designated in the contract by item and size.
- i. Fibre content: Nylon/Cotton.
- j. A line suitable for user identification.
- k. Example:

NSN XXXX-XX-XXX-XXXX  
 SHELL, PARKA, COMBAT, ICE  
 EXTERIEUR, PARKA, COMBAT EVI  
 NYLON/COTTON  
 I.D. \_\_\_\_\_  
 7644      6070-0515  
 W8476KS9QL 05/2002  
 For: NSN XXXX-XX-XXX-XXXX

For the **LINER** –

- a. The specific NATO stock number for the Liner as required for each size. Applicable NSN’s will be designated in the contract by item and size.
- b. Nomenclature in English and French as follows:  
 LINER, PARKA, COMBAT, IMPROVED, ICE  
 DOUBLURE, PARKA, COMBAT, AMÉLIORÉ, EVI
- c. Size by height and chest (Scale of Measurements – Table I).
- d. NATO size designation (Scale of Measurements – Table I).
- e. Contract number.
- f. Month and year of production e.g. 05/2002.
- g. The specific NATO stock number for the Parka as required for each size, preceded by the word “For”. Applicable NSN’s will be designated in the contract by item and size.
- h. A line suitable for user identification.

## i. Example:

NSN XXXX-XX-XXX-XXXX  
 LINER, PARKA, COMBAT, IMPROVED, ICE  
 DOUBLURE, PARKA, COMBAT, AMÉLIORÉ, EVI  
 NYLON/COTTON  
 I.D. \_\_\_\_\_  
 7644 6070-0515  
 W8476KS9QL 05/2002  
 For: NSN XXXX-XX-XXX-XXXX

For the **HOOD TYPE i**–

- a. The specific NATO stock number for the Hood as required for each size. Applicable NSN's will be designated in the contract by item and size.
- b. Nomenclature in English and French as follows:  
 HOOD, PARKA, COMBAT, ICE  
 CAPUCHON, PARKA, COMBAT, EVI
- c. Contract number.
- d. Month and year of production e.g. 05/2002.
- e. All sizes of the corresponding parkas by height and chest, which apply to the hood size (see Scales of Measurements – Table I), preceded by the word “For”.
- f. A line suitable for user identification.
- g. Example:

NSN XXXX-XX-XXX-XXXX  
 HOOD, PARKA, COMBAT, ICE  
 CAPUCHON, PARKA, COMBAT EVI  
 I.D. \_\_\_\_\_  
 7644 6070-0515  
 W8476KS9QL 05/2002  
 For: Sizes 6736/7036/7336

No brand or product names shall be used on or attached to the garment in any way.

For the **HOOD TYPE ii** –

- a. The specific NATO stock number for the Hood as required for each size. Applicable NSN's will be designated in the contract by item and size.
- b. Nomenclature in English and French as follows:  
 HOOD, TYPE ii, FUR TRIMMED, PARKA, COMBAT, ICE  
 CAPUCHON, TYPE ii, BORDÉ DE FOURRURE, PARKA, COMBAT, EVI
- c. Contract number.

- d. Month and year of production e.g. 05/2002.
- e. All sizes of the corresponding parkas by height and chest, which apply to the hood size (see Scales of Measurements – Table I), preceded by the word “For”.
- f. A line suitable for user identification.
- g. Example:

NSN XXXX-XX-XXX-XXXX  
 HOOD, TYPE ii, FUR TRIMMED, PARKA, COMBAT, ICE  
 CAPUCHON, TYPE ii, BORDÉ DE FOURRURE, PARKA,  
 COMBAT EVI  
 I.D. \_\_\_\_\_  
 7644 6070-0515  
 W8476KS9QL 05/2002  
 For: Sizes 6736/7036/7336

No brand or product names shall be used on or attached to the garment in any way.

**3.12 Marking label - Type II Parka.** A marking label for the Type II parka must be sewn on the inside on the Liner. The label and markings must be in accordance with D-80-001-055/SF-001. The marking must give the following information printed in characters not less than 1/8-inch (3.2 mm) nor more than 1/4-inch (6.4 mm) high:

- a. The specific NATO stock number for the Parka as required for each size. Applicable NSN's will be designated in the contract by item and size.
- b. The bar code for the specific NATO stock number for the Parka;
- c. Nomenclature in English and French as follows:

PARKA, EXTREME COLD WEATHER, IMPROVED, SAR TECH  
 PARKA, TEMPS FROID EXTRÊME, AMÉLIORÉ, SAR TECH

- d. Size by height and chest (Scale of Measurements – Table I).
- e. NATO size designation (Scale of Measurements – Table I).
- f. Contract number.
- g. Month and year of production e.g. 05/2002.
- h. Fibre content: e.g. Nylon/Cotton
- i. A line suitable for user identification.
- j. Example:

NSN XXXX-XX-XXX-XXXX

PARKA, EXTREME COLD WEATHER, SAR TECH  
PARKA, TEMPS FROID EXTRÊME, SAR TECH  
NYLON/COTTON

I.D. \_\_\_\_\_  
7644 6070-0515  
W8476KS9QL 05/2002

For the **HOOD** –

- a. The specific NATO stock number for the Hood as required for each size. Applicable NSN's will be designated in the contract by item and size.
- b. Nomenclature in English and French as follows:  
HOOD, PARKA, ECW, SAR TECH  
CAPUCHON, PARKA, TFE, SAR TECH
- c. Contract number.
- d. Month and year of production e.g. 05/2002.
- e. All sizes of the corresponding parkas by height and chest, which apply to the hood size (see Scales of Measurements – Table I), preceded by the word “For”.
- f. A line suitable for user identification.
- g. Example:

NSN XXXX-XX-XXX-XXXX  
HOOD, PARKA, ECW, SAR TEC  
CAPUCHON, PARKA, TFE, SAR TEC  
I.D. \_\_\_\_\_  
7644 6070-0515  
W8476KS9QL 05/2002  
For: Sizes 6736/7036/7336

No brand or product names shall be used on or attached to the garment in any way.

**3.13 Care labelling for Type I and II Parkas.** The liner component of the Parka must have a care label with the following information printed in English and French on a Canadian Average Green label in accordance with D-80-001-055/SF-001.

- 1. Machine wash in lukewarm water (not exceeding 40°C). / Lavage à l'eau tiède (température maximale de 40°C) dans une laveuse.
- 2. Do not use bleach. / Ne pas utiliser d'agents de blanchiment.
- 3. Tumble dry at low temperature. / Séchage en machine à tambour à température basse.

4. Dry clean only when proper laundering fails to remove soil. / Nettoyage à sec si le linge est encore sale après le blanchissage.
5. Do not stitch or puncture the membrane in this garment. / Ne pas coudre ou perforer la membrane interne imperméable
6. **REMOVE FUR TRIMMED HOOD** - See hood care label for instructions. / **DÉTACHEZ LE CAPUCHON BORDÉ DE FOURRURE** – Voir l'étiquette d'entretien sur le capuchon pour instructions.

**3.14 Care labelling for Type ii Hood, Fur Trimmed.** There must be a care label with the following information printed in English and French on a Canadian Average Green label in accordance with D-80-001-055/SF-001, stitched to the lining at the bottom, centre back of the hood.

1. Remove fur trimmed hood. / Détachez capuchon bordé de fourrure.
2. Do not machine wash. Spot clean with dampened cloth, soap and warm water only. / Ne pas laver à la machine. Nettoyer les taches avec chiffon humide avec savon et l'eau tiède seulement.
3. Soiled fur can be wiped with dampened cloth (no soap), dry at room temperature. / Fourrure souillée peut être nettoyée avec un chiffon humide (sans savon), sécher à la température ambiante.
4. Do not machine dry, air dry only. / Ne pas sécher à machine, sécher à l'air seulement.
5. Do not bleach. / Ne pas utiliser d'agents blanchiment.
6. When proper laundering fails to remove soil, consult a company specializing in fur care. / Si vêtement est sale après le lavage approprié, consultez une entreprise spécialisée dans le soins des fourrures.
7. Do not stitch or puncture the membrane in this garment. / Ne pas coudre ou perforer membrane interne impermeable.

**3.15 Finishing.** The Parka must be cleaned, pressed for removal of wrinkles at temperature not exceeding 82°C (180°F) and folded. Parkas will be packaged as outlined in CFTPO-GENERAL.

**3.16 User instruction label.** The liner component of the Type I and II parkas must have a user instruction label with the following information printed in English and French on a Canadian Average Green label in accordance with D-80-001-055/SF-001:

#### **USER INSTRUCTIONS**

This clothing system allows you to layer components in a variety of ways to keep you warm and dry in temperatures from -57°C to +10°C.

To maximize and maintain performance:

- Follow care instructions;
- Do not let garments become heavily soiled;
- Remove fur trimmed hood before washing;
- Close all slide fasteners and pouch openings and separate components before laundering.
- Perform minor repairs such as button replacement, with care to avoid puncturing the membrane. Do not stitch or puncture the membrane.
- Return the garment to clothing stores for repair when damage and/or deterioration warrants.
- Ensure zipper sliders are at the bottom of opening before closing zippers. Do not force.
- Adjust waist drawcords to fit; fasten locks. Tuck drawcord ends and locks into channel pocket.
- To store parka/jacket in pouch, close front zipper before rolling garment compactly from collar to bottom. Turn pouch inside out over garment. Close pouch zipper. Adjust strap.
- When parachuting or in windy conditions, use the elastic at the lower back edge of the parka to prevent billowing by pulling the elastic loop through the legs and attaching to the front lower button.

### **DIRECTIVES POUR L'UTILISATION**

Ce système d'habillement permet de superposer divers articles de différentes façons afin de conserver la chaleur et demeurer au sec à des températures allant de  $-57^{\circ}\text{C}$  à  $+10^{\circ}\text{C}$ .

Pour maximiser et conserver l'efficacité:

- Suivre les directives d'entretien;
- Éviter de trop salir les vêtements;
- Détachez le capuchon borde de fourrure avant le lavage;
- Séparer les pièces avant de les laver; fermer toutes les fermetures à glissières et les poches;
- Faire les petites réparations avec soin, comme remplacer les boutons, afin d'éviter de perforer la membrane. Ne pas coudre la membrane; ne pas la perforer.
- Tout vêtement endommagé ou détérioré doit être retourné au magasin d'habillement pour fins de réparation.
- Pour fermer les fermetures à glissières, il est important que la glissière soit bien engagée au bas de la fermeture. Il faut éviter de la forcer.
- Ajuster les cordonnets de ceinture et fixer les attaches. Insérer les bouts des cordonnets et les attaches dans la coulisse de la ceinture.
- Pour ranger le parka/veste dans sa pochette, fermer la fermeture puis enrouler le vêtement en partant du col allant vers le bas tout en le comprimant. Tourner la pochette à l'envers et la glisser sur le vêtement. Fermer la glissière de la pochette. Ajuster la courroie.
- Pour le parachutage ou dans le vent, pour éviter le gonflement, se servir de l'élastique qui se trouve à l'arrière du parka, à la partie inférieure. Tirer la boucle de cette élastique entre les jambes et vers le devant; la fixer au devant du parka, au dernier bouton du bas.

## **4. QUALITY CONTROL/INSPECTION**

**4.1** The contractor is responsible for the performance of all inspection requirements as specified herein. Contractors may utilize their own or any other inspection facility acceptable to the Government or its designated representative. The Government reserves the right to perform any of the inspections specified herein, where such inspections are deemed necessary to ensure materiel and services conform to the prescribed requirements. The contractor is

responsible for ensuring that all materiel or services submitted to the government for acceptance comply with all requirements of the contract

## **5. PACKAGING**

**5.1 Packaging and packing.** Unless otherwise specified, the packaging, packing and delivery must be in accordance with the terms of the contract.

## **6. NOTES**

**6.1** Ordering data. Procurement documents should specify the following:

- a. Title and date of Manufacturing Data;
- b. NATO Stock Number and size required;
- c. Preproduction requirements (see 3.3);
- d. Packaging and packing requirements (see 5.1);
- e. The Design Authority; and
- f. The Quality Assurance Authority.

### **6.2 Definition of terms**

**6.2.1 Design Authority.** The Design Authority is the Government agency responsible for the technical aspect of the design and changes to design. Unless otherwise specified, the Design Authority is the Directorate, Soldier Systems Program Management (DSSPM).

**6.2.2 Master sealed pattern.** A master sealed pattern is the authorized prototype of the item to be produced, and is held only by the Government.

**6.2.3 Sealed pattern.** A sealed pattern is an exact duplicate of the master sealed pattern and is available to the manufacturer to be used as a guide in production (see 3.1).

**6.2.4 DND green procurement.** The production of a product to this manufacturing data, or the evaluation of a product to this manufacturing data, may require the use of materials and/or equipment that could be hazardous. This manufacturing data does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this manufacturing data to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.

**6.2.5 Enquiries.** Enquiries or recommendations for additions or deletions must be addressed to the Contracting Authority.



NSNs for Converged Parka,  
Extreme Cold Weather, Improved, ICE,  
CADPAT™ TW (for Type I Parka)

NSN	SIZE
8415-20-006-5421	A/A
8415-20-006-5422	6432
8415-20-006-5423	6436
8415-20-006-5424	6440
8415-20-006-5425	6736
8415-20-006-5426	6740
8415-20-006-5427	6744
8415-20-006-5428	6748
8415-20-006-5429	7036
8415-20-006-5430	7040
8415-20-006-5431	7044
8415-20-006-5432	7048
8415-20-006-5433	7052
8415-20-006-5434	7336
8415-20-006-5435	7340
8415-20-006-5436	7344
8415-20-006-5437	7348
8415-20-006-5443	7352
8415-20-006-5438	7640
8415-20-006-5439	7644
8415-20-006-5440	7648
8415-20-006-5441	7652
8415-20-006-5442	SPECIAL

NSNs for Converged Parka, Liner,  
Extreme Cold Weather, Improved, ICE,  
CADPAT™ TW (for Type I Parka)

NSN	SIZE
'8415-20-006-5803	A/A
'8415-20-006-5804	6432
8415-20-006-5805	6436
'8415-20-006-5806	6440
8415-20-006-5807	6736
8415-20-006-5808	6740
8415-20-006-5809	6744
8415-20-006-5810	6748
8415-20-006-5811	7036
8415-20-006-5812	7040
8415-20-006-5813	7044
8415-20-006-5814	7048
8415-20-006-5815	7052
8415-20-006-5816	7336

NSN	SIZE
8415-20-006-5817	7340
8415-20-006-5818	7344
8415-20-006-5819	7348
8415-20-006-5820	7352
8415-20-006-5821	7640
8415-20-006-5822	7644
8415-20-006-5823	7648
8415-20-006-5824	7652
8415-20-006-5825	SPECIAL

NSNs for Converged Parka Hood – Type i,  
Extreme Cold Weather, ICE,  
CADPAT™ TW (for Type I Parka)

NSN	SIZE
8415-21-920-9963	A/A
8415-20-000-4261	32 (6432)
8415-21-920-9958	36 (6436, 6736, 7036, & 7336)
8415-21-920-9957	40 (6440, 6740, 7040, 7340, & 7640)
8415-21-920-9956	44 (6744, 7044, 7344, & 7644)
8415-21-920-9955	48 (6748, 7048, 7348, & 7648)
8415-21-920-9961	52 (7052, 7352, & 7652)
	SPECIAL

NSNs for Converged Parka Hood, Fur Trimmed – Type ii,  
Extreme Cold Weather, ICE,  
CADPAT™ TW (for Type I Parka)

NSN	SIZE
8415-20-007-5154	A/A
8415-20-007-5155	32 (6432)
8415-20-007-5156	36 (6436, 6736, 7036, & 7336)
8415-20-007-5157	40 (6440, 6740, 7040, 7340, & 7640)
8415-20-007-5158	44 (6744, 7044, 7344, & 7644)
8415-20-007-5159	48 (6748, 7048, 7348, & 7648)
8415-20-007-5160	52 (7052, 7352, & 7652)
	SPECIAL

NSNs for Converged Parka,  
Extreme Cold Weather, Improved, SAR  
Tech, Int'l Orange ( (for Type II Parka)

NSN	SIZE
	A/A
	6432
	6436
	6440
	6736
	6740
	6744
	6748
	7036
	7040
	7044
	7048
	7052
	7336
	7340
	7344
	7348
	7352
	7640
	7644
	7648
	7652
	SPECIAL

NSNs for Converged Parka Hood,  
Extreme Cold Weather, SAR TECH,  
Int'l Orange (for Type II Parka)

NSN	SIZE
8415-21-920-9965	A/A
8415-20-003-0840	32 (6432)
8415-20-000-4262	36 (6436, 6736, 7036, & 7336)
8415-20-003-0841	40 (6440, 6740, 7040, 7340, & 7640)
8415-20-003-0842	44 (6744, 7044, 7344, & 7644)
8415-20-003-0843	48 (6748, 7048, 7348, & 7648)
8415-20-003-0844	52 (7052, 7352, & 7652)
	SPECIAL

DSSPM 2-9

TABLE 1 - SCALE OF MEASUREMENTS FOR PARKA EXTREME COLD WEATHER, IMPROVED ARCTIC

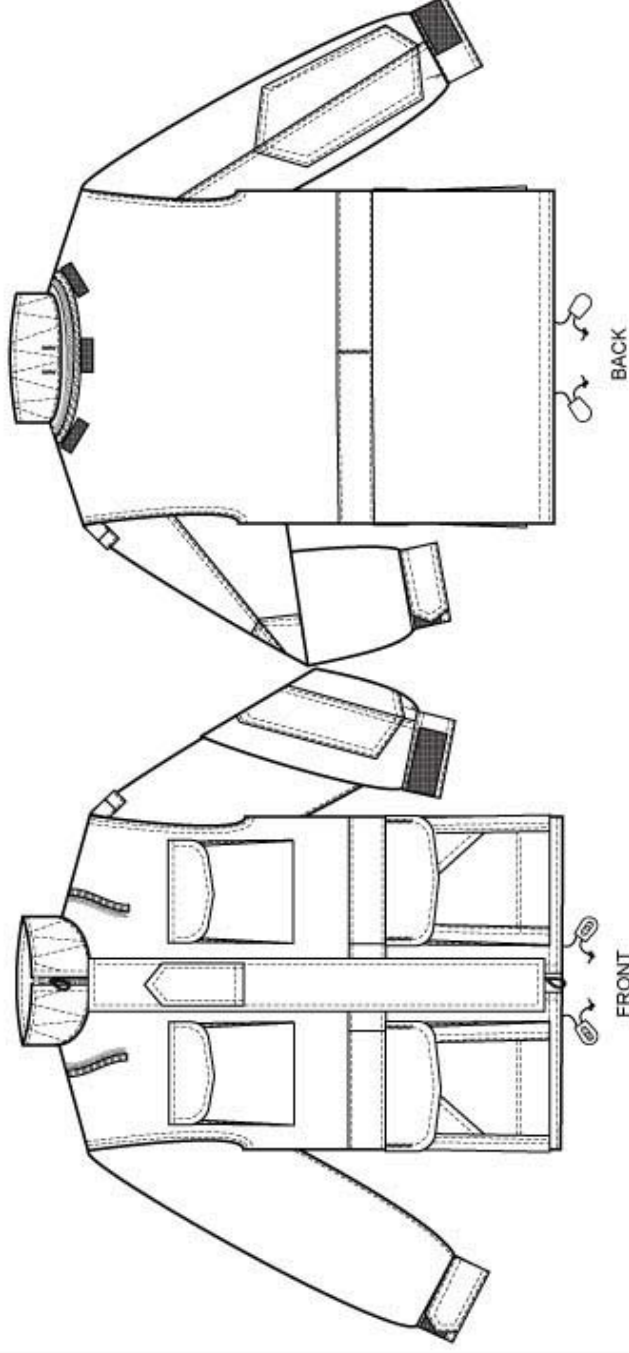
OCTOBER 2011

MEASUREMENTS OF BODY				MEASUREMENTS OF GARMENT																
			GIRTH MEASUREMENTS SLIDE FASTENER		FULL LENGTH FRONT BACK		COLLAR EDGE AT BACK TO IN LINE WITH BACK SEAM		LENGTH AT UNDER ARM SEAM INCLUDING CUFF		SLEEVES WIDTH AT AT CUFF FULLY EX- TENDED		FRONT TO BACK OVER CROWN INCLUDING EXTENSION AND SKIRT		HOOD LENGTH OF FACE EX- TENSION NOTCH TO NOTCH		SLIDE FASTENER LENGTH		SLIDE FASTENER LENGTH AT CENTRE FRONT	
SIZES BY HEIGHT AND CHEST	NATO SIZES	HEIGHT WITHOUT SHOES	CHEST	CHEST WAIST BOTTOM																
6432	5060-7595	5'1" to 5'3 1/2"	29-32	46	44	46	31 1/4	21 1/2	19 1/2	21	23 1/2	11	28	22	23	24	23 1/2	23	24	31
6436	5060-8595	SHORT	33-36	50	48	50	31 3/8	22 1/2	21	21 1/2	24 1/2	12 1/2	28 1/4	23	24	25 1/2	13	28 1/2	24	
6440	5060-9505		37-40	54	52	54	31 1/2	23 1/2	21 1/2	21 1/2	25 1/2	13	28 1/2	23	24	26 1/4	13	28 1/2	24	
6736	6070-8595	5'4"	33-36	50	48	50	32 7/8	22 1/2	21	21 1/2	26 1/4	12 1/2	28 1/4	23	24	27 1/4	13 1/2	28 3/4	25	32 1/2
6740	6070-9505	to	37-40	54	52	54	33	23 1/2	22 1/2	22 1/2	26 1/4	13	28 1/2	23	24	28 1/4	14	29	26	
6744	6070-0515	5'6 1/2"	41-44	58	56	58	33 1/8	24 1/2	24	24	27 1/4	13 1/2	28 3/4	25	26	29 1/4	14	29	27	
6748	6070-1525		45-48	62	60	62	33 1/4	25 1/2	25 1/2	25 1/2	28 1/4	14	29	26	27	30 3/4	14 1/2	29 1/4	27	
7036	7080-8595		33-36	50	48	50	34 3/8	22 1/2	21	21 1/2	26 1/4	12 1/2	28 1/4	23	24	27 1/4	13 1/2	28 3/4	25	34
7040	7080-9505	5'7"	37-40	54	52	54	34 1/2	23 1/2	22 1/2	22 1/2	27 1/4	13	28 1/2	23	24	28 1/4	14	29	26	
7044	7080-0515	to	41-44	58	56	58	34 5/8	24 1/2	24	24 1/2	28 1/4	13 1/2	28 3/4	25	26	29 1/4	14	29	27	
7048	7080-1525	5'9 1/2"	45-48	62	60	62	34 3/4	25 1/2	25 1/2	25 1/2	28 1/4	14	29	26	27	30 3/4	14 1/2	29 1/4	27	
7052	7080-2535		49-52	66	64	66	34 7/8	26 1/2	27	27 1/2	28 1/4	14 1/2	29 1/4	27	28	30 3/4	14 1/2	29 1/4	27	
7336	8090-8595		33-36	50	48	50	35 7/8	22 1/2	21	21 1/2	26 3/4	12 1/2	28 1/4	23	24	27 3/4	13	28 1/2	24	35 1/2
7340	8090-9505	5'10"	37-40	54	52	54	36	23 1/2	22 1/2	22 1/2	27 3/4	13	28 1/2	23	24	28 3/4	13 1/2	28 3/4	25	
7344	8090-0515	to	41-44	58	56	58	36 1/8	24 1/2	24	24 1/2	28 1/4	13 1/2	28 3/4	25	26	29 1/4	14	29	26	
7348	8090-1525	6'1/2"	45-48	62	60	62	36 1/4	25 1/2	25 1/2	25 1/2	29 1/4	14	29	26	27	30 3/4	14 1/2	29 1/4	27	
7352	8090-2535		49-52	66	64	66	36 3/8	26 1/2	27	27 1/2	28 1/4	14 1/2	29 1/4	27	28	30 3/4	14 1/2	29 1/4	27	
7540	9000-8505	6'1"	37-40	54	52	54	37 1/2	23 1/2	22 1/2	22 1/2	28 1/2	13	28 1/2	24	25	29 1/4	13 1/2	28 3/4	25	37
7544	9000-0515	to	41-44	58	56	58	37 5/8	24 1/2	24	24 1/2	28 1/4	13 1/2	28 3/4	25	26	29 1/4	14	29	26	
7548	9000-1525	6'3 1/2"	45-48	62	60	62	37 3/4	25 1/2	25 1/2	25 1/2	29 1/4	14	29	26	27	31 1/2	14 1/2	29 1/4	27	
7552	9000-2535		49-52	66	64	66	37 7/8	26 1/2	27	27 1/2	28 1/4	14 1/2	29 1/4	27	28	31 1/2	14 1/2	29 1/4	27	0
TOLERANCE PLUS OR MINUS				1"	1"	1"	3/4	1/2	1/2	1/2	1/2	1/2	1/2	1/2	0	0	1/2	1/2	0	0

DIMENSIONS ARE IN INCHES

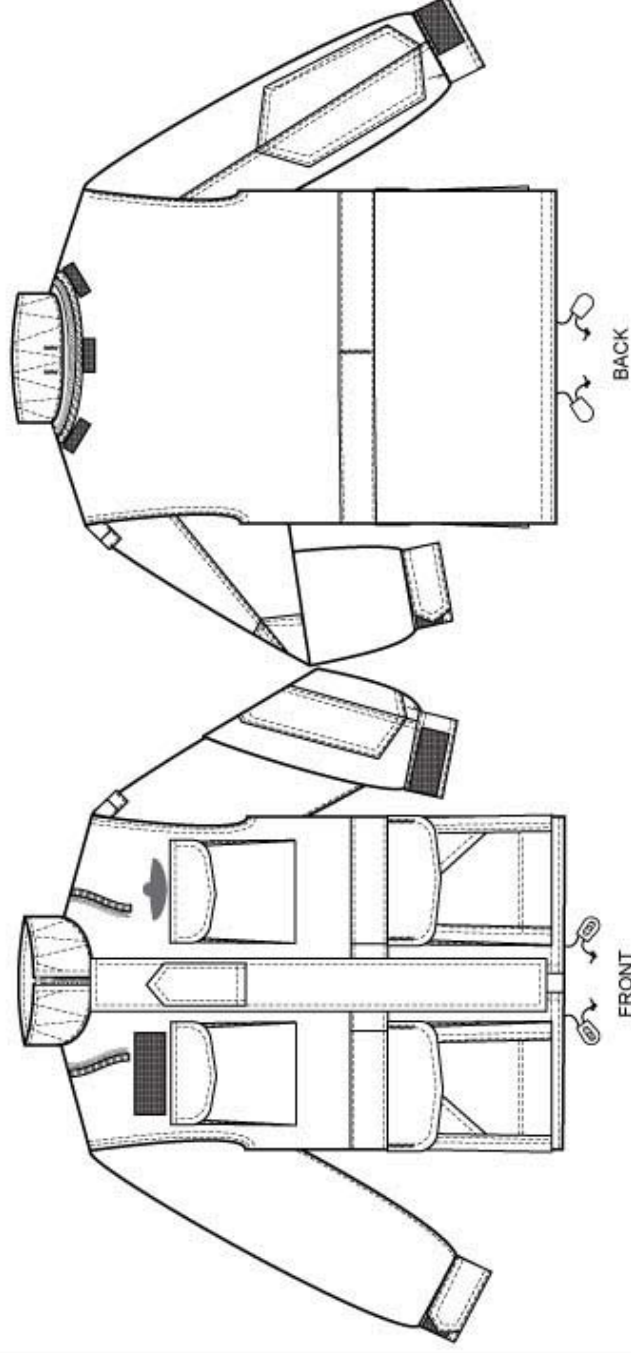
PECWIA30.xls

FIGURE 1: FRONT AND BACK VIEW - TYPE I PARKA



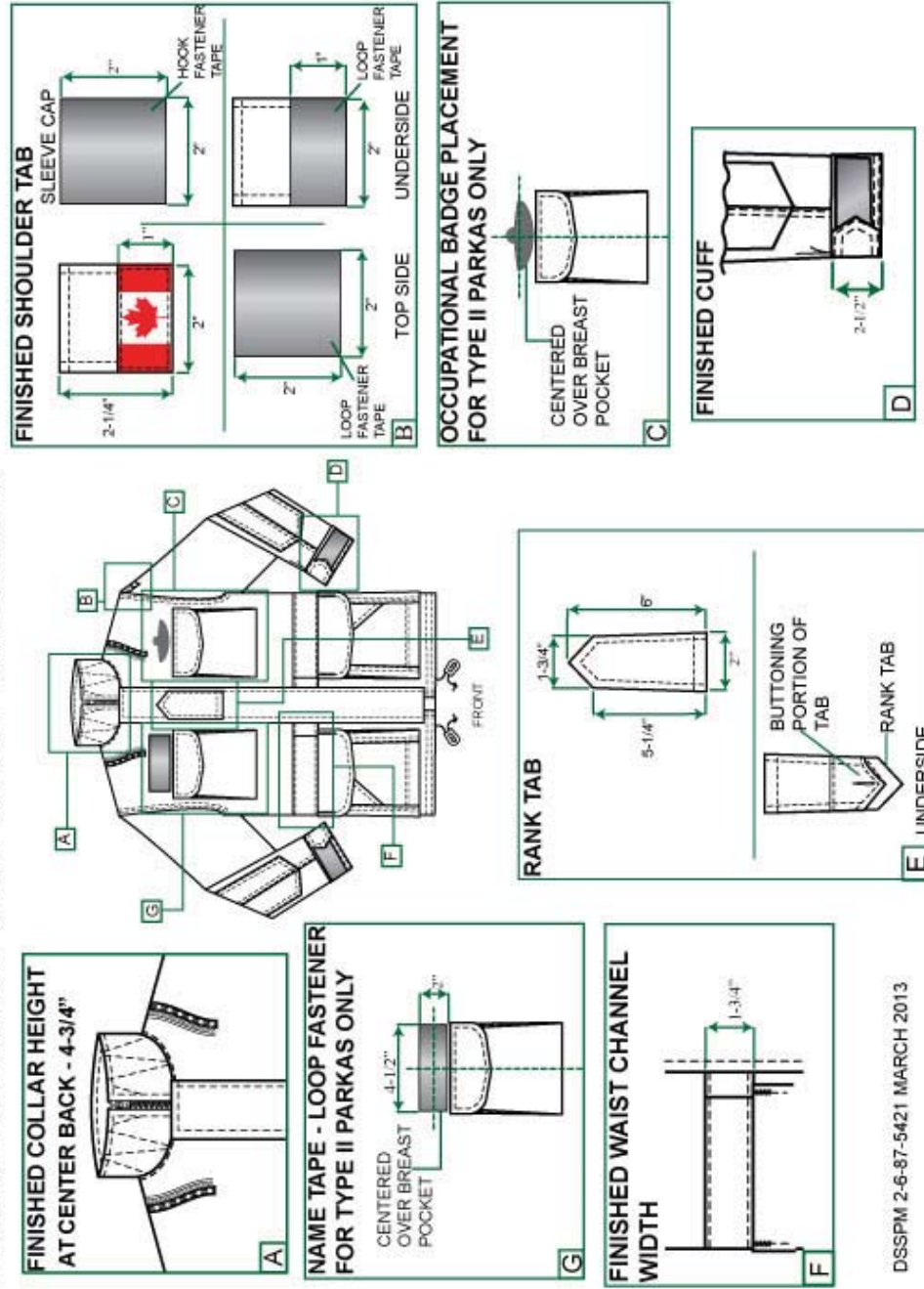
DSSPM 2-6-87-5421 MARCH 2013

FIGURE 2: FRONT AND BACK VIEW - TYPE II PARKA



DSSPM 2-6-87-5421 MARCH 2013

FIGURE 3: GARMENT COMPONENT - DIMENSIONS





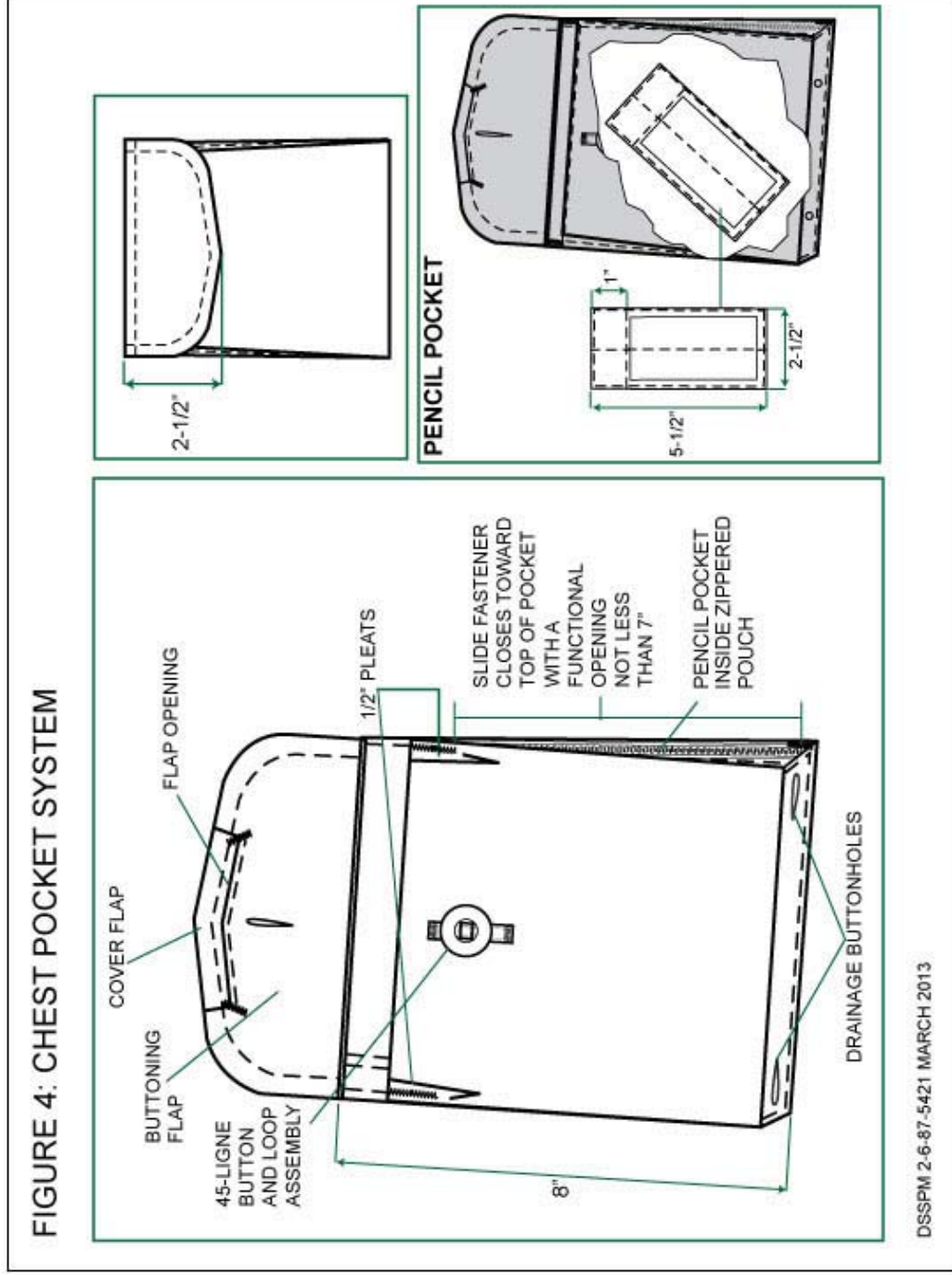
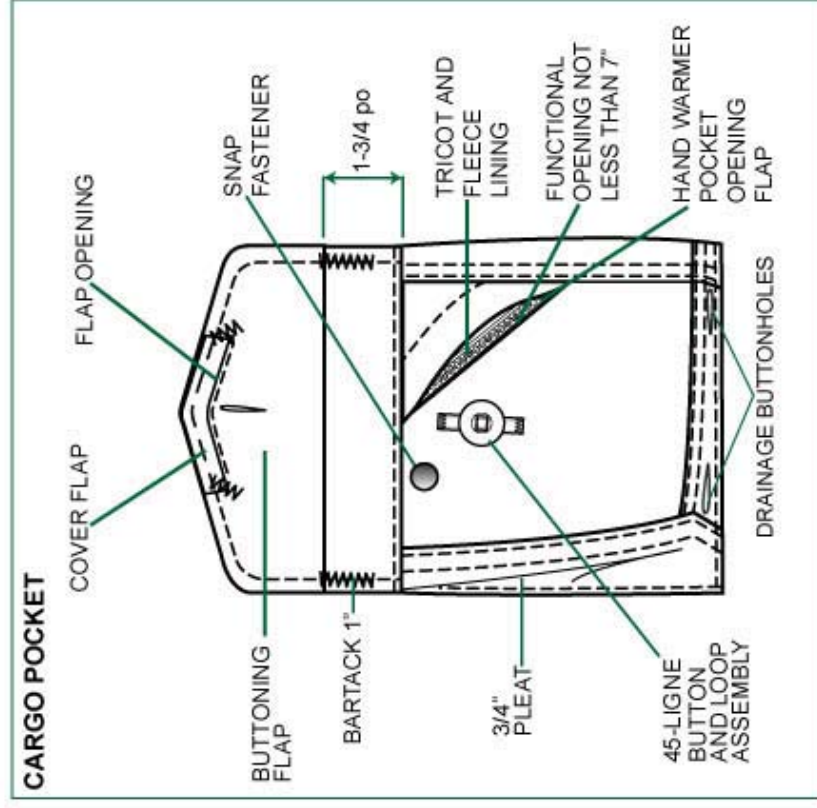




FIGURE 5: LOWER POCKET SYSTEM



DSSPM 2-6-87-5421 MARCH 2013

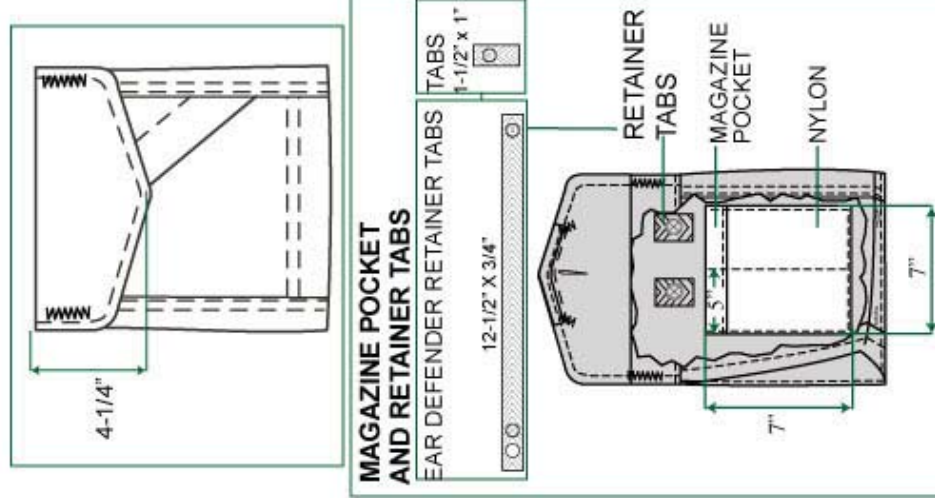


FIGURE 6: PARKA - INSIDE VIEW - RETAINING TABS

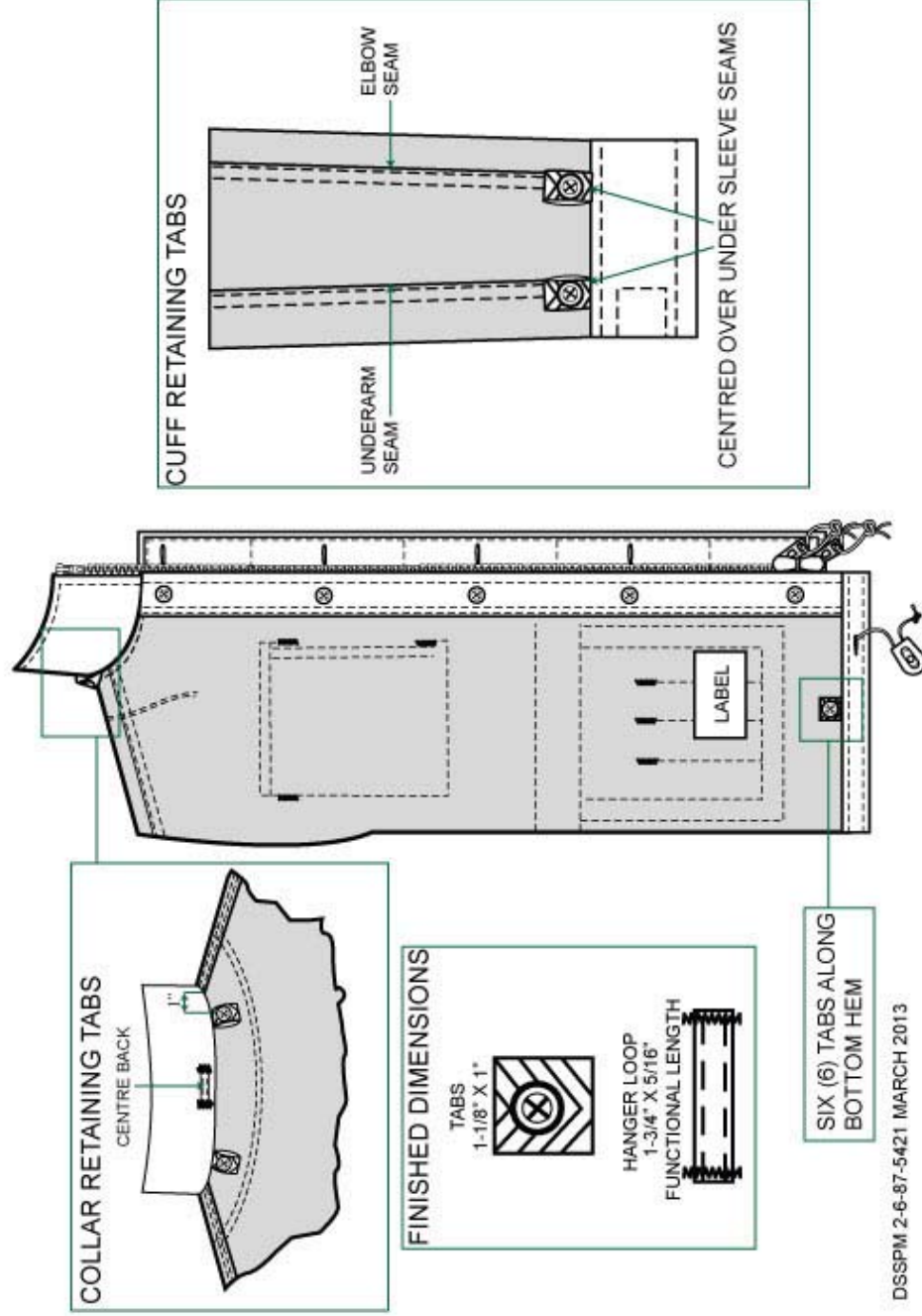
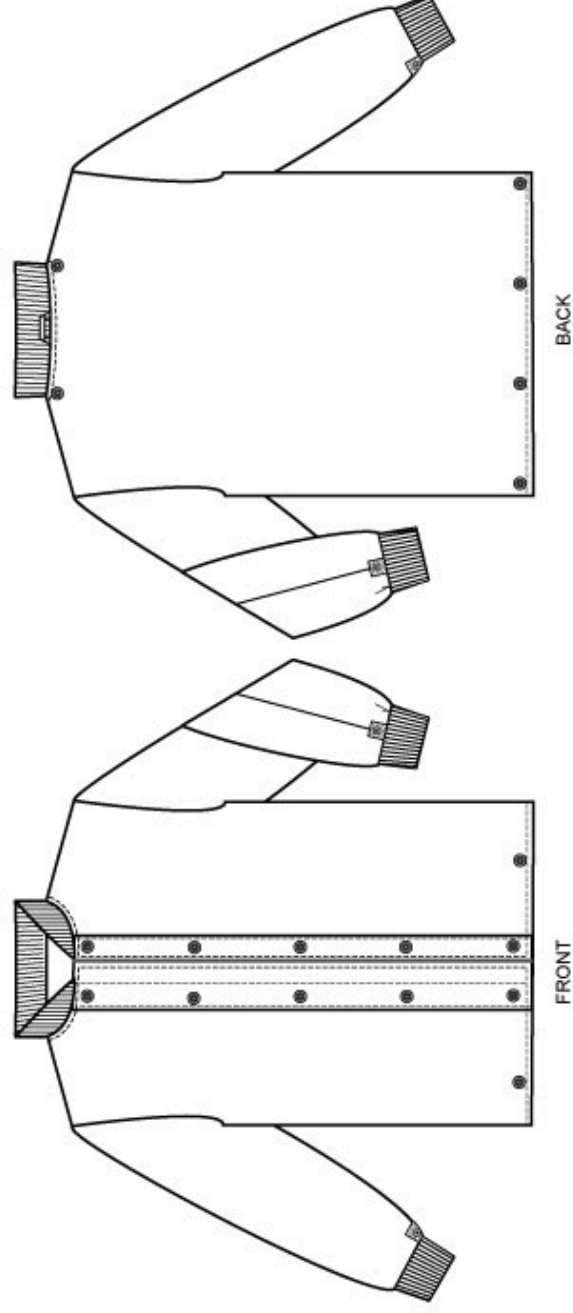
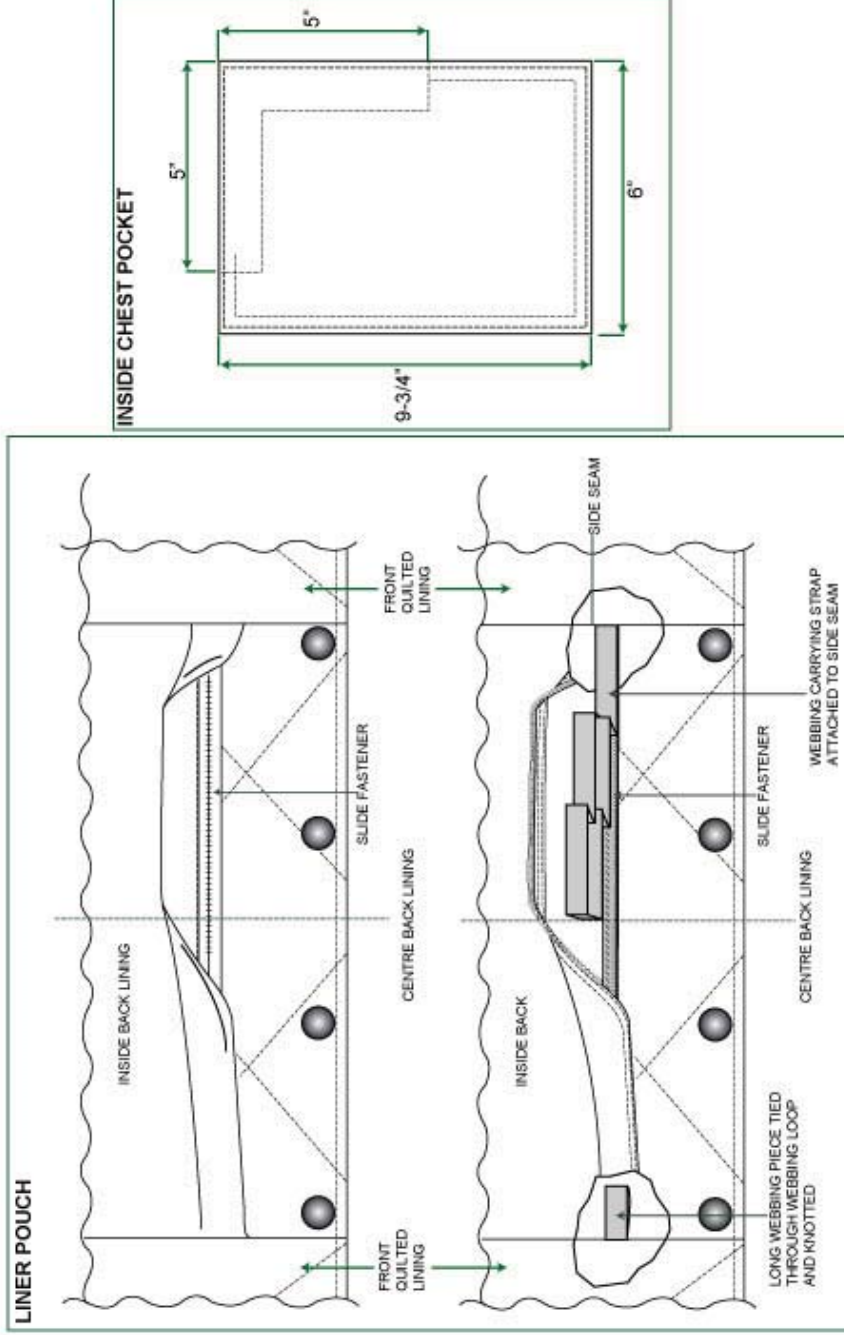


FIGURE 7: LINER - FRONT AND BACK VIEW



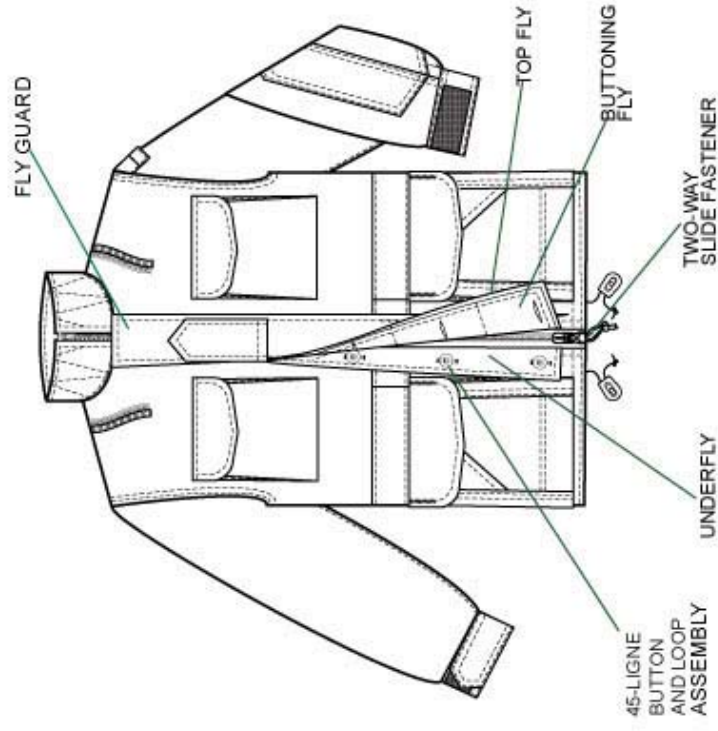
DSSPM 2-6-87-5421 MARCH 2013

FIGURE 8: LINING DETAILS



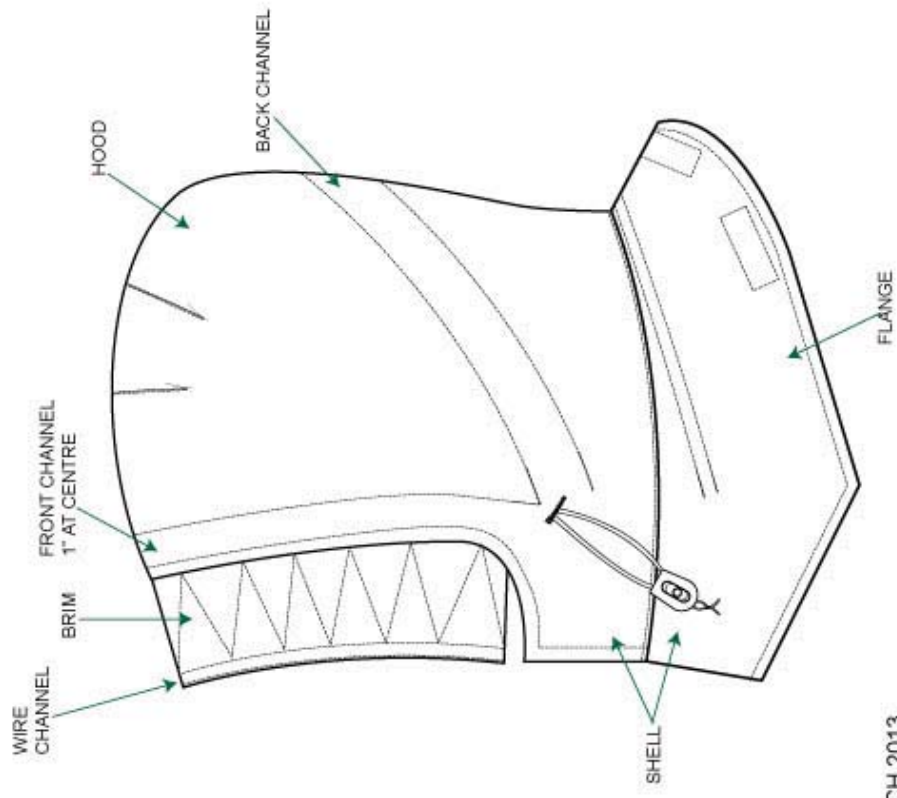
DSSPM 2-6-87-5421 MARCH 2013

FIGURE 9: FRONT FLY SYSTEM



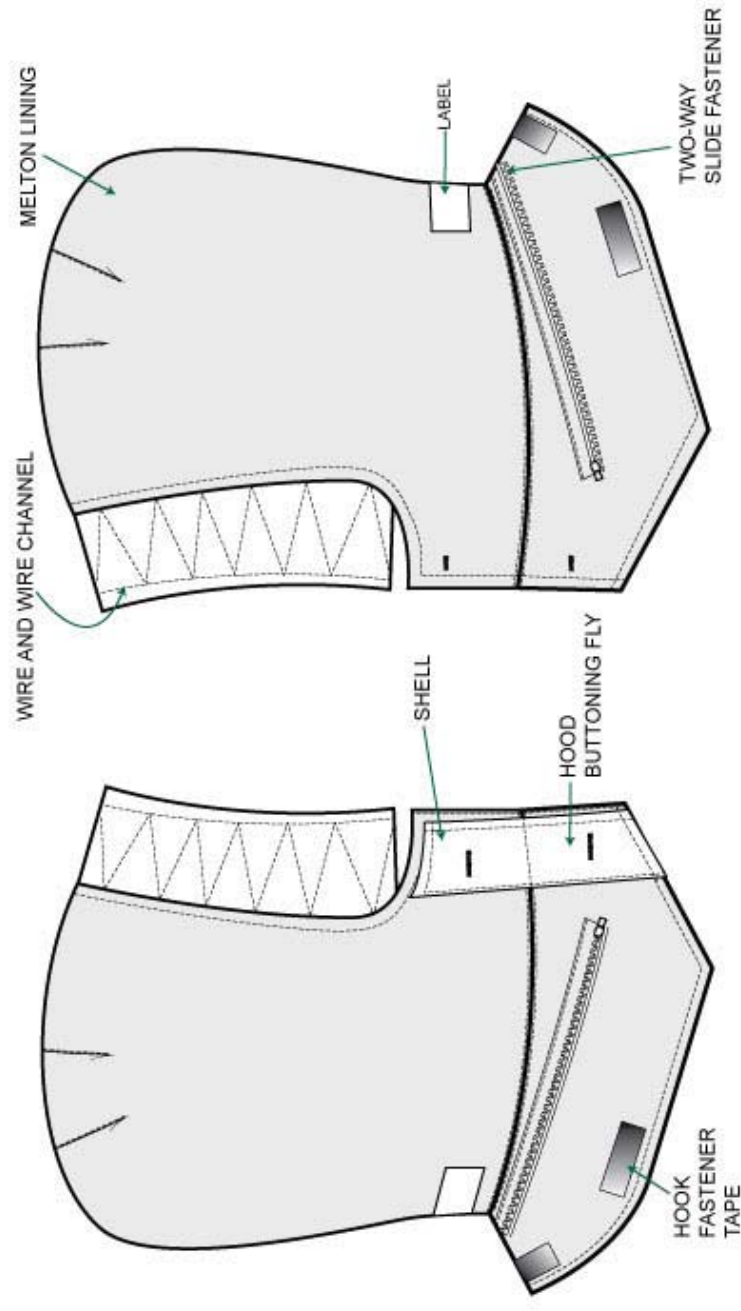
DSSPM 2-6-87-5421 MARCH 2013

FIGURE 10: HOOD TYPE i - OUTSIDE VIEW



DSSPM 2-6-87-5421 MARCH 2013

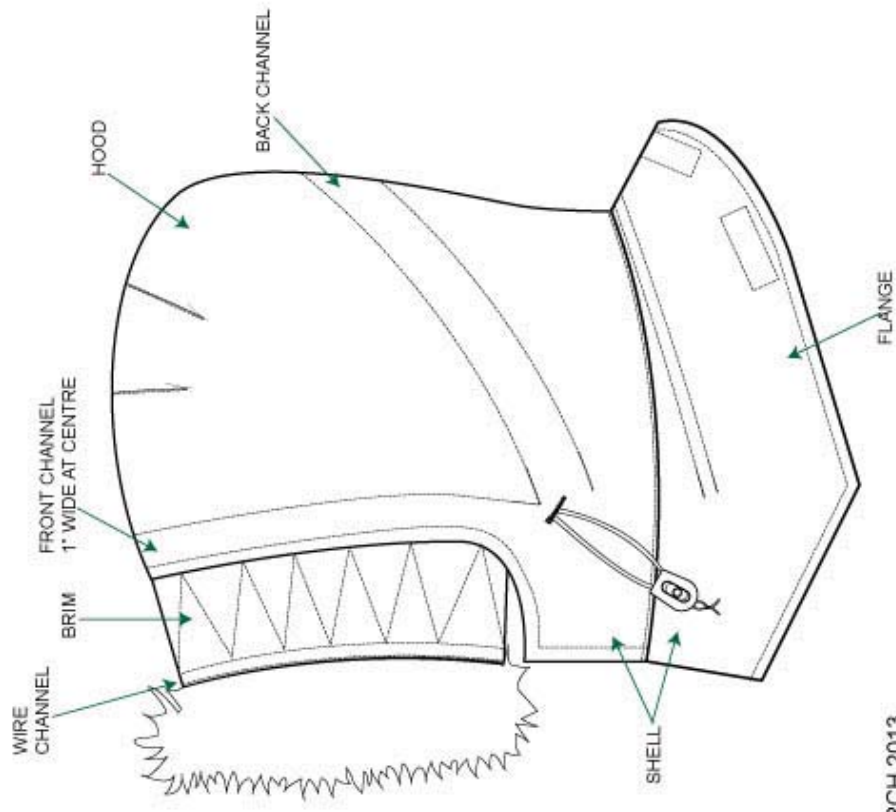
FIGURE 11: HOOD TYPE i - INSIDE VIEW



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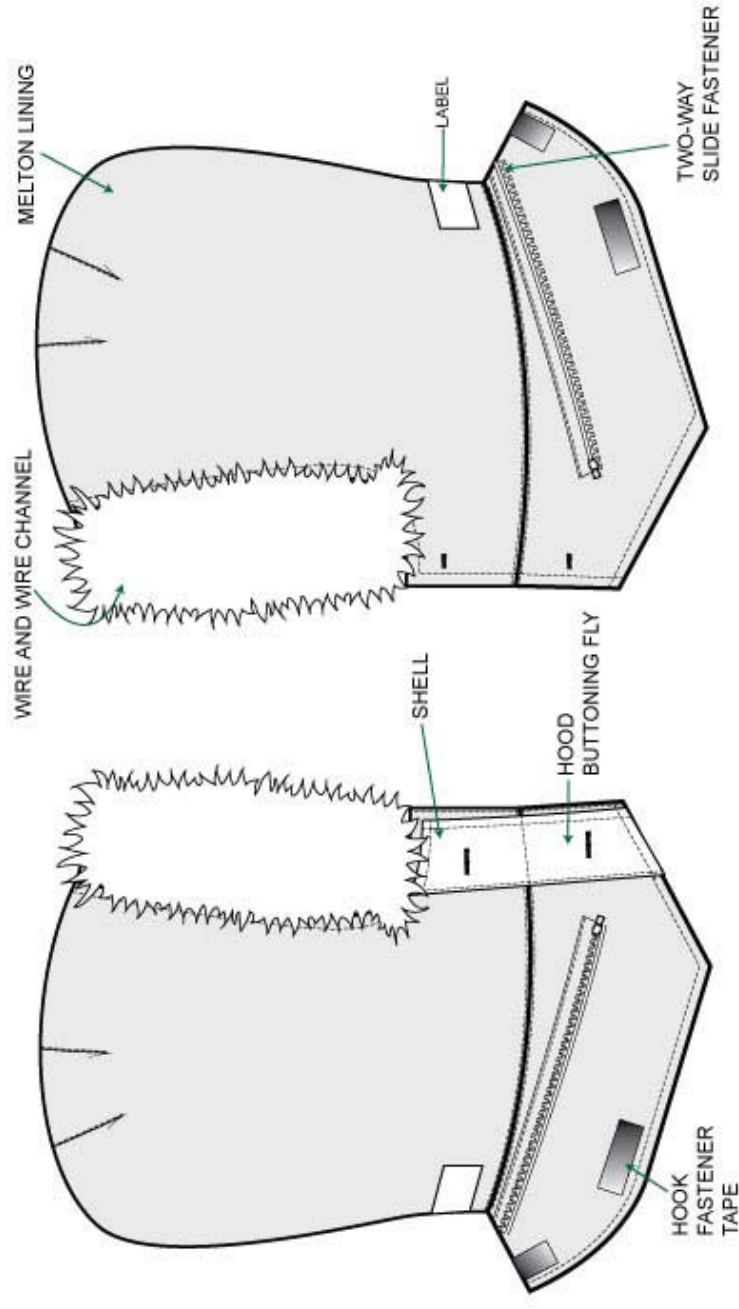
FIGURE 12: HOOD TYPE ii - FUR TRIMMED - OUTSIDE VIEW



DSSPM 2-6-87-5421 MARCH 2013



FIGURE 13: HOOD TYPE ii - FUR TRIMMED - INSIDE VIEW








DSSPM 2-6-87-5421 MARCH 2013

FIGURE 14: CARE AND  
MARKING LABEL FOR  
PARKA, LINER  
AND TYPE i HOOD

ITEM & CONTRACT INFO	ARTICLE ET INFO SUR LE CONTRAT	<div>PARKA, COMBAT IMPROVED, ICE PARKA, COMBAT, AMÉLIORÉ, EVI NSN/INO: 8415-20-XXX-XXXX  SIZE/TAILLE : 7040 NATO SIZE/TAILLE OTAN : XXXX-XXX CONTRACT NO. / NO. DE CONTRAT: WXXXX-XXXXXX CONTRACTOR NAME/NOM D'ENTREPRENEUR: Jones &amp; Company DATE OF / DE MANUFACTURE: MM/YY FIBRE CONTENT: XXXXXXXXXXXXXXXX</div>	
CARE SYMBOLS	SYMBOLS D'ENTRETIEN	<div><div> 40°C Tumble dry on low heat. / Séchage par cylindrage Tibasse</div><div> Do not bleach. / Ne pas javeliser. à sec</div><div> Do not dry-clean. / Ne pas nettoyer à sec</div><div> Do not steam press. / Repasser à Tibasse. Ne pas repasser à la vapeur</div></div>	
CARE INSTRUCTIONS	CONSIGNES D'ENTRETIEN	<div>1. MACHINE WASH IN LUKEWARM WATER. (NOT EXCEEDING 40°C) 2. DO NOT USE BLEACH. 3. TUMBLE DRY AT LOW TEMPERATURE. 4. DRY CLEAN ONLY WHEN PROPER LAUNDERING FAILS TO REMOVE SOIL. 5. DO NOT STITCH OR PUNCTURE THE MEMBRANE IN THIS GARMENT. 6. REMOVE FUR TRIMMED HOOD. SEE HOOD CARE LABEL FOR INSTRUCTION.</div>	
USER ID	ID DE L'UTILIS- ATEUR	<div>1. LAVAGE À L'EAU TIÈDE (TEMPÉRATURE MAXIMALE DE 40°C) DANS UNE LAVEUSE. 2. NE PAS UTILISER D'AGENTS DE BLANCHIMENT. 3. SÉCHAGE EN MACHINE À TAMBOUR À TEMPÉRATURE BASSE. 4. NETTOYAGE À SEC SI LE LINGE EST ENCORE SALE APRÈS LE BLANCHISSAGE. 5. NE PAS COUDRE OU PERFORER LA MEMBRANE INTERNE IMPERMÉABLE. 6. DÉTACHEZ LE CAPUCHON DE FOURRURE. VOIR L'ÉTIQUETTE D'ENTRETIEN SUR LE CAPUCHON POUR INSTRUCTION.</div> <div>ID: _____</div>	

FIGURE 15: CARE AND  
MARKING LABEL FOR  
TYPE ii HOOD -  
FUR TRIMMED

ITEM & CONTRACT INFO	ARTICLE ET INFO SUR LE CONTRAT	<div>HOOD TYPE: FUR TRIMMED, COMBAT, IMPROVED, ICE CAPUCHON TYPE: BORD FOURRURE, COMBAT, AMÉLIORÉE, EVI NSN/INO: 8415-20-XXX-XXXX  SIZE/TAILLE : 7040 NATO SIZE/TAILLE OTAN : XXXX-XXX CONTRACT NO. / NO. DE CONTRAT: WXXXX-XXXXXX CONTRACTOR NAME/NOM D'ENTREPRENEUR: Jones &amp; Company DATE OF / DE MANUFACTURE: MM/YY FIBRE CONTENT: XXXXXXXXXXXXX</div>	
CARE SYMBOLS	SYMBOLS D'ENTRETIEN	<div><div> Do not machine wash / Ne pas laver à machine</div><div> Do not machine dry / Ne pas sécher à machine</div><div> Do not iron / Ne pas repasser</div><div> Do not bleach / Ne pas blanchir</div><div> Do not dry clean / Ne pas nettoyer à sec</div></div>	
CARE INSTRUCTIONS	CONSIGNES D'ENTRETIEN	<div>1. REMOVE FUR TRIMMED HOOD. 2. DO NOT MACHINE WASH. SPOT CLEAN WITH DAMPENED CLOTH, SOAP AND WATER ONLY. 3. SOILED FUR CAN BE WIPED WITH DAMPENED CLOTH (NO SOAP), DRY AT ROOM TEMPERATURE. 4. DO NOT MACHINE DRY. AIR DRY ONLY. 5. DO NOT BLEACH. 6. WHEN PROPER LAUNDERING FAILS TO REMOVE SOIL, CONSULT A COMPANY SPECIALIZING IN FUR CARE. 7. DO NOT STITCH OR PUNCTURE THE MEMBRANE IN THIS GARMENT.</div> <div>1. DETACHEZ CAPUCHON BORDÉ DE FOURRURE. 2. NE PAS LAVÉ À LA MACHINE. NETTOYER LES TACHES AVEC CHIFFON HUMIDE AVEC SAVON ET L'EAU TIÈDE SEULEMENT. 3. FOURRURE SOULÉE PEUT ÊTRE NETTOYÉE AVEC UN CHIFFON HUMIDE (SANS SAVON). SÉCHER À TEMPÉRATURE AMBIANTE. 4. NE PAS SÉCHER À MACHINE. SÉCHER À L'AIR SEULEMENT. 5. NE PAS UTILISER D'AGENTS DE BLANCHIMENT. 6. SI VÊTEMENT EST SALE APRÈS LE LAVAGE APPROPRIÉ, CONSULTEZ UNE ENTREPRISE SPÉCIALISÉE DANS LE SOINS DES FOURRURES. 7. NE PAS COUDRE OU PERFORER MEMBRANE INTERNE IMPERMÉABLE.</div>	
USER ID	ID DE L'UTILIS- ATEUR	ID: _____	

**Annex C**  
To: W8486-123144  
Dated: 12 March 2012

**DSSPM 2-6-87-5767**  
**Supersedes**  
**DSSPM 2-6-87-6950**  
February 2004

*Revised 5 July 2013*

**NOTICE**



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

**AVIS**

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

**MANUFACTURING DATA  
FOR  
OVERALLS, EXTREME COLD WEATHER, IMPROVED**

**1. SCOPE**

**1.1 Scope.** This Manufacturing Data covers the materials, design, construction and inspection requirements for two types of extreme cold weather overalls: Overalls, Combat, Extreme Cold Weather, Improved, CADPAT™ (TW), Integrated Clothing System (ICE) worn by the Land and Air elements and Overalls, Extreme Cold Weather, Improved, Canadian Forces, International Orange worn by Search and Rescue Technicians (SAR Techs).

**1.2 Intended use.** This item is intended for extreme cold weather conditions. The bib overalls are most effective worn with the Parka, Extreme Cold Weather, Improved.

**1.3 Classification.** The garment shall be supplied in one of the following types as specified in the contract:

**Type I** Overalls, Combat, Improved, CADPAT™ Temperate Woodland (TW), Integrated Clothing System (ICE) Land and Air elements  
NSN 8415-20-006-5767

**Type II** Overalls, Extreme Cold Weather, Improved, Canadian Forces Search and Rescue Technicians, International Orange  
NSN 8415-XX-XXX-XXXX

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OPI/BPR: DSSPM 2-6



**Canada**

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**1.4 CADPAT™.** The information contained herein is Copyright to Her Majesty the Queen of Canada, as is its associated pattern. The term CADPAT™, with and without extensions, is a registered Trademark belonging to the Department of National Defence (DND). Any of the data contained in this specification, and its associated pattern, shall be used only for goods for Canada. The printed textile and any items made therefrom shall be for the sole end use of DND. There shall be no selling or offering for sale of goods incorporating the CADPAT™ pattern and colours to any person or entity other than Canada without the Minister's prior written authorization. Explicit in this is that any goods of not first quality produced shall not be released, sold, or offered for sale, directly or indirectly, to any person or corporation other than Canada without the Minister's prior written authorization.

**1.4.1** The information, data, know-how, formulas, algorithms, software, processes, systems, methods, designs, text, works, figures, tables, sketches, photographs, plans, drawings, specifications, samples, reports, names, inventions and/or ideas contained herein (hereinafter "Intellectual Property") are the exclusive property of Her Majesty The Queen in Right of Canada as represented by the Minister of National Defence (hereinafter referred as "DND"). No one has the right to reproduce, disclose, disseminate, or utilize, in any manner or in any form, this Intellectual Property, or any part thereof, without the prior written consent of DND. For further information on the restrictions applicable to this Intellectual Property, or to request consent from DND, please contact the Contracting Authority.

## **2. RELATED DOCUMENTS**

**2.1 Government documents.** The following documents from part of this Manufacturing Data to the extent specified herein. Unless otherwise specified, the issue or amendment of documents effective for a particular contract shall be that in effect on the date of the applicable invitation to tender or the contract.

## **SPECIFICATIONS AND STANDARDS**

CF-B-854	Buttons, Nylon (30 and 45 ligne)
D-80-001-028/SF-001	Specification for Cord, Plaited, Spun, Synthetic Fibre
D-80-001-055/SF-001	Specification For Label, Clothing and Equipment
D-80-001-121/SF-001	Specification for Cloth, Twill, Nylon/Cotton (Oil and Water Repellent Treated)
D-83-001-005/SF-001	Specification For Fasteners, Slide, Interlocking

## **DRAWINGS**

2811	Strap and Button Assy 45 Ligne
------	--------------------------------

373118	Button, Nylon, Slotted, 30 Ligne
389556	Button, Bar, Plastic, 45 Ligne
8790166	Strap and Button Argt, 30 ligne, Type I

**2.2 Other publications.** The following documents form part of this Manufacturing Data to the extent specified herein. Effective date shall be that in effect on the date of manufacture. Source is as shown:

**Canadian General Standards Board Sale Unit**  
**11 Laurier Street**  
**Place du Portage, Phase III**  
**Hull, Québec K1A 1G6**

CAN/CGSB-4.2-M	Textile Test Methods
CAN/CGSB-4.131-M	Cotton-Covered or Polyester-Covered Polyester Thread
CAN/CGSB-4.139	Polyester Staple Thread
CAN/CGSB-54.1-M	Stitches and Seams, Parts I and II
4-GP-80Ma	Cotton Thread
4-GP-85Ma	Nylon Thread

**2.3 DSSPM documents.** The following documents form part of this Manufacturing Data to the extent specified herein.

DSSPM 2-2-80-052 – <b>Annex E</b>	Manufacturing Data for Cloth, Taffeta, Nylon, 88 g/m <sup>2</sup>
DSSPM 2-2-80-091 – <b>Annex F</b>	Specification for Cloth, Plain Weave, Nylon, 195 g/m <sup>2</sup>
DSSPM 2-2-80-214 – <b>Annex G</b>	Manufacturing Data for Cloth, Insulation, Types I and II
DSSPM 2-2-80-215 – <b>Annex H</b>	Manufacturing Data for Waterproof Moisture Vapour Permeable (WMVP) Barrier Fabric
DSSPM 2-2-80-500 – <b>Annex I</b>	Specification for CADPAT™ TW [Canadian Disruptive Pattern (Temperate Woodland)]
CFTPO-GENERAL - <b>Annex N</b>	Canadian Forces Transportation Packaging Order



**2.4 Figures.** The following Figures form part of this Manufacturing Data. Figures are not to scale.

Figure 1 – Front and Back View - Type I & II Overalls

Figure 2 – Finished Message Pocket Measurements

Figure 3 – Finished Hip and Cargo Pockets Measurements

Figure 4 – Dimensions of Garment Components

Figure 5 – Top Side Opening and Inside Ration Pockets

Figure 6 – Suspenders Dimensions

Figure 7 – Bottom Side Opening and Storm Cuff

Figure 8 – Care and Marking Label.

## **2.5 Sealed patterns.**

DSSPM 126-11	Overalls, Extreme Cold Weather, Improved, Combat, Type I - CADPAT™ (TW) and Type II – Search and Rescue Technicians, Improved, Integrated Clothing Ensemble (ICE)
DSSPM 255-04	Cloth, Twill, Nylon/Cotton, CADPAT (TW) (for construction, finish, and hand)
DSSPM 281-01	Cloth, Twist, Cotton/Nylon, 170 g/m <sup>2</sup> , Canadian Average Green (For Colour and IRR properties)
DCGEM 264-74	Cloth, Twill, Nylon/Cotton, International Orange
DSSPM 259-01	Cloth, Twist, Nylon/Cotton, Lightweight, CADPAT™(TW), for colours, motif size, colour distribution, print quality, penetration, clarity, pattern
DCGEM 290-73	Cloth, Taffeta, Nylon, 88 g/m <sup>2</sup> , Type II, for Finish Only
DCGE 275-66	Cloth, Plain Weave, Nylon, for Finish
DSSPM 251-02	Cloth, polyester, double-sided pile (veloured)
DCGEM 266-82	Cord, Plaited, Spun Synthetic Fibre, Lightweight

**2.6 Paper patterns.** DND will provide the paper patterns for all sizes under Style Code **OEOWIA31**. Size 7034 will be used for tendering purposes.

**2.7 Order of precedence.**

**2.7.1** In the event of any inconsistency in contract documents such as the contract, manufacturing data, and sealed pattern, the order of precedence shall be contract, manufacturing data and sealed pattern.

**2.7.2** In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

**2.7.3** In the event of any inconsistency within the technical data (i.e. within or between the manufacturing data, drawings, figures, paper patterns and sealed patterns), the contractor shall contact the Contracting Authority.

**2.7.4 REQUIREMENTS**

**2.8 Sealed patterns.** A sealed pattern, when available, will be supplied to the successful tenderer. The sealed pattern shall constitute the standard in regard to any properties not specified in this Manufacturing Data.

**3.2 Design for Type I and II.** The design shall be in accordance with Sealed Pattern DSSPM 126-11 and shall incorporate the following features:

- a. bib top overalls with suspenders and belt loops;
- b. slide fastener front closure;
- c. two message pockets with covered buttoning flap closure;
- d. two inside ration pockets with covered velcro flap closure;
- e. two side hip handwarmer pockets;
- f. cargo pockets on thighs with covered buttoning flap closure;
- g. full length side openings with two-way separating slide fasteners;
- h. seat and knee patches;
- i. inseam bottom leg reinforcement;
- j. drawcord at hem;
- k. storm cuffs;
- l. fully insulated and lined; and
- m. waterproof-breathable liner.

**3.2.1** Unless otherwise specified, this garment shall be governed by the Scale of Measurements (see Table I).

**3.3 Preproduction sample.** When specified in the contract, preproduction samples shall be completely representative of the final production garment, being made from parts and materials as specified and by equipment and processes that will be used in quantity production.



### 3.4 Materials

**3.4.1 Shell.** The shell material shall be nylon/cotton twill, in accordance with D-80-001-121/SF-001 and with Sealed Pattern DSSPM 255-04 (for construction, finish and hand). The fabric shall be given a durable fluorocarbon, oil resistant and water repellent treatment. The colour for Type I overalls shall be CADPAT™(TW) in accordance with Specification DSSPM 2-2-80-500 (**Annex I**), Sealed Pattern DSSPM 259-01 and Sealed Pattern DSSPM 2-2-1000. The colour for Type II overalls shall be international orange in accordance with Sealed Pattern DCGEM 264-74.

**3.4.2 Lining.** The lining material shall be nylon taffeta lining in accordance with Type II of DSSPM 2-2-80-052, (**Annex E**) and Sealed Pattern DCGEM 290-73. The colour for Type I overalls shall be CADPAT™(TW) in accordance with Specification DSSPM 2-2-80-500 (**Annex I**), Sealed Pattern DSSPM 259-01, and Sealed Pattern DSSPM 2-2-1000. The colour for Type II overalls shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**3.4.3 Barrier.** The barrier shall be waterproof moisture vapour permeable barrier fabric (WMVP), Type I in accordance with DSSPM 2-2-80-215 (**Annex H**). The fabric colour for Type I overalls shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. The fabric colour for Type II overalls shall be international orange in accordance with Sealed Pattern DCGEM 264-74.

**3.4.4 Sealing tape.** The sealing tape shall be commercially available tape compatible with the WMVP interlining material. The tape shall be in accordance with DSSPM 2-2-80-215 (**Annex H**). The colour shall match the barrier fabric.

**3.4.5 Handwarmer fleece.** The handwarmer fleece fabric shall be knitted from 100% filament polyester yarns, the cloth shall be double faced, veloured and sheared. The fabric structure and finish shall be consistent with that of Sealed Pattern DSSPM 251-02, Cloth, polyester, double-sided pile (veloured), solid colour. The fabric shall have a maximum mass of 275 g/m<sup>2</sup>. The fabric shall have a maximum thickness of 6.3 mm and minimum thickness of 5.8 mm when measured under 0.03 kPa pressure according to CAN/CGSB-4.2 Method 37. When laundered according to the conditions prescribed for the garment, the fleece shall have a maximum dimensional change of 7% in the warp direction and 5% in the weft direction, with the total shrinkage for both directions not to exceed 10%. The colour used in Type I overalls shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 251-02. The colour used in Type II overalls shall be black.

**3.4.6 Nylon.** The fabric used as the front and back cuff reinforcement shall be plain weave nylon, 195 g/m<sup>2</sup> in accordance with DSSPM 2-2-80-091 (**Annex F**) and Sealed Pattern DCGEM 275-66. The colour used for Type I overalls shall be Canadian Average Green in accordance with DSSPM 281-01. The colour used for Type II



overalls shall be international orange in accordance with Sealed Pattern DCGEM 264-74.

**3.4.7 Insulation with scrim.** The insulation material shall be in accordance with Type I (Lightweight, 130 g/m<sup>2</sup>) of DSSPM 2-2-80-214 (**Annex G**).

**3.4.8 Slide fasteners.** The slide fasteners for the front fly and side openings shall have plastic interlocking members, automatic lock sliders and 100% polyester tape in accordance with D-83-001-005/SF-001. The slide fasteners used for the hand warmer pockets shall have monofilament (coil) members, automatic lock sliders and 100% polyester tape in accordance with D-83-001-005/SF-001. When tested in accordance with the applicable test methods, the slide fasteners shall meet the requirements for colourfastness and strength. The colour used for Type I and II overalls shall be Canadian Average Green in accordance with DSSPM 281-01. The detailed requirements are as follows:

**TABLE II - REQUIREMENTS FOR SLIDE FASTENERS**

Application	Class	Type	Chain Type	Pull Type	Length
Front fly	4	9	Moulded	Long pull	See Scale of Measurements – Table I
Side openings	4	9	Moulded	Wire swivel pull	See Scale of Measurements – Table I
Handwarmer pockets	3	1	Monofilament (Coil)	Regular pull	Length shall be that to produce a functional pocket opening of 7-inches (17.8 cm)

**3.4.9 Suspender elastic.** The suspender elastic shall be 1-1/2 inches (3.8 cm) wide, knitted construction, using 60% polyester/40% rubber ( $\pm 5\%$ ), weighing 50 to 57 m/kg. Stretch shall be 125 %. The specified elastic width shall be maintained when the elastic is extended. The colour used in Type I and II overalls shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01 or black.

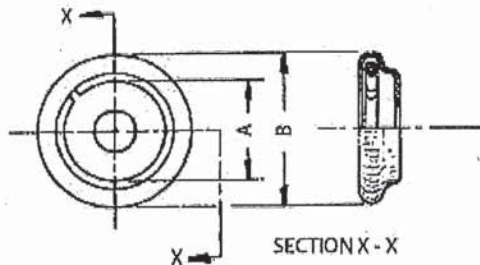
**3.4.10 Leg lining elastic.** The leg lining elastic shall be 3/4-inch (19.1 mm) wide, knitted construction, using 60% polyester/40% rubber ( $\pm 5\%$ ), weighing 100 to 115 m/kg. Stretch shall be 125 %. The specified elastic width shall be maintained when the elastic is extended. The elastic shall be 2/3 of the length of the storm cuff. The colour shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01 or black.

**3.4.11 Cord.** The draw cord used for the leg bottom and the slide fastener pulls shall be Cord, Plaited, Spun Synthetic Fibre Type I in accordance with D-80-001-028/SF-001

and Sealed Pattern DCGEM 266-82. The colour used for Type I and II overalls shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

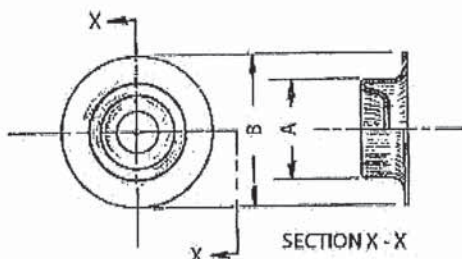
**3.4.12 Hook and loop fastener tape.** The tape shall be Type II, Class 1, 100% nylon, hook and loop fastener tape in accordance with A-A-55126B. The colour used in Type I and Type II overalls shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. This Manufacturing Data specifies the use of the plain backed, 18 mm (3/4-inch) width;

**3.4.13 Snap fasteners.** The snap fasteners shall be regular spring clamp type in brass with a black finish with a phosphor bronze spring, conforming to the following information. Ten (10) sets are required for each type of overalls.



**Socket Fastener**

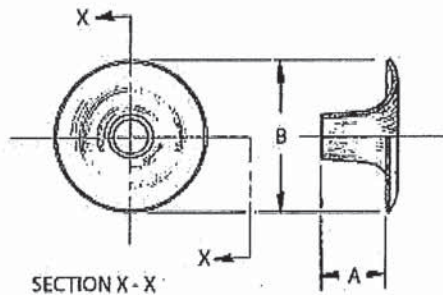
Inside diameter – Dim A	Outside diameter – Dim B
11/32- inch (8.7 mm)	9/16- inch (14.3 mm)



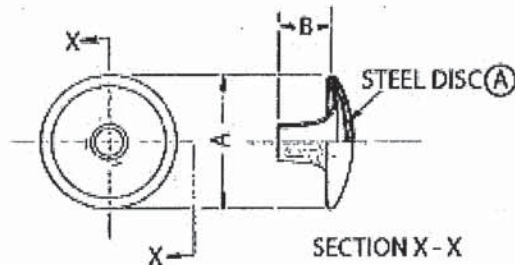
**Stud Fastener**

Diameter A	Flange diameter – Dim B
3/8- inch (9.5 mm)	9/16- inch (14.3 mm)



**Eyelet Fastener**

Barrel Length Dim A	Flange Diameter Dim B
1/4- inch (6.3 mm)	9/16- inch (14.3 mm)

**CS-153 – Button Fastener**

Dim A		Dim B
Ligne	Dia	Barrel Length
24	39/64-inch (15.5 mm)	11/64- inch (4.4 mm)

**3.4.14 Buttons.** The buttons shall be 30-ligne and 45-ligne nylon buttons in accordance with CF-B-854 and Drawings 373118 (30 Ligne) and 389556 (45 Ligne). The colour shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. Four (4) 30-ligne buttons and three (3) 45-ligne buttons are required for each type of overalls.

**3.4.15 Thread for seaming, stitching, buttonholes and bartacks.** The thread for seaming, stitching, buttonholes and bartacks shall be cotton-covered or polyester-covered, polyester thread (R50 tex) conforming to CAN/CGSB-4.131-M. When material with CADPAT™ (TW) design is being sewn, the colour of the thread shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01. Unless otherwise specified, all other garment components shall be matched for thread colour.

**3.4.16 Thread for seaming and serging lining, interlining and pocket linings.** The thread used for seaming and serging the lining, interlining and pocket linings shall be

polyester staple thread (R40 tex) conforming to CAN/CGSB-4.139. The colour shall match the material being seamed and serged.

**3.4.17 Thread for quilting of lining.** The thread for quilting the lining on the nylon taffeta side of the quilt, shall be Nylon 70/2 conforming to 4-GP-85Ma. The thread for quilting the lining on backing side of the quilt shall be polyester staple thread in accordance with CAN/CGSB-4.139. The colour for both threads shall match the colour of the material being used.

**3.4.18 Buttonhole gimp.** The buttonhole gimp shall be 100% cotton, 3 cord soft finish, R210 tex, conforming to 4-GP-80Ma, Type 2A. The colour shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

**3.4.19 Labels.** Type I and II overalls shall be labelled with markings, care, bar code and user information as indicated in paragraphs 3.11 and 3.12. Unless otherwise specified in the contract or approved by the Technical Authority, the colour for all labels shall be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

### **3.5 Cutting**

**3.5.1** The Overalls will be cut using duplicates of Government supplied paper patterns. Paper patterns include seam allowance but do not include 'make-up' allowance. The contractor shall be responsible for any changes which may be required for 'make-up' allowance to suit his production methods, but the design, grade or the requirements specified herein shall not be changed.

**Note:** Paper patterns will not be supplied to contractors involved with special sizes, except upon request. In these instances the contractor shall be responsible for adjusting the paper patterns to accommodate the measurements, stance, and figure of the individual to be fitted.

**3.5.2** The shell parts of the Overalls shall be cut in the direction of the warp as shown on the paper patterns.

**3.5.3** The shell parts of each Overalls shall be cut from the same piece of shell material with the exception of all buttoning flap portions and button and strap assembly that may be cut from separate lay or ends of shell material.

**3.5.4** The specified materials shall be cut and used in accordance with best commercial standards.

### **3.6 Sewing.**

**3.6.1** All seams shall be in accordance with CAN/CGSB-54.1-M.

**3.6.2** Seams shall be a minimum of 3/8-inch (9.5 mm) wide or as otherwise specified.



**3.6.3** All stitching shall be either lock stitched Type 301 or chain stitch Type 401 conforming to CAN/CGSB-54.1-M, having not less than 8 nor more than 10 stitches per inch (2.5 cm).

**3.6.4** Where double-lapped seams are specified, numerical designation 2.04.03 of CAN/CGSB-54.1-M shall be used. The needles shall be set 1/4-inch (6.4 mm) apart shall be used.

**3.6.5** When double-needle stitched is specified, needles shall be set 1/4-inch (6.4 mm) apart.

**3.6.6** The ends of all lock stitched seams and stitchings, also breaks in thread shall be securely backstitched.

**3.6.7** The stitches shall present a regular even appearance without fabric pucker and shall be free from skips that may result from faulty machine tension or other stitching malfunctions.

**3.6.8** Where seaming, turning and stitching is specified, the edges shall be properly worked out before stitching.

**3.6.9 Serging.** All exposed raw edges shall be finished with any 500 series, with not less than 10 stitches per inch (2.5 cm).

**3.6.10** Where seaming and serging is specified, this may be done in one or two operations.

**3.6.11 Seam sealing.** When specified, seams shall be sealed in a manner that will ensure the integrity of the waterproof barrier layer in the garment in accordance with DSSPM 2-2-80-215 (**Annex H**). When sealed areas are examined visually, the following criteria shall be met:

**TABLE III - REQUIREMENTS FOR VISUAL EXAMINATION**

Construction Details	Test Method	<u>FAULTS WHICH ARE NOT ACCEPTABLE</u>
Seams	Visual examination	<ol style="list-style-type: none"> <li>1. Tape which is not centered across the width of the seam;</li> <li>2. Delamination along edges of tape, over seam allowance and stitching or across the width of the tape;</li> <li>3. Bubbling;</li> <li>4. Blistering;</li> <li>5. Puckering;</li> <li>6. Melting; and</li> </ol>

Construction Details	Test Method	FAULTS WHICH ARE NOT ACCEPTABLE
		7. Ends of threads which have not been trimmed.
Ends and joins	Visual examination	1. Loose ends and corners which have not bonded; 2. Rough edges or beads at the ends; and 3. An overlap at a join of less than 3/4-inch (19.1 mm).
Drill holes and stitching lines not in seams	Visual examination	1. Left uncovered without a designated exception.
Stiffness of seamed area		1. Marked increase of stiffness.

**3.6.12 Bartacks.** Unless otherwise specified, bartacks shall be 1/2-inch (12.7 mm) long and shall have not less than 20 cover stitches.

**3.6.13 Buttonholes.** Buttonholes shall be gimp reinforced eyelet type, with not less than 22 stitches per inch (2.5 cm). The ends shall be fishtailed or bartacked. When buttonholes are used for water drainage purposes, only the eyelet shall be cut open.

**3.6.14 Button and strap assembly.** When specified, buttons shall be threaded with a loop of shell material in accordance with Drawing 8790166 for 30-ligne buttons and Drawing 2811 for 45-ligne buttons. The button straps may be either seam type numerical designation 8.06.02 or 8.19.01. The finished width shall be 5/16-inch (8 mm). The straps shall be attached with bartacks.

**3.6.15 Snap fasteners.** When snap fasteners are being inlaid, the contractor may add reinforcement under the shell material as required. Careful consideration shall be given to the attaching force of the snap fastener machine to ensure that **all parts** of the snap fastener will remain attached and functional for the life of the garment.

**3.6.16 Quilting.** The nylon lining and the insulation shall be quilted together in accordance with the insulation supplier's instructions. Quilt stitching should be kept to a minimum to optimize the thermal value of the insulation. Ideally, the quilt pattern should not be smaller than a 12-inch (30 cm) diamond pattern. The quilt pattern is subject to the approval of the Design Authority.

### 3.7 Construction.

**3.7.1 Seat reinforcement patches.** With the outer edges folded under, the reinforcement patches shall be placed on the outside of the back panels and stitched 1/16-inch (1.6 mm) and 1/4-inch (6.4 mm) gauge or double-needle stitched.



**3.7.2 Knee patches.** With the outer edges turned under, the patches shall be placed on the fronts, as indicated on paper patterns and stitched 1/16-inch (1.6 mm) and 1/4-inch (6.4 mm) gauge or double-needle stitched.

**3.7.3 Bottom leg reinforcement.** Leg bottoms shall be reinforced with nylon canvas. With the outer edges turned under, the bottom leg reinforcements shall be placed on the bottom front and back pieces, as indicated on paper patterns and stitched 1/16-inch (1.6 mm) and 1/4-inch (6.4 mm) gauge or double-needle stitched. A drainage type buttonhole shall be placed at the lower outer corner of the front and back reinforcement patches.

**3.7.4 Seat seam.** The back pieces shall be joined along the seat seam with a double lapped seam.

**3.7.5 Belt loops.** Five (5) belt loops of shell material shall be made on a looping machine finish approximately 1-inch (2.5 cm) wide. The belt loops may also be made manually by folding the piece lengthwise, turning under the raw edge and stitching at 1/16-inch (1.6 mm) gauge.

**3.7.6 Joining upper and lower back.** Three belt loops shall be basted to the back waistline, one centered over the seat seam, and one 2-inches (5 cm) from the each side seam. The upper and lower back shall be seamed together with the belt loops caught between the two. The seam allowance shall be pressed down and stitched 1/4-inch (6.4 mm) gauge excluding the belt loops. The belt loops shall be turned down and securely stitched or bartacked. The functional length of the belt loops shall be 2-3/4 inches (6.9 cm).

**3.7.6.1 Front hand warmer pockets.** There shall be two (2) hip hand warmer pockets. Each pocket shall consist of two fabric pieces: one cut of fleece in accordance with Handwarmer Fleece (Annex J) and one cut of nylon in accordance with DSSPM 2-2-80-091 (Annex F). The pocket lining must be constructed so that the fleece is on the top and the nylon on the bottom. The pocket shall be stitched into the front side seam and waistline seam and hang between the shell fabric and the lining. The pockets must have a functional opening of 7-inches (17.8 cm), to accommodate an insulated gloved hand.

**Note:** The slider must be at the top when the pocket is closed.

**3.7.7 Cargo pockets.** A cargo pocket shall be placed on each thigh. Each pocket shall have a covered-buttoning flap.

**3.7.7.1** The pocket shall be made of one layer of shell material and one layer of nylon material. Both layers shall be seamed together along the upper edge, turned inside out and stitched 1/4-inch (6.4 mm) gauge. The outer edges shall be serged together. The bellows cuts shall be seamed and serged. A drainage type buttonhole shall be placed in the lower edge of the pocket, as indicated on paper patterns.



**3.7.7.2 Pocket button.** A 45-ligne button and strap assembly shall be centered on the outside of the pocket, 3-1/2-inches (8.9 cm) from top edge. The strap shall be perpendicular to the top pocket opening.

**3.7.7.3** With back and bottom edges of the pocket folded under, the pocket shall be stitched 1/16-inch (1.6 mm) gauge beginning 1-inch (2.5 cm) from the back top edge and ending 1-1/4 inch (3.2 cm) from the front pocket edge. With the front pocket edge turned under and the front corner pleated to form a bellows, the pocket shall be stitched 1/16-inch (1.6 mm) gauge beginning 1-inch (2.5 cm) from the front top edge and ending 1-1/4 inches (3.2 cm) behind the front pocket edge.

**3.7.7.4 Cargo pocket covered buttoning flaps.** Each flap shall consist of 2 integral parts: a covered flap and a buttoning flap. All shall be made of shell material.

**3.7.7.4.1** With right sides together, the buttoning flap and buttoning flap facing shall be seamed along the buttoning opening, turned inside out with corners properly worked out and stitched 1/4-inch (6.4 mm) gauge. A vertical buttonhole to fit a 45-ligne button shall be placed 5/8-inch (15.8 mm) from pointed end.

**3.7.7.4.2** With right sides together, the buttoning flap facing and flap facing shall be seamed along each side of the flap facing 3/8-inch (9.5 mm) gauge. **Note: Only the facings shall be caught in the stitching.** A bartack shall be placed at both corners of the opening.

**3.7.7.4.3** With right sides together, the flap shall be seamed along the outer edges to the flap facing. The buttoning flap assembly shall be sandwiched between the flap pieces during this operation and shall be partially caught in the seam. The flap assembly shall be turned inside out and stitched 1/4-inch (6.4 mm) gauge.

**3.7.7.4.4** The flap shall be centered above the pocket, as indicated on paper patterns, seamed, turned down and stitched 1/4-inch (6.4 mm) gauge. Care shall be taken to ensure flap effects proper closure with button assembly.

**3.7.7.5 Envelope fold.** The free top side edges of the pocket shall be stitched to the sides of the flap 1/8-inch (3.2 mm) gauge, to form an envelope fold. Both stitching shall be secured with a bartack.

**3.7.8 Message pockets.** There shall be two (2) bellows-type pockets placed on the front bib of the Overall. A pencil pocket shall be placed on the front wall of the pocket. The pocket shall have a covered buttoning flap.

**3.7.8.1** The pocket facing shall be seamed to the top edge of the pocket, turned inside and stitched 1/16-inch (1.6 mm) gauge. With the bottom edge turned under, the facing shall be stitched to the pocket 1/16-inch (1.6 mm) gauge.

**3.7.8.2 Pencil pocket.** The top of the pencil pocket shall be turned down, with raw edge turned under and stitched 1/16-inch (1.6 mm) gauge, to form a finished hem 5/8-inch (15.8 mm) wide. The right and bottom edge shall be turned under and stitched 1/16-inch (1.6 mm) gauge to the front wall of the pocket.

**3.7.8.2.1** The bellows cuts shall be seamed and serged. The outside raw edges of each pocket shall be serged. With the side and bottom edges turned under, the pockets shall be placed on the front bib, as indicated on paper patterns, and stitched 1/16-inch (1.6 mm) gauge. The pencil pocket shall be caught in the stitching.

**3.7.8.2.2** A 45-ligne button and loop assembly shall be centered on the outside of each pocket, 2-inches (5 cm) from top edge. The strap shall be perpendicular to the top pocket edge.

**3.7.8.3 Message pocket covered buttoning flaps.** Each flap shall consist of two integral parts: a covered flap and a buttoning flap. All shall be made of shell material.

**3.7.8.3.1** With right sides together, the buttoning flap and buttoning flap facing shall be seamed along the buttoning opening, turned inside out with corners properly worked out and stitched 1/4-inch (6.4 mm) gauge. A vertical buttonhole to fit a 45-ligne button shall be placed 5/8-inch (15.8 mm) from pointed end.

**3.7.8.3.2** With right sides together, the buttoning flap facing and flap facing shall be seamed along each side of the flap facing 3/8-inch (9.5 mm) gauge. **Note: Only the facings shall be caught in the stitching.** A bartack shall be placed at both corners of the opening.

**3.7.8.3.3** With right sides together, the flap shall be seamed along the outer edges to the flap facing. The buttoning flap assembly shall be sandwiched between the flap pieces during this operation and shall be partially caught in the seam. The flap assembly shall be turned inside out and stitched 1/4-inch (6.4 mm) gauge.

**3.7.8.3.4** The flap shall be centered above the pocket, as indicated on paper patterns, seamed, turned down and stitched 1/4-inch (6.4 mm) gauge. Care shall be taken to ensure flap effects proper closure with button assembly.

**3.7.9 Crotch seam.** The front pieces shall be joined along the crotch, below the slide fastener opening, pressed toward the left front piece and stitched 1/16-inch (1.6 mm) gauge.

**3.7.10 Joining upper and lower front.** A belt loop shall be centered and basted to each front waistline. The upper and lower front shall be seamed together with the belt loops caught between the two. The seam allowance shall be pressed down and stitched 1/4-inch (6.4 mm) gauge, excluding the belt loops. The belt loops shall be turned down, and securely stitched or bartacked. The functional length of the belt loops shall be 2-1/2 inches (6.3 cm).



**3.7.11 Inseams.** The front and back pieces shall be joined together along the inseam with a double-lapped seam. The front shall overlap the back on the outside.

**3.7.12 Barrier.** The front and back barrier pieces shall be seamed along the seat seam, crotch seam and inseam. The seams shall be sealed.

**3.7.13 Quilted lining.** The front and back quilted lining pieces shall be seamed and serged along the seat seam, crotch seam and inseam.

**3.7.14 Inside ration pockets.** There shall be two (2) bellows-type pockets placed on the inside of the front bib of the overall constructed of lining fabric. The pockets shall have the same design as the outside message pockets, with the exception of the flap which shall have a hook and loop closure.

**3.7.15 Storm cuffs.** The bottom edge of the storm cuff pieces shall be turned inside with raw edge turned under and stitched 1/16-inch (1.6 mm) gauge, to form a finished casing 3/4-inch (19.1 mm) wide for the elastic. The elastic shall be threaded through the casing and stitched securely at the ends of the casing.

**3.7.15.1** The bottom front and bottom back leg facings shall be seamed and serged together along the inseam. The storm cuff and the bottom leg facings shall be seamed to the bottom edge of the lining, with storm cuff placed on the inside of the garment and facings caught between shell and storm cuffs.

**3.7.16 Labels.** The labels shall be positioned on the upper part of the bib left front lining and stitched around all edges, 1/16-inch (1.6 mm) gauge.

**3.7.17 Side openings.** Each side opening shall have a two-way slide fastener with fly cover and fly guard.

**3.7.17.1 Fly cover and fly guard.** The fly cover and fly guard shall both be made of shell material with one layer of barrier fabric. With right sides together, the flys, including the barrier, shall be seamed across top and bottom edges, turned right side out and stitched 1/4-inch (6.4 mm) gauge along top, bottom and folded edge. The slide fasteners may be basted to their respective fly to facilitate joining. **Note: the top stop of the slide fastener shall be at the bottom of the side opening.**

**3.7.17.2 Joining shell, barrier and lining.** The lining and barrier may be basted together along the top edge of the bib, centre fronts and the side openings for better handling as one layer. With right sides together, the shell, lining/barrier and flys (including slide fasteners) shall be seamed together along the top edge of the bib, centre fronts and the side openings. The Overall shall be turned right side out, properly worked out and stitched 1/4-inch (6.4 mm) gauge along the top edge of the bib, centre fronts and the side openings.



**3.7.17.3 Side opening snap fasteners.** A female portion of a snap fastener shall be inlaid on the fly cover 3/4-inch (19.1 mm) from the top edge and 1-inch (2.5 cm) from side seam. A second female snap fastener shall be inlaid 2-1/2 inches (6.3 cm) below the first. Two male portions of a snap fastener shall be inlaid on the fly guard to effect proper closure with the fly cover. Care shall be taken to ensure fly lies flat, without puckering, when closed.

**3.7.17.4 Waist tabs.** The waist tabs shall be seamed together along sides and pointed end, turned inside out and stitched 1/4-inch (6.4 mm) gauge. A female snap fastener shall be inlaid 3/4-inch (19.1 mm) from pointed end, button facing outward. The waist tabs shall be placed on the back piece directly above the waistline, 1-inch (2.5 cm) behind the side seam, pressed over and stitched 1/4-inch (6.4 mm) gauge. A male portion of a snap fastener shall be inlaid 1-inch (2.5 cm) above the waistline seam, effecting proper closure with the waist tab. With a 1-1/2 inch (3.8 cm) distance apart, a second male snap fastener shall be inlaid 1-inch (2.5 cm) above the front waistline. Care shall be taken to ensure waist tabs lie flat without puckering when closed.

**3.7.18 Front closure.** With the top end of the slide fastener tape turned under, the slide fasteners shall be seamed to their respective side of the front opening. The location shall be as indicated on paper patterns. The right side of the slide fastener shall be double-needle lockstitched 3/4-inch (19.1 mm) behind right edge and the left side of the slide fastener shall be single lockstitched to the left side to effect proper closure with the right edge. The top end of the slide fastener shall be at 1-1/2 inches (3.8 cm) from top edge of the bib. A bartack shall be placed at both the top ends of the slide fastener tape.

**3.7.18.1** With the right side of the front closure lapped over the left side, the bottom of the opening shall be stitched 1/16-inch (1.6 mm) gauge to form a triangle. A horizontal and diagonal bartack shall be worked over the topstitching as reinforcement for the stress point on the corner adjacent to the opening.

**3.7.18.2** A female portion of a snap fastener shall be inlaid, button facing outward, 1/2-inch (12.7 mm) behind the left front edge and 1-inch (2.5 cm) below neck edge. A second female portion of a snap fastener shall be inlaid, button facing outward, 1-1/2 inch (3.8 cm) above the waist seam, 1/2-inch (12.7 mm) behind left front edge. Two male portions of a snap fastener shall be inlaid on the right front edge, to effect proper closure with the two female portions on the left fronts.

**3.7.18.3 Slide fastener thongs.** Each slide fastener pull shall have a length of drawcord threaded through, tied with a single knot at the pull tab and knotted again at the thong end. The ends of the drawcords shall be fused to prevent ravelling. The thongs shall have a functional length of 2-1/2 inches (6.3 cm).

**3.7.19 Leg bottoms.** Two buttonholes shall be made on the outside of the leg bottom hem. The buttonholes shall be reinforced with either twill tape, shell material or barrier fabric. Only the eyelets of the buttonholes shall be cut. One length of draw cord shall



be threaded through each of the draw cord outlets and securely stitched down at the opposite end of the casing. The loose end of the draw cord shall be knotted and fused. The leg bottom shall be turned up with raw edge turned under and stitched 1/16-inch (1.6 mm) gauge to form a casing 1-1/2 inch (3.8 cm) wide. When the casing is fully extended, the draw cords shall extend from the outlet by 2-inches (5 cm).

**3.7.20 Leg bottom closure.** A male portion of a snap fastener shall be placed on the back portion of the leg bottom, below the slide fastener tape and facing outward. A female portion of a snap fastener shall be placed at the leg bottom of the front fly cover, below the slide fastener with button facing outward. Care shall be taken to ensure snap fasteners effect proper closure.

**3.7.21 Suspenders.** With the long edges overlapped and the top raw edge turned under, the ends of the suspenders shall be seamed and turned right side out. The ends of the elastic shall be inserted into the suspenders and securely double topstitched 1/8-inch (3.2 mm) gauge. On the back end of the suspenders, the folded centre edge shall be topstitched 1/16-inch (1.6 mm) gauge for 1-1/2 inches (3.8 cm) without stretching the elastic. With the elastic extended, the folded centre edge shall continue to be topstitched 1/16-inch (1.6 mm) gauge for 10-inches (25 cm). The remaining length of the suspender shall be closed by continuing the topstitching 1/16-inch (1.6 mm) gauge.

**3.7.21.1 Suspender buttonholes.** A vertical buttonhole to fit a 30-ligne button shall be centered on each back end of the suspenders, 3/8-inch (9.5 mm) from the end. On the front ends of the suspenders, six vertical buttonholes to fit a 30-ligne button shall be centered along the length of the suspenders, the first one 1-inch (2.5 cm) from the end and each subsequent one spaced 3/4-inch (19.1 mm) apart.

**3.7.21.2** The suspenders shall be crossed at the back 9-inches (22.8 cm) from the end at an angle that allows the suspenders to fasten to the suspender buttons without pulling. The point of intersection shall be securely stitched together through all plies with a diamond stitch.

**3.7.21.3 Suspender buttons.** A 30-ligne button and strap assembly shall be attached to the lining side of each bib front, with the strap parallel to the top edge. Two 30-ligne button and strap assemblies shall be centered 4-1/2 inches (11.4 cm) apart on the shell side of the back bib, with the straps parallel to and 1-inch (2.5 cm) below the top edge.

**3.8 Measurements.** Measurements shall be as shown on Figures 2 through 7, and Scales of Measurements (see Table I).

### **3.9 Seam sealing.**

**3.9.1** The seam sealing equipment shall be controlled and calibrated in accordance with the quality system requirement, to ensure process conformance. Time, pressure and heat shall be verified periodically throughout the seam sealing operation and each time the equipment is started up.

**3.9.2** A hydrostatic test using 3-1/2 psi for 3 minutes shall be conducted on straight seams, curved seams and joint seams after every two hours of continuous operation. Tests shall also be conducted after every 10 minutes of down time. There shall be no leakage.

**3.9.3** All seam sealing test results and verification shall be recorded and documented as per the quality system requirements.

**3.10 Pressing.** The Overalls shall be properly pressed in accordance with good commercial practice.

**3.11 Marking label.** A marking label shall be sewn on the inside on the Overalls. The label and markings shall be in accordance with Specification D-80-001-055/SF-001. The marking shall give the following information printed in characters not less than 1/8-inch (3.2 mm) nor more than 1/2-inch (6.4 mm) high:

- a. NATO stock number as required for each size. NSN's will be designated in the contract by item and size.
- b. Size by height and chest (Scale of Measurements – Table I).
- c. NATO size designation (Scale of Measurements – Table I).
- d. Contract number.
- e. Month and year of production e.g. 05/2002.
- f. Nomenclature in English and French as follows:

Type I: OVERALLS, COMBAT, IMPROVED, ICE / SALOPETTE,  
AMÉLIORÉ, COMBAT, EVI  
Type II: OVERALLS, EXTREME COLD WEATHER, IMPROVED, SAR  
TECH / SALOPETTE, TEMPS FROID EXTRÊME, AMÉLIORÉ,  
SAR TECH

- g. A line suitable for user identification.
- h. Fibre content: Nylon/Cotton
- i. Example:

NSN XXXX-XX-XXX-XXXX

**7034** 8085-8090

OVERALLS, COMBAT, IMPROVED, ICE / SALOPETTE,  
COMBAT, AMÉLIORÉ, EVI

W8476KS9QL 05/2002

Nylon/Cotton

I.D. \_\_\_\_\_

No brand or product names shall be used on or attached to the garment in any way.



**3.12 Care labelling.** The following care instructions in English and French and in accordance with Specification D-80-001-055/SF-001 shall be included on the labels.

1. Machine wash in lukewarm water (not exceeding 40°C). / Lavage à l'eau tiède (température maximale de 40°C) dans une laveuse.
2. Do not bleach. / Ne pas utiliser d'agents de blanchiment chlorés.
3. Tumble dry at low temperature. / Séchage en machine à tambour à basse température.
4. Dry clean only when proper laundering fails to remove soil. / Nettoyage à sec si le linge est encore sale après le blanchissage.
5. Do not stitch or puncture the membrane in this garment. / Ne pas coudre ou perforer la membrane interne imperméable.

**3.12.1 Finishing.** The Overalls shall be cleaned, pressed for removal of wrinkles at temperature not exceeding 82°C (180°F) and folded. Overalls shall be packaged as outlined in CFTPO-GENERAL.

#### **4. QUALITY CONTROL/INSPECTION**

**4.1** The contractor is responsible for the performance of all inspection requirements as specified herein. Contractors may utilize their own or any other inspection facility acceptable to the Government or its designated representative. The Government reserves the right to perform any of the inspections specified herein, where such inspections are deemed necessary to ensure materiel and services conform to the prescribed requirements. The contractor is responsible for ensuring that all materiel or services submitted to the government for acceptance comply with all requirements of the contract

#### **5. PACKAGING**

**5.1 Packaging and packing.** Unless otherwise specified, the packaging, packing and delivery shall be in accordance with the terms of the contract.

#### **6. NOTES**

**6.1 Ordering data.** Procurement documents should specify the following:

- a. Title and date of Manufacturing Data;
- b. NATO Stock Number and size required;

- c. Preproduction requirements (see 3.3);
- d. Packaging and packing requirements (see 5.1);
- e. The Design Authority; and
- f. The Quality Assurance Authority.

## 6.2 Definition of terms

**6.2.1 Design Authority.** The Design Authority is the Government agency responsible for the technical aspect of the design and changes to design. Unless otherwise specified, the Design Authority is the Directorate, Soldier Systems Program Management (DSSPM).

**6.2.2 Master sealed pattern.** A master sealed pattern is the authorized prototype of the item to be produced, and is held only by the Government.

**6.2.3 Sealed pattern.** A sealed pattern is an exact duplicate of the master sealed pattern and is available to the manufacturer to be used as a guide in production (see 3.1).

**6.3 DND green procurement.** The production of a product to this manufacturing data, or the evaluation of a product to this manufacturing data, may require the use of materials and/or equipment that could be hazardous. This manufacturing data does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this manufacturing data to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.

**6.4 Enquiries.** Enquiries or recommendations for additions or deletions shall be addressed to the contracting authority.

NSNs for Overalls,  
Extreme Cold Weather, Improved, ICE,  
CADPAT™ TW – Type I

NSN	SIZE
8415-20-006-5767	A/A
8415-20-006-5768	6426
8415-20-006-5769	6430
8415-20-006-5770	6434
8415-20-006-5771	6730
8415-20-006-5772	6734
8415-20-006-5773	6738
8415-20-006-5774	6742



8415-20-006-5775	7030
8415-20-006-5776	7034
8415-20-006-5777	7038
8415-20-006-5778	7042
8415-20-006-5779	7046
8415-20-006-5780	7330
8415-20-006-5781	7334
8415-20-006-5782	7338
8415-20-006-5783	7342
8415-20-006-5784	7346
8415-20-006-5785	7634
8415-20-006-5786	7638
8415-20-006-5787	7642
8415-20-006-5789	7646
8415-20-006-5790	SPECIAL

NSNs for Overalls,  
Extreme Cold Weather, Improved, SAR Tech,  
Int'l Orange – Type II

NSN	SIZE
	A/A
	6426
	6432
	6730
	6734
	6738
	7030
	7034
	7038
	7042
	7046
	7330
	7334
	7338
	7342
	7346
	7634
	7638
	7642
	7646
	SPECIAL

TABLE 1 - SCALE OF MEASUREMENTS  
FOR OVERALL EXTREME COLD WEATHER, IMPROVED ARCTIC

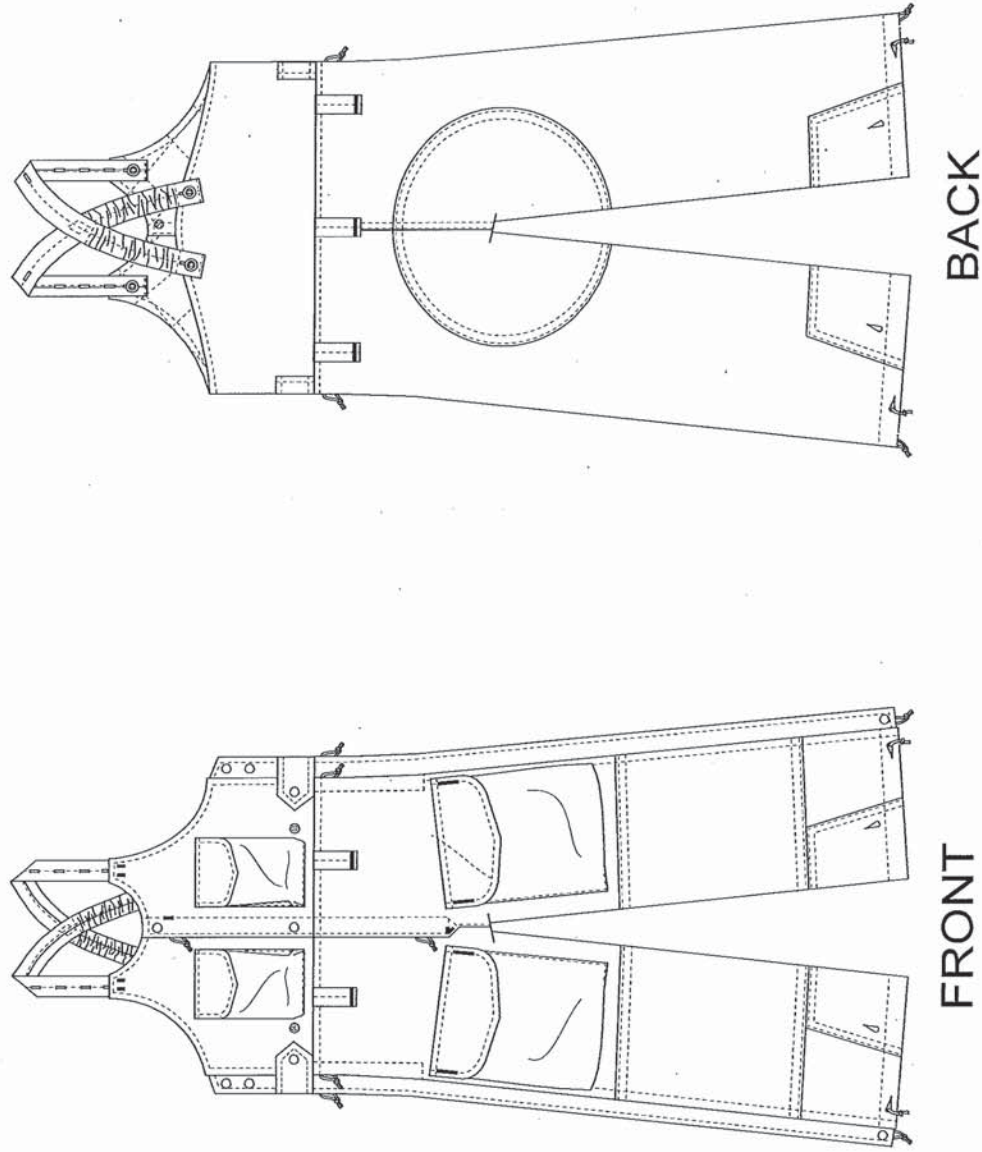
OCTOBER 2011

MEASUREMENTS OF BODY				MEASUREMENTS OF GARMENT							
SIZES BY HEIGHT AND WAIST	HEIGHT WITHOUT SHOES	WAIST	NATO SIZES	WAIST AT WAIST SEAM (CLOSED)	SEAT IN LINE WITH BOTTOM OF FLY	OUTSEAM FINISHED	INSEAM FINISHED	THIGH 2" BELOW CROTCH (CLOSED)	WIDTH AT BOTTOM (CLOSED)	SIDE SEAM SLIDE FASTENER LENGTH	SLIDE FASTENER LENGTH AT FLY
6426	5'1" to	23-26	7075-6070	36	44			28	21 1/2		
6430	5'3 1/2"	27-30	7075-7080	40	48	43	24	30	22	35	19
6434		31-34	7075-8090	44	52			32	22 1/2		
6730	5'4"	27-30	7580-7080	40	48			30	22		
6734	to	31-34	7580-8090	44	52	46	26	32	22 1/2	38	20
6738	5'6 1/2"	35-38	7580-9000	48	56			34	23		
6742		39-42	7580-0010	52	60			36	23 1/2		
7030		27-30	8085-7080	40	48			30	22		
7034	5'7"	31-34	8085-8090	44	52	49	28	32	22 1/2	41	21
7038	to	35-38	8085-9000	48	56			34	23		
7042	5'9 1/2"	39-42	8085-0010	52	60			36	23 1/2		
7046		43-46	8085-1020	56	64			38	24		
7330		27-30	8590-7080	40	48			30	22		
7334	5'10"	31-34	8590-8090	44	52	52	30	32	22 1/2	44	22
7338	to	35-38	8590-9000	48	56			34	23		
7342	6'1/2"	39-42	8590-0010	52	60			36	23 1/2		
7346		43-46	8590-1020	56	64			38	24		
7634		31-34	9095-8090	44	52			32	22 1/2		
7638	6'1"	35-38	9095-9000	48	56	55	32	34	23	47	23
7642	to	39-42	9095-0010	52	60			36	23 1/2		
7646	6'3 1/2"	43-46	9095-1020	56	64			38	24		
TOLERANCE PLUS OR MINUS				1/2	3/4	3/4	1/2	1/2	1/2	0	0

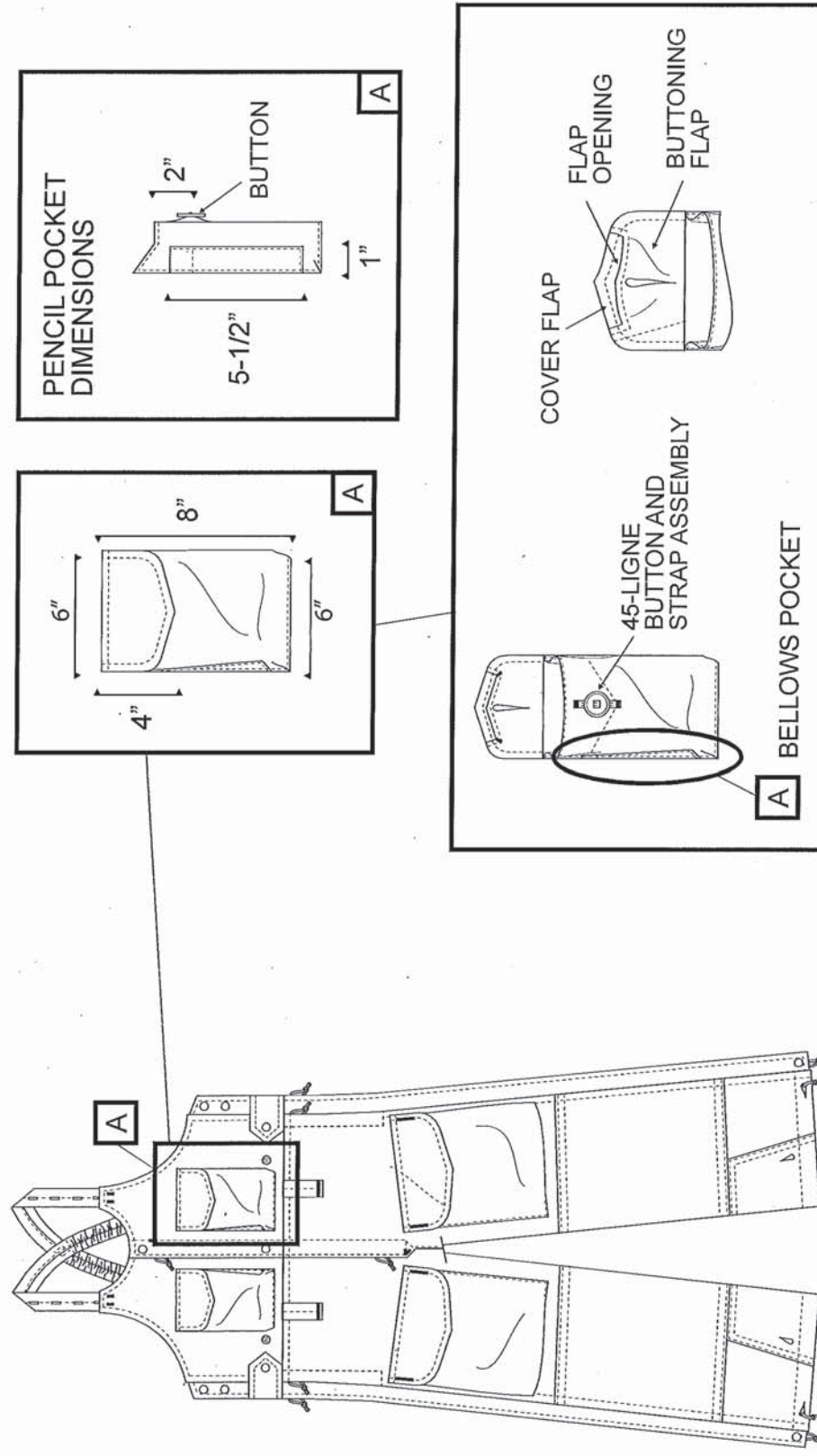
DIMENSIONS ARE IN INCHES

OECWIA31.xls

FIGURE 1 - FRONT AND BACK VIEW - TYPE I & II



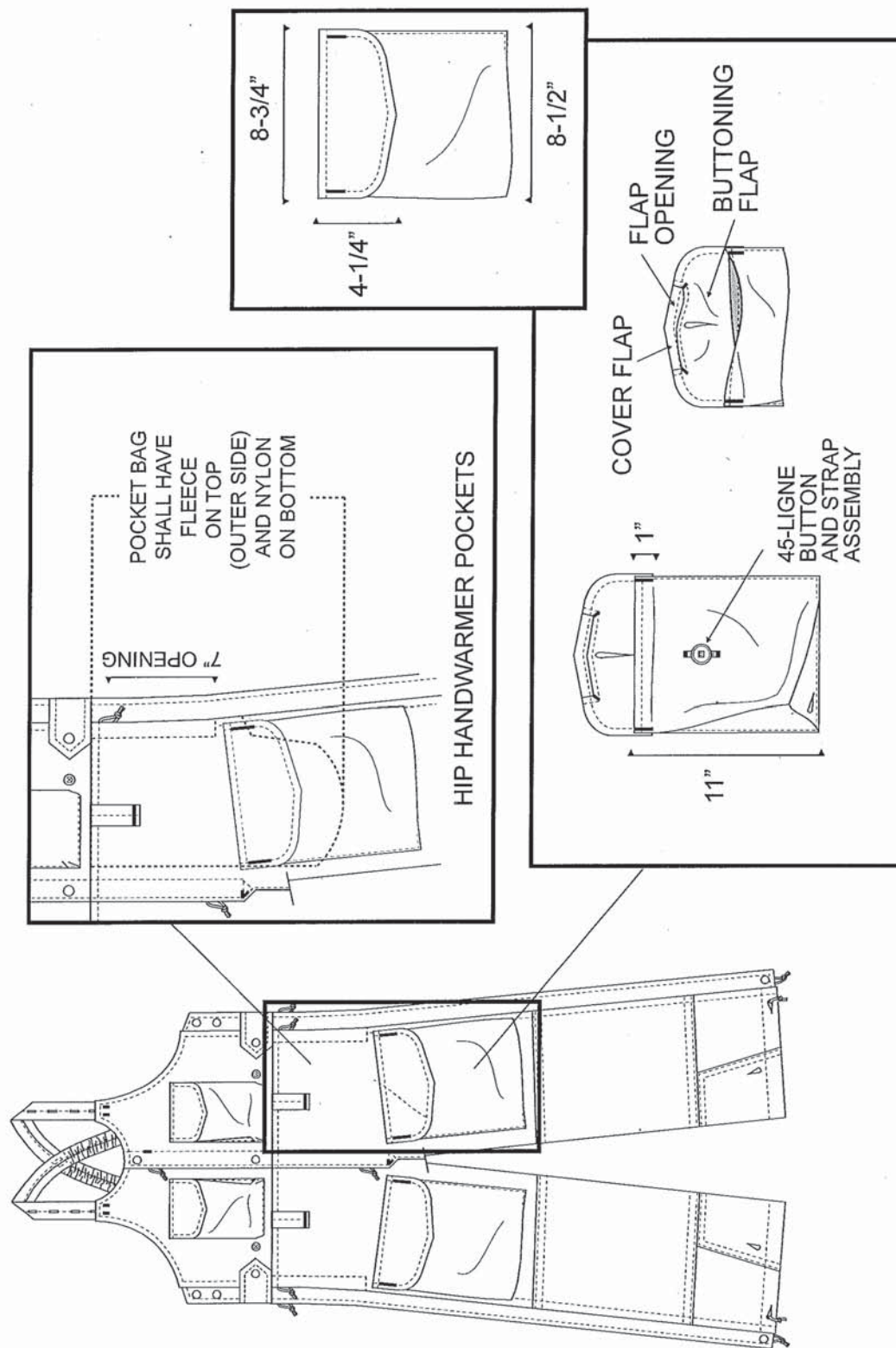
# FIGURE 2 - MESSAGE POCKETS



FRONT



# FIGURE 3 - FINISHED HIP AND CARGO POCKETS



# FIGURE 4 - DIMENSIONS OF GARMENT COMPONENTS

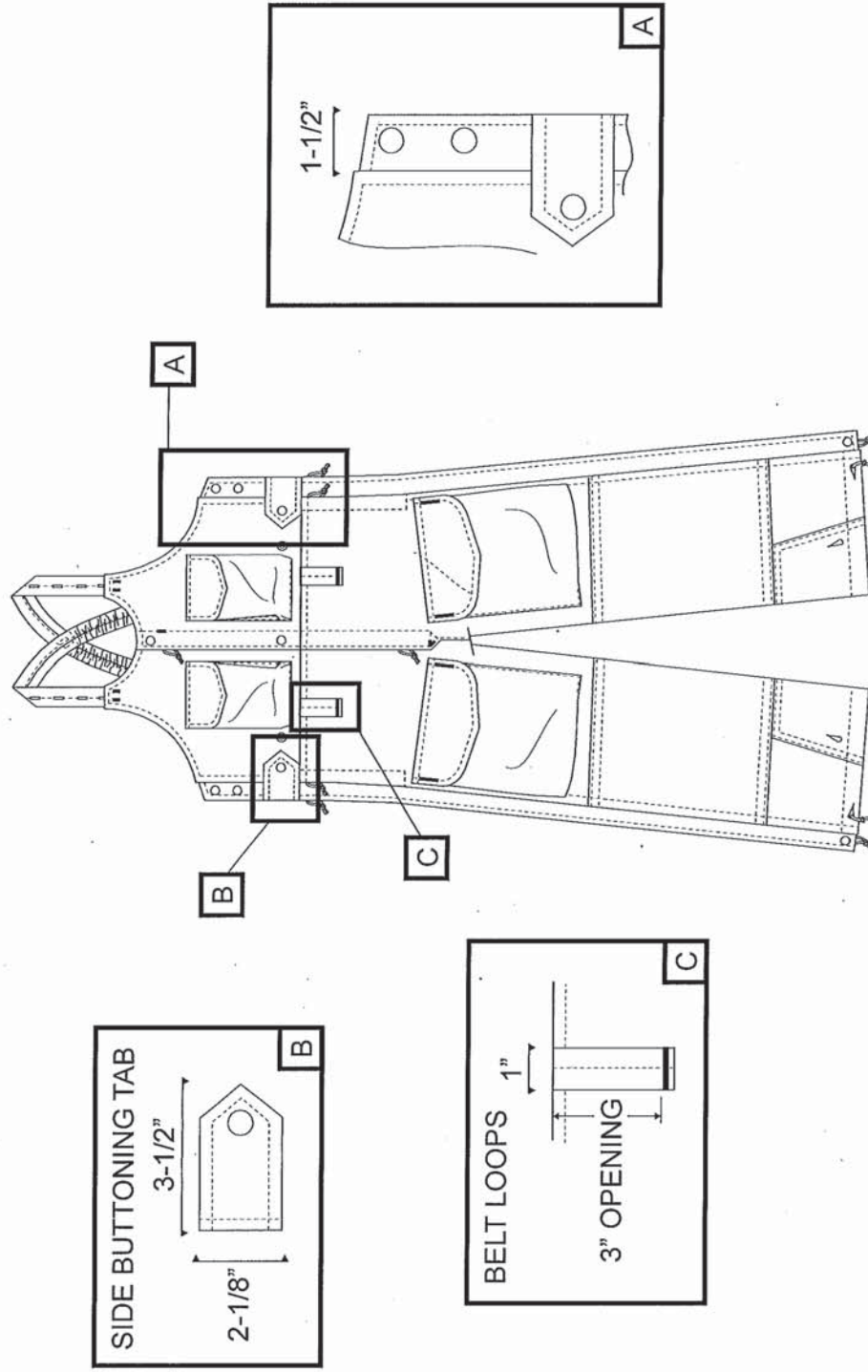


FIGURE 5 - TOP SIDE OPENING AND INSIDE RATION POCKETS

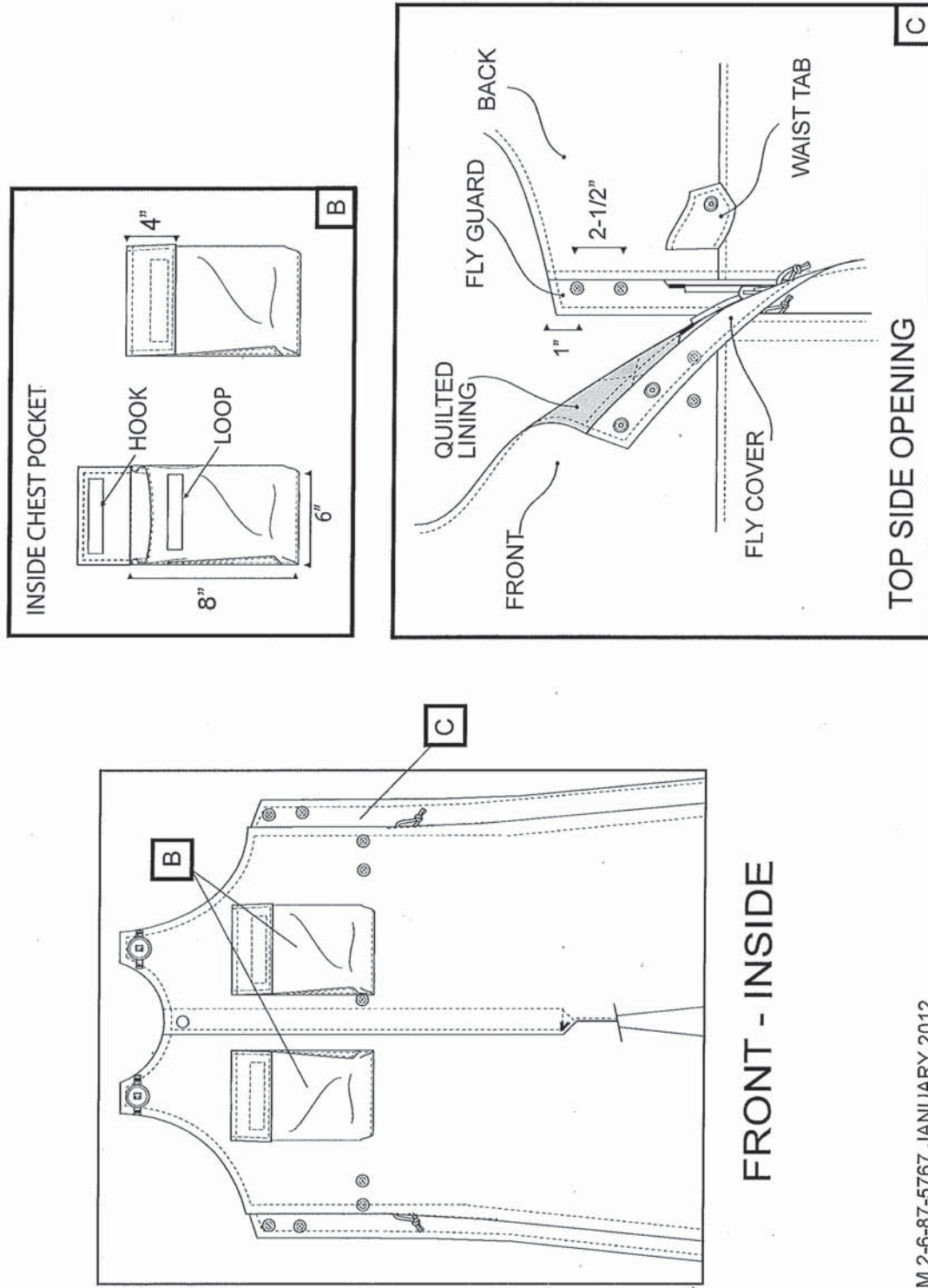
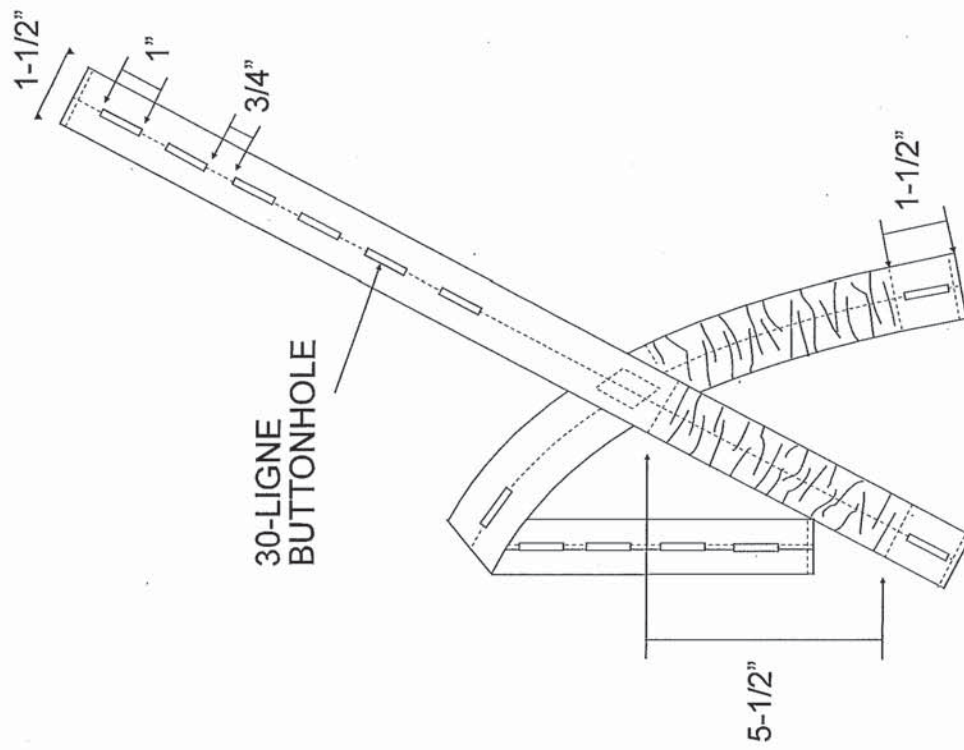
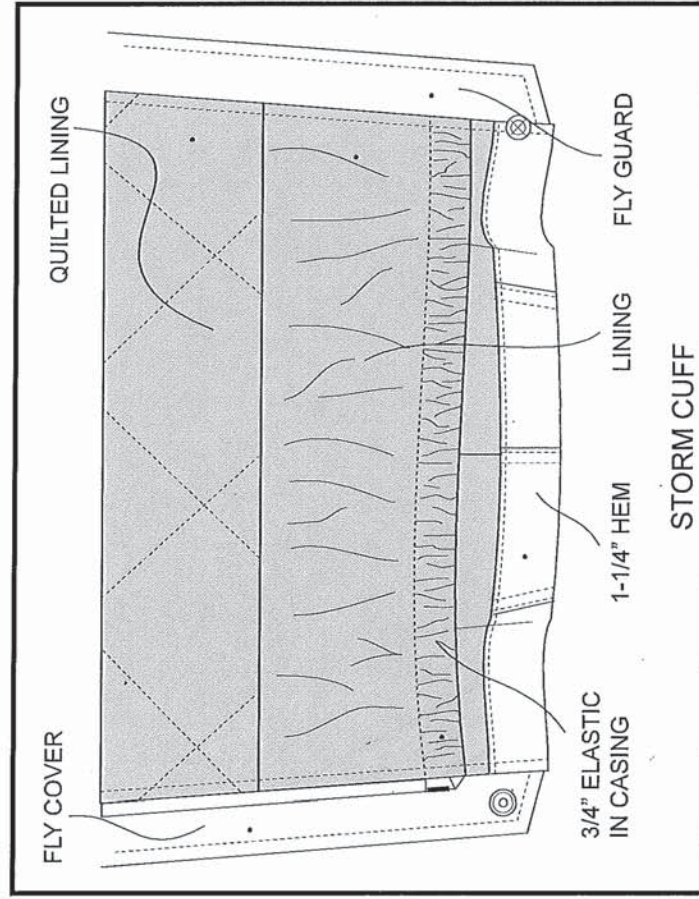
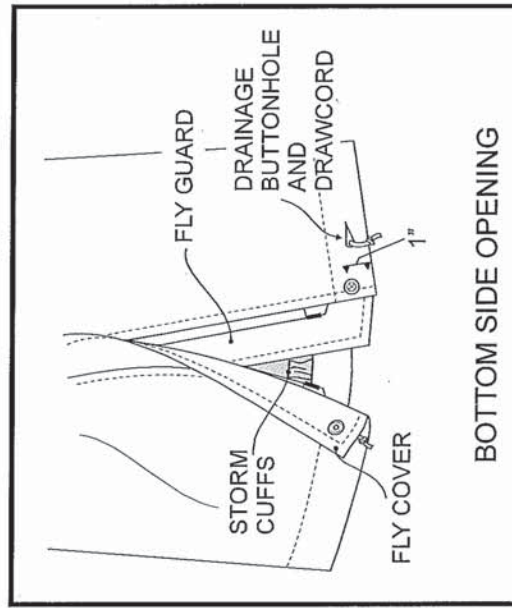


FIGURE 6 - SUSPENDERS DIMENSIONS

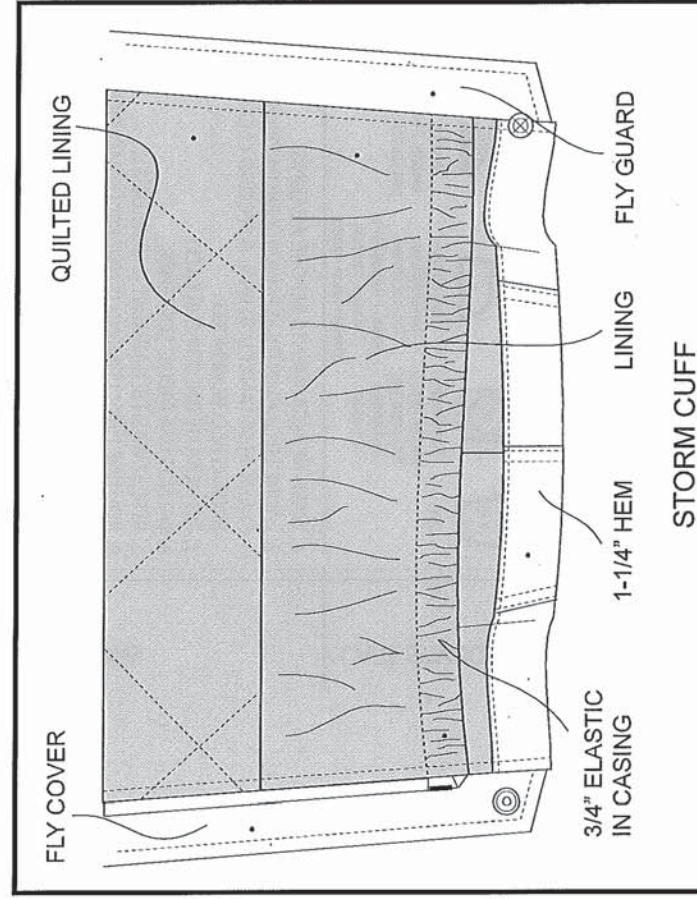
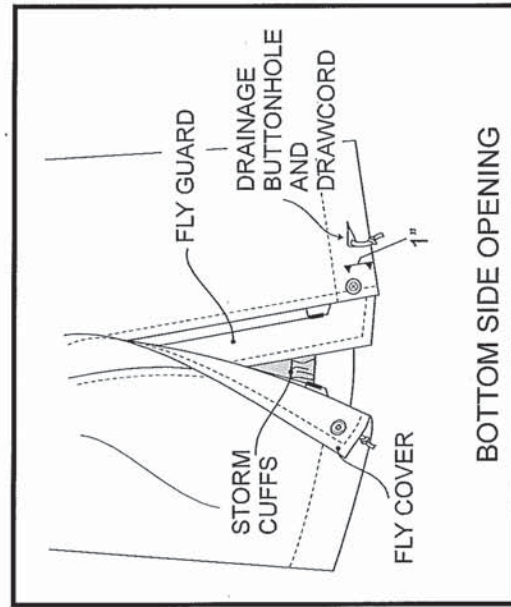









# FIGURE 7 - BOTTOM SIDE OPENING AND STORM CUFF



# FIGURE 7 - BOTTOM SIDE OPENING AND STORM CUFF



# FIGURE 8 - CARE AND MARKING LABEL -

ITEM & CONTRACT INFO	<p>OVERALLS, COMBAT, IMPROVED, ICE          SALOPETTE, COMBAT, AMÉLIORÉE, EVI          NSN/NNO: 8415-20-XXX-XXXX  <b>SIZE/TAILLE : 7034</b>          NATO SIZE/TAILLE OTAN : XXXX-XXX          CONTRACT NO./ NO. DE CONTRAT: WXXXX-XXXXXX          CONTRACTOR NAME/NOM D'ENTREPRENEUR: Jones &amp; Company          DATE OF / DE MANUFACTURE: MM/YY          FIBRE CONTENT: XXXXXXXXXXXXX</p>	
CARE SYMBOLS	<div>  40°C   Tumble dry on low heat. / Séchage par cubutage   Iron at low temperature. / Do not steam press. / Repasser à T/basse. Ne pas repasser à la vapeur.   Do not bleach. / Ne pas javeliser.   Do not dry-clean. / Ne pas nettoyer à sec.         </div>	
CARE INSTRUCTIONS	<p>1. WASH NEW GARMENTS BEFORE WEARING.          2. LAUNDER GARMENTS SEPARATELY FROM PERSONAL, NON-FLAME RESISTANT CLOTHING. A SECOND CLEAN WATER RINSE IS RECOMMENDED.          3. DO NOT USE CHLORINE BLEACH.          4. DO NOT USE FABRIC SOFTENER.          5. REPEAT WASH IF GARMENT IS VERY DIRTY.          6. ROUTINE DRY CLEANING IS NOT RECOMMENDED. HOWEVER, DRY CLEANING IS SUGGESTED FOR VERY OILY GARMENTS.</p> <p>1. LAVÉ LE VÊTEMENT NEUF AVANT DE LE PORTER.          2. LAVÉ LES VÊTEMENTS SÉPARÉMENT DES AUTRES VÊTEMENTS NON IGNIFUGES.          3. NE PAS UTILISER D'AGENTS CHLORES.          4. NE PAS UTILISER RAMOLLISSANT DE TISSU.          5. LE LAVAGE DE REPÉTITION EST VÊTEMENT EST TRES SALE.          6. LE NETTOYAGE A SEC COURANT N'EST PAS RECOMMENDE. CEPENDANT, LE NETTOYAGE A SEC EST SUGGERE POUR LES VÊTEMENTS TRES HUILUEX.</p>	
USER ID	<p>I.D. _____</p>	



NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

SPECIFICATION

CLOTH, MELTON, WOOL, 375 gm<sup>2</sup>

1. SCOPE

**1.1 Scope.** This specification covers the requirements for Cloth, Melton, Wool, 375 g/m<sup>2</sup>.

2. APPLICABLE DOCUMENTS

**2.1 Government Documents.** Not applicable.

**2.2 Other Publications.** The following publications form part of this specification to the extent specified herein. The effective date of the publications shall be those in effect on the date of the publication of this specification. Sources are as shown.

**CAN/CGSB-4.2 Textile Test Methods**

Canadian General Standards Board

Gatineau, QC

K1A 1G6

Telephone: 819-956-0425 or 1-800-665-2472

Email: [ncr.cgsb-ongc@pwgsc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc.gc.ca)

Website: <http://www.pwgsc.gc.ca/cgsb/home/index-e.html>

**AATCC Textile Test Methods**

American Association of Textile Chemists and Colorists

P.O. Box 12215

Research Triangle Park, NC

27709, USA

Telephone: 919-549-3526

SPECIFICATION

TISSU DE LAINE MELTON, 375 g/m<sup>2</sup>

1. PORTÉE

**1.1 Portée.** La présente spécification vise les exigences pour le tissu de laine melton, 375 g/m<sup>2</sup>.

2. DOCUMENTS APPLICABLES

**2.1 Documents du gouvernement.** Sans objet.

**2.2 Autres publications.** Les publications suivantes font partie intégrante de la présente spécification selon les modalités indiquées ci-après. La date d'entrée en vigueur doit être celle en vigueur à la date de publication de la présente spécification. La source de diffusion est celle indiquée.

**CAN/CGSB-4.2 Méthodes pour épreuves textiles**

Office des normes générales du Canada

Gatineau (Québec)

K1A 1G6

Téléphone : 819-956-0425 ou 1-800-665-2472

Courriel : [ncr.cgsb-ongc@pwgsc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc.gc.ca)

Site Internet : <http://www.tpsgc-pwgsc.gc.ca/cgsb/home/index-f.html>

**AATCC Textile Test Methods**

American Association of Textile Chemists and Colorists

P.O. Box 12215

Research Triangle Park, NC

27709, États-Unis

Téléphone : 919-549-3526

Site internet : [www.aatcc.org](http://www.aatcc.org)



Website: [www.aatcc.org](http://www.aatcc.org)

## 2.3 Sealed Patterns.

DOS 1-1052  
Cloth, Melton, Wool, 375 g/m<sup>2</sup>, Black  
NSN 8305-21-103-3627

DOS 1-3324  
Cloth, Melton, Wool, 375 g/m<sup>2</sup>, Dark Blue  
NSN 8305-21-103-3633

DID 1-1692  
Cloth, Melton, Wool, 375 g/m<sup>2</sup>, White  
NSN 8305-21-103-3661

DCGE 271-67  
Cloth, Melton, Wool, 375g/m<sup>2</sup>, Dark Green  
NSN 8305-21-103-3658

DCGEM 271-75  
Cloth, Melton, Wool, 375 g/m<sup>2</sup>, Brown (for colour)  
NSN 8305-21-870-8075

DCGEM 260-85  
Cloth, Melton, Wool, 375 g/m<sup>2</sup>, Air Force Blue  
NSN 8305-21-898-3287 (to govern finish for all)

DCGEM 272-88  
Cloth, Melton, Wool, 375 g/m<sup>2</sup>, Scarlet  
NSN 8305-21-905-6393

DACME 291-93  
Cloth, Melton, Wool, 375 g/m<sup>2</sup>  
NSN 8305-21-103-3661 (Sealed for maximum allowable contamination)

DSSPM 281-01  
For Colour: Canadian Average Green (Cloth, Twist, nylon/cotton, 170g/m<sup>2</sup>, Canadian Average Green)

## 2.4 Order of Precedence.

**2.4.1** In the event of any inconsistency in contract documents such as contract, specification and sealed pattern, the order of precedence shall be contract, specification, and sealed pattern.

**2.4.2** In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

## 2.3 Modèles réglementaires.

DOS 1-1052  
Tissu de laine melton, 375 g/m<sup>2</sup>, noir  
NNO 8305-21-103-3627

DOS 1-3324  
Tissu de laine melton, 375 g/m<sup>2</sup>, bleu foncé  
NNO 8305-21-103-3633

DID 1-1692  
Tissu de laine melton, 375 g/m<sup>2</sup>, blanc  
NNO 8305-21-103-3661

DCGE 271-67  
Tissu de laine melton, 375 g/m<sup>2</sup>, vert foncé  
NNO 8305-21-103-3658

DCGEM 271-75  
Tissu de laine melton, 375 g/m<sup>2</sup>, brun (pour la couleur)  
NNO 8305-21-870-8075

DCGEM 260-85  
Tissu de laine melton, 375 g/m<sup>2</sup>, bleu force aérienne  
NNO 8305-21-898-3287 (vise tous les apprêts)

DCGEM 272-88  
Tissu de laine melton, 375 g/m<sup>2</sup>, écarlate  
NNO 8305-21-905-6393

DACME 291-93  
Tissu de laine melton, 375 g/m<sup>2</sup>  
NNO 8305-21-103-3661 (approuvés pour les contaminations maximales admises)

DSSPM 281-01  
Pour la couleur: Vert canadien moyen (Tissu, torsion, nylon/coton, 170g/m<sup>2</sup>, vert canadien moyen)

## 2.4 Ordre de préséance.

**2.4.1** En cas d'incohérence entre les documents contractuels, soit le contrat, la spécification et les échantillons réglementaires, l'ordre de préséance est le suivant: le contrat, la spécification et les échantillons réglementaires.

**2.4.2** En cas de divergence entre les documents mentionnés aux présentes et le contenu de la présente spécification, cette dernière a préséance.

**2.4.3** In the event of inconsistency within this specification, including inconsistency in languages, the Design Authority (DSSPM 2-11) shall be contacted for clarification.

**2.4.3** En cas d'incohérence dans l'énoncé de la spécification, incluant l'incohérence entre les langues, il faut communiquer avec l'autorité responsable de la conception (DAPES 2-11) pour obtenir des précisions.

### 3. REQUIREMENTS

### 3. EXIGENCES

**3.1 Workmanship.** The cloth covered by this specification shall be free of imperfections or blemishes such as may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes shall be considered defects when clearly visible at a normal inspection distance of approximately 1 metre under good, preferably North Light, lighting conditions.

**3.1 Qualité d'exécution.** Le tissu visé par la présente spécification doit être exempt de défauts pouvant nuire à son aspect ou à sa tenue en service. À des fins d'inspection, sont considérés comme défauts ceux qui sont clairement visibles à une distance d'inspection normale d'environ un mètre sous un bon éclairage, de préférence la lumière du nord.

**3.2 Sealed Pattern.** A Sealed Pattern, when available, will be supplied to the successful bidder. Sealed Patterns shall constitute the standard only in regard to any properties not defined in this specification. Note, however, that the order of precedence prevails (para 2.4). Sealed Patterns must be returned to the Crown and under no circumstances shall be mutilated or cut.

**3.2 Modèle réglementaire.** Un modèle réglementaire, lorsque disponible, sera fourni au soumissionnaire retenu. Il doit constituer le modèle normalisé en ce qui a trait seulement à toute propriété non définie dans la présente spécification. Nota – L'ordre de préséance (paragraphe 2.4) doit être respecté. Les modèles réglementaires doivent être renvoyés au gouvernement et ne doivent en aucun cas être endommagés ni coupés.

**3.3 Yarns.** Yarns shall be singles, woollen spun yarns of a blend containing not less than 88 per cent wool of 60/64s (Bradford) quality and not more than 12 per cent virgin nylon staple.

**3.3 Fils.** Les fils doivent être des filés de laine cardée simples constitués d'au moins 88% de laine de qualité 60/64 (Bradford) et d'au plus 12% de fibres discontinues de nylon vierge.

**3.4 Cloth.** The fabric shall be a Broken Twill Weave. When tested in accordance with the applicable test methods of CAN/CGSB-4.2, the finished cloth shall comply with the requirements specified in Table I.

**3.4 Tissu.** Le tissu doit comporter une armure sergé brisée. Lorsqu'il est mis à l'essai conformément aux méthodes pour épreuves textiles de la norme CAN/CGSB-4.2, le tissu fini doit être conforme aux exigences du tableau I.

**3.5 Colour.** Colour shall be as specified in the procurement documents. The colour required shall match the applicable sealed pattern or numerical colour co-ordinates, whichever is specified. All visual colour matching to sealed patterns shall be done in accordance with CAN/CGSB-4.2 No.41 Standard Light Sources for Colour Matching of Textiles. A colour match under north-sky daylight is the most important measurement. Metamerism shall be no greater than that exhibited by the Sealed Pattern.

**3.5 Couleur.** La couleur doit être celle précisée dans les documents d'achat. Elle doit correspondre au modèle réglementaire ou aux couleurs numériques coordonnées, selon le cas. L'appariement des couleurs visibles avec les modèles réglementaires doit être conforme aux exigences de la norme CAN/CGSB-4.2 n° 41, *Sources normalisées de lumière pour l'appariement des couleurs des textiles*. L'appariement des couleurs sous la lumière du nord est le principal critère. Le métamérisme ne doit pas dépasser celui du modèle réglementaire.

**3.6 Finish.** The finish shall be as depicted by Sealed Pattern DCGEM 260-85.

**3.6 Fini.** Le fini doit être conforme au modèle réglementaire (DCGEM 260-85).

**3.7 Length.** Unless otherwise specified, the cloth shall be delivered in pieces of approximately 70 metres with not more than two lengths per piece,

**3.7 Longueur.** Sauf indication contraire, le tissu doit être livré en pièces d'environ 70 mètres et comportant un maximum de deux longueurs par

the shorter of which shall be not less than 20 metres.

**3.8 Piece Marking.** Each piece of cloth shall have a label attached to the selvedge at one end. The label shall be made of linen, spunbonded olefin, or heavy cardboard with a reinforced eyelet for attaching a tying cord. The label shall be legibly printed with the following information:

- a) Contractor's identification
- b) Gross length in metres (including yardage allowance)
- c) Net metres
- d) Piece number
- e) Number of lengths per piece
- f) Nomenclature
- g) Specification number
- h) Month and year of contract
- i) NATO Stock Number

#### 4. QUALITY CONTROL/INSPECTION

**4.1** Unless otherwise specified in the contract or procurement documents, the contractor is responsible for the performance of all inspection requirements as specified herein. Contractors may utilize their own or any other inspection facility acceptable to the Government or its designated representative. The Government reserves the right to perform any of the inspections specified herein, where such inspections are deemed necessary to ensure material and services conform to prescribed requirements. The contractor is responsible for ensuring that all material or services submitted to the Government for acceptance comply with all requirements of the contract.

#### 5. PACKAGING

**5.1 Packaging and Packing.** Packaging, packing, delivery and marking of shipping containers shall be in accordance with the terms of the contract.

#### 6. NOTES

**6.1 Ordering Data.** Procurement documents should specify the following:

- a) Title, number and date of this

pièce. La longueur la plus courte de chaque pièce ne doit pas mesurer moins de 20 mètres.

**3.8 Marquage des pièces.** Chaque pièce doit porter, à une extrémité, une étiquette fixée à la lisière. L'étiquette doit être en toile de lin, en oléfine thermoliée ou en carton fort et percée d'un œillet renforcé permettant d'attacher une ficelle; elle doit porter les indications suivantes en caractères lisibles :

- a) Nom de l'entrepreneur
- b) Longueur brute en mètres (y compris la tolérance)
- c) Longueur nette en mètres
- d) Numéro de la pièce
- e) Nombre de longueurs par pièce
- f) Nomenclature
- g) Numéro de la spécification
- h) Mois et année du contrat
- i) Numéro de nomenclature OTAN (NNO)

#### 4. CONTRÔLE DE LA QUALITÉ / INSPECTION

**4.1** Sauf indication contraire dans le contrat ou les documents d'achat, l'entrepreneur est tenu d'effectuer les inspections mentionnées dans la présente spécification. Il peut utiliser à cette fin son propre matériel d'inspection ou celui de tout autre établissement acceptable au gouvernement du Canada ou à son représentant. Le gouvernement se réserve le droit d'effectuer les inspections mentionnées dans la présente spécification, lorsqu'elles sont nécessaires pour assurer que le matériel et les services sont conformes aux exigences prescrites. L'entrepreneur doit s'assurer que le matériel et les services proposés au gouvernement sont conformes aux exigences du contrat.

#### 5. CONDITIONNEMENT

**5.1 Conditionnement et emballage.** Le conditionnement, l'emballage, la livraison et le marquage des contenants d'expédition doivent être conformes aux modalités du contrat.

#### 6. NOTES

**6.1 Données de commande.** Les documents d'achat doivent préciser:

- a) Le titre, le numéro et la date de la



- specification
- b) Colour required (see 3.5)
- c) Packing and marking of shipping containers (see 5.1)
- d) The Design Authority
- e) The Quality Assurance Authority

- présente spécification
- b) La couleur requise (voir 3.5)
- c) Les exigences relatives à l'emballage et au marquage des contenants d'expédition (voir 5.1)
- d) L'autorité responsable de la conception
- e) L'autorité responsable de l'assurance de la qualité

**6.2 Design Authority.** The Design Authority is the Government agency responsible for technical aspects of design and changes to design. The Design Authority, for the items covered by this specification, is the Directorate of Soldier Systems Program Management (DSSPM).

**6.2 Autorité responsable de la conception.** L'autorité responsable de la conception est l'organisme gouvernemental chargé des aspects techniques de la conception et des modifications connexes. Dans le cas de la présente spécification, il s'agit du directeur de l'Administration du programme de l'équipement du soldat (DAPES).

**6.3 Quality Assurance Authority.** The Quality Assurance Authority is the Government agency responsible for providing assurance that material and services supplied by the contractor conform to specified requirements. The Quality Assurance Authority is the Director Quality Assurance.

**6.3 Autorité responsable de l'assurance de la qualité.** L'autorité responsable de l'assurance de la qualité est l'organisme gouvernemental chargé d'assurer que le matériel et les services fournis par l'entrepreneur satisfont aux exigences prescrites. L'autorité responsable de l'assurance de la qualité est le directeur de l'assurance de la qualité.

#### 6.4 Definition of Terms.

#### 6.4 Définitions.

**6.4.1 Master Sealed Pattern.** A Master Sealed Pattern is the authorized prototype of the item to be produced and is held only by the Government.

**6.4.1 Modèle réglementaire principal.** Prototypé autorisé de l'article qui doit être fabriqué et dont le gouvernement est le seul détenteur.

**6.4.2 Sealed Pattern.** A Sealed Pattern is a duplicate of the Master Sealed Pattern and is available to the manufacturer to be used as a guide in production.

**6.4.2 Modèle réglementaire.** Copie exacte du modèle réglementaire principal mis à la disposition du fabricant qui doit l'utiliser comme un guide.

**6.5** The production of a product to this specification, or the evaluation of a product to this specification, may require the use of materials and/or equipment that could be hazardous. This specification does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.

**6.5** La fabrication d'un produit ou son évaluation conformément à la présente spécification peut nécessiter l'utilisation de matériel ou d'équipement dangereux. La présente spécification n'a pas pour objet de traiter de toutes les préoccupations relatives à la santé, à la sécurité et à l'environnement liées à son utilisation. Il incombe à l'utilisateur de la présente spécification d'établir au préalable des méthodes appropriées qui tiennent compte des questions d'environnement, de santé et de sécurité, et de déterminer les restrictions réglementaires applicables.

**Table I - Testing Requirements for Finished Cloth**

Property	Test Method*	Specified Requirements	Minimum Acceptable	Maximum Acceptable
Width (between selvages)	4.1	150 cm	148 cm	152 cm
Mass	5.1	375 g/m <sup>2</sup>	363 g/m <sup>2</sup>	387 g/m <sup>2</sup>
Fabric Count (yarns per cm)	6	Warp: 16 Weft: 14	Warp: 15 Weft: 13	
Breaking Strength	9.2 (Test 6.1)	Warp: 196 N Weft: 196 N	Warp: 178 N Weft: 178 N	
Dimensional Change in Wetting	25.1			Warp: 4.0 % Weft: 4.0 %
Non-Fibrous Materials	15 (See Note 1 below)			3.0%
Colourfastness to Dry Cleaning	29.1	No change in colour: Grey Scale 5		No appreciable change in colour: Grey Scale 4
Colourfastness to Crocking	22 (Tests 6.1 & 6.2)	Colour change and staining: Wet: Grey Scale 5 Dry: Grey Scale 5		Colour change and staining: Wet: Grey Scale 4 Dry: Grey Scale 4
Colourfastness to Water	20	No change in colour and no staining: Grey Scale 5		No appreciable change in colour and no appreciable staining: Grey Scale 4
Colourfastness to Salt Water	21	No change in colour and no staining: Grey Scale 5		No appreciable change in colour and no appreciable staining: Grey Scale 4
Colourfastness to Light	16** (Option E)		Sample Grey Scale 4 after 40 AATCC Fading Units	
Colourfastness to Perspiration	23	No change in colour and no staining: Grey Scale 5		No appreciable change in colour and no appreciable staining: Grey Scale 4
Colourfastness to Pressing	31 (dry press at 185°C for 20 seconds)	No change in colour and no staining: Grey Scale 5		No appreciable change in colour or staining: Grey Scale 4
Quantitative Analysis	14		Wool: 88%	Nylon: 12%

\* CAN/CGSB-4.2 Textile Test Methods

\*\* AATCC Textile Test Methods

**Note 1:** CAN/CGSB-4.2 Method 15 paragraph 7.4 solvent extraction one of petroleum ether, tetrachloroethylene or hexane shall be used. Also, omit para 7.7 and 7.8.

**Table I – Exigences en matière d’essais du tissu fini**

<b>Propriété</b>	<b>Méthode d’essai*</b>	<b>Exigence prescrite</b>	<b>Minimum acceptable</b>	<b>Maximum acceptable</b>
Largeur (entre les lisières)	4.1	150 cm	148 cm	152 cm
Masse	5.1	375 g/m <sup>2</sup>	363 g/m <sup>2</sup>	387 g/m <sup>2</sup>
Contexture (fils par cm)	6	Chaîne: 16 Trame: 14	Chaîne: 15 Trame: 13	
Résistance à la rupture	9.2 (Essai 6.1)	Chaîne: 196 N Trame: 196 N	Chaîne: 178 N Trame: 178 N	
Variation dimensionnelle au trempage dans l’eau	25.1			Chaîne: 4 % Trame: 4 %
Matières non fibreuses	15 (voir, plus bas, la note 1)			3.0 %
Solidité de la couleur au nettoyage à sec	29.1	Pas de changement de couleur: Échelle de gris 5		Pas de changement de couleur sensible: Échelle de gris 4
Solidité de la couleur au frottement	22 (Essais 6.1 et 6.2)	Changement de couleur et tachage: Mouillé: Échelle de gris 5 Sec: Échelle de gris 5		Changement de couleur et tachage: Mouillé: Échelle de gris 4 Sec: Échelle de gris 4
Solidité de la couleur à l’eau	20	Pas de changement de couleur ni de tachage: Échelle de gris 5		Pas de changement de couleur ni tachage sensibles: Échelle de gris 4
Solidité de la couleur à l’eau de mer	21	Pas de changement de couleur ni tachage: Échelle de gris 5		Pas de changement de couleur ni tachage sensibles: Échelle de gris 4
Solidité des teintures à la lumière	16** (Option E)		Échantillon - Échelle de gris 4 après l’exposition à 40 unités de décoloration de l’AATCC	
Solidité de la couleur à la sueur	23	Pas de changement de couleur ni tachage: Échelle de gris 5		Pas de changement de couleur ni tachage sensibles: Échelle de gris 4

Propriété	Méthode d'essai*	Exigence prescrite	Minimum acceptable	Maximum acceptable
Solidité des teintures au repassage à chaud	31 (pressage à sec à 185° C pendant 20 secondes)	Pas de changement de couleur et de tache: Échelle de gris 5		Pas de changement de couleur ni tache sensibles: Échelle de gris 4
Analyse quantitative	14		Laine: 88 %	Nylon: 12 %

\* CAN/CGSB-4.2 Méthodes pour épreuves textiles

\*\* AATCC Textile Test Methods

**Note 1:** CAN/CGSB-4.2 Méthode 15, paragraphe 7.4, Élimination de matières non fibreuses par solvant. Un éther de pétrole, le tétrachloroéthylène ou l'hexane, doit être utilisé. Omettre les paragraphes 7.7 et 7.8.

Supersedes all previous versions of /  
Remplace les versions antérieures de  
DSSPM 2-2-80-052 and / et  
D-80-001-052/SF-001 (1989-09-27)

NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

SPECIFICATION

FOR

CLOTH, TAFFETA, NYLON, 88 g/m<sup>2</sup>

TYPE I and II

1. SCOPE

**1.1 Scope.** This specification covers the requirements for two types of Cloth, Taffeta, Nylon, 88 g/m<sup>2</sup>.

**1.2 Classification.** The cloth shall be classified as follows:

Type I	Cloth, Taffeta, Nylon, 88 g/m <sup>2</sup> (Heat set and back calendered finish)
Type II	Cloth, Taffeta, Nylon, 88 g/m <sup>2</sup> (Heat set only)

2. APPLICABLE DOCUMENTS

**2.1 Government documents.** The following publications form part of this specification to the extent specified herein. The effective dates shall be those in effect on the date of the invitation to tender.

DSSPM 2-2-80-500	CADPAT™(TW) [Canadian Disruptive Pattern (Temperate Woodland)] Requirements for colour and infra-red reflection.
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SPÉCIFICATION

TAFFETAS DE NYLON, 88 g/m<sup>2</sup>

TYPE I et II

1. PORTÉE

**1.1 Portée.** La présente spécification vise les exigences pour deux types de taffetas de nylon, 88 g/m<sup>2</sup>.

**1.2 Classification.** Le tissu doit être classé comme suit:

Type I	Taffetas de nylon, 88 g/m <sup>2</sup> (thermofixé et envers fini par calandrage)
Type II	Taffetas de nylon, 88 g/m <sup>2</sup> (thermofixé seulement)

2. DOCUMENTS APPLICABLES

**2.1 Documents du gouvernement.** Les documents suivants font partie intégrante de la présente spécification dans la mesure prescrite par cette dernière. La version en vigueur des documents doit être celle à la date de publication de la présente invitation à soumissionner.

DSSPM 2-2-80-500	Spécification visant le DCamC <sup>MC</sup> (RBT) [dessin de camouflage canadien (régions boisées tempérées)] Exigences relatives à la couleur et à la réflectance dans l'infrarouge.
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OPI/BPR: DSSPM / DAPES 2-2

Canada

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DSSPM 2-2-80-501 CADPAT™(AR) [Canadian Disruptive Pattern (Arid)] Requirements for colour and infra-red reflection.

DSSPM 2-2-80-501 Spécification visant le DCamC<sup>MC</sup> (RA) [dessin de camouflage canadien (régions arides)] Exigences relatives à la couleur et à la réflectance dans l'infrarouge.

**2.2 Other Publications.** The following documents form part of this specification to the extent specified herein. The effective date of the documents shall be those in effect on the date of manufacture. Sources are shown.

**2.2 Autres publications.** Les publications suivantes font partie intégrante de la présente spécification selon les modalités indiquées ci-après. La version en vigueur à la date de fabrication s'applique. La source de diffusion est celle qui est indiquée.

**CAN/CGSB-4.2 Textile Test Methods**

Canadian General Standards Board  
Gatineau, QC  
K1A 1G6  
Telephone: 819-956-0425 or 1-800-665-2472  
Email: [ncr.cgsb-ongc@pwgsc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc.gc.ca)  
Website: <http://www.pwgsc.gc.ca/cgsb/home/index-e.html>

**CAN/CGSB-4.2 Méthodes pour épreuves textiles**

Office des normes générales du Canada  
Gatineau (Québec)  
K1A 1G6  
Téléphone: 819-9560-0425 ou 1 800-665-2472  
Courriel: [ncr.cgsb-ongc@pwgsc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc.gc.ca)  
Site Internet: <http://www.tpsgc-pwgsc.gc.ca/cgsb/home/index-f.html>

**AATCC Textile Test Methods**

American Association of Textile Chemists and Colorists  
P.O. Box 12215  
Research Triangle Park, NC  
27709, USA  
Telephone: 919-549-3526  
Website: [www.aatcc.org](http://www.aatcc.org)

**AATCC Textile Test Methods**

American Association of Textile Chemists and Colorists  
P.O. Box 12215  
Research Triangle Park, NC 27709  
ÉTATS-UNIS  
Téléphone: 919-549-3526  
Site Internet: [www.aatcc.org](http://www.aatcc.org)

**ISO Textile Test Methods**

Standards Council of Canada  
270 Albert Street, Suite 200  
Ottawa, ON  
K1P 6N7  
Telephone: 613-238-3222  
Email: [info@scc.ca](mailto:info@scc.ca)  
Website: [www.scc.ca](http://www.scc.ca)

**Normes de l'ISO pour les essais des textiles**

Conseil canadien des normes  
270, rue Albert, pièce 200  
Ottawa (Ontario) K1P 6N7  
Téléphone: 613-238-3222  
Courriel: [info@scc.ca](mailto:info@scc.ca)  
Site Internet: [www.scc.ca](http://www.scc.ca)

**2.3 Sealed Patterns.**

**2.3 Modèles réglementaires.**

DSSPM 281-01 Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m<sup>2</sup>, Canadian Average Green For colour and IRR - Canadian Average Green.

DSSPM 281-01 Tissu léger en nylon/coton simple retors, 170 g/m<sup>2</sup>, vert canadien moyen Pour la couleur et la RIR – vert canadien moyen.

DSSPM 259-01 Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m<sup>2</sup>, CADPAT™(TW) For colour and pattern - CADPAT™(TW).

DSSPM 259-01 Tissu léger en nylon/coton simple retors, 170 g/m<sup>2</sup>, DCamC<sup>MC</sup> (RBT) Pour la couleur et le motif – DCamC<sup>MC</sup> (RBT).

DCGE 306-71 Cloth, Taffeta, Nylon, 88 g/m<sup>2</sup>, Type I For finish only.

DCGE 306-71 Taffetas de nylon, 88 g/m<sup>2</sup>, type I Pour le fini seulement.

DCGEM 290-73	Cloth, Taffeta, Nylon, 88 g/m <sup>2</sup> , Type II For finish only.	DCGEM 290-73	Taffetas de nylon, 88 g/m <sup>2</sup> , type II Pour le fini seulement.
DCGEM 268-89	Cloth, Taffeta, Nylon, 88 g/m <sup>2</sup> , Type II For colour - Air Force Blue.	DCGEM 268-89	Taffetas de nylon, 88 g/m <sup>2</sup> , type II Pour la couleur – bleu force aérienne.
DSSPM 253-02	Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m <sup>2</sup> , CADPAT™ (AR) For colours, motif size, colour distribution, print quality, penetration, clarity.	DSSPM 253-02	Tissu léger en nylon/coton simple retors, 170 g/m <sup>2</sup> , DCamC <sup>MC</sup> (RA) Pour les couleurs, la taille des motifs, la distribution des couleurs, la qualité de l'impression, la pénétration, la clarté.

## 2.4 Order of precedence.

**2.4.1** In the event of inconsistency between contract documents, such as contract, specification and Sealed Patterns, the order of precedence shall be contract, specification and Sealed Patterns.

**2.4.2** In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

**2.4.3** In the event of inconsistency within this specification, the Design Authority (DSSPM 2-2) shall be contacted for clarification.

**2.4.4** For any inconsistency in technical details between languages, the language of the original document, which in this case is English, shall take precedence.

**2.4.5** Nothing in this document supersedes applicable laws and regulations, unless a specific exemption has been obtained.

## 3. REQUIREMENTS

**3.1 Sealed Pattern.** A Sealed Pattern, when available, will be supplied to the successful bidder. Sealed Patterns shall constitute the standard only in regard to any properties not defined in this specification. Note, however, that the order of precedence prevails (paragraph 2.4). Under no circumstances shall Sealed Patterns be mutilated or cut and must be returned to the Crown.

**3.2 Workmanship.** The material covered by

## 2.4 Ordre de préséance.

**2.4.1** En cas d'incohérence entre les documents contractuels, soit le contrat, la spécification et les modèles réglementaires, l'ordre de préséance est le suivant: le contrat, la spécification et les modèles réglementaires.

**2.4.2** En cas de divergence entre les documents mentionnés aux présentes et le contenu de la présente spécification, cette dernière a préséance.

**2.4.3** En cas d'incohérence dans l'énoncé de la spécification, il faut communiquer avec l'autorité responsable de la conception (DAPES 2-2) pour obtenir des précisions.

**2.4.4** En cas d'incohérence dans les détails techniques, entre les deux langues, la langue du document d'origine, dans ce cas-ci l'anglais, a préséance.

**2.4.5** Rien dans le présent document ne remplace les lois et règlements applicables, sauf si une exemption est expressément obtenue.

## 3. EXIGENCES

**3.1 Modèle réglementaire.** Un modèle réglementaire, lorsque disponible, doit être fourni au soumissionnaire retenu. Le modèle réglementaire doit constituer la norme uniquement en ce qui concerne les propriétés qui ne sont pas définies aux présentes. Nota – L'ordre de préséance (paragraphe 2.4) doit être respecté. Les modèles réglementaires doivent être renvoyés au gouvernement et ne doivent en aucun cas être endommagés ni coupés.

**3.2 Qualité d'exécution.** Le tissu visé par la

this specification shall be free of imperfections or blemishes such as may adversely affect its appearance, quality or serviceability. For inspection purposes, imperfections and blemishes shall be considered defects when clearly visible at a normal inspection distance of approximately 1 metre under good, preferably North Light, lighting conditions.

**3.3 Yarns.** The yarns shall be continuous filament nylon in both warp and weft.

**3.4 Fabric.** The fabric shall be a plain weave. When tested in accordance with the applicable test methods, the finished fabric shall comply with the requirements specified in Table I.

**3.5 Colour.** Colour shall be as specified in the procurement documents. The colour required shall match the applicable Sealed Pattern or numerical colour co-ordinates, whichever is specified. All visual colour matching to Sealed Patterns shall be done in accordance with CAN/CGSB-4.2 No.41 Standard Light Sources for Colour Matching of Textiles. A colour match under North-sky daylight is the most important measurement. Metamerism shall be no greater than that exhibited by the Sealed Pattern.

**3.5.1 CADPAT™ specifications.** The technical requirement is defined and included in the applicable DSSPM specification, either DSSPM 2-2-80-500 for CADPAT™ (TW) or DSSPM 2-2-80-501 for CADPAT™ (AR). Note that there are colour measurement requirements for each of the 4 colours in the CADPAT™ (TW) specification, and individual IRR requirements for Canadian Average Green and black, and that the IRR requirement for colours light green and brown are the same - the light green curve is specified for both colours. In addition, there are colour measurement requirements for each of the 3 colours in the CADPAT™ (AR) specification, and individual IRR requirements for light sand, dark sand and brown.

**3.5.1.1** For bidding purposes, the Sealed Pattern for Type I CADPAT™ (TW) printed cloth, DSSPM 259-01, is supplied as a full metre. Under no circumstances is the Sealed Pattern to be mutilated or cut.

**3.5.2 Canadian Average Green.** When the contracting documents specify the colour as Canadian Average Green, the fabric shall be dyed to

présente spécification doit être exempt de défauts pouvant nuire à son aspect, sa qualité ou à sa tenue en service. À des fins d'inspection, sont considérés comme défauts ceux qui sont clairement visibles à une distance d'inspection normale d'environ un mètre sous un bon éclairage, de préférence la lumière du nord.

**3.3 Fils.** Les fils doivent être faits de filaments de nylon, trame et chaîne.

**3.4 Tissu.** Le tissu doit être à armure unie. Lors des essais réalisés conformément aux méthodes d'essai applicables, le tissu fini doit être conforme aux exigences prescrites au tableau I.

**3.5 Couleur.** La couleur doit être telle qu'il est indiqué dans les documents d'achat. La couleur requise doit correspondre au modèle réglementaire applicable ou aux couleurs numériques coordonnées selon ce qui est précisé. Tout appariement des couleurs visuelles avec les modèles réglementaires doit être effectué conformément à la norme CAN/CGSB-4.2 n° 41, Sources normalisées de lumière pour l'appariement des couleurs des textiles. L'appariement des couleurs à la lumière diurne du nord est la mesure la plus importante. Le métamérisme ne doit pas être supérieur à celui qui est présenté par le modèle réglementaire.

**3.5.1 Spécifications relatives au DCamC<sup>MC</sup>.** L'exigence technique est définie et incluse dans la spécification DSSPM applicable, soit DSSPM 2-2-80-500 pour le DCamC<sup>MC</sup> (RBT) ou DSSPM 2-2-80-501 pour le DCamC<sup>MC</sup> (RA). Veuillez prendre note qu'il existe des exigences de mesure des couleurs pour chacune des quatre couleurs dans les spécifications visant le DCamC<sup>MC</sup> (RBT) et des exigences individuelles pour la mesure de la RIR pour le vert canadien moyen et le noir, et que les exigences relatives à la RIR pour le vert pâle et le brun sont les mêmes – la courbe pour le vert pâle est précisée pour les deux couleurs. En outre, des mesures colorimétriques sont exigées pour chacune des trois couleurs de la spécification DCamC<sup>MC</sup> (RA), et des exigences de mesure de la RIR pour les couleurs sable pâle, sable foncé et brun.

**3.5.1.1** Aux fins de soumissionner, le modèle réglementaire pour le tissu imprimé DCamC<sup>MC</sup> (RBT) de type I (DSSPM 259-01) est fourni comme mètre intégral. Les modèles types ne doivent en aucun cas être endommagés ni coupés.

**3.5.2 Vert canadien moyen.** Lorsque les documents contractuels prescrivent comme couleur le vert canadien moyen, le tissu doit être teint de

a uniform shade throughout and must comply with the colour co-ordinates defined in Appendix I of this specification. The sample provided for colour reference is Sealed Pattern DSSPM 281-01 which may be used as a visual starting point however all co-ordinates stated in Appendix I of this specification must be met.

**3.5.2.1 Infra-red reflectance.** Infra-red reflectance is not a requirement unless otherwise specified in the contracting documents. When required by the contracting documents, the infra-red reflectance must meet the requirements stated in DSSPM 2-2-80-500, Specification for CADPAT™ (TW) and DSSPM 2-2-80-501, Specification for CADPAT™ (AR).

### 3.6 Finish.

Type I The finish shall be as depicted by Sealed Pattern DCGEM 306-71. The back of the fabric shall be given a calendered finish.

Type II The finish shall be as depicted by Sealed Pattern DCGEM 290-73. The fabric shall not be given a calendered finish.

**3.7 Length.** Unless otherwise specified, the cloth shall be delivered in lengths of approximately 100 metres with not more than two lengths per piece, the shorter of which shall be not less than 20 metres.

**3.8 Piece marking.** Each piece of cloth shall have a label attached to the selvedge at one end. The label shall be made of linen or heavy cardboard with a reinforced eyelet for attaching a tying cord. The label shall be legibly printed with the following information:

- a) Contractor's identification
- b) Gross length in metre (including allowance)
- c) Net length in metres
- d) Piece number
- e) Number of lengths per piece
- f) Nomenclature
- g) Colour
- h) Specification number
- j) Month and year of contract
- k) NATO Stock Number

## 4. QUALITY CONTROL/INSPECTION

manière uniforme et être conforme aux coordonnées colorimétriques définies à l'annexe I de la présente spécification. Le modèle fourni pour la référence couleur est le modèle réglementaire DAPES 281-01 qui peut être utilisé comme point de départ visuel; cependant, le tissu doit répondre à toutes les exigences pour les coordonnées colorimétriques prescrites à l'annexe I.

**3.5.2.1 Réflectance dans l'infrarouge.** La mesure de la réflectance dans l'infrarouge (RIR) n'est pas une exigence, sauf indication contraire dans les documents contractuels. Si les documents contractuels l'exigent, la RIR doit satisfaire aux exigences des documents DSSPM 2-2-80-500, Spécification visant le DCamC<sup>MC</sup> (RBT), et DSSPM 2-2-80-501, Spécification visant le DCamC<sup>MC</sup> (RA).

### 3.6 Fini.

Type I Le fini doit être conforme aux indications du modèle réglementaire DCGEM 306-71. L'envers du tissu doit être fini par calandrage.

Type II Le fini doit être conforme aux indications du modèle réglementaire DCGEM 290-73. L'envers du tissu ne doit pas être fini par calandrage.

**3.7 Longueur.** Sauf indication contraire dans les documents contractuels, le tissu doit être livré en longueurs d'environ 100 m avec au plus deux longueurs par pièce, dont la plus courte ne doit pas être inférieure à 20 m.

**3.8 Marquage des pièces.** Une étiquette doit être apposée sur la lisière à une extrémité de chaque pièce de tissu. L'étiquette doit être faite de toile de lin ou de carton fort et percée d'un œillet renforcé permettant d'attacher une ficelle; elle doit porter les indications suivantes en caractères lisibles:

- a) Identification de l'entrepreneur
- b) Longueur brute en mètres (y compris la réserve)
- c) Longueur nette en mètres
- d) Numéro de la pièce
- e) Nombre de longueurs par pièce
- f) Nomenclature
- g) Couleur
- h) Numéro de la spécification
- j) Mois et année du contrat
- k) Numéro de nomenclature OTAN

## 4. CONTRÔLE DE LA QUALITÉ/INSPECTION

**4.1** The contractor is responsible for the performance of all inspection requirements as specified herein. Contractors may utilize their own or any other inspection facility acceptable to the Government or its designated representative. The Government reserves the right to perform any of the inspections specified herein, where such inspections are deemed necessary to ensure material and services conform to prescribed requirements. The contractor is responsible for ensuring that all material or services submitted to the Government for acceptance comply with all requirements of the contract.

## **5. PACKAGING**

**5.1 Packaging and packing.** Unless otherwise specified, packaging, packing and delivery shall be in accordance with the terms of the contract.

## **6. NOTES**

**6.1 Ordering data.** Procurement documents should specify the following:

- a) Title, number and date of this specification
- b) Type of cloth required (see 1.2)
- c) Colour required (see 3.5)
- d) Packaging and marking of shipping containers (see 5.1)
- e) The Design Authority

**6.2 Design Authority.** The Design Authority is the Government agency responsible for technical aspects of design and changes to design. Unless otherwise specified in the contract, the Design Authority is the Directorate of Soldier Systems Program Management, DSSPM.

## **6.3 Definition of terms.**

**6.3.1 Master Sealed Pattern.** A Master Sealed Pattern is the authorized prototype of the item to be produced and is held only by the Government.

**6.3.2 Sealed Pattern.** A Sealed Pattern is a duplicate of the Master Sealed Pattern and is available to the manufacturer to be used as a guide in production.

**6.4** The production of a product to this specification, or the evaluation of a product

**4.1** Il incombe à l'entrepreneur d'effectuer toutes les inspections conformes aux exigences énoncées dans le présent document. L'entrepreneur peut utiliser ses propres installations d'inspection ou avoir recours à toute autre installation jugée acceptable par le gouvernement ou son représentant désigné. Le gouvernement se réserve le droit d'effectuer les inspections mentionnées dans la présente spécification, lorsqu'elles sont nécessaires pour garantir que le matériel et les services sont conformes aux exigences prescrites. L'entrepreneur doit s'assurer que le matériel et les services proposés au gouvernement sont conformes aux exigences du contrat.

## **5. CONDITIONNEMENT**

**5.1 Conditionnement et emballage.** Le conditionnement, l'emballage, la livraison et le marquage des contenants d'expédition doivent être conformes aux modalités du contrat.

## **6. REMARQUES**

**6.1 Données de commande.** Les documents d'achat doivent préciser :

- a) Titre, numéro et date de la présente spécification
- b) Type de tissu requis (voir 1.2)
- c) Couleur requise (voir 3.5)
- d) Conditionnement et marquage des contenants d'expédition (voir 5.1)
- e) Autorité responsable de la conception

**6.2 Autorité responsable de la conception.** L'autorité responsable de la conception est l'organisme gouvernemental chargé des aspects techniques de la conception et des modifications connexes. Sauf indication contraire dans le contrat, il s'agit de la Direction – Administration du programme de l'équipement du soldat (DAPES).

## **6.3 Définition des termes.**

**6.3.1 Modèle réglementaire principal.** Prototype autorisé de l'article qui doit être fabriqué et dont le gouvernement est le détenteur.

**6.3.2 Modèle réglementaire.** Copie exacte du modèle réglementaire principal mis à la disposition du fabricant qui doit l'utiliser comme un guide.



to this specification, may require the use of materials and/or equipment that could be hazardous. This specification does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.

**6.5**

**6.4** La fabrication ou l'évaluation d'un produit conformément à la présente spécification pourrait nécessiter l'utilisation de matériel ou d'équipement dangereux. La présente spécification n'a pas pour objet de traiter de toutes les préoccupations relatives à la santé, à la sécurité et à l'environnement liées à son utilisation. Il incombe à l'utilisateur de la spécification d'établir au préalable des méthodes appropriées qui tiennent compte des questions d'environnement, de santé et de sécurité, et de déterminer les restrictions réglementaires applicables.

**Table I - Finished Fabric**

Property	Test Method*	Specified Requirement	Minimum Acceptable	Maximum Acceptable
Width (between selvages)	4.1	152 cm	150 cm	155 cm
Fabric Count (yarns per cm)	6	Warp: 64 Weft: 34	Warp: 60 Weft: 32	
Mass	5.1	88 g/m <sup>2</sup>	78 g/m <sup>2</sup>	90 g/m <sup>2</sup>
Breaking Strength	9.1 (Test 6.1)	Warp: 845 N Weft: 535 N	Warp: 735 N Weft: 465 N	
Dimensional Change in Laundering (after 5 washes)	Wash in accordance with: 6330** (2A) or (2B) & para 8.5, Procedure E Measure in accordance with: 675** paras 6 & 7.4			Warp: 3.0% Weft: 3.0%
Non-Fibrous Materials	15 (see Note 1 below)			2%
Colourfastness to Light	16*** (Option E)	Sample Grey Scale 4 after 40 AATCC fading units	Sample Grey Scale 4 after 20 AATCC fading units	
Colourfastness to Water	20	No change in colour and no staining: Grey Scale 5		No appreciable change in colour and no appreciable staining: Grey Scale 4
Colourfastness to Crocking	22 (Tests 6.1 & 6.2)	Colour change and staining: Wet: Grey Scale 5 Dry: Grey Scale 5		Colour change and staining: Wet: Grey Scale 4 Dry: Grey Scale 4
Colourfastness to Perspiration	23	No change in colour and no staining: Grey Scale 5		No appreciable change in colour and no appreciable staining: Grey Scale 4
Colourfastness to Dry Cleaning	29.1	No change in colour: Grey Scale 5		No appreciable change in colour: Grey Scale 4

\* CAN/CGSB 4.2 Textile Test Methods

\*\* ISO Textile Test Methods

\*\*\* AATCC Textile Test Methods

**Note 1:** CAN/CGSB-4.2 Method 15 paragraph 7.4, solvent extraction, one of petroleum ether, tetrachloroethylene or hexane shall be used. Also, omit paras 7.7 and 7.8.

**Tableau I – Tissu fini**

Propriété	Méthode d'essai	Exigence prescrite	Minimum acceptable	Maximum acceptable
Largeur (entre les lisières)	4.1	152 cm	150 cm	155 cm
Contexture (fils/cm)	6	Chaîne: 64 Trame: 34	Chaîne: 60 Trame: 32	
Masse	5.1	88 g/m <sup>2</sup>	78 g/m <sup>2</sup>	90 g/m <sup>2</sup>
Résistance à la rupture	9.1 (Essai 6.1)	Chaîne: 845 N Trame: 535 N	Chaîne: 735 N Trame: 465 N	
Stabilité dimensionnelle au blanchissage (après 5 lavages)	Laver conformément à: 6330** (2A) ou (2B) et par. 8.5, méthode E Mesurer conformément à: 675** par. 6 et 7.4			Chaîne: 3,0 % Trame: 3,0 %
Matières non fibreuses sur les textiles	15 (Voir la note 1 ci-dessous)			2 %
Solidité des teintures à la lumière	16*** (Option E)	Spécimen Échelle des gris 4 après 40 unités de décoloration de l'AATCC	Spécimen Échelle des gris 4 après 20 unités de décoloration de l'AATCC	
Solidité de la couleur à l'eau	20	Pas de changement de couleur ni de tachage: Échelles des gris 5		Pas de changement de couleur ni de tachage appréciable: Échelles des gris 4
Solidité de la couleur au frottement (dégorgement)	22 (Essais 6.1 et 6.2)	Changement de couleur et tachage: Mouillé: Échelle des gris 5 Sec: Échelle des gris 5		Changement de couleur et tachage: Mouillé: Échelle des gris 4 Sec: Échelle des gris 4
Solidité de la couleur à la sueur	23	Pas de changement de couleur ni de tachage: Échelle des gris 5		Pas de changement de couleur ni de tachage appréciable: Échelle des gris 4
Solidité de la couleur au nettoyage à sec	29.1	Pas de changement de couleur: Échelle des gris 5		Pas de changement de couleur appréciable: Échelle des gris 4

\* CAN/CGSB 4.2 Méthodes pour épreuves textiles

\*\* Normes ISO sur les essais de textiles

\*\*\* AATCC Textile Test Methods

**Note 1 :** CAN/CGSB-4.2, par. 7.4, Méthode 15, Élimination de matières non fibreuses par solvant. Un éther de pétrole, le tétrachloroéthylène ou l'hexane, doit être utilisé. Omettre les paragraphes 7.7 et 7.8.

## APPENDIX I

### REQUIREMENTS FOR CANADIAN AVERAGE GREEN FOR COLOUR AND INFRA-RED REFLECTION

1. Colour requirements and IRR requirements are found on the following pages.
2. All measurements are to be made in accordance with CIE publication 15.2 and ASTM E308-99 using CIE Illuminant C and a 2 degree observer, specular component included. Sample preparation for chromaticity and IRR measurements shall be in accordance with AATCC Instrumental Measurement Procedure #6, A1.3, non-opaque samples.
3. Tolerance is plus/minus 2 CIE LAB units for each co-ordinate ( $L^*a^*b^*$ ).
4. Gloss values shall be less than 1 unit.
5. Infra-red values shall lie between the proscribed plus/minus standard deviation (SD) and are to be applied to the substrate as follows:

Canadian Average Green - as specified  
(average reflectance)

6. The on-going Canadian requirement is for IRR values ranging from 400nm to 2000nm as shown in the following pages. Currently compliance is mandatory from 400nm to 1300nm. Every effort should be made to meet the required curves beyond 1300nm, however compliance is not mandatory at this time.

## ANNEXE I

### EXIGENCES RELATIVES À LA COULEUR ET À LA RÉFLECTANCE DANS L'INFRAROUGE POUR LE VERT CANADIEN MOYEN

1. Les exigences pour la couleur et la RIR sont présentées dans les pages suivantes.
2. Toutes les mesures doivent être effectuées conformément aux publications CIE 15.2 et ASTM E308.99 à l'aide de l'illuminant C et de l'observateur à 2° de la CIE, composante spéculaire incluse. La préparation des échantillons pour les mesures de couleur et de RIR doit être réalisée conformément à la procédure de mesure instrumentale n° 6 de l'American Association of Textile Chemists and Colorists (AATCC), A1.3, pour des échantillons non opaques.
3. La tolérance est de  $\pm 2$  unités CIE LAB pour chaque coordonnée (valeurs  $L^*a^*b^*$ ).
4. Les valeurs de lustre doivent être inférieures à une (1) unité.
5. Les valeurs dans l'infrarouge doivent être comprises en deçà de l'écart type indiqué ( $\pm$ ) et être appliquées au substrat comme suit:

Vert canadien moyen – selon ce qui est  
indiqué (réflectance moyenne)

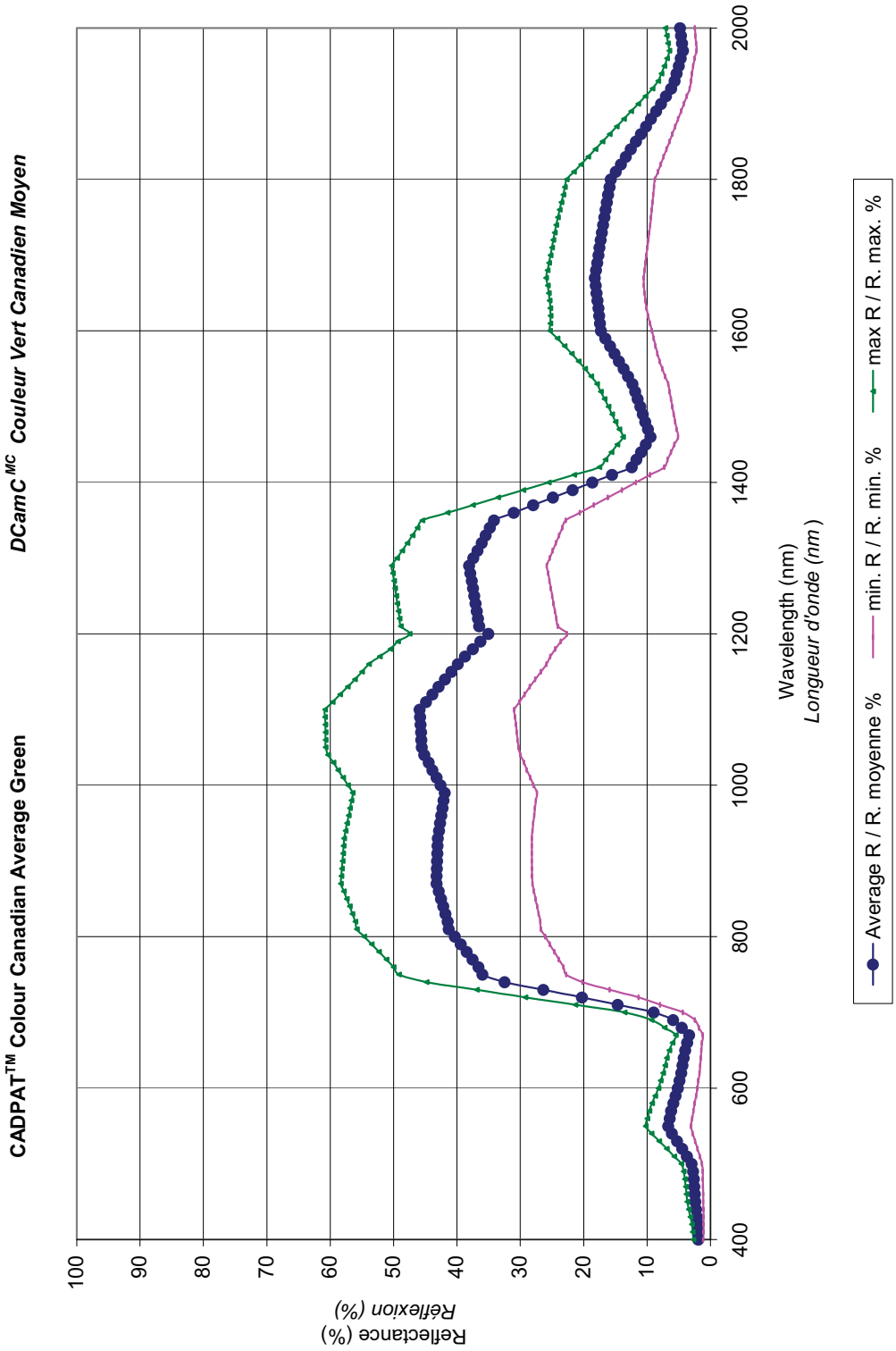
6. Selon les exigences canadiennes actuelles, on doit respecter les valeurs RIR entre 400 et 2 000 nm, comme il est indiqué dans les pages suivantes. Actuellement, la plage obligatoire va de 400 à 1 300 nm. On ne devrait ménager aucun effort pour respecter les courbes requises au-delà de 1 300 nm; toutefois, cette exigence n'est pas obligatoire pour le moment.

**Colour Requirements:**  
**Canadian Average Green (single colour fabric)**  
**Exigences relatives aux couleurs:**  
**Vert canadien moyen (tissu de même couleur)**

SPECIFICATIONS / SPECIFICATIONS									
CIE 1931/CIE LAB 1976									
ILLUMINANT C, 2 deg.									
specular component included /									
composante spéculaire incluse									
Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. Max.	Refl. Max Réfl. Max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. Min.	Refl. Max Réfl. Max.
%	%	%	%	%	%	%	%	%	%
400	1.89	0.77	1.12	2.67	42.14	14.80	14.80	27.35	56.94
410	1.95	0.85	1.10	2.79	42.50	14.90	14.90	27.60	57.39
420	2.00	0.93	1.07	2.93	42.85	15.00	15.00	27.85	57.85
430	2.11	1.04	1.07	3.16	43.20	15.11	15.11	28.09	58.31
440	2.26	1.17	1.09	3.43	43.20	15.05	15.05	28.15	58.24
450	2.39	1.28	1.11	3.67	43.16	14.99	14.99	28.16	58.15
460	2.46	1.33	1.14	3.79	43.11	14.94	14.94	28.17	58.06
470	2.53	1.37	1.16	3.90	43.07	14.90	14.90	28.17	57.97
480	2.62	1.43	1.19	4.05	43.03	14.86	14.86	28.18	57.89
490	2.72	1.50	1.22	4.22	43.00	14.82	14.82	28.18	57.82
500	2.95	1.63	1.32	4.58	42.82	14.76	14.76	28.06	57.58
510	3.70	2.02	1.68	5.72	42.64	14.70	14.70	27.94	57.33
520	4.45	2.44	2.01	6.88	42.45	14.64	14.64	27.81	57.09
530	5.24	2.84	2.40	8.09	42.28	14.60	14.60	27.68	56.87
540	6.05	3.26	2.79	9.31	42.09	14.56	14.56	27.53	56.64
550	6.65	3.59	3.06	10.24	41.91	14.52	14.52	27.39	56.44
560	6.41	3.53	2.88	9.94	42.56	14.65	14.65	27.91	57.20
570	6.17	3.49	2.68	9.65	43.21	14.77	14.77	28.43	57.98
580	5.84	3.36	2.48	9.20	43.85	14.90	14.90	28.95	58.76
590	5.47	3.22	2.26	8.69	44.45	15.04	15.04	29.41	59.49
600	5.14	3.08	2.05	8.22	45.15	15.18	15.18	29.97	60.33
610	4.86	2.97	1.89	7.84	45.51	15.22	15.22	30.30	60.73
620	4.60	2.88	1.72	7.48	45.59	15.15	15.15	30.43	60.74
630	4.39	2.78	1.61	7.16	45.66	15.09	15.09	30.56	60.75
640	4.19	2.67	1.52	6.87	45.73	15.04	15.04	30.69	60.76
650	3.96	2.54	1.42	6.50	45.81	14.99	14.99	30.82	60.79
660	3.65	2.33	1.32	5.98	45.88	14.94	14.94	30.94	60.81
670	3.34	2.13	1.21	5.47	44.88	14.74	14.74	30.14	59.61
680	4.52	2.71	1.81	7.23	43.87	14.55	14.55	29.32	58.42
690	5.87	3.42	2.45	9.30	42.87	14.39	14.39	28.48	57.25
700	8.94	4.60	4.34	13.54	41.87	14.24	14.24	27.63	56.10
710	14.61	6.69	7.92	21.30	40.86	14.11	14.11	26.76	54.97
720	20.27	8.94	11.33	29.21	39.87	14.00	14.00	25.87	53.88
730	26.37	10.48	15.89	36.86	38.72	13.46	13.46	25.26	52.18
740	32.48	12.31	20.17	44.78	37.49	13.01	13.01	24.49	50.50
750	35.95	13.20	22.75	49.15	36.27	12.66	12.66	23.61	48.93
760	36.58	13.40	23.18	49.99	35.04	12.43	12.43	22.61	47.47
770	37.52	13.62	23.91	51.14	36.48	12.40	12.40	24.08	48.88
780	38.46	13.84	24.62	52.29	36.68	12.37	12.37	24.31	49.05
790	39.40	14.06	25.34	53.46	36.87	12.35	12.35	24.53	49.22
800	40.33	14.29	26.04	54.62	37.07	12.33	12.33	24.75	49.40
810	41.28	14.53	26.75	55.81	37.26	12.30	12.30	24.96	49.57
820	41.44	14.60	26.83	56.04	37.46	12.28	12.28	25.18	49.75
830	41.79	14.70	27.09	56.49	37.65	12.27	12.27	25.39	49.92



Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Ref. Min Réf. Max.	Ref. Max Réf. Max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Ref. Min Réf. Min.	Ref. Max Réf. Max.
1280	37.85	12.25	25.60	50.10	1720	17.30	7.49	9.81	24.79
1290	38.05	12.24	25.81	50.28	1730	17.11	7.45	9.66	24.56
1300	37.40	12.05	25.36	49.45	1740	16.92	7.42	9.50	24.34
1310	36.75	11.87	24.88	48.62	1750	16.72	7.34	9.38	24.07
1320	36.10	11.71	24.39	47.81	1760	16.52	7.26	9.26	23.79
1330	35.45	11.57	23.88	47.01	1770	16.33	7.18	9.14	23.51
1340	34.80	11.44	23.36	46.23	1780	16.12	7.11	9.02	23.23
1350	34.15	11.32	22.83	45.47	1790	15.92	7.03	8.89	22.96
1360	31.04	10.44	20.61	41.48	1800	15.72	6.96	8.76	22.68
1370	27.94	9.55	18.39	37.49	1810	14.93	6.63	8.30	21.55
1380	24.83	8.66	16.17	33.50	1820	14.13	6.29	7.85	20.42
1390	21.73	7.78	13.95	29.50	1830	13.34	5.95	7.39	19.29
1400	18.62	6.89	11.73	25.51	1840	12.55	5.62	6.93	18.16
1410	15.52	6.00	9.51	21.52	1850	11.75	5.28	6.47	17.03
1420	12.41	5.12	7.29	17.53	1860	10.96	4.94	6.01	15.90
1430	11.67	4.90	6.76	16.57	1870	10.16	4.61	5.56	14.77
1440	10.93	4.70	6.23	15.63	1880	9.37	4.27	5.10	13.64
1450	10.19	4.52	5.67	14.71	1890	8.57	3.94	4.64	12.51
1460	9.46	4.35	5.10	13.81	1900	7.78	3.60	4.18	11.38
1470	9.65	4.52	5.33	14.37	1910	6.99	3.26	3.72	10.25
1480	10.26	4.69	5.56	14.95	1920	6.19	2.93	3.26	9.12
1490	10.66	4.87	5.79	15.53	1930	5.65	2.58	3.07	8.23
1500	11.06	5.05	6.01	16.11	1940	5.32	2.41	2.91	7.73
1510	11.46	5.24	6.22	16.70	1950	4.99	2.28	2.71	7.26
1520	11.86	5.42	6.44	17.29	1960	4.67	2.19	2.48	6.86
1530	12.27	5.61	6.66	17.88	1970	4.33	2.16	2.18	6.49
1540	12.98	5.83	7.16	18.81	1980	4.48	2.21	2.27	6.69
1550	13.69	6.10	7.59	19.79	1990	4.63	2.27	2.36	6.90
1560	14.41	6.42	7.99	20.82	2000	4.79	2.33	2.46	7.12
1570	15.12	6.78	8.34	21.89					
1580	15.83	7.17	8.66	23.00					
1590	16.55	7.60	8.95	24.15					
1600	17.26	8.05	9.21	25.31					
1610	17.40	7.86	9.54	25.26					
1620	17.54	7.72	9.82	25.25					
1630	17.67	7.61	10.06	25.29					
1640	17.82	7.56	10.26	25.36					
1650	17.96	7.55	10.40	25.51					
1660	18.09	7.59	10.49	25.68					
1670	18.23	7.68	10.55	25.92					
1680	18.04	7.64	10.40	25.69					
1690	17.85	7.60	10.25	25.45					
1700	17.67	7.56	10.11	25.23					
1710	17.49	7.52	9.96	25.01					



## NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

## AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

## SPECIFICATION

## FOR

**CLOTH, PLAIN WEAVE, NYLON, 195 g/m<sup>2</sup> and 230 g/m<sup>2</sup>**

## 1. SCOPE

**1.1 Scope.** This specification covers the requirements for Cloth, Plain Weave, Nylon, 195 g/m<sup>2</sup> and 230 g/m<sup>2</sup>.

**1.2 Classification.** The fabric shall be classified as follows:

Type I: Cloth, Plain Weave, Nylon, 195 g/m<sup>2</sup>

Type II: Cloth, Plain Weave, Nylon, Polyurethane Coated, 230 g/m<sup>2</sup>

## 2. APPLICABLE DOCUMENTS

**2.1 Government Documents.** Not Applicable.

**2.2 Other Publications.** The following documents form part of this specification to the extent specified herein. The effective date of the documents shall be those in effect on the date the publication of this specification. Sources are as shown.

**CAN/CGSB-4.2 Textile Test Methods**

## SPÉCIFICATION

**TISSUS DE NYLON, ARMURE UNIE, 195 g/m<sup>2</sup> et 230 g/m<sup>2</sup>**

## 1. PORTÉE

**1.1 Portée.** La présente spécification vise les exigences pour le tissu de nylon, armure unie, 195 g/m<sup>2</sup> et 230 g/m<sup>2</sup>.

**1.3 Classification.** Les tissus doivent être classés comme suit :

Type I : Tissu de nylon, armure unie, 195 g/m<sup>2</sup>

Type II : Tissu de nylon, armure unie, enduit de polyuréthane, 230 g/m<sup>2</sup>

## 2. DOCUMENTS APPLICABLES

**2.1 Documents du gouvernement.** Sans objet.

**2.2 Autres publications.** Les documents suivants font partie intégrante du présent document dans la mesure prescrite dans ce dernier. La version en vigueur doit être celle en vigueur à la date de publication de la présente spécification. La source de diffusion est celle qui est indiquée.

**CAN/CGSB-4.2 Méthodes pour épreuves textiles**

Canadian General Standards Board  
Gatineau, QC K1A 1G6  
Telephone: 819-956-0425 or 1-800-665-2472  
Email: [ncr.cgsb-ongc@pwgsc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc.gc.ca)  
Website:  
<http://www.pwgsc.gc.ca/cgsb/home/index-e.html>

Office des normes générales du Canada  
Gatineau (Québec) K1A 1G6  
Téléphone : 819-956-0425 ou 1-800-665-2472  
Courriel : [ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca)  
Site Internet:  
<http://www.pwgsc.gc.ca/cgsb/home/index-f.html>

### AATCC Textile Test Methods

American Association of Textile Chemists and Colourists  
P.O. Box 12215  
Research Triangle Park, NC  
27709, USA  
Telephone: 919-549-3526  
Website: [www.aatcc.org](http://www.aatcc.org)

### AATCC Textile Test Methods

American Association of Textile Chemists and Colourists  
P.O. Box 12215  
Research Triangle Park, NC 27709  
ÉTATS-UNIS  
Téléphone : 919-549-3526  
Site Web : [www.aatcc.org](http://www.aatcc.org)

### 2.3 Sealed Patterns.

DCGEM 263-78 For Colour International Orange: Cloth, Plain Weave, Nylon, 5.75 oz/yd<sup>2</sup>  
NSN 8305-21-518-0008

DCGEM 261-85 For Colour Tan: Cloth, Tropical, Wool/Polyester  
200 g/m<sup>2</sup>, Tan  
NSN 8305-21-896-6150

DCGEM 301-85 For Colour Air Force Blue and Finish: Cloth, Plain Weave, Nylon, 195 g/m<sup>2</sup>  
NSN 8305-21-899-8154

DSSPM 276-01 For Colour Black, Cloth, Plain Weave, Nylon  
NSN 8305-21-874-1042

DSSPM 281-01 For Colour Canadian Average Green. Cloth, Twist, Cotton/Nylon, 170 g/m<sup>2</sup>  
NSN 8305-21-874-1043

DSSPM 268-07 Cloth, Plain Weave, Nylon, 195 g/m<sup>2</sup>, Type I  
Sealed for construction and finish for Type I

DSSPM 271-07 Cloth, Plain Weave, Nylon, Polyurethane Coated, 230 g/m<sup>2</sup>, Type II  
Sealed for construction and finish for Type II

### 2.3 Modèles réglementaires.

DCGEM 263-78 Orangé international : tissu de nylon, armure unie, 5,75 oz/v<sup>2</sup>  
NNO 8305-21-518-0008

DCGEM 261-85 Havane : tissu, régions tropicales, laine/polyester, 200 g/m<sup>2</sup>, havane  
NNO 8305-21-896-6150

DCGEM 301-85 Bleu Force Arianne et fini : nylon, armure unie, 195 g/m<sup>2</sup>  
NNO 8305-21-899-8154

DSSPM 276-01 Noir : tissu de nylon, armure unie  
NNO 8305-21-874-1042

DSSPM 281-01 Vert canadien moyen : tissu léger de nylon/coton simple retors, 170 g/m<sup>2</sup>  
NNO 8305-21-874-1043

DSSPM 268-07 Tissu de nylon, armure unie, 195 g/m<sup>2</sup>, type I  
Pour la confection et le fini de type I

DSSPM 271-07 Tissu de nylon, armure unie, enduit de polyuréthane, 230 g/m<sup>2</sup>, type II  
Pour la confection et le fini de type II

## **2.4 Order of Precedence.**

**2.4.1** In the event of any inconsistency in contract documents such as contract, specification and sealed pattern, the order of precedence shall be contract, specification, and sealed pattern.

**2.4.2** In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

**2.4.3** In the event of inconsistency within the Specification, the Design Authority (DSSPM 2-11) shall be contacted for clarification.

**2.4.4** For any inconsistency in technical details between languages, the language of the original document, which in this case is English, shall take precedence.

## **3. REQUIREMENTS**

**3.1 Workmanship.** The material covered by this specification shall be free of imperfections or blemishes such as may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes shall be considered defects when clearly visible at a normal inspection distance of approximately 1 metre under good, preferably North Light, lighting conditions.

**3.2 Sealed Pattern.** A Sealed Pattern, when available, will be supplied to the successful bidder. Sealed Patterns shall constitute the standard only in regard to any properties not defined in this specification. Note, however, that the order of precedence prevails (para 2.4). Sealed Patterns must be returned to the Crown and under no circumstances shall be mutilated or cut.

**3.3 Yarns.** The yarns shall be continuous filament nylon.

**3.4 Fabric.** The fabric shall be plain woven. When tested in accordance with the applicable test methods, the finished fabric shall comply with the requirements specified in Table I or Table II.

**3.5 Colour.** Colour shall be as specified in the procurement documents. The colour required shall match the applicable sealed pattern or numerical colour co-ordinates, whichever is specified. All

## **2.4 Ordre de préséance.**

**2.4.1** En cas d'incohérence entre les documents contractuels, soit le contrat, la spécification et les modèles réglementaires, l'ordre de préséance est le suivant : le contrat, la spécification et les modèles réglementaires.

**2.4.2** En cas de divergence entre les documents mentionnés aux présentes et le contenu de la présente spécification, cette dernière a préséance.

**2.4.3** En cas d'incohérence dans l'énoncé de la spécification, il faut communiquer avec l'autorité responsable de la conception (DAPES 2-11) pour obtenir des précisions.

**2.4.4** En cas d'incohérence dans les détails techniques, entre les deux langues, la langue du document d'origine, dans ce cas-ci l'anglais, a préséance.

## **3. EXIGENCES**

**3.1 Qualité d'exécution.** Le tissu visé par la présente spécification doit être exempt de défauts pouvant nuire à son aspect ou à sa tenue en service. À des fins d'inspection, sont considérés comme défauts ceux qui sont clairement visibles à une distance d'inspection normale d'environ un mètre sous un bon éclairage, de préférence la lumière du nord.

**3.2 Modèle réglementaire.** Un modèle réglementaire, lorsque disponible, doit être fourni au soumissionnaire retenu. Le modèle réglementaire doit être la norme en ce qui concerne les propriétés qui ne sont pas définies aux présentes. Nota – L'ordre de préséance (paragraphe 2.4) doit être respecté. Les modèles réglementaires doivent être renvoyés au gouvernement et ne doivent en aucun cas être endommagés ni coupés.

**3.3 Fils.** Les fils doivent être faits de filaments de nylon.

**3.4 Tissu.** La confection du tissu doit être à armure unie. Lors des essais réalisés conformément aux méthodes d'essai applicables, le tissu fini doit être conforme aux exigences prescrites au tableau I.

**3.5 Couleur.** La couleur doit être celle qui est précisée dans les documents d'achat. Elle doit correspondre au modèle réglementaire applicable ou aux couleurs numériques coordonnées, selon le cas.

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visual colour matching to sealed patterns shall be done in accordance with CAN/CGSB-4.2 No.41 Standard Light Sources for Colour Matching of Textiles. A colour match under north-sky daylight is the most important measurement. Metamerism shall be no greater than that exhibited by the Sealed Pattern.

**3.5.1 Canadian Average Green.** When the contracting documents specify the colour as Canadian Average Green, the fabric shall be dyed to a uniform shade throughout and must comply with the technical requirements defined in Appendix I of this specification. The sample provided is Sealed Pattern DSSPM 281-01 which may be used as a visual starting point however all co-ordinates and Infra-red Reflection requirements stated in Appendix I must be met.

### **3.6 Finish.**

**3.6.1 Type I:** Unless otherwise specified in the invitation to tender, the finish shall be as depicted by Sealed Pattern DSSPM 268-07. The finished fabric shall meet the requirements specified in Table I.

**3.6.2 Type II:** Type I fabric meeting all of the requirements specified in Table I shall be lightly coated with polyurethane and given a durable water repellent finish on the nylon side such that the finished cloth meets the requirements specified in Table II. The finished fabric shall be as depicted by Sealed Pattern DSSPM 271-07.

**3.6.2.1** The coating compound shall be clear polyurethane, applied to the back side only of the base cloth.

**3.7 Length.** Unless otherwise specified, the cloth shall be delivered in lengths of approximately 100 metres with not more than two lengths per piece, the shorter of which shall be not less than 20 metres.

**3.8 Piece Marking.** Each piece of cloth shall have a label attached to the selvage at one end. The label shall be made of linen, spunbonded olefin, or heavy cardboard with a reinforced eyelet for attaching a tying cord. The label shall be legibly printed with the following information:

a) Contractor's identification.

L'appariement des couleurs visibles avec les modèles réglementaires doit être conforme aux exigences de la norme CAN/CGSB-4.2 N° 41, Sources normalisées de lumière pour l'appariement des couleurs des textiles. L'appariement des couleurs à la lumière du nord est le principal critère. Le métamérisme ne doit pas dépasser celui du modèle réglementaire.

**3.5.1 Vert canadien moyen.** Lorsque les documents contractuels prescrivent le vert canadien moyen, l'ensemble du tissu doit être teint de manière uniforme et être conforme aux exigences techniques définies à l'annexe I de la présente spécification. L'échantillon fourni est le modèle réglementaire DSSPM 281-01 qui peut être utilisé comme point de départ visuel, cependant, le tissu doit répondre à toutes les exigences visant les couleurs numériques coordonnées et la réflectance dans l'infrarouge prescrites à l'annexe I.

### **3.6 Fini.**

**3.6.1 Type I :** Sauf indication contraire dans l'appel d'offres, le fini doit être conforme aux indications du modèle réglementaire DSSPM 268-07. Le tissu fini doit être conforme aux exigences prescrites au tableau I.

**3.6.2 Type II :** Le tissu de type I répondant à toutes les exigences prescrites au tableau I doit être légèrement enduit de polyuréthane et recevoir un traitement déperlant durable sur le côté nylon conformément aux exigences du tableau II. Le fini doit être conforme aux indications du modèle réglementaire DSSPM 271-07.

**3.6.2.1** L'enduit doit être du polyuréthane transparent, appliqué sur l'envers seulement du tissu de base.

**3.7 Longueur.** Sauf indication contraire dans les documents contractuels, le tissu doit être livré en longueurs d'environ 100 m avec au plus deux longueurs par pièce, dont la plus courte ne doit pas être inférieure à 20 m.

**3.8 Marquage des pièces.** Chaque pièce de tissu doit porter, à une extrémité, une étiquette fixée à la lisière. L'étiquette doit être en toile de lin, en oléfine thermoliée ou en carton fort et percée d'un œillet renforcé permettant d'attacher une ficelle; elle doit porter les indications suivantes en caractères lisibles :

a) Identification de l'entrepreneur.

- b) Gross length in metre (including allowance).
- c) Net length in metres.
- d) Piece number.
- e) Number of lengths per piece.
- f) Nomenclature.
- g) Colour.
- h) Specification number.
- j) Month and year of contract.
- k) Nato Stock Number.

- b) Longueur brute en mètres (y compris la réserve).
- c) Longueur nette en mètres.
- d) Numéro du rouleau.
- e) Nombre de longueurs par rouleau.
- f) Nomenclature.
- g) Couleur.
- h) Numéro de la spécification.
- j) Mois et année du contrat.
- k) Numéros de nomenclature OTAN.

#### 4. QUALITY CONTROL/INSPECTION

**4.1** Unless otherwise specified in the contract or procurement documents, the contractor is responsible for the performance of all inspection requirements as specified herein. Contractors may utilize their own or any other inspection facility acceptable to the Government or its designated representative. The Government reserves the right to perform any of the inspections specified herein, where such inspections are deemed necessary to ensure material and services conform to prescribed requirements. The contractor is responsible for ensuring that all material or services submitted to the Government for acceptance comply with all requirements of the contract.

#### 4. CONTRÔLE DE LA QUALITÉ/INSPECTION

**4.1** Sauf indication contraire dans le contrat ou les documents d'achat, l'entrepreneur est tenu d'effectuer les inspections mentionnées dans la présente spécification. Il peut utiliser à cette fin son propre matériel d'inspection ou celui de tout autre établissement acceptable au gouvernement du Canada ou à son représentant. Le gouvernement se réserve le droit d'effectuer les inspections mentionnées dans la présente spécification, lorsqu'elles sont nécessaires pour garantir que le matériel et les services sont conformes aux exigences prescrites. L'entrepreneur doit s'assurer que le matériel et les services proposés au gouvernement sont conformes aux exigences du contrat.

#### 5. PACKAGING

**5.1 Packaging and Packing.** Packaging, packing, delivery and marking of shipping containers shall be in accordance with the terms of the contract.

#### 5. CONDITIONNEMENT

**5.1 Conditionnement et emballage.** Le conditionnement, l'emballage, la livraison et le marquage des contenants d'expédition doivent être conformes aux modalités du contrat.

#### 6. NOTES

**6.1 Ordering Data.** Procurement documents should specify the following

- a) Title, number and date of this specification.
- b) Colour required (see 3.5).
- c) Packaging and marking of shipping containers (see 5.1).
- d) The Design Authority.

#### 6. REMARQUES

**6.1 Données de commande.** Les documents d'achat doivent préciser :

- a) Le titre, le numéro et la date de la présente spécification.
- b) La couleur requise (voir 3.5).
- c) Conditionnement et marquage des contenants d'expédition (voir 5.1).
- d) L'autorité responsable de la conception.

**6.2 Design Authority.** The Design Authority is the Government agency responsible for technical aspects of design and changes to design. The Design Authority, for the items covered by this specification, is the Directorate of Soldier Systems Program Management (DSSPM).

**6.2 Autorité responsable de la conception.** Autorité gouvernementale responsable des aspects techniques de la conception et des modifications connexes. L'autorité responsable de la conception, pour les articles visés par la présente spécification, est la Direction de l'administration du programme de

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l'équipement du soldat (DAPES).

**6.3 Quality Assurance Authority.** The Quality Assurance Authority is the Government agency responsible for providing assurance that material and services supplied by the contractor conform to specified requirements. The Quality Assurance Authority is the Director Quality Assurance.

#### **6.4 Definition of Terms.**

**6.4.1 Master Sealed Pattern.** A Master Sealed Pattern is the authorized prototype of the item to be produced and is held only by the Government.

**6.4.2 Sealed Pattern.** A Sealed Pattern is a duplicate of the Master Sealed Pattern and is available to the manufacturer to be used as a guide in production.

**6.5** The production of a product to this specification, or the evaluation of a product to this specification, may require the use of materials and/or equipment that could be hazardous. This specification does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.

**6.3 Autorité responsable de l'assurance de la qualité.** Organisme gouvernemental chargé d'assurer que le matériel et les services fournis par l'entrepreneur respectent les exigences prescrites. L'autorité responsable de l'assurance de la qualité est le directeur de l'assurance de la qualité.

#### **6.4 Définition des termes.**

**6.4.1 Modèle réglementaire principal.** Prototype autorisé de l'article qui doit être fabriqué et dont le gouvernement est le seul détenteur.

**6.4.2 Modèle réglementaire.** Copie exacte du modèle réglementaire principal mis à la disposition du fabricant qui doit l'utiliser comme un guide.

**6.5** La fabrication ou l'évaluation d'un produit conformément à la présente spécification pourrait nécessiter l'utilisation de matériaux ou d'équipement susceptibles d'être dangereux. La présente spécification n'a pas pour objet de traiter de toutes les préoccupations relatives à la santé, à la sécurité et à l'environnement qui pourraient être associées à son utilisation. Il incombe à l'utilisateur de la spécification d'établir au préalable des méthodes appropriées qui tiennent compte des questions d'environnement, de santé et de sécurité, et de déterminer les restrictions réglementaires applicables.

**Table I: Requirements for the Finished Fabric - Type I**

Property	Test Method	Specified Requirement	Minimum Acceptable	Maximum Acceptable
Weave		Plain, 2x2 basket weave, 2 ends as 1, 2 picks as 1, (see Note 1 below)		
Width	4.1*	152 cm	148 cm	156 cm
Fabric Count (yarns per cm) (see Note 2 below)	6*	Warp: 42 Weft: 32	Warp: 40 Weft: 31	
Mass	5.1*	195 g/m <sup>2</sup>	190 g/m <sup>2</sup>	203 g/m <sup>2</sup>
Breaking Strength	9.2* (Test 6.1)	Warp: 1020N Weft: 775 N	Warp: 935 N Weft: 710 N	
Dimensional change in laundering After 5 washes	24* or 58* IIIE3			Warp 3.0% Weft 3.0%
Water repellency - Spray As received  after washing (2 cycles)  after drycleaning. (2 cycles)	26.2*  24* or 58* IIIE3  29.1*		All Conditions: 100	
Non-Fibrous Materials	15* (see Note 3 below)			2% total
Colourfastness to Crocking	22* (Tests 6.1 & 6.2)	No change in colour and no staining: Grey Scale 5		No appreciable change in colour and no appreciable staining: Grey Scale 4
Colourfastness to Dry Cleaning	29.1*	No change in colour and no staining of the attached white fabric: Grey Scale 5		No appreciable colour change or staining of the attached white fabric: Grey Scale 4
Colourfastness to Light	16** Option E		Sample Grey Scale 4 after 40 AATCC Fading Units	

\* CAN/CGSB-4.2 Textile Test Methods

\*\* AATCC Textile Test Methods

**Note 1:** The warp and weft may be the same provided that all properties of the specification are met with the exception of the count. If 420 denier nylon yarn is used in the weft, the weave of the fabric shall be plain 2 ends as 2 with single filling, and the weft yarns per centimetre specified in Table I shall be reduced by 50 per cent. All other requirements of the specification shall be met.

**Note 2:** Deviations to the specified fabric count will be permitted provided that all other requirements of this specification are met.

**Note 3:** CAN/CGSB-4.2 Method 15 paragraph 7.4, solvent extraction, one of petroleum ether, tetrachloroethylene or hexane shall be used. Also, omit para 7.7 and 7.8.

**Tableau I : Exigences en matière d'essais du tissu fini – Type I**

Propriété	Méthode d'essai	Exigence prescrite	Minimum acceptable	Maximum acceptable
Armure		Armure unie, nattée, 2 x 2, 2 fils de chaîne pour 1 fil de trame, 2 fils de trame pour 1 de chaîne (Voir la note 1 ci-dessous)		
Largeur	4.1*	152 cm	148 cm	156 cm
Contexture (fils par cm) (voir la note 2 ci-dessous)	6*	Chaîne : 42 Trame : 32	Chaîne : 40 Trame : 31	
Masse	5.1*	195 g/m <sup>2</sup>	190 g/m <sup>2</sup>	203 g/m <sup>2</sup>
Résistance à la rupture	9.2* (Essai 6.1)	Chaîne : 1 020 N Trame : 775 N	Chaîne : 935 N Trame : 710 N	
Stabilité dimensionnelle au blanchissage après 5 lavages	24* ou 58* IIIE3			Chaîne 3,0 % Trame 3,0 %
Déperlance – Essai d'arrosage À la réception  Après lavage (2 cycles)  Après nettoyage à sec (2 cycles)	26.2*  24* ou 58* IIIE3  29.1*		Toutes les conditions : 100	
Tissus non fibreux	15* (Voir la note 3 ci-dessous)			2 % en tout
Solidité de la couleur au frottement (dégorgement)	22* (Essais 6.1 et 6.2)	Pas de changement de couleur ni de tachage Échelle de gris 5		Pas de changement de couleur ni de tachage appréciable Échelle de gris 4
Solidité de la couleur au nettoyage à sec	29.1*	Pas de changement de couleur ni de tachage du tissu blanc fixé Échelle de gris 5		Pas de changement de couleur ni de tachage appréciable du tissu blanc fixé Échelle de gris 4
Solidité des teintures à la lumière	16** Option E		Spécimen Échelle de gris 4 après 40 unités d'estompage de l'AATCC	

\* CAN/CGSB-4.2 Méthodes pour épreuves textiles

\*\* AATCC Textile Test Methods

**Note 1:** La chaîne et la trame peuvent être identiques, pourvu que toutes les propriétés de la spécification soient respectées, exception faite de la contexture. Si on utilise un fil de nylon 420 deniers pour la trame, l'armure du tissu doit être une armure unie 2/2, 2 fils de chaîne pour 2 fils de trame. Le nombre de fils de trame par centimètre prescrit au tableau I doit être réduit de 50 %. Toutes les autres exigences de la spécification doivent être satisfaites.

**Note 2:** Des écarts de la contexture prescrite seront autorisés, pourvu que toutes les autres exigences de la présente spécification soient respectées.

**Note 3:** CAN/CGSB-4.2 Méthode 15, paragraphe 7.4, Élimination de matières non fibreuses par solvant. Un éther de pétrole, le tétrachloroéthylène ou l'hexane, doit être utilisé. Omettre les paragraphes 7.7 et 7.8.

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**Table II: Testing Requirements for the Finished Fabric - Type II, Polyurethane Coated**

Property	Test Method	Specified Requirement	Minimum Acceptable	Maximum Acceptable
Total mass (g/m <sup>2</sup> )	5.1*	230	220	240
Mass of coating (g/m <sup>2</sup> )	5.1*	33	27	39
Tensile strength (N)	9.2*		Warp 1400 Weft 1400	
Tear strength (N)	12.1*		Warp 90 Weft 90	
Dimensional change in laundering After 2 washes	24* or 58* III E3	Warp 2% Weft 2%		Warp 3% Weft 3%
Water repellency-Spray	26.2*		100	
Hydrostatic resistance	26.5*	690 kPa	550 kPa	
Resistance to micro-organisms	28.2*	No staining and no growth (0%)		20% staining 20% growth

\* CAN/CGSB 4.2 - Textile Test Methods

**Note:** The base cloth shall meet the requirements of Table I prior to application of the coating.

**Tableau II : Exigences en matière d'essais du tissu fini – type II, enduit de polyuréthane**

Propriété	Méthode d'essai	Exigence prescrite	Minimum acceptable	Maximum acceptable
Masse totale (g/m <sup>2</sup> )	5.1*	230	220	240
Masse de l'enduit (g/m <sup>2</sup> )	5.1*	33	27	39
Résistance à la rupture (N)	9.2*		Chaîne : 1 400 Trame : 1 400	
Résistance à la déchirure (N)	12.1*		Chaîne : 90 Trame : 90	
Stabilité dimensionnelle au blanchissage Après 5 lavages	24* ou 58* III E3	Chaîne 2 % Trame 2 %		Chaîne : 3 % Trame : 3 %
Déperlance – Essai d'arrosage	26.2*		100	
Essai de pénétration d'eau à haute pression	26.5*	690 kPa	550 kPa	
Résistance aux microorganismes	28.2*	Pas de tachage ni de croissance (0 %)		20 % de tachage 20 % de croissance

\* CAN/CGSB-4.2 Méthodes pour épreuves textiles

**Note:** Le tissu de base doit satisfaire aux exigences du tableau I avant l'enduction.

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**APPENDIX I to DSSPM 2-2-80-091**

**REQUIREMENTS FOR CANADIAN  
AVERAGE GREEN FOR COLOUR AND  
INFRA-RED REFLECTION**

1. Colour requirements and IRR requirements are found on the following pages.
2. All measurements are to be made in accordance with CIE publication 15.2 and ASTM E308-99 using CIE Illuminant C and a 2 degree observer, specular component included. Sample preparation for chromaticity and IRR measurements shall be in accordance with AATCC Instrumental Measurement Procedure #6, A1.3, non-opaque samples.
3. Tolerance is plus/minus 2 CIE LAB units for each co-ordinate ( $L^*a^*b^*$ ).
4. Gloss values shall be less than 1 unit.
5. Infra-red values shall lie between the proscribed plus/minus standard deviation (SD) and are to be applied to the substrate as follows:

Canadian Average Green - as specified  
(average reflectance)

6. The on-going Canadian requirement is for IRR values ranging from 400nm to 2000nm as shown in the following pages. Currently compliance is mandatory from 400nm to 1300nm. Every effort should be made to meet the required curves beyond 1300nm, however compliance is not mandatory at this time.

**ANNEXE I du document DAPES 2-2-80-091**

**EXIGENCES RELATIVES À LA COULEUR  
ET À LA RÉFLECTANCE DANS  
L'INFRAROUGE POUR LE VERT  
CANADIEN MOYEN**

1. Les exigences pour la couleur et la RIR sont présentées dans les pages suivantes.
2. Toutes les mesures doivent être effectuées conformément aux publications CIE 15.2 et ASTM E308.99 à l'aide de l'illuminant C et de l'observateur à 2° de la CIE, composante spéculaire incluse. La préparation des échantillons pour les mesures de couleur et de RIR doit être réalisée conformément à la procédure de mesure instrumentale n° 6 de l'American Association of Textile Chemists and Colorists (AATCC), A1.3, pour des échantillons non opaques.
3. La tolérance est de  $\pm 2$  unités CIE LAB pour chaque coordonnée (valeurs  $L^*a^*b^*$ ).
4. Les valeurs de lustre doivent être inférieures à une (1) unité.
5. Les valeurs dans l'infrarouge doivent être comprises en deçà de l'écart type indiqué ( $\pm$ ) et être appliquées au substrat comme suit :

Vert canadien moyen – selon ce qui est  
indiqué (réflectance moyenne)

6. Selon les exigences canadiennes actuelles, on doit respecter les valeurs RIR entre 400 et 2 000 nm, comme il est indiqué dans les pages suivantes. Actuellement, la plage obligatoire va de 400 à 1 300 nm. On ne devrait ménager aucun effort pour respecter les courbes requises au-delà de 1 300 nm; toutefois, cette exigence n'est pas obligatoire pour le moment.

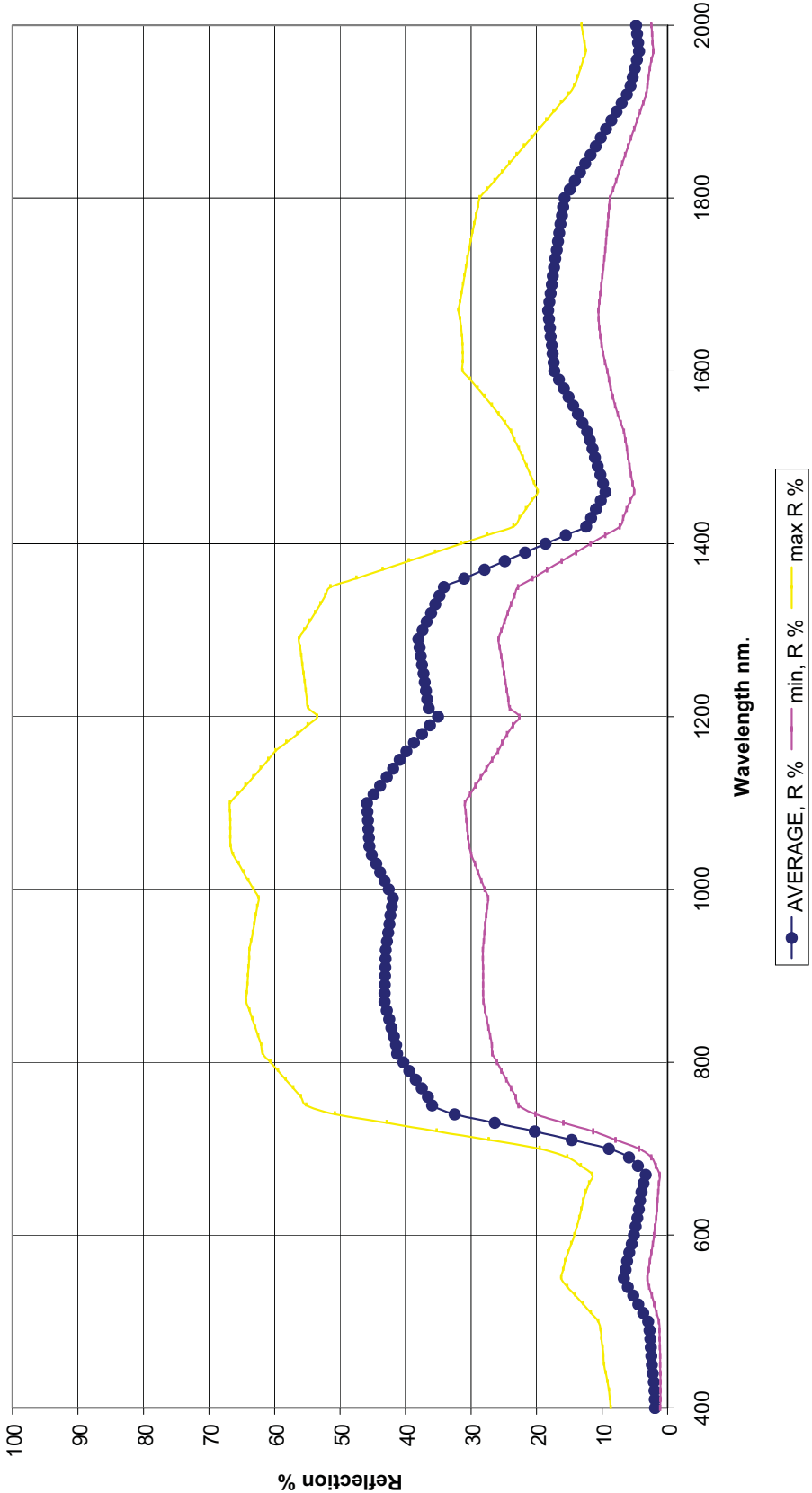
Colour Requirements: Canadian Average Green (single colour fabric)

SPECIFICATIONS:									
CIE 1931/CIE LAB 1976									
ILLUMINANT C, 2 deg.									
Specular component included									
Wavelength	Reflection	ST.DEV.	Refl. Min	Refl. Max	Wavelength	Reflection	ST.DEV.	Refl. Min	Refl. Max
nm	%	%	%	%	nm	%	%	%	%
400	1.89	0.77	1.12	8.67	840	42.14	14.80	27.35	62.94
410	1.95	0.85	1.10	8.79	850	42.50	14.90	27.60	63.39
420	2.00	0.93	1.07	8.93	860	42.85	15.00	27.85	63.85
430	2.11	1.04	1.07	9.16	870	43.20	15.11	28.09	64.31
440	2.26	1.17	1.09	9.43	880	43.20	15.05	28.15	64.24
450	2.39	1.28	1.11	9.67	890	43.16	14.99	28.16	64.15
460	2.46	1.33	1.14	9.79	900	43.11	14.94	28.17	64.06
470	2.53	1.37	1.16	9.90	910	43.07	14.90	28.17	63.97
480	2.62	1.43	1.19	10.10	920	43.03	14.86	28.18	63.89
490	2.72	1.50	1.22	10.22	930	43.00	14.82	28.18	63.82
500	2.95	1.63	1.32	10.58	940	42.82	14.76	28.06	63.58
510	3.70	2.02	1.68	11.72	950	42.64	14.70	27.94	63.33
520	4.45	2.44	2.01	12.88	960	42.45	14.64	27.81	63.09
530	5.24	2.84	2.40	14.09	970	42.28	14.60	27.68	62.87
540	6.05	3.26	2.79	15.31	980	42.09	14.56	27.53	62.64
550	6.65	3.59	3.06	16.24	990	41.91	14.52	27.39	62.44
560	6.85	3.53	2.88	15.94	1000	42.56	14.65	27.91	63.20
570	6.17	3.49	2.68	15.65	1010	43.21	14.77	28.43	63.98
580	5.84	3.36	2.48	15.20	1020	43.85	14.90	28.95	64.76
590	5.47	3.22	2.26	14.69	1030	44.45	15.04	29.41	65.49
600	5.14	3.08	2.05	14.22	1040	45.15	15.18	29.97	66.33
610	4.86	2.97	1.89	13.84	1050	45.51	15.22	30.30	66.73
620	4.60	2.88	1.72	13.48	1060	45.59	15.15	30.43	66.74
630	4.39	2.78	1.61	13.16	1070	45.66	15.09	30.56	66.75
640	4.19	2.67	1.52	12.87	1080	45.73	15.04	30.69	66.76
650	3.96	2.54	1.42	12.50	1090	45.81	14.99	30.82	66.79
660	3.65	2.33	1.32	11.98	1100	45.88	14.94	30.94	66.81
670	3.34	2.13	1.21	11.47	1110	44.88	14.74	30.14	65.61
680	4.52	2.71	1.81	13.23	1120	43.87	14.55	29.32	64.42
690	5.87	3.42	2.45	15.30	1130	42.87	14.39	28.48	63.25
700	8.94	4.60	4.34	19.54	1140	41.87	14.24	27.63	62.10
710	14.61	6.69	7.92	27.30	1150	40.86	14.11	26.76	60.97
720	20.27	8.94	11.33	35.21	1160	39.87	14.00	25.87	59.86
730	26.37	10.48	15.89	42.86	1170	38.72	13.46	25.26	58.18
740	32.48	12.31	20.17	50.78	1180	37.49	13.01	24.49	56.50
750	35.95	13.20	22.75	55.15	1190	36.27	12.66	23.61	54.93
760	36.58	13.40	23.18	55.99	1200	35.04	12.43	22.61	53.47
770	37.52	13.62	23.91	57.14	1210	36.48	12.40	24.08	54.88
780	38.46	13.84	24.62	58.29	1220	36.68	12.37	24.31	55.05
790	40.33	14.06	25.34	59.46	1230	36.87	12.35	24.53	55.22
800	40.33	14.29	26.04	60.62	1240	37.07	12.33	24.75	55.40
810	41.28	14.53	26.75	61.81	1250	37.26	12.30	24.96	55.57
820	41.44	14.60	26.83	62.04	1260	37.46	12.28	25.18	55.75
830	41.79	14.70	27.09	62.49	1270	37.65	12.27	25.39	55.92

This document does not contain controlled goods. / Cette documentation ne contient pas de marchandises contrôlées.

Wavelength nm	Reflection %	ST.DEV. %	Refl. Min %	Refl. Max %	Wavelength nm	Reflection %	ST.DEV. %	Refl. Min %	Refl. Max %
1280	37.85	12.25	25.60	56.10	1720	17.30	7.49	9.81	30.79
1290	38.05	12.24	25.81	56.28	1730	17.11	7.45	9.66	30.56
1300	37.40	12.05	25.36	55.45	1740	16.92	7.42	9.50	30.34
1310	36.75	11.87	24.88	54.62	1750	16.72	7.34	9.38	30.07
1320	36.10	11.71	24.39	53.81	1760	16.52	7.26	9.26	29.79
1330	35.45	11.57	23.88	53.01	1770	16.33	7.18	9.14	29.51
1340	34.80	11.44	23.36	52.23	1780	16.12	7.11	9.02	29.23
1350	34.15	11.32	22.83	51.47	1790	15.92	7.03	8.89	28.96
1360	31.04	10.44	20.61	47.48	1800	15.72	6.96	8.76	28.68
1370	27.94	9.55	18.39	43.49	1810	14.93	6.63	8.30	27.55
1380	24.83	8.66	16.17	39.50	1820	14.13	6.29	7.85	26.42
1390	21.73	7.78	13.95	35.50	1830	13.34	5.95	7.39	25.29
1400	18.62	6.89	11.73	31.51	1840	12.55	5.62	6.93	24.16
1410	15.52	6.00	9.51	27.52	1850	11.75	5.28	6.47	23.03
1420	12.41	5.12	7.29	23.53	1860	10.96	4.94	6.01	21.90
1430	11.67	4.90	6.76	22.57	1870	10.16	4.61	5.56	20.77
1440	10.93	4.70	6.23	21.63	1880	9.37	4.27	5.10	19.64
1450	10.19	4.52	5.67	20.71	1890	8.57	3.94	4.64	18.51
1460	9.46	4.35	5.10	19.81	1900	7.78	3.60	4.18	17.38
1470	9.85	4.52	5.33	20.37	1910	6.99	3.26	3.72	16.25
1480	10.26	4.69	5.56	20.95	1920	6.19	2.93	3.26	15.12
1490	10.66	4.87	5.79	21.53	1930	5.65	2.58	3.07	14.23
1500	11.06	5.05	6.01	22.11	1940	5.32	2.41	2.91	13.73
1510	11.46	5.24	6.22	22.70	1950	4.99	2.28	2.71	13.26
1520	11.86	5.42	6.44	23.39	1960	4.67	2.19	2.48	12.86
1530	12.27	5.61	6.66	23.88	1970	4.33	2.16	2.18	12.49
1540	12.98	5.83	7.16	24.81	1980	4.48	2.21	2.27	12.69
1550	13.69	6.10	7.59	25.79	1990	4.63	2.27	2.36	12.90
1560	14.41	6.42	7.99	26.82	2000	4.79	2.33	2.46	13.12
1570	15.12	6.78	8.34	27.89					
1580	15.83	7.17	8.66	29.00					
1590	16.55	7.60	8.95	30.15					
1600	17.26	8.05	9.21	31.31					
1610	17.40	7.86	9.54	31.26					
1620	17.54	7.72	9.82	31.25					
1630	17.67	7.61	10.06	31.29					
1640	17.82	7.56	10.26	31.38					
1650	17.96	7.55	10.40	31.51					
1660	18.09	7.59	10.49	31.68					
1670	18.23	7.68	10.55	31.92					
1680	18.04	7.64	10.40	31.69					
1690	17.85	7.60	10.25	31.45					
1700	17.67	7.56	10.11	31.23					
1710	17.49	7.52	9.96	31.01					

# COLOUR AVERAGE GREEN





Exigences relatives aux couleurs : Vert canadien moyen (tissu de même couleur)

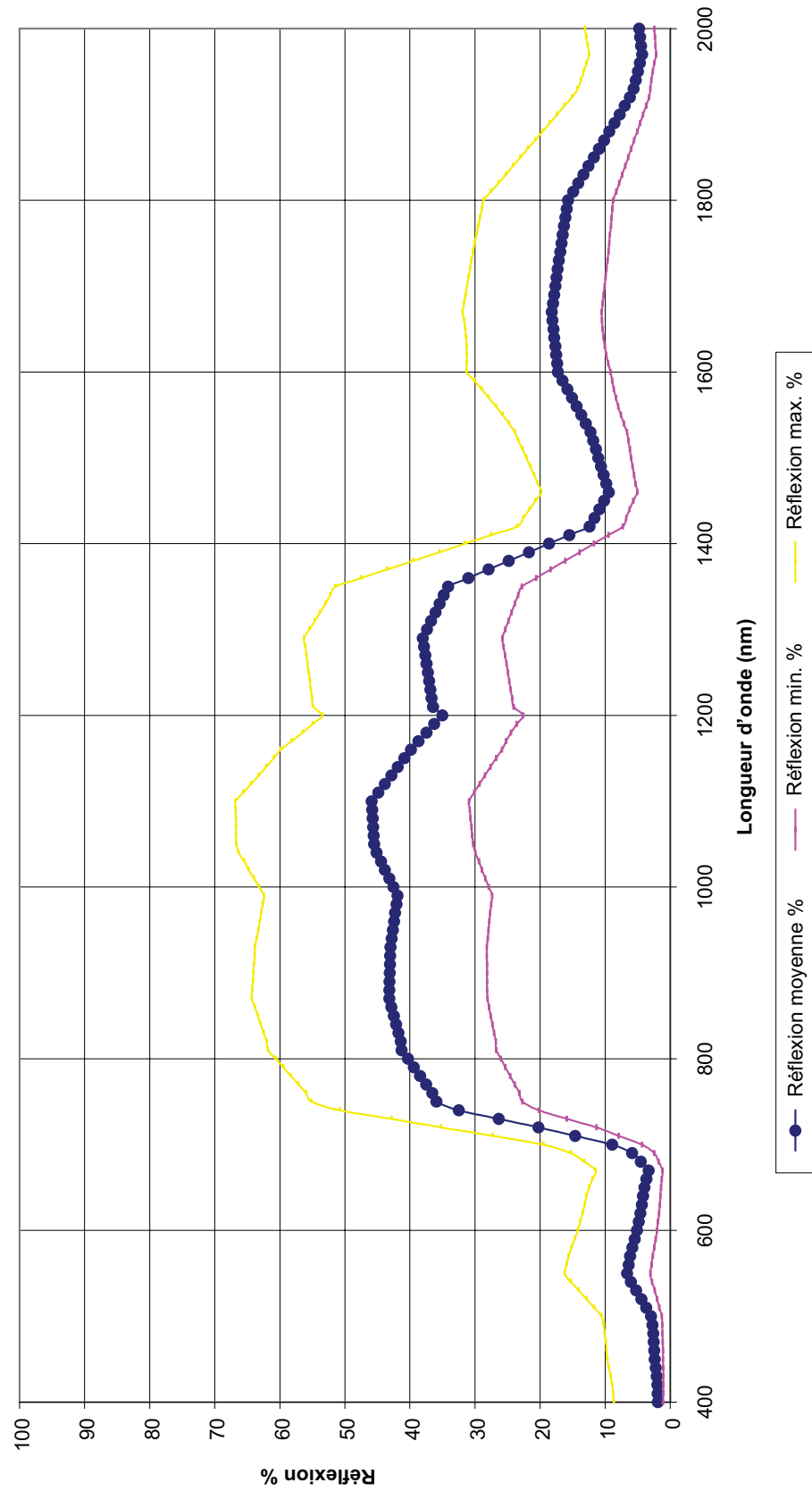
SPÉCIFICATIONS :		x	0,348 – 0,372
CIE 1931/CIE LAB 1976		y	0,374 – 0,386
ILLUMINANT C, 2°		Y %	7,00 maximum
Composante spéculaire incluse	DW.nm		569,36
	S %		38,50
	L*		27,41
	a*		-6,78
	b*		16,46

Longueur d'onde	Réflexion	Écart type	Réfl. min	Réfl. max.	Longueur d'onde	Réflexion	Écart type	Réfl. min	Réfl. max.
nm	%	%	%	%	nm	%	%	%	%
400	1,89	0,77	1,12	8,67	840	42,14	14,80	27,35	62,94
410	1,95	0,85	1,10	8,79	850	42,50	14,90	27,60	63,39
420	2,00	0,93	1,07	8,93	860	42,85	15,00	27,85	63,85
430	2,11	1,04	1,07	9,16	870	43,20	15,11	28,09	64,31
440	2,26	1,17	1,09	9,43	880	43,20	15,05	28,15	64,24
450	2,39	1,28	1,11	9,67	890	43,16	14,99	28,16	64,15
460	2,46	1,33	1,14	9,79	900	43,11	14,94	28,17	64,06
470	2,53	1,37	1,16	9,90	910	43,07	14,90	28,17	63,97
480	2,62	1,43	1,19	10,10	920	43,03	14,86	28,18	63,89
490	2,72	1,50	1,22	10,22	930	43,00	14,82	28,18	63,82
500	2,95	1,63	1,32	10,58	940	42,82	14,76	28,06	63,58
510	3,70	2,02	1,68	11,72	950	42,64	14,70	27,94	63,33
520	4,45	2,44	2,01	12,88	960	42,45	14,64	27,81	63,09
530	5,24	2,84	2,40	14,09	970	42,28	14,60	27,68	62,87
540	6,05	3,26	2,79	15,31	980	42,09	14,56	27,53	62,64
550	6,65	3,59	3,06	16,24	990	41,91	14,52	27,39	62,44
560	6,41	3,53	2,88	15,94	1000	42,56	14,65	27,91	63,20
570	6,17	3,49	2,68	15,65	1010	43,21	14,77	28,43	63,98
580	5,84	3,36	2,48	15,20	1020	43,85	14,90	28,95	64,76
590	5,47	3,22	2,26	14,69	1030	44,45	15,04	29,41	65,49
600	5,14	3,08	2,05	14,22	1040	45,15	15,18	29,97	66,33
610	4,86	2,97	1,89	13,84	1050	45,51	15,22	30,30	66,73
620	4,60	2,88	1,72	13,48	1060	45,59	15,15	30,43	66,74
630	4,39	2,78	1,61	13,16	1070	45,66	15,09	30,56	66,75
640	4,19	2,67	1,52	12,87	1080	45,73	15,04	30,69	66,76
650	3,96	2,54	1,42	12,50	1090	45,81	14,99	30,82	66,79
660	3,65	2,33	1,32	11,98	1100	45,88	14,94	30,94	66,81
670	3,34	2,13	1,21	11,47	1110	44,88	14,74	30,14	65,61
680	4,52	2,71	1,81	13,23	1120	43,87	14,55	29,32	64,42
690	5,87	3,42	2,45	15,30	1130	42,87	14,39	28,48	63,25
700	8,94	4,60	4,34	19,54	1140	41,87	14,24	27,63	62,10
710	14,61	6,69	7,92	27,30	1150	40,86	14,11	26,76	60,97
720	20,27	8,94	11,33	35,21	1160	39,87	14,00	25,87	59,86
730	26,37	10,46	15,89	42,86	1170	38,72	13,46	25,26	58,18
740	32,48	12,31	20,17	50,78	1180	37,49	13,01	24,49	56,50
750	35,95	13,20	22,75	55,15	1190	36,27	12,66	23,61	54,93
760	36,58	13,40	23,18	55,99	1200	35,04	12,43	22,61	53,47
770	37,52	13,62	23,91	57,14	1210	36,48	12,40	24,08	54,88
780	38,46	13,84	24,62	58,29	1220	36,68	12,37	24,31	55,05
790	39,40	14,06	25,34	59,46	1230	36,87	12,35	24,53	55,22
800	40,33	14,29	26,04	60,62	1240	37,07	12,33	24,75	55,40
810	41,28	14,53	26,75	61,81	1250	37,26	12,30	24,96	55,57
820	41,44	14,60	26,83	62,04	1260	37,46	12,28	25,18	55,75
830	41,79	14,70	27,09	62,49	1270	37,65	12,27	25,39	55,92

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Longueur d'onde	Réflexion	Écart type	Réfl. min	Réfl. max.	Longueur d'onde nm	Réflexion	Écart type	Réfl. min	Réfl. max.
nm	%	%	%	%	nm	%	%	%	%
1280	37,85	12,25	25,60	56,10	1720	17,30	7,49	9,81	30,79
1290	38,05	12,24	25,81	56,28	1730	17,11	7,45	9,66	30,56
1300	37,40	12,05	25,36	55,45	1740	16,92	7,42	9,50	30,34
1310	36,75	11,87	24,88	54,62	1750	16,72	7,34	9,38	30,07
1320	36,10	11,71	24,39	53,81	1760	16,52	7,26	9,26	29,79
1330	35,45	11,57	23,88	53,01	1770	16,33	7,18	9,14	29,51
1340	34,80	11,44	23,36	52,23	1780	16,12	7,11	9,02	29,23
1350	34,15	11,32	22,83	51,47	1790	15,92	7,03	8,89	28,96
1360	31,04	10,44	20,61	47,48	1800	15,72	6,96	8,76	28,68
1370	27,94	9,55	18,39	43,49	1810	14,93	6,63	8,30	27,55
1380	24,83	8,66	16,17	39,50	1820	14,13	6,29	7,85	26,42
1390	21,73	7,78	13,95	35,50	1830	13,34	5,95	7,39	25,29
1400	18,62	6,89	11,73	31,51	1840	12,55	5,62	6,93	24,16
1410	15,52	6,00	9,51	27,52	1850	11,75	5,28	6,47	23,03
1420	12,41	5,12	7,29	23,53	1860	10,96	4,94	6,01	21,90
1430	11,67	4,90	6,76	22,57	1870	10,16	4,61	5,56	20,77
1440	10,93	4,70	6,23	21,63	1880	9,37	4,27	5,10	19,64
1450	10,19	4,52	5,67	20,71	1890	8,57	3,94	4,64	18,51
1460	9,46	4,35	5,10	19,81	1900	7,78	3,60	4,18	17,38
1470	9,85	4,52	5,33	20,37	1910	6,99	3,26	3,72	16,25
1480	10,26	4,69	5,56	20,95	1920	6,19	2,93	3,26	15,12
1490	10,66	4,87	5,79	21,53	1930	5,65	2,58	3,07	14,23
1500	11,06	5,05	6,01	22,11	1940	5,32	2,41	2,91	13,73
1510	11,46	5,24	6,22	22,70	1950	4,99	2,28	2,71	13,26
1520	11,86	5,42	6,44	23,39	1960	4,67	2,19	2,48	12,86
1530	12,27	5,61	6,66	23,88	1970	4,33	2,16	2,18	12,49
1540	12,98	5,83	7,16	24,81	1980	4,48	2,21	2,27	12,69
1550	13,69	6,10	7,59	25,79	1990	4,63	2,27	2,36	12,90
1560	14,41	6,42	7,99	26,82	2000	4,79	2,33	2,46	13,12
1570	15,12	6,78	8,34	27,89					
1580	15,83	7,17	8,66	29,00					
1590	16,55	7,60	8,95	30,15					
1600	17,26	8,05	9,21	31,31					
1610	17,40	7,86	9,54	31,26					
1620	17,54	7,72	9,82	31,25					
1630	17,67	7,61	10,06	31,29					
1640	17,82	7,56	10,26	31,38					
1650	17,96	7,55	10,40	31,51					
1660	18,09	7,59	10,49	31,68					
1670	18,23	7,68	10,55	31,92					
1680	18,04	7,64	10,40	31,69					
1690	17,85	7,60	10,25	31,45					
1700	17,67	7,56	10,11	31,23					
1710	17,49	7,52	9,96	31,01					

## COULEUR: VERT MOYEN



## NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

## AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

<b>SPECIFICATION</b>  <b>FOR</b>  <b>CLOTH, INSULATION, LIGHTWEIGHT</b> <b>(130 g/m<sup>2</sup>) AND HEAVYWEIGHT (210 g/m<sup>2</sup>)</b>	<b>SPÉCIFICATION</b>  <b>TISSUS ISOLANTS, LÉGER (130 g/m<sup>2</sup>)</b>  <b>ET LOURD (210 g/m<sup>2</sup>)</b>								
<p><b>1. SCOPE</b></p> <p><b>1.1 Scope.</b> This specification covers the requirements for two types of cloth insulation for use in apparel.</p> <p><b>1.2 Classification.</b> The cloth insulations covered by this specification shall be classified as follows:</p> <table> <tr> <td>Type I</td><td>           Light Weight Insulation            - polyester, or polyester and olefin blend, maximum 28% olefin content            - maximum mass is 130 g/m<sup>2</sup> for the total batt plus all layers of scrim required (<u>or</u> maximum mass of insulation batt alone is 115 g/m<sup>2</sup>)         </td></tr> <tr> <td>Type II</td><td>           Heavy Weight Insulation            - polyester, or polyester and olefin blend, maximum 28% olefin content            - maximum mass is 210 g/m<sup>2</sup> for the total batt plus all layers of required scrim (<u>or</u> maximum mass of insulation batt alone is 195 g/m<sup>2</sup>)         </td></tr> </table> <p><u>Note:</u> Type II, Heavyweight Insulation requirements generally apply to parkas, while Type I, Lightweight Insulation requirements generally apply to bib overalls.</p> <p><b>1.3 Application.</b> The garments in which cloth insulation shall be used, both separately and in any</p>	Type I	Light Weight Insulation - polyester, or polyester and olefin blend, maximum 28% olefin content - maximum mass is 130 g/m <sup>2</sup> for the total batt plus all layers of scrim required ( <u>or</u> maximum mass of insulation batt alone is 115 g/m <sup>2</sup> )	Type II	Heavy Weight Insulation - polyester, or polyester and olefin blend, maximum 28% olefin content - maximum mass is 210 g/m <sup>2</sup> for the total batt plus all layers of required scrim ( <u>or</u> maximum mass of insulation batt alone is 195 g/m <sup>2</sup> )	<p><b>1. PORTÉE</b></p> <p><b>1.1 Portée.</b> La présente spécification vise deux types de tissu isolant pour vêtement.</p> <p><b>1.2 Classification.</b> Les tissus isolants visés par la présente spécification sont classés de la façon suivante.</p> <table> <tr> <td>Type I</td><td>           Léger            - Polyester ou mélange de polyester et d'oléfine (au plus 28 % d'oléfine)            - Masse maximale de 130 g/m<sup>2</sup> pour la nappe ouatée et les épaisseurs de canevas léger requises (<u>ou</u> masse maximale de 115 g/m<sup>2</sup> pour la nappe ouatée seule)         </td></tr> <tr> <td>Type II</td><td>           Lourd            - Polyester ou mélange de polyester et d'oléfine contenant (au plus 28 % d'oléfine)            - Masse maximale de 210 g/m<sup>2</sup> pour la nappe ouatée et les épaisseurs de canevas léger requises (<u>ou</u> masse maximale de 195 g/m<sup>2</sup> pour la nappe ouatée seule)         </td></tr> </table> <p><u>Nota :</u> En général, les exigences pour le type II (lourd) s'appliquent aux parkas, et celles concernant le type I (léger) s'appliquent aux salopettes.</p> <p><b>1.3 Application.</b> Les vêtements dans lequel le tissu isolant doit être utilisé, à la fois séparément et dans</p>	Type I	Léger - Polyester ou mélange de polyester et d'oléfine (au plus 28 % d'oléfine) - Masse maximale de 130 g/m <sup>2</sup> pour la nappe ouatée et les épaisseurs de canevas léger requises ( <u>ou</u> masse maximale de 115 g/m <sup>2</sup> pour la nappe ouatée seule)	Type II	Lourd - Polyester ou mélange de polyester et d'oléfine contenant (au plus 28 % d'oléfine) - Masse maximale de 210 g/m <sup>2</sup> pour la nappe ouatée et les épaisseurs de canevas léger requises ( <u>ou</u> masse maximale de 195 g/m <sup>2</sup> pour la nappe ouatée seule)
Type I	Light Weight Insulation - polyester, or polyester and olefin blend, maximum 28% olefin content - maximum mass is 130 g/m <sup>2</sup> for the total batt plus all layers of scrim required ( <u>or</u> maximum mass of insulation batt alone is 115 g/m <sup>2</sup> )								
Type II	Heavy Weight Insulation - polyester, or polyester and olefin blend, maximum 28% olefin content - maximum mass is 210 g/m <sup>2</sup> for the total batt plus all layers of required scrim ( <u>or</u> maximum mass of insulation batt alone is 195 g/m <sup>2</sup> )								
Type I	Léger - Polyester ou mélange de polyester et d'oléfine (au plus 28 % d'oléfine) - Masse maximale de 130 g/m <sup>2</sup> pour la nappe ouatée et les épaisseurs de canevas léger requises ( <u>ou</u> masse maximale de 115 g/m <sup>2</sup> pour la nappe ouatée seule)								
Type II	Lourd - Polyester ou mélange de polyester et d'oléfine contenant (au plus 28 % d'oléfine) - Masse maximale de 210 g/m <sup>2</sup> pour la nappe ouatée et les épaisseurs de canevas léger requises ( <u>ou</u> masse maximale de 195 g/m <sup>2</sup> pour la nappe ouatée seule)								

<p>combination with other garments, will be worn in all types of inclement weather in any location in Canada, under a variety of conditions and all types of threats. Sufficient warmth, wind resistance, and protection from ingress of water and wet snow is essential to cater for wearers standing still, moving about on feet, knees, or lying down, and leaning, sitting, etc against wet surfaces. The essential temperature range covered by the garments when worn as part of a system is +10°C to -57°C. The essential wear life is up to five years and/or 25 launderings at high temperature. Undue degradation of any properties with wear, care indicated, and exposure to normal military operational chemicals is not acceptable over the anticipated service life of the garments.</p> <p><b>2. APPLICABLE DOCUMENTS</b></p> <p><b>2.1 Government Documents.</b> Not applicable.</p> <p><b>2.2 Other Publications.</b> The following publications form part of this specification to the extent specified herein. The effective dates shall be those in effect on the date of the publication of this document. Sources are as shown.</p> <p><b>CAN/CGSB-4.2 Textile Test Methods</b> Canadian General Standards Board Gatineau, QC K1A 1G6 Telephone: 819-956-0425 or 1-800-665-2472 Email: <a href="mailto:ncr.cgsb-ongc@pwgsc.gc.ca">ncr.cgsb-ongc@pwgsc.gc.ca</a> Website: <a href="http://www.pwgsc.gc.ca/cgsb/home/index-e.html">http://www.pwgsc.gc.ca/cgsb/home/index-e.html</a></p> <p><b>ASTM Textile Test Methods</b> ASTM International P.O. Box C700 West Conshohocken, PA 19428-2959, USA Telephone: 610-832-9585 Email: <a href="mailto:service@astm.org">service@astm.org</a> Website: <a href="http://www.astm.org">www.astm.org</a></p> <p><b>FED-STD-191A Textile Test Methods</b> General Services Administration Federal Supply Service FSS Product Acquisition Center Supply Standards Division (FLAS) Arlington, VA 22202 USA Telephone: 703-605-2567 Website: <a href="http://apps.fss.gsa.gov/pub/fedspecs/">http://apps.fss.gsa.gov/pub/fedspecs/</a></p>	<p>n'importe quelle combinaison avec d'autres vêtements, seront portés dans tout type de conditions météorologiques défavorables n'importe où au Canada, dans diverses conditions et pour tout type de menace. Il est essentiel que le vêtement offre une chaleur suffisante, une résistance au vent et la protection contre la pénétration par l'eau et la neige mouillée, pendant que le porteur se tient debout, marche ou se déplace sur les genoux ou en position couchée, se penche, s'assoit, etc., sur des surfaces mouillées. La plage de température nominale dans laquelle ces vêtements, intégrés à un système, sont portés se situe entre +10 °C et -57 °C. La durée utile minimale est de cinq ans et/ou de 25 lavages à température élevée. Une dégradation excessive de toute propriété à cause de l'usure, de l'entretien indiqué et d'une exposition aux substances chimiques dans des opérations militaires normales n'est pas acceptable pendant la durée de vie prévue des vêtements.</p> <p><b>2. DOCUMENTS APPLICABLES</b></p> <p><b>2.1 Documents du gouvernement.</b> Sans objet.</p> <p><b>2.2 Autres publications.</b> Les publications suivantes font partie intégrante de la présente spécification selon les modalités indiquées ci-après. La date d'entrée en vigueur doit être celle en vigueur à la date de publication de la présente spécification. La source de diffusion est celle indiquée.</p> <p><b>CAN/CGSB-4.2 Méthodes pour épreuves textiles</b> Office des normes générales du Canada Gatineau (Québec) K1A 1G6 Téléphone : 819-956-0425 ou 1800-665-2472 Courriel : <a href="mailto:ncr.cgsb-ongc@pwgsc.gc.ca">ncr.cgsb-ongc@pwgsc.gc.ca</a> Site Internet : <a href="http://www.tpsgc-pwgsc.gc.ca/cgsb/home/index-f.html">http://www.tpsgc-pwgsc.gc.ca/cgsb/home/index-f.html</a></p> <p><b>ASTM Textile Test Methods</b> P.O. Box C700 West Conshohocken, PA 19428-2959 ÉTATS-UNIS Téléphone : 610-832-9585 Courriel : <a href="mailto:service@astm.org">service@astm.org</a> Site Internet : <a href="http://www.astm.org/">http://www.astm.org/</a></p> <p><b>FED-STD-191A Textile Test Methods</b> General Services Administration Federal Supply Service FSS Product Acquisition Center - Supply Standards Division (FLAS) Arlington, VA 22202 ÉTATS-UNIS Téléphone : 703-605-2567</p>
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<p>Download Documents: <a href="http://assist.daps.dla.mil/quicksearch/">http://assist.daps.dla.mil/quicksearch/</a></p> <p><b>2.3 Sealed Patterns. N/A</b></p> <p><b>2.4 Order of Precedence.</b></p> <p><b>2.4.1</b> In the event of any inconsistency in contract documents such as contract, specification and Sealed Pattern, the order of precedence shall be contract, specification, and Sealed Pattern.</p> <p><b>2.4.2</b> In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.</p> <p><b>2.4.3</b> In the event of inconsistency within the specification, the Design Authority (DSSPM 2-11) shall be contacted for clarification.</p> <p><b>2.4.4</b> For any inconsistency in technical details between languages, the language of the original document, which in this case is English, shall take precedence.</p> <p><b>3. REQUIREMENTS</b></p> <p><b>3.1 Workmanship.</b> The material covered by this specification shall be free of imperfections or blemishes such as may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes shall be considered defects when clearly visible at a normal inspection distance of approximately 1 metre under good, preferably North Light, lighting conditions.</p> <p><b>3.2 Sealed Pattern.</b> A Sealed Pattern, when available, will be supplied to the successful bidder. Sealed Patterns shall constitute the standard only in regard to any properties not defined in this specification. Note, however, that the order of precedence prevails (paragraph 2.4). Sealed Patterns shall be returned to the Crown and under no circumstances shall be mutilated or cut.</p> <p><b>3.3</b> The insulation shall be battings made from synthetic fibres. These battings shall be commercially available, manufactured for commercial use in outerwear garments providing a high degree of cold weather protection. The integrity of the batting shall be maintained through the normal service life of the garments, through wear and tear of motion, abrasion between layers of cloth, frequent stuff packing and unpacking, etc. No thin spots, lumping, clumping, curling, slipping, or changes in dimensional stability</p>	<p>Site Internet : <a href="http://apps.fss.gsa.gov/pub/fedspecs/">http://apps.fss.gsa.gov/pub/fedspecs/</a> Pour télécharger des documents : <a href="http://assist.daps.dla.mil/quicksearch/">http://assist.daps.dla.mil/quicksearch/</a></p> <p><b>2.3 Modèles réglementaires. S. O.</b></p> <p><b>2.4 Ordre de préséance.</b></p> <p><b>2.4.1</b> En cas d'incohérence entre les documents contractuels, soit le contrat, la spécification et le modèle réglementaire, l'ordre de préséance est le suivant : le contrat, la spécification et le modèle réglementaire.</p> <p><b>2.4.2</b> En cas de divergence entre les documents mentionnés aux présentes et le contenu de la présente spécification, cette dernière a préséance.</p> <p><b>2.4.3</b> En cas d'incohérence dans l'énoncé de la spécification, il faut communiquer avec l'autorité responsable de la conception (DAPES 2-11) pour obtenir des précisions.</p> <p><b>2.4.4</b> En cas d'incohérence dans les détails techniques, entre les deux langues, la langue du document d'origine, dans ce cas-ci l'anglais, a préséance.</p> <p><b>3. EXIGENCES</b></p> <p><b>3.1 Qualité d'exécution.</b> Le tissu visé par la présente spécification doit être exempt de défauts pouvant nuire à son aspect ou à sa tenue en service. À des fins d'inspection, sont considérés comme défauts ceux qui sont clairement visibles à une distance d'inspection normale d'environ un mètre sous un bon éclairage, de préférence la lumière du nord.</p> <p><b>3.2 Modèle réglementaire.</b> Un modèle réglementaire, lorsque disponible, doit être fourni au soumissionnaire retenu et doit constituer la norme uniquement en ce qui concerne les propriétés qui ne sont pas définies aux présentes. Nota – L'ordre de préséance (paragraphe 2.4) doit être respecté. Les modèles réglementaires doivent être renvoyés au gouvernement et ne doivent en aucun cas être endommagés ni coupés.</p> <p><b>3.3</b> L'isolant doit être des nappes ouatées en fibres synthétiques offertes dans le commerce. Les nappes ouatées doivent être conçues à des fins commerciales pour les vêtements de dessus et offrir une excellente protection contre le froid. Elles doivent conserver leur intégrité pendant toute la durée de vie du vêtement, malgré l'usure causée par les mouvements, l'abrasion entre les épaisseurs de tissu et les fréquents emballages et déballages, etc. En aucun cas, la formation de parties</p>
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<p>over time are allowed.</p> <p><b>3.4</b> Any scrim, quilting, etc. required for the necessary performance of the batting when in the garment shall be provided by the batting supplier to the garment manufacturer and shall be incorporated by the garment manufacturer. Any scrim, quilting, surface treatment, or other addition to the actual insulation batt shall not degrade the performance of the batt, and shall be compatible with it. This information shall be available to the Department of National Defence upon request.</p> <p><b>3.5</b> The batting used shall be in compliance with Tables I and II. Required properties and performance levels are described in these tables. Where noted in Tables I and II, testing of the batting shall be carried out with the scrim(s), if scrim is required to be used with the batting. These tests are carried out without lining material attached.</p> <p><b>3.6</b> The insulation battings shall be launderable in domestic machines, coin operated machines, commercial or field laundries. They shall be tumble machine dryable or line dryable.</p> <p><b>3.7</b> The fibre and batt manufacturers' recommendations for end use application and garment construction shall be provided to and followed by the garment manufacturer. This information shall be available to the Department of National Defence upon request.</p> <p><b>3.8</b> NO COMMERCIAL TRADENAMES, HANG TAGS, OR INSERTIONS, SHALL BE VISIBLE ON THE FINISHED PRODUCT, OR PACKAGED WITH IT.</p> <p><b>3.9 Piece Marking.</b> Each piece of cloth shall have a label attached to the selvage at one end. The label shall be made of linen, spunbonded olefin, or heavy cardboard with a reinforced eyelet for attaching a tying cord. The label shall be legibly printed with the following information:</p> <ul style="list-style-type: none"> <li>a) Contractors identification</li> <li>b) Gross length in metres (including allowance)</li> <li>c) Nomenclature</li> <li>d) Specification number</li> <li>e) Month, year and number of contract</li> <li>f) NATO stock number</li> </ul> <p><b>4. QUALITY CONTROL/INSPECTION</b></p>	<p>minces, d'agglutinations, d'agglomérations, de bords roulés ou de glissements et une perte de stabilité dimensionnelle avec le temps ne sont admises.</p> <p><b>3.4</b> Le canevas léger et le matelassage nécessaires à l'efficacité des nappes ouatées doivent être fournis par le fabricant des nappes ouatées au fabricant du vêtement, qui doit les incorporer au vêtement. Le canevas léger, le matelassage, le traitement de la surface ou l'ajout de nappes ouatées isolantes ne doivent pas réduire l'efficacité de ces dernières et doivent être compatibles avec celles-ci. L'information à ce sujet doit être disponible au ministère de la Défense nationale, sur demande.</p> <p><b>3.5</b> La nappe ouatée doit être conforme aux exigences des tableaux I et II, qui précisent les propriétés et l'efficacité exigées. Conformément aux indications des tableaux, l'essai des nappes ouatées doit être réalisé avec le canevas léger, si ce dernier est prescrit avec les nappes ouatées. Les essais doivent être menés sans la doublure qui y est fixée.</p> <p><b>3.6</b> Les nappes ouatées isolantes doivent pouvoir être lavées dans des machines résidentielles ou payantes, des machines commerciales ou des lavoirs sur le terrain et être séchées dans les sècheuses à culbutage ou sur une corde à linge.</p> <p><b>3.7</b> Des recommandations du fabricant concernant la fibre et la nappe ouatée doivent être transmises au fabricant du vêtement qui doit les respecter. L'information à ce sujet doit être disponible au ministère de la Défense nationale, sur demande.</p> <p><b>3.8</b> AUCUNE APPELLATION COMMERCIALE NI ÉTIQUETTE VOLANTE NE DOIVENT ÊTRE VISIBLES SUR LE PRODUIT FINI NI ÊTRE JOINTES AU CONDITIONNEMENT.</p> <p><b>3.9 Marquage des pièces.</b> Chaque pièce de tissu doit porter, à une extrémité, une étiquette fixée à la lisière. L'étiquette doit être en toile de lin, en oléfine thermoliée ou en carton fort et percée d'un œillet renforcé permettant d'attacher une ficelle; elle doit porter les indications suivantes en caractères lisibles:</p> <ul style="list-style-type: none"> <li>a) Identification de l'entrepreneur</li> <li>b) Longueur brute en mètres (y compris la réserve)</li> <li>c) Nomenclature</li> <li>d) Numéro de la spécification</li> <li>e) Mois, année et numéro du contrat</li> <li>f) Numéro de nomenclature OTAN (NNO)</li> </ul> <p><b>4. CONTRÔLE DE LA QUALITÉ /</b></p>
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<p><b>4.1</b> Unless otherwise specified in the contract or procurement documents, the contractor is responsible for the performance of all inspection requirements as specified herein. Contractors may utilize their own or any other inspection facility acceptable to the Government or its designated representative. The Government reserves the right to perform any of the inspections specified herein, where such inspections are deemed necessary to ensure material and services conform to prescribed requirements. The contractor is responsible for ensuring that all material or services submitted to the Government for acceptance comply with all requirements of the contract.</p> <p><b>5. PACKAGING</b></p> <p><b>5.1 Packaging and Packing.</b> Packaging, packing, delivery and marking of shipping containers shall be in accordance with the terms of the contract.</p> <p><b>6. NOTES</b></p> <p><b>6.1 Ordering Data.</b> Procurement documents should specify the following:</p> <ul style="list-style-type: none"> <li>a) Title, number and date of this specification</li> <li>b) Type of insulation required (see 1.2)</li> <li>c) Packaging, packing and marking requirements (see 5.1)</li> <li>d) The Design Authority</li> </ul> <p><b>6.2 Design Authority.</b> The Design Authority is the Government agency responsible for technical aspects of design and changes to design. The Design Authority, for the items covered by this specification, is the Directorate of Soldier Systems Program Management (DSSPM).</p> <p><b>6.3 Quality Assurance Authority.</b> The Quality Assurance Authority is the Government agency responsible for providing assurance that material and services supplied by the contractor conform to specified requirements. The Quality Assurance Authority is the Director Quality Assurance.</p> <p><b>6.4 Definition of Terms.</b></p> <p><b>6.4.1 Master Sealed Pattern.</b> A Master Sealed Pattern is the authorized prototype of the item to be produced and is held only by the Government.</p> <p><b>6.4.2 Sealed Pattern.</b> A Sealed Pattern is a duplicate</p>	<p><b>INSPECTION</b></p> <p><b>4.1</b> Sauf indication contraire dans le contrat ou les documents d'achat, l'entrepreneur est tenu d'effectuer les inspections mentionnées dans la présente spécification. Il peut utiliser à cette fin son propre matériel d'inspection ou celui de tout autre établissement acceptable au gouvernement du Canada ou à son représentant désigné. Le gouvernement se réserve le droit d'effectuer les inspections mentionnées dans la présente spécification, lorsqu'elles sont nécessaires pour garantir que le matériel et les services sont conformes aux exigences prescrites. L'entrepreneur doit s'assurer que le matériel et les services proposés au gouvernement sont conformes aux exigences du contrat.</p> <p><b>5. CONDITIONNEMENT</b></p> <p><b>5.1 Conditionnement et emballage.</b> Le conditionnement, l'emballage, la livraison et le marquage des contenants d'expédition doivent être conformes aux modalités du contrat.</p> <p><b>6. REMARQUES</b></p> <p><b>6.1 Données de commande.</b> Les documents d'achat doivent préciser:</p> <ul style="list-style-type: none"> <li>a) Titre, numéro et date de la présente spécification</li> <li>b) Type d'isolant requis (voir 1.2)</li> <li>c) Exigences de conditionnement, d'emballage et de marquage (voir 5.1)</li> <li>d) Autorité responsable de la conception</li> </ul> <p><b>6.2 Autorité responsable de la conception.</b> L'autorité responsable de la conception est l'organisme gouvernemental chargé des aspects techniques de la conception et des modifications connexes. Dans le cas des articles visés par la présente spécification, il s'agit de la Direction, Administration du programme de l'équipement du soldat (DAPES).</p> <p><b>6.3 Autorité responsable de l'assurance de la qualité.</b> L'autorité responsable de l'assurance de la qualité est l'organisme gouvernemental chargé d'assurer que le matériel et les services fournis par l'entrepreneur satisfont aux exigences prescrites. L'autorité responsable de l'assurance de la qualité est le directeur de l'assurance de la qualité.</p> <p><b>6.4 Définitions des termes.</b></p> <p><b>6.4.1 Modèle réglementaire principal.</b> Prototype autorisé de l'article qui doit être fabriqué dont le gouvernement est le seul détenteur.</p>
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<p>of the Master Sealed Pattern and is available to the manufacturer to be used as a guide in production.</p> <p><b>6.5</b> The production of a product to this specification, or the evaluation of a product to this specification, may require the use of materials and/or equipment that could be hazardous. This specification does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.</p>	<p><b>6.4.2 Modèle réglementaire.</b> Copie exacte du modèle réglementaire principal mis à la disposition du fabricant qui doit l'utiliser comme guide.</p> <p><b>6.5</b> La fabrication ou l'évaluation d'un produit conformément à la présente spécification pourrait nécessiter l'utilisation de matériel ou d'équipement dangereux. La présente spécification n'a pas pour objet de traiter de toutes les préoccupations relatives à la santé, à la sécurité et à l'environnement liées à son utilisation. Il incombe à l'utilisateur de la spécification d'établir au préalable des méthodes appropriées qui tiennent compte des questions d'environnement, de santé et de sécurité, et de déterminer les restrictions réglementaires applicables.</p>
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**TYPE I - LIGHTWEIGHT INSULATION**

<b>Property</b>	<b>Test Method</b>	<b>Requirement</b>
<b>Mass, g/m<sup>2</sup></b> (batt plus scrim, if applicable)	5.1*	Maximum Total: 130 g/m <sup>2</sup> Maximum, batt alone: 115 g/m <sup>2</sup> Maximum total of all scrim layers: 35 g/m <sup>2</sup>
<b>Thickness, mm</b> (batt plus scrim, if applicable) - initial	37* (with 0.03 kPa pressure)	Maximum: 15 mm
- after 5 washes <sup>#</sup>	6330** (2A) or (2B) & para 8.5 Procedure E	Maximum: Loss of 20% of initial value
<b>Fibre Content, %</b>		
Batt		100% polyester, maximum 28% olefin
Scrim		100% polyester
<b>Pilling Resistance</b>	D4970*** 1000 cycles - the face of the batt, or the scrim (if required) tested against the inner surface of waterproof moisture vapour permeable layer (DSSPM 2-2-80-215 or DSSPM 2-2-80-205)	Minimum: Rating 3 (report whether scrim present and tested)
<b>Dimensional Stability, %</b> - after 5 washes <sup>#</sup>	Washing in accordance with: 6330** (2A) or (2B) & para 8.5 Procedure E  Measure in accordance with: 675** paras 6 & 7.4	Maximum: Warp: 5.0% Weft: 5.0%  NOTE: If scrim is used, the difference in dimensional stability between scrim and batt shall not exceed 1%, and in combination shall not exceed 5%. Neither shall any difference in dimensional stability between face and back be greater than 1%
<b>Stiffness, Drape, cm</b>	Method 5206****	Maximum: Warp: 7.10 Weft: 7.10
<b>CLO (batt alone, without scrim)</b> - initial	11092** (dry)	Minimum: 1.9
- after 5 washes <sup>#</sup>	6330** (2A) or (2B) & para 8.5 Procedure E	Minimum: 1.6
<b>Standard Evaluation of Filling/Batting</b>	D4770*** Washing in accordance with: 6330** (2A) or (2B) & para 8.5 Procedure E	Rating: 4 minimum
<b>Compression Recovery</b>	See Appendix 1, attached	91%

\* CAN/CGSB-4.2 Textile Test Methods

\*\* ISO Textile Test Methods

\*\*\* ASTM Textile Test Methods

\*\*\*\* FED STD-191 Textile Test Methods



**TYPE II - HEAVYWEIGHT INSULATION**

Property	Test Method	Requirement
<b>Mass, g/m<sup>2</sup></b> (batt plus scrim, if applicable)	5.1 *	Maximum Total: 210 g/m <sup>2</sup> Maximum batt alone: 195 g/m <sup>2</sup> Maximum total of all layers of scrim: 35 g/m <sup>2</sup>
<b>Thickness, mm</b> (batt plus scrim, if applicable) - initial	37 * (with 0.03 kPa pressure)	Maximum: 23 mm
- after 5 washes <sup>#</sup>	6330** (2A) or (2B) & para 8.5 Procedure E	Maximum: Loss of 20% of initial value
<b>Fibre Content, %</b>		
Batt		100% polyester, maximum 28% olefin
Scrim		100% polyester
<b>Pilling Resistance</b>	D4970 *** 1000 cycles  - the face of the batt, or the scrim (if required) tested against the inner surface of waterproof moisture vapour permeable layer (DSSPM 2-2-80-215 or DSSPM 2-2-80-205)	Minimum: Rating 3-4 (report whether scrim present and tested)
<b>Dimensional Stability, %</b>  - after 5 washes <sup>#</sup>	Washing in accordance with: 6330** (2A) or (2B) & para 6.5 Procedure E  Measure in accordance with: 675** paras 6 & 7.4	Maximum: Warp: 5.0% Weft: 5.0%  NOTE: If scrim is used, the difference in dimensional stability between scrim and batt shall not exceed 1%, and in combination shall not exceed 5%. Neither shall any difference in dimensional stability between face and back be greater than 1%
<b>Stiffness, Drape, cm</b>	Method 5206****	Maximum: Warp: 7.10 Weft: 7.10
<b>CLO</b> (batt alone, without scrim)  - initial	11092 (dry) **	Minimum: 2.5
- after 5 washes <sup>#</sup>	6330** (2A) or (2B) & para 8.5 Procedure E	Minimum: 1.9
<b>Standard Evaluation of Filling/Batting</b>	D4770***  Washing in accordance with: 6330** (2A) or (2B) & para 8.5 Procedure E	Rating: No worse than 4
<b>Compression Recovery</b>	See Appendix 1, attached	91%

\* CAN/CGSB-4.2 Textile Test Methods

\*\* ISO Textile Test Methods

\*\*\* ASTM Textile Test Methods

\*\*\*\* FED STD-191 Textile Test Methods

## APPENDIX 1

### TEST PROCEDURE FOR COMPRESSION RECOVERY

1. The compression recovery of the insulation shall be determined as stated below.
2. A cloth specimen shall be measured for thickness using a 64 cm<sup>2</sup> foot at a pressure of 0.07 kPa.
3. The specimen shall be compressed under a suitable template (not less than 127 mm by 127 mm) for a period of 60 minutes at a pressure of 7.0 kPa. The specimen shall be at least 50 mm larger in length and width than the template.
4. The template and the weight shall be removed and the specimen allowed to relax for 3 minutes. Immediately after the 3-minute relaxation period, the thickness shall be measured again at the pressure of 0.07 kPa.
5. The compressional recovery shall be calculated as follows:

Per cent compressional recovery =

$$\frac{\text{Thickness of specimen after compression}}{\text{Thickness of specimen before compression}} \times 100$$

# TYPE I - ISOLANT LÉGER

Propriété	Méthode d'essai	Exigence
<b>Masse</b> (g/m <sup>2</sup> ) (nappe ouatée et canevas léger, le cas échéant)	5.1*	Maximum, total : 130 g/m <sup>2</sup> Maximum, nappe ouatée seule : 115 g/m <sup>2</sup> Maximum, toutes les épaisseurs de canevas léger : 35 g/m <sup>2</sup>
<b>Épaisseur</b> (mm) (nappe ouatée et canevas léger, le cas échéant) - État initial	37* (pression de 0,03 kPa)	Maximum : 15 mm
- Après 5 lavages <sup>#</sup>	6330** (2A) ou (2B) et par 8.5, méthode E	Maximum : perte de 20 % de la valeur à l'état initial
<b>Teneur en fibre</b> (%) Nappe ouatée		100 % polyester, au plus 28 % d'oléfine
Canevas léger		100 % polyester
<b>Résistance au boulochage</b>	D4970*** 1 000 cycles - Endroit de la nappe ouatée ou du canevas léger (le cas échéant) testé contre l'envers de la membrane perméable à la transpiration (DAPES 2-2-80-215 ou DAPES 2-2-80-205)	Minimum : 3 (Indiquer la présence de canevas léger et s'il a été testé)
<b>Stabilité dimensionnelle</b> (%) - Après 5 lavages <sup>#</sup>	Lavage selon 6330** (2A) ou (2B) et par. 8.5, méthode E  Mesure selon 675** par. 6 et 7.4	Maximum Chaîne : 5 % Trame : 5 %  NOTA : Si du canevas léger est utilisé, l'écart de stabilité dimensionnelle entre le canevas léger et la nappe ouatée ne doit pas dépasser 1 %, et 5 % si les deux sont combinés. L'écart de stabilité dimensionnelle entre l'endroit et l'envers ne doit pas dépasser 1 %.
<b>Rigidité</b> (drapé) (cm)	5206****	Maximum Chaîne : 7,10 Trame : 7,10
<b>Vêtement</b> (nappe ouatée seule, sans canevas léger) - État initial	11092** (sec)	Minimum: 1,9
- Après 5 lavages <sup>#</sup>	6330** (2A) ou (2B) et par. 8.5, méthode E	Minimum : 1,6
<b>Évaluation normalisée de la nappe ouatée</b>	D4770*** Lavage selon 6330** (2A) ou (2B) et par. 8.5, méthode E	Minimum : 4
<b>Reprise de la forme après compression</b>	Voir l'annexe, ci-jointe	91 %

\* CAN/CGSB-4.2 Méthodes pour épreuves textiles

\*\* ISO Essais textiles

\*\*\* ASTM Textile Test Methods

\*\*\*\* FED STD-191 Textile Test Methods

**TYPE II - ISOLANT LOURD**

Propriété	Méthode d'essai	Exigences
<b>Masse (g/m<sup>2</sup>)</b> (nappe ouatée et canevas léger, le cas échéant)	5.1*	Maximum, total : 210 g/m <sup>2</sup> Maximum, nappe ouatée seule : 195 g/m <sup>2</sup> Maximum, toutes les épaisseurs de canevas léger : 35 g/m <sup>2</sup>
<b>Épaisseur (mm)</b> (nappe ouatée et canevas léger, le cas échéant) - État initial	37* (pression de 0,03 kPa)	Maximum : 23 mm
- Après 5 lavages <sup>#</sup>	6330** (2A) ou (2B) et par 8.5, méthode E	Maximum : perte de 20 % de la valeur initiale
<b>Teneur en fibre (%)</b> Nappe ouatée		100 % polyester, au plus 28 % d'oléfine
Canevas léger		100 % polyester
<b>Résistance au boulochage</b>	D4970*** 1 000 cycles - Endroit de la nappe ouatée ou du canevas léger (le cas échéant) testé contre l'envers de la membrane perméable à la transpiration (DAPES 2-2-80-215 ou DAPES 2-2-80-205)	Minimum : 3-4 (Indiquer la présence de canevas léger et s'il a été testé)
<b>Stabilité dimensionnelle (%)</b> - Après 5 lavages <sup>#</sup>	Lavage selon 6330** (2A) ou (2B) et par. 8.5, méthode E  Mesure selon 675** par. 6 et 7.4	Maximum Chaîne: 5 % Trame : 5 %  NOTA : Si du canevas léger est utilisé, l'écart de stabilité dimensionnelle entre le canevas léger et la nappe ouatée ne doit pas dépasser 1 %, et 5 % si les deux sont combinées. L'écart de stabilité dimensionnelle entre l'endroit et l'envers ne doit pas dépasser 1 %.
<b>Rigidité (drapé) (cm)</b>	5206****	Maximum Chaîne: 7,10 Trame : 7,10
<b>Vêtement (nappe ouatée seule, sans canevas léger)</b> - État initial	11092** (sec)	Minimum : 2,5
- Après 5 lavages <sup>#</sup>	6330** (2A) ou (2B) et par. 8.5, méthode E	Minimum : 1,9
<b>Évaluation normalisée de la nappe ouatée</b>	D4770*** Lavage selon 6330** (2A) ou (2B) et par. 8.5, méthode E	Minimum : 4
Reprise de la forme après compression	Voir l'annexe I ci-jointe	91 %

\* CAN/CGSB-4.2 Méthodes pour épreuves textiles

\*\* ISO Essais textiles

\*\*\* ASTM Textile Test Methods

\*\*\*\* FED STD-191 Textile Test Methods

## ANNEXE 1

### PROCÉDURE D'ESSAI DE REPRISE DE LA FORME APRÈS COMPRESSION

1. Voici comment déterminer si la nappe ouatée reprend sa forme après avoir été comprimée.
2. Déterminer l'épaisseur d'un spécimen de tissu en utilisant une bordure de 64 cm<sup>2</sup> soumise à une pression de 0,07 kPa.
3. Comprimer le spécimen au moyen d'un gabarit (d'au moins 127 mm sur 127 mm) pendant 60 minutes, à une pression de 7 kPa. Le spécimen doit mesurer 50 mm de plus que le gabarit, en largeur et en longueur.
4. Après avoir enlevé le gabarit et le poids, laisser reposer le spécimen pendant 3 minutes, puis mesurer de nouveau l'épaisseur, à une pression de 0,07 kPa.
5. La formule suivante sert à déterminer la reprise de la forme après compression.

Pourcentage de reprise de la forme après compression =

$$\frac{\text{Épaisseur du spécimen après compression}}{\text{Épaisseur du spécimen avant compression}} \times 100$$

NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

<p><b>SPECIFICATION</b></p> <p><b>FOR</b></p> <p><b>WATERPROOF MOISTURE VAPOUR</b></p> <p><b>PERMEABLE (WMVP)</b></p> <p><b>BARRIER FABRIC</b></p>	<p><b>SPÉCIFICATION</b></p> <p><b>TISSUS AVEC MEMBRANE</b></p> <p><b>IMPERMÉABLE À L'EAU ET</b></p> <p><b>PERMÉABLE À LA TRANSPIRATION (IEPT)</b></p>								
<p><b>1. SCOPE</b></p> <p><b>1.1 Scope.</b> This specification covers the requirements for waterproof moisture vapour permeable (WMVP) barrier fabrics for usage in land-force (Army) apparel.</p> <p><b>1.2 Classification.</b> The WMVP barrier fabrics covered by this specification shall be classified as follows:</p> <table> <tr> <td>Type I</td><td>WMVP barrier fabric resistant to DEET</td></tr> <tr> <td>Type II</td><td>WMVP barrier fabric non-resistant to DEET</td></tr> </table> <p><b>1.3 Application.</b> The garments in which the WMVP barrier fabric is to be used, both separately and in any combination with other garments, will be worn in all types of inclement weather in any location in Canada, under a variety of conditions and all types of threats. Sufficient warmth, wind resistance, and protection from ingress of water and wet snow is essential to cater for wearers standing still, moving about on feet, knees, or lying down, and leaning, sitting, etc against wet surfaces. The essential temperature range covered by the garments, when worn as part of a system is, +10°C to -40°C. The essential wear life is up to five years and/or 20 launderings. Undue degradation of any</p>	Type I	WMVP barrier fabric resistant to DEET	Type II	WMVP barrier fabric non-resistant to DEET	<p><b>1. PORTÉE</b></p> <p><b>1.1 Portée.</b> La présente spécification vise les exigences pour les tissus avec membrane imperméable à l'eau et perméable à la transpiration (IEPT) utilisés dans les vêtements de la force terrestre (armée).</p> <p><b>1.2 Classification.</b> Les tissus avec membrane IEPT visés par la présente spécification doivent être classés comme suit :</p> <table> <tr> <td>Type I</td><td>Tissu avec membrane IEPT résistant au DEET</td></tr> <tr> <td>Type II</td><td>Tissu avec membrane IEPT non résistant au DEET</td></tr> </table> <p><b>1.3 Application.</b> Les vêtements dans lequel le tissu avec membrane IEPT doit être utilisé, à la fois séparément et dans n'importe quelle combinaison avec d'autres vêtements, seront portés dans tout type de conditions météorologiques défavorables n'importe où au Canada, dans diverses conditions et pour tout type de menace. Il est essentiel que le vêtement offre une chaleur suffisante, une résistance au vent et la protection contre la pénétration par l'eau et la neige mouillée, pendant que le porteur se tient debout, marche ou se déplace sur les genoux ou en position couchée, se penche, s'assoit, etc., sur des surfaces mouillées. La plage de température nominale dans laquelle ces vêtements, intégrés à un</p>	Type I	Tissu avec membrane IEPT résistant au DEET	Type II	Tissu avec membrane IEPT non résistant au DEET
Type I	WMVP barrier fabric resistant to DEET								
Type II	WMVP barrier fabric non-resistant to DEET								
Type I	Tissu avec membrane IEPT résistant au DEET								
Type II	Tissu avec membrane IEPT non résistant au DEET								



<p>properties with wear, care indicated, and exposure to normal military operational chemicals is not acceptable over the anticipated service life of the garments. A high degree of moisture vapour permeability is required to provide maximum physiological comfort together with waterproofness, wind resistance, and warmth, in the entire system.</p>	<p>système, sont portés se situe entre +10 °C et -40 °C. Les vêtements doivent pouvoir être portés pendant cinq ans et lavés 20 fois 20 lavages. La dégradation excessive dans les conditions d'usure, d'entretien indiqué et d'exposition aux substances chimiques rencontrées dans les opérations militaires normales n'est pas acceptable pendant la durée de vie prévue des vêtements. Un degré élevé de perméabilité à la transpiration est nécessaire pour offrir un confort physiologique maximum, conjointement à l'imperméabilité et à la résistance au vent et à la chaleur de l'ensemble du système.</p>
<p><b>2. APPLICABLE DOCUMENTS</b></p>	<p><b>2. DOCUMENTS APPLICABLES</b></p>
<p><b>2.1 Government Documents.</b> Not applicable.</p>	<p><b>2.1 Documents du gouvernement.</b> Sans objet.</p>
<p><b>2.2 Other Publications.</b> The following publications form part of this specification to the extent specified herein. The effective dates shall be those in effect on the date of the invitation to tender. Sources are as shown.</p>	<p><b>2.2 Autres publications.</b> Les publications suivantes font partie intégrante de la présente spécification selon les modalités indiquées ci-après. La date d'entrée en vigueur doit être celle en vigueur à la date de publication de la présente spécification. La source de diffusion est celle indiquée.</p>
<p><b>CAN/CGSB-4.2 Textile Test Methods</b> Canadian General Standards Board Gatineau, QC K1A 1G6 Telephone: 819-956-0425 or 1-800-665-2472 Email: <a href="mailto:ncr.cgsb-ongc@pwgsc.gc.ca">ncr.cgsb-ongc@pwgsc.gc.ca</a> Website: <a href="http://www.pwgsc.gc.ca/cgsb/home/index-e.html">http://www.pwgsc.gc.ca/cgsb/home/index-e.html</a></p>	<p><b>CAN/CGSB-4.2 Méthodes pour épreuves textiles</b> Office des normes générales du Canada Gatineau (Québec) K1A 1G6 Téléphone : 819-956-0425 ou 1 800-665-2472 Courriel : <a href="mailto:ncr.cgsb-ongc@pwgsc.gc.ca">ncr.cgsb-ongc@pwgsc.gc.ca</a> Site Internet : <a href="http://www.tpsgc-pwgsc.gc.ca/cgsb/home/index-f.html">http://www.tpsgc-pwgsc.gc.ca/cgsb/home/index-f.html</a></p>
<p><b>ASTM Textile Test Methods</b> ASTM International P.O. Box C700 West Conshohocken, PA 19428-2959, USA Telephone: 610-832-9585 Email: <a href="mailto:service@astm.org">service@astm.org</a> Website: <a href="http://www.astm.org">www.astm.org</a></p>	<p><b>ASTM Textile Test Methods</b> ASTM International P.O. Box C700 West Conshohocken, PA 19428-2959 ÉTATS-UNIS Téléphone : 610-832-9585 Courriel : <a href="mailto:service@astm.org">service@astm.org</a> Site Internet : <a href="http://www.astm.org">www.astm.org</a></p>
<p><b>FED-STD-191A Textile Test Methods</b> General Services Administration Federal Supply Service FSS Product Acquisition Center Supply Standards Division (FLAS) Arlington, VA 22202 USA Telephone: 703-605-2567 Website: <a href="http://apps.fss.gsa.gov/pub/fedspecs/">http://apps.fss.gsa.gov/pub/fedspecs/</a></p>	<p><b>FED-STD-191A Textile Test Methods</b> General Services Administration Federal Supply Service FSS Product Acquisition Center Supply Standards Division (FLAS) Arlington, VA 22202 ÉTATS-UNIS Téléphone : 703-605-2567 Site Internet : <a href="http://apps.fss.gsa.gov/pub/fedspecs/">http://apps.fss.gsa.gov/pub/fedspecs/</a></p>

<p>Download Documents: <a href="http://assist.daps.dla.mil/quicksearch/">http://assist.daps.dla.mil/quicksearch/</a></p> <p><b>Transport Canada, Canadian Coast Guard TP1324</b> Transport Canada AMBE-A Tower C 330 Sparks St. Ottawa, ON K1A 0N8 Website: <a href="http://tc.gc.ca/">http://tc.gc.ca/</a></p> <p><b>2.3 Order of Precedence.</b></p> <p><b>2.3.1</b> In the event of any inconsistency in contract documents such as contract, specification and Sealed Pattern, the order of precedence shall be contract, specification, and Sealed Pattern.</p> <p><b>2.3.2</b> In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.</p> <p><b>2.3.3</b> In the event of inconsistency within the specification, the Design Authority (DSSPM 2-11) shall be contacted for clarification.</p> <p><b>2.3.4</b> For any inconsistency in technical details between languages, the language of the original document, which in this case is English, shall take precedence.</p> <p><b>3. REQUIREMENTS</b></p> <p><b>3.1 Sealed Pattern.</b> A Sealed Pattern, when available, will be supplied to the successful bidder. Sealed Patterns shall constitute the standard only in regard to any properties not defined in this specification. Note, however, that the order of precedence prevails (paragraph 2.3). Sealed Patterns must be returned to the Crown and under no circumstances shall be mutilated or cut.</p> <p><b>3.2 Workmanship.</b> The material covered by this specification shall be free of imperfections or blemishes such as may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes shall be considered defects when clearly visible at a normal inspection distance of approximately 1 metre under good, preferably North Light, lighting conditions.</p>	<p>Téléchargement de documents : <a href="http://assist.daps.dla.mil/quicksearch/">http://assist.daps.dla.mil/quicksearch/</a></p> <p><b>Transports Canada, Garde côtière canadienne TP1324</b> Transports Canada AMBE-A Tour C 330, rue Sparks Ottawa (Ontario) K1A 0N8 Site Internet : <a href="http://tc.gc.ca/">http://tc.gc.ca/</a></p> <p><b>2.3 Ordre de préséance.</b></p> <p><b>2.3.1</b> En cas d'incohérence entre les documents contractuels, soit le contrat, la spécification et le modèle réglementaire, l'ordre de préséance est le suivant : le contrat, la spécification et le modèle réglementaire.</p> <p><b>2.3.2</b> En cas de divergence entre les documents mentionnés aux présentes et le contenu de la présente spécification, cette dernière a préséance.</p> <p><b>2.3.3</b> En cas d'incohérence dans l'énoncé de la spécification, il faut communiquer avec l'autorité responsable de la conception (DAPES 2-11) pour obtenir des précisions.</p> <p><b>2.3.4</b> En cas d'incohérence dans les détails techniques, entre les deux langues, la langue du document d'origine, dans ce cas-ci l'anglais, a préséance.</p> <p><b>3. EXIGENCES</b></p> <p><b>3.1 Modèle réglementaire.</b> Un modèle réglementaire, lorsque disponible, doit être fourni au soumissionnaire retenu et constituer la norme uniquement en ce qui concerne toutes les propriétés qui ne sont pas définies aux présentes. Nota – L'ordre de préséance (paragraphe 2.3) doit être respecté. Les modèles réglementaires doivent être renvoyés au gouvernement et ne doivent en aucun cas être endommagés ni coupés.</p> <p><b>3.2 Qualité d'exécution.</b> Le tissu visé par la présente spécification doit être exempt de défauts pouvant nuire à son aspect ou à sa tenue en service. À des fins d'inspection, sont considérés comme défauts ceux qui sont clairement visibles à une distance d'inspection normale d'environ un mètre sous un bon éclairage, de préférence la lumière du nord.</p>
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<p><b>3.3</b> The WMVP barrier layer shall be commercially available cloth, laminated or coated with two layers of either nylon or polyester tricot knit. This cloth shall normally be used in commercial garments to provide a high degree of waterproofness and evaporation of sweat. It shall be sturdy and stable enough to be used as a loose hanging layer between the shell fabric and the lining fabric. It shall be capable of having its sewn seams sealed, with tape, in a waterproof durable fashion. The tape sealed seams shall not peel off with wear and/or normal maintenance. Neither shall the hung laminated or coated fabric show any visible signs of delamination or loss of coating or film during the garment's useful life.</p> <p><b>3.4</b> Delamination is defined as the undesirable separation of the components of bonded or laminated fabrics as evidenced through bubbles, cracks, or formation of holes and loosed edges on any of the layers. Separation of substrate from film at the moment of burst (or immediately preceding burst) during hydrostatic testing, puncture and tear testing is not considered to be delamination.</p> <p><b>3.5 Colour.</b> The colour of both sides of the 3 layer WMVP barrier fabric shall be the same as the colour of the garment shell fabric as specified in the contract.</p> <p><b>3.5.1</b> When the shell fabric is CADPAT, the colour of both sides of the 3 layer WMVP barrier fabric shall be Canadian Average Green. The colour of the finished (laminated) WMVP fabric shall be as close a match to the Average Green as possible. The desirable end result is to minimize any lightening effect caused by the colour of the film.</p> <p><b>3.6</b> Required properties and performance levels are described in Tables I and II.</p> <p><b>3.7</b> The WMVP barrier fabric must be launderable in domestic machines, coin operated machines, commercial or field laundries. It shall be tumble machine dryable or line dryable.</p> <p><b>3.8</b> The manufacturer of the WMVP barrier fabric shall provide the garment manufacturer with sufficient information to enable the garment to be</p>	<p><b>3.3</b> La membrane IEPT doit être offerte dans le commerce sous forme de tissu, stratifié ou recouvert de deux épaisseurs de tricot chaîne de nylon ou polyester. Ce tissu doit normalement être utilisé dans des vêtements commerciaux afin d'offrir un haut degré d'imperméabilité et d'évacuation de la sueur. Il doit être robuste et suffisamment stable pour être utilisé comme épaisseur non cousue entre le tissu extérieur et le tissu de la doublure. Il doit être possible de renforcer les coutures avec un biais pour plus de durabilité et d'imperméabilité. Les coutures renforcées avec un biais ne doivent pas décoller à l'usure ni à l'entretien normal. La partie pendante d'une épaisseur de tissu enduit ou stratifié doit présenter aucun signe visible de décollement ou de perte de l'enduit ou du film imperméabilisant pendant la durée utile du vêtement.</p> <p><b>3.4</b> Le décollement est défini comme la séparation indésirable des composants d'un tissu contrecollé ou stratifié, attestée par la présence de bulles, de fissures ou la formation de trous et de bords lâches sur l'une des épaisseurs. La séparation entre le substrat et le film au moment de l'éclatement (ou juste avant) qui se produit au cours des essais de pénétration d'eau à haute pression et d'essais de perforation et de déchirement ne sont pas considérés comme du décollement.</p> <p><b>3.5 Couleur.</b> La couleur des deux côtés du tissu avec membrane IEPT à trois épaisseurs doit être identique à celle du tissu extérieur du vêtement, indiquée dans le contrat.</p> <p><b>3.5.1</b> Lorsque le tissu extérieur porte le dessin DCamC, la couleur des deux côtés du tissu avec membrane IEPT à trois épaisseurs doit être le vert canadien moyen. La couleur du tissu avec membrane IEPT fini (stratifié) doit être assortie autant que possible au vert canadien moyen. Le résultat final souhaitable est de minimiser toute décoloration due à la couleur du film.</p> <p><b>3.6</b> Les propriétés exigées et les niveaux de rendement sont décrits aux tableaux I et II.</p> <p><b>3.7</b> Le tissu avec membrane IEPT doit être lavable dans des machines résidentielles, des machines payantes, ou des buanderies commerciales ou sur le terrain. Il doit être séchable par culbutage ou sur une corde à linge.</p> <p><b>3.8</b> Le fabricant du tissu avec membrane IEPT doit fournir au fabricant de vêtements suffisamment d'informations pour qu'il puisse confectionner un</p>
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<p>made for maximum benefit accruing from use of this layer. Data such as which is the face side (outward facing), taping procedures and products, etc are the responsibility of the waterproof moisture vapour permeable cloth manufacturer working in conjunction with the garment manufacturer. All data shall be made available to the Department of National Defence on request.</p> <p><b>3.9</b> Sealed seams, when exposed to chemicals, must not delaminate or show any visible signs of loss of integrity, and must retain hydrostatic and water resistance (see Table III) properties.</p> <p><b>3.10</b> NO COMMERCIAL TRADE NAMES, HANG TAGS, OR INSERTIONS, SHALL BE VISIBLE ON THE FINISHED PRODUCT, OR PACKAGED WITH IT.</p> <p><b>3.11 Piece Marking.</b> Each piece of cloth shall have a label attached to the selvage at one end. The label shall be made of linen, spunbonded olefin, or heavy cardboard with a reinforced eyelet for attaching a tying cord. The label shall be legibly printed with the following information:</p> <ul style="list-style-type: none"> <li>(a) Contractors identification</li> <li>(b) Gross length in metres (including allowance)</li> <li>(c) Nomenclature</li> <li>(d) Colour</li> <li>(e) Specification number</li> <li>(f) Month, year and number of contract</li> <li>(g) Nato stock number.</li> </ul> <p><b>4. QUALITY CONTROL/INSPECTION</b></p> <p><b>4.1</b> Unless otherwise specified in the contract or procurement documents, the contractor is responsible for the performance of all inspection requirements as specified herein. Contractors may utilize their own or any other inspection facility acceptable to the Government or its designated representative. The Government reserves the right to perform any of the inspections specified herein, where such inspections are deemed necessary to ensure material and services conform to prescribed requirements. The contractor is responsible for ensuring that all material or services submitted to the Government for acceptance comply with all requirements of the contract.</p>	<p>vêtement offrant le maximum d'avantages liés à l'utilisation de la membrane. Il incombe au fabricant de la membrane IEPT, de concert avec le fabricant de vêtements, de fournir diverses données, notamment l'endroit (vers l'extérieur), la procédure de pose du ruban, etc. Toutes les données doivent être fournies au ministère de la Défense nationale sur demande.</p> <p><b>3.9</b> Lorsqu'elles sont exposées à des substances chimiques, les coutures renforcées ne doivent pas se décoller ni montrer des signes de perte d'intégrité, et elles doivent conserver leurs propriétés de résistance à la pression et à l'eau (voir le tableau III).</p> <p><b>3.10</b> AUCUN NOM COMMERCIAL, AUCUNE ÉTIQUETTE VOLANTE NI INSERTION NE DOIT ÊTRE VISIBLE SUR LE PRODUIT FINI, NI EMBALLÉE AVEC CELUI-CI.</p> <p><b>3.11 Marquage des pièces.</b> Chaque pièce de tissu livrée au Canada doit porter, à une extrémité, une étiquette fixée à la lisière. L'étiquette doit être en toile de lin, en oléfine thermoliée ou en carton fort et percée d'un œillet renforcé permettant d'attacher une ficelle; elle doit porter les indications suivantes en caractères lisibles :</p> <ul style="list-style-type: none"> <li>a) Identification de l'entrepreneur</li> <li>b) Longueur brute en mètres (y compris la réserve)</li> <li>c) Nomenclature</li> <li>d) Couleur</li> <li>e) Numéro de la spécification</li> <li>f) Mois, année et numéro de contrat</li> <li>g) Numéro de nomenclature OTAN</li> </ul> <p><b>4. CONTRÔLE DE LA QUALITÉ / INSPECTION</b></p> <p><b>4.1</b> Sauf indication contraire dans le contrat ou les documents d'achat, l'entrepreneur est tenu d'effectuer les inspections mentionnées dans la présente spécification. Il peut utiliser à cette fin son propre matériel d'inspection ou celui de tout autre établissement acceptable au gouvernement du Canada ou à son représentant désigné. Le gouvernement se réserve le droit d'effectuer les inspections mentionnées dans la présente spécification, lorsqu'elles sont nécessaires pour garantir que le matériel et les services sont conformes aux exigences prescrites. L'entrepreneur doit s'assurer que le matériel et les services proposés au gouvernement sont conformes aux exigences du</p>
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<p><b>5. PACKAGING</b></p> <p><b>5.1 Packaging and Packing.</b> Packaging, packing, delivery and marking of shipping containers shall be in accordance with the terms of the contract.</p> <p><b>6. NOTES</b></p> <p><b>6.1 Ordering Data.</b> Procurement documents should specify the following:</p> <ul style="list-style-type: none"> <li>a) Title, number and date of this specification</li> <li>b) Packaging, packing and marking requirements (see 5.1)</li> <li>c) The Design Authority</li> </ul> <p><b>6.2 Design Authority.</b> The Design Authority is the Government agency responsible for technical aspects of design and changes to design. The Design Authority, for the items covered by this specification, is the Directorate of Soldier Systems Program Management (DSSPM).</p> <p><b>6.3 Quality Assurance Authority.</b> The Quality Assurance Authority is the Government agency responsible for providing assurance that material and services supplied by the contractor conform to specified requirements. The Quality Assurance Authority is the Director Quality Assurance.</p> <p><b>6.4 Definition of Terms.</b></p> <p><b>6.4.1 Master Sealed Pattern.</b> A Master Sealed Pattern is the authorized prototype of the item produced and is held only by the Government.</p> <p><b>6.4.2 Sealed Pattern.</b> A Sealed Pattern is a duplicate of the Master Sealed Pattern and is available to the manufacturer to be used as a guide in production.</p> <p><b>6.5</b> The production of a product to this specification, or the evaluation of a product to this specification, may require the use of materials and/or equipment that could be hazardous. This specification does not purport to address all safety,</p>	<p>contrat.</p> <p><b>5. CONDITIONNEMENT</b></p> <p><b>5.1 Conditionnement et emballage.</b> Le conditionnement, l'emballage, la livraison et le marquage des contenants d'expédition doivent être conformes aux modalités du contrat.</p> <p><b>6. REMARQUES</b></p> <p><b>6.1 Données de commande.</b> Les documents d'achat doivent préciser :</p> <ul style="list-style-type: none"> <li>a) Le titre, le numéro et la date de la présente spécification</li> <li>b) Les exigences relatives à l'emballage et le marquage (voir 5.1)</li> <li>c) L'autorité responsable de la conception</li> </ul> <p><b>6.2 Autorité responsable de la conception.</b> L'autorité responsable de la conception est l'organisme gouvernemental chargé des aspects techniques de la conception et des modifications connexes. Dans le cas des articles visés par la présente spécification, il s'agit de la Direction - Administration du programme de l'équipement du soldat (DAPES).</p> <p><b>6.3 Autorité responsable de l'assurance de la qualité.</b> L'autorité responsable de l'assurance de la qualité est l'organisme gouvernemental chargé d'assurer que le matériel et les services fournis par l'entrepreneur satisfont aux exigences prescrites. L'autorité responsable de l'assurance de la qualité est le directeur de l'assurance de la qualité.</p> <p><b>6.4 Définition des termes.</b></p> <p><b>6.4.1 Modèle réglementaire principal.</b> Prototype autorisé de l'article qui doit être fabriqué dont le gouvernement est le seul détenteur.</p> <p><b>6.4.2 Modèle réglementaire.</b> Copie exacte du modèle réglementaire principal mis à la disposition du fabricant qui doit l'utiliser comme guide.</p> <p><b>6.5</b> La fabrication ou l'évaluation d'un produit conformément à la présente spécification pourrait nécessiter l'utilisation de matériel ou d'équipement dangereux. La présente spécification n'a pas pour objet de traiter de toutes les préoccupations relatives</p>
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health and environmental concerns, if any associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.	à la santé, à la sécurité et à l'environnement liées à son utilisation. Il incombe à l'utilisateur de la spécification d'établir au préalable des méthodes appropriées qui tiennent compte des questions d'environnement, de santé et de sécurité, et de déterminer les restrictions réglementaires applicables.
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**TABLE I: Testing Requirements for Type I WMVP Properties  
(for Middle Layer, Jacket and Trousers)**

Property	Test Method	Requirement
<b>Mass</b> , g/m <sup>2</sup> including tricot layer(s)	5.1*	Maximum: 160 g/m <sup>2</sup>
<b>Dimensional Stability</b> , % After 5 washes <sup>#</sup>	67* Washing to be in accordance with 58* IIIIE	Maximum after 5 washes: Warp: 5.0% Weft: 5.0%
<b>Delamination</b> During and after: a. dimensional stability b. water resistance tests c. ageing d. ageing and flexing e. each chemical treatment for chemical resistance tests	Visual evaluation. View specimens under conditions described in 46* and 47*.	No cracks, holes or bubbles greater than or equal to 5 mm in any direction on either side. Any such spots must be discreet and widely spaced, greater than 75 mm apart.
<b>Tear Strength</b> After 5 washes <sup>#</sup>	12.2* 58* IIIIE	Minimum: Warp: 50 N Weft: 40 N
<b>Puncture Resistance</b>	1324** para 4.5	Minimum: 100 N
<b>Stiffness, Drape</b> , cm	5206***	Maximum: Warp: 3.0 cm Weft: 3.0 cm
<b>Moisture Vapour Permeability</b> (Resistance - mm equivalent still air) a. initial	49-99* Option 1	For All Conditions:  Maximum 11
b. after ageing (70°C & 95% RH for 168 hrs)		
c. after 5 washes <sup>#</sup>	58* IIIIE	
<b>Resistance to Fungal Growth</b>	28.2 *	Maximum: 10%
<b>Hydrostatic Resistance</b> , kPa Face (outward facing side in garment) as defined by the manufacturer's directions, to be against water for test a. initial	26.5*	For All Conditions:  Minimum: 550 kPa
b. after 5 washes <sup>#</sup>	58* IIIIE	
c. after ageing (70°C & 95% RH for 168 hours) & flexing	F 392****	
d. after cold flex at -40°C (sample is placed in the cold room and allowed to condition for one hour prior to commencing the flex test)	F 392**** (NB: Flexing is carried out for one hour, or 2700 cycles)	

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**Table I (continued)**

Property	Test Method	Requirement
<b>Water Resistance</b> Face (outward facing side in garment) as defined by the manufacturer's directions, to be against water for test	Test conditions to be 10 psi (68.95 kPa) held constant for 10 minutes using the equipment required for 26.5*	For All Conditions:  No Leakage
a. initial		
b. after 5 washes #	58* IIIIE	
c. after ageing (70°C & 95% RH for 168 hours) & flexing	F 392****	
d. after cold flex at -40°C (sample is placed in the cold room and allowed to condition for one hour prior to commencing the flex test)	F 392**** (NB: Flexing is carried out for one hour, or 2700 cycles)	
<b>Resistance to Chemicals</b>	See Appendix 1, following this table, for chemical exposure test method.	For all chemicals listed: Mnimum: 350 kPa and No leakage
a. turbine fuel in accordance with CAN/CGSB-3.23		
b. diesel fuel in accordance with CAN/CGSB-3.6 Type A	Following exposure to each chemical listed:	
c. degreasers, cleaning agent (methyl ethyl ketone 99.8% assay)	Hydrostatic Resistance 26.5* and	
d. insect repellent (DEET) liquid in accordance with CAN/CGSB-15.19 (75%)	Water Resistance using 26.5* apparatus for 10 min at 10 psi (68.95 kPa)	
e. insect repellent (DEET) cream, 32%		

\* CAN/CGSB-4.2 Textile Test Methods

\*\* Transport Canada, Canadian Coast Guard TP1324 Material Specification for coated Fabrics Used in the Manufacture of Inflatable Life Rafts (February 1992)

\*\*\* Fed Std 191 Textile Test Methods

\*\*\*\* ASTM Textile Test Methods

# **WASH TESTS ARE TO BE DONE IN ACCORDANCE WITH CAN/CGSB-4.2 No. 58, WASHING PROCEDURE III (50°C, Synthetic Detergent, Normal Agitation) AND DRYING PROCEDURE E (Tumble Dry, Normal Setting). The last wash cycle is to be carried-out without detergent.**

**TABLE II: Testing Requirements for Type II WMVP Properties  
(for Outer Layer, Parka & Overalls)**

Property	Test Method	Requirement
<b>Mass, g/m<sup>2</sup></b> including tricot layer(s)	5.1*	Maximum: 160 g/m <sup>2</sup>
<b>Dimensional Stability, %</b> After 5 washes <sup>#</sup>	67* Washing to be in accordance with 58* IIIIE	Maximum after 5 washes: Warp: 5.0% Weft: 5.0%
<b>Delamination</b> During and after: a. dimensional stability b. water resistance tests c. ageing d. ageing and flexing e. each chemical treatment for chemical resistance tests	Visual evaluation. View specimens under conditions described in 46* and 47*.	No cracks, holes or bubbles greater than or equal to 5 mm in any direction on either side. Any such spots must be discreet and widely spaced, greater than 75 mm apart.
<b>Tear Strength</b> After 5 washes <sup>#</sup>	12.2* 58* IIIIE	Minimum: Warp: 50 N Weft: 40 N
<b>Puncture Resistance</b>	1324** para 4.5	Minimum: 100 N
<b>Stiffness, Drape, cm</b>	5206***	Maximum: Warp: 3.0 cm Weft: 3.0 cm
<b>Moisture Vapour Permeability</b> (Resistance - mm equivalent still air) a. initial	49-99* Option 1	For All Conditions:  Maximum 11
b. after ageing (70°C & 95% RH for 168 hrs)		
c. after 5 washes <sup>#</sup>	58* IIIIE	
<b>Resistance to Fungal Growth</b>	28.2*	Maximum: 10%
<b>Hydrostatic Resistance, kPa</b> Face (outward facing side in garment) as defined by the manufacturer's directions, to be against water for test a. initial	26.5*	For All Conditions:  Minimum: 550 kPa
b. after 5 washes <sup>#</sup>	58* IIIIE	
c. after ageing (70°C & 95% RH for 168 hours) & flexing	F 392****	
d. after cold flex at -40°C (sample is placed in the cold room and allowed to condition for one hour prior to commencing the flex test)	F 392**** (NB: Flexing is carried out for one hour, or 2700 cycles)	

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**Table II (continued)**

Property	Test Method	Requirement
<b>Water Resistance</b> Face (outward facing side in garment) as defined by the manufacturer's directions, to be against water for test a. initial b. after 5 washes <sup>#</sup> c. after ageing (70°C & 95% RH for 168 hours) & flexing d. after cold flex at -40°C (sample is placed in the cold room and allowed to condition for one hour prior to commencing the flex test)	Test conditions to be 10 psi (68.95 kPa) held constant for 10 minutes using the equipment required for 26.5*  58* IIIIE  F 392****  F 392**** (NB: Flexing is carried out for one hour, or 2700 cycles)	For All Conditions:  No Leakage
<b>Resistance to Chemicals</b> a. turbine fuel, in accordance with CAN/CGSB-3.23 b. diesel fuel, in accordance with CAN/CGSB-3.6 Type A c. degreasers, cleaning agent (methyl ethyl ketone 99.8% assay)	See Appendix 1, following this table, for chemical exposure test method.  Following exposure to each chemical listed:  Hydrostatic Resistance 26.5* and Water Resistance using 26.5* apparatus for 10 min at 10 psi (68.95 kPa)	For all chemicals listed:  Minimum: 350 kPa and No Leakage

\* CAN/CGSB-4.2 Textile Test Methods

\*\* Transport Canada, Canadian Coast Guard TP1324 Material Specification for coated Fabrics Used in the Manufacture of Inflatable Life Rafts (February 1992)

\*\*\* Fed Std 191 Textile Test Methods

\*\*\*\* ASTM Textile Test Methods

# **WASH TESTS ARE TO BE DONE IN ACCORDANCE WITH CAN/CGSB-4.2 No. 58, WASHING PROCEDURE III (50°C, Synthetic Detergent, Normal Agitation) AND DRYING PROCEDURE E (Tumble Dry, Normal Setting). The last wash cycle is to be carried-out without detergent.**

**TABLE III : Testing Requirements for Taped Seams**

**NOTE:** Due to the nature of these garments, it is essential that the seams be sealed with an appropriate tape that: is compatible with the shell fabric; does not decrease the static dissipative properties; ensures the waterproofness of the seams; is as durable as the garment; and that does not unduly increase the stiffness of the seams and/or garments. The same applies to seam joints and crossover points. Seams shall be tested and comply with the following table:

Property	Test Method	Requirement
<b>Hydrostatic Resistance, kPa</b>	26.5*	For all conditions: Minimum: 450 kPa
a. initial		
b. after 5 washes <sup>#</sup>	58* IIIE	
<u>After exposure to:</u>	See Appendix 1	
c. turbine fuel, in accordance with CAN/CGSB-3.23		
d. diesel fuel, in accordance with CAN/CGSB-3.6 Type A		
e. degreasers, cleaning agent (methyl ethyl ketone 99.8% assay)		
f. insect repellent (DEET) liquid in accordance with CAN/CGSB-15.19, 75%		
g. insect repellent (DEET) cream, 32%		
<b>Water Resistance</b>	10 psi (68.95 kPa) held constant for 10 minutes using the equipment required for 26.5*	For all conditions: No Leakage
a. initial		
b. after 5 washes <sup>#</sup>	58* IIIE	
<u>After exposure to:</u>	See Appendix 1	
c. turbine fuel, in accordance with CAN/CGSB-3.23		
d. diesel fuel, in accordance with CAN/CGSB-3.6 Type A		
e. degreasers, cleaning agent (methyl ethyl ketone 99.8% assay)		
f. Type I only: insect repellent (DEET) liquid in accordance with CAN/CGSB-15.19, 75%		
g. Type I only: insect repellent (DEET) cream, 32%		
<b>Peel Strength, N/tape width</b>	D 413** Machine method, Strip type A, 180° Peel	Minimum: 8 N/25 mm
<b>Delamination, after:</b>	Visual evaluation	No Delamination or separation of the tape from the seam, or of the individual layers of the seam tape from each other
a. 5 washes	View specimens under the conditions described in 46 * and 47 *	
b. each DEET treatment for water resistance (Type I only)		
c. water resistance tests (initial & after 5 washes)		

\* CAN/CGSB-4.2 Textile Test Methods

\*\* ASTM Textile Test Methods

# **WASH TESTS ARE TO BE DONE IN ACCORDANCE WITH CAN/CGSB-4.2 No. 58, WASHING PROCEDURE III (50°C, Synthetic Detergent, Normal Agitation) AND DRYING PROCEDURE E (Tumble Dry, Normal Setting). The last wash cycle is to be carried-out without detergent.**

#### **Appendix 1. TEST PROCEDURE FOR CHEMICAL RESISTANCE**

1. A sample of the waterproof moisture vapour permeable material or taped seam of sufficient size to carry out the following tests will be prepared. Five new specimens from each sample shall be tested separately to each chemical. The chemicals shall be placed on the side on the WMVP that its manufacturer has intended to be the outer face side.
2. For liquid chemicals, a quantity of 100 ml/m<sup>2</sup> of the test liquid shall be placed on the top of the test fabric and spread as evenly as possible over the whole surface using a plastic squeegee. As much as possible of the test fabric should be covered with chemical, but leaving a border of one (1) cm width shall be left uncontaminated. This should ensure that none of the chemical seeps outside the weight, after it is applied.
3. For the non-liquid cream, a quantity of 50 g/m<sup>2</sup> of the chemical shall be placed on the top of the test fabric and spread as evenly as possible over the whole surface using a plastic squeegee. A border of one (1) cm width shall be left uncontaminated.
4. The whole test area shall then be covered with a glass plate and weighted to a total pressure of 6.895 kPa (1 psi).
5. This weighted cover shall be left in place for two (2) hours.
6. It shall then be submitted to hydrostatic resistance and water resistance testing, to CAN/CGSB-4.2 No. 26.5, and must comply with the specified requirements of Tables I, II and III. All five (5) specimens must pass. Note that the outer face side of the WMVP shall be facing the water in testing.



**TABEAU I : Exigences relatives aux essais des propriétés des membranes de type I  
(pour l'épaisseur intermédiaire, la veste et le pantalon)**

Propriété	Méthode d'essai	Exigence
<b>Masse, g/m<sup>2</sup></b> y compris les épaisseurs tricot	5.1*	Maximum : 160 g/m <sup>2</sup>
<b>Stabilité dimensionnelle, %</b> Après 5 lavages <sup>#</sup>	67* Le lavage doit être conforme à la méthode 58* IIIE	Maximum après 5 lavages : Chaîne : 5,0 % Trame : 5,0 %
<b>Décollage</b> Pendant et après : a. stabilité dimensionnelle, % b. essais de résistance à l'eau c. vieillissement d. vieillissement et flexion e. chaque traitement chimique pour les essais de résistance aux substances chimiques	Évaluation visuelle. Voir les échantillons pour les conditions décrites dans 46* et 47*.	Pas de fissures, de trous ni de bulles de 5 mm ou plus dans toute direction ou sur tout côté. Toutes ces taches doivent être peu visibles et espacées de plus de 75 mm.
<b>Résistance au déchirement</b> Après 5 lavages <sup>#</sup>	12.2* 58* IIIE	Minimum : Chaîne : 50 N Trame : 40 N
<b>Résistance à la perforation</b>	1324** para 4.5	Minimum : 100 N
<b>Rigidité, drapé, cm</b>	5206***	Maximum : Chaîne : 3,0 cm Trame : 3,0 cm
<b>Perméabilité à la transpiration</b> (Résistance – air calme équivalent en mm) a. état initial	49-99* Option 1	Pour toutes les conditions :  maximum 11
b. après vieillissement (70 °C et 95 % d'humidité relative pendant 168 heures)		
c. Après 5 lavages <sup>#</sup>	58* IIIE	
<b>Résistance aux micro-organismes</b>	28.2*	Maximum : 10 %
<b>Essai de pénétration d'eau à haute pression, en kPa</b> L'endroit (faisant face à l'extérieur du vêtement), conformément aux directives du fabricant, doit être contre l'eau pour l'essai a. état initial	26.5*	Pour toutes les conditions :  minimum : 550 kPa
b. après 5 lavages <sup>#</sup>	58* IIIE	
c. après vieillissement (70 °C et 95 % d'humidité relative pendant 168 heures) et flexion	F 392****	
d. après flexion à froid à -40 °C (l'échantillon est placé dans la chambre froide et conditionné pendant une heure avant le début de l'essai de flexion)	F 392**** (Remarque : l'essai de flexion dure 1 heure, ou 2 700 cycles)	

(suite à la page suivante)

**Tableau I (suite)**

Propriété	Méthode d'essai	Exigence
<b>Résistance à l'eau</b> L'endroit (faisant face à l'extérieur du vêtement), conformément aux directives du fabricant, doit être contre l'eau pour l'essai a. état initial b. après 5 lavages <sup>#</sup> c. après vieillissement (70 °C et 95 % d'humidité relative pendant 168 heures) et flexion d. après flexion à froid à -40 °C (l'échantillon est placé dans la chambre froide et conditionné pendant une heure avant le début de l'essai de flexion)	Conditions d'essai à 10 lb/po <sup>2</sup> (68,95 kPa), maintenues constantes pendant 10 minutes en utilisant l'équipement requis pour l'essai 26.5*  58* IIIIE F 392**** F 392**** (Remarque : l'essai de flexion dure 1 heure, ou 2 700 cycles)	Pour toutes les conditions :  Pas de fuite
<b>Résistance aux substances chimiques</b> a. carburéacteur conformément à la norme CAN/CGSB-3.23 b. carburant diesel conformément à la norme CAN/CGSB-3.6 type A c. dégraisseurs, agent de nettoyage (essai au méthyléthylcétone 99,8 %) d. insectifuge (DEET) liquide conformément à la norme CAN/CGSB-15.19, 75 % e. insectifuge (DEET) en crème, 32 %	Voir l'annexe 1, ci-après, pour la méthode d'essai de l'exposition aux substances chimiques. Après l'exposition à chaque substance chimique indiquée : Essai de pénétration d'eau à haute pression 26.5* et Résistance à l'eau en utilisant l'appareillage pour l'essai 26.5* pendant 10 min à 10 lb/po <sup>2</sup> (68,95 kPa)	Pour toutes les substances chimiques indiquées : minimum : 350 kPa et pas de fuite

\* CAN/CGSB-4.2 Méthodes pour épreuves textiles

\*\* Transports Canada, Garde côtière canadienne TP1324 Spécification relative aux textiles revêtus utilisés dans la fabrication des embarcations de survie pneumatiques (février 1992)

\*\*\* Fed Std 191 Textile Test Methods

\*\*\*\* ASTM Textile Test Methods

# **LES ESSAIS DE LAVAGE DOIVENT ÊTRE RÉALISÉS CONFORMÉMENT À LA NORME CAN/CGSB-4.2 n° 58, MÉTHODE DE LAVAGE III (50 °C, agitation mécanique modérée, détergent synthétique) et MÉTHODE DE SÉCHAGE E (séchage en machine à tambour sans chaleur). Le dernier cycle de lavage doit être fait sans détergent.**

**TABLEAU II : Exigences relatives aux essais des propriétés des membranes de type II  
(pour le tissu extérieur, les parkas et les combinaisons)**

Propriété	Méthode d'essai	Exigence
<b>Masse, g/m<sup>2</sup></b> y compris les épaisseurs tricot	5.1*	Maximum : 160 g/m <sup>2</sup>
<b>Stabilité dimensionnelle, %</b> Après 5 lavages <sup>#</sup>	67* Le lavage doit être conforme à la méthode 58* IIIIE	Maximum après 5 lavages : Chaîne : 5,0 % Trame : 5,0 %
<b>Décollage</b> Pendant et après : a. stabilité dimensionnelle, % b. essais de résistance à l'eau c. vieillissement d. vieillissement et flexion e. chaque traitement chimique pour les essais de résistance aux substances chimiques	Évaluation visuelle. Voir les échantillons pour les conditions décrites en 46* et 47*.	Pas de fissures, de trous ni de bulles de 5 mm ou plus dans toute direction ou sur tout côté. Toutes ces taches doivent être peu visibles et espacées de plus de 75 mm.
<b>Résistance au déchirement</b> Après 5 lavages <sup>#</sup>	12.2* 58* IIIIE	Minimum : Chaîne : 50 N Trame : 40 N
<b>Résistance à la perforation</b>	1324** par. 4.5	Minimum : 100 N
<b>Rigidité, drapé, cm</b>	5206***	Maximum : Chaîne : 3,0 cm Trame : 3,0 cm
<b>Perméabilité à la transpiration</b> (Résistance – air calme équivalent en mm) a. état initial	49-99* Option 1	Pour toutes les conditions :  maximum 11
b. après vieillissement (70 °C et 95 % d'humidité relative pendant 168 heures)		
c. après 5 lavages <sup>#</sup>	58* IIIIE	
<b>Résistance aux micro-organismes</b>	28.2*	Maximum : 10 %
<b>Essai de pénétration d'eau à haute pression, en kPa</b> L'endroit (faisant face à l'extérieur du vêtement), conformément aux directives du fabricant, doit être contre l'eau pour l'essai a. état initial	26.5*	Pour toutes les conditions :  minimum : 550 kPa
b. après 5 lavages <sup>#</sup>	58* IIIIE	
c. après vieillissement (70 °C et 95 % d'humidité relative pendant 168 heures) et flexion	F 392****	
d. après flexion à froid à -40 °C (l'échantillon est placé dans la chambre froide et conditionné pendant une heure avant le début de l'essai de flexion)	F 392**** (Remarque : l'essai de flexion dure 1 heure, ou 2 700 cycles)	

(suite à la page suivante)

Tableau II (suite)

Propriété	Méthode d'essai	Exigence
<b>Résistance à l'eau</b> L'endroit (faisant face à l'extérieur du vêtement), conformément aux directives du fabricant, doit être contre l'eau pour l'essai a. état initial	Conditions d'essai à 10 lb/po <sup>2</sup> (68,95 kPa), maintenues constantes pendant 10 minutes en utilisant l'équipement requis pour l'essai 26.5*	Pour toutes les conditions :  pas de fuite
b. après 5 lavages <sup>#</sup>	58* IIIIE	
c. après vieillissement (70 °C et 95 % d'humidité relative pendant 168 heures) et flexion	F 392****	
d. après flexion à froid à -40 °C (l'échantillon est placé dans la chambre froide et conditionné pendant une heure avant le début de l'essai de flexion)	F 392**** (Remarque : l'essai de flexion dure 1 heure, ou 2 700 cycles)	
<b>Résistance aux substances chimiques</b> a. carburéacteur conformément à la norme CAN/CGSB-3.23 b. carburant diesel conformément à la norme CAN/CGSB-3.6 type A c. dégraisseurs, agent de nettoyage (essai au méthyléthylcétone 99,8 %)	Voir l'annexe 1 ci-après, pour la méthode d'essai de l'exposition aux substances chimiques. Après exposition à chaque substance chimique indiquée : essai de pénétration d'eau à haute pression 26.5* et résistance à l'eau en utilisant l'appareillage pour l'essai 26.5* pendant 10 min à 10 lb/po <sup>2</sup> (68,95 kPa)	Pour toutes les substances chimiques indiquées :  minimum : 350 kPa pas de fuite

\* CAN/CGSB-4.2 Méthodes pour épreuves textiles

\*\* Transports Canada, Garde côtière canadienne TP1324 Spécification relative aux textiles revêtus utilisés dans la fabrication des embarcations de survie pneumatiques (février 1992)

\*\*\* Fed Std 191 Textile Test Methods

\*\*\*\* ASTM Textile Test Methods

# **LES ESSAIS DE LAVAGE DOIVENT ÊTRE RÉALISÉS CONFORMÉMENT À LA NORME CAN/CGSB-4.2 n° 58, MÉTHODE DE LAVAGE III (50 °C, agitation mécanique modérée, détergent synthétique) et MÉTHODE DE SÉCHAGE E (séchage en machine à tambour sans chaleur). Le dernier cycle de lavage doit être fait sans détergent.**

**TABLEAU III : Exigences d'essai pour les coutures renforcées d'un biais**

**REMARQUE :** En raison de la nature de ces vêtements, il est essentiel que les coutures soient renforcées avec un biais compatible avec le tissu extérieur qui ne diminue en rien les propriétés antistatiques, assure l'étanchéité des coutures, est aussi durable que le vêtement et n'augmente pas indûment la raideur des coutures ni du vêtement. La même remarque s'applique aux points de jonction des coutures et aux points d'entrelacement. Les coutures doivent être soumises aux essais selon le tableau suivant :

Propriété	Méthode d'essai	Exigence
<b>Essai de pénétration d'eau à haute pression, en kPa</b> a. état initial	26.5*	Pour toutes les conditions : minimum : 450 kPa
b. après 5 lavages <sup>#</sup>	58* IIIE	
<u>Après exposition</u> : c. carburéacteur conformément à la norme CAN/CGSB-3.23	Voir l'annexe 1	
d. carburant diesel conformément à la norme CAN/CGSB-3.6 type A		
e. dégraisseurs, agent de nettoyage (essai au méthyléthylcétone 99,8 %)		
f. insectifuge (DEET) liquide conformément à la norme CAN/CGSB-15.19, 75 %		
g. insectifuge (DEET) en crème, 32 %		
<b>Résistance à l'eau</b> a. état initial	10 lb/po <sup>2</sup> (68,95 kPa), constante pendant 10 minutes en utilisant l'équipement requis pour l'essai 26.5*	Pour toutes les conditions : pas de fuite
b. après 5 lavages <sup>#</sup>	58* IIIE	
<u>Après exposition</u> : c. carburéacteur conformément à la norme CAN/CGSB-3.23	Voir l'annexe 1	
d. carburant diesel conformément à la norme CAN/CGSB-3.6 type A		
e. dégraisseurs, agent de nettoyage (essai au méthyléthylcétone 99,8 %)		
f. type I uniquement : insectifuge (DEET) liquide conformément à la norme CAN/CGSB-15.19, 75 %		
g. type I uniquement : insectifuge (DEET) en crème, 32 %		
<b>Résistance au pelage, N/largeur du ruban</b>	D 413** Méthode à la machine, bande de type A, pelage à 180°	Minimum : 8 N/25 mm
<b>Décollage, après :</b> a. 5 lavages b. chaque traitement DEET pour la résistance à l'eau (type I uniquement) c. Essais de résistance à l'eau (essai à l'état initial et après 5 lavages)	Évaluation visuelle Voir les spécimens pour les conditions décrites en 46* et 47*	Aucun décollage ni séparation du biais par rapport aux coutures, ni entre les épaisseurs du biais

\* CAN/CGSB-4.2 Méthodes pour épreuves textiles

\*\* ASTM Textile Test Methods

# **LES ESSAIS DE LAVAGE DOIVENT ÊTRE RÉALISÉS CONFORMÉMENT À LA NORME CAN/CGSB-4.2 n° 58, MÉTHODE DE LAVAGE III (50 °C, agitation mécanique)**

**modérée, détergent synthétique) et MÉTHODE DE SÉCHAGE E (séchage en machine à tambour sans chaleur). Le dernier cycle de lavage doit être fait *sans* détergent.**

**Annexe 1. PROCÉDURE D'ESSAI DE RÉSISTANCE AUX SUBSTANCES CHIMIQUES**

1. On doit préparer un échantillon suffisamment grand du tissu avec membrane IEPT ou d'une couture renforcée pour réaliser les essais ci-dessous. Cinq nouveaux spécimens de chaque échantillon doivent faire l'objet d'un essai distinct pour chaque substance chimique. Les substances chimiques doivent être placées sur le côté du tissu avec membrane IEPT que le fabricant désigne comme étant le côté extérieur.
2. Pour les substances chimiques liquides, une quantité de 100 mL/m<sup>2</sup> du liquide d'essai doit être versée sur le tissu testé et répartie aussi uniformément que possible sur toute la surface à l'aide d'une raclette en plastique. Une surface du tissu aussi grande que possible devrait être recouverte par la substance chimique, mais on doit laisser une lisière non contaminée de 1 cm de largeur. On s'assurera ainsi que la substance chimique ne suinte pas hors du tissu, une fois la pression appliquée.
3. Pour les crèmes non liquides, une quantité de 50 g/m<sup>2</sup> de la substance chimique doit être versée sur le tissu testé et répartie aussi uniformément que possible sur toute la surface à l'aide d'une raclette en plastique. On doit laisser une lisière non contaminée de 1 cm de largeur.
4. Toute la zone d'essai doit ensuite être recouverte d'une plaque de verre et comprimée sous une pression totale de 6,895 kPa (1 lb/po<sup>2</sup>).
5. Ce montage sous pression doit être laissé en place pour deux (2) heures.
6. Le tissu est ensuite soumis à des essais de pénétration d'eau à haute pression et de résistance à l'eau, conformément à la norme CAN/CGSB-4.2, n° 26.5 et doit satisfaire aux exigences prescrites aux tableaux I, II et III. Les cinq (5) spécimens doivent réussir l'essai. Veuillez noter que la face extérieure du tissu avec membrane IEPT doit être contre l'eau pendant l'essai.



NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

**SPECIFICATION**

**FOR**

**CADPAT™ (TW)**

**[CANADIAN DISRUPTIVE PATTERN**

**(TEMPERATE WOODLAND)]**

**SPÉCIFICATION**

**DCamC<sup>MC</sup> (RBT)**

**[DESSIN DE CAMOUFLAGE CANADIEN,**

**(RÉGIONS BOISÉES TEMPÉRÉES)]**

**1. SCOPE**

**1.1 Scope.** This specification covers the technical performance requirements for both colour and Infra-red Reflectance for CADPAT™ (TW), Canadian Disruptive Pattern Temperate Woodland. It is intended for use, when specified, for all textiles used by the Canadian Forces for operational clothing and personal equipment. Any allowed deviations from the requirements stated herein shall be clearly defined in procurement documents.

**1.2** The information contained herein is Copyright to Her Majesty the Queen of Canada, as is its associated pattern. The term CADPAT™, with and without extensions, is a registered Trademark belonging to the Department of National Defence. Any of the data contained in this specification, and its associated pattern, may be used only for goods for Canada. The printed textile and any items made therefrom shall be for the sole end use of DND. There shall be no selling or offering for sale of goods incorporating the CADPAT™ pattern and colours to any person or entity other than Canada

**1. PORTÉE**

**1.1 Portée.** La présente spécification vise les exigences de rendement technique relatives à la couleur et à la réflectance dans l'infrarouge du dessin de camouflage canadien, régions boisées tempérées [DCamC<sup>MC</sup> (RBT)]. Elle est destinée à être utilisée, lorsque cela est prescrit, pour tous les tissus employés par les Forces canadiennes dans la confection des vêtements opérationnels et de l'équipement individuel. Tous les écarts autorisés par rapport aux exigences énoncées dans le présent document doivent être clairement définis dans les documents d'achat.

**1.2** L'information contenue dans le présent document, ainsi que le modèle associé, sont la propriété de Sa Majesté la Reine du Canada et protégés par droit d'auteur. Le terme DCamC<sup>MC</sup>, avec ou sans extension, est une marque déposée, propriété du ministère de la Défense nationale. Les données contenues dans la présente spécification et le modèle associé ne peuvent être utilisés que pour des marchandises produites pour le Canada. Les tissus imprimés et tous les articles fabriqués dans ce tissu sont à l'usage final exclusif du MDN. Nul bien incorporant le motif et les couleurs du DCamC<sup>MC</sup> ne peut être vendu ni offert à toute personne ou entité

OPI/BPR: DSSPM / DAPES 2-11

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autre que le Canada sans l'autorisation préalable écrite du ministre. De façon explicite, tout bien qui n'est pas de première qualité ne peut être distribué, vendu ou offert en vente, directement ou indirectement, à toute personne physique ou morale autre que le Canada sans l'autorisation préalable écrite du ministre.

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**1.2.1** Les informations, données, formules, algorithmes, logiciels, processus, systèmes, méthodes, dessins, ouvrages, figures, tableaux, croquis, photos, plans, dessins, spécifications, échantillons, rapports, noms, inventions ou idées, de même que le libellé ou le savoir-faire figurant aux présentes (ci-après désignés sous le nom collectif « propriété intellectuelle ») sont la propriété exclusive de Sa Majesté la Reine du Chef du Canada, représentée par le ministre de la Défense nationale (ci-après le « MDN »). Nul n'a le droit de reproduire, divulguer, diffuser ou utiliser, de quelque manière ou sous quelque forme que ce soit, cette propriété intellectuelle, en tout ou en partie, sans le consentement écrit préalable du MDN. Pour de plus amples informations sur les restrictions applicables à cette propriété intellectuelle, ou pour demander le consentement du MDN, veuillez contacter l'autorité responsable de la conception, Directeur – Administration du programme de l'équipement du soldat, ou le Directeur – Propriété intellectuelle, ministère de la Défense nationale, 101, promenade Colonel By, Ottawa, K1A 0K2, Canada.

## **2. APPLICABLE DOCUMENTS**

**2.1 Government Documents.** Copies of this specification may be obtained from the Department of National Defence, Ottawa, Ontario, Canada, K1A 0K2, Attention: DSSPM 2-2.

**2.2 Other Publications.** The following documents form part of this Specification to the extent specified herein. Effective dates shall be those in effect on the date of manufacture. Sources are as shown.

**ASTM International**  
P.O. Box C700  
West Conshohocken, PA

## **2. DOCUMENTS APPLICABLES**

**2.1 Documents du gouvernement.** Des copies de la présente spécification peuvent être obtenues du ministère de la Défense nationale, Ottawa (Ontario), Canada, K1A 0K2, à l'attention de: DAPES 2-2.

**2.2 Autres publications.** Les publications suivantes font partie intégrante de la présente spécification selon les modalités indiquées ci-après. La date d'entrée en vigueur doit être celle en vigueur à la date de fabrication. La source de diffusion est celle indiquée.

**ASTM International**  
P.O. Box C700  
West Conshohocken, PA  
19428-2959, ÉTATS-UNIS

19428-2959, USA  
Telephone: 610-832-9585  
Email: [service@astm.org](mailto:service@astm.org)

**AATCC**  
P.O. Box 12215  
Research Triangle Park, NC  
27709, USA  
Telephone: 919-549-3526  
Email: [jonesb@aatcc.org](mailto:jonesb@aatcc.org)

**CIE**  
International Committee on Illumination  
CIE Central Bureau  
Kegelgasse 27, A-1030  
Vienna, Austria

**or**

Information Handling Services  
15 Inverness Way East, M/S B203  
Englewood, CO  
80112-5776, USA

**2.3 Sealed Patterns.** Sealed patterns are made available to the bidders and the contractor(s) as a guide to production. In the case of CADPAT™ the sealed pattern reflects the design, pattern, motifs, repeat, clarity, that is required.

DSSPM 259-01 Cloth, Twist, Nylon/Cotton, Lightweight, CADPAT™ (TW), sealed for colours, motif size, colour distribution, print quality, penetration, clarity and pattern.

## **2.4 Order of Precedence.**

**2.4.1** In the event of any inconsistency in contract documents such as contract, specification and sealed patterns, the order of precedence shall be contract, specification, and sealed pattern.

**2.4.2** In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

**2.4.3** In the event of inconsistency within the specification, the Design Authority (DSSPM 2-2) shall be contacted for clarification.

Téléphone : 610-832-9585  
Courriel: [service@astm.org](mailto:service@astm.org)

**AATCC**  
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**CIE**  
Commission internationale de l'éclairage  
Bureau central de la CIE  
Kegelgasse 27, A-1030  
Vienne, AUTRICHE

**ou**

Information Handling Services  
15 Inverness Way East, M / S B203  
Englewood, CO  
80112-5776, ÉTATS-UNIS

**2.3 Modèles réglementaires.** Des modèles réglementaires sont mis à la disposition des soumissionnaires et des entrepreneurs comme guide pour la production. Dans le cas du DCamC<sup>MC</sup>, le modèle réglementaire reflète la conception, le dessin, les motifs, les répétitions et la clarté qui sont requis.

DSSPM 259-01 Tissu coton/nylon simple retors, DCamC<sup>MC</sup> (RBT), pour les couleurs, la taille des motifs, la distribution des couleurs, la qualité de l'impression, la pénétration, la clarté et le modèle.

## **2.4 Ordre de préséance.**

**2.4.1** En cas d'incohérence entre les documents contractuels, soit le contrat, la spécification et les échantillons réglementaires, l'ordre de préséance est le suivant: le contrat, la spécification et le modèle réglementaire.

**2.4.2** En cas de divergence entre les documents mentionnés aux présentes et le contenu de la présente spécification, cette dernière a préséance.

**2.4.3** En cas d'incohérence dans l'énoncé de la spécification, il faut communiquer avec l'autorité responsable de la conception (DAPES 2-2) pour obtenir des précisions.

**2.4.4** For any inconsistency in technical details between languages, the language of the original document, which in this case is English, shall take precedence.

### **3. REQUIREMENTS**

**3.1 CADPAT™ (TW) specifications.** The materiel covered by this specification shall be free from imperfections or blemishes such as may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes shall be considered defects when clearly visible at a normal inspection distance of approximately one metre under good, preferably North Light, lighting conditions.

**3.2 Sealed Patterns.** Sealed patterns, when furnished, shall constitute the standard only in regard to any properties not defined in this Specification, and in association with any notes which may be included on the reverse side of the sealed pattern tag. Under no circumstance are the Sealed Patterns to be mutilated or cut.

#### **3.3 Colour.**

**3.3.1** Unless otherwise specified, the printing shall be carried out in a wet process, with dyes. Woven goods shall be pre-dyed prior to printing. Only vat dyestuffs shall be used for any cotton component. Only acid dyestuffs shall be used for any nylon component. Only disperse dyestuffs shall be used for any polyester component. These requirements exist for both dyeing and printing operations.

**3.3.2** For CADPAT™(TW) the colours specified in para 3.3.9 below, numerically, must be met, unless otherwise specified in procurement documents, while any sealed pattern provided serves as a guide to the colours. Allowable tolerances are also stated below. Minimal flare when viewed under standard daylight, horizon, and fluorescent light for all colours is required. These colour measurements shall fall within the specified tolerances after 15 laundering cycles when laundered in accordance with the method specified in the applicable cloth specification unless otherwise specified by the applicable cloth specification.

**2.4.4** En cas d'incohérence dans les détails techniques, entre les deux langues, la langue du document d'origine, dans ce cas-ci l'anglais, a préséance.

### **3. EXIGENCES**

**3.1 Spécification du DCamC<sup>MC</sup> (RBT).** Le tissu visé par la présente spécification doit être exempt d'imperfections ou de défauts qui pourraient nuire à son aspect ou à sa tenue en service. À des fins d'inspection, sont considérés comme défauts ceux qui sont clairement visibles à une distance d'inspection normale d'environ un mètre sous un bon éclairage, de préférence la lumière du nord.

**3.2 Modèles réglementaires.** Les modèles réglementaires, quand ils sont fournis, doivent constituer la norme uniquement en ce qui concerne les propriétés qui ne sont pas définies aux présentes, compte tenu des notes qui peuvent figurer au verso de l'étiquette du modèle réglementaire. En aucun cas, les modèles réglementaires ne doivent être endommagés ni coupés.

#### **3.3 Couleur.**

**3.3.1** Sauf indication contraire, l'impression doit être effectuée selon un procédé au mouillé, avec des colorants. Les tissus doivent être teints au préalable, avant l'impression. Seuls des colorants de cuve doivent être utilisés pour tout élément en coton. Seuls des colorants acides doivent être utilisés pour tout élément en nylon. Seuls des colorants dispersés doivent être utilisés pour tout élément en polyester. Les présentes exigences s'appliquent aux opérations de teinture et d'impression.

**3.3.2** Pour le DCamC<sup>MC</sup> (RBT), les couleurs précisées sous forme numérique au paragraphe 3.3.9 ci-dessous doivent être respectées, sauf indication contraire dans les documents d'achat, tous les modèles réglementaires fournis devant servir de guide pour les couleurs. Les tolérances admissibles sont également indiquées ci-dessous. Les tissus doivent présenter un éclat minimal lorsqu'on les examine à la lumière du jour, contre l'horizon et sous une lumière fluorescente, et ce, pour toutes les couleurs. Ces mesures de couleur doivent se situer à l'intérieur des tolérances prescrites après 15 cycles de blanchissage selon la méthode décrite dans la norme applicable au tissu, sauf indication contraire.

**3.3.3 Qualité d'impression.** La pénétration

**3.3.3 Print quality.** Complete penetration of all component fibres in the specified cloth is required. Overall print quality, including colour penetration (i.e. the overall colouring of the wrong side of the printed cloth), uniformity of each colour, clarity, definition, evenness, and all other qualities

indicative of a good print must be at least as good as depicted by the Sealed Pattern DSSPM 259-01.

**3.3.4** After printing and/or dyeing in an aqueous medium, all fabrics shall be appropriately stabilized by processes such as drying, heat setting, sanforizing, or other appropriate and durable means, if required to achieve the desired properties defined in the applicable Tables of the cloth specifications.

**3.3.5** Hand of the finished, printed specified textiles shall be as represented by the appropriate sealed patterns for the finished cloths.

**3.3.6 Infra-red Reflection (IRR).** The required IRR characteristics are defined in para 3.3.10 and 3.3.11.2 and Tables I, II, III, and IV of this specification, and depicted graphically in Figures I, II, III, and IV of this specification. Note that the requirements are mandatory from 400-1350 nm for Canadian Average Green, from 730 – 1350 nm for Light Green and Brown, and from 400 – 2000 nm for Black. The waveband range 1351 – 2000 nm for colours Canadian Average Green, Light Green, and Brown is not mandatory at this time; however, the Canadian Forces requirement remains as stated in the respective colour tables and should always be any manufacturer's target. Unless otherwise specified for the textile on order, these characteristics must be met both when manufactured (new) and after 15 laundering cycles when laundered in accordance with the method specified in the applicable cloth specification (See para 3.3.11.2).

**3.3.7 Finish.** No finish will be applied to obtain fabric stability or temporary colour and/or IRR compliance unless required in the applicable textile specification.

### **3.3.8 Measurement requirements.**

**3.3.8.1** All measurements for both colour and

complète de toutes les fibres composant le tissu prescrit est requise. La qualité globale de l'impression, y compris la pénétration de la couleur (c.-à-d. la coloration globale de l'envers du tissu imprimé), l'uniformité de chaque couleur, la clarté,

la définition, la régularité, et toutes les autres qualités indicatives d'une bonne impression, doit être au moins aussi bonne que ce qui est indiqué dans le modèle réglementaire DSSPM 259-01.

**3.3.4** Après l'impression ou la teinture dans un milieu aqueux, tous les tissus doivent être convenablement stabilisés par des procédés tels que le séchage, le thermofixage, le sanforisage ou tout autre moyen approprié et durable, au besoin, pour obtenir les propriétés désirées définies dans les tableaux applicables de la spécification relative au tissu.

**3.3.5** La main des tissus prescrits, finis et imprimés, doit être identique aux modèles réglementaires appropriés des tissus finis.

**3.3.6 Réflectance dans l'infrarouge (RIR).** Les caractéristiques de la RIR requises sont définies aux paragraphes 3.3.10 et 3.3.11.2 et dans les tableaux I, II, III et IV de la présente spécification, et elles sont représentées graphiquement dans les figures I, II, III et IV. Veuillez prendre note que les exigences sont obligatoires dans la plage de 400 à 1 350 nm pour le vert canadien moyen, de 730 à 1 350 nm pour le vert pâle et le brun, et de 400 à 2 000 nm pour le noir. La plage de longueurs d'ondes de 1 351 à 2 000 nm pour le vert canadien moyen, le vert pâle et le brun n'est pas obligatoire pour le moment; toutefois, les exigences des Forces canadiennes demeurent comme il est indiqué dans les tables de couleurs respectives et le fabricant doit chercher à les respecter. Sauf indication contraire pour le tissu commandé, ces caractéristiques doivent être respectées tant pour les tissus fabriqués (neufs), qu'après 15 cycles de blanchissage selon la méthode décrite dans la spécification relative au tissu (voir le paragraphe 3.3.11.2).

**3.3.7 Fini.** Aucun fini ne sera appliqué pour obtenir une stabilité du tissu ou le respect temporaire de la couleur ou de la RIR, à moins qu'un tel fini ne soit prescrit dans la spécification relative au tissu.

### **3.3.8 Exigences relatives aux mesures.**

**3.3.8.1** Toutes les mesures de couleur et de réflectance dans l'infrarouge doivent être effectuées

infra-red reflection are to be made in accordance with CIE publication 15 - 2004 and ASTM E308.2008 using CIE Illuminant C and a 2 degree observer, specular component included. These conditions of measurement must be followed and included in all test reports.

**3.3.8.2** Sample preparation for all chromaticity and IRR measurements shall be in accordance with AATCC Instrumental Measurement Procedure #6, A1.3, non-opaque samples. It has been found that more than one layer of self fabric are usually required to provide consistent readings. A standard black backing is recommended. It is the responsibility of the operator to determine and follow a standard sample preparation which meets the stated conditions.

**3.3.8.3** Representative samples are to be measured a minimum of four times, rotating the sample 90° after each measurement. All measurements are then to be averaged to produce a single set of reflectance values. The test results shall include the average spectral reflectance of each measured sample.

**NOTE: Referee conditions:**

- diffuse spectral 8°/hemispherical reflectance factors using a 150 mm diameter integrating sphere accessory coated with BaSO<sub>4</sub>
- measurements made at 1 nm intervals over the entire required range with a fixed spectral bandpass of 5 nm up to 860 nm and a variable spectral bandpass of <20 nm from 860 nm to 2000 nm
- measurement geometry 8° incidence, hemispherical collection (8°/t), with the spectral component included
- referee sample measurement: the irradiated area to be 8 mm x 15 mm with a bandpass of 5 nm (preferred)
- where sample size or other condition dictates, irradiated area may be reduced to 4 mm x 9 mm with the bandpass also reduced to 2 nm
- where it is impractical to follow this preparation method, a single layer of the sample may be backed by NRC (National Research Council) standard black felt backing, Reference REN09870.DAT

conformément aux publications CIE 15-2004 et ASTM E308.2008 à l'aide de l'illuminant C et de l'observateur à 2° de la CIE, composante spéculaire incluse. Ces conditions de mesure doivent être respectées et incluses dans tous les rapports d'essai.

**3.3.8.2** La préparation des échantillons pour toutes les mesures de couleur et de RIR doit être réalisée conformément à la procédure de mesure instrumentale n° 6 de l'American Association of Textile Chemists and Colorists (AATCC), A1.3, pour des échantillons non opaques. On a constaté que plusieurs épaisseurs de tissu extérieur sont habituellement requises pour donner une lecture uniforme. L'emploi d'un fond noir standard est recommandé. Il incombe à l'opérateur de déterminer et de suivre un protocole standard de préparation des échantillons qui répond aux conditions énoncées.

**3.3.8.3** Des échantillons représentatifs doivent être mesurés au moins quatre fois, en tournant l'échantillon de 90° après chaque mesure. On doit ensuite calculer la moyenne de toutes les mesures pour produire un ensemble unique de valeurs de réflectance. Les résultats du test doivent comprendre la réflectance spectrale moyenne de chaque échantillon mesuré.

**REMARQUE: Conditions de référence:**

- Facteurs de réflectance spectrale 8° / hémisphérique diffuse utilisant une sphère intégrante de 150 mm de diamètre, enduite de BaSO<sub>4</sub>
- Mesures effectuées à intervalles de 1 nm sur toute la plage requise avec une bande passante spectrale fixe de 5 nm à 860 nm et une bande passante spectrale variable < 20 nm entre 860 nm et 2 000 nm
- Géométrie de mesure avec incidence de 8° et collecte hémisphérique (8°/t), composante spectrale incluse
- Mesure des échantillons de référence: la zone irradiée doit être de 8 mm x 15 mm avec une bande passante de 5 nm (de préférence)
- Lorsque la taille des échantillons ou d'autres conditions l'exigent, la zone irradiée peut être réduite à 4 mm x 9 mm et la bande passante à 2 nm
- Quand il est impossible de suivre ce protocole de préparation, on peut placer une seule épaisseur de l'échantillon contre un fond en feutre noir standard du CNRC (Conseil national de recherches du Canada), référence REN09870.DAT



**3.3.9 Colour.** The CIE LAB 1976 co-ordinates for illuminant C, 2° observer are:

**3.3.9 Couleur.** Les coordonnées CIE LAB de 1976 pour l'illuminant C et un observateur à 2° sont:

	L*	a*	b*
Canadian Average Green / Vert canadien moyen	27.41	-6.78	16.46
Light Green / Vert pâle	42.90	-13.40	26.80
Brown / Brun	36.50	4.60	14.50
Black / Noir	18.71	0.41	1.21

**3.3.9.1** Maximum tolerance is plus/minus 2 CIE LAB units for each coordinate (L\*a\*b\* values, not deltas).

**3.3.9.1** La tolérance maximale est de +/- 2 unités CIE LAB pour chaque coordonnée (valeurs L\*a\*b\*, pas les valeurs delta).

**3.3.9.1.1** These criteria are repeated in each of the applicable tables, I-IV, at the end of this document, with the CIE 1931/CIE LAB 1976 values also.

**3.3.9.1.1** Ces critères sont repris dans chacun des tableaux applicables, I-IV, à la fin de ce document, ainsi qu'avec les valeurs CIE 1931/CIE LAB 1976.

**3.3.9.2 Gloss.** Unless otherwise specified by the applicable cloth specification, gloss values shall be less than 1.5 units at 20, 60, and 85 degrees when gloss is a specified requirement. Gloss is measured in accordance with ASTM D523.

**3.3.9.2 Lustre.** Sauf indication contraire dans la spécification applicable au tissu, les valeurs de lustre doivent être inférieures à 1,5 unité à 20°, 60° et 85° lorsque le lustre est une exigence prescrite. Le lustre est mesuré selon la norme ASTM D523.

**3.3.10 Infra-red Reflection.** Tables I, II, III, and IV contain the requirements for Infra-red reflection for each colour. Upper and lower tolerances are included in each Table. Figures I, II, III, and IV relate to the Tables and are a visual representation of the requirement with upper and lower tolerances shown.

**3.3.10 Réflectance dans l'infrarouge.** Les tableaux I, II, III et IV contiennent les exigences relatives à la réflectance dans l'infrarouge pour chaque couleur. Les tolérances supérieures et inférieures sont incluses dans chaque tableau. Les figures I, II, III et IV sont associées aux tableaux et sont une représentation visuelle des exigences, avec les tolérances supérieures et inférieures indiquées.

### **3.3.11 Requirement after Laundering.**

### **3.3.11 Exigence après lavage.**

**3.3.11.1** Unless otherwise specified, the colour measurements specified herein shall remain within the original tolerances (+/- 2 CIELAB units) after 15 laundering cycles, when the laundering cycles are carried out in accordance with the methodology prescribed in the applicable textile specification.

**3.3.11.1** Sauf indication contraire, les mesures de la couleur spécifiées dans les présentes doivent être à l'intérieur des tolérances d'origine (+/- 2 unités CIELAB) après 15 cycles de lavage, lorsque ces cycles sont réalisés conformément à la méthode prescrite dans les spécifications applicables des tissus.

**3.3.11.2** Unless otherwise specified, the infra-red reflectance measurements specified herein shall remain within the original tolerances indicated in the Tables for each colour after 15 laundering

**3.3.11.2** Sauf indication contraire, les mesures de la réflectance dans l'infrarouge prescrites aux présentes doivent respecter les tolérances d'origine indiquées aux tableaux pour chaque couleur après

cycles, when the laundering cycles are carried out in accordance with the methodology prescribed in the applicable textile specification.

**3.4 Piece Marking.** Unless otherwise specified, each piece shall have a label attached to the selvage at one end. The label shall be made of linen or heavy cardboard, with a reinforced eyelet for attaching a tying cord, and shall be legibly marked with the following information:

- a) Contractor's identification (name or CA number)
- b) Contract Number
- c) Gross length in metres, including allowance
- d) Net length in metres
- e) Piece number
- f) Number of lengths per piece
- g) Nomenclature/Classification (textile specification)
- h) Colour
- j) NATO Stock Number
- k) Date of manufacture

All of the above information is required when the goods are contracted for and being delivered directly to the Crown. When contracted by a third party with delivery not to the Crown, only (a), (e), (g), (h), (j), and (k) are mandatory. The other information must be readily available to the Crown and/or its contractor if required.

#### 4. QUALITY CONTROL/INSPECTION

**4.1** Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspections and tests as specified herein and to demonstrate that the materiel and services conform to the requirements specified in this Specification. Contractors may utilize their own or any other inspection facility acceptable to the Crown or its designated representative. Contractors may also utilize their own test facilities so long as Crown approval has been obtained in advance and the conditions stated in ISO quality and manufacturing publications are followed.

15 cycles de lavage, lorsque ces cycles sont réalisés conformément à la méthode prescrite dans la spécification applicable au tissu.

**3.4 Marquage des pièces.** Chaque pièce de tissu livrée au Canada doit porter, à une extrémité, une étiquette fixée à la lisière. L'étiquette doit être en toile de lin, en oléfine thermoliée ou en carton fort et percée d'un œillet renforcé permettant d'attacher une ficelle; elle doit porter les indications suivantes en caractères lisibles:

- a) Identification de l'entrepreneur (nom ou numéro de CA)
- b) Numéro du contrat
- c) Longueur brute en mètres, y compris la réserve
- d) Longueur nette en mètres
- e) Numéro du rouleau
- f) Nombre de longueurs par rouleau
- g) Nomenclature/classification (spécification relative au tissu)
- h) Couleur
- j) Numéro de nomenclature OTAN
- k) Date de fabrication

Tous les renseignements ci-dessus sont requis lorsque les marchandises sont obtenues dans le cadre d'un contrat et sont livrées directement au gouvernement. Lorsque les marchandises sont obtenues par contrat par une tierce partie sans être livrées au gouvernement, seuls les éléments a), e), g), h), j), et k) sont obligatoires. Les autres renseignements doivent être facilement accessibles pour le gouvernement ou son entrepreneur, le cas échéant.

#### 4. CONTRÔLE DE LA QUALITÉ ET INSPECTION

**4.1** Sauf indication contraire dans le contrat ou les documents d'achat, l'entrepreneur est tenu d'effectuer toutes les inspections et les essais prescrits ci-après afin de démontrer que les matériaux et les services sont conformes aux exigences énoncées dans la présente spécification. L'entrepreneur peut utiliser ses propres installations d'inspection ou avoir recours à toute autre installation jugée acceptable par le gouvernement ou son représentant désigné. L'entrepreneur peut également utiliser ses propres installations d'essai, pourvu qu'il ait obtenu à l'avance l'approbation du gouvernement et que les conditions décrites dans les publications de l'ISO sur la fabrication et la qualité

soient respectées.

**4.2** The Crown reserves the right to perform any of the inspections or tests specified herein, where such are deemed necessary to ensure the materiel and/or services submitted to the Crown for acceptance meet all requirements of the contract. This applies equally to materiel contracted for delivery directly to the Department of National Defence or as component parts to a supplier with a contract for products for Defence use.

**4.3** Any requirement for test data to be presented at pre-contract award or at pre-production will be stated in procurement documents. Unless otherwise specified, this data shall result from tests carried out on current production, at independent certified laboratories, in full accordance with all specified test methods and conditions, and these shall be included in the laboratory reports. Bidding and/or contractual documents shall include requirements for in-contract testing including: specific tests, their frequency, their source, and their reporting procedure. At a minimum, all shipments of CADPAT™ printed textile shall be accompanied by producer laboratory reports for colour and IRR measurements. These measurements shall have been carried out on the goods being shipped and shall have been carried out on each processed batch, and at least every 5,000 metres.

## **5. PACKAGING**

**5.1** Unless otherwise specified, packaging, packing, and marking of shipping containers shall be in accordance with the terms of the contract.

## **6. NOTES**

**6.1 Ordering data.** Procurement documents should specify the following:

- a) title, number and date of this Specification and of the textile specification
- b) NATO Stock number of required item
- c) Nomenclature/Classification (textile specification)

**4.2** Le gouvernement se réserve le droit d'effectuer toute vérification ou tout essai jugé nécessaire pour s'assurer que le matériel et les services présentés au gouvernement pour acceptation sont conformes à toutes les exigences énoncées dans le contrat. Ceci s'applique également au matériel obtenu sous contrat qui doit être livré directement au ministère de la Défense nationale ou comme composants livrés à un fournisseur dans le cadre d'un contrat pour des produits à des fins militaires.

**4.3** Toute exigence relative aux données d'essai qui doivent être présentées à l'étape de préadjudication ou de présérie sera indiquée dans les documents d'achat. Sauf indication contraire, ces données doivent être obtenues par des essais effectués pendant la production courante dans des laboratoires indépendants accrédités, conformément à toutes les méthodes et conditions d'essai prescrites, et elles doivent figurer dans les rapports de laboratoire. Les documents d'appel d'offres ou du contrat doivent inclure les exigences relatives aux essais pendant l'exécution du contrat, y compris: la définition des essais, leur fréquence, leur source et la production des rapports. Au minimum, tous les lots de tissu DCamC<sup>MC</sup> imprimé doivent être accompagnés des rapports de laboratoire du producteur pour les mesures de couleur et de RIR. Ces mesures doivent avoir été réalisées sur les marchandises expédiées et effectuées sur chaque lot traité, et à tout le moins, à tous les 5 000 m.

## **5. CONDITIONNEMENT**

**5.1** Sauf indication contraire, le conditionnement, l'emballage et le marquage des conteneurs d'expédition doivent être conformes aux modalités du contrat.

## **6. REMARQUES**

**6.1 Données de commande.** Les documents d'achat doivent préciser:

- a) le titre, le numéro et la date de la présente spécification et de la spécification relative au tissu
- b) le numéro de nomenclature OTAN des articles requis

- d) Pre-production requirements
- e) Packaging, packing, and marking of shipping containers
- f) The Design Authority
- g) The Quality Assurance Authority

- c) la nomenclature ou la classification (spécification relative au tissu)
- d) les exigences de présérie
- e) le conditionnement, l'emballage et le marquage des conteneurs d'expédition
- f) l'autorité responsable de la conception
- g) l'autorité responsable de l'assurance de la qualité

## 6.2 Definition of terms.

**6.2.1 Design Authority.** The Design Authority is the Government agency responsible for the technical aspects of the design and for changes to the design. The Design Authority for this requirement is the Directorate of Soldier Systems Programme Management (DSSPM), Department of National Defence.

**6.2.2 Quality Assurance Authority.** The Quality Assurance Authority is the Government agency responsible for providing assurance the materiel and services supplied by the contractor are in accordance with the terms of the contract. The Quality Assurance Authority is the Directorate of Quality Assurance (DQA), Department of National Defence.

**6.2.3 Master sealed pattern.** A master sealed pattern is the authorized prototype of the item to be produced and is held only by the government.

**6.2.4 Sealed pattern.** The sealed pattern is a duplicate of the master sealed pattern which is the Department of National Defence's authorized prototype of the item to be produced. Sealed patterns are available for the contractor to use as a *conceptual example for production*. Contractors should note that sealed patterns may not incorporate all the details cited in this Specification and the order of precedence prevails (see para 2.4).

**6.2.5 Specification Copies.** Copies of this Specification are available from the Department of National Defence, Directorate of Soldier Systems Programme Management, Ottawa, Ontario, K1A 0K2, Attention: DSSPM 2-2.

**6.3** The production of a product to this specification, or the evaluation of a product to this specification, may require the use of materials

## 6.2 Définition des termes.

**6.2.1 Autorité responsable de la conception.** L'autorité responsable de la conception est l'organisme gouvernemental chargé des aspects techniques de la conception et des modifications connexe. Dans le cas des articles visés par la présente spécification, il s'agit de la Direction - Administration du programme de l'équipement du soldat (DAPES).

**6.2.2 Autorité responsable de l'assurance de la qualité.** L'autorité responsable de l'assurance de la qualité est l'organisme gouvernemental chargé d'assurer que le matériel et les services fournis par l'entrepreneur satisfont aux modalités du contrat. L'autorité responsable de l'assurance de la qualité est le directeur de l'assurance de la qualité, ministère de la Défense nationale du Canada.

**6.2.3 Modèle réglementaire principal.** Prototype autorisé de l'article qui doit être fabriqué et dont le gouvernement est le seul détenteur.

**6.2.4 Modèle réglementaire.** Copie exacte du modèle réglementaire principal, qui est le prototype autorisé par le ministère de la Défense nationale pour l'article qui doit être fabriqué. Les modèles réglementaires sont mis à la disposition de l'entrepreneur comme *exemple conceptuel pour la production*. Les entrepreneurs doivent prendre note que les modèles réglementaires n'incorporent pas nécessairement tous les détails indiqués aux présentes, en cas de divergence, l'ordre de préséance mentionné au paragraphe 2.4 prévaut.

**6.2.5 Copies de la spécification.** Des copies de la présente spécification peuvent être obtenues auprès du ministère de la Défense nationale, Direction de l'administration du programme de l'équipement du soldat, Ottawa (Ontario), K1A 0K2, à l'attention: DAPES 2-2.

**6.3** La fabrication ou l'évaluation d'un produit conformément à la présente spécification pourrait nécessiter l'utilisation de matériel ou d'équipement

and/or equipment that could be hazardous. This specification does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.

dangereux. La présente spécification n'a pas pour objet de traiter de toutes les préoccupations relatives à la santé, à la sécurité et à l'environnement liées à son utilisation. Il incombe à l'utilisateur de la spécification d'établir au préalable des méthodes appropriées qui tiennent compte des questions d'environnement, de santé et de sécurité, et de déterminer les restrictions réglementaires applicables.

TABLE I CADPAT™ REQUIREMENTS  
CANADIAN AVERAGE GREEN

TABLEAU I EXIGENCES RELATIVES AU DCamC<sup>MC</sup>  
VERT CANADIEN MOYEN

SPECIFICATIONS / SPÉCIFICATIONS									
CIE 1931/CIE LAB 1976									
ILLUMINANT C, 2 deg.									
specular component included/ composante spéculaire incluse									
Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refli. Min Réfl. min.	Refli. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refli. Min Réfl. min.	Refli. Max Réfl. max.
nm	%	%	%	%	nm	%	%	%	%
400	1.89	0.77	1.12	2.67	840	42.14	14.80	27.35	56.94
410	1.95	0.85	1.10	2.79	850	42.50	14.90	27.60	57.39
420	2.00	0.93	1.07	2.93	860	42.85	15.00	27.85	57.85
430	2.11	1.04	1.07	3.16	870	43.20	15.11	28.09	58.31
440	2.26	1.17	1.09	3.43	880	43.20	15.05	28.15	58.24
450	2.39	1.28	1.11	3.67	890	43.16	14.99	28.16	58.15
460	2.46	1.33	1.14	3.79	900	43.11	14.94	28.17	58.06
470	2.53	1.37	1.16	3.90	910	43.07	14.90	28.17	57.97
480	2.62	1.43	1.19	4.05	920	43.03	14.86	28.18	57.89
490	2.72	1.50	1.22	4.22	930	43.00	14.82	28.18	57.82
500	2.95	1.63	1.32	4.58	940	42.82	14.76	28.06	57.58
510	3.70	2.02	1.68	5.72	950	42.64	14.70	27.94	57.33
520	4.45	2.44	2.01	6.88	960	42.45	14.64	27.81	57.09
530	5.24	2.84	2.40	8.09	970	42.28	14.60	27.68	56.87
540	6.05	3.26	2.79	9.31	980	42.09	14.56	27.53	56.64
550	6.65	3.59	3.06	10.24	990	41.91	14.52	27.39	56.44
560	6.41	3.53	2.88	9.94	1000	42.56	14.65	27.91	57.20
570	6.17	3.49	2.68	9.65	1010	43.21	14.77	28.43	57.98
580	5.84	3.36	2.48	9.20	1020	43.85	14.90	28.95	58.76
590	5.47	3.22	2.26	8.69	1030	44.45	15.04	29.41	59.49
600	5.14	3.08	2.05	8.22	1040	45.15	15.18	29.97	60.33
610	4.86	2.97	1.89	7.84	1050	45.51	15.22	30.30	60.73
620	4.60	2.88	1.72	7.48	1060	45.59	15.15	30.43	60.74
630	4.39	2.78	1.61	7.16	1070	45.66	15.09	30.56	60.75
640	4.19	2.67	1.52	6.87	1080	45.73	15.04	30.69	60.76
650	3.96	2.54	1.42	6.50	1090	45.81	14.99	30.82	60.79
660	3.65	2.33	1.32	5.98	1100	45.88	14.94	30.94	60.81
670	3.34	2.13	1.21	5.47	1110	44.88	14.74	30.14	59.61
680	4.52	2.71	1.81	7.23	1120	43.87	14.55	29.32	58.42
690	5.87	3.42	2.45	9.30	1130	42.87	14.39	28.48	57.25
700	8.94	4.60	4.34	13.54	1140	41.87	14.24	27.63	56.10
710	14.61	6.69	7.92	21.30	1150	40.86	14.11	26.76	54.97
720	20.27	8.94	11.33	29.21	1160	39.87	14.00	25.87	53.88
730	26.37	10.48	15.89	36.86	1170	38.72	13.46	25.26	52.18
740	32.48	12.31	20.17	44.78	1180	37.49	13.01	24.49	50.50
750	35.95	13.20	22.75	49.15	1190	36.27	12.66	23.61	48.93
760	36.58	13.40	23.18	49.99	1200	35.04	12.43	22.61	47.47
770	37.52	13.62	23.91	51.14	1210	36.48	12.40	24.08	48.88
780	38.46	13.84	24.62	52.29	1220	36.68	12.37	24.31	49.05
790	39.40	14.06	25.34	53.46	1230	36.87	12.35	24.53	49.22
800	40.33	14.29	26.04	54.62	1240	37.07	12.33	24.75	49.40
810	41.28	14.53	26.75	55.81	1250	37.26	12.30	24.96	49.57
820	41.44	14.60	26.83	56.04	1260	37.46	12.28	25.18	49.75
830	41.79	14.70	27.09	56.49	1270	37.65	12.27	25.39	49.92



TABLE I CADPAT™ REQUIREMENTS  
CANADIAN AVERAGE GREEN (cont.)

TABLEAU I EXIGENCES RELATIVES AU DCamC<sup>MC</sup>  
VERT CANADIEN MOYEN (suite)

Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.
nm	%	%	%	%	nm	%	%	%	%
1280	37,85	12,25	25,60	50,10	1720	17,30	7,49	9,81	24,79
1290	38,05	12,24	25,81	50,28	1730	17,11	7,45	9,66	24,56
1300	37,40	12,05	25,36	49,45	1740	16,92	7,42	9,50	24,34
1310	36,75	11,87	24,88	48,62	1750	16,72	7,34	9,38	24,07
1320	36,10	11,71	24,39	47,81	1760	16,52	7,26	9,26	23,79
1330	35,45	11,57	23,88	47,01	1770	16,33	7,18	9,14	23,51
1340	34,80	11,44	23,36	46,23	1780	16,12	7,11	9,02	23,23
1350	34,15	11,32	22,83	45,47	1790	15,92	7,03	8,89	22,96
1360	31,04	10,44	20,61	41,48	1800	15,72	6,96	8,76	22,68
1370	27,94	9,55	18,39	37,49	1810	14,93	6,63	8,30	21,55
1380	24,83	8,66	16,17	33,50	1820	14,13	6,29	7,85	20,42
1390	21,73	7,78	13,95	29,50	1830	13,34	5,95	7,39	19,29
1400	18,62	6,89	11,73	25,51	1840	12,55	5,62	6,93	18,16
1410	15,52	6,00	9,51	21,52	1850	11,75	5,28	6,47	17,03
1420	12,41	5,12	7,29	17,53	1860	10,96	4,94	6,01	15,90
1430	11,67	4,90	6,76	16,57	1870	10,16	4,61	5,56	14,77
1440	10,93	4,70	6,23	15,63	1880	9,37	4,27	5,10	13,64
1450	10,19	4,52	5,67	14,71	1890	8,57	3,94	4,64	12,51
1460	9,46	4,35	5,10	13,81	1900	7,78	3,60	4,18	11,38
1470	9,85	4,52	5,33	14,37	1910	6,99	3,26	3,72	10,25
1480	10,26	4,69	5,56	14,95	1920	6,19	2,93	3,26	9,12
1490	10,66	4,87	5,79	15,53	1930	5,65	2,58	3,07	8,23
1500	11,06	5,05	6,01	16,11	1940	5,32	2,41	2,91	7,73
1510	11,46	5,24	6,22	16,70	1950	4,99	2,28	2,71	7,26
1520	11,86	5,42	6,44	17,29	1960	4,67	2,19	2,48	6,86
1530	12,27	5,61	6,66	17,88	1970	4,33	2,16	2,18	6,49
1540	12,98	5,83	7,16	18,81	1980	4,48	2,21	2,27	6,69
1550	13,69	6,10	7,59	19,79	1990	4,63	2,27	2,36	6,90
1560	14,41	6,42	7,99	20,82	2000	4,79	2,33	2,46	7,12
1570	15,12	6,78	8,34	21,89					
1580	15,83	7,17	8,66	23,00					
1590	16,55	7,60	8,95	24,15					
1600	17,26	8,05	9,21	25,31					
1610	17,40	7,86	9,54	25,26					
1620	17,54	7,72	9,82	25,25					
1630	17,67	7,61	10,06	25,29					
1640	17,82	7,56	10,26	25,38					
1650	17,96	7,55	10,40	25,51					
1660	18,09	7,59	10,49	25,68					
1670	18,23	7,68	10,55	25,92					
1680	18,04	7,64	10,40	25,69					
1690	17,85	7,60	10,25	25,45					
1700	17,67	7,56	10,11	25,23					
1710	17,49	7,52	9,96	25,01					

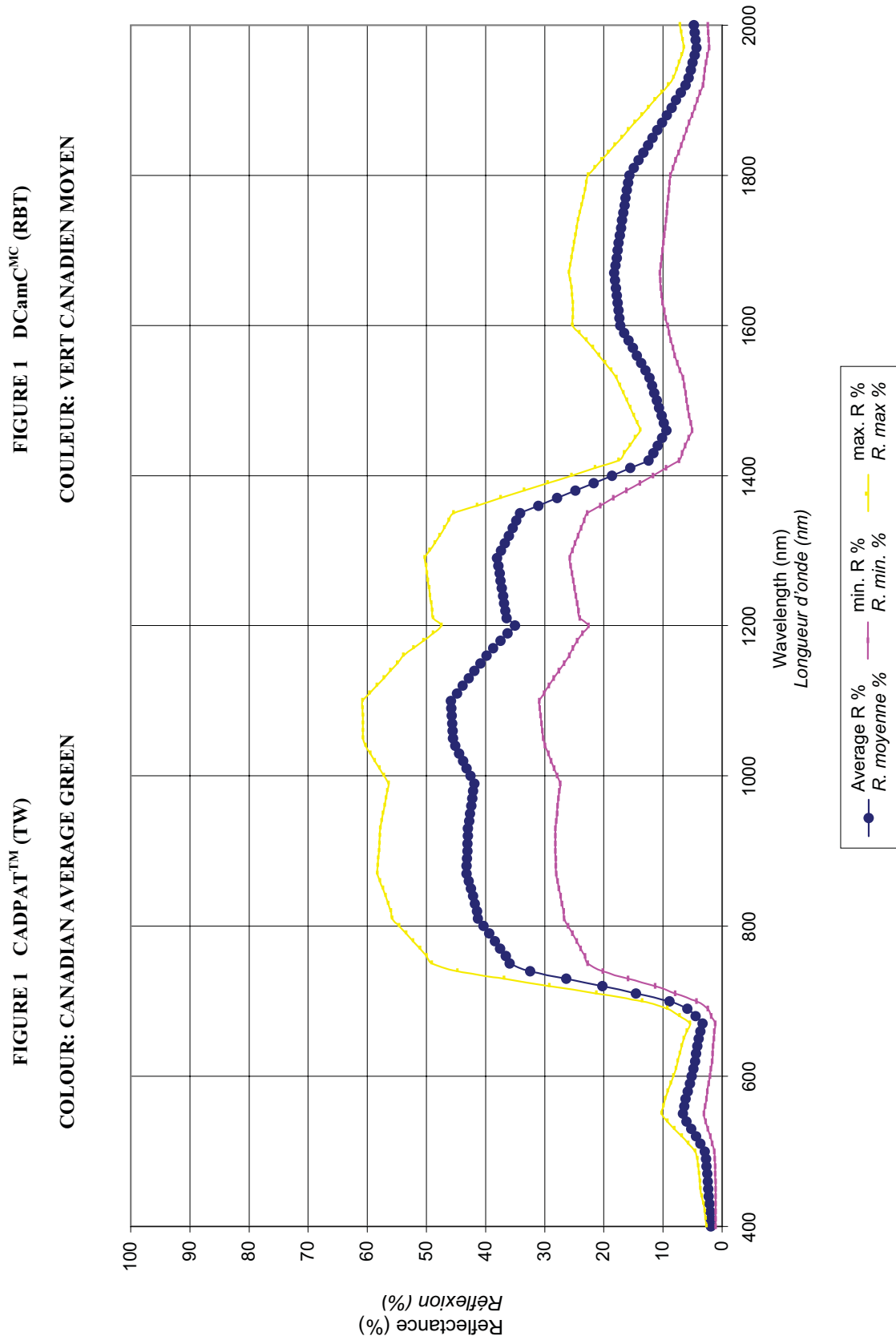


TABLE II CADPAT™ REQUIREMENTS  
LIGHT GREEN

SPECIFICATIONS / SPÉCIFICATIONS:			
CIE 1931/CIE LAB 1976 ILLUMINANT C, 2 deg. specular component included <i>composante spéculaire incluse</i>	x	0,3614	
	y	-0,4339	
	Y%	13,10	
	DW,nm	566,70	
	S%	44,70	
	L*	42,90	
	a*	-13,40	
	b*	26,80	

TABLEAU II EXIGENCES RELATIVES AU DCamC<sup>MC</sup>  
VERT PÂLE

Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.
	%	%	%	%		%	%	%	%
400	4,37				840	52,68	18,50	34,18	71,18
410	4,30				850	53,12	18,62	34,50	71,74
420	4,24				860	53,37	18,75	34,81	72,32
430	4,18				870	54,00	18,89	35,12	72,89
440	4,12				880	54,00	18,81	35,19	72,80
450	4,13				890	53,95	18,74	35,21	72,69
460	4,47				900	53,89	18,68	35,21	72,57
470	4,82				910	53,84	18,62	35,22	72,46
480	6,82				920	53,79	18,57	35,22	72,36
490	9,53				930	53,75	18,53	35,22	72,27
500	12,22				940	53,63	18,45	35,08	71,97
510	14,86				950	53,30	18,37	34,93	71,67
520	17,51				960	53,06	18,30	34,76	71,36
530	17,24				970	52,84	18,25	34,60	71,09
540	15,74				980	52,61	18,20	34,41	70,80
550	14,23				990	52,39	18,16	34,24	70,55
560	12,69				1000	53,20	18,31	34,89	71,51
570	11,15				1010	54,01	18,47	35,54	72,47
580	10,50				1020	54,82	18,63	36,19	73,45
590	10,24				1030	55,56	18,80	36,76	74,36
600	10,34				1040	56,43	18,97	37,46	75,41
610	11,91				1050	56,89	19,02	37,87	75,91
620	13,49				1060	56,98	18,94	38,04	75,92
630	15,05				1070	57,07	18,87	38,20	75,94
640	16,61				1080	57,16	18,80	38,36	75,95
650	17,94				1090	57,26	18,73	38,52	75,99
660	18,70				1100	57,35	18,67	38,67	76,02
670	19,47				1110	56,10	18,42	37,68	74,52
680	18,68				1120	54,84	18,19	36,65	73,03
690	17,71				1130	53,59	17,98	35,61	71,57
700	17,46				1140	52,33	17,80	34,54	70,13
710	18,30				1150	51,08	17,64	33,45	68,72
720	19,14				1160	49,83	17,50	32,33	67,33
730	32,97	13,10	19,86	46,07	1170	46,07	16,83	31,57	65,23
740	40,59	15,38	25,21	55,98	1180	46,87	16,26	30,61	63,13
750	44,94	16,50	28,43	61,44	1190	45,33	15,83	29,51	61,16
760	45,73	16,76	28,98	62,49	1200	43,80	15,54	28,26	59,34
770	46,90	17,02	29,88	63,92	1210	45,60	15,50	30,10	61,10
780	48,07	17,29	30,78	65,36	1220	45,85	15,46	30,38	61,31
790	49,25	17,58	31,67	66,82	1230	46,09	15,43	30,66	61,52
800	50,41	17,87	32,55	68,28	1240	46,34	15,41	30,93	61,75
810	51,60	18,17	33,43	69,77	1250	46,58	15,38	31,20	61,96
820	51,80	18,25	33,54	70,05	1260	46,83	15,36	31,47	62,18
830	52,24	18,37	33,87	70,61	1270	47,07	15,33	31,74	62,40

TABLE II CADPAT™ REQUIREMENTS  
LIGHT GREEN (cont.)

TABLEAU II EXIGENCES RELATIVES AU DCamC<sup>MC</sup>  
VERT PÂLE (suite)

Wavelength Longueur d'onde nm	Reflection Réflexion %	ST.DEV. Écart type %	Refli. Min Réfl. min. %	Refli. Max Réfl. max. %	Wavelength Longueur d'onde nm	Reflection Réflexion %	ST.DEV. Écart type %	Refli. Min Réfl. min. %	Refli. Max Réfl. max. %
1280	47.32	15.32	32.00	62.63	1720	21.62	9.36	12.26	30.98
1290	47.56	15.30	32.26	62.86	1730	21.39	9.32	12.07	30.70
1300	46.76	15.06	31.70	61.82	1740	21.15	9.28	11.87	30.43
1310	45.94	14.84	31.10	60.78	1750	20.91	9.18	11.73	30.08
1320	45.12	14.64	30.48	59.76	1760	20.66	9.08	11.58	29.73
1330	44.31	14.46	29.85	58.77	1770	20.41	8.98	11.43	29.39
1340	43.50	14.30	29.20	57.79	1780	20.15	8.88	11.27	29.04
1350	42.69	14.16	28.53	56.84	1790	19.91	8.79	11.11	28.70
1360	38.80	13.05	25.76	51.85	1800	19.65	8.70	10.95	28.36
1370	34.92	11.94	22.98	46.86	1810	18.66	8.28	10.38	26.94
1380	31.04	10.83	20.21	41.87	1820	17.67	7.86	9.81	25.53
1390	27.16	9.72	17.44	36.88	1830	16.68	7.44	9.23	24.12
1400	23.28	8.61	14.66	31.89	1840	15.68	7.02	8.66	22.70
1410	19.39	7.51	11.89	26.90	1850	14.69	6.60	8.09	21.29
1420	15.51	6.40	9.11	21.91	1860	13.70	6.18	7.52	19.88
1430	14.58	6.13	8.45	20.71	1870	12.70	5.76	6.94	18.46
1440	13.66	5.88	7.79	19.54	1880	11.71	5.34	6.37	17.05
1450	12.74	5.65	7.09	18.38	1890	10.72	4.92	5.80	15.64
1460	11.82	5.44	6.38	17.26	1900	9.73	4.50	5.23	14.23
1470	12.32	5.65	6.67	17.97	1910	8.73	4.08	4.65	12.81
1480	12.82	5.87	6.95	18.69	1920	7.74	3.66	4.08	11.40
1490	13.33	6.09	7.24	19.42	1930	7.07	3.22	3.84	10.29
1500	13.82	6.32	7.51	20.14	1940	6.65	3.01	3.64	9.66
1510	14.33	6.55	7.78	20.87	1950	6.23	2.85	3.39	9.08
1520	14.83	6.78	8.05	21.61	1960	5.83	2.74	3.10	8.57
1530	15.34	7.01	8.32	22.35	1970	5.42	2.69	2.72	8.11
1540	16.23	7.28	8.95	23.51	1980	5.60	2.76	2.84	8.37
1550	17.11	7.62	9.49	24.73	1990	5.79	2.84	2.95	8.63
1560	18.01	8.02	9.99	26.03	2000	5.99	2.92	3.07	8.90
1570	18.90	8.47	10.42	27.37					
1580	19.79	8.97	10.82	28.75					
1590	20.68	9.50	11.18	30.19					
1600	21.58	10.07	11.51	31.64					
1610	21.75	9.83	11.92	31.58					
1620	21.92	9.65	12.28	31.57					
1630	22.09	9.52	12.58	31.61					
1640	22.27	9.45	12.82	31.72					
1650	22.44	9.44	13.00	31.89					
1660	22.61	9.49	13.12	32.10					
1670	22.79	9.61	13.18	32.39					
1680	22.56	9.55	13.00	32.11					
1690	22.32	9.5	12.82	31.81					
1700	22.09	9.45	12.64	31.54					
1710	21.86	9.40	12.45	31.26					

FIGURE 2 CADPAT™ (TW)

COLOUR: LIGHT GREEN

FIGURE 2 DCamC<sup>MC</sup> (RBT)

COULEUR: VERT PÂLE

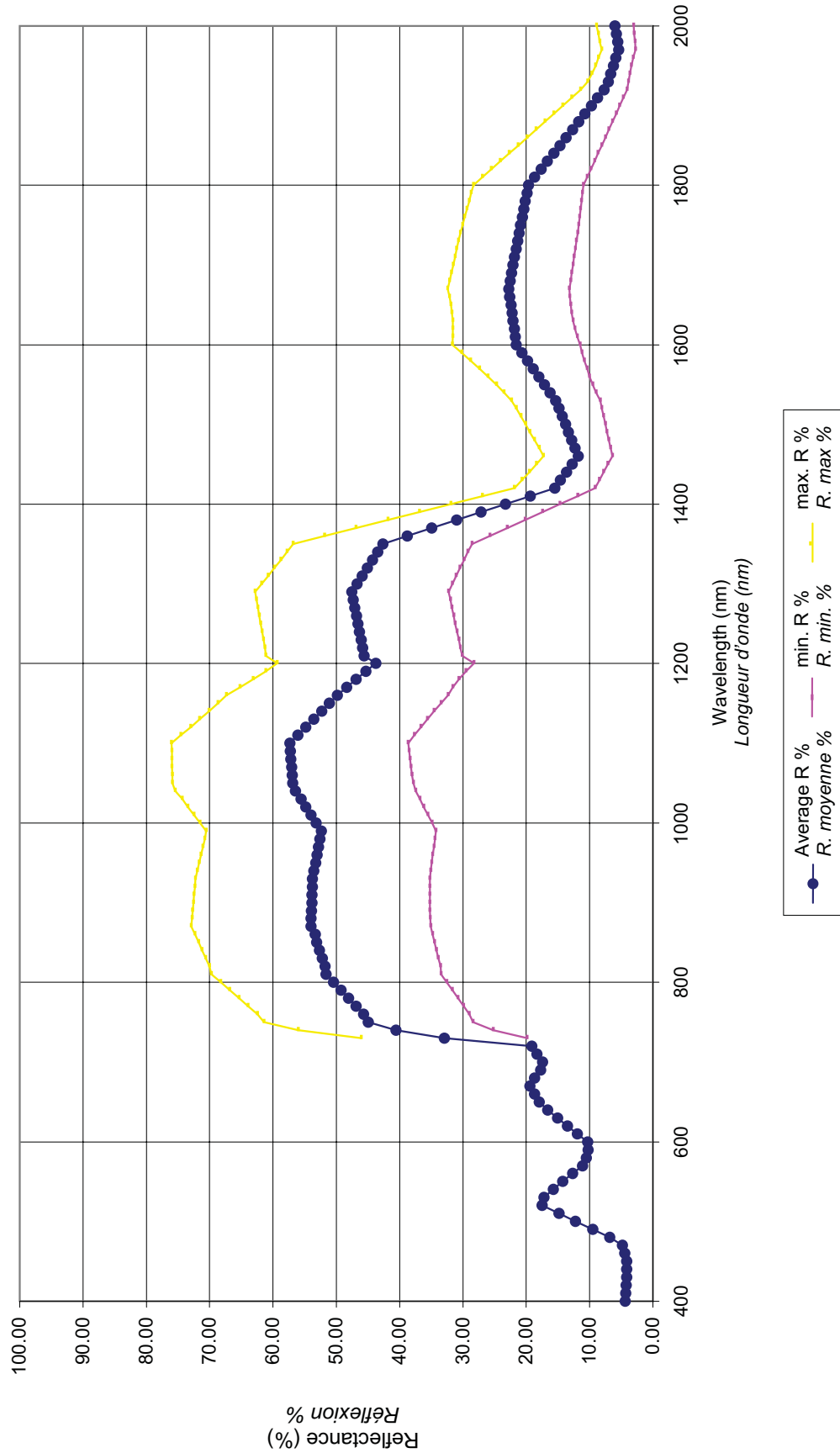


TABLE III CADPAT™ REQUIREMENTS  
BROWN

TABLEAU III EXIGENCES RELATIVES AU DCamC<sup>MC</sup>  
BRUN

SPECIFICATIONS / SPÉCIFICATIONS:						
CIE 1931/CIE LAB 1936			x	0.3802		
ILLUMINANT C. 2 deg.			y	0.3649		
specular component included			DW, nm	583.00		
composante spéculaire incluse			S%	31.60		
			L*	36.50		
			a*	4.60		
			b*	14.50		
Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion
nm	%	%	%	%	nm	%
400	5.26				840	52.68
410	5.19				850	53.12
420	5.11				860	53.57
430	5.04				870	54.00
440	4.97				880	54.00
450	4.94				890	53.95
460	5.13				900	53.69
470	5.31				910	53.84
480	6.34				920	53.79
490	7.72				930	53.75
500	8.90				940	53.53
510	9.30				950	53.30
520	9.71				960	53.06
530	9.29				970	52.84
540	8.51				980	52.61
550	7.83				990	52.39
560	7.50				1000	53.20
570	7.16				1010	54.01
580	8.44				1020	54.82
590	10.40				1030	55.56
600	12.06				1040	56.43
610	12.51				1050	56.89
620	12.95				1060	56.98
630	14.20				1070	57.07
640	15.65				1080	57.16
650	16.89				1090	57.26
660	17.62				1100	57.35
670	18.36				1110	56.10
680	17.59				1120	54.84
690	16.65				1130	53.59
700	16.44				1140	52.33
710	17.29				1150	51.08
720	25.34	11.17	14.18	36.51	1160	49.83
730	32.97	13.10	19.86	46.07	1170	48.40
740	40.59	15.38	25.21	55.96	1180	46.87
750	44.94	16.50	28.43	61.44	1190	45.33
760	45.73	16.76	28.98	62.49	1200	43.80
770	46.90	17.02	29.88	63.92	1210	45.60
780	48.07	17.29	30.78	65.36	1220	45.85
790	49.25	17.58	31.67	66.82	1230	46.09
800	50.41	17.87	32.55	68.28	1240	46.34
810	51.60	18.17	33.43	69.77	1250	46.58
820	51.80	18.25	33.54	70.05	1260	46.83
830	52.24	18.37	33.87	70.61	1270	47.07



TABLE III CADPAT™ REQUIREMENTS  
BROWN (cont.)

TABLEAU III EXIGENCES RELATIVES AU DCamC<sup>MC</sup>  
BRUN (suite)

Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.
nm.	%	%	%	%	nm.	%	%	%	%
1280	47.32	15.32	32.00	62.63	1720	21.62	9.36	12.26	30.98
1290	47.56	15.30	32.26	62.66	1730	21.39	9.32	12.07	30.70
1300	46.76	15.06	31.70	61.82	1740	21.15	9.28	11.87	30.43
1310	45.94	14.84	31.10	60.78	1750	20.91	9.18	11.73	30.08
1320	45.12	14.64	30.48	59.76	1760	20.66	9.08	11.58	29.73
1330	44.31	14.46	29.85	58.77	1770	20.41	8.98	11.43	29.39
1340	43.50	14.30	29.20	57.79	1780	20.15	8.88	11.27	29.04
1350	42.69	14.16	28.53	56.84	1790	19.91	8.79	11.11	28.70
1360	38.80	13.05	25.76	51.85	1800	19.65	8.70	10.95	28.36
1370	34.92	11.94	22.98	46.86	1810	18.66	8.28	10.38	26.94
1380	31.04	10.83	20.21	41.87	1820	17.67	7.86	9.81	25.53
1390	27.16	9.72	17.44	36.88	1830	16.68	7.44	9.23	24.12
1400	23.28	8.61	14.66	31.89	1840	15.68	7.02	8.66	22.70
1410	19.39	7.51	11.89	26.90	1850	14.69	6.60	8.09	21.29
1420	15.51	6.40	9.11	21.91	1860	13.70	6.18	7.52	19.88
1430	14.58	6.13	8.45	20.71	1870	12.70	5.76	6.94	18.46
1440	13.66	5.88	7.79	19.54	1880	11.71	5.34	6.37	17.05
1450	12.74	5.65	7.09	18.38	1890	10.72	4.92	5.80	15.64
1460	11.82	5.44	6.38	17.26	1900	9.73	4.50	5.23	14.23
1470	12.32	5.65	6.67	17.97	1910	8.73	4.08	4.65	12.81
1480	12.82	5.87	6.95	18.69	1920	7.74	3.66	4.08	11.40
1490	13.33	6.09	7.24	19.42	1930	7.07	3.22	3.84	10.29
1500	13.82	6.32	7.51	20.14	1940	6.65	3.01	3.64	9.66
1510	14.33	6.55	7.78	20.87	1950	6.23	2.85	3.39	9.08
1520	14.83	6.78	8.05	21.61	1960	5.83	2.74	3.10	8.57
1530	15.34	7.01	8.32	22.35	1970	5.42	2.69	2.72	8.11
1540	16.23	7.28	8.95	23.51	1980	5.00	2.76	2.84	8.37
1550	17.11	7.62	9.49	24.73	1990	5.79	2.84	2.95	8.63
1560	18.01	8.02	9.99	26.03	2000	5.99	2.92	3.07	8.90
1570	18.90	8.47	10.42	27.37					
1580	19.79	8.97	10.82	28.75					
1590	20.68	9.50	11.16	30.19					
1600	21.58	10.07	11.51	31.64					
1610	21.75	9.83	11.92	31.58					
1620	21.92	9.65	12.28	31.57					
1630	22.09	9.52	12.58	31.61					
1640	22.27	9.45	12.82	31.72					
1650	22.44	9.44	13.00	31.89					
1660	22.61	9.49	13.12	32.10					
1670	22.79	9.61	13.18	32.39					
1680	22.56	9.55	13.00	32.11					
1690	22.32	9.50	12.82	31.81					
1700	22.09	9.45	12.64	31.54					
1710	21.86	9.40	12.45	31.26					

FIGURE 3 CADPAT™ (TW)

COLOUR: BROWN

FIGURE 3 DCamC<sup>MC</sup> (RBT)

COULEUR: BRUN

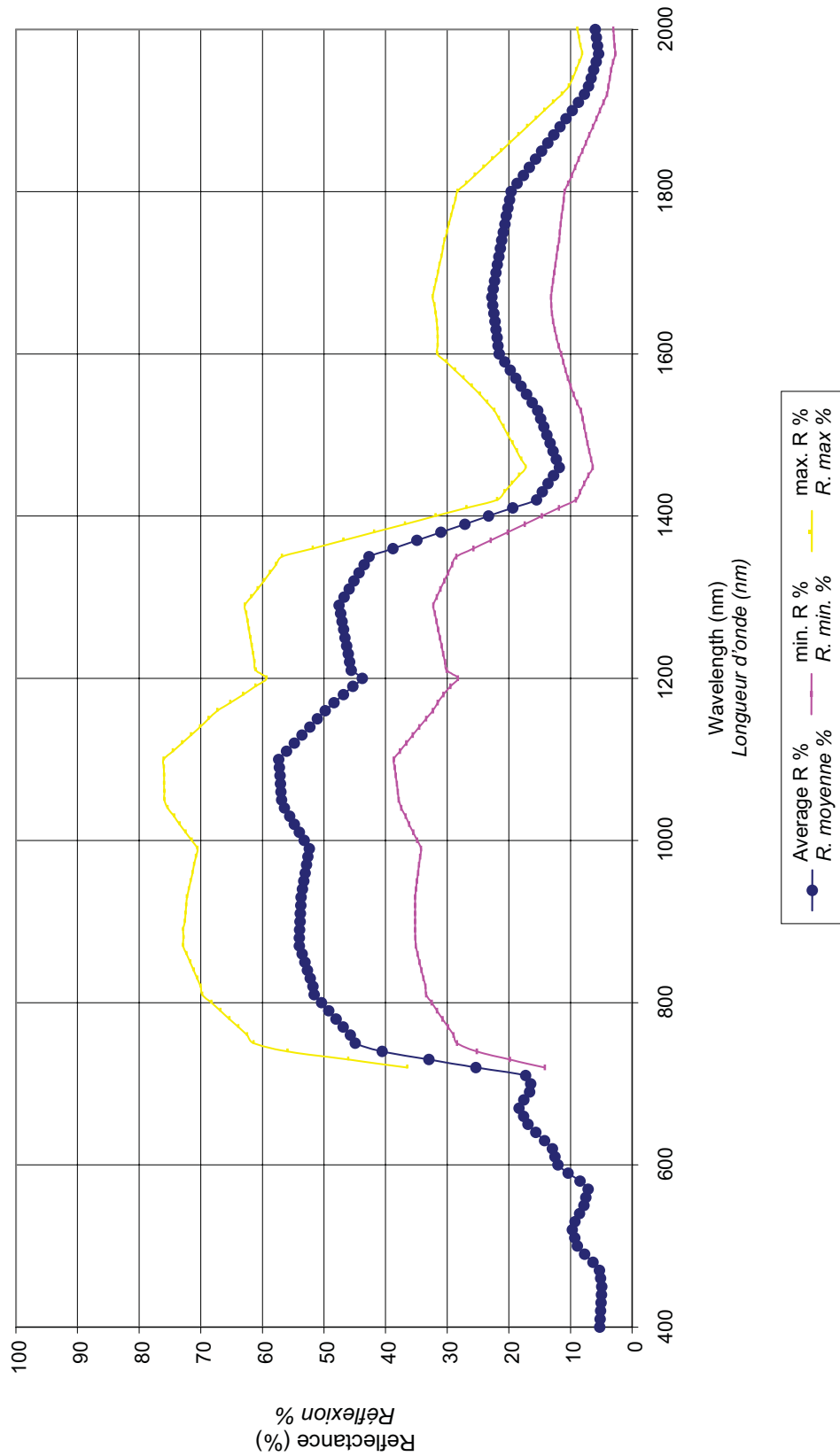


TABLE IV CADPAT™ REQUIREMENTS  
BLACK

TABLEAU IV EXIGENCES RELATIVES AU DCamC<sup>MC</sup>  
NOIR

SPECIFICATIONS / SPÉCIFICATIONS:				
CIE 1931/CIE LAB 1971				
ILLUMINANT C, 2 deg.				
specular component included				
composante spéculaire incluse				
			x	0,3188
			y	0,3224
		Y%		2,68
		DW,nm		582,34
		S%		4,01
		L*		18,71
		a*		0,41
		b*		1,21

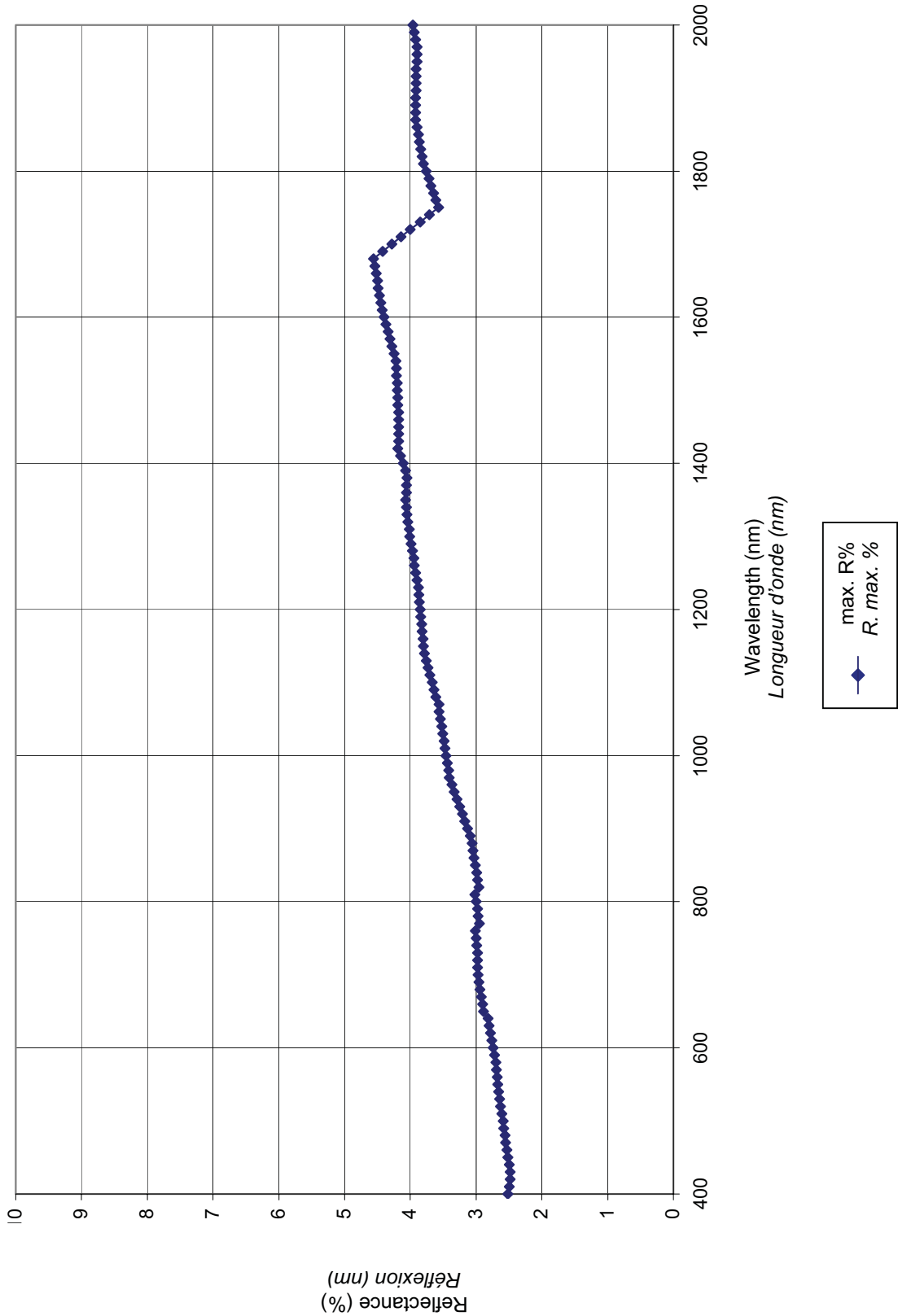
Wavelength (nm) Longueur d'onde (nm)	Reflection % Réflexion %	Wavelength (nm) Longueur d'onde (nm)	Reflection % Réflexion %	Wavelength (nm) Longueur d'onde (nm)	Reflection % Réflexion %	Wavelength (nm) Longueur d'onde (nm)	Reflection % Réflexion %
400	2,52	830	2,98	1260	3,94	1690	4,42
410	2,50	840	2,99	1270	3,95	1700	4,28
420	2,48	850	3,01	1280	3,97	1710	4,14
430	2,48	860	3,03	1290	3,99	1720	4,00
440	2,50	870	3,05	1300	4,01	1730	3,85
450	2,52	880	3,06	1310	4,02	1740	3,71
460	2,53	890	3,09	1320	4,04	1750	3,57
470	2,55	900	3,13	1330	4,05	1760	3,61
480	2,56	910	3,17	1340	4,06	1770	3,65
490	2,58	920	3,21	1350	4,07	1780	3,69
500	2,59	930	3,25	1360	4,06	1790	3,72
510	2,61	940	3,29	1370	4,06	1800	3,76
520	2,63	950	3,33	1380	4,05	1810	3,80
530	2,64	960	3,37	1390	4,07	1820	3,82
540	2,66	970	3,41	1400	4,11	1830	3,84
550	2,67	980	3,42	1410	4,15	1840	3,86
560	2,68	990	3,44	1420	4,19	1850	3,88
570	2,69	1000	3,46	1430	4,18	1860	3,90
580	2,70	1010	3,47	1440	4,18	1870	3,92
590	2,72	1020	3,49	1450	4,18	1880	3,92
600	2,74	1030	3,51	1460	4,18	1890	3,92
610	2,76	1040	3,52	1470	4,18	1900	3,92
620	2,78	1050	3,54	1480	4,19	1910	3,91
630	2,80	1060	3,56	1490	4,19	1920	3,91
640	2,82	1070	3,56	1500	4,20	1930	3,91
650	2,89	1080	3,61	1510	4,20	1940	3,91
660	2,90	1090	3,64	1520	4,21	1950	3,90
670	2,92	1100	3,67	1530	4,21	1960	3,90
680	2,94	1110	3,70	1540	4,22	1970	3,90
690	2,96	1120	3,73	1550	4,25	1980	3,92
700	2,97	1130	3,76	1560	4,28	1990	3,94
710	2,98	1140	3,79	1570	4,31	2000	3,96
720	2,98	1150	3,80	1580	4,34		
730	2,98	1160	3,81	1590	4,37		
740	2,99	1170	3,82	1600	4,40		
750	3,00	1180	3,83	1610	4,43		
760	3,01	1190	3,84	1620	4,45		
770	2,95	1200	3,85	1630	4,47		
780	2,97	1210	3,86	1640	4,49		
790	2,98	1220	3,87	1650	4,50		
800	3,00	1230	3,88	1660	4,52		
810	3,02	1240	3,90	1670	4,54		
820	2,96	1250	3,92	1680	4,56		

FIGURE 4 CADPAT™ (TW)

COLOUR: BLACK

FIGURE 4 DCamC<sup>MC</sup> (RBT)

COULEUR: NOIR





## **NOTICE**

This document has been examined by the Technical Authority for content and confirmed that it has no references to controlled goods.

**Pre-Award Evaluation Plan  
for the Parka and Bib Overalls, Extreme Cold Weather, Improved  
CADPAT™ (TW), Integrated Clothing Ensemble (ICE)**

**Pre-Award Evaluation Plan for the Parka and Bib Overalls, Extreme Cold Weather, CADPAT™ (TW), Integrated Clothing Ensemble (ICE)**

**1.0 General.**

**1.1 Pre-Award Evaluation Plan.** This annex describes how The Department of National Defence (DND) will perform the pre-award evaluation of the Extreme Cold Weather, CADPAT™ Temperate Woodlands (TW), Parka and Bib Overalls in terms of evaluating physical samples for the quality of workmanship and for their ability to demonstrate capability to meet requisite technologies, and for conformance to specified materials and measurements outlined in **Annex B and Annex C**. The pre-award evaluation will be done through a technical verification performed by a team of DND Subject Matter Experts (SMEs) with the exception for the conformance to specified materials which will be proven by the submission from the Contractor with the appropriate test results from accredited independent laboratories or, when stated, Certificate(s) of Compliance (C of C).

**2.0 Pre-Award Samples, Supporting Documentation, and Evaluation.**

**2.1 Pre-Award Samples.** As part of the evaluation, to confirm a Contractor's capability of meeting the technical requirements, the following pre-award samples must be submitted:

**Table I – Physical Samples To Be Submitted At Pre-Award**

Time Period	Requirement
Pre-Award Stage	One (1) sample of the Extreme Cold Weather Parka in size 7040.
Pre-Award Stage	One (1) sample of the Extreme Cold Weather Bib Overalls in size 7034.

**2.1.1 Material Substitutions.** In the event that a component (hook and loop fastener, slide fastener, cord, etc. excluding the textiles identified in Annex K that require yardage/samples and testing at the pre-award stage) is not available to the bidder in the time frame to manufacture the physical samples, the bidder may use a similar substitute component, on the condition that a letter addressing the substitution is submitted with the pre-award samples, together with a statement that, should the bidder be awarded the contract, all materials will be strictly in accordance with the technical requirement outlined in **Annex B** or **Annex C**.



- 2.2 **Workmanship and Construction Evaluation.** As part of the evaluation, to confirm a Contractors' submission for the quality of workmanship and for the ability to demonstrate capability to meet requisite technologies, the workmanship and construction will be evaluated using the criteria outlined in **Table II**.
- 3.0 **Definitions.**
- 3.1 **Deviation.** A deviation is defined as a non-compliance of an essential performance or design requirement outlined in **Annex B (Parka)** or **Annex C (Overalls)**.
- 3.2 **Infraction.** An infraction is defined as a workmanship or construction issue evaluated to be non-compliant that directly affects serviceability of the garment.
- 3.3 **Observation.** An observation is defined as a workmanship or construction issue evaluated to be non-compliant that does not necessarily affect serviceability of the garment but affects overall quality assurance.
- 3.4 **Maximum Infractions.** No workmanship and construction deviations will be accepted in any of the pre-award samples. A maximum of three (3) workmanship and construction infractions will be accepted in any of the pre-award samples. Observations will be noted and referenced in the pre-award evaluation to then be corrected at pre-production. **Workmanship or construction issues found with the submission not listed in Table II will be deemed as an observation.**

**Table II – Workmanship and Construction Evaluation – Parka and Overalls**

Detail	Reference		Classification of Infraction <sup>1</sup>		
	Annex B (Parka)	Annex C (Overalls)	Criteria	Deviation	Infraction
Cutting	3.5.2	3.5.2	Shell parts of the parka and overalls are not cut in the direction of the warp as shown on the paper patterns.		X

<sup>1</sup>The classification of “infraction” is for the purposes of evaluation only.

Detail	Reference		Criteria	Classification of Infraction <sup>1</sup>		
	Annex B (Parka)	Annex C (Overalls)		Deviation	Infraction	Observation
Sewing	3.6	3.6	<ul style="list-style-type: none"> <li>Seams twisted, pleated, or puckered;</li> <li>Part of the ensemble caught in any unrelated operation or stitching;</li> <li>Thread breaks not secured;</li> <li>Ends of seams and stitches (when not caught in other seams or stitching) not back stitched or bartacked;</li> <li>Thread colour is not in accordance with that specified;</li> <li>Gauge of stitching uneven (seams, hems or top stitching);</li> <li>Stitch tension:               <ol style="list-style-type: none"> <li>Loose tension in any area more than 2-inches;</li> <li>Tight tension (stitches break when normal strain is applied to the seam or stitching);</li> </ol> </li> <li>Sewing defects causing open seams of more than ¼ inch (0.635 cm).</li> </ul>		X	
Hook and Loop Fastener Tape	3.6.11	3.4.12	<ul style="list-style-type: none"> <li>Hook and loop fastener tape is not stitched and positioned as detailed in para 3.7 Construction;</li> <li>Stitching is not formed into the hook and loop portion of the tape; and</li> <li>Hook and loop is not positioned to effect proper closure of assembly (i.e. non-functional).</li> </ul>			X

Detail	Reference		Criteria	Classification of Infraction <sup>1</sup>		
	Annex B (Parka)	Annex C (Overalls)		Deviation	Infraction	Observation
Seam Sealing			<ul style="list-style-type: none"> <li>Seams are not sealed in a manner that will ensure the integrity of the waterproof barrier layer in the garment in accordance with DSSPM 2-2-80-215.</li> <li>Seams will be visually examined for the following:               <ol style="list-style-type: none"> <li>Tape which is not centered across the width of the seam;</li> <li>Delamination along edges of tape, over seam allowance and stitching or across the width of the tape;</li> <li>Bubbling;</li> <li>Blistering;</li> <li>Puckering;</li> <li>Melting; and</li> <li>Ends of threads which have not been trimmed.</li> </ol> </li> <li>Ends and joints will be visually examined for the following:               <ol style="list-style-type: none"> <li>Loose ends and corners which have not bonded;</li> <li>Rough edges or beads at the ends; and</li> <li>An overlap at a join of less than 3/4-inch (19.1 mm).</li> </ol> </li> <li>Drill holes and stitching lines not in seams will be visually examined to determine if any are left uncovered without a designated exception;</li> <li>The stiffness of the seam area will be visually examined for a marked increase in stiffness.</li> </ul>			
	3.6.12 and Table IX	3.6.11 and Table III			X	
Bartacks	3.6.13	3.6.12	<ul style="list-style-type: none"> <li>Bartacks are not positioned as detailed in para 3.7 Construction or as show on applicable Figures;</li> <li>Insecure bartacks or not serving intended purpose; and</li> <li>Loose, incomplete or broken stitches.</li> </ul>			X
Button and Strap Assembly	3.6.15	3.6.14	<ul style="list-style-type: none"> <li>Buttons and loops are not positioned to effect closure of pocket assemblies.</li> </ul>			X

Detail	Reference		Criteria	Classification of Infraction <sup>1</sup>		
	Annex B (Parka)	Annex C (Overalls)		Deviation	Infraction	Observation
Snap Fasteners	3.6.16	3.6.15	<ul style="list-style-type: none"> <li>Any part of assembly missing, broken, cracked or bent not securely cinched, or affecting function;</li> <li>One or more clinched too tightly cutting surrounding fabric; and</li> <li>Loosely attached assemblies; socket or stud spins freely or wobbles.</li> </ul>			X
Scale of Measurements	3.8	3.8	<ul style="list-style-type: none"> <li>Measurements out of tolerance from that detailed in the Scale of Measurements (Table I).</li> </ul>		X	
Component Measurements	3.8	3.8	<ul style="list-style-type: none"> <li>Measurements with tolerances exceeding <b>plus or minus</b> 1/4-inch (6.35 mm) from that detailed in applicable Figures. This includes, but is not limited to, positioning on garment and functional lengths.</li> </ul>		X	
Marking, Care, and User Labels	Para 3.11 to Para 3.16 inclusive	Para 3.11 and Para 3.12	<ul style="list-style-type: none"> <li>Labeling omitted, incorrect, illegible, or incomplete.</li> </ul>			X
Construction - General	3.7	3.7	<ul style="list-style-type: none"> <li>Thread ends not trimmed throughout the garment;</li> <li>Needle chews likely to develop into a hole;</li> <li>Components missing or wrong size of component used;</li> <li>Cuts, tears, holes, mends, lumps, creases, weak places, or other deficiencies seriously affected serviceability;</li> <li>Any operation improperly performed.</li> </ul>			X
Construction - General	3.7	3.7	<ul style="list-style-type: none"> <li>Any draw cord caught in the hem, casing, or tunnel stitching restricting the functionality of the assembly;</li> <li>Any draw cord ends not knotted and/or fused;</li> <li>Any draw cord insufficient in length for function.</li> </ul>			X

Detail	Reference		Criteria	Classification of Infraction <sup>1</sup>		
	Annex B (Parka)	Annex C (Overalls)		Deviation	Infraction	Observation
Construction - General	3.7	3.7	<ul style="list-style-type: none"><li>Any part of slide fastener assembly bent, broken, or otherwise defective;</li><li>Any part of the slide fastener not attached to the assembly.</li></ul>			X



#### NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

#### AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

### QUALITY CONTROL TESTING REQUIREMENTS TEXTILE COMPONENTS

- 1.1** Tests and test results or a Certificate of Compliance (C of C) will be required on each textile component at the frequency stated in the Table below, before the material is delivered to Canada or put into garment / end item production, if contractor supplied material. Test results as specified in the Table below shall also be submitted before the material is put into production when there is any change in the source of supply for the material(s). DND written approval is required prior to using any material from a new supplier.
- 1.2** Unless otherwise specified, all tests and test methods shall be in accordance with the specified requirements. All tests specimens shall be taken from the same sample of cloth. All testing shall be conducted by an accredited independent laboratory familiar with textile testing. Testing carried out by university textile testing laboratories will also be acceptable. Should a non-accredited laboratory be required for specific tests, approval shall be sought and received in writing from the Design Authority in advance.
- 1.3** The test interval is subject to change. It may be increased or decreased at the discretion of the Department of National Defence. DND may also request additional tests and samples at any time.
- 1.4** The CADPAT™ shall be manufactured in accordance with D-80-001-500/SF-001. Colour and IRR "as received" will be evaluated and rated at pre-award, pre-production and during production. Colour and IRR "after 15 washes" will

### EXIGENCES RELATIVES AUX ESSAIS POUR LE CONTRÔLE DE LA QUALITÉ COMPOSANTS TEXTILES

- 1.1** Des essais et des résultats d'essai ou un certificat de conformité (CC) seront exigés pour chaque tissu à la fréquence prescrite au tableau ci-dessous, avant que le tissu soit livré au gouvernement ou avant qu'il puisse être utilisé pour la production du vêtement ou d'un article, si le tissu en question est fourni par l'entrepreneur. Les résultats d'essai prescrits au tableau doivent aussi être soumis avant que le tissu soit utilisé pour la production en cas de changement de la source d'approvisionnement. L'approbation écrite du MDN est requise pour utiliser un tissu provenant d'un nouveau fournisseur.
- 1.2** À moins d'indication contraire, tous les essais et toutes les méthodes d'essai doivent être conformes aux exigences prescrites. Tous les échantillons d'essais seront pris du même échantillon de tissu. Tous les essais doivent être menés par un laboratoire indépendant accrédité ayant une bonne expérience des essais textiles. Les résultats produits par des laboratoires universitaires effectuant des essais textiles seront aussi acceptables. Si un laboratoire non accrédité menait certains essais, il faudrait obtenir au préalable l'autorisation écrite de l'autorité responsable de la conception.
- 1.3** La fréquence des essais peut être modifiée, soit augmentée ou diminuée, à la discrétion du ministère de la Défense nationale. Le MDN peut aussi exiger d'autres essais et échantillons en tout temps.
- 1.4** Le DCamC<sup>MC</sup> doit être fabriqué conformément aux D-80-001-500/SF-001. La couleur et la réflectance dans l'infrarouge (RIR) "tel que reçu" seront évalués et notés au pré-adjudication, de pré-production et en cours de



be recorded but not rated for pass/fail. It is the goal of the Department of National Defence to meet the camouflage and concealment requirements of D-80-001-500/SF-001 and in all factors.

**1.5** Although reporting of test results for all properties is not required for some textile components at a certain stage, it is mandatory that the requirements be met in accordance with the applicable specification. The government of Canada reserves the right to carry out testing of any specified property in order to confirm the compliance of the fabric with the applicable specification in its entirety.

**1.6** When a fabric sample is required, the sample must be clearly labelled and traceable to the applicable production lots. The bidder and/or contractor must be able to provide the QA documentation to assure the fact that the test results were obtained on fabric from the same production as the submitted sample.

**1.7** For the pre-award evaluation, it is acceptable to submit a cloth sample and associated test results that had been submitted for a previous DND contract or Request for Proposal, ONLY if cloth from that previous contract or Request for Proposal is available for use in this current requirement. These samples and associated tested data shall be less than 2 years old. *Test reports are not to be altered to reflect the current contract and date*, nor should the name to which the original report was issued to be altered or changed. A cover letter from the bidder explaining the submission of previous test data is required with the test reports.

**1.8** The fabric samples and test results submitted at pre-award will be evaluated for best compliance to the applicable specification.

**1.9** The fabric samples and test results submitted at pre-production shall be from the production lot that is intended for use in this current contract. The pre-production samples shall be representative of the finished product in all respects.

**1.10** The production testing and samples shall be from the production that is intended for use in this contract.. All of the production test results must be submitted through the DND Quality Assurance Representative (DNQAR) and in turn forwarded to the Technical Authority for approval.

production. La couleur et RIR "après 15 lavages" sera enregistrée mais pas prévus pour de réussite/échec. C'est l'objectif du ministère de la Défense nationale pour répondre aux exigences de camouflage et de dissimulation de D-80-001-500/SF-001 de tous les facteurs.

**1.5** Même s'il n'est pas nécessaire de produire des rapports d'essai pour certains articles à une étape donnée, il est obligatoire que les exigences soient respectées conformément à la spécification applicable. Le gouvernement de Canada se réserve le droit de tester n'importe laquelle des propriétés prescrites afin de s'assurer de la conformité du tissu à toutes les exigences de la spécification applicable.

**1.6** Lorsqu'un échantillon de tissu est nécessaire, il doit être clairement identifié et être traçable aux lots de production. Le soumissionnaire ou l'entrepreneur doit pouvoir fournir la documentation d'assurance de la qualité garantissant que les résultats des essais ont été obtenus avec le tissu provenant du même lot de production que l'échantillon soumis.

**1.7** Pour l'évaluation pré-adjudication, il est acceptable de soumettre un échantillon de tissu et des résultats d'essai associés qui avaient été soumis pour un contrat précédent ou une demande de proposition précédent du MDN, SEULEMENT si le tissu de ce contrat précédent ou cette demande de proposition est disponible pour utilisation dans cette exigence actuelle. Ces échantillons et essais associés seront moins de 2 années. *Les rapports d'essai ne doivent pas être modifiés pour refléter le nouveau contrat ni la nouvelle date*. De plus, il est interdit de modifier ou de changer le nom du destinataire du rapport initial. Une lettre d'accompagnement du soumissionnaire expliquant la soumission des essais précédents est exigée avec les rapports des essais.

**1.8** Les échantillons de tissu et des résultats d'essai soumis à l'étape de pré-adjudication seront évaluées pour la meilleure conformité aux exigences applicables.

**1.9** Les échantillons de tissu et des résultats d'essai associés soumis à l'étape de pré-production doivent provenir du tissu que le soumissionnaire prévoit utiliser pour le présent contrat. Les échantillons de pré-production doivent être représentatifs du produit fini sous tous les rapports.

**1.10** Les résultats d'essai et les échantillons de production doivent provenir du tissu que le soumissionnaire prévoit utiliser pour le présent contrat. Tous les résultats des essais effectués pendant la production doivent être soumis au représentant de l'assurance de la qualité du MDN (MDN RAQ).

## TESTING AND REPORTING REQUIREMENTS

Material	Requirement	Testing Requirements and Frequency		
		Pre-Award	Pre-Production	Production
Cloth, Twill, nylon/cotton, 170 g/m <sup>2</sup> (Oil and Water Repellent) CADPAT™ (TW)	D-80-001-121/SF-001	Test results for: - Mass - Tear Strength - Water resistance - Colourfastness to light - Colourfastness to laundering - Dimensional Stability to laundering (after 3 cycles) - Colour as received and after 15 washes - IRR as received and after 15 washes	Full testing at the start of garment production including: Colour as received and after 15 washes IRR as received and after 15 washes  Two (2) meters full width fabric sample.	Full testing every 15,000m of production, or part thereof, or when supplier changes including: - Colour as received and after 15 washes - IRR as received and after 15 washes  One (1) meter full width fabric sample.
	DSSPM 2-2-80-500 (D-80-001-500/SF-001)	One (1) meter full width fabric sample.		
Waterproof Moisture Vapour Permeable (WMVP) Barrier Fabric	DSSPM 2-2-80-215	Test results for: - Moisture Vapour Permeability (all conditions) - Water Resistance (all conditions) - Chemical Resistance (all conditions) - Dimensional Stability to laundering  One (1) meter full width fabric sample.	Full testing at the start of garment production.  Two (2) meters full width fabric sample.	Full testing every 15,000 m of production, or part thereof, or when supplier changes including:  One (1) meter full width fabric sample.
Sealing Tape	DSSPM 2-2-80-215 Table II	12 x 12 inch seam sample  Full Testing	12 x 12 inch seam sample  Full testing at the start of garment production	12 x 12 inch seam sample  Full testing every 15,000m of production, or when supplier changes

Material	Requirement	Testing Requirements and Frequency		
		Pre-Award	Pre-Production	Production
<b>Cloth, Taffeta, Nylon, 88 g/m<sup>2</sup></b>	DSSPM 2-2-80-052 Type II	Test results for: - Mass - Breaking Strength - Dimensional Change in Laundering - Colourfastness to Perspiration  One (1) meter full width fabric sample.	Full testing at the start of garment production.  Two (2) meters full width fabric sample.	Full testing every 15,000 m of production, or part thereof, or when supplier changes.  One (1) meter full width fabric sample.
<b>Cloth, Plain Weave, Nylon, 195 g/m<sup>2</sup></b>	DSSPM 2-2-80-091	Test results for: - Mass - Breaking Strength - Dimensional Change in Laundering  One (1) meter full width fabric sample.	Full testing at the start of garment production.  Two (2) meters full width fabric sample.	Full testing every 15,000 m of production, or part thereof, or when supplier changes.  One (1) meter full width fabric sample.
<b>Cloth, Insulation</b>	DSSPM 2-2-80-214 Types I and II	Certificate of Compliance (C of C) with 250 mm x 250 mm fabric samples.	Full testing at the start of garment production.  One (1) meter full width sample.	Full testing every 15,000 m of production, or part thereof, or when supplier changes.  One (1) meter full width sample.
<b>Cloth, Melton, Wool, 375 g/m<sup>2</sup></b>	DSSPM 2-2-80-042	C of C with 250 mm x 250 mm fabric samples.	Full testing at the start of garment production.  One (1) meter full width sample.	Full testing every 15,000 m of production, or part thereof, or when supplier changes.  One (1) meter full width sample.
<b>Fleece</b>	Annex B Paragraph 3.4.5	C of C with 250 mm x 250 mm fabric samples.	C of C with 250 mm x 250 mm fabric samples.	C of C with 250 mm x 250 mm fabric samples when supplier changes.

Material	Requirement	Testing Requirements and Frequency		
		Pre-Award	Pre-Production	Production
<b>Rib Knit</b>	Annex B Paragraph 3.4.10	C of C	Full testing	C of C when supplier changes.
<b>Hook and Loop Fastener Tape</b>	A-A-55126A Type II, Class 1	C of C	Full Testing	Full testing when supplier changes.
<b>Thread</b> Requirements for: All thread sizes specified	CAN/CGSB-4.131 CAN/CGSB-4.139 4-GP-80Ma 4-GP-85Ma	C of C	C of C	C of C when supplier changes.
<b>Labels</b>	D-80-001-055/SF-001	C of C	Full Testing at the start of garment production	Full testing when supplier changes

**Note:** A Certificate of Compliance (C of C) is a written statement from the supplier guaranteeing the full compliance of the product to the specification, or portion thereof, referenced. This document must be on official company stationery, it must be current, it must make reference to the applicable specification and have the original signature of the company's designated representative. The Crown reserves the right to verify the statements made in the C of C. Full test results, demonstrating the product's compliance, will be accepted in lieu of a C of C.

# EXIGENCES RELATIVES AUX ESSAIS ET À LA PRODUCTION DES RAPPORTS

Matériau	Exigence	Exigences relatives aux essais et à la fréquence		
		Pré-adjudication	Pré-production	Production
Tissu, croise de nylon/coton, 170 g/m <sup>2</sup> (imperméable à l'huile et à l'eau)  DCamC <sup>mc</sup> (RBT)	D-80-001-121/SF-001  DSSPM 2-2-80-500 (D-80-001-500/SF-001)	Résultats d'essais pour: - Masse - Résistance à la déchirure - Résistance à l'eau - Solidité de la teinture à la lumière - Solidité de la couleur au lavage - Stabilité dimensionnelle au blanchissage (après 3 cycles) - Couleur à la réception et après 15 lavages - RIR à la réception et après 15 lavages  Échantillon de tissu pleine largeur d'un (1) mètre de longueur.	Essais complets au début de la production, y compris: - Couleur à la réception et après 15 lavages - RIR à la réception et après 15 lavages  Échantillon de tissu pleine largeur de deux (2) mètres de longueur.	Essais complets doivent être soumis à tous les 15 000 m de production de tissu, ou une partie de ceux-ci, ou dans le cas d'un changement de fournisseur, y compris: - Couleur à la réception et après 15 lavages - RIR à la réception et après 15 lavages  Échantillon de tissu pleine largeur d'une (1) mètre de longueur.
Tissu avec membrane imperméable à l'eau et perméable à la vapeur de l'eau	DSSPM 2-2-80-215	Les résultats d'essais pour: - Perméabilité à la vapeur d'eau (toutes les conditions) - Résistance à l'eau (toutes les conditions) - Résistance aux substances chimiques (toutes les conditions) - Stabilité dimensionnelle au blanchissage (après 3 cycles)  Échantillon de tissu pleine largeur d'une (1) mètre de longueur.	Essais complets au début de la production.  Échantillon de tissu pleine largeur de deux (2) mètres de longueur.	Essais complets doivent être soumis à tous les 15 000 m de production de tissu, ou une partie de ceux-ci, ou dans le cas d'un changement de fournisseur.  Échantillon de tissu pleine largeur d'une (1) mètre de longueur.
Coutures scellées	DSSPM 2-2-80-215 Table II	Essais complets.  Échantillon de couture scellée de 300 mm par 300 mm.	Échantillon de couture scellée de 300 mm par 300 mm.  Essais complets au début de la production.	Échantillon de couture scellée de 300 mm par 300 mm.  Essais complets doivent être soumis à tous les 15 000 m de production

Matériau	Exigence	Exigences relatives aux essais et à la fréquence		
		Pré-adjudication	Pré-production	Production
				de tissu, ou une partie de ceux-ci, ou dans le cas d'un changement de fournisseur.
<b>Tissu de taffetas de nylon, 88 g/m<sup>2</sup></b>	DSSPM 2-2-80-052 Type II	Les résultats d'essais pour: - Masse - Résistance à la rupture - Changement dimensionnel après lavage (après 3 cycles) - Solidité de la couleur à la sueur Échantillon de tissu pleine largeur d'une (1) mètre de longueur.	Essais complets au début de la production. Échantillon de tissu pleine largeur de deux (2) mètres de longueur.	Essais complets doivent être soumis à tous les 15 000 m de production de tissu, ou une partie de ceux-ci, ou dans le cas d'un changement de fournisseur. Échantillon de tissu pleine largeur d'une (1) mètre de longueur.
<b>Tissu de nylon, armure unie, 195 g/m<sup>2</sup></b>	DSSPM 2-2-80-091	Les résultats d'essais pour: - Masse - Résistance à la rupture - Changement dimensionnel après lavage (après 3 cycles) Échantillon de tissu pleine largeur d'une (1) mètre de longueur.	Essais complets au début de la production. Échantillon de tissu pleine largeur de deux (2) mètres de longueur.	Essais complets doivent être soumis à tous les 15 000 m de production de tissu, ou une partie de ceux-ci, ou dans le cas d'un changement de fournisseur. Échantillon de tissu pleine largeur d'une (1) mètre de longueur.
<b>Tissu isolant</b>	DSSPM 2-2-80-214 Types I et II	Un certificat de conformité (CC) avec un échantillon de tissu de 250mm par 250mm	Essais complets. Échantillon de tissu pleine largeur d'une (1) mètre de longueur.	Essais complets doivent être soumis à tous les 15 000 m de production de tissu, ou une partie de ceux-ci, ou dans le cas d'un changement de fournisseur. Échantillon de tissu pleine largeur d'une (1) mètre de longueur.



Matériau	Exigence	Exigences relatives aux essais et à la fréquence		
		Pré-adjudication	Pré-production	Production
<b>Tissu tricot "molleton"</b>	Annexe B Paragraphe 3.4.5	CC avec un échantillon de tissu de 250mm par 250mm	CC avec un échantillon de tissu de 250mm par 250mm	mètre de longueur. CC avec un échantillon de tissu de 250 mm par 250 mm au changement de fournisseur
<b>Tricot à côtes</b>	Annexe B Paragraphe 3.4.10	CC	CC	CC au changement de fournisseur.
<b>Ruban autoagrippant à boucles et à crochets</b>	A-A-55126A (Type II, Classe 1)	CC	Essais complets	Essais complets au changement de fournisseur.
<b>Fil</b> Exigences pour toutes les tailles de fil spécifiées	CAN/CGSB-4.131 CAN/CGSB-4.139 4-GP-80Ma 4-GP-85Ma	CC	CC	CC au changement de fournisseur.
<b>Étiquettes</b>	D-80-001-055/SF-001	CC	Essais complets	CC au changement de fournisseur.

**Remarque :** Un certificat de conformité (CC) est une attestation écrite du fournisseur garantissant une conformité totale du produit à la spécification, ou à une partie de celle-ci, citée en référence. Ce document doit être produit sur le papier officiel de l'entreprise, il doit être valide, faire référence à la spécification applicable et porter la signature originale du représentant désigné de l'entreprise. Le gouvernement se réserve le droit de vérifier les déclarations faites sur le certificat de conformité. Les résultats des essais complets, démontrant la conformité du produit, seront acceptés au lieu du certificat de conformité.

NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

**REQUIREMENT FOR SPECIAL SIZES**

The term "special size" is defined as those sizes outside the realm of the scale of measurements presently held in order to obtain a proper fit. The Department of National Defence will supply the following body measurements with every order:

- a. Height without shoes;
- b. Chest / bust circumference;
- c. Waist circumference;
- d. Hip circumference (women only);
- e. Neck circumference;
- f. Sleeve length; and
- g. Inseam.

Paper patterns for special size garments shall be the responsibility of the bidder. Special size garments shall be made in full technical compliance with the technical data included as Annexes to this requisition. Please refer to Annex M (Size Roll) for the NATO Stock Number for the special size.

**CONDITION POUR DES TAILLES SPÉCIALES**

L'expression "taille spéciale" est décrite comme étant les tailles qui sont définies en dehors de l'éventail de l'échelle des mesures qui est présentement détenu pour un bon ajustage. Le ministère de la Défense nationale fournira les mensurations suivantes avec chaque commande :

- h. Hauteur sans chaussures;
- i. Tour du thorax/du buste;
- j. Tour de taille;
- k. Tour des hanches (femmes seulement);
- l. Tour du cou;
- m. Longueur de la manche; et
- n. Couture d'entrejambes.

Les patrons de papier pour les vêtements de taille spéciale doivent être la responsabilité du soumissionnaire. Les vêtements de taille spéciale devront être confectionnés conformément aux données techniques qui sont incluses en tant qu'annexes à cette demande. Veuillez se référer à l'annexe M (roulement de taille) pour le nombre courant de l'OTAN pour la taille spéciale.



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AVIS  
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Annex (e) N  
W8486-123144  
12 MAR 2012

1. Each item of clothing, or matched pair, must be neatly folded in accordance with good commercial practice. Items of clothing with a unit of issue "each" must be packaged individually. All others may be packaged in larger quantities. The package must consist of a polyethylene (or other transparent film) bag or envelope, made of material not less than one (1) mil thickness. The bags must be taped or stapled to effect closure and must be legibly marked (labelled) as follows (only required if the garment's identification markings are not clearly visible through the bag):

NATO Stock Number (NSN) *	- As specified on contract
Nomenclature (including size) **	- As specified on contract
Quantity / Unit of Issue	- As applicable

2. A quantity of packages, of the same NSN, must be packed into a corrugated fibreboard box conforming to Canadian General Standards Board (CGSB) specification CAN/CGSB-43.22-2001. Overall inside dimensions (length, width and depth added) must not exceed 1.5 metres (59 inches). The maximum weight of the box and contents must not exceed 18 kilograms (40 pounds). The box size and content quantity must be uniform for the duration of the contract.

3. Closure of the corrugated fibreboard box must be in accordance with CGSB specification CAN/CGSB-43.22-2001 (Appendix B).

4. On one end of each corrugated fibreboard box, stencilling or labelling in figures as large as practicable in relation to the space available must legibly mark the following information:

NATO Stock Number (NSN) *	- As specified on contract
Nomenclature (including size) **	- As specified on contract
Quantity (per box) / Unit of Issue	- As applicable
Gross Weight (nearest kg)	- As applicable
Contract Serial Number	- As specified on contract

5. On one side of each corrugated fibreboard box, stencilling or labelling in figures as large as practicable in relation to the space available must legibly mark the following information:

Consignee	- As specified on contract
Consignor	- Supplier's name or symbol
Case ____ of ____ cases	- As applicable within each shipment

6. The last shipping container of each shipment must have affixed to the side on which the shipping instructions are contained (paragraph 5), an envelope containing the Packing List, Release Note, etc. This water-resistant envelope must be prominently marked "Packing List Enclosed" and must be securely affixed to the outside wall of the container.

7. Shipments must be palletized in uniform loads and strapped/secured on standard 4-way entry, 48-inch by 40-inch wood or fibreboard non-returnable pallets, to be supplied by the contractor. Total height, including pallet, must not exceed 47 inches.

\* Marking must be applied using Bar Code Symbology UCC/EAN-128 with AI 7001, including HRI (in accordance with D-LM-008-002/SF-001)

\*\* Bilingual format - English/French

Canadian Forces Transportation Packaging Order		Date	15 Jul 2011
<b>CFTPO-GENERAL</b>		Nomenclature	As specified on contract
		Based on	As specified on contract
Draftsman H. Fraser	Checker H. Fraser	Design Engineer DSCO 5-4-3	Approval Stamp 



<p>1. Chaque élément de vêtement, ou de paires appariées, doivent être plié soigneusement conformément aux bonnes pratiques commerciales. Les articles d'habillement avec une unité de mesure «chacun» doivent être emballés individuellement. Tous les autres peuvent être emballés dans de plus grandes quantités. Le paquet doit être composé d'un sac ou d'une enveloppe en polyéthylène (ou d'une autre pellicule transparente), dont l'épaisseur est d'au moins un (1) mil. Les sacs doivent être scellés à l'aide d'un ruban adhésif ou d'agrafes, et l'information suivante (inscrite sur une étiquette) doit figurer lisiblement sur chacun (uniquement nécessaire si les marques d'identification du vêtement ne sont pas clairement visibles à travers le sac):</p>	<p>Commande d'Emballage pour le Transport – Forces canadiennes</p>	<p><b>CETFC-GÉNÉRALE</b></p>	<p>Date 15 Jul 2011</p>	<p>Feuille 2 of 2</p>
<p>Numéro de nomenclature OTAN (NNO) * - Selon le contrat Nomenclature (comprenant la taille) ** - Selon le contrat Quantité / Unité de mesure - Selon le cas</p>			<p>Nomenclature Selon le contrat</p>	<p>Basé sur Selon le contrat</p>
<p>2. Une quantité de paquets, de la même grandeur, doivent être placés dans un conteneur en carton dur ondulé, conformément à la norme CAN/CGSB-43.22-2001 de l'Office des normes générales du Canada (ONGC). Les dimensions générales intérieures (somme de la longueur, de la profondeur et de la hauteur) ne doivent pas dépasser 1,5 m (59 po). Le poids maximal du conteneur, avec son contenu, ne doit pas dépasser 18 kg (40 lb). La taille du conteneur et la quantité contenue doivent demeurer la même pour la durée du contrat.</p>			<p>Désignatrice H. Fraser</p>	<p>Vérificatrice H. Fraser</p>
<p>3. La fermeture du conteneur en carton dur ondulé doit être conforme à la norme CAN/CGSB-43.22-2001 (appendice B) de l'ONGC.</p>	<p>4. Sur une extrémité de chaque conteneur en carton dur ondulé, l'information suivante doit figurer lisiblement en caractères aussi grands que permis par l'espace disponible (inscrite à l'aide d'un pochoir ou sur une étiquette) :</p>	<p>Numéro de nomenclature OTAN (NNO) * - Selon le contrat Nomenclature (comprenant la taille) ** - Selon le contrat Quantité (par conteneur) / Unité de mesure - Selon le cas Poids brut (arrondir au kg) - Selon le cas Numéro de série du contrat - Selon le contrat</p>	<p>5. Sur un côté de chaque conteneur en carton dur ondulé, l'information suivante doit figurer lisiblement en caractères aussi grands que permis par l'espace disponible (inscrite à l'aide d'un pochoir ou sur une étiquette) :</p>	<p>Destinataire - Selon le contrat Expéditeur - Nom ou marque du fournisseur Conteneur ___ de ___ - Selon chaque cargaison</p>
<p>6. Le dernier conteneur d'expédition de chaque cargaison, doit porter sur le côté où l'on retrouve les instructions d'envoi (paragraphe 5), une enveloppe contenant le bordereau d'expédition, le bordereau de libération, etc. Cette enveloppe, résistante à l'eau, doit porter clairement les mots «bordereau d'expédition ci-inclus» et doit être bien fixée à la paroi extérieure du conteneur.</p>	<p>7. L'entrepreneur doit fournir des palettes standard de type perdu, en bois ou en carton dur ondulé, accessibles des quatre côtés et mesurant 48 po sur 40 po. Les conteneurs doivent y être disposés uniformément (groupées par NNO) et solidement arrimées. La hauteur totale, y compris la palette, ne doit pas dépasser 47 po.</p>	<p>* Les marques doivent être apposées au moyen de la symbologie code à barres UCC/EAN-128, avec le numéro d'identification d'application IA 7001, y compris la traduction en clair TC (conformément à la D-LM-008-002/SF-001)</p>	<p>** Format bilingue – Anglais/ Français</p>	<p>CF 798</p>



## **NOTICE**

This document has been examined by the Technical Authority for content and confirmed that it has no references to controlled goods.

**Pre-Production and Production Evaluation Plan  
for the Parka and Bib Overalls, Extreme Cold Weather,  
CADPAT™ (TW), Integrated Clothing Ensemble (ICE)**

**Pre-Production, and Production Evaluation Plan for the Parka and Bib Overalls, Extreme Cold Weather, CADPAT™ (TW), Integrated Clothing Ensemble (ICE)**

**1.0 General.**

**1.1 Pre-Production Evaluation Plan.** This annex describes how The Department of National Defence (DND) will perform the pre-production evaluation of the Extreme Cold Weather, CADPAT™ Temperate Woodlands (TW), Parka and Bib Overalls in terms of evaluating physical samples for the quality of workmanship and for their ability to demonstrate capability to meet requisite technologies, and for conformance to specified materials and measurements outlined in **Annex B and Annex C**. The pre-production evaluation will be done through a technical verification performed by a team of DND Subject Matter Experts (SMEs) with the exception for the conformance to specified materials which will be proven by the submission from the Contractor with the appropriate test results from accredited independent laboratories or, when stated, Certificate(s) of Compliance (C of C).

**2.0 Pre-Production Samples, Supporting Documentation, and Evaluation.**

**2.1 Pre-Production Samples.** As part of the evaluation, to confirm a Contractor's capability of meeting the technical requirements, the following pre-production samples must be submitted:

**Table I – Physical Samples To Be Submitted At Pre-Production**

Time Period	Requirement
Pre-Production Stage	One (1) sample of the Extreme Cold Weather Parka in size 7040.
Pre-Production Stage	One (1) sample of the Extreme Cold Weather Bib Overalls in size 7034.

**2.1.1 Material Substitutions.** No material substitutions allowed at the Pre-Production Stage. All materials must be strictly in accordance with the technical requirements outlined in **Annex B** or **Annex C**.

**2.2 Evaluation of Conformance to Specified Materials and Measurements.**

**2.2.1 Material Testing Information.** As part of the evaluation, to confirm a Contractors' capability of meeting the technical requirements, the test results and/or certificates of compliance outlined in Table II (Parka) and Table III (Overalls) must be submitted at pre-production.



**2.2.1.1** The test interval is subject to change. It may be increased or decreased at the discretion of the Department of National Defence. DND may also request additional tests and samples at any time.

**2.2.1.2** Although reporting of test results for all properties is not required for some components at a certain stages, it is mandatory that the requirements be met in accordance with the applicable specification. The Government of Canada reserves the right to carry out testing of any specified property in order to confirm the compliance with the applicable specification in its entirety.

**2.2.1.3** Unless otherwise specified, all tests and test methods shall be in accordance with the specified requirements. All testing shall be conducted by an accredited independent laboratory familiar with textile testing. Testing carried out by university textile testing laboratories will also be acceptable. Should a non-accredited laboratory be required for specific tests, approval shall be sought and received in writing from the Design Authority in advance.

**2.2.2 Definition - Certificate of Compliance (C of C).** A Certificate of Compliance (C of C) is a written statement from the supplier guaranteeing the full compliance of the product to the specification, or portion thereof, referenced. This document must be on official company stationery, it must be current, it must make reference to the applicable specification and have the original signature of the company's designated representative. The Crown reserves the right to verify the statements made in the C of C. Full test results, demonstrating the product's compliance, will be accepted in lieu of a C of C.

**Table II – Mandatory Material Testing Information At Pre-Production - Parka**

Material	Reference	Requirement and Reference	Testing Requirements and Frequency	
			Pre-Production	
Slide Fasteners (with the exception of the hood)	Annex B, para 3.4.13	<b>ALL SLIDE FASTENERS</b> must in accordance with D-83-001-005/SF-001. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.	Certificate of Compliance showing applicable information from the source of supply.	
Slide Fastener For the Parka Hood	Annex B para 3.4.13.1	<b>ALL SLIDE FASTENERS</b> must in accordance with D-83-001-005/SF-001. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.	Certificate of Compliance showing applicable information from YKK Canada.	
Elastic Cord	Annex B para 3.4.17	<b>ELASTIC CORD</b> must be in accordance with Annex C, para 3.4.17. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.	Certificate of Compliance showing applicable information from the source of supply.	

<b>Material</b>	<b>Reference</b>	<b>Requirement and Reference</b>	<b>Testing Requirements and Frequency</b> <b>Pre-Production</b>
Cord for the hood, waist and slide fastener pulls	Annex B, para 3.4.18	<b>CORD, PLAITED, SPUN SYNTHETIC FIBRE, TYPE I</b> in accordance with D-80-001-028/SF-001 and Sealed Pattern DSSPM 266-82.	Certificate of Compliance showing applicable information from the source of supply.
Draw Cord Locks	Annex B, para 3.4.19	<b>DRAW CORD LOCKS</b> must be in accordance with Annex B, para 3.4.19. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.	Certificate of Compliance showing applicable information from the source of supply.
Face Shield Wire	Annex B, para 3.4.20	<b>FACE SHIELD WIRE</b> must be in accordance with Annex B, para 3.4.20.	Certificate of Compliance showing applicable information from the source of supply.
Buttons	Annex B, para 3.4.21	<b>BUTTONS</b> must in accordance with CF-B-854, Drawings 373118 and 389556. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.	Certificate of Compliance showing applicable information from the source of supply.
Snap Fasteners	Annex B, para 3.4.22	<b>SNAP FASTENERS</b> must be in accordance with Annex B, para 3.4.22.	Certificate of Compliance showing applicable information from the source of supply.

**Table III – Mandatory Material Testing Information At Pre-Production - Overalls**

<b>Material</b>	<b>Reference</b>	<b>Requirement and Reference</b>	<b>Testing Requirements and Frequency</b> <b>Pre-Production</b>
Slide Fasteners	Annex C, para 3.4.8	<b>ALL SLIDE FASTENERS</b> must in accordance with D-83-001-005/SF-001. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.	Certificate of Compliance showing applicable information from the source of supply.
Suspender Elastic	Annex C, para 3.4.9	<b>SUSPENDER ELASTIC</b> must be in accordance with Annex C, para 3.4.9. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.	Certificate of Compliance showing applicable information from the source of supply.

Material	Reference	Requirement and Reference	Testing Requirements and Frequency	
			Pre-Production	
Leg Lining Elastic	Annex C, para 3.4.10	<b>LEG LINING ELASTIC</b> must be in accordance with Annex C, para 3.4.10. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01 or black.	Certificate of Compliance showing applicable information from the source of supply.	
Cord for the leg bottom and slide fastener pulls	Annex C, para 3.4.11	<b>CORD, PLAITED, SPUN SYNTHETIC FIBRE, TYPE I</b> in accordance with D-80-001-028/SF-001 and Sealed Pattern DSSPM 266-82.	Certificate of Compliance showing applicable information from the source of supply.	
Buttons	Annex C, para 3.4.14	<b>BUTTONS</b> must in accordance with CF-B-854, Drawings 373118 and 389556. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.	Certificate of Compliance showing applicable information from the source of supply.	
Snap Fasteners	Annex C, para 3.4.13	<b>SNAP FASTENERS</b> must be in accordance with Annex C, para 3.4.13.	Certificate of Compliance showing applicable information from the source of supply.	

**2.2.3 Workmanship and Construction Evaluation.** As part of the evaluation, to confirm a Contractors' submission for the quality of workmanship and for the ability to demonstrate capability to meet requisite technologies, the workmanship and construction will be evaluated using the criteria outlined in **Table IV**.

### 3 Definitions.

- 3.1 **Deviation.** A deviation is defined as a non-compliance of an essential performance or design requirement outlined in **Annex B (Parka)** or **Annex C (Overalls)**.
- 3.2 **Infraction.** An infraction is defined as a workmanship or construction issue evaluated to be non-compliant that directly affects serviceability of the garment.
- 3.3 **Observation.** An observation is defined as a workmanship or construction issue evaluated to be non-compliant that does not necessarily affect serviceability of the garment but affects overall quality assurance.

3.4 **Maximum Infractions.** No workmanship and construction deviations will be accepted in any of the pre-production samples. A maximum of three (3) workmanship and construction infractions will be accepted in any of the pre-production samples. Observations will be noted and referenced in the pre-production evaluation to then be corrected in production. **Workmanship or construction issues found with the submission not listed in Table IV will be deemed as an observation.**

**Table IV – Workmanship and Construction Evaluation – Parka and Overalls**

Detail	Reference		Criteria	Classification of Infraction <sup>1</sup>		
	Annex B (Parka)	Annex C (Overalls)		Deviation	Infraction	Observation
Cutting	3.5.2	3.5.2	Shell parts of the parka and overalls are not cut in the direction of the warp as shown on the paper patterns.		X	
Sewing	3.6	3.6	<ul style="list-style-type: none"> <li>Seams twisted, pleated, or puckered;</li> <li>Part of the ensemble caught in any unrelated operation or stitching;</li> <li>Thread breaks not secure;</li> <li>Ends of seams and stitches (when not caught in other seams or stitching) not bartacked;</li> <li>Thread colour is not in accordance with that specified;</li> <li>Gauge of stitching uneven (seams, hems or top stitching);</li> <li>Stitch tension: <ol style="list-style-type: none"> <li>Loose tension in any area more than 2-inches;</li> <li>Tight tension (stitches break when normal strain is applied to the seam or stitching.</li> </ol> </li> <li>Sewing defects causing open seams of more than ¼ inch (0.635 cm).</li> </ul>	X		

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<sup>1</sup>The classification of “infraction” is for the purposes of evaluation only.

Detail	Reference		Criteria	Classification of Infraction <sup>1</sup>		
	Annex B (Parka)	Annex C (Overalls)		Deviation	Infraction	Observation
Hook and Loop Fastener Tape	3.6.11	3.4.12	<ul style="list-style-type: none"> <li>Hook and loop fastener tape is not stitched and positioned as detailed in para 3.7 (Construction);</li> <li>Stitching is not formed into the hook and loop portion of the tape; and</li> <li>Hook and loop is not positioned to effect proper closure of assembly (i.e. non-functional).</li> </ul>		X	
Seam Sealing	3.6.12 and Table IX	3.6.11 and Table III	<ul style="list-style-type: none"> <li>Seams are not sealed in a manner that will ensure the integrity of the waterproof barrier layer in the garment in accordance with DSSPM 2-2-80-215.</li> <li>Seams will be visually examined for the following:               <ol style="list-style-type: none"> <li>Tape which is not centered across the width of the seam;</li> <li>Delamination along edges of tape, over seam allowance and stitching or across the width of the tape;</li> <li>Bubbling;</li> <li>Blistering;</li> <li>Puckering;</li> <li>Melting; and</li> <li>Ends of threads which have not been trimmed.</li> </ol> </li> <li>Ends and joints will be visually examined for the following:               <ol style="list-style-type: none"> <li>Loose ends and corners which have not bonded;</li> <li>Rough edges or beads at the ends; and</li> <li>An overlap at a join of less than 3/4-inch (19.1 mm).</li> </ol> </li> <li>Drill holes and stitching lines not in seams will be visually examined to determine if any are left uncovered without a designated exception;</li> <li>The stiffness of the seam area will be visually examined for a marked increase in stiffness.</li> </ul>	X		

Detail	Reference		Criteria	Classification of Infraction <sup>1</sup>		
	Annex B (Parka)	Annex C (Overalls)		Deviation	Infraction	Observation
Bartacks	3.6.13	3.6.12	<ul style="list-style-type: none"> <li>• Bartacks are not positioned as detailed in para 3.7 (Construction) or as show on applicable Figures;</li> <li>• Insecure bartacks or not serving intended purpose; and</li> <li>• Loose, incomplete or broken stitches.</li> </ul>		X	
Button and Strap Assembly	3.6.15	3.6.14	<ul style="list-style-type: none"> <li>• Buttons and loops are not positioned to effect closure of pocket assemblies.</li> </ul>		X	
Snap Fasteners	3.6.16	3.6.15	<ul style="list-style-type: none"> <li>• Any part of assembly missing, broken, cracked or bent nor securely cinched, or affecting function;</li> <li>• One or more clinched too tightly cutting surrounding fabric; or</li> <li>• Loosely attached assemblies; socket or stud spins freely or wobbles.</li> </ul>		X	
Scale of Measurements	3.8	3.8	<ul style="list-style-type: none"> <li>• Measurements out of tolerance from that detailed in applicable Figures or Scale of Measurements (Table I).</li> </ul>	X		
Component Measurements	3.8	3.8	<ul style="list-style-type: none"> <li>• Measurements with tolerances exceeding <b>plus or minus</b> 1/4-inch (6.35 mm) from that detailed in applicable Figures. This includes, but is not limited to, positioning on garment and functional lengths.</li> </ul>	X		
Marking, Care, and User Labels	3.11 to 3.16 inclusive	3.11 and 3.12	<ul style="list-style-type: none"> <li>• Labeling omitted, incorrect, illegible, or incomplete.</li> </ul>	X		
Construction - General	3.7	3.7	<ul style="list-style-type: none"> <li>• Thread ends not trimmed throughout ensemble;</li> <li>• Needle chews likely to develop into a hole;</li> <li>• Components missing or wrong size of component used;</li> <li>• Cuts, tears, holes, rips, mends, lumps, creases, weak places, or other deficiencies seriously affected serviceability; and</li> <li>• Any operation improperly performed.</li> </ul>		X	



Detail	Reference		Criteria	Classification of Infraction <sup>1</sup>		
	Annex B (Parka)	Annex C (Overalls)		Deviation	Infraction	Observation
Construction - General	3.7	3.7	<ul style="list-style-type: none"> <li>Any draw cord caught in the hem, casing, or tunnel stitching restricting the functionality of the assembly;</li> <li>Any draw cord ends not knotted and/or fused;</li> <li>Any draw cord insufficient in length for function.</li> </ul>		X	
Construction - General	3.7	3.7	<ul style="list-style-type: none"> <li>Any part of slide fastener assembly bent, broken, or otherwise defective; and</li> <li>Any part of the slide fastener not attached to the assembly.</li> </ul>		X	

**4.0 Production Requirements.**

**4.1 Production Samples.** At the discretion of the DND Quality Assurance Representative (DNQAR), to confirm a Contractor's continued capability of meeting the technical requirements, the following production samples may be requested:

**Table V – Physical Samples to be Submitted at Pre-Production**

Time Period	Requirement
Production Stage	One (1) sample of the Extreme Cold Weather Parka in size 7040.
Production Stage	One (1) sample of the Extreme Cold Weather Bib Overalls in size 7034.

**4.2 Material Testing.** To confirm a Contractors' capability of meeting the technical requirements, the test results outlined in Table VI must be submitted during production. All of the production test results must be submitted through the DND Quality Assurance Representative (DNQAR) and in turn forwarded to the Technical Authority for approval.

**Table VI – Mandatory Material Testing Information at Production Stage – Parka and Overalls**

Material	Requirement and Reference	Testing Requirements and Frequency	
		Production	
Slide Fasteners	<b>ALL SLIDE FASTENERS</b> must in accordance with D-83-001-005/SF-001. The colour must be Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.	Testing to be submitted every 10,000 units and/or when supplier changes.  Test reports for strength (Strength – Crosswise On Chain and Strength – Single Scoop Pull Off) will be submitted for Classes 3 and 4 slide fasteners.  Test results done by accredited independent laboratory.	