Royal Canadian Mounted Police
Gendarmerie Royale du Canada

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Specification

Mattress, Prisoner, High Risk

This document has 10 pages including the drawings.

This document was created in English.

The document is available in English and French.

☑ English/Anglais
Français/French

The photograph on this page is for reference only.

Issued on the authority of the Commissioner, Royal Canadian Mounted Police.

Modifications

Date	Para. No's/N° de par.	Modifications
2010-12-22	Para. 4.2.3 removed, succeeding paras. renumbered; 4.3.1	Rivet requirement deleted. Note added stressing completeness of end opening seam sealing.
2012-07-09	2.3, 3.2, Paras 4.1 and after renumbered.	Test method list amended. Design paragraph changed. References to polychloroprene deleted. Values for physical properties of foam core and mattress cover amended. Dimension tolerances decreased. Certificates of compliance replace laboratory tests. Seam edge detail & dimensions amended. RCMP Material Master Number now on label.
2015-01-23	Paras. 2.2-2.9 Para. 4.1.1 Para. 4.1.3 Para. 4.1.1.4 Para. 4.2 Para. 5 Table I, II, III Dwg. 1	New paragraphs referencing standards. Deleted; information added to Table II. Cotton thread required only. Deleted. Thickness tolerance decreased. Para. 5 deleted, following paragraphs renumbered. Standards and requirements updated. Tolerances added to drawing.

RCMP VIEWING SAMPLE

A viewing sample, when available, will be supplied to the successful bidder.

This will be used for the guidance of the manufacturer in all factors not covered by this specification or referred to therein. Variation from the specification may appear in the sample in which case the specification shall govern.

It may be obtained from:

Royal Canadian Mounted Police
ATTN: Uniform & Equipment Program
(440 Coventry Road, Warehouse Building)
1200 Vanier Parkway
Ottawa, Ontario
K1A 0R2

It will be sent “prepaid” and is to be returned “prepaid”.

The viewing sample shall be returned to the RCMP in the same condition as received by the manufacturer. Lost or damaged viewing samples shall be replaced by an identical item or the RCMP shall be reimbursed for the cost of an acceptable replacement.

SPECIFICATION

MATTRESS, PRISONER, HIGH RISK

1. Definitions

1.1 This specification shall govern the manufacture and inspection of Mattress, Prisoner, High-Risk. The specific item covered under this specification with stock number is as follows:

i. 111047 - Mattress, Prisoner, High Risk

1.2 This specification, viewing sample, drawing or other information issued in connection therewith, may only be used for specific enquiries, solicitations, or orders placed on behalf of the Royal Canadian Mounted Police.

1.3 This specification supersedes all previous specifications for Mattress, Prisoner, High-Risk.

1.4 This specification has been translated into French from this original English language document.

2. Applicable Specifications

2.1 The following publications are applicable to this specification and to the issues in effect on the date of the solicitation, unless otherwise specified.

2.2 CAN/CGSB 4.2, Textile Test Methods.

2.3 ASTM D751, D3574, D3675, D3776, E162, E662, E1354, F1085, F1870, G21.

2.4 US CPSC, 16 CFR 1633.

2.5 California, Department of Consumer Affairs, T.B. 121 (1980), T.B. 129 (1992).

2.6 CAN/CGSB-54.1-2010, Stitches & Seams.

2.7 CAN/CGSB-4-GP-80Ma, Thread, Cotton.

2.8 NFPA-701 (2010), Large and Small Scale Flame Retardant Test.

2.9 BSS 7239-88, Test Method for Toxic Gas Generation by Materials on Combustion.

3. General Requirements

3.1 The article or material covered by this specification shall be free from imperfections or blemishes such as may affect its appearance or serviceability. In all particulars not covered by this specification or contract documents, production shall be equivalent in all respects to the viewing sample.

3.2 **Design** - The mattress covered by this specification shall consist of a flame retardant foam core, enclosed in flame retardant fabric, reinforced non-perforated vinyl, for use in buildings in which there is danger of incendiarism and vandalism. The mattress is designed to provide a high level of tamper resistance and ease of cleaning.

4. Detail Requirements

4.1 Materials

4.1.1 **Foam Core** - The base material of the mattress core shall be a one piece, foam material resistant to flame with a density of between 80.1kg/m^3 and 104kg/m^3 (5 to 6.5lb/ft^3). Firmness shall be medium, 30 to 45lbs (130N to 200N) indentation force deflection. The physical properties shall conform to the requirements in Table I. Flame resistant properties shall last throughout the service life of the cushioning. The flame resistant properties shall be not affected by water or other compatible cleaning agents. Foam core materials shall be low-smoke producing, and shall be flame-resistant. The flammability properties shall conform to the requirements in Table II. The foam core shall be open-cell and breathable, and shall not exhibit any migration or leaching of flame-resistant chemicals. It shall be made of 100% new material, free from substances that would accelerate ageing or deterioration, and shall contain no natural or styrene-butadiene rubber (SBR) or harmful or injurious ingredients. It shall be formulated for resistance to fungi growth.

Note: CR Safeguard, Medium Compression (polychloroprene) made by Chestnut Ridge Foam, Inc., Latrobe, PA, USA, is known to meet the above requirements.

4.1.2 **Mattress Cover** - The mattress cover shall be flame retardant reinforced vinyl laminate non-perforated, weighing 509 g/m^2 min. (15 oz/yd^2), acceptable colours: grey, light grey, or tan. It shall conform to the requirements in Table III.

4.1.3 **Thread** - Thread shall be cotton, Ticket #30, Tex-60, soft finish, white in colour, in accordance with specification 4-GP-80Ma.

4.2 **Dimensions** - Dimensions of the completed mattress shall be 60 x 183 x 7.5cm, with tolerances of +/- 0.50 cm in thickness and +/- 3 cm in length or width. Dimensions of the mattress shall be the finished size of the foam core. Care shall be taken to ensure a tight fit between the foam core and the mattress cover. Excessive cover material such that the foam core is loose in the sealed cover in any dimension shall not be allowed.

4.3 **Construction Details**

4.3.1 **Body** - The outer shell shall be envelope type made of one piece of vinyl fabric, as specified in Para. 4.1.2, folded over, with one seam in the middle of the sidewall. This seam shall be stitched and then thermo-sealed using high radio frequency method, with fabric overlapping itself. The seam bond shall be strong enough to withstand tearing by hand. The two open ends shall be closed with two rows of stitches. Each end shall be further thermo-sealed in accordance with drawing and viewing sample.

Note: Care shall be taken to ensure the thermosealing of all seams is thorough and complete. Loose, unsealed fabric edges/seams are not allowed. Puncture holes are not allowed.

4.3.2 **Stitching** - All stitching shall be type 301 lockstitch, with no less than 3.5 stitches per cm. The beginning and end of all stitches shall be securely backstitch tacked, unless secured by other stitching. All loose thread ends shall be removed.

4.3.3 **Marking** - Each mattress shall have a label, in compliance with The Upholstered and Stuffed Articles Act, showing contents of mattress, size and date of manufacture. In addition, all mattress labels shall have the following RCMP stock number, 111047. The labels shall be positioned in one corner and attached with a separate single row of stitching.

5. **Quality Assurance Provisions**

5.1 **Responsibility for Inspection** - Unless otherwise stipulated in the contract, it is the prime contractor's responsibility to satisfy the R.C.M.P., Uniform and Equipment Program that the material and services being supplied conform to this specification. This may be accomplished by performing the tests specified in this specification or by demonstrating to the satisfaction of the R.C.M.P., Uniform and Equipment Program that conformity to this specification of manufacturing processes is assured. The contractor may use his own facilities or any commercial testing establishment acceptable to the R.C.M.P., Uniform and Equipment Program.

5.2 The R.C.M.P., Uniform and Equipment Program reserve the right to perform any inspection considered necessary to ensure the material and services conform to the specified requirements. For the purpose of inspection, a portion of each delivery not exceeding two percent or two out of any number delivered under 100 may be put to tests that could destroy the articles. If found to be inferior or not in accordance with this specification, all articles so destroyed shall be replaced by others of proper quality and pattern at the expense of the contractor. The entire delivery may also be rejected if it is found that articles previously rejected due to non-repairable defects are redelivered for inspection.

5.3 The contractor will be promptly notified when any articles are not accepted and such articles will be returned at the contractor's risk and expense.

TABLE I
Foam Cushioning
Physical Properties

Properties	Requirement	Test Method
Density	5.0 - 6.5lbs/ft^3	ASTM D3574
Indentation	Medium 30 to 45lbs (130 to 200N)	ASTM D3574 (Tested at 3")
Compression Set	10% maximum	ASTM D3574 50% constant deflection, Para. 42.1.1
Tensile Strength	8lbs/in^2 minimum	ASTM D3574
Tear Strength	2.0 lbs/in^2 minimum	ASTM D3574
Elongation	150% minimum	ASTM D3574
Fungal & Bacterial Growth	No Growth	ASTM G21

TABLE II
Foam Cushioning
Flammability Characteristics

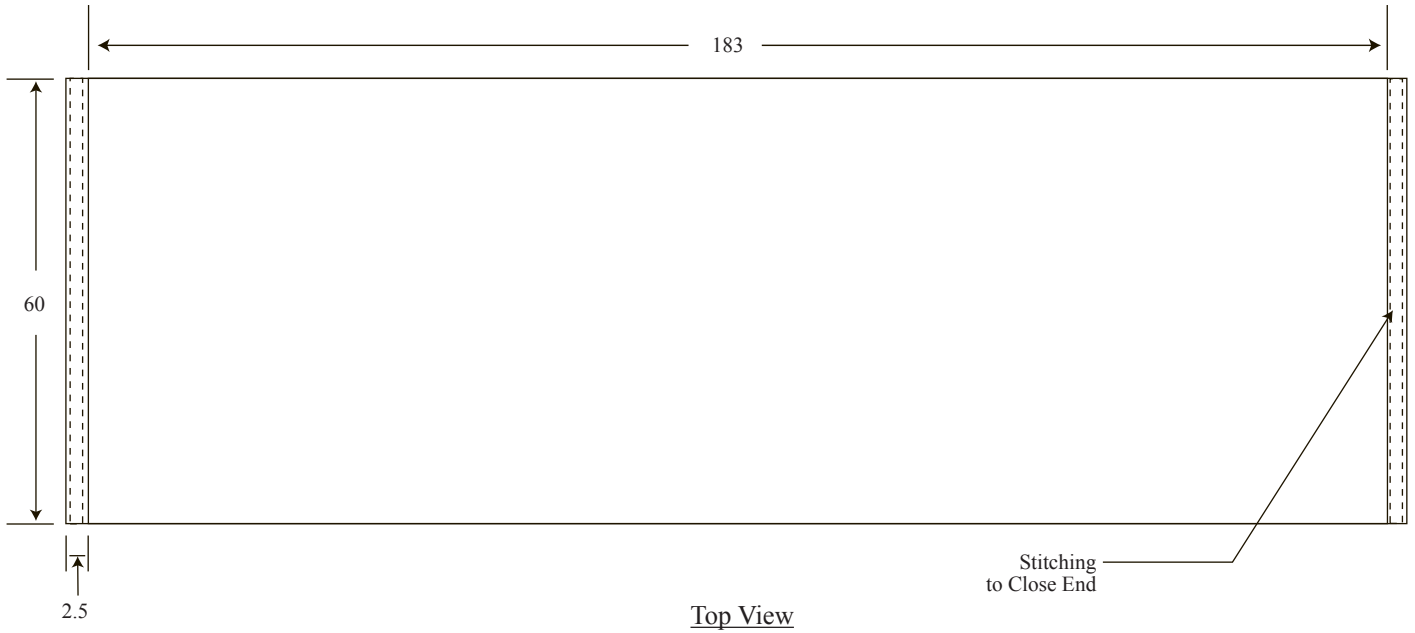
Tests	Requirement	Test Methods
Radiant Panel	Max. flame spread Index - 5 No melting or dripping	ASTM E162 or ASTM D3675
NBS Smoke Chamber Flaming and non-flaming modes - 1" sample	Ds 90 sec. - 100 max. Ds 4min. - 175 max. Dmax - 200 max.	ASTM E662 BSS 7239
Lethal Gas Concentration, measured at 4 minutes into the smoke density test	- Hydrogen Chloride (HCl): $\leq$ 500 ppm - Hydrogen Cyanide (HCN): $\leq$ 50 ppm. - Carbon Monoxide (CO): $\leq$ 800 ppm.	Boeing BSS 7239 in conjunction with ASTM E662
Rate of Heat Release a) Radiant Flux 35 kW/m^2 b) Mode - 2" horizontal	Peak Heat Release - 75kW/m2 max. - 3 minute average heat release rate - 30 kW/m^2 max.	ASTM E1354
Mattress Insert Test, Michigan Roll (Insert Only) Total Weight Loss (%)	7% Maximum weight loss. Must maintain shape with no generation of molten material	ASTM F1085 Annex A3 - or – ASTM F1870
Burn Test	Pass	16 CFR 1633
Other Tests	Pass Pass	California TB 121 (1980) California TB 129 (1992)

TABLE III
Mattress Cover
Physical Properties

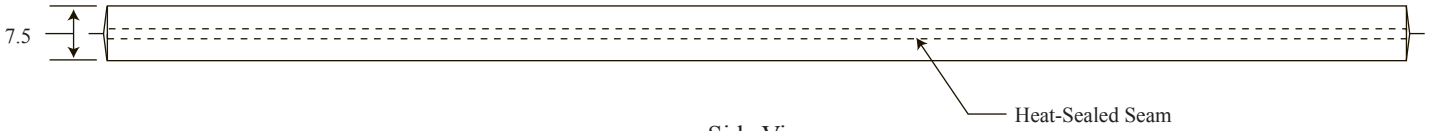
Base Fabric	Requirement	Test Method
Weight (oz/yd^2)	4.6 oz/yd^2	ASTM D3776-13
Fibre	Polyester	
Denier	1000 x 1000	
Count	9 x 9	
Coated Fabric		
Total Weight (oz/yd^2)	15 oz/yd^2	ASTM D3776-13
Type of Coating	Polyvinyl Chloride	
Coating Distribution	50/50	
Sealing Properties	Dielectric Thermal	
Mechanical Properties		
Tensile (Grab) lbs/inch	264 x 205	ASTM D751-11
Trapezoid Tear (lbs)	77 (w) x 68(f)	ASTM D751-11
Adhesion (lbs/inch)	7 (w) x 5 (f)	ASTM D751-11
Antimicrobial	Pass	CAN/CGSB-4.2 Method 28.2
Flame Propagation	Pass	NFPA 701-2010, Test Method 2

At the discretion of the RCMP, slight differences from the required characteristics of the mattress foam core and mattress cover as outlined in Tables I, II and III may be considered. Any such differences must be fully documented and explained by the manufacturer.

Dwg. 1



Top View



Side View

NOT TO SCALE
All Measurements in centimetres
Tolerance: +/- 0.5 thickness; +/-3 length & width