

PART E
SPECIFICATIONS

PART E - SPECIFICATIONS

GENERAL

E1. GENERAL

E1.1 These Specifications shall apply to the Work.

E2. GOODS

E2.1 The Contractor shall supply soft body armour vests in accordance with the requirements hereinafter specified.

E2.2 These specifications shall govern the manufacture and inspection of SOFT BODY ARMOUR VESTS, Male and Female.

E2.3 These specifications, schedules, drawings or other information issued in connection therewith, may only be used for specific enquiries, tenders, quotations, or orders placed on behalf of the Winnipeg Police Service.

E2.4 These specifications supersede all previous specifications for SOFT BODY ARMOUR VESTS.

E3. APPLICABLE SPECIFICATIONS

E3.1 The following publications are applicable to this specification and to the issues in effect on the date of invitation to tender, unless otherwise specified.

E3.2 Industry Standard specifications of stitch and fabrication, but with Canadian modification per the Bodycote Ortech Ballistic Technology Laboratory or equivalent independent laboratory.

E3.3 NIJ Standard 0101.04+ Ballistic Resistance of Police Body Armour threat LEVEL II.

E4. GENERAL REQUIREMENTS

E4.1 The article or material covered by this specification shall be free from imperfections or blemishes such as may affect its appearance or serviceability. All workmanship is to be of first quality. No defect that might affect the performance, wearability or durability of the vest will be tolerated. The Winnipeg Police Service shall have the sole right to determine if this and all other requirements have been met.

E4.2 Design - Soft Body Armour Vest coverage is to provide full wrap - but not overlap - protection of the torso. Coverage is to be the maximum available consistent with wearability needs. This is defined as a vest with "full wrap" side panels that "butt fit" at the sides, with no more than a 1" (inch) gap. Suitable relief of 1"-2" (inch) shall be allowed between the bottom of the vest and the gun belt while standing, so that no binding occurs when the officer is in a sitting position. Ample relief shall be provided in the armpit region. A 2"-3" (inch) scoop shall be cut into the neck region that prevents the armour from showing when worn under a shirt with an open collar. See Drawing #1, and Drawing #2 that are attached.

E4.3 The vest shall consist of a carrier containing a front and rear ballistic panel. The ballistic panels shall be able to be removed to allow for cleaning. The carrier is to be designed to be washed and the ballistic panels are to be designed to be wiped clean.

E5. DETAIL REQUIREMENTS

E5.1 **Protection Level (Ballistic Resistance)** - Each ballistic panel shall protect against the following bullets, "Threat Level II" and all lesser threat levels;

- .357 Magnum,	158gr. JSP	(1395 fps)
- 9 mm	124 gr. FMJ	(1175 fps)
- .40 calibre	165 gr. JHP HS	(1023 fps) (WPS Issue)
- .40 calibre	165 gr. FMJ Encapsulated	(1063 fps) (WPS Training)
- .40 calibre	180 gr. JHP HS	(1023 fps) (WPS ERU)

Abbreviations:

FMJ	Full Metal Jacketed
JSP	Jacketed Soft Point
JHP	Jacketed Hollow Point
HS	Hydra Shok

E5.2 Test Methods - All ballistic panels tested shall be tested in accordance with the United States Department of Justice NIJ Standard 0101.04. In addition to the 2- bullets mentioned in the NIJ Standard 0101.04, the same standards shall apply to the 3 - bullets presently being utilized by the Winnipeg Police Service, that are also mentioned in section 5.1. Wet and dry NIJ style testing is required for .40 calibre tests. The ballistic panels shall meet the threat levels when tested

E5.3 The Bidder shall provide proof upon request of the Contract Administrator, the V-50 Ballistic Limit in excess of the LEVEL II NIJ 0101.04 Standard for 9mm 124 grain FMJ (1175 fps) rounds that the Bidder has achieved. This will assist in future testing to evaluate deterioration as a result of wear.

E5.4 The Bidder shall warrant that each certified model will continue to perform at its established levels as demonstrated by independent laboratory tests, within a normal variation of six percent (6%) of the NIJ 0101.04 standard (Level II) for a minimum service life of five years.

E5.5 The Bidder shall warrant that each certified model will be identical in design and construction to that which was originally certified. The Bidder shall have retained samples from the original certification to confirm verification and / or inspection. No substitutions will be allowed without the prior written approval of the Winnipeg Police Service.

E5.6 All test costs will be paid for and arranged for by the Bidder. All test reports related to each lot shall be submitted prior to the shipping of any goods, copies must be submitted upon request of the Contract Administrator. Records related to and including production and testing of ballistic cloth and ballistic panels / vests shall be maintained by the producing textile mill and vest manufacturer for a minimum period of 10 years. All vests shall be serialized, 100 percent (100 %) inspected and traceable. The records must be available to the Winnipeg Police Service for inspection within seven (7) calendar days of a request by the Contract Administrator.

E5.7 Further to E5.2 Vests are to be built in accordance to the United States Department of Justice NIJ Standards 0101-04.

E6. PRE-PRODUCTION SAMPLE

E6.1 The Bidder may be required to supply, at the request of the Contract Administrator, a Pre-production sample to the Winnipeg Police Service. The sample will be provided at the contract price, F.O.B. 151 Princess Street, Winnipeg, Manitoba R3B 1L1, freight prepaid, within (30)

days after taking measurement in accordance with clause E:10.1. **The pre-production sample must be made to the exact specifications as the vests that will be delivered and must be in total compliance with the specifications contained herein.**

- E6.2 Final inspection and acceptance will be made before final delivery but all materials and workmanship will be subject to inspection at any time. The right is reserved to reject garments which are incomplete or that contain defective materials and / or workmanship. Rejected garments shall be returned to the Contractor, at their expense immediately after notification of rejection.

E7. MATERIALS

- E7.1 **Cloth, Ballistic** - Shall be constructed of ballistic yarn with a maximum size of 930 Decitex (840 Denier), Twaron 930 Decitex fabric is an approved equal. Yarn produced under the trade name **Kevlar 129** is acceptable. Wherever "**Kevlar 129**" is stated in this document it implies:

"Kevlar or equivalent"

- E7.2 The equivalent being certified on the manufacturer's label that the cloth shall be natural in colour and shall be thoroughly scoured with not more than 0.7 percent (0.7%) residuals, shall not contain loading materials and shall be free from imperfections. The yarn shall have the manufacturer's normal twist. No full layer may have any coatings that might restrict flexibility or moisture vapour breathability. No reinforced plastic on non-woven ballistic fabrics will be permitted. Male vest panels 17" (43 cm) or greater in width shall be flexible enough to be folded in half twice over and then remain folded when placed on a table. The first fold is to be along the vertical centerline and the second fold is to be along the horizontal centerline. The ballistic panel shall be soft, flexible and readily able to conform to the body. All portions shall be cross stitched to improve durability of shape retention. However, the cross stitching shall be accomplished in such a way that the vest remains extremely flexible. To prevent unnecessary stiffness, no quilt, diamond or box stitching through the entire panel will be allowed, a five (5) point tacked reinforced stitch is acceptable.
- E7.3 A label shall be positioned on each ballistic panel that contains the manufacturer's name, threat level, size, model, lot, serial numbers, date of manufacture, side worn to body, care instructions, certification of compliance, and required warnings on vest limitations. Each ballistic vest shall also contain a concealed label to enable future tracing of the panel by model, serial, lot number and date of manufacture. See Schedule I.
- E7.4 **Cloth, pouch, Ballistic Panel:** Each ballistic panel shall be permanently covered with a water resistant material. The cover must prevent body oils, and liquids from contaminating the ballistic panel and/or compromising the water-resistant properties of the cover.
- E7.5 Front panel shall have pile type velcro attached to both left and right shoulder portions of the panel, away from body. Each portion shall be a minimum of 5 cm wide and 8cm high. Back panel shall have pile type velcro attached to panel, toward body approx 3cm from top of panel. Velcro is to be horizontally centered and to be a minimum of 10 cm wide and 5 cm high.
- E7.6 **Female,** front panels shall have an overlap of 3 cm minimum to form the bust shape and shall have a minimum of three (3) rows of acceptable stitching using "**Kevlar**" in order to ensure ballistic integrity and produce the correct cup size. A darted bust is acceptable.

E8. CLOTH CARRIER, INTERNAL/EXTERNAL

- E8.1 Each vest shall be supplied with two (2) complete sets or cloth carriers. One set will be an internal carrier, the second set will be an external carrier. Carriers must meet specifications listed in E:8.2 through E:8.8.

- E8.2 A label shall be positioned on the carriers stating model, size, date of issue, and carrier care instructions. Washable indelible ink must be used. Internal and external carriers shall be guaranteed against defects in workmanship for eighteen (18) months from the date of delivery. See Schedule 2.
- E8.3 **INTERNAL CARRIER** shall be constructed to form front and back pockets shaped to securely retain ballistic panels. The pockets shall have a 'Velcro' type hook and pile closure cross their entire opening. The opening shall be at least 3" from the bottom of the pockets for easy insertion and removal of the ballistic panels. The neck cutout ("U" -type) and general configuration shall be compatible with the ballistic panel pattern, a "V" neck design will also be acceptable. The shoulders shall be adjustable by the elastic webbing and hook and pile fasteners. The 'Velcro' type pile shall be 3" long. The 'Velcro' type pile shall be 7+ 1/2" long at the waist and chest and 4" long at the shoulders. The carrier shall also have integral front and rear shirttails, one layer of material, serged, turned and tip stitched. They shall have a slight gap of not greater than 1" where the front and rear sections meet.
- E8.4 Each internal carrier shall be dark navy blue with six (6) points adjustable. Each carrier is to be made from a minimum of 4.6 oz./sq. yd. to a maximum of 5.6 oz./sq. yd. of CoolMax woven fabric or any other material with equivalent or better moisture-wicking properties on the entire body side of the carrier and a polycotton exterior. Each carrier shall have two (2) armour plate pockets so that the wearer has the option of using either a standard 5" x 8" or an optional 7" x 10.5" armour plate.
- E8.5 A label shall be positioned on the carriers stating model, size, date of issue, and carrier care instructions. Washable indelible ink must be used. Internal and external carriers must be guaranteed against defects in workmanship for eighteen (18) months from the date of delivery. See Schedule 2.
- E8.6 **EXTERNAL CARRIER** Each vest shall be supplied with an external wear four point adjustable carrier. The front and back carrier panels must have two shoulder extensions. These extensions are to be equipped with a 4 inch (10 centimetre) hook and loop closure system with the back panel straps extending to overlap the front. Each torso side area is also to be equipped with a 6-inch (15 centimetre) hook and loop closure system with the back panel sides extending and overlapping the front. Each back panel shoulder extension is to be equipped with 1 inch (2.5 centimetre) horizontal microphone straps.
- E8.7 The carrier's front must have two armor plate pockets so that the wearer has the option of using either a standard 5" by 8" (13 cm by 20 cm) or an 7" by 10" (18 cm by 25 cm") armor plate. The carrier backings (toward body) is to have 16 inch (40 centimetre) pad access openings with constant hook and loop closure. Small hook and loop closures are also required at the plate pocket top.
- E8.8 The carrier front is to have two chest pockets with plastic zipper closures. The left pocket will be equipped with a retractable drop down badge tab. This tab will be equipped with eyelets to easily attach the Environment Canada officers breast badge. This tab shall consist of two plies of shell fabric measuring 4 inches wide by 4 inches high with finished edges. The right pocket will fit an officer's notebook and also have an insert to hold a pen or pencil
- E8.9 The external wear four point adjustable carrier shall be constructed of fabrics as follows:
- (a) Shell Fabric: 200 Denier Nylon (warp), and 3-ply 70 denier taslanized nylon filling, plain weave, treated with durable fluorocarbon water and stain release agents.

(The following values are plus or minus 10%.)

Count: Warp: 114 Filling: 46
Weight: (uncoated): 5.5 oz. per sq. yd.

Break Strength (lbs):	Warp: 350	Filling: 136
Tear Strength (lbs):	Warp: 25	Filling: 10
Shrinkage:	Warp: 2%	Filling: 2%
Color Fastness and Crocking:	Good	

(b) Colour: Spruce Matte Black.

(c) Hook and Loop: The hook and loop tape shall be made from a durable woven. The hook and loop tape must meet the following closure performance: 13.0 (PSI) average shear, 1.3 (PIW) average peel, and 6.0 (PSI) tension

E8.10 In addition to velcro mentioned above, both internal and external carriers shall have hook type velcro on inside of carriers to match pile type velcro on panel specified in E: 7.5

E9. MATERIAL REQUIREMENTS

E9.1 **Sewing Thread** - Sewing thread shall be Nylon, Bell Thread Co. Ltd. CB46 or equivalent. Colour shall match each carrier fabric.

E9.2 **Elastic Webbing** - Webbing shall be Texfast Group Ltd. 7166-099 or equivalent. Each of the six (6) adjustable straps shall be sufficient length and width to ensure fastening without undue stretching.

E9.3 **Hook and Pile Fastener** - The hook tape shall be 5.0 cm (2") wide, equal to Velcro Canada Ltd., Hook #80, 0199 or 3M Scotchmate SJ3402. Loop tape shall be 5.0 cm (2") wide equal to Velcro Canada Ltd. #001, 0199 or 3M Scotchmate SJ. The colour shall match each carrier fabric.

E10. SIZES AND FITTING

E10.1 **Male and Female Sizes** - The Contractor shall be required to individually fit all garments to male and female members at:

Quartermaster Stores Unit
472 Notre Dame Ave
Winnipeg, MB R3B 1R5

Further, the Contractor Administrator shall pre-determine the measurement dates of two separate weeks for Soft Body Armour Fittings, each week to consist of a consecutive Monday through Friday, 9 am through 4 pm. Notification of measurement dates required shall be provided to the Contractor at the commencement of each calendar year of the Contract.

E10.2 Initial fit of custom-measured vest shall be guaranteed to fit satisfactorily on delivery. The Contractor agrees to provide alterations or replacement free, until the wearer is satisfied, and all sizing and fittings shall be conducted at the Contractor's expense.

E11. PACKAGING AND DELIVERY

E11.1 Each vest must be packaged individually in a protective plastic bag and shipped in a specially designed protective cardboard box. A packing slip shall be enclosed showing the contents of each shipment.

E11.2 Goods shall be delivered on a "scheduled" basis during the term of the Contract, f.o.b. destination, freight prepaid, to:

Quartermaster Stores Unit

472 Notre Dame Ave
Winnipeg, MB R3B 1R5

- E11.2.1 Scheduled dates where measurements will be required to be taken by the Contractor shall correspond with existing Winnipeg Police Service Recruit Training. To ensure processes are not disrupted, all Soft Body Armour Vests for the recruit candidates shall be completed within 30 Calendar days. Standard Recruit Class is between 24 and 48 members.
- E11.2.2 Recruit Vests, shall be delivered within thirty (30) Calendar days after date of measurement.
- E11.2.3 Balance of shipment within ninety (90) Calendar days after date of measurement.
- E11.3 Goods shall be delivered between 8:30 a.m. and 3:30 p.m. on Business Days.
- E11.4 The Contractor shall off-load goods as directed at the delivery location.
- E11.5 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.

E12. SCHEDULE I - LABEL ON POUCH OF THE BALLISTIC PANEL

WEAR THIS SIDE NEXT TO BODY

(MANUFACTURER'S NAME)

PROTECTION LEVELS

Vest Type: Threat Level II Body Armour

This armour is manufactured in accordance with and complies with the NIJ 0101.04 standard.

.357 Magnum	158 Gr.	JSP	1395 fps
9 mm	124 Gr.	FMJ	1175 fps

(In addition the following Winnipeg Police Service Bullets were tested and found to meet the same standard)

.40 Calibre	165 Gr.	JHP HS	1023 fps
.40 Calibre	165 Gr.	FMJ Encapsulated	1063 fps
.40 Calibre	180 Gr.	JHP HS	1023 fps

Abbreviations:

JSP	- Jacketed Soft Point
FMJ	- Full Metal Jacketed
JHP	- Jacketed Hollow Point
HS	- Hydra-Shok

MODEL / STYLE: _____

SIZE: _____

LOT NUMBER: _____

DATE OF MANUFACTURE: _____

SERIAL NUMBER _____

BALLISTIC PAD CARE INSTRUCTIONS:

- 1) WIPE WITH DAMP CLOTH
- 2) DO NOT MACHINE WASH OR MACHINE DRY
- 3) DO NOT BLEACH DRY CLEAN OR IRON

E13. SCHEDULE 2 - LABEL ON OUTER CLOTH CARRIER

**THIS CARRIER HAS NO BALLISTIC QUALITIES.
LOOK AT THE BALLISTIC PANELS TO
DETERMINE THE PROTECTION PROVIDED**

MODEL:

SIZE:

DATE OF ISSUE:

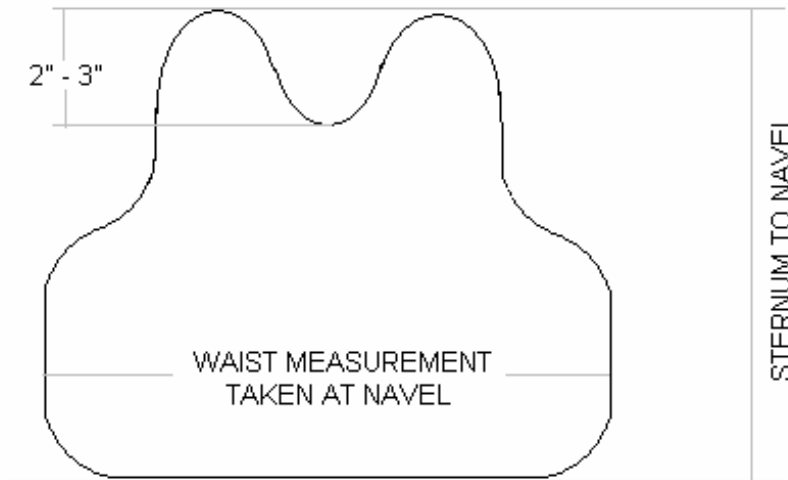
CARRIER CARE INSTRUCTIONS

1. To clean the carrier, REMOVE the ballistic panels.
2. Machine wash carrier using Durable Press cycle at medium water temperature
3. DO NOT use bleach.
4. DO NOT use fabric softener.
5. Carrier may be air dried or machine dried at MEDIUM setting.
6. Carrier may be commercially dry-cleaned.
7. DO NOT machine wash the ballistic pads. Follow instructions on panels

(MANUFACTURER'S NAME)

E14. SCHEDULE 3 - DRAWING #1 FRONT PANEL

WINNIPEG POLICE SERVICE



E15. SCHEDULE 4 - DRAWING #2 BACK PANEL

WINNIPEG POLICE SERVICE

