



City of Richmond

Business and Financial Services Department
Finance Division
Telephone: 604-276-4218
Fax: 604-276-4162

September 26, 2011
File 02-0775-50-4342/Vol 01

Attention: To All Proponents

Dear Madame/Sir:

Re: 4568Q Supply and Delivery of Turn Out Gear for Richmond Fire-Rescue - Addendum # 1

This Addendum includes items of clarification, forms part of the Contract Documents and shall be read, interpreted and coordinated with all other parts. Please review and consider the following information in the preparation of your Quotation:

I. Deadlines Revised

The deadline date for submissions of the RFQ has now been changed. The dead line time and date is now:

Tuesday, October 11, 2011 12:00pm local time.

The deadline for questions is now:

Monday, October 3, 2011 12:00 pm local time

II. Samples

To schedule an appointment to measure the three selected fire fighters, call Tim Wilkison at 604-303-2701. Respondents shall submit three (3) samples of complete turn-out gear (one jacket, one pair of trousers and one pair of suspenders) within ninety (90) days after your appointment. The colour of the turn out gear is tan.

III. Quoted Price

Bidders are required to hold prices for one (1) year. RFQ will be awarded within one (1) year of closing date.

IV. Specifications

Replace the specifications in the Request for Quotation, with the following specifications.

Bidders must sign and include this Addendum with their submission.

Signature, Name and Title

Yours truly,

Daianna Panni
Buyer

cc: Tim Wilkinson, Deputy Chief – Operations – Richmond Fire-Rescue

PART D - REQUIREMENTS

It is the intent of these specifications to describe the minimum requirements for construction and performance of protective clothing to afford protection to the upper and lower body, excluding head, hands and feet, against adverse environmental effects during structural fire fighting. All materials and construction will meet or exceed NFPA Standard #1971 (2007 revision) and CAN/CGSB 155.1-M88 (latest ed.).

Respondent must explain in detail and with full supporting data how the proposed deviation meets or exceed the specifications.

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
<p>OUTER SHELL MATERIAL – TROUSERS</p> <p>1. .The outer shell shall be constructed of "ADVANCE" Kevlar®/Nomex® blend material with an approximate weight of seven point two (7.2) oz. per square yard in a rip stop weave. The shell material must be treated with SST (SUPER SHELLTITE) which is a durable water-repellent finish that also enhances abrasion resistance. Color of garments to be gold. Bids offering this shell material without the SST will not be considered.</p>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
<p>OUTER SHELL MATERIAL – TROUSERS</p> <p>2. The outer shell shall be constructed of "ADVANCE" Kevlar®/Nomex® blend material with an approximate weight of seven point two (7.2) oz. per square yard in a rip stop weave. The shell material must be treated with SST (SUPER SHELLTITE) which is a durable water-repellent finish that also enhances abrasion resistance. Color of garments to be gold. Bids offering this shell material without the SST will not be considered.</p>			
<p>OUTER SHELL MATERIAL – TROUSERS</p> <p>3. The outer shell material shall be covered by a (5) five-year warranty.</p>			
<p>MOISTURE BARRIER – TROUSERS</p> <p>4. The moisture barrier material shall be:</p> <p>5. .The "CROSSTECH Type 2C" moisture barrier material shall be a 5.0 oz. per square yard two-layer laminate comprised of a bi-component membrane and a NOMEX IIIA woven substrate. The bi-component membrane shall be comprised of an expanded EPTFE (polytetrafluoroethylene) matrix having a continuous hydrophilic (i.e. water loving) and oleophobic (i.e. oil hating) coating that is impregnated into the matrix. The moisture barrier</p>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
<p>material shall meet all moisture barrier requirements of NFPA 1971-2007 edition, which includes water penetration resistance, viral penetration resistance, and common chemical penetration resistance. The moisture barrier shall be bound along the edges with Bias-Cut Neoprene-coated cotton/polyester binding. Further mention of “Specified Moisture Barrier” in this specification shall refer to this section.</p> <p>6. <u>or another product with equivalent specifications as outlined in # five (5) or greater performance qualities</u></p>			
<p>SEALED MOISTURE BARRIER SEAMS</p> <p>7. All moisture barrier seams shall be sealed with a minimum one (1) inch wide sealing tape.</p> <p>8. One side of the tape shall be coated with a heat activated glue adhesive or equivalent.</p> <p>9. The adhesive side of the tape shall be oriented toward the moisture barrier seam. The adhesive shall be activated by heat and the sealing tape shall be applied to the moisture barrier seams by means of pressure exerted by rollers for that purpose or equivalent process.</p>			
<p>THERMAL INSLULATING LINER – TROUSERS</p> <p>10. The thermal liner shall be constructed of two (2) layer “QUANTUM® 3D”; a 100% Nomex® spun/filament Goldcheck™ face cloth with Wickwell™ Plus finish quilted to one flat layer and one three dimensional layer of Nomex®/Kevlar® spunlace with a finished</p>			

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weight of approximately seven point seven (7.7) oz. per square yard. A seven (7) inch by nine (9) inch pocket, constructed of self material and lined with moisture barrier material, shall be affixed to the inside of the jacket thermal liner on the left side by means of a lock stitch. The thermal liner shall be bound around its perimeter with Bias-Cut Neoprene jacketed cotton/polyester binding. The thermal liner shall be attached to the moisture barrier. Further mention of "Thermal Liner" in this specification shall refer to this section.			
<p>METHOD OF THERMAL LINER/MOISTURE BARRIER ATTACHMENT – TROUSERS</p> <p>11. The thermal liner and moisture barrier shall be completely removable from the pant shell. Nine snap fasteners shall be spaced along the waistband to secure the thermal liner/moisture barrier to the shell. The legs of the thermal liner/moisture barrier shall be secured to the shell by means of two snap fasteners per leg.</p> <p>12. The position of the male snap portion on the liner shall be positioned in exactly the same location of similar liner sizes and the female snap portion on the outer shell shall be positioned in exactly the same location of similar shell sizes.</p> <p>13. Four (4) male snaps shall be positioned at each sleeve cuff to align with four (4) female snaps located on the NOMEX material tabs at the outer shell inner sleeves. This system allows for quick and consistent interchangeability of the liners and shells of the same size, thus improving the longevity and utilization of the jacket ensemble.</p>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
14. The jacket collar, which is attached to the liner assembly, shall interface with the annular neck tab on the outer shell with VELCRO (see Collar / Free Hanging Throat Tab).			
THERMAL PROTECTIVE PERFORMANCE			
15. The assembled garment, consisting of an outer shell, moisture barrier, and thermal liner, shall exhibit a TPP (Thermal Protective Performance) rating of not less than forty (40).			
STITCHING			
16. The outer shell shall be assembled using stitch type #301, #401, #514, and #516.			
17. The thermal liners and moisture barriers shall be assembled using stitch type #301, #401, #504, #514, and #516.			
18. Stitching in all seams shall be continuous.			
19. There shall be no joined stitching in midseam.			
20. All “major A” outer shell structural seams, “major B” structural liner seams, and minor seams including but not limited to pockets, flaps, and material reinforcements shall have a			

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	YES	NO	
minimum of eight to ten (8 to 10) stitches per inch.			
TROUSERS CONSTRUCTION - BODY			
21. The construction of this garment shall be in compliance with NFPA 1971			
BACK BIB			
22. A back bib panel shall extend not less than six (6) inches above the waist area of the high back trousers.			
23. The back bib panel shall be double stitched with Nomex thread to the rear body panel at the waist area.			
24. The rear bib panel shall measure approximately eleven (11) inches across the top and approximately twenty-three (23) inches across the bottom (graded for size) where it will be double stitched to the body panels.			
25. The sides of the rear bib panel shall slope forward on an angle.			
26. The rear bib panel shall be of three (3) layer construction consisting of a layer of outer shell material a middle layer of breathable moisture barrier material and a layer of Aralite			

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	YES	NO	
<p>thermal liner material closest to the wearer or equivalent.</p> <p>27. The bib materials shall be stitched only at the outer perimeter to prevent leakage in the moisture barrier. This configuration will provide padding to the lumbar area of the wearer as an added measure of comfort from breathing apparatus harness straps and backpack.</p>			
<p>SUSPENDERS AND SUSPENDER BUTTONS</p> <p>28. Two (2) rust resistant suspender buttons shall be installed on the uppermost portion of the back bib panel (one at each upper corner) and four suspender buttons shall be installed in the front of the trousers on the waistband.</p> <p>29. The suspender buttons shall be reinforced with leather on the inside.</p> <p>30. A pair of Super Duty "H" style "Rip-Cord" suspenders shall be specially configured for use with the high back trousers.</p>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
<p>31. The main body of the suspenders shall be constructed of two (2) inch wide non-elasticized cotton webbing, and shall be equipped with non-slip metal slide on the front ends. Through the metal slide will be approximately twelve (12) inch length of cotton webbing "Rip-Cord" terminating with a thermoplastic loop. Pulling on the "Rip-Cord" shall allow for quick adjustment of the suspenders.</p> <p>32. The non-elasticized sections of the suspenders shall run over each shoulder to a point approximately shoulder blade high on the back, and just above the waistline on the front.</p> <p>33. On the back, two (2) inch wide elasticized webbing shall be stitched to the non-elasticized webbing, and shall extend to the top of the back bib panel.</p> <p>34. The left and right halves of the suspenders shall be joined by a two (2) inch wide horizontal piece of elasticized webbing measuring approximately ten (10) inches long, and shall prevent the suspenders from slipping off the shoulders.</p> <p>35. On the front, two (2) inch wide elasticized webbing measuring approximately nine (9) inches long, shall be threaded through and folded over a thermoplastic loop attached to the non-elasticized portion on each side, providing four (4) way suspension on the front. This will provide flexibility for movement, since the webbing slides through the loop and is elasticized. Black leather, measuring two (2) inches in length shall be sewn to the ends of the suspenders and shall have slotted openings to accommodate the suspender buttons.</p>			

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	YES	NO	
<p>36. <u>In the case where a manufacturer has a proprietary suspender system that differs from the above specification the suspender system shall be fully NFPA compliant and serve the purposes of the specification outlined above.</u></p>			
<p>WAISTBAND</p> <p>37. The pant design facilitates the transfer of the weight of the pant to the hips instead of the shoulders and suspenders. The waist area of the pants shall be reinforced on the inside with a separate piece of black NOMEX outer shell material not less than two inches in width. Neoprene coated cotton/polyester shall be sewn to the back of the waistband as a reinforcement.</p> <p>38. The NOMEX/Neoprene waistband shall be cut on the bias to allow the waistband to stretch for unrestricted movement and increased comfort. The top edge of the waistband reinforcement shall be double stitched to the outer shell at the top of the pants. The lower edge of the waistband shall be serged and unattached to the shell to accept the thermal liner and moisture barrier.</p> <p>39. The top of the thermal liner and moisture barrier shall be secured to the underside of the waistband reinforcement so as to be sandwiched between the waistband reinforcement and outer shell to reduce the possibility of liner detachment while donning and to avoid pass</p>			

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	YES	NO	
<p>through of snaps from the outer shell to the inner liner.</p> <p>40. Each pant shall include a two inch (2) wide belt constructed of KEVLAR webbing material with an adjustable hi-temp thermoplastic Delrin buckle serving as the exterior primary positive locking closure. This buckle shall also provide a quick-release mechanism for donning and doffing.</p> <p>41. The pants shall be equipped with a series of approximately three (3) inch by three (3) inch outer shell material belt loops spaced around the waist to accommodate the KEVLAR belt</p> <p>42. <u>In the case where a manufacturer has a proprietary system that differs from the above specification the system shall be fully NFPA compliant and serve the purposes of the specification outlined above.</u></p>			
<p>EXTERNAL FLY FLAP</p> <p>43. The pants will have a vertical outside fly flap constructed of two (2) layers of outer shell material, with a layer of moisture barrier material sandwiched between. The fly flap shall be double stitched to the left front body panel and shall measure approximately two and one half (2 ½) inches wide by ten (10) inches long and reinforced with bartacks at the base.</p> <p>44. An internal fly flap constructed of one layer of outer shell material, thermal liner and specified moisture barrier, measuring approximately two (2) inches wide by ten (10) inches long shall be sewn to the leading edge of the right front body panel. The inside of the right</p>			

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	YES	NO	
<p>front body panel shall be thermally enhanced directly under the outside fly with a layer of moisture barrier and thermal liner material.</p> <p>45. The underside of the outside fly flap shall have a two (2) inch wide piece of loop VELCRO tape quadruple stitched along the full length and through the shell material only; stitching shall not penetrate the moisture barrier insert between the two layers to insure greater thermal protection and reduced water penetration. A corresponding strip of two (2) inch wide by nine (9) inch long hook VELCRO tape shall be quadruple stitched to the outside right front body panel securing the fly in a closed position.</p> <p>46. Appropriate male and female snap VELCRO halves shall be installed at the leading edge of the waistband for the purpose of further securing the pants in the closed position.</p> <p>47. <u>In the case where a manufacturer has a proprietary system that differs from the above specification the system shall be fully NFPA compliant and serve the purposes of the specification outlined above</u></p>			
<p>EXPANSION (BELLOWS) POCKETS</p> <p>48. An expansion pocket, measuring approximately two (2) inches deep by ten (10) inches wide by (10) ten inches high shall be double stitched to the side of each leg straddling the outseam above the knee and positioned to provide accessibility.</p> <p>49 Two (2) rust resistant metal drain eyelets shall be installed on the underside of each</p>			

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	YES	NO	
<p>expansion pocket to facilitate drainage of water.</p> <p>50. Each pocket shall be reinforced with a Kevlar Twill pouch sewn to the inside</p> <p>51. The pocket flaps shall be rectangular in shape, constructed of two (2) layers of outer shell material and shall measure three (3) inches deeper than the pocket expansion and one half (1/2) inch wider than the pocket.</p> <p>52. The upper pocket corners and pocket flaps shall be reinforced with bartacks.</p> <p>53. The pocket flaps shall be closed by means of flame resistant hook and pile (e.g. Velcro) fastener tape.</p> <p>54. Two (2) pieces of one and one half (1 ½) inch by three (3) inch FR hook fastener tape shall be installed vertically on the inside of each pocket flap (one piece on each end).</p> <p>55. Two (2) corresponding pieces of one and one half (1 ½) inch by three (3) inch FR pile fastener tape shall be installed horizontally on the outside of each pocket near the top (one piece on each end) and positioned to engage the hook fastener tape.</p> <p><u>56. In the case where a manufacturer has a proprietary system that differs from the above specification the system shall be fully NFPA compliant and serve the purposes of the specification outlined above</u></p>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
<p>57. Each pocket shall be reinforced with a Kevlar <u>or equivalent</u> material. The reinforcement material shall be affixed to the lower half of each of the pockets on the inside</p> <p>58. <u>In the case where a manufacturer has a proprietary system that differs from the above specification the system shall be fully NFPA compliant and serve the purposes of the specification outlined above.</u></p>			
<p>TROUSER CUFF REINFORCEMENTS</p> <p>59. The cuff area of the trousers shall be reinforced with black "Dragonhide" material</p> <p>60. The cuff area of the pants shall be reinforced with an extra layer of DRAGONHIDE material; a 34% para-aramid, 63% aramid and 3% carbon filament back coated and impregnated with a specially formulated polyurethane polymer for water, oil and dirt resistance</p> <p>61. The cuff reinforcement (optional material) shall not be less than three (3) inches in width and folded in half, approximately one half (1/2) inside and one half (1/2) outside the end of the legs for greater strength and abrasion resistance. The cuff reinforcement shall be double stitched to the outer shell..</p>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
<p>62. Two (2) Nomex snap tabs (one each side), measuring approximately one (1) inch long shall be bartacked to the inside of each leg of the outer shell approximately three inches from the bottom of the trouser leg.</p> <p>63. A female snap fastener half shall be installed at the end of each tab and shall align with the male snap fastener halves installed at the bottom of the trouser thermal liner/moisture barrier.</p> <p>64. The tab mounted snap fasteners shall secure the trouser thermal liner/moisture barrier to the outer shell within three inches of the cuff.</p> <p>65. In the case where a manufacturer has a proprietary system that differs from the above specification the system shall be fully NFPA compliant and serve the purposes of the specification outlined above.</p>			
<p>REVERSE BOOT CUT</p> <p>66. The trouser leg cuffs will be constructed such that the back of the leg is approximately one (1) inch shorter than the front.</p> <p>67. This construction feature will minimize the chance of premature wear of the cuffs and injuries due to falls as a result of "walking" on the trouser cuffs.</p>			

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	YES	NO	
<p>EXPANSION KNEE</p> <p>68. The outer shell of the trouser legs shall be constructed in such a manner that allows for a full range of motion and movement in the knee area</p>			
<p>KNEE REINFORCEMENTS and PADDING</p> <p>69. The knee area shall be reinforced with black "Dragonhide" material in combination with a foam padding system equal to or greater than the "Silizone" system.</p> <p>70. The knee reinforcement shall be slightly offset to the inside of the leg to insure proper coverage when bending, kneeling and crawling.</p> <p>71. The knee reinforcements shall measure ten (10) inches wide by twelve (12) inches high and shall be double stitched to the outside of the outer shell in the knee area for greater strength and abrasion resistance.</p> <p>72. The lower edge of the "Dragonhide" knee reinforcement shall be turned under so that the lower row of stitching is covered and protected from abrasion.</p>			

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	YES	NO	
<p>RETROREFLECTIVE FLUORESCENT TRIM</p> <p>73. The trousers shall have a stripe of retroreflective fluorescent trim encircling each leg below the knee to comply with the requirements of NFPA #1971 (2007 revision) in three (3) inch lime/yellow Triple Trim (L/Y borders with silver center). NYC style; three inch wide stripes - around the lower portion of the body of the jacket, around the back and chest area approximately three inches below the armpit, around each sleeve below the elbow, around each sleeve above the elbow.</p>			
<p>REINFORCED TRIM STITCHING</p> <p>74. The trim stitching shall be reinforced with a strip of three/thirty-two (3/32) inch wide flame resistant cording material.</p> <p>75. The cording shall be sewn to the top surface of the trim at the edges during installation of the retroreflective fluorescent trim on the garment. The cording provides a bed for the stitching and affords extra protection to the stitching from abrasion. This action will help to significantly reduce trim separation from the garment due to stitching failure from abrasion.</p> <p>76. <u>Equivalent options of reinforced trim stitching will be considered.</u></p>			

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	YES	NO	
<p>TROUSER SIZING</p> <p>77. The trousers shall be available in even size waist measurements of two-inch increments and shall be available in a range of sizes from twenty-four to fifty-six (24 to 56).</p> <p>78. The trouser inseam measurement shall be available in two-inch increments.</p> <p>79. <u>Generalized sizing, such as small, medium, large, etc., will not be considered acceptable.</u></p> <p>80. Sizing specifically for women shall also be available.</p>			
<p>OUTER SHELL MATERIAL – JACKETS</p> <p>81. The outer shell shall be constructed of "ADVANCE" Kevlar®/Nomex® blend material with an approximate weight of seven point two (7.2) oz. per square yard in a rip stop weave. The shell material must be treated with SST (SUPER SHELLTITE) which is a durable water-repellent finish that also enhances abrasion resistance. Color of garments to be gold. Bids offering this shell material without the SST will not be considered.</p> <p>82. <u>In the case where a manufacturer has a proprietary system that differs from the above specification the system shall be fully NFPA compliant and serve the purposes of the specification outlined above.</u></p>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
83. The outer shell shall be supplied by Dominion Textiles (DIFCO). The outer shell shall be covered by a (5) five-year warranty			
MOISTURE BARRIER – JACKETS			
84. The “ CROSSTECH Type 2C ” moisture barrier material shall be a five (5.0) oz. per square yard two (2) layer laminate comprised of a bi-component membrane and a NOMEX IIIA woven substrate. The bi-component membrane shall be comprised of an expanded EPTFE (polytetrafluoroethylene) matrix having a continuous hydrophilic (i.e. water loving) and oleophobic (i.e. oil hating) coating that is impregnated into the matrix.			
85. The moisture barrier material shall meet all moisture barrier requirements of NFPA 1971-2007 edition, which includes water penetration resistance, viral penetration resistance, and common chemical penetration resistance.			
86. The moisture barrier shall be bound along the edges with Bias-Cut Neoprene-coated cotton/polyester binding. Further mention of “Specified Moisture Barrier” in this specification shall refer to this section.			
87. <u>In the case where a manufacturer has a proprietary system that differs from the above specification the system shall be fully NFPA compliant and serve the purposes of the specification outlined above.</u>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
<p>SEALED MOISTURE BARRIER SEAMS</p> <p>88. All moisture barrier seams shall be sealed with a minimum one (1) inch wide sealing tape.</p> <p>89. One side of the tape shall be coated with a heat activated glue adhesive or equivalent.</p> <p>90. The adhesive side of the tape shall be oriented toward the moisture barrier seam.</p> <p>91. The adhesive shall be activated by heat and the sealing tape shall be applied to the moisture barrier seams by means of pressure exerted by rollers for that purpose.</p>			
<p>THERMAL INSLULATING LINER – JACKETS</p> <p>92. The thermal liner shall be constructed of two (2) layer “QUANTUM® 3D”; a 100% Nomex® spun/filament Goldcheck™ face cloth with Wickwell™ Plus finish quilted to one flat layer and one three dimensional layer of Nomex®/Kevlar® spunlace with a finished weight of approximately 7.7 oz. per square yard.</p> <p>93. A seven (7) inch by nine (9) inch pocket, constructed of self material and lined with moisture barrier material, shall be affixed to the inside of the jacket thermal liner on the left side by means of a lock stitch. The thermal liner shall be bound around its perimeter with Bias-Cut Neoprene jacketed cotton/polyester binding.</p>			

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	YES	NO	
<p>94. The thermal liner shall be attached to the moisture barrier. Further mention of “Thermal Liner” in this specification shall refer to this section</p> <p>95. <u>In the case where a manufacturer has a proprietary system that differs from the above specification the system shall be fully NFPA compliant and serve the purposes of the specification outlined above.</u></p>			
<p>METHOD OF THERMAL LINER/MOISTURE BARRIER ATTACHMENT – JACKETS</p> <p>96. The thermal liner and moisture barrier shall be completely removable from the jacket shell.</p> <p>97. Two strips of five eighths (5/8) inch wide flame resistant hook and pile (e.g. Velcro) fastener tape shall secure the thermal liner/moisture barrier to the outer shell along the length of the neck line under the collar (see Collar section).</p> <p>98. On the 32” jacket, the liner shall be secured to the outer shell by means of 5 snap fasteners along the leading edges of the left and right outer shell body panels.</p> <p>99. The position of the male snap portion on the liner shall be positioned in exactly the same</p>			

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	YES	NO	
<p>location of similar liner sizes and the female snap portion on the outer shell shall be positioned in exactly the same location of similar shell sizes. Four (4) male snaps shall be positioned at each sleeve cuff to align with four female snaps located on the NOMEX material tabs at the outer shell inner sleeves thus improving the longevity and utilization of the jacket ensemble.</p> <p>100. The jacket collar, which is attached to the liner assembly, shall interface with the annular neck tab on the outer shell with VELCRO (see Collar / Free Hanging Throat Tab). This system allows for quick and consistent interchangeability of the liners and shells of the same size.</p> <p>101. The thermal liner and moisture barrier shall be completely removable from the pant shell. Nine (9) snap fasteners shall be spaced along the waistband to secure the thermal liner/moisture barrier to the shell. The legs of the thermal liner/moisture barrier shall be secured to the shell by means of two (2) snap fasteners per leg.</p>			
<p>THERMAL PROTECTIVE PERFORMANCE</p> <p>102. The assembled garment, consisting of an outer shell, moisture barrier, and thermal liner, shall exhibit a TPP (Thermal Protective Performance) rating of not less than forty (40).</p>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
<p>STITCHING</p> <p>103. The outer shell shall be assembled using stitch type #301, #401, #514, and #516.</p> <p>104. The thermal liners and moisture barriers shall be assembled using stitch type #301, #401, #504, #514, and #516.</p> <p>105. Stitching in all seams shall be continuous.</p> <p>106. There shall be no joined stitching in midseam.</p> <p>107. All “major A” outer shell structural seams, “major B” structural liner seams, and minor seams including but not limited to pockets, flaps, and material reinforcements, shall have a minimum of eight to ten (8 to 10) stitches per inch</p>			
<p>JACKET CONSTRUCTION BODY</p> <p>108. The construction of this garment shall be in compliance with NFPA 1971</p>			
<p>RETROREFLECTIVE FLUORESCENT TRIM</p> <p>109. The retroreflective fluorescent trim shall be red/orange Triple Trim (R/O borders with</p>			

Item	Provided (check the box that applies)		Comments (list extra and/or equivalent features not listed in the Item column along with Brand and product names)
	YES	NO	
<p>silver center).</p> <p>110. The retroreflective fluorescent trim shall be lime/yellow Triple Trim (L/Y borders with silver center).</p> <p>111. . Each jacket shall have an adequate amount of retroreflective fluorescent trim affixed to the outside of the outer shell to meet the requirements of NFPA #1971 (2007 edition) and OSHA. The trim shall be in the following widths and shall be NYC style; three inch wide stripes - around the lower portion of the body of the jacket, around the back and chest area approximately three inches below the armpit, around each sleeve below the elbow, around each sleeve above the elbow.</p>			
<p>REINFORCED TRIM STITCHING</p> <p>112. The trim stitching shall be reinforced with a strip of three/thirty-two (3/32) inch wide flame resistant cording material.</p> <p>113. The cording shall be sewn to the top surface of the trim at the edges during installation of the retroreflective fluorescent trim on the garment.</p> <p>114. The cording provides a bed for the stitching and affords extra protection to the stitching from abrasion. This action will help to significantly reduce trim separation from the garment due to stitching failure from abrasion.</p>			

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	YES	NO	
115. <u>Equivalent options of reinforced trim stitching will be considered.</u> .			
COMBINATION CARGO/HAND WARMER POCKET 116. Each jacket will be equipped with two combination pockets: one on the left side and one on the right side. 117. The pockets shall be located near the storm flap and be double stitched to the respective body panels. 118. The lower pocket corners shall be stitched in such a way that a small diagonal opening is left for complete water drainage. 119. The pockets shall measure approximately nine (9) inches wide by nine (9) inches high and be accessed from the top. 120. Each pocket will be constructed with a two pleats installed vertically for the full height of the pocket to provide expansion capability. 121. The pocket flaps shall be rectangular in shape, constructed of two layers of outer shell material and shall measure approximately three (3) inches deep and one half (1/2) inch			

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	YES	NO	
<p>wider than the pocket.</p> <p>122. A piece of approximately one and one half (1 ½) inch by three (3) inch flame resistant hook and pile fastener tape (e.g. Velcro) shall secure each flap in the closed position.</p> <p>123. The upper pocket corners and pocket flaps shall be reinforced with bartacks. Additionally, a separate hand warmer pocket compartment will be provided under the expandable cargo pocket. This compartment will be accessed from the rear of the pocket.</p> <p>124. Each pocket shall be reinforced with self material. he reinforcement material shall be affixed to the lower half of each of the pockets on the inside.</p> <p>125. The bottom of the pockets shall be aligned with the hem, and retro reflective fluorescent trim shall be stitched to the pocket such that the hem band of trim is not interrupted.</p>			
<p>JACKET FRONT</p> <p>126. The jacket shall incorporate separate facings to ensure there is no interruption in thermal or moisture protection in the front closure area.</p> <p>127. The facings shall measure approximately two and one half (2 ½) inches wide, extend from collar to hem, and be double stitched to the underside of the outer shell at the leading edges of the front body panels.</p>			

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	YES	NO	
<p>128. Breathable moisture barrier material shall be sewn to the jacket facings and configured such that it is sandwiched between the jacket facing and the inside of the respective body panel. The breathable film side shall face inward to protect it.</p> <p>129. The thermal liner and moisture barrier assembly shall be attached to the jacket facings by means of snap fasteners.</p>			
<p>STORM FLAP</p> <p>130. A rectangular storm flap measuring approximately three and one quarter (3 ¼) inches wide and twenty-three (23) inches long shall be centered over the left and right body panels to ensure there is no interruption in thermal or moisture protection in the front of the jacket.</p> <p>131. The outside storm flap shall be constructed of two plies of outer shell material with a center ply of breathable moisture barrier material. No Exceptions.</p> <p>132. The outside storm flap shall be double stitched to the right side body panel and shall be reinforced at the top and bottom with bartacks.</p>			
<p>STORM FLAP AND FRONT CLOSURE SYSTEM</p> <p>133. The jacket shall be closed by means of (zipper and hook & pile tape) a approximately twenty-two (22) inch heavy-duty zipper on the jacket fronts and flame resistant hook and</p>			

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	YES	NO	
<p>pile (e.g. Velcro) fastener tape on the storm flap.</p> <p>134. The teeth of the zipper shall be mounted on Nomex cloth or equivalent and shall be sewn into the respective jacket facings.</p> <p>135. The zipper stop shall be "pressed", not molded, insuring the highest quality with increased durability.</p> <p>136. The storm flap shall close over the left and right jacket body panels and shall be secured with flame resistant hook and pile fastener tape.</p> <p>137. A one and one half (1 ½) inch by twenty-three (23) inch piece of FR pile fastener tape shall be installed along the leading edge of the storm flap on the underside with four (4) rows of stitching.</p> <p>138. A corresponding one and one half (1 ½) inch by twenty-three (23) inch piece of FR hook fastener tape shall be sewn with four rows of stitching to the front body panel and positioned to engage the pile fastener tape when the storm flap is closed over the front of the jacket.</p>			
<p>MILITARY PLEAT</p> <p>139. The jackets shall include inverted pleats to afford enhanced mobility and freedom of</p>			

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	YES	NO	
<p>movement in addition to that provided by the underarm gussets.</p> <p>140. The outer shell shall have two inverted pleats (one (1) each side) installed at the juncture of the front and back body panels.</p> <p>141. The inverted pleats shall begin at the back of each shoulder reinforcement layer and extend vertically down the sides of the jacket to the hem.</p> <p>142. Maximum expansion of the pleats shall occur at the shoulder area and taper toward the hem. The liner (moisture barrier & thermal liner) shall have a single inverted pleat located at the upper middle of the back. It will be designed to expand with the outer shell pleats to their maximum expansion.</p>			
<p>SLEEVES</p> <p>143. The sleeves shall be of two (2) panel construction, contoured, and of set in design.</p> <p>144. The outer and under sleeve panels shall be double stitched together with Nomex thread.</p> <p>145. The sleeves shall be contoured (curved) to follow the natural shape of the human arm unlike straight, tubular sleeve configurations.</p>			

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	YES	NO	
<p>146. An underarm gusset shall be incorporated between the underside of the sleeve and the body of the jacket and shall be used in all layers of the garment (shell, moisture barrier, and thermal liner). No Exceptions.</p> <p>147. The underarm gusset shall measure approximately five (5) inches wide by seventeen (17) inches long (all layers) and graded to size, beginning at the front of the armpit and terminating approximately three inches from the top of the back of the shoulder, and shall provide for a high degree of uninhibited arm and shoulder movement</p>			
<p>SLEEVE CUFF REINFORCEMENTS</p> <p>148. The sleeve cuffs shall be reinforced with an extra layer of DRAGONHIDE material; a 34% para-aramid, 63% aramid and three percent (3%) carbon filament back coated and impregnated with a specially formulated polyurethane polymer for water, oil and dirt resistance. The cuff reinforcements shall not be less than three (3) inches in width and folded in half, approximately one half (1/2) inside and one half (1/2) outside the sleeve end for greater strength and abrasion resistance. The cuff reinforcement shall be double stitched to the sleeve end.</p>			
<p>WRISTLETS / ELASTICIZED ADJUSTABLE SLEEVE WELLS</p> <p>149. Each jacket shall be equipped with Nomex® hand and wrist guards (over the hand) not less than seven (7) inches in length and of double thickness. A separate thumbhole with an</p>			

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<p>approximate diameter of two (2) inches shall be recessed approximately one (1) inch from the leading edge.</p> <p>150. The wristlet shall be sewn to the end of the liner sleeves. FR Neoprene coated cotton/polyester moisture barrier material shall line the inside of the sleeve shell from the cuff to a point approximately five (5) inches back, where it is double stitched to the shell and then extending toward the cuff forming the sleeve well. The Neoprene sleeve well shall form a cuff end that shall be elasticized providing a snug fit at the wrist and covering the knit wristlet on the liner sleeve. The elasticized sleeve well shall include an adjustable VELCRO take-up strap. The take-up strap will allow the wearer to maintain a comfortable proper fit and interface at the wrist area</p> <p>151. This sleeve well configuration serves to prevent water and other hazardous elements from entering the sleeves when the arms are raised and reduces the possibility of steam burns around the wrist. Four NOMEX® snap tabs will be sewn into the juncture of the sleeve well and wristlet. The tabs will be spaced equidistant from each other and shall be fitted with female snap fasteners to accommodate corresponding male snaps in the liner sleeves. This configuration will ensure there is no interruption in protection between the sleeve liner and wristlet.</p>			

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	YES	NO	
<p>COLLAR</p> <p>152. The collar shall consist of five (5) layer construction and be of two (2) piece design.</p> <p>153. The outer layers shall consist of outer shell material, with two inner layers of neoprene-coated cotton/poly, and a center layer of breathable moisture barrier sandwiched between.</p> <p>154. The rear inside ply of neoprene shall be sewn to the back layer of outer shell of the collar with four lateral rows of stitching for reinforcement.</p> <p>155. The forward inside ply of neoprene and center layer of breathable moisture barrier shall be sewn to the inside of the collar at the edges only.</p> <p>156. The multi-layered configuration shall provide protection from water and other hazardous elements.</p> <p>157. The collar shall be of two (2) piece design with the left and right halves of all component materials joined in the center by stitching, thereby permitting the collar to retain its proper shape and roll. The collar shall be four (4) inches high and graded to size.</p> <p>158. The leading edges of the collar shall extend up evenly from the leading edges of the jacket front body panels so that no gap occurs at the throat area.</p> <p>159. The back layers of outershell, neoprene and the center ply of breathable moisture barrier of the collar shall be joined to the body panels with two rows of stitching. Inside the collar</p>			

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	YES	NO	
<p>above that seam where it is joined to the shell, shall be a strip of five eighth (5/8) inch wide FR hook fastener tape running the full length of the collar.</p> <p>160. The front layers of neoprene and outershell of the collar shall have an additional strip of five eighth (5/8) inch wide hook fastener tape stitched to the inside lower edge and running the full length of the collar. These two inside strips of five eighth (5/8) inch wide FR hook fastener tape (e.g. Velcro) sewn to the underside of the collar shall engage corresponding pieces of flame resistant pile fastener tape at the front and back neck area of the liner.</p> <p>161. The collar closure strap shall be constructed of two plies of outer shell material with two center plies of NFPA compliant moisture barrier material, and shall measure not less than four (4) inches wide by nine (9) inches long.</p> <p>162. The collar closure strap shall be secured in the closed and stowed position with flame resistant hook and pile (e.g. Velcro) fastener tape.</p> <p>163. A two (2) inch by three (3) inch piece of FR pile fastener tape shall be sewn vertically to the inside of the end of the closure strap. A corresponding piece of FR hook fastener tape measuring two (2) inches by three (3) inches shall be sewn horizontally to the outside of the collar on the opposite side, thereby providing a high degree of collar strap adjustment when wearing a breathing apparatus mask. In order to provide a means of storage for the closure strap when not in use, a one (1) inch by two (2) inch piece of FR hook fastener tape shall be sewn horizontally to the collar immediately in front of the closure strap.</p>			

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	YES	NO	
<p>164. The collar closure strap shall fold in half with the FR pile fastener tape engaging the FR hook fastener tape.</p> <p>165. An NFPA compliant fabric hanger loop shall be sewn to the inside of the liner at the neckline.</p>			
<p>LINER SHOULDER AND UPPER BACK THERMAL ENHANCEMENT</p> <p>166. An additional layer of "Aralite" thermal liner material or equivalent shall be used to increase thermal insulation in the upper back and shoulder area of the liner system.</p> <p>167. This thermal enhancement layer shall drape over the top of each shoulder extending from the collar to the sleeve/shoulder seam, and from the juncture of the collar and back panel to a depth of seven and one half (7 ½) inches.</p> <p>168. The upper back and shoulder thermal enhancement layers shall be sandwiched between the thermal liner and moisture barrier layers of the liner system and shall be stitched to the thermal liner layer only.</p>			

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	YES	NO	
<p>UPPER BACK REINFORCEMENT</p> <p>169. An additional layer of outer shell material shall be used to reinforce the upper back area of the coat.</p> <p>170. The additional shoulder reinforcement layer shall also serve to increase thermal insulation to the upper back area.</p> <p>171. This reinforcement layer shall extend from shoulder seam to shoulder seam, and from the juncture of the collar and back panel to a depth of seven and one half (7 ½) inches.</p> <p>172. The upper back reinforcement layer will be double stitched to the back body panel with Nomex thread.</p>			
<p>RADIO POCKET</p> <p>173. Two (2) inches deep by three point five (3.5) inches wide by nine (9) inches high and shall be installed on the left chest. Each jacket shall have a pocket designed for the storage of a portable radio and shall measure approximately three (3) inches deep by three point five (3.5) inches wide by nine (9) .</p> <p>174 Each jacket shall have a pocket designed for the storage of a portable radio. This pocket</p>			

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<p>shall be of box type construction, double stitched to the jacket, and shall have one drainage eyelet in the bottom of the pocket.</p> <p>175. The pocket flap shall be constructed of two layers of outer shell material measuring approximately five (5) inches deep and 1/4 inch wider than the pocket. The pocket flap shall be closed by means of FR VELCRO tape. A one and one half (1 ½) inch by three (3) inch piece of FR hook VELCRO tape shall be installed vertically on the inside of the pocket flap beginning at the center of the bottom of the flap.</p> <p>176. A one and one half (1 ½) inch by three (3) inch piece of FR pile VELCRO tape shall be installed horizontally on the outside of the pocket near the top center and positioned to engage the hook VELCRO tape. In addition, the entire inside of the pocket shall be lined with Neoprene coated cotton/polyester moisture barrier material to ensure that the radio is protected from the elements.</p> <p>177. The moisture barrier material shall also be sandwiched between the two layers of outer shell material in the pocket flap for added protection. The radio pocket shall measure approximately</p> <p>178. The radio pocket flap shall be notched to accommodate the radio antenna on the left side as worn.</p>			

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<p>MICROPHONE STRAP</p> <p>179. A strap shall be constructed to hold a microphone for a portable radio. It shall be sewn to the coat at the ends only, and shall be constructed of double layer outer shell material. This feature shall be located on the left chest.</p>			
<p>FACE MASK / HELMET / POUCH HOLDER</p> <p>180. Right Chest – Survivor LED flashlight #90540 (90 degree flashlight), no hooks, clasps...velcro closure only)</p>			
<p>SEWN ON RETROREFLECTIVE LETTERING</p> <p>181. The coats shall have lettering sewn to them as follows :</p> <p>182. The letters shall be three (3) inch letters.</p> <p>183. The letters shall be Scotchlite. The letters color shall be Red/Orange.</p> <p>184. Each jacket shall have three (3) inch lime/yellow Scotchlite lettering on Row “F” (on the back of the jacket just above the trim at the hem reading – the firefighter’s name..</p>			

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185. The letters shall be sewn on a piece of outer shell material, then affixed to the outer shell of the jacket. The letters shall be stitched to the garment in a straight line, and shall read:			
NAMES 186. The bottom of the letters shall be approximately seven (7) inches from the collar/neck seam. (Note: Lettering locations are approximate.)			
SIZING 187. The coat length shall be measured from the juncture of the collar and back panels to the hem of the coat and shall measure thirty-two (32) inches long. 188. The coat shall be available in even size chest measurements of two-inch increments, and shall range from a small size of thirty (30) to a large size of sixty (60). Generalized sizing, such as small, medium, large, etc., will not be considered acceptable. Sizing specifically for women shall also be available			

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	YES	NO	
<p>THIRD PARTY TESTING AND LISTING PROGRAM</p> <p>189. All components used in the construction of these garments shall be tested for compliance to NFPA Standard #1971 (2007 revision) by Underwriters Laboratories (UL). Underwriters Laboratories shall certify and list compliance to that standard. Such certification shall be denoted by the Underwriters Laboratories certification label</p>			
<p>LABELS</p> <p>190. Appropriate warning label(s) shall be permanently affixed to each garment.</p> <p>191. Additionally, the label(s) shall include the following information. Compliance to NFPA Standard #1971 - 2007 edition, CAN/CGSB 155.1-M88 (latest ed.), Underwriters Laboratories classified mark, Manufacturer's name Manufacturer's address, Manufacturer's garment identification number, Date of manufacture and size fiber contents</p>			
<p>ISO CERTIFICATION / REGISTRATION</p> <p>192. The protective clothing manufacturer and supplier shall be certified and registered to ISO Standard 9001 to assure a satisfactory level of quality.</p>			

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<p>SUNLANCE" FLASHLIGHT HOLDER</p> <p>191 . Each jacket shall be equipped with two specially configured straps to hold a "Sunlance" flashlight.</p> <p>192. The top strap shall measure approximately one (1) inches high and thee (3) inches wide, and will accommodate the clip portion of the flashlight.</p> <p>193. The lower strap shall measure approximately two and one half (2 ½) inches high and nine (9) inches wide, and will hold the barrel of the flashlight. The lower strap will be equipped with a one and one half (1 ½) inch by two and one half (2 ½) inch FR VELCRO closure at the front of the strap to facilitate easy removal of the flashlight. There shall be approximately one and one quarter (1 ¼) inch between the upper and lower strap.</p> <p>194. The "Sunlance" flashlight holder shall be sewn to the jacket on the right chest.</p>			
<p>EMBROIDERED CANADIAN FLAG</p> <p>195. Each jacket shall have a Nomex embroidered Canadian flag that measures approximately two point five (2.5) inches by three point five (3.5) inches installed on the left sleeve.</p>			

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<p>DRAG RESCUE DEVICE (DRD)</p> <p>196. A Firefighter Drag Rescue Device shall be installed in each jacket. Two (2) ends of a one point five (1.5) inch wide Kevlar strap will be sewn together to form a continuous loop.</p> <p>197. The strap will be installed in the jacket between the liner system and outer shell such that when properly installed will loop around each arm. The strap will be accessed through a portal between the shoulders on the upper back where it is secured in place by a Velcro strap.</p> <p>198. The access port will be covered by an outside flap with beveled corners designed to fit between the shoulder straps of an SCBA. The flap will have a compliant reflective patch sewn to the outside to clearly identify the feature as the DRD (Drag Rescue Device).</p>			

City of Richmond
Contract 4568Q
Request for Proposal Turn Out Gear for Richmond Fire-Recue
