

# KANAWHA COUNTY COMMISSION

P.O. Box 3627  
Charleston, WV 25336  
(304) 357-0115

## Request for Quotations

Re: Structural Firefighting Protective Equipment for Kanawha County Fire Departments.

Date: December 14, 2010

**Bid Opening:** Bids must be received on or before Tuesday, December 28, 2010, at 11:00 a.m. in the Kanawha County Commission Purchasing Department located at 407 Virginia Street, East, Third Floor, Room 229, Charleston, WV 25301

### INSTRUCTIONS TO BIDDERS:

#### **\*PLEASE USE THIS COVER SHEET FOR YOUR BID**

1. **Bids must be received in a sealed envelope with the date and time of the bid opening on the outside of the envelope. Faxed bids will not be accepted.**
2. Bid must be F.O.B. Delivery Point, unless otherwise indicated in proposal.
3. All bids should be signed and in ink, showing all facts and the total amount of the bid.
4. The Kanawha County Commission reserves the right to accept or reject, in part or in whole any bid submitted, whichever is in the best interest of the Kanawha County Commission.

Item No.	Description
1	Structural Firefighting Protective Equipment for Kanawha County Fire Departments per the attached specifications

Vendor Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Telephone: \_\_\_\_\_

# **SPECIFICATIONS**

**KANAWHA COUNTY COMMISSION  
CHARLESTON, WEST VIRGINIA**

- ITEM:** Structural Firefighting Protective Equipment for Kanawha County Fire Departments
- LOCATION:** Various Fire Departments Located Throughout Kanawha County
- CONTACT:** Jerie Whitehead  
Purchasing Director  
Kanawha County Commission  
P.O. Box 3627  
Charleston, WV 25336  
[jeriewhitehead@kanawha.us](mailto:jeriewhitehead@kanawha.us)  
(304) 357-0115
- BID OPENING:** Bids must be received in a sealed envelope, with the date and time of the bid opening on the outside of the envelope, on or before Tuesday, December 28, 2010, at 11:00 a.m., at the Kanawha County Commission Purchasing Department, 407 Virginia Street, East, Third Floor, Room 229, Charleston, WV 25301 (P.O. Box 3627, Charleston, WV 25336). *Faxed bids will not be accepted.*
- SPECIFICATIONS:** The following specifications are intended to describe fire fighting protective equipment for Kanawha County Fire Departments and the details contained in these specifications are not designed to exclude any vendor from bidding, but are offered as a means of describing the needs of the fire departments. Where brand names may be used, the words "or equal" are assumed to follow. All specifications are minimum requirements.

## **Structural Firefighting Protective Equipment Kanawha County Fire Departments**

There are thirty-two (32) fire departments located in Kanawha County, West Virginia. The bids are to be upheld for three hundred sixty-five (365) days (one calendar year) and are to be made available to any of the 32 Kanawha County fire departments who may wish to purchase equipment from this contract.

GENERAL SPECIFICATIONS  
PROTECTIVE JACKET AND TROUSERS  
FOR STRUCTURAL FIRE FIGHTING

KANAWHA COUNTY  
NOVEMBER 2010

SCOPE

This specification details design and materials criteria to afford protection to the upper and lower body, excluding head, hands, feet, against adverse environmental effects during structural fire fighting. All materials and construction will meet or exceed NFPA Standard #1971 (2007 revision) and OSHA for structural fire fighters protective clothing.

\_\_\_\_\_ Comply      \_\_\_\_\_ Exception

OUTER SHELL MATERIAL - JACKETS AND TROUSERS

The outer shell shall be constructed of TENCATE "MILLENNIA™ XT a 60/40 Technora/PBO blend with an approximate weight of 7.5 oz. per square yard in a ripstop 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.**

\_\_\_\_\_ Comply      \_\_\_\_\_ Exception

THERMAL INSULATING LINER - JACKET AND TROUSERS

The thermal liner shall be constructed of 7.2 oz. per square yard TENCATE "ARALITE® SL2"; one layer of 1.5 oz. and one layer of 2.3 oz. per square yard E-89™ spunlaced Nomex®/Kevlar® aramid blend, quilt stitched to a 3.4 oz. per square yard aramid face cloth, silver in color, with Wickwell™ Plus finish. A 7 inch by 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 attached to the moisture barrier and bound together by bias-cut Neoprene coated cotton/polyester around the perimeter. This provides superior abrasion resistance to the less expensive, less durable "stitch and turn" method. Further mention of "Thermal Liner" in this specification shall refer to this section. *NOTE: This thermal liner MUST be used exclusively with a minimum 7 oz. per square yard outer shell material.*

\_\_\_\_\_ Comply      \_\_\_\_\_ Exception

MOISTURE BARRIER - JACKETS AND TROUSERS

W.L. GORE "CROSSTECH® Type 2C" moisture barrier material shall be a 5.0 oz. per square yard two-layer laminate comprised of a bicomponent membrane and a 3.2 oz. per square yard Nomex® IIIA woven pajama check substrate. The bicomponent membrane shall be comprised of an expanded PTFE (polytetrafluoroethylene, for example Teflon) 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 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 sewn to the thermal liner and 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.

\_\_\_\_\_ Comply      \_\_\_\_\_ Exception



## SEALED MOISTURE BARRIER SEAMS

All moisture barrier seams shall be sealed with a minimum 1 inch wide sealing tape. One side of the tape shall be coated with a heat activated glue adhesive. 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.

☐ Comply ☐ Exception

## METHOD OF THERMAL LINER/MOISTURE BARRIER ATTACHMENT FOR JACKETS AND TROUSERS

The thermal liner and moisture barrier shall be completely removable from the jacket shell. Two strips of 5/8 inch wide flame resistant Velcro® hook and loop 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). The remainder of the thermal liner/moisture barrier shall be secured with a minimum of four snap fasteners appropriately spaced on each jacket facing and two snap fasteners at each sleeve end. The thermal liner and moisture barrier shall be completely removable from the trouser 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.

☐ Comply ☐ Exception

## THERMAL PROTECTIVE PERFORMANCE

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 35.

☐ Comply ☐ Exception

## STITCHING

The outer shell shall be assembled using stitch type #301, #401, and #516. The thermal liners and moisture barriers shall be assembled using stitch type #301, #401, #504, #514, and #516. Stitching in all seams shall be continuous. There shall be no joined stitching in midseam. All major A outer shell structural seams, major B structural liner seams, shall have a minimum of 8 to 10 stitches per inch.

☐ Comply ☐ Exception

## JACKET CONSTRUCTION

### BODY

The body of the shell and AXTION liner system shall be constructed of three separate panels consisting of two front panels and one back panel. The body panels shall be shaped so as to provide a tailored fit thereby enhancing body movement and shall be joined together by double stitching with Nomex® thread. One-piece outer shells shall not be acceptable.

☐ Comply ☐ Exception

### SIZING

The jacket length shall be measured from the juncture of the collar and back panels to the hem of the jacket and shall measure 29 inches in the front/33 inches long in the back.

The jacket shall be available in male and female patterns in even size chest measurements of two inch increments, and shall range from a small size of 30 to a large size of 68. Generalized sizing, such as small, medium, large, etc., will not be considered acceptable.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

### **DRAG RESCUE DEVICE (DRD)**

A Firefighter Drag Rescue Device shall be installed in each jacket. The ends of a 1½ inch wide strap constructed of black Kevlar® with a red Nomex® center stripe, will be sewn together to form a continuous loop. 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 hook and loop strap. 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 NFPA-compliant 3M Scotchlite™ reflective logo patch sewn to the outside to clearly identify the feature as the DRD (Drag Rescue Device). The DRD shall not extend beyond the outside flap. This device provides a quickly deployed means of rescuing a downed firefighter. Flimsy, rope-style DRD straps will not be considered.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

### **LINER ACCESS OPENING - JACKET**

The liner system of the jacket shall incorporate an opening at the leading edge of the left front. This opening shall run approximately 10 inches along the perimeter for the purpose of inspecting the integrity of the jacket liner system. When installed into the outer shell the Liner Access Opening will be covered and protected by the overlap of the outer shell facing.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

### **RETROREFLECTIVE FLUORESCENT TRIM**

The retroreflective fluorescent trim shall be lime/yellow 3M Scotchlite™Triple Trim (L/Y borders with silver center).

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**; 3 inch wide stripes - around each sleeve below the elbow, around each sleeve above the elbow, around the bottom of the jacket within approximately 1 inch of the hem, around the back and chest area approximately 3 inches below the armpit,.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

### **REINFORCED TRIM STITCHING**

All reflective trim is secured to the outer shell with Nomex® thread, using a locking chainstitch protected by our exclusive TrimTrax™ system. (Developed exclusively by Globe Manufacturing Co., LLC) This strip of 3/32-inch strong, durable, flame resistant black Kevlar® cording provides a bed for the stitching along each edge of the retroreflective fluorescent trim surface and affords extra protection for the thread from abrasion. TrimTrax™ has been proven to be 5 to 7 times more durable than single or even double rows of stitching, significantly reducing maintenance costs and providing more value and a longer service life. Two rows of stitching used to attach the trim in place of TrimTrax™ shall be considered an unacceptable alternative, since



it has been proven that the two rows of stitching has insignificant impact on wear life. All trim ends shall be securely sewn into a seam for a clean finished appearance.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## SEWN ON RETROREFLECTIVE LETTERING

Each jacket shall have the option for 2" or 3" lime/yellow 3M Scotchlite™ lettering. Lettering and location to be advised at time of order.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## COLLAR & FREE HANGING THROAT TAB

The collar shall consist of a four-layer construction and be of two-piece design. The outer layers shall consist of outer shell material on outside and a layer of PCA black Advance™ on the inside. There shall be a layer of specified moisture barrier and a layer of aramid pajama check material sandwiched in between (see Moisture Barrier section). The rear inside ply of aramid pajama check shall be sewn to the collar's back layer of outer shell at the edges only. The forward inside ply of moisture barrier shall be sewn to the inside of the collar at the edges only. The multi-layered configuration shall provide protection from water and other hazardous elements. The collar shall be a minimum of 3 inches high and graded to size. 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. The collar's back layers of outershell and moisture barrier shall be joined to the body panels with two rows of stitching. Inside the collar, above the rear seam where it is joined to the shell shall be a strip of 5/8 inch wide FR Velcro® loop fastener tape running the full length of the collar. The collar's front layers of moisture barrier and outershell shall have an additional strip of 5/8 inch wide Velcro® hook fastener tape stitched to the inside lower edge and running the full length of the collar. These two inside strips of 5/8 inch wide FR Velcro® fastener tape sewn to the underside of the collar shall engage corresponding pieces of FR Velcro® fastener tape on the neck extension of the liner system. A self material fabric hanger loop shall be sewn at the top of collar.

The throat tab shall be a scoop type design and constructed of two plies of outer shell material with two center plies of moisture barrier material. The throat tab shall measure not less than 2½ inches wide at the center tapering to 2 inches at each end with a total length of approximately 7½ inches. The throat tab will be attached to the right side of the collar by a 1 inch wide by 1½ inch long piece of Nomex® twill webbing. The throat tab shall be secured in the closed and stowed position with FR Velcro® hook and loop fastener tape. The FR Velcro® hook and loop fastener tape shall be oriented to prevent exposure to the environment when the throat tab is in the closed position. A 1½ inch by 3 inch piece of FR Velcro® loop fastener tape shall be sewn horizontally to the inside leading end of the throat tab and a 1½ inch by 3 inch piece of FR Velcro® hook fastener tape shall be sewn horizontally to the opposite end of the throat tab. A corresponding piece of FR Velcro® hook fastener tape measuring 1½ inches by 3 inches shall be sewn horizontally to the leading outside edge of the collar on the left side, for attachment and adjustment when in the closed position and wearing a breathing apparatus mask. The collar closure strap shall fold in half for storage with the FR Velcro® loop fastener tape engaging the FR Velcro® hook fastener tape.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## JACKET FRONT

The jacket shall incorporate separate facings to ensure there is no interruption in thermal or moisture protection in the front closure area. The facings shall measure 2½ 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. A 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. Jackets that use "false facings" shall be considered unacceptable. The thermal

liner and moisture barrier assembly shall be attached to the jacket facings by means of snap fasteners.

\_\_\_\_\_ Comply                      \_\_\_\_\_ Exception

## **STORM FLAP**

A rectangular storm flap measuring 3¼ inches (6 inches for hook & dee inside/FR Velcro® outside closure; aka #7C) wide and 24 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. The outside storm flap shall be constructed of two plies of outer shell material with a center ply of breathable moisture barrier material. The outside storm flap shall be double stitched to the right side body panel and shall be reinforced at the top and bottom with backtacks.

\_\_\_\_\_ Comply                      \_\_\_\_\_ Exception

## **STORM FLAP AND JACKET FRONT CLOSURE SYSTEM**

The jacket shall be closed by means of a 22 inch size #10 heavy duty high-temp smooth-gliding YKK Vislon® zipper on the jacket fronts and flame resistant Velcro® fastener tape on the storm flap. The teeth of the zipper shall be mounted on black Nomex® tape and shall be sewn into the respective jacket facings. The storm flap shall close over the left and right jacket body panels and shall be secured with flame resistant Velcro® fastener tape. A 1½ inch by 24 inch piece of FR Velcro® loop fastener tape shall be installed along the leading edge of the storm flap on the underside with four rows of stitching. A corresponding 1½ inch by 23 inch piece of FR Velcro® hook fastener tape shall be sewn with four rows of stitching to the front body panel and positioned to engage the loop fastener tape when the storm flap is closed over the front of the jacket.

\_\_\_\_\_ Comply                      \_\_\_\_\_ Exception

## **SEMI-EXPANSION (BELLOWS) POCKETS**

Each coat front body panel shall have a 8 inch wide by 8 inch high semi-expansion pocket double stitched to it and shall be located to provide accessibility. The leading edge of the pockets shall be sewn flush with the coat. The rear of the pockets shall expand to a depth of 2 inches. The lower half of each semi-expansion pocket shall be reinforced with a layer of Kevlar® on the inside. Two rust resistant metal drain eyelets shall be installed in the bottom of each semi-expansion pocket to facilitate drainage of water. The pocket flaps shall be constructed of two layers of outer shell material and shall measure 3 inches deeper than the pocket expansion and ½ inch wider than the pocket. The pocket flaps shall be angled with the front edge 1" shorter than the back edge, the upper pocket corners shall be reinforced with proven backtacks, and pocket flaps shall be reinforced with bartacks. The pocket flaps shall be closed by means of flame resistant Velcro® hook and loop fastener tape. Two pieces of 1½ inch by 3 inch FR Velcro® hook fastener tape shall be installed vertically on the inside of each pocket flap (one piece on each end). Two corresponding pieces of 1½ inch by 3 inch FR Velcro® loop 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.

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 and shall be lined with Nomex® fleece for warmth and comfort.

\_\_\_\_\_ Comply                      \_\_\_\_\_ Exception

## **RADIO POCKET**

Each jacket shall have a pocket designed for the storage of a portable radio. This pocket shall be of box type construction, double stitched to the coat, and shall have one drainage eyelet in the bottom of the pocket. The pocket flap shall be constructed of two layers of outer shell material measuring approximately 5 inches deep and ¼ inch wider than the pocket. The pocket flap shall be closed by means of flame resistant Velcro® hook



and loop fastener tape. A 1½ inch by 3 inch piece of FR Velcro® hook fastener tape shall be installed vertically on the inside of the pocket flap beginning at the center of the bottom of the flap. A 1½ inch by 3 inch piece of FR Velcro® loop fastener tape shall be installed horizontally on the outside of the pocket near the top center and positioned to engage the hook fastener tape. In addition, the entire inside of the pocket shall be lined with neoprene coated cotton/polyester impermeable barrier material to ensure that the radio is protected from the elements. 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 size shall be noted at time of order and shall be installed on the left chest.

Note: (radio pocket over 6 inch in height requires trim)

\_\_\_\_\_ Comply \_\_\_\_\_ Exception

#### **UNIVERSAL CLIP (for P.A.S.S., mic, flashlight, etc.)**

A strap shall be configured to hold a personal alert device equipped with a clip holder, flashlight equipped with a clip holder, etc. The overall dimensions of the strap shall be approximately 4½ inches long by 1½ inches high and constructed of outer shell material. The outer shell material shall encase a piece of rigid leather measuring approximately  $\frac{3}{16}$  inch thick by 3 inches long by 1¼ inches high and centered in the outer shell material. Each end of the strap shall be attached to the outer shell with two rows of stitching. This will leave a usable area of 3 inches in length. The strap shall be mounted right chest.

\_\_\_\_\_ Comply \_\_\_\_\_ Exception

#### **UNIVERSAL CLIP (for P.A.S.S., mic, flashlight, etc.)**

A strap shall be configured to hold a personal alert device equipped with a clip holder, flashlight equipped with a clip holder, etc. The overall dimensions of the strap shall be approximately 4½ inches long by 1½ inches high and constructed of outer shell material. The outer shell material shall encase a piece of rigid leather measuring approximately  $\frac{3}{16}$  inch thick by 3 inches long by 1¼ inches high and centered in the outer shell material. Each end of the strap shall be attached to the outer shell with two rows of stitching. This will leave a usable area of 3 inches in length. The strap shall be mounted left chest and specific location shall be noted at time of order.

\_\_\_\_\_ Comply \_\_\_\_\_ Exception

#### **AXTION SLEEVES**

The sleeves shall be of two piece construction, having an upper and a lower sleeve. The sleeve seams shall be of a double needle seam construction and shall be contoured to follow the natural flex of the arm at rest. Both the under and upper sleeve shall be graded in proportion to the chest size. For unrestricted movement, on the underside of each sleeve there shall be two outward facing pleats located on the front and back portion of the sleeve on the shell and thermal liner. On the moisture barrier, the system will consist of two darts, rather than pleats, to allow added length in the undersleeve. The moisture barrier darts will be seam sealed to assure liquid resistance integrity.

The pleats shall expand in response to upper arm movement, and shall fold in on themselves when the arms are at rest. This expansion shall allow for greater multi-directional mobility and flexibility in the shoulder and arm areas, with little restriction or coat rise. Neither stove-pipe nor raglan-style sleeve designs will be considered acceptable.

\_\_\_\_\_ Comply \_\_\_\_\_ Exception



## SLEEVE CUFF REINFORCEMENTS

The sleeve cuffs shall be reinforced with gray suede leather.

The cuff reinforcements shall not be less than 2 inches in width and folded in half, approximately one half inside and one half outside the sleeve end for greater strength and abrasion resistance. The cuff reinforcement shall be double stitched to the sleeve end for a total of four rows of stitching. This independent cuff provides an additional layer of protection over a turned and stitched cuff. Coats finished with a turned and stitched cuff do not provide the same level of abrasion resistance and will be considered unacceptable.

\_\_\_\_\_Comply      \_\_\_\_\_Exception

## WRISTLETS / SLEEVE WELLS

Each jacket shall be equipped with **Nomex® knit wristlets** not less than 4 inches in length and of double thickness.

The wristlets shall be sewn to a piece of self material leader that is then stitched into the cuff. Flame resistant Neoprene coated cotton/polyester impermeable barrier material will be sewn to the thermal liner sleeve from the cuff to 6" up the sleeve between the thermal and moisture barrier layers. Two 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 snap tabs sewn onto the liner sleeves. This configuration will ensure there is no interruption in protection between the sleeve liner and wristlet.

\_\_\_\_\_Comply      \_\_\_\_\_Exception

## LINER SHOULDER THERMAL ENHANCEMENT

An additional layer of thermal liner material shall be used to increase thermal insulation in the shoulder area of the liner system. This thermal enhancement layer shall drape over the top of each shoulder extending from the collar to the sleeve/shoulder seam, and 2" to the front, 2" to the back of the shoulder cap. The 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.

\_\_\_\_\_Comply      \_\_\_\_\_Exception

## TROUSER CONSTRUCTION

### BODY

The body of the shell shall be constructed of four separate body panels consisting of two front panels and two back panels. The body panels shall be shaped so as to provide a tailored fit, thereby enhancing body movement, and shall be joined together by double stitching with Nomex® thread. The body panels and seam lengths shall be graded to size to assure accurate fit in a broad range of sizes.

\_\_\_\_\_Comply      \_\_\_\_\_Exception

## **LINER ACCESS OPENING (TROUSER)**

The combined moisture barrier and the thermal liner shall be completely removable for the pant. The thermal liner and moisture barrier layers of the liner system shall be stitched together and bound around the top waist and cuffs with Bias-Cut Neoprene coated cotton/polyester binding for a finished appearance that prevents fraying and wicking of contaminants. The liner system shall have a reinforcement of black Nomex® Twill sewn to the bottom of the fly opening. This reinforcement will serve to prevent the liner from tearing in that area from the constant donning and doffing of the trousers.

The liner system of the trouser shall incorporate an opening at the right side of the waist, a minimum of 11 inches, for the purpose of inspecting the integrity of the trouser liner system.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **SIZING**

The trousers shall be available in even size waist measurements of two inch increments and shall be available in a range of sizes from 24 to 68. The trouser inseam measurement shall be available in two inch increments. Generalized sizing, such as small, medium, large, etc., will not be considered acceptable. Sizing specifically for women shall also be available.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **RETROREFLECTIVE FLUORESCENT TRIM**

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 3 inch lime/yellow 3M Scotchlite™ Triple Trim (L/Y borders with silver center).

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **REINFORCED TRIM STITCHING**

All reflective trim is secured to the outer shell with Nomex® thread, using a locking chainstitch protected by our exclusive TrimTrax™ system. (Developed exclusively by Globe Manufacturing Co., LLC) This strip of 3/32-inch strong, durable, flame resistant black Kevlar® cording provides a bed for the stitching along each edge of the retroreflective fluorescent trim surface and affords extra protection for the thread from abrasion. TrimTrax™ has been proven to be 5 to 7 times more durable than single or even double rows of stitching, significantly reducing maintenance costs and providing more value and a longer service life. Two rows of stitching used to attach the trim in place of the TrimTrax™ shall be considered an unacceptable alternative, since it has been proven that the two rows of stitching has insignificant impact on wear life. All trim ends shall be securely sewn into a seam for a clean finished appearance.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **WAISTBAND**

The waist area of the trousers shall be reinforced on the inside with a separate piece of black aramid 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 to create a three-layer protection. The top edge of the waistband reinforcement shall be double stitched to the outer shell at the top of the trousers. The lower edge of the waistband shall be serged and unattached to the shell to accept the thermal liner and moisture



barrier. 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 through of snaps from the outer shell to the inner liner. The independent waistband construction affords greater comfort and fit than a turned and stitched method. Trousers that do not include an independent waistband only serve to save the manufacturer both money and labor and shall be considered unacceptable.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **NOMEX® BELT WITH BELT LOOPS**

Each pant shall include a 2" wide belt constructed of Nomex® 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. The pants shall be equipped with a series of approximately 3 inch by 3 inch outer shell material belt loops spaced around the waist to accommodate the Nomex® belt.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **EXTERNAL / INTERNAL FLY FLAP**

The trousers will have a vertical outside fly flap constructed of two 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 2 ½ inches wide by 9½ inches long and reinforced with bartacks at the base. An internal fly flap constructed of one layer of outer shell material, thermal liner and specified moisture barrier, measuring approximately 2 inches wide by 9½ inches long, shall be sewn to the leading edge of the right front body panel. The inside of the right front body panel shall be thermally enhanced directly under the outside fly with a layer of moisture barrier and thermal liner material.

The underside of the outside fly flap shall have a 1½ inch wide piece of FR Velcro® loop fastener 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 1½ inch wide by 8 inch long FR Velcro® hook fastener tape shall be quadruple stitched to the outside right front body panel securing the fly in a closed position.

Appropriate male and female snap fastener halves shall be installed at the leading edge of the waistband for the purpose of further securing the trousers in the closed position.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **AXTION KNEE**

The outer shell of the trouser legs shall be constructed with horizontal expansion pleats in the knee area with corresponding darts in the liner to provide added fullness for increased freedom of movement and maximum flexibility. Two expansion pleats measuring approximately 1½ inches deep, shall be installed along both the inseam and outseam on each leg in the knee area. The pleats shall be folded to open outwardly towards the side seams to insure no restriction of movement. The AXTION knee will be installed proportionate to the trouser inseam, in such a manner that it falls in an anatomically correct knee location.

The liner system shall be constructed with four darts per leg in the front of the knee. Two will be located above the knee (one on each side) and two will be located below the knee (one on each side). Each dart will be approximately 2 inches long. The darts in the liner provide a natural bend at the knee. The darts in

the liner work in conjunction with the expansion panels in the outer shell to increase freedom of movement when kneeling, crawling, climbing stairs or ladders, etc.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **LINER KNEE THERMAL ENHANCEMENT**

An additional layer of specified thermal liner and neoprene coated impermeable barrier material will be sewn to the knee area of the liner system for added protection and increased thermal insulation at contact points. The knee 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.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **KNEE REINFORCEMENTS**

The knee area shall be reinforced with layer of black Dragonhide™ material

The knee reinforcement shall be slightly offset to the outside of the leg to insure proper coverage when bending, kneeling and crawling. The knee reinforcements shall measure 10 inches wide by 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.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **EXPANSION POCKETS**

An expansion pocket, measuring approximately 2 inches deep by 10 inches wide by 10 inches high shall be double stitched to the side of each leg straddling the outseam above the knee and positioned to provide accessibility. The lower half of each expansion pocket shall be reinforced with a layer of Kevlar material on the inside. Two rust resistant metal drain eyelets shall be installed on the underside of each expansion pocket to facilitate drainage of water. The pocket flaps shall be rectangular in shape, constructed of two layers of outer shell material and shall measure 3 inches deeper than the pocket expansion and ½ inch wider than the pocket. The pocket flaps shall be closed by means of flame resistant Velcro® hook and loop fastener tape. Two pieces of 1½ inch by 3 inch FR Velcro® hook fastener tape shall be installed vertically on the inside of each pocket flap (one piece on each end). Two corresponding pieces of 1½ inch by 3 inch FR Velcro® loop 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.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **TROUSER CUFF REINFORCEMENTS**

The cuff area of the trousers shall be reinforced with gray suede leather.

The cuff reinforcements shall not be less than 2 inches in width(3 inches for self material, Millenia™, or Dragonhide™) and folded in half, approximately one half inside and one half outside the sleeve end for greater strength and abrasion resistance. The cuff reinforcement shall be double stitched to the end of the leg for a total of four rows of stitching. This independent cuff provides an additional layer of protection over a hemmed cuff. Trousers that are turned and stitched at the cuff, as opposed to an independent cuff reinforcement, do not provide the same level of abrasion resistance and shall be considered unacceptable.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception



## **PADDED RIP-CORD SUSPENDERS & ATTACHMENT**

On the inside waistband shall be attachments for the standard "H" style "Padded Rip-Cord" suspenders. There will be four attachments total – 2 front, 2 back. The suspender attachments shall be constructed of a double layer of black Nomex® measuring approximately ½ inch wide by 3 inches long. They shall be sewn in a horizontal position on the ends only to form a loop. The appearance will be much like a horizontal belt loop to capture the suspender ends.

A pair of "H" style "Padded Rip-Cord" suspenders shall be specially configured for use with the trousers. The main body of the suspenders shall be constructed of 2 inch wide black strap webbing. The suspenders shall run over each shoulder to a point approximately shoulder blade high on the back, where they shall be joined by a 2 inch wide horizontal piece of webbing measuring approximately 8-inches long, forming the "H". This shall prevent the suspenders from slipping off the shoulders. The shoulder area of the suspenders will be padded for comfort by fully encasing the webbing with aramid batting and wrap-around black Nomex®.

The rear ends of the suspenders will be sewn to 2-inch wide elasticized webbing extensions measuring approximately 8-inches in length and terminating with thermoplastic loops. The forward ends of the suspender straps shall be equipped with specially configured black powder coat non-slip metal slides. Through the metal slides will be the 9 inch lengths of strap webbing "Rip-Cords" terminating with thermoplastic loops on each end. Pulling on the "Rip-Cords" shall allow for quick adjustment of the suspenders.

Threaded through and attached to the thermoplastic loops on the forward and rear ends of the suspenders will be black Nomex® suspender attachments incorporating two snap fasteners. The Nomex® suspender attachments are to be threaded through the suspender attachment loops on the inside waistband of the trousers. The Nomex® suspender attachments will then fold over and attach to themselves securing the suspender to the trousers.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **AXTION SEAT**

The rise of the rear trouser center back seam, from the top back of the waistband to where it intersects the inside leg seams at the crotch, shall exceed the rise at the front of the trouser by 2½ inches. The longer rear center back seam provides added fullness to the seat area for extreme mobility without restriction when stepping up or crouching and will be graded to size. This feature in combination with other design elements will maintain alignment of the knee directly over the knee pads when kneeling and crawling.

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

## **TAKE UP STRAPS**

The trousers shall be equipped with two take up straps. The straps shall be constructed of 1 inch wide black Aramid twill and be positioned in the waist area on the outside of the garment; one on each side. Each take up strap shall be comprised of two sub-component straps. The rear strap component shall be constructed of black twill Nomex®. The rear strap shall measure 1 inch wide and 4 inches long, folded back to form a loop, and shall be bartacked to the trousers. The loop shall hold a high temp thermoplastic buckle. The buckle shall point toward the front. The front strap component shall measure 1 inch wide by approximately 9 inches long (finished dimension). One end shall be folded back on itself to form a loop. A high temp thermoplastic slide fastener shall be captured within the loop. The front strap component shall be inserted through the buckle on the rear strap component, back through the slide fastener, and the end shall be bartacked to the trousers. A pull-tab of 1 inch black Aramid twill shall be affixed to the slide fastener. The take up strap pull-tabs shall pull toward the front to tighten. This shall allow for approximately 4 inches of adjustment per strap (8 inches overall).

\_\_\_\_\_Comply                      \_\_\_\_\_Exception

**REVERSE BOOT CUT**

The outer shell trouser leg cuffs will be constructed such that the back of the leg is approximately 1 inch shorter than the front. The liner will also have a reverse boot cut at the rear of the cuff and a concave cut at the front to keep the liner from hanging below the shell. 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. Trousers that have "cut-outs" in the back panel rather than a contoured boot cut shall be considered unacceptable.

☐ Comply                      ☐ Exception

**THIRD PARTY TESTING AND LISTING PROGRAM**

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.

☐ Comply                      ☐ Exception

**LABELS**

Appropriate warning label(s) shall be permanently affixed to each garment. Additionally, the label(s) shall include the following information.  
Compliance to NFPA Standard #1971 - 2007 edition  
Underwriters Laboratories classified mark  
Manufacturer's name and address  
Manufacturer's garment identification number  
Date of manufacture  
Size  
Fiber contents

☐ Comply                      ☐ Exception

**ISO CERTIFICATION / REGISTRATION**

The protective clothing manufacturer shall be certified and registered to ISO Standard 9001 to assure a satisfactory level of quality. Indicate below whether the manufacturer is so certified and registered by checking either "Yes" or "No" in the space provided.

☐ Yes                      ☐ No

**WARRANTY**

The manufacturer shall warrant these jackets and trousers to be free from defects in materials and workmanship for their serviceable life when properly used and cared for.

**EXCEPTIONS TO SPECIFICATIONS**

Any and all exceptions to the above specifications must be clearly stated for each heading. Use additional pages for exceptions, if necessary.

**COUNTRY OF ORIGIN**

The Garments shall be manufactured in the United States.

**SIZING BY VENDOR**

Both male and female sizing samples shall be available.



## **TERMS & CONDITIONS:**

**Real Estate and Personal Property Taxes:** “No bid will be accepted or opened on any County contract if the vendor is listed on the last published list of delinquent real or personal property taxes in Kanawha County; however, the Commission will accept bids by vendors who provide satisfactory proof of payment of current taxes or a certification from the Sheriff that no taxes are due prior to submission of said bid.”

**Required Forms:** Vendor shall complete and submit, or have on file with the County, a Vendor Registration and Disclosure Statement Form.

Once bids are unsealed, all bid documents become Public Record. The Kanawha County Commission reserves the right to reject any and/or all bids and to waive any informality in bidding.