



**GENERAL SPECIFICATIONS
PROTECTIVE JACKET AND PANTS
FOR STRUCTURAL FIRE FIGHTING**

City of Hanahan Fire Department - COH #122815

5826 Campbell Street
Hanahan, SC 29410

SCOPE

This specification details design and materials criteria 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 shall meet or exceed NFPA Standard #1971 and OSHA for structural fire fighters protective clothing.

_____Comply _____Exception

OUTER SHELL MATERIAL - JACKETS AND PANTS

The "**PBI GEMINI® XT MATRIX™**" outer shell, trade name **Gemini XT** shall be manufactured by **TENCATE** and constructed of **60/40 Kevlar®/PBI™** modified plain weave outer shell fabric featuring a patented high tech grid of composite filament & spun yarns in a "Matrix Technology" with an approximate weight of 7.5 oz. per square yard. The shell material must be treated with SST (SUPER SHELLTITE) which is a durable water-repellent finish that also enhances abrasion resistance. Color of the garments shall be black. **Bids offering a 600 denier Matrix product and/or the Matrix shell without the SST will not be considered.**

_____Comply _____Exception

THERMAL INSULATING LINER - JACKET AND PANTS

The thermal liner shall be constructed of 7.7 oz. per square yard **TENCATE "CALDURA® NPI"**; one layer of aramid blend non-woven needlepunch batt, quilted to a Kevlar® filament and FR rayon/para-aramid/nylon inherently wicking Caldura® face cloth. 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.

_____Comply _____Exception

MOISTURE BARRIER - JACKETS AND PANTS

The moisture barrier material shall be **STEDFAST (STEDAIR® 3000) ePTFE** moisture barrier is engineered using an E-89™ substrate and BHA Technologies **ePTFE** membrane, with an approximate weight of 5.5 oz. per square yard. The Stedair bi-component **ePTFE** membrane is a combination of microporous and monolithic technologies. 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 at the edges only and bound 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 PANTS

The thermal liner and moisture barrier shall be completely removable from the jacket shell. Two strips of 5/8 inch wide FR 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). The remainder of the thermal liner/moisture barrier shall be secured with snap fasteners appropriately spaced on each jacket facing and Ara-Shield® snap fasteners at each sleeve end. One of the Ara-shield® snap tabs shall be a different color in the liner to correspond with color coded snap tabs for ease of matching the liner system to the outer shell after inspection or cleaning is completed.

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 to the shell. The legs of the thermal liner/moisture barrier shall be secured to the shell by means of Ara-Shield® snap fasteners,

2 per leg. The Ara-shield® snap tabs shall be color coded to a corresponding snap tab in the liner for ease of matching the liner system to the outer shell after inspection or cleaning is completed.

_____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

THERMAL HEAT LOSS

The assembled garment, consisting of an outer shell, moisture barrier, and thermal liner, shall exhibit a THL (Thermal Heat Loss) rating of between 222-225.

_____Comply _____Exception

STITCHING

The outer shell shall be assembled using stitch type #301, #401, #514 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. Major A outer shell structural seams, major B structural liner seams and shall have a minimum of 8 to 10 stitches per inch. All Major A seams shall be sewn with ball point needles only. All seams shall be continuously stitched only.

_____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 an FR strap. The DRD shall be removable for laundering. The access port will be covered by an outside flap of shell material, with beveled corners designed to fit between the shoulder straps of an SCBA. The flap will have a NFPA-compliant 3M Scotchlite™ **ORANGE** 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 each of the leading edges of the left and right front panels. This opening shall run a minimum of 12 inches along the perimeters 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

Logos

The garment brand shall be identified by means of red FR Nomex thread embroidery on the top of the right collar denoting the manufacturer. There shall be a reflective label specific to the garment style, measuring 1 inch wide by 4 inches long, installed on the left pocket flap.

_____Comply _____Exception

Retro-Reflective Fluorescent Trim

The retroreflective fluorescent trim shall be lime/yellow. 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 and OSHA. The trim shall be in the following widths and shall be **NYC style**; 3 inch wide stripes - 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, around each sleeve below the elbow, around each sleeve above the elbow.

_____Comply _____Exception

Reinforced Trim Stitching

All reflective trim is secured to the outer shell with Nomex® thread, using a locking chainstitch protected by TrimTrax® system. 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

Sewn On Retro-reflective Lettering

Each jacket shall have 3” lime/yellow 3M Scotchlite™ lettering on back of jacket reading: HANAHAN

_____Comply _____Exception

LETTER PATCH

Hanging Letter Patch

The Hanging letter patch shall be constructed of a double layer of outer shell material. The letter patch will attach to the rear inside hem of the jacket with a combination of snap fasteners and FR Velcro® hook & loop fastener tape.

_____Comply _____Exception

Collar & Free Hanging Throat Tab

The collar shall consist of a four-layer construction and be of one-piece design. The outer layers shall consist of one layer of specified outer shell material on outside and a layer of PCA black Advance™ as standard on the inside and two layers of specified moisture barrier. 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 outer shell 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 outer shell shall have an additional strip of 5/8 inch wide FR 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 approximately 3 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. There shall be wicking barrier constructed of Crosstech 2F moisture barrier material installed on the front closure system on the

left and right side directly below the front facings to ensure continuous protection and overlap. The wicking barrier shall extend no more than a maximum of ¾” beyond the inner facing and false facing shall be 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 approximately 3¼ inches wide and a minimum of 21 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 20 inch size #10 heavy duty high-temp smooth-gliding YKK Vislon® zipper on the jacket fronts and FR 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 FR Velcro® fastener tape. A 1½ 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 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 jacket 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 jacket. The rear of the pockets shall expand to a depth of 2 inches. *The semi-expansion pocket shall be reinforced with a layer of Kevlar® approximately 5 inches up on the inside of the pocket.* 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 backtacks. The pocket flaps shall be closed by means of FR 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

Expansion Pocket Reinforcements

The lower half of the expansion pockets shall be reinforced on the outside with a layer of outer shell material.

_____Comply _____Exception

AXTION® SLEEVES

The sleeves shall be of two piece construction and contoured, having an upper and a lower sleeve. 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 under sleeve. 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 jacket 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 black suede leather.

The cuff reinforcements shall not be less than 2 inch 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; a single row of stitching shall be considered unacceptable. This independent cuff provides an additional layer of protection as

compared to a turned and stitched cuff. Jackets 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 a Wrist Thumb Loop. Wristlets shall be sewn to a piece of self material leader that is then stitched into the cuff. Four Ara-shield® snap tabs will be sewn into the juncture of the sleeve well and wristlet. The corresponding male snap tabs sewn onto the liner sleeves. One of the Ara-shield® snap tabs shall be a different color in the liner to correspond with color coded snap tabs for ease of matching the liner system to the outer shell after inspection or cleaning is completed. This configuration will ensure there is no interruption in protection between the sleeve liner and wristlet.

_____Comply _____Exception

Liner Shoulder Thermal Enhancement

A minimum of one 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 5” 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. The thermal enhancement layer shall have finished edges by means of overedging. Raw or unfinished edges shall be considered unacceptable. Thermal scraps shall not be substituted for full-cut fabric padding. Smaller CCHR reinforcements shall not be considered acceptable since they provide far less area of coverage.

_____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 jacket 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 FR Velcro® fastener tape. A 1½ inch by 3 inch piece of FR Velcro® hook fastener tape shall be installed 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

impermeable 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 3 inches deep by 3.5 inches wide by 9 inches high and shall be installed on the left chest.

_____Comply _____Exception

Microphone Strap

A strap shall be constructed to hold a microphone for a portable radio. It shall be sewn to the jacket at the ends only. The size of the microphone strap shall be 1 inch x 3 inches.

The microphone strap shall be mounted above the radio pocket AND on inside of the collar on the left side AND on inside of the collar on the right side and shall be constructed of outer shell material.

_____Comply _____Exception

Antenna Hold Down Strap

A strap shall be constructed of double thickness outer shell material and designed to secure the radio antenna. It shall measure approximately 1½ inches by 6 inches and shall be mounted horizontally to the exterior of the jacket above the radio pocket. The inboard end of the strap shall be sewn to the jacket. The loose end of the strap shall have a piece of 1½ inch by 3 inch FR Velcro® hook fastener tape sewn to the underside. A corresponding piece of FR Velcro® loop fastener tape shall be sewn to the exterior of the jacket and shall be positioned to engage the hook fastener tape on the strap.

_____Comply _____Exception

Survivor Flashlight Holder

Each jacket shall be equipped with a “Survivor” flashlight holder. An inward facing metal safety coat hook shall be triple riveted in a vertical position to the upper chest. The inward facing coat hook will accommodate the clip portion of the flashlight. Below the coat hook will be a strap constructed of outer shell material measuring approximately 2½ inches high and 9 inches wide, and will hold the barrel of the flashlight. The lower strap will be equipped with a 1½ inch by 2½ inch FR Velcro® closure at the front of the strap to facilitate easy removal of the flashlight. There shall be approximately 3 inches between the upper coat hook and lower strap. The "Survivor" flashlight holder shall be sewn to the jacket on the right chest.

_____Comply _____Exception

Dee Ring On Reinforcement Patch

A small reinforcement patch shall be sewn to the jacket. The reinforcement patch will be of sufficient size to accommodate a dee ring. A metal dee ring shall be riveted to the jacket in a vertical position, through the reinforcement patch and the underlying outer shell material. The reinforcement patch shall be constructed of a layer of outer shell material and the dee ring and reinforcement patch shall be installed on the storm flap

_____Comply _____Exception

PANT 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.

The front body panels will be wider than the rear body panels to provide more fullness over the knee area. This is accomplished by rolling the side leg seams (inside and outside) to the rear of the pant leg beginning at the knee. The slight taper will prevent premature wear of the side seams by pushing them back and away from the primary high abrasion areas encountered on the sides of the lower legs.

_____Comply _____Exception

Outer Shell Material - Pants

The "**PBI GEMINI® XT MATRIX™**" outer shell, trade name Gemini XT shall be manufactured by TENCATE and constructed of 60/40 Kevlar®/PBI™ modified plain weave outer shell fabric featuring a patented high tech grid of composite filament & spun yarns in a "Matrix Technology" with an approximate weight of 7.5 oz. per square yard. The shell material must be treated with **SST(SUPER SHELLTITE)** which is a durable water-repellent finish that also enhances abrasion resistance. Color of the garments shall be black. **Bids offering a 600 denier Matrix product and/or the Matrix shell without the SST will not be considered.**

_____Comply _____Exception

Thermal Insulating Liner - Pants

The thermal liner shall be constructed of 7.7 oz. per square yard TENCATE “CALDURA® NPI”; one layer of aramid blend non-woven needlepunch batt, quilted to a Kevlar® filament and FR rayon/para-aramid/nylon inherently wicking Caldura® face cloth. 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.

_____Comply _____Exception

Moisture Barrier - Pants

The moisture barrier material shall be STEDFAST (STEDAIR® 3000) ePTFE moisture barrier is engineered using an E-89™ substrate and BHA Technologies ePTFE membrane, with an approximate weight of 5.5 oz. per square yard. The Stedair bi-component ePTFE membrane is a combination of microporous and monolithic technologies. 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 at the edges only and bound with bias-cut neoprene-coated cotton/polyester binding. Further mention of “Specified Moisture Barrier” in this specification shall refer to this section.

_____Comply _____Exception

SIZING

In order to insure that every member of the department can safely perform to the maximum of their ability without extra bulk and without restriction, Pants shall be available in all sizes and dimensions as follows:

PANTS

Gender:	Gender specific Mens and Womens patterns
Waist:	Even sizes ranging from 24 to 56
Body Shape:	Relaxed and Regular Note: Relaxed is a fuller cut in the hips and thighs, like relaxed jeans.
Inseam:	Even sizes

Pants available in only one standard shape will not be acceptable. Generalized sizing, such as small, medium, large, etc., will not be considered acceptable.

_____Comply _____Exception

Pant Liner System

The combined moisture barrier and the thermal liner shall be completely removable from 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 body of the liner system (thermal liner & moisture barrier) shall be of a four piece design to match the cut of the shell to include the rolled back side seams. The design of the liner system will incorporate darts in the knee area providing a contour to the leg and will also have a reverse boot cut at the rear of the liner cuff and a concave cut at the front to keep the liner from hanging below the shell. 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 pants.

_____Comply _____Exception

Liner Access Opening - Pant

The liner system of the pant shall incorporate a full length opening along the entire waistline for ease in inspecting the inner layers as well as performing the complete Liner Inspection. The thermal liner and moisture barrier shall be individually bound with a neoprene coated bias cut tape, and joined together with a snap at the center back. There shall be a minimum of 4 snap tabs sewn to the underside of the waistband, with corresponding snaps in the moisture barrier layer to secure the barrier to the shell. As described previously, the pant thermal layer snaps directly to the

independent waistband by means of nine snap fasteners. There shall be no hook and loop used to close the liner access opening.

_____Comply _____Exception

Waistband

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 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. The aramid/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 surged 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.

_____Comply _____Exception

External/Internal Fly Flap

The pants 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, with a length graded to size based on waist measurement 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, with a length graded to size based on waist, 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 piece of FR Velcro® hook fastener tape shall be quadruple stitched to the outside right front body panel securing the fly in a closed position.

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

_____Comply _____Exception

Retro-reflective Fluorescent Trim

The pants shall have a stripe of retroreflective fluorescent trim encircling each leg below the knee to comply with the requirements of NFPA #1971 in 3 inch lime/yellow. Bottom of trim band shall be located approximately 3” above cuff.

_____Comply _____Exception

Reinforced Trim Stitching

All reflective trim is secured to the outer shell with Nomex[®] thread, using a locking chainstitch protected by TrimTrax[®] system. 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

Escape Belt

The pant shall have an integrated Escape Belt, which is independently certified as meeting the belt requirements of NFPA 1983, Standard on Life Safety Rope and Equipment for Emergency Services. The Escape belt shall be comprised of Kevlar[®] webbing with a hook and an adjustable D-ring closure, graded for the waist size of the pants. The hook and dee closure system of the Escape Belt also serves as the positive front closure for the pants, eliminating redundant closure systems.

_____Comply _____Exception

Internal Seat Harness Series 2

The internal seat harness shall be independently certified to NFPA 1983, Standard on Life Safety Rope and Equipment for Emergency Services, as a Class II harness. The harness shall consist of a 1 3/4" Kevlar® waist belt with an external hardware loop made from 2 inch wide black Kevlar® webbing. All ends of webbing will be reinforced with a coated fabric to prevent raveling. The waist belt, which is graded to waist size, shall secure at the front with a hook and an adjustable D-ring closure. This closure system is also the positive front closure for the pants. Attached to the waist belt are a left and a right 2 inch Kevlar® webbing leg loop, constructed without hardware, and graded for the circumference of the pant legs. The external hardware loop connecting each individual leg loop is constructed from two combined layers of webbing which form an A-frame and a connection point for the hardware. The leg loops shall be secured to the waist belt by means of a slot formed by an opening in the stitching combining the layers. This construction allow the leg loops to rest lower on the legs for less restriction when the harness is not loaded, but with the ability to snug up higher against the body when the harness is loaded. The slot openings also allow the waist belt to be adjusted in size with the leg loops properly positioned between the front belt loops and the front harness closure. The right and left leg loops shall be installed between the outer shell fabric of the pants and the pants liner, and the strap from each leg loop shall exit the outer shell behind the front belt loops on each side of the pants front closure. The center of the hardware loop shall be sewn to narrow the width at its center and reinforced on the outside with a layer of Arashield® fabric. Sewn to the inside of the center of the hardware loop shall be a 1" webbing which forms a ring to secure the pin of the specified ladder hook. The A- frame hardware loop shall be sized to permit the ladder hook to be secured to the keeper strap located on the front left side of the pants. This hardware loop must be positioned so as to allow the use of the ladder hook without deploying the escape system, and to accommodate donning and doffing of the pants with all hardware installed. A D-ring with a sliding bar shall be attached to the hardware loop to connect to the escape system in the right pocket.

_____Comply _____Exception

Cmc Carabineer

The ladder hook shall be a CMC ProSeries XL Aluminum Manual-Lock D Carabineer (red in color) and shall be third party certified to NFPA 1983. The gate shall open by pulling the gate towards self and twisting the gate 45 degrees. The escape system (locking carabineer, rope, descender, and hook) is not supplied with the pants.

_____Comply _____Exception

AXTION® Seat

The rise of the rear pant 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 pant by 8 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

Expansion (Bellows) Pockets (Left)

One 2 inch deep by 10 inch wide by 10 inch bellows pockets shall be placed over the outer leg seams at thigh level. The pockets shall be sewn to the pant with two rows of lock stitching and shall provide two aluminum eyelets, installed at the bottom of each pocket, for water drainage. *Each pocket shall be reinforced with an additional layer of outer shell material sewn to the inside.* The pocket flaps shall be rectangular in shape, constructed of two layers of outer shell material and double stitched to the outer shell. One piece of 1½ inch by 3 inch FR hook fastener tape on the inside of each pocket flap on each side. One piece of corresponding 1½ inch by 3 inch FR loop fastener tape shall be installed horizontally on the outside of each side of pocket near the top and positioned to engage the hook fastener tape. Each pocket flap shall be reinforced with bartacks at the uppermost corners.

_____Comply _____Exception

Expansion (Bellows) Pockets (Right)

One 2 inch deep x 10 inch wide x 10 inch bellows pockets shall be placed over the outer leg seam at thigh level. The pocket shall be sewn to the pant with two rows of lock stitching and shall provide two aluminum eyelets, installed at the bottom of each pocket, for water drainage. *Each pocket shall be reinforced with an additional layer of outer shell material sewn to the inside.* The pocket flap shall be rectangular in shape and measure a minimum of 6 inches by a minimum of 11 inches, constructed of two layers of outer shell material and double stitched to the outer shell. Three pieces of 1½ inch by approximately 5 inch FR Velcro® hook fastener tape shall be installed vertically on the inside of each pocket flap (one each side and one in the middle). One continuous piece of corresponding approximately 1 ½ inch by 9 inch FR loop fastener tape shall be installed horizontally on the outside of the pocket near the top and positioned to engage the hook fastener tape. The pocket flap shall be reinforced with bartacks at the uppermost corners. A 2-piece loop constructed of a double layer of outer shell material will be installed under the front edge of the

pocket flap. The top and bottom of the loop will attach to each other with a 1 inch x 1 inch FR Velcro® hook & loop fastener tape sewn to ends. Inside the pocket, a strap measuring 1½ inches by 9½ inches shall run the full vertical height of the pocket where it will secure at the top with hook and loop fastener tape. A second strap shall be installed horizontally at the top of the pocket. This strap will measure 1 inch by 4 inches and shall be sewn at one end and attach at the other end with hook and loop fastener tape. The straps are specially designed to secure the contents of the pocket and allow for quick release.

*****There shall also be a pocket on the right ankle made from outer shell material with the measurement of 2x4x6 inches.***

_____Comply _____Exception

Expansion Pocket Reinforcements

The lower half of the expansion pockets shall be reinforced on the outside with a layer of black Dragonhide® material.

_____Comply _____Exception

AXTION® Knee

The outer shell of the pant 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. 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 pant inseam, in such a manner that it falls in an anatomically correct knee location. The thermal liner shall be constructed with four pleats 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). On the moisture barrier, the system will consist of two darts, rather than pleats, to allow added length in the under knee. The darts in the liner provide a natural bend at the knee. The pleats and 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

A minimum of one additional layer of specified thermal liner and one additional layer of moisture barrier material, measuring a minimum of 9 inches by 11 inches, will be sewn to the knee area of

the liner system for added CCHR protection and increased thermal insulation in this high compression area. 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. The thermal enhancement layer shall have finished edges by means of over edging. Raw or unfinished edges shall be considered unacceptable. Thermal scraps shall not be substituted for full-cut fabric padding. Smaller CCHR reinforcements shall not be considered acceptable since they provide far less area of coverage.

_____Comply _____Exception

Knee Reinforcements

The knee area shall be reinforced with a layer of black Dragonhide[®] material. The knee reinforcement shall be centered on the leg to insure proper coverage when bending, kneeling and crawling. The knee reinforcements shall measure 9 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. Knee reinforcements of a smaller size do not provide the same protective coverage and shall be considered unacceptable. The knee reinforcements specified shall be removable without opening up any seams of the outer shell of the pant.

_____Comply _____Exception

Padding Under Knee Reinforcements

Padding for the knees shall be accomplished with one layer of **Silizone[®]** foam sewn to the liner, sandwiched between the thermal liner and moisture barrier.

_____Comply _____Exception

Pant Cuff Reinforcements

The cuff area of the pants shall be reinforced with a layer of black Dragonhide[®] material. The cuff reinforcement shall not be less than 2 inch in width and folded in half, approximately one half inside and one half outside the end of the legs for greater strength and abrasion resistance. The cuff reinforcement shall be double stitched to the outer shell for a minimum of two rows of

stitching. This independent cuff provides an additional layer of protection over a hemmed cuff. Pants 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 aramid 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 pants. The main body of the suspenders shall be constructed of 2 inch wide black webbing straps. 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 aramid. 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 with teeth. 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 aramid suspender attachments incorporating two snap fasteners. The aramid suspender attachments are to be threaded through the suspender attachment loops on the inside waistband of the pants. The aramid suspender attachments will then fold over and attach to themselves securing the suspender to the pants.

_____Comply _____Exception

Reverse Boot Cut

The outer shell pant 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 pant cuffs.

_____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 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
- ❖ Underwriters Laboratories classified mark
- ❖ Manufacturer's name
- ❖ Manufacturer's address
- ❖ Manufacturer's garment identification number
- ❖ Date of manufacture
- ❖ Size

_____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

BETTER BUSINESS BUREAU

The manufacturer is accredited by the Better Business Bureau, showing a commitment to ethical and principled business practices.

_____Comply _____Exception

WARRANTY

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

_____Comply _____Exception

HOOK AND LOOP SUPPORT PROGRAM

Support program shall cover hook or loop tape that has begun to fray or otherwise degrade from normal wear. This program shall remain in effect for a period of five years from the original date of manufacture of the garment. This support program shall cover the repair or replacement, without charge, of any hook and/or loop on the garments produced by the manufacturer providing the garments are otherwise serviceable.

This support program does **NOT** cover damage from fire, heat, chemicals, misuse, accident or negligence. Failure to properly care for garments will serve to void this support program.

_____Comply _____Exception

SIZING BY VENDOR

The vendor shall be available to perform all sizing requirements within 96 hours of written notice. Measuring with a tape measure is not acceptable.

_____Comply _____Exception

GARMENT TRAINING AND SUPPORT

OSHA requires employees be trained on the capabilities and limitations of their Personal Protective Equipment. The selected vendor shall provide the following:

On-site care and maintenance training shall be provided by the manufacturer. Training shall be in compliance with NFPA 1851, current edition, at the conclusion of which each participant shall receive a certificate of completion.

An on-site OSHA mandated training class on the Knowing the Limits of Your PPE shall be provided at no charge. The training shall include structural firefighting coat, pant and boots.

_____Comply _____Exception

BAR-CODE/RECORD KEEPING INTERFACE

A 1 dimensional barcode, in the interleaved 2 of 5 format shall be printed on the label of each separable layer of the garment.

This barcode shall represent the serial number of the garment. The manufacturer shall be able to provide a detailed list of each asset of a drop-shipped order, and shall include the following:

- ❖ Brand
- ❖ Order Number
- ❖ Serial Number
- ❖ Style Number
- ❖ Color
- ❖ Description
- ❖ Chest/Waist Size
- ❖ Jacket/pant Length
- ❖ Sleeve Length
- ❖ Date of Manufacture
- ❖ Mark-For Data

This information shall be able to be imported into the manufacturers web-based system designed to facilitate the organization and tracking of assets in accordance with the cleaning and inspection requirements of OSHA and NFPA 1851.

_____Comply _____Exception

PPE RECORD KEEPING

The manufacturer shall make available at no-charge, a password protected data based backed website that does not care whose brand of PPE assets are being recorded. The website shall have the functionality to allow the manufacturer to import all of the pertinent data into the department's account so that the initial data entry by fire department personnel is eliminated.

The website shall allow for the department to use a barcode scanner, if desired, to scan the Interleaved 2 of 5 barcode found in the gear by going to the Search the Serial Number page in PPE record keeping program, and scanning the asset's bar-coded serial number.

_____ Comply _____ Exception

COUNTRY OF ORIGIN

****Jackets and Pants shall be manufactured in the United States.**

_____ Comply _____ Exception

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.

****ADDITIONAL SPECIFICATIONS FOR PPE***

Leasing Option

The vendor should be able to provide a leasing option to the department.

_____ Comply _____ Exception

Loaner Gear

The vendor should be able to provide loaner gear within reasonable time in the instance of gear being out of service.

_____ Comply _____ Exception

ADDITIONAL GEAR SPECIFICATIONS

Glove

The glove shall meet or exceed all requirements of the NFPA 1971 – 2007 Edition Standard on Protective Ensemble for Structural Firefighting and be available in sizes XS-XXXL.

_____Comply _____Exception

Boot

The boot shall be a 13” leather pull-on consisting of the following requirements: Flame-Resistant, Water-Resistant Leather, CROSSTECH[®] Footwear Fabric, Flexible NOMEX[®] Webbing Pull Straps, 3D Molded, Padded Shin Guard, HEELPORT[™] Internal Fit System, Composite Heel Counter, Composite Safety Toe Cap, VIBRAM[®] Toe Bumper, 3D Molded Removable Footbeds, 3D Composite Lasting Board, Composite Shank, Composite Puncture Protection, VIBRAM[®] Contoured Cup Outsole, Athletic Footwear Construction, Slip-Resistant Tread, and Extended Size Range.

_____Comply _____Exception

Helmet

The helmet should meet the following requirements:

Performance Criteria/Standards

The helmet shall meet the requirements of NFPA 1971:2013 (or the current edition) for structural firefighting and proximity firefighting when that option is selected; US-OSHA 1910.156, and CAL-OSHA. All eye/face protection sold as part of the original helmet assembly shall be compliant with the impact requirements of the current editions of ANSI/ISEA Z87.1 and NFPA 1971.

_____Comply _____Exception

Performance Verification Data Requirement

Response to this specification shall include a complete and current NFPA 1971 test report from a recognized, accredited test facility detailing all performance data for the helmet(s) and compliant helmet components included in the original assembly. Certificates of conformance and/or letters

of certification alone shall not be acceptable. Component testing is not acceptable. Certification testing is conducted every year to a random lot size, as per NFPA requirements.

_____Comply _____Exception

Helmet Shell

The helmet shall have a classic American Fire Service style helmet shell, comprising a crown, with four (4) major ribs (front, back, left and right sides), and four minor ribs equidistant between each major rib, and a brim that has a short front visor continuing around the sides to a large rear watershed area. The upper surface of the watershed shall have a textured finish with ivy scroll on the back of the watershed brim. The underside of the brim shall have drill guides for the various eye/face protection that can be attached to the shell. The shell material shall be a fiberglass composite, consisting of a high-temperature-, flame-, and chip-resistant “through-colored” thermoset resin, reinforced with 1” and 2” chopped fiberglass, compression-molded to form a one-piece shell. The shell shall be available in white, red, black, and yellow with an unpainted, matte finish. The shell dimensions (with edge-trim) shall be 15.5” in length, 11.88” in width and a crown depth of 6.5”. The shell shall have a nominal wall thickness of 0.065” in the crown and 0.080” in the brim. The helmet by crimping the aluminum core, which simultaneously captures and retains a wire used to reinforce the brim of the helmet. The edge-trim is secured at the mating ends with a high temperature adhesive and clamped by the helmet hanger clip at the edge of the rear brim. The shell shall have a helmet hanger comprised of a ¾”, nickel plated “D” ring and a stainless steel clip. The helmet hanger shall be attached to the center rear of the brim.

_____Comply _____Exception

Helmet Specifications

- ❖ NFPA 1971/2013 3rd party certification: Certified to meet NFPA 1971 Specifications, 2013 Edition for Structural Fire Fighting
- ❖ Traditional style shell of composite material
- ❖ Leather (Deluxe) cushion liner removable for washing and upgrading.
- ❖ Liner of “flannel” or comparable material/standard comfort package (removable): Six-way overhead strap suspension system reduces shock transmission at the top of the helmet while providing a snug, comfortable fit
- ❖ Ratchet system: Three-position, rear-ratchet height adjustment ensures a secure and comfortable fit
- ❖ Ear laps of black Nomex or PBI (removable) : Jumbo earlaps and patented shell release increase neck coverage and protection, all allow easier maintenance.

- ❖ D-ring on back brim: Larger diameter helmet hanger fits on larger hooks and racks.
- ❖ Combo Nomex chin strap: black NOMEX chinstrap with one-hand quick release buckle and postman slide allows quick and easy adjustment.
- ❖ Scotchlite L/Y reflective
- ❖ 6" Leather ID shield:
 - Affixed to helmet w/ bracket and brass eagle crown
- ❖ Snap on/off goggles (ESS preferred)
- ❖ Colors required
 - Black
 - Red
 - White
 - Lt. Blue
- ❖ Insurance against Fireground damage with 5-year shell replacement warranty.

_____Comply _____Exception

Front Holder

The helmet shell shall be furnished with a collapsible brass front-piece holder designed to absorb impact that shall be attached to the main rib on the shell front, and positioned to capture the top of standard 6" fire department identification shields (i.e., front piece). The front holder shall be a brass carved eagle, silk-screened brass eagle, a brass silk-screened Maltese cross, brass carved dragon or a brass carved beaver. The shell shall have a thermoplastic, front-piece mounting bracket affixed to the front center of the brim. The bracket shall provide for positioning and retention of 6" front pieces.

_____Comply _____Exception

Impact Cap

The impact cap is designed to help provide increased thermal and impact protection. The impact cap shall be an impact-resistant polymer liner covered by a rigid cell, high temperature, energy absorbing urethane foam cap that covers the entire inner crown of the helmet. This impact cap is held into the helmet shell by the Shell Release tabs and corresponding brackets. It is removable for inspection and replacement.

_____Comply _____Exception

Head Suspension

The helmet shall consist of a six-way head suspension system, attached to the impact cap. The head suspension system comprises three (3) fixed 0.75” wide nylon straps mounted at six points on the impact liner and fastened at their intersection to form the 6-way overhead strap assembly. The straps are attached to the impact cap by means of a rigid plastic clip that locks the straps into the lugs of the impact cap liner. A cloverleaf crown pad shall be incorporated into the overhead strap assembly.

_____Comply _____Exception

Shell Release System

The impact liner, complete with suspension system and chinstrap assembly shall be retained to the helmet shell by means of two (2) thermoplastic retention clips mounted under the eye/face protection hardware. This design will enable the shell to be released from the helmet when impacted from below the brim, reducing the chance of being injured by the chinstrap, and leaving the impact cap on the wearer’s head for continued thermal and impact protection.

_____Comply _____Exception

Sizing Adjustment

The size of the headband may be adjusted to fit the wearer’s head by means of a ratchet adjustment system. The headband is attached to the sides of the impact cap liner by four (4) flexible retention tabs. The rear ratchet arms shall have three (3) adjustable positions so that the angle of the ratchet may be set to accommodate the nape of the wearer’s head. The headband height shall be adjustable at the front of the helmet via a hook and loop system to provide additional comfort to the wearer and maximize compatibility with the SCBA face piece. The headband shall have a head size range of 6 3/8 to 9, adjustable in 1/8” increments.

_____Comply _____Exception

Comfort Liner

The helmet shall have a removable comfort liner, consisting of a headband cushion and a ratchet pad. Both components made of a foam-core laminate system, comprised of a soft black flame-resistant flannel material against the user's head backed by a soft loop material secured to the headband and ratchet with hook fastener. The comfort liner is machine-washable. It can easily be upgraded to a standard flannel or deluxe leather-lined version.

_____Comply _____Exception

Chinstrap

The chinstrap shall be constructed of three (3) pieces (or sections) of 3/4" wide, spun-Nomex webbing, which are connected by a high-temperature, durable thermoplastic quick-release buckle on the left side of the helmet, and by an optional cast zinc postman's slide buckle on the right side of the helmet. The middle section shall be a minimum of 23" in length and the total length of the chinstrap shall be 35" at full extension, end to end. An optional four-point chin strap shall be available without requiring an alternate impact cap assembly.

_____Comply _____Exception

Ear/Neck Protection

The helmet shall provide ear and neck protection with a 7.25" wide, 19" long, full-cut earlap with an expanded opening at the neck, making the ratchet adjustment easily accessible. The triple-layer earlap consists of a 4.5 oz. / yd., yellow or black colored Nomex outer layer, and two flame resistant black flannel inner layers. The earlap shall be secured via two (2) Velcro tabs at either end of the top of the earlap and one continuous length of Velcro along the top edge of the earlap. The earlap is machine washable and can be easily upgraded to a PBI/Kevlar or Bloodborne Pathogen earlap. The ear and neck protector shall be removable without interfering with the overhead strap assembly in any way and without removing any part of the helmet suspension. All versions shall also be available with underchin extensions.

_____Comply _____Exception

Retro-Reflective Trim

The helmet shall have eight (8) tetrahedron shaped pieces of retro-reflective trim around the exterior crown of the helmet shell for maximum visibility. Both Reflexite and Scotchlite trim shall be available. Color options include Lime-Yellow, Red-Orange*, Scotchlite Triple Trim in Lime-Yellow or Red-Orange; White* and Blue* Reflexite are also available (*not compliant with NFPA-1971).

_____Comply _____Exception

Helmet Front

The helmet shall include a custom helmet front available in either high-floss patent leather or dull-finish genuine leather reinforced with a high-temperature, shrink-resistank back layer and sewn with high-temperature, fire-retardant Nomex thread.

_____Comply _____Exception

FLASHHOOD

The flashhood shall be black carbon based – tri blend rib knit, 2 ply, two piece design with notched shoulders. Measuring 21” from top of head to bottom. Merrowed seams, with a 5-thread cover stitch on the top and bottom. All bottom edges shall be bound with binding and made of 100% Nomex thread. Certification shall meet or exceed NFPA 1971-2013 Edition and is UL Certified. Meets or exceeds Cal/OSHA Standards.

FLASHHOOD SPECIFICATIONS

Certifications

NFPA 1971-2013 UL Certified Complies with CAL-OSHA Requirements Sections 3406 and 3410(d) and OSHA Rule 29 CFR Part 1910, 269ARC Rated hoods comply with NFPA 70E, meeting performance specifications of ASTM F 1959.

- ❖ LABELING AND USER INFORMATION
- ❖ Hood Specifications, Hood Dimensions Test, and Hood Opening Size Retention Test are in accordance with NFPA 1971-2013 test report dated 9/9/2014 performed by Underwriters Laboratories
- ❖ Elastic Face Opening stretches to accommodate a circumference of at least 31" (800 mm)
- ❖ OWNER IDENTIFICATION On the label the area of PROPERTY OF: _____.
Manufactured with our new owner new label.

- ❖ Labeling - hood comes individually labeled to identify fabric, hood style, lot # traceability, DOM,
- ❖ Cleaning and Storage Instructions, and UL Certification.
- ❖ UNIVERSAL sizing
- ❖ DESIGN Head Design Traditional head design/length .Bib(Apron) Design Longer length, notched shoulder bib design
- ❖ LAYERS Head Layers 2 ply material .Bib(Apron) Layers 2 ply material
- ❖ LENGTH Head Length 13", Bib (Apron) Length 8" , OVERALL LENGTH 21" Seams to consist of 100 % nomex thread ,safety lock covered stich seams.
- ❖ Material Content: 65% Oxidized Polyacrylonitrile (OPF)/ 35% artificial tri-blend
- ❖ Material Construction: 1 x 1 Thermal Knit (waffle weave)
- ❖ Material Weight: 6.5 oz / yd² (+1 / -.5)
- ❖ Material Color Black (Standard)

_____Comply _____Exception

5.11 Tactical Pocket Organizer

_____Comply _____Exception

STRUCTURAL FIREFIGHTING BOOTS

Waterproof and Flame-resistant boots that are NFPA 1971 (Structural Fire Fighting) and NFPA 1992 (Liquid Splash) compliant. The extended size ranges include:

Men's:

5-16 (full and half sizes), 17-18 (full sizes only)

- ❖ Narrow, medium, wide, and extra-wide widths
- ❖ Wide calf models in all sizes

Women's:

5-12 (full and half sizes)

- ❖ *Narrow, medium, wide, and extra-wide widths*

Wide calf models in all sizes

- ❖ Crosstech Footwear Fabric: full-height bootie liner comprised of insulation and the Crosstech moisture barrier to prevent water damage.

- ❖ Internal Fit which firmly secures the heel in place while simultaneously cushioning the ankle.
- ❖ composite shank that does not emit heat or cold.
- ❖ NFPA puncture-resistance standards
- ❖ Slip-resistant treads. thin slits cut into flat areas across the boots' soles. Self-cleaning lugs and omni-directional tread patterns,
- ❖ Nominex Webbing Pull-Straps. Straps that slide under turnout pants
- ❖ padded shin guard to protect your shins from any potential injuries.
- ❖ composite safety toe cap to comply with NFPA safety standards. That does not emit heat or cold.
- ❖ Toe Bumper that is securely fastened to the vamp with 2-needle stitching.
- ❖ Reinforced arch support. Removable Foot bed to contoured to cradle and cushion the bottoms of your feet. Moisture-wicking and anti-microbial fabric top layer.
- ❖ A 2-part cross-linking adhesive that bonds outsoles to the uppers.

_____Comply _____Exception

GLOVE SPECIFICATION

- ❖ NFPA 1971 Standard – 2013 Edition.
- ❖ Retardant Pathogen/Moisture Barrier is independently certified as NFPA 1971 compliant
- ❖ Varied layering schemes help avoid bulking up finger side walls to help with flexibility, dexterity, grip, and comfort
- ❖ Glove inner liners are sewn and bonded in at each fingertip for maximum retention and efficient wet don and doff
- ❖ 7-layer knuckle guard system offers the best protection of any gloves for this area's high risk exposure to radiant heat
- ❖ Gathered stitching is used around the entire wrist for a secure fit and reduces debris from entering the glove
- ❖ Primary protection from knitted Kevlar, Nomex, and modacrylic reduces hand fatigue .
- ❖ This Long Cuff version extends the actual glove body which guarantees the NFPA 1971 indicated protection of 35 TPP minimum. The outdated and difficult to don knit wristlets used by other glove makers lose their shape and elasticity and even worse, they are allowed to provide a significantly reduced level of protection of 20 TPP. At the vulnerable glove-sleeve interface.
- ❖ The palm side outermost layer is highly flexible water repellent goat skin suede.
- ❖ Cut and heat resistant knitted Kevlar/Nomex forms the second palm side layer.
- ❖ A special mesh knit made of 100% modacrylic forms the third layer of the palm side and serves as the inner liner, while the palm side fingers have been further reinforced with a layer of knitted 100% modacrylic.

- ❖ The knuckle guard portion has an outer layer of Kevlar, two layers of silicon carbide both fused with Kevlar, another layer of Kevlar and another layer of modacrylic knit which represents the inner liner. This unique flexible 7-layer system provides repetitive thermal protection and cut/puncture resistance at the vulnerable knuckle compression point.
- ❖ In addition to the knuckle guard section, the back side outer layer is formed alternately by the sueded leather and a layer of cut and heat resistant Kevlar knit which runs the length of the glove from finger tips to cuff edge.
- ❖ Back side of the fingers are reinforced with a layer of knitted modacrylic while the special mesh knit modacrylic forms the next layer of the back side serving as the inner liner.
- ❖ Finger sidewalls are comprised of an outer layer of Kevlar/Nomex and two additional layers of 100% modacrylic knit.
- ❖ The glove inside is fully lined with two layers of a highly breathable completely sealed polymer membrane to prevent liquid penetration and to protect against blood borne pathogens.
- ❖ Kevlar thread is used throughout the gloves.
- ❖ Reflective tape is used on the glove back side near the wrist area.
- ❖ NFPA 1971-2013 Edition Glove Size Measurement

_____Comply _____Exception

MAINTENANCE, CLEANING AND INSPECTION SPECIFICATION

Vendor must provide a five year cleaning and repair plan with cost. The inspection and cleaning of the gear must be NFPA compliant. The first year inspection and cleaning of gear for free. The second and third year should be one price and fourth and fifth be another price. While gear is being inspected the vendor must provide a loaner set of gear free of charge until gear is returned. This must include shipping cost as well.

_____Comply _____Exception

SIZE ADJUSTMENTS

Vendor must be able to make size adjustments to all applicable gear within the four sizing categories. In the event that a size adjustment cannot be made, vendor agrees to replace the gear in need of size adjustment with gear meeting same specifications listed herein.

_____Comply _____Exception

DELIVERY

Vendor must deliver entire initial order of thirty three (33) sets of gear within 45-60 days, Further, Vendor must have seven (7) additional sets available for immediate delivery over the next 5 years.

_____Comply _____Exception

[END SCOPE AND SPECIFICATIONS]