

The City of Millersville Fire Department is accepting bids for turnout gear. Bid specs are available at www.cityofmillersville.com at the bottom of the home page. Bids must be marked, sealed and received at 1246 Louisville Highway Goodlettsville, TN 37072 by 2:00 P.M. on February 12, 2024

Bid Specifications for PPE



Millersville Fire Dept.

GENERAL SPECIFICATIONS PROTECTIVE JACKET AND TROUSER, FIREFIGHTING HELMET, FIREFIGHTING BOOTS, NOMEX HOODS, FIREFIGHTING GLOVES FOR STRUCTURAL FIRE FIGHTING

1. SCOPE

This specification details design and material 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 will meet or exceed NFPA Standard #1971-2018 Revision for structural fire fighters protective clothing.

Compliant

Exception

GENERAL SPECIFICATIONS PROTECTIVE JACKET FOR STRUCTURAL FIRE FIGHTING

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 firefighting. All materials and construction will meet or exceed NFPA Standard #1971 and OSHA for structural fire fighters protective clothing.

_____ Comply _____ Exception.

SIZING

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

Jackets:

Gender:	Gender specific Men's and Women's patterns will be available.
Chest:	Even sizes
Back Length:	Men's 29 inches, 32 inches, 35 inches, 40 inches Women's 26 inches, 29 inches
Body Shape:	Men's: Straight and Tapered Note: The straight cut offers more fullness at the hips (i.e. jacket sweep) and is recommended when an IH Ready pant is being specified. Women's: Straight
Sleeve:	1-inch increments

Jackets available in only one standard shape will not be acceptable.

_____ Comply _____ Exception.

OUTER SHELL MATERIAL JACKETS

The outer shell shall be constructed of TENCATE **"AGILITY™"**; featuring **ENFORCE™** technology Kevlar®/PBO/ Nomex® blend material with an approximate weight of 6.6 oz. per square yard in a twill weave. The shell material must be treated with a durable water-repellent finish that offers resistance to liquid absorption. Color of the garments shall be dark gold.

_____ Comply _____ Exception.

THERMAL INSULATING LINER JACKET-

The thermal liner shall be constructed of TENCATE **"CALDURA® ELITE SL2i"**; with an approximate weight of 7.7 oz. per square yard. This thermal liner consists of one layer of 1.5 oz. and one layer of 2.3 oz. per square yard Nomex® E-89™ spunlaced Nomex®/Kevlar® aramid blend, quilt stitched to a Kevlar filament and FR Rayon/meta-aramid/nylon inherently wicking Caldura® face cloth. A pocket, constructed of thermal liner over-edged to a layer of moisture barrier material, shall be affixed to the inside of the jacket thermal liner on the left side by means of a single needle stitch. The thermal liner shall be sewn to the moisture barrier and shall be independently bound around its perimeter. This provides superior abrasion resistance to the less expensive, less durable, "stitch and turn" method. An approximate 8 inch by 10 ½ inch pocket, constructed of thermal liner over-edged to a layer of moisture barrier material, shall be affixed to the inside of the jacket thermal liner on the left side by means of a single needle stitch. Further mention of "Thermal Liner" in this specification shall refer to this section.

_____ Comply _____ Exception

MOISTURE BARRIER - JACKETS

The moisture barrier material shall be STEDFAST “STEDAIR® 3000” ePTFE moisture barrier is engineered using an E-89™ substrate and BHA Technologies ePTFE membrane. 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, 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

The thermal liner and moisture barrier shall be completely removable from the jacket shell. A minimum of six snap fasteners shall secure the thermal liner/moisture barrier to the outer shell along the length of the neck line under the top most collar. The top most collar shall be turned under and finished such that the snaps on the collar will not be able to contact the wearers skin. Corresponding snaps shall be installed through a moisture barrier leader measuring an approximate height of 1.75 – 2 inches and shall not penetrate through to the outer shell on the backside of the collar. 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. There shall be one Ara-shield® snap tabs at the liner sleeve end which shall be colored to correspond with color coded snap tabs on the shell sleeve end 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

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. Major A outer shell structural seams and major B structural liner seams, 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 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

ACTION BACK

The jacket outer shell shall include inverted pleats to afford enhanced mobility and freedom of movement in addition to that provided by the sleeves. The outer shell shall have two inverted pleats (one each side) installed on either side of the back body panel. The inverted pleats shall begin at the top of each shoulder and extend vertically down the sides of the jacket to the hem. Maximum expansion of the pleats shall occur at the shoulder area and taper toward the hem. Pleats that do not extend to the hem will not be considered, since they do not provide a true ACTION back.

The moisture barrier and thermal liner layers shall be designed with darts corresponding to the added length in the shell provided by the ACTION back pleats. The darts are positioned at the shoulder blades, outside of the SCBA straps and work together with the corresponding outer shell pleats in the ACTION back, providing maximum expansion. The moisture barrier darts will be seam sealed to assure liquid resistance integrity.

_____Comply _____Exception

LOGOS

The garment brand shall be identified by means of FR Nomex® thread embroidery on the top of the left collar denoting “ ” as 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

DRAG RESCUE DEVICE (DRD)

A Firefighter Drag Rescue Device (DRD) shall be installed in each jacket. The ends of a 1 inch wide strap, constructed of Kevlar®, shall be sewn together to form a continuous loop. The strap shall 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 shall be covered by an outside flap of shell material, 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 right front panel. This opening shall run a minimum of 11 inches for the purpose of inspecting the integrity of the jacket liner system. When installed into the outer shell the Liner Access Opening shall 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™ COMFORT Trim (Heat applied segmented 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 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.

SEWN ON RETROREFLECTIVE LETTERING

Each jacket shall have 3" lime/yellow 3M Scotchlite™ lettering on Row A reading: MILLERSVILLE, arched

_____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 hook & loop fastener tape. Shall read member first initial last name.

_____Comply _____Exception.

COLLAR & FREE HANGING THROAT TAB

The collar shall consist of a minimum four-layer construction and be of one-piece design. There shall be two layers of a moisture barrier material sandwiched in between two layers of outer shell fabric (see Moisture

Barrier section). The forward inside ply of moisture barrier shall be sewn to the inside of the collar along the edges only. The multi-layered configuration shall provide protection from water and other hazardous elements, while maintaining thermal protection. The collar shall be a minimum of 3 inches high and graded to chest 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 back layers of outer shell and moisture barrier shall be joined to the body panels with a minimum of two rows of stitching. The collar front layers of outer shell and moisture barrier fabric shall have a series of minimum 6 snap fasteners on lower edge of the collar. The top most collar shall be turned under and finished such that the snaps on the collar will not be able to contact the wearer's skin. There shall be corresponding snap fasteners on a moisture barrier leader, which is sewn to the thermal liner system to engage the snaps on the collar. The snaps on the thermal liner system leader will be installed such that they do not penetrate from the outer shell through to the inner layers. This moisture barrier leader on the thermal liner system shall be sandwiched between the underside of the top collar shell fabric and moisture barrier material and the bottom collar shell fabric and moisture barrier material so as to reduce the possibility of liner detachment while donning and doffing.

The throat tab shall consist of a minimum of four-layer construction and be a scoop type design. There shall be of two plies of outer shell material with two center plies of moisture barrier material. The throat tab shall measure not less than 3 inches wide at the center tapering to 2 inches at each end with a total length of approximately 9 inches. The throat tab will be attached to the right side of the collar by a 1 inch wide by 1 inch long piece of Nomex® twill webbing. The throat tab shall be secured in the closed and stowed position with FR hook and loop fastener tape. The FR hook and loop fastener tape shall be oriented to prevent exposure to the environment when the throat tab is in the closed position. Two 1½ inch by 3 inch pieces of FR loop fastener tape shall be sewn horizontally to the inside of each end of the throat tab. Corresponding pieces of FR hook fastener tape measuring 1 inch by 3 inches shall be sewn horizontally to the leading outside edge of the collar on each side, for attachment and adjustment when in the closed position and wearing a breathing apparatus mask. In order to provide a means of storage for the throat tab when not in use, a 1 inch by 3 inch piece of FR hook fastener tape shall be sewn horizontally to the inside of the throat tab immediately under the 1½ inch by 3 inch pieces of FR loop fastener tape. The collar closure strap shall fold in half for storage with the FR loop fastener tape engaging the FR hook fastener tape.

A hanger loop constructed of a double layer of outer shell material shall be sewn to the top of the collar at the center.

_____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 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. There shall be wicking barrier constructed of a 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 inch 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 3 inches (6 inches for hook and dee inside/FR hook and loop fastener tape outside closure; aka #7C) wide and a minimum of 23 inches long (based on a 32 inch

length jacket) 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 back tacks.

_____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 resin zipper on the jacket fronts and FR hook and loop 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 fronts. The storm flap shall close over the left and right jacket body panels and shall be secured with FR hook and loop fastener tape. A 1½ inch piece of FR 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 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.

CARGO/HANDWARMER EXPANSION (BELLOWS) POCKETS

Each jacket front body panel shall have a 2 inch deep by 8 inch wide by 8 inch high expansion pocket, double stitched to it and shall be located such that the bottom of the pockets are at the bottom of the jacket for full functionality when used with an SCBA. Retroreflective trim shall run over the bottom of the pockets so as not to interrupt the trim stripe. Two rust resistant metal drain eyelets shall be installed in the bottom of each expansion pocket to facilitate drainage of water. *The expansion pocket shall be reinforced with a layer of Kevlar® approximately 5 inches up on the inside of the pocket.* The pocket flaps shall be rectangular in shape, constructed of two layers of outer shell material and shall measure approximately 3 inches deeper than the pocket expansion and ½ inch wider than the pocket. 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 hook and loop fastener tape. Two pieces of 1 ½ inch by 3 inch FR hook fastener tape shall be installed vertically on the inside of each pocket flap (one piece on each end). Two corresponding pieces of 1 ½ inch by 3 inch FR 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. Shell material linings shall not be considered acceptable.

(32" or shorter length) Retroreflective trim shall run over the bottom of the pockets so as not to interrupt the trim stripe.

_____ Comply _____ Exception.

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 Ara-Shield® material.

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 / ELASTICIZED ADJUSTABLE SLEEVE WELLS

Each jacket shall be equipped with **Nomex® knit wristlets with thumb loop** not less than 4 inches in length and of double thickness. Nomex® knit is constructed of 96% Nomex® and 4% Spandex for shape retention. A loop of ½ inch wide black 6.0 oz. Brigade material shall be installed on each wristlet. This loop is designed to slip over the thumb and hold the wristlets from riding up the arm. The color of the wristlets shall be white

The wristlets shall be sewn to the end of the liner sleeves. Flame resistant neoprene coated cotton/polyester

material shall be sewn to the inside of the sleeve shell approximately 5 inches from the sleeve end and extending toward the cuff forming the sleeve well. The neoprene sleeve well shall form an elasticized cuff end with an FR hook and loop fastener tape tab providing a snug fit at the wrist and covering the knit wristlet. This sleeve well configuration serves to prevent water and other hazardous elements from entering the sleeves when the arms are raised. The neoprene material shall also line the inside of the sleeve shell from the cuff to a point approximately 5 inches back, where it joins the sleeve well and is double stitched to the shell. Four Ara-shield® snap tabs will be sewn into the juncture of the sleeve well and wristlet. The tabs will be spaced equidistant from each other and shall be fitted with female snap fasteners to accommodate corresponding male snaps in the liner sleeves. 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 ELBOW THERMAL ENHANCEMENT

An additional layer of thermal liner material shall be sewn to the elbow area of the liner system for added protection at contact points and increased thermal insulation in this high compression area. The elbow 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 finished dimension shall be approximately 5 inches by 8 inches. All edges shall be finished by means of overedging. Raw or unfinished edges shall be considered unacceptable. Thermal scraps shall not be substituted for full-cut fabric padding.

_____ Comply _____ Exception

LINER SHOULDER AND UPPER BACK THERMAL ENHANCEMENT

A minimum of one additional layer of thermal liner material shall be used to increase thermal insulation in the upper back, front and shoulder area of the liner system. This full-cut thermal enhancement layer shall drape over the top of each shoulder extending from the collar to the sleeve/shoulder seam, down the front approximately 5 inches from the juncture of the collar down the back to a depth of approximately 5 ¾ inches to provide greater CCHR protection in this high compression area. The upper back, front and shoulder thermal enhancement layers shall be sandwiched between the thermal liner and moisture barrier layers of the liner system and shall be stitched to the thermal liner layer only. 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 3 inches longer than the depth of the pocket and ¼ inch wider than the pocket. The pocket flap shall be closed by means of

FR hook and loop fastener tape. A 1½ inch by 3 inch piece of FR 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 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 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 2 inches deep by 3.5 inches wide by 7 inches high and shall be installed on the left chest.

Note: radio pocket 6-inch and over in height requires trim.

Note: Radio pockets on the sleeves will be fully lined with neoprene to comply with the NFPA 2013 Stored Energy Test.

_____Comply _____Exception

NOTCHED RADIO POCKET FLAP

The radio pocket flap shall be notched to accommodate the radio antenna on the right side as worn.

_____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 storm flap horizontal 3 inches down from top and shall be constructed of double layer outer shell material.

_____Comply _____Exception

SURVIVOR FLASHLIGHT HOLDER

Each jacket shall be equipped with a "Survivor" flashlight holder. An inward facing safety hook, attached to a double layer self material strap, shall be double stitched in a vertical position to the upper chest. The inward facing safety hook will accommodate the clip portion of the flashlight. Below the safety hook will be a strap constructed of outer shell material measuring approximately 1 ¾ inches high and 9 inches wide, and will hold the barrel of the flashlight. The lower strap will be equipped with a 1 ½ inch by 2 ½ inch FR hook and loop closure at the front of the strap to facilitate easy removal of the flashlight. There shall be approximately 3 ½ inches between the upper safety hook and lower strap. The "Survivor" flashlight holder shall be sewn to the jacket on the right chest.

_____Comply _____Exception

_____Comply _____Exception

HANGING STRAP W/DEE RING

A 1 inch d-ring attached to a double layer self material strap, shall be double stitched in a vertical position

next to flashlight holder clasp

EMBROIDERED AMERICAN FLAG – RIGHT SLEEVE

Each jacket shall have a Nomex® embroidered American flag that measures approximately 2½ inches high by 3½ inches wide. Per Military protocol the field of stars shall be to the top right corner for installation on the right sleeve. Flags made of fabric other than Nomex® shall be considered unacceptable.

_____ Comply _____ Exception

Flags made of fabric other than Nomex® 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 by Underwriters Laboratories (UL). Underwriters Laboratories shall certify and list compliance to that standard. Such certification shall be denoted by the Underwriters Laboratories certification mark.

_____ Comply _____ Exception

LABELS

Appropriate warning label(s) shall be permanently affixed to each garment. Additionally, the NFPA certification label 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

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:

Both male and female sizing samples shall be available.

_____ 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 manufacturer's 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

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

Jackets shall be manufactured in the United States.

Details and specifications are subject to change as necessary, without notification.

GENERAL SPECIFICATIONS NOMEX HOODS FOR STRUCTURAL FIRE FIGHTING

manufactured in USA. All materials and construction meet or exceed NFPA Standard 1971 (2018 edition) requirements. Independent third-party product certification to NFPA 1971 is conducted by Underwriters Laboratory.

CONSTRUCTION

- Composed of two knit fabric layers around the face opening to no more than 1.5", crown of head and bib.
- Shoulder gussets are seamed at the sides to ensure complete shoulder coverage and a smooth flat drape of bib.
- Nape lock seam spans entire back of hood to provide a contoured fit.
- The bottom of the hood is finished with self-material.
- Face opening construction expands to 31" circumference to provide easy donning and doffing. Face opening retains its original shape after repeated use and laundering.
- Particulate barrier material coverage shall include all areas of the hood to at least 1.5" above the reference plane when measured at the coronal plane and all areas of the hood to at least 8" at the sides when measured at the coronal plane and 9" at the front and rear when measured at the

midsagittal plane below the reference plane as measured when the hood is placed on an ISO Size J head form.

STITCH TYPES AND SEAMS

- All stitching conforms to Federal Standard 751 Specifications.
- Major seams are serged with stitch type 504 and are reinforced with flat top and bottom cover stitch type 605.
- Elastic in face opening is secured with serge stitch type 504. Elastic is covered with self-material using cover stitch type 406.
- Bound bottom is cover stitched with cover stitch type 406.
- All seams are sewn with 100% Nomex thread size Tex 40.

FABRIC OPTIONS

- **NOMEX/LENZING** - 20% Nomex / 80% Lenzing, Rib Knit.
Color: Black Heather
- **STEDAIR PREVENT** barrier material

FINSIHED HOOD MEASUREMENTS

- Face opening is round and measures between 4.625" to 5.625" in diameter.
- Length of hood below face opening is approximately 14.0".
- Length of hood at the side from top to bottom is approximately 20".
- Length of hood at the back from top to bottom is approximately 23".
- Length of hood at the front from top to bottom is approximately 22".

LABELING

- Each hood is labeled in accordance with NFPA 1971 labeling requirements; including material content, UL certification, date of manufacture. The label is a comfortable TAGLESS design

_____ Comply _____ Exception

GENERAL SPECIFICATIONS GLOVES FOR STRUCTURAL FIRE FIGHTING

Gloves:

UL certified to meet or exceed the current edition of NFPA 1971 Standard.

TRUE THREE-DIMENSIONAL STRUCTURAL FIREFIGHTING GLOVE WITH CURVED FINGER DESIGN AND INSET THUMB

One-piece back shell made of ultra flexible 100% FR Para Aramid knit fleece
Engineered with Nomex®/Kevlar® thermal liner on back of hand for superior thermal protection;
Modacrylic on palm of hand for superior comfort and dexterity.
100% waterproof, viral/chemical penetration resistance and blood borne pathogen protection
Five separate curved form fitting forchettes for maximum finger dexterity.

**Exclusive breathable adhesive used to secure the liner. Liner guaranteed not to pull out.
One-piece palm cowhide suede leather stays soft when wet with low water absorption.
Wristlet Style: 4" Black Nomex® wristlet with leather pull patch and hang-up loop
NFPA sizing
Made in USA**

Comply **Exception**

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

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 and OSHA for structural fire fighters protective clothing.

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 Men's and Women's patterns
Waist:	Even sizes
Body Shape:	Men's Regular, Relaxed and Slim Relaxed is a fuller cut in the hips and thighs, like relaxed jeans. Slim is a more slender cut in the hips and thigh, like straight fit jeans.
	Women's
Inseam:	Even sizes

Pants available in only one or two standard shapes will not be acceptable.

Comply **Exception**

OUTER SHELL MATERIAL - PANTS

The outer shell shall be constructed of TENCATE "AGILITY™" featuring ENFORCE™ Technology Kevlar®/PBO/ Nomex® blend material with an approximate weight of 6.6 oz. per square yard in a twill

weave. The shell material must be treated with a durable water-repellent finish that offers resistance to liquid absorption. Color of the garments shall be dark gold.

_____ Comply _____ Exception.

THERMAL INSULATING LINER - PANTS

The thermal liner shall be constructed of TENCATE “**CALDURA® ELITE SL2i**”; with an approximate weight of 7.7 oz. per square yard. This thermal liner consists of one layer of 1.5 oz. and one layer of 2.3 oz. per square yard Nomex® E-89™ spunlaced Nomex®/Kevlar® aramid blend, quilt stitched to a Kevlar filament and FR Rayon/meta-aramid/nylon inherently wicking Caldura® face cloth. The thermal liner shall be sewn to the moisture barrier and shall be independently bound around its 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. 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, 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 PANTS

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 on the shell shall be color coded to corresponding color coded snap tabs in the liner for ease of matching the liner system to the outer shell after inspection or cleaning is completed. There shall be no hook and loop used to close the liner access opening.

_____ 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, #514 and #516. The thermal liners and moisture barriers shall be assembled using stitch type #301, #401, #504, #514, and #516. Major A outer shell structural seams and major B structural liner seams, 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

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. In addition to the four body panels, there shall be a seamless, one-piece crotch gusset. The one-piece gusset allows for less bulk, comfort and more freedom of movement in this high stress area. The body panels, seam lengths and crotch gusset 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

CONTOURED SADDLE

The rise of the rear pant center back seam, including gusset, 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 approximately 8 inches. The longer rear center back seam provides added length in the seat for mobility without restriction when stepping up, kneeling, or crawling and maintains proper alignment of the knee, without twisting, directly over the kneepads when kneeling and crawling.

_____Comply _____Exception

LINER ACCESS OPENING (PANT)

The thermal liner and moisture barrier layers of the pant liner system shall be constructed in such a way as to allow an access opening for interior inspection, service and replacement. The thermal liner and moisture barrier layers shall be stitched together for security and prevention of inadvertent use of one layer without the other. The liner system shall have a reinforcement material 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. The liner system of the pant shall incorporate an opening along the back of the waistline for ease in inspecting the inner layers and to facilitate 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 on each of the front panels, along the waistband from the front fly opening to side seam. The back of the liner system will be allowed to remain open with two snaps on either side of the back seam to attach the moisture barrier layer to the thermal liner layer. As described previously, the pant thermal layer system 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

RETROREFLECTIVE 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 3M Scotchlite™ COMFORT Trim (Heat applied segmented L/Y borders with silver center).

The bottom of trim band shall be located approximately 3" above cuff.

_____Comply _____Exception

ELASTICIZED WAISTBAND

The pant design facilitates the transfer of the weight of the pant to the hips instead of shoulders and suspenders. The two rear outer-shell body panels, beginning at the pant side seams, shall incorporate an elasticized waist insert, running from the side seam towards the back of the trouser for an approximate distance of 4 inches. The rear elasticized waist inserts shall be integral to the shell of the pant and the elasticized portions shall be covered by the outer shell fabric of the pant.

The waist area of the pants shall be reinforced on the inside with a separate piece of black aramid outer shell material, cut on the bias (diagonally). The reinforcement shall be folded in half, for a finished bottom edge and shall have a finished width of not less than approximately 1½ inches. 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 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

by means of nine snaps, spaced equidistant along the length of the waistband reinforcement. Inserting the liner system between the waistband reinforcement and outer shell serves to reduce the possibility of liner detachment while donning and doffing. The independent waistband construction affords greater comfort and fit than a turned and stitched method. Pants that do not include an independent waistband or are not cut on the bias will not provide the same amount of stretch to the garment and shall be considered unacceptable.

_____ 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 ¾ 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 underside of the outside fly flap shall have a 1½ inch wide piece of FR loop fastener tape quadruple stitched full length along the shell material only; stitching shall not penetrate the moisture barrier insert between the two shell fabric layers to insure greater thermal protection and reduced water penetration. A corresponding strip of 1½ inch wide piece of FR hook fastener tape shall be quadruple stitched to the outside right front body panel securing the fly in a closed position.

_____ Comply _____ Exception

CLOSURE

Full Black Belt with Wide Belt Loops

Each pant shall include an approximate 2 inch wide belt constructed of aramid 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 black aramid material belt loops spaced around the waist to accommodate the aramid belt. There shall be three large loops measuring approximately 2 inches by 4 inches and two smaller loops measuring approximately 1/2 inch wide by 3 1/2 inches long. Two of the large belt loops shall be placed on each side of the front of the pant and third on the rear of the waist, centered over the rear seam. The two smaller loops shall be placed on the rear of the pant, behind the side seams.

_____ Comply _____ Exception

ARTICULATED KNEE

The outer shell of the pant legs shall be constructed with horizontal pleats in the knee area with corresponding darts in the liner. In order to provide increased freedom of movement and maximum flexibility, extra material is built into the knee area and this additional fullness is contained by stitching down the pleats on the inside of the shell. The knee reinforcement shall 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 darts per leg in the front of the knee. Two shall be located above the knee (one on each side) and two shall be located below the knee (one on each side). On the moisture barrier, the system shall 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 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, shall 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 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

CATHEDRAL KNEE REINFORCEMENTS

The knee area shall be reinforced with black Ara-Shield® material.

The cathedral shaped knee reinforcement shall be centered on the leg to ensure proper coverage when bending, kneeling and crawling. The knee reinforcements shall measure a minimum of approximately 7 inches wide by 12 inches high at the highest point and shall be double stitched to the outside of the outer shell in the knee area for greater strength and abrasion resistance. The articulated cathedral knee reinforcement shall be cut and stitched to the shell in such a way that there shall be an arch at the top of the reinforcement, tapering down the sides of the reinforcement with a squared off bottom. Knee reinforcements of a smaller size do not provide the same protective coverage and shall be considered unacceptable. The lower edge of the Ara-Shield® knee reinforcement shall be turned under so that the lower row of stitching is covered and protected from abrasion.

_____ Comply _____ Exception

PADDING UNDER KNEE REINFORCEMENTS

Padding for the knees shall be accomplished with one layer of **Silizone®** foam, sandwiched between the thermal liner and moisture barrier. The placement of Silizone® padding on the thermal versus the shell reduces bulk in the shell and also serves to protect the padding from abrasion and other wear issues that the outer shell is subject to. Pants with Silizone® knee padding on the shell as opposed to on the liner, do not provide the same level of bulk reduction and abrasion resistance and are not recommended.

_____ Comply _____ Exception

EXPANSION (BELLOWS) 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 out-seam above the knee and positioned to provide accessibility. *The lower half of each expansion pocket shall be reinforced with an additional layer of Kevlar® twill 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 approximately 3 inches deeper than the pocket expansion and ½ inch wider than the pocket. 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 hook and loop fastener tape. Two pieces of 1½ inch by 3 inch FR 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 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

PANT CUFF REINFORCEMENTS

The cuff area of the pants shall be reinforced with black Ara-Shield® 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 black Ara-Shield® material 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. Pants 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 by Underwriters Laboratories (UL). Underwriters Laboratories shall certify and list compliance to that standard. Such certification shall be denoted by the Underwriters Laboratories certification mark.

_____ Comply _____ Exception

LABELS

Appropriate warning label(s) shall be permanently affixed to each garment. Additionally, the NFPA certification label 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

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:

Both male and female sizing samples shall be available.

_____ 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

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

Jackets and Pants shall be manufactured in the United States.

Details and specifications are subject to change as necessary, without notification.

NFPA 1971 and NFPA 1992 Certified

Certified to NFPA 1971, *Standard on Protective Ensembles for Structural Firefighting and Proximity Firefighting, Current Edition* for Structural Fire Fighting and NFPA 1992, *Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies, Current Edition*.

_____ Comply _____ Exception

CSA Z195-14 Certified

Boots shall be certified in accordance with the requirements of CSA Z195-14 Protective Footwear.

_____Comply _____Exception

General Design

14 inch Pull-On athletic footwear (cement construction) boot, black flame-resistant and water-resistant leather, double-stitched leather joining seams, webbing pull straps, leather collar, padded leather flex joints in the shaft above vamp and heel, liquid and chemical resistant breathable bootie liner, cut-resistant and thermal protective bootie-shield liner, composite safety toe cap, composite shank, composite penetration-resistant insole barrier, molded shin guard, flame-resistant synthetic rubber molded cup outsole and toe bumper and heel guard, 3D lasting board, molded composite heel counter, internal heel fit system, and a removable molded footbed as well as an additional insert for use in conjunction with the footbed.

_____Comply _____Exception

Slip Resistance

Boots must exceed the minimum test values for slip resistance (average of left and right foot) as detailed below to provide superior performance in dry, wet, and frosted ice conditions. Boots that do not exceed these minimums in all conditions shall not be acceptable. Bidders must promptly supply a Technical Services Report from a recognized independent testing laboratory upon request showing the boots bid exceed this requirement.

Test Method: VUSA TT S&C 1-18 ED. 1 Rev. 0
Slip Resistance of Footwear and Floorings

- Load = 500 N
- Dry Clay Quarry Tile: Forepart > 1.00
Heel > 1.00
- Wet Clay Quarry Tile: Forepart > 0.60
Heel > 0.60
- Frosted Ice -7°C Run 1: Forepart = 0.28
Heel = 0.28
- Frosted Ice -7°C Run 4: Forepart > 0.12
Heel > 0.12

For maximum slip resistance each outsole shall have Siping lines. Siping lines cut into flat areas open up when flexed to provide additional traction on water and ice. The boot shall also include self-cleaning lugs and an omni-direction tread pattern designed for superior performance in all terrains and when working on ladders.

_____Comply _____Exception

Flexibility

Boots must reach the Maximum Flex Angle of 48 degrees without exceeding the critical bending moment with a resulting stiffness index less than 10.0 as detailed below to provide maximum flexibility. Boots that do not meet this requirement shall not be acceptable. Bidders must promptly supply a Technical Services Report from a recognized independent testing laboratory upon request showing the boots bid meet this

requirement.

Test Method: SATRA TM194:2004

Longitudinal stiffness of footwear

Comply Exception

Leather

Boots shall be made from heavy-duty, flame-resistant and water-resistant full-grain cattle hide leather measuring 2.0 – 2.2 mm of thickness for durable tear and puncture resistance. Tumbled full-grain cattle hide leather shall be utilized in the collar and flex areas for mobility. The leather shall be chrome tanned

to withstand high temperature with minimal shrinkage, re-tanned to impart water resistance and low water absorption, and finished to retain maximum breathability. Leather shall meet or exceed the following physical tests:

Water Penetration	ASTM D2099	15,000 flex minimum
Dynamic Water Absorption	ASTM D2099	15% maximum
Static Water Absorption	ASTM D6015	30% maximum
Slit Tearing Strength	ASTM D2212	30 pound minimum
Moisture Vapor Transmission	ASTM D5052	350 g/meter ² /24 hours minimum
Flame Resistance	NFPA 1971	afterflame no more than 2.0 sec, not melt or drip, no burn through

Comply Exception

CROSSTECH® Footwear Fabric

A full-height, full sock, bootie liner made from a package of Omaha lining fabric, 300g felt insulation, and CROSSTECH® moisture barrier shall be provided for a liquid resistant breathable moisture barrier as well as thermal protection as defined by the specified NFPA standards.

Comply Exception

Athletic Footwear (Cement) Construction Outsole

For optimum flexibility, comfort, and weight reduction, the boot shall include a VIBRAM® Synthetic Rubber Sculpted, Contoured Cup Outsole cemented to the bottom and sides of the upper using a 2-part cross-linking adhesive that forms a bond stronger than the materials it attaches. The outsole must be made from a flame, abrasion, oil, acid, and slip resistant compound engineered for high-traction, cold-weather resistance, and durability. Goodyear welt or direct attach construction methods shall not be acceptable.

Comply Exception

Bootie-Shield Liner

A protective bootie-shield of KEVLAR® fiber blend stitchbonded non-woven batting weighing 4.0 oz/yd² shall be positioned between the leather shell and the CROSSTECH® moisture barrier bootie to provide abrasion and cut resistance and additional thermal protection. Boots that do not have an additional FR

protective bootie-shield between the leather shell and the CROSSTECH® moisture barrier bootie shall not be acceptable.

_____Comply _____Exception

Composite Safety Toe Cap

The safety toe shall consist of a composite material that is lighter than steel, does not transmit heat or cold, and will spring back to shape after impact. Must exceed NFPA standards for safety. Metal toe caps shall not be acceptable.

_____Comply _____Exception

Padded Leather Collar

The padded collar shall have a rolled top edge formed by folding over the leather to help the boots slide against the pants liner and reduce the potential for the pants liner to hang up on the top of the boots as well as to reduce abrasion against the wearer's calf.

_____Comply _____Exception

Composite Penetration Resistant Insole Barrier

Penetration resistance shall be provided by a composite insole to maximize flexibility and insulate from heat and cold transmission. Must exceed NFPA standards for safety. Metal plates shall not be acceptable.

_____Comply _____Exception

3D Composite Lasting Board

Boot uppers shall be lasted to a molded and contoured lasting board with a built-in flex zone in the forefoot with a torsionally stable heel. Flat fiber board lasting boards shall not be acceptable

_____Comply _____Exception

Composite Shank

The shank shall consist of a composite material that is lighter than steel, does not transmit heat or cold, and springs back to shape better. Metal shank shall not be acceptable.

_____Comply _____Exception

Molded Heel Counter

Boots shall have a molded heel counter of water-resistant composite material individually molded to fit each size perfectly. Leather or fiber board heel counters shall not be acceptable.

_____Comply _____Exception

Padded Shin Guard

Boots shall include a padded composite shin guard to provide extra protection when working on a ladder. Moisture absorbing natural fiber padding shall not be acceptable.

_____Comply _____Exception

Synthetic Rubber Toe Bumper

Boots shall include a molded Flame Resistant (FR) synthetic rubber toe bumper to provide abrasion resistance when crawling. The toe bumper shall be cemented and 2-needle stitched to the vamp.

_____Comply _____Exception

Synthetic Rubber Heel Guard

Molded synthetic rubber heel guard provides abrasion resistance in high wear area. Cemented and 2-needle stitched to the vamp.

_____Comply _____Exception

Webbing Pull-Straps

Boots shall have NOMEX® webbing pull-straps securely attached to the leather uppers by inserting into to collar seam to minimize stitching through the leather.

_____Comply _____Exception

Internal Fit System

Boots shall have an anatomical foam insert that wraps around the top and sides of the heel with an opening to fit and hold the back of the heel securely while cushioning the ankle.

_____Comply _____Exception

3D Molded Footbeds System

Boots shall have a removable urethane foam footbed. The footbeds are contoured to cradle and cushion the bottom of the foot and to provide arch support. The footbeds shall have a moisture-wicking and anti-microbial fabric top layer. A second pair of 3D molded footbeds that are thicker in the forefoot is provided with every pair for a custom fit. This thicker footbed provides a snugger fit.

_____Comply _____Exception

Sizes

Boots must be available in Men's full sizes 5 – 18 and half sizes 5½ – 15½ in Narrow, Medium, Wide, and

X-Wide widths. Boots must also be available in a Wide Calf model in the same size range that will provide an additional 3 inches in circumference at the calf to fit those with larger calves. Boots must be available in Women's full sizes 5 – 12 and half sizes 5½ – 11½ in Narrow, Medium, Wide, and X-Wide widths.

Comply Exception

Resoling Service

The winning vendor shall have resoling services available at their factory as needed.

Comply Exception

Country of Origin

Boots shall be manufactured in the United States.

Comply Exception

Third Party Testing and Listing Program

The footwear shall be tested for compliance to NFPA Standard 1971 and 1992 by a recognized independent testing lab which shall certify and list compliance to that standard. Such certification shall be denoted by the independent testing labs mark on the certification label affixed to the boots.

Comply Exception

Labels

Appropriate warning label(s) shall be permanently affixed to each boot. Additionally, the label(s) shall include the following information.

Compliance to applicable NFPA Standard(s), current edition(s).

Independent Testing Lab mark

Manufacturer's name

Manufacturer's address

Manufacturer's boot identification number

Date of manufacture

Size

Comply Exception

ISO Certification/Registration

The manufacturer shall be certified and registered to ISO Standard 9001 to assure a satisfactory level of quality.

Comply Exception

Warranty

The manufacturer shall warrant these boots to be free from defects in materials and workmanship for one year when properly used and cared for.

Comply Exception

Sizing by Vendor

The vendor shall be available to perform all sizing requirements.

_____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.