Fire & Emergency Services (F&ES)
Personal Protective Equipment (PPE)
Strategic Sourcing Specifications
for
Industry Day - April 2025

28 January 2025

1. **FIRE FIGHTING PROTECTIVE PARTICULATE BARRIER HOOD.**

1.1. **Certification.** As an option, the contractor shall provide particulate barrier firefighting hood that meet or exceeds NFPA 1971.

1.2. **Particulate Blocking.** Each particle size range from 0.1 – 1.0 microns (μm) at ≥90% certified to block particulate-blocking efficiency.

1.3. **Layer Materials.** The layer material shall be Nomax™ PBI®/Lenzing FR® Stedair or equal material.

1.3.1. **Performance Characteristics.** The hood must meet or exceed the minimum test values for TPP, Stretch, Flame Resistance, Fabric Burst Strength, Seam Burst Strength, Heat and Thermal Shrinkage performance:

1.3.1.1. **Thermal Protective Performance (TPP).** The layering material shall exceed TPP minimum rating of 20 across the head layers.

1.3.1.2. **Total Heat Loss (THL).** The layering material shall exceed THL rating of not less than 325 across the head layers.

1.3.1.3. **Seam Burst Strength.** The fabric seam burst for interior and exterior layer strength shall be greater than 181.

1.3.1.4. **Heat and Thermal Shrinkage.** The fabric shall have a heat and thermal shrinkage/resistance of no greater than 10% initial and after five launderings.

1.3.1.5. **ATPV.** The hood shall have a minimum ATPV of 8 cal/cm2.

1.3.2. **Stitch Types and Seams.** All stitching conforms to Federal Standard 751 Specifications (FED-STD-751).

1.3.3. **Thread.** All seams are sewn with 100% Nomex® or equivalent thread in a contrasting color to the fabric.

1.3.4. **Hood Style.** Hood shall be three layers in thickness in the head and neck area and at least 2 layers in the bib areas. Head area shall incorporate a 3-inch wide head panel to provide generous head sizing. A circular face opening shall incorporate x-heavy duty ½-inch wide coved elastic that is cover stitched and fabric edges shall be bound. Shoulder area shall be a notched or notched bib style with the ability to cover most of the trapezius area. The total hood length shall be 20-21 inches.

1.3.5. **Color.** All solid colors offered by the manufacturer shall be available.

1.3.6. **Hood Sizes**. Hoods shall be available in Medium Large (ML) and Extra Large (XL) sizes.

1.3.7. **Labeling.** Appropriate warning label(s) shall be permanently affixed. Additionally, the label(s) shall include the following information:

1.3.7.1. Compliance to NFPA Standard 1971;

1.3.7.2. UL,SEI, ITS/ETL or other certifier's mark.

1.3.8. **Care Instructions.** A complete users information guide shall be included with each hood in accordance with NFPA 1971 paragraph 5.4.4.

2. **FIREFIGHTING BOOT**

3.1. **Certification.** All boots shall be dual-certified to meet or exceed NFPA 1971, *Standard on Protective Ensembles for Structural Firefighting and Proximity Firefighting*, and certified to meet or exceed NFPA 1992, *Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies.*

3.2. **Flame Resistant, Water-Resistant Heavy-Duty Leather.** Specially softened tumbled leather in high flex areas.

3.3. **GORE® CROSSTECH® Footwear Fabric.** A full-height bootie liner made from a package of Omaha lining fabric, 300g insulation, and GORE® CROSSTECH® moisture barrier to provide protection unmatched by any other waterproof, breathable barrier.

3.4. **KEVLAR® Blend Protective Shield.** Two layers of KEVLAR® blend batting separated by spacer fabric protect the GORE® CROSSTECH® moisture barrier, provides cut resistance, and adds thermal protection.

3.5. **Aluminized PBI® Fabric.** An added layer between the leather shell and the KEVLAR® blend fiber batting provides additional radiant and conductive heat protection to meet the higher thermal requirements for Proximity Fire Fighting.

3.6.1. 3M SCOTCHLITE™ Reflective Material, for added visibility.

3.6. **Pull Straps.** Flexible NOMEX® webbing pull-straps reinforced with leather slide easily under turnout pants and are kind to your legs.

3.7. **Padded Composite Shin Guard.** Provides extra protection when you are working on a ladder.

3.8. **HEELPORT™ Internal Fit System.** Holds wearer's heel securely so it won't slip while cushioning the ankle.

3.9. **Composite Heel Counter.** Individually molded to fit each size perfectly.

3.10. **Composite Safety Toe Cap.** Lighter than steel, doesn't transmit heat or cold, exceeding NFPA standards for safety.

3.11. **VIBRAM® Toe Bumper.** Made from the same rugged compound as the outsole for abrasion resistance when crawling.

3.12. **Dual-Density Enhanced 3D Molded Footbed System.** Removable dual-density footbeds are contoured to cradle and cushion the bottom of your feet and to provide arch support. Urethane foam bottom layer provides durable cushioning while a micro-cellular open-cell foam top layer delivers cool, all-day comfort. Moisture-wicking and anti-microbial fabric top pulls moisture away from feet. An additional set of polymer inserts are provided to install under the footbeds when a snugger fit is desired.

3.13. **3D Composite Lasting Board.** Molded, contoured, and lasted to boot uppers with a built-in flex zone in the forefoot and a torsionally stable heel. Works together with the footbed to conform to the shape of the foot.

3.14. **Composite Shank.** Lighter than steel, doesn't transmit heat or cold and springs back to shape better.

3.15. **Composite Puncture Protection.** More flexible than a steel plate and doesn't transmit heat or cold.

3.16. **VIBRAM® Contoured Cup Outsole.** Molded outsole wraps onto the leather upper for athletic shoe performance. Flame, abrasion, oil, acid and slip-resistant compound engineered for high traction and durability even during prolonged exposure to extremes of heat and cold.

3.17. **Athletic Footwear Construction.** Two-part cross-linking adhesive bonds outsoles to the upper. Without stiff welts and ribbed mid-soles, this attachment process is far more flexible.

3.18. **Slip-Resistant Tread.** Siping – thin slits cut into flat areas across the sole – opens up when flexed to provide additional traction on water and ice. Self-cleaning lugs and omni-direction tread pattern designed for superior performance in all terrains and when working on ladders.

3.19. **Weight.** The weight of a men's size 10 boot shall not exceed 3.85 lbs. When paired or weighed together shall not exceed 7.7 lbs.

3.20. **Labels.** Appropriate warning label(s) shall be permanently affixed. Additionally, the label(s)shall include the following information:

3.21.1. Compliance to NFPA Standard 1971 for both structural firefighting and proximity firefighting;and NFPA Standard 1992. UL, SEI, ITS/ETL or other certifier's mark.

3.21.2. A complete user information guide shall be included with each pair of boots to include sizing information in accordance with paragraph 5.4.4., per NFPA 1971.

3.21. **Boot Sizes.** Shall be available in Men's 5 – 15.5 (full and half sizes), 16 – 17 (full sizes only) inNarrow, Medium, Wide, and X-Wide widths. Men's sizes shall also be available in a wider calf modelin the same size range that will provide a wider circumference at the calf to fit those with larger calves. Boots shall be available in Women's 5 – 12 (full and half sizes) in Narrow, Medium, Wide, and X-wide widths.

3. STRUCTURAL FIRE FIGHTING COAT

3.1. **Body.** The coat design shall be assembled to facilitate maximum unencumbered ease of movement across the shoulders, chest and arms with the least amount of coat rise and restriction offered by the manufacturer utilizing no less than three separate panels. Coat shall provide a contoured fit and align at the seams with double stitching with flame resistant meta-aramid thread. The baseline coat length shall be no longer than 32-inches while shorter and longer lengths shall be available for sizing of tall and short personnel. Coat length may be longer in the back than in the front to facilitate interfacing requirements. The bottom hem of the coat shall be finished with a double row of stitching.

3.2. **Per-and Polyfluoroalkyl Substances (PFAS).** All materials used in manufacturing Structural Firefighting Coat, Pants and Suspenders will be free of any Perflurooctanoic

Acid (PFOA), PFOA precursors, Perfluoro octane Sulfonate (PFOS), GenX (Dimer Acid and its Ammonium Salt) and other related higher homologue chemicals.

3.3. **Collar and Throat Tab/Strap.** The collar shall consist of a four-layer construction. The collar shall be minimum 3¼-inches high and lengthened to size. The front edges of the collar shall extend up so that no gap occurs at the throat. Where installed, all hook and loop fastener shall be oriented to prevent exposure to the environment. The throat tab/strap and/or collar shall facilitate adjustment when in the closed position and while wearing a breathing apparatus mask. If throat tab/strap is provided, it shall be able to be stored without creating interference to the user when not in use. A hanger loop shall be sewn to the top inside rear of the collar at the center and be constructed to withstand hanging the full weight of the coat plus any gear typically attached when stored.

3.4. **Inside Coat Pocket.** A pocket measuring no less than 7-inch by 9-inch or greater than 9-inch by 9-inch, constructed of thermal liner material and lined with moisture barrier material, shall be affixed to the inside of the coat thermal liner on the left side with the pocket thermal liner and moisture barrier bound together around the perimeter.

3.5. **Front/Inside Facings.** Separate facings shall measure 2-3-inches wide from collar to hem and double stitched to the body panels. The facing composite shall be comprised of 2-layer moisture barrier material and outer shell material. The coat thermal liner and moisture barrier shall be attached to the coat facings by means of snap fasteners.

3.6. **Front Closure System.** The coat shall be closed by means of a #10 heavy duty high temperature smooth-gliding non-conductive zipper made with plastic (polyacetal resin) that aligns each front facing. The teeth of the zipper shall be mounted on Nomex® flame resistant meta-aramid tape material. The storm flap shall measure 3-3½-inches wide and shall be centered. The outside storm flap shall include at least 1-layer of a moisture barrier material and reinforced at both ends with bar-tacks. The storm flap shall close over the left and right coat body panels and shall be secured with non-flammable and fire-resistant hook and loop fastener tape. A piece of non-flammable and fire-resistant hook and loop fastener tape shall be installed along the leading edge of the storm flap on the underside. A corresponding piece of non-flammable and fire-resistant hook and loop fastener tape shall be sewn to the front body panel and positioned to engage the loop fastener tape when the storm flap is closed over the front of the coat.

3.7. **Sleeves.** The sleeves shall be shaped so as to provide a contoured fit following the natural flex of the arm at rest. The sleeve design shall facilitate the maximum unencumbered ease of movement across the shoulders, elbows and arms with the least amount of coat rise and restriction offered by the manufacturer and properly interface with gauntlet style gloves.

3.8. **Sleeve Cuff Reinforcements.** Sleeve cuffs shall be reinforced with Ara-shield® reinforcement fabric. Cuff reinforcements shall be black in color and not be less than 2-inches in width and folded in half, approximately one half inside and one half outside the sleeve end and stitched to the sleeve end.

3.9. **Wristlets/Sleeve Wells.** Wristlets shall be constructed of a PBI blended Kevlar® or PBI blended Nomex® knit material with two construction options; 1. Full hand and wrist guards (over the hand), approximately 7”, and separate thumbhole with an approximate diameter of 2-inches shall be recessed approximately 1-inch from the leading edge, and 2.

A wrist guard that is 4" long, from the end of the thermal/moisture barrier, and has a thump loop made from flame resistant material (5/8" in width) attached to the end f the wristlet with a bartack stitch. Flame resistant barrier material impervious to fluids shall be incorporated to the inside of the sleeve shell to prevent fluids from entering the sleeve's arm and wrist area. The wristlet and coat sleeve interface shall be designed so that it will not permit a gap in thermal protection and properly interfaces with gauntlet style gloves.

3.10. **Liner Elbow Thermal Enhancement.** An additional layer of thermal liner material shall be sewn to the elbow area and stitched to the thermal liner layer only. The finished dimension shall be approximately 5-inches by 7-inches.

3.11. **Liner Shoulder and Upper Back Thermal Enhancement.** An additional layer of thermal liner material shall provide shoulder and upper back thermal enhancement to provide greater conductive and compressive heat resistance protection IAW NFPA 1971. Material shall extend over the top of each shoulder side to side from the collar to the sleeve seems. The material shall extend over the front approximately 5-inches and the back approximately 7½-inches and stitched to the thermal liner only.

3.12. **Thermal Reinforced Shoulders.** An additional layer of thermal liner material shall be positioned between the moisture barrier and thermal liner for extra thermal protection in a high heat and compression area of the coat. The added thermal layer shall be sewn to the inside of the yoke of the thermal liner. The added layer will be 0.5" smaller than the liner yoke and be serged on all sides.

3.13. **Drag Rescue Device (DRD).** The DRD shall be constructed of 1½-inch wide Kevlar® strap. The DRD shall have the ability to be "reset" without doffing the coat to reset the strap system. Access to the DRD strap will be through a covered access opening between the shoulders on the upper back with the flap secured by a non-flammable and fire-resistant hook and loop fastener tape. When a Self-Contained Breathing Apparatus (SCBA) is worn, access or function of DRD strap, access opening, or flap shall not be impeded. The outside flap shall be constructed of outer shell material and have a NFPA-compliant retroreflective and fluorescent material patch or trim sewn or heat applied laminated, segmentated to the outside of the flap to identify it as the DRD.

3.14. **Liner Access Opening (Coat).** Liner access shall be through an opening large enough to facilitate complete moisture barrier and liner inspection and securely close to prevent soiling. The thermal liner and moisture barrier shall be completely removable from the coat's outer shell.

3.15. **Method of Thermal Liner/Moisture Barrier Attachment for Coat.** The thermal liner/moisture barrier shall be secured to each coat facing and sleeve with snap fasteners. The outside perimeter of the moisture barrier and thermal liner layers shall be finished and securely bound.

3.16. **Retroreflective Fluorescent Trim.** The trim shall be reflective material, segmented fluorescent 3-inch lime-yellow fire coat comfort trim with silver center stripe to enhance nighttime and daytime visibility. Trim shall be heat transferred to garment with heat activated polyester adhesive, no stitching. Each coat sleeve shall have one (1) stripe below each elbow and two (2) horizontal stripes on the coat body IAW NFPA 1971-13 figure 6.2.3 option #1. The reflective trim shall run over pockets.

3.17. **Cargo/Hand Warmer Expansion (Bellows) Pockets.** One (1) pocket shall be provided and double stitched to the bottom of each front body panel where it can be fully utilized when used with an SCBA. The 2-inch expansion pocket shall measure no less than 8-inch wide by 8-inch high or greater than 10-inch wide by 10-inch high. For 32-inch baseline or shorter coat lengths –trim shall run over the bottom of the pockets. For 26-inch coat lengths –expansion pockets shall be either 10-inch wide by 6-inch high or 8-inches wide by 6-inches high. Two rust resistant metal drain grommets shall be installed in the bottom of each expansion pocket. Lower half of each pocket shall be reinforced with a layer of Kevlar® on the inside. Pocket flaps shall be constructed of two layers of outer shell material approximately ½-inch wider than the pocket. Upper pocket corners shall be reinforced with back-tacks and pocket flaps shall be reinforced with bar-tacks. Two pieces of non-flammable and fire-resistant hook and loop fastener tape shall be placed vertically on the inside of each pocket flap (one piece on each end). Two corresponding pieces of non-flammable and fire-resistant hook and 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 shall be provided behind the expandable cargo pocket (between the outer shell and cargo pocket). This compartment shall be accessed from the rear of the pocket and lined with flame resistant meta-aramid Nomex® fleece.

3.18. **Radio Pocket.** A portable radio pocket option shall be provided for either the left or right chest. The 2.5-inches deep pocket shall measure approximately 3.5-inches wide by 8-inches high and double stitched to the outer shell with one drainage grommet in the bottom of the pocket. The flap shall be two layers of outer shell material ¼-inch wider than the pocket width and notched on each side to accommodate a radio antenna from either side. Flap length shall measure 6-inches in length and secure by means of non-flammable and fire resistant hook and loop fastener tape. Flap hook and loop tape shall be 3-inches in length to facilitate adjustable closure. The pocket shall be lined with impervious barrier material and placed between the two layers of outer shell material in the pocket flap.

3.19. **Microphone Straps.** Two (2) straps shall be constructed of outer shell material. One (1) shall be mounted above the radio pocket and the other above the flashlight hook on the opposite chest. The microphone straps shall be 1-inch by 2-inches and sewn to the coat using two rows of stitching at the ends only.

3.20. **Flashlight Holder Hook and Retainer Strap.** A flashlight holder hook and strap shall be provided and positioned on the opposite chest chosen from the portable radio pocket.

3.20.1. **Flashlight Hook.** Hook shall face downward and inward and be triple riveted with double thickness arashield reinforcement in a vertical position to accept the clip of a flashlight.

3.20.2. **Flashlight Retainer Strap.** The retainer strap shall be a double thickness of outer shell material approximately 2-inches tall by 12-inches wide and double stitched to the coat at the middle of the strap approximately 3-inches below the flashlight hook (tip). 1½-inch by 6-inch non-flammable and fire resistant hook and loop fastener tape shall be stitched to secure the loose ends and secure a flashlight barrel.

3.21. **No Upper Chest Options.** An option shall be provided for no radio pocket, microphone straps and flashlight holder hook with retainer strap (7.17, 7.18, 7.19).

3.22. **No Radio Pocket Option.** An option shall be provided for no radio pocket (7.17).

3.23. **No Microphone Straps Option.** An option shall be provided for no microphone straps (7.18).

3.24. **No Flashlight Holder Hook and Retainer Strap Option.** An option shall be provided for no flashlight holder hook with retainer strap (7.19).

3.25. **American Flag – Right Sleeve.** A Nomex® flame resistant meta-aramid embroidered American flag or patch that measuring approximately 2½-inches high by 3½-inches wide shall be located on the right upper sleeve and oriented, so the field of stars are to the top right corner.

3.26. **Retroreflective Lettering.** As an option and not mandatory shall be provided for up to a maximum of four (4) 3-inch letters of 3M™ Scotchlite™ reflective material, segmented fluorescent 3-inch lime-yellow fire coat comfort trim block letters located on the upper back approximately centered between shoulder blades to enhance nighttime and daytime visibility. Trim shall be heat transferred to garment with heat activated polyester adhesive, no stitching. Contractor shall request customer specify one of the following options: USAF or no lettering when order is placed.

3.27. **Coat Name Patch.** A removable hanging name patch shall be constructed of a double layer of outer shell material and attach to the rear inside hem of the coat with a combination of snap fasteners and non-flammable and fire resistant hook and loop fastener tape. Letters shall be 3-inch lime/yellow retroreflective, fluorescent, with wide angle, exposed retroreflective lenses, heat applied and segmented to enhance nighttime and daytime visibility. Contractor shall request customer specify up to 12 letters per patch when order is placed.

4. STRUCTURAL FIRE FIGHTING PANTS

4.1. **Body.** The pant design shall be assembled to facilitate the maximum unencumbered ease of movement across the seat, knee and legs with the least amount of leg cuff rise and restriction. Pants shall provide a contoured fit and align at the seams and inseams with double stitching of Nomex® flame resistant meta-aramid thread.

4.2. **Pant Rise.** The rear pant rise shall exceed the front pant rise by approximately 3 to 7 inches to facilitate a 32-inch coat length and assure no gap in thermal protection.

4.3. **Pant Moisture Barrier/ Thermal Liner Attachment.** The moisture barrier/thermal liner shall separate completely from the outer shell. Snap fasteners or a combination of snap fasteners and non-flammable and fire resistant hook and loop fastener tape shall be provided along the waistband to secure it to the shell. The moisture barrier/thermal liner legs shall anchor to the shell with tabs and snap fasteners.

4.4. **Liner Access Opening (Pants).** Liner access shall be through an opening large enough to facilitate complete moisture barrier and liner inspection. This opening shall be completely secured with two strips of non-flammable and fire-resistant hook and loop fastener or overlapped and secured. The thermal liner and moisture barrier shall be completely removable from the outer shell.

4.5. **Retroreflective Fluorescent Trim.** The trim shall be reflective material, segmented fluorescent 3-inch lime-yellow fire coat comfort trim heat applied, laminated, segmented to enhance comfort, (no stitching) with silver center stripe to enhance nighttime and daytime visibility. Each leg shall have one (1) stripe encircle each leg below the knee with a single vertical strip of trim running up each outside pant leg along the seam from the top edge of the horizontal stripe to the waistline. Vertical trim shall not run over pockets. The bottom horizontal stripe shall be located approximately 3-inches above the cuff and shall run over pockets.

4.6. **External/Internal Fly Flap.** The fly flap shall measure 3-3½-inches wide and be centered to cover the zipper. The outside fly flap shall include at least 1-layer of moisture barrier material and reinforced at both ends with bar-tacks. The flap shall secure in a closed position utilizing a strip of non-flammable and fire-resistant hook and loop fastener tape. A waistband snap fastener shall also be installed to secure the pants in the closed position.

4.7. **Belt System.** A 2-inch wide black Nomex® belt with an adjustable hi-temperature thermoplastic quick-release buckle will be provided. The belt shall run through a series of tunnels or belt loops for attachment to the pants. Belt loops or tunnels shall be located on each side approximately 2-inches from the front opening for storage of the belt tab.

4.8. **Knee Construction.** The knee design shall be constructed to facilitate the maximum unencumbered ease of movement across the knee with the least amount of pant rise and restriction offered by the manufacturer to insure no restriction of movement. The knee design shall incorporate liner knee thermal enhancement, internal knee padding and two (2) options for outer shell knee reinforcements.

4.9. **Liner Knee Thermal Enhancement.** An additional layer of thermal liner material and flame resistant barrier material impervious to fluids shall be sewn to the knee area.

4.10. **Internal Knee Padding.** Padding for the knees shall be accomplished with one layer of silicone foam padding placed between the thermal liner and the moisture barrier. The padding shall be cellular silicone foam material 1/2-inch thick with a density of at least 20 lb./ft^3 and flame resistant.

4.11. **Knee Reinforcements.** The knee design shall consist of two offerings: 1.) Outer shell knee reinforcement shall be sewn into the pants (as referenced in 8.11.1.) and 2.) Outer shell knee reinforcements shall be replaceable and/or removable (as referenced in 8.11.2.).

4.11.1. **Option 1 – Knee Reinforcement- Sewn In.** The knee shall be reinforced with a layer of Ara-shield®. The knee reinforcement shall be black in color and measure 9-inches wide by 12-inches high and shall be double stitched to the outside of the outer shell in the knee area.

4.11.2. **Option 2 – Replaceable/Removable Knee Reinforcement.** The knee reinforcement shall be replaceable/removable with an outer shell layer of black Ara-shield® and shall attach securely to the knee area with non-flammable and fire-resistant hook and loop fastener tape on all sides of the knee pad.

4.11.3. **Replaceable/Removable Knee Reinforcements.** The contractor shall provide replaceable/removable knee reinforcements as a replacement part upon request.

4.12. **Expansion Pockets.** One (1) pocket shall be provided and double stitched to the side of each leg above the knee. The 2-inch expansion pocket shall measure no less than 8-inches wide by 8-inches high or greater than 10-inches wide by 10-inches high. The lower 5-inches of the inside of each pocket shall be reinforced with a layer of Kevlar®. Two rust resistant metal drain grommets shall be installed in the bottom of each expansion pocket. Pocket flaps shall be constructed of two layers of outer shell material approximately ½-inch wider than the pocket and measure approximately 3-inches larger than the pocket expansion. Upper pocket corners shall be reinforced with back-tacks and pocket flaps shall be reinforced with bar-tacks. Two pieces of non-flammable and fire resistant hook and loop fastener tape shall be placed vertically on the inside of each flap (one piece on each end). Two corresponding pieces of non-flammable and fire resistant hook and loop fastener tape shall be installed horizontally on the outside of each pocket near the top (one piece on each end).

4.12.1. **Three Section Tool Compartment (Right Side).** The right expansion pocket shall incorporate a tool pocket constructed of Kevlar® measuring approximately 8-inches high by 10-inches wide. Three pockets shall be installed on the inside of the pocket with double stitching and measure 8-inches high, approximately 3-inches wide each and set side-by-side.

4.13. **Bellow Search Pockets.** Bellow search pockets shall consist of two offerings: 1.) No bellow search pockets (as referenced in 8.13.1.). Bellow search pockets shall be included (as referenced in 8.13.2.).

4.13.1. **Option 1 – No Bellow Search Pockets.** The pockets shall not be included.

4.13.2. **Option 2 – Bellow Search Pockets included.** A bellowed pocket, measuring approximately 2-inches deep by 5-inches wide by 8-inches high shall be double stitched to the side (approximately centered over the side seam) of each leg below the knee. The inside bottom 5-inches of each pocket shall be reinforced with a layer of Kevlar®. One rust resistant metal drain grommet shall be installed in the bottom of each pocket. The pocket flap shall be constructed of two layers of outer shell material and extend approximately ½-inch wider than the pocket. The pocket flaps shall be closed by means of non-flammable and fire resistant hook and loop fastener tape. One piece of non-flammable and fire resistant hook and loop fastener tape shall be installed vertically on the inside center of each pocket flap. A corresponding piece of non-flammable and fire resistant hook and loop fastener tape shall be installed horizontally on the outside of each pocket near the top center to engage the flap hook and fastener tape.

4.14. **Pant Cuff Reinforcements.** Pant cuffs shall be reinforced with Ara-shield®. The cuff reinforcements shall be black in color and not be less than 2-inches in total width and folded in half so that approximately one half is inside and one half is outside of the leg cuff.

4.15. **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.

4.16. **Adjustable Suspenders.** Suspender system shall be "H" style construction of 2-inch wide strapping. The shoulder area of the suspenders shall be padded for comfort by fully encasing the strapping with aramid batting and wrap-around black flame resistant meta-aramid. The chest area webbing shall incorporate hardware that provides easy adjustment and quick releases with no unintended webbing slippage.

4.16.1. **Suspender Ends.** The ends of the suspender system shall terminate with elasticized webbing suspender attachments and leather ends that facilitate pant suspender buttons described in 8.17.2. which secures the suspender system to the pants.

4.16.2. **Pant Suspender Attachment.** The outside pant waistband shall have 6 to 8 suspender attachment buttons configured with either 2 or 4 buttons in the rear and 4 buttons in front.

4.16.3. **Suspender Sizing.** Suspenders shall be available in four (4) lengths; long, regular, short and X-short or equivalent lengths.

4.16.4. **Suspender Replacements**. The contractor shall provide suspenders as a replacement part upon request.

5. FIREFIGHTING HELMETS

5.1. **STRUCTURAL FIREFIGHTING HELMET.** Helmets for Structural firefighting shall meet or exceed NFPA 1971*, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting,* when configured with a compliant shell, energy absorbing system, retention system, ear/neck covers, fluorescent and retroreflective trim on the exterior, ear covers, and 4-inch attached faceshield, internally Integrated Visor or goggles permitted attached or unattached., including those not assembled to the helmet.

5.2. **Structural Firefighting, Traditional Style Structural Firefighting, Proximity Firefighting and Technical Rescue.** Structural, (including Traditional Style) and Proximity helmets shall have the capability to meet or exceed NFPA 1971, *Standard on Protective Ensembles for Structural Firefighting and Proximity Firefighting,* and Technical Rescue helmets shall have the capability to meet or exceed NFPA 1951, *Standard on Protective Ensembles for Technical Rescue Incidents*. Helmet may meet multiple NFPA Standards but shall be offered in each singular configuration (structural, traditional style, proximity and technical rescue) for purchase.

5.3. **Labels.** Appropriate warning label(s) shall be permanently affixed to all helmets. Additionally, the label(s) shall include the following information.

5.3.1. Compliance to applicable NFPA Standard.

5.3.2. Underwriters' Laboratories (UL), Safety Equipment Institute (SEI), Intelligent Transportation Systems (ITS)/Electrical Testing Lab (ETL) or other certifier's mark.

5.3.3. A complete users information guide shall be included with each helmet in accordance with NFPA 1971, paragraph 5.4.4.

5.4. **Weight.** Structural Firefighting Helmet with a compliant Fire Retardant (FR) ear/neck protector and NFPA 1971 compliant faceshield, integrated visor, or goggles shall not exceed 54.5 ounces (3.40 lbs.).

5.5. **Profile.** Helmet shall be a modern/contemporary/traditional style with a condensed side and rear brim design to facilitate search of restricted spaces with reduction of weight and Self Contained Breathing Apparatus (SCBA) interference. It shall have a bottom length of no more than 13-inches measuring the bottom brim from front to back, and a bottom brim width of no wider than 11-inches behind the faceshield attachment hardware points.

5.6. **Outer Shell.** Shell shall be heat-resistant thermoplastic or equal material and contemporary styled with colors available in white, yellow, red, black, blue, orange and lime-yellow. The edge of the outer shell shall have aluminum reinforced edging that secures at the rear of the brim by stainless steel or anodized aluminum clip and D-ring.

5.7. **Energy Absorbing System.** The energy absorbing system shall include a heat-resistant nylon with heat deflection temperature >180°C for ASTM D648, 0.45 MPa. The urethane foam liner shall be formed without the use of CFCs to eliminate the potential for additional expansion when subjected to heat during actual use. The black inner shell shall have four 1-inch x 3-inch pieces of adhesive backed hook material attached, two to each side, to secure the ear/neck protector at the sides of the inner shell or equal acceptable energy absorbing system configuration.

5.8. **Frontal Helmet Identifier.** The contractor shall provide a leather frontal helmet identifier affixed to the helmet. The helmet identifier will include.

5.8.1. Identifier shall be offered with background colors of either red, black, or white and foreground colors of either red, black, or white. Font colors shall be offered in either red, black, or white.

5.8.2. Top arched text shall be open to base or up to manufacturer's maximum size.

5.8.3. Bottom text shall state USAF (or equivalent military branch).

5.8.4. Center shall be duty position or graphic art decals offered by the manufacturer.

5.9. **Headband System.** The headband shall have a quick-adjustment ratcheting capability for sizing that attaches to a heat-resistant nylon headband. Headband shall also be adjustable to raise or lower to enhance fit and comfort.

5.10. **Brow Pad.** The brow pad shall be a cushioned Fire Retardant (FR) cotton material at the forehead and extend to the rear for stability and comfort. Brow pad shall be detachable by hook and loop fastener material to permit removal for laundering and replacement. Stitched attachment to the headband will not be permitted.

5.11. **Chin Strap.** The chin strap shall be 3/4-inch black Fire Retardant (FR) or equivalent strapping with quick-release capability. Strapping shall be anchored to the outer shell on both sides with quick-release buckle located to the right side and strap adjustment to the left side.

5.12. **Ear/Neck Protector.** The ear/neck protector shall be rip-stop Fire Retardant (FR) or equivalent outer shell with two layers of FR cotton flannel. Ear/neck protector shall

attach to the interior of the inner shell unit and have the following minimum coverage to the sides and rear of the helmet brim.

5.12.1. 6-inches to the sides of the helmet at the chinstrap anchors.

5.12.2. 6-1/2-inches to the center rear at the helmet brim.

5.13. **Structural Faceshield.** Structural faceshield shall be NFPA 1971 compliant for wear when structural firefighting or performing technical rescue. In addition, faceshield shall be certified to meet the optic requirements of ANSI/ISEA Z87.1, *Standard for Eye and Face Protection*. The faceshield shall retract 90 degrees when stowed and mount to the outer shell with a tensioning hand wheel. Mounting brackets shall attach to the outer shell with 4 stainless steel bolts and nuts. Structural faceshields shall be offered in two options:

5.13.1. **Option 1 – Four Inch Faceshield.** The faceshield shall be hard-coated high heat thermoplastic with 4-inches by 15-inches of vertical protection and contoured to the front helmet brim.

5.13.2. **Option 2 – Six Inch Faceshield.** The faceshield shall be hard-coated high heat thermoplastic with 6-inches of vertical protection and contoured to the front helmet brim.

5.14. **Retro-Reflective Trim.** Outer shell shall have 5 – 1-inch x 4-inch fluorescent lime-yellow, retro-reflective glass bead based labels or markings around the outer shell.

6. **PROXIMITY FIREFIGHTING HELMET.** Helmets for Proximity firefighting shall meet or exceed NFPA 1971*, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting,* when configured with a compliant shell, energy absorbing system, retention system, proximity shell cover, proximity shroud, and 6-inch proximity faceshield.

6.1. **Weight.** Proximity Firefighting Helmet with an aluminized helmet shell cover, three-layer aluminized shroud, and 6-inch gold-coated faceshield shall not exceed 73 oz.

6.2. **Profile.** Helmet shall be a modern/contemporary style with a condensed side and rear brim design to facilitate search of restricted spaces with reduction of weight and SCBA interference. It shall have a bottom length of no more than 13-inches measuring the bottom brim from front to back, and a bottom brim width of no wider than 10-3/4-inches behind the faceshield attachment hardware points.

6.3. **Radiant Protective Performance (RPP).** The proximity aluminized helmet shell cover, aluminized shroud, and 6-inch faceshield shall have a minimum RPP rating of 20 seconds.

6.4. **Aluminized Shell Cover/Shroud Material.** GENTEX® is known to meet the salient features/specifications for the Aluminized Outer Shell Style.

6.5. **Aluminized Helmet Shell Cover.** An aluminized helmet shell cover shall securely fit to the helmet shell.

6.6. **Aluminized Shroud.** A three-layered aluminized shroud shall consist of and be constructed of aluminized outer shell material as described in 7.4. above, meta/para aramid moisture barrier and meta/para aramid quilt thermal liner. Aluminized Shrouds shall be offered in two options:

6.6.1. **Option 1 – NFPA Length Shroud.** The shroud shall meet or exceed NFPA 1971*, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting,* current edition.

6.6.2. **Option 2 – Extended Chemical Biological, Radiological and Nuclear (CBRN) Length Shroud.** The shroud shall have a length long enough to provide radiant and thermal protection to the air-purified respirator (APR) filter canister and hose when properly worn over the shoulder and attached to Mine Safety Appliance (MSA) M7 SCBA or equal responder mask currently used by AF firefighters for CBRN operations.

6.7. **Outer Shell.** Shell shall be heat-resistant thermoplastic or equal and contemporary styled with colors available in white, yellow, red, black, blue, orange and lime-yellow. The edge of the outer shell shall have aluminum reinforced edging that secures at the rear of the brim by stainless steel clip and D-ring.

6.8. **Energy Absorbing System.** The energy absorbing system shall include a heat-resistant nylon with heat deflection temperature >180°C for ASTM D648, 0.45 MPa. The urethane foam liner shall be formed without the use of CFCs to eliminate the potential for additional expansion when subjected to heat during actual use. The black inner shell shall have four 1-inch x 3-inch pieces of adhesive backed hook material attached, two to each side, to secure the ear/neck protector at the sides of the inner shell or equal acceptable energy absorbing system configuration.

6.9. **Headband System.** The headband shall have a quick adjustment ratcheting capability for sizing that attaches to a heat-resistant nylon headband. Headband shall also be adjustable to raise or lower to enhance fit and comfort.

6.10. **Brow Pad.** The brow pad shall be a cushioned Fire Retardant (FR) cotton material at the forehead and extend to the rear for stability and comfort. Brow pad shall be detachable by hook and loop fastener material to permit removal for laundering and replacement. Stitched attachment to the headband will not be permitted.

6.11. **Chin Strap.** The chin strap shall be 3/4-inch black Fire Retardant (FR) or equivalent strapping with quick-release capability. Strapping shall be anchored to the outer shell on both sides with quick-release buckle located to the right side and strap adjustment to the left side.

6.12. **Six Inch Gold-Coated Faceshield.** The faceshield shall be gold-coated, high heat thermoplastic with 6-inches of vertical protection and contoured to the front helmet brim. Faceshield shall be NFPA 1971 compliant for wear when proximity firefighting. The faceshield shall retract 90 degrees when stowed and mount to the outer shell with a tensioning handwheel. Mounting brackets shall attach to the outer shell with 4 stainless steel bolts and nuts.

7. **TECHNICAL RESCUE HELMET.** Helmets for Technical Rescue shall meet or exceed NFPA 1951, *Standard on Protective Ensembles for Technical Rescue Incidents,* and NFPA 1971, *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting,* when configured with compliant quick-attach goggles.

7.1. **Weight.** Technical Rescue Helmet with goggles shall not exceed 50 oz.

7.2. **Profile.** Helmet shall be a modern/contemporary style with a condensed side and rear brim design to facilitate search of restricted spaces with reduction of weight and SCBA interference. It shall have a bottom length of no more than 12-inches measuring the bottom brim from front to back, and a bottom brim width of no wider than 10-3/4-inches behind the faceshield or goggle attachment hardware points.

7.3. **Outer Shell.** Shell shall be heat-resistant thermoplastic or equal and contemporary styled with colors available in white, yellow, red, black, blue, orange and lime-yellow. The edge of the outer shell shall have aluminum reinforced edging that secures at the rear of the brim by stainless steel clip and D-ring.

7.4. **Energy Absorbing System.** The energy absorbing system shall include a heat-resistant nylon with heat deflection temperature >180°C for ASTM D648, 0.45 MPa. The urethane foam liner shall be formed without the use of CFCs to eliminate the potential for additional expansion when subjected to heat during actual use. The black inner shell shall have four 1-inch x 3-inch pieces of adhesive backed hook material attached, two to each side, to secure the ear/neck protector at the sides of the inner shell or equal acceptable energy absorbing system configuration.

7.5. **Frontal Helmet Identifier.** The contractor shall provide a leather frontal helmet identifier affixed to the helmet. The helmet identifier will include:

7.5.1. Identifier shall be offered with background colors of either red or white and foreground colors of either black or white. Font colors shall be offered in either black or red.

7.5.2. Top arched text shall be open to base or up to manufacturer's maximum size.

7.5.3. Bottom text shall state USAF (or equivalent military branch).

7.5.4. Center shall be duty position or graphic art decals offered by the manufacturer.

7.6. **Headband System.** The headband shall have a quick-adjustment ratcheting capability for sizing that attaches to a heat-resistant nylon headband. Headband shall also be adjustable to raise or lower to enhance fit and comfort.

7.7. **Brow Pad.** The brow pad shall be a cushioned Fire Retardant (FR) cotton material at the forehead and extend to the rear for stability and comfort. Brow pad shall be detachable by hook and loop fastener material to permit removal for laundering and replacement. Stitched attachment to the headband will not be permitted.

7.8. **Chin Strap.** The chin strap shall be 3/4-inch black Fire Retardant (FR) strapping with quick-release capability. Strapping shall be anchored to the outer shell on both sides with quick-release buckle located to the right side and strap adjustment to the left side.

7.9. **Ear/Neck Protector.** The ear/neck protector shall be rip-stop Fire Retardant (FR) outer shell with two layers of FR cotton flannel. Ear/neck protector shall attach to the interior of the inner shell unit and have the following minimum coverage to the sides and rear of the helmet brim.

7.9.1. 6-inches to the sides of the helmet at the chinstrap anchors.

7.9.2. 6-1/2-inches to the center rear at the helmet brim.

7.10. **Four Inch Faceshield Option.** The faceshield shall be hard-coated high heat thermoplastic with 4-inches of vertical protection and contoured to the front helmet brim. Faceshield shall be NFPA 1971 compliant for wear when structural firefighting or performing technical rescue. In addition, faceshield shall be certified to meet the optic requirements of ANSI/ISEA Z87.1, *Standard for Eye and Face Protection*. The faceshield shall retract 90 degrees when stowed and mount to the outer shell with a tensioning handwheel. Mounting brackets shall attach to the outer shell with 4 stainless steel bolts and nuts.

7.11. **Goggles.** Contractor shall offer goggles option that are NFPA 1971 compliant for wear when structural firefighting or performing technical rescue. In addition, goggles shall be certified to meet the optic requirements of ANSI/ISEA Z87.1. Goggle frames shall be flame and heat-resistant, accommodate most prescription eyewear, and ventilated. Lens shall offer high clarity without distortion and be anti-fog, scratch and impact resistant, and meet MIL Spec (MIL-DTL-43511D) for .22 caliber ballistic impact. Strap shall be 1-inch Fire Retardant (FR) that easily adjusts for secure fit while wearing gloves.

7.12. **Retro-Reflective Trim.** Outer shell shall have 5 – 1-inch x 4-inch fluorescent lime-yellow, retro-reflective glass bead-based labels or markings around the outer shell.

8. **TRADITIONAL STYLE STRUCTURAL FIREFIGHTING HELMET.** Helmets for Structural Firefighting shall meet or exceed NFPA 1971*, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting,* when configured with a compliant shell, energy absorbing system, retention system, ear/neck covers, fluorescent and retroreflective trim on the exterior, ear covers, and 4-inch attached faceshield, internally integrated visor type or goggles permitted unattached, not assembled to the helmet.

8.1. **Weight.** Traditional Style Structural Firefighting Helmet with a Fire Retardant (FR) or equivalent ear/neck protector and NFPA 1971 compliant faceshield, integrated visor, or goggles shall not exceed 54.5 ounces (3.40 lbs.).

8.2. **Profile.** Helmet shall be a modern/traditional style with a flared, rear-brim with a length of 15-5/8 inch, width shall be 12” and the height of no more than 7”.

8.3. **Outer Shell.** Shell shall be heat-resistant composite fiberglass with a thermoset fire retardant resin or equal material and contemporary styled with colors available in white, yellow, red, black, blue, orange and lime-yellow. The edge of the outer shell shall have aluminum reinforced edging that secures at the rear of the brim by stainless steel or anodized aluminum clip and D-ring.

8.4. **Energy Absorbing System.** The energy absorbing system shall include a heat-resistant nylon with heat deflection temperature >180°C for ASTM D648, 0.45 MPa. The urethane foam liner shall be formed without the use of CFCs to eliminate the potential for additional expansion when subjected to heat during actual use. The black inner shell shall have four 1-inch x 3-inch pieces of adhesive backed hook material attached, two to each side, to secure the ear/neck protector at the sides of the inner shell or equal acceptable energy absorbing system configuration.

8.5. **Frontal Helmet Identifier.** The contractor shall provide a leather frontal helmet identifier affixed to the helmet. The helmet identifier will include:

8.5.1. Identifier shall be offered with background colors of either red, black, or white and foreground colors of either red, black, or white. Font colors shall be offered in either red, black, or white.

8.5.2. Top arched text shall be open to base or up to manufacturer's maximum size.

8.5.3. Bottom text shall state USAF (or equivalent military branch).

8.5.4. Center shall be duty position or graphic art decals offered by the manufacturer.

8.6. **Headband System.** The helmet shall have a quick-adjustment sizing capability by means of a ratchet adjustment system attached to a heat-resistant nylon headband. The headband shall be attached to the inner shell by four black acetal buttons which connects to two "U"-shaped thermoplastic adjustment components at the front and rear of the headband. These mechanisms shall allow the wearer six (6) unique combinations of pitch and ride height adjustments at both the front and rear of the headband for a total of thirty-six (36) discrete adjustment settings. The headband height adjuster shall permit at least 1" of travel by means of three height adjustment keys for proper fit. This adjustment shall not affect the height of the helmet on the firefighter's head. The rear adjustment component shall have a 3/4" piece of adhesive-backed hook and pile tape material attached at the center rear of this component to secure the rear portion of the ear/neck protector.

8.7. **Brow Pad.** The headband shall be supplied with a fire retardant (FR) cotton brow pad sewn around the perimeter, backed with foam cushion padding material at the forehead, that is removable for laundering and replacement. Attachment to the headband with stitching will not be permitted.

8.8. **Chin Strap.** The chin strap shall be 3/4-inch black Fire Retardant (FR) or equivalent strapping with quick-release capability. The male side of the quick-release buckle shall be anchored to the right side of the outer shell with a dielectric anchor block or equivalent with dog-bone washer secured to the mounting bracket with two stainless steel screws seated in thermoplastic sleeves. For helmets with an internal integrated visor, the chinstrap shall be secured on each side with three stainless steel screws: the front two screws attaching with a dielectric anchor block, the rear screw secured via acorn nut. The long portion of the chinstrap with the female side of the quick-release buckle and the postman's slide fastener shall be attached to the left side of the outer shell in the same manner. When the chinstrap is connected and fully extended, maximum length shall be at least 24" when measured from one anchor block to the opposite anchor block.

8.9. **Ear/Neck Protector.** The ear/neck protector shall be rip-stop Fire Retardant (FR) outer shell with three layers of FR cotton flannel comfort and protection. Ear/neck protector shall attach to the interior of the inner shell unit and have the following minimum coverage to the sides and rear of the helmet brim.

8.9.1. 6-inches to the sides of the helmet at the chinstrap anchors.

8.9.2. 6-1/2-inches to the center rear at the helmet brim.

8.10. **Structural Faceshield/Eye Protection.** Structural faceshield and/or eye protection shall be NFPA 1971 compliant for wear when structural firefighting or performing

technical rescue. In addition, faceshield shall be certified to meet the optic requirements of ANSI/ISEA Z87.1, *Standard for Eye and Face Protection*. The faceshield shall retract 90 degrees when stowed and mount to the outer shell with a tensioning hand wheel. Mounting brackets shall attach to the outer shell with 4 stainless steel bolts and nuts. Traditional Style Helmet structural faceshields shall be offered with a Four Inch Faceshield (as referenced in 6.10.) or without the integrated internal visor.

8.11. **Four Inch Faceshield.** The faceshield shall be hard-coated high heat thermoplastic with 4-inches by 15-inches of vertical protection and contoured to the front helmet brim. The faceshield shall be certified to meet the optic requirements of ANSI/ISEA Z87.1. This certification shall be in addition to compliance with NFPA 1971 requirements for heat and impact performance. The faceshield shall be mounted to the brim of the outer shell by a glass-reinforced, flame resistant, nylon handwheel/stainless steel threaded stud attached to a brass T-nut which is supported by washer and mounting bracket.

8.12. **Aluminized Shroud.** A three-layered aluminized shroud shall consist of and be constructed of aluminized outer shell material in 7.4. above, meta/para-aramid moisture barrier and meta/para aramid quilt thermal liner. Aluminized Shrouds shall be offered in two options:

8.12.1. **Option 1 – NFPA Length Shroud.** The shroud shall meet or exceed NFPA 1971*, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting,* current edition.

8.12.2. **Option 2 – Extended CBRN Length Shroud.** The shroud shall have a length long enough to provide radiant and thermal protection to the air-purified respirator (APR) filter canister and hose when properly worn over the shoulder and attached to MSA M7 or equal responder mask currently used by AF firefighters for CBRN operations.

8.13. **Goggles.** The goggle shall be full-perimeter filtered ventilated around the dark-gray molded frame. The lens shall be 2.8mm polycarbonate with anti-fog and anti-scratch coatings. The goggle shall be certified to meet the optic requirements of ANSI/ISEA Z87.1. The goggle strap system shall include a quick adjustment for length/tension that can be used while wearing firefighter gloves. The goggle shall be retained by either a direct connection of two goggle straps that attach to the left and right sides of the inner shell system, or via a full goggle strap that fit around the outer shell.

8.14. **Retro-Reflective Trim.** Outer shell shall have 8 pentagon shaped, fluorescent lime-yellow, retro-reflective markings equidistantly located around the circumference of the dome. The reflective materials shall be glass bead or equivalent based to maximize the resistance to heat exposure experienced in firefighting.

9. **Replacement Parts.** The contractor shall provide replacement parts for helmets to include.

9.1.1. Chin Straps

9.1.2. Neck/Ear Protectors

9.1.3. Inner Crown System

9.1.4. Shrouds

9.1.5. Covers

9.1.6. 4 inch Faceshield

9.1.7. 6 inch Faceshield

9.1.8. Goggles or internal integrated visor

9.1.9. Frontal Helmet Identifier

9.1.10. Contractor shall offer all commercially available replacement parts in addition to the 9 listed above.