



# **SAN DIEGO FIRE-RESCUE**

## **TURNOUT SPECIFICATION**

**2007**

Fire Protective Coats and Trousers.

## 2.0 Scope

Request for Proposal:

Vendors responding to this Request for Proposal (RFP) shall meet the San Diego Fire-Rescue Turnout specifications below and provide samples and bid prices for all items listed. The proposals will be evaluated by members of the San Diego Fire-Rescue Department for fit, function, performance, price, ease of maintenance and compliance with this specification. The successful vendor will supply Fire Protective Coats, Pants and the option of Accountability Panels from only one manufacturer on an "as needed" basis during the contract period beginning on or about January 1, 2007, for a two (2) year period.

### DESCRIPTION

Fire Protective Turnout Coat per San Diego Fire minimum specification  
Fire Protective Turnout Trousers per San Diego Fire minimum specification  
Removable Accountability Panels

## 2.1 General

To supply state of the art fire protective turnout coats and trousers for use by the San Diego Fire-Rescue Department. It is intended that the successful bidder shall use materials and design practices that are the best available in the industry for heavy duty use in structural fire fighting, to which fire protective turnout coats and trousers will be subject.

The garments shall be manufactured in North America.

- 2.1.1 Items shall be complete with all equipment and accessories necessary for safe and efficient use, and shall be delivered as complete units.
- 2.1.2 If any of the parts or components bid vary from the specification, such variations must be listed in writing and attached as part of the proposal. **NO EXCEPTIONS TO THIS PARAGRAPH.**

## 2.2 Bidder's Conference

- 2.2.1 The City of San Diego will host a pre-bid conference on May **XX**, 2006. This conference will afford all interested manufacturers and/or vendors an opportunity to seek clarification on the following specifications.
- 2.2.2 Bidders are encouraged to bring examples of suggested variances from the specification to facilitate review and potential accommodation.

## 2.3 Samples

### 2.3.1 (RFP) Sample

All bidders responding to this RFP shall submit one (1) sample of their items offered for review, examination, and evaluation, on or before **RFP close date XX, 2006**. Bidders shall submit a minimum of one (1) each of the following:

Fire Protective Coat	One size 48 chest x 35 length x 37 sleeve
Fire Protective Trousers	One size 36 waist X 34 length
Removable Accountability Panel	One 3 ½" tall x 18" wide
Complete Knee Makeup	One continuous piece 12" x 24"
Complete Back Yoke Makeup	One continuous piece 12" x 24"
Complete Shoulder Cap Makeup	One continuous piece 12" x 24"
Complete Ensemble Materials Makeup	One continuous piece 36" x 72"
Outer Shell	
Moisture Barrier	
Thermal liner	

### 2.3.2 Evaluation Samples (6 each)

- 2.3.2.1 In addition to the RFP sample (described above) selected bidders will be notified to provide six (6) Coats, six (6) Pants, and six (6) Removable Accountability Panels for evaluation.
- 2.3.2.2 The fittings for the evaluation samples shall be by the bidder on a date and time set by the San Diego Fire-Rescue Department, for six (6) of the test units at the San Diego Fire-Rescue Department, Storeroom 42, at 3870 Kearny Villa Rd., San Diego, CA 92123, approximately one to two weeks after the proposal close date.
- 2.3.2.3 The evaluation samples shall not have any manufacturer identification anywhere on the garment such as patches, logos or trade names. **NO EXCEPTIONS**
- 2.3.2.4 There shall be no contact by the bidder or manufacturer representative to any of the evaluators except for the time allotted for the fitting of the evaluation sets. Any

contact or attempted contact may be grounds for removal from the proposal process. **NO EXCEPTIONS**

2.3.2.5 All evaluation samples shall be delivered to San Diego Fire-Rescue Department Storeroom 42 no later than (30) thirty calendar days after the sizing date. **NO EXCEPTIONS**

2.3.2.6 Any item(s) submitted shall be at no cost or obligation to:

San Diego Fire-Rescue Department  
Support Services  
3870 Kearny Villa Road  
San Diego, CA 92123

2.3.2.7 The samples shall be manufactured to meet the current edition of NFPA 1971.

2.3.2.8 The RFP sample submitted shall create an express warranty that the whole of the goods shall conform to the sample submitted. All samples become the property of the City of San Diego Fire-Rescue Department. At the conclusion of the evaluation, the evaluation samples will be retained by the San Diego Fire-Rescue Department but will not be issued for use.

## **2.4 Inspections**

2.4.1 All merchandise, i.e. fire protective coats and trousers, shall be inspected before acceptance by an authorized representative of the San Diego Fire-Rescue Department for workmanship, appearance, proper function of all components, and conformance to these specifications. Failure in compliance will be cause for the purchaser to reject all or part of the ordered units. Should deficiencies be found, it shall be the responsibility of the supplier to pack and return the unit(s) in question, make necessary corrections or replacements, then return to San Diego Fire-Rescue Department for re-inspection and acceptance.

2.4.2 NOTE: Payment and/or commencement of discount period (if applicable) will not be made until all corrections have been made and units have been accepted.

## **2.5 Guarantee**

2.5.1 Manufacturer delivering merchandise against this specification shall guarantee that it meets all requirements set forth herein and the requirements of NFPA 1971, most current edition. If it is found that the merchandise does not meet the requirements of this specification, the supplier will be required to correct merchandise at supplier's expense.

## **2.6 Warranty**

- 2.6.1 A minimum of a two (2) year manufacturer's warranty from date turnout garment was placed into service shall be provided on materials and workmanship.
- 2.6.2 A life of garment warranty shall be provided for all required labels. This warranty shall cover detachment and/or illegibility of the label.
- 2.6.3 A copy of the manufacturer's warranty shall be included with bid submittal.
- 2.6.4 The vendor shall be responsible for all packaging and transportation costs incurred during the warranty period.

## **2.7 Delivery**

- 2.7.1 Deliveries shall be made to the City of San Diego Fire-Rescue Department, Storeroom 42, 3870 Kearny Villa Rd., San Diego, CA 92123 between 0800 and 1500 hours, Monday through Friday. No holiday deliveries will be accepted. Partial shipments will be accepted on individual release; however, payment will not be made until the release order is complete.

### **2.7.2 Penalty**

Deliveries shall be completed within (65) sixty-five days of receipt of purchase order. After (75) seventy-five days, vendor will be fined (10%) ten percent of entire purchase price per week or portion there of. Supply circumstances beyond the control of the manufacturer, as agreed upon by a representative of San Diego Fire-Rescue Department, will allow for a penalty exemption.

## **2.8 Pre-Construction Conference**

- 2.8.1 There shall be a pre-construction conference for fire protective coats and trousers, with the successful bidder and up to four (4) representatives of The San Diego Fire-Rescue Department. This conference shall be at the manufacturer's factory at a mutually agreed time prior to commencement of construction of the turnout coats and trousers. This conference shall be at no cost to the City of San Diego.

## **2.9 Option to Extend**

The City of San Diego may, at their option and with the approval of the Contractor, extend the period of this agreement up to three (3) additional years, in one (1) year increments. Contractor shall be notified in writing by the Purchasing Department, of the City's intention to extend the contract period at least sixty (60) calendar days prior to the expiration of the original contract period.

### 3.0 Minimum Specifications for Fire Protective Coat and Trouser

The awarded RFP contract shall be for coat, trousers, and accountability panels and from one manufacturer only.

#### **NO EXCEPTIONS**

#### 3.0.1 Trade names

a. PBI Gold Plus with Matrix™	Safety Components Fabric Technology
b. Glide™	Safety Components Fabric Technology
c. Gemini PBI Matrix™	Southern Mills
d. Crosstech®	W.L. Gore
e. E-89™, Kevlar®, Nomex®, Teflon®	DuPont
f. Scotchlite™	3M
g. Firefighter Recovery Harness(DRD)	Lion Apparel
h. Basofil®	BASF/Norfab
i. Aluminized PBI/Kevlar	Gentex
j. RT7100™	W.L. Gore

#### 3.0.2 Outer Shell Material

The outer shell shall be either PBI Gold Plus with Matrix™ or Gemini PBI Matrix™ **NO EXCEPTIONS.**

- a. PBI Gold Plus with Matrix™, stop weave 40% PBI®/60%Kevlar®, with FPE water resistant Teflon® FPE alloy, which is a durable water-repellent finish. The outer shell shall be constructed with a 600 denier cable of High Strength filament fiber in a “Matrix Technology”. Outer shell material shall weigh 7.2 oz./sq.yd. (+ or - .2oz.). Color shall be natural.
- b. Gemini PBI Matrix™. The outer shell shall be constructed of 40% PBI®/60% Kevlar® blend of spun fibers and 400 denier High Strength Filament fibers in a “Matrix Technology”. The outer shell material will be treated with **SST™ (SUPER SHELLTITE)** which is a durable water-repellent finish. Outer shell material shall weigh 7.2 oz./sq.yd. (+ or - .2oz.). Color shall be natural.

#### c. 3.0.3 Moisture Barrier Material

- a. The moisture barrier shall be two layer Crosstech® – Type 2c, which is comprised of a Crosstech® membrane laminated to a 3.2 oz. Nomex® pajama check substrate. **NO EXCEPTIONS.**
- b. All moisture barrier seams shall be sealed with Gore-Seam tape using a Series 5000EF Gore-Seam sealing machine. **NO EXCEPTIONS.**
- c. All edges shall be finished so no raw edges are exposed.

### 3.0.4 Thermal Liner Material

- a. The preferred thermal liner material is 3.5 oz./sq. yd. Glide™ (Nomex® filament/spun) face cloth quilted to 1 layer E-89™ spunlace aramid 85% Nomex®/15% Kevlar® weighing approximately 2.3oz/sq. yd. with a Teflon® finish. And one (1) layer of apertured (11-13 apertures/sq. inch) E-89™ spunlace Aramid 85% Nomex®/15% Kevlar® weighing approximately 1.5 oz./sq. yd with a Teflon® finish with a Crosstech moisture barrier in the middle. (Total weight +/- 7.3 oz./sq. yd.)

Alternate thermal liner ie. Caldura Silver SL material may be submitted except for the use of Basofil or Basofil blends section 3.0.1 (h) which shall not be allowed.

**No Exceptions.**

- b. The preferred thermal liner reinforcement material is 3.0+ oz./sq. yd. Nomex® Chambray face cloth with a Teflon® finish face cloth quilted to 1 layer E-89® spunlace aramid 85%Nomex®/15% Kevlar® weighing approximately 2.3 oz./sq. yd., with a Teflon® finish, and 1 layer of apertured (11-13 apertures/sq. inch) E-89® spunlace Aramid 85% Nomex®/15% Kevlar® weighing approximately 1.5 oz./sq. yd. With a Teflon® finish. The completed moisture barrier and thermal liner assembly shall have a nominal weight of approximately 7.3 ounces per square yard. Alternate thermal liner ie. Caldura Silver SL material may be submitted except for the use of Basofil or Basofil blends section 3.0.1 (h) which shall not be allowed. **NO EXCEPTIONS.**

### 3.0.5 Performance Requirements, TPP, THL, and CCHR

Composite Requirements on Thermal Protective Performance (TPP), Total Heat Loss (THL) and Conductive and Compressive Heat Resistance (CCHR), shall be based on a three - layer garment, consisting of an outer shell, moisture barrier and thermal liner.

- a. The composite shall have a THERMAL PROTECTIVE PERFORMANCE (TPP) after initial washing of not less than 40 when tested in accordance with NFPA 1971, most current edition. **NO EXCEPTIONS.**
- b. The composite shall have a TOTAL HEAT LOSS (THL) rating of not less than 270 in accordance with NFPA 1971. **NO EXCEPTIONS.**
- c. The composite shall have a CONDUCTIVE COMPRESSION HEAT RESISTANCE RATING (CCHR) rating of not less than 40 wet in the shoulder cap area of the jacket. This rating shall be uniform, with no gaps in protection, throughout the shoulder area. The pant knee area shall exhibit a CCHR rating of not less than 40 both wet and dry. This rating shall be uniform throughout the knee and cover the area under the knee reinforcement. In accordance with NFPA. (See section on knee reinforcement). **NO EXCEPTIONS.**

### 3.0.6 Retro-reflective Trim

The retro-reflective trim shall be three (3") inch Scotchlite™ II, triple trim #9487, Lime yellow and silver.

### 3.0.7 **Hook & Loop**

All hook & loop fastener tape shall be manufactured black in color and flame resistant.

### 3.0.8 **Certification**

- a. All components and composites used in the construction of garments shall be third-party tested, certified, and listed for compliance to NFPA 1971, most current edition and be included with the initial turnout sample.
- b. The certification label of the third-party tester shall denote such certification.
- c. To ensure that garments manufactured to this specification consistently meet established levels of quality control and are constructed to this specification, the successful manufacturer shall be certified to ISO 9001.

### 3.0.9 **Garment Labeling and Identification**

Each garment shall have a garment label(s) permanently and conspicuously attached stating at least the following language, as well as detailed warning instructions provided by the manufacturer.

- a. THIS GARMENT MEETS THE GARMENT REQUIREMENTS OF NFPA 1971, STANDARD ON PROTECTIVE ENSEMBLE FOR STRUCTURAL FIRE FIGHTING, (most current) EDITION
- b. Each individual garment shall bear, prominently displayed, an identification that allows its original manufacturer's garment identification number, size, date of manufacture, and batch of materials to be traced for the purpose of warranty and liability information. The ink used for entering this information shall be capable of surviving normal use and washing and remain readable for the life of the garment.

### 3.0.10 **User information**

Each garment shall include a *User Information Guide* with information required by NFPA 1971, most current edition standard.

The successful bidder shall provide the Fire Department with a videotape containing information on the sizing, cleaning, maintenance, inspection, use, and retirement of structural protective turnout coats. The Fire Department will assist the manufacturer. This video will feature San Diego Fire-Rescue Department personnel.

### 3.0.11 **Research and Development**

With the ever changing advancements in technologies of fabrics and designs for protective clothing, we will require assistance in research and development from the manufacturer. Those requirements are as follows:

- a. There shall be a research and development conference for fire protective coats, and trousers, with the manufacturer and a representative of the San Diego Fire-

Rescue Department. This conference shall be at a mutually agreed place and time, once per contracted year. This conference shall be at no cost to the City of San Diego.

- b. The manufacturer shall provide at no cost to the City of San Diego, a maximum of five (5) protective coats and five (5) protective trousers for wear test, each contracted year. The wear test coats and trousers shall include new technology fabrics and/or designs and must be approved by San Diego Fire-Rescue Department prior to construction.

### **3.1 Construction**

Where specific information is provided, it is done so as to establish a minimum level of quality, design, and/or performance.

#### **3.1.1 Sizes**

- a. Finished coats shall be available in even chest sizes from size 34 through infinity. Standard coat length shall be 35" in length for the long and 32" for the short. Sleeve length shall be proportional to chest measurement and shall be available in any requested length. The coats shall be fitted so that access to pockets will not be compromised when breathing apparatus is in place.
- b. Finished trousers shall be available in even waist size measurements from 28-inches through infinity. Inseam measurements shall be available in two (2) inch increments from 26-inches through infinity. There shall be no Alpha sizing, numerical only.

The bidder shall have female size patterns, and custom fitted coats and trousers at the contracted price, as required. **NO EXCEPTIONS.**

#### **3.1.2 Stitching**

All stitches shall meet all applicable requirements of NFPA 1971, most current standard. The preferred method for all seams, including trim attachments, shall be of lock stitch type, 8 stitches per inch (+ or – 1 inch) except major "A" seams. All thread shall be Nomex® Thread. No raw edges shall exist on any fabric.

#### **3.1.3 Stress points**

Jacket and trouser outer shell stress points, such as upper and lower pocket corners, pocket flap corners, top and bottom of fly flap, as well as the upper and lower corners of the storm panel, shall be reinforced with bar tacks.

#### **3.1.4 Metal contact prevention**

The coat and trouser shall be constructed so that when completely assembled, there shall be no direct metal contact from the exterior of the outer shell through the thermal liner to the wearer's body, except at the waist band of the trousers. This shall apply to the use of all rivets, snaps, hooks, d-rings, zippers, or any other metal used to assemble the coat or trousers.

### 3.2 **Coat Assembly**

The coat shell should be of a 3-panel construction in all layers, and shall have an inverted pleat on each side where back front and back body panel pieces meet. The coat length shall allow both a long and short version. When measured at the center of the back from the collar seam to the hem bottom, the coat shall measure 35" in length for the long and 32" for the short. Sleeves shall be graded to size of the full length and of shoulder insert, 2-panel type design.

#### 3.2.1 **Moisture Barrier and Thermal Liner Assembly**

- a. Design shall be compatible with the outer shell so that the liner does not buckle, pull, or otherwise restrict body motion.
- b. The neck of the moisture barrier/thermal liner shall be secured to the neck of the outer shell collar such that when donning the coat an arm may not be accidentally caught between the outer shell and its inner linings along the neck between the armholes. Liner should have a two inch (2") wide, two (2) ply Crosstech®/Nomex® pajama check extension sewn the full length of the neck. FR loop, three quarters of an inch (¾") wide, should be sewn on extension to tuck into pleat in outer shell collar.
- c. The liner shall have an internal pocket measuring approximately eight and half inch (8.5") x eight and half inch (8.5") made of Nomex®.

#### 3.2.2 **Collar and Throat Strap**

- a. The collar shall be three inches (3") tall; of a 4-layer configuration such that when the collar is raised it shall remain standing while providing continuous thermal and moisture protection around the neck and face. To ensure this protection, the two layers of outer shell collar shall be fully lined with one layer of Gore RT7100™ PTFE moisture barrier material and two layers of 1.5 oz. apertured E-89™ thermal liner. The collar shall provide proper interface with liner to insure no moisture penetration through the collar seam to inside of coat. The outermost layer of the collar shall be outer shell material. The innermost layer facing the wearer's body shall be outer shell fabric. The collar shall be snug fitting and shall completely cover the neck and throat area when in the raised position. The raised height shall be approximately three inches tall, with a contoured overlap at the front of the coat. Collar shall be of such design so as not to interfere with the SCBA face mask, or helmet. When examined prior to donning, the turned-up collar shall completely wrap around the front of the neck opening such that left and right collars touch or overlap to maximize facial protection.
- b. The throat strap shall be mounted to the outer shell collar to ensure that when the coat is closed and the collar is raised, the throat strap shall prevent any opening between the left and right collars. The throat strap shall be not less than eight inches (8") inches long and two inches (2") inches wide, shaped to be compatible with the SCBA face mask. The throat strap shall be secured in the stowed position with two inch (2") x two inch (2 ") of loop on the right outside of the collar and two inches (2") x two inch (2 ") of hook on inside of throat

strap. The throat strap shall attach to the left side of the collar with two inches (2") x at least two and three quarter inches (2 ¾") of loop.

### 3.2.3 **Collar Hanger Loop**

An external hanger loop constructed of a double layer of outer shell material shall be provided on the outside of the coat at the collar seam. Loop shall be attached to outer shell using a bar tack stitch. It shall be designed to provide long service, and shall not tear or separate from the coat when the coat is hung by the hanger loop loaded evenly with a weight of eighty (80) lbs. and allowed to hang for one minute.

### 3.2.4 **Pleated Back**

- a. The outer shell shall have two inverted pleats (one each side). Each pleat shall begin at the top back of each shoulder and shall extend down the side of the coat below the arm opening. **NO EXCEPTIONS**
- b. The thermal liner shall include a corresponding one inch (1") minimum inward dynamic fold approximately one and half inches (1 ½ ") from each sleeve seam at the shoulder. This fold shall provide for coat expansion when extending arms forward and shall interface with the inverted pleats of the outer shell to maximize mobility and function of the outer shell and thermal liner. Maximum expansion of the pleats shall occur at the shoulder blade area and taper toward the hem and the shoulder.

### 3.2.5 **Back Yoke**

- a. An additional layer of thermal liner reinforcement material shall be sewn directly onto the underside of the outer shell for additional thermal protection. The thermal liner material shall be sewn to the upper back portion of the outer shell across the upper back from the collar seam to eleven inches (11") down and across the back ending at each armhole and including each pleat. The thermal liner material used shall be as referenced under section 3.0.4 (b) thermal liners reinforcement. The facecloth shall face the wearer.
- b. An additional layer of 2.7 oz/sq. yd E-89™ spun laced Aramid material of 85% Nomex®/15% Kevlar®, or acceptable alternate, shall be positioned between the moisture barrier and thermal liner for extra thermal protection in a high heat and compression area of the coat. It shall be sewn to the inside of the upper back portion of the thermal liner across the upper back from the back shoulder and collar seams seven inches (7") down and across the back ending at the armhole.

### 3.2.6 **Shoulder Caps**

- a. A six inch (6") inches wide area at the top of the shoulders extending from the shoulder seam to a width of four inches (4") inches at the collar shall be capped with outer shell material for abrasion resistance and thermal protection.
- b. For additional thermal protection and cushioning, 1-layer of one eighth inch (1/8") thick, fire retardant closed-cell foam or acceptable alternate shall be oriented between the outer shell and the shoulder cap reinforcement.

### 3.2.7 Sleeves

- a. The sleeve construction shall be used in all layers of the coat outer shell, moisture barrier, thermal liner, ensuring maximum upper body freedom of movement including complete arm mobility when reaching up and/or forward. The construction shall extend to all inner layers of the coat to increase the fit and freedom of movement.
- b. The outer shell shall have additional padding sewn directly onto the interior side of the outer shell for supplemental insulation. The padding shall insulate the upper portion of the sleeve and shall extend eight inches (8") down from the shoulder and sleeve seam. This padding material will insulate 50% of the sleeve circumference around the outer portion of the sleeve. The padding material shall be the thermal liner reinforcement material as referenced under section 3.0.4 (b) alternative methods meeting the same objectives will be considered. The facecloth shall face the wearer. Alternate methods may be allowed if equal, based on performance.

### 3.2.8 Cuffs

- a. Shell cuffs shall be reinforced on the inside and outside with two (2) layers of PBI® outer shell material two inches (2") in width around the full circumference of the opening. Cuff reinforcements shall be sewn to the shell with no less than two 2 rows of stitching. There shall be a sleeve well to prevent water and debris from entering the sleeve when arms are in a raised position. The thermal liner/moisture barrier shall extend to within one inch (1") of the sleeve end. There shall be no break in thermal protection between the Thermal Liner assemble and the thumbhole wristlet.
- b. An internal thumbhole wristlet shall consist of a 2-ply knit of PBI®/Spandex or 48% Nomex®/48% Kevlar® and 4% Spandex for superior recovery. Wristlet treated with Teflon® water resistant alloy is preferred. Wristlets shall extend not less than eight inches (8") completely over the palm with a thumbhole preventing the wristlet from sliding back. Wristlets shall be double stitched and bound to the moisture barrier/thermal liner providing extended thermal and slash protection. Thumb tabs sewn to standard wristlets are not considered a thumbhole wristlet.

### 3.2.9 Hem

The bottom of the outer shell shall be hemmed by using two rows of stitching set one quarter inch (¼") apart.

### 3.2.10 Front Closures

There shall be continuous thermal and moisture protection around the entire torso including the coat front area beneath the storm flap.

- a. The front closure shall consist of a heavy duty #10 zipper, starting one inch (1") below collar base to six inches (6") above bottom of jacket. A tab of Ara-Shield material, double thickness and four inches (4") long, shall be attached to the zipper slider to facilitate opening and closing with gloved hands. The tab shall be red in color.
- b. The storm flap shall be set on the outside of the wearers right side of the coat

- opening. The flap shall open from left to right. **NO EXCEPTION.**
- c. Storm flap measurement shall not be less than five inches (5") wide, nor less than twenty-eight inches (28") in length and be composed of (2) two layers of outer shell material with a single layer of Arafil™ material sandwiched in between. The orientation of the Arafil™ will be with the coated side outward facing.
  - d. The storm flap closure shall consist of two inch (2") wide loop on the inner side of the storm flap and two inch (2") hook attachments on the left coat front. The hook and loop closure shall extend the full length of the outer storm flap, eliminating all exposed hardware.

### 3.2.11 Pockets, Flaps, and closures

- a. The coat shall have two (2) outside half bellows pockets sewn to the bottom of the coat outer shell, on each side of the front closure so that the pocket is accessible while wearing the SCBA. The San Diego Fire-Rescue Department utilizes the Scott NxG2™ SCBA.
- b. The pockets shall measure ten inches (10") (+ or - ½") wide and eight inches (8")(+ or - ½") high. The pockets shall expand by means of side and bottom gussets that measure (0") inches in front and one and one half inches (1-1/2") in back.
- c. The pockets shall be constructed using outer shell material and trim shall be located over the face of the pockets to align up directly with the coat's bottom trim line.
- d. The entire inside of the pocket shall be lined with Kevlar® twill material. Bar tacks shall be used to keep the inner liner from pulling out. Drainage of moisture shall be provided by rustproof eyelets. Eyelets shall be located at the bottom corners of the outer shell pockets. Eyelets shall drain the entire pocket, shell, and interior liner.
- e. Pocket flaps shall be a full one inch (1") wider (half inch ½" inch per side) than the width of the pocket, and overlap the fully opened pocket by two inches (2") minimum. The flaps shall be reinforced at each top corner with a bar tacked. Pocket flaps shall be fastened with two (2) hook/loop fastener strips, three inches (3") each in length by two inches (2") wide. Loop strips shall be sewn to the pocket, hook strips shall be sewn to the pocket flaps no more than a quarter inch (¼") inch from the side and lower edges. Hook and loop shall be applied so that proper alignment occurs when pockets are empty or full.)
- f. On the exterior portion of the right pocket an extra piece of loop shall be sewn between the other two pieces of loop. This extra piece of loop shall measure two inches (2") wide positioned vertically starting at the top of the pocket and stopping at the top of the pocket trim.
- g. The utility line attachment strap shall be constructed of double layer outer shell material. It shall measure one inch (1") wide by eight inches (8") in length, folded in half to form a loop, and shall be affixed to the right and left inside pockets (coat side) by means of two bar tacks set ¾" apart from each other to form a loop two inches (2") minimum. The utility line attachment straps shall be positioned horizontally and set close to the rear top corner of each pocket.

### 3.2.13 Special Purpose Pockets/Attachments

#### 3.2.13.1 Radio Pocket

- a. There shall be a radio/flashlight pocket located on the left breast, parallel with the storm flap, six inches (6") (+ or - ½") below the edge of the shoulder cap. This pocket shall measure nine inches (9")(+ or - ½") high by four inches (4")(+ or - ½") wide and two inches (2") deep. Pockets shall be made using the outer shell material. The pockets shall be reinforced with a bar tacked. Drainage of moisture shall be provided by rustproof eyelets.
- b. Pocket flap shall be a full half inch (½") wider on each side than the width of the pocket and have a total height equal to the thickness of the pocket's bottom gusset, plus three inches (3"). They shall be reinforced at each top corner by means of bar tacking. The pocket flap shall close the pocket top with a three inch (3") by two inch (2") hook and three inches (3") by two inches (2") loop system, mounted so the loop is on the pocket flap and hook is on the underside of the flap.
- c. An American flag shall be sewn to the radio pocket flap.

#### 3.2.13.2 Mic Tabs

The mic tabs shall be constructed of two layers of outer shell material and encase a piece of rigid leather, measuring approximately three sixteenths (3/16") thick by three inches (3") long by three quarters of an inch (3/4") wide. Two mic tabs shall be located horizontally on the right and left breast, two inches (2") below the edge of the shoulder cap and centered above the pocket. They shall be reinforced with two (2) vertical bar tacks on each edge of the mic tab. The tabs should be accessible while the Scott NxG2™ SCBA is being properly worn. The right mic tab may be applied to the outside of the SCBA facepiece pocket described below.

#### 3.2.13.3 Glove Holder

The Glove Holder shall be constructed of double layer outer shell material, two inches (2") wide by thirteen inches (13") in length. Each end shall have hook and loop attachments, two inches (2") x three and one half inches (3 ½") to form a loop, and shall be affixed directly below the wearers left radio pocket by means of four bar tacks and a box X stitch. The loop shall face horizontal, and be able to hold one pair of NFPA 1971 approved fire fighter gloves.

#### 3.2.13.4 Flashlight Holder

Each jacket shall be equipped with a "Big ED®" flashlight holder. An inward facing safety hook/coat snap shall be triple riveted in a vertical position to the upper chest over the storm flap. The inward facing snap hook will accommodate the clip portion of the flashlight. Below the snap hook will be a strap constructed of outer shell material measuring approximately

3 inches high and 12 inches wide, and will hold the barrel of the flashlight. The lower strap will be equipped with two pieces of 1 ½ inch by 3-inch flame resistant hook and pile closure at the front of the strap to facilitate easy removal of the flashlight. There shall be approximately 4 inches between the upper snap hook and lower strap.

**3.2.14 Elbow Reinforcement**

- a. The sleeve shall have an elbow pad throughout all layers which shall provide a natural bend in the sleeve. This pad shall be set on the back of each sleeve, measuring 50% in width of the sleeve and a minimum of six inches (6") at the highest point. The outer shell reinforcement shall consist of outer shell material for abrasion resistance and thermal protection.
- b. In addition to reinforcement, elbows shall be padded using one eighth inch (1/8") thick, fire retardant closed-cell foam or acceptable alternate. The reinforcement material shall be oriented between the outer shell and elbow reinforcement.

**3.2.15 SCBA Facepiece Pocket**

- a. Each jacket shall be provided with a pocket, square shaped type, and designed to accommodate a breathing apparatus facemask (similar to Scott model 2.2 or 4.5). The pocket shall measure approximately six inches (6") deep by ten inches (10") wide by fifteen inches (15") high, constructed of outer shell material. Two (2) metal drain eyelets shall be installed in the bottom of the pocket.
- b. The pocket closure shall consist of heavy-duty, double pull, zipper mounted on the left side of the top of the pocket (as oriented to the wearer). The pocket shall be positioned on the right chest, approximately two inches (2") above the bellows pocket. A tab of Ara-Shield material, 2" long shall be attached to both zipper sliders to facilitate opening and closing with gloved hands. The tab shall be red in color.

**3.2.17 Reflective Trim Pattern**

- a. There shall be two circumferential, horizontal bands of reflective trim sewn to the coat. One band shall be sewn completely around at the extreme bottom of the outer shell. The second one shall be sewn completely around the chest and back slightly below the arm pit of the outer shell. NOTE: THIS MAY REQUIRE SEWING TRIM TO THE FRONT FACE OF THE POCKETS PRIOR TO ASSEMBLY.
- b. There shall be two vertical strips of reflective trim between the two horizontal bands of trim, on the back of the coat. Each strip shall be sewn at the extreme left and right side of the back, forming a box. Each vertical strip shall be visible while wearing an SCBA. The ends of each vertical strip shall be sewn under the horizontal bands.
- c. There shall be one circumferential strip of trim around each sleeve located between elbow patch and cuff.

- d. All trim shall be sewn with two rows, on each side, of lock stitching to prevent tearing and unraveling. Two rows, on each side, of Globe Trim Tracks is an acceptable alternate.

### 3.2.18 Drag Rescue Device (DRD)

- a. Each coat assembly shall have a DRD installed. The DRD shall be the Fire Fighter Rescue Harness, section 3.0.1, (g) **NO EXCEPTIONS**. The DRD is made of Kevlar webbing and fits between the coat outer shell and inner liner system.
- b. There shall be an opening located at the base of the collar of the coat to allow the system to pass through the outer shell. Hook and loop will be used to store the system from the installation point through the opening in the outer shell and hold the system in place when not in use. A flap of outer shell material shall be used to cover the opening where the system exits the outer shell and a three (3") retro-reflective trim shall be sewn on the outside of the flap.

### 3.2.19 Accountability Panel Attachment

- a. Each coat shall have the attachments for the Removable Accountability Panel located three and one half inches (3.5") above the hem trim
- b. The attachment shall be exactly the same for all sizes, on all coats, to permit changing out the removable panels.
- c. The attachments shall securely fasten the panel to prevent accidental detachment. Weak, loose, or problems with attachments shall be covered by the coat warranty.
- d. The panel shall be easily attached and removed, or replaced by the end user.

### 3.2.20 Department identification

- 3.2.20.1.1 Each jacket shall be provided with lettering, affixed to the upper back, above the trim pattern. Lettering shall be "S.D.F.D." in three inch (3"), Scotchlite® I lime yellow letters
- 3.2.20.2 The letters shall be sewn on.

### 3.3 Removable Accountability Panel

Accountability Panels are material nameplates that attach at the bottom back of the coat located three and one half inches (3.5") above the hem trim. The purpose is to identify the fire fighter's name while operating on the fire ground. The panel will be ordered separate from the coats and shall be interchangeable on all coats.

#### 3.3.1 Size

Each Removable Accountability Panel shall be three and one half inches (3 ½")(+ ½" or - 0") tall plus the attachment by fifteen inches (15")(+ or - ½") wide. Hook and loop attachment will be three inches (3")(+ ½" or - 0") tall by seventeen and one-half inches (17 ½")(+ or - ½") wide. The accountability panel hook and loop attachment shall not lose its attachment ability after continuous washings.

### 3.3.2 **Material**

The material shall be one layer of outer shell material natural in color.

### 3.3.3 **Lettering**

The lettering shall be three (3") lime yellow retro reflective Scotchlite. The letters shall be sewn on. Shorter letters shall be allowed to fit longer names. The lettering shall be the names as provided by San Diego Fire-Rescue Department at the time of order. There shall be no minimum order.

## 3.4 **Trouser Assembly**

3.4.1 The trouser should have a traditional design with a short rise.

### 3.4.2 **Moisture Barrier and Thermal Liner Assembly**

- a. Design shall be compatible with the outer shell so that the liner does not buckle, pull, or otherwise restrict body motion.
- b. The moisture barrier/thermal liner shall finish no more than three inches (3") from the cuffs.
- c. The moisture barrier/thermal liner shall be able to completely detachable from the outer shell for the ease of cleaning.

### 3.4.3 **Fly Flap**

- a. The outer shell shall have an overlapping fly front running the full length of the fly on the left side. The flap shall not be less than five inches (5)(+ or - ½") wide at the waistband, cut diagonally to the bottom of the fly, where it shall be bar tacked. The Storm fly shall be held closed along its full length by means of a hook & pile fastener closure of two inch (2") minimum width along the leading edge; for a distance of not less than nine inches (9)(+ or - ½") from the bottom of the fly closure to the waist area, for proper alignment and secure closure.
- b. Fly flap shall be fastened with a hook and dee assembly centered on double thickness outer shell waistband. Hook shall be turned inside and affixed to the trousers on the right side. Dee shall be affixed to the outside of the fly flap. Rivets for fastening both hook and dee shall be backed by one piece of leather reinforcing material.
- c. Thermal Fly Assembly shall include a moisture barrier/thermal liner and be constructed with an extension on the left side at the waist of all layers of the fly opening to assure continuous thermal and moisture protection. This overlap shall be positioned between the layers of the outside storm fly.

#### 3.4.4 **Waist Band**

- a. The waist of the pants shall be reinforced on the inside with two (2) layers of an outer shell fabric material not less than two and one quarter inches (2 ¼") in width. The waist shall be turned under to provide double material strength with the independent waistband shall be double stitched to the outer shell.
- b. Eight (8) suspender buttons shall be appropriately spaced around the waistband to accommodate the use of suspenders.
- c. The waist of the moisture barrier/thermal liner shall be secured to the waist of the outer shell such that when donning the pant, a leg may not be accidentally caught between the outer shell and its inner linings along the waist and between the legs of the pant.

#### 3.4.5 **Bellows pockets, Flaps, and Closures**

- a. There shall be two (2) bellows pockets, one (1) each leg, centered on the lateral aspects of the thighs. The uppermost part of the pocket shall be eight inches (8") from the top of the waistband on the standard size and proportioned as appropriate for sizes other than the standard. The pockets shall measure eight inches (8")(+ or - ½") wide with a front height of eight inches (8") (+ or - ½") and a rear height of ten inches(10")(+ or - ½"). Pockets shall have inverted gussets of one and one half inches (1-1/2") in front, rear and bottom.
- b. The entire inside of the outer shell pocket shall have an inner liner of Kevlar® twill. Bar tacks shall be used to keep the inner liner from pulling out.
- c. The flap shall be four inches (4") (+ or - ½") long and shall fit the contour of the pocket. Pocket flaps shall be a full half inch (½") wider, on both sides, than the pocket. The pocket and pocket flap shall have a hook and loop closure system. There shall be two sections, each two inches (2") by two inches (2"). Pile fastener material shall be sewn to the pocket and equivalent size hook fasteners shall be sewn to the under side of the flap no more than one quarter inch (¼") from sides and lower edges. All points of stress shall be bar tacked. Drainage of moisture shall be provided by rustproof eyelets. Eyelets shall be located at bottom comers of pockets. Eyelets shall drain the entire pocket, shell, and interior liner.

#### 3.4.6 **Take-up Straps**

- a. One (1) tightening device should be affixed to the outside of the trousers on each side immediately above the hip, one to one and one half inches (1"to1½") below the top seam. Each tightening device constructed of triple thickness outer shell material should be installed on each side of the trousers in the waist area on the outside of the garment. Each take-up strap should be comprised of two sub-component straps.
- b. The back strap should be one inch (1") wide and four inches (4") in length, folded in half to form a loop, and should be affixed to the rear of the back body panel by means of two bar tacks. The loop should face toward the front and hold two (2) nickel plated one inch (1") metal loops or equivalent.

- c. The front take-up strap should be one inch (1") wide and nine and one half inches (9 ½") in length for adjustment. One end should be bar tacked, using two separate bar tacks, to the front body panel and positioned to allow the loose end to thread through the two (2) one inch (1") metal loops. After the take-up strap has been bar-tacked, there should be a minimum of six and one half inches (6 ½") for adjustment. The metal loops should allow for adjustment and should firmly hold the take-up strap in the desired position.
- d. Hook and loop attachment should be used to secure the loose end of each take-up strap to the respective body panel. A one inch (1") inch by five inch (5") piece of pile fastener tape should be installed horizontally on each respective body panel in front of the take-up strap. A one inch by one and one half inch (1"to1½") piece of hook fastener tape should be installed at the end of the take-up strap and should be positioned to engage the loop fastener tape.

#### 3.4.7 **Knee Pads**

- a. The knee shall incorporate a comfort/mobility design in all layers. This design shall allow for a natural bending motion of the knee. The knee shall be reinforced with material to provide padding, compression comfort and abrasion resistance measuring approximately eight inches (8")( + or - ½") across the bottom and top, not less than eleven inches (11") (+ or - ½") from top to bottom. The bottom of the mobile knee shall be placed not less than ten inches (10") from the cuff to fall anatomically correct.
- b. Between the knee reinforcement material and the outer shell, two (2) layers of one eighth inch (1/8") thick, fire retardant closed-cell foam shall be positioned for added thermal protection, or acceptable alternate material. The pads shall be sewn to the outer shell by two rows of lock type stitch.
- c. For additional thermal protection, an additional layer of one eighth inch (1/8") thick, fire retardant closed-cell foam or acceptable alternate material shall be positioned between the moisture barrier and thermal liner.
- d. The exterior of the knee reinforcements shall be of a poly-coated aramid for abrasion resistance and thermal protection and shall closely match the outer shell's color.

#### 3.4.8 **Cuffs**

- a. a. For additional strength, abrasive resistance and thermal protection there shall be a poly-coated aramid for abrasion resistance and thermal protection. The reinforcement shall extend around the cuff on both the inside and outside and shall be sewn to the outer shell with two (2) rows of stitching.
- b. The cuff reinforcement material shall be in a color which closely matches the shell's color.
- c. Two (2) female snap fasteners should be set into tabs attached to the outer shell on right and left opposing sides and centered in the back and front above the cuff, properly aligned for the purpose of affixing trouser liners.
- d. The cuff shall have a means to take up slack in the interface area between the cuff and the boot, to prevent heat from coming up the pant leg.

- e. The cuff should incorporate a means to prevent liquid from wicking up the leg above the boot and contacting the skin.

#### 3.4.9 **Reflective Trim Placement**

Trouser trim shall be three inch (3") Scotchlite™ II (triple trim) of lime/yellow/silver.

- e. The trouser trim shall be sewn with two rows, on each side, of lock stitching to prevent tearing and unraveling.

One (1) strip will be set full circumference around the bottom portion of the leg, one to two inches (1" to 2") below the bottom of the knee pad.

#### 3.4.10 **Suspender System**

- 3.4.10.1 A suitable suspender system shall be provided which provides for easy donning and doffing.
- 3.4.10.2 The suspender system shall be adjustable and allow for firefighter comfort.
- 3.4.10.3 The suspender system will not be so proprietary in nature so as to preclude obtaining replacement suspenders from a third party vendor.
- 3.4.10.4.1 Suspender system shall consist of a non-metallic attachment to turnout pant button.