

**SPECIFICATION  
FOR  
SHIRTS, UNIFORM**

(This specification is released for procurement purposes until revised or rescinded.)

**SCOPE**

This specification covers form fitting uniform shirts, short and long sleeves to be worn by the N. C. State Highway Patrol, N.C. Forest Service, License and Theft, Capitol Police, State Parks, Wildlife Resources Commission, Department of Correction, and other North Carolina state agencies. They are part of a matching uniform to be worn on duty.

**I. CLASSIFICATION**

**A. BLENDS**

Type I - 65% Dacron Polyester  
35% Combed Cotton

Type II - 80% Dacron Polyester  
20% Wool

Class 1 - Long Sleeves

Class 2 - Short Sleeves

**B. SIZES**

Schedule of actual shirt sizes (neck) and sleeve lengths to be prepared by requisitioning agency and to be included in Requisition and Invitation For Bids.

1. Long Sleeve Shirt Sizes (Neck): To be commercial standard sizes. Neck sizes to be exact, as specified by using agency.

Long Sleeve Lengths: To be as specified by using agency.

2. Short Sleeve Sizes: Neck sizes to be same as above for long sleeve shirts.

**II. APPLICABLE STANDARDS**

The following documents of the issue in effect on the date of the Invitation For Bids, shall form a part of this specification to the extend described in III. REQUIREMENTS.

Federal Test Method Standard No. 191 - Textile Test Methods

Superintendent of Documents  
U.S. Printing Office  
Washington, DC 20402

Rules and Regulations Under The Textile Fiber Products  
Identification Act and Care Labeling of Textile Wearing Apparel  
Federal Trade Commission  
Washington, DC 20580

Springs Mills "Powerhouse" Poplin  
Spring Industries  
104 West 40TH Street  
New York, N.Y. 10018 or

Galey and Lord, Inc. Concept FS 5507  
980 Avenue of the Americas  
New York, N.Y. 10018

Raeford Style 3940  
Raeford Uniform Fabrics Company  
A Division of Burlington Industries  
1345 Avenue of the Americas  
New York, NY 10105

Color: To be as specified by using agency.

### III. REQUIREMENTS

#### A. STANDARD SAMPLE

A pre-production sample shirt may be requested at no expense to the state before purchase order is placed or as indicated by the Invitation For Bids.

A sample of cloth will also be supplied to the Division with a letter from the mill stating definitely just when the required yardage of cloth will be available for the manufacture of the shirts. An analysis report or specification sheet on the cloth shall be included with the letter. The State will determine conformity with the specifications and award will be made on the basis of results of its tests and evaluation. The State reserves the right to dissect and test any samples at no cost to the State. Failure to comply with the above will be sufficient cause to reject bid on item involved.

Coloring for cotton in blend to be vat dyed. The use of dyes containing elementary sulfur or compounds capable of oxidation to sulfuric acid will not be acceptable. The shirt fabric shall show no labile sulfur, and shall show "good" colorfastness to laundering and crocking, light, and perspiration; also to bleaching by whites.

#### B. DESIGN AND CONSTRUCTION

Shirts to be form fitting, with top center facing (pleat), full tail with continuous hem bottom and double yoke. Left pocket w/1" (2.54 cm) pencil insert, buttons to match fabric color. Shirts shall (per Bid Invitation and as required by using agency) have the following requirements:

1. One or two button cuffs.
2. One or no button on sleeve vent.
3. Breast pockets with mitered or scalloped flaps, with or without box pleats.
4. Seams to be flat felled or of the merrow stitch with safety stitch.

1. Materials

Yarns used in the manufacture of the cloth will conform to the applicable requirements of the qualities normally used by the manufacturers in their standard constructions following best industrial practice.

Shirt materials shall be manufactured using two different blends:

- a) 65% Dacron Polyester - 35% combed cotton in both warp and filling. Comparable to Springs Industries. "Powerhouse" or Caley & Lord Inc. "Concept" FS 5507 or 4747. This blend to have soil-release finish. To be 61/62" wide. The finished thread count to be: 102 (40.2/cm) warp, 50 (19.69/cm) filling. Finished break strength to be: 122 lbs. (84.12 x 10 Pa) warp, 55 lbs. (37.92 x 10 Pa) filling. Weight to be: 3.96 oz/sq.yd. (134.3 gr/sq.m) be plain weave. Shrinkage 3% either direction.
- b) 80% Dacron Polyester - 20% wool for the N.C. State Highway Patrol shirts and other departments. Comparable to Raeford Style 3940-12341 grey.

This blend to have a finished thread count of 67 ends/inch (26.38 ends/cm) (55.16 x 10 pa) and 59 picks/inch (23.23 picks/cm). Plain weave average breaking strength of 80 lbs. warp and 75 lbs. (51.71 x 10 Pa) filling. Weight to be 7.00-7.50 oz/60" (130 - 139 g/m) with a 60" (1.524 m) width. Piece dyed and pre-shrunk. Shrinkage 2.5% either direction.

All fabric materials to be of good quality pre-shrunk and color fast and must comply with all specific requirements for each particular garment. Other materials to be as specified by using agency if accepted by the state's evaluation and testing program.

2. Components

- a) Collar. Class 1 shirts (long sleeves) shall have the collar points widespread, approximately 3" (7.62 cm) in length. The back of the stand to measure 1-1/2" (3.81 cm). Leaf and stand to be interlined, top stitched 1/4" (6.35 mm) off the edge. Collar and band to be die cut to insure uniformity. The stand shall have one button and buttonhole at front. There must be a tie space of 1/2" (1.27 cm) when collar is buttoned. Each shirt to show neck size and sleeve length marked with indelible ink on inside of collar stand. Inside collar stand to be lined with lining material as specified by using agency.

Class 2 shirts (short sleeves) collar to be same as Class 1 shirts above.

Both classes with permanent good quality Mylar collar stays of the appropriate length to be sewn inside the collar so that no stitches are made through bottom leaf.

Class 1 shirts (long sleeves) interlining: collar leaf shall have 250 denier polyester lining cut on bias. Collar stand to have 3.75 oz/yd (127 gr/sq.m) weight permanent press finish. Cuffs to have 4.25 (144.10 gr/sq.m) or 5.50 oz/sq.yd. (186.5 gr/sq.m) weight permanent press finish. Front center facing to have 150 denier dacron, cut straight or 5.50 oz/sq.yd. (186.5 gr/sq.m) weight permanent press finish interlining.

Class 2 shirts (short sleeves) interlining: To be same as Class 1 shirts interlining above.

- b) Long Sleeves. Class 1 shirt sleeves to be cut straight and whole with a 5" (12.7 cm) sleeve vent. Sleeve placket with or without (as per Bid Invitation) one button placed approximately 2 1/2" (6.35 cm) above the top of the cuff. Sleeve vent with a top facing of 1-1/8" (2.86 cm) wide finished at the top with a neatly blocked point. Lower facing to measure 1/2" (1.27) in width. Sleeves to be secured to the body of the shirt either by means of a merrow stitch with a safety stitch to strengthen the seam or by a flat felled seam, as per Bid Invitation.

Sleeve lengths as specified in Invitation For Bids.

- c) Cuffs. Barrel type cuffs to measure a finished minimum of 2-3/4" (6.985 cm) wide, top stitched 1/4" (0.635 cm) around edge of cuff with rounded corners. There shall either be one or two buttons (per Bid Invitation) with corresponding buttonhole(s) on each cuff and one (or 2) button(s) and buttonhole(s) in the sleeve facing. Button(s) on cuffs to be evenly spaced as to prevent puckering when fastened. To be die cut for uniformity. Cuffs to be attached to sleeves by double stitching 1/4" (0.635 cm) apart visible on outside of cuff.
- d) Half Sleeves. Class 2 shirt sleeves to be exactly same as long sleeves, except for the cuffs. Half sleeves shall have plain hem approximately 1/2" (1.27 cm) to 3/4" (1.905 cm) wide and be one piece 9 1/2" (24.13 cm) to 9-3/4" (24.765 cm) in length from shoulder seam. Sleeves in class 1 (long) and Class 2 (short) must be secured to the body of the shirts either by a merrow stitch with a safety stitch to properly strengthen the seam or by a flat felled seam per Bid Invitation. Same stitch must be used on the side closing seams as well.
- e) Seams. All seams around sleeve head, down sides and sleeves will be per Bid Invitation.
- f) Front. Class 1 (long sleeves) shall have a 1 1/2" (3.81 cm) wide top center facing made of the same material as the shirt body, with two rows of stitching 7/8" (2.222 5 cm) apart and provisions for seven buttons minimum, one of which to be attached on collar band.

This center facing to extend from collar stand to bottom of shirt. The button stand to be 7/8", self lined, placed on the right side and extending from collar stand to bottom of shirt. Buttons to be securely attached to the button stand and shall correspond to the buttonholes on the center facing. One extra button to be provided as spare, attached to bottom of button stand. Center facing with same interlining as used in cuffs and collar (cut on straight of the material).

Class 2 (short sleeve) shirts to have a center facing (pleat) same as Class 1 shirts above.

g) Pockets. There shall be two breast pockets on each shirt. Pockets to be patch type, with either button-down scalloped flaps or mitered flap, (per Invitation For Bids). Pockets to be 5 5/8" (14.3 cm) wide by 6" (15.24 cm) deep approximately with mitered corners and pencil insert on left pocket. Flaps to be 5-3/4" (14.605 cm) wide and 2 1/2" (6.35 cm) deep at center and 1-3/4" (4.445 cm) deep at sides; they are to be centered above the pocket so that the flap will extend or overlap exactly 1/8" (0.3175 cm) on each side of pocket. Flaps to be secured to front of shirt 1/4" (0.635 cm) above top of pocket. The left flap to have the pencil opening 1" (2.54 cm) in width, and the opening shall correspond to pencil division stitched down on left pocket. If pleated, the pockets shall have 1/2" (1.27 cm) hems and 1 1/2" (3.81 cm) box pleats. The box pleats shall be stitched top and bottom to prevent spreading. Buttons on pockets to match flap buttonholes. Pockets and flaps to be die cut for uniformity. Scalloped flaps fully lined and with velcro construction may be acceptable.

Scalloped flaps finished 5-3/4" (14.61 cm) in width, 2-3/4" (6.99 cm) deep at center, and 2-3/4" (6.99 cm) deep at sides.

- h) Buttons. Shall be first grade, to match color of shirt, and with four holes.
- i) Shoulder Straps. Shall be pointed at end toward the neck of the shirt. The other end shall be sewn in sleeve head seam. Straps on each shoulder shall be reinforced with double and cross stitching at shoulders. Straps to be of two ply self material.
- Straps on each shoulder to measure 2" (5.08 cm) wide at sleeve head seam, tapered to 1-3/8" (3.493 cm) at ends and to be pointed 7/8" (2.2225 cm). Point shall be fastened with one button and buttonhole at collar. Straps to be stitched to shoulder by single needle machine forming an "X" and to be cross stitched to shoulder approximately 2" (5.08 cm) from shoulder seam. Length of straps to be graduated to conform to size of shirt so that the point of straps end a maximum 3/8" from edge of collar. Buttons attached to yokes to match shoulder strap buttonholes at pointed ends.
- j) Sewing. Shoulder straps, pockets, and flaps shall be single stitched on the edge. All sewing shall be made using thread with polyester core with a matching cotton covering. All shirt stitching to be not less than 12 to 14 stitches per inch (4.72 to 5.512 stitches per cm). Shirt tail to be hemmed with standard width.
- k) Back. The backs for Type II (80% Dacron - 20% wool) shirts to have 3-7/8" (9.8425 cm) double yoke of basic shirt fabric or rayon lining material as required by using agency. Type I (65% dacron, 35% combed cotton) shirts yoke to be 1-3/4" (4.46 cm) wide and to be joined to back with a lock stitch.
- l) Badge patch. Badge patch to be a strip of the same material as the shirt and approximately 2" (5.08 cm) high by 1 1/4" (3.175 cm) wide. (This refers to the outline stitching dimensions, the reinforcement cloth underneath will be slightly larger) with two 1/16" (0.15875 cm) circular eyelets spaced vertically exactly 1

1/2" (3.81 cm) apart on centers. This patch to be centered immediately over left breast pocket with lower badge hole being exactly 3/4" (1.905 cm) above top of pocket flap, stitched and folded so that no raw edges are shown. Sling-type badge patch will be as per Invitation For Bids.

- m) Nameplate patch. Nameplate patch shall be approximately 1/2" (1.27 cm) high by 2" (5.08 cm) wide (this refers to the outline stitching dimensions, the reinforcement cloth underneath will be slightly larger) with two 1/16" (0.15875 cm) circular eyelets spaced horizontally exactly 1-3/8" (3.4925 cm) apart on center of eyelets. This patch to be centered immediately over right breast pocket with the holes being 1/2" (1.27 cm) above top of right pocket. Failure to comply with any part of the above shall be sufficient cause to reject bid.
- n) Sleeve devices. Sleeve devices may be furnished by the using agency to the successful bidder in the form of twill embroidered emblems to be attached to left sleeve only or to each sleeve of all shirts by the successful bidder per Invitation For Bids. The cost of such installation shall be included in the bid price. Emblems shall be centered under shoulder strap 1/2" (1.27 cm) below head seam of sleeve, in line with sleeve crease.
- o) Creases. If required per Invitation For Bids, Type I or II shirts to be with military creases, (type as specified by user: permanent, stitched, baked or hand pressed) three in back properly spaced and two in front extending from shoulder seams to tail. Front seams to be placed exactly in center of pockets.
- p) Chevrons. To be attached to each sleeve by vendor in addition to the regular agency emblem as specified by Invitation For Bids. Location of same to be shown on purchase order.
- q) Employees' Names. May be required to be shown on outside of packing box as well as shirt size and sleeve length as per size schedule prepared by agency and as required per Invitation For Bids.

### 3. Full Count

Full count delivery must be made in all sizes specified, with no obligation on the purchaser to accept overruns.

### 4. Workmanship

All components of the shirt shall be free from runs, loose threads, raw edges, faulty stitching, loose buttons, uneven creases, wrong sleeve lengths, color defects, etc. They must be well finished, neatly packed and free of defects which may affect appearance or serviceability. All stitching to be of the best quality vat dyed thread, except as otherwise specified; stitching shall be of the proper tension and size so as to avoid puckering after the shirt has been laundered, and to give the best durable press performance.

## C. PACKING AND LABELING

Shirts must bear manufacturer's standard label. They shall be packed two, three, four, or six shirts per box as required by user and indicated by Bid in strong cardboard boxes so as not to be damaged in shipment. These boxes must be labeled with name of contents,

type, color, size, sleeve length, quantity and manufacturer's name and/or trade mark and address. Boxes may be combined and shipped in bulk (cases); where possible, one size only to the shipping case. Purchase order number must be shown on outside of each case. Packing slip must be included on case showing quantity and sizes of each shipment. Cases must also indicate name of contents, amount contained, name of contractor, and name of receiving party, as shown on face of Purchase Order.

Each shirt shall also have an identification label attached and centered on the inside of the yoke and stitched at least on two edges using 8 to 10 stitches per inch (3.0 to 4.0 stitches/cm). The label shall contain the manufacturer's name and/or trademark, plus wording to indicate "permanent press" if needed. Label shall conform to Federal Trade Commission Regulations for care, cleaning, etc. of textile wearing apparel, as applicable. Laundering instructions to be printed with indelible ink on each shirt.

Each shirt shall be labeled, ticketed or invoiced for fiber content per Rules and Regulations under the Textile Fiber Products Identification Act.

The finished shirts shall be clean, with all threads ends trimmed and loose threads removed. The entire shirt shall be carefully pressed by hand, collars flat, buttoned and neatly folded in accordance with good commercial practice.

#### IV. WARRANTY

The contractor warrants to the owner that all shirts furnished under this specification will be of one grade, known as "firsts", cut on a "form-fitting" line, of good material and workmanship, and agrees to replace promptly any shirt or shirts which by reason of defective materials or workmanship shall fail under normal use, free of negligence or accident, for a minimum period of 12 months from date of issuance. Such replacement shall be free of any charge to the owner or his representative. To certify compliance manufacturers may attach a cloth label to each garment bearing the statement: "This garment is guaranteed to conform to State of N. C. Specifications 8405-US-P". This statement may be printed on the manufacturer's label.

#### V. SERVICE, PARTS AND MANUALS

This section not applicable to this specification.

#### VI. ACCEPTANCE INSPECTION AND TESTING

Unless otherwise specified in the Invitation For Bids, an acceptance inspection will be conducted by the owner or his representative. Inspection may be made at place of manufacture, at the option of the State. Inspection for final acceptance will be made, after delivery, to determine compliance with specifications.

##### Testing

Fabrics will be tested following the Federal Test Methods Standard No. 191 per listing below (Table I) including conditioning if required.

<u>TEST</u>	<u>TEST METHODS</u>	
Identification of cotton	1200	See Paragraph III.B.1.a.
Identification of polyester	1600	Same as above
Identification of wool	1100	See Paragraph III.B.1.b.

Permanent press process

Colorfastness to:

Bleaching	5600	See last paragraph of III.A.
Laundering	5610	Same as above
Laundering	5614	Same as above
Crocking	5651	Same as above
Light	5660	Same as above
Perspiration	5680	Same as above
Color	Visual	See Item III.B.1.
Weave	Visual	Same as above
Ply	Visual	Same as above
Weight (oz./sq.yd)	5041	Same as above
Threads per inch	5050	Same as above
Breaking Strength (PSI) (Min.)	5100	Same as above
Shrinkage	5550, 5552	Same as above

Supplier's certificate of compliance shall be required and will be accepted as meeting test requirements.

Responsibility For Testing and Inspection

The supplier is responsible for all testing and requirements as specified herein. Except as otherwise specified in the Invitation For Bids, the supplier may use his own or any other suitable facilities for the performance of the testing and inspection requirements specified herein, unless disapproved by the state government. The State reserves the right to perform any of the inspection and tests set forth in the specification where such inspections and tests are deemed necessary, at no expense to the State, to assure supplies and services to conform to prescribed requirements.

Certification Examination

Certificates of compliance, certified test reports, approval labels or listing marks for codes and standards, as applicable, that are submitted as proof of compliance with specification requirements shall be examined and validated.

VII. DELIVERY AND PAYMENT

Delivery to be prepaid to designated agency. Delivery and payment for all shirts furnished under this specification shall be in accordance with the terms and conditions of the Invitation For Bids. The contractor shall be responsible for any packaging, packing, or protection required to insure delivery in an undamaged condition.

VIII. ORDERING DATA

Purchasers should exercise any desired options offered herein and should specify the following in the Requisition and Invitation For Bids:

1. Title, number, and date of this specification.

2. Type blend, class, schedule of number of shirts, shirt sizes, sleeve lengths (See I. CLASSIFICATION).
3. Shirt color requirements (See II. Color Standards).
4. If a pre-production sample is required before purchase order is placed (See III.A. Standard Sample).
5. Shirts with inside collar lining material, other than shirt material, one or two button cuffs, with or without button on sleeve vent; breast pockets with mitered or scalloped flaps, with or without box pleats. Seams flat felled or of the merrow stitch type with safety stitch. Inside yoke material other than shirt material. (See III.B. Design and Construction, III.B.2.a. Collar, III.B.2.b. Long Sleeves, III.B.2.c. Cuffs, III.B.2.e. Seams, III.B.2.g. Pockets, and III.B.2.k. Back).
6. Shirts with or without shoulder straps (See III.B.2.i. shoulder Straps).
7. Sling-type badge type required or not (See III.B.2.1. Badge Patch).
8. Sleeve devices required or not. Sleeve devices attached to both sleeves or to left sleeve only (See III.B.2.m. Sleeve Devices).
9. Military creases required or not and type (See III.B.2.o. Creases).
10. Chevrons, required or not and type (See III.B.2.p. Chevrons).
11. Employees' names to be shown on outside of packing box or not (See III.B.2.q. Employees Names).
12. Packing to contain 2, 3, 4, or 6 shirts per box (See C. Packing and Labeling).
13. Acceptance inspection required or not (See VI. ACCEPTANCE INSPECTION AND TESTING).