

**INSIGNIA, RANK AND GRADE, HAND EMBROIDERED SHOULDER BOARDS
UNITED STATES AIR FORCE ACADEMY**

1. SCOPE

1.1 Scope. This specification establishes the requirements for United States Air Force Academy shoulder boards with embroidered insignia of rank and grade.

1.2 Classification. The shoulder marks are of the types and classes noted below.

- Type I - Regular Shoulder Boards
 - Size 1 - Large (Men's)
 - Size 2 - Small (Women's)
 - Class 1 - Wing Commander
 - Class 2 - Vice Wing Commander
 - Class 3 - Wing Honor Chairman
 - Class 4 - Group Commander
 - Class 5 - Cadet Col
 - Class 6 - Squadron Commander
 - Class 7 - Lieutenant Colonel
 - Class 8 - Major
 - Class 9 - Flight Commander
 - Class 10 - Captain
 - Class 11 - 1st Lieutenant
 - Class 12 - 2nd Lieutenant
 - Class 13 - C1C Unranked
 - Class 14 - Wing Command Chief
 - Class 15 - Group Superintendent
 - Class 16 - Squadron Superintendent
 - Class 17 - Senior Master Sergeant
 - Class 18 - First Sergeant
 - Class 19 - Master Sergeant
 - Class 20 - Technical Sergeant
 - Class 21 - C2C Unranked
 - Class 22 - Staff Sergeant
 - Class 23 - C3C Unranked
 - Class 24 - C4C Unranked

- Type II - Team Captain
 - Size 1 - Large Men's Right
 - Size 2 - Large Men's Left
 - Size 3 - Small Women's Right
 - Size 4 - Small Women's Left
- Class 1 - Wing Commander
- Class 2 - Vice Wing Commander
- Class 3 - Wing Honor Chairman
- Class 4 - Group Commander
- Class 5 - Cadet Col
- Class 6 - Squadron Commander
- Class 7 - Lieutenant Colonel
- Class 8 - Major
- Class 9 - Flight Commander
- Class 10 - Captain
- Class 11 - 1st Lieutenant
- Class 12 - 2nd Lieutenant
- Class 13 - C1C Unranked
- Class 14 - Wing Command Chief
- Class 15 - Group Superintendent
- Class 16 - Squadron Superintendent
- Class 17 - Senior Master Sergeant
- Class 18 - First Sergeant
- Class 19 - Master Sergeant
- Class 20 - Technical Sergeant
- Class 21 - C2C Unranked
- Class 22 - Staff Sergeant
- Class 23 - C3C Unranked
- Class 24 - C4C Unranked

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless MIL-DTL-14645C3 otherwise specified, the issues of these documents are those cited in the solicitation or contract.

FEDERAL SPECIFICATIONS

A-A-50186 – Cloth Buckram, Woven and Non Woven
A-A-55198 - Cloth, Melton, Wool (Moth-Proofed)
A-A-52094 - Thread, Polyester
MIL-DTL-32068 – Leather, Cattle Hide, Strap, Vegetable-Tanned

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-C-368 - Cloth, Satin, Rayon; and Cloth, Twill Rayon
MIL-B-3461 - Button, Insignia, Metal, Uniform and Cap
MIL-E-17568 - Embroidery Materials, Metallic and Synthetic Metallic

FEDERAL STANDARDS

FED-STD-191 - Textile, Test Methods

(Copies of the above documents are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094 or <http://astimage.daps.dla.mil/quicksearch/or> www.dodssp.daps.mil.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation or contract.

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of documents are those cited in the solicitation or contract. (Non-government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other information services.)

AMERICAN SOCIETY FOR QUALITY (formerly AMERICAN SOCIETY FOR QUALITY CONTROL)

ANSI/ASQC Z1.4 1993 - Sampling Procedures and Tables for Inspection by Attributes

(Requests for copies of ANSI/ASQC Z1.4 should be addressed to the American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203-2914 or www.asq.org.)

ASTM INTERNATIONAL (formerly AMERICAN SOCIETY FOR TESTING AND MATERIALS)

ASTM-D276 - Standard Test Methods for Identification of Fibers in Textiles
ASTM-D1907 - Standard Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method
ASTM-D3776 - Standard Test Method for Mass per Unit Area (Weight) of Fabric

(These standards can be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.)

THE COLOR ASSOCIATION OF THE UNITED STATES

United States Army Color Card, The Official Colors for Branches, Agencies, etc.

(Requests for copies of the above should be addressed to the Color Association of the United States, 315 West 39th Street, Suite 507, New York, New York 10018-1412 or www.colorassociation.com.)

IRA GREEN, INC.

DOD Standard Shades for Heraldic Yarns for Embroidery and Ribbons, 1993 Edition

(Application for the above should be addressed to Ira Green, Inc., 177 Georgia Avenue, Providence, Rhode Island 02905.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. Unless otherwise specified a sample of the U. S. Air Force Academy shoulder board shall be submitted or made available by the manufacture to the contracting

officer for approval before production is commenced. The approval of the first article sample authorizes the commencement of production but does not relieve the contractor of the responsibility for compliance with all applicable provisions of this specification. The first article sample shall be manufactured by the contractor in the same facility to be used for the manufacturer of the production items.

3.2 Materials. Materials shall be as specified herein. Verification shall be in accordance with the standards and methods specified in 4.3.

3.2.1 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmental preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements and promotes economically advantageous life cycle costs.

3.2.2 Basic Fabric. The shell fabric/cloth used to cover the outside of the shoulder board shall be 100% Melton wool. The basic/covering fabric will be cloth, Melton, wool (moth-proofed), 22-ounce, conforming to Type II, Blue 3346 of specification A-A-55198.

3.2.3 Backing or Lining Cloth. Material for lining the shoulder boards shall be a black cloth, rayon, stain, 5.0 ounce, conforming to Type I, Class 3, of Specification MIL-C-368.

3.2.4 Buckram – Buckram shall be used to reinforce the back of the embroidery. It shall be cut the same size as the covering fabric to reinforce the corners of the board.

3.2.5 Buttons, Insignia, Snap Fasteners. The buttons shall conform to Type I, Style 1, Class B, (Wings & Star) of Specification MIL-B-3461. The size of the buttons shall be 25 line. The snap fasteners that shall be used with this type of button or “cap” shall be Waterbury 17233 or equal.

3.2.6 Paperboard. The paperboard for backing the lining and foundation to the anchoring system for the strap on the underside of the shoulder board shall be 70lb, acid and sulfur free, “Pegasus” paper, of good commercial quality.

3.2.7 Thread. The thread for hand stitching the backing cloth to the base cloth shall be black thread conforming to Type II of A-A-52094.

3.2.8 Strap. The color of the strap shall be black. The attachment strap shall be a good grade of leather 0.075 inch \pm 0.020 inch thick with a smooth black finish on the outside and dyed black on the edges or flexible vinyl sheet 050 to 060 inch thick.

3.3.9 Synthetic-Metallic Hand Embroidery Yarn. The embroidery yarn shall be 79% rayon, 16% poly and 5% pure silver. The finished yarn size shall be 280 denier \pm 15 denier. The yarn shall have sufficient turns per inch to ensure proper uniformity of the metallic ribbon wrapped around the core. The metallic yarn shall silver.

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3.3.10 Foundation Board. The foundation board shall be a high quality luggage plastic with a high degree of memory. Samples of the plastic shall be provided on request. See Figure 12 for dimensions.

3.3.11 Cement. The cement used for adhering the top covering and lining materials to the foundation board and paperboard backing shall be suitable for the purpose intended.

3.3 Construction.

3.5.1 Embroidery. The embroidery shall be hand sewn as described in this specification.

3.5.4 Stitching. The stitching for the strap shall be "Box X" type and shall be 8-10 stitches per inch. (See figure 11). The backing cloth shall be secured to the base material by hand stitching using thread specified herein.

3.6 Tolerances. Unless otherwise specified herein or on the applicable drawing, dimensions of the finished shoulder board and its visible components shall be within a tolerance of $\pm 1/32$ inch (see 4.3.3).

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection. Inspection and testing of the first article (see 3.1) shall be made of a completely finished item or items for all provisions of this specification applicable to the end product examination and tests.
- b. Conformance inspection. Inspection shall be in accordance with the provisions set forth herein, except where otherwise indicated. Sampling for inspection shall be performed in accordance with ANSI/ASQC Z1.4.

4.2 Visual examination of the end item. Defects found during this examination shall be classified according to Table III. The sample unit for this examination shall be one finished pair of shoulder marks. Normal inspection distance for workmanship shall be 18 to 24 inches with illumination equal to average daylight and arranged so as to avoid as much reflected light as possible. Defects designated by an asterisk shall be classified as major when seriously affecting appearance or serviceability and minor when affecting appearance or serviceability but not seriously.

4.3 Examination for dimensions. Measurements shall be taken of all points, lines, areas, curves, radii, and spaces for which dimensions are specified in the figures. Tolerances shall be as specified in this document. Any dimension that is not within the specified tolerance shall be classified as a major defect.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order.

6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. The embroidered shoulder marks covered by this specification are intended to be worn by personnel of the United States Air Force Academy to indicate rank or grade.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type, size, and class required (see 1.2).
- c. Issue of DoDiss to be cited in the solicitation and, if required, the specific issue of individual documents referenced (see 2.2.1).
- d. Drawing number (see 2.2.2).
- e. Exceptions to or deviations, if any, from inspection requirements (see 4.1).
- f. Packaging requirements (see 5.1).

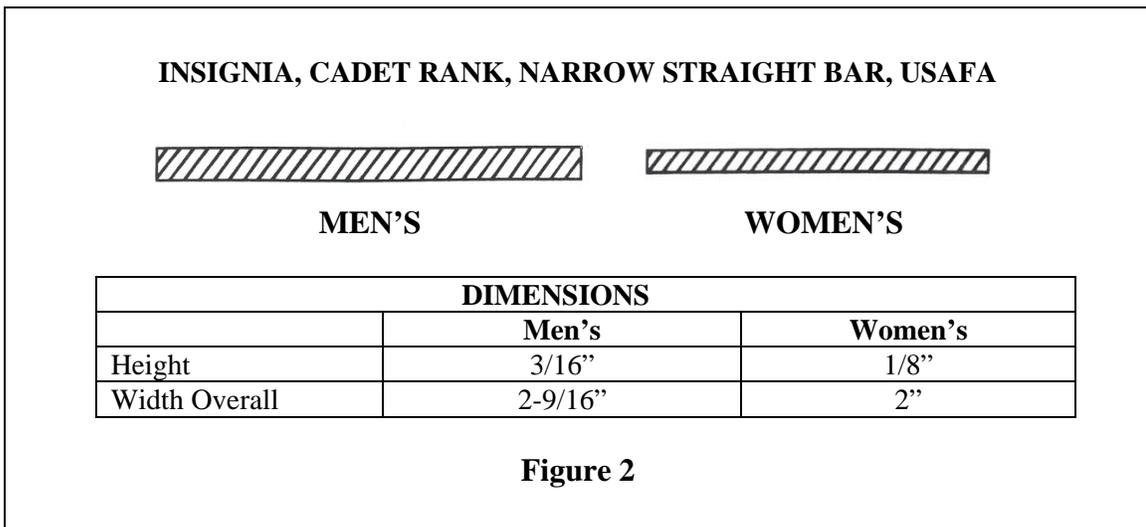
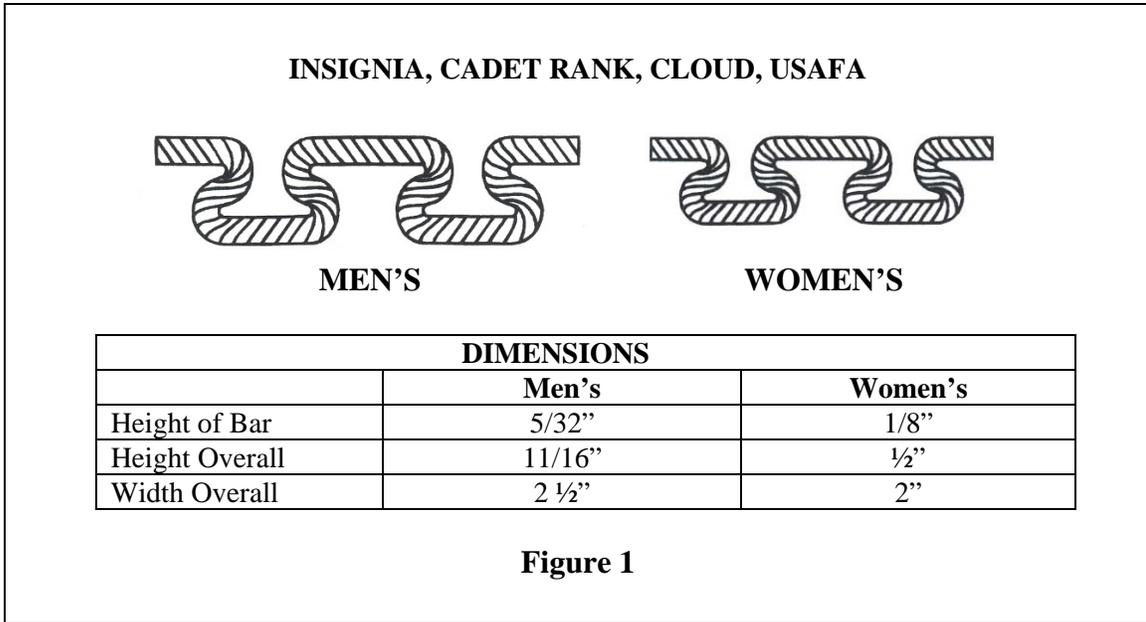
6.3 Samples. For access to samples, address the contracting activity issuing the invitation for bids.

6.4 First article. When first article inspection is required, the contracting officer will provide specific guidance to offerors whether the item should be a preproduction sample, a first production sample, or a standard production item from the contractor's current inventory. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, approval of first article test results, and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or tests, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract.

6.6 Suggested packaging. Packaging, packing, preservation, marking, and any acceptance criteria will be in accordance with the contract or order. Note that acceptable packaging may take a number of different forms commercial wrapping paper; clear blister or "bubble" wrap; shrink wrap; bags made of commercial grade paper, clear plastic, or clear blister/"bubble" pack closed by tying, taping, or heat-sealing, as appropriate. The intention is to keep a stated number of units of issue together for counting, marking, and subsequent packaging or packing and to do so in a manner that does no damage to the items during handling, shipping, and storing. Suggested packaging is given below: One pair of shoulder boards of one type, size, and class only may be placed in a snug-fitting bag. Note that for Type II shoulder boards a pair consists of one left and one right shoulder board.

TABLE I (These distances describe the shortest distances between insignia. See Figure 9 for team captain rank.)			
	Shoulder Rank Description	Insignia Spacing (Men's) (From previous insignia, base to point)	Insignia Spacing (Women's) (From previous insignia, base to point)
1	***Wing Commander (Col) - Col, 3 stars	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4", 1/4", 1/4" (all stars)	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16", 3/16", 3/16" (all stars)
2	Vice Wing Commander (Col) - Col, 2 stars	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4", 1/4", 1/4" (both stars)	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16", 3/16", 3/16" (both stars)
3	Wing Honor Chairman (Col) - *G/C/H, 4 wide bars, Polaris	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16", 3/16", 3/16"
4	Group Commander (Col) - *G/C/H, 4 wide bars, star	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16", 3/16", 3/16"
5	Colonel (Col) - *G/C/H, 4 wide bars	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16", 3/16"
6	Squadron Commander (Lt Col) - *G/C/H, 3 wide angle bars, star	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16", 3/16"
7	Lieutenant Colonel (Lt Col) - *G/C/H, 3 wide angle bars	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16"
8	Major - G/C/H, wide angle bar, narrow angle bar, wide angle bar	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16"
9	Flight Commander (Capt) - *G/C/H, 2 wide angle bars, star	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16"
10	Captain - *G/C/H, 2 wide angle bars	**1/4", 1/32", 1/32", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16"
11	1st Lieutenant - *G/C/H, wide angle bar, narrow angle bar	**1/4", 1/32", 1/32", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16"
12	2nd Lieutenant - *G/C/H, wide angle bar	**1/4", 1/32", 1/32", 1/4"	**3/16", 1/32", 1/32", 3/16"
13	C1C Unranked - *G/C/H, narrow angle bar	**1/4", 1/32", 1/32", 1/4"	**3/16", 1/32", 1/32", 3/16"
14	Wing Superintendent (CMSgt) - *G/C/H, star, 4 chevrons	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16", 3/16", 3/16"
15	Group Superintendent (CMSgt) - *G/C/H, vertical diamond, 4 chevrons	**1/4", 1/32", 1/32", 1/8", 1/8", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 1/8", 1/8", 3/16", 3/16", 3/16"
16	Squadron Superintendent (SMSgt) - *G/C/H, vertical diamond, 4 chevrons	**1/4", 1/32", 1/32", 1/8", 1/8", 1/4", 1/4"	**3/16", 1/32", 1/32", 1/8", 1/8", 3/16", 3/16"
17	Senior Master Sergeant (SMSgt) - *G/C/H, 3 chevrons	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 1/8", 1/8", 3/16", 3/16", 3/16"
18	First Sergeant (MSgt) - *G/C/H, horizontal diamond,	**1/4", 1/32", 1/32", 1/4", 1/4", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16", 3/16", 3/16"
19	Master Sergeant (MSgt) - *G/C/H, chevron, narrow chevron, chevron	**1/4", 1/32", 1/32", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16"
20	Tech Sergeant - *G/C/H, 2 chevrons	**1/4", 1/32", 1/32", 1/4", 1/4"	**3/16", 1/32", 1/32", 3/16", 3/16"
21	C2C Unranked - *G/C/H	**1/4", 1/32", 1/32"	**3/16", 1/32", 1/32"
22	Staff Sergeant - *G/C, 1 chevron	**1/4", 1/32", 1/2"	**3/16", 1/32", 3/8"
23	C3C Unranked - *G/C	**1/4", 1/32"	**3/16", 1/32"
24	C4C Unranked - *C	**15/32"	**11/32"

*G/C/H – G stands for Ground, C stands for Cloud and H stands for Horizon
 **Measurement from the covered-board base, which is the end opposite of the point.
 ***Wing Commander – The distance between the stars shall be 5/8" for men's and 3/8" for women's.



INSIGNIA, CADET RANK, CHEVRON, USAFA



MEN'S



WOMEN'S

DIMENSIONS		
	Men's	Women's
Height of Bar	9/32"	7/32"
Height Overall	31/32"	23/32"
Width Overall	2-5/16"	1 3/4"

INSIGNIA, CADET RANK, CHEVRON, THIN, USAFA



MEN'S



WOMEN'S

DIMENSIONS		
	Men's	Women's
Height of Bar	1/8"	3/64"
Height Overall	27/32"	5/8"
Width Overall	2-5/16"	1- 3/4"

Figure 3

INSIGNIA, CADET RANK, NARROW ANGLE BAR, USAFA



MEN'S



WOMEN'S

DIMENSIONS (Bottom corner angles are 60°)		
	Men's	Women's
Height of Bar	3/16"	1/8"
Top Width	1-15/16"	1-3/4"
Bottom Width	2-3/16"	1-7/8"

Figure 4

INSIGNIA, CADET RANK, WIDE ANGLE BAR, USAFA



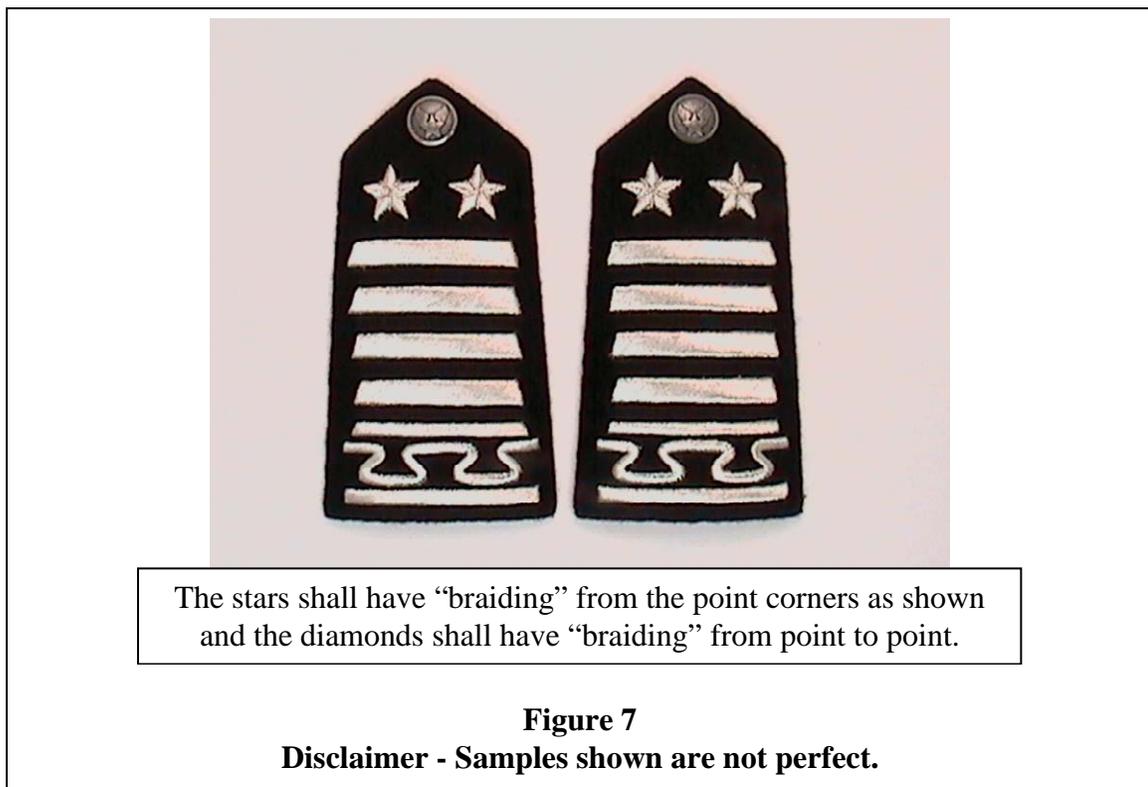
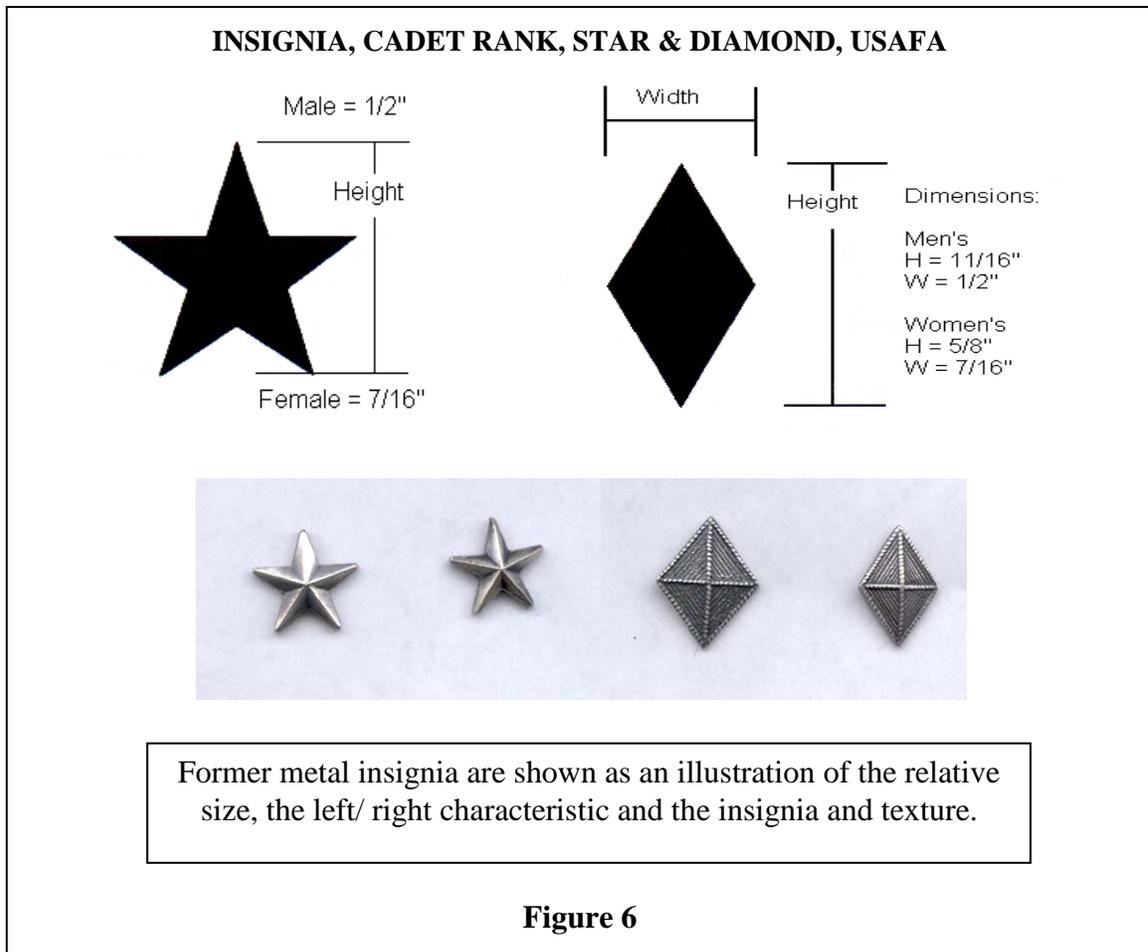
MEN'S



WOMEN'S

DIMENSIONS (Bottom corner angles are 60°)		
	Men's	Women's
Height of Bar	5/16"	3/16"
Top Width	1-7/8"	1-5/8"
Bottom Width	2-3/16"	1-7/8"

Figure 5



<p>The Wings and Star button design shall be used for the fastener cap with the AF standard silver oxidized finish.</p>	
<p align="center">Figure 8</p>	

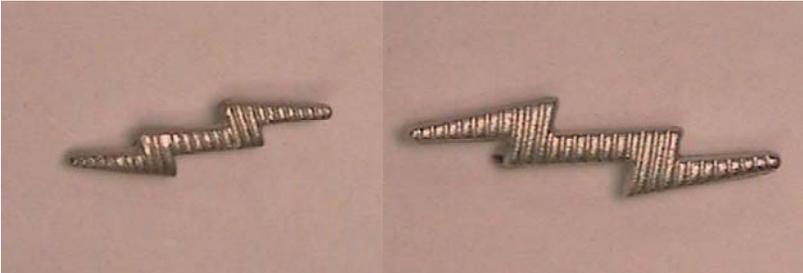
INSIGNIA, CADET RANK, LIGHTNING BOLT, USAFA



LEFT



RIGHT



WOMEN'S LEFT

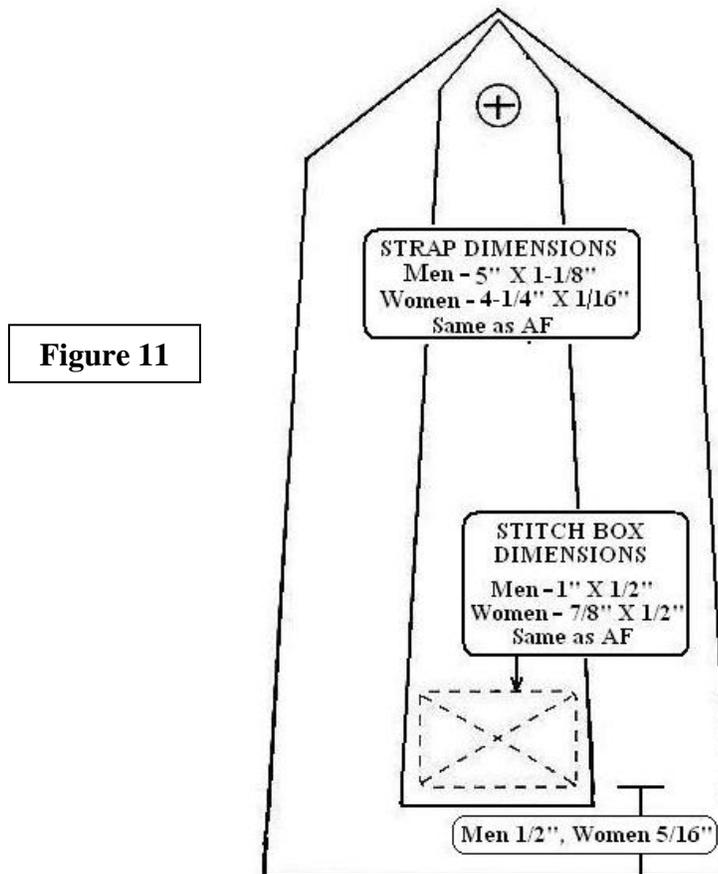
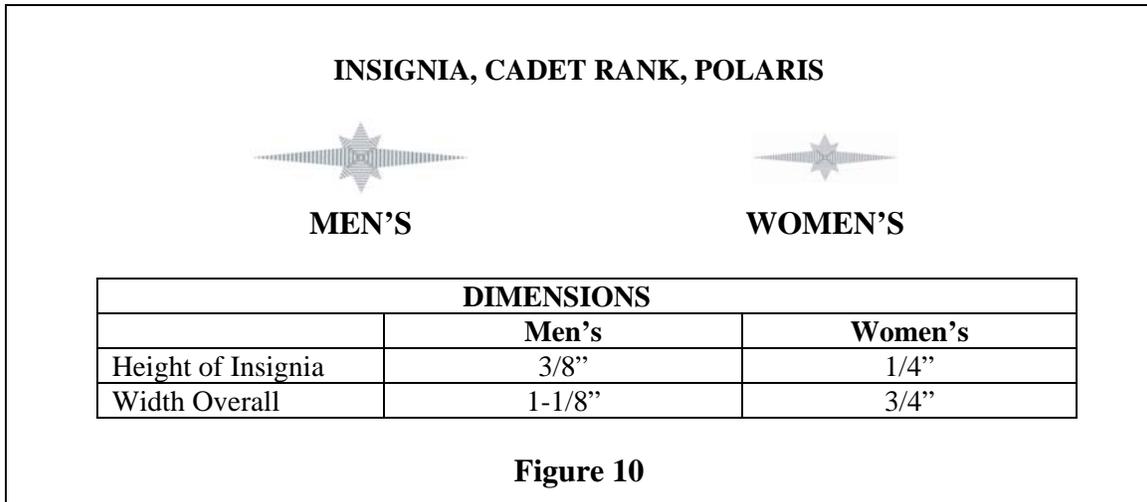
MEN'S RIGHT

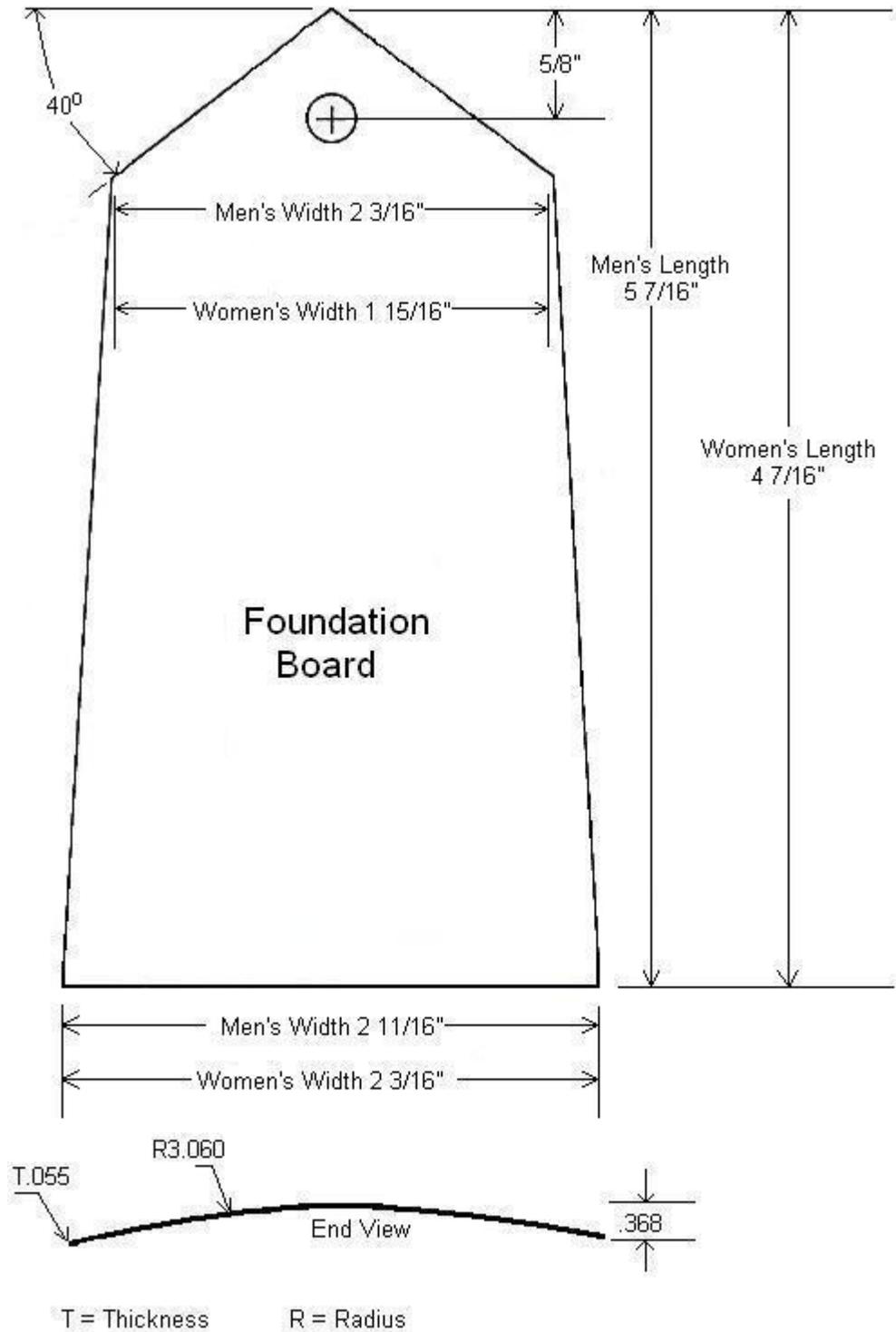
Former metal insignia are shown as an illustration of the relative size, the left/ right characteristic and the insignia and texture.

DIMENSIONS		
	Men's	Women's
Center Height of Bar	3/32"	1/16"
Bar Jog Height	3/16"	5/32"
Width	7/8"	5/8"

-Orientation of the lightning bolt shall be horizontal to the ground just as shown in the cartoon above. Note that the 3 points of the bolt rest on a horizontal line. *This insignia shall be 1/4" above the last insignia or centered between the button and the last insignia.*

Figure 9





FOUNDATION BOARD DIMENSIONS

Figure 12