

PURCHASE DESCRIPTION FOR  
CHAIRS, ROTARY AND STRAIGHT, WOOD OFFICE,  
TRANSITIONAL STYLE

1. SCOPE AND CLASSIFICATION

1.1 Scope. This purchase description covers wood office style chairs designed to be used with executive wood office furniture of various styles. All measurements are in SI (metric) units.

1.2 Classification.

1.2.1 Types, styles, classes and finishes. The chairs covered by this purchase description shall be of the following types, styles, classes and finishes (see 6.1). Dimensions are overall and in millimeters (mm).

Type I Executive office chairs, with gas lift, swivel type (rotary), with arms, five prong base with casters

Style 1 High back, with knee tilt chair control, Figure 1

693 mm W x 772 mm D x 1194 mm H

Style 2 Mid back, with knee tilt chair control, Figure 2

658 mm W x 677 mm D x 1123 mm H

Style 3 Low back, with tilt chair control, Figure 3

658 mm W x 702 mm D x 957 mm H

Type II Office task chairs, with gas lift swivel chair controls, five prong base with casters

Style 1 High back manager's task chair with padded arms, tilting seat and back rest, Figure 4

668 mm W x 581 mm D x 949 mm H

Style 2 Low back task chair with padded arms, tilting back rest, Figure 5

668 mm W x 581 mm D x 877 mm H

Style 3 Low back task chair without arms, with tilting back rest, Figure 6

668 mm W x 581 mm D x 877 mm H

Type III Straight chairs

Style 1 Closed arm, Figure 7

610 mm W x 617 mm D x 850 mm H

Style 2 Open arm, Figure 8

610 mm W x 617 mm D x 850 mm H

Style 3 Armless, Figure 9

530 mm W x 617 mm D x 850 mm H

Type IV Conference chair, swivel tilt, with arms, five prong base with casters, Figure 10

658 mm W x 702 mm D x 957 mm H

Type V Jury chair, self centering swivel tilt, with arms and jury base, Figure 11

658 mm W x 702 mm D x 957 mm H

Each of the above chairs are available in the following classes of upholstery as ordered in the contract or order.

Class 1 Leather

Class 2 Vinyl

Class 3 Fabric

Class 4 Customer's Own Material/Leather (COM)

Chairs in each Type and Class shall be available in the following finishes as ordered in the contract or order.

Finish 1 Walnut  
Finish 2 Mahogany  
Finish 3 Oak

## 2. APPLICABLE DOCUMENTS

2.1 Specifications and standards. The following documents of the issues in effect on the date of invitation for bids, or request for proposal, form a part of this specification to the extent specified herein:

### Federal Standards:

Standard No. 311 - Leather, Method of Sampling and Testing

(Federal Test Methods are available from the DLA Assist database, which can be reached at <http://assist.daps.dla.mil/quicksearch/>)

### Handbooks:

Wood Handbook: Wood as an Engineering Material

(Available from Forest Products Laboratory, USDA, Madison, WI.)

## 2.2 Commercial Standards and Publications.

### American National Standards Institute Publications:

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

ANSI/HPVA HP-1 - Standard for Hardwood and Decorative Plywood

ANSI/BIFMA X5.1 - General Purpose Office Chairs - Tests

ANSI/NFPA 260- Cigarette Ignition Resistance of Components of Upholstered Furniture

(Application for copies should be addressed to ANSI, 11 West 42<sup>nd</sup> Street, NY 10036.)

### American Society for Testing and Materials Standards:

D 751 – Standard Test Methods for Coated Fabrics

D 905 - Standard Method of Test for Strength Properties of Adhesives in Shear by Compression Loading

D 1117 – Standard Guide for Evaluating Nonwoven Fabrics

D 1211 - Temperature Change Resistance of Clear Nitrocellulose Lacquer Films Applied to Wood.

D 2097 - Standard Test Method for Adhesion of Organic Coatings by Scrape Adhesion

D 2199 - Measurement of Plasticizer Migration From Vinyl Fabrics to Lacquers

D 2256 - Breaking Load (Strength) and Elongation of Yarn by the Single-Strand Method.

D 3597 - Woven Upholstered Fabrics - Plain, Tufted or Flocked.

D 3776 - Mass per Unit Area (Weight) of Woven Fabrics.

D 3884 – Abrasion resistance of textile fabrics (Rotary Platform, Double Head Method)

(Application for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959)

### Society of Automotive Engineers

SAE J855 - Test Method of Stretch and Set of Textiles and Plastics

(SAE Standards are available on the internet at <http://www.sae.org>)

### American Association of Textile Chemists and Colorists

AATCC Test Method 8 – Colorfastness to Crocking

(AATCC documents are available from AATCC at AATCC, P. O. Box 12215, One Davis Drive, Research Triangle Park, North Carolina, 27709-2215)

### Upholstered Furniture Action Council Test Methods

UFAC Flammability Test Methods for Upholstered Furniture Components - 1983

(UFAC test methods are available from UFAC, Box 2436, High Point, NC 27261)

### State of California Technical Information Bulletin

Technical Bulletin 117 - Requirements, Test Procedures and Apparatus for Testing the Flame Retardance of Resilient Filling Materials Used in Upholstered Furniture

(State of California Technical Bulletin is available from California Department of Consumer Affairs, Bureau of Home Furnishings, on the internet at <http://www.bhfti.ca.gov/techbulletin/117.pdf>)

## 3. REQUIREMENTS

3.1 Materials. The following paragraphs describe minimum requirements for materials used in construction and assembly.

### 3.1.1 Wood.

3.1.1.1 Varieties. Exposed parts shall be cherry or walnut for Walnut and Mahogany finishes and oak for Oak finish. Only one exposed wood species shall be permitted on any one chair. Unexposed parts shall be domestic hardwood. The wood used in the construction of the unexposed components shall meet the following components at 12% moisture content. See USDA Wood Handbook.

Modulus of Rupture – 68,000 kilopascals (kPa) minimum

Modulus of Elasticity – 9,500 megapascals (Mpa) minimum.

3.1.1.2 Characteristics. The solid wood used for exposed parts shall be bright, well sanded, and free from brashness, discolorations, worm holes, honeycomb, splits, and shake. The wood used for unexposed parts may contain small defects, such as pin knots, sapwood, or mineral streaks provided the strength of the part is not affected.

3.1.1.3 Plywood. All plywood shall be minimum 9 ply, minimum of 15 mm thick, and constructed in accordance with the requirements of ANSI/HPVA HP-1 and as specified herein. Minimum Type II bond required. Crossbanding shall be not less than grade 2.

3.1.1.4 Wood seasoning. All wood shall be thoroughly air-seasoned and then uniformly kiln-dried without honeycomb or case hardening to a moisture content of 5 to 7 percent. At the time of assembly, moisture content shall not exceed 7 percent. Kiln-dried parts shall be allowed to equalize at least 2 weeks in the plant before milling.

3.1.2 Dowels. Dowels shall be of beech, birch, hickory, or maple and have a maximum 8% moisture content at time of assembly. Dowels shall be spirally or longitudinally grooved. Unless otherwise specified, dowels shall have a minimum diameter of 9 mm and the length shall be not less than 4 times the diameter.

3.1.3 Adhesive. Adhesive shall have a block shear strength of 19,300 kPa minimum when tested in accordance with paragraph 4.4.1.

3.1.4 Regulatory requirements. The offerer/contractor is encouraged to use recovered materials in accordance with Public Law 94-580, as amended, to the maximum extent practicable.

3.2. Upholstery materials and flammability requirements. All upholstery cover materials, welts, interior fabrics, fillings, and paddings shall meet the applicable sections of California Technical Bulletin 117.

3.2.1 Upholstery fabric The upholstery fabric shall have a 100% flat nylon face and a 100% acrylic backing, dyed, not less than 235 g/m<sup>2</sup> exclusive of back coating. Fabric shall meet the following requirements when tested in accordance with the methods in ASTM D 3597.

Weight:	485 grams/m <sup>2</sup>
Tear strength:	90 N warp, 110 N filling
Tensile strength:	1110 N warp
Seam slippage:	385 N warp, 375 N filling
Abrasion:	60,000 cycles (Heavy Duty)
Colorfastness to light:	40 hours - Class 4
Pilling:	Class 4

The color and pattern shall conform to GSA Standard Sample colors referenced in 3.7.1 (See 6.4.1).

3.2.2 Leather. Leather shall be top grain, dyed full depth. Leather shall meet the following requirements when tested in accordance with the methods in 4.6.

Thickness:	57 to 85 g
Breaking force (grab Method):	444 N minimum
Elongation:	40% maximum stretch
Stitch tear (double hole):	67 N minimum
Crocking (colorfastness, resistance to rubbing):	Dry: 8.5 Munsell or better Wet: 6.5 Munsell or better
Blocking:	Specimens must separate with ease and show no grain damage
pH:	3.3 to 5.0
Fade resistance (colorfastness):	Little or no change in color or finish
Abrasion resistance:	No signs of the finish wearing through (except for gloss change)
Flexibility:	Fine cracks, no russet showing

The color shall conform to GSA Standard Sample colors referenced in 3.7.2 (See 6.4.2).

3.2.3 Vinyl. Vinyl shall have a terry loop knit polyester base cloth. Vinyl shall meet the following requirements when tested in accordance with the methods in 4.7.

Thickness:	1.2 mm minimum
Total weight:	Minimum 678 g/m <sup>2</sup>
Breaking strength, Minimum:	266 N Wales, 266 N Courses
Elongation, Maximum:	5% stretch, Wales, 25% stretch Courses
Tear strength, Minimum:	44.4 N Wales, 44.4 N Courses
Crocking (colorfastness, resistance to rubbing):	Good
Abrasion resistance:	No signs of the finish wearing through (except for gloss changes) after 30,000 double rubs

The color shall conform to GSA Standard Sample colors referenced in 3.7.3 (See 6.4.3).

### 3.2.4 Filler materials.

3.2.4.1 Fiberfill batting, Fiberfill batting shall be garneted (not resinated) and shall meet the following requirements: Minimum 5 g/m<sup>2</sup> (Test 4.4.3), 5.5 - 16 denier

3.2.4.2 Wadding. Wadding shall consist of white fibers, 4 to 14 mm thick, 61 to 152 g/m<sup>2</sup> (Test 4.4.3).

3.2.5 Sheet fabric. Any of the following materials are acceptable over interior and exterior frame parts.

- Polyethylene, spunbonded - 39 g/m<sup>2</sup> minimum (Test 4.4.3)
- Polypropylene, spunbonded - 61.3 g/m<sup>3</sup> minimum (Test 4.4.3)
- Polypropylene, woven - 100 g/m<sup>2</sup> minimum (Test 4.4.3)

3.2.6 Polyurethane foam. Polyurethane foam shall meet the following requirements. The Indentation Force Deflection (IFD) test shall be performed on a sample size of 20" x 20" x 4".

- Seat - Slab or molded, high resilience type, polyurethane foam with a minimum 38 kg/m<sup>3</sup> polyurethane polymer density. 173 - 200 N IFD (25 percent deflection) required
- Back and Arms - Slab or molded, conventional or high resilience type polyurethane foam with a minimum 27 kg/m<sup>3</sup> polyurethane polymer density. 120 - 147 N IFD (25 percent deflection) required

All foam shall meet flame retardant requirements in 3.2. Flame retardant additives are permitted. Buff edges/corners when necessary to achieve specified final appearance and provide a smooth fitting cover.

3.2.7 Sewing and quilting twine. The minimum breaking strength of twine used shall be 49 N when tested as specified in 4.4.4.

3.2.8 Welts. Welts shall have a minimum 4 mm core.

3.2.9 Sheet webbing. Sheet webbing shall be used for seat foundation and shall meet the following requirements: Rubber, 22 gauge, 3 core, rayon-spun, polypropylene 100 denier. Semi finished webbing shall be run through a liquid latex bath and heat set (See 6.4.4).

3.2.10 Cambric. Cambric shall be black non-woven material, minimum 64 g/m<sup>2</sup>.

### 3.3 Hardware.

3.3.1 Glides. Glides shall be minimum 18 mm diameter, flat beige plastic single prong glide.

3.3.2 Casters. Casters shall be black, dual convex wheel, 50 mm diameter, hard carpet type, with zinc die-cast, antique brass hood.

3.3.3 Chair base. Chair base shall be exposed wood clad steel, 5 prong with a 50 mm hub.

Base size: Type I Executive office chairs and Type IV Conference chair - 660 mm.

Type II Task chairs - 584 mm.

3.3.4 Jury (stationary) base. Jury base shall have steel with black finish. Base is intended for permanent installation in a jury box to support type V jury chairs (See 6.4.5).

3.3.5 Chair controls.

Type I Executive office chairs:

- Style 1 High back: Gas lift swivel type, knee tilt with tilt tension adjustment knob. The seat tilt shall be lockable in a minimum of 6 positions. The forward most position shall be level with the floor or tilted forward.
- Style 2 Mid back: Gas lift swivel type, knee tilt with tilt tension adjustment knob. The seat tilt shall be lockable in a minimum of 6 positions. The forward most position shall be level with the floor or tilted forward.
- Style 3 Low back without arms: Gas lift swivel type, knee tilt with tilt tension adjustment knob. The seat tilt shall be lockable in a minimum of 6 positions. The forward most position shall be level with the floor or tilted forward.

Type II Office task chairs

- Style 1 High back manager's: Gas lift swivel type, independent infinite back rest pitch adjustment, adjustable back height. The seat tilt shall be lockable in a minimum of 6 positions. The forward most position shall be level with the floor or tilted forward.
- Style 2 Low back with arms: Gas lift swivel type, lockable infinite back rest pitch adjustment, adjustable back height, The seat tilt shall be lockable in a minimum of 6 positions. The forward most position shall be level with the floor or tilted forward.

Style 3 Low back without arms: Gas lift swivel type, tilting, independent infinite back rest pitch adjustment, adjustable back height.

Type IV Conference chair: swivel tilt.

Type V Jury chair: self centering swivel tilt.

3.3.6 Back height adjusting mechanism. Back height adjustment mechanism shall be ratchet type height adjustment mechanism with minimum 76 mm adjustment range. See 6.4.6.

3.3.7 Arm adjustment mechanism. Arm adjustment mechanism shall allow arms to adjust up and down with trigger lock and in and out from seat with a friction lock. See 6.4.7.

3.3.8 Adjustable lumbar support. Lumbar support shall be lever activated unit of air and foam encased in vinyl case.

3.4 Construction. All chair frames except the type II task chairs shall be constructed of solid hardwood (exposed, unexposed as applicable, see 3.1.1.1). The type II task chairs shall be plywood and/or hardwood construction with solid exposed wood trim. All chairs shall be glued, screwed and double doweled together and shall meet test requirements in 4.5. All exposed corners and edges shall be rounded to an approximate 3 mm radius. Corner blocks as wide as practicable shall be carefully fitted, and securely glued and screwed.

3.4.1 Design. The chairs shall be transitional design, with straight (leg) type, swivel type with "prong" base or jury base as specified (see 1.2.1 and 6.2). Chairs shall be similar to the specified figure. All type III straight (leg) chairs shall have glides (3.3.1). All type I, II, and IV rotary chairs shall have casters (3.3.2). All chairs shall have upholstered seats.

3.4.1.1 Component shapes.

Front stump - solid exposed wood (3.1.1.1), 84 mm wide at the bottom, shape to 60 mm wide at the top. 38 mm radius shape on front and top of arm stump.

Top arm - solid unexposed wood (3.1.1.1), 58 mm wide. Bandsaw to required shape.

Cleat - solid unexposed wood (3.1.1.1), bandsaw and carve to shape. Bullet nose shape required on front and rear ends.

Rear arm stump - solid unexposed wood (3.1.1.1), 34 x 43 mm, rhomboid shape required.

3.4.2 Tolerances.

Overall width, depth, height:  $\pm 12$  mm

Dimensions of any wood part:  $\pm 3$  mm

Dimensions of upholstered parts:  $\pm 12$  mm

Dimensions between arms:  $\pm 12$  mm

Height of arms from floor (side arm chair):  $\pm 12$  mm

Angular measurements:  $\pm 1$  degree

3.4.3 Chair comfort. Seats shall be crowned, moderately firm, not bottom out, and have adequate ride. Backs shall be moderately firm and shall provide adequate lumbar support. Comfort will be evaluated on pre-award samples and at first article inspection by GSA employee(s) or their representatives.

3.4.4 Upholstery requirements.

3.4.4.1 Type I executive high back and mid back chair upholstery. Seat shall consist of sheet webbing (3.2.9) on seat with a semi-attached cushion consisting of polyurethane foam (3.2.6) with polyester fiberfill wrap (3.2.4.1) and the final upholstery cover. The high back executive chair has a T-cushion. The chair shall have semi attached cushions. The cushions shall be fully upholstered on the front and back. The chair back frame shall be fully upholstered. The upholstery flap shall be one piece. The back cushions shall consist of polyurethane foam with polyester fiberfill wrap. All cushions shall be welted with knife edge design. The arms shall have sheet fabric on the inside and outside, stretched taut without wrinkles. The top arm shall be covered with 13 mm polyurethane foam with a layer of 3 mm wadding covering the cleat, top and inside arm surfaces. The final covering shall have no wrinkles or pleats. Arms shall be adequately padded to provide the required

appearance and thickness. The outside arm is covered with 3 mm wadding (3.2.4.2) and a final layer of upholstery covering material. The welt shall be glued in the welt line on front inside, top and outside arm. The outside back shall be welted with a 6 mm thick layer of wadding and the final upholstery cover neatly applied. The arms shall be applied with at least three stove bolts each minimum 11 mm in size. Seat and back on the executive mid and high back chairs shall have a soft wrinkled surface appearance.

3.4.4.2 Type I executive low back, type IV conference chair and type V jury base chair upholstery. Arm construction shall be identical to high back executive except the 13 mm thick polyurethane foam (3.2.6) is replaced with a piece of 6 mm thick wadding. The base for the seat shall be sheet webbing. A polyurethane foam tee shaped seat shall be glued to the frame with a layer of polyester fiberfill batting glued to the top. A 5 mm thick boarder shall be glued to the front edge of the seat cushion and cover the wood frame. The final upholstery cover shall be cut and sewn to fit. The base for the inside and outside back shall be sheet fabric. A polyurethane foam lower back with polyester fiberfill glued on the top shall be glued to the frame, and the final upholstery cover applied. The top back and the outside back shall be sewn together with a 60 mm border between them, saddle stitched on both sides to form a cushioned look. The outside back shall have a 5 mm sheet of wadding glued to the frame before inside/outside back installation. The lower portion of the outside back shall be closed with tack strip.

3.4.4.3 Type II task chair upholstery. Chair frames shall be covered with adequate thickness polyurethane foam (3.2.6) so seat and back do not "bottom out" and overall chair appearance complies with figures 4, 5 or 6 as applicable. Arms on type II, style 1 and 2 chairs shall be adequately padded and upholstered.

3.4.4.4 Type III straight chair upholstery. Seat and back foundation shall consist of securely attached sheet webbing (3.2.9). Sheet webbing shall be covered with polyurethane foam (3.2.6) of adequate thickness to prevent seat and back from "bottoming out" and ensure the overall chair appearance complies with figures 7, 8 or 9 as applicable. Enclosed arms on style 1 chair shall be closed with sheet fabric (3.2.5), padded, and covered with upholstery material. Outside back shall be padded out to present a uniform back appearance and covered with upholstery material. Bottom of chairs shall be covered with cambric (3.2.10).

3.5 Padding, filling and upholstery requirements for all chairs. Minimum padding and filling requirements are described in construction paragraphs. Additional padding and filling shall be applied as necessary to ensure the appearance and cushion dimensions comply with figures, with no hollows, voids, flat or hard spots. All frame members, and edges of plywood seats shall be padded. Covers shall be carefully tailored and so applied that they are neat and tight, free from wrinkles and bulges. Final appearance of chair shall be symmetrical. The type and number of stitches shall be sufficient to provide the required appearance and pass all chair test requirements. Seam allowance shall be maintained and seams properly sewn so that no raw edges, runoffs, broken or skipped stitches, twists, pleats or puckers result. Top and bottom threads shall be adjusted to the upholstery materials with proper tension so there will be no looped stitches, puckering of materials, or cracking when cover is stretched to fit the chair. Welts shall lie straight and uniform. Covers for all chairs shall be attached with tacks or staples. All chair seat bottoms shall be covered with cambric.

3.6 Exposed wood finish. Finish shall match as closely as possible the overall color of GSA Standard Sample FSS-L-01023 Federal Oak, FSS-W-01002 Federal Mahogany, or FSS-W-01001 Federal Walnut as required and be stained to equalize color. Semi-open pore finish with minimum two natural or synthetic top coats with adequate "build" is required. Final finish shall pass finish tests (4.4.2).

GSA Standard Samples are available from GSA-FSS, National Furniture Center, Engineering Division (3FNE-CO), 2200 Crystal Drive, Suite 400, Arlington, VA 22202.

### 3.7 Upholstery material samples.

3.7.1 Fabric standard samples colors. Sample colors shall be:

FSS-F-14001 Apple Red	FSS-F-14005 Navy
FSS-F-14002 Plum Purple	FSS-F-14006 Spruce Green
FSS-F-14003 Cordovan Red	FSS-F-14007 Cocoa Brown
FSS-F-14004 Sky Blue	FSS-F-14009 Gray Blue

3.7.2 Leather standard sample colors. Sample colors shall be:

FSS-X-01001 Red	FSS-X-01008 Nutmeg Brown
FSS-X-01003 Plum	FSS-X-01011 Saddle
FSS-X-01004 Cordovan	FSS-X-01012 Gray
FSS-X-01005 Light Blue	FSS-X-01013 Black
FSS-X-01006 Navy	

3.7.3 Vinyl standard sample colors. Sample colors shall be:

FSS-V-11001 Red	FSS-V-12007 Nutmeg Brown
FSS-V-11002 Purple	FSS-V-11008 Rust
FSS-V-11003 Cordovan	FSS-V-11009 Gray
FSS-V-11004 SkyBlue	FSS-V-11010 Black
FSS-V-11005 Navy	

3.8 Identification marking. Each item shall be permanently and legibly marked with contrasting ink, on the underside of chair seat, with the specification number, national stock number, contract number, month and year of manufacture and manufacturer's name or trademark.

3.9 Workmanship. A high degree of craftsmanship shall be exercised in order to produce chairs suitable for use in executive offices. The methods of construction, assembly, filling, padding, upholstery (see 3.5), finishing and the appearance of the chairs shall be in strict accordance with the requirements of this specification. Chairs shall have a neatly tailored, taut, stuffed appearance complying with applicable figures. Loosely fitted upholstery or uneven padding is not acceptable. Rotary mechanisms shall operate and rotate freely and easily without turning the base and be free from play or wobble. All adjustable mechanisms and moving parts shall operate smoothly and quietly. Casters shall rotate smoothly and be attached to prevent accidental removal. All wood surfaces not covered with upholstery materials, shall be finish sanded smooth and all corners and edges eased, thoroughly cleaned, and finished. The natural grain of the wood shall not be clouded by the finishing materials. Bleaching agents or materials shall not be used. The application of materials, drying time, sanding, cleaning, and rubbing shall be controlled to produce items with smooth, uniform exposed surfaces without blisters, pits, wrinkles, runs, tackiness or more than a trace of orange peel.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 First article inspection and testing. The first article samples shall be inspected and tested as specified herein for all the requirements of this specification. The samples shall be manufactured in the same manner, using the same materials, equipment, processes, and procedures as used in regular production. All parts and materials, including packaging and packing, shall be obtained from the same source of supply as used in regular production. In addition, first article samples shall be compared to and shall match pre-award samples for style/design, workmanship, comfort, and finish (except color). Pre-award sample rejection points (if any) shall be corrected in the first article sample. Manufacturer shall maintain pre-award samples and first article samples as manufacturing standard samples until the last order is shipped, received and accepted by the ordering activity.

4.2. Production item inspection and testing. During production, items shall be inspected by the contractor in accordance with 4.3. No item shall be shipped unless it fully conforms with all contract requirements. Production items shall also comply with the manufacturing standard samples (4.1).

4.3 Inspection provisions.

4.3.1 Responsibility for inspection. Unless otherwise specified, the contractor is responsible for the performance of all inspection requirements and may use any commercial facilities (including the contractor's own facilities) suitable for the performance of the inspection requirements, unless disapproved by the Government. The Government reserves the right to perform any inspections deemed necessary to assure the item conforms to the specified requirements.

4.3.2 Visual and dimensional examination. Perform examination on a percent defective basis in accordance with ANSI/ASQC Z1.4 and the following sampling plan.



Inspection Level - II. Acceptable Quality Level (AQL) - 4.0

Inspect items for visual and dimensional requirements of this specification paying close attention to filling and upholstery (3.5) and workmanship (3.9).

4.3.2.1 Overall examination. In addition to visual and dimensional examination, inspect each chair at a viewing distance of 2 m for the following defects. Reject the item if one or more of the following defects is found.

- Wood finish streaked or not uniform.
- Piece visually off level.
- Scratch or bruise marks on wood.
- Poor fit of upholstery as evidenced by wrinkles, bulges, uneven padding, or other defects.
- Welts not straight.
- Chair upholstery and filling not symmetrical.

4.3.3 Packaging, packing, marking examination. Examine items for compliance with requirements stated in this document and the contract. Score areas of noncompliance with requirements as defects.

Inspection Level - S-4. Acceptable Quality Level (AQL) - 4.0.

4.4 Testing. Failure to comply with the following test requirements will be cause for rejection. Testing is required for first article inspection.

4.4.1 Test for adhesives.

Component	Characteristic	Requirement reference	Test Method
Adhesive	Block shear test	3.1.3	ASTM D 905

Rerun test if all three of the following criteria are met: the average shear strength of all samples is below 19,300 kPa; there is a 10 percent or greater difference between high and low specimen values, and at least one test specimen broke at more than 19,300 kPa.

Disregard a test specimen in computing the average if it breaks at less than 19,300 kPa; and it has 50 percent or more wood failure.

4.4.2 Finish tests and requirements. The following tests shall be performed on a sample panel finished in the same manner as units are finished in production. Perform all finish tests at first article inspection. All test panels shall be produced from finish materials currently being used in production. All samples tested shall meet the following test requirements.

4.4.2.1 Cold check. Age panel one week. Follow ASTM D 1211 test procedure. After exposure of 10 cycles, there shall be no checking or cracking. True film checking is one or more wavy or straight lines that cross the grain and do not appear related to grain structure. When a panel displays veneer checks, check running parallel to the grain, or glue line fracture, the panel shall be disregarded and another panel tested.

4.4.2.2 Cold print. Age panel 48 hours. A 50 x 50 mm (approx.) piece of duck material (canvas) 280 g/m<sup>2</sup>, minimum count of 23.6 x 22.8 yarns per cm, shall be placed on the panel. Place a 455 g weight on the material for 24 hours at 24°C. Bottom (contact surface) of the weight shall be flat and have a 28 mm diameter. After the weight is removed, light polishing with a soft cloth and liquid polish must remove any imprint.

4.4.2.3 Ultra violet light resistance. One solid wood panel in each finish color, finished in the same way as in production, shall be tested. Allow panels to age for a minimum of ten days at 25°C (±3°C) and 35 to 75% R.H. Perform exposure test at the same ambient conditions. Mask off one half of panel with aluminum foil or cut off a control portion of sample to be used later for comparison with the exposed portion. Place test panel 150 mm from ultraviolet lights (two 48 inch, UV 351 fluorescent lamps) for 72 hours. After exposure, remove and compare exposed and unexposed sections for discoloration, fading, loss of gloss, film embrittlement, cracking or any other failures. There shall be no more than a very slight change between the tested panel and the control panel after testing. UVA-351 fluorescent lamps are available from Q-Panel Co., Cleveland, OH.

4.4.2.4 Toughness and adhesion. Perform test for toughness and adhesion on a sample panel finished in the same manner as the furniture using Organic Coating Adhesion Tester, Model No. 1001 in accordance with manufacturer's instructions. Mar the panel both parallel and perpendicular to the grain. Film must conform to resulting indentation. Whitening (film separation) or cracking is not acceptable. Organic Coating Adhesion Tester Model No. 1001 is available from U.S. Testing Company, Inc. Instrument Marking Division, 1415 Park Avenue, Hoboken, NJ 07030.

4.4.2.5 Plasticizer migration. Perform test on a sample panel finished in the same way as production pieces according to ASTM D 2199, Standard Method for Measurement of Plasticizer Migration from Vinyl Fabrics to Lacquers.

4.4.3 Test method for determining weight of material per square area. Test shall be performed in accordance with ASTM D 3776.

4.4.4 Test method for determining breaking strength of twine. Test shall be performed in accordance with ASTM D 2256.

4.5 Tests for chairs. Test at least one chair of each type and style listed below in accordance with ANSI/BIFMA X5.1 General Purpose Office Chairs - Tests at time of First Article Inspection.

Test Schedule

Section	Type I Style 1	Type I Style 3	Type II Style 1	Type II Style 2	Type II Style 3	Type III Style 2	Type III Style 3	Type IV	Type V
5	X	X						X	X
6			X	X	X				
7						X	X		
8	X		X						
9	X	X	X	X	X	X	X	X	X
10	X		X					X	
11	X	X	X	X	X			X	X
12	X	X	X	X	X	X	X	X	X
13	X	X	X	X	X	X	X	X	
14	X		X			X			
15	X		X			X			
16	X	X						X	X
17			X	X	X				
18	X		X						
19						X	X		
20						X	X		

4.6. Leather test methods. Sampling procedures and location from which the sample unit is to be obtained shall be in accordance with Fed. Std. 311. All tests are to be performed on individual sample units, with the exception of pH which is to be run on a composite. All test reports shall contain individual values utilized in expressing the final result. The lot shall be rejected if any one of the following conditions exists:

- a. More than 25% of thickness measurement taken do not fall within the required range;
- b. More than three test failures occur for breaking force, elongation, or stitch tear;
- c. More than one test failure occurs for the remaining requirements applicable to the sample unit;
- d. Any composite fails to meet the specific requirement.

Test	Method	Requirement
Thickness	Fed. Std. 311; 1011.1	See 3.2.2
Breaking force (grab method)	Fed. Std. 311; 2031	See 3.2.2
Elongation	Fed. Std. 311; 2031 at 100 lb load	See 3.2.2
Stitch tear (double hole)	Fed. Std. 311; 2151	See 3.2.2

Test	Method	Requirement
Crocking (colorfastness, resistance to rubbing) Test all colors.	Fed. Std. 311; 3031.1	See 3.2.2
Blocking	Fed. Std. 311; 3121.1	See 3.2.2
pH	Fed. Std. 311; 6621.1	See 3.2.2
Abrasion resistance	ASTM D 3884 1000 cycles using CS-10 wheels and 1000 gram weights	See 3.2.2
Flexibility	ASTM D 2097 60,000 cycles	See 3.2.2

4.7 Vinyl test methods. All tests are to be performed on individual sample units. All test reports shall contain individual values utilized in expressing the final result. The lot shall be rejected if any sample fails to meet the requirements specified in paragraph 3.2.3.

Test	Method
Breaking Strength	ASTM D 751 – Grab Method
Elongation	SAE J 855
Tear Strength	ASTM D 1117 Trapezoid Tear
Crocking	AATCC 8
Abrasion Resistance	ASTM D 3884

## 5. PACKAGING, PACKING, MARKING

Package, pack and mark shipping containers in accordance with the contract or order.

## 6. NOTES

6.1 Intended use. Transitional chairs are designed for use in executive offices, courtrooms, libraries, and conference rooms of Federal agencies. The chairs should compliment the decor of executive areas when used with other furniture items within this group.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- (a) Title, number, and date of this purchase description.
- (b) Type and style (see 1.2.1).
- (c) Upholstery material and color required (see 1.2.1, 3.7.1, 3.7.2, 3.7.3).
- (d) Wood finish required (see 1.2.1, 3.6).

### 6.3 SI - English unit equivalents.

1 m <sup>2</sup> (square meter)	= 1.19617 yd <sup>2</sup>
1 kg/m <sup>3</sup> (kilogram/cubic meter)	= 0.06242 lb <sub>m</sub> (mass)/ft <sup>3</sup>
1 mm (millimeter)	= 0.03937 inch (thickness of one dime)
1 m (meter)	= 1.0936 yard or 39.37 inches
1 N (Newton)	= 0.225 lb <sub>f</sub> (force)
1 kg (kilogram)	= 2.2 lb <sub>m</sub> (mass)
1 g (gram)	= 0.0022 lb <sub>m</sub> (mass)
1 g (gram)	= 0.03527 oz (mass avoirdupois)
1 kPa(kilo Pascal)	= 0.14514 lb <sub>f</sub> (force)/in <sup>2</sup> (PSI)
1 g/m <sup>2</sup> (gram per square meter)	= 0.02949 oz/yd <sup>2</sup> or 0.04426 oz/linear yard (54" W basis)

To convert SI units to English units, multiply SI measurement by the appropriate English conversion factor listed above. See example below:

$$900 \text{ mm} \times 0.03937 = 35.43 \text{ inches}$$

To convert Celsius temperature to Fahrenheit temperature, use the above conversion equation. See example below:

$$(20^{\circ}\text{C} \times 1.8) + 32 = 68^{\circ}\text{F}$$

6.4 Known sources of supply.

6.4.1 Upholstery fabric. Wyoming Weavers, Thunder pattern, or equal.

6.4.2 Leather. Conneaut Davenport, or equal.

6.4.3 Vinyl. Morbern Royal Hampton, or equal.

6.4.4 Sheet webbing. Ultra Flex or equal.

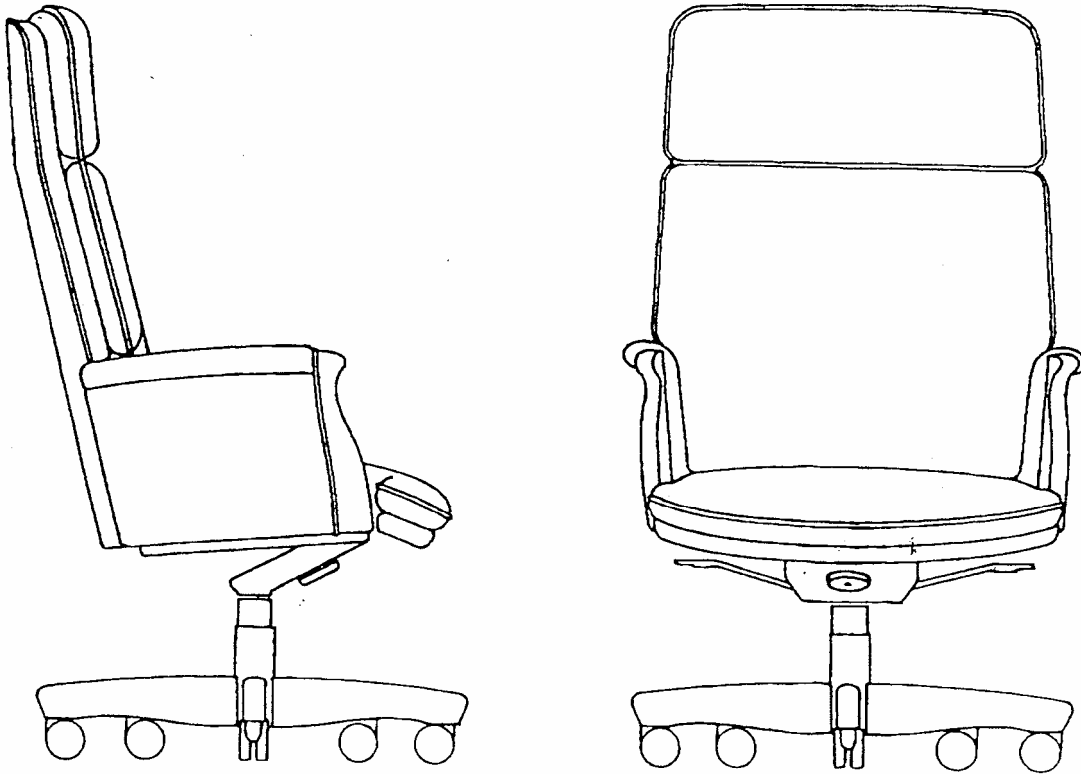
6.4.5 Jury (stationary) base. Collier-Keyworth, model no. 515 or equal.

6.4.6 Back height adjusting mechanism. International Mechanical Instruments, Model no. 4821 or equal.

6.4.7 Arm adjustment mechanism. International Mechanical Instruments, Model no. A031-96 or equal.

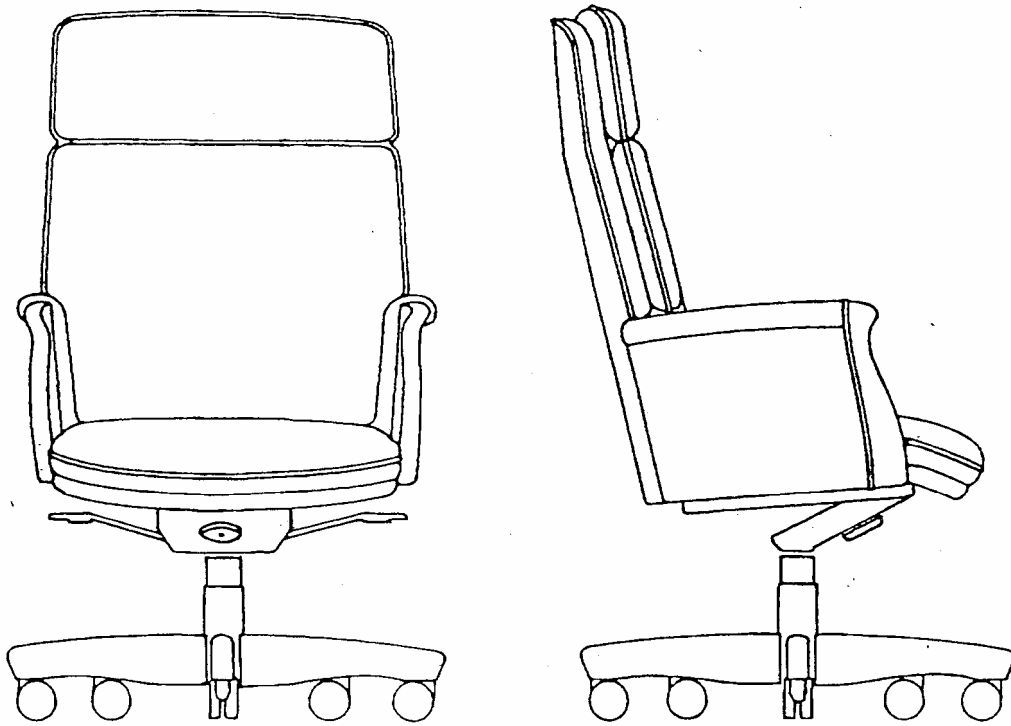
Drawings of each type of chair (Figures 1-11) are incorporated by reference into this purchase description.

Figure 1 – Type I, Style 1  
High Back Executive Office Chair



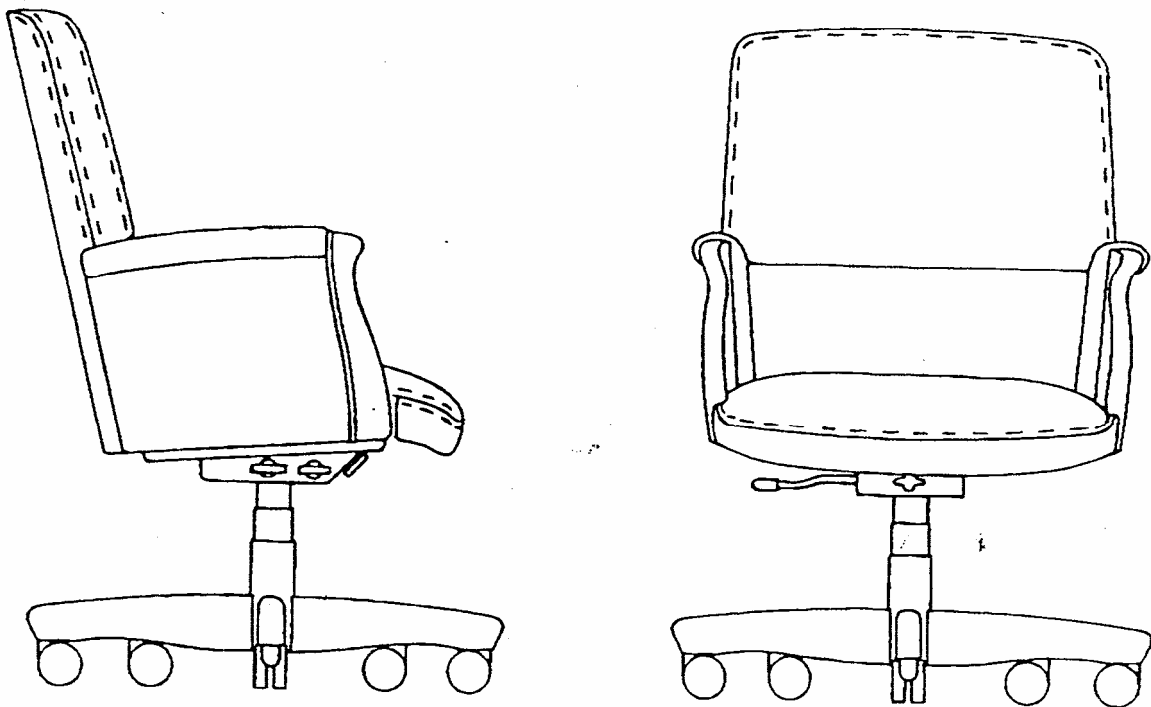
Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
693 mm	772 mm	1194 mm	470 mm	641 mm	533 mm	477 mm

Figure 2 – Type I, Style 2  
Mid Back Executive Office Chair



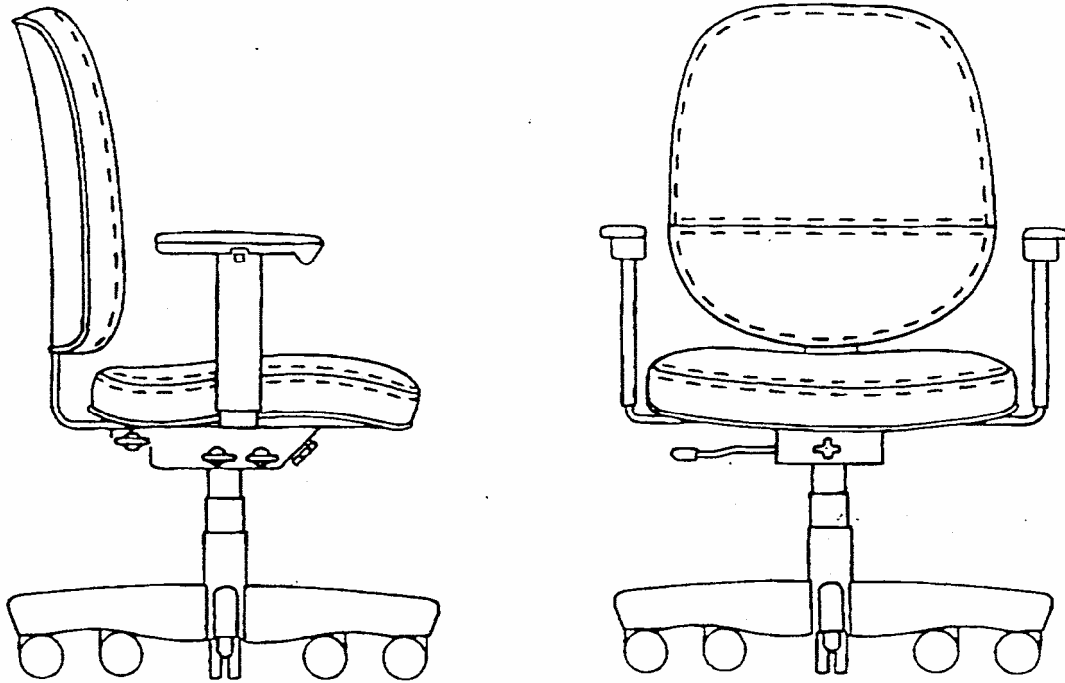
Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
658 mm	677 mm	1123 mm	462 mm	641 mm	508 mm	482 mm

Figure 3 – Type I, Style 3  
Low Back Executive Office Chair



Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
658 mm	702 mm	957 mm	462 mm	641 mm	508 mm	470 mm

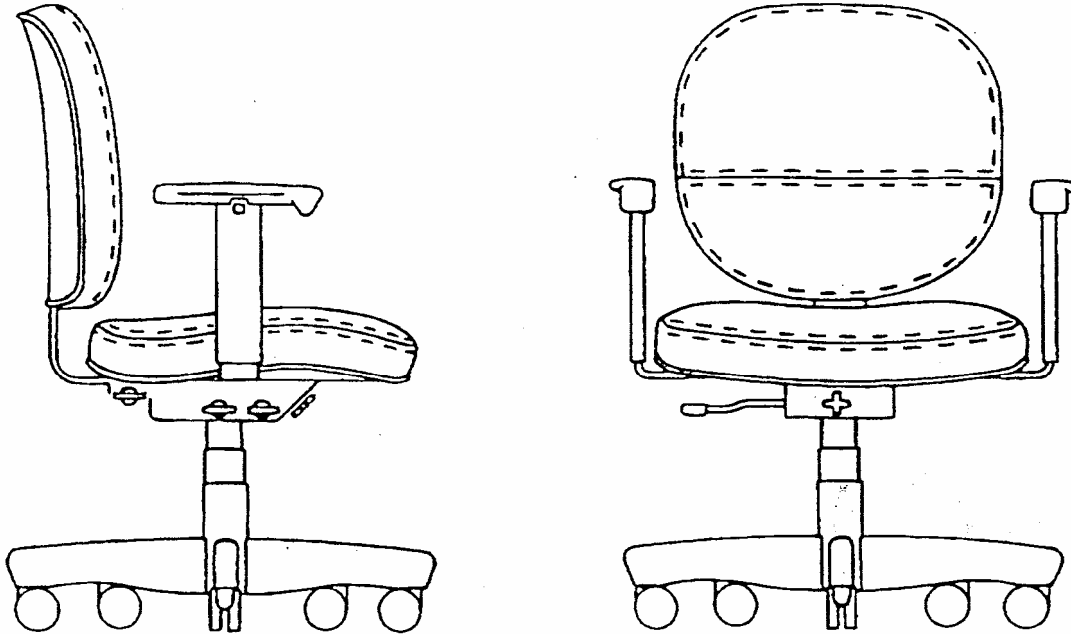
Figure 4 – Type II, Style 1  
High Back Task Chair



Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
668 mm	581 mm	949 mm	467 mm	637 mm	517 mm	470 mm

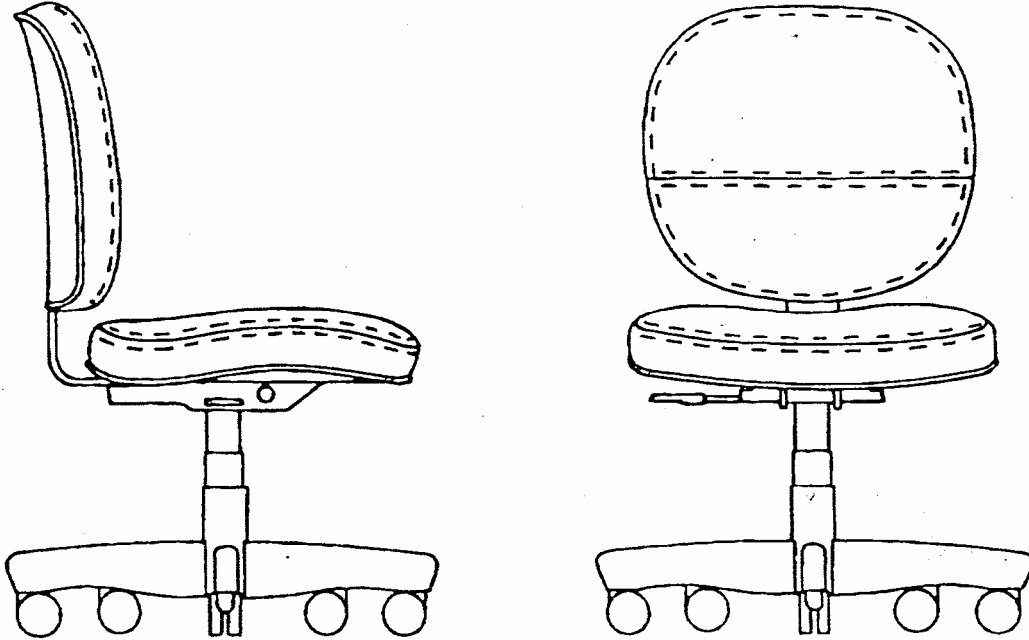


Figure 5 – Type II, Style 2  
Low Back Task Chair With Arms



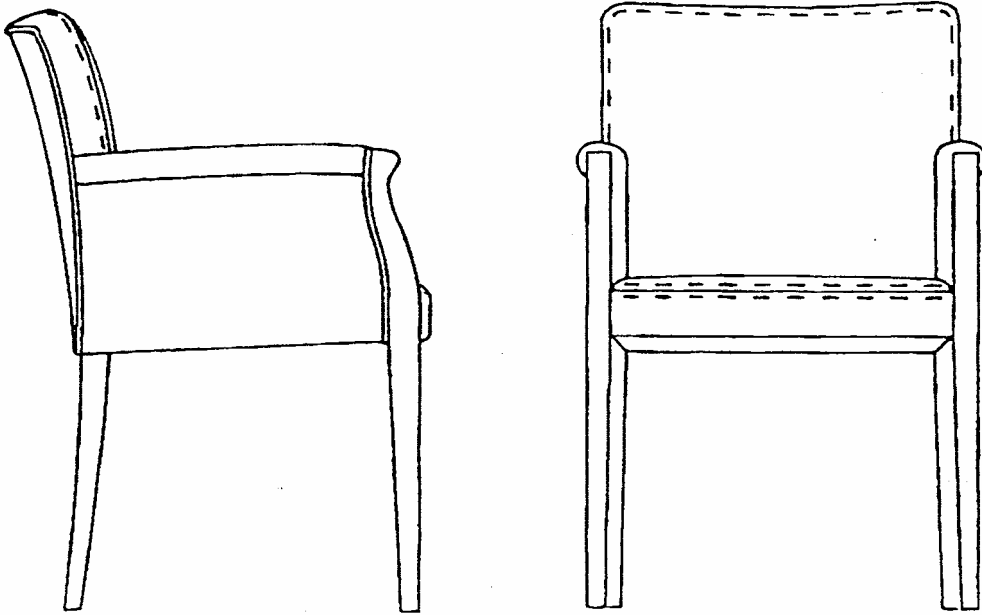
Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
668 mm	581 mm	877 mm	467 mm	637 mm	517 mm	470 mm

Figure 6 – Type II, Style 3  
 Low Back Task Chair Without Arms



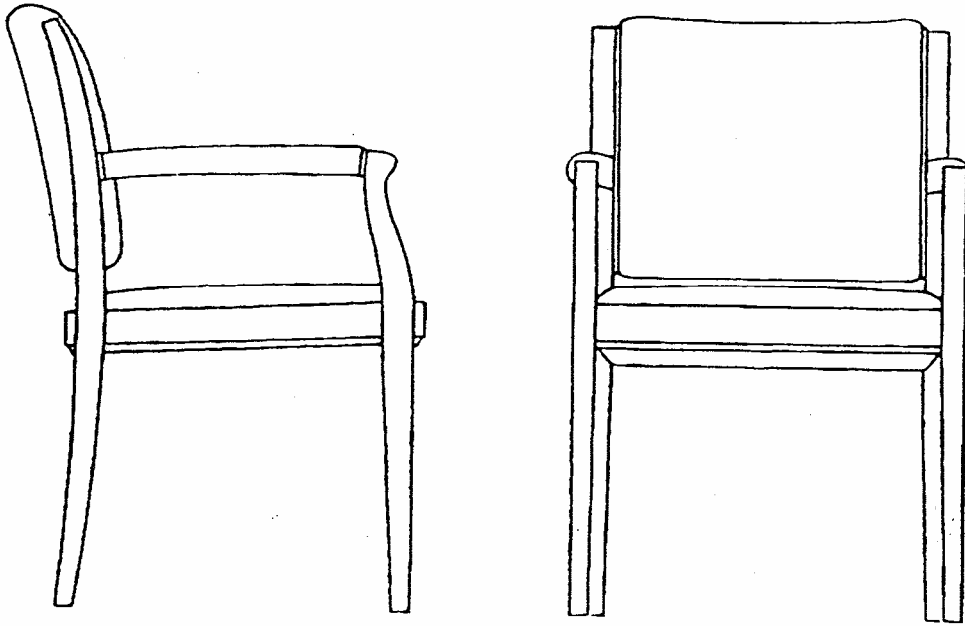
Overall Width	Overall Depth	Overall Height	Seat Height	Seat Width	Seat Depth
668 mm	581 mm	877 mm	467 mm	517 mm	470 mm

Figure 7 – Type III, Style 1  
Closed Arm Straight Chair



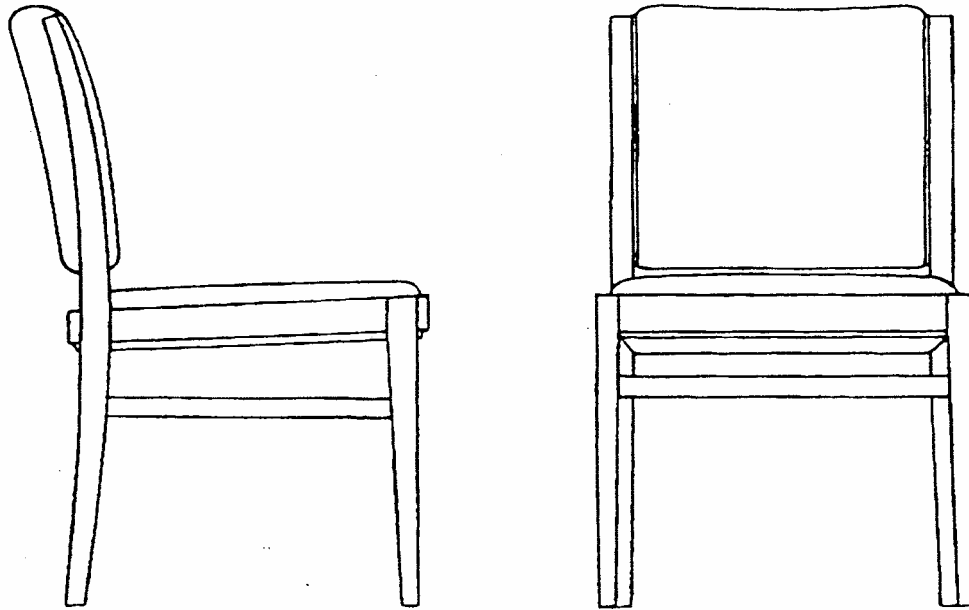
Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
583 mm	617 mm	850 mm	470 mm	659 mm	492 mm	467 mm

Figure 8 – Type III, Style 2  
Open Arm Straight Chair



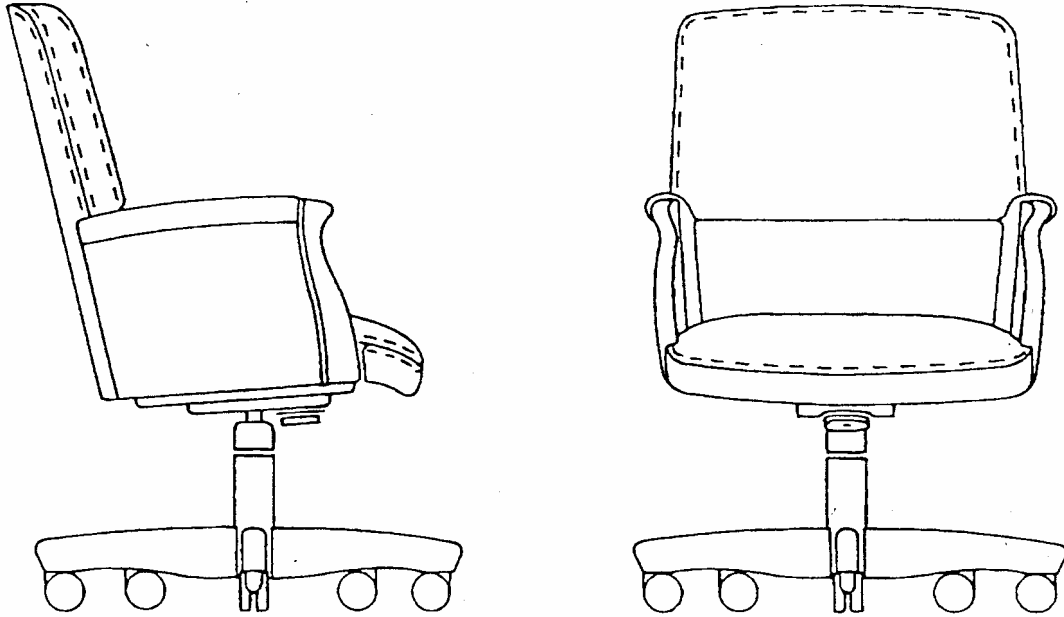
Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
583 mm	617 mm	850 mm	470 mm	659 mm	492 mm	467 mm

Figure 9 – Type III, Style 3  
Straight Chair Without Arms



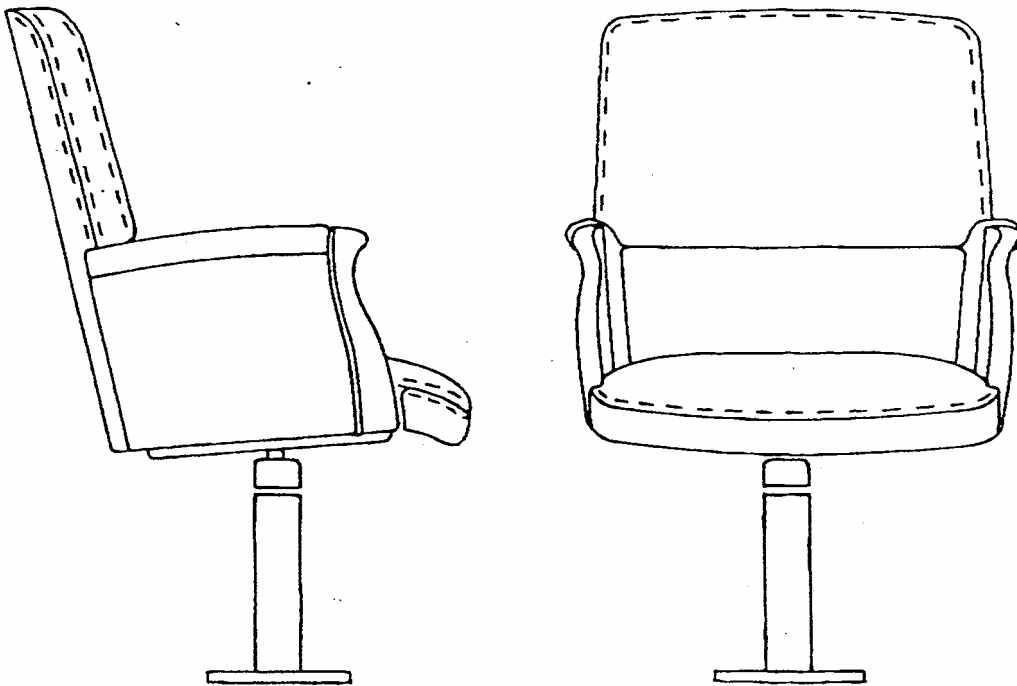
Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
530 mm	617 mm	850 mm	470 mm	N/A	530 mm	467 mm

Figure 10 – Type IV  
Conference Chair



Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
658 mm	702 mm	957 mm	462 mm	641 mm	508 mm	470 mm

Figure 11 – Type V  
Jury Chair



Overall Width	Overall Depth	Overall Height	Seat Height	Arm Height	Seat Width	Seat Depth
658 mm	702 mm	957 mm	462 mm	641 mm	508 mm	470 mm