

PURCHASE DESCRIPTION FOR
LOUNGE SEATING, WOOD OFFICE,
TRANSITIONAL STYLE

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers wood office style lounge seating 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 lounge seating 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 Lounge Chair, Figure 1
W 863 mm x H 863 mm x D 863 mm

Type II Two seat sofa, Figure 2
W 1524 mm x H 889 mm x D 863 mm

Type III Three seat sofa, Figure 3
W 2032 mm x H 889 mm x D 863 mm

Type IV Bench without arms
Size 1 - W 1375 mm x H 495 mm x D 510 mm, Figure 4
Size 2 - W 1880 mm x H 495 mm x D 510 mm, Figure 5

The above lounge seating is available in the following classes of upholstery.

Class 1 Leather
Class 2 Vinyl
Class 3 Fabric
Class 4 Customer's Own Material/Leather (COM)

The above lounge seating is available in the following finishes.

Finish 1 Independence Walnut
Finish 2 Federal Mahogany
Finish 3 Federal 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:

FNE 80-214B - Upholstered Furniture Test Method.
 Fed. Test Method Std. No. 191 - Textile Test Methods.

(Federal Specifications and Federal Test Methods are available, for bidding purposes, from General Services Administration, Business Service Centers in Boston; New York; Philadelphia; Washington, DC; Atlanta; Chicago; Kansas City, MO; Fort Worth; Houston; Denver; Los Angeles; San Francisco; and Seattle, WA.)

Handbook:

U.S. Department of Agriculture Forest Service, Forest Products Laboratory:
 FPL-GTR-113 -- Wood Handbook – Wood as an Engineering Material

(Copies are available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, or may be viewed or downloaded at <http://www.fpl.fs.fed.us>.)

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-1-1994 - Standard for Hardwood and Decorative Plywood
 ANSI/NFPA 260A-1989 - Cigarette Ignition Resistance of Components of Upholstered Furniture

(ANSI standards are available from American National Standards Institute, Inc. 1430 Broadway, New York, NY 10018.)

American Society for Testing and Materials Standards:

D 905 - Standard Method of Test for Strength Properties of Adhesives in Shear by Compression Loading.
 D 1211 - Temperature Change Resistance of Clear Nitrocellulose Lacquer Films Applied to Wood.
 D 1233 - Twine made from Bast and Leaf Fibers.
 D 1682 - Breaking Load and Elongation of Textile Fibers.
 D 2091 - Print Resistance of Lacquers
 D 2199 - Measurement of Plasticizer Migration From Vinyl Fabrics to Lacquers
 D 3597 - Woven Upholstered Fabrics - Plain, Tufted or Flocked.
 D 3770 - Standard Specification for Flexible Cellular Materials - High Resilience Polyurethane Foam (HR).
 D 3776 - Mass per Unit Area (Weight) of Woven Fabrics.
 D 3884 – Abrasion resistance of textile fabrics (Rotary Platform, Double Head Method)

(ASTM Standards are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

Upholstered Furniture Action Council Standard:

UFAC. - Component Test Methods - 1983

(U.F.A.C. Standards are available from U.F.A.C. Box 2436, High Point, NC 27261.)

State of California Technical Information Bulletin:

Bulletin 117-1980 - 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, 3485 Orange Grove Ave., North Highlands, CA 95660-5595.)

3. REQUIREMENTS

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

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.

3.1.1 Wood.

3.1.1.1 Varieties. Exposed parts shall be cherry or walnut for Independence Walnut and Federal Mahogany finishes and oak for Federal 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 Wood Handbook, FPL-GTR-113.

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, discoloration, 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-1994 and as specified herein. Minimum Type II bond required. Crossbanding shall be not less than grade 2.

3.1.1.4 Reserved.

3.1.1.5 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 temper approximately 2 weeks in a sheltered area to equalize moisture 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. They 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. Block shear strength: 19,300 kPa minimum. See test procedure paragraph 4.4.1.

3.2. Upholstery materials and flammability requirements. All upholstery cover materials, welts, interior fabrics, fillings, and padding shall meet NFPA-260 Class 1 construction, or UFAC Class 1 flammability requirements. All polyurethane foam shall meet California Technical Bulletin 117, Section A, Part I and Section D, Part II.

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/m² exclusive of back coating. Fabric shall meet the following requirements when tested in accordance with the methods in ASTM D 3597. Known sources of supply: See par. 6.4.

- Breaking strength: 485 N warp/595 N filling
- Tear strength: 90 N warp/110 N filling
- Tensile strength: 1110 N warp and filling
- 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.)

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 4.4.7.

- 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.)

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 4.4.8.

- Thickness: 1.2 mm minimum
- Total weight: Minimum 678 g/m²
- 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

The color shall conform to GSA Standard Sample colors referenced in 3.7.3. (See 6.4.)

3.2.4 Filler materials.

3.2.4.1 Fiberfill batting, Garneted (not resinated). Minimum 5 g/m² (Test 4.4.3), 5.5 - 16 denier. Flammability requirement: See par. 3.2.

3.2.4.2 Wadding. White fibers, 4 to 14 mm thick, 61 to 152 g/m² (Test 4.4.3).

3.2.5 Sheet fabric. Any of the following materials are acceptable over interior and exterior frame parts. Flammability requirement: See par. 3.2.

- Polyethylene, spunbonded - 39 g/m² minimum (Test 4.4.3).
- Polypropylene, spunbonded - 61.3 g/m² minimum (Test 4.4.3).
- Polypropylene, woven - 100 g/m² 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/m³ polyurethane polymer density. 173 - 200 N Indentation Force Deflection (IFD) (25 percent deflection) required
- Back and Arms - Slab or molded, conventional or high resilience type polyurethane foam with a minimum 27 kg/m³ polyurethane polymer density. 120 - 147 N IFD (25 percent deflection) required.

All foam shall have a minimum recovery ratio of 70% when tested as specified in 4.4.5 and 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. Minimum breaking strength 49 N. when tested as specified in 4.4.4.

3.2.8 Welts. Minimum 4 mm core. Flammability requirement, see 3.2.

3.2.9 Sheet webbing. For seat foundation. 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.

3.2.10 Cambric. Black non-woven material, minimum 64 g/m².

3.3 Hardware.

3.3.1 Glides. Minimum 18 mm diameter. Flat beige plastic single prong glide.

3.4 Construction. All frames shall be constructed of solid hardwood (exposed, unexposed as applicable, see 3.1.1.1). All items 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 lounge pieces shall be classic design. All legs shall have glides. All lounge pieces shall have upholstered seats and shall be upholstered as specified below.

- Class 1 Leather
- Class 2 Vinyl
- Class 3 Fabric
- Class 4 Customer's Own Material/Leather (COM)

3.4.2 Tolerances. Overall width, depth, height: ± 12 mm

- Dimensions of any wood part: ± 5 mm
- Dimensions of upholstered parts: ± 12 mm
- Angular measurements: ± 1 degree.

3.4.3 Comfort. Seats shall be crowned, moderately firm and not bottom out, and have adequate ride. Backs shall be moderately firm and shall provide adequate lumbar support. Comfort will be evaluated at first article inspection by the QAS and at least one other GSA employee.

3.4.4 Upholstery requirements.

3.4.4.1 Seat Foundation. The seat foundation shall consist of sheet webbing, covered with polyurethane foam. The polyurethane foam shall be covered by dacron. The upholstering material facing shall extend at least 4 inches over the deck.

3.4.4.2 Seat cushion. The seat cushion shall consist of a polyurethane foam core covered top and bottom with polyester batting. Cushion shall then be covered with an interior fabric envelope.

3.4.4.3 Back. The back shall consist of a FLW sheet covered by polyurethane foam.

3.4.4.4 Arms. The arm frame shall be covered with high density foam or sheet fabric. Cardboard is not acceptable. Sheet fabric shall be covered with any combination of polyurethane foam and or batting material. The arms shall be upholstered separately and then attached to frame with at least three stove bolts each minimum 11 mm in size.

3.4.4.5 Edge roll. The edge roll shall be constructed of resilient edging.

3.4.4.6 Outside back and arms. The outside back and arms shall be covered with resilient product(s) which will support and cushion the upholstery fabric and resist permanent indentation. Cardboard is not acceptable.

3.5 Padding, filling and upholstery requirements for all lounge pieces. Minimum padding and filling requirements are described in construction paragraphs. Additional padding and filling may be necessary to ensure the appearance and cushion dimensions comply with figures, with no hollows, voids, flat or hard spots. All frame members and plywood seat edges shall be padded. Covers shall be carefully tailored and so applied that they are neat and tight, free from wrinkles and bulges. Final appearance shall be symmetrical. The type and number of stitches shall be sufficient to provide the required appearance and pass all required 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 shall be attached with tacks or staples. All 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-L-01025 Federal Mahogany, or FSS-L-01026 Independence 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-3FNEW-CO, Furniture Center, Engineering Division, Washington, DC 20406.

3.7 Upholstery material samples.

3.7.1 Fabric standard samples colors. Sample colors shall be:

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

3.7.2 Leather standard sample colors. Sample colors shall be:

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

3.7.3 Vinyl standard sample colors. Sample colors shall be:

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

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 lounge seating suitable for use in executive offices. The methods of construction, assembly, filling, padding, upholstering (see 3.5), finishing and the appearance of the seating shall be in strict accordance with the requirements of this specification. Items shall have a neatly tailored, taut, stuffed appearance complying with applicable figures. Loosely fitted upholstery or uneven padding is not acceptable. 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 bid samples for style/design, workmanship, comfort, and finish (except color). Bid sample rejection points (if any) shall be corrected in the first article sample. Manufacturer shall maintain bid 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 (3.8).

4.3.2.1 Overall examination. In addition to visual and dimensional examination, inspect each item 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.

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. See production item testing requirements in 4.2.

4.4.1 Test for adhesives.

<u>Component</u>	<u>Characteristic</u>	<u>Requirement reference</u>	<u>Test Method</u>
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.

- 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 which 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.

- Cold print. Follow ASTM D 2091 test procedure at 230 degrees C (+2 degrees C) for 18 hours using a 14kPA test pressure. After testing there shall be “no effect “ on the finish.
- 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 ($\pm 3^\circ$ 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.
- 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.
- Plasticizer migration. Perform test on a sample panel finished in the same way as production pieces according to ASTM D 2199 - 82, 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. 5041 of Fed. Test Method Std. 191 or ASTM D-3776.

4.4.4 Test method for determining breaking strength of twine. 4100 of Fed. Test Method Std. 191 or ASTM D-1233, or D-2256

4.4.5 Test method for determining recovery ratio of polyurethane foam. ASTM D-3770. Recovery ratio. Use this test method for both conventional and high resilience type foam

4.4.6 Performance Tests for lounge seating. Sofas and chair shall meet the heavy service acceptance level as defined in FNE 80-214. Test report as required in test method shall be submitted at time of first article inspection. If the construction of the sofa and chair are identical with the exception of the cross rail length, number of legs, and number of cushions, the two seat sofa and chair shall be accepted on the basis of the 3 seat sofa unit tested.

4.4.7. 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:

More than 25% of thickness measurements taken do not fall within the required range.

More than three test failures occur for breaking force, elongation, or stitch tear.

More than one test failure occurs for the remaining requirements applicable to the sample unit.

Any composite fails to meet the specific requirement.

Test	Method
Thickness	Fed Std. 311, 1011.1
Breaking force (grab method)	Fed Std. 311, 2031
Elongation	Fed Std. 311, 2031 at 100 lb load
Stitch tear (double hole)	Fed Std. 311, 2151
Crocking (colorfastness, resistance to rubbing) Test all colors	Fed Std. 311, 3031.1
Blocking	Fed Std. 311, 3121.1
PH	Fed Std. 311, 6621.1
Fade resistance (colorfastness) Test all colors	Fed Std. 191, 5660.2 72 Hour exposure
Abrasion resistance	ASTM D 3884 1000 cycles using CS-10 wheels and 1000 gram
Flexibility	ASTM D 2097 60,000 cycles

4.4.8 Vinyl test methods.

Test	Method
Total Weight	5041
Breaking Strength	5100
Elongation	5100
Tear Strength	5136
Crocking	5651
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 lounge seating is designed for use in executive offices, courtrooms, libraries, and conference rooms of Federal agencies. The seating 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 3.2.1, 3.2.2, 3.2.3).

6.3 SI - English unit equivalents.

1 m ² (square meter)	= 1.19617 yard ²
1 kg/m ³ (kilogram/cubic meter)	= 0.06242 lb.(mass)/ft ³
1 mm(millimeter)	= 0.03937 inch (thickness of one dime)
1 m(meter) = 1 000 mm	= 1.0936 yard (39.37 in)
1 N(Newton)	= 0.225 lb. (force)
1 kg(kilogram)	= 2.2 lb.(mass)
1 g(gram)	= 0.0022 lb. (mass)
1 g(gram)	= 0.03527 oz.(mass avoirdupois)
1 kPa(kilo Pascal)	= 0.14514 lb.(force)/in ² (PSI)
(C° x 9/5) + 32 (Celsius)	= F° (Fahrenheit)
1 g/m ² (gram per square meter)	= 0.02949 oz/yd ² 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:

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

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.

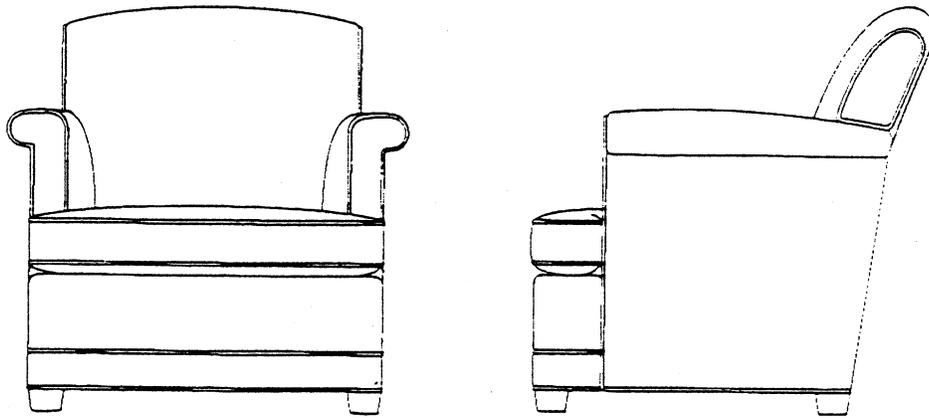
Upholstery fabric: Culp Fabric, Venturi pattern or equal.

Leather: Conneaut Leather

Sheet webbing: Ultra Flex or equal.

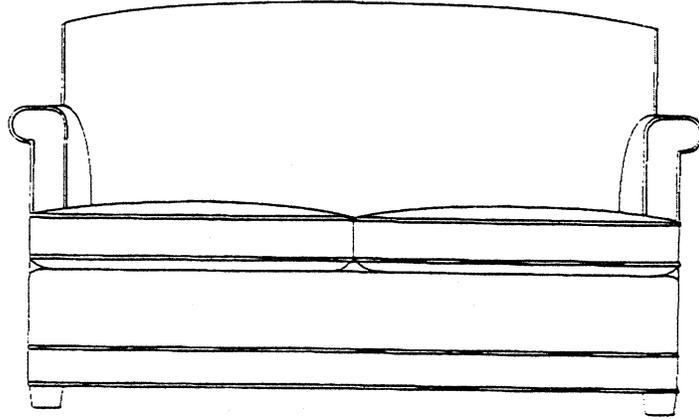
Drawings of each item are incorporated by reference into this purchase description and are available from the contract specialist.

Figure 1 - Type I
Lounge Chair



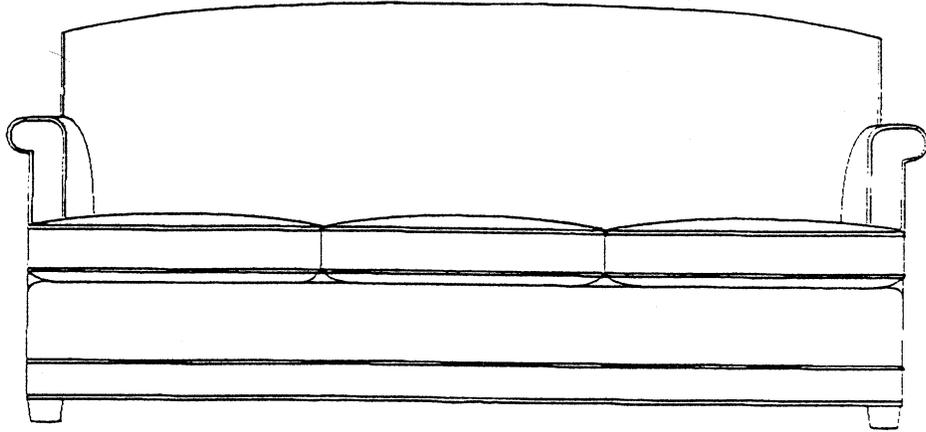
Overall Width	Overall Height	Overall Depth
863 mm	863 mm	863 mm

Figure 2 - Type II
Two Seat Sofa



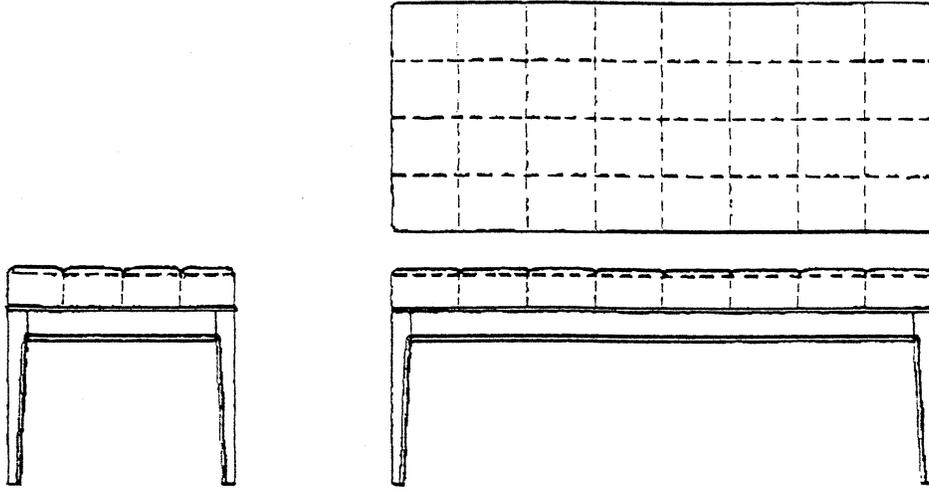
Overall Width	Overall Height	Overall Depth
1524 mm	889 mm	863 mm

Figure 3 - Type III
Three Seat Sofa



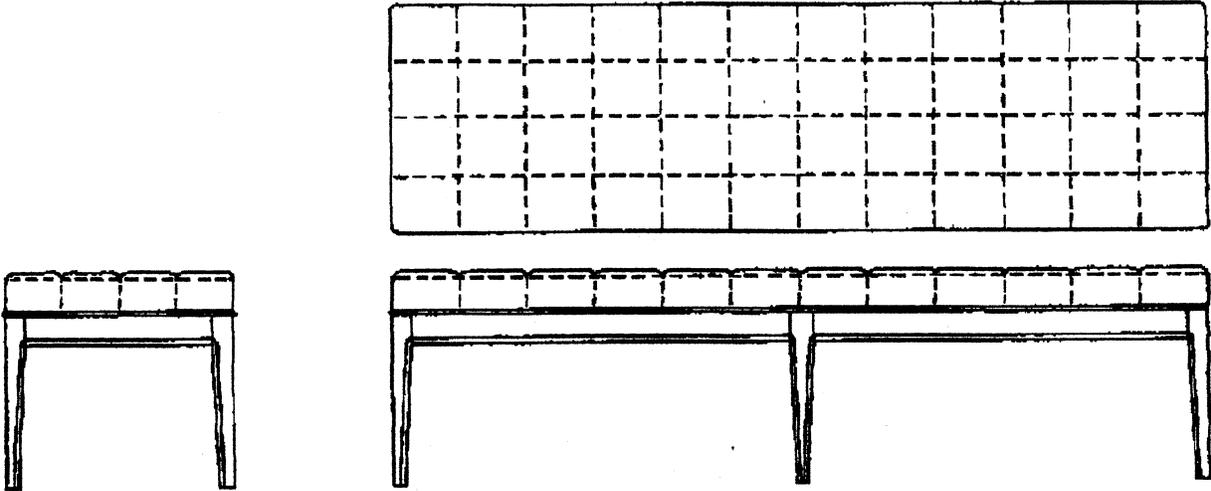
Overall Width	Overall Height	Overall Depth
2032 mm	889 mm	863 mm

Figure 4 - Type IV, Size 1
Bench Without Arms



Overall Width	Overall Height	Overall Depth
1375 mm	485 mm	510 mm

Figure 5 - Type IV, Size 2
Bench Without Arms



Overall Width	Overall Height	Overall Depth
1880 mm	485 mm	510 mm