

**SPECIFICATION  
FOR  
BOOKCASE, WOOD, OFFICE**

(This specification is released for procurement purposes until revised or rescinded.)

**I. SCOPE**

**A. General**

1. This specification covers wood office bookcases. It is not intended to cover all types of bookcases, but only the styles and designs most frequently purchased for state agencies, institutions, and the public schools.
2. The intent of this specification is to define the product requirements and the subsequent procedures for obtaining a Qualified Products Listing (QPL). After the products have been approved, the model or series number will be shown on a separate document QPL-7195-7 (latest dated revision) which will be used as the sole approval source for products covered by the Invitation for Bid (IFB).
3. These bookcases are not intended to be used as library shelving units as they are not equipped to withstand the "book weight" or are designed to be "ganged" together. These bookcases do not have the solid block box design at either the top or bottom that is typically used to bolt the library-shelving units together.
4. Many types of bookcase have been covered by this specification to provide a choice of grades. The highest grade is Type I, Class 1, which is mostly constructed from solid wood, to the lowest grade Type II, Class 3 that is constructed from particleboard finished with low-pressure laminate. In addition, two styles, traditional and recessed are included.
5. Type II, Style A, Class 2 covers both regular and heavy-duty bookcases. The regular has 7/8" (maximum) panel end thickness and the heavy duty (Class 2H) has 1" (minimum) end panel thickness.
6. Note to user: Bookcases with shelves constructed from fiberboard or particleboard may incur a small permanent sag over a period of time depending on the "book load" applied.

**II. CLASSIFICATION**

**A. Definitions of Classification**

1. The bookcases covered by this specification are defined by the 'Type' of design, Style of the base and top, and Class of the materials used in the manufacture.

## Bookcase Specification 7195-7G

2. **Type** defines the construction / design of the unit. There are two types, I & II
  - a) Type I is the typical case design with the sides, top, bottom and back panel attached to each other as a single unit. A separate base and top boxed structure is then attached to the case. This is shown in fig 1.



Fig 1.

3. **Type II** is the design with the end panels extending to the floor with rails attached to them front and back. The rails also provide support for the bottom shelf. See Fig 2

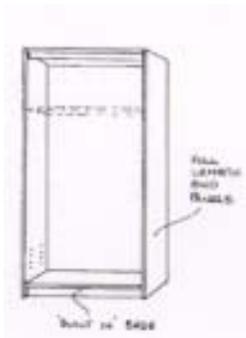


Fig 2.

4. **Style** defines the configuration of the base. There are two styles, A & B.
  - a) Style A is a recessed base having a base structure that is recessed approximately 3/4" inch behind the front face of the shelving. See Fig 3.
  - b) Style B is a Traditional base having a base structure that is flush or extends approximately 3/4" inch beyond the front face of the shelving. Trim beading may be used to "soften" the interface between the case and the front top of the base. See Fig 4.

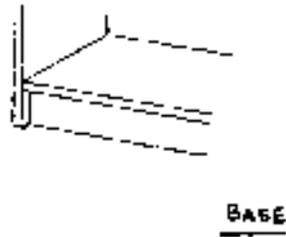


Fig 3. Recessed

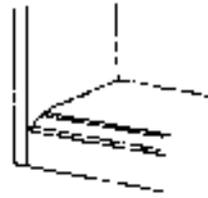


Fig 4. Traditional

5. **Class** defines the materials of construction. There are four classes, 1, 2, 3
- a) **Type I, Class 1** shall have the case manufactured from either solid wood, multiple ply plywood (veneer core), or 3-ply lumber core plywood. The base structure must be manufactured from the same materials as the case, or from particleboard or from fiberboard, surface finished with matching wood veneer. Shelves shall be manufactured from solid wood, multiple ply plywood (veneer core), or 3-ply lumber core plywood or from fiberboard (See paragraph defining shelf construction materials). They shall be surface finished with matching wood veneer.
  - b) **Type II, Class 1** shall have the end panels manufactured from either solid wood, multiple ply plywood (veneer core), or 3-ply lumber core plywood. The base structure must be manufactured from the same materials as the end panels, or from particleboard or from fiberboard, surface finished with matching wood veneer. Shelves shall be manufactured from solid wood, multiple ply plywood (veneer core), or 3-ply lumber core plywood, particleboard or from fiberboard (See paragraph defining shelf construction materials). They shall be surface finished with matching wood veneer.
  - c) **Type I & II, Class 2** shall be manufactured from either particleboard or fiberboard surface finished with matched wood veneer. Shelves shall be manufactured from solid wood, multiple ply plywood (veneer core), or 3-ply lumber core plywood, particleboard, or from fiberboard (See paragraph defining shelf construction materials). They shall be surface finished with matching wood veneer. The construction may include standard wood joints, cleats, mechanical locks, or metal plates / brackets.
  - d) **Type I & II, Class 3** shall be manufactured from either particleboard or fiberboard surface finished with 0.028 inch thick (minimum) high pressure laminate or Low pressure laminate. Shelves shall be manufactured from solid wood, multiple ply plywood (veneer core), or 3-ply lumber core plywood, particleboard or from fiberboard (See paragraph defining shelf construction materials). They shall be surface finished (top & bottom) with matching 0.028-inch thick (minimum) high-pressure laminate or Low-pressure laminate.
    - (1) All external edges shall be finished with the same laminate that is used for end panels and shelves. Edges and corner interfaces shall be rounded and smooth to prevent snagging of clothing etc.
    - (2) All parts finished with laminate must have a balancing sheet on the opposite side. This sheet shall be another laminate or a 0.020" minimum backer sheet.

## Bookcase Specification 7195-7G

- (3) The construction may include standard wood joints, cleats, mechanical locks, or metal plates / brackets.

### **B. Classification**

1. Types
  - a) Type I, Case design
  - b) Type II, End panel design
2. Styles
  - a) Style A, Recessed base.
  - b) Style B, Traditional base.
3. Classes
  - a) Class 1, Solid Wood
  - b) Class 2, Particleboard with wood surface veneer. End panels 7/8" (max) thick
  - c) Class 2H, Particleboard with wood surface veneer. End panels 1" (min) thick
  - d) Class 3, Particleboard with High or Low-pressure laminate.

### **C. Identification**

- a) The bookcases defined above shall be identified by Type, Style and Class. For example: Type I, Style B, Class1 represents a solid wood case design with a traditional base.

## **III. APPLICABLE STANDARDS**

### **A. General**

1. The following documents of issue in effect on the date of the Invitation for Bids shall form a part of this specification to the extent specified:
  - a) NEMA LD-3 High Pressure Decorative Laminates  
National Electrical Manufacturers Assn. (NEMA)  
2101 L Street N.W.  
Washington, DC 20037

## **IV. REQUIREMENTS**

### **A. General**

## Bookcase Specification 7195-7G

- a) **IMPORTANT:** All bookcases shall be the manufacturer's current standard production model and shall be represented as such in the manufacturer's current published literature and current price book. For purposes of the QPL, the State at its sole discretion may accept or reject products that are priced in a published document other than the manufacturer's current price book (e.g. products which are listed in a published price book supplement rather than the current price book itself). In addition, each product offered on the bid must have been in production for one (1) full year before the deadline for submittals for the Qualified Products List (QPL) associated with this specification. The State, at its option, may require certified documentation from the manufacturer to verify the claimed length of production time. Any product, which does not comply with these requirements, shall not be acceptable. Consistent with the State's intent to solicit product lines which provide users a maximum choice of styles, it is necessary that the manufacturer submit requested information for each of the classifications specified herein for the QPL.
- b) All material, construction and assembly of the bookcase described herein shall be of a quality generally associated with high level standards of the furniture industry.
- c) The material, construction, assembly and finish of the product shall be in accordance with good commercial practices, and entirely suitable for the purpose intended. All exposed parts shall be free of machine marks and smoothly sanded in preparation for the finish. The finish product shall exhibit good workmanship throughout.
- d) Joinings shall be well glued and/or assembled with mechanical fasteners where applicable.
- e) Mechanical fasteners (eg; screws) that are threaded into particleboard shall be of the type specially designed for use with particleboard (wood screws are **not** permitted).
- f) Mechanical fasteners shall not be the primary means of securing a solid joint when the material of threaded member of the joint is constructed from fiberboard. Fiberboard has a low fastening strength (screw holding capacity). Nailing or stapling of fiberboard is not permitted.
- g) Knocked down cases shall be assembled with mechanical fasteners that are both durable and easy to assemble. Fasteners shall be securely attached to matching parts in such a way that the parts cannot be easily pulled or knocked apart.
- h) The use of "buttons" to conceal screws or fasteners is not acceptable.

### **B. Construction Materials and Finishes**

#### 1. Solid Woods

- a) Solid wood parts shall be of selected oak, birch, or maple as specified in the Invitation for Bids.
- b) All solid wood used in bookcase construction shall be selected from structurally sound stock, free from such defects as visible splits, knots, checks or decay. The wood shall be properly kiln dried and conditioned to a moisture content of 5% to 7%. Exposed solid wood shall be selected at the time of assembly for uniformity of grain and color

## Bookcase Specification 7195-7G

- c) Unexposed solid wood parts may be of suitable hardwoods. Wood panels used for core stock shall be made up of random widths no less than 1" and not more than 4"

### 2. Wood Veneers

- a) The wood veneer species shall be plain sliced, and either oak, walnut, birch or maple or as specified in the Invitation for Bids. They shall be carefully selected for uniformity of grain and color, and also selected to eliminate wild grain patterns and gross figures. There shall not be wide variations of patterns between companion parts. The finished appearance of all exposed veneer surfaces shall be free of any detectable telegraphing of substrate, sand through, or adhesive bleed through.
- b) Unexposed wood veneers may be of any suitable species of hardwood.

### 3. Core Material

- a) Cores may be of the following types, as specified herein for this application.
- b) Lumber cores shall be of good grade hardwood core stock in random widths of 1" to 4", straight, flat and squared edged before gluing. Discoloration, sound knots, and all defects that are properly patched or filled are acceptable.
- c) Particleboard cores shall be made of wood chips, bonded with a moisture-resistant adhesive, and with a minimum density of 45-lbs/cu. ft.
- d) Fiberboard cores shall be made from pressed fibers of wood, and with a minimum density of 45-lbs/cu. ft.
- e) Multiple veneer cores (plywood) shall be of balanced cross-banded construction, with hardwood veneer cores free of structural defects, and assembled with a moisture-resistant resin adhesive.

### 4. Shelving core material

- a) Shelving core material shall be either solid wood, multiple ply plywood (veneer core), or 3-ply lumber core plywood, particleboard or from fiberboard.
- b) Due to the potential problem of permanent deflection (sag) when the shelf is manufactured from either particleboard or fiberboard, the following minimum physical properties are required.
  - (1) Density, 45 lbs./cu. ft. (Panel weight per cubic foot)
  - (2) Internal Bond, 60 psi (Resistance to internal stress-fiber bond)
  - (3) Modulus of Elasticity, 300,000 psi (Deflection resistance- stiffness)

## Bookcase Specification 7195-7G

- c) The shelves shall be surface finished with matching wood veneer, high pressure laminate or low pressure laminate depending upon the Class of bookcase specified in the Invitation for Bid.

### 5. Plastic Laminates

- a) High-pressure plastic laminate shall comply with the requirements of NEMA LD-3, grade GP-28 (minimum). Balancing sheet (backers), where applicable shall be at least grade BK-20.
- b) Low pressure plastic laminate panels.
  - (1) These panels are thermally fused panels flat pressed from a thermo set polyester or melamine resin-impregnated web, pressure bonded to a cellulose substrate such as particleboard or fiberboard. The decorative face shall be designed to perform to minimum criteria as set forth in the American Laminators Association Performance Standard for Thermoset Decorative Panels (ALA. 1985)
- c) When both laminate and wood parts are used in the construction of a bookcase, the laminate and wood parts shall be matched for grain and color.

### 6. Finish

- a) Solid wood or wood veneered parts.
  - (1) All wood parts shall be properly sanded to a smooth finish, before assembly. After assembly and before finishing, all excess glue shall be removed and all rough spots, dents, and scratches, shall be removed by hand sanding with the proper grit size paper. The entire piece shall have a smooth and proper surface to receive the finish. The components of assembled items shall have a matching finish where exposed.
  - (2) The finishing materials shall be of top quality, and they shall be obtained from a reputable supplier to the furniture industry. Non-catalyzed nitrocellulose lacquer is not acceptable. The topcoat shall be highly resistant to abrasion, scuffing, sunlight, boiling water, alcohol, nail polish remover, mustard, ketchup, tea, ink, soft drinks, and juices.
  - (3) Unless specified otherwise, the finish colors shall be the manufacturer's standard colors. The finish shall be composed of applications of compatible materials that are properly applied and processed to give a high quality furniture finish.

### 7. Hardware.

- a) Visible metal components shall be brass, stainless steel, chrome plated, or coated with epoxy or acrylic enamel.
- b) Bookcases utilizing a mechanical locking device shall have a positive locking design that enables the adjacent components to be tightly butted together. It shall remain tight until lock is mechanically released. Figure 5 is intended to show a typical device for visual reference. It is not intended to represent any particular manufacturers product.

## Bookcase Specification 7195-7G

- (1) If the locking device is visible on one surface of a component, that surface shall be positioned to visually hide the device. On bookcases less than 72" high, the device shall be visible on the underside of the top. On bookcases 72" high or greater, the device shall be visible only on the top surface. The device shall be on the underside of the bottom shelf hidden by the base structure

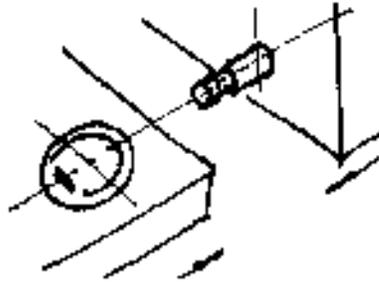


Fig 5 Locking Device

### 8. Adhesives

- a) All adhesives shall be of good commercial quality and suited to the application for which used as recommended by the manufacturer of the adhesive.

## V. Bookcase construction

### A. Type I Bookcases

1. **Type I, Bookcase** consists of two finished side panels, base and top panels, with adjustable shelves on maximum 2-inch centers (See Fig 1.). Shelf support shall be, with pinholes or metal shelf standards. When shelf standards are installed in the end panels, they shall be recessed and approximately flush with the surface. The base and top are separate boxed structures that are mechanically fastened to the case.
2. Panels shall be 3/4" (minimum) thick with all exposed vertical edges banded with hardwood, veneer, or plastic laminate consistent with the Class of the unit. On bookcases less than 61" high the top edge of the end panels shall have a hardwood edge band, veneer, or plastic laminate consistent with the Class of the unit. Sides shall be flush to enable placing bookcases side by side.
3. All shelves shall be 3/4" (minimum) thick with the surface finish matched for color and grain with end panels. Shelf front edge shall have hardwood edge band, veneer, or plastic laminate consistent with the Class of the unit. Each bookcase over 60" high may have one fixed shelf approximately at the center of the bookcase.
4. The base unit consists of a 3/4" (minimum) thick plywood, fiberboard, particleboard or solid wood (2 1/2" high minimum), boxed structure constructed with two full length (front and back) linear rails. On single face units (if not supplied with solid wood) the visible rail surfaces shall be finished to match the color and grain of the case. On double-faced units (if not supplied with solid wood) the visible rail surfaces shall be veneered to match the color and grain of the case.
5. The top unit if specified in the Invitation for Bid shall be similar construction as the base.

## Bookcase Specification 7195-7G

6. A back panel 3/16" (minimum) constructed from 3-ply plywood, hardboard, or masonite shall be furnished. Select face veneer shall be furnished when specified in the Invitation for Bid. This face veneer shall be on one side for single face bookcases, or both sides for double-faced freestanding bookcases, unless specified otherwise in the Invitation for Bid. On single face units the back of the case shall be recessed or grooved to fit the back panel. The back panel shall be fastened with metal fasteners around the periphery. The back panel shall not be visible when viewing the bookcase from either side.
7. Bookcase units shall be assembled and properly aligned at the installation site (if supplied as a knockdown unit). The method used to assemble the entire unit shall result in a secure non-racking assembly.

### **B. Type II Bookcases**

1. **Type II, Bookcase** consists of two finished 3/4" (minimum) thick side panels extending to the floor with adjustable shelves on maximum 2-inch centers (See Fig 2.). These are connected at the base by 3/4" (minimum) thick rails front and back, and a non-movable bottom panel. The rails also provide support for the bottom shelf. The top is similarly connected with a non-movable top panel. In addition, this panel may have a vertical 'stiffener' rail attached to the front underside. Shelf support shall be, with pinholes or metal shelf standards. When shelf standards are installed in the end panels, they shall be recessed and approximately flush with the surface.
2. Panels shall be 3/4" (minimum) thick with all exposed vertical edges banded with hardwood, veneer, or plastic laminate consistent with the Class of the unit. Class 2H bookcases shall have panels 1"inch minimum thick. On bookcases less than 61" high the top edge of the end panels shall have a hardwood edge band, veneer, or plastic laminate consistent with the Class of the unit. Sides shall be flush to enable placing bookcases side by side.
3. All shelves shall be 3/4" (minimum) thick with the surface finish matched for color and grain with end panels. Shelf front edge shall have hardwood edge band, veneer, or plastic laminate consistent with the Class of the unit. Each bookcase over 60" high may have one fixed shelf approximately at the center of the bookcase.
4. A back panel constructed from 3-ply plywood, hardboard, or masonite shall be furnished. Select face veneer shall be furnished when specified in the Invitation for Bid. This face veneer shall be on one side for single face bookcases, or both sides for double-faced freestanding bookcases, unless specified otherwise in the Invitation for Bid. On single face units the back of the case shall be recessed or grooved to fit the back panel. The back panel shall be fastened with metal fasteners around the periphery. The back panel shall not be visible when viewing the bookcase from either side.
5. Bookcase units shall be assembled and properly aligned at the installation site (if supplied as a knockdown unit). The method used to assemble the entire unit shall result in a secure non-racking assembly.

## **VI. WARRANTY**

### **A. All Products**

## Bookcase Specification 7195-7G

1. All products shall be guaranteed against defects in materials, workmanship, and performance for a minimum of ONE YEAR. The Warrantee shall begin on the date of acceptance of the product by the ordering facility. During this Warrantee period, the vendor shall repair or replace defective material, components, or units at no cost to the State of North Carolina (this shall include round trip travel and freight to users site). The Vendor shall Guarantee that the product will be a standard and continuing item in the manufacturer's product line as specified in the Invitation for Bid. The basic product shall be identifiable by regular catalogue numbers.

### **B. Service**

1. Factory authorized service shall be available within the State of North Carolina. An adequate supply of parts shall be made available to the State for the expected life of the products covered by this specification. Refer to the Invitation for Bid for any additional requirements.

## **VII. SAMPLING AND INSPECTION**

### **A. Inspection**

1. Products furnished under this specification may be inspected by, or at the direction of the Inspection section and/or the ordering State Agency, Institution, college or Public school either at the destination or place of manufacture. Random samples of delivered items may be selected and checked for compliance with this specification. If it is found that the product does not meet the requirements of this specification, the Division of Purchase and Contract may proceed as stipulated in the Terms and Conditions of the bid.

### **B. Testing**

1. All Types, Styles, and Classes....The complete bookcase shall be visually inspected for defects and physically tested for rigidity (racking), loose or open substandard joints, or other signs of defective material or workmanship.
2. Type I & Type II, Class 1. & 2....Applies to solid wood or wood veneered bookcases only. The following field tests may be conducted to verify the chemical and physical resistance to damage of the finish coating. A minimum of 30 days from application is required for aging before testing
  - a) A new nickel held at 45° angle is pulled across the finished surface parallel to the grain with no cracking or chipping or removal of finish.
  - b) Fingernail polish shall be brushed on and allowed to thoroughly dry and is then removed with fingernail polish remover with no effect on the finish.
  - c) Drop three (3) drops of fingernail polish remover on the finished surface and let stand for two minutes and blot off. There may be a swelling of the finish, which recovers when dry (1 hour).  
Wet a pad of soft cloth with fingernail polish remover and make five (5) firm single wipes on the finish with no effect on the finish.

## **VIII. PACKING / PACKAGING**

## Bookcase Specification 7195-7G

### **A. Packing**

1. **Packaging** for shipment shall be in accordance with the manufacturer's standard practice and in a manner readily accepted by common carriers engaged in interstate commerce. Within the shipping carton, the units shall be packed in a manner designed to minimize damage during shipment due to rough or improper handling.

### **B. Marking**

1. Each shipping container shall be clearly **marked** with the following:
  - a) Name of contents
  - b) Quantity
  - c) Name and Address of the Manufacturer.

### **C. Documents**

1. **Shipping documents** shall include the following:
  - a) Order or Contract Number
  - b) Name and Address of the Ordering Agency or Facility.

## **IX. ORDERING DATA**

**(This information is for Purchase and Contract only)**

### **A. Purchasers should exercise any desired option offered herein and should specify the following:**

1. Title, number, and date of this specification.
2. Type, Style & Class of furniture to be purchased.
3. Size of bookcase.
4. The wood species desired [where applicable].
5. The wood veneer species desired [where applicable].
6. The color & pattern on HPL Plastic laminated surfaces [where applicable].
7. If bookcase is single or double faced.
8. If back panel is to be finished on the open side to match the color and grain of the main case.

## Bookcase Specification 7195-7G

9. If unit is to be supplied in a "knocked down" form.
10. If unit is to be supplied with high strength shelves.

### **X. QUALIFICATION**

#### **A. The previous paragraphs have defined the requirements for the products needed by the State of North Carolina. This Qualification section details the procedures for getting a product listed on the QPL.**

1. An application for adding or changing a product on the QPL shall be made in writing to the Standards Section, Div. of Purchase and Contract, 116 West Jones St. Raleigh, N.C. 27603-8002.
2. The application shall include, the description the product and model number, the applicable line item that you wish to have your product listed, illustrations and complete specifications of the product. This shall be submitted not less than 120 days prior to the expiration of the current Term Contract.
3. A review of the product sample must be completed and the product approved prior to the product being listed.
4. Instructions for furnishing samples will be given after receipt of the application.

#### **B. Detail Check List for Application (QPL)**

1. Verify that the design of your product "fits" a Type, Style & Class shown in this document and complies fully with the design requirements. A copy of this document can be obtained, by request, to the Standards Section at the address shown above.
2. Apply in writing stating the product that you wish to have listed in the specific Type, Style & Class. In addition include for each item;
  - Description of the product and Model number
  - Illustrations
  - Specifications
3. After the Standards Section reviews this request will be acknowledged in writing. If "cosmetic" changes to the product are requested the State reserves the right to decide whether a sample evaluation is required. If no structural changes are made a sample may not be required. The requester will be informed after the technical literature has been reviewed.
4. Forward a sample of the product for physical evaluation (if applicable). The date and address to send the sample will be provided 4 weeks prior to the evaluation date.
5. If the product meets the requirements herein, and has been accepted by the evaluation review team, the product will be included on the QPL. It will become effective at the next term contract renewal.

**END**