SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes
1. Carpentry work not specified as part of other sections and which generally is not exposed, except as otherwise indicated.
2. Rough carpentry for:
a) Miscellaneous lumber for attachment and support of other work.
b) Wood furring.
c) Construction panels for miscellaneous uses.
d) Wood framing
3. Preservative treatment.

1.2 SUBMITTALS

A. Treated Wood: Treating plant's instructions for use, including storage, cutting, and finishing.
1. Pressure preservative treatment
a) Treating plant's certification of compliance with specified standards and stating process employed and preservative retention values.
b) Treatment for above-ground use
c) Certification of kiln drying after treatment.

1.3 QUALITY ASSURANCE

A. Lumber
1. Comply with NIST PS 20 and approved grading rules and inspection agencies.

B. Grade Stamps for Concealed Lumber
1. Each piece of lumber, applied by inspection agency and showing compliance with each specified requirement.

C. Construction Panels
1. Comply with NBS PS 1 where veneer plywood is specified; comply with APA PRP-108 where APA rated panels are specified; bearing APA trademark showing compliance with each specified requirement.

1.4 DELIVERY STORAGE AND HANDLING

A. Protect wood products against moisture and dimensional changes. Support stacks at several uniformly spaced points to prevent deformation. Store stacks raised above ground. Cover to protect from rain and snow. Select and arrange cover to allow air circulation under and all around stacks to prevent condensation. Maintain and restore displaced coverings. Remove from the site any wood products that have been subjected to moisture or that do not comply with the specified moisture requirements.

PART 2 - PRODUCTS

2.1 DIMENSION LUMBER

A. Size
1. Provide nominal sizes indicated, complying with NIST PS 20 except where actual sizes are specifically required.

B. Miscellaneous Lumber
   1. Provide dimension lumber and boards necessary for the support of work specified in other sections, whether or not specifically indicated, and including but not limited to blocking, nailers, etc.
      a) Moisture content: 19 percent maximum (kiln-dry).
      b) Lumber: S4S, No. 2 or standard grade.
      c) Boards: Standard, 3 common, or No. 3 grade.

2.2 CONSTRUCTION PANELS

A. Construction Panels/Plywood:
   1. Miscellaneous uses
      a) C-C Plugged exterior.

2.3 MISCELLANEOUS MATERIALS

A. Fasteners
   1. Provide as required by applicable codes and as otherwise indicated.

2.4 WOOD TREATMENT BY PRESSURE PROCESS

A. Aboveground Lumber: AWPB LP-2 (waterborne preservatives).
   1. Kiln dried after treatment to 19 percent maximum moisture content.
   2. Treat the following:
      a) Wood in contact with roofing or flashing.
      b) Wood in contact with masonry or concrete.
      c) Other members indicated.
      d) Wood exposed to weather.

B. Fasteners for Preservative Treated Wood: Hot-dip galvanized steel (ASTM A153).

PART 2 - EXECUTION

2.1 INSTALLATION - GENERAL

A. Arrange work to use full length pieces except where lengths would exceed commercially available lengths. Discard pieces with defects that would lower the required strength or appearance of the work.

B. Cut and fit members accurately. Install plumb and true to line and level.

C. Fasten carpentry in accordance with applicable codes and recognized standards.

D. Where exposed, countersink nails and fill flush with suitable wood filler.

E. Use fasteners of appropriate type and length. Predrill members when necessary to avoid splitting wood.

2.2 MISCELLANEOUS CARPENTRY

A. Provide miscellaneous blocking, nailers, and framing as shown and as required for support of facing materials, fixtures, specialty items, and trim. Cut and shape to the required size. Provide in locations required by other work.

B. Use countersunk fasteners appropriate to applied loading.

2.2 WOOD FURRING

A. Install wood furring plumb and level; shim as necessary to bring true to plane; install closure strips at ends perpendicular to main furring direction.
   1. Furring for gypsum drywall: Where wood furring is indicated or approved for use, install 1-by-3 furring vertically at 16 inches maximum on center.

END OF SECTION 06100

SECTION 06192 – PRE-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY

A. Structural Performance: Engineer, fabricate, and erect metal-plate-connected wood trusses to withstand design loads without exceeding ANSI/TP-1 deflection limits.

B. Related Documents
1. Division 0 – Bidding and General Conditions, Division 1 – General Requirements, all applicable provisions in the technical specification sections of Divisions 2 through 16 and applicable drawings apply to this section.

C. Section Includes:
1. Trusses fabricated from dimension lumber.
2. Plate connectors.
3. Engineering of trusses.
4. Erection of trusses.
5. Erection accessories and bracing.
6. Bridging.
7. Attachment to structure.

D. Engineering Responsibility: Engage a fabricator who uses a qualified professional engineer, registered in the state of North Carolina, to prepare calculations, shop drawings, and other structural data for metal-plate-connected wood trusses.

1.2 SUBMITTALS

A. In addition to Product Data, submit shop drawings detailing location, pitch, span, camber, configuration, and spacing for each type of truss required; lumber species, sizes, and stress grades; connector plate size, material, finish, design values, and orientation and location; and bearing details.

B. Shop Drawings and structural analysis data shall be signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 QUALITY ASSURANCE

A. Fabricator's Qualifications: Engage a fabricator who participates in a recognized quality-assurance program that involves inspection by SPIB; Timber Products Inspection, Inc.; Truss Plate Institute (TPI); or other independent inspecting and testing agency acceptable to authorities having jurisdiction.

B. Comply with applicable requirements and recommendations of ANSI/TPI 1, "National Design Standard for Metal-Plate-Connected Wood Truss Construction", and TPI HIB "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses".

C. Wood Structural Design Standard: Comply with applicable requirements of AFPA's "National Design Specifications for Wood Construction: and its "Supplement".

D. Single-Source Engineering Responsibility: Provide trusses engineered by one truss manufacturer to support superimposed dead and live loads indicated, with design

approved and certified by a qualified professional engineer who is legally authorized to practice in the jurisdiction where Project is located and who is experienced in the design of metal-plate-connected wood trusses.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 01640.

B. Handle and store Trusses with care and comply with manufacturer's written instructions and TPI recommendations to avoid damage and lateral bending.

PART 2 - PRODUCTS

2.1 TRUSSES

A. Provide dimension lumber as indicated on plans capable of supporting required loads without exceeding allowable design values according to AFPA's "National Design Specification for Wood Construction" and its "Supplement".

B. Assemble truss members in design configuration indicated using jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances of ANSI/TPI 1. Position members to produce design camber indicated.

C. Connect truss members by metal connector plates located and securely embedded simultaneously into both sides of wood members by air or hydraulic press.

2.2 METAL CONNECTOR PLATES

A. Fabricate connector plates from structural-quality steel sheet, zinc coated by hot-dip process complying with ASTM A 653, G60 (ASTM A 653M, Z180) coating designation; Grade 33 and not less than 0.0359 inch (0.91 mm) thick.

2.3 FASTENERS

A. Provide fasteners of size and type indicated that comply with requirements specified below for material and manufacturer. Where truss members are exposed to weather or to high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of stainless steel, Type 304 or 316.
   a. Nails, Wire, Brads and Staples.
   b. Proven-Driven Fasteners: CABO NER-272.
   c. Wood Screws: ASME B18.6.1.
   d. Lag Bolts and Screws: ASME B18.2.1 (ASME B18.2.3.8M).
   e. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

2.4 METAL FRAMING ANCHORS

A. Metal Framing Anchors: Provide metal framing anchors with allowable design loads, as published by manufacturer, that meet or exceed those indicated, of the following metal and finish:

   a. Galvanized Steel Sheet: Hot-dip, zinc coated steel sheet complying ASTM A 653, G60 (ASTM A 653M, Z180) coating designation; structural, commercial, or lock-forming quality, as standard with manufacturer for type of anchor indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install and brace trusses according to recommendations of TPI. Space trusses as indicated, install plumb, square, and true to line; and securely fasten to supporting construction.

B. Anchor trusses securely at all bearing points using metal framing anchors and fasten according to metal framing anchor manufacturer's fastening schedules and written instructions.

C. Securely connect each truss ply required for forming built-up girder trusses. Anchor trusses to girder trusses as indicated.

D. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls of beams.

E. Install wood trusses within installation tolerances of ANSI/TPI 1.

F. Do not alter, cut, or remove truss members.

G. Return wood trusses that are damaged or do not meet requirements to fabricator and replace with trusses that do meet requirements.

END OF SECTION 06192

SECTION 06200 - FINISH CARPENTRY

PART 1 - PUBLICATIONS:

1.1 Applicable publications: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

A. Federal Specification (Fed.Spec.):
1. FF-N-105B; Nails, Brads, Staples and Spikes: Notice 1 Wire, Cut and Wrought

B. U. S. Department of Commerce, National Bureau of Standards, Product Standards (Prod. Std.):
1. PS 20-70 American Softwood Lumber Standard Amended 1986

C. Architectural Woodwork Institute (AWI) Publication:
1. Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program (1984)

D. Northern Hardwood and Pine Manufacturers Association, Inc. (NHPMA) Publication:
1. Standard Grading Rules for Northern and Eastern Lumber (Dec 1978: Rev Mar 10, 1982)

E. Southern Pine Inspection Bureau (SPIB) Publication:
1. Grading Rules (Mar 15,1977; including Suppl 1 through 12)

1.2 GENERAL REQUIREMENTS:

A. Grading and Marking: Materials shall bear the grademark, stamp or other identifying marks indicating grades of material and rules or standards under which produced. Such identifying marks on a material shall be in accordance with the rule or standard under which the material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification. The inspection agency for lumber shall be certified by the Board of Review, American Lumber Standards Committee, to grade the species used. Except for plywood and lumber, bundle marking or certificates will be permitted in lieu of marking each individual piece.

B. Sizes and Patterns: Lumber sizes and patterns shall conform to Prod. Std. PS 20, and unless otherwise specified, shall be surfaced on four sides. Sizes and patterns for materials other than lumber shall conform to requirements of the rules or standards under which produced. Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which the product is produced.

C. Moisture Content: The maximum moisture content of trim shall be 8% to 12% at the time of delivery to the job site and when installed. Moisture content of all other materials shall be in accordance with the standard under which the product is produced.

1.3 SUBMTTALS:

A. Samples: Samples of each design of wood moulding shall be submitted for approval. Samples shall be of sufficient size to show pattern, as applicable.

1.4 DELIVERY AND STORAGE: Materials shall be delivered to the site in undamaged condition, stored in fully covered, well-ventilated areas, and protected from extreme changes in temperature and humidity.

1.5 MATERIALS:

A. Nails: Nails shall be the size and type best suited for the project requirements, hot-dip galvanized or aluminum for exterior use, in accordance with Fed. Spec. FF-N-105B when applicable. Screws for use where nailing is impracticable shall be size best suited for purpose.

B. Trim: Trim shall be species and grade in accordance with paragraph 6. Design shall be as shown on the drawings. Trim shall be assembled and sanded at the mill in so far as practicable in maximum practicable lengths. Finger joints are permitted when finish is paint.

C. Preservative Treatment: Exterior trim, except for all-heart material of cedar, cypress or redwood, shall be preservative-treated, and so marked in accordance with NWMA I.S.4.

1.6 INSTALLATION OF TRIM:

A. Exterior Trim: Exposed surfaces and square edges shall be machine sanded, caulked, and constructed to exclude water. Joints of builtup items, in addition to nailing, shall be glued as necessary for weather resistant construction. End joints in builtup members shall be well distributed. Joints in flat work shall be reverse beveled. Backs of wide-faced miters shall be held together with metal rings and glue. Fascias and other flat members shall be in single lengths. Cornices shall be braced, blocked, and rigidly anchored for support and protection of vertical joints. Provide blind nailing as far as practicable. All work shall be straight, level and free from sagging or warping. All exterior trim shall be cementious trim, fascia, soffits. All wood not covered with siding shall be painted as specified in Section 09900.

B. Interior Trim: Trim shall be installed straight, plumb, level and with closely fitted joints. Exposed surfaces shall be machine sanded at the mill. Molded work shall be coped at returns and interior angles and mitered at external corners. Intersections of flatwork shall be shouldered to ease any inherent changes in plane. Window and door trim shall be provided in single lengths. Blind nailing shall be used to the extent practicable, and face nailing shall be set and stopped with nonstaining putty to match the finish applied. Predrill as required to eliminate splitting. Screws shall be used for attachment to metal; setting and stopping of screws shall be of the same quality as required where nails are used.

END OF SECTION 06200

SECTION 06400 - ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Interior architectural woodwork.
      a. Cabinets.
      b. Cabinet hardware.
      c. Countertops.
      d. Shelving.

1.2 REFERENCES

A. Architectural Woodwork Quality Standards; Architectural Woodwork Institute; 1994.

1.3 SUBMITTALS

A. Shop Drawings: Plans and elevations; details at a large scale; show location of each item, identify components used, and indicate method of attachment.

B. Factory Finishes:
   1. Samples: 8- by 10-inch step samples, finished, for each finish and color, showing each coat required.

C. Plastic Laminate:
   1. Product data.
   2. Samples for selection: Approximately 2- by 3-inch pieces of manufacturer's full type, pattern, and color range.

D. Cabinet Hardware:
   1. Product data.
   2. Samples showing each finish on each item of hardware exposed to view.

E. Fabricator Qualifications: For information only.

1.4 QUALITY ASSURANCE

A. Quality of Materials and Workmanship: Provide woodwork that complies with requirements of "Architectural Woodwork Quality Standards," published by Architectural Woodwork Institute (AWI) (hereinafter referred to as "woodworking standard").

B. Quality of Factory Finishing: Provide factory finishes that comply with Section 01500, "Architectural Woodwork Quality Standards."

C. Where contract documents indicate requirements which are less restrictive than the woodworking standard, comply with the minimum requirements of the woodworking standard.

D. Fabricator Qualifications:
   1. All work of this section shall be fabricated by a single firm.

E. Installer Qualifications: Experienced in installing woodwork of similar quality.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials for interior woodwork indoors in air conditioned spaces maintained within design temperature and humidity range.

1.6 PROJECT CONDITIONS

A. Maintain final design temperature and humidity in areas where woodwork is installed.

B. Fit woodwork to actual construction. If it is not possible, or practical, to take field measurements before fabricating, provide adequate installation tolerances and scribe or trim to fit.

C. Coordinate installation of woodwork with other work to avoid damage.

PART 2 - PRODUCTS

2.1 WOOD MATERIALS

A. Lumber - General: Species and grade as specified in woodworking standard, unless otherwise indicated.
   1. Comply with applicable requirements of AWI Section 100.
   2. Moisture content at time of fabrication: Not greater than optimum moisture content as specified in woodworking standard.
   3. Provide lumber dressed on all exposed faces, unless otherwise indicated.
   4. Do not use twisted, warped, bowed, or otherwise defective lumber.
   5. Sizes indicated are nominal, unless otherwise indicated.
   6. Do not mark or color lumber, except where such marking will be concealed in finish work.

B. Trim, Molding and Finish Lumber: Southern Pine, Ponderosa Pine, White Pine, Douglas Fir, or approved substitution, first grade of the species for natural finish and second grade of the species for paint finish. Run trim, except window stools and aprons, with hollow backs. Exposed edges of boards shall be eased. Trim to receive opaque finish may be finger jointed.

C. Plywood: Types, grades, and cores as specified in the woodworking standard, except as otherwise specified in this section.
   1. Comply with applicable requirements of AWI Section 200.
   2. Face grade for plywood to receive laminates: Grade A, minimum.
   3. Plywood for Shelving: A-B or B-B Grade, Exterior.
   4. Veneer for clear or stain finish: Match wood doors, unless otherwise indicated.

2.2 MISCELLANEOUS MATERIALS

A. High-Pressure Decorative Laminate (HPDL): NEMA LD 3. Grade GP-50 for exposed horizontal surfaces, countertops and splashes, and GP-28 for exposed vertical surfaces.

B. Wood Filler for Transparent Finish Woodwork: Match final finish color.

C. Fasteners: Style, size, material, and finish as required for the purpose.

D. Shelf Standards and Brackets: As specified for each shelving assembly type.

2.3 CABINET HARDWARE

A. Cabinet Hardware: Provide hardware and accessories indicated.
   1. Finishes on exposed hardware: Comply with BHMA A156.18.

a. Match hardware for wood doors, unless otherwise indicated.

2. Concealed hardware: Manufacturer's standard finish, complying with applicable requirements of BHMA A156.9.
3. Hinges: Totally concealed style, self-closing, opening 180 degrees.
4. Pulls: Standard wire style, 3-1/2-inch centers by 5/16-inch diameter, no escutcheons.
5. Catches: Heavy duty magnetic, 5-pound pull.
6. Drawer slides: Side-mounted, 75-pound capacity, full extension, with nylon ball-bearing rollers; positive pull-out stop, self-closing, lift-out feature.
7. Locks: 5-pin tumbler, dead bolt.
8. Cabinet-mounted adjustable shelf supports: Recess-mounted, nickel-plated steel standards with horizontal slots, full height of cabinet, with adjustable shelf support clips.

B. Hardware Quantities:

1. Hinges: Two per door up to 36 inches high; three per door over 36 inches high.
2. Pulls: One per door, drawer.
3. Catches: One per door.
4. Drawer slides, side mounted: Two per drawer.
5. Locks: Where indicated.
6. Cabinet-mounted adjustable shelf supports: Four standards for each cabinet to receive adjustable shelving and four shelf support clips for each shelf.

2.4 FABRICATION

A. General: Where applicable, comply with AWI QS, custom grade. Provide sizes, materials, and designs as indicated and specified. Joints shall be tight and constructed in a manner that will conceal shrinkage. Miter trim and moldings at exterior angles and cope at interior angles at returns. Material shall show no warp after installation. Provide finish carpentry in the maximum practical lengths. Provide blind nailing where practicable. Fasten finish work with finish nails and set face nails for putty stopping. Where practicable, shop assemble and finish items of built-up millwork.

B. Laminated Plastic Countertops: Fabricate with lumber and plywood glued and screwed to form an integral unit. Bond laminated plastic under pressure to exposed surfaces, using type of glue recommended by the plastic manufacturer. The countertop unit shall be self-edged type covered with HPDL. Provide nominal 1-inch by 4 inch applied back and end splashes with face and exposed edges faced with HPDL to match countertop.

C. Wall and Base Cabinets: Fabricate cabinets in profiles and sizes indicated. Provide each wall cabinet with 2 adjustable, full depth, shelves and each door type base cabinet (except sink base cabinet) with one fixed, half depth, shelf. Provide cabinets of AWI Quality Custom Grade. Unless otherwise indicated or approved, cabinets shall be constructed as follows:

1. Face Frame: 1-inch by 1-5/8-inch solid wood frame rails and stiles with glued mortise and tenon joints.
2. Concealed Surfaces: Sound and dry solid wood or plywood without defects affecting strength, utility, or stability.
3. Sides, Dividers, Tops, Bottoms, Shelves, and Stretchers: 1/2 inch thick plywood. Provide stretchers for top of base cabinet.

4. Back Panels: 1/4 inch thick plywood fastened to rear edge of end panels and to top and bottom rails.
5. Doors, Drawer Fronts, Fixed Panels, Toeboards, and Ends: Hardwood and 5/8 inch thick plywood.
6. Drawers: Fabricate with front, bottom, and back rabbeted in sides and secured with glue and mechanical fasteners as follows:

a. Subfronts, Sides and Backs: 1/2 inch thick plywood.
b. Bottoms: 1/4 inch thick plywood set into rabbets in back, sides, and front.

7. Joinery: Rabbet backs flush into end panels and secure with concealed mechanical fasteners. Connect bottoms and stretchers of base cabinets to ends and dividers with mechanical fasteners. Rabbet bottoms and backs into end panels.
8. Stain Finish:
   a. Finish for Exposed Portions of Cabinets: Provide stain finish for exposed surfaces of cabinets which includes all surfaces visible when doors and drawers are closed including door and drawer edges, fixed panels, ends and toe boards. Also included is the underside of cabinets over 4 feet above floor. Color to match wood doors.
   b. Finish for Semi-Exposed Portions of Cabinets: Provide stain finish for semi-exposed surfaces of cabinets which includes surfaces behind doors and drawer fronts, such as shelves, interior faces of cabinet ends, back, tops and bottoms; inside face of drawer fronts, sides, backs and bottoms; and back face of doors. Also included is the underside of cabinets between 2 feet and 4 feet above floor.
9. High Pressure Decorative Laminate Finish (HPDL):

D. Finish for Exposed Portions of Vanities: Provide specified laminated plastic for exposed surfaces of vanities except as otherwise indicated. Color(s) shall be selected by architect.

E. Adjustable Wall Shelving Assemblies:
1. Shelf: Plywood with hardwood edge band at front edge and each end: 3/4-inch thick by depth indicated by length required. Field paint, finish/color as indicated or, if not indicated, as selected by Architect.
2. Shelf Standards: 12 gauge steel by 7/8-inch wide by 11/16-inch high extra heavy-duty standard with 2-inch adjustment; K & V/No. 87 with Anochrome finish or approved substitution. Length shall be 7 foot, unless otherwise indicated.
3. Shelf Brackets: Extra heavy-duty bracket; K & V/No. 187 with Anochrome finish or approved substitution size as required by shelf depth.

F. Fixed Shelving Assemblies:
1. Shelf: Plywood with hardwood edge band at front edge; 3/4-inch thick by depth indicated by length required. Field paint, finish/color as indicated or, if not indicated, as selected by Architect.
2. Wall Cleats, Where Applicable: 1 by 3 at back and each end. Finish to match shelf.
3. Top, Side, Intermediate and Bottom Panels, Where Applicable: Match shelving.
4. Intermediate Support Bracket, Where Applicable: K&V/No. 1194 heavy-duty adjustable rod and shelf support ClosetMaid or approved substitution.
5. Coat Rod, Where Applicable: K & V/No. KV2 ZC Extension Closet Rod ClosetMaid or approved equal; length as required.

2.5 FACTORY FINISHING

A. Factory Finish: As specified for individual item.

B. Apply entire finish in shop; touch-up and cleaning only may be performed after installation.

C. Prepare for finishing in accordance with the woodworking standard.

PART 2 - EXECUTION

2.1 PREPARATION

A. Verify that blocking and backings have been installed at appropriate locations for anchorage.

B. If shop-fabricated items are not fully fabricated, complete fabrication.

2.2 INSTALLATION - GENERAL

A. Do not begin installation of interior woodwork until potentially damaging construction operations are complete in the installation area.

B. Field Joinery: Comply with requirements of the woodworking standard for shop joinery.

C. Make joints neatly, with uniform appearance.

D. Install woodwork in correct location, plumb and level, without rack or warp.
   1. Install with no variation in flushness of adjoining surfaces.

E. Shim as required with concealed shims.

F. Where cabinets abut other finished work, scribe and cut for accurate fit. Provide filler strips, scribe strips and moldings as indicated or required for a complete finished installation.

G. Touch-up shop finishes at field cuts.

H. Secure woodwork to structural support members or use anchors required.
   1. Where anchorage method is not indicated, conceal all fasteners where possible.
   2. Where exposed nailing is required or indicated, use finishing nails, countersink, and fill.

I. Repair damaged and defective woodwork to eliminate visual and functional defects; where repair is not possible, replace woodwork.

J. Touch up shop-applied finishes where damaged or soiled.

K. Cabinets:
   1. Install so drawers operate smoothly.
   2. Install all hardware not installed in shop.
   3. Anchor tops securely.
   4. Install tops level, within 1/8 inch in 8 feet.

L. Countertops: Attach countertops securely to base units. Conceal fastenings where practicable, fit the counter level, install in a rigid manner, and scribe to adjoining surfaces. Provide counter sections in the longest lengths practicable; keep joints in tops to a minimum; and where joints are necessary, spline and glue joints and provide tight hairline joints drain up with concealed-type heavy pull-up bolts. Glue joints with water-resistant glue and, make rigid with screws, bolts, or other approved fastenings. Provide cutouts for fixtures and appliances; drill pilot holes at corners before making cutouts. Smooth cut edges and coat with waterproof coating or adhesive. Install back and end splashes with concealed fastening. Provide sealant at joint where countertops and splashes meet adjacent finish surfaces.

M. Adjustable Shelving: Set standards at 32 inches on-center maximum and not greater than 6 inches from each end of shelf. Set top of standards at 7.5 feet above floor, unless otherwise indicated.

N. Anchorage of Millwork: Anchor securely in place with appropriate fasteners, anchored into structural support members of wall construction.

2.3 ADJUSTING

A. Adjust and lubricate cabinet hardware for smooth operation.

2.4 CLEANING

A. Clean exposed and semiexposed surfaces.

2.5 PROTECTION

A. Protect woodwork from damage and maintain design environmental conditions.

END OF SECTION 06400