

SECTION 06100

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope of Work: Provide all labor, materials, tools, equipment and services for all rough carpentry as indicated in the drawings and in accordance with Division 1.
- B. Completely coordinate with work of all other trades.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Prefabricated Wood Framing - Section 06192.
- B. Cast-In-Place Concrete - Section 03300.
- C. Structural Steel - Section 05100
- D. Finish Carpentry - Section 06200

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service.
- B. Lumber grading rules and species:
 - 1. Western Wood Products Associations (WWPA).
 - 2. Southern Forest Products Association (SFPA).
- C. Plywood grading rules and recommendations:
 - 1. American Plywood Association (APA).
- D. Standards for fire hazard classification for fire retardant treated material.
 - 1. Test method: ASTM E-84, NFPA 255, UL723.
- E. Preservative and pressure treatment standards: American Wood Preservers Association (AWPA).

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Immediately upon delivery to job site, place materials in area protected from weather.
- B. Store materials a minimum of 6" above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.
- C. Do not store seasoned materials in wet or damp portion of building.
- D. Protect sheet materials from corners breaking and damaging surfaces, while unloading.

PART 2 - PRODUCTS

2.1 MATERIALS - ROUGH CARPENTRY

- A. Lumber (for framing, blocking, nailers, furring, cant strips, grounds, and similar members): Similar to dry size requirements of PS-20, Douglas fir WWPA No. 2, or Southern Yellow Pine No. 2 (moisture content 19 percent max.)
 - 1. Thoroughly seasoned well-fabricated materials of longest practical lengths and sizes.
 - 2. Free of non-correctable warp.
- B. Plywood: PS1-83, exterior type, Structural I C-C EXT-APA.
 - 1. Provide APA-MDO-EXT Plywood, where indicated.
- C. Preservative treated material:
 - 1. Provide preservative treatment for all material subject to exterior exposure, in contact with the ground, and for all sill plates. Treatment material shall conform to A.I.T.C. Standard 109.
- D. Fire retardant treated material:
 - 1. Provide fire retardant treated material inside building as indicated in the drawings.
- E. Combination fire retardant/preservative treated material:
 - 1. Provide combination fire retardant/preservative treated material for all material used within exterior walls of building, including parapets and roof sheathing.

2. Lumber: AWP A C-20 with exterior type decay resistance.
3. Plywood: AWP A C-27 with exterior type decay resistance.
4. Kiln dry all treated material to 15 percent moisture content.

2.2 ANCHORS, FASTENERS AND PLATES

- A. Bolts, Nuts, Studs, Rivets: FS FF-B-575, FF-S-1362 and FF-B-556.
- B. Expansion shields: FS FF-S-325; group, type, class, and style best suited for the purpose.
- C. Lag Screw and Bolts: FS FF-B561; type and grade best suited for the purpose.
- D. Nails: FS FF-N-105; type and size best suited for the purpose or as noted on the drawings. Hot dipped galvanized for exterior use.
- E. Toggle Bolts: FS FF-B-588; type and class best suited for the purpose.
- F. Wood Screws: FS FF-S-111; types best suited for the purpose. Hot dipped galvanized for exterior use.
- G. Steel plates and Shapes: ASTM A 36, galvanized for exterior use.
- H. All metal hangers, straps, and clips shall be of the model and shape shown on the drawings as manufactured by Simpson Strong Tie Connectors or equivalent.

PART 3 - EXECUTION

3.1 INSTALLATION - ROUGH CARPENTRY

- A. Provide framing members of sizes and at spacings shown on the drawings.
- B. Attach work securely by anchoring and fastening as indicated or required to support applied loading.
 1. Provide washers under bolt heads and nuts.
 2. Nail plywood in accordance with APA recommendations.
 3. Countersink nail heads, fill holes with matching filler.
- C. Set work to required levels and lines, plumb, true.
- D. Cut and fit accurately.
- E. Provide wood grounds, nailers, or blocking where required for attachment of handrails, cabinets or other work and surface applied items as required to properly carry out all work shown and reasonably inferred by the Drawings and Specifications.
- F. Form to shapes indicated.
- G. Provide wood blocking between studs at height of doorstep, behind stop, at all door openings.
- H. Grounds: Dressed, key beveled lumber minimum 1-1/2" wide of thickness required to bring face of ground even with finish material.
- I. Remove temporary grounds when no longer required.
- J. Install wood furring plumb and level with closure strips at all edges and openings.
- K. Shim as required.
- L. Field treat cuts and holes in the preservative and fire retardant treated material in accordance with AWP A Standard M-4.
- M. Shoring - Furnish and place all necessary shoring and bracing of types and sizes best suited for the conditions to be met. Shoring must comply with all governing requirements.
- N. Provide wood curbs, required blocking and cants around all openings through the roof indicated on all architectural, mechanical, and electrical drawings. Check drawings, for all trades and furnish for all openings indicated.
- O. Do not splice structural members between supports.

END OF SECTION

SECTION 06170

GLUED LAMINATED STRUCTURAL UNITS

PART I - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division - 1 Specification sections, apply to work this section.

1.2 DESCRIPTION OF WORK

- A. Extent of structural glued laminated structural units (Glulam) is shown on drawings.
 - 1. Work includes connectors, anchors, and accessories necessary to interconnect and secure Glulam members to building structure, and their installation.
- B. Glued laminated timber is hereby defined to include wood members fabricated from 1" or 2" nominal thickness lumber glued face-to-face to a depth of four or more laminations.
- C. The types of structural glued laminated structural units specified in this section include:
 - 1. Straight-grained beams; including girders and purlins, and cambered members.
 - 2. Non-structural members as indicated.
 - 3. Laminated wood decking.

1.3 QUALITY ASSURANCE

- A. Standards: Except as otherwise indicated, comply with ANSI/AITC A 190.1 "Structural Glued Laminated Timber".
 - 1. For laminated decking, form units from lumber graded by a recognized agency, complying with requirements of American Lumber Standards Committee and PS 20.
- B. Manufacturer Qualification: Provide factory-glued structural units, produced by an AITC-licensed firm, qualified to apply the AITC "Quality Inspected" mark.
- C. Factory mark each piece of glued laminated structural units with AITC Quality Inspected mark.
 - 1. Place AITC mark on timber surfaces which will not be exposed in completed work.
- D. Installer: Firm which has demonstrated competence specializing in installation of glued laminated timber.
- E. Design by Manufacturer: Where portions of final design for glued laminated timber members are indicated as manufacturer's responsibility (any element of design consideration), comply with applicable provisions of AITC 117 - "DESIGN, Standard Specifications for Structural Glued Laminated Timber of Softwood Species."

1.4 SUBMITTALS

- A. Product Data - Submit manufacturer's data, specifications and installation instructions covering lumber, adhesives, fabrication process, preservative treatment, accessories and protection.
 - 1. Submit certification, indicating glued laminated timbers comply with requirements of ANSI/AITC 190.1.
 - 2. Submit certification by treating plant that required treatments comply with specified standards.
- B. Samples - submit samples, 2 @ 24" long x full width x depth of 3 laminations, showing range of variation expected in appearance of glued laminated structural units, including specified treatment, if any. Samples will be reviewed for color, pattern and texture only. Compliance with other requirements is exclusive responsibility of Contractor.
 - 1. Apply specified factory finish to 3 sides of half-length of each sample.
- C. Shop Drawings - Submit shop drawings showing full dimensions of each member and layout of entire structural system. Show large scale details of connections, connectors and other accessories. Indicate species and laminating combination, adhesive type, and other variables in required work.

1. To the extent engineering design considerations are specified as manufacturer's responsibility, show loading, section sizes, assumed design values, stress diagrams and calculations, and similar information needed for analysis.
2. Shop drawings to be stamped by a structural engineer licensed to practice in the state where units are fabricated, and/or installed as required by the Architect.

1.5 DELIVERY, STORAGE, HANDLING

- A. Keep glued laminated structural units dry during delivery, storage, handling, and erection, by maintaining factory-applied protective covering in weather-tight and light-proof condition, or by applying other weathertight protection. Maintain protective covering until building enclosure is completed to extent necessary for protection of interior Glulam units in areas of either excessively high or excessively low relative humidity; comply with manufacturer's instructions.
- B. Time delivery and installation of Glulam to avoid extended on-site storage, and to avoid delaying work of other trades whose work must follow erection of Glulams.
- C. If laminated units are to be stored before erection, place individual units or bundle wrapped units on blocks well off ground with individual members separated for air circulation. Leave wrapping intact, but slit or puncture lower side to permit drainage of water which may accumulate.

PART 2 - PRODUCTS

2.1 STRUCTURAL GLUED LAMINATED UNITS

- A. Lumber - comply with ANSI/AITC A190.1 and applicable lumber association standards cited therein for grades required to achieve Glulam requirements for design values, appearance, fabrication limitations and species (if any).
- B. Preservative Treatment - where preservative treatment is indicated, pressure treat lumber prior to gluing, in accordance with AWWA requirements for pentachlorophenol and mineral spirits preservatives. Discard pieces which have bowed, warped, twisted or checked to extent of causing a detrimental result in work.
- C. Stress values for beams, purlins, arches and trusses - provide glued laminated members sized as shown on drawings with laminating combination 24F-V8 or other that meet or exceed following stress values:
 - Bending (Fb), 2400 psi
 - Modulus of Elasticity (E), 1,800,000 psi
- D. Lumber Species - 24F Douglas Fir.
- E. Adhesive - ASTM D2559 "wet-use" adhesive, unless otherwise indicated.
- F. End Sealer - manufacturer's standard transparent, colorless wood sealer, effective in retarding transmission of moisture at cross-grain cuts. Field apply to all field cuts within 8 hours of cutting.
- G. Penetrating sealer - manufacturer's standard translucent penetrating wood sealer, which will not interfere with application of wood stain and transparent finish, or paint finish, as indicated.
 1. Refer to Division-9 sections for required field-applied finishes.
- H. Connectors, anchors, accessories - provide fabricated steel (ASTM A36) shapes, plates and bars, welded into assemblies of types and sizes indicated or, if not indicated, manufacturer's standard units for timber sizes indicated. Provide steel bolts (ASTM A307), lag bolts, nails, and other standard fasteners as required.
- I. Available manufacturers - subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

Koppers Co. Inc.
Unadilla Laminated Products

2.2 FABRICATION

- A. General-Comply with ANSI/AITC A190.1 in providing units indicated; where dimensions are not completely documented, provide manufacturer's standard sizes and shapes required to fulfill indicated performances.

1. Shop-cut for connections and connecting hardware to greatest extent feasible, including drilling of bolt holes.
- B. Appearance grade - provide Architectural grade timbers, complying with AITC 110.
- C. Camber - except as otherwise indicated, fabricate horizontal load-bearing members (units of less than 12 to 12 slope), which are shown as straight members (not arched), with an appropriate camber to be engineered by the Fabricator.
- D. Preservative treatment - laminate members from preservative treated lumber. After dressing and end-cutting each member to final size and shape, apply a heavy brush coat of same (or compatible) treatment (in a light petroleum solvent) to cut surfaces (wherever cut into a depth of more than 1/16").
- E. End-cut sealing - immediately after end-cutting each member to final length, and after wood treatment (if any), apply a saturation coat of end sealer to ends and other cross-cut surfaces, keeping surfaces "flood-coated" for not less than 10 minutes.
- F. Seal coat - after fabrication and sanding of each unit, and end-coat sealing, apply a heavy saturation coat of penetrating sealer on surfaces of each unit, except for treated wood where treatment has included a water repellent.

2.3 GLUED LAMINATED DECKING

- A. General - provide glued laminated wood decking, sized as indicated, with following features:
 - Face Species: Douglas Fir
 - Face Grade: Decorative/Architectural
 - Face Surface: Smooth sanded
 - Edge Pattern: Straight
- B. Available manufacturers - subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
 - Koppers, Inc.
 - Potlatch Corp.
 - Unadilla Laminated Products

2.4 FACTORY FINISHING

- A. Clear finish - Refer to Division-9 sections for required factory and field-applied finishes. Provide color matching Architect's sample.
- B. Factory applied protection - Before shipping or exposing to outdoor conditions, individually wrap each member with manufacturer's standard, opaque, durable, water-resistant, plastic-coated paper covering, with water-resistant seams.
 1. At manufacturer's option, small members of uniform size may be bundle-wrapped, in lieu of individual wrappings. Provide protective slip-sheets between finished surfaces where factory-finishes have been provided.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General - install miscellaneous steel connectors, anchors, and accessories as indicated.
- B. Plan and execute erection procedures so that close fit and neat appearance of joints and structure as a whole will not be impaired. When hoisting members into place, use padded or non-marring slings, and protect corners with wood blocking.
- C. Adequately brace members as they are placed to maintain safe position until full stability is provided.
- D. Cutting - avoid cutting Glulam members during erection, to greatest extent possible. Except for fastener drilling and other minor cutting, coat cuts with end sealer as specified for "Fabrication".
 1. Where treated members must be cut during erection, apply a heavy brush coat of the same treatment, complying with AWPA Standard M4.
- E. Handle and temporarily support members to prevent visible surface damage.
- F. Do not remove wrapping on individually wrapped members until it will serve no useful purpose, including protection from the weather, soiling and damage from work of other trades.

1. Coordinate removal of wrapping with finishing work specified in the Division-9 sections. Retain wrapping wherever it can serve as a painting shield.
 - G. Maintain expansion spaces as shown, and as recommended by decking manufacturer.
 - H. Apply bead of non-structural joint sealant under each tongue-and-groove at outside wall supports, to seal air-tight.
 - I. Nail decking as indicated, or if not otherwise indicated, comply with manufacturer's instructions for nailing wood decking. Provide temporary waterproof covering to protect exposed decking if required prior to application of finished roofing.
 - J. Repair damaged surfaces and finishes after completion of erection and removal of wrappings, or replace damaged members as directed where damage is beyond satisfactory repair.
- 3.02 PROTECTION
- A. Advise contractor of necessary limitations on heating, ventilating and air conditioning in building, in order to avoid damage or deterioration of GLULAM work.

END OF SECTION

SECTION 06200

FINISH CARPENTRY

PART I GENERAL

1.1 SUMMARY

- A. Related Documents: General and Supplementary Conditions of the Contract, Division 1 - General Requirements, and Drawings are applicable to this Section.
- B. Section Includes:
 - 1. Interior Finish Carpentry Work.
 - a. Plywood wall and ceiling paneling and trim.
 - b. Moldings, bases, casings, frames and chair rails.
 - c. On-site constructed millwork and finish hardware.

1.2 SUBMITTALS

- A. General: Submit following items in accordance with Section 01330.
- B. Product Data: Manufacturer's technical literature for factory fabricated items and components.
- C. Shop Drawings
 - 1. Indicate profiles, sections, and views of stock items as well as specially fabricated items for the work, at scale large enough to permit checking for design conformity.
 - 2. Indicate sizes, quantities, markings, materials, wood species, finishes and accessories.
- D. Samples
 - 1. Three samples of each type and species of plywood and finish lumber specified, complete with applied finish.
 - 2. Each type of hardware and fastening device required in the construction of the work specified herein.

1.3 QUALITY ASSURANCE

- A. Fabrication Standards: Fabricate items in accordance with AWI standards listed below using custom grade unless noted otherwise.
 - 1. Lumber grades: AWI Section 100.
 - 2. Standing and running trim: AWI Section 300.
 - 3. Counter tops: AWI Section 400.
 - 4. Paneling: AWI Section 500.
 - 5. Shelving: AWI Section 600.
 - 6. Miscellaneous work: AWI Section 700.
 - 7. Stairwork and handrails: AWI Section 800.
 - 8. Door frames: AWI Section 900.
- B. Regulatory Requirements: Conform to applicable code for fire retardant requirements.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, handle, and protect products in accordance with Section 01600.
- B. Protect materials from damage, soiling and deterioration.
- C. Do not deliver finish carpentry materials until job site conditions and operations which could damage, soil or deteriorate work are complete.
- D. Store products and materials in ventilated, interior locations under constant minimum temperature of 60 degrees F. and relative humidity not to exceed 55 percent.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Install finish carpentry products only when temperature and humidity conditions have been stabilized and will be maintained.

- B. Maintain temperature and moisture conditions as recommended by woodwork fabricator from date of installation through remainder of construction period.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General
 - 1. Comply with quality and grading standards contained herein for each material.
 - 2. Sizes noted on drawings or indicated herein for lumber are nominal unless detailed by specific dimensions of actual size.
 - 3. Plywood and particleboard 3/4 inch thickness unless noted or detailed otherwise.
 - 4. Products surfaced four sides, unless noted otherwise.
- B. Softwood Lumber & Plywood
 - 1. Quality standard: PS 20.
 - 2. Grading Standard: AWI custom premium grade, C grade or better
 - 3. Maximum moisture content: 6 percent for interior work; 10 percent for exterior work.
 - 4. Species: Douglas fir.
 - 5. Grain: Vertical

2.2 ACCESSORIES AND TREATMENT

- A. Contact Adhesive: FS MMM-A-130B, of type recommended by millwork manufacturer to suit application.
- B. Wall Adhesive: Solvent release cartridge type, compatible with substrate, capable of achieving durable bond.
- C. Bolts, Nuts, Washers, Lags, Pins, Nails, and Screws: Size and type to suit application.
- D. Nails: Size and type to suit application, plain finish.
- E. Wood Filler: Solvent base, tinted to match surface finish color.

2.3 SHOP FABRICATION

- A. Shop fabricate assemblies in accordance with AWI premium standards.
- B. Shop prepare and identify components for grain matching during site erection.
- C. Sanding/Filling
 - 1. Perform work in accordance with AWI.
 - 2. Sand work smooth and set exposed nails and screws.
 - 3. Apply wood filler in exposed nail and screw indentations and leave ready to receive applied finishes.
 - 4. On items to receive transparent finishes, use wood filler which matches surrounding surfaces and of types recommended for applied finishes.
- D. Prime seal concealed and semi-concealed surfaces. Brush apply only.
- E. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes, and other fixtures. Verify locations of cutouts from site dimensions. Seal edge surfaces of cutouts.
- F. Before proceeding with millwork required to be fitted to other construction, obtain measurements and verify dimensions of shop drawings details for accurate fit.
- G. Fabricate woodwork to dimensions, profiles, and details shown.
- H. Route and groove back of flat trim members, kerf backs of other wide flat members except plywood or veneered members.
- I. Assemble in mill in as large of units as practicable to minimize field cutting and fitting.
- J. Miter joints, where required, by joining, splining, and gluing to comply with requirements for specified grade.
- K. Cap exposed plywood with wood trim, 3/8 inch by width of sheet, unless noted or shown otherwise to use plastic or aluminum trim.
- L. Mill wood moldings to stock shapes, patterns, and sizes using WMMPA guidelines for transparent "N" finishes using white birch species material
- M.

- 2.4 FINISH
A. Refer to Section 09910.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces openings and conditions are ready to receive work of this section. Notify Architect of any existing condition which will adversely affect execution. Beginning of execution will constitute acceptance of existing conditions.
- B. Verify that field measurements are as shown on shop drawings.
- C. Verify that mechanical, electrical, and other items affecting work of this section are in place and ready to receive the work.
- D. Beginning of installation indicates acceptance of existing conditions.

3.2 PREPARATION

- A. Prime paint or seal concealed surfaces and items or assemblies which will be in contact with cementitious materials or surfaces.
- B. Make field cuts with extreme care to avoid splintering.

3.3 INSTALLATION

- A. Install using skilled workmen in accordance with manufacturer's printed instructions and recommendations.
- B. Install work in accordance with AWI Custom Quality Standards. Handle materials to avoid dents and other damages.
- C. Set and secure materials and components, rigid, plumb, and square.
- D. Shim as required using concealed shims.
- E. Cut to fit to exact size. Where woodwork abuts other finished work, scribe and cut for accurate fit. Where necessary to fit at site, provide ample allowance for cutting and fitting.
- F. Before making cutouts, drill pilot holes at corners.
- G. Distribute defects allowed in quality grade to best overall advantage when installing job assembled woodwork items.
- H. Install trim and molding in unjointed lengths for openings and for runs less than maximum length of lumber available. For longer runs, use only one piece less than maximum length available in straight run. Allow no joints closer than 12 feet apart.
- I. Stagger joints in adjacent members.
- J. Cope moldings at returns and miter at corners.
- K. Attach woodwork securely in place with uniform joints providing for thermal and building movements; blind nail where possible.
- L. Use finishing nails where exposed.
- M. Set exposed heads for filling, except for exterior wood to receive natural finish.
- N. Secure woodwork to anchors, built-in blocking, or directly attach to substrates.
- O. Preparing for Finish
 - 1. Clean woodwork and fill nail holes. Sand to smooth finish.
 - 2. Where woodwork is to receive transparent finish, use matching wood filler.
- P. Install hardware in accordance with manufacturer's recommendations.
- Q. Install paneling with fasteners at 12 inches on center at perimeter, 16 inches on center in field. Butt edges and ends tightly.
- R. Cover exposed edges of sheet goods used for shelving and other items with 3/8 inch thick hardwood edging unless otherwise shown or noted to use aluminum or plastic edging. Width of edging to match thickness of shelving.

3.4 TOLERANCES FOR FIELD ASSEMBLIES/JOINED ITEMS

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

3.5 ADJUSTING

- A. Adjust work under provisions of Section 01770.
- B. Adjust moving or operating parts to function smoothly and correctly.

3.6 CLEANING AND PROTECTION

- A. Protect installed millwork from marring defacement or other damage until final completion.
- B. Clean spaces of debris, vacuum and dust all millwork. Leave in condition ready for use.

END OF SECTION

SECTION 06410

CUSTOM CASEWORK

PART 1 GENERAL

1.1 SUMMARY

- A. Related Documents: General and Supplementary Conditions of the Contract, Division 1 - General Requirements, and Drawings are applicable to this Section.
- B. Section Includes:
 - 1. Wall cabinets.
 - 2. Base cabinets.
 - 3. Full height cabinets.
 - 4. Open shelving cabinets.
 - 5. Loose shelving units with standards and brackets.
 - 6. Plastic laminate Counter tops .

1.2 DEFINITIONS

- A. Exposed: Where used herein, "exposed" portions of casework includes surfaces visible when doors and drawers are closed. Bottoms of cases more than 4'-0" above finish floor are considered exposed. Visible surfaces in open cases or behind clear doors also are considered as exposed portions.
- B. Semi-Exposed: Where used herein, "semi-exposed" portions of cabinet work includes those members behind opaque doors, such as shelves, divisions, interior faces of ends, case backs, drawer sides, backs and bottoms, and back face of doors. Tops of cases 6'- 6" or more above finish floor shall be considered semi-exposed, unless exposed from balcony or floor above.

1.3 SUBMITTALS

- A. General: Submit following items in accordance with Section 01330.
- B. Product Data: Manufacturer's specifications and installation instructions for hardware and accessory items.
- C. Shop Drawings
 - 1. Indicate profiles, sections, and views of stock items as well as specially fabricated items for the work, at scale large enough to permit checking for design conformity.
 - 2. Indicate sizes, quantities, markings, materials, wood species, finishes and accessories.
 - 3. Include assembly and installation drawings to show methods of blocking, fastening, bracing, jointing, and connecting to work of other trades.
 - 4. Indicate dimensions necessary for fitting casework and adjacent equipment and appliances to fixed planes. Be responsible for details and dimensions not controlled by job conditions.
 - 5. Indicate cut-out locations.
- D. Samples
 - 1. Three samples of each type and species of plywood and finish lumber with applied finish.
 - 2. Each type of hardware.
- E. Qualification Data: Submit erector qualifications verifying years of experience; include list of completed projects having similar scope of work identified by name, location, date, reference name and phone number.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabrication of custom casework of quality and having minimum of 3 years documented experience.
- B. Fabrication Standards: Fabricate products and items in accordance with AWI standards listed below using custom grade unless noted otherwise.

1. Lumber grades: AWI Section 100.
2. Standing and running trim: AWI Section 300.
3. Counter tops: AWI Section 400.
4. Shelving: AWI Section 600.
5. Miscellaneous work: AWI Section 700.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, handle, and protect products in accordance with Section 01600.
- B. Protect materials from damage, soiling and deterioration.
- C. Do not deliver finish carpentry materials until job site conditions and operations which could damage, soil or deteriorate work are complete.
- D. Store products and materials in ventilated, interior locations under constant minimum temperature of 60 degrees F. and relative humidity not to exceed 55 percent.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and moisture conditions as recommended by casework fabricator from date of installation through remainder of construction period.

1.7 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

1.8 SEQUENCING AND SCHEDULING

- A. Verify that blocking is in place and backpriming complete before beginning work.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General
 1. Comply with quality and grading standards contained herein for each material.
 2. Sizes noted on drawings or indicated herein for lumber are nominal unless detailed by specific dimensions of actual size. Minimum thickness is nominal A1 by @ material, unless noted or shown otherwise.
 3. Plywood: 3/4 inch thickness unless noted or detailed otherwise.
 4. Products surfaced four sides (S4S), unless noted otherwise.
- B. Softwood Lumber & Plywood
 1. Quality standard: PS 20.
 2. Grading Standard: AWI premium grade.
 3. Maximum moisture content: 6 percent for interior work.
 4. Species: Douglas fir.
 5. Grain: Vertical
- C. Laminate Materials
 1. High Pressure Laminate Surface
 - a. Quality standard: NEMA, LD-3.
 - b. Grade: General Purpose.
 - c. Thickness: 0.050 inch for horizontal grade; 0.028 to 0.032 inch for vertical grade.
 - d. Core: Standard.
 - e. Finish and Color: from full range of manufacturers to be selected by Architect.
 - 1) Acceptable Manufacturers: Formica, Wilson Art.
 2. Laminate Backing Sheets
 - a. Composition: High pressure laminate of paper and melamine, without decorative finish, 0.020 inch thick minimum.
 - b. Acceptable Manufacturers: Same as for high pressure laminate surfacing.

2.2 ACCESSORIES AND TREATMENT

- A. Contact Adhesive: FS MMM-A-130B of type recommended by millwork manufacturer to suit application.
- B. Wall Adhesive: Solvent release cartridge type, compatible with substrate, capable of achieving durable bond.
- C. Bolts, Nuts, Washers, Lags, Pins, Nails, and Screws: Size and type to suite application.
- D. Fasteners: Size and type to suit application.
- E. Hardware
 - 1. Overlay Cabinet Hinges: Heavy duty concealed type, steel cabinet hinge, for full overlay 3/4 inch doors, US26D finish.
 - 2. Door Catches: Stanley No. 46 plain finished, aluminum encased, impregnated rubber magnet.
 - 3. Full Extension Drawer Slide: Self-lubricating frictionless, heavy duty, minimum 75 pound capacity, oilite bronze oil cushion bearings, rubber bumpers, tracks, mounting brackets, all zinc plated steel.
 - a. Knappe & Vogt No. 8400.
 - 4. Adjustable shelf standards within cabinets: 5 mm supports for predrilled hole spacing equal to Hafele 282 series
 - 5. Grommets: MG Series by Doug Mockett Co., No. MG-1, finish to match adjacent countertop material. Size and locations: Refer to Interior Details.
 - 6. Cabinet Pulls:
 - 1. Brushed chrome finish, 4 by 1-5/16 inch projection
 - 2. Mockett #DP3A-10B
 - 3. Top Knobs #38389
 - 7. Pivot sliding door Fitting: Hafele Turnaway Fiero 25 - Hawa

2.3 SHOP FABRICATION

- A. Fabricate casework to AWI custom standards for reveal overlay construction as detailed.
- B. Identify components for proper grain matching during fabrication. Cut veneer faced material for drawers over doors from same sheet for vertical grain on each. Grain configuration and orientation shall match on drawers and doors of any one elevation and shall match other elevations within the same room or area.
- C. Sanding/Filling
 - 1. Perform work in accordance with AWI.
 - 2. Sand work smooth and set exposed nails and screws.
 - 3. Apply wood filler in exposed nail and screw indentations and leave ready to receive applied finishes.
 - 4. On items to receive transparent finishes, use wood filler which matches surrounding surfaces and of types recommended for applied finishes.
- D. Prime seal concealed and semi-concealed surfaces. Brush apply only.
- E. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes, and other fixtures. Verify locations of cutouts from site dimensions. Seal edge surfaces of cutouts.
- F. Before proceeding with millwork required to be fitted to other construction, obtain measurements and verify dimensions of shop drawings details for accurate fit.
- G. Fabricate casework to dimensions, profiles, and details shown.
- H. Route and groove back of flat trim members, kerf backs of other wide flat members except plywood or veneered members.
- I. Assemble casework in mill in as large of units as practicable to minimize field cutting and fitting.
- J. Miter trim joints, where required, by joining, splining, and gluing to complying with requirements for specified grade.
- K. Band exposed plywood edges with hardwood trim, 3/8 inch by width of sheet unless otherwise noted or shown to be trimmed with plastic or aluminum.
- L. On high pressure laminate work
 - 1. Apply laminate finish in full, uninterrupted sheets of maximum practical lengths. Apply backing sheets to reverse side of items receiving laminate surfacing.

2. Form corners and butt joints with hairline joints.

3. Do not locate joints within 2 feet of sink cut-out.
 4. Cap all exposed edges with laminate.
- M. Construction
1. General
 - a. Construct casework bodies, bottoms, dividers, sides, tops, shelves, doors, drawer fronts and countertops of 3/4 inch sheet material.
 - b. Use 1/2 inch thick solid lumber material for drawer sides, back, bottoms, and sub-fronts, and cabinet backs.
 - 1) Sides and Backs: Slightly rounded on top edge, dove-tailed into drawer fronts.
 2. Overlay Reveals
 - a. Unless shown or noted otherwise, allow 1/2 inch between adjacent drawers and doors and at vertical edges.
 - b. Allow 1/2 inch reveal at top and bottom of wall cabinets and at bottom of base cabinets.
 3. Methods of Joinery
 - a. Provide face plates, paneled ends, and construction, glued under pressure.
 - b. Provide body web frames of stile plowed and stub tenoned construction.
 - c. Join case body members by dado or concealed dowel joints.
 - d. Do not use mechanical fasteners or metal clips for attachment of body members to other body members or to web frames.
 4. Base Cabinets
 - a. Use finished end panels unless condition will be fully concealed.
 - b. Provide finished toe space fronts, finished to match cabinet front.
 - c. Construct drawers with rabbited (tongue and groove) construction.
 5. Wall Cabinets
 - a. Use finished end panels unless condition will be fully concealed.
 - b. Provide continuous 1 by 3 inch anchor cleat at top and bottom of cabinet interior full width of unit. Secure cleat in rabbit over back, then glue and spot pin.
 - c. Provide minimum 12 inches inside clear depth.
 6. Countertops
 - a. Provide with face edge, faced with high pressure laminate unless noted or shown otherwise.
 - b. Provide loose 4 inch high pressure laminate covered splashes typically at countertops unless taller splashes shown or noted.
 - c. Fabricate countertop surfaces pressure glued to plywood core backing with butt joints.
 7. Shelving
 - a. 3/4 inch thick up to 36 inch unsupported length.
 - b. 1 inch thick for over 36 inch unsupported lengths (maximum 48 inches).

2.4 FINISH

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.
- C. On items to receive transparent finishes, use wood filler which matches surrounding surfaces and of types recommended for applied finishes.
- D. Refer to Section 09910 for finish descriptions.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces openings and conditions are ready to receive work of this section. Notify Architect of any existing condition which will adversely affect execution. Beginning of execution will constitute acceptance of existing conditions.
- B. Verify that field measurements are as shown on shop drawings.
- C. Verify that mechanical, electrical, and other items affecting work of this section are in place

and ready to receive the work.

3.2 PREPARATION

- A. Prime paint or seal concealed surfaces and items or assemblies which will be in contact with cementitious materials or surfaces.
- B. Make field cuts with extreme care to avoid splintering.

3.3 INSTALLATION

- A. Install work in accordance with AWI Custom Quality Standards. Handle materials to avoid dents and other damages.
- B. Set and secure materials and components, rigid, plumb, and square. Use joint fasteners to align and secure adjoining cabinets and countertops. Affix base cabinets to floor.
- C. Shim as required using concealed shims.
- D. Field Fitting
 - 1. Cut to fit and carefully scribe.
 - 2. Where casework abuts other finished work, scribe and cut for accurate fit.
 - 3. Where necessary to fit at site, provide ample allowance for cutting and fitting.
 - 4. Do not use overlay trim pieces to cover joints.
- E. Before making cutouts, drill pilot holes at corners.
- F. Distribute defects allowed in quality grade to best overall advantage when installing job assembled woodwork items.
- G. Install trim and molding in unjointed lengths for openings and for runs less than maximum length of lumber available. For longer runs, use only one piece less than maximum length available in straight run. Allow no joints closer than 12 feet apart.
- H. Stagger joints in adjacent members.
- I. Cope moldings at returns and miter at corners.
- J. Attach items securely in place with uniform joints providing for thermal and building movements; blind nail where possible.
- K. Use fine finishing nails where exposed.
- L. Set exposed heads for filling.
- M. Secure casework to anchors, built-in blocking, or directly attach to substrates where capable of adequately supporting load. Use toggle bolt type fasteners for wall mounted components. Secure countertops to base cabinets.
- N. Install hardware in accordance with manufacturer's recommendations.
- O. Cover exposed edges of sheet goods used for shelving and other items with 3/8 inch thick hardwood edging unless otherwise noted or shown to be trimmed with plastic or aluminum.

3.4 ADJUSTING

- A. Adjust work under provisions of Section 01770.
- B. Adjust moving or operating parts to function smoothly and correctly.

3.5 CLEANING/PROTECTION

- A. Protect casework from marring, defacement, or other damage until final completion.
- B. Clean spaces of debris and vacuum and wipe down casework. Leave in condition ready for use.

3.6 TOLERANCES FOR FIELD ASSEMBLIES/JOINED ITEMS

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/64 inch for plastic laminate countertops and splashes, 1/32 inch for other components.

END OF SECTION

SECTION 06610

ENGINEERED STONE COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes engineered stone for the following:
 - 1. Countertops and trim.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show thickness, finish, layout, and anchorage details. Indicate attachment methods, joint treatments, and supports.
 - 1. Show and fully integrate countertop Shop Drawings into architectural woodwork cabinet Shop Drawings. Do not segregate as a separate submittal. Ensure countertops have been coordinated with cabinet sizes and locations prior to submittal. Segregated submittals will be returned "Rejected."
 - 2. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in countertops for architectural woodwork.
- C. Samples for Verification: For the following:
 - 1. Quartz surfacing materials, 6 inches(150 mm) square.

1.3 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Submit manufacturer's recommended cleaning and maintenance procedures.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating quartz surfacing material with minimum 5 years experience.
- B. Fire-Test-Response Characteristics: Provide surfacing material with the following surface-burning characteristics (if required by code) as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. Class I per ASTM E-84 including:
 - a. Flame Spread: 25 or less.
 - b. Smoke Developed: 40 or less.

1.5 PROJECT CONDITIONS

- A. Field Measurements: Where surfacing is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.6 WARRANTY

- A. Manufacturer's 10 year warranty against defects in materials. Warranty shall provide material and labor to repair or replace defective materials. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the following products:
 - 1. Zodiac Quartz Surfaces, as manufactured by DuPont, or Silestone.

2.2 MATERIALS

- A. Quartz Surfacing Material: Homogeneous quartz surfacing material meeting the following criteria:
 - 1. Wear and Cleanability (ANSI Z 124.6.3): Passes.
 - 2. Stain Resistance (ANSI Z 124.6, stain 5.2, chemical 5.5, cigarette 5.4 resistances): Passes.
 - 3. Fungal and Bacterial Resistance (ASTM G 21 and ASTM G 22): No growth.
 - 4. High Temperature Resistance (NEMA LD 3.3.6, 356 degrees F): None to slight effect.
 - 5. Boiling Water Resistance (NEMA LD 3.3.8): None to slight effect.
 - 6. Ball Impact (NEMA LD 3.3.3): 164 in.
 - 7. Water Absorption (ASTM C 97): Less than 0.04 percent.
 - 8. Water Absorption (ASTM D 570, Long and Short Term): Less than 0.04 percent.
 - 9. Flammability (ASTM E 84 and NFPA 255): For all colors tested, Class I and Class A.
 - a. Flame Spread: 0.
 - b. Smoke Developed: 40.
 - 10. Thickness: As scheduled.
 - 11. Colors and Sheen: To be selected from manufacturer's full color range.

2.3 MISCELLANEOUS MATERIALS

- A. Joint Adhesive: Surfacing material manufacturer's two-part adhesive kit to create color matched, nonporous joints with a chemical bond.
- B. Sealants: Surfacing material manufacturer's mildew-resistant silicone sealant in color as selected by Architect.
- C. Embedded or Inserted Hardware: Noncombustible, noncorrosive, units that are integrated into the surfacing and are not visible on the finish face.
- D. Fasteners: Comply with surfacing manufacturer's written recommendations.
- E. Special Features: Provide edge treatments as detailed in Drawings.

2.4 FABRICATION

- A. Assemble work at shop and deliver to job ready for installation. Manufacture in largest practical lengths with seams in least conspicuous locations.
- B. Fabricate work square and to required lines.
- C. Recess and conceal fasteners, connections, and reinforcing.
- D. Design construction and installation details to allow for expansion and contraction of materials. Properly frame material with tight, hairline joints held rigidly in place.
- E. Comply with adhesive manufacturer's recommendations for adhesive shelf life, pot life, working life, mixing, spreading, assembly time, time under pressure and ambient temperatures.
- F. Fabricate countertops with backsplash and side splashes to profiles indicated or detailed. G. Fabricate items to profiles shown with connections and supports as detailed or as required for proper installation per manufacturer's recommendations.
- H. Provide cut-outs for plumbing fixtures and trim, washroom accessories, appliances, and related items. Confirm layout with manufacturer's cut-outs templates before beginning work. Round corners of cut-outs and sand edges smooth.
- I. Do not exceed manufacturer's recommended unsupported overhang distances.

- J. Finish exposed surfaces smooth and polish to a sheen indicated.
- K. Radius corners and edges.
- L. Special Features: Provide edge treatments as indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's printed instructions and approved shop drawings. Provide templates and rough-in measurements.
- B. Install surfacing true in line and plane, level, rigid and solidly adhered to substrate.
- C. Prefit items: Adjust supports to make fit. Align joints over support framing.
- D. Apply dabs of mastic on supports; place items on supports and attach.
- E. Install with minimum number of joints practical, using full-length pieces from maximum lengths available. Cope at returns and square at corners to produce tight-fitting joints with full-surface contact throughout length of joint.
- F. Install splashes using adhesive. Apply adhesive to back surface only. Place thin bead of seam adhesive along edge where splashes seat.

3.2 TOLERANCES

- A. Variation in Component Size: Plus or minus 1/8 inch over 10'-0" length.
- B. Location of Openings: Plus or minus 1/8 inch from indicated location.
- C. Maximum 1/8 inch clearance between quartz surfacing fabrications and each wall.
- D. Maximum Offset From True Position: 1/8 inch.

3.3 CLEANING

- A. Clean and polish fabrications in accordance with manufacturer's instructions.

END OF SECTION