

## **SECTION 06 10 00 – ROUGH CARPENTRY**

### **PART 1: GENERAL**

#### **1.01: Related Documents**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.02: Summary**

- A. Section Includes:
  - 1. Framing with dimension lumber.
  - 2. Framing with engineered wood products.
  - 3. Shear wall panels.
  - 4. Rooftop equipment bases and support curbs.
  - 5. Wood blocking and nailers.
  - 6. Wood furring.
  - 7. Wood sleepers.
  - 8. Utility shelving.
  - 9. Plywood backing panels.
- B. Related Requirements:
  - 1. Section 061063 "Exterior Rough Carpentry" for elevated decks and other exterior construction made of wood.
  - 2. Section 061323 "Heavy Timber Construction."
  - 3. Section 061600 "Sheathing."
  - 4. Section 061753 "Shop-Fabricated Wood Trusses" for wood trusses made from dimension lumber.
  - 5. Section 313116 "Termite Control" for site application of borate treatment to wood framing.

#### **1.03: Definitions**

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Timber: Lumber of 5 inches nominal or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 2. NLGA: National Lumber Grades Authority.

3. RIS: Redwood Inspection Service.
4. SPIB: The Southern Pine Inspection Bureau.
5. WCLIB: West Coast Lumber Inspection Bureau.
6. WWPA: Western Wood Products Association.

#### **1.04: Action Submittals**

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
  3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
  4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
  5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- B. Fastener Patterns: Full-size templates for fasteners in exposed framing.

#### **1.05: Informational Submittals**

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Evaluation Reports: For the following, from ICC-ES:
  1. Wood-preservative-treated wood.
  2. Fire-retardant-treated wood.
  3. Engineered wood products.
  4. Shear panels.
  5. Power-driven fasteners.
  6. Powder-actuated fasteners.
  7. Expansion anchors.
  8. Metal framing anchors.

#### **1.06: Quality Assurance**

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

### **1.07: Delivery, Storage, and Handling**

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

## **PART 2: PRODUCTS**

### **2.01: Wood Products, General**

- A. Certified Wood: Materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship" for the following:
  - 1. Dimension lumber framing.
  - 2. Timber.
  - 3. Laminated-veneer lumber.
  - 4. Rim boards.
  - 5. Miscellaneous lumber.
- B. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
  - 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
  - 4. Provide dressed lumber, S4S, unless otherwise indicated.
- C. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.
- D. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
  - 1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

## **2.02: Wood-Preservative-Treated Lumber**

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
  - 2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
  - 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat items indicated on Drawings, and the following:
  - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
  - 2. Wood sills, sleepers, blocking, and similar concealed members in contact with masonry or concrete.
  - 3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
  - 4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
  - 5. Wood floor plates that are installed over concrete slabs-on-grade.

## **2.03: Fire-Retardant-Treated Materials**

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
  - 1. Use treatment that does not promote corrosion of metal fasteners.
  - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.

3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
4. Design Value Adjustment Factors: Treated lumber shall be tested according ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
  1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by testing agency.
- E. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.
- F. Application: Treat items indicated on Drawings, and the following:
  1. Framing for raised platforms.
  2. Framing for stages.
  3. Concealed blocking.
  4. Framing for non-load-bearing partitions.
  5. Framing for non-load-bearing exterior walls.
  6. Roof construction.
  7. Plywood backing panels.

#### **2.04: Dimension Lumber Framing**

- A. Non-Load-Bearing Interior Partitions: Standard, Stud, or No. 3 grade.
  1. Application: Interior partitions not indicated as load-bearing.
  2. Species:
    - a. Hem-fir (north); NLGA.
    - b. Mixed southern pine; SPIB.
    - c. Spruce-pine-fir; NLGA.
    - d. Hem-fir; WCLIB, or WWPA.
    - e. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
- B. Load-Bearing Partitions: No. 2 grade.
  1. Application: Exterior walls and interior load-bearing partitions.
  2. Species:
    - a. Southern pine; SPIB.
    - b. Douglas fir-larch; WCLIB or WWPA.
    - c. Douglas fir-larch (north); NLGA.

- d. Mixed southern pine; SPIB.
- C. Ceiling Joists: Standard, Stud, or No. 3 grade.
  - 1. Species:
    - a. Hem-fir (north); NLGA.
    - b. Southern pine; SPIB.
    - c. Douglas fir-larch; WCLIB or WWPA.
    - d. Douglas fir-larch (north); NLGA.
    - e. Mixed southern pine; SPIB.
    - f. Spruce-pine-fir; NLGA.
    - g. Hem-fir; WCLIB or WWPA.
    - h. Douglas fir-south; WWPA.
    - i. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
- D. Joists, Rafters, and Other Framing Not Listed Above: No. 2 grade.
  - 1. Species:
    - a. Southern pine; SPIB.
    - b. Douglas fir-larch; WCLIB or WWPA.
    - c. Douglas fir-larch (north); NLGA.
    - d. Mixed southern pine; SPIB.
- E. Exposed Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
  - 1. Application: indicated to receive a stained or natural finish].
  - 2. Species and Grade: As indicated above for load-bearing construction of same type.

## **2.05: Engineered Wood Products**

- A. Engineered Wood Products, General: Products shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- B. Source Limitations: Obtain each type of engineered wood product from single source from a single manufacturer.
- C. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.
  - 1. Extreme Fiber Stress in Bending, Edgewise: 2250 psifor 12-inch nominal- depth members.
  - 2. Modulus of Elasticity, Edgewise: 1,900,000 psi.

## **2.06: Miscellaneous Lumber**

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Blocking.
  - 2. Nailers.
  - 3. Rooftop equipment bases and support curbs.
  - 4. Cants.
  - 5. Furring.
  - 6. Grounds.
  - 7. Utility shelving.
- B. For items of dimension lumber size, provide No. 2 grade lumber and any of the following species:
  - 1. Southern pine; SPIB.
  - 2. Douglas fir-larch; WCLIB or WWPA.
  - 3. Douglas fir-larch (north); NLGA.
  - 4. Mixed southern pine; SPIB.
- C. For utility shelving, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
  - 1. Southern pine; SPIB.
  - 2. Douglas fir-larch; WCLIB or WWPA.
  - 3. Douglas fir-larch (north); NLGA.
  - 4. Mixed southern pine; SPIB.
- D. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
  - 1. Southern pine; SPIB.
  - 2. Douglas fir-larch; WCLIB or WWPA.
  - 3. Douglas fir-larch (north); NLGA.
  - 4. Mixed southern pine; SPIB.
- E. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- F. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- G. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

## **2.07: Fasteners**

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
  1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
  2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

## **2.08: Metal Framing Anchors**

- A. Manufacturers: Subject to compliance with requirements.
- B. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- C. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
  1. Use for interior locations unless otherwise indicated.
- D. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.
  1. Use for wood-preservative-treated lumber and where indicated.
- E. Stainless-Steel Sheet: ASTM A 666, Type 316.
  1. Use for exterior locations and where indicated.
- F. Joist Hangers: U-shaped joist hangers with 2-inch- long seat and 1-1/4-inch- wide nailing flanges at least 85 percent of joist depth.
  1. Thickness: 0.050 inch.
- G. Top Flange Hangers: U-shaped joist hangers, full depth of joist, formed from metal strap with tabs bent to extend over and be fastened to supporting member.
  1. Strap Width: 1-1/2 inches.



2. Thickness: 0.050 inch.
- H. Bridging: Rigid, V-section, nailless type, 0.050 inch thick, length to suit joist size and spacing.
- I. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch above base and with 2-inch- minimum side cover, socket 0.062 inch thick, and standoff and adjustment plates 0.108 inch thick.
- J. Joist Ties: Flat straps, with holes for fasteners, for tying joists together over supports.
  1. Width: 1-1/4 inches.
  2. Thickness: 0.050 inch.
  3. Length: As indicated.
- K. Rafter Tie-Downs: Bent strap tie for fastening rafters or roof trusses to wall studs below, 1-1/2 inches wide by 0.050 inch thick. Tie fastens to side of rafter or truss, face of top plates, and side of stud below.
- L. Rafter Tie-Downs (Hurricane or Seismic Ties): Bent strap tie for fastening rafters or roof trusses to wall studs below, 2-1/4 inches wide by 0.062 inch thick. Tie fits over top of rafter or truss and fastens to both sides of rafter or truss, face of top plates, and side of stud below.
- M. Floor-to-Floor Ties: Flat straps, with holes for fasteners, for tying upper floor wall studs to band joists and lower floor studs, 1-1/4 inches wide by 0.050 inch thick by 36 inches long.
- N. Hold-Downs: Brackets for bolting to wall studs and securing to foundation walls with anchor bolts or to other hold-downs with threaded rods and designed with first of two bolts placed seven bolt diameters from reinforced base.
  1. Bolt Diameter: 3/4 inch.
  2. Width: 3-3/16 inches.
  3. Body Thickness: 0.108 inch.
  4. Base Reinforcement Thickness: 0.108 inch.
- O. Wall Bracing: T-shaped bracing made for letting into studs in saw kerf, 1-1/8 inches wide by 9/16 inch deep by 0.034 inch thick with hemmed edges.
- P. Wall Bracing: Angle bracing made for letting into studs in saw kerf, 15/16 by 15/16 by 0.040 inch thick with hemmed edges.

## **2.09: Miscellaneous Materials**

- A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch nominal thickness, compressible to 1/32 inch; selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

## **PART 3: EXECUTION**

### **3.01: Installation, General**

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.
- E. Shear Wall Panels: Install shear wall panels to comply with manufacturer's written instructions.
- F. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- G. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.
- H. Do not splice structural members between supports unless otherwise indicated.
- I. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
  - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- J. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
  - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
  - 2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- thickness.
  - 3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
  - 4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.
- K. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- L. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
  - 1. Use inorganic boron for items that are continuously protected from liquid water.
  - 2. Use copper naphthenate for items not continuously protected from liquid water.
- M. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
  2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
  3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
- N. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- O. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
1. Comply with indicated fastener patterns where applicable.
  2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
  3. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

### **3.02: Wood Blocking, and Nailer Installation**

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Where wood-preserved-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- D. Provide permanent grounds of dressed, pressure-preserved-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

### **3.03: Wall and Partition Framing Installation**

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions and for load-bearing partitions where framing members bearing on partition are located directly over studs. Fasten plates to supporting construction unless otherwise indicated.
  1. For exterior walls, provide 2-by-4-inch nominal-size wood studs spaced 16 inches o.c. unless otherwise indicated.
  2. For interior partitions and walls, provide 2-by-4-inch nominal- size wood studs spaced 16 inches o.c. unless otherwise indicated.
  3. Provide continuous horizontal blocking at midheight of partitions more than 96 inches high, using members of 2-inch nominal thickness and of same width as wall or partitions.
- B. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load-bearing partitions.

- C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.
  - 1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal depth for openings 48 inches and less in width, 6-inch nominal depth for openings 48 to 72 inches in width, 8-inch nominal depth for openings 72 to 120 inches in width, and not less than 10-inch nominal depth for openings 10 to 12 feet in width.
  - 2. For load-bearing walls, provide double-jamb studs for openings 60 inches and less in width, and triple-jamb studs for wider openings. Provide headers of depth indicated.
- D. Provide diagonal bracing in exterior walls, at both walls of each external corner at 45-degree angle, full-story height unless otherwise indicated. Use metal wall bracing, let into studs in saw kerf.

### **3.04: Ceiling Joist and Rafter Framing Installation**

- A. Ceiling Joists: Install ceiling joists with crown edge up and complying with requirements specified above for floor joists. Face nail to ends of parallel rafters.
  - 1. Where ceiling joists are at right angles to rafters, provide additional short joists parallel to rafters from wall plate to first joist; nail to ends of rafters and to top plate and nail to first joist or anchor with framing anchors or metal straps. Provide 1-by-8-inch nominal- size or 2-by-4-inch nominal- size stringers spaced 48 inches o.c. crosswise over main ceiling joists.
- B. Rafters: Notch to fit exterior wall plates and use metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing, if any, and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.
  - 1. At valleys, provide double-valley rafters of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against valley rafters.
  - 2. At hips, provide hip rafter of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against hip rafter.
- C. Provide collar beams (ties) as indicated or, if not indicated, provide 1-by-6-inch nominal- size boards between every third pair of rafters, but not more than 48 inches o.c. Locate below ridge member, at third point of rafter span. Cut ends to fit roof slope and nail to rafters.
- D. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions if any.

### **3.05: Stair Framing Installation**

- A. Provide stair framing members of size, space, and configuration indicated or, if not indicated, to comply with the following requirements:
  - 1. Size: 2-by-12-inch nominal- size, minimum.
  - 2. Material: Laminated-veneer lumber or solid lumber.
  - 3. Notching: Notch rough carriages to receive treads, risers, and supports; leave at least 3-1/2 inches of effective depth.
  - 4. Spacing: At least three framing members for each 36-inch clear width of stair.

- B. Provide stair framing with no more than 3/16-inch variation between adjacent treads and risers and no more than 3/8-inch variation between largest and smallest treads and risers within each flight.

**3.06: Protection**

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

**\*\*\*End of Section 06 10 00\*\*\***

**SECTION 06 11 20**

**FRAMING AND SHEATHING**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section includes structural wall, and roof framing; wall, and roof sheathing; subfloor, underlayment, sound-deadening acoustical floor system, cementitious backer units, sill gaskets; preservative treatment of wood; miscellaneous framing and sheathing; and concealed wood blocking for support of toilet and bath accessories, wall cabinets and wood trim.

**1.3 REFERENCES**

- A. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- B. ASTM D1037 - Test Methods of Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.
- C. ASTM C209 - Test Methods for Cellulosic Fiber Insulating Board.
- D. American National Standards Institute:
1. ANSI A118.9 - Test Methods and Specifications for CBU and ANSI 108.11 for Interior Installation of CBU.
  2. ANSI A135.4 - Basic Hardboard.
  3. ANSI A208.1 - Mat-Formed Wood Particleboard.
- E. American Wood-Preservers' Association:
1. AWWPA C1 - All Timber Products - Preservative Treatment by Pressure Process.
  2. AWWPA C20 - Structural Lumber - Fire-Retardant Treatment by Pressure Processes.
- F. National Institute of Standards and Technology:
1. NIST PS 20 - American Softwood Lumber Standard.
- G. Northeastern Lumber Manufacturers Association:
1. NELMA - Standard Grading Rules for Northeastern Lumber.
- H. National Lumber Grades Authority:
1. NLGA - Standard Grading Rules for Canadian Lumber.
- I. The Redwood Inspection Service:
1. RIS - Standard Specifications for Grades of California Redwood Lumber.
- J. Southern Pine Inspection Bureau:
1. SPIB - Standard Grading Rules for Southern Pine Lumber.
- K. West Coast Lumber Inspection Bureau:

1. WCLIB - Standard Grading Rules for West Coast Lumber.
- L. Western Wood Products Association:
  1. WWPA G-5 - Western Lumber Grading Rules.

#### **1.4 SUBMITTALS**

- B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.
- C. Product Data: Manufacturer's catalog data, installation instructions, detail sheets and specifications.

#### **1.5 QUALITY ASSURANCE**

- A. Perform Work in accordance with the following:
  1. Lumber Grading Agency: Certified by NIST PS 20.

#### **1.6 DELIVERY, STORAGE, AND HANDLING**

- B. Inspect the materials upon delivery to assure that the specified products have been received.
- C. Report damaged material immediately to the delivery carrier and note such damage on the carrier's freight bill of lading.
- D. Store materials in a dry place, indoors, protected from weather damage.

### **PART 2 PRODUCTS**

#### **2.1 LUMBER MATERIALS**

- A. Lumber Grading Rules: NELMA.
- B. Framing: As indicated; 19 percent maximum moisture content (kiln dried).

#### **2.2 SHEATHING MATERIALS**

- A. Wood Structural Roof Panel Sheathing: APA/EWA Rated Sheathing; As indicated; Un-sanded.
- B. Interior Wall Sheathing: Gypsum sheathing as indicated on Architectural drawings. Some interior walls may require plywood sheathing conforming to similar requirements noted below.
- C. Exterior Wall Sheathing: APA/EWA Rated Sheathing; As indicated; Un-sanded.
- D. Wood Structural Floor Panel Sheathing: APA/EWA Rated Sheathing; As indicated; Un-sanded.

### **2.3 ACCESSORIES**

- A. Fasteners and Anchors:
  - 1. Fasteners: Hot dipped galvanized steel for high humidity, exterior sheathing and treated wood locations, unfinished steel elsewhere.
  - 2. Anchors: Expansion shield and lag bolt type for anchorage to solid masonry or concrete.
  - 3. Screws: Coarse thread drywall type wood screw, length as required to penetrate 3/4 inch into sub-floor.
  - 4. Wood Screws No. 8, 1 5/8 inches long.
- B. Structural Framing Connectors: Post base anchors, stud plate ties, post caps and hurricane ties, hot dipped galvanized steel, sized to suit framing conditions, manufactured by Simpson Strong-Tie. Refer to structural sheets for model numbers.
- C. Sill Gasket on Top of Concrete Slab: 1/4 inch thick, plate width, continuous rolls; Sill Seal manufactured by Green Guard or approved equal.
- D. Adhesive: APA AFG-01 approved sub-floor adhesive.
- E. Exterior Sheathing Joint Sealant: STOPAQ EZ WRAP as distributed by The Kovacs Group.

### **2.4 FACTORY WOOD TREATMENT**

- A. Wood Preservative (Pressure Treatment): one of the following chemical treatments:
  - 1. Ammoniacal or amine copper quat (ACQ).
  - 2. Copper bis (dimethyldithiocarbamate) (CDDC).

## **PART 3 EXECUTION**

### **3.1 FRAMING**

- A. Set structural members level and plumb, in correct position.
- B. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in alignment until completion of erection and installation of permanent bracing.
- C. Place horizontal members, crown side up.
- D. Construct load bearing framing members full length without splices.
- E. Double members at openings over 16 inches wide. Space short studs over and under opening to stud spacing.



- F. Construct double joist headers at ceiling openings. Frame rigidly into joists.
- G. Bridge joists in excess of 8 feet span as detailed.
- H. Place sill gasket directly on cementitious foundation. Puncture gasket clean and fit tight to protruding foundation anchor bolts.
- I. Install structural framing connectors in accordance with manufacturer's instructions using size, type and quantity of fasteners as recommended by manufacturer for each type of connector.

### **3.2 ROOF AND FLOOR SHEATHING**

- J. Secure roof sheathing with longer edge (strength axis) perpendicular to framing members and with ends staggered and sheet ends over bearing.
- K. Use sheathing clips between sheets between roof framing members.
- L. Provide 1/8" spacing at all sheathing edge and end joints.
- M. Secure panels to structure as indicated.
- N. Protect edges of panels against exposure or install exterior grade panel starter strip.

### **3.3 WALL SHEATHING**

- A. Install water resistant sheathing with long edge perpendicular to structural framing and with ends staggered and sheet ends over studs.
- B. Install sheathing in accordance with manufacturer's instructions and applicable instructions in GA-253 and ASTM C1280. Block horizontal joints in panels used for bracing.
- C. Attach sheathing to vertical wood framing as indicated on the drawings. Drive fasteners to bear tight against and flush with the sheathing. Do not countersink fasteners. Locate fasteners minimum 3/8" from edges and ends of sheathing.

### **3.4 SOFFIT SHEATHING**

- A. Install water resistant sheathing with long edge perpendicular to structural framing.
- B. Install sheathing in accordance with manufacturer's instructions and applicable instructions in GA-253 and ASTM C1280.
- C. Do not install soffit sheathing until the roof system is completed (i.e. plywood sheathing, roof underlayment, shingles and flashing).
- D. Attach sheathing to wood framing as follows: Locate fasteners minimum 3/8" from edges and ends of sheathing. Drive fasteners to bear tight against and flush with the sheathing. Do not countersink fasteners.

**3.5 SITE APPLIED WOOD TREATMENT**

- A. Apply preservative treatment.
- B. Brush apply one coat of preservative treatment on site-sawn cuts in accordance with AWPA Standard M4.
- C. Allow preservative to dry prior to erecting members.

**3.6 TOLERANCES**

- A. Framing Members: 1/4 inch from indicated position, maximum.

**END OF SECTION**

**SECTION 06 17 00**

**SHOP FABRICATED WOOD TRUSSES**

**PART 1 GENERAL**

**1.1 WORK INCLUDED**

This section describes requirements for design, construction and erection of pre-engineered wood roof trusses.

**1.2 REFERENCES**

- A. American Forest and Paper Association (AFPA). National Design Specification for Wood Construction.
- B. Truss Plate Institute.
  - 1. Design Specification for Metal Plate Connected Wood Trusses.
  - 2. Quality Standard for Metal Plate Connected Wood Trusses.
  - 3. Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses.
- C. American Society for Testing and Materials (ASTM).
  - 1. ASTM A446 – Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.
  - 2. ASTM A525 – Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) by the Hot-Dip Process, General Requirements.

**1.3 QUALITY ASSURANCE**

- A. Pre-engineered wood trusses shall be manufactured by a firm regularly engaged in the production of pre-engineered trusses, and under the supervision of a structural engineer licensed in the state.

**1.4 SUBMITTALS**

- A. Shop Drawings. Submit shop drawings showing truss layout, truss profiles, bracing members and locations, and details of connections and accessories. Shop drawings shall contain sufficient detail to permit erection without the use of the design drawings. Reproduction of the contract drawings for use as shop drawings is prohibited. Trusses shall not be fabricated until reviewed shop drawings with no exceptions taken are received by the fabricator.
- B. Calculations. Submit design calculations prepared and sealed by an Engineer currently registered to practice in the State of Texas. Calculations shall include loads applied, material strengths, truss profiles, physical properties of truss materials, truss spacing, predicted deflections and any other appropriate information.

## **1.5 STORAGE AND HANDLING**

- A. Store the trusses off the ground. Protect from elements with a waterproof covering ventilated to avoid condensation. Protect trusses from mechanical injury. Replace any damaged trusses at no additional cost to the Owner.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- A. Wood Members. Lumber characteristics such as wane or knots occurring in the connector plate area must not affect more than 10 percent of the required plate area nor 10 percent of the required number of effective teeth required for each truss member.
- B. Connector Plates.
  - 1. Fabricated Connectors shall be a minimum thickness of 0.036 inches.
  - 2. Connector Plates shall be manufactured from steel meeting the requirements of ASTM A446, Grade A (or higher when required by truss design) and shall be hot-dipped galvanized according to the requirements of ASTM A525, Coating Designation G60.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- A. Check supporting members for correct spacing, layout and alignment.
- B. Verify that bearing surfaces are free of debris.
- C. Notify Architect immediately of any discrepancies. Do not proceed with installation until discrepancies are fully corrected.

### **3.2 INSTALLATION**

- A. Install the trusses at the locations and spacing indicated on the Drawings.
- B. Bracing.
  - 1. All trusses shall be securely braced and anchored both during erection and after permanent installation in accordance with the Truss Plate Institute Commentary and Recommendations for Handling, Installing and Bracing Metal Plate Connected Wood Trusses.
  - 2. Erection bracing shall hold trusses straight and plumb and in safe condition until decking and permanent truss bracing has been fastened.
  - 3. All erection and permanent bracing shall be installed and all trusses permanently fastened before application of any loads.
  - 4. Fastening of the deck to the trusses and permanent structural cross-bracing and anchorage to ensure overall rigidity of the roof system to resist lateral and uplift forces shall be according to the Drawings. Refer to the shop drawings for any additional special bracing and attachment requirements.
  - 5. Safe erection of the trusses is the responsibility of the erection contractor.

**END OF SECTION**

## **SECTION 06 20 00 – FINISH CARPENTRY AND MILLWORK**

### **PART 1: GENERAL**

#### **1.01: General**

- A. Conform to the general provisions of the contract, General and Supplementary Conditions to the contract, Division One of this Specification, the Drawings and this Specification Section.
- B. Should conflict arise between the Drawings and the provisions of the Specifications, the Specifications shall govern.
- C. The contractor shall furnish all labor, materials, tools, equipment, and perform all Work and services necessary for all finish carpentry as shown on the drawings and as specified, in accordance with provisions of the Contract Documents, and completely coordinated with work of other trades.
- D. Although such Work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to, or necessary for, a sound, secure, and complete installation.

#### **1.02: Scope of Work (includes but is not necessarily limited to the following):**

- A. General:
  - 1. Refer to the drawings for the extent of work.
  - 2. Inspect existing conditions and the work of other trades for proper conditions before beginning the work of this section.
  - 3. Coordinate the fabrication and installation of work of this section with the work of other trades.
  - 4. Protect people, property, and the work of this section and other trades.
  - 5. Clean up work site and dispose of waste and debris on a daily basis.
- B. Scope:
  - 1. Products, Materials, and Work Included: Provide all materials, accessories, labor, tools and equipment required for the installation of all finish carpentry and millwork shown on the drawings and directed by this specification

#### **1.03: Related Work Specified Elsewhere (includes but is not limited to the following):**

- A. Section 09 29 00, Gypsum Wallboard and Sheathing
- B. Section 08 71 00, Door Hardware
- C. Section 09 90 00, Painting
- D. Sheet Metal Flashing and Trim: Section 07 62 00
- E. Hollow Metal Doors and Frames: Section 08 11 13
- F. Wood Doors and Frames: Section 08 14 00

#### **1.04: Reference Standards**

- A. Conform with requirements of "Quality Standards" of the Architectural Woodwork Institute, (AWI) as supplemented and modified herein.
  - 1. For Soft Woods: Standard Grading and Dressing Rules of West Coast's Lumberman's Association, Edition No. 16, Revised December 1, 1976, and as modified hereinafter.
  - 2. For Hardwoods: Most current rules of the National Hardwood Lumber Association.
  - 3. Plywoods:
    - a. Fir, U.S. Product Standard PS 1-74. Hardwood, U.S. Commercial Standard CS35.
    - b. American Plywood Association (APA).
- B. West Coast Lumber Inspection Bureau's (WCLIB): WCLIB Standard Grading Rules for West Coast Lumber, Edition No. 16-1976
- C. Western Wood Products Association (WWPA): WWPA Standard Grading Rules for Western Lumber, Fourth Edition-1977
- D. Architectural Woodwork Institute (AWI): AWI Quality-Standards and Guide Specifications Manual, Edition current as of Bid date.
- E. United States Product Standard: PS 1-74 Plywood Product Standard Handbook.

#### **1.05: Quality Control**

- A. Qualifications of Workers: For actual cutting and fitting of trim and finish material, use only highly experienced finish carpenters meeting the following criteria
  - 1. Thoroughly trained and experienced in the skills required.
  - 2. Completely familiar with the materials involved and the manufacturer's recommended methods of installation.
  - 3. Thoroughly familiar with the requirements of this work.
- B. Rejection: In the acceptance or rejection of finish carpentry, no allowance will be made for lack of skill on the part of workmen.
- C. Indication of a lack of fabrication and/or installation skill from the worker shall be sufficient grounds for the Architect to reject the installed finish carpentry work in question and require its immediate removal and complete reinstallation, using new material and accessories where directed by the Architect, at no additional cost to the Owner.

#### **1.06: Submittals**

- A. Make all submittals in accordance with Division 1.
- B. Product Data
  - 1. Submit manufacturers' published literature for all specified products and accessories as applicable, including manufacturer's specification, physical characteristics and performance data.
  - 2. Submit, as a supplement, manufacturers' instructions and directions for application if not included in manufacturers' published literature.

- C. Shop Drawings: Include the following information and such other information as is necessary to completely construct the work:
  - 1. Details of all joints and other fabrication details including glue line of all laminated members.
  - 2. Indicate types of lumber, adhesives, and fasteners.
  - 3. Show field dimensions where required for proper shop fabrication of casework.
  - 4. Show connections to adjacent construction and materials or work of other trades.
  - 5. Indicate locations of bent and radiused trim locations and methods of bending wood trim.
- D. Samples:
  - 1. Obtain approval of samples prior to fabrication of any work.
  - 2. Submit samples of proposed plastic laminate finish materials.
  - 3. Submit samples of wood solids and veneers.
    - a. Show color, grain pattern, and finish.
    - b. If, in the judgment of the woodwork manufacturer, the wood species is such that coloring and graining variations may be inevitable, the architectural woodwork manufacturer may elect to submit samples in sets illustrating the possible range in these variations.
    - c. The finished sample or sample sets shall then become the final criteria for evaluations of color and finish appearance conformity.

### **1.07: Delivery, Handling and Storage**

- A. Delivery
  - 1. Do not deliver material to the building until it is enclosed, dry and heated to a minimum temperature of sixty (60) degrees Fahrenheit. Relative humidity shall be within fifteen percent (15%) of the mechanical engineer's design relative humidity.
  - 2. Manufactured materials shall be delivered to the site free from defects, damage and deterioration in the manufacturer's original unopened containers with the original labels intact and legible. Do not remove labels.
  - 3. Take all precautions to deliver all materials and products to the site free from defects, damage and deterioration
  - 4. Do not deliver any material whose finish is not completely dry.
- B. Handling:
  - 1. Take all precautions to protect finish carpentry from damage at all times until the final acceptance of work by the Owner.
  - 2. Do not apply any damaged or defective finished wood, accessories or products to the finished wood.
  - 3. Precautions: Delay installation of finished woodwork until fabricated items have acclimated to conditions of temperature and humidity in the project. Warped or distorted items will not be accepted. Install no finished woodwork until project is dry so as to prevent any damage due to excessive moisture contact changes.

4. Until final acceptance is received, replace any and all damaged work at no cost to the owner.
- C. Storage:
1. Store finish woodwork scheduled for installation on the interior of the project in a warm, dry place, away from main worker traffic areas. Maintain temperature and humidity conditions of storage at conditions approximating conditions anticipated in the finish project. Do not store materials near open flames or hazardous areas.
  2. Store all material minimum three inches (3") off of the ground, fully supported to prevent sagging or warping in any dimension.
  3. Do not store long lengths on top of short lengths.
  4. Do not stack finish carpentry materials upright, with their long dimension vertical or at an angle greater than three (3) degrees above horizontal to the floor.
  5. Keep all materials dry by storing inside the building under roof.
  6. Where products and / or materials have been approved for outside storage, store off the ground, properly supported on a level platform, and protected from direct exposure to rain, snow, sunlight, and other extreme weather conditions. Provide adequate ventilation to prevent condensation.
  7. Do not store in or near patient, staff, pedestrian or vehicular traffic areas.

### **1.08: Protection**

- A. Protect people from injury and the work of other trades, adjacent property and structures from damage.
- B. The Contractor shall repair or replace, as directed by the Architect, all work or property damaged by the Contractor at no additional cost to the Owner.

### **1.09: Maintenance**

- A. Furnish to the Owner a complete description, including list of materials and methods, of recommended procedures to be followed for care and maintenance of all finishes and materials.

## **PART 2: PRODUCTS**

### **2.01: Finish Lumber**

- A. Kerfing: The unexposed (backside of lumber exposed to view) shall be kerfed to prevent warping.
- B. Moisture Content: Provide kiln-dried finish wood delivered to the site of the following maximum allowable moisture contents.
  1. Softwoods: Twelve percent (12%).
  2. Hardwoods: Nine percent (9%).

### **2.03: Plywood**

- A. General



1. Graded in accordance with rules of the American Plywood Association.
  2. Use Interior type glue for all interior locations.
  3. Sizes and thicknesses as indicated or as specified.
- B. Softwood Plywood:
1. Birch face veneer with Douglas Fir core, where exposed
  2. Douglas Fir face veneer where concealed.
  3. AWI Custom Grade; flat cut face veneers where exposed and rotary cut face veneers where concealed.
  4. "A" grade where exposed and "C" grade where unexposed.

#### **2.04: Other Materials**

- A. Interior Trim: Casings, jambs, chair rails, and bases and the like:
1. Finish
    - a. Where paint finish is indicated: Paint Grade Hemlock.
    - b. Where natural finish is indicated: maple
  2. Opening and Standing Trim: One piece, single length
  3. Running Trim: Joints no closer than 12 feet apart.
    - a. Bolts and washers as specified/06100.
    - b. Use finish or casing nails for exposed work.
- B. Wood Coat Rods: 1-3/8 inch diameter, straight vertical-grain wood rod. Douglas Fir with plastic pole sockets at ends and intermediate supports at 3-foot maximum centers.
- C. Tempered Hardboard: ANSI A135.4; smooth finish.

#### **2.05: Miscellaneous Hardware**

- A. Adjustable Shelf Hardware:
1. Standards: Knape and Vogt, model KV80, or as approved by Architect.
  2. Brackets: Knape and Vogt, model KV180, or as approved by Architect.
- B. Finish: Match finish of other finish hardware items specified in Section 06 41 00.

#### **2.06: Other Materials**

- A. Provide all other incidental fastenings, tools and equipment required for the satisfactory fabrication and installation of finish woodwork, including the following:
1. Nails: Finishing nails for interior work; non-corrosive finish where exposed to moisture.
  2. Adhesives: Provide the following types of adhesives for the fabrication of specified woodwork.
    - a. For Bonding Laminate Plastic:
      - i. Cyanamid Formica 140, or approved substitution

- ii. Brushable contact-type waterproof adhesive.
- b. For Laminating Veneers and Solids:
  - i. Cyanamid Urac-185, or as approved substitution.
  - ii. Rigid setting urea formaldehyde resin waterproof glue.
- c. Waterproof Type
  - i. Commercial Standard CS 35-61, Type I.
  - ii. Provide at millwork exposed on building exterior and all other high moisture areas.
- d. Water Resistant Type
  - i. Commercial Standard CS 35-61, Type II.
  - ii. Provide at all other millwork locations.
- e. Other:
  - i. Best suited for the condition of installation or fabrication.
  - ii. Submit product data to Architect as part of submittal requirements of Specification section 1300.

## **2.06: Fabrication of Millwork Items**

- A. Grade: AWI Quality Standards Premium grade for items with transparent finish and Custom grade for other items.
- B. Workmanship:
  - 1. Assemble and finish woodwork in the shop insofar as is practicable.
  - 2. Construct in accordance with requirements of AWI Quality Standards Premium grade as the Architect judges them applicable.
  - 3. Finish all exposed surfaces smooth, free from tool and machine marks.
  - 4. Kerf backs of members more than 5" wide or more than 1" net thickness.
  - 5. Ease all exposed edges with sandpaper to 3/32" radius, unless otherwise noted.
  - 6. Nailing of ends: Do not install nails closer than one and one-half inches (1 ½") to the **ends** of pieces unless pre-drilling nail holes before nail installation.
  - 7. Nailing along the sides: Do not install nails closer than one-half inch (½") to the **sides** of pieces unless pre-drilling nail holes before nail installation.
- C. Construction: Construct units in suitable size for ease of transportation from shop to project and for convenience of installation; verify clearances of all construction and plan site assembly and installation accordingly.
- D. Joints:
  - 1. Make accurate and tight joints formed to conceal shrinkage.
  - 2. Glue and lock shop miters that are more than 4" from heel to point; make dowels and tenons to fit.

3. Glue all joints, taking care to clean excess glue from exposed surfaces. Keep under pressure until glue has set and hardened.
- E. Edges:
  1. Finish edges of plywood to view with hardwood edge strips.
  2. Use plastic laminated edges only where indicated or required.
  3. Chisel slot in hardwood for finish nail. Do not allow chiseled wood to break off from wood. Secure nail, set nail beneath wood surface. Replace chiseled slot to original position and glue in place. Remove excess glue.
- F. Nailing:
  1. Use concealed fastenings wherever possible.
  2. Where necessary to nail through exposed finished surfaces, drill wood prior to nailing to prevent bulging of wood; use specified nails and set heads for puttying.
- G. Finishing: Items may be prefinished at contractor's option. Coordinate with Division 9.

### **2.07: Miscellaneous Items**

- A. Trim: Fabricate trim where indicated. See drawings for species and finish.
- B. Provide all miscellaneous finish carpentry and millwork items as indicated (and not specified in other Sections).

## **PART 3: EXECUTION**

### **3.01: Inspection and Field Verification**

- A. Inspect the work of related trades to ascertain if conditions are suitable for the work of this Section.
- B. Field verify all dimensions prior to fabrication and installation.
- C. In the event of any discrepancies or unsuitable conditions, do not proceed until those conditions have been resolved. Proceeding with work indicates acceptance of underlying conditions.

### **3.02: Coordination**

- A. Coordinate all work involving material, labor, and equipment of other trades penetrating or attaching to the work of this Section, for a clean and safe work site and so that each trade's personnel, equipment and material does not interfere with the other.

### **3.03: Allowable Tolerances**

- A. Maximum Variation from Plumb:
  1. In lines and surfaces of walls and arrises:
    - a. One-quarter of an inch (1/4") in ten 10'- 0"). One-half inch total over entire run.
    - b. Three-eighths of an inch (3/8") in any bay or 20 ft. maximum.
    - c. One-half of an inch (1/2") in forty feet (40'- 0").

2. For external corners, expansion joints and other conspicuous lines:
  - a. One-quarter of an inch (1/4") in any bay or twenty feet (20'- 0") maximum.
  - b. One-half of an inch (1/2") in 40 ft.
- B. Maximum variation from level or grades for exposed lintels, sills, horizontal grooves, and other conspicuous lines:
  1. One-quarter of an inch (1/4") in any bay or twenty feet (20'- 0") maximum.
- C. Maximum variation of linear building line from an established position in plan and related portions of columns, walls and partitions:
  1. One-half of an inch (1/2 " in.) in any bay or twenty linear feet (20'- 0") over bay maximum.
  2. Three-quarters of an inch (3/4" in.) in forty feet (40'- 0").
- D. Variations in radius from the center of curved walls:
  1. One inch (1") in any five feet (5'- 0") of arch length.
  2. Three inches (3") in total arch length.
- E. Variation in level for top surface of bearing walls:
  1. 1/8" between adjacent floor element in 10 feet.
  2. 1/16" within width of a single unit.

### **3.04: Installation of Finish Lumber and Millwork**

- A. Install in accordance with approved shop drawings and details indicated on drawings.
- B. Wedge solid behind all butt hinges.
- C. Scribe to abutting surfaces where appropriate.
- D. Cut openings in cabinets for mechanical, plumbing, and electrical trades.
- E. Install running trim in as long lengths as practicable.
- F. Make joints tight. Glue mitered joints. Set joints in exterior trim in white lead paste.
- G. Use finish nails except where screws are indicated.
- H. Miter casings and moldings; cut splices at 45 degree angle.
- I. Clean up after installation with fine sandpaper or steel wool.
- J. Finish wood as scheduled. Refer to drawings and Division 9 for type and application of finish.

### **3.05: Installation of Work Specified Elsewhere**

- A. Installation of Finish Hardware: Install with all horizontal edges level, all vertical edges plumb, and all edges parallel with adjacent lines of construction.
- B. Installation by skilled mechanics to Architect's satisfaction. Conform strictly to manufacturers' templates and directions. Conform to referenced UBC and UL requirements.
- C. Adjust movable parts to operate perfectly at the time of final acceptance.
- D. Make further adjustments as required during guarantee period.
- E. Replace hardware which has been damaged by use when damage is caused by faulty installation.

- F. Make mortises accurately to exactly receive hardware. Depth of mortises shall be so that hardware is flush with finish surfaces.
- G. Screws and Similar: Drill appropriate size guide holes for all wood screws.
- H. Use cast-in-place anchor bolts or steel expansion shields for all items supported by, or on, new concrete.
- I. Place door stops and holders to allow maximum swing. Door is not to contact anything but stop.
- J. Hardware placement: Locate hardware on doors as follows:
  - 1. Comply with handicapped code where more stringent requirements are indicated.
  - 2. Dimensions are from the finished floor to centerline unless shown otherwise.
  - 3. Butts: As per approved metal/wood jambs.
  - 4. Lock/Latch Knobs: 40-5/16" centerline of strike.
  - 5. Exit Device Cross Bar: 41".
  - 6. Deadlock Cylinder: 48"
  - 7. Push Latches: 42" centerline of strike.
  - 8. All other items per manufacturers' instructions or as directed by the Architect.
  - 9. After erection and glazing, check and adjust all operating hardware.

### **3.06: Protection and Clean Up**

- K. After installation, clean interior and exterior metal surfaces of all mortar, plaster, paint, and other contaminants and leave ready for finishing. Provide protection of finished work from other trades and/or furniture installation as needed to prevent damage.
- A. At the end of each day's work and at final completion, the site shall be free of all waste materials and equipment used by the Contractor. Remove all waste materials and debris and dispose of in a legal and safe manner.
- B. The Contractor shall be responsible for maintaining a clean workplace and shall pay for all costs, at no additional expense to the Owner, should outside labor and equipment be used to clean up the work site.
- C. Prevent waste materials from entering and accumulating in the storm drainage system and on adjacent property.

**\*\*\*End of Section 06 20 00\*\*\***

## **SECTION 06 41 00 ARCHITECTURAL WOOD CASEWORK**

### **PART 1 GENERAL**

#### **1.01 SCOPE**

- A. All casework, tops, fillers and accessories.
- B. Submittals and shop drawings.

#### **1.02 GENERAL**

- A. All units specified or scheduled herein shall comply in dimensional tolerances and sizes with generally accepted national standards. Each unit shall be separately assembled case, with the exception of continuous shelving and patterns designed for assembly on finished wood or metal framing systems. Units shall be produced by experienced manufacturers regularly engaged in the classification of work.
- B. Units illustrated on the Plans or schedule, with illustrations bound hereinafter, generally follow the designs shown in casework catalogs. Variations of dimensions that are necessary within +1/2" deviations from what is shown are acceptable, provided that they do not affect the function or quantities shown, or the strength or stability of the unit, such as the use of wire racks and guides to support tote-trays.

#### **1.03 QUALIFICATIONS**

- A. The plastic laminate faced casework supplier shall be a manufacturer technically proficient and experienced in the production of quality casework. Manufacturers seeking approval to bid shall submit evidence prior to approval to bid of adequate plant, equipment, manpower and experience to produce the quality of casework specified and deliver on schedule.
- B. Quality Control – Conform to the requirements of AWI, latest edition.

#### **1.04 SUBMITTALS**

- A. Submit shop drawings and product data under provisions of Section 01 33 23.
- B. Submit casework manufacturer's catalog showing materials, component profiles, fastening methods, joint details, accessory listings including hardware and schedule of finishes.
- C. Submit samples under provisions of Section 01 33 23.

#### **1.05 WARRANTY**

- A. Provide manufacturer's written warranty guaranteeing all materials and workmanship for a period of one year from the date of project Substantial Completion. Defects report within the guarantee period will be promptly corrected without charge to the Owner.

1.06 DELIVERY

- A. The casework manufacturer and the contractor shall be jointly responsible to make certain that the casework will not be damaged by excessive changes in moisture content.

**PART 2 PRODUCTS**

2.01 MATERIALS

A. STAINED SOLID HARDWOOD

All solid hardwood shall be coordinated with interior finish drawings and schedules. See interior elevations and millwork sections for exact stile and rail configuration. Provide stain grade birch plywood for interior of cabinet case and drawers.

B. LAMINATED PLASTIC, GENERAL USE

Laminated plastic shall be high-pressure type conforming to NEMA standards # LD3 for GP and CL standards and finishes. Plastic sheets shall be laminated to particleboard core stock, under pressure, with adhesive recommended by the manufacturer. All laminated parts must be balanced with materials as listed below.

Exposed surfaces	GP-28
Semi-exposed surfaces	Melamine or CC20 Cabinet Liner
Tops (square edges)	GP-50
Tops (post formed)	PF-42

C. PARTICLE BOARD

All case bodies, bottoms, dividers, sides, fixed shelves, doors and drawer fronts shall be 3/4" thick particle board, minimum 45 lb./cu. Ft. density, Grade 1-M-3 or better. Adjustable shelves shall be 1" thick up to 36" span and shelves shall be 1 1/4" over 36" span. Unfinished high backs shall be 3/8" thick. Movable units shall have 1-1/2" thick core top and bottom for stability and strength.

Note: All wet counter tops, splashes and exterior cabinetry shall be fabricated using exterior grade veneer core plywood or phenolic resin particle board.

D. HARDBOARD

All hardboard shall be equal to that manufactured by Masonite Corporation with one finished and one screened side. Sizes used in components shall be as follows:

Drawer bottoms	1/4" thick (finished one side)
Partition dividers	1/4" thick (finished two sides)

E. EDGE BANDS

All casework edges exposed to view shall be self-edged with matching 1 mm PVC edge bands.

**F. METAL PARTS**

All metal parts, table legs, table frames, etc., shall be furniture steel fabricated by welding then degreased, cleaned, treated, and painted or chrome plated.

**G. HARDWARE**

All hardware shall be heavy duty institutional type and shall consist of:

1. Hinges  
Door hinges are equal to Salice Clip with 110 degree opening, full overlay and self-closing. Door over 60" in height shall have four (4) hinges.
2. Pulls for Doors and Drawers  
Element Naples 6.15-inch (7/16-inch diameter) bar, finish: satin nickel.
3. Drawer Suspensions  
All drawers shall be equipped with one pair of cold rolled steel, zinc plated, ball bearing roller suspensions with the following load capacity:
  - a. Typical drawers – load rating of 75 lbs.
  - b. File cabinet drawers – load rating of 100 lbs., full extension.
4. Dowel Construction  
Casework connections shall be made using dowel construction techniques.
5. Shelf Supports  
Shall be heavy duty spring lock designed metal support with ¼" diameter pin designed for installation in predrilled holes in cabinet ends and partitions, or K-V supports and standards. Supports shall be located in a manner which prevents accidental removal. Four supports per shelf.
6. Locks  
Shall be five pin tumbler type with grooved key and plated cylinder and cam. Each lock shall be keyed different. Each department shall be master-keyed different. Furnish two keys for each lock. Two of each master keys and two grand masters to open all locks.
7. Sealants  
Apply clear water resistant silicon-based sealant between counter and splash at the wet locations.
8. Silencers  
Apply two clear latex silencers to each drawer and door.
9. Grommets  
Install one (1) 2 1/2" plastic grommet and cover at each knee space. Location and installation to be coordinated in the field. Standard color selected by Architect.

**H. INSTALLATION HARDWARE**



All installation type hardware shall be furnished by the installer. Such hardware includes wall or floor anchors, screws for joining adjacent cabinets and top fasteners.

2.02 CONSTRUCTION

A. BASE CABINETS

Ends shall be 13/16" thick, full height and notched to receive a toe space rail. Cabinet sub-top shall be 3/4" thick and bottom shall be 13/16" thick. Top and bottom shall butt joint end and be secured in place using doweled or mortise and tenon construction. Rear edge of ends shall be dadoed to receive back then jigged square before assembly. All fixed interior components, dividers, cubicles, etc., shall be machine fitted to close tolerance place using doweled or mortise and tenon construction.

B. DOORS

All doors shall be 13/16" thick overall, overlap design, with GP-28 laminate on exterior side and CL-20 cabinet liner on interior side. Door shall be sized to allow a 3/8" reveal at cabinet top, bottom and ends. Spacing between cabinet doors and/or drawer shall be 3/16".

C. DRAWER BODIES

Drawer bodies shall be constructed of 1/2" minimum thick hardwood or plywood sides, back and front, with 1/4" hardboard bottom. Drawer box shall be Thermo-fused melamine. Drawer fronts shall be fastened to box with interior mounted countersunk screws and shall be positioned and sized to allow a 3/8" reveal at cabinet edges and a 3/16" spacing between drawers or doors. Drawer suspensions shall be securely screwed to drawer sides, cabinet ends and partitions. All drawers shall be provided with rubber bumpers and positive stops. Stops will interact between the back or side of the drawer and the side of the cabinet.

D. SHELVES

Adjustable shelves shall be 1-1/16" thick overall up to 36" and 1-5/16" overall over 36" span. Shelves shall be supported by means of four metal clips and shall be adjustable on 1-1/4" centers. Fixed shelves shall be 13/16" thick overall, laminated on two sides. Shelves shall be attached to cabinet's ends or partitions by means of dowels or dadoed construction.

E. COUNTER TOPS

Tops shall be 1-1/2" thick overall with waterfall edge. Bottom side faced with an approved balancing sheet. Exposed edges shall be laminated same as work surface. Continuous tops shall have the joints secured with bolt type fasteners let into the under side of the top. Back curbs shall be 13/16" thick overall and set tight. Curb shall be sealed before installed. Edge laminate same as work surface. End curbs shall be 13/16" thick overall and laminated on exposed surface and edges same as work surface.

F. WALL CABINETS

All wall cabinets shall be similar in construction to base cabinets except, all wall cabinets shall be attached through an anchor cleat the full width of the unit at the top and bottom. This cleat shall be secured in the rabbet over the back. Doors sized to align with bottom edge of ends. Wall cabinet

exterior bottom shall have same plastic finish as interior and shall show no exposed unfinished edges.

**G. TALL CASE**

Tall case products shall be similar in construction to the base cabinets. Tops shall be flush with ends. Top cases less than 72" high shall be finished with exterior laminates. Doors shall be sized to allow a 3/8" reveal at all cabinet edges. Spicing between doors shall be 3/16" thick overall with GP-28 plastic exterior side and melamine on interior side. Back panel shall be inset 3/16" and case ends shall be self-edged with plastic laminate. Back panel secured to case ends with concealed mechanical fasteners.

**H. BASES**

Bases shall be provided for all units, continuous in groups. Base material shall be kiln dried 2x sections attached together in varying lengths and finished. Cabinets are secured and attached to the base itself.

**2.03 FINISHES**

- A. All finish sections of cabinets shall be limited to colors shown on the standard manufacturer's color chart unless noted otherwise and shall be as elected by the Architect. Semi-exposed interiors shall be solid light beige on ends, partitions, shelves and backs. Premium selections will be noted on the drawings.

**2.04 CUTOUTS**

- A. Casework installer to make all cutouts for electrical and plumbing fixtures furnished by others.

**PART 3 EXECUTION**

**3.01 INSPECTION**

- A. Verify adequacy of backing and support framing.

**3.02 INSTALLATION**

- A. Installation shall be made under the supervision of supervision of personnel experienced and competent in the classification or work.
- B. Installation of groups of units shall be completed with continuous tops and bases.
- C. Make all cutouts for electrical and plumbing fixtures furnished by others.
- D. Set and secure casework in place rigid, plumb, and level.
- E. Use purpose designed fixture attachments at concealed locations for wall mounted components.

- F. Use threaded steel concealed joint fasteners to align and secure adjoining cabinet units, counter tops and bases.
- G. Carefully scribe casework which is against other building materials, leaving gaps of 1/32" maximum. Do not use additional overlay trim for this purpose.
- H. Secure cabinet and counter bases to floor using appropriate angels and anchorages.
- I. Countersink anchorage devices at exposed locations used to wall mount components, and conceal with solid plugs of species to match surrounding finish. Finish flush with surrounding surfaces.

3.03 ADJUSTING AND CLEANING

- A. Adjust doors, drawers, hardware, fixtures and other moving or opening parts to function smoothly and correctly.
- B. Clean casework, counters, shelves, hardware, fittings and fixtures.
- C. Manufacturer is responsible for providing proper clearances at casework doors and drawers to allow proper opening at inside corners and areas required.

**\*\*\*End of Section 06 41 00\*\*\***

## **SECTION 06 41 16 – PLASTIC LAMINATE-CLAD CABINETS**

### **PART 1: GENERAL**

#### **1.01: Description**

- A. The Contractor shall furnish all labor, materials, tools, equipment, and perform all Work and services necessary for all plastic laminate-faced cabinetry as shown on the Drawings and as specified, in accordance with the provisions of the Contract Documents, and completely coordinated with the Work of all other trades.
- B. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances, and devices incidental to, and necessary for, a sound, secure, and complete installation.
- C. Contractor shall verify site conditions for suitability of accepting products for delivery and installation. Coordinate with progress of construction to minimize interference with preceding and succeeding Work of other trades at specific areas to receive products.

#### **1.02: Related Work Specified in Other Sections**

- A. Rough Carpentry: Section 06 10 00
- B. Finish Carpentry and Millwork: Section 06 20 00
- C. Plastic Laminate-Clad Cabinets: Section 06 41 16
- D. Cabinets, Wood Faced: Section 06 41 00
- E. Painting: Section 09 90 00
- F. Plumbing: Division 22
- G. Electrical: Division 26

#### **1.03: Quality Assurance**

- A. All work to comply with AWI guidelines for “Custom Grade” products, unless otherwise called for on drawings.
- B. All work to be fabricated by highly skilled mechanics highly experienced at this type of work at specified quality level.

#### **1.04: Submittals**

- A. In accordance with Division 1, provide drawings for approval showing:
  - 1. Cabinet layouts: Minimum scale of 1/2” equals 1 foot and showing fabricated section divisions, filler panels, scribe allowances and other installation provisions.
  - 2. Cabinet locations: Minimum scale of 1/4” equals 1 foot.
  - 3. Construction details: minimum scale of 12” equals 1 foot.
- B. Hardware schedule: Indicate items for each section including manufacturer’s data.

- C. At Architect's request, provide list of similar projects previously completed by manufacturer with pertinent information for review and/or sample fabricated section for approval as suitable for establishing quality standard for project.

### **1.05: Job Conditions**

- A. Verify dimensions of all cabinet locations in building before fabrication.
- B. Verify and coordinate with Contractor all necessary support and backing requirements for attaching or securing cabinets in place.
- C. Verify conditions for fabricating countertops for scribe fit. Verify requirements of all cabinet-installed equipment and plumbing prior to fabrication.

### **1.06: Product Delivery, Storage, and Handling**

- A. Provide appropriate vehicle(s) and appurtenances for transporting and placing products in areas to receive cabinets.
- B. Building to have fully operational mechanical system capable of maintaining normal environmental conditions prior to receiving products. Conditions shall be maintained during installation.
- C. Products shall be stored in protected areas away from work of other trades and where rehandling will be minimized. Products to be stored in conditioned building for 24 hours minimum prior to installation. Handling shall be only by manufacturer's/installer's personnel or as approved by manufacturer/installer.

## **PART 2: PRODUCTS**

### **2.01: Plastic Laminate**

- A. Type: Provide laminates as listed in Section 06 41 16 – Plastic Laminate-Clad Cabinets (Plastic Laminates) or on drawings, and installed as located on drawings. Contractor responsible for ordering sufficient quantities of materials and with appropriate lead time to avoid delays.
- B. Vertical Surfaces
  - 1. Faces of cabinetwork to be self-edged plastic laminate (conforming to NEMA LD-3) of manufacturer's standard colors as selected by Architect. Door and drawer faces to be surface mounted.
- C. Countertops
  - 1. High-pressure plastic laminate, thickness: 1/16 inch (conforming to NEMA LD-3). Color as selected from manufacturer's standard patterns, solid colors, mists, and wood grains.

### **2.02: Softwood Plywood**

- A. Countertops and other structural areas as noted on drawings or deemed necessary to have cabinet grade plywood conforming to PS-1, interior grade with Type 1 glue.

### **2.03: Monolithic Flakeboard**

- A. Weyerhaeuser "Timberland," or Champion Products "Novaply." Density: 45 lbs. per cubic foot, moisture content 8% or less; maximum warp in 48 inches, 0.004 inches per foot. See cabinet interior finish requirements below.

#### **2.04: Prefinished Hardboard**

- A. Factory prefinished wood fiber hardboard, 1/4 inch thick, oil impregnated to resist moisture absorption with faces smooth, free from defects.

#### **2.05: Hardware and Miscellaneous**

- A. Hinges: "European Style" Modul series by Julius Blum, Inc. or equal in appropriate degree opening angle type for maximum swing.
- B. Flip-up Doors: Overhead "in-case" door action: Grant No. 513
- C. Pulls for Doors and Drawers: Element Naples 6.15-inch (7/16-inch diameter) bar, finish: satin nickel.
- D. Roller Guides for Drawers:
  - 1. Typical Drawers: Knap & Vogt No. 1428 or Grant No. 328
  - 2. File Drawers: Knap & Vogt No. 1429 or Grant No. 329
  - 3. Heavy Duty Drawer: Grant No. 555 (150 lb.)
  - 4. Shallow Drawers: Grant No. 354 for 18-inch min. depth (use full extension guides less than 18 inches deep)
- E. Roller guides for roll-out shelves: Knap and Vogt No. 346
- F. Keyboard Trays: Richelieu 6225 keyboard tray, F309 Palm Rest, and 5930 Arm or approved equal
- G. Adjustable Shelf Clips: Knap and Vogt No. 346
- H. Magnetic Catches: EPCO 1000
- I. Cabinet Locks
  - 1. Drawer: Yale 5571S x 5591S flat strike
  - 2. Door: Yale 511 x 511S angle strike, right- or left-hand as appropriate, keyed alike within each tenant suite.
- J. By-pass Glass Slider Tracks: EPCO 730-1 assembly (rout into countertops) with #G-03 lock when called for.
- K. Countertop Circular Waste Chute: Bobrick B529, Type 300, 22-gauge stainless steel with bright polished finish.

#### **2.06: Fabrication**

- A. General
  - 1. Unless otherwise noted on the drawings, lower cabinets at face frames to be 24 inches deep.
  - 2. Upper cabinets at face frames to be 12 inches deep.

3. Finish all exposed exterior vertical surfaces and all interior surfaces of cabinets without doors with plastic laminate unless otherwise noted.
  4. All interior surfaces (visible but not continually exposed to view) shall have factory applied self-edged "Melamine," "Kor-tron," or approved polyester finish.
  5. Cabinet sides and backs that overlap windows and glazing areas shall be finished similar to cabinet faces at exposed areas.
  6. Machine all parts for accurate fit, and assemble with appropriate fastenings and adhesives to result in true, square, level, and plumb units.
  7. Verify dimensions of work of other trades to be built into casework. Scribe all tops and backsplashes, finish ends and fronts to walls and adjoining vertical surfaces (provide cabinets with scribing allowances.)
- B. Bases
1. Unit bases of high-density particleboard.
  2. Wood, rubber, or vinyl base, specified in "Flooring" sections to match room base.
  3. Seal all surfaces in contact with cementitious materials.
- C. Cabinet Tops, Bottoms, and Partitions
1. Flakeboard, 3/4 inch thick
  2. Exposed edges covered with self-edge plastic laminate
- D. Cabinet Ends
1. Flakeboard 3/4 inch thick
  2. Machine to accurate configuration for joining to tops and bottoms.
  3. Face with plastic laminate on exposed exteriors.
  4. Exposed corners self-edge with matching finish.
- E. Fixed and Adjustable Shelves
1. Self edged Flakeboard except where cabinets are without doors.
  2. Exposed edges finished.
  3. Thickness: 3/4 inch unless otherwise noted.
  4. Adjustable shelves to adjust in min. 2-inch increments.
- F. Cabinet Backs
1. 3/4 inch thick
  2. As described under "Vertical Surfaces" and under "Cabinet Tops, Bottoms, and Partitions."
  3. Doors and drawers to have edges self-edged with plastic laminate.
  4. Bases to have backing sheet pre-laminated. Backs to have backing sheet pre-laminated.
- H. Countertops
1. High pressure plastic laminate 1/16-inch thick with matching exposed edges.
  2. Provide continuous tops for counter-type cabinets fixed in a line.

3. Provide backsplashes with 1/16-inch high-pressure plastic laminate.
  4. Tops for islands self-edged four sides.
  5. Back and edge splashes to be built up on 3/4-inch flakeboard, except full-height backsplashes under upper cabinets may be applied to wall.
  6. Aluminum coving not acceptable on less-than-full-height backsplashes.
  7. Verify and provide any hardwood or other edges on counters as noted or detailed on the drawings.
- I. Dividers: One of the following, as indicated:
1. Prefinished hardboard, 1/4 inch thick, smooth both faces
  2. High density overlaid plywood, 1/2 inch thick, with high impact plastic edges. Fixed dividers glued in grooves in cabinet. Removable dividers installed in grooves in cabinet.
- J. Drawers
1. Front, 3/4" particleboard or flakeboard, finished as described under "cabinet doors."
  2. Sides and backs: flakeboard, 1/2 inch thick
  3. Sides dovetailed into front; backs tenoned into sides
  4. Bottoms prefinished hardwood, housed into front, sides, and back.
  5. Open to view drawers without full fronts shall be finished as exposed exterior of cabinets.
- K. Prefinished Hardboard
1. Shall be impregnated with pigmented oil base finish.

### **PART 3: EXECUTION**

#### **3.01: Installation/Application/Performance**

- A. Set casework accurately in place, level, scribe and secure to floor or walls.
- B. Provide connecting and attaching devices, closures, and trim members required.
- C. Install items complete; adjust moving parts to operate perfectly.
- D. Adjust door and drawer faces to align and to avoid rubbing adjacent surfaces and edges.

#### **3.02: Cleaning and Protection**

- A. After installation provide suitable protective covering (i.e., heavy duty kraft paper, visqueen, etc.) on countertops and other surfaces that may still be exposed to construction activity or high traffic damage.
- B. Provide corrugated cardboard "bumpers" at all corners subject to impact prior to final cleaning.
- C. Protect from damage until Final Acceptance. Comply with requirements of Section 01600.
- D. Contractor responsible for damage due to any work of the Contract. Repair and/or replace as directed.
- E. Clean all dirt, debris, and marks on surfaces prior to Final Acceptance in strict accord to surfacing manufacturer's recommendations. Comply with requirements of Division 1.

**\*\*\*End of Section 06 41 16\*\*\***



## **SECTION 06 61 16 – SOLID SURFACING FABRICATIONS**

### **PART 1: GENERAL**

#### **1.01: General**

- A. Conform to the general provisions of the Contract, General and Supplementary Conditions to the contract, Division One of this Specification, the Drawings and this Specification Section.
- B. Should conflict arise between the Drawings and the provisions of the Specifications, the Specifications shall govern.
- C. The contractor shall furnish all labor, materials, tools, equipment, and perform all work necessary for, or incidental to, the furnishing and installation, complete, of all work as shown on the drawings and as specified, in accordance with the Contract Documents, and completely coordinated with work of all other trades.
- D. Although such work is not specifically shown or specified, furnish and install all supplementary or miscellaneous items, appurtenances, and devices incidental to, or necessary for, a sound, secure, and complete installation.

#### **1.02: Scope of Work (includes but is not necessarily limited to the following):**

- A. General:
  - 1. Refer to the drawings for the extent of work.
  - 2. Inspect existing conditions and the work of other trades for proper conditions before beginning the work of this section.
  - 3. Coordinate the work of this section with the work of other trades.
  - 4. Protect people, property, and the work of this section and other trades.
  - 5. Clean up work site and dispose of waste and debris on a daily basis.
- B. Scope:
  - 1. Products, Materials, and work included: Provide all material, tools, labor and equipment necessary for the fabrication and installation of Plastic Laminate including, but not necessarily limited to, the following:
    - a. Preparation of surface for installation of solid surfacing materials.
    - b. Coordination and supervision of work.
    - b. Installation of solid surfacing countertops.
  - 2. Although such work is not specifically shown or specified, furnish and install all supplementary or miscellaneous items, appurtenances, and devices incidental to, or necessary for, a sound, secure, and complete installation.

#### **1.03: References**

- A. Applicable Standards: Standards of the following, as referenced herein:
  - 1. American National Standards Institute (ANSI)

2. American Society for Testing and Materials (ASTM)
3. National Electrical Manufacturers Association (NEMA)
4. Federal Specifications (FS)

#### **1.04: Submittals**

- A. Shop drawings: Indicate dimensions, component sizes, fabrication details, attachment provisions and coordination requirements with adjacent work.
- B. Samples: Submit minimum 2" x 2" (50 mm x 50 mm) samples. Indicate full range of color and pattern variation. Approved samples will be retained as standards for work.
- C. Product data: Indicate product description, fabrication information and compliance with specified performance requirements.
- D. Maintenance data: Submit manufacturer's care and maintenance data, including repair and cleaning instructions. Include in project close-out documents.

#### **1.05: Quality Assurance**

- A. Allowable tolerances:
  1. Variation in component size:  $\pm 1/8"$  (3 mm).
  2. Location of openings:  $\pm 1/8"$  (3 mm) from indicated location.

#### **1.06: Delivery, Storage, and Handling**

- A. Deliver no components to project site until areas are ready for installation. Store components indoors prior to installation.
- B. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

#### **1.07: Warranty**

- A. Provide 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 II: PRODUCTS**

#### **2.01: Solid Polymer Fabrications**

- A. Specification is based on Corian. Subject to compliance with specifications, products of the following area acceptable.
  1. Corian
  2. Avonite
  3. Formica

4. Wilsonart
- B. Material: Homogeneous filled acrylic; not coated, laminated or of composite construction; meeting ANSI Z124.3 & .6, Type Six, and Fed. Spec. WW-P-541E/GEN.
1. Material shall have minimum physical and performance properties specified in the following sections
  2. Superficial damage to a depth of 0.010" (.25 mm) shall be repairable by sanding and polishing.
- C. Reception areas/nurses' stations: Horizontal surfaces of 1/2" (13 mm) thick solid polymer material adhesively joined with inconspicuous seams; edge details as indicated on the Architect's Drawings; color as indicated on the drawings
- D. Performance characteristics

<b>PROPERTY</b>	<b>REQUIREMENT</b>	<b>TEST PROCEDURE</b>
	(min or max)	
Tensile Strength	5000 psi min	ASTM D638
Tensile Modulus	1.0 x 10 <sup>6</sup> psi min	ASTM D638
Flexural Strength	7000 psi min	ASTM D790
Flexural Modulus	1.0 x 10 <sup>6</sup> psi min	ASTM D790
Elongation	0.3% min.	ASTM D638
Hardness	90-Rockwell "M" scale min. 52-Barcol Impresser min.	ASTM D758 ASTM D2583
Thermal Expansion	3.5 x 10 <sup>-6</sup> in/in/deg C. max. 1.95 x 10 <sup>-6</sup> in/in/deg F. max.	ASTM D696
Color Stability	No change, 100 hours min.	NEMA LD3-3.10
Wear and Cleanability	Passes	ANSI Z124.3
Abrasion Resistance	No loss of pattern max. weight loss (1000cycles) =0.9g.	NEMA LD3-3.01      ANSI Z124.3
<b>PROPERTY</b>	<b>REQUIREMENT</b>	<b>TEST PROCEDURE</b>
Boiling water Surface Resistance	No Change	NEMA LD3-3.05
High Temperature Resistance	No Change	NEMA LD3-3.06
Impact Resistance Notched Izod Gardner	0.24 ft.-lbs. min. 9.0 ft-lbs min.	ASTM D256, Method A ASTM D3029
Ball drop 1/4" sheet 1/2" sheet 3/4" sheet	36" min, 1/2 lb. ball, no failure 40" min, 1/2 lb. ball, no failure 200" min, 1/2 lb. ball, no failure	NEMA LD3-303
Bowls (point impact)	No cracks or chips	ANSI Z124.3 and 124.6
Stain Resistance	Passes	ANSI Z124.3
Weatherability	No change, min. 1000 hours	ASTM D1499
Fungi and Bacteria	No Attack	ASTM G21, ASTM G22
Specific Gravity	1.6 min	

Water Absorption Weight (% max.)	24 hrs. 0.05 0.10	Long Term 0.50(1/4") 0.90(3/4")		ASTM D570
Flammability	solid colors			ASTM E84
	1/4"	1/2"	3/4"	
Flame spread	25 max	25 max	25 max	
Smoke Developed	30 max	30 max	30 max	
Class	1	1	1	
		particulate patterns		
	1/4"	1/2"	3/4"	
Flame spread	25 max	25 max	25 max	
Smoke Developed	30 max	30 max	30 max	
Class	1	1	1	
Pittsburgh Protocol Toxicity (as used by NY State)	solids-80 gms minimum rating patterns-65 gms minimum			"LC50" Test

**2.02: Accessory Products**

- A. Joint adhesive: Manufacturer’s standard two-part adhesive kit to create inconspicuous, non-porous joints, with a chemical bond. (Technical Bulletin: CTDC 102)

**2.03: Fabrication**

- A. For warranty coverage, fabricator/installer shall be approved by solid polymer manufacturer.
- B. Fabricate components in shop to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and solid polymer manufacturer requirements. (Technical Bulletin: CTDC 117)
- C. Form joints between components using manufacturer's standard joint adhesive. Joints shall be inconspicuous in appearance and without voids. Attach 2" (50 mm) wide reinforcing strip of solid polymer material under each joint. [Technical Bulletins: CTDC 124, 129, 134]
- D. Provide holes and cutouts for plumbing and bath accessories as indicated on the drawings.
- E. Rout and finish component edges to a smooth, uniform finish. Rout all cutouts, then sand all edges smooth. Repair or reject defective or inaccurate work.
- F. Finish: All surfaces shall have uniform finish. [Technical Bulletins: CTDC100, 123, 132]
  - 1. Finish to be matte/satin unless specified otherwise, with gloss rating of 5 - 20.
  - 2. If shown on the drawings, semigloss finish to have gloss rating of 25-50.
  - 3. If shown on the drawings, polished finish to have gloss rating of 55-80.

**PART III: EXECUTION**

**3.01: Installation**

- A. Install components plumb and level, in accordance with approved shop drawings and product installation details.
- B. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Keep components and hands clean when making joints.
- C. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Components shall be clean on Date of Substantial Completion.
- D. Protect surfaces from damage until Date of Substantial Completion. Repair or replace damaged work that cannot be repaired to Architect's satisfaction and invoice for the cost of repairs. Architect to pre-approve cost estimate before repairs are made.
- E. Fabricator/Installer is to provide a commercial care and maintenance video, review maintenance procedures and warranty details with the director of maintenance upon completion of project.

\*\*\*End of Section 06 61 16\*\*\*

## **SECTION 06 83 16 – FIBERGLASS REINFORCED PANELING**

### **Part 1 General**

#### 1.1 Related Documents

- A. Drawings and specifications of contract, including general and supplementary conditions and Division 1 Specifications apply to this section.

#### 1.2 Summary

- A. This section includes:
  - 1. Fire rated fiberglass reinforced liner panels, trim, adhesives, sealants and fasteners.
- B. Performance Requirements: Provide durable, decorative wall panels which have been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

#### 1.3 Submittals

- A. General: Submit the following in accordance with conditions of contract and Division 1 Specification Sections.
- B. Product Data: Submit copies of manufacturer's product data sheets, storage, handling and preparation requirements, and installation instructions.
- C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures. Indicate location and dimension of joints and fastener attachment.
- D. Samples: Submit four 12" x 12" samples of panel, including 6" long samples of wall trim.
- E. Maintenance Data: Submit data on cleaning and maintenance of panels.
- F. Closeout Submittals: Submit the following:
  - 1. Operations and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 01 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
  - 2. Warranty documents specified herein

#### 1.4 Quality Assurance

- A. Conform to building code requirements for interior finish for smoke and flame spread requirements as tested in accordance with:
  - 1. ASTM E 84 (Method of test for surface burning characteristics of building Materials)
    - a. Wall required rating for Laundry room and Kitchen – Class A

- b. Wall required rating for Janitors Closet and Soiled Utility rooms – Class C
- B. Sanitary Standards: System components and finishes to comply with:
  - 1. United States Department of Agriculture (USDA) requirements for food preparation facilities, incidental contact.
  - 2. Food and Drug Administration (FDA) 1999 Food Code 6-101.11.
- 1.5 Related Sections
  - A. Section 09 29 00 – Gypsum Wallboard and Sheathing
  - B. Section 06 10 00 – Rough Carpentry
- 1.6 Delivery Storage and Handling
  - A. Lead Time: Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.
  - B. Prior to installation, panels shall be allowed to acclimate to room temperature and humidity for a minimum of 48 hours in temperature and humidity conditions of installation areas.
  - C. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.
  - D. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
    - 1. Store panels indoors.
    - 2. Lay panels flat. Do not stand panels on edge.
    - 3. Protect panels from moisture.
    - 4. Do not store panels in contact with the floor or against an outside wall.
    - 5. Do not remove protective film from panel surface until after installation (if applicable).
    - 6. Maintain optimum storage conditions of 60-75 degrees F (16-24 degrees C) at 35 - 55% relative humidity. Avoid extremes in temperature and humidity.
  - E. Handling: Remove foreign matter from face of panel by using a soft bristle brush, avoiding abrasive action.
- 1.2 Warranty
  - A. Furnish one year guarantee against defects in material and workmanship.

**Part 2 Products**

- 2.1 Manufacturers
  - A. Provide FRP liner panels by Nudo Products, Inc.
    - 1. Contact: 1500 Taylor Avenue, Springfield, IL 62703; Telephone: (800) 826-4132, (217) 528-5636; Fax: (217) 528-8722; E-mail: [info@nudo.com](mailto:info@nudo.com) ; website: [www.nudo.com](http://www.nudo.com)
  - B. Manufacturers offering equivalent products include:

1. Glasteel
2. Kemlite
3. Lasco
4. Marlite

2.2 Materials

- A. Product: LP-F9-FR .090" Fiberlite FRP – Wall Panel
- B. Color: Almond
- C. Texture: Pebbled
- D. Sheet Size: 4' x .
- E. Vinyl Moldings and Trim: Provide manufacturer's recommended standard moldings and trim for cap, division bar, inside and outside corners.
- F. Adhesive: Provide Titebond – Fast Grab FRP adhesive by Franklin International, or as recommended by panel manufacturer for securing panels to gypsum wallboard.
- G. Fasteners: Plastic Pin Rivets as recommended by panel manufacturer
- H. Sealant: Boss 312 100% silicone HVAC/R by Boss Products, or as recommended by panel manufacturer for sealing around moldings, joints, and fasteners.
  1. Color: Clear

**Part 3 Execution**

3.1 Preparation

- B. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails countersunk, joints and cracks filled flush and smooth with the adjoining surface.
  1. Verify that stud spacing does not exceed 24" (61cm) on-center.
- C. Repair defects prior to installation.
  1. Level wall surfaces to panel manufacturer's requirements. Remove protrusions and fill indentations.

3.2 Installation

- A. Comply with manufacturer's recommended procedures and installation sequence.
- B. Cut sheets to meet supports allowing 1/8" (3 mm) clearance for every 8 foot (2.4m) of panel.
  2. Cut and drill with carbide tipped saw blades or drill bits, or cut with shears.
  3. Pre-drill fastener holes 1/8" (3mm) oversize with high speed drill bit.



- a. Space at 8" (200mm) maximum on center at perimeter, approximately 1" from panel edge.
  - b. Space at in field in rows 16' (40.64cm) on center, with fasteners spaced at 12" (30.48 cm) maximum on center.
- D. Apply panels to board substrate, above base, vertically oriented with seams plumb and pattern aligned with adjoining panels.
- 1. Install panels with manufacturer's recommended gap for panel field and corner joints.
    - a. Adhesive trowel and application method to conform to adhesive manufacturer's recommendations.
    - b. Drive fasteners for snug fit. Do not over-tighten.
- E. Apply panel moldings to all panel edges using silicone sealant providing for required clearances.
- 1. All moldings must provide for a minimum 1/8 " (3mm) of panel expansion at joints and edges, to insure proper installation.
  - 2. Apply sealant to all moldings, channels and joints between the system and different materials to assure watertight installation.
- 3.2 Cleaning
- A. Remove excess sealant from panels and moldings. Wipe panel down using a damp cloth and mild soap solution or cleaner.
  - B. Refer to manufacturer's specific cleaning recommendations. Do not use abrasive cleaners.
- 3.3 Protection
- A. Protect installed work from damage due to subsequent construction activity on the site.

**\*\*\*End of Section 06 83 16\*\*\***