SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. This Section includes the following:
      1. Wood nailers, and blocking. Fire treated interior, pressure treated where in contact with roofing or masonry construction.
      2. Backing panels for telephone equipment.
   B. Related Sections: The following Sections contain requirements that relate to this Section:
      1. Division 5 Sections for handrails and railings requiring concealed wood blocking for anchoring.
      2. Division 6 Section "Interior Architectural Woodwork" for casework items and trim.
      3. Division 7 Section for roofing.

1.3 DEFINITIONS
   A. Miscellaneous Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.

1.4 SUBMITTALS
   A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
   B. LEED Submittals:
      1. Product Data for Credit EQ 4.1: For adhesives, including printed statement of VOC content.
   C. Wood treatment data as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:
      1. For fire-retardant-treated wood products, include certification by treating plant that treated materials comply with specified standard and other requirements as well as data relative to bending strength, stiffness, and fastener-holding capacities of treated materials.
   D. Material test reports from a qualified independent testing agency indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with requirements indicated.
E. Warranty of chemical treatment manufacturer for each type of treatment.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: To qualify for approval, an independent testing agency must demonstrate to Architect's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

B. Single-Source Responsibility for Fire-Retardant-Treated Wood: Obtain each type of fire-retardant-treated wood product from one source and by a single producer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Fire-Retardant-Treated Materials, Interior Type A:
   b. Chemical Specialties, Inc.
   c. Continental Wood Preservers, Inc.
   d. Hickson Corp.
   e. Hoover Treated Wood Products, Inc.

2. Wood-Preservative-Treated Materials:
   b. Chemical Specialties, Inc.
   c. Continental Wood Preservers, Inc.
   d. Hickson Corp.
   e. Hoover Treated Wood Products, Inc.
   f. Osmose Wood Preserving, Inc.

2.2 LUMBER, GENERAL


B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:

1. WCLIB - West Coast Lumber Inspection Bureau.
2. WWPA - Western Wood Products Association.

C. 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.

1. Provide dressed lumber, S4S, unless otherwise indicated.
2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Comply with applicable requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL; U.S. Testing; Timber Products Inspection, Inc.; or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Research or Evaluation Reports: Provide fire-retardant-treated wood acceptable to authorities having jurisdiction and for which a current model code research or evaluation report exists that evidences compliance of fire-retardant-treated wood for application indicated.

B. Interior Type A: For interior locations, use chemical formulation that produces treated lumber and plywood with the following properties under conditions present after installation:

1. Bending strength, stiffness, and fastener-holding capacities are not reduced below values published by manufacturer of chemical formulation under elevated temperature and humidity conditions simulating installed conditions when tested by a qualified independent testing agency.
2. No form of degradation occurs due to acid hydrolysis or other causes related to treatment.
3. Contact with treated wood does not promote corrosion of metal fasteners.

2.4 WOOD-PRESERVATIVE-TREATED MATERIALS

A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWPA C2 (lumber) and AWPA C9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC’s Board of Review.

1. Do not use chemicals containing chromium or arsenic.

B. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft. (4.0 kg/cu. m). After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items 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, furring, stripping, and similar concealed members in contact with masonry or concrete.
3. Wood floor plates installed over concrete slabs directly in contact with earth.

C. Pressure treat wood members in contact with ground or freshwater with waterborne preservatives to a minimum retention of 0.40 lb/cu. ft. (6.4 kg/cu. m).
2.5 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.

B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

C. Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.

D. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No.2 grade per SPIB;

2.6 WOOD-BASED STRUCTURAL-USE PANELS, GENERAL

A. Structural-Use Panel Standards: Provide either all-veneer, mat-formed, or composite panels complying with DOC PS 2, "Performance Standard for Wood-Based Structural-Use Panels," unless otherwise indicated. Provide plywood panels complying with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood," where plywood is indicated.

B. Trademark: Factory mark structural-use panels with APA trademark evidencing compliance with grade requirements.

2.7 STRUCTURAL-USE PANELS FOR BACKING

A. Plywood Backing Panels: For mounting data or telephone equipment, provide fire-retardant-treated plywood panels with grade, C-D Plugged Exposure 1, in thickness indicated or, if not otherwise indicated, not less than 15/32 inch (11.9 mm) thick.

2.8 FASTENERS

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

1. Provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.


C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M)

E. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.
3.9 MISCELLANEOUS MATERIALS

A. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

1. Use adhesives that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.

B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. CABO NER-272 for power-driven staples, P-nails, and allied fasteners.
2. Published requirements of metal framing anchor manufacturer.

E. Use common wire 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; predrill as required.

3.2 WOOD GROUND, SLEEPER, NAILER AND BLOCKING INSTALLATION

A. Install wood nailers, blocking, and sleepers where shown and where required for attaching other work. Form to shapes shown and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

F. Install permanent grounds of dressed, preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 INSTALLATION OF STRUCTURAL-USE PANELS

B. Fastening Methods: Fasten panels as indicated below:
   1. Plywood Panels: screw to supports.

3.4 PROTECTION

B. 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.

C. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06100
SECTION 06160 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Wall sheathing.
   2. Flexible flashing at openings in sheathing.

B. Related Sections include the following:
   1. Division 6 Section "Rough Carpentry" for plywood backing panels.

1.3 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

B. LEED Submittals:
   1. Product Data for Credit EQ 4.1: For adhesives, including printed statement of VOC content.

1.4 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack plywood and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.
PART 2 - PRODUCTS

2.1 WALL SHEATHING

A. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177/1177M.

1. Product: Subject to compliance with requirements, provide "Dens-Glass Gold" by G-P Gypsum Corporation.
2. Type and Thickness: Type X, 5/8 inch (15.9 mm) thick.
3. Size: 48 by 96 inches (1219 by 2438 mm) for vertical installation.


1. Product: Subject to compliance with requirements, provide "Fiberock Sheathing with Aqua-Tough" by United States Gypsum Co.
2. Type and Thickness: Type X, 5/8 inch (15.9 mm) thick.
3. Size: 48 by 96 inches (1219 by 2438 mm).

2.2 FASTENERS

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

1. For wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M or of Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F 1667.


D. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing board to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.

1. For steel framing less than 0.0329 inch (0.835 mm) thick, attach sheathing to comply with ASTM C 1002.
2. For steel framing from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick, attach sheathing to comply with ASTM C 954.

2.3 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

A. Sealant for Glass-Mat Gypsum Sheathing Board: Elastomeric, medium-modulus, neutral-curing silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other materials, recommended by sheathing manufacturer for application indicated, and complying with requirements for elastomeric sealants specified in Division 7 Section "Joint Sealants."

B. Sealant for Glass-Mat Gypsum Sheathing Board: Silicone emulsion sealant complying with ASTM C 834, compatible with sheathing tape and sheathing, and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
C. Sheathing Tape for Glass-Mat Gypsum Sheathing Board: Self-adhering glass-fiber tape, minimum 2 inches (50 mm) wide, 10 by 10 or 10 by 20 threads/inch (390 by 390 or 390 by 780 threads/m), of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing board and with a history of successful in-service use.

2.4 MISCELLANEOUS MATERIALS

A. Flexible Flashing: See Section 07271 Self-Adhering Sheet Air Barriers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.

C. Securely attach to substrate by 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."

D. Coordinate wall sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 GYPSUM SHEATHING INSTALLATION

A. Comply with GA-253 and with manufacturer's written instructions.

1. Fasten gypsum sheathing to cold-formed metal framing with screws.

B. Apply fasteners so heads bear tightly against face of sheathing boards but do not cut into facing.

C. Vertical Installation: Install board vertical edges centered over studs. Abut ends and edges of each board with those of adjacent boards. Attach boards at perimeter and within field of board to each stud.

1. Space fasteners approximately 8 inches (200 mm) o.c. and set back a minimum of 3/8 inch (9.5 mm) from edges and ends of boards.
3.3 SHEATHING JOINT-AND-PENETRATION TREATMENT

A. Seal sheathing joints according to sheathing manufacturer's written instructions.
   
   1. Apply elastomeric sealant to joints and fasteners and trowel flat. Apply sufficient quantity of sealant to completely cover joints and fasteners after troweling. Seal other penetrations and openings.
   2. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing board joints, and apply and trowel silicone emulsion sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.
   3. Apply sheathing tape to joints between foam-plastic sheathing panels and at items penetrating sheathing. Apply at upstanding flashing to overlap both flashing and sheathing.

3.4 FLEXIBLE FLASHING INSTALLATION (See Section 07271 for material)

A. Apply flexible flashing where indicated to comply with manufacturers written instructions.
   
   1. Prime substrates as recommended by flashing manufacturer.
   2. Lap seams and junctures with other materials at least 4 inches (100 mm), except that at flashing flanges of other construction, laps need not exceed flange width.
   3. Lap flashing over self-adhering sheet air barrier at bottom and sides of openings.
   4. Lap self-adhering sheet air barrier over flashing at heads of openings.
   5. After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.

END OF SECTION 06160
SECTION 06400 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Wood cabinets.
   2. Fireplace Mantles.
   3. Flush wood paneling.
   4. Metal Trim and Reveals
   5. Plastic-laminate countertops.
   7. Plastic-laminate countertop supports.

B. Related Sections include the following:
   1. Division 1 Section "LEED Requirements" for additional LEED requirements.
   2. Division 6 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated, including cabinet hardware and accessories.

B. Product Data: For hardboard, medium-density fiberboard, particleboard, plywood, exterior plywood core material, high-pressure decorative laminate, adhesive for bonding plastic laminate, thermoset decorative overlay, fire-retardant-treated materials, cabinet hardware and accessories, and finishing materials and processes.
   1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

C. LEED Submittals:
   1. Product Data for Credit EQ 4.1: Manufacturers’ product data for installation adhesives, including printed statement of VOC content.
   2. Credit(s) MR 4.1 and MR 4.2: Product Data indicating percentages by weight of postconsumer and preconsumer recycled content for products having recycled content.
      a. Include statement indicating costs for each product having recycled content.
D. **Shop Drawings:** Show location of each item, dimensioned plans and elevations, large-scale
details, attachment devices, and other components.

1. Show details full size.
2. Show locations and sizes of furring, blocking, and hanging strips, including concealed
blocking and reinforcement specified in other Sections.
3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, and other
items installed in architectural woodwork.

E. **Samples for Initial Selection:** Manufacturer's color charts consisting of units or sections of units
showing the full range of colors, textures, and patterns available for each type of material
indicated.
1. Plastic laminates.
2. Thermoset decorative overlays.
3. PVC edge material.

F. **Samples for Verification:** For the following:

1. Lumber with or for transparent finish, 50 sq. in. (300 sq. cm) for each species and cut,
finished on 1 side and 1 edge.
2. Wood-veneer-faced panel products with or for transparent finish, 8 by 10 inches (200 by
250 mm), for each species and cut. Include at least one face-veneer seam and finish as
specified.
3. Plastic-laminate-clad panel products, 8 by 10 inches (200 by 250 mm), for each type,
color, pattern, and surface finish, with separate samples of unfaced panel product used
for core.
4. Core material for shelving and countertops.
5. Thermoset decorative-overlay surfaced panel products, 8 by 10 inches (200 by 250 mm),
for each type, color, pattern, and surface finish.
6. Exposed cabinet hardware and accessories, one unit for each type and finish.

G. **Product Certificates:** Signed by manufacturers of woodwork certifying that products furnished
comply with requirements.

1.4 **QUALITY ASSURANCE**

A. **Fabricator Qualifications:** A firm experienced in producing architectural woodwork similar to that
indicated for this Project and with a record of successful in-service performance, as well as
sufficient production capacity to produce required units.

B. **Source Limitations:** Engage a qualified woodworking firm to assume undivided responsibility for
production and installation of interior architectural woodwork.

C. **Quality Standard:** Unless otherwise indicated, comply with AWI's "Architectural Woodwork
Quality Standards" for grades of interior architectural woodwork, construction, finishes, and
other requirements.

1. Provide AWI Quality Certification Program labels or certificate indicating that woodwork
complies with requirements of grades specified.

D. **Fire-Test-Response Characteristics:** Where fire-retardant materials or products are indicated,
provide materials and products with specified fire-test-response characteristics as determined
by testing identical products per test method indicated by UL, ITS, or another testing and
inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

E. Mockups: Before fabricating and installing interior architectural woodwork, build mockups for each form of construction and finish required to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be installed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed.
7. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

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

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.
2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 COORDINATION
A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

B. Wood Species and Cut for Transparent Finish: Select White Maple, plain sliced.

C. Wood Products: Comply with the following:

4. Softwood Plywood: DOC PS 1, Medium Density Overlay.

D. Cores: For wall cabinet bottoms and adjustable shelving provide construction for heavy weight loading. For spans up to 36 inches provide cores of veneer core plywood a minimum of ¾ inches thick. Spans or cabinet widths beyond 36 inches shall increase to 17/16” thick.

E. Thermoset Decorative Overlay: Particleboard complying with ANSI A208.1, Grade M-2, or medium-density fiberboard complying with ANSI A208.2, Grade MD, with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

F. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering high-pressure decorative laminates that may be incorporated into the Work include, but are not limited to, the following:
   a. Abet Laminati, Inc.
   b. Arborite; Division of ITW Canada, Inc.
   c. Formica Corporation.
   d. Lamin-Art, Inc.
   e. Nevamar Company, LLC; Decorative Products Div.
   f. Panolam Industries International Incorporated.
   g. Westinghouse Electric Corp.; Specialty Products Div.
   h. Wilsonart International; Div. of Premark International, Inc.


2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where indicated, use materials impregnated with fire-retardant chemical formulations indicated by a pressure process or other means acceptable to authorities having jurisdiction to produce products with fire-test-response characteristics specified.
1. Do not use treated material that does not comply with requirements of referenced woodworking standard or that is warped, discolored, or otherwise defective.
2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with AWPA C20 (lumber) and AWPA C27 (plywood), for woodwork items indicated as fire-retardant treated. Use the following treatment type:
   1. Interior Type A: Low-hygroscopic formulation.
   2. Mill lumber after treatment, within limits set for wood removal that does not affect listed fire-test-response characteristics, using a woodworking plant certified by testing and inspecting agency.
   3. Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.
   4. Kiln-dry material before and after treatment to levels required for untreated material.

C. Fire-Retardant-Treated Lumber and Plywood by Nonpressure Process: Apply nontoxic, water-soluble, fire-retardant treatment by dip, spray, roller, curtain coating, vacuum chamber, or soaking to achieve flame-spread rating of 75 or less and smoke-developed rating of 450 or less per ASTM E 84.

2.3 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.

B. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.

C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening, self-closing.

D. Wire Pulls: Back mounted, 4 inches (100 mm) long, 5/16 inches (8 mm) in diameter.

E. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.

F. Shelf Rests: BHMA A156.9, B04013.

G. Drawer Slides: Side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, and rated for the following loads:
   1. Box Drawer Slides: 100 lbf (440 N).

H. Door Locks: BHMA A156.11, E07121.

I. Drawer Locks: BHMA A156.11, E07041.

J. Grommets for Cable Passage through Countertops: 2-inch (51-mm) OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.
1. **Product**: Subject to compliance with requirements, provide "OG series" by Doug Mockett and Co., Inc.

K. **Countertop Trash Grommets**: 6 inch and 12 inch diameter polished stainless steel grommets approximately 1 inch deep.

   1. **Product**: Doug Mockett & Company, Inc. #TM1 and TM12 or approved equivalent.

L. **Recycling Labels**: Adhesive backed recycling labels approximately 11" x 1-34":

   1. “ALUMINUM CANS” #L-01E as manufactured by Midpoint International Inc.
   2. “GARBAGE/TRASH” #L-22E as manufactured by Midpoint International Inc.
   3. “GLASS” #L-09E as manufactured by Midpoint International Inc.
   4. “MIXED PAPER” #L-16E as manufactured by Midpoint International Inc.
   5. “PLASTICS” #L-14E as manufactured by Midpoint International Inc.

Alternate products may be provided by Label Lab or approved equivalent.

M. **Exposed Hardware Finishes**: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

   1. Satin Stainless Steel: BHMA 630.

N. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.4 **INSTALLATION MATERIALS**

A. **Furring, Blocking, Shims, and Hanging Strips**: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.

B. **Anchors**: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

C. **Cleats for Wall Cabinets**: Wall cabinets shall be mounted on continuous cleats for stability in addition to the mechanical fasteners required by referenced standards.

2.5 **FABRICATION, GENERAL**

A. **Wood Moisture Content**: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

B. **Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.**

C. **Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:**

   1. **Corners of Cabinets and Edges of Solid-Wood (Lumber) Members 3/4 Inch (19 mm) Thick or Less**: 1/16 inch (1.5 mm).
2. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch (1.5 mm).

D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.

E. Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

1. Seal edges of openings in countertops with a coat of varnish.

2.6 WOOD CABINETS FOR TRANSPARENT FINISH

A. Quality Standard: Comply with AWI Section 400 requirements for wood cabinets.

B. Grade: Premium.

C. AWI Type of Cabinet Construction: Flush Overlay.

D. Wood Species and Cut for Exposed Surfaces: Select White Maple, plain sliced.

2. Veneer Matching within Room: Provide cabinet veneers in each room or other space from a single flitch with doors, drawer fronts, and other surfaces matched in a sequenced set with continuous match where veneers are interrupted perpendicular to the grain.

E. Semiexposed Surfaces: Provide surface materials indicated below:

1. Surfaces Other Than Drawer Bodies: Match species and cut indicated for exposed surfaces.
2. Drawer Sides and Backs: Solid-hardwood lumber, stained to match species indicated for exposed surfaces.
3. Drawer Bottoms: Thermoset decorative overlay.

F. Provide dust panels of 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers, unless located directly under tops.

2.7 PLASTIC-LAMINATE COUNTERTOPS

A. Quality Standard: Comply with AWI Section 400 requirements for high-pressure decorative laminate countertops.
B. Grade: Custom.

C. High-Pressure Decorative Laminate Grade: HGP.

D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

E. Edge Treatment: 3 mm PVC edging unless otherwise shown.

F. Core Material: Exterior-grade plywood core for tops with sinks.


2.8 FLUSH WOOD PANELING

A. Grade: Premium.

B. Wood Species and Cut: Select White Maple, plain sliced.
   1. Lumber Trim and Edges: Trim and edges indicated shall be solid lumber to match paneling.

C. Matching of Adjacent Veneer Leaves: Book match.

D. Veneer Matching within Panel Face: Center-balance match.

E. Panel-Matching Method: No matching between panels is required. Select and arrange panels for similarity of grain pattern and color between adjacent panels.

F. Fire-Retardant-Treated Paneling: Provide panels consisting of wood veneer and fire-retardant particleboard or fire-retardant medium-density fiberboard. Panels shall have flame-spread index of 25 or less and smoke-developed index of 450 or less per ASTM E 84.

2.9 METAL ACCENTS

A. Incorporate stiffeners or laminated backing using noncombustible materials as needed for strength and rigidity.
   1. Fill space between stiffeners with sound-deadening insulation attached to face sheet with insulation adhesive, unless otherwise indicated.


2.10 METAL TRIM

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Fry Reglet Corporation.
   2. Pittcon Industries.
B. Form trim from metal of type and thickness indicated below. Fabricate to fit tightly to adjoining construction.

1. Aluminum Sheet: 0.063 inch (1.59 mm) or Thickness required to comply with performance requirements.
   a. Finish: Clear anodic.

C. Stainless Steel: Grade and type designated below for each form required:
   1. Sheet, Strip, Plate, and Flat Bar: ASTM A 666, Type 304.
   2. Bars and Shapes: ASTM A 276, Type 304.

2.11 SHOP FINISHING

A. Quality Standard: Comply with AWI Section 1500, unless otherwise indicated.

B. General: Shop finish transparent finished interior architectural woodwork at fabrication shop as specified in this Section.

C. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative overlay.

D. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining, and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523:

1. Grade: Premium.
2. AWI Finish System TR-6: Catalyzed polyurethane.
3. Staining: None required.
4. Filled Finish for Open-Grain Woods: Apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match natural wood.
5. Sheen: Satin, 30-50 gloss units.

PART 3 - EXECUTION

3.1 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas before installation.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION
A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved.

B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.

D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

E. Paneling: Anchor paneling to supporting substrate with concealed panel-hanger clips. Do not use face fastening, unless otherwise indicated.
   1. Install flush paneling with no more than 1/16 inch in 96-inch (1.5 mm in 2400 mm) vertical cup or bow and 1/8 inch in 96-inch (3 mm in 2400 mm) horizontal variation from a true plane.

F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
   1. Install cabinets with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
   2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches (400 mm) o.c. with No. 10 wafer-head screws sized for 1-inch (25-mm) penetration into wood framing, blocking, or hanging strips.

G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
   1. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
   2. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
   3. Secure backsplashes to tops with concealed metal brackets at 16 inches (400 mm) o.c. and to walls with adhesive.
   4. Calk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."
   5. Mount countertop supports for open counters in locations shown on drawings.
   6. Install recycling grommets and labels in locations shown on drawings.

H. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

3.3 INSTALLATION OF COUNTERTOPS

A. General: Install countertops by adhering to supports with water-cleanable epoxy adhesive.

B. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right
angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

C. Install backsplash and end splash by adhering to wall with water-cleanable epoxy adhesive and to countertops with stone adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears.

D. Provide grommets in tops where electrical devices exist below the top.

3.4 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 06402
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes glass-fiber reinforced plastic (FRP) wall paneling and trim accessories.

B. Related Sections:
   1. Division 6 Section "Rough Carpentry" for wood furring for installing plastic paneling.
   2. Division 10 Section "Impact-Resistant Wall Protection" for corner guards installed over plastic paneling.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. LEED Submittals:
   1. Product Data for Credit EQ 4.1: For adhesive and sealants, including printed statement of VOC content and chemical components.

C. Samples for Initial Selection: For plastic paneling and trim accessories.

D. Samples for Verification: For plastic paneling and trim accessories, in manufacturer's standard sizes.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain plastic paneling and trim accessories from single manufacturer.

B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

   1. Flame-Spread Index: 25 or less.
   2. Smoke-Developed Index: 450 or less.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install plastic paneling until spaces are enclosed and weathertight and temporary HVAC system is operating and maintaining ambient
temperature and humidity conditions at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 PLASTIC SHEET PANELING

A. General: Gelcoat-finished, glass-fiber reinforced plastic panels complying with ASTM D 5319.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Kemlite Company Inc.
   b. Marlite.
   c. Nudo Products, Inc.

2. Nominal Thickness: Not less than 0.12 inch (3.0 mm).


4. Color: As selected by Architect from manufacturer's full range.

2.2 ACCESSORIES

A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, outside corners, and caps as needed to conceal edges.

1. Color: As selected by Architect from manufacturer's full range.

B. Exposed Fasteners: Nylon drive rivets recommended by panel manufacturer.

C. Adhesive: As recommended by plastic paneling manufacturer.

1. VOC Content: 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. Sealant: Single-component, mildew-resistant, acid-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Division 7 Section “Joint Sealants.”

1. VOC Content: 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrate by sanding high spots and filling low spots as needed to provide flat, even surface for panel installation.

B. Clean substrates of substances that could impair bond of adhesive, including oil, grease, dirt, and dust.

C. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

D. Lay out paneling before installing. Locate panel joints to provide equal panels at ends of walls not less than half the width of full panels.
   1. Mark plumb lines on substrate at panel joint locations for accurate installation.
   2. Locate trim accessories to allow clearance at panel edges according to manufacturer's written instructions.

3.3 INSTALLATION

A. Install plastic paneling according to manufacturer's written instructions.

B. Install panels in a full spread of adhesive.

C. Install trim accessories with adhesive. Do not fasten through panels.

D. Fill grooves in trim accessories with sealant before installing panels and bed inside corner trim in a bead of sealant.

E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.

F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION 06640