

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Wood blocking and nailers.
2. Plywood backing panels.

B. Related Requirements:

1. Section 099100 "Painting" for intumescent paint for plywood backing panels.

1.3 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 copies of warranties from chemical treatment manufacturers for each type of treatment.

- B. Fastener Patterns: Full-size templates for fasteners in exposed framing.

1.4 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.

1.5 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

2.1 WOOD PRODUCTS, GENERAL

- A. 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. 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.
 - 3. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWWA 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. Do not use inorganic boron (SBX) for sill plates.
- 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.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood 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.

2.3 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. Furring.
- B. 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.

- C. 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.

2.4 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.
 - 1. Backing panels must be painted on ALL SIX (6) sides with intumescent paint as specified in Section 099100.

2.5 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.

PART 3 - EXECUTION

3.1 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 furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.
- C. 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.
- D. 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.
- E. Comply with AWP A M4 for applying field treatment to cut surfaces of preservative-treated lumber.

- F. 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.
- G. 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.
- H. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 - 1. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding or 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.

3.3 PROTECTION

- A. 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 061000

SECTION 061100 – STRUCTURAL WOOD FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. All work this section is part of Alternate Number One.
- B. Section Includes:
 - 1. Framing with dimension lumber.
 - 2. Structural Wood Decking
- C. Related Requirements:
 - 1. Division 01 Section "Quality Requirements" for independent testing agency procedures and administrative requirements.

1.3 PERFORMANCE REQUIREMENTS

- A. The basis of design for proprietary products are as specified in this specification or the contract documents. Product substitutions must have capacities equal to or greater than values calculated for each specific condition calculated when calculated using the data in the ESR report associated with the product and in accordance with the appropriate design procedure and standards required by the building code. See requirements for substitution submittals.

1.4 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber:
 - 1. Beams: Lumber of 2 inches nominal or greater but less than 5 inches in least dimension.
 - 2. Columns: Lumber of 2 inches nominal or greater but less than 7 inches in least dimension.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. SPIB: The Southern Pine Inspection Bureau.

1.5 SUBMITTALS

- A. Contractor's Statement of Responsibility Per Division 01 Section "Quality Requirements"
- B. Product Data
 - 1. Dimensional Lumber
 - a. For each size and grade. Indicate species and grade.
 - 2. Metal Framing Anchors and associated proprietary fasteners
 - 3. Nails
 - 4. Wood Screws
 - 5. Lag Bolts
 - 6. Bolts
 - 7. Post installed structural anchors: See specification section 050520
 - 8. Wood Preservative treated wood
 - a. 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.
 - b. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 - c. Include copies of warranties from chemical treatment manufacturer
- C. Evaluation Reports: For the following, from ICC-ESR:
 - 1. Wood-preservative-treated wood.
 - 2. Power-driven fasteners.
 - 3. Metal framing anchors.
 - 4. Post installed structural anchors: See specification section 050520
- D. Certificates of Inspection: Issued by lumber grading agency for exposed wood products not marked with grade stamp.
- E. Alternates to the Basis of Design:
 - 1. Alternates to the basis of design must be products with ICC-ESR reports for the proposed product covering the specific conditions present for the use of the product on this project.
 - 2. Any increase in material labor cost resulting from the substitution shall be the responsibility of the contractor.
- F. Qualification Data:
 - 1. Post Installed Structural Anchor Installer per specification section 050520

1.6 QUALITY ASSURANCE

- A. Post Installed Structural Anchor Installer: See specification section 050520 for requirements

- B. 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.
- C. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.

1.7 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

2.1 WOOD PRODUCTS, GENERAL

- A. 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, 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.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A 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. Do not use inorganic boron (SBX) for sill plates.
 - 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. Do not mark lumber with treatment. Omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood plates, sills, blocking, and similar members in contact with masonry or concrete.
 - 2. Wood framing attached directly to the interior of below-grade exterior masonry or concrete walls.
 - 3. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
 - 4. Wood floor plates that are installed over concrete slabs-on-grade.
 - 5. Wood exposed to weather

2.3 DIMENSION LUMBER FRAMING

A. Floor Joists and Girders

- 1. Grade: Select Structural
- 2. Species:
 - a. Southern pine; SPIB.

2.4 WOOD DECKING

A. General

- 1. Comply with applicable provisions of AITC 112 for minimum board lengths and associated percentages for controlled random layup.

B. Deck Boards

- 1. Grade: Select Structural
- 2. Species:
 - a. Southern pine; SPIB.
- 3. Size: 3x6 (nominal), square edged, dressed ,S4S

2.5 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 complying with ASTM A 153/A 153M or Type 304 stainless steel unless specifically noted otherwise.

B. Nails: 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 (ASTM F 568M, Property Class 4.6); with ASTM A 563 hex nuts and ASTM F844 flat washers.
- G. Post installed structural anchors: See specification section 050520

2.6 METAL FRAMING ANCHORS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product.
- B. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer that meet or exceed those **of basis-of-design products**. 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 and documented in an evaluation report.
- C. Acceptable Manufacturers:
 - 1. Simpson Strongtie
 - 2. USP Structural Connectors
 - 3. Advanced Connector Systems
- 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.

2.7 MISCELLANEOUS MATERIALS

- A. Field Treatment materials: Product containing Copper naphthenate produced for field treatment of cut edges of treated lumber and complying with AWPA M4.

PART 3 - EXECUTION

3.1 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.
- B. Set all members with crown up.
- C. All plies of multi-ply members shall be glued together with adhesive. Unless indicated otherwise each ply shall be fastened to the previous ply with (2)-rows of 16D "sinker" nails at 9" O.C.
- D. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

- E. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- F. Do not splice structural members between supports unless otherwise indicated.
- G. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- H. All blocking to be installed between framing members shall be cut to fit snug and in direct contact with surrounding framing members.
- I. 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.
- J. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use copper naphthenate for items not continuously protected from liquid water
- K. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- L. 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.
- M. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 - 1. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

3.2 JOIST FRAMING INSTALLATION

- A. General: Unless noted otherwise install as follows:
 - 1. Install floor joists with crown edge up
 - 2. Field treat all cut edges of treated lumber
 - 3. Space joists not to exceed 16" O.C.
 - 4. Support ends of each member to bear full width of supporting member and anchor as follows:
 - a. Where supported on wood members, by using metal framing anchors.
 - b. Where framed into wood supporting members, by using metal joist hangers.
 - 5. Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 36 inches.
 - 6. Do not notch in middle third of joists; limit notches to one-sixth depth of joist, one-third at ends. Do not bore holes larger than 1/3 depth of joist; do not locate closer than 2 inches from top or bottom.
 - 7. Provide solid blocking of 2-inch nominal thickness by depth of joist at ends of joists unless nailed to header or band.

8. Lap members framing from opposite sides of beams, girders, or partitions not less than 4 inches or securely tie opposing members together. Provide solid blocking of 2-inch nominal thickness by depth of joist over supports.
9. Provide bridging between joists of type indicated below, at the midspan of joist and at intervals not exceeding 96 inches o.c., and as required for sheathing installation requirements.
 - a. Solid 2x wood blocking of depth matching framing for use when blocking is required for sheathing installation requirements.
 - b. Diagonal wood bridging formed from bevel-cut, 1-by-3-inch nominal size lumber, double-crossed and nailed at both ends to joists.
 - c. Steel bridging installed to comply with bridging manufacturer's written instructions.

3.3 DECKING INSTALLATION

A. General

1. Field treat all cut edges of treated lumber
2. Butt adjacent deck boards tight
3. Locate end joints for a "controlled random layout" similar to AITC 112
4. Locate all end joints on a support (do not cantilever)
5. Pre-drill for fastening with wood screws
6. Chalk lines and install fasteners in a uniform and linear pattern.

3.4 FASTENERS

A. Lag screws: Shall be installed as follows:

1. A predrilled clearance hole with diameter equal to 100% of the lag screw shank diameter shall be drilled to a depth equal to the unthreaded portion of the shank.
2. A predrilled lead hole with diameter equal to 75% of the lag screw shank diameter shall be drilled to a depth of the lag screw embedment.
3. The lag screw shall be inserted into the hole with a turning action and not a driving action.
4. Where not specifically indicated otherwise the minimum embedment into the main member shall be four times the lag screw shank diameter.
5. Holes in steel elements of the connection shall have a hole diameter of 1/16" diameter greater than the fastener diameter for fasteners 3/8" or greater in diameter, and 1/32" diameter greater than the fastener diameter for fasteners less than 3/8" in diameter.

B. Wood screws: Shall be installed as follows:

1. A predrilled lead hole with diameter equal to 70% of the screw root diameter shall be drilled to a depth of the wood screw embedment.
2. The wood screw shall be inserted into the hole with a turning action and not a driving action.
3. Where not specifically indicated otherwise the minimum embedment into the main member shall be six times the wood screw diameter.
4. Holes in steel elements of the connection shall have a hole diameter of 1/32" diameter greater than the fastener diameter.

C. Bolts: Shall be installed as follows:

1. Holes in wood members shall be drilled with a diameter to match the bolt diameter.

2. Holes in steel elements of the connection shall have a hole diameter of 1/16" diameter greater than the fastener diameter for fasteners 3/8" or greater in diameter, and 1/32" diameter greater than the fastener diameter for fasteners less than 3/8" in diameter.
3. A flat washer shall be provided under the head or the nut where the head or nut is bearing on the wood surface.
4. A flat washer shall be provided under the head or the nut when the head or the nut bears on a steel element and will be the turned element when tightening.

3.5 METAL FRAMING ANCHORS

- A. Install metal framing anchors to comply with manufacturer's written instructions.
- B. Install fasteners through each anchor hole unless noted otherwise.
- C. Install fasteners of max number and size indicated in manufacturer's data unless noted otherwise.

3.6 FIELD QUALITY CONTROL

- A. Testing and Inspection: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports in accordance with the schedule of special inspections.
- B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.
- C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.7 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 061100

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Gypsum wall sheathing.
- B. Related Sections:
 - 1. Division 05 Section "Cold-Formed Metal Framing" for exterior steel studs that support sheathing.
 - 2. Division 07 Section "Fluid Applied Membrane Air Barriers" for air and moisture barriers applied over sheathing.

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.

PART 2 - PRODUCTS

2.1 WALL SHEATHING

- A. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177/1177M.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. CertainTeed Corporation; GlasRoc.
 - b. G-P Gypsum Corporation; Dens-Glass Gold.
 - c. National Gypsum Company; Gold Bond e(2)XP.
 - 2. Type and Thickness: Type X, 5/8 inch thick.
 - 3. Size: 48 by 96 inches for vertical installation.

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 and wall sheathing, 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. 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 thick, attach sheathing to comply with ASTM C 1002.
 - 2. For steel framing from 0.033 to 0.112 inch thick, attach sheathing to comply with ASTM C 954.

2.3 MISCELLANEOUS MATERIALS

- A. Flexible Flashing: As specified in Division 07 Section "Fluid Applied Membrane 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.
 - 2. Install boards with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
 - 3. Install boards with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.

- 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 o.c. and set back a minimum of 3/8 inch from edges and ends of boards.
 - 2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.

END OF SECTION 061600

SECTION 064023 - 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 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior standing and running trim.
 - 2. Interior ornamental woodwork.
 - 3. Wood paneling.
 - 4. Decorative metallic laminate.
 - 5. Plastic-laminate cabinets.
 - 6. Plastic-laminate countertops.
 - 7. Quartz-surfacing-material countertops.
 - 8. Stainless steel countertops.
 - 9. Shop finishing of interior woodwork.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated, including finishing materials and processes.
- B. 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 and other items installed in architectural woodwork.
- C. Samples for Verification:
 - 1. Lumber with shop-applied finish, not less than 50 sq. in., for each species and cut, finished on 1 side and 1 edge.
 - 2. Veneer-faced panel products with shop-applied finish, 8 by 10 inches, for each species and cut. Include at least one face-veneer seam and finish as specified.
 - 3. Plastic laminates, 8 by 10 inches, for each type, color, pattern, and surface finish.
 - 4. Quartz materials, 6 inches square.
 - 5. Exposed cabinet hardware and accessories, one unit for each type and finish.

1.4 QUALITY ASSURANCE

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

- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup on site to include wood paneling, trim and hardware to illustrate coordination of materials and finishes. Size, materials and location to be as directed by Architect.
 - 2. Subject to compliance with requirements, 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.

PART 2 - PRODUCTS

2.1 FABRICATORS

- A. Fabricators for Interior Architectural Woodwork: Subject to compliance with requirements, provide interior architectural woodwork by one of the following:
 - 1. JMO Woodworks, 70 Romney Street, Charleston, SC 29403; (843) 577-7352.
 - 2. Coastal Millwork, Summerville, SC (843) 873-9192.
 - 3. Low Country Case and Millwork, 3270 Benchmark Drive, Ladson, SC 29456; (843) 797-0881.
 - 4. Charleston Woodworks, Charleston, SC; (843) 744-0016.

2.2 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 Products: Comply with the following:
 - 1. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
 - 2. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.
- C. High-Pressure Decorative Laminate (PL-1): NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.

1. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products by **Wilsonart, LLC** or Architect approved product by one of the following manufacturers:
 - a. Formica Corporation.
 - b. Arborite.
 2. Colors: As indicated on Finish Schedule.
- D. Decorative Metallic Laminate (DM-1): NEMA LD 3 and EN 438-2, vertical grade.
1. Basis-of-Design Product: Subject to compliance with requirements, provide **Metal-Art Classics by Lamin-Art** or Architect approved product by one of the following manufacturers:
 - a. Formica Corporation.
 - b. Wilsonart, LLC.
 2. Colors: As indicated on Finish Schedule.
- E. Quartz Surfacing Material (SSF-1): Homogeneous solid sheets of quartz chips and filled plastic resin, without a precoated finish.
1. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products by **Wilsonart, LLC** or Architect approved product by one of the following manufacturers:
 - a. Zodiaq; DuPont Polymers.
 - b. LG Hausys.
 2. Colors: As indicated on Finish Schedule.

2.3 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 08 Section "Door Hardware."
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening, self-closing.
- C. Door Silencers: Plastic; provide at all cabinet doors.
- D. Wire Pulls: Bow handle, satin stainless steel; Mockett DP33B or equal.
- E. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081; or hole/pin system in accordance with AWI Standards.
- F. Drawer Slides: Side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, self-closing; by one of the following manufacturers:
 1. Grass America, Inc.
 2. Hardware Resources.
 3. Julius Blum, Inc..
- G. Door Locks: BHMA A156.11, E07121.
- H. Drawer Locks: BHMA A156.11, E07041.

- I. Grommets for Cable Passage through Countertops: 2-inch OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.
 - 1. Product: Subject to compliance with requirements, provide "SG series" by Doug Mockett & Company, Inc.
- J. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
 - 2. Satin Stainless Steel: BHMA 630.
- K. 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: Softwood or hardwood 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. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- D. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Wood Glues: 30 g/L.
 - 2. Contact Adhesive: 250 g/L.

2.5 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Provide Premium grade interior woodwork complying with the referenced quality standard.
- B. 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.
- C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - 1. Edges of Rails and Similar Members More Than 3/4 Inch Thick: 1/8 inch.
 - 2. Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch.
- D. Complete fabrication, including assembly and finishing, 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.

2.6 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

- A. Grade: Premium.
- B. Wood Species and Cut: Plain sliced walnut.
- C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- D. Assemble moldings in plant to maximum extent possible. Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.

2.7 WOOD PANELING (WD-1)

- A. Grade: Premium.
- B. Wood Species and Cut: Plain Sliced Walnut Plank by Mortensen Woodwork, Inc. or Architect approved comparable product.
- C. Substrate: ½- inch thick MDF.
- D. Joints: Butt joints.

2.8 PLASTIC-LAMINATE CABINETS

- A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.
- B. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
 - 1. Horizontal Surfaces Other Than Tops: HGS.
 - 2. Postformed Surfaces: HGP.
 - 3. Vertical Surfaces: VGS.
 - 4. Edges: PVC molding matching laminate in color, pattern, and finish. Provide minimum 3 mm PVC at door and drawer edges; provide minimum .5 mm PVC at cabinet ends.
- C. Materials for Semiexposed Surfaces: Thermoset decorative overlay.
- D. Colors: As indicated on Finish Schedule.

2.9 PLASTIC-LAMINATE COUNTERTOPS

- A. Grade: Custom.
- B. High-Pressure Decorative Laminate Grade: HGS or HGP, as indicated on Drawings.
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As indicated by manufacturer's designations.
- D. Edge Treatment: As indicated.

- E. Core Material: Veneer core plywood or medium-density fiberboard.
- F. Core Material at Sinks: Exterior-grade, veneer core plywood.
- G. Backer Sheet: Provide plastic-laminate backer sheet, Grade BKL, on underside of countertop substrate.

2.10 QUARTZ-SURFACING-MATERIAL COUNTERTOPS

- A. Grade: Custom.
- B. Quartz Surfacing-Material Thickness: 3 cm.
- C. Fabricate tops in one piece, unless otherwise indicated. Comply with manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
- D. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
 - 1. Provide Architect's selections as indicated on drawings.
- E. Minimize joints in quartz surfacing tops. Comply with material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
- F. Colors, Patterns, and Finishes: As indicated on Finish Schedule.

2.11 STAINLESS STEEL COUNTERTOPS AT CONCESSIONS

- A. Stainless-Steel Countertops: Made from stainless-steel sheet, not less than 0.062-inch nominal thickness, with No. 4 satin finish.
 - 1. Extend top down 1 inch at edges with a 1/2-inch return flange under frame. Apply heavy coating of heat-resistant, sound-deadening mastic to undersurface.
 - 2. Form backsplash coved to and integral with top surface.
 - 3. Provide raised (marine) edge around perimeter of countertops containing sinks; pitch two ways to sink to provide drainage without channeling or grooving.
 - 4. Punch holes for service fittings at factory.
 - 5. Weld shop-made joints.
 - 6. Where field-made joints are required, provide hairline butt-joints mechanically bolted through continuous channels welded to underside at edges of joined ends. Keep field jointing to a minimum.
 - 7. After fabricating and welding, grind surfaces smooth and polish as needed to produce uniform, directionally textured finish with no evidence of welds and free of cross scratches. Passivate and rinse surfaces; remove embedded foreign matter and leave surfaces clean.

2.12 SHOP FINISHING

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

- C. 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: System - 5, conversion varnish or System – 11, catalyzed polyurethane.
 - 3. Staining: Match approved sample for color to match flush wood doors.
 - 4. 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.
- 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 for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- E. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 96 inches long, except where shorter single-length pieces are necessary.
 - 1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base, if finished.
 - 2. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches.
- 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 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 o.c. with No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.

- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Align adjacent quartz surfacing material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 3. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."
- 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 WOOD PANELING

- A. Grade: Install paneling to comply with same grade as paneling to be installed.
- B. Install paneling level, plumb, true, and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches. Install with no more than 1/16 inch in 96-inch vertical cup or bow and 1/8 inch in 96-inch horizontal variation from a true plane.
- C. Complete finishing work specified in this Section to extent not completed at shop or before installation of paneling. Fill nail holes with matching filler where exposed.

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 woodwork on exposed surfaces.

END OF SECTION 064023