

---

SECTION 06 10 00  
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Section specifies wood blocking, nailers, and rough hardware.
- B. Blocking details for heavy wall-mounted equipment.

1.2 RELATED WORK

- A. Self-drilling Metal Fasteners: Provide in conformance with Section 05 05 23 - Metal Fastening.
- B. Blocking for casework: Architectural Woodwork: Section 06 40 00.
- C. Gypsum board: Section 09 29 00, GYPSUM BOARD.
- D. Roof Curbs: DIVISION 23.

1.3 PERFORMANCE REQUIREMENTS

- A. Wood installed at roof shall meet requirements of FM-49.
- B. Wind Loads: As specified in Section 01 83 16.13 - Exterior Wind Enclosure Requirements.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings showing framing connection details, fasteners, connections and dimensions.
- C. Wood Treatment: Submit statement by manufacturer of wood treatments that the treated wood products will not corrode or otherwise deteriorate common metal fasteners (with non-proprietary coatings) under the conditions of proposed service.
- D. Certificates:
  - 1. Furnish affidavit stating that materials have been treated in accordance with specifications and that moisture content, after treatment, does not exceed specified limits; include chemical used and retention obtained for pressure treated material. "Quality Mark" of association having jurisdiction over the treatment will be accepted instead of certification.
  - 2. Furnish copies of inspection issued by association having species jurisdiction and moisture content certification, if requested by Resident Engineer.
- E. LEED:
  - 1. Product Data for Credit IEQ 4.4: For composite wood products and adhesives, documentation indicating that product contains no urea formaldehyde.

2. Certificates for Credit MR 7: Chain-of-custody certificates indicating that products specified to be made from certified wood comply with forest certification requirements. Include documentation, including certified custody number, that manufacturer is certified for chain of custody by an FSC-accredited certification body. Include statement indicating cost for each certified wood product.

## 1.5 QUALITY ASSURANCE

- A. Qualifications: Provide lumber and other materials grade-marked or otherwise certified for quality by agency or association having species jurisdiction.
  1. All plywood panels to bear APA markings identifying all specified 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. Treatment Marking: Each piece of treated material to be stamped with indelible ink of an ALSC accredited 3rd party inspection agency having follow-up inspection service at treating plant. Mark to include the following according to treatment:
  1. Fire Retardant Treatment:
    - a. Logo of inspection agency.
    - b. Treatment product manufacturer.
    - c. Location of treating plant.
    - d. Surface burning characteristics.
    - e. Conformance to AWPA U1, Commodity Specification H.
    - f. Notation "KDAT" indicating kiln dried after treatment.
  2. Preservative Treatment:
    - a. Logo of inspection agency.
    - b. Conformance to AWPA U1.
    - c. AWPA "Use Category
    - d. Retention of preservative.
    - e. Purpose for which product has been treated.
    - f. Notation "Dry" or "KDAT", indicating drying process after treatment.
- D. Grade Marking: All structural treated lumber and softwood plywood to be grade stamped as specified elsewhere.
- E. Fastening Schedule for Framing and Sheathing: Not less than recommended by Code, and IBC Table 2304.9.1 and as required to comply with PERFORMANCE REQUIREMENTS above

## 1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver treated materials bundled and marked to identify treatment.
- B. Store treated materials for easy identification and protect from moisture; provide well-ventilated dry storage.
- C. Protect lumber and other products from dampness both during and after delivery at site.
- D. Pile lumber in stacks in such manner as to provide air circulation around surfaces of each piece.
- E. Stack plywood and other board products so as to prevent warping.

- F. Locate stacks on well drained areas, supported at least 150 mm (6 inches) above grade and cover with well ventilated sheds having firmly constructed over hanging roof with sufficient end wall to protect lumber from driving rain.
- G. Handle treated materials in accordance with AWPAs standard M4. In addition to material used in treatment, furnish additional material for field treatment of cuts.

#### 1.7 REFERENCE STANDARDS (Latest edition unless otherwise noted)

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only.
- B. American Forest and Paper Association (AFPA):
  - 1. National Design Specification for Wood Construction
  - 2. NDS Conventional Wood Frame Construction
- C. American Society of Mechanical Engineers (ASME):
  - 1. B18.2.1A Square and Hex Bolts and Screws
  - 2. B18.2.2 Square and Hex Nuts
  - 3. B18.6.1 Wood Screws
  - 4. B18.6.4 Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws
- D. American Plywood Association (APA):
  - 1. E30 Engineered Wood Construction Guide
- E. American Society for Testing And Materials (ASTM):
  - 1. A47/A47M Ferritic Malleable Iron Castings
  - 2. A48/A48M Gray Iron Castings
  - 3. A653/A653M Steel Sheet Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot Dip Process
  - 4. C954 Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs from 0.033 inch (2.24 mm) to 0.112 inch (2.84 mm) in thickness
  - 5. C1002 Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Metal Studs
  - 6. D143 Small Clear Specimens of Timber, Method of Testing
  - 7. D2559 Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions
  - 8. E 84 Test Method for Surface Burning Characteristics of Building Materials.
  - 9. D2898 Accelerated Weathering of Fire Retardant Treated Wood for Fire Testing.
  - 10. D3201 Hygroscopic Properties of Fire-Retardant Wood and Wood-Based Products
  - 11. D5664 Evaluating the Effects of Fire-Retardant Treatments and Elevated Temperatures on Strength Properties of Fire-Retardant Treated Lumber
  - 12. D6841 Calculating Design Value Treatment Adjustment Factors for Fire-Retardant-Treated Lumber
  - 13. F844 Washers, Steel, Plain (Flat) Unhardened for General Use
  - 14. F1667 Nails, Spikes, and Staples
- F. American Wood- Protection Association (AWPA) (formerly American Wood- Preservers' Association)U1 Use Category System, latest edition

- 
- G. Factory Mutual (FM)
    - 1. FM 1-49 FM Global Property Loss Prevention Data Sheet.
  - H. Federal Specifications (Fed. Spec.):
    - 1. MM-L-736C Lumber; Hardwood
  - I. Commercial Item Description (CID):
    - 1. A-A-55615 Shield, Expansion (Wood Screw and Lag Bolt Self Threading Anchors)
  - J. U.S. Department of Commerce Product Standard (PS)
    - 1. PS 1-95 Construction and Industrial Plywood
    - 2. PS 20-05 American Softwood Lumber Standard

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Moisture Content: After treatment, the maximum moisture content of wood materials shall not exceed the following:
  - 1. Lumber, 2 Inches and Less in Thickness: 19 percent.
  - 2. Plywood: 15 percent.
- B. All wood and plywood used at the interior of the building shall be fire-retardant.
- C. All wood and plywood used at the exterior of the building shall be preservative treated.
- D. Flame Spread: Fire retardant treated materials to have flame spread rating of 25 or less in a 30 minute test with no evidence of significant progressive combustion, ASTM E 84; additionally, flame front not to progress more than 10-1/2 feet beyond center line of burner at any time.
- E. Smoke Developed: Interior finish and trim materials, where specified, to have fire retardant treatment conforming to above requirements for "Flame Spread" plus smoke developed rating of 25 or less, ASTM E 84.
- F. Chemicals used in fire-retardant treatment meet or produce the following results:
  - 1. Non-corrosive: No corrosion of metals due to treatment; halogen and sulfate free.
  - 2. Low Hygroscopic Level: Treated wood to remain dry (below fiber saturation) when exposed to air with relative humidity of 95 percent.
  - 3. Transparent Finish: Treated wood to be suitable to receive transparent (clear) finishes including stains, sealers, and varnishes specified elsewhere.
  - 4. Appearance: Treatment does not affect appearance of wood; sticker marks accepted; see Part 3 for oversize requirements.
  - 5. The fire retardant chemical shall be effective against termites and fungal decay and be registered for use as a wood preservative by the U.S. Environmental Protection Agency.
- G. Composite wood products and adhesives used at the interior of the building shall not contain urea formaldehyde.

- 
- H. Rough Carpentry at Roof: Comply with recommendations of NRCA.

2.2 WOOD PRODUCTS, GENERAL

- A. Certified Wood: Lumber and plywood shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

2.3 LUMBER

- A. Unless otherwise specified, each piece of lumber bear grade mark, stamp, or other identifying marks indicating grades of material, and rules or standards under which produced.

1. Identifying marks in accordance with rule or standard under which material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification.
2. Inspection agency for lumber approved by the Board of Review, American Lumber Standards Committee, to grade species used.

- B. Lumber Other Than Structural:

1. Unless otherwise specified, species graded under the grading rules of an inspection agency approved by Board of Review, American Lumber Standards Committee.
2. Furring, blocking, nailers and similar items 100 mm (4 inches) and narrower Standard Grade; and, members 150 mm (6 inches) and wider, Number 2 Grade.

- C. Sizes:

1. Conforming to Prod. Std., PS20.
2. Size references are nominal sizes, unless otherwise specified, actual sizes within manufacturing tolerances allowed by standard under which produced.

- D. Moisture Content:

1. At time of delivery and maintained at the site.
2. Boards and lumber 50 mm (2 inches) and less in thickness: 19 percent or less.
3. Lumber over 50 mm (2 inches) thick: 25 percent or less.

2.4 PLYWOOD

- A. Comply with Prod. Std., PS 1.

- B. Bear the mark of a recognized association or independent inspection agency that maintains continuing control over quality of plywood which identifies compliance by veneer grade, group number, span rating where applicable, and glue type.

- C. Interior: Minimum 9 mm (11/32 inch) thick unless otherwise shown..

---

## 2.1 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: Treat with waterborne preservatives with retention values as indicated below in accordance with AWWA U1 Commodity Specification A for lumber and Commodity Specification F for plywood:
1. Provide for items used inside the moisture barrier of the structure
    - a. Lumber: AWWA Use Category UC2 or higher, Commodity Specification A.
    - b. Plywood: AWWA Use Category UC2 or higher, Commodity Specification F.
  2. Provide for exterior items 18 inches or more above grade.
    - a. Lumber: AWWA Use Category UC3B or higher, Commodity Specification A.
    - b. Plywood: AWWA Use Category UC3B or higher, Commodity Specification F.

## 2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where Fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process:
1. Use treatment that does not promote corrosion of metal fasteners.
  2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. Application: Treat all rough carpentry unless otherwise indicated.

## 2.3 ROUGH HARDWARE

- A. General: Unless otherwise indicated or specified, rough hardware shall be of the type and size necessary for the project requirements. Sizes, types, and spacing of fastenings of manufactured building materials shall be as recommended by the product manufacturer unless otherwise indicated or specified. Rough hardware exposed to interior fire treated lumber shall be zinc-coated.
- B. Miscellaneous Bolts: Expansion Bolts: C1D, A-A-55615; lag bolt, long enough to extend at least 65 mm (2-1/2 inches) into masonry or concrete. Use 13 mm (1/2 inch) bolt unless shown otherwise.
- C. Washers:
1. ASTM F844.
  2. Use zinc or cadmium coated steel or cast iron for washers exposed to weather.
- D. Screws:
1. Wood to Wood: ANSI B18.6.1 or ASTM C1002.
  2. Wood to Steel: ASTM C954, or ASTM C1002.

- 
- a. Self-drilling Metal Fasteners: Provide in conformance with Section 05 05 23 - Metal Fastening.
- E. Nails:
- 1. Size and type best suited for purpose unless noted otherwise.
  - 2. ASTM F1667:
    - a. Common: Type I, Style 10.
    - b. Concrete: Type I, Style 11.
    - c. Barbed: Type I, Style 26.
    - d. Masonry: Type I, Style 27.
    - e. Use special nails designed for use with ties, strap anchors, framing connectors, joists hangers, and similar items. Nails not less than 32 mm (1- 1/4 inches) long, 8d and deformed or annular ring shank.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION OF FRAMING AND MISCELLANEOUS WOOD MEMBERS

A. Conform to applicable requirements of the following:

- 1. AFPA National Design Specification for Wood Construction for timber connectors.
- 2. AFPA WCD-number 1, Manual for House Framing for nailing and framing unless specified otherwise.
- 3. APA for installation of plywood or structural use panels.

B. Fasteners:

- 1. General: Comply with the requirements in Quality Assurance above and requirements below. Where requirements disagree use the more stringent requirement
- 2. Nails.
  - a. Nail in accordance with the Recommended Nailing Schedule as specified in AFPA Manual for House Framing where detailed nailing requirements are not specified in nailing schedule. Select nail size and nail spacing sufficient to develop adequate strength for the connection without splitting the members.
  - b. Use special nails with framing connectors.
  - c. Use eight penny or larger nails for nailing through 25 mm (1 inch) thick lumber and for toe nailing 50 mm (2 inch) thick lumber.
  - d. Use 16 penny or larger nails for nailing through 50 mm (2 inch) thick lumber.
  - e. Select the size and number of nails in accordance with the Nailing Schedule except for special nails with framing anchors.
- 3. Bolts:
  - a. Fit bolt heads and nuts bearing on wood with washers.
  - b. Countersink bolt heads flush with the surface of nailers.
  - c. Embed in concrete and solid masonry or use expansion bolts. Special bolts or screws designed for anchor to solid masonry or concrete in drilled holes may be used.
  - d. Use toggle bolts to hollow masonry or sheet metal.

- 
- e. Use bolts to steel over 2.84 mm (0.112 inch, 11 gages) in thickness. Secure wood nailers to vertical structural steel members with bolts, placed one at ends of nailer and 600 mm (24 inch) intervals between end bolts. Use clips to beam flanges.
- 4. Drill Screws to steel less than 2.84 mm (0.112 inch) thick.
    - a. ASTM C1002 for steel less than 0.84 mm (0.033 inch) thick.
    - b. ASTM C 954 for steel over 0.84 mm (0.033 inch) thick.
  - 5. Power actuated drive pins may be used where practical to anchor to solid masonry, concrete, or steel.
  - 6. Do not anchor to wood plugs or nailing blocks in masonry or concrete. Use metal plugs, inserts or similar fastening.
  - 7. Screws to Join Wood:
    - a. Where shown or option to nails.
    - b. ASTM C1002, sized to provide not less than 25 mm (1 inch) penetration into anchorage member.
    - c. Spaced same as nails.
- C. Blocking Nailers, and Furring:
- 1. Provide wood blocking, nailers, and furring as shown on drawings, described in specifications, or as required; verify requirements. Metal blocking where shown, provided under Division 9. Include blocking and nailers as required by the following:
    - a. Membrane roofing and flashing work; provide wood cants and nailers where shown; fiber cants provided by roofer.
    - b. Wall mounted equipment shown requiring wood blocking.
  - 2. Install in accurate locations and elevations for attachment of materials indicated on drawings and specified elsewhere.
  - 3. Use longest lengths practicable.
  - 4. Use fire retardant treated wood blocking, unless indicated otherwise.
  - 5. Layers of Blocking or Plates:
    - a. Stagger end joints between upper and lower pieces.
    - b. Nail at ends and not over 600 mm (24 inches) between ends.
    - c. Stagger nails from side to side of wood member over 125 mm (5 inches) in width.

--- E N D ---



---

**SECTION 06 16 00  
SHEATHING****PART 1 - GENERAL****1.1 SUMMARY****A. Section Includes:**

1. Exterior Gypsum Sheathing with fiberglass mat reinforced faces.

**B. Related Sections:**

1. Unit Masonry: Section 04 20 00.
2. Cold-Formed Metal Framing: Section 05 40 00.
3. Pressure treated wood: Section 06 10 00 - Rough Carpentry.
4. Cementitious Sheathing: Section 06 16 63.
5. Air barrier and vapor retarder: Section 07 27 30 - Air Weather Barrier (AWB).
6. Joint Sealants: Section 07 92 00.
7. Non-structural Metal Framing: Section 09 22 16.

**1.2 REFERENCE STANDARDS (Latest edition unless otherwise noted)****A. American Society for Testing and Materials (ASTM):**

- |       |                                                                                                                                                                                               |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B117  | Standard Practice for Operating Salt Spray (Fog) Apparatus                                                                                                                                    |
| C473  | Standard Test Methods for Physical Testing of Gypsum Panel Products                                                                                                                           |
| C954  | Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness |
| C1177 | Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing                                                                                                                    |
| C1396 | Standard Specification for Gypsum Board                                                                                                                                                       |
| C1658 | Standard Specification for Glass Mat Gypsum Panels                                                                                                                                            |
| D3273 | Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.                                                                                 |
| E84   | Test Method for Surface Burning Characteristics of Building Materials.                                                                                                                        |
| E119  | Standard Test Methods for Fire Tests of Building Construction and Materials                                                                                                                   |

**B. Gypsum Association (GA):**

- |        |                                                  |
|--------|--------------------------------------------------|
| GA-253 | Application of Gypsum Sheathing, latest edition. |
|--------|--------------------------------------------------|

**C. Underwriters Laboratories Inc. (UL):**

- |  |                            |
|--|----------------------------|
|  | Fire Resistance Directory. |
|--|----------------------------|

---

### 1.3 DEFINITIONS

- A. Weather Barrier: Combination air and water resistive membrane which, when properly installed, sheds water to exterior and limits air passage to limits of specified material.

### 1.4 SYSTEM DESCRIPTION

- A. Performance Requirements: Sheathing and associated fasteners must be capable of continuous exposure to weather for at least 12 months without detrimental effect on its facing, core, or structural integrity.
- B. Air Weather Barrier: Provide where indicated and for cladding systems mechanically attached to metal stud framing through sheathing including masonry veneer.
- C. Sheathing Seals: Sealant, typical.

### 1.5 SUBMITTALS

- A. Submit in accordance with Section 01 33 23.
- B. Product Data: Submit complete description of proposed materials. Include installation requirements and recommended maximum permissible time which materials can be exposed to weather without detrimental effect.

### 1.6 QUALITY ASSURANCE

- A. Qualifications: Provide materials and methods tested for required fire separations and moisture resistance, installed in accordance with this specification and the requirements of local governing agencies.
- B. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency. Provide UL assemblies that do not require adhesives.
- C. Pre-Construction Meeting: A weather-barrier specialist to be notified for a pre-construction review of details for proper installation of their products with installer and Contractor. The specialist will provide detailed assistance for this project including, but not limited to, flashings, penetrations, laps, attachment, and terminations.

### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site with manufacturer's labels intact and legible. Fire rated materials shall bear testing agency label and fire classification numbers intact and legible. Handle materials with care to prevent damage.
- B. Store materials off floor, stacked flat, and under cover. Avoid overloading floor system. Stack sheathing board such that long lengths are not over short lengths. Store adhesives in a dry area protected from freezing.

---

## 1.8 PROJECT CONDITIONS

- A. Conform to the scope and general provisions of GA-253.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Gypsum Wall Sheathing Board: Exceed physical properties of ASTM C1396 and ASTM C1177 Type X. Provide 15.9 mm, (5/8 inch), gypsum sheathing. Provide gypsum board with a noncombustible water-resistant core, with fiberglass mat reinforced faces embedded to the core. Warrant gypsum sheathing board for at least twelve months against delamination due to direct weather exposure. Mold and mildew resistant; 10 rating per ASTM D3273; contains no paper, pulp, cellulose, starches or sugars. 48 inches wide, square edges.
1. Flame Spread in accordance with ASTM E84: 25 maximum.
  2. Nail Pull Resistance in accordance with ASTM C473 and ASTM C1658: At least 90.
- B. Steel Drill Screws: ASTM C954. Modified for wafer head screws. Bugle head not acceptable.
1. Exterior Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B117.
    - a. For steel framing from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick, use screws that comply with ASTM C954.
- C. Metal Framing: Specified in Sections 05 40 00 and 09 22 16.
- D. Air Weather Barrier: Provide in conformance with Section 07 27 30.
- E. Sealing Materials for Sheathing:
1. Sealant: High modulus silicone sealant, Type S-6 specified under Section 07 92 00 - Joint Sealants.
  2. Foam Sealant Tape:
    - a. Provide as specified under Section 07 92 00 - Joint Sealants.
    - b. Size: 1-1/2 inches deep by approximately twice the joint width.
- F. Miscellaneous: As required for complete installation.
- G. Accessories:
1. Miscellaneous: As required for complete installation.

## PART 3 - EXECUTION

### 3.1 FIRE RATED CONSTRUCTION

- A. Provide hourly fire-resistive ratings as required complying with UL approved designs or designs acceptable to governing authorities and Resident Engineer.

---

### 3.2 EXAMINATION

- A. Check framing for accurate spacing and alignment.
- B. Proceed with installation of sheathing board only after deficiencies are corrected and surfaces to receive sheathing board are acceptable. Repair protrusions of framing, twisted framing members, or unaligned members before installation of sheathing board is started.

### 3.3 INSTALLATION, AIR WEATHER BARRIER

- A. Install Air Weather Barrier in conformance with Section 07 27 30 - Air Weather Barrier.
- B. Do not leave water barrier exposed to weather for periods longer than recommended by manufacturer.

### 3.4 INSTALLATION, WALL SHEATHING BOARD

- A. General:
  - 1. Comply with GA-253 and manufacturer's written recommendations.
  - 2. Use sheathing board of maximum lengths to minimize end joints. Where end joints unavoidable, stagger end joints.
  - 3. Locate end joints as far as possible from center of wall or ceiling.
  - 4. Abut sheathing boards without forcing.
  - 5. Neatly fit ends and edges of sheathing board.
  - 6. Support ends and edges of sheathing board panels on framing or furring members.
- B. Wall Sheathing:
  - 1. At exterior metal stud walls, apply sheathing vertically, with long dimension parallel to framing, position edges over studs; attach to framing at 8 inches on center at perimeter and field.
  - 2. Do not attach sheathing to head tracks if track and studs can move independently; verify construction.
- C. Joints: See "Joint Seals" under SYSTEM DESCRIPTION in PART 1 above for type of seals required.
  - 1. Seal all joints in sheathing and intersections of sheathing and structure to provide watertight seal.
  - 2. Seal all joints with sealant except expansion/control joints.
    - a. Exception: Sheathing that is the substrate for Air Weather Barrier (AWB) shall have joints sealed by Section 07 27 30 - Air Weather Barrier (AWB).
  - 3. Except at control/expansion joints, apply joint sealant to all other sheathing joints and intersections of sheathing and structure to provide watertight seal.
- D. Expansion/Control Joints:
  - 1. Verify double studs in place, back to back, spaced at approximately 1/2 inch apart unless otherwise detailed.
  - 2. Locations:
    - a. Designated building expansion joints.
    - b. Joints Required In:
      - 1) Sheathing secured to Cold-Formed Metal Framing: 30 feet on center maximum, and as required by manufacturer.
      - 2) Masonry veneer; see applicable Division 4 section.

- 3) Exterior plaster; see applicable Division 7 and 9 sections.
  - 4) Interior board or plaster finish; see applicable Division 9 section.
  - 5) Horizontal joints in sheathing below floor lines at points of differential movement.
3. Provide 1/2 inch break at control joints and seal with foam sealant tape; tape to be flush with face of sheathing and extend into framing approximately 1 inch. Cover with 9 inch wide strip of AWB in accordance with manufacturer's recommendations.

### 3.5 ADJUSTING

- A. Where sheathing face paper is punctured, drive new screw approximately 1-1/2 inches from defective fastening and remove defective fastening.
- B. Fill damaged surface with suitable compound.

END OF SECTION

---

SECTION 06 16 63  
CEMENTITIOUS SHEATHING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies cement board sheathing applied to frame soffit construction, ready to receive subsequent finishes.
- B. Products specified elsewhere, but provided by this Section:
  - 1. Section 07 27 30 - Air Weather Barrier.
- C. Work specified here is provided under Section 05 40 00 - Cold-Formed Metal Framing.
- D. Products specified elsewhere, but provided by this Section:
  - 1. Section 07 27 30 - Air Weather Barrier.

1.2 RELATED WORK

- A. Cold-Formed Metal Framing: Section 05 40 00.
- B. Air barrier and vapor retarder: Section 07 27 30 - Air Weather Barrier (AWB)
- C. Exterior Insulation and Finish System: Section 07 24 00.
- D. Joint Sealants: Section 07 92 00.

1.3 PERFORMANCE/DESIGN REQUIREMENTS:

- A. Comply with wind load requirements and deflection requirements. .
- B.
  - 1. Wind: See Section 01 83 16.13 - Exterior Wind Enclosure Requirements
  - 2. Deflection: See Section 05 40 00 - Cold-Formed Metal Framing.

1.4 SYSTEM DESCRIPTION

- A. Sheathing and associated fasteners must be capable of continuous exposure to weather for not less than 12 months without detrimental effect on its facing, core, or structural integrity.
- B. Air Weather Barrier: Provide for cladding systems which are mechanically attached to metal stud framing through sheathing including masonry veneer. Weather barrier not required for cladding systems which are adhesively attached to sheathing including non-water-managed EIFS.

---

### 1.5 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Samples:
  - 1. Exterior sheathing panels, 200 mm by 200 mm (8 inches by 8 inches), minimum size.
  - 2. Fasteners, each type used.
  - 3. Reinforcing tape for joints 300 mm (12 inches) long.
  - 4. Water barrier backing, 300 mm (12 inches) square.
- C. Product Data:
  - 1. Exterior sheathing.
  - 2. Reinforcing tape.
  - 3. Fasteners.
- D. Certification: Manufacturer shall certify in writing that the cementitious sheathing is suitable for exterior applications.

### 1.6 DELIVERY AND STORAGE

- A. Deliver materials in containers with labels legible and intact.
- B. Store materials so as to prevent damage or contamination.

### 1.7 REFERENCE STANDARDS (Latest edition unless otherwise noted)

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. American National Standards Institute (ANSI):
  - 1. A108.11 Interior Installation of Cementitious Backer Units
  - 2. A118.9 Cementitious Backer Units
- C. American Society for Testing and Materials (ASTM):
  - 1. C666 Resistance of Concrete to Rapid Freezing and Thawing
  - 2. C947 Flexural Properties of Thin-Section Glass-Fiber-Reinforced Concrete (Using Simple Beam With Third-Point Loading)
  - 3. C954 Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.

---

PART 2 - PRODUCTS

## 2.1 CEMENT BOARD SHEATHING

- A. Conform to ANSI A118.9, except physical property requirements defined in Table 1 changed to not less than the minimum values stated below.
- B. Cement Board Physical Properties (Minimum Average Value):
  - 1. Water Absorption by Weight, ASTM D1037: 20 percent maximum.
  - 2. Flame Spread: 5.
  - 3. Smoke Density: 0.
  - 4. Thickness: 7/16 inch minimum.
  - 5. Width: 48".
  - 6. Flexural Strength wet and dry: 750 psi (minimum) per ASTM C947.
  - 7. Faces: Smooth on one side course on other.
  - 8. Freeze/Thaw: 100 cycles with no deterioration per ASTM C666 Procedure A.
  - 9. Nail Pull Resistance: 90 lbs. min. , 0.4 inch head diameter, wet or dry, per ASTM C473.
- C. Manufacturer shall certify that the cementitious sheathing is suitable for exterior applications.

## 2.2 ACCESSORY MATERIALS

- A. Steel Drill Screws: ASTM C954. Modified for flat head. Bugle head not acceptable. Fastener head shall match head, and shall be approved by sheathing manufacturer to meet Nail Pull Resistance test above.
  - 1. Exterior Screws for Fastening Sheathing to Cold-Formed Metal Framing: Stainless Steel (type 304), drill screws, in length recommended by sheathing manufacturer for thickness of sheathing 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.
    - a. For steel framing less than 0.0329 inch (0.835 mm) thick, use screws that comply with ASTM C 1002.
    - b. For steel framing from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick, use screws that comply with ASTM C 954.

## PART 3 - EXECUTION

## 3.1 ENVIRONMENTAL REQUIREMENTS

- A. Do not install units when temperature is below 4.5 degrees Celsius (40 degrees F).
- B. Do not install joint reinforcing tape when temperature is below 10 degrees Celsius (50 degrees F).

## 3.2 EXAMINATION

- A. Check framing for accurate spacing and alignment.



- 
- B. Proceed with installation of sheathing board only after deficiencies are corrected and surfaces to receive sheathing board are acceptable. Repair protrusions of framing, twisted framing members, or unaligned members before installation of sheathing board is started.

### 3.3 INSTALLATION

- A. Remove wrapping and separate to facilitate air circulation for not less than seven days before installation.
- B. Installing Cement Board Units:
1. Apply cement board sheathing in accordance with ANSI A108.11, with rounded edges and rough side to exterior, except as specified otherwise.
    - a. Install smooth face to exterior side unless otherwise recommended by trade installing finish onto sheathing.
  2. Secure units to framing members with screws spaced not more than 200 mm (8 inches) on center and not closer than 13 mm (1/2 inch) from the edge of the unit.
  3. Install screws so that the screw heads do not penetrate the surface of unit.
  4. Do not install screws closer than permitted by manufacturer to obtain required Nail Pull Resistance.
  5. Install 1/2 inch wide horizontal control joints at floor deflection joints and vertical control joints not over 16 feet on center unless shown otherwise, maintain alignment.
  6. Stop units at edges of building expansion joints.
  7. Minimum bearing over framing members: 19 mm (3/4 inch.).
- C. Soffit Sheathing:
1. At exterior soffits, apply sheathing with long dimension parallel to framing, position edges over framing.
- D. Control Joints:
1. Verify double framing members in place, back to back, spaced at approximately 1/2 inch apart unless otherwise detailed.
  2. Locations:
    - a. Designated building expansion joints.
    - b. Joints Required In:
      - 1) Sheathing secured to Cold-Formed Metal Framing: Provide control joints at:
        - a) 30 feet on center maximum, and as required by manufacturer.
        - b) Intersection of dissimilar substrates or finishing materials
        - c) Where concentrated stresses or movement is anticipated.
      - 2) Exterior DEFS; see applicable Division 7 section.
  3. Provide 1/2 inch break at control joints. Joints shall be sealed by Section 07 27 30 - Air Weather Barrier (AWB).
- E. Leave surface flush and ready to receive subsequent finishes.

### 3.4 PROTECTION AND REPAIR

- A. Protect board with temporary coverings against moisture until subsequent finish is applied.
- B. Patch and repair damaged surface prior to application of subsequent finish.
1. Fill cracks.

2. Replace loose, spalling, or missing joint finish.
3. Replace broken or damaged boards.

### 3.5 INSTALLATION, AIR WEATHER BARRIER

- A. Install Air Weather Barrier in conformance with Section 07 27 30 - Air Weather Barrier.
- B. Do not leave water barrier exposed to weather for periods longer than recommended by manufacturer.

--- E N D ---

SECTION 06 40 00  
ARCHITECTURAL WOODWORK

## PART 1 - GENERAL

## 1.1 DESCRIPTION

- A. This Section specifies interior Architectural Woodwork, millwork, and Finish Carpentry including, but not limited to, the following:
1. Standing and running trim including wood base.
    - a. Primary finish of exposed faces: Transparent finished wood.
  2. Wood frames and jambs.
  3. Wood paneling.
  4. Architectural Woodwork Doors including, but not limited to, the following:
    - a. All wood doors not specified elsewhere.
    - b. Doors excluded from the Door Schedule.
  5. Dixie Building Architectural Woodwork includes, but is not limited to, the following:
    - a. Ornamental Work.
      - 1) Wood trim pilasters at exterior windows of Dixie Building to match salvaged trim from WP-9A.
    - b. Restoration Work:
      - 1) Existing exterior wood surround of front door at Café of Dixie Building.
    - c. Wood paneling.
    - d. Millwork door.
    - e. See Drawing Sheets 8AI250, 8AI251, 8AI550, and 8AI551.
  6. Wood-based casework not specified elsewhere.
    - a. Primary finish material of exposed faces include the following:
      - 1) Plastic Laminate.
      - 2) Transparent finished wood; includes main reception desk.
    - b. Countertops specified elsewhere but provided herein:
      - 1) Include countertops supported by bases provided under this Section.
      - 2) Include baseless countertops in proximity with work of this Section.
  7. Closet shelving and related hanging rods.
  8. Shop finishing of interior woodwork.
  9. Fabric Covered Acoustical Wall Panels (tackable) integral with Architectural Woodwork are specified elsewhere but provided under this Section; see RELATED WORK below.
  10. All blocking, nailers, and framing required for complete installation of architectural woodwork including, but not limited to, the following:
    - a. Framing for locker benches.
  11. Metal trims, reveals, accents, and similar devices and accessories related to Architectural Woodwork.
  12. Stainless steel base related to Architectural Woodwork is specified elsewhere but provided under this Section; see RELATED WORK below.
  13. Coordination and preparation for work of other trades attached or built into architectural woodwork.
  14. Hardware associated with Architectural Woodwork.
  15. Other:
    - a. Finish Plan Abbreviations and Finish Legend Finish Codes in the Drawings for work integral with work of this Section may include the following:
      - 1) EXR (Epoxy Resin Countertops).
      - 2) H (Cabinet Pull).
      - 3) P (Paint).

- 4) PLAM (Plastic Laminate).
- 5) S (Solid Surface).
- 6) SSB (Stainless Steel Base).
- 7) SST (Specialty Wall Finish).
- 8) ST (Stone).
- 9) WD (Finished Hardwood).
- 10) WF (Wall Covering; Sound-Absorbing Wall Panels; tackable).

## 1.2 RELATED WORK

- A. Miscellaneous metal supports including framing, brackets, braces, legs, and similar devices, related to Architectural Woodwork:
  1. Fabricated: Section 05 50 00, Metal Fabrications.
  2. Manufactured: Section 12 36 00, Countertops.
- B. Chemical Finish for SST: Section 05 05 13, Shop-Applied Coatings for Metal.
- C. Requirements for Stainless Steel Base: Section 05 70 50, Architectural Metal Fabrications.
- D. Wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within construction other than architectural woodwork construction before woodwork installation: Section 06 10 00, Rough Carpentry.
- E. Fabrications of Solid Surface, Stone, and Simulated Stone: Section 06 61 16, Solid Surfacing.
- F. Wood Doors, typical: Section 08 14 00, Wood Doors.
- G. Door Hardware: Section 08 71 00.
- H. Appearance of Finishes: Section 09 06 00, Schedule for Finishes.
- I. Steel studs less than 1.2 mm (0.047 inch, 18 gage) and backing plates for wall mounted items: Section 09 22 16, Non-Structural Metal Framing.
- J. Sound-Absorbing Wall Panels Integral with Architectural Woodwork (tackable surfaces): Section 09 84 33.
- K. Manufactured, Modular Casework, including work designated on the Drawings with a boxed, alpha-numeric by Casework Type Tags (see Interior Elevations Legends in the Drawings) is included in the following Sections:
  1. Section 12 31 00, Manufactured Metal Casework. Tag example: A3030.
  2. Section 12 32 00, Manufactured Wood Casework. Tag example: A3030.
    - a. Drawer and Door Pulls for Architectural Woodwork are specified in Section 12 32 00 but provided under Section 06 40 00.
  3. Section 12 35 53, Manufactured Laboratory Casework. Tag example: La3030.
- L. Countertops for Architectural Woodwork are specified in Section 12 36 00 but provided under Section 06 40 00.

- M. Casework Hardware Provided Under This Section for Architectural Woodwork but Specified Elsewhere: Section 12 32 00, Manufactured Wood Casework.
- N. Plumbing components and requirements not specified in Section 06 40 00: Division 22, PLUMBING.
- O. Electrical components and requirements not specified in Section 06 40 00: Division 26, ELECTRICAL.
- P. Electrical components and requirements not specified in Section 06 40 00: Division 27, COMMUNICATIONS.

### 1.3 DEFINITIONS

- A. Architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

### 1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, Shop Drawings, Product Data, and Samples.
- B. Manufacturer's Literature and Data: For each type of product including:
  - 1. Panel products.
  - 2. High-pressure decorative laminate.
  - 3. Adhesive for bonding plastic laminate.
  - 4. Cabinet hardware.
  - 5. Accessories and finishing materials and processes.
  - 6. Fire-retardant-treated materials including data from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- C. LEED Submittals:
  - 1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
  - 2. Certificates for Credit MR 7: Chain-of-custody certificates indicating that interior architectural woodwork complies with forest certification requirements. Include documentation, including certified custody number, that manufacturer is certified for chain of custody by an FSC-accredited certification body. Include statement indicating cost for each certified wood product.
  - 3. Product Data for Credit IEQ 4.1: For installation adhesives, documentation including printed statement of VOC content.
  - 4. Product Data for Credit IEQ 4.4: For composite wood products and adhesives, documentation indicating that product contains no urea formaldehyde.
- 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, soap dispensers, electrical and communications devices, and other items installed in Architectural Woodwork.
  4. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.
- E. Samples for Initial Selection:
1. Shop-applied transparent finishes.
  2. Shop-applied opaque finishes.
  3. Plastic laminates.
  4. PVC edge material.
  5. Thermoset decorative panels.
  6. Solid-surfacing materials.
- F. Samples for Verification:
1. Lumber with or for transparent finish, not less than 5 inches (125 mm) wide by 24 inches (600 mm) long, for each species and cut, finished on 1 side and 1 edge.
  2. Veneer leaves representative of and selected from flitches to be used for transparent-finished woodwork.
  3. 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.
  4. Lumber and panel products with shop-applied opaque finish, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (200 by 250 mm) for panels, for each finish system and color, with 1/2 of exposed surface finished.
  5. Plastic laminates, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with 1 sample applied to core material and specified edge material applied to 1 edge.
  6. Thermoset decorative-panels, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with edge banding on 1 edge.
  7. Solid-surfacing materials, 6 inches (150 mm) square.
  8. Corner pieces as follows:
    - a. Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches (450 mm) high by 18 inches (450 mm) wide by 6 inches (150 mm) deep.
    - b. Miter joints for standing trim.
  9. Exposed cabinet hardware and accessories, one unit for each type and finish.
- G. Qualification Data: For Installer/fabricator including evidence of successful experience.
- H. Product Certificates: For each type of product, signed by product manufacturer.
1. Indicating preservative treatment and fire retardant treatment of materials meet the requirements specified.
  2. Indicating moisture content of materials meet the requirements specified.
- I. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- J. List of acceptable sealers for fire retardant and preservative treated materials.
- K. Manufacturer's literature and data:

1. Hardware.
2. Electrical components.

#### 1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.
  1. Successful experience fabricating and installing work similar in scope and complexity to that required for this project.
- B. Installer Qualifications: Fabricator of the products.
- C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers and wood doors with face veneers that are sequence matched with woodwork and transparent-finished wood doors that are required to be of same species as woodwork.
- D. Quality Standard: Unless otherwise indicated, comply with AWS for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
  1. Provide AWI Quality Certification Program labels and certificates indicating that woodwork, including installation, complies with requirements of grades specified.
  2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard.
- E. 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.
- F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

#### 1.6 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.

#### 1.7 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.

## 1.8 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.
- B. Door Hardware Coordination: Distribute copies of approved hardware schedule specified in Section 08 71 00, Door Hardware to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with door hardware requirements.

## 1.9 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications may be referenced in the text by basic designation only. Comply with latest editions unless otherwise indicated.
- B. American Iron and Steel Institute (AISI).
- C. American National Standards Institute (ANSI):
1. A208.1 Particleboard.
  2. A208.2 Medium Density Fiberboard.
- D. American Society for Testing and Materials (ASTM):
1. A53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
  2. C920 Standard Specification for Elastomeric Joint Sealants.
  3. C1349 Standard Specification for Architectural Flat Glass Clad Polycarbonate.
  4. D256 Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
  5. D523 Standard Test Method for Specular Gloss.
  6. D542 Standard Test Method for Index of Refraction of Transparent Organic Plastics.
  7. D635 Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
  8. D638 Standard Test Method for Tensile Properties of Plastics.
  9. D648 Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.
  10. D671 Test Method for Flexural Fatigue of Plastics by Constant-Amplitude-of-Force.
  11. D695 Standard Test Method for Compressive Properties of Rigid Plastics.



12. D696 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer.
13. D785 Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials.
14. D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
15. D792 Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
16. D1003 Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
17. D1037 Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.
18. D1929 Standard Test Method for Determining Ignition Temperature of Plastics.
19. D2843 Standard Test Method for Density of Smoke from the Burning or Decomposition of Plastics.
20. E84 Test Method for Surface Burning Characteristics of Building Materials.
21. F1703 Standard Guide for Ice Hockey Playing Facilities.

E. Architectural Woodwork Institute (AWI):

1. AWS Architectural Woodwork Standards.

F. International Building Code (IBC).

G. Laminating Materials Association, Inc. (LMA):

1. EDG-1.
2. SAT-1.

H. National Electrical Manufacturers Association (NEMA):

1. LD3 High Pressure Decorative Laminates.

I. Underwriters Laboratory Inc. (UL):

1. 94 Standard for Safety of Flammability of Plastic Materials for Parts in Devices and Appliances.
2. 752 Standard of Safety for Bullet-Resisting Equipment.

J. US Department of Commerce, National Bureau of Standards, Product Standards (DOC, NBS, PS):

1. PS 1 Construction and Industrial Plywood.

1.10 WARRANTY

- A. Manufacturer's Special Warranty for Abrasion- and UV-Resistant, Polycarbonate: Manufacturer's standard form, made out to Owner and signed by polycarbonate manufacturer, in which manufacturer agrees to replace polycarbonate products that break or develop defects from normal use that are attributable to manufacturing process and not to practices for maintaining and cleaning plastic glazing contrary to manufacturer's written instructions. Defects include coating delamination, haze, excessive yellowing, and loss of light transmission beyond the limits stated in plastic glazing manufacturer's standard form.

1. Warranty Period: Five years.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Provide materials that comply with requirements of AWS for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Certified Wood: Interior architectural woodwork shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
- C. Wood Species and Cut for Transparent Finish: See Section 09 06 00, Schedule for Finishes.
  1. WD-3 and WD-4: See "Alternating Exposed Grain Panels" below.
  2. Dixie Building: White oak; rift-cut.
- D. Wood Species for Opaque Finish:
  1. Interior: Any closed-grain hardwood.
  2. Exterior: Spanish Red Cedar.
- E. Wood Products: Comply with the following:
  1. Recycled Content of Medium-Density Fiberboard and Particleboard: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 88 percent.
  2. Hardboard: AHA A135.4.
  3. Medium-Density Fiberboard (MDF): ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
    - a. Moisture-Resistance: Pass "6-Cycle Accelerated Aging Test"; ASTM D1037.
  4. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea formaldehyde.
  5. Softwood Plywood: DOC PS 1, Medium Density Overlay.
  6. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.
    - a. Exposed for Transparent Finish: AWS 4.2a Grade A or better.
    - b. Exposed for Opaque Finish: AWS 4.2a Grade B or better.
    - c. Concealed: Mill option except species to be compatible with exposed veneer for strength and dimensional stability.
- F. Alternating Exposed Grain Panels:
  1. Panel Manufacturer: Subject to compliance with the requirements, manufacturers offering Alternating Exposed Grain Panel products include, but are not necessarily limited to, the following:
    - a. Plexwood Products bv, Utrecht, Netherlands; +31 (0)30 296 43 67 phone; +31 (0)30 296 45 17 fax; products@plexwood.com; www.plexwood.com.; www.plexwood.nl; Ray Mobley, 917 415-8875, njvisual@aol.com.
  2. Exposed Wood Family and Specie: Fagaceae, Oak.
    - a. Appearance: Neutral brown with characteristic shiny "mirrors" caused by rays.
    - b. Density: 670-760 kg/m<sup>3</sup> at 12% moisture content.
    - c. Hardness (Janka scale, ISO 3350, 1975.08.01, SHR RC 2115): 7801 N.
  3. Backer Material: MDF; 12 mm (0.47 in.) thick; low formaldehyde; no added
    - a. Comply with FIRE-RETARDANT-TREATED MATERIALS Article in PART 2.

- b. Density (approximate): 750 kg/m<sup>3</sup>.
    - c. Dimension Stability (NEN-EN 318): 0.2% length and width; 5% thickness.
    - d. Screw Pull-Out Force (NEN-EN 320): Surface 1400 N; sides 1200 N.
    - e. Tensile Strength (NEN-EN 319): 0.8 N/mm<sup>2</sup>.
  - 4. Adhesive (Glue):
    - a. Quality (NEN-EN 204): D4.
    - b. Tensile Strength Perpendicular to Lines (NEN-EN 319; SHR RC 2115):  $\geq 1.01$  N/mm<sup>2</sup>.
  - 5. Veneer Orientation: Lining (grain) parallel to panel length.
  - 6. Shape Stability (NEN-EN 318; SHR RC 2115):
    - a. Standard:  $20 \pm 2$  °C and  $65 \pm 5\%$  RV.
    - b. Dry:  $20 \pm 2$  °C and  $35 \pm 5\%$  RV.
    - c. Humid:  $20 \pm 2$  °C and  $85 \pm 5\%$  RV.
  - 7. Finish:
    - a. Panel Manufacturer's Semi-Finish:
      - 1) Sanding: 80 grit.
      - 2) Coating: Selected by Contractor from panel manufacturer's full range, recommended by panel manufacturer for these specific applications; suitable and compatible with final finish, and facilitates achieving required ultimate appearance.
    - b. Fabricator's Finish: Transparent Finish complying with SHOP FINISHING Article below.
  - 8. WD-3 (One-sided):
    - a. Composition: Alternating layers of 1-3 mm (0.04 to 0.12 inches) by 2.5 mm (0.10 inches) end-grain and with-the-grain wood veneer, cross-glued onto one side of Backer.
    - b. Factory Fabricated Size (nominal): 2400 mm (94.49 inches) long by 1200 mm (47.24 inches) wide by 14.5 mm (0.57 inches) thick (12 mm (0.47 inches) MDF plus 2.5 mm (0.10 inches) veneer).
  - 9. WD-4 (Strip):
    - a. Composition: Solid strip of alternating layers of 1-3 mm (0.04-0.12 inches) end-grain and with-the-grain wood veneer, cross-glued (without Backer).
    - b. Factory Fabricated Size (nominal): 1200 mm (47-1/4 inches) long (parallel to the lines) by 70 mm (2-3/4 inches) wide by 6 mm (1/4 inch) thick.
- G. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
1. Provide PVC or polyester edge banding complying with LMA EDG-1 on components with exposed or semi-exposed edges.
- H. High-Pressure Decorative Laminate, HPDL (PLAM.): See Section 09 06 00, Schedule for Finishes, and Finish Legend in the Drawings. NEMA LD3, grades as indicated or, if not indicated, as required by woodwork quality standard.
1. Chemical-Resistance: All PLAM (unless otherwise indicated in the Finish Legend). NEMA LD 3, Grade HGP, **and stain resistance ratings of "No Effect" when tested with reagents 1- 15 according to NEMA LD 3. and the following ratings when tested with indicated reagents according to NEMA LD3, Test Procedure 3.9.5:**
- a. ~~Nitric Acid (30 Percent): Moderate effect.~~
  - b. ~~Sulfuric Acid (77 Percent): Moderate effect.~~
  - c. ~~Hydrochloric Acid (37 Percent): Moderate effect.~~
  - d. ~~Phosphoric Acid (75 Percent): No effect.~~
  - e. ~~Acetic Acid (98 Percent): No effect.~~
  - f. ~~Formaldehyde: No effect.~~
  - g. ~~Ethyl Acetate: No effect.~~

- ~~h. Ethyl Ether: No effect.~~
- ~~i. Phenol (85 Percent): Moderate effect.~~
- ~~j. Benzene: No effect.~~
- ~~k. Xylene: No effect.~~
- ~~l. Butyl Alcohol: No effect.~~
- ~~m. Furfural: No effect.~~
- ~~n. Methyl Ethyl Ketone: No effect.~~
- ~~o. Sodium Hydroxide (25 Percent): No effect.~~
- ~~p. Sodium Sulfide (15 Percent): No effect.~~
- ~~q. Ammonium Hydroxide (28 Percent): No effect.~~
- ~~r. Zinc Chloride: No effect.~~
- ~~s. Gentian Violet: No effect.~~
- ~~t. Methyl Red: No effect.~~
- 2. Luster: All PLAM (unless otherwise indicated in the Finish Legend). Pearlescent finish; high luster with simulated three dimensional depth.
- 3. Wear Resistant: All horizontal applications and elsewhere indicated. Provide high-wear protection (such as Laminart "Oyster Shield") to comply with NEMA LD3 abrasion/scratch resistance standards (400 revolutions; Taber Abrader).
- 4. Marker Board HPDL: Designated "PLAM-6" on Finish Legend in the Drawings. Specially manufactured for use with dry erase markers.
  - a. Surface papers impregnated with melamine resins to facilitate liquid chalk removal.
  - b. Surface Glossmeter readings (60 degree angle; machine and cross directions): 100 +/- 10.
  - c. Physical Properties (NEMA LD3):
    - 1) Thickness: 0.048 inches (1.22 mm).
    - 2) Weight: 0.322 psf.
    - 3) Surface Wear Resistance: 700 cycles.
    - 4) Boiling Water Resistance: No effect.
    - 5) High Temperature Resistance: No effect.
    - 6) Radiant Heat Resistance: 150 seconds.
    - 7) Stain Resistance (Reagents 1-15): No effect.
    - 8) Light Resistance: Slight effect.
    - 9) Dimensional Stability:
      - a) Machine Direction: 0.3 percent.
      - b) Cross Direction: 0.7 percent.
    - 10) Impact Resistance: 65 inches (1651 mm).
    - 11) Cleanability: 10 cycles.
    - 12) Appearance: No ABC defects.
  - d. Fire-Resistance Characteristics (maximum; ASTM E84):
    - 1) Flame Spread: 65.
    - 2) Smoke Developed: 115.
- I. Solid-Surfacing Material: As specified in Section 06 61 16, Solid Surfacing, including Finish Legend Finish Code "S" (Solid Surface) in the Drawings.
- J. Glass: As specified under Section 08 80 10, Interior Glazing.
  - 1. Typical: Monolithic, fully tempered, clear float glass, ¼ inches (6 mm) thick.
  - 2. Where Indicated: Monolithic, laminated, clear float glass, ¼ inches thick nominal, 0.030 inch thick PVB interplay.
- K. Carbon Steel: Follow Section 05 50 00, Metal Fabrications, except provide square or rectangular tubing where indicated. Finishes as indicated on the Finish Legend and the following:

1. SST-4 and Elsewhere Indicated: Black Oxide; see CHEMICAL FINISH in Section 05 05 13, Shop-Applied Coatings for Metal.
- L. Stainless Steel: Follow Section 05 70 50, Architectural Metal Fabrications; No. 4 satin polish finish.

## 2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this Article, acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified.
  1. Do not use treated materials that do not comply with requirements of referenced woodworking standard or that are 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 to distinguish treated materials from untreated materials.
  3. Identify fire-retardant-treated materials with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with performance requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Use the following treatment type:
  1. Interior Type A: Low-hygroscopic formulation.
  2. Mill lumber in accordance with one of the following:
    - a. After treatment within limits set for wood removal that do not affect listed fire-test-response characteristics, using a woodworking plant certified by testing and inspecting agency.
    - b. 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.
  3. Kiln-dry materials before and after treatment to levels required for untreated materials.
- C. Fire-Retardant Particleboard: Panels complying with the following requirements, made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E84.
  1. For panels 3/4 inch (19 mm) thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: modulus of rupture, 1600 psi (11 MPa); modulus of elasticity, 300,000 psi (2070 MPa); internal bond, 80 psi (550 kPa); and screw-holding capacity on face and edge, 250 and 225 lbf (1100 and 1000 N), respectively.
  2. For panels 13/16 to 1-1/4 inches (20 to 32 mm) thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: modulus of rupture, 1300 psi (9 MPa); modulus of elasticity, 250,000 psi (1720 MPa); linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 and 175 lbf (1100 and 780 N), respectively.
  3. Subject to compliance with the requirements, manufacturers offering Fire-Retardant Particle Board products include, but are not necessarily limited to, the following:

- a. Basis of Design: "Duraflake FR" by Weyerhaeuser or other products meeting the requirements.
- D. Fire-Retardant Fiberboard: Medium-density fiberboard panels complying with ANSI A208.2, made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E84.
  - 1. Subject to compliance with the requirements, manufacturers offering Fire-Retardant Particle Board products include, but are not necessarily limited to, the following:
    - a. Basis of Design: "Medite FR" by SierraPine Ltd.; Medite Division, or other products meeting the requirements.

## 2.3 CASEWORK 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 (Scheduled by Describing Products)." Include Finish Legend Finish Code "H" (Cabinet Pull) in the Drawings.
- B. Typical: Provide the following devices unless otherwise indicated:
  - 1. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening, self-closing.
    - a. Hinge Quantity: As recommended by the hinge manufacturer for the conditions or as follows, whichever is the greater quantity:
      - 1) Doors 35 inches high or less:
        - a) At Base Units: Three.
        - b) Elsewhere: Two.
      - 2) Doors more than 35 and up to 63 inches high: Three.
      - 3) Doors more than 63 and up to 78 inches high: Four.
      - 4) Doors more than 78 and up to 94 inches high: Five.
      - 5) As indicated.
    - b. Fasteners: Provide full thread wood screws to fasten hinge leaves to door and cabinet frame. Finish screws to match finish of hinges.
  - 2. Bumpers: Each door shall close against at least two rubber bumpers.
  - 3. Drawer and Door Pulls: As specified in Section 12 32 00, Manufactured Wood Casework.
  - 4. Catches: Magnetic catches, BHMA A156.9, B03171.
  - 5. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071, with shelf rests, B04081, typical; BHMA A156.9, B04102; with shelf brackets, B04112 where indicated.
  - 6. Shelf Rests: BHMA A156.9, B04013; metal, two-pin type with shelf hold-down clip.
  - 7. Drawer Slides: BHMA A156.9, B05091.
    - a. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-overtravel-extension type; zinc-plated steel ball-bearing slides.
    - b. Box Drawer Slides: Grade 1HD-100; for drawers not more than 6 inches (150 mm) high and 24 inches (600 mm) wide.
    - c. File Drawer Slides: Grade 1HD-200; for drawers more than 6 inches (150 mm) high or 24 inches (600 mm) wide.
  - 8. Aluminum Slides for Sliding Glass Doors: BHMA A156.9, B07063.
  - 9. Locks:
    - a. Door Locks: BHMA A156.11, E07121.
    - b. Drawer Locks: BHMA A156.11, E07041.



- c. Quantity: Provide locks for 25% of all drawers and doors above what is indicated on Drawings.
  - 1) Location: As directed by Architect.
- 10. Wire Grommets:
  - a. Manufacturer: Subject to compliance with the requirements, provide products by one of the following:
    - 1) Doug Mockett, Inc.; [www.mockett.com](http://www.mockett.com).
    - 2) Hafele; [www.hafele.com](http://www.hafele.com).
    - 3) Sugatsune; [www.sugatsune.com](http://www.sugatsune.com).
    - 4) CableOrganizer.com, Inc., Fort Lauderdale, FL 33309.
    - 5) Outwater Plastics Industries, Inc.; [www.outwater.com](http://www.outwater.com).
    - 6) MyCableMart.com.
    - 7) Rockler Woodworking and Hardware; [www.rockler.com](http://www.rockler.com).
    - 8) Rufkahrs Hardware; [www.hardwaretree.com](http://www.hardwaretree.com).
    - 9) Another complying with the requirements.
  - b. Round Grommets, Typical:
    - 1) Basis of Design Product: Model TG3 Flip-Top Grommet Set by Mockett.
    - 2) Material: Molded PVC.
    - 3) Cap and Liner Set: Flip-top tab closes and covers cord slot when grommet not in use.
    - 4) Size: 2-3/8 inch overall diameter; 1-7/8 inch diameter opening; 5/8 inches deep.
    - 5) Color: Selected by Architect from Manufacturer's full range including Matte Black, Walnut Brown, Mahogany, Light Grey, Navy Grey, Warm Grey, Putty, Desert Sand, Pecan, and White.
    - 6) Locations: Typical.
  - c. Rectangular Grommets:
    - 1) Basis of Design Product: Model MAX1/A-94 Max Grommet by Mockett.
    - 2) Material: Aluminum.
    - 3) Top: Dust-blocking brushes and removable lid cover cord slot; almost flush with surface in which it is mounted.
    - 4) Size: 4-25/32 inches long by 2-13/16 inches wide overall; 1-7/8 inch diameter opening; 1-17/32 inches deep.
    - 5) Finish: Selected by Architect from Manufacturer's full range including clear satin anodic coating.
    - 6) Locations: Provide at countertop material ST-1 unless otherwise indicated.
- 11. Wire Management:
  - a. Manufacturer: Subject to compliance with the requirements, provide products by one of the following:
    - 1) Doug Mockett, Inc.; [www.mockett.com](http://www.mockett.com).
    - 2) Hafele; [www.hafele.com](http://www.hafele.com).
    - 3) Sugatsune; [www.sugatsune.com](http://www.sugatsune.com).
    - 4) CableOrganizer.com, Inc., Fort Lauderdale, FL 33309.
    - 5) Outwater Plastics Industries, Inc.; [www.outwater.com](http://www.outwater.com).
    - 6) Rockler Woodworking and Hardware; [www.rockler.com](http://www.rockler.com).
    - 7) Rufkahrs Hardware; [www.hardwaretree.com](http://www.hardwaretree.com).
    - 8) Another complying with the requirements.
  - b. Basis of Design Product: Model WM22A, Large J-Shape Manager with Flange, by Mockett.
    - 1) Material: PVC.
    - 2) Size: 4 5/16" high by 1 3/32" deep; 2 9/16" high trough; 8 feet long for field cutting.
    - 3) Double-sided tape factory installed.
    - 4) Color: Selected by Architect from Manufacturer's full range.

12. Coat Rods (Closet Rods): Chrome plated steel pipe with escutcheons; provide for clear span conditions as follows:
  - a. 4 Feet: 20 gage; 1-1/16 inch outside diameter.
  - b. 7 Feet: Knap and Vogt No. 770, wall thickness 0.120 inch; 1-1/16 inch outside diameter.
  - c. Over 7 Feet to 10 Feet: 1 inch NPS (1.31" O.D.) ASTM A53, Schedule 40 steel pipe.
  - d. Over 10 Feet: Provide suitable intermediate supports.
- C. 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.
- D. Continuous Hinge: #311 Series heavy continuous stainless steel hinges by Stanley or approved equal; 0.040 thick steel with 0.100" pin diameter; 2" hole spacing with countersinks for #6 x 3/4" screws; width suitable for door thickness. Provide in maximum available length.
- E. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

#### 2.4 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- C. 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.
- D. Adhesives, General: Adhesives shall not contain urea formaldehyde.
- E. Low-Emitting Materials: Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- F. VOC Limits for Installation Adhesives: Installation adhesives shall 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. Multipurpose Construction Adhesives: 70 g/L.
  3. Contact Adhesive: 250 g/L.
- G. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.



---

2.5 FABRICATION, GENERAL

- A. Woodwork Grade:
  - 1. Interior: Unless otherwise indicated, provide Premium-grade interior woodwork complying with referenced quality standard.
  - 2. Exterior: Unless otherwise indicated, provide Custom-grade exterior woodwork complying with 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. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- D. Fabricate woodwork to dimensions, profiles, and details indicated. Except at specially machined profiles or other locations directed by Architect, ease edges to radius indicated for the following:
  - 1. General: Verify conditions and extent of easing with Architect. For bidding purposes, ease edges to produce a rounded corner with approximately 1/32 inch chord. Increase or decrease as directed by Architect at no additional cost to Owner.
- E. 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 Resident Engineer 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.
- F. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, communications 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 pervious-core countertops with a coat of varnish or same edge material used for exposed edges.
- G. Install glass to comply with applicable requirements in Division 08 Section "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.
- H. Manufactured Products: Comply with manufacturer's recommendations.
- I. Steel Tubing: Follow Section 05 50 00, Metal Fabrications. Provide full welded miter joints at tube framing concealed within Altar.
- J. Stainless Steel: Follow stainless steel requirements in Section 05 70 50, Architectural Metal Fabrications.

- K. Access Panels: Provide removable panels where indicated and elsewhere necessary for access using fully concealed attachment methods. Discreet fasteners, such as trim head screws, screws with countersunk washers, or other means approved by the Architect, are acceptable in inconspicuous locations (such as knee spaces).
- L. Coordinate with, accommodate for, and provide cutouts for work of other trades built into or attached to Architectural Woodwork.
- M. Alternating Exposed Grain Panels: In the completed work:
  - 1. Thicknesses:
    - a. Typical: As indicated.
  - 2. Exposed Layer Orientation: Horizontal unless otherwise indicated.

## 2.6 EXTERIOR PANELING

- A. Exterior Doors and Paneling: AWS Section 8, Custom Grade and as follows:
  - 1. Type: Stile and Rail.
  - 2. Wood components: Solid wood.
  - 3. Finish: Opaque.
  - 4. Other: As indicated on drawings.

## 2.7 EXTERIOR DOORS

- A. Exterior Doors and Paneling: AWS Section 9, Custom Grade and as follows:
  - 1. Type: Stile and Rail.
  - 2. Wood components: Solid wood.
  - 3. Finish: Opaque.
  - 4. Other: As indicated on drawings.
  - 5. Door Hardware:
    - a. Furnished by Section 08 71 00 - Door Hardware.
    - b. Installed by Section 06 40 00 in conformance with requirements of Section 08 71 00 - Door Hardware.
  - 6. Glass: Provide as specified in Section 08 88 53 - Security Glazing.

## 2.8 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

- A. General: Includes work designated WD (Wood) on the Finish Legend in the Drawings.
- B. Wood Species and Cut: Match species and cut indicated for other types of transparent-finished architectural woodwork located in same area of building, unless otherwise indicated.
- 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 casings in plant except where limitations of access to place of installation require field assembly.

## 2.9 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

- A. Wood Species: Any closed-grain hardwood.

- B. 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.
- C. Assemble casings in plant except where limitations of access to place of installation require field assembly.

#### 2.10 INTERIOR FRAMES AND JAMBS FOR TRANSPARENT FINISH

- A. Wood Species and Cut: Match species and cut indicated for other types of transparent-finished architectural woodwork located in same area of building, unless otherwise indicated.
- B. Fire-Rated Interior Frames and Jambs: Products fabricated from fire-retardant particleboard or fire-retardant medium-density fiberboard with veneered, exposed surfaces and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
  - 1. Fire Rating: As indicated; 20 minutes minimum.

#### 2.11 INTERIOR FRAMES AND JAMBS FOR OPAQUE FINISH

- A. Wood Species: Any closed-grain hardwood.

#### 2.12 WOOD CABINETS FOR TRANSPARENT FINISH

- A. Cabinet Construction Type: AWS Flush Overlay.
- B. Wood Species and Cut for Exposed Surfaces: Specified under "MATERIALS above."
  - 1. Matching of Veneer Leaves: Slip match.
  - 2. Vertical Matching of Veneer Leaves: End match.
  - 3. Veneer Matching within Panel Face: Balance match.
  - 4. Exposed Edges: Hardwood.
- C. Semi-exposed Surfaces: Provide surface materials indicated below:
  - 1. Surfaces Other Than Drawer Bodies: Same species and cut indicated for exposed surfaces.
  - 2. Drawer Sides and Backs: Solid-hardwood lumber.
  - 3. Drawer Bottoms: Hardwood plywood.
  - 4. Semi-exposed Edges: Hardwood.
- D. Provide dust panels of 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers, unless located directly under tops.

#### 2.13 PLASTIC-LAMINATE CABINETS

- A. Cabinet Construction Type: AWS Flush Overlay.
- B. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:

1. Horizontal Surfaces Other Than Tops: Grade HGS.
  2. Postformed Surfaces: Grade HGP.
  3. Vertical Surfaces: Grade VGS.
  4. Edges:
    - a. Doors and Drawers:
      - 1) Typical: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish.
      - b) Lightfastness; Indoor Applications (DIN 53 384 c/DIN 53 388): 7-8 on wool color scale.
      - c) Indentation Hardness (DIN 53 456): 110 - 130 (N/mm<sup>2</sup>).
      - d) Shore Hardness D (DIN 53 505/ISO 868): 81 (± 3).
      - e) Linear Thermal Expansion coefficient (DIN 52 328): 80 (1/K x 10<sup>-6</sup>).
      - f) Resistance to Warping Under Heat (Vicat B 50; DIN 53 460/ISO 306): 80 (± 2) °C.
      - g) Shrinkage (factory standard): < 0.3 %.
      - h) Chemical Resistance (DIN 68 861): 1B.
      - 2) Other: As Indicated (see Finish Legend in the Drawings).
    - b. Other: Same as cabinet body.
- C. Materials for Semi-exposed Surfaces:
1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade VGS.
    - a. Edges of Plastic-Laminate Shelves: PVC tape, 0.018-inch (0.460-mm) minimum thickness, matching laminate in color, pattern, and finish.
    - b. For semi-exposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, Grade VGS.
  2. Drawer Sides and Backs: Solid-hardwood lumber.
  3. Drawer Bottoms: Hardwood plywood.
- D. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: High-pressure decorative laminate, Grade BKL.
- E. 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; see Section 09 06 00, Schedule for Finishes.
- F. Provide dust panels of 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers, unless located directly under tops.

## 2.14 COUNTERTOPS

- A. Provide tops complying with Section 12 36 00, Casework Countertops. Materials for countertops associated with Architectural Woodwork include, but are not limited to, Finish Legend Finish Codes "EXR", "PLAM", "S", and "ST" in the Drawings.

## 2.15 CLOSET SHELVING

- A. Shelf Material: 3/4-inch (19-mm) veneer-faced panel product with solid-lumber edge, typical, and veneer edge banding where indicated.
- B. Cleats: 3/4-inch (19-mm) solid lumber.

## C. Wood Species:

1. For Shelves to Receive Transparent Finish: Match species indicated for other types of transparent-finished architectural woodwork located in same area of building, unless otherwise indicated.
2. For Shelves to Receive Opaque Finish: Any closed-grain hardwood.

## 2.16 SHOP FINISHING

## A. Grade: Provide finishes of same grades as items to be finished.

## B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.

## C. Preparation 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 back of paneling and 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 panels.

## D. Transparent Finish: See Section 09 06 00, Schedule for Finishes.

1. Finish System:
  - a. Typical: AWS Conversion varnish.
  - b. Other: As indicated in the Finish Legend in the Drawings.
2. Staining: Match approved sample for color.
3. Wash Coat for Stained Finish: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
4. Filled Finish for Open-Grain Woods: After staining (if any), apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match stained wood.
  - a. Apply wash-coat sealer after staining and before filling.
5. Sheen: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D523.

## E. Interior Opaque Finish:

1. Where designated Finish Legend Finish Code "P" in the Drawings: Comply with Section 09 91 00, Painting.
2. Other:
  - a. AWS Finish System: CAB Water Acrylic Lacquer.
  - b. Color: Match Architect's sample.
  - c. Sheen: Gloss 61 or greater, gloss units measured on 60-degree gloss meter per ASTM D523.

## F. Exterior Opaque Finish:

1. Primer: MPI # 5, 2.3 mils, dry film thickness.
  - a. Basis of Design: Y24W8020 by Sherwin Williams.
2. Intermediate Coat: MPI# 163, 3.0 to 4.0 mils, dry film thickness.
  - a. Basis of Design: Sher-Cryl HPA Semi-Gloss B66W350 by Sherwin Williams.
  - b. Color: As selected by Architect.

**MATCH "BONE WHITE" COLOR  
OF THE 04 44 13.3 CURTAIN  
WALL PER RFI 03435.**

- c. Sheen: Gloss 61 or greater, gloss units measured on 60-degree gloss meter per ASTM D523.
- 3. Finish Coat: MPI# 163, 3.0 to 4.0 mils, dry film thickness.
  - a. Basis of Design: Sher-Cryl HPA Semi-Gloss B66W350 by Sherwin Williams.
  - b. Color: As selected by Architect.
  - c. Sheen: Gloss 61 or greater, gloss units measured on 60-degree gloss meter per ASTM D523.

## 2.17 RESTORATION WORK

- A. Restore wood surround of front door at Café of Dixie Building.
- B. Lead-based paint removed under WP-9A.
- C. Remove remaining paint, if any, and sand to a smooth finish.
- D. Damaged Areas: Repair or replace at contractor's option. Repair methods include fillers and epoxy type materials suitable for permanent application with opaque (paint) finish.
  - 1. Completed repair to be indistinguishable from original sound areas after paint finish, specified elsewhere, is completed.
- E. Sand all areas smooth. Leave ready to receive paint finish under Section 09 91 00, Painting.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- 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. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
- B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- C. 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).
- D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

- E. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- F. 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.
- G. 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 (2400 mm) long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
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 wall railings on indicated metal brackets securely fastened to wall framing.
  3. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches (3 mm in 2400 mm).
- H. 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. Maintain veneer sequence matching of cabinets with transparent finish.
  3. 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 sheet metal screws or toggle bolts through metal backing or metal framing behind wall finish.
- I. Countertops: Comply with Section 12 36 00, Countertops, and the following. Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
1. Align adjacent solid surface 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 (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
  3. Secure backsplashes to tops with concealed metal brackets at 16 inches (400 mm) o.c. and to walls with adhesive.
  4. Seal joint between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."
- J. Manufactured Products: Comply with manufacturer's recommendations.
- K. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

## 3.3 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 semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.
- D. Black Oxide Finish Repair: Repair as recommended by finisher.
  - 1. Minor scratches in protective coating may be concealed by wax recommended by finisher.
  - 2. Scratches that penetrate the oxide finish may be repaired only by finisher.
    - a. Prompt attention required to prevent underlying steel from rusting.
  - 3. Unsuccessful repairs will have to be replaced or re-finished completely.

--- E N D ---



---

SECTION 06 61 16  
SOLID SURFACING

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. Section Includes: Solid Surface fabrications, including simulated stonematerials, specified herein and provided under other Sections, including the following work:
1. Finish Legend Finish Codes in the Drawings:
    - a. S (Solid Surface).
    - b. ST (Stone).
  2. Related Components:
    - a. Secondary Support Framing.
- B. Definitions: For the purpose of this Section:
1. "Solid Surface" includes all items in the Finish Legend designated S (Solid Surface) and ST (Stone) in the Drawings.
    - a. "Stone" includes all items in the Finish Legend designated ST (Stone) including Simulated Stone (ST-1) in the Drawings.
  2. Decks: Countertops.
- C. Related Sections:
1. Wood blocking: Section 06 10 00, Rough Carpentry.
  2. Primary wood support for baseless tops: The following Sections, based on proximity, unless otherwise indicated:
    - a. Typical and where in proximity to Architectural Woodwork: Section 06 40 00.
    - b. Where in proximity to Manufactured Metal Casework: Section 12 31 00.
    - c. Where in proximity to Manufactured Wood Casework: Section 12 32 00.
    - d. Where in proximity to Manufactured Laboratory Casework: Section 12 35 53.
  3. Primary steel support for baseless tops: Section 05 50 00, Metal Fabrications.
  4. Color, pattern, and location of each type of acoustical unit: Section 09 06 00, Schedule for Finishes.
  5. Metal stud partitions: Section 09 22 16, Non-Structural Metal Framing.
  6. Gypsum wallboard: Section 09 29 00, Gypsum Board.
  7. Deck mounted soap dispensers and toilet accessories: Section 10 28 00, Toilet, Bath, and Laundry Accessories.
  8. Base cabinets for decks:
    - a. Section 06 40 00, Architectural Woodwork.
    - b. Section 12 31 00, Manufactured Metal Casework.
    - c. Section 12 32 00, Manufactured Wood Casework.
    - d. Section 12 35 53, Manufactured Laboratory Casework.
  9. Other deck materials including Metal, Plastic Laminate, Epoxy Resin, and Solid Wood: Section 12 36 00.
  10. Division 22, Plumbing:
    - a. Loose (non-integral; drop-in) metal or china sinks.
    - b. Plumbing fittings and connections.
- D. Products Supplied But Not Installed Under This Section:
1. Mounting instructions and special rubber expansion plug materials for metal undermount sinks. Supply to Division 22 for installation.

---

## 1.2 REFERENCES (Latest edition unless otherwise indicated)

- A. International Solid Surface Fabricators Association (ISSFA):
1. 2-01 Classification & Standards Publication of Solid Surfacing Material.
- B. American National Standards Institute (ANSI):
1. A136.1 Installation of Ceramic Tile
  2. Z124.3 Plastic Lavatories
- C. American Society for Testing and Materials (ASTM):
1. C97 Absorption and Bulk Specific Gravity of Dimension Stone
  2. C170 Compressive Strength of Dimension Stone
  3. C241 Abrasion Resistance of Stone Subjected to Foot Traffic
  4. C448 Abrasion Resistance of Porcelain Enamels
  5. C484 Thermal Shock Resistance of Glazed Ceramic Tile
  6. C501 Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser
  7. C531 Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
  8. C650 Resistance of Ceramic Tile to Chemical Substances
  9. C672 Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals
  10. C880 Flexural Strength of Dimension Stone
  11. C1026 Measuring the Resistance of Ceramic Tile to Freeze-Thaw Cycling
  12. C1028 Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method
  13. D256 Izod Pendulum Impact Resistance of Plastics
  14. D570 Test Method of Water Absorption of Plastics
  15. D638 Tensile Properties of Plastics
  16. D785 Rockwell Hardness of Plastics and Electrical Insulating Materials
  17. D790 Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
  18. D1499 Filtered Open-Flame Carbon-Arc Exposures of Plastics
  19. D2583 Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
  20. D3029 Impact Resistance of Flat Rigid Plastic Specimens by Means of a Tup (Falling Weight)
  21. E84 Test Method for Surface Burning Characteristics of Building Materials.
  22. G21 Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
  23. G22 Ceramic Pin Grid Array Packages
- D. International Organization for Standardization (ISO):
1. 846 Plastics - Evaluation of the Action of Microorganisms.
- E. National Sanitation Foundation (NSF), International Standards
1. 51 Plastic Materials and Components Used In Food Equipment.

## 1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23.
- B. Product Data: Manufacturer's literature may be submitted instead of shop drawings, provided the literature contains all required information. Include the following:
1. Basic chemical make-up; e.g. acrylic, acrylic/polyester blend.
  2. Flammability Rating.

- 
- C. Shop Drawings: Show materials, fabrication and installation details, including dimensions, fastenings, cut-outs for deck-mounted accessories and reinforcing for same, trim, accessories, and other pertinent data as may be requested. Provide all rough in information required by plumbing and electrical trades for coordination of their work. Where products of mixed chemical make-up are proposed, identify locations of each type.
- D. Samples:
1. Colors: Submit chips for selection and verification.
  2. Construction: Provide sample, if requested by Architect, showing proposed construction of top and seams, side and backsplash, color and finish.
- E. Sample Warranty: Submit with shop drawings in accordance with Section 01 33 25.
- F. Closeout Submittals:
1. Warranty: Upon completion of work under this section, submit an executed copy of the warranty in accordance with Section 01 33 25.
  2. Maintenance Information: Submit data for maintenance of finishes as required for Maintenance and Operating manuals.
  3. Contamination Profile: The manufacturer shall provide the applicator, building owner and/or occupant with a tabular profile of chemicals, solutions, oils, compounds, or materials which are injurious to the Solid Surface material. This profile shall be established by a generic (or trade name) basis, including those materials normally found to be associated with maintenance and cleaning of work of this Section.

#### 1.4 QUALITY ASSURANCE

- A. Fabricator and Installer:
1. Specialist with minimum three years experience in work of similar nature and scope.
  2. Accredited or otherwise approved by manufacturer.
- B. FDA certified for food contact; NSF 51 rated for "Splash Zone" and "Food Zone" areas in institutional settings.
- C. Flammability Rating: Meet Class 1 requirements; ASTM E 84:
1. Flame Spread: Not greater than 25.
  2. Smoke Developed: Not greater than 450.
- D. Solid Surface materials shall meet or exceed the engineering and performance properties set forth in ISSAFA-2-01.

#### 1.5 SPECIAL WARRANTY

- A. Manufacturer to warrant that work of this Section shall be free from defects in material, workmanship, fabrication, and installation under normal use and service for the warranty period. Defects shall be repaired or replaced with conforming work during the warranty period at no additional cost to Owner.
1. Warranty Period: 5 years.
- B. Exceptions: Special Warranty claims not applicable to the following:
1. Accidents, abuse, or misuse.
  2. Exposure to extreme heat.
  3. Improper maintenance.

4. Major alteration or repair by personnel not authorized by manufacturer which significantly contributes to the defect.
- C. Minor repairs of scratches, burns, or stains performed by Owner in accordance with manufacturer's recommendations, shall not void warranty.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Anchors for Solid Surface panels shall:
1. Withstand at least two times the weight of the Solid Surface material in compression, tension, and shear.
  2. Be concealed from view.
  3. Be non-corrosive with adjacent materials.
- B. Solid Surface S-1 and S-3 Physical Properties:

| 100% Cast Acrylic                     |                                                         |           |                                       |
|---------------------------------------|---------------------------------------------------------|-----------|---------------------------------------|
| Property                              | Result                                                  |           | Test                                  |
| Surface Burning Characteristics       | Class A                                                 |           | ASTM E84                              |
| Tensile Strength                      | ≥ 5000 psi                                              |           | ASTM D638                             |
| Tensile Modulus                       | ≥ 1.0 x 10 <sup>6</sup> psi                             |           | ASTM D638                             |
| Flexural Strength                     | ≥ 7000 psi                                              |           | ASTM D790                             |
| Flexural Modulus                      | ≥ 1.0 x 10 <sup>6</sup> psi                             |           | ASTM D790                             |
| Elongation                            | ≥ 0.3%                                                  |           | ASTM D638                             |
| Hardness                              | ≥ 90 (Rockwell "M" scale)<br>≥ 52 (Barcol Impresser)    |           | ASTM D785<br>ASTM D2583               |
| Gloss (60° Gordon)                    | 5 - 20                                                  |           | NEMA LD3.1                            |
| Color Stability                       | No change                                               |           | NEMA LD3<br>except 100 hours          |
| Wear and Cleanability                 | Passes                                                  |           | ANSI Z124.3                           |
| Stain Resistance                      | Passes                                                  |           | ANSI Z124.3                           |
| Fungi and Bacteria Resistance         | No attack                                               |           | ASTM G21 & G22                        |
| Weatherability                        | No change (≥ 1000 hours)                                |           | ASTM D1499                            |
| Abrasion Resistance                   | No loss of pattern<br>Weight loss ≤ 0.9g (1000 cycles)  |           | NEMA LD3-3.01<br>ANSI Z124.3          |
| Water Absorption Weight (% max.)      | 24 hours                                                | Long Term | ASTM D570                             |
| 1/4"                                  | 0.05                                                    | 0.50      |                                       |
| 3/4"                                  | 0.10                                                    | 0.90      |                                       |
| Impact Resistance                     | ≥ 0.24 ft-lbs (Notched Izod)<br>≥ 9.0 ft-lbs (Gardner)  |           | ASTM D256<br>(Method A)<br>ASTM D3029 |
| Ball Drop<br>1/4" sheet<br>1/2" sheet | No failure<br>≥ 36", 1/2 lb ball<br>≥ 140", 1/2 lb ball |           | NEMA LD3-303                          |
| Boiling Water Surface Resistance      | No change                                               |           | NEMA LD3-3.05                         |
| Toxicity<br>(as used by NY State)     | ≥ 80 gms (Solids)<br>≥ 65 gms (Patterns)                |           | Pittsburgh<br>Protocol LC50           |
| High Temperature Resistance           | No change                                               |           | NEMA LD3-3.06                         |

## C. Solid Surface (Simulated Stone) ST-1 Physical Properties:

| Cast Quartz Agglomerate                     |                       |                        |
|---------------------------------------------|-----------------------|------------------------|
| Property                                    | Typical Result        | Test                   |
| Thermal Shock                               | Passes                | ASTM C484              |
| Breaking Strength                           | 1,309 lbs             | ASTM C448              |
| Compressive Strength                        | 24,503 psi            | ASTM C170              |
| Abrasion Resistance                         | $\geq 60$             | ASTM C241              |
| Thermal Expansion                           | $1.2 \times 10^{-5}$  | ASTM C531              |
| De-Icing                                    | No Effect             | ASTM C672              |
| Flame Spread                                | 10                    | ASTM E84               |
| Smoke Developed                             | 115                   | ASTM E84               |
| Freeze-Thaw Cycles                          | Passes                | ASTM C1026             |
| Hardness                                    | 7                     | Mohs Scale             |
| UV Light Resistance                         | Passes                | ASTM G23               |
| Flexural Strength                           | 5,039 psi             | ASTM C880              |
| NTMA Impact Strength                        | Passes                | 2 lb ball from 8 ft    |
| Abrasive Wear Index                         | $\geq 200$            | ASTM C501              |
| Static Coefficient of Friction<br>(dry/wet) | $\geq 0.6$ (Polished) | ASTM C1028             |
| Water Absorption (% by weight)              | 0.03                  | ASTM C97               |
| Stain & Chemical Resistance                 | No effect             | ASTM C650              |
| Dimensional Stability                       | Class 1 - 3           | Gabrielli<br>Apparatus |

## 2.2 MATERIALS

- A. 100% Cast Acrylic Products: Solid homogeneous 100% acrylic material filled with methyl methacrylate. Pattern and color are uniform throughout the material, not coated. Material shall have minimum physical and performance properties specified. Superficial damage to a depth of 0.25 mm (0.01 inch) shall be repairable by sanding or polishing. Material thickness shall be as indicated but never less than 6 mm (1/4 inch) in thickness. Material thickness shall be as indicated.
- B. Cast Quartz Agglomerate: Solid sheets consisting of quartz aggregates bound together with a matrix of filled plastic resin and complying with the "Physical Characteristics of Materials" Article of ANSI SS1. Pattern, color, and quartz aggregate are uniform throughout the material, not coated. Material shall have minimum physical and performance properties specified. Superficial damage to a depth of 0.25 mm (0.01 inch) shall be repairable by sanding or polishing. Material thickness shall be as indicated but at least 6 mm (1/4 inch).
- C. Colors/Textures/Patterns/Finishes: As selected by Architect from manufacturer's full range; see Finish Legend in the Drawings and Section 09 06 00, Schedule for Finishes.

- 
- D. Surface Finish Consistency: Exposed finished surfaces including edges shall have a uniform appearance.
- E. Support Framing for Decks:
1. Primary Support: Specified elsewhere.
    - a. Base Cabinets.
    - b. Baseless Decks:
      - 1) Wood: Section 06 40 00.
      - 2) Metal: Section 05 50 00.
  2. Secondary Support: Solid wood and veneer plywood in accordance with Section 06 40 00, Architectural Woodwork.
- F. Blocking for Work Station Countertops: Veneer plywood as specified under Section 06 40 00, Architectural Woodwork.
- G. Tailpieces: See "Products Supplied But Not Installed Under This Section" under SUMMARY in Part 1 above. Provide 1-1/2 inch tailpiece in accordance with requirements of Division 22
- H. Accessories: All materials and devices required for complete installation and approved by Solid Surface material manufacturer. Sealants and adhesives shall comply with the requirements of Section 01 81 13, Sustainable Design Requirements.
1. Silicone Sealant: Sealant shall be a mildew-resistant, FDA and OSHA Nationally Recognized Testing Laboratory (NRTL) listed silicone sealant in a clear formulation. The silicone sealant shall be approved for use by the Solid Surface manufacturer. Use sealant to seal all expansion joints between Solid Surface components and all joints between Solid Surface components and other adjacent surfaces such as walls, floors, ceiling, and plumbing fixtures.
  2. Seam Adhesive: Seam adhesive shall be a two-part adhesive kit to create permanent, inconspicuous, non-porous, hard seams and joints by chemical bond between Solid Surface materials and components to create a monolithic appearance of the fabrication. Adhesive shall be approved by the Solid Surface manufacturer. Adhesive shall be color-matched to the surfaces of simulated stone being bonded together. The seam adhesive shall be clear or color matched where particulate patterned, Solid Surface materials are being bonded together.
  3. Panel Adhesive: Panel adhesive shall be neoprene based panel adhesive complying with ANSI A136.1, Underwriter's Laboratories (UL) listed. Use this adhesive to bond Solid Surface components to adjacent and underlying substrates. Color to match Solid Surface fabrications.
  4. Plumbers Putty: As specified under Division 22.
  5. Mortar: Provide as specified in Division 04.
  6. Miscellaneous: As required for a complete installation.
- I. Anchors: Wire anchors and pins of brass, copper, or stainless steel of minimum 8 gage, and as recommended by Solid Surface manufacturer.

## 2.3 FABRICATION

- A. General:
1. Shop assembly: Fabricate components to greatest extent practical to sizes and shapes indicated.
  2. Fabricate in accordance with manufacturer's written recommendations. Do not utilize fabricating techniques or materials which may void warranty.
  3. Provide product in the largest pieces available, unless indicated otherwise.
  4. Solid Surface Thicknesses: ½ inches typical except as otherwise noted.

- 
5. Work exposed edges, corners, and seams, smooth and flush.
  6. Permanent Joints: Make with seam adhesive.
  7. Cut-Outs: Fabricate with radiused corners as recommended by manufacturer to prevent cracking.
  8. Ease all exposed arisses.
- B. Vertical surfaces:
1. Butt joints between sheets made with manufacturer's joint adhesive matching color of Solid Surface material; adhesively applied to solid substrates; 1/8" expansion joints filled with color-matching silicone every 10' to 15' with matching color.
- C. Decks: One piece deck with factory cut openings; custom sizes as shown on drawings.
1. Factory Cut Openings: Verify requirements before fabrication. Provide drilled or cut openings for the following:
    - a. Waste paper holes.
    - b. Loose bowls and plumbing trim specified under Division 22, Plumbing. Obtain templates from Division 22, Plumbing.
    - c. Other trades as needed.
  2. Deck Edges: Buildup with 1/2 inch thick sheets; drop or stack method per manufacturer's recommendations; permanently bonded to deck. Profiles as follows:
    - a. Typical: "Full Round Edge" according to AWS Appendix B, Section 11. Match dimensions of post-formed Plastic Laminate countertop edges specified in Section 12 36 00, Countertops.
    - b. Other, including Apron: As shown on the Drawings.
  3. Provide no-drip (marine) edge at decks with sinks.
  4. Undermount Sinks:
    - a. Stainless Steel Sinks: Drill mounting holes from sink templates furnished by Division 22 trade. Provide special rubber plug expansion anchors for attachment clips.
    - b. Cast Iron or China Bowls: See "Loose Undermount Sinks" under PREPARATION in Part 3 below. Provide all mounting holes required.
  5. Drop-In Sinks: Coordinate preparation with Division 22, Plumbing.
  6. Work Station Mounting Substrate: For work stations without base cabinet, provide full coverage mounting substrate on countertop bottom with two layers of 5/8" thick veneer plywood for support and attachment of items such as keyboards and CPU holders. Laminate plywood layers with glue and screws for total substrate thickness 1-1/4 inches.
    - a. Extend mounting substrate not less than 1 inch beyond adjacent casework for support. Block remainder of countertop flush with work station and as needed for support.
    - b. Laminate mounting substrate to bottom of countertop, with B face exposed, as required to support a uniform tension load of at least 25 psf plus 50-pound concentrated load applied at any location. Laminate in accordance with solid surface manufacturer's recommendations (such as adhesive spots at 12 inch centers).
    - c. Evidence of fasteners (such as exposed to view) not permitted on top of deck.
    - d. Provide additional apron (edge) depth as needed to conceal mounting substrate thickness.
    - e. Stencil warning message on bottom of mounting substrate in 1-inch high letters as follows: "MOUNTING SCREW LENGTH 1-1/4" MAXIMUM".
- D. Splashes: Sheet thickness according to "FABRICATION, General" above, typical; full or partial height as shown; include field cut-outs for all recessed accessories shown.
1. Typical Unless Otherwise Indicated: Cove Backsplash: Permanently bond to deck. Provide with the following:
    - a. Wall scribe.

- 
- b. Coved intersection between splash and deck.
    - 2. Where Indicated: Straight Backsplash: Provide loose for field attachment. Scribe and cove not required.
    - 3. Coved Side Splashes: Fabricate same as "Cove Backsplash" above.
      - a. At locations between fixed walls, field measure each condition for length and squareness; fabricate with side splashes for not more than ¼ inch joint at each end.
    - 4. Side Splashes: Provide loose for field attachment. Scribe and cove not required.
  - E. Work exposed shop cut deck edges to match finish specified under MATERIALS above.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine surfaces to receive work of this Section and verify that condition is satisfactory for the installation; notify Resident Engineer of conditions deemed unsatisfactory for the installation; installation of Solid Surface materials constitutes installers acceptance of the substrates as satisfactory.
  - 1. Verify primary supports are adequate and properly spaced.

#### 3.2 PREPARATION

- A. Support Preparation: Provide secondary support for decks and loose sinks in accordance with manufacturer's recommendations. Minimum 1 x 4 wood. Securely attach to cabinets or supporting framing; no exposed fasteners permitted in completed work.
- B. Secondary Deck Support:
  - 1. Runners: Install parallel to length of deck and as follows:
    - a. Front and back.
    - b. As needed to support deck at intervals of not more than 12 inches.
  - 2. Runner Supports: Install perpendicular to runners. Provide as needed to support runners at intervals of not more than 18 inches.
- C. Loose Sinks: Sinks supplied by other trades may require special supports separate from attachment to decks. Consult Solid Surface manufacturer for specific recommendations. Special attention is required for the following sink types:
  - 1. Cast iron.
  - 2. Vitreous china.

#### 3.3 INSTALLATION

- A. General:
  - 1. Install in accordance with manufacturer's specifications and approved shop drawings. Field verify dimensions. Erect units secure, rigid, straight, level, and plumb with holes concealed. Exposed surfaces, including exposed edges, shall match finish required by Section 09 06 00 - Schedule for Finishes.
  - 2. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.
  - 3. Exposed joints/seams shall not be allowed.



- 
4. Reinforce field joints with Solid Surface strips extending a minimum of 1 inch on either side of the seam with the strip being the same thickness as the top.
  5. Cut and finish component edges with clean, sharp returns.
  6. Rout radii and contours to template.
  7. Carefully dress joints smooth, remove surface scratches and clean entire surface.
- B. Decks: Set in dabs of silicone sealant at approximate 12 inch centers.
1. Field Joints: Reinforce with 3 to 4-inch wide seam block.
  2. Seal joints and perimeters with approved sealant.
  3. Make cut outs and seal as required for work of other trades including plumbing fittings shown or scheduled. See FABRICATION in Part 2 above.
- C. Loose Undermount Sinks: Installed under Division 22.
1. Stainless Steel: Mechanically attach to deck with rubber expansion plug system, in shop drilled mounting holes. See "Products Supplied but Not Installed under This Section" in Part 1 above for mounting instructions and materials supplied to Division 22 trade.
  2. Heavy Sinks: See 'Loose Sinks" under PREPARATION above.
- D. Loose Drop-In Sinks: Installation by trade supplying sink.
1. Exception: Attachment requiring fasteners into deck shall be provided under this Section using rubber expansion plug system.
- E. Drain connection to bowls and installation of plumbing fixtures and accessories provided under Division 22.
1. See "Products Supplied but Not Installed under This Section" under SUMMARY in Part 1 above for tailpieces.

END OF SECTION