

SECTION 06200 - FINISH CARPENTRY AND MILLWORK

City of San Diego, CWP Guidelines

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing finish carpentry, millwork and appurtenances.

1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.

1. Section 06100 Rough Carpentry
2. Section 07600 Flashing and Sheet Metal
3. Section 08710 Finish Hardware
4. Section 08800 Glazing
5. Section 09900 Architectural Paint Finishes
6. Section 12345 Laboratory Casework and Fixtures
7. Section 15430 Plumbing Specialties

1.3 CODES

- A. The WORK of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego Municipal Code:

1. Uniform Building Code
2. State of California, Building Code, "Title 24" for seismic force requirements.

1.4 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:

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| 1. | Fed. Spec. FF-B-561C | Bolts, (Screw), Lag |
| 2. | Fed. Spec. FF-B-588C(1) | Bolts, Toggle and Expansion Sleeve, Screw |
| 3. | Fed. Spec. FF-N-105B(3)
Int.Amd. | Nails, Brads, Staples and Spiles; Wire, Cut and Wrought |
| 4. | Fed. Spec. FF-S-111D | Screw, Wood |
| 5. | U.S. Commercial Std. CS-35 | Pine Plywood |
| 6. | U.S. Commercial Std. CS-157 | Hardwood Plywood |
| 7. | Product Std. PS 1 | Softwood Plywood |
| 8. | Product Std. PS 58 | Hardboard |

9.	ANSI/NWWDA I.S.-1	Wood Flush Doors
10.	WIC	WIC Flush Door Standards
11.	NEMA LD-3	High Pressure Laminated Plastic
12.	RIS	Standard Specifications for Grades of California Redwood Lumber, Redwood Inspection Service.
13.	WCLIB	Standard Grading and Dressing Rules No. 16, West Coast Lumber Inspection Bureau.
14.	WWP	Standard Grading Rules for Western Lumber, Western Wood Products Associates.
15.	WIC	Manual of Millwork, Woodwork Institute of California
16.	UL-10	Standard for Fire Test Door and Assemblies

1.5 SHOP DRAWINGS AND SAMPLES

A. The following shall be submitted in compliance with Section 01300:

1. Manufacturer's product data including catalogue cuts of laminated plastics, [glass-reinforced polyester,] [epoxy resin,] [hardboard,] [panelling,] [siding,] [doors,] and finish hardware.
2. Samples of finish hardware products to be utilized.
3. Shop drawings bearing the "WIC Certified Compliance Label."
4. Samples of prefinished wood of each species with finish painting.
5. Samples of laminated plastics for selection of colors and pattern and, when requested, additional samples of selected products.

1.6 OWNER'S MANUAL

A. The following shall be included in the OWNER'S MANUAL in compliance with Section 01300:

1. Manufacturer's installation instructions.
2. Certification that products have been factory tested.
3. Certificate of compliance.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. **Storage:** The CONTRACTOR shall provide a clean, dry, secure storage area as required by WIC Manual of Millwork, Technical Bulletin 419-R "Recommended Care and Storage of Architectural Millwork."

PART 2 -- PRODUCTS

2.1 GENERAL

- A. **General:** A WIC Certificate of Compliance Certification shall be issued prior to delivery. It shall certify that the products fully meet all the requirements of the WIC Grade indicated and these Specifications.
- B. **Products:** Products shall be new, of current manufacture, and shall be the products of reputable manufacturers specializing in the manufacture of such products.
- C. **Manufacturer's Recommendations:** Products (such as finish hardware) shall be recommended by the WIC and the manufacturer for the application indicated.
- D. **Casework:** Each elevation of casework shall bear the WIC Certified Compliance Label. The casework shall be inspected by the WIC and a report provided to the CONSTRUCTION MANAGER.

2.2 WOOD PRODUCTS

- A. **Softwoods:** Softwoods shall be vertical grain Douglas fir or white pine, meeting WIC Custom Grade, Premium Grade and Laboratory Grade requirements. Douglas fir shall conform to WCLIB Standard Grading and Dressing Rules No. 16.
- B. **Redwood:** Redwood shall be clear heart conforming to the requirements of the California Redwood Association.
- C. **Hardwoods:** Hardwood shall be [ash], [birch], [maple] [oak] [and] [] with a transparent finish conforming to [WIC] [Custom] [Premium] Grade. Hardwood species shall not be mixed within a project.

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NTS: Specify color and cut of hardwood such as: Ash (Natural) (Brown) (White), Birch (Natural) (Red) (White), Maple (Natural) (White), Oak (Red) (White), etc.

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- D. **Plywood:** Softwood plywood shall conform to the requirements of the U.S. Product Standards PS-1, or Commercial Standards CS 157, Grade A for pine plywood. Hardwood plywood shall conform to the requirements of the U.S. Commercial Standard CS 35. Plywood backboards and plywood wainscot shall be APA Grade trademarked A-C-INT-APA. Backing for countertops shall be 3/4-inch thick particle board or plywood complying with recommendations of the WIC and the laminated plastic manufacturer.

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NTS: Verify panelling and siding type required and revise accordingly. Items which might be specified include the following: wood type, color characteristics, sawn cut, surface treatment, texture and patterns; joint type; panelling (veneer) patterns.

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E. **Wood Paneling and Siding:**

1. Interior wood [prefinished] [to be painted] paneling shall be []-in by []-in [T&G] [ship lapped] [butt joint] [], [rough] [smooth] face clear, [mixed grain] [clear heart] [] [redwood] [cedar] [oak] [] paneling.
2. Siding shall be [1]-inch by [4] [6] [8]-inch [T&G], [ship lapped] [], kiln-dried [clear heart redwood] [] siding.

2.3 FASTENERS

- A. Nails for exterior millwork and siding shall be stainless steel where exposed to the weather and galvanized where concealed.
- B. Lag screws shall conform to FS FF-B-561C.
- C. Wood screws shall conform to FS FF-S-111D. Cadmium plated screws, bolts, nuts and washers shall be used on exposed interior work. Stainless steel screws, bolts, nuts and washers shall be used on exterior work.

2.4 GLUE

- A. Glue shall be Type II water-resistant designed not to penetrate final finish.

2.5 PLASTIC LAMINATES

- A. Laminated plastic shall be high-pressure-laminated plastic conforming to NEMA LD-3.
- B. Chemical resistant high-pressure laminated plastic shall comply with NEMA LD-3 and shall show essentially no effect when left in contact with the following reagents for a period of 16 hours, either when reagents are allowed to evaporate or are maintained as a liquid.

Acids

Acetic Acid	98%
Citric Acid	10%
Hydrochloric Acid	37%
Formic Acid	90%
Nitric Acid	30%
Sulfuric Acid	77%
Perchloric Acid	60%
Phosphoric Acid	85%
Phenol	85%

Alkalies

Ammonium Hydroxide	28%
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Salts

Calcium Hypochlorite, saturated
Potassium Permanganate
Sodium Bisulfite
Sodium Bisulfate
Sodium Chloride

Solvents

Acetone
Amyl Alcohol
Benzene
Ethyl Alcohol
Carbon Tetrachloride
Chloroform
Dioxane
Ethyl Acetate
Ethyl Alcohol
Ethyl Ether
Ethylacetoacetate
Formaldehyde
Furfural
Gasoline
Kerosene
Naptha
Toluene
Trichlorethylene
Xylene

Zinc Chloride	
Silver Nitrate	1%
Other Reagents	
Cresol	
Chlorobenzene	
Detergent (Dreft)	
Hydrogen Peroxide	
Iodine, 1% in Alcohol	
Mercurochrome	
Mineral Oil	
Urea	6.6%

The chemical resistant laminated plastic shall conform to the requirements of Section 17 of the WIC Woodwork Manual.

The chemical resistant laminated plastic shall be manufactured in a full range of colors for color selection and coordination.

[2.6 GLASS-REINFORCED POLYESTER FABRICATIONS]

- [A. Glass-reinforced polyester laboratory countertops, box-curbs, splashes and sinks shall comply with Section 17B of WIC Manual of Millwork. Color shall be gray. Sinks shall be built-in and shall include 1-1/2-inch, non-corrosive drains and tail pieces for connecting pipe.]

[2.7 EPOXY RESIN]

- [A. Epoxy resin laboratory countertops, box-curbs, splashes and sinks shall comply with Section 17C of WIC Manual of Millwork. Color shall be black unless otherwise shown or indicated. Sinks shall be complete with drains, tail pieces, stopper and removable overflow stoppers.]

2.8 ALUMINUM TRIM

- A. Aluminum trim shall be extruded aluminum with [clear] [gold] [dark bronze] [anodized] finish.

2.9 HARDBOARD

- A. Hardboard shall conform to U.S. Product Standard PS 58, tempered type. Hardboard tool boards shall be 1/4-inch thick tempered hardboard with perforated holes at 1-inch centers to accept "pegboard" hooks.

2.10 FINISH HARDWARE

- A. Finish hardware shall be top quality hardware with US 26D finish unless otherwise indicated. Hardware shall be as listed in WIC "Manual of Millwork," Supplement No. 1 to Sections 14 and 15.

1. Hinges shall be heavy duty wrap-around 2-1/4-inch minimum width, butts of 0.083-inch thick steel (US 26D), off-set for overlay door installation with a minimum of 5 No. 8 full thread screws to the jamb and 4 No. 8 full thread screws to the door. Pins shall be 0.083-inch thick steel. Doors over 48 inches in height shall have 3 hinges (minimum). Hinges shall be notched into door to maintain reveal tolerance of 1/8-inch. As an alternate to the butt hinges, hinges may be European-type concealed hinges that provide not less than a 120E swing.

2. Base adjusters (leveling feet) for fixed cabinets shall be the adjustable screw type with a floor bearing surface of at least 9 square inches at each foot, and shall permit leveling the cabinet from the inside of the case through holes in the cabinet bottom. Base adjuster access shall be provided with covers.
3. Drawer guides shall be full extension metal drawer guides sized by loading condition. Drawer guides in laboratory casework shall be epoxy coated.

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NTS: Specification writer shall verify door material required. Specify wood, wood color, grain, cut., etc.

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2.11 WOOD DOORS

- A. Wood doors and transom panels shall be flush solid core construction unless indicated otherwise.
 1. Wood doors shall be flush minimum 1-3/4-inch thick solid core doors as indicated, conforming to NWWDA Standard I.S. one of WIC Flush Door Standard. [Face veneer and edges shall be [premium] [], [white oak], [red oak], [maple], [], [plain], [] sliced grade hardwood.] Transom panels, where shown, shall match door construction. Door and transom panels shall be transparent finish veneers and matched on both faces. [Doors shall be [Premium] Grade doors with 0.125-inch HPDL (laminated plastic) covered doors with faces and edges covered with HPDL.]
 2. Solid core doors shall be 5-ply or 7-ply glued vertical block or strip-type lumber core construction. Fire rated doors shall have a core complying with fire-code rating requirements.
- B. Fire rated doors shall bear the UL label for fire test-door and assemblies and shall comply with UL 10.
- C. Adhesives shall conform to CS 171; Type I (waterproof) for exterior doors; and Type II (water-resistant) core assembly and Type I face assembly for interior doors.
- D. Glazed openings for doors shall have hardwood stops to match face veneer. For fire rated doors, metal glass stops shall be provided. [Glass and stops shall be factory-installed.] [Glass shall comply with Section 08800.]
- E. Wood doors shall include louvers where indicated. Louvers for wood doors shall be dark bronze anodized extruded aluminum 6063-T 5 alloy, minimum 16-gauge. Fastenings shall be of aluminum or stainless steel and shall match louver colors. Louver blades shall be inverted "Y"-type for exterior doors and "V"-type for interior doors. Louvers for fire-rated doors shall be fabricated with a fusible link. Louvers on exterior wood doors shall be equipped with removable insect screens.

2.12 DOOR FRAMES AND HARDWOOD TRIM

- A. Door frames, chair rails, and hardwood trim shall be [WIC] Premium Grade [select white oak] [red oak] [maple] [] selected for a [transparent] [paint] finish.

2.13 MANUFACTURERS

- A. Wood panelling or siding products shall be manufactured by one of the following (or equal):

Palco Co.
Simpson Building Supply Co.
American Hardwood Co.
General Veneer Manufacturing Co.

PART 3 -- EXECUTION

3.1 GENERAL

- A. **General:** Products shall be installed in accordance with the written installation instructions.

3.2 CABINET AND CASEWORK

- A. Millwork, cabinets and casework shall be Plastic Covered Casework unless otherwise indicated, fabricated in accordance with the indicated standards and conforming to WIC "Manual of Millwork," Section 15.
 1. General cabinets and casework shall be Custom Grade.
 2. Cabinets and casework in lobbies and conference rooms shall be Premium Grade.
 3. Cabinets and casework in laboratory rooms and related areas shall be Laboratory Grade.

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NTS: Style B face frame is not recommended by WIC.

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- B. Cabinet and casework shall conform to WIC grade indicated above and shall be [style A frameless] [style B face frame] construction. Cabinet work and casework shall have laminated plastic finish unless otherwise indicated. [Prefinished transparent finish shall be provided in the following rooms and areas [][][] and []].
- C. Laboratory casework shall be modular casework. Modular casework shall conform to WIC "Standards Laminated Plastic Covered Laboratory Grade." Countertops, box curbs, splashes, ends, and sinks shall comply with Section 12345. Cabinet work shall be of standard manufacturers' sizes approximately equal to those indicated with filler panels. Special sizes shall be provided where indicated. Laboratory casework shall be covered with chemical resistant, high-pressure laminated plastic.
- D. Laminated plastic countertops, splashes, and paneling shall be of the same grade as cabinet and casework.
- E. Laminated plastic countertops shall have: [self-edged] [no-drip bull-nose] [no-drip tilt] edge covering; [square butt joint] [integral cove] back splash; [waterfall] [square with self edge] top

of back splash. Side splashes shall be provided where adjacent side wall conditions. Countertops, splashes, box-curbs, casework, and paneling, within laboratory rooms or areas, shall be [chemical resistant high-pressure-laminated plastic] [epoxy riser] unless shown or indicated otherwise.

- F. Where hardwood cabinets are indicated the cabinet work shall be as follows: hardwood and hardwood veneers shall be installed on exposed portions of cabinet work, including visible surfaces of bookcases and glass door cabinets and shall be [rotary-cut] [birch] [white oak] [red oak] [] [or] [white ash] conforming to WIC grade specified. Door and drawer edge bands shall be of the same species and grade as the exposed face. Graining of veneers shall match in color and texture, and shall be free of surface defects including sap, runs, stains or fills. Visible surfaces, with doors or drawers open or closed within the casework of other cabinets, shall be laminated plastic or cabinet liner covered.
- G. Shelves over 12-inch wide shall be 3/4-inch plywood. Shelves less than 12 inches wide may be solid stock. Shelving in bookcases or open storage casework exceeding a span of 3 ft shall be not less than 7/8-inch thick and spans of more than 4 ft shall be at least 1-inch thick. No span of shelving shall exceed 5 ft. All edges of shelves shall be banded.
- H. Glazing shall be performed in the mill. Glass and glazing materials shall comply with Section 08800. Sliding glass doors shall be provided with finger pulls and ball bearing-type tracks.
- I. Finish hardware shall be provided. Hardware shall be US 26D finish unless otherwise indicated. Master keyed locks shall be provided and installed where indicated. Pulls, knobs, and handles used with laboratory casework shall be epoxy coated (colors to be selected by the CONSTRUCTION MANAGER).
- J. Drawers shall be provided with metal drawer guides.

3.3 INSTALLATION

- A. The WORK shall be shop-fabricated and assembled based on actual field dimensions and shall be delivered to the job site ready for installation. Installation shall be done by WIC certified installers, or shall be provided with WIC inspection and issuance of a "WIC Compliance Certification."
- B. Wood grounds and blocking of the sizes and shapes necessary for casework and millwork shall be provided. Cabinet work shall be coordinated with framing and blocking, and with installation of equipment. Cabinets and casework shall be seismic reinforced as required by Code.
- C. WORK shall be true and straight, with edges clean cut, and assembled with members properly housed together and tightly jointed. Joints subject to strain shall be reinforced with screws or bolts. The method of joining and reinforcing shall be indicated on the shop drawings. WORK shall be accurately positioned and installed plumb and level, with separate parts fitted and properly aligned. Single lengths of wood shall be used whenever practicable. Trim shall have plowed backs.
- D. Casework and millwork shall be back primed. Priming shall be in accordance with WIC recommendations.
- E. WORK shall be neatly scribed to other construction and securely attached in place with concealed fastenings where possible or with finish nails.
- F. Exposed nail heads and screw heads shall be set or countersunk before putty is applied.

- G. Exposed surfaces shall be dressed and sanded to smooth, uniform finish, free of marks and other blemishes and ready for finish work.
- H. Countertops, box curbs, splashes, and ends shall be installed true, level, straight and aligned. Sections shall be properly housed together, tightly jointed, and clamped. Countertops shall be installed in sections as large as possible with the fewest joints. They shall be accurately positioned and installed plumb and level with hairjoints and without rises or bumps at joints. Countertops, box curbs, splashes and ends shall be provided with all holes and openings needed and necessary for plumbing and electrical fixtures and accessories. [Epoxy items shall be installed by experienced epoxy craftsmen or under the direct supervision of experienced craftsmen.]
- I. Interior surfaces within space under sinks shall be covered with chemical resistive laminated plastic. This area shall also be provided with air vents.
- J. Plywood wainscots, tool boards, and backing panels shall be screw-mounted with flat head stainless steel wood screws at not less than 16 inches on center and within 1-inch of edges. Screws shall be countersunk. Plywood shall have glue beads applied to back before installation. Panels up to 4 feet in height shall be installed in horizontal sheets. Panels over 4 feet in height shall be installed vertically with vertical joints at 4-foot corners.
- K. Fascias shall be installed in lengths as long as possible. No joints shall be allowed over or near doorways. At least 3 scarf cuts shall be made the full length of the board on the non-visible side to prevent warping. End joints shall be mitered and butt joints shall be spliced.
- L. Wood paneling shall be glued and blind nailed. Wood siding shall be blind nailed.

3.4 FINISHING

- A. Finish any wood casework exposed trim or feature parts as specified or as necessary to match casework. Finish semi-exposed surfaces such as wood drawer parts, etc., not covered with plastic, with stain or match color of lines. Finishing requirements shall conform to WIC Section 25.

[3.5 SANDBLASTING]

- [A. Wood indicated to be sandblasted such as fascias, false beams, trim, and beams shall be lightly sandblasted to expose wood grain pattern. Adjacent surfaces shall be covered or otherwise protected during sandblasting.]

** END OF SECTION **