

11th edition

Manual of Millwork

**STANDARDS OF THE WOODWORK INDUSTRY
FOR ARIZONA, CALIFORNIA, NEVADA, AND OREGON**

A SPECIFICATION OF QUALITIES, METHODS, AND WORKMANSHIP REQUISITE TO
THE PRODUCTION AND INSTALLATION OF ARCHITECTURAL WOODWORK



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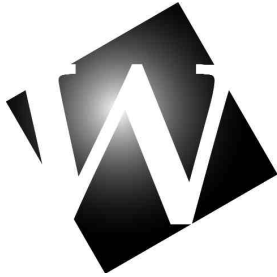
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INTRODUCTION

The **WOODWORK INSTITUTE**, founded in 1951, is a self-regulating, non-profit organization dedicated to providing the leading standards and quality assurance programs for the architectural millwork industry in the western U.S. The Institute serves more than 450 members throughout Arizona, California, Nevada, and Oregon.

History of the Woodwork Institute logo



2003 & beyond

The new Woodwork Institute logo represents the organization's renewed commitment to providing unparalleled service and assurance to the millwork and design communities.



1953 - 2003

For 50 years, the framed logo stood for the leading standards and quality assurance programs in the western U.S.



1951 - 1953

Just as the original logo indicated, the Woodwork Institute was founded on the principles of assuring measured quality to its members and customers.

The organization was originally named the Wood Window Institute of Northern California with the intent of promoting wood windows to the architectural community, which was beginning to favor metal windows. Shortly after its founding, the organization was renamed the Woodwork Institute of California (WIC) and its focus was broadened to include the development of standards for architectural millwork. The founding board of directors agreed the organization should support all woodworkers, not just those that produce windows.

In 2003, "of California" was dropped from the name to reflect the expanding marketplace the organization serves. Today, the Woodwork Institute still has the same vision it had in the 1950s -- "assurance through certification."

The **MANUAL OF MILLWORK**, first published in 1953 and now in its 11th edition, provides an established set of material, fabrication, workmanship, and installation standards for more than 7,000 architects, specifiers, and design professionals. **CERTIFIED COMPLIANCE** and **MONITORED COMPLIANCE** programs are established quality control and assurance tools for millwork projects used in conjunction with the standards contained within the **MANUAL OF MILLWORK**. Over 2000 projects were certified in 2002, and a projected 2500 projects will be certified in 2003.

The Institute has made an effort to promulgate the **MANUAL OF MILLWORK** for the benefit of the public based on a thorough review of available industry information, testing, and accepted practices. The **MANUAL** is not intended to override local building codes and may conflict with certain 'localized' and/or individual firm's practices.

These architectural millwork standards will afford the user an assurance of quality materials, fabrication, workmanship, finishing, and installation consistent with the economic utilization of resources for the **GRADE** selected as outlined below:

ECONOMY GRADE meets the requirements of lower-cost residential and commercial construction wherein economy is the principal factor; also for use in storage room and utility areas.

CUSTOM GRADE includes all the requisites of high quality millwork suitable for use in high grade construction, such as quality residential, school, and commercial buildings. **CUSTOM GRADE** is also the default grade level for the **MANUAL OF MILLWORK**, if not specified otherwise.

PREMIUM GRADE provides for a superior quality of materials and craftsmanship with a corresponding increase in cost. It is intended primarily for the best of hardwood construction, but any species of wood may be specified.

LABORATORY GRADE, only applicable to **SECTIONS 14, 15, 16, and 18**, is intended for use in casework and countertops where chemical resistance is of concern.

For over 50 years, the **MANUAL OF MILLWORK** has been and continues to be provided **FREE OF COST TO ALL ARCHITECTS, SPECIFIERS, AND DESIGN PROFESSIONALS** with the invitation to reference it as a minimum quality assurance option within their specifications. It should be noted that architects/specifiers/design professionals may modify any and all **GRADE** requirements within their drawings and specifications; and such modifications shall govern and take precedence over the **GRADE** rules. It should also be noted that the Institute does not guarantee or assure the safety or performance of any manufactured products, components, or installation thereof performed in accordance with these standards.

For ease of use, the **MANUAL** is divided into sections, of which **SECTIONS 1 and 2** cover **GENERAL INFORMATION/POLICIES AND PROCEDURES**, **SECTIONS 3 and 4** cover lumber/plywood requirements, **SECTION 5** outlines factory finishing, **SECTIONS 6 through 8** cover exterior millwork, and **SECTIONS 9 through 20** cover interior millwork. Additionally, there is an appendix, glossary and two casework supplements covering typical fabrication details and our casework design series. The sections are edge-marked with a black strip and keyed to the index on the back cover for quick reference. Each section is individually page-numbered by section and the entire book is page-numbered as a single document.

Each section is laid out in the **CSI THREE-PART FORMAT** with **PART 1 - GENERAL** covering general information, scope, default stipulations, shop drawings, and care/storage requirements. **PART 2 - PRODUCT** covers the Grade Rules and **PART 3 - EXECUTION** covers preparation and installation. Additionally, some sections have supplemental illustrations to assist in design considerations.

The **TABLE OF CONTENTS** (page 6) is expanded to list each individual heading, table, guideline, etc. It's a good place to start in familiarizing yourself with the **MANUAL** and what it has to offer.

It's recommended that to establish the minimum level of quality, project specifications should include the language outlined in **SECTION 2** (page 44 Item 1.1). **THIS LANGUAGE ESTABLISHES A CONTRACTUAL OBLIGATION TO COMPLY WITH THE MANUAL OF MILLWORK REQUIREMENTS AS MODIFIED BY THE PLANS AND SPECIFICATIONS AND ASSURES A DEFINITIVE LEVEL OF QUALITY THAT ALL MUST CONFORM TO.**

The **MANUAL OF MILLWORK** is an ongoing work in progress. Known errors and significant industry changes are kept current through the **INSTITUTE's** website at www.woodworkinstitute.com/manual.asp. **IT IS THE RESPONSIBILITY OF ALL USERS OF THE MANUAL OF MILLWORK TO BE AWARE OF AND COMPLY WITH THE REQUIREMENTS OF ANY AND ALL CORRECTIONS OR UPDATES PUBLISHED ON THE WOODWORK INSTITUTE WEBSITE PRIOR TO THE BID DATE OF A PROJECT.**

The **MANUAL OF MILLWORK** also provides for two additional quality assurance tools in our **CERTIFIED** or **MONITORED COMPLIANCE PROGRAMS** as outlined in **SECTION 1** (pages 12-23).

The **CERTIFIED COMPLIANCE PROGRAM** provides quality assurance by advising the fabricator/installer of the concerns for quality and verification as to the compliance of the specified requirements. Typical **NON-LICENSEE** cost for certification of shop drawings, fabricated/prefinished product, and its installation is \$1,500 - a small price to pay for the added assurance. If the work is performed by a **LICENSEE**, there is a typical cost of \$10 in addition to their annual dues. The success of the **CERTIFIED COMPLIANCE PROGRAM** is dependent on your persistence and follow-through - waiting until the end of the project may prove too late.

The **MONITORED COMPLIANCE PROGRAM** provides quality affirmation, ensuring the fabricated product, prefinishing, and/or installation comply with the project specifications by our monitored involvement during the planning, fabrication, finishing, and installation processes -- eliminating any last-minute surprises. However, there is an increased cost, a minimum of \$2,300 or a sliding percentage of the contract value, as outlined in **SECTION 2** (page 49).

Implementation of either of these quality control programs requires the contractual specification for such within the contract documents. Further details can be found in **SECTION 2** (pages 44-55).

Within **SECTION 1** (pages 27-42), you will find recommended **GUIDE SPECIFICATIONS** for CSI Sections: **06200 FINISH CARPENTRY**, **06400 ARCHITECTURAL MILLWORK**, **06900 WOOD AND PLASTIC RESTORATION** and **CLEANING**, and **08200 WOOD and PLASTIC DOORS**. We recommend that these guide specifications are reviewed, as applicable, and incorporated within the project specifications, as appropriate.

Guidelines for **ARCHITECTURAL DRAWINGS** of millwork products and **SHOP DRAWINGS** requirements can be found within **SECTION 1** (page 20 - 21).

The **JOB-SITE ENVIRONMENTAL CONDITIONS** during the storage and installation and/or useful life of architectural millwork are very important and need to be properly maintained. The **MANUAL OF MILLWORK** specifically spells out, within each of its product sections, the required environmental conditions that must be complied with to provide the proper environment for architectural millwork. We recommend these requirements be strictly enforced. You might want to review the article "Moisture and Architectural Millwork" within **SECTION 1** (page 24).

SEISMIC COMPLIANT FABRICATION and **INSTALLATION** is another area of concern, especially within California, and is a contractual requirement on all projects requiring compliance to UBC - Title 24. We have several DSA-approved methods of casework fabrication and OSHPD-compliant casework installation pre-approvals for use by the industry. See the **APPENDIX** (page 393) for further details. Specifying use of our casework installation approvals can save money by eliminating the need to individually engineer each project's casework installation requirements.

For **CHEMICAL ENVIRONMENTS**, the **INSTITUTE** adopted the time-proven practices and standards of SEFA (Scientific Equipment and Fixture Association) and developed the **LABORATORY GRADE** applicable to **SECTIONS 14, 15, 16** and **18 - CASEWORK** and **COUNTERTOPS**. For specific chemical resistance of horizontal/vertical surfaces in both exposed and semi-exposed areas, we have again adopted SEFA's requirements. For further information, see the **APPENDIX** (page 380).

The **MANUAL OF MILLWORK** is a working document and subject to improvement and change. We encourage and appreciate your comments and suggestions for improvements to the **MANUAL** and have furnished a form in the **APPENDIX** (page 355) for providing such. Between publication of updated editions, known errata are kept current on our website at

www.woodworkinstitute.com (see Services, **MANUAL OF MILLWORK**, Errata List). A number of our sister organizations and their standards are referenced within the **MANUAL** and used as a basis on which we build the **MANUAL OF MILLWORK** requirements. A listing of these and other related organizations can be found within the **APPENDIX** (page 362).

As additional related service, we review and acknowledge approval of **PRODUCTS FOUND TO BE COMPLIANT** to the **MANUAL OF MILLWORK** standards and lists such within the 'Services' area of our website (www.woodworkinstitute.com) by product category. This does not necessarily mean that products not listed are not compliant; only that we have reviewed the products listed and confirmed their compliance. This approved products listing provides you with a means of verifying compliance of products to the **MANUAL OF MILLWORK** minimum requirements.

The **INSTITUTE** recognizes the existence of the **AWI/AWMAC ARCHITECTURAL WOODWORK QUALITY STANDARDS** and recommends its use in those areas outside of our four-state service area of Arizona, California, Nevada, and Oregon. For years, our organizations have worked towards a commonality of our standards; and other than the difference of our manual formats and the quality control options we have to offer, the requirements of our standards are very similar. There are a few exceptions, such as: Our requirement for the self-edge on **CUSTOM GRADE** HPL countertops to be applied after the horizontal deck laminate vs. their requirement for it to be applied before; our inclusion of a **LABORATORY GRADE** for casework and countertops in chemical environments; our inclusion of seismic fabrication/installation standards to meet California's needs; our acknowledged approval of products meeting our minimum requirements; and our inclusion of a guide specification and standards section on historic millwork.