



CSI South Central Region

Understanding  
the  
AWI Quality Standards Illustrated  
Manual



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Specifying Woodwork Solutions

- ◆ How to achieve Quality Woodwork
- ◆ Simplify the Process
- ◆ Simplify the Process
- ◆ Simplify the Process

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Are We Always Satisfied?




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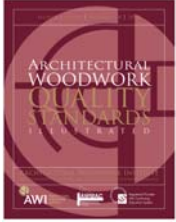
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## Woodwork Solutions

- ◆ Take Control of Quality




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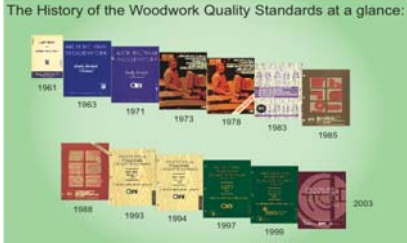
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## QSI Over The Years

The History of the Woodwork Quality Standards at a glance:



Suggestions for Improvement - Page 10

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## QSI Sections / Modules

- ◆ Introduction:
  - How To Use these standards
- ◆ Section 400 – Architectural Cabinets
  - Guide Specifications - Pages 118-120
  - General (G) - Pg 122 - 400-G-1
  - Technical (T) - Pg 132 - 133 – 400-A-T-1
  - Compliance (C) - Pg 148 – 400-A-C-1
  - Design Ideas (D) – Pg's 179-230 – 400-D-1.

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**QSI Sections / Modules**

- ◆ Glossary of terms QSI page A-652 *ff*
- ◆ Technical Language of Woodwork
  - ... specialized, as with most trades
  - ... will be defined as we go along
  - ... there are no "dumb" questions
  - ... ask for clarification immediately.

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**QSI Standards**

- ◆ Quality defined by the QSI Standards
  - Three Grades of Work - Page 6
- ◆ Materials are incorporated into QSI
  - Section 100 - Solid Lumber
  - Section 200 - Veneers and Overlays
- ◆ Raw materials of our trade are NOT specified using those grade terms
- ◆ Rather, by selecting a grade of work for the fabricated product, the quality of the materials is specified.

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**QSI Standards**

- ◆ Selection for Workmanship
  - Sections 300-1400
- ◆ Special –
  - Section 1500 – Factory Finishing
  - Section 1600 – Modular Cabinets
    - **There are no standards**
  - Section 1700 – Installation of Woodwork.

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## Quick review Test

- ◆ Let's have a quick review of your woodworking knowledge...
- ◆ And just to help you, the answer locations are indicated for you !!!!!

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## First Two

- ◆ What are the Three Grades defined in the Quality Standards Illustrated?
  - Introduction — Page 6
- ◆ What is the ASTM E84 flame spread index of Black Walnut?, White Oak?, Birch?, Poplar?
  - Lumber — Section 100 — Page 25
  - 130 - 140; 100; 105 - 110, 170 - 185.
  - BTW - If red oak has a flame spread of 100 do conifers (pines) typically rank higher or lower?

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## Second Three

- ◆ What panel product core material is used for a Class A or Class I fire rating?
  - Panel Products — Section 200; Figure 200-01
- ◆ What is the thickness of HDPL?
  - VGS - 0.028-inches
  - HGS - 0.048-inches
- ◆ What is VGP or HGP and what grade is it allowed in?
  - Post Forming for laminate is allowed in every grade

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**Third Three**

- ◆ Are finger-jointed standing & running trim lengths permitted in Premium Grade? Custom Grade?
  - Section 300-T-2 – Economy grade only.
- ◆ What veneer grade is required for AWI Premium Grade wood doors?
  - Section 1300-T-8, T-10, T-12, T-14, T-15, T-16, T-18
- ◆ “AA” defined - Pages 430-434
  - BTW - If you specify your doors around WDMA, Premium Grade is an “A” face – WDMA does not recognize “AA” veneers.

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**Last Three**

- ◆ Domestic wood for windows most resistant to decay? Maple? White Oak? Firs? Hickories? Poplar?
  - Section 1000-T-3 (Maple, Firs, Hickories, Poplar – poor)
- ◆ Are finger-jointed standing & running trim lengths permitted in Premium Grade? Custom Grade?
  - Section 300-T-2 – Economy grade only
- ◆ Maximum gap ... adjustable shelves for Premium Grade wood cabinets? Custom Grade wood cabinets? (1/16” or 1/8”)
  - Section 400A-T-11 – Both are 1/16”.

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**Ok... I Fibbed – just one more**

- ◆ Saved the best for last..

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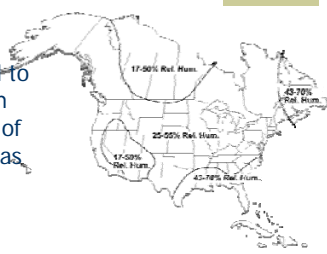
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### The "Biggie"

- ◆ Indoor relative humidity required to maintain optimum moisture content of wood in most areas is...
  - 25-55%
  - Section 100 and 1700
- ◆ Same for storage.



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### Looks Can Be Misleading



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### Looks Can Be Misleading



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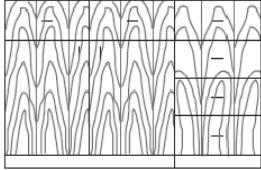
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**In Premium Grade all the grain must line up.**



- ◆ Premium Grade Requires "AA" face veneer
- ◆ Premium Grade Doors & Drawer fronts from sequenced panel sets, well matched for grain, figure & color.

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**In Premium Grade all the grain must line up.**



- ◆ Premium Grade Requires "AA" face veneer
  - 400A-T-1 & 400A-T-3
- ◆ Vertical grain must be continuous.

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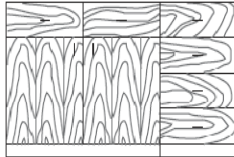
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**What about Custom Grade?  
Is the grain required to line up.**



- ◆ No... Drawer fronts do not required to match each other or doors
- ◆ Custom Grade Requires "A" face veneer.

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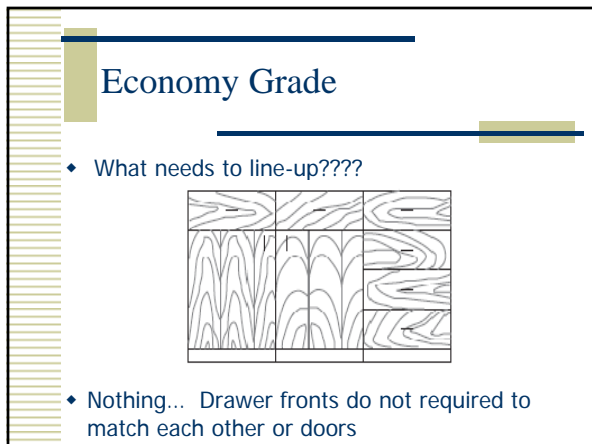
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### 400A-T-6 Panel Width

- ◆ Raised Panel Rims required for Premium Grade
- ◆ Solid lumber panels are not allowed in Premium Grade
- ◆ Panels over 14" wide are not allowed in Premium or Custom Grade.

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### Fillers

- ◆ Ever have fillers missing on soffits at corners?
  - Required in premium.
  - Optional in custom.

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### Cabinet Construction

- ◆ Flush Overlay (standard)

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### Cabinet Construction

- ◆ Be careful of hardware
- ◆ Hard to open doors full 90°



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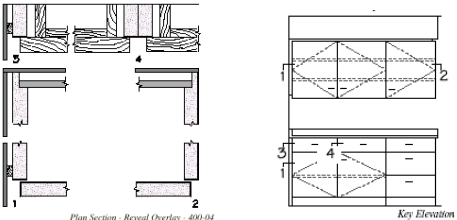
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### Cabinet Construction

- ◆ Reveal Overlay



Plan Section - Reveal Overlay - 400-04

Key Elevation

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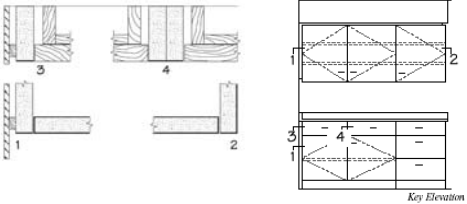
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### Cabinet Construction

- ◆ Flush Inset



Plan Section - Flush Inset - 400-04

Key Elevation

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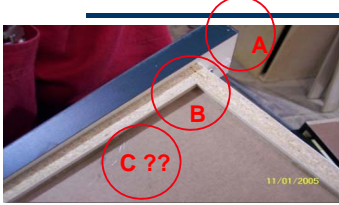
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## Drawer Construction



11/01/2005

A - Drawer front is acceptable in Custom Grade but not compliant in Premium Grade – Section 400B-T- 4 – Color was changed  
 B - Square shoulder joinery shown is not compliant for either Premium or Custom Grade... Economy Grade only, Section 400B-T-7  
 C - What is acceptable for bottom drawer material? Section 400B-T-6 – Hardboard is allowed for Custom Grade.

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## Drawer Construction



	Dovetail	Doweled	French Dovetail	Lock Shoulder	Square Shoulder	Miterfold
Permitted in Grade	Premium Custom Economy	Premium Custom Economy	Premium Custom Economy	Premium Custom Economy	Premium Custom Economy	Premium Custom Economy
Notes: and Recommended Material Choices <sup>1</sup>		1	2			All four sides and the bottom are machined from one piece
Solid Lumber	✓	✓	✓	✓	✓	
Veneer Core		✓	✓	✓	✓	
Composite Core		✓	✓	✓	✓	✓
Particle Core		✓	✓	✓	✓	✓
Fiber Core		✓	✓	✓	✓	✓

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## AWI Defaults

- When the QSI is referenced as a part of the Contract Documents and no grade is specified, Custom Grade standards prevail.
  - In the absence of specifications, materials shall be mill option lumber or veneers suitable for opaque finish.
- Other than above, all defaults in the QSI belong to the woodworker NOT the designer or specifier.
- If you have a preference, SPECIFY IT; if not, the woodworker gets to select.
  - Custom grade HPDL-clad doors, the "inside" color is at the option of the woodworker
  - Seismic requirements must be specified or there is no seismic restraining design
  - PVC edge banding or self edging with HPDL.

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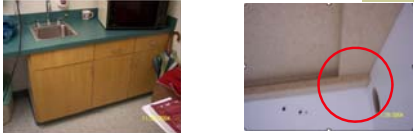
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### Sink Counter Top - Core



- Does HPDL counter top require a backing sheet (BKL) or cabinet liner (CLS) required for balanced construction in all grades?
  - BKL is required at a minimum for balanced construction in Premium and Custom Grades
  - CLS is a thin, vertical sheet, only.

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### Sink Cutout Corners & Sealing



Cracked corners due to stress from square corners. 400-C-G-3

- Cutouts corners must be radiused a minimum of 1/8" and sealed with a water resistant sealer for all grades
  - 1700 - T - 6
- Special veneer core plywood, particleboard Type M-2 or M-3, or moisture resistant MDF: 400C-T-1

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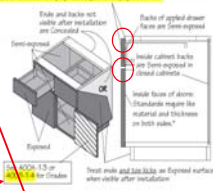
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### Exposed, Semi-exposed and Concealed Parts

- Verify colors with interiors
- Standards for HDPL



Exposed, Semi-exposed, Concealed

Ends and faces not visible after installation are concealed

Seals of applied drawer faces are semi-exposed

Inside cabinet tracks are semi-exposed in head cabinets

Inside faces of doors (standards require the material and thickness on both sides)

400C-T-1 or 400C-T-2 for frames

Install ends and face edges on Exposed surfaces when visible after installation

Requirements for Grade "A" or "B" surfaces must be clearly specified in detail or design professional's HPDL TO SPEC sheet of the same grade and is permitted for use on the interior face of flush cabinet doors as a "hidden" construction, but both sides must be finished to the same grade per the 400C TO SPEC sheet. The exception of the 400C TO SPEC sheet of the cabinet manufacturer in the absence of specifications.

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### Balancing of Plastic Laminate Doors

- ◆ Premium Grade HDPL
  - Same pattern, color & Thickness both faces
- ◆ Custom Grade HDPL
  - Same thickness on front and back
- ◆ HDPL and Melamine
  - No Grade



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### Avoid Shelf Abuse!

- ◆ Table 400-G-8: Minimum Shelf Thicknesses
  - Lumber & Plywood
    - 3/4" thick – 36" span
    - 1-1/16" thick – 48" span
  - Particleboard & MDF
    - 3/4" thick – 32" span
    - 1-1/16" thick – 42" span
- ◆ Unsupported shelf and/or Cabinet bottom in excess of 48" are not permitted – any grade.



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### LEED® with Architectural Woodwork

or

### How to be Really Scared

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**LEED® with Architectural Woodwork**

- ◆ LEED® is not addressed in the current QSI or the WI's Manual of Woodwork.
- ◆ Problems with suppliers conforming to USGBC
- ◆ Problems with Woodworkers involving experience and attitudes.

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**LEED® with Architectural Woodwork**

- ◆ Decide which credits you want to achieve
- ◆ Find a woodworking firm that is prepared to accomplish the special tasks that will be required to not only produce your products but be well versed in the administration, data collecting, documentation and submittals necessary for the LEED AP
- ◆ From the beginning convey your design concept to the Woodworking firm.
  - Getting an early start can be the difference between success and failure when it comes to picking wood materials.

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**LEED® with Architectural Woodwork**

- ◆ There has never been a time in history when the interest and acceptance of the ideas of new and alternative materials has been higher.
- ◆ But be careful.
- ◆ Your first job is still to create quality buildings made from proven, quality materials that don't fail.

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**Remember the Ancient Architect's Proverb**

- ◆ Life isn't like a box of chocolates. It's more like a jar of jalapenos
  - What you do today, might burn your a\*\* tomorrow

Larry the cable guy

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**How Do You Protect Yourself?**

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**Research for Confidence**

- ◆ Levels of Quality Assurance
  - Pre-qualification with Woodworker Qualification Statement (QSI Pg- A-608-609)
- ◆ Be proactive
  - Review every bidder and check their references
  - Visit their plant
  - Review some existing projects of equal size and complexity
  - Provide the due diligence needed to assure that a woodworking firm has capability and compliance with the AWI Quality Standards Illustrated.

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## Research for Confidence

- ◆ Why just a prequalification form, How about a prequalification Process?
- ◆ The AWI Quality Certification Program (QCP) does all of that
  - Provides the due diligence needed to assure that a woodworking firm has capability and compliance with the AWI Quality Standards Illustrated.
  - Levels of Quality Assurance
    - Quality Certification
    - Verification of standards compliance
    - Project support during all phases

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## Consumer Confidence with QCP



- ◆ The most common identified deficiencies are detailed in reports just like this one
- ◆ The project needs to be registered with the QCP office before fabrication begins, the label fee needs to be submitted
- ◆ Reports are available upon request 7 days following an inspection.

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## Consumer Confidence with QCP



- ◆ How does the Quality Certification Program work?
- ◆ What does a woodworker have to do to become certified?
- ◆ Do you have to be certified to bid on a project?
- ◆ How much does it cost?
- ◆ How does AWI know the work is compliant with the standards?
- ◆ What if the work is not compliant?

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### Rigorous Criteria for Woodworker

- ◆ Application Fee to join: \$1,500 - \$2,800
- ◆ 150-Question Test
- ◆ 10 References (Architect/GC/Owner)
- ◆ Plant Inspections and Qualification Visit
  - Examples of Work for each QSI section and grade
  - Review of completed projects
- ◆ Shop Drawings

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### Coast-to-Coast

- ◆ The QCP has 482 participants in 47 states, 6 provinces, Puerto Rico and Turkey.
- ◆ There are 14 inspectors to follow up on projects.
- ◆ You can locate a certified participant firm by going to the QCP website at <http://www.awiqcp.org> and click on 'Find a certified firm/project'.

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### Consumer Confidence with QCP

- ◆ Specify for Quality Certification
- ◆ Register the Project – Don't wait for the contractor - [www.awiqcp.org](http://www.awiqcp.org)
- ◆ Right Job - Right Spec
- ◆ Non-Certified Firms May Bid the project, install the Work and get INSPECTED --- if it's registered !!!



ABC Construction Inc. certifies that this product meets the AIA Quality Standard specified or as modified by plans and specifications. U.S. Court – Any City – 1 Install 98.138

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## Peace of Mind? What is it Worth? What does it cost?

- ◆ 1/2% of Woodwork Contract Amount
  - \$100,000.00 x .5% = \$500.00 cost to the project
- ◆ Project Support for Construction Team
- ◆ Inspections Available on Projects
- ◆ Saves Time
  - There's never enough time to do it right,
  - But, there's always time to do it again?
- ◆ Or as my Dad use to say...
  - If you can't do it right the first time, what the h... makes you think you can afford to do it twice?

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## Guide Specification

- ◆ QCP Specification Language<sup>1</sup>
  - Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements.
  - Provide AWI Quality Certification Program labels and certificates indicating that woodwork, [including installation] complies with requirements of grades specified.
  - This project has been registered as AWI/QCP Number \_\_\_\_\_ OR, the contractor, upon award of the work, shall register the work under this section with the AWI Quality Certification Program (Don't wait for this to happen).
  - (571) 323-3636 or <http://www.awiqcp.org>

1 \* Reference provided by MasterSpec. MasterSpec is a product of The American Institute of Architects (AIA).

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## Thank You!


This concludes the American Institute of Architects Continuing Education Systems Program.

**Any Questions?**



**AWI** ARCHITECTURAL WOODWORK INSTITUTE

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