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A Specification of Qualities, Methodologies, and Workmanship
Requisite to the Production and Installation of Architectural Woodwork

Adopted and Published Jointly,
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North American Architectural Woodwork Standards - 3.1

SECTION - 02

CARE & STORAGE

No Errata within this Section as of July 17, 2017

SECTION 2
Care & Storage

INTRODUCTION

Section 2 handles one of the most important aspects of preserving a good woodworking installation. Storage, jobsite conditions and relative humidity requirements before, during and after installation are covered here.

Quality assurance can be achieved by adherence to these standards and will provide the owner a quality product at competitive pricing. Working with an AWMAC Member (in Canada) or a WI Certified Millwork Professional (CMP) (in the USA) and the WI Accredited Millwork Company (AMC) they represent to provide your woodwork will help ensure the understanding and performance of the quality level required. Illustrations in this Section are not intended to be all inclusive, other engineered solutions may be acceptable. In the absence of specifications; methods of fabrication are the manufacturer's choice. The design professional, by specifying compliance to these standards increases the probability of receiving the product quality expected.

ADVISORY

DIMENSIONAL CHANGE prevention can be a problem in architectural woodwork products because of uncontrolled relative humidity. This is further intended as a reminder of the natural dimensional properties of wood and wood-based products such as plywood, particleboard, and high pressure decorative laminate (HPDL) and of the routine and necessary care and responsibilities which must be assumed by those involved.

For centuries, wood has served as a successful material for architectural woodwork, and as history has shown wood products perform with complete satisfaction when correctly designed and used. Problems directly or indirectly attributed to dimensional change of the wood are usually, in fact, the result of faulty design, or improper humidity conditions during site storage, installation, or use.

Wood is a hygroscopic material, and under normal use and conditions all wood products contain some moisture. Wood readily exchanges this molecular moisture with the water vapor in the surrounding atmosphere according to the existing relative humidity. In high humidity, wood picks up moisture and swells. In low humidity, wood releases moisture and shrinks.

As normal minor fluctuations in humidity occur, the resulting dimensional response in properly designed construction will be insignificant. To reduce humidity related problems, the appropriate recommendations from Section 2 should be considered. Uncontrolled extremes can likely cause problems.

Together with proper design, fabrication, and installation, humidity control is obviously the important factor in preventing dimensional change problems.

Architectural woodwork products are manufactured as designed from wood that has been kiln dried to an appropriate average moisture content. Subsequent dimensional change in wood is and always has been an inherent natural property of wood. These subsequent changes are not necessarily the responsibility of the manufacturer. Specifically, responsibility for dimensional change problems in wood products resulting from:

- **Design** rests with the designer/architect/specifier.
- **Improper relative humidity** exposure during site storage and installation rests with the general contractor.
- **Humidity extremes** after occupancy rests with engineering and maintenance.

RECOMMENDATIONS

- **CLIMATE CONTROL MAINTENANCE** of relative humidity every hour of every day, within the ranges shown previously in this section is important. Uncontrolled extremes such as those listed below will likely cause problems:
  - Relative humidity, above or below the ranges shown previously in this section.
  - Sudden changes in the allowable relative humidity, especially when it is repetitive.

SPECIFICATION CONSIDERATIONS

- **NON-COMPLIANT ENVIRONMENTAL CONDITIONS,** such as:
  - HVAC not maintained during hours of non-occupancy or on weekends.
  - Windows and doors intended to be open during occupancy.

CARE

All construction related products, regardless of material, have particular care and storage requirements. Woodwork is not unique in this respect.

Architectural woodwork should be treated like fine furniture, particularly that which is constructed of wood finished with a transparent finish system. Modern commercial finishes are durable and resistant to moisture.

- **Finish Maintenance** - With the exception of true oil-rubbed surfaces, modern finishes do not need to be polished, oiled, or waxed. In fact, applying some polishing oils, cleaning waxes, or products containing silicone may impede the effectiveness of touch-up or refinishing procedures in the future.

  Remove oil or grease deposits with a mild flax soap, following the directions for dilution on the container.

CARE (continued)

No abrasives, chemical or ammonia cleaners should be used to clean woodwork surfaces. Routine cleaning is best accomplished with a soft, lint-free cloth lightly dampened with water or an inert household dust attractant. Allowing airborne dust, which is somewhat abrasive, to build up will tend to dull a finish over time.

- **Impact** - Avoid excessive or repetitive impact, however lightly applied. The cellular structure of the wood will compact under pressure. Many modern finishes are flexible, and will show evidence of impact and pressure applied to them.
- **Heat** - Avoid localized high heat, such as a hot pan or plate, or a hot light source, close to or in contact with the finished surface.
- **Photodegradation** – Avoid exposure to direct sunlight as this may alter the appearance of woodwork over time.
- **Humidity** - Maintain the relative humidity around the woodwork in accordance with the guidelines published in these standards, every hour of every day, to minimize wood movement.
- **Moisture** - Architectural woodwork, when properly finished, is relatively durable and resistant to moisture. Prevent direct contact with moisture, and wipe it dry immediately should any occur. Allowing moisture to accumulate on, or stay in contact with, any wood surface, no matter how well finished, will cause damage.
- **Oxidation** - Is a reaction of acids in wood (e.g., tannic acid), with iron, oxygen, and moisture, whether this be relative humidity or direct moisture. Control of moisture is a simple way to protect wood products from stains as a result of oxidation.
- **Abuse** - Use the trims, cabinets and fixtures, paneling, shelving, ornamental work, stairs, frames, windows, and doors as they were intended. Abuse of cabinet doors and drawers, for example, may result in damage to them as well as to the cabinet parts to which they are joined.
- **CLEANING** should be routine and accomplished with a soft, lint-free cloth lightly dampened with water or an inert household dust attractant. Allowing airborne dust, which is somewhat abrasive, to build up will tend to dull a finish over time.
  - Remove oil or grease deposits with a mild flax soap, following its directions for dilution.
  - Do not use abrasives, chemical or ammonia cleaners on fine architectural woodwork surfaces.
- **Refinishing** - Contact a local Sponsor Association member/affiliate, to explore the options for repair or refinishing. It is often cost effective to replace damaged woodwork elements rather than attempting large scale, on site refinishing.

RELATIVE HUMIDITY AND MOISTURE CONTENT

The space in which architectural woodwork is to be installed should be engineered with appropriate humidity controls to maintain its optimum relative humidity. Wood for architectural woodwork manufacturing use needs a moisture content within an optimum range.

A major cause for failure in architectural woodwork is the lack of controls for maintaining a consistent, year round, appropriate relative humidity in a building or building space. Wood is susceptible to movement, shrinkage, expansion and warpage when exposed to air that has not been humidified. Without considerations made to properly regulate the relative humidity in any space containing architectural woodwork, some degree of failure of the woodwork can be expected.

Relative humidity outside the range shown on Table 2-001 below for the respective region is particularly harmful to wood and wood products.

This table is intended to establish a range in which architectural millwork can be properly stored, acclimatized, installed and maintained.

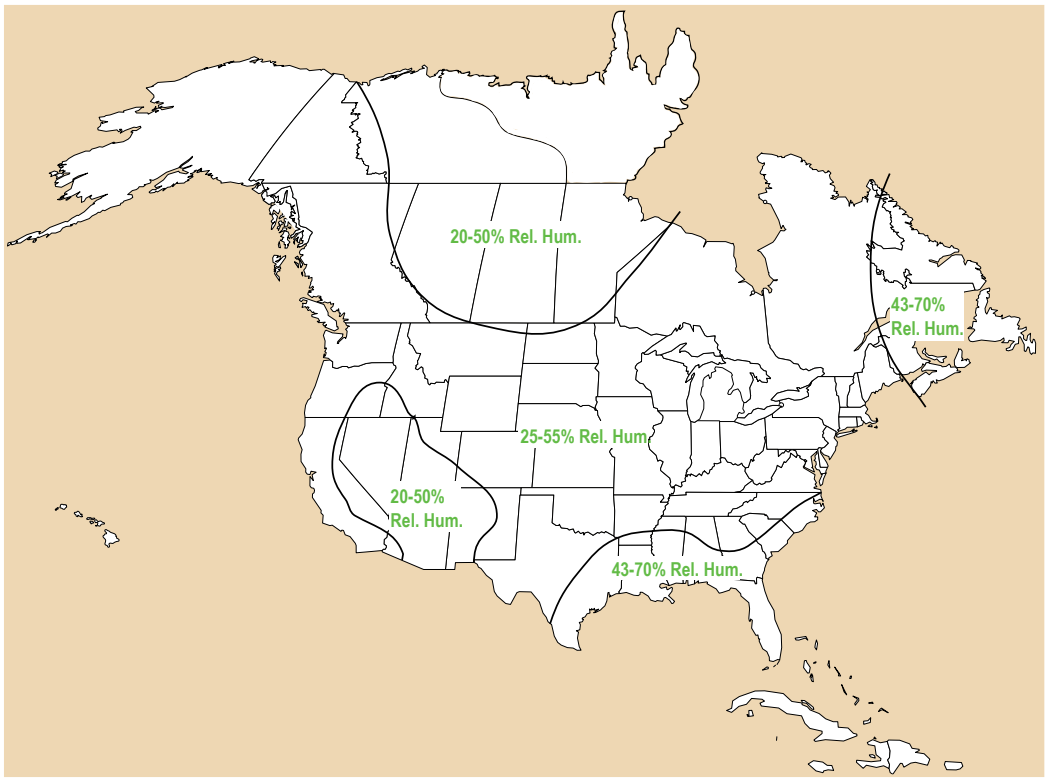
The most important effect of temperature is the effect it has on altering relative humidity levels See Table 2-002. Once a controlled humidity and temperature environment has been established the humidity shall be maintained without sudden changes, especially repetitive changes. It is suggested that daily/monthly range vary no more than 10 F (5.6 C) degrees and 15% relative humidity.

The table and map that follow (adapted from USDA's *The Wood Handbook* (latest edition), published by their Forest Products Laboratory, http://fpl.fs.fed.us/index.php) shows the Optimum Moisture Content and the Indoor Relative Humidity required to hold such moisture content within the general areas of the United States and Canada.

Some of these areas have additional micro-climates not shown or referenced.

TABLE: 2-001 - **RELATIVE HUMIDITY** and **OPTIMUM MOISTURE CONTENT**

Geographical Location	Optimum Moisture Content		Optimum Climate Controlled Relative Humidity
	Non-Climate Controlled Interior or Exterior Environment	Climate Controlled Environment	
Most of U.S. and Canada	9-15%	5-10%	25-55%
Damp Southern Coastal areas of the U.S. and Canadian Eastern Coastal Provinces	10-15%	8-13%	43-70%
Dry Southwestern U.S.	7-12%	4-9%	20-50%
Alberta, Saskatchewan, and Manitoba in Canada	10-15%	4-9%	20-50%



RECLAIMED OR RECYCLED WOOD

Ambient humidity and initial moisture content of reclaimed wood can be very important factors in insuring dimensional stability of the end product.

- With reclaimed wood moisture content may need to be addressed on a case by case basis. Typically “barn wood” is supplied “dry” and is of little concern in this regard. On the other hand timbers encrusted in earth or reclaimed from moist environments exposed to rain and water may require further drying to ensure stability.
- Additional drying may be particularly important when secondary milling is required to create the final form. Wood that may appear to be dry may contain a reservoir of moisture at its core which could be activated by further milling. This could result in a product which checks, cracks and distorts in unacceptable ways.
- For some design purposes instability may be a desired result. In other words, initial high moisture content may cause lumber to twist and crack after installation over time in ways that achieve a particular aesthetic result. Achieving these effects is the responsibility of the design professional working in close collaboration with the architectural woodwork manufacturer.

TABLE: 2-002 - EQUILIBRIUM MOISTURE CONTENT VALUES AT VARIOUS TEMPERATURES AND HUMIDITIES

The following table indicates relative humidity must average between 25% and 55% to maintain wood moisture content between 5-10%. This range is best suited for most of the U.S. and Canada. While temperature has an impact on relative humidity, temperature alone has little effect on wood products if the relative humidity is maintained within recommended ranges.

Wet bulb lowering in degrees Fahrenheit

Dry bulb temperature in degrees Fahrenheit	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
40	83 17.6	75 14.8	68 12.9	60 11.2	52 9.9	45 8.6	37 7.4	29 6.2	22 5.0	15 3.5	8 1.9																	
45	85 18.3	78 15.6	72 13.7	64 12.0	58 10.7	51 9.5	44 8.5	37 7.5	31 6.5	25 5.3	19 4.2	12 2.9	6 1.5															
50	86 19.0	80 16.3	74 14.4	68 12.7	62 11.5	56 10.3	50 9.4	44 8.5	38 7.6	32 6.7	27 5.7	21 4.8	16 3.9	10 2.8	5 1.5													
55	88 19.5	82 16.9	76 15.1	70 13.4	65 12.2	60 11.0	54 10.1	49 9.3	44 8.4	39 7.6	34 6.8	28 6.0	24 5.3	19 4.5	14 3.6	9 2.5	5 1.3											
60	89 19.9	83 17.4	78 15.6	73 13.9	68 12.7	63 11.6	58 10.7	53 9.9	48 9.1	43 8.3	39 7.6	34 6.9	30 6.3	26 5.6	21 4.9	17 4.1	13 3.2	9 2.3	5 1.3	1 0.2								
65	90 20.3	84 17.8	80 16.1	75 14.4	70 13.3	66 12.1	61 11.2	56 10.4	52 9.7	48 8.9	44 8.3	39 7.7	36 7.1	32 6.5	27 5.8	24 5.2	20 4.5	16 3.8	13 3.0	8 2.3	6 1.4	2 0.4						
70	91 20.9	86 18.2	81 16.5	77 14.9	72 13.7	68 12.5	64 11.6	59 10.9	55 10.1	51 9.4	48 8.8	44 8.3	40 7.7	36 7.2	33 6.6	29 6.0	25 5.5	22 5.0	19 4.3	15 3.7	12 2.9	9 2.3	6 1.5	3 0.7				
75	91 21.0	86 18.5	82 16.8	78 15.2	74 14.0	70 12.9	66 12.0	62 11.2	58 10.5	54 9.8	51 9.3	47 8.7	44 8.2	41 7.7	37 7.2	34 6.7	31 6.2	28 5.6	24 5.1	21 4.7	18 4.1	15 3.5	12 2.9	10 2.3	7 1.7	4 0.9	1 0.2	
80	92 21.2	87 18.7	83 17.0	79 15.5	75 14.3	72 13.2	68 12.3	64 11.5	61 10.9	57 10.1	54 9.7	50 9.1	47 8.6	44 8.1	41 7.7	38 7.2	35 6.8	32 6.3	29 5.8	26 5.4	23 5.0	20 4.5	18 4.0	15 3.5	12 3.0	10 2.4	7 1.8	5 1.1
85	92 21.3	88 18.8	84 17.2	80 15.7	76 14.5	73 13.5	70 12.5	66 11.8	63 11.2	59 10.5	56 10.0	53 9.5	50 9.0	47 8.5	44 8.1	41 7.6	38 7.2	36 6.7	33 6.3	30 6.0	28 5.6	25 5.2	23 4.8	20 4.3	18 3.9	15 3.4	13 3.0	11 2.4
90	92 21.3	89 18.9	85 17.3	81 15.9	78 14.7	74 13.7	71 12.8	68 12.0	65 11.4	61 10.7	58 10.2	55 9.7	52 9.3	49 8.8	47 8.4	44 8.0	41 7.6	39 7.2	36 6.8	34 6.5	31 6.1	29 5.7	26 5.3	24 4.9	22 4.6	19 4.2	17 3.8	15 3.3
95	92 21.3	89 19.0	85 17.4	82 16.1	79 14.9	75 13.9	72 12.9	69 12.2	66 11.6	63 11.0	60 10.5	57 10.0	55 9.5	52 9.1	49 8.7	46 8.2	44 7.9	42 7.5	39 7.1	37 6.8	34 6.4	32 6.1	30 5.7	28 5.3	26 5.1	23 4.8	22 4.4	20 4.0
100	93 21.3	89 19.0	86 17.5	83 16.1	80 15.0	77 13.9	73 13.1	70 12.4	68 11.8	65 11.2	62 10.6	59 10.1	56 9.6	54 9.2	51 8.9	49 8.5	46 8.1	44 7.8	41 7.4	39 7.0	37 6.7	35 6.4	33 6.1	30 5.7	28 5.4	26 5.2	24 4.9	22 4.6
110	93 21.4	90 19.0	87 17.5	84 16.2	81 15.1	78 14.1	75 13.3	73 12.6	70 12.0	67 11.4	65 10.8	62 10.4	60 9.9	57 9.5	55 9.2	52 8.8	50 8.4	48 8.1	46 7.7	44 7.5	42 7.2	40 6.8	38 6.6	36 6.3	34 6.0	32 5.7	30 5.4	28 5.2
120	94 21.3	91 19.0	88 17.4	85 16.2	82 15.1	80 14.1	77 13.4	74 12.7	72 12.1	69 11.5	67 11.0	65 10.5	62 10.0	60 9.7	58 9.4	55 9.0	53 8.7	51 8.3	49 7.9	47 7.7	45 7.4	43 7.2	41 6.8	40 6.6	38 6.3	36 6.1	34 5.8	33 5.6

13% moisture — 10% moisture — 5% moisture

TO USE TABLE

Obtain wet and dry bulb readings. Subtract wet bulb reading from dry bulb reading. Find dry bulb on left margin of table and follow across to the column where the value at the top corresponds with the difference between wet and dry readings. At point of intersection, the upper figure in the square gives relative humidity in percent and the lower figure gives equilibrium moisture content of the woodwork.

EXAMPLES OF MOISTURE EQUILIBRIUM TABLE USE

The above may be used as a guide in determining whether or not the conditions in a construction area are suitable for receiving woodwork. For example: if woodwork with an 8% average moisture content is to be installed and the average temperature in the building will be maintained at 70°F, it can be determined by following the 70°F column horizontally to the right until the lower moisture content figures of 8.3% and 7.7% are reached.

Here the upper figures in the same squares show that ideally a relative humidity of between 44% and 40% should be maintained in order to achieve dimensional equilibrium. After the woodwork is painted or finished, moisture changes in the wood are retarded so that maintenance of relative humidity between the practical limits shown on the curve (between 5%-10% m.c.) of the humidity table, i.e., 25%-55% relative humidity, is usually satisfactory.

INCLUDING: Care and Moisture Considerations Before, During, and After Installation

2.1 BASIC CONSIDERATIONS

1 **GRADES** - None

1.1 Care and storage requirements are the same for all architectural woodwork projects, regardless of Grade specified or required.

2 **DIMENSIONAL CHANGE RESPONSIBILITY** in wood products resulting from:

2.1 **IMPROPER DESIGN** rests with the design professional.

2.2 **IMPROPER RELATIVE HUMIDITY EXPOSURE** during site storage and installation rests with the contractor.

2.3 **HUMIDITY EXTREMES** after occupancy rests with the owner.

3 **INDUSTRY PRACTICES**

3.1 **OFF GAS REDUCTION** by raising the temperature in a building for a sustained period is unacceptable and will negatively affect the appearance and performance of architectural millwork.

3.1.1 Open joints, warped paneling/doors, and other defects caused by such are not to be considered a defect.

2.2 SCOPE

1 All materials and products covered under the scope of these standards.

2.3 DEFAULT STIPULATION

1 Not used or applicable for this section.

2.4 RULES

1 The following rules shall govern unless a project's contract documents require otherwise.

2 These rules are intended to provide a well-defined degree of control over a project's quality of finishing.

3 **ERRATA**, published at http://naaws-errata.com, shall take precedence over these rules, subject to their date of posting and a project's bid date.

2.4.4 Basic General Rules

1	**DELIVERY** shall be:			
1	1	Made in accordance with a progress schedule furnished by the contractor, and:		
1	1	1	For climate controlled applications, in an area in which:	
1	1	1	1	Wet work is dry.
1	1	1	2	Overhead work is complete.
1	1	1	3	Area is broom clean.
1	1	2	For non-climate controlled interior or exterior applications, in an area which is:	
1	1	2	1	Clean.
1	1	2	2	Protected from direct moisture.
1	1	2	3	Protected from direct sunlight.
2	**HANDLING** shall:			
2	1	Be with clean hands or gloves.		
2	2	Include protection from marks or damage.		
3	**STORAGE** shall be:			
3	1	Flat on a level surface.		
3	2	Clean.		
3	3	At least 4" (101.6 mm) off the floor or ground.		

Continues next column

2.4.4 Basic General Rules

From previous column

3	**STORAGE** (continued)			
3	4	Protected from:		
3	4	1	Sunlight, wide swings in relative humidity, and/or abnormal heat or cold.	
3	4	2	Moisture.	
3	5	For climate controlled applications:		
3	5	1	In a clean, closed building or area with operational HVAC system, and:	
3	5	1	1	Relative humidity meeting the range appropriate for the region per Table 2-001.
3	5	1	2	Maintained Optimum Moisture Content between 5 - 10% inclusive, except in:
3	5	1	2	1	The damp Southern Coastal areas of the U.S. and Canadian Eastern Coastal Provinces shall be between 8 - 13% inclusive.
3	5	1	2	2	The dry Southwestern U.S., and Alberta, Saskatchewan, and Manitoba in Canada shall be between 4 - 9% inclusive.
4	**INSTALLATION** shall only occur after materials have been acclimatized for a minimum of 72 hours, and:			
4	1	For climate controlled applications, that:		
4	1	1	Is between 60 - 90 degrees Fahrenheit (15.5 - 32 degrees Celsius) inclusive.	
4	1	2	Has a maintained Relative Humidity between 25 - 55% inclusive, except in:	
4	1	2	1	The damp Southern Coastal areas of the U.S. and Canadian Eastern Coastal Provinces shall be between 43 - 70% inclusive.
4	1	2	2	The dry Southwestern U.S., and Alberta, Saskatchewan, and Manitoba in Canada shall be between 20 - 50% inclusive.
5	**AFTER INSTALL** and **ACCEPTANCE:**			
5	1	At climate controlled applications:		
5	1	1	Woodwork shall be maintained in the same environmental conditions as during its storage and/or installation.	
5	1	2	Temperature in a building or area of a building shall not be raised or lowered for a sustained period (more than 24 hours) for any reason as it may negatively affect the appearance and performance of architectural woodwork.	

Continues next column

2.4.4 Basic General Rules

▲ From previous column

5	**AFTER INSTALL** and **ACCEPTANCE** (continued)		
5	2		At non-climatic controlled interior or exterior applications woodwork shall:
5	2	1	Have its finish maintained, refinishing as necessary (especially oiled finishes).
5	2	2	Be protected from excessive moisture and standing water.
6			**SEVERE DAMAGE** can result from not adhering to the above rules: 
6	1		Fabricator/Installer shall not be held responsible for the damage caused by not adhering to the above. 

North American Architectural Woodwork Standards - 3.1

S E C T I O N - 06

MILLWORK

Applicable Errata for this Section as of July 17, 2017

(Page links: BLUE indicates minor corrections, RED indicates Substantive Change)

Introductory Information

None

Compliance Requirements

See Page: 167

6.5 PREPARATION and QUALIFICATION REQUIREMENTS

1 **CARE, STORAGE,** and **BUILDING CONDITIONS** shall be in compliance with the requirements set forth in Section 2 of these standards.

1.1 Severe damage to the woodwork can result from noncompliance. The manufacturer and/or installer of the woodwork shall not be held responsible for damage that might develop by not adhering to the requirements.

2 **CONTRACTOR IS RESPONSIBLE FOR**

2.1 Furnishing and installing structural members, grounds, in wall blocking, backing, furring, brackets, or other anchorage required for architectural woodwork installation that becomes an integral part of walls, floors, or ceilings to which architectural woodwork, such as wall applied surfacing, standing and running trim, wall mounted shelf standards and door/window frames shall be installed.

2.1.1 In the absence of contract documents calling for the contractor to supply the necessary in wall blocking/backing in the wall or ceilings, either through inadvertence or otherwise, the architectural woodwork installer shall not proceed with the installation until such time as the in wall blocking/backing is installed by others.

2.1.2 Preparatory work done by others shall be subject to inspection by the architectural woodwork installer and may be accepted or rejected for cause prior to installation.

2.1.2.1 **WALL, CEILING,** and/or opening variations in excess of 1/4" (6.4 mm) or **FLOORS** in excess of 1/2" (12.7 mm) in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size are not acceptable for the installation of architectural woodwork, nor is it the responsibility of the installer to scribe or fit to tolerances in excess of such.

2.1.3 Installation site being properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

6.5 PREPARATION and QUALIFICATION (continued)

2.2 Priming the architectural woodwork in accordance with the contract documents prior to its installation:

2.2.1 If the architectural woodwork is factory finished, priming by the factory finisher is required.

3 **INSTALLER IS RESPONSIBLE FOR**

3.1 Having adequate equipment and experienced craftsmen to complete the installation in a first class manner.

3.2 Checking architectural woodwork specified and studying the appropriate portions of the contract documents, including these standards and the reviewed shop drawings to familiarize themselves with the requirements of the Grade specified, understanding that:

3.2.1 Appearance requirements of Grades apply only to surfaces visible after installation.

3.2.2 For transparent finish, special attention needs to be given to the color and the grain of the various woodwork pieces to ensure they are installed in compliance with the Grade specified.

3.3 Verification that installation site is properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

3.4 Verification that required priming of woodwork has been completed by others before woodwork is installed.

3.5 Verification that woodwork has been acclimated to the field conditions for a minimum of 72 hours before installation is commenced.

3.6 Woodwork specifically built or assembled in sequence for match of color and grain is installed to maintain that same sequence.

6.6 RULES

1 The following rules shall govern unless a project's contract documents require otherwise.

2 These rules are intended to provide a well defined degree of control over a project's quality of installation.

3 **ERRATA**, published at http://naaws-errata.com, shall take precedence over these rules, subject to their date of posting and a project's bid date.

6.6.4 Basic General Rules

1	**AESTHETIC** grade rules apply only to exposed and semi-exposed surfaces visible after installation.				
2	**TRANSPARENT FINISHED** woodwork shall be:				
2 1	Installed with consideration for color and grain.	E	C	P
2 2	Compatible in color and grain.	E	C	P
2 3	Well matched for color and grain, and:	E	C	P
2 3 1	Sheet products shall be compatible in color with solid stock.	E	C	P
2 3 2	Adjacent sheet products shall be well matched for color and grain.	E	C	P
3	**REPAIRS** are allowed, provided they are made neatly and are inconspicuous when viewed, from a normal viewing stance, at:				
3 1	72" (1830 mm).	E	C	P
3 2	48" (1219 mm).	E	C	P
3 3	24" (610 mm).	E	C	P
4	**INSTALLER FABRICATION** and **MODIFICATIONS** shall comply to the general, material, machining, and assembly rules within the **PRODUCT** portion of this section and, if applicable, the finishing rules in Section 5.				
5	**WOODWORK** shall be:				
5 1	Securely fastened and tightly fitted with flush joints, and:				
5 1 1	Joinery shall be consistent throughout the project.				
5 2	Of maximum available and/or practical lengths.	E	C	P
5 3	Trimmed equally from both sides when fitted for width.	E	C	P
5 4	Splined or doweled when miters are over 4" (100 mm) long.	E	C	P

Continues next column ▼

6.6.4 Basic General Rules

▲ From previous column

5	**WOODWORK** (continued)				
5 5	Profiled or self mitered when trim ends are exposed.	E	C	P
5 6	Self mitered when trim ends are exposed.	E	C	P
5 7	Mitered at outside corners.			
5 8	Mitered or butted for S4S at inside corners.	E	C	P
5 9	Coped at inside corners, except S4S shall be mitered.	E	C	P
5 10	Installed plumb, level, square, and flat within 1/8" (3.2 mm) in 96" (2438 mm), and when required:				
5 10 1	Grounds and hanging systems set plumb and true.	E	C	P
5 11	Installed free of:				
5 11 1	Warp, twisting, cupping, and/or bowing that cannot be held true.				
5 11 2	Open joints, visible machine marks, cross sanding, tear outs, nicks, chips, and/or scratches.				
5 11 3	Natural defects exceeding the quantity and/or size limits defined in Sections 3 & 4.				
5 12	Smooth and sanded without cross scratches in conformance to the product portion of this section.				
5 13	Scribed at:				
5 13 1	Flat surfaces.	E	C	P
5 13 2	Shaped surfaces.	E	C	P
6	**THESE STANDARDS** do not establish Grade rules for joint flushness and or gap tolerances for woodwork products installed in a non climate controlled environment, however:				

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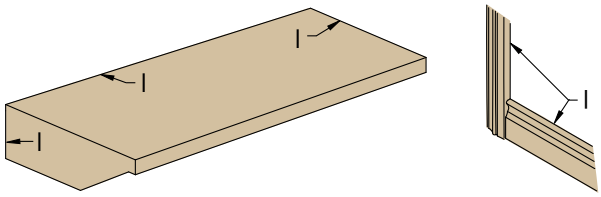
6.6.4 Basic General Rules

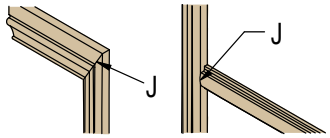
▲ From previous column

7			**GAPS** at field joints (see Test I illustrations in TESTS) such as,  and:					
7	1		Not be considered a defect or the responsibility of the installer if caused by excessive deviations in the building's walls and ceilings being in excess of 1/4" (6.4 mm])in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size, or 1/2" (12.7 mm) for floors.					
7	2		Not exceed 30% of a joint's length and:					
7	2	1	Be allowed if filled or caulked, and:	E	C	P		
7	2	1	1	If color compatible.	E	**C**	**P**	
7	3		At **WOOD** to **WOOD** shall not exceed:					
7	3	1	At **FLAT** surfaces:					
7	3	1	1	0.030" (0.76 mm) in width.	**E**	C	P	
7	3	1	2	0.020" (0.51 mm) in width.	E	**C**	P	
7	3	1	3	0.015" (0.38 mm) in width.	E	C	**P**	
7	3	2	At **SHAPED** surfaces:					
7	3	2	1	0.040" (1.02 mm) in width.	**E**	C	P	
7	3	2	2	0.025" (0.64 mm) in width.	E	**C**	P	
7	3	2	3	0.015" (0.38 mm) in width.	E	C	**P**	
7	4		At **WOOD** to **NON WOOD** shall not exceed:					
7	4	1	At **FLAT** and **SHAPED** surfaces:					
7	4	1	1	0.075" (1.91 mm) in width.	**E**	C	P	
7	4	1	2	0.050" (1.27 mm) in width.	E	**C**	P	
7	4	1	3	0.035" (0.89 mm) in width.	E	C	**P**	
7	5		At **NON WOOD** to **NON WOOD** and/or **ALL ELEMENTS** shall not exceed:					
7	5	1	At **FLAT** surfaces:					
7	5	1	1	0.075" (1.91 mm) in width.	**E**	C	P	
7	5	1	2	0.050" (1.27 mm) in width.	E	**C**	P	
7	5	1	3	0.035" (0.89 mm) in width.	E	C	**P**	

Continues next column ▼

6.6.4 Basic General Rules

▲ From previous column

7			**GAPS** (see Test I illustrations in TESTS) (continued)					
7	5	2	At **SHAPED** surfaces:					
7	5	2	1	0.120" (3.05 mm) in width.	**E**	C	P	
7	5	2	2	0.075" (1.91 mm) in width.	E	**C**	P	
7	5	2	3	0.050" (1.27 mm) in width.	E	C	**P**	
8			**FLUSHNESS** of field joinery (see Test J illustrations in TESTS) such as,  and:					
8	1		Of **WOOD** to **WOOD** shall not exceed:					
8	1	1	At **FLAT** surfaces:					
8	1	1	1	0.025" (0.64 mm).	**E**	C	P	
8	1	1	2	0.015" (0.38 mm).	E	**C**	P	
8	1	1	3	0.010" (0.25 mm).	E	C	**P**	
8	1	2	At **SHAPED** surfaces:					
8	1	2	1	0.040" (0.97 mm).	**E**	C	P	
8	1	2	2	0.025" (0.65 mm).	E	**C**	P	
8	1	2	3	0.020" (0.51 mm).	E	C	**P**	
8	2		Of **WOOD** to **NON WOOD** shall not exceed:					
8	2	1	At **FLAT** and **SHAPED** surfaces:					
8	2	1	1	0.075" (1.91 mm).	**E**	C	P	
8	2	1	2	0.050" (1.27 mm).	E	**C**	P	
8	2	1	3	0.035" (0.89 mm).	E	C	**P**	
8	3		Of **NON WOOD** to **NON WOOD** and/or **ALL ELEMENTS** shall not exceed:					
8	3	1	At **FLAT** surfaces:					
8	3	1	1	0.075" (1.91 mm).	**E**	C	P	
8	3	1	2	0.050" (1.27 mm).	E	**C**	P	
8	3	1	3	0.035" (0.89 mm).	E	C	**P**	

Continues next column ▼

6.6.4 Basic General Rules

▲ From previous column

					E	C	P
8				**FLUSHNESS** of joinery (continued)			
8	3			Of **NON WOOD** to **NON WOOD** (continued)			
8	3	2		At **SHAPED** surfaces:			
8	3	2	1	0.120" (3.05 mm).	**E**	C	P
8	3	2	2	0.075" (1.91 mm)	E	**C**	P
8	3	2	3	0.050" (1.27 mm).	E	C	**P**
9				**FASTENING** and **FASTENERS** shall:			
9	1			Include the use of construction adhesive, finish nails, trim screws, pins and/or staples, except:			
9	1	1		Staples with a crown exceeding 3/16" (4.8 mm) are not permitted.			
9	2			Not permit the use of drywall or bugle head screws.			
9	3			Require exposed fasteners to be countersunk.			
9	4			Require exposed fasteners to be set in quirks and reliefs where possible.	E	**C**	**P**
9	5			Require exposed fasteners to be inconspicuous when viewed at 24" (610 mm).	E	C	**P**
9	6			Allow use of construction adhesive for inconspicuous fastening.			
9	7			Not permit exposed fastening through decorative laminate.			
9	8			**REQUIRE** allowable fastener holes, when:			
9	8	1		Pre-finished materials to be filled by the installer with matching filler furnished by the manufacturer.			
9	8	2		Unfinished materials to be filled by the paint contractor or others.			
10				**GLUE** and filler residue is not permitted on exposed faces.			
11				**EQUIPMENT CUTOUTS**, including electrical and plumbing, shall be cut out by the installer, provided templates are furnished prior to installation, and:			
11	1			Shall be neatly cut and properly sized to be covered by standard cover plates or rosettes.			
11	2			In **HPDL** or **SOLID SURFACE** shall have a minimum 1/4" (6.4 mm) radius at inside corners.			

Continues next column ▼

6.6.4 Basic General Rules

▲ From previous column

					E	C	P
12				**HARDWARE** shall be:			
12	1			Installed neatly without tear out of surrounding stock.	E	C	**P**
12	2			Installed per manufacturer's instructions.			
12	3			Installed using furnished fasteners and fasteners' provisions. When fastener provisions are countersunk, fasteners shall be countersunk.			
12	4			Adjusted for smooth operation, within limits of the specified hardware.			
13				**AREAS OF INSTALLATION** shall be left broom clean.			
13	1			Debris shall be removed and dumped in containers provided by the contractor.			
13	2			Items installed shall be cleaned of pencil or ink marks.			
14				**FIRST CLASS WORKMANSHIP** is required in compliance with these standards.			

6.6.5 Product Specific Rules

1	**STANDING** and **RUNNING TRIM** shall require:				
1	**1**	Running joints be diagonal scarf or butted, if butted must use a dowel biscuit spline or spline.	E	**C**	**P**
1	**2**	Running joints on multimember trim be staggered from adjacent members.	E	**C**	**P**
1	**3**	Large, one piece or multimember moldings be installed with back blocking as needed.			
1	**4**	**MULTIPLE JOINTS** in running trim shall not be within:			
1	4 **1**	24" (609 mm).	**E**	C	P
1	4 **2**	36" (914 mm).	E	**C**	P
1	4 **3**	48" (1220 mm).	E	C	**P**
1	**5**	Base be scribed to the floor, only if so specified: however:			
1	5 **1**	If not scribed it shall be caulked.	E	**C**	**P**
1	**6**	Miters over 4" (102 mm) long be joined with spline, dowel, or biscuit spline.	E	C	**P**
2	**CLOSET RODS** shall be supported at a maximum of 48" (1219 mm) on center.				
3	**DOOR & WINDOW FRAMES** shall:				
3	**1**	Have rough wood bucks secured at openings.			
3	**2**	Be set plumb.			
3	**3**	Be seated on the floor.			
3	**4**	Be securely fastened through shims into the framing.			
3	**5**	Have **LEGS** set square with header and parallel to each other within:			
3	5 **1**	3/16" (4.8 mm).	**E**	C	P
3	5 **2**	1/8" (3.2 mm).	E	**C**	P
3	5 **3**	1/16" (1.6 mm).	E	C	**P**
3	**6**	Allow horns to be removed before installation.			
3	**7**	Require fire door frames to be installed per the manufacturers' basic instructions.			
3	**8**	Not permit prehung and pre-cased door/jamb assemblies that are fastened only through the casing.	E	**C**	**P**

Continues next column ▼

6.6.5 Product Specific Rules

▲ From previous column

4	**BLINDS** and **SHUTTERS**				
4	**1**	If installed in a frame, screen, blind, or shutter, shall have a maximum clearance of 1/8" (3.2 mm) at all sides and be set uniformly within 1/8" (3.2 mm) of the frame face.			
5	**SCREENS**				
5	**1**	If installed in a frame, screen, blind, or shutter, shall have a maximum clearance of 1/8" (3.2 mm) at all sides and be set uniformly within 1/8" (3.2 mm) of the frame face.			
6	**ORNAMENTAL MILLWORK**				
6	**1**	Wood filler strip to cover a maximum of 1-1/2" (38 mm).	**E**	C	P
6	**2**	Scribe/fillers securely fastened with trim screws.	**E**	C	P
6	**3**	Scribe/fillers securely fastened with sheet goods adhesive, face nails, or pins.	E	**C**	**P**
6	**4**	Exposed surface scribed to the wall with a scribe strip, 1/32" (0.8 mm) maximum gap.	E	C	**P**

North American Architectural Woodwork Standards - 3.1

SECTION - 07

STAIRWORK & RAILS

No Errata within this Section as of July 17, 2017

7.5 PREPARATION and QUALIFICATION REQUIREMENTS (unless otherwise specified)

1 **CARE, STORAGE,** and **BUILDING CONDITIONS** shall be in compliance with the requirements set forth in Section 2 of these standards.

1.1 Severe damage to the woodwork can result from noncompliance. The manufacturer and/or installer of the woodwork shall not be held responsible for any damage that might develop by not adhering to the requirements.

2 **CONTRACTOR IS RESPONSIBLE FOR:**

2.1 Furnishing and installing structural members, grounds, in wall blocking, backing, furring, brackets, or other anchorage required for architectural woodwork installation that becomes an integral part of walls, floors, or ceilings to which architectural woodwork shall be installed.

2.1.1 In the absence of contract documents calling for the contractor to supply the necessary in wall blocking/backing in the wall or ceilings, either through inadvertence or otherwise, the architectural woodwork installer shall not proceed with the installation until such time as the in wall blocking/backing is installed by others.

2.1.2 Preparatory work done by others shall be subject to inspection by the architectural woodwork installer, and shall be accepted or rejected for cause prior to installation.

2.1.2.1 **WALL, CEILING**, and/or **OPENING VARIATIONS** in excess of 1/4" (6.4 mm) or **FLOORS** in excess of 1/2" (12.7 mm) in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size are not acceptable for the installation of architectural woodwork, nor is it the responsibility of the installer to scribe or fit to tolerances in excess of such.

2.2 Installation site being properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

7.5 PREPARATION and QUALIFICATION (continued)

2.3 Priming the architectural woodwork in accordance with the contract documents prior to its installation, and:

2.3.1 If the architectural woodwork is factory finished, priming by the factory finisher is required.

3 **INSTALLER IS RESPONSIBLE FOR:**

3.1 Having adequate equipment and experienced craftsmen to complete the installation in a first class manner.

3.2 Checking architectural woodwork specified and studying the appropriate portions of the contract documents, including these standards and the reviewed shop drawings to familiarize themselves with the requirements of the Grade specified, understanding that:

3.2.1 Appearance requirements of Grades apply only to surfaces visible after installation.

3.2.2 For transparent finish, special attention needs to be given to the color and the grain of the various woodwork pieces to ensure they are installed in compliance with the Grade specified.

3.3 Verification that installation site is properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

3.4 Verification that required priming of woodwork has been completed by others before woodwork is installed.

3.5 Verification that woodwork has been acclimated to the field conditions for a minimum of 72 hours before installation is commenced.

3.6 Woodwork specifically built or assembled in sequence for match of color and grain is installed to maintain that same sequence.

7.6 RULES

1 The following rules shall govern unless a project's contract documents require otherwise.

2 These rules are intended to provide a well defined degree of control over a project's quality of installation.

3 **ERRATA**, published at http://naaws-errata.com, shall take precedence over these rules, subject to their date of posting and a project's bid date.

7.6.4 Basic General Rules

1			**AESTHETIC** Grade rules apply only to exposed and semi-exposed surfaces visible after installation.			
2			**TRANSPARENT** finished woodwork shall be installed with:			
2	1		**CONSIDERATION** of color and grain.	E	C	P
2	2		**COMPATIBLE** in color and grain.	E	C	P
2	3		**WELL MATCHED** for color and grain, and:	E	C	P
2	3	1	Sheet products shall be compatible in color with solid stock.	E	C	P
2	3	2	Adjacent sheet products shall be well matched for color and grain.	E	C	P
3			**INSTALLER FABRICATION** or **MODIFICATIONS** shall comply to the general, material, machining, and assembly rules within the **PRODUCT** portion of this section and, if applicable, the finishing rules in Section 5.			
4			**REPAIRS** are allowed, provided they are neatly made and inconspicuous when viewed at:			
4	1		72" (1830 mm).	E	C	P
4	2		48" (1219 mm).	E	C	P
4	3		24" (610 mm).	E	C	P
5			**WOODWORK** shall be:			
5	1		**SECURELY** fastened and tightly fitted with flush joints, and:			
5	1	1	Joinery shall be consistent throughout the project.			
5	2		Of maximum available and/or practical length.	E	C	P
5	3		**TRIMMED EQUALLY** from both sides when fitted for width.	E	C	P
5	4		**SPLINE** or **DOWELED** when miters are over 4" (100 mm) long.	E	C	P

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7.6.4 Basic General Rules

▲ From previous column

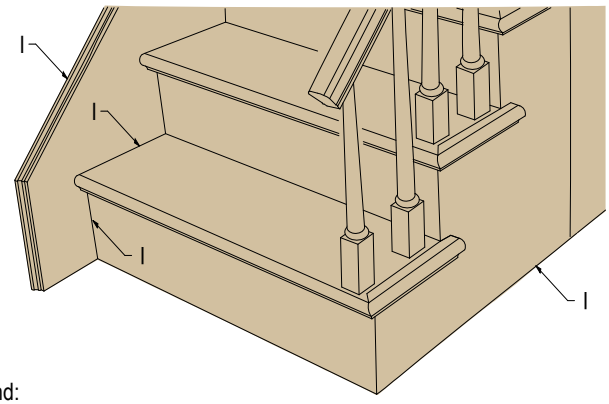
5			**WOODWORK** (continued)			
5	5		**PROFILED or SELF MITERED** when trim ends are exposed.	E	C	P
5	6		**SELF MITERED** when trim ends are exposed.	E	C	P
5	7		**MITERED** at outside corners.			
5	8		**MITERED** at inside corners.	E	C	P
5	9		**COPED** at inside corners.	E	C	P
5	10		**INSTALLED** plumb, level, square, and flat within 1/8" (3.2 mm) in 96" (2438 mm), and when required:			
5	10	1	**GROUNDS** and **HANGING SYSTEMS** set plumb and true.	E	C	P
5	11		Installed **FREE** of:			
5	11	1	Warp, twisting, cupping, and/or bowing that cannot be held true.			
5	11	2	Open joints, visible machine marks, cross sanding, tears, nicks, chips, and/or scratches.			
5	11	3	Natural defects exceeding the quantity or size limits defined in Sections 3 & 4.			
5	12		**SMOOTH** and **SANDED** without **CROSS SCRATCHES** in conformance to the **PRODUCT** portion of this section.			
5	13		**SCRIBED** at:			
5	13	1	Flat surfaces.	E	C	P
5	13	2	Shaped surfaces.	E	C	P
6			**THESE STANDARDS** do not establish Grade rules for joint flushness and or gap tolerances for woodwork products installed in a non climate controlled environment.			

Continues next column ▼

7.6.4 Basic General Rules

▲ From previous column

7 **GAPS** at field installation (see Test I illustrations in TESTS) such as,



and:

						E	C	P
7	1	**CAUSED** by **EXCESSIVE DEVIATIONS** (deviations in excess of 1/4" (6.4 mm) in 144" [3658 mm] of being plumb, level, flat, straight, square, or of the correct size) in the building's walls and ceilings, or 1/2" (12.7 mm) for floors, shall not be considered a defect or the responsibility of the installer.						
7	2	Shall not exceed 30% of a joint's length, and **FILLER** or **CAULKING** is allowed:						
7	2	**1**	If color compatible:				**C**	P
7	2	**2**	At **WOOD** to **WOOD** shall not exceed:					
7	2	2	**1**	At **FLAT** surfaces:				
7	2	2	1	**1**	0.030" (0.76 mm) in width.	**E**	C	P
7	2	2	1	**2**	0.020" (0.51 mm) in width.	E	**C**	P
7	2	2	1	**3**	0.015" (0.38 mm) in width.	E	C	**P**
7	2	2	**2**	At **SHAPED** surfaces:				
7	2	2	2	**1**	0.040" (1.02 mm) in width.	**E**	C	P
7	2	2	2	**2**	0.025" (0.64 mm) in width.	E	**C**	P
7	2	2	2	**3**	0.015" (0.38 mm) in width.	E	C	**P**
7	2	**3**	Of **WOOD** to **NON WOOD** shall not exceed:					
7	2	3	**1**	At **FLAT** and **SHAPED** surfaces:				
7	2	3	1	**1**	0.075" (1.91 mm) in width.	**E**	C	P
7	2	3	1	**2**	0.050" (1.27 mm) in width.	E	**C**	P
7	2	3	1	**3**	0.035" (0.89 mm) in width.	E	C	**P**

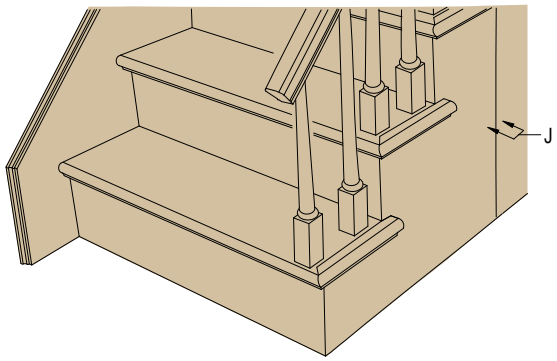
Continues next column ▼

7.6.4 Basic General Rules

▲ From previous column

						E	C	P
7	**GAPS** (continued)							
7	2	Shall not exceed (continued)						
7	2	**4**	Of **NON WOOD** to **NON WOOD** and/or **ALL ELEMENTS** shall not exceed:					
7	2	4	**1**	At **FLAT** surfaces:				
7	2	4	1	**1**	0.075" (1.91 mm) in width.	**E**	C	P
7	2	4	1	**2**	0.050" (1.27 mm) in width.	E	**C**	P
7	2	4	1	**3**	0.035" (0.89 mm) in width.	E	C	**P**
7	2	4	**2**	At **SHAPED** surfaces:				
7	2	4	2	**1**	0.120" (3.05 mm).	**E**	C	P
7	2	4	2	**2**	0.075" (1.91 mm).	E	**C**	P
7	2	4	2	**3**	0.050" (1.27 mm).	E	C	**P**

8 **FLUSHNESS** of field joinery (see Test J illustrations in TESTS), such as,



and:

						E	C	P
8	**1**	At **WOOD** to **WOOD** shall not exceed:						
8	1	**1**	At **FLAT** surfaces:					
8	1	1	**1**	0.025" (0.64 mm).	**E**	C	P
8	1	1	**2**	0.015" (0.38 mm).	E	**C**	P
8	1	1	**3**	0.010" (0.25 mm).	E	C	**P**
8	1	**2**	At **SHAPED** surfaces:					
8	1	2	**1**	0.40" (0.97 mm).	**E**	C	P
8	1	2	**2**	0.025" (0.65 mm).	E	**C**	P
8	1	2	**3**	0.020" (0.51 mm).	E	C	**P**
8	**2**	At **WOOD** to **NON WOOD** shall not exceed:						
8	2	**1**	At **FLAT** and **SHAPED** surfaces:					
8	2	1	**1**	0.075" (1.91 mm).	**E**	C	P
8	2	1	**2**	0.050" (1.27 mm).	E	**C**	P
8	2	1	**3**	0.035" (0.89 mm).	E	C	**P**

Continues next column ▼

7.6.4 Basic General Rules

▲ From previous column

					E	C	P
8	3			At **NON WOOD** to **NON WOOD** and/or **ALL ELEMENT**S shall not exceed:			
8	3	1		At **FLAT** surfaces:			
8	3	1	1	0.075" (1.91 mm).	E	C	P
8	3	1	2	0.050" (1.27 mm).	E	C	P
8	3	1	3	0.035" (0.89 mm).	E	C	P
8	3	2		At **SHAPED** surfaces:			
8	3	2	1	0.120" (3.05 mm).	E	C	P
8	3	2	2	0.075" (1.91 mm).	E	C	P
8	3	2	3	0.050" (1.27 mm).	E	C	P
9				**FASTENING and FASTENERS** shall:			
9	1			Include the use of construction adhesive, finish nails, trim screws, and/or pins, and:			
9	2			Not permit the use of drywall, bugle head, or case hardened screws.			
9	3			Be countersunk when through an exposed surface, and:			
9	3	1		Set in quirks and reliefs where possible.	E	C	P
9	3	2		Inconspicuous, as defined in the Glossary.	E	C	P
9	4			Allow use of construction adhesive for inconspicuous fastening.			
9	5			Not permit exposed fastening through decorative laminate.			
9	6			**REQUIRE** allowable fastener holes, when:			
9	6	1		Pre-finished materials to be filled by the installer with matching filler furnished by the manufacturer.			
9	6	2		Unfinished materials to be filled by the paint contractor or others.			
10				**GLUE** and filler residue is not permitted on exposed faces.			
11				**EQUIPMENT CUTOUTS**, including electrical and plumbing, shall be cut out by the installer, provided any needed templates are furnished prior to installation, and:			
11	1			Shall be neatly cut and properly sized to be covered by standard cover plates or rosettes.			
11	2			In **HPDL** or **SOLID SURFACE** shall have a minimum 1/4" (6.4 mm) radius at inside corners.			

Continues next column ▼

7.6.4 Basic General Rules

▲ From previous column

			E	C	P
12		**HARDWARE** shall be installed:			
12	1	Neatly without tear out of surrounding stock.	E	C	P
12	2	Per manufacturer's instructions.			
12	3	Using all furnished fasteners and fasteners' provisions and when fastener provisions are countersunk, fasteners shall be countersunk.			
12	4	And adjusted for smooth operation.			
13		**AREAS** of **INSTALLATION** shall be left broom clean, with:			
13	1	Debris removed and dumped in containers provided by the contractor.			
13	2	Items installed cleaned of pencil or ink marks.			
14		**FIRST CLASS WORKMANSHIP** is required in compliance with these standards.			

North American Architectural Woodwork Standards - 3.1

SECTION - 08

WALL/CEILING SURFACING & PARTITIONS

No Errata within this Section as of July 17, 2017

8.5 PREPARATION and QUALIFICATION REQUIREMENTS

1 **CARE, STORAGE, and BUILDING CONDITIONS** shall be in compliance with the requirements set forth in Section 2 of these standards.

1.1 Severe damage to the woodwork can result from noncompliance. **THE MANUFACTURER AND/OR INSTALLER OF THE WOODWORK SHALL NOT BE HELD RESPONSIBLE FOR DAMAGE THAT MIGHT DEVELOP BY NOT ADHERING TO THE REQUIREMENTS.**

2 CONTRACTOR IS RESPONSIBLE FOR

2.1 Furnishing and installing structural members, grounds, in wall blocking, backing, furring, brackets, or other anchorage required for architectural woodwork installation that becomes an integral part of walls, floors, or ceilings to which architectural woodwork shall be installed.

2.1.1 In the absence of contract documents calling for the contractor to supply the necessary in wall blocking/backing in the wall or ceilings, either through inadvertence or otherwise, the architectural woodwork installer shall not proceed with the installation until such time as the in wall blocking/backing is installed by others.

2.1.2 Preparatory work done by others shall be subject to inspection by the architectural woodwork installer and shall be accepted or rejected for cause prior to installation.

2.1.2.1 **WALL, CEILING,** and/or **OPENING VARIATIONS** in excess of 1/4" (6.4 mm) or **FLOORS** in excess of 1/2" (12.7 mm) in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size are not acceptable for the installation of architectural woodwork, nor is it the responsibility of the installer to scribe or fit to tolerances in excess of such.

2.2 Installation site being properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

8.5 PREPARATION and QUALIFICATION REQUIREMENTS (continued)

2.3 Priming the architectural woodwork in accordance with the contract documents prior to its installation, and:

2.3.1 Building wall surfaces shall be primed where construction adhesive is used for panelling installation.

2.4 If the architectural woodwork is factory finished, priming by the factory finisher is required.

3 INSTALLER IS RESPONSIBLE FOR

3.1 Having adequate equipment and experienced craftsmen to complete the installation in a first class manner.

3.2 Checking architectural woodwork specified and studying the appropriate portions of the contract documents, including these standards and the reviewed shop drawings to familiarize themselves with the requirements of the Grade specified, understanding that:

3.2.1 Appearance requirements of Grades apply only to surfaces visible after installation.

3.2.2 For transparent finish, special attention needs to be given to the color and the grain of the various woodwork pieces to ensure they are installed in compliance with the Grade specified.

3.3 Verification that installation site is properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

3.4 Verification that required priming of woodwork has been completed by others before woodwork is installed.

3.5 Verification that woodwork has been acclimated to the field conditions for a minimum of 72 hours before installation is commenced.

3.6 Woodwork specifically built or assembled in sequence for match of color and grain is installed to maintain that same sequence.

8.6 RULES

1 The following rules shall govern unless a project's contract documents require otherwise.

2 These rules are intended to provide a well defined degree of control over a project's quality of installation.

3 ERRATA, published at http://naaws-errata.com, shall take precedence over these rules, subject to their date of posting and a project's bid date.

8.6.1 Basic General Rules

1			**AESTHETIC** grade rules apply only to exposed and semi-exposed surfaces visible after installation.			
2			**TRANSPARENT FINISHED** woodwork shall be installed:			
2	1		With **CONSIDERATION** of color and grain.	E	C	P
2	2		**COMPATIBLE** in color and grain.	E	**C**	P
2	3		**WELL MATCHED** for color and grain, with:	E	C	**P**
2	3	1	**SHEET PRODUCTS** compatible in color with solid stock.	E	C	**P**
3			**REPAIRS** are allowed, provided they are neatly made and inconspicuous when viewed at:			
3	1		72" (1830 mm).	**E**	C	P
3	2		48" (1219 mm).	E	**C**	P
3	3		24" (610 mm).	E	C	**P**
4			**INSTALLER FABRICATION** or **MODIFICATIONS** shall comply to the general, material, machining, and assembly rules within the **PRODUCT** portion of this section and the applicable finishing rules in Section 5.			
5			**WOODWORK** shall be:			
5	1		**SECURELY** fastened and tightly fitted with flush joints.			
5	1	1	Joinery shall be **CONSISTENT** throughout the project.			
5	2		Of **MAXIMUM** available and/or practical lengths.	E	**C**	P
5	3		**TRIMMED EQUALLY** from both sides when fitted for width.	E	C	**P**
5	4		**SPLINED** or **DOWELED** when miters are over 4" (100 mm) long.	E	C	**P**

Continues next column ▼

8.6.1 Basic General Rules

▲ From previous column

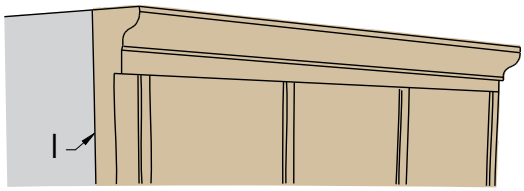
5			**WOODWORK** (continued)			
5	5		**PROFILED** or **SELF MITERED** when trim ends are exposed.	E	**C**	P
5	6		**SELF MITERED** when trim ends are exposed.	E	C	**P**
5	7		**MITERED** at outside corners.			
5	8		**MITERED** at inside corners.	**E**	**C**	P
5	9		**COPED** at inside corners for shaped surfaces.	E	**C**	**P**
5	10		**INSTALLED** plumb, level, square, and flat within 1/8" (3.2 mm) in 96" (2438 mm), and when required:			
5	10	1	**GROUNDS** and **HANGING SYSTEMS** set plumb and true.	E	**C**	**P**
5	11		Installed **FREE OF**:			
5	11	1	Warp, twisting, cupping, and/or bowing that cannot be held true.			
5	11	2	Open joints, visible machine marks, cross sanding, tear outs, nicks, chips, and/or scratches.			
5	11	3	Natural defects exceeding the quantity or size limits defined in Sections 3 & 4.			
5	12		**SMOOTH** and **SANDED** without **CROSS SCRATCHES** in conformance to the **PRODUCT** portion of this section.			
5	13		**SCRIBED** at:			
5	13	1	Flat surfaces.	E	**C**	**P**
5	13	2	Shaped surfaces.	E	C	**P**
5	14		Sealed when in contact with walls and floors and/or wall and floor anchorage.			
6			**THESE STANDARDS** do not establish grade rules for joint flushness and or gap tolerances for woodwork products installed in a non climate controlled environment.			

Continues next column ▼

8.6.1 Basic General Rules

▲ From previous column

7 **GAPS** at field installation (see Test I illustrations in TESTS) such as,



and:

7	1	If caused by excessive deviations in the building's walls and ceilings being in excess of 1/4" (6.4 mm) in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size, or 1/2" (12.7 mm) for floors, shall not be considered a defect or the responsibility of the installer.						
7	2	Not exceed 30% of a joint's **LENGTH** and:						
7	2	1	Be allowed if filled or caulked, and:				E	C	P
7	2	1	1	If color compatible.			E	**C**	**P**
7	3	At **WOOD** to **WOOD** shall not exceed:						
7	3	1	At **FLAT** surfaces:					
7	3	1	1	0.030" (0.76 mm) in width.			E	C	P
7	3	1	2	0.020" (0.51 mm) in width.			E	**C**	P
7	3	1	3	0.015" (0.38 mm) in width.			E	C	**P**
7	3	2	At **SHAPED** surfaces:					
7	3	2	1	0.040" (1.02 mm) in width.			E	C	P
7	3	2	2	0.025" (0.64 mm) in width.			E	**C**	P
7	3	2	3	0.015" (0.38 mm) in width.			E	C	**P**
7	4	Of **WOOD** to **NON WOOD** shall not exceed:						
7	4	1	At **FLAT** and **SHAPED** surfaces:					
7	4	1	1	0.075" (1.91 mm) in width.			E	C	P
7	4	1	2	0.050" (1.27 mm) in width.			E	**C**	P
7	4	1	3	0.035" (0.89 mm) in width.			E	C	**P**
7	5	Of **NON WOOD** to **NON WOOD** and/or **ALL ELEMENTS** shall not exceed:						
7	5	1	At **FLAT** surfaces:					
7	5	1	1	0.075" (1.91 mm) in width.			E	C	P
7	5	1	2	0.050" (1.27 mm) in width.			E	**C**	P
7	5	1	3	0.035" (0.89 mm) in width.			E	C	**P**

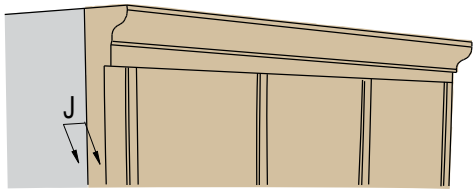
Continues next column ▼

8.6.1 Basic General Rules

▲ From previous column

7	**GAPS** (see Test I illustrations in Tests) (continued)							
7	5	2	At **SHAPED** surfaces:					
7	5	2	1	0.120" (3.05 mm) in width.			E	C	P
7	5	2	2	0.075" (1.91 mm) in width.			E	**C**	P
7	5	2	3	0.050" (1.27 mm) in width.			E	C	**P**

8 **FLUSHNESS** of joinery (see Test J illustrations in TESTS), such as,



and:

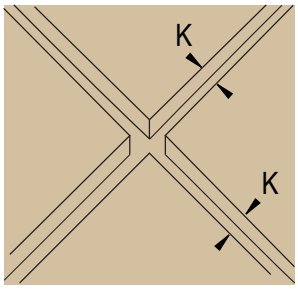
8	1	Of **WOOD** to **WOOD** shall not exceed:						
8	1	1	At **FLAT** surfaces:					
8	1	1	1	0.025" (0.64 mm).			E	C	P
8	1	1	2	0.015" (0.38 mm).			E	**C**	P
8	1	1	3	0.010" (0.25 mm).			E	C	**P**
8	1	2	At **SHAPED** surfaces:					
8	1	2	1	0.040" (0.97 mm).			E	C	P
8	1	2	2	0.025" (0.65 mm).			E	**C**	P
8	1	2	3	0.020" (0.51 mm).			E	C	**P**
8	2	Of **WOOD** to **NON WOOD** shall not exceed:						
8	2	1	At **FLAT** and **SHAPED** surfaces:					
8	2	1	1	0.075" (1.91 mm).			E	C	P
8	2	1	2	0.050" (1.27 mm).			E	**C**	P
8	2	1	3	0.035" (0.89 mm).			E	C	**P**
8	3	Of **NON WOOD** to **NON WOOD** and/or **ALL ELEMENTS** shall not exceed:						
8	3	1	At **FLAT** surfaces:					
8	3	1	1	0.075" (1.91 mm).			E	C	P
8	3	1	2	0.050" (1.27 mm).			E	**C**	P
8	3	1	3	0.035" (0.89 mm).			E	C	**P**
8	3	2	At **SHAPED** surfaces:					
8	3	2	1	0.120" (3.05 mm).			E	C	P
8	3	2	2	0.075" (1.91 mm).			E	**C**	P
8	3	2	3	0.050" (1.27 mm).			E	C	**P**

Continues next column ▼

8.6.1 Basic General Rules

▲ From previous column

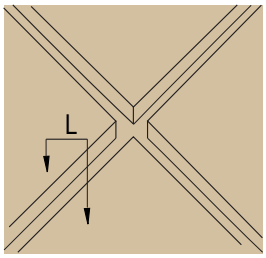
9 **REVEALS** at **ADJOINING PANELS** (see Test K illustrations in TESTS), such as,



shall not exceed a maximum variance of:

			E	C	P
9	1	0.040” (1.02 mm).	E	C	P
9	2	0.025” (0.64 mm).	E	**C**	P
9	3	0.015” (0.38 mm).	E	C	**P**

10 **FLUSHNESS** at **ADJOINING PANELS** (see Test L illustrations in TESTS) such as,



shall not exceed a maximum variance of:

			E	C	P
10	1	0.040” (1.02 mm).	E	C	P
10	2	0.025” (0.64 mm).	E	**C**	P
10	3	0.015” (0.38 mm).	E	C	**P**

11 **FASTENING** shall:

11 **1** Use mechanical fasteners at wall panels installed at 108” (2743 mm) or more above finished floor, and ceiling panels regardless of height.

Continues next column ▼

8.6.1 Basic General Rules

▲ From previous column

11 **FASTENING** shall:

11 **2** Use **CONCEALED** fastening wherever possible.

11 2 **1** If exposed fastening is required to complete the installation:

11 2 1 **1** Fasteners shall be set in quirks or reliefs (where possible), countersunk, and kept to a minimum.

11 2 1 **2** **PERMIT** use of construction adhesive, finish nails, trim screws, and/or pins.

						E	C	P
11	2	1	2	1	Trim screws.	E	C	P
11	2	1	2	2	Finish nails.	E	**C**	P
11	2	1	2	3	Pins and/or construction adhesive.	E	C	**P**

11 2 1 **3** **DO NOT PERMIT** the use of drywall, bugle head, or case hardened screws.

11 2 1 **4** Require exposed fasteners to be inconspicuous, as defined in the glossary.

11 2 1 **5** **DO NOT PERMIT** exposed fastening through decorative laminate.

11 2 **2** Use of metal Z-clips or hanging cleats are acceptable for blind installation.

11 **3** A maximum of 3/4” (19 mm) reveal is permitted at the top of panels to allow lift on clearance of the panel.

11 **4** **REQUIRE** allowable fastener holes, when:

11 4 **1** Pre-finished materials to be filled by the installer with matching filler furnished by the woodwork supplier.

11 4 **2** Unfinished or primed materials to be filled and caulked by the paint contractor or others.

12 **REVEAL STRIPS** that are grooved into paneling are to be left floating and allowed to expand and contract in reaction to changing relative humidity.

13 **EXPANSION JOINTS** shall be provided equivalent to 3/16” (4.8 mm) per 47” (1194 mm) of linear elevation.

13 **1** The minimum reveal gap between panels shall be calculated as the length of the panel times:

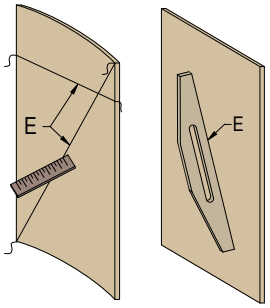
13 1 **1** 0.004 for particleboard core.

13 1 **2** 0.0033 for medium density fiberboard (MDF) core.

Continues next column ▼

8.6.1 Basic General Rules

▲ From previous column

				E	C	P
14		**PANELING** shall be:				
14	1	Furred and installed in such a way as to avoid deflection when normal pressure is applied.				
14	2	Free of warp exceeding:				
14	2	1	1/16" (1.6 mm) per linear foot (305 mm).	**E**	C	P
14	2	2	3/64" (1.2 mm) per linear foot (305 mm).	E	**C**	P
14	2	3	1/32" (0.8 mm) per linear foot (305 mm).	E	C	**P**
15		**JOINTS** shall be:				
15	1	Smooth and flush to create a homogenous look.				
15	2	Plumb within 1/16" (1.6 mm) in 96" (2438 mm).				
16		**BACKS** of wood wall and ceiling surfacing shall be sealed at 2 mil dry.		E	**C**	**P**
17		Requires **FLATNESS** or **WARP** of installed and removable sheet products (see Test E illustrations in **TESTS**) such as,  not to exceed grade tolerance listed for 12" (303 mm) diagonal, width and/or length or as lineal ratio (not geometric ratio) thereof. Example, twice the grade tolerance listed for 24" (610 mm), three times the tolerance for 36" (914 mm):				
17	1	0.050" (1.3 mm) per 12" (305 mm) or portion thereof.		**E**	C	P
17	2	0.036" (0.9 mm) per 12" (305 mm) or portion thereof.		E	**C**	P
17	3	0.027" (0.7 mm) per 12" (305 mm) or portion thereof.		E	C	**P**

Continues next column ▼

8.6.1 Basic General Rules

▲ From previous column

				E	C	P
18		**GLUE** and filler residue is not permitted on exposed faces.				
19		**EQUIPMENT CUTOUTS**, including electrical and plumbing, shall be cut out by the installer, provided needed templates are furnished prior to installation, and:				
19	1	Shall be neatly cut and properly sized.				
19	2	In **HPDL** or **SOLID SURFACE** shall have a minimum 1/4" (6.4 mm) radius at inside corners.				
20		**HARDWARE** shall be:				
20	1	Installed neatly without tear out of surrounding stock.				
20	2	Installed per the manufacturer's instructions.				
20	3	Installed using furnished fasteners and fastener's provisions and when fastener provisions are countersunk, fasteners shall be countersunk.				
20	4	Adjusted for smooth operation.				
21		**AREAS** of installation shall be left broom clean.				
21	1	Debris shall be removed and dumped in containers provided by the contractor.				
21	2	Items installed shall be cleaned of pencil or ink marks.				
22		**FIRST CLASS WORKMANSHIP** is required in compliance with these standards.				

8.6.2 Product Specific Rules

				E	C	P
1			**VENEER SURFACING** requires:			
1	1		For **TRANSPARENT FINISH**, the installer shall pay special attention to the **COLOR** and the **GRAIN** of the various panels and trim pieces to ensure they are installed in compliance with the **GRADE** specified.			
1	2		**PANELS** shall be installed as specified.			
1	3		**GLUING** with construction adhesive is permitted.			
1	4		**CONCEALED FASTENING** shall be used wherever possible, and:			
1	4	1	A maximum of 3/4" (19 mm) reveal is permitted at the top of panels either under casework or at ceiling to facilitate such.			
1	5		**EDGES** of core that are not self edged shall have one coat sealer applied before installation.			
1	6		Veneer joints shall be plumb, within:			
1	6	1	1/4" (6.4 mm).	E	C	P
1	6	2	3/16" (4.8 mm).	E	C	P
1	6	3	1/8" (3.2 mm).	E	C	P
1	7		**VENEER LOSS** (side) between sequenced adjacent panels shall not exceed:			
1	7	1	1-1/2" (38.1 mm).	E	C	P
1	7	2	1" (25.4 mm).	E	C	P
1	8		**VENEER LOSS** (end) between sequenced adjacent panels at end match shall not exceed:			
1	8	1	2" (50.8 mm).	E	C	P
1	8	2	1-1/2" (38.1 mm).	E	C	P
1	9		End matched veneer alignment between sequenced adjacent panels shall not exceed:			
1	9	1	3/8" (9.5 mm).	E	C	P
1	9	2	3/16" (4.8 mm).	E	C	P
1	10		Figure and/or heart progression shall be uniform and natural between adjacent sequenced panels and not exceed:			
1	10	1	1" (25.4 mm).	E	C	P
1	10	2	1/2" (12.7 mm).	E	C	P
1	10	3	Except at doors and other components that adjoin at blueprint panels shall not exceed:			
1	10	3	1 2" (50.8 mm).	E	C	P
1	10	3	2 1-1/2" (38.1 mm).	E	C	P

Continues next column ▼

8.6.2 Product Specific Rules

▲ From previous column

				E	C	P
2			**SOLID WOOD SURFACING** requires:			
2	1		**FIELD JOINTS** require:			
2	1	1	No preparation.	E	C	P
2	1	2	Shall be factory prepared to the greatest extent possible with feature strips and joint trim furnished oversize, where possible.	E	C	P
3			**DECORATIVE LAMINATE SURFACING** requires:			
3	1		**EXPOSED FASTENING** is not permitted, except:			
3	1	1	At removable panels.			
3	2		**PANELS** shall be installed as specified.			
3	3		**EDGES** of core that are not self edged shall have one coat sealer applied before installation.			
3	4		**SCRATCHES** and **CHIP OUT** shall be inconspicuous beyond:			
3	4	1	72" (1830 mm).	E	C	P
3	4	2	48" (1220 mm).	E	C	P
3	4	3	24" (610 mm).	E	C	P
3	5		**PATTERN LINES** shall be plumb, within:			
3	5	1	1/4" (6.4 mm).	E	C	P
3	5	2	3/16" (4.8 mm).	E	C	P
3	5	3	1/8" (3.2 mm).	E	C	P
4			**SOLID SURFACE** (only available in Custom and Premium Grade) requires:			
4	1		**SEALANTS** and **ADHESIVES** shall be compatible with the individual manufacturer's recommendations or specially developed sealants to achieve the best color match.			
4	2		**VERTICAL SURFACING** shall be installed over suitable cores based on the manufacturer's recommendations.			
4	3		**EXPANSION** joints shall be furnished where required by building design or manufacturer recommendations.			
4	4		**FIELD SEAMS**:			
4	4	1	Shall be **CAULKED** with compatible color matched sealant.	C	P	
4	4	2	Shall be **SEAMED** with compatible hard seam adhesive.	C	P	

Continues next column ▼

8.6.2 Product Specific Rules

▲ From previous column

4			**SOLID SURFACE** (continued)		
4	5		**EXPOSED FASTENING** is not permitted, except:		
4	5	1	At removable panels.		
4	5	2	Where decorative fasteners are specified.		
4	6		**SCRATCHES** and **CHIP OUTS** shall be inconspicuous beyond:		
4	6	1	48" (1220 mm).	C	P
4	6	2	24" (610 mm).	C	P
5			**SOLID PHENOLIC** (only available in Premium Grade) requires:		
5	1		**SEALANTS** and **ADHESIVES** shall be compatible with the individual manufacturer's recommendations or specially developed sealants to achieve the best color match.		
5	2		**VERTICAL SURFACING** shall be installed over suitable cores based on the manufacturer's recommendations.		
5	3		**EXPANSION CLEARANCE** of at least 3/32" (2.4 mm) for every 120" (3048 mm) in length is required.		
5	4		**CAULKED JOINTS** shall be approximately 1/8" (3.2 mm) wide to allow satisfactory caulking penetration and expansion.		
5	5		**EXPOSED FASTENING** is not permitted, except:		
5	5	1	At removable panels.		
5	5	2	Where decorative fasteners are specified.		
5	6		**CONCEALED FASTENING** shall be used wherever possible, and:		
5	6	1	A maximum of 3/4" (19 mm) reveal is permitted at the top of panels either under casework or at ceiling to facilitate such.		
5	6	2	Be approved by product manufacturer or design authority.		
5	7		**SCRATCHES** and **CHIP OUTS** shall be inconspicuous beyond:		
5	7	1	24" (610 mm).		

North American Architectural Woodwork Standards - 3.1

SECTION - 09

DOORS

No Errata within this Section as of July 17, 2017

9.5 PREPARATION and QUALIFICATION REQUIREMENTS

1 **CARE, STORAGE, and BUILDING CONDITIONS** shall be in compliance with the requirements set forth in Section 2 of these standards,and doors shall be:

1.1 Sealed at earliest possible moment. Edge sealing is particularly important.

1.2 Lift or carry door. Do not drag one door against another.

1.3 Handle doors with clean hands or clean gloves.

1.4 Severe damage to the woodwork can result from noncompliance. The manufacturer and/or installer of the woodwork shall not be held responsible for damage that might develop by not adhering to the requirements.

2 CONTRACTOR IS RESPONSIBLE FOR

2.1 Furnishing and installing structural members, grounds, in wall blocking, backing, furring, brackets, or other anchorage required for architectural woodwork installation that becomes an integral part of walls, floors, or ceilings to which architectural woodwork shall be installed.

2.1.1 In the absence of contract documents calling for the contractor to supply the necessary in wall blocking/backing in the wall or ceilings, either through inadvertence or otherwise, the architectural woodwork installer shall not proceed with the installation until such time as the in wall blocking/backing is installed by others.

2.1.2 Preparatory work done by others shall be subject to inspection by the architectural woodwork installer, and may be accepted or rejected for cause prior to installation.

2.1.2.1 **WALL, CEILING,** and/or **OPENING VARIATION**s in excess of 1/4" (6.4 mm) or **FLOORS** in excess of 1/2" (12.7 mm) in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size are not acceptable for the installation of architectural woodwork, nor is it the responsibility of the installer to scribe or fit to tolerances in excess of such.

9.5 PREPARATION and QUALIFICATION REQUIREMENTS (continued)

2.1.3 Installation site being properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

2.2 Priming the architectural woodwork in accordance with the contract documents prior to its installation.

3 INSTALLER IS RESPONSIBLE FOR

3.1 Having adequate equipment and experienced craftsmen to complete the installation in a first class manner.

3.2 Checking architectural woodwork specified and studying the appropriate portions of the contract documents, including these standards and the reviewed shop drawings to familiarize themselves with the requirements of the Grade specified, understanding that:

3.2.1 Appearance requirements of Grades apply only to surfaces visible after installation.

3.2.2 For transparent finish, special attention needs to be given to the color and the grain of the various woodwork pieces to ensure they are installed in compliance with the Grade specified.

3.3 Verification that installation site is properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

3.4 Verification that required priming of woodwork has been completed by others before woodwork is installed.

3.5 Verification that woodwork has been acclimated to the field conditions for a minimum of 72 hours before installation is commenced.

3.6 Woodwork specifically built or assembled in sequence for match of color and grain is installed to maintain that same sequence.

9.6 RULES

1 The following rules shall govern unless a project's contract documents require otherwise.

2 These rules are intended to provide a well defined degree of control over a project's quality of materials, workmanship, or installation.

3 **ERRATA**, published at naaws-errata.com, shall take precedence over these rules, subject to their date of posting and a project's bid date.

9.6.4 Basic General Rules

1		**AESTHETIC** Grade rules apply only to exposed and semi-exposed surfaces visible after installation.		
2		**INSTALLERS** shall be furnished with an approved:		
2	1	Hardware schedule and required templates.		
2	2	Set of metal frame shop drawings, including the locations of the hardware preparations.		
3		**PRE-FIT** and **PRE-MACHINED** doors are to be installed in accordance with the manufacturer's data.		
4		**TRANSPARENT FINISH** doors in sets or with transoms shall be installed:		
4	1	Compatible in color and grain.	C	P
4	2	Well matched for color and grain.	C	P
5		**BLUEPRINT** matched doors and panels shall be single sourced.		
6		**UTILITY** or **STRUCTURAL STRENGTH** of doors shall not be impaired in fitting them to the opening, applying hardware, preparing for lights, louvers, plant-ons, or other detailing.		
7		**FIRE DOOR ASSEMBLIES**, including 20, 30, 45, 60, and 90 minute rated, shall be prepared for locks, latches, hinges, remotely operated or monitored hardware, concealed closers, glass lights, vision panels, louvers, astragals, and laminated overlays in conformance to the manufacturer's Label Service requirements, and:		
7	1	**LABELS** are prohibited from being removed.		
8		**DOORS** and their **ACCESSORIES** shall be hung plumb and level within 1/16" (1.6 mm) of the height and width of the door assembly.		

Continues next column ▼

9.6.4 Basic General Rules

▲ From previous column

9		**WHEN INSTALLED**, doors shall operate smoothly and easily without binding, and:	
9	1	**PAIRS** of doors, when closed, shall be within 1/16" (1.6 mm) of flush at the meeting edge.	
10		**INSTALLER FABRICATION** or **MODIFICATIONS** shall comply to the general, material, machining, and assembly rules within the **PRODUCT** portion of this section and the applicable finishing rules in Section 5.	
11		Door **FACES** shall not extend more than:	
11	1	1/16" (1.6 mm) beyond the face of the jamb.	
11	2	1/8" (3.2 mm) behind the face of the jamb.	
12		**FITTING** for:	
12	1	**WIDTH** requires the door to be trimmed equally from both sides; however, on:	
12	1	1	**FIRE RATED DOORS**, in order to preserve the label, they shall be trimmed per the manufacturer's requirements.
12	2	**HEIGHT** prohibits trimming top or bottom rails more than 3/4" (19 mm), and:	
12	2	1	**FIRE RATED DOORS** shall only be trimmed on the bottom rail only.
12	2	2	When cutting to length, extreme care shall be used to prevent chipping of veneer.
12	3	Doors shall be trimmed so as to maintain bevel: or beveled in field 3 degrees unless contra indicated by hardware requirements.	
13		**CLEARANCE** between the door and frame members shall be a maximum of 1/8" (3.2 mm) on the hinge and lock sides, the top of the door, and between the meeting edges of doors in pairs, and:	
13	1	Installer shall not be responsible for clearances in excess of these dimensions if the door manufacturer made an error on pre-fit widths or locations for mortise hardware.	
13	2	Clearance at the bottom of fire rated doors shall conform to NFPA 80 and at non rated doors shall be a minimum of 1/4" and a maximum of 5/8" measured from the bottom of the door to the highest point of the finish floor that the door swings over.	

Continues next column ▼

9.6.4 Basic General Rules

▲ From previous column

14 **HARDWARE** shall be installed:

- 14 **1** In locations and by methods of attachment appropriate for the specific door construction.
- 14 1 **1** Templates for specific hardware preparation and installation are typically available from the manufacturer or the Door Hardware Institute (DHI).
- 14 **2** With appropriate fasteners, and:
- 14 2 **1** Operate as intended.
- 14 2 **2** Preferably use threaded to the head wood screws on nonrated doors.
- 14 2 **3** Use threaded to the head wood screws on fire rated doors.
- 14 2 **4** Require pilot holes to be drilled for screws.
- 14 2 **5** Installed using furnished fasteners or fastener provisions and when fastener provisions are countersunk, fasteners shall be countersunk.

15 **LEAF HINGES** on:

- 15 **1** **SOLID CORE** doors shall require:
- 15 1 **1** A minimum of two hinges for doors up to 60” (1524 mm) in height.
- 15 1 2 A minimum of three hinges for doors over 60” (1524 mm) in height, and:
- 15 1 2 **1** An additional hinge for each additional 30” (762 mm) or portion thereof in door height.
- 15 1 **3** Space between hinges be equal.
- 15 **2** **HOLLOW CORE** doors weighing less than 50 lbs (22.7 kg) and not exceeding 90” (2286 mm) in height shall require only two hinges.

16 **EQUIPMENT CUTOUTS**, shall be cut out by the installer, provided templates are furnished prior to installation, and:

- 16 **1** Shall be neatly cut and properly sized to be covered by standard cover plates or rosettes.
- 16 **2** In **HPDL** shall have a minimum 1/4” (6.4 mm) radius at inside corners.
- 16 **3** **CUTOUTS** for lights or louvers, if applicable, shall be protected from water entering the door core by a satisfactory method such as metal flashing at the bottom of the cutout.

Continues next column ▼

9.6.4 Basic General Rules

▲ From previous column

17 **TEMPORARY DISTORTIONS** (warp) will usually disappear when humidity is equalized, and doors seldom need to be replaced.

18 **REPAIRS** are allowed, provided they are made neatly and are inconspicuous when viewed at:

			C	P
18	**1**	48” (1219 mm).	**C**	P
18	**2**	24” (610 mm).	C	**P**

19 **WOODWORK** such as **APPLIED TRIM** shall be:

			C	P
19	**1**	**SECURELY** fastened and tightly fitted with flush joints.		
19	1	**1** Joinery shall be consistent throughout the project.		
19	**2**	Of **MAXIMUM** available and/or practical lengths.		
19	**3**	**PROFILED** or **SELF MITERED** when trim ends are exposed.	**C**	P
19	**4**	**SELF MITERED** when trim ends are exposed.	C	**P**
19	**5**	**MITERED** at outside corners.		
19	**6**	**MITERED** at inside corners.	**C**	P
19	**7**	**COPED** at inside corners.	C	**P**
19	**8**	**INSTALLED** plumb, level, square, and flat within 1/8” (3.2 mm) in 96” (2438 mm).		
19	8	**1** Grounds and hanging systems set plumb and true.		
19	**9**	**INSTALLED FREE OF**:		
19	9	**1** Warp, twisting, cupping, and/or bowing that cannot be held true.		
19	9	**2** Open joints, visible machine marks, cross sanding, tear outs, nicks, chips, and/or scratches.		
19	9	**3** Natural defects exceeding the quantity and/or size limits defined in Sections 3 and 4.		
19	**10**	**SMOOTH** and **SANDED** without cross scratches in conformance to the Product portion of this section.		

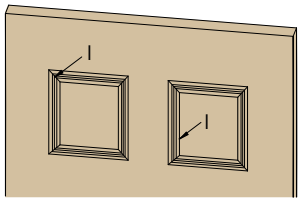
20 These standards do not establish Grade rules for joint flushness and or gap tolerances for woodwork products installed in a non climate controlled environment.

Continues next column ▼

9.6.4 Basic General Rules

▲ From previous column

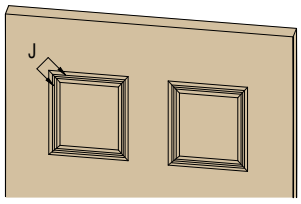
21 **GAPS** (see Test I illustrations in TESTS) such as,



and:

21	**1**	Shall **NOT EXCEED** 30% of a joint's length, and:				
21	1	**1**	**FILLER** or **CAULKING** is allowed, if color compatible.			
21	**2**	Of **WOOD** to **WOOD** shall not exceed:				
21	2	**1**	At **FLAT** surfaces:			
21	2	1	**1**	0.020" (0.51 mm) in width.	**C**	P
21	2	1	**2**	0.015" (0.38 mm) in width.	C	**P**
21	2	**2**	At **SHAPED** surfaces:			
21	2	2	**1**	0.025" (0.64 mm) in width.	**C**	P
21	2	2	**2**	0.015" (0.38 mm) in width.	C	**P**

22 **FLUSHNESS** of joinery (see Test J illustrations in TESTS), such as,



and:

22	**1**	Of **WOOD** to **WOOD** shall not exceed:				
22	1	**1**	At **FLAT** surfaces:			
22	1	1	**1**	0.015" (0.38 mm) in width.	**C**	P
22	1	1	**2**	0.010" (0.25 mm) in width.	C	**P**
22	1	**2**	At **SHAPED** surfaces:			
22	1	2	**1**	0.025" (0.65 mm) in width.	**C**	P
22	1	2	**2**	0.030" (0.51 mm) in width.	C	**P**

23	**AREAS** of installation shall be left broom clean.	
23	**1**	Debris shall be removed and dumped in containers provided by the general contractor.
23	**2**	Items installed shall be cleaned of pencil or ink marks.

24 **FIRST CLASS WORKMANSHIP** is required in compliance with these standards.

North American Architectural Woodwork Standards - 3.1

S E C T I O N - 10

CASEWORK

Applicable Errata for this Section as of July 17, 2017

(Page links: BLUE indicates minor corrections, RED indicates Substantive Change)

Introductory Information

See Page: 306

Compliance Requirements

See Pages: 332, 340-347, 349, 356, 364, & 376

10.5 PREPARATION and QUALIFICATION REQUIREMENTS

1 **CARE, STORAGE,** and **BUILDING CONDITIONS** shall be in compliance with the requirements set forth in Section 2 of these standards.

1.1 Severe damage to the woodwork can result from noncompliance. The manufacturer and/or installer of the woodwork shall not be held responsible for damage that might develop by not adhering to the requirements.

2 **CONTRACTOR IS RESPONSIBLE FOR**

2.1 Furnishing and installing structural members, grounds, in wall blocking, backing, furring, brackets, or other anchorage required for architectural woodwork installation that becomes an integral part of walls, floors, or ceilings to which architectural woodwork shall be installed.

2.1.1 In the absence of contract documents calling for the contractor to supply the necessary in wall blocking/backing in the wall or ceilings, either through inadvertence or otherwise, the architectural woodwork installer shall not proceed with the installation until such time as the in wall blocking/backing is installed by others.

2.1.2 Preparatory work done by others shall be subject to inspection by the architectural woodwork installer and may be accepted or rejected for cause prior to installation.

2.1.2.1 **WALL, CEILING,** and/or opening variations in excess of 1/4" (6.4 mm) or **FLOORS** in excess of 1/2" (12.7 mm) in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size are not acceptable for the installation of architectural woodwork, nor is it the responsibility of the installer to scribe or fit to tolerances in excess of such.

2.2 Installation site being properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

2.3 Priming architectural woodwork in accordance with the contract documents prior to its installation:

2.3.1 If the architectural woodwork is factory finished, priming by the factory finisher is required.

10.5 PREPARATION and QUALIFICATION (continued)

3 **INSTALLER IS RESPONSIBLE FOR**

3.1 Having adequate equipment and experienced craftsmen to complete the installation.

3.2 Checking architectural woodwork specified and studying the appropriate portions of the contract documents, including these standards and the reviewed shop drawings to familiarize themselves with the requirements of the Grade specified, understanding that:

3.2.1 Appearance requirements of Grades apply only to surfaces visible after installation.

3.2.2 For transparent finish, special attention needs to be given to the color and the grain of the various woodwork pieces to ensure they are installed in compliance with the Grade specified.

3.3 Verification that installation site is properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

3.4 Verification that required priming of woodwork has been completed by others before woodwork is installed.

3.5 Verification that woodwork has been acclimated to the field conditions for a minimum of 72 hours before installation is commenced.

3.6 Woodwork specifically built or assembled in sequence for match of color and grain is installed to maintain that same sequence.

10.6 RULES

1 The following rules shall govern unless a project's contract documents require otherwise.

2 These rules are intended to provide a well defined degree of control over a project's quality of installation.

3 **ERRATA**, published at http://naaws-errata.com, shall take precedence over these rules, subject to their date of posting and a project's bid date.

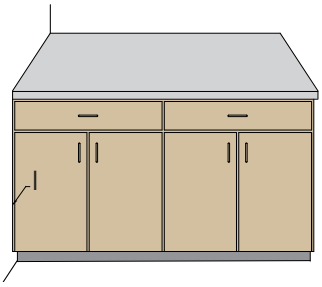
10.6.4 Basic General Rules

1	**AESTHETIC** grade rules apply only to exposed and semi-exposed surfaces visible after installation.					
2	For **TRANSPARENT** finish, woodwork shall be installed:					
2	1	With consideration of color and grain.	**E**	C	P
2	2	**COMPATIBLE** in color and grain.	E	**C**	P
2	3	**WELL MATCHED** for color and grain.	E	C	**P**
3	**REPAIRS** are allowed, provided they are neatly made and inconspicuous when viewed at:					
3	1	72" (1830 mm).	**E**	C	P
3	2	48" (1220 mm).	E	**C**	P
3	3	24" (610 mm).	E	C	**P**
4	**INSTALLER FABRICATION** or **MODIFICATIONS** shall comply to the general, material, machining, and assembly rules within the PRODUCT portion of this section and the applicable finishing rules in Section 5.					
5	**CASEWORK** or related items:					
5	1	Shall be securely fastened and tightly fitted with flush joint tolerances as set forth in these standards.			
5	1	1	Joinery shall be consistent throughout the project.			
5	2	Such as scribe molds shall be of maximum available and/or practical lengths and:			
5	2	1	Mitered at outside corners.			
5	3	Shall be Installed plumb, level, square, flat and in plane within 1/8" (3.2 mm) in 96" (2438 mm), and when required:			
5	3	1	Grounds and hanging systems set plumb and true.			

Continues next column

10.6.4 Basic General Rules

From previous column

5	**CASEWORK** or related items (continued)					
5	4	Shall be Installed free of:				
5	4	1	Warp, twisting, cupping, and/or bowing that cannot be held true.			
5	4	2	Open joints, visible machine marks, cross sanding, tear outs, nicks, chips, and/or scratches.			
5	4	3	Natural defects exceeding the quantity or size limits defined in Sections 3 and 4.			
5	4	4	Exposed fasteners at exposed exterior surfaces.			
5	5	Shall be smooth and sanded without cross scratches in conformance to the Product portion of this section.				
5	6	Shall be **SCRIBED** at:				
5	6	1	Flat surfaces.	E	**C**	**P**
5	6	2	Shaped surfaces.	E	**C**	**P**
6	**THESE STANDARDS** do not establish grade rules for joint flushness and or gap tolerances for woodwork products installed in a non climate controlled environment.					
7	**GAPS** (see Test I illustrations in TESTS) such as,  and:					
7	1	If caused by excessive deviations in the building's walls and ceilings being in excess of 1/4" (6.4 mm) in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size, or 1/2" (12.7 mm) for floors, shall not be considered a defect or the responsibility of the installer.			
7	2	Shall not exceed 30% of a joint's length, with:				
7	2	1	Be allowed if filled or caulked, and:	E	C	P
7	2	1	1	If color compatible.	E	**C**	**P**

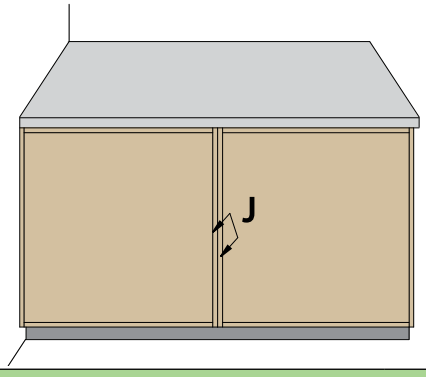
Continues next column

10.6.4 Basic General Rules

▲ From previous column

7			GAPS (continued)					
7	3		Of **WOOD** to **WOOD** shall not exceed:					
7	3	1	At **FLAT** surfaces:					
7	3	1	1	0.030" (0.76 mm) in width.	E	C	P
7	3	1	2	0.020" (0.51 mm) in width.	E	C	P
7	3	1	3	0.015" (0.38 mm) in width.	E	C	P
7	3	2	At **SHAPED** surfaces:					
7	3	2	1	0.040" (1.02 mm) in width.	E	C	P
7	3	2	2	0.025" (0.64 mm) in width.	E	C	P
7	3	2	3	0.015" (0.38 mm) in width.	E	C	P
7	4		Of **WOOD** to **NON WOOD** shall not exceed:					
7	4	1	At **FLAT** and **SHAPED** surfaces:					
7	4	1	1	0.075" (1.91 mm) in width.	E	C	P
7	4	1	2	0.050" (1.27 mm) in width.	E	C	P
7	4	1	3	0.035" (0.89 mm) in width.	E	C	P
7	5		Of **NON WOOD** to **NON WOOD** and/or **ALL ELEMENTS** shall not exceed:					
7	5	1	At **FLAT** surfaces:					
7	5	1	1	0.075" (1.91 mm) in width.	E	C	P
7	5	1	2	0.050" (1.27 mm) in width.	E	C	P
7	5	1	3	0.035" (0.89 mm) in width.	E	C	P
7	5	2	At **SHAPED** surfaces.					
7	5	2	1	0.120" (3.05 mm) in width.	E	C	P
7	5	2	2	0.075" (1.91 mm) in width.	E	C	P
7	5	2	3	0.050" (1.27 mm) in width.	E	C	P

8 **FLUSHNESS** of joinery (see Test J illustrations in TESTS), such as,



and:

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10.6.4 Basic General Rules

▲ From previous column

8			**FLUSHNESS** (continued):					
8	1		Of **WOOD** to **WOOD** shall not exceed:					
8	1	1	At **FLAT** surfaces:					
8	1	1	1	0.025" (0.64 mm).	E	C	P
8	1	1	2	0.015" (0.38 mm).	E	C	P
8	1	1	3	0.010" (0.25 mm).	E	C	P
8	1	2	At **SHAPED** surfaces:					
8	1	2	1	0.040" (0.97 mm).	E	C	P
8	1	2	2	0.025" (0.65 mm).	E	C	P
8	1	2	3	0.020" (0.51 mm).	E	C	P
8	2		Of **WOOD** to **NON WOOD** shall not exceed:					
8	2	1	At **FLAT** and **SHAPED** surfaces:					
8	2	1	1	0.075" (1.91 mm).	E	C	P
8	2	1	2	0.050" (1.27 mm).	E	C	P
8	2	1	3	0.035" (0.89 mm).	E	C	P
8	3		Of **NON WOOD** to **NON WOOD** and/or **ALL ELEMENTS** shall not exceed:					
8	3	1	At **FLAT** surfaces:					
8	3	1	1	0.075" (1.91 mm).	E	C	P
8	3	1	2	0.050" (1.27 mm).	E	C	P
8	3	1	3	0.035" (0.89 mm).	E	C	P
8	3	2	At **SHAPED** surfaces:					
8	3	2	1	0.120" (3.05 mm).	E	C	P
8	3	2	2	0.075" (1.91 mm).	E	C	P
8	3	2	3	0.050" (1.27 mm).	E	C	P

9 **GAPS, EDGE ALIGNMENT** and **FLUSHNESS** of doors and drawers shall be uniform and within the tolerances set forth in the Product portion of this section, and:

9	1		Door and drawer fronts shall align vertically and horizontally, and:
9	1	1	Be flush (on the same plane) to one another.
9	1	2	Minor adjustments are the responsibility of the installer.

Continues next column ▼

10.6.4 Basic General Rules

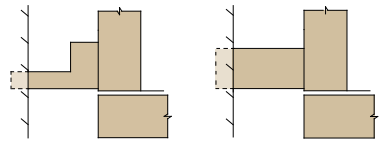
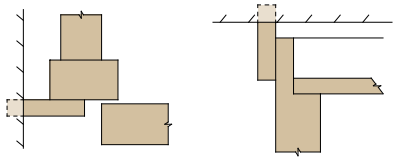
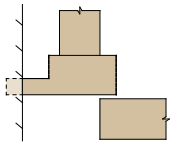
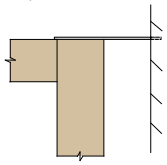
▲ From previous column

					E	C	P
10				**SCRIBING** shall be provided where cabinets contact finished walls or ceiling as elaborated below and in the Product portion of this section, and:			
10	1			Is not required.	E	C	P
10	2			Shall be **FURNISHED** by the manufacturer, and:	E	C	P
10	2	1		Scribe **FILLERS** shall not exceed 1-1/2" (38.1 mm) in width.	E	C	P
10	2	2		Scribe **MOLDS** shall not exceed 1-1/2" (38.1 mm) in width, and;	E	C	P
10	2	2	1	End joints may be butt jointed.	E	C	P
10	2	2	2	End joints shall be beveled, and:	E	C	P
10	2	2	2	1 Corners shall be mitered or coped.	E	C	P
10	2	2	3	Are ~~not~~ **NOT ALLOWED.** 07/01/2017	E	C	P
10	2	3		Scribe **ALLOWANCE** shall not exceed 1-1/2" (38.1 mm) in width from cabinet body. 07/01/2017			
10	2	4		Where scribing is required at both ends of a cabinet run, it shall utilize the same type of scribing at each end and be uniform in scribing width not to exceed 20% in variance. 07/01/2017			
10	3			Match exposed surfaces.			
10	4			Be furnished in maximum available lengths, joints not allowed in material less than 96" (2438 mm).			
10	5			Permits **COLOR COMPATIBLE CAULKING** not to exceed 1/8" (3.2 mm).	E	C	P
10	6			Fillers at inside corners where two elevations of casework meet must be equal in width, and:			
10	6	1		Not to exceed a maximum of 3" in width unless required for hardware clearance during operation.			
10	7			Requires **SOFFIT** or **FASCIA PANELS** to be furnished in maximum available lengths, joints not allowed in material less than 96" (2438 mm) at horizontal grain or directional pattern and 48" (1220 mm) at vertical grain or directional pattern, and:	E	C	P
10	7	1		Be a minimum of 3/4" (19 mm) in thickness.			
10	7	2		Grain direction (if any) shall run vertical, or be manufacturer's choice if less than:			
10	7	2	1	12" (305 mm) tall.	E	C	P
10	7	2	2	1-1/2" (38.1 mm) tall.	E	C	P

Continues next column ▼

10.6.4 Basic General Rules

▲ From previous column

					E	C	P
10				**SCRIBING** (continued)			
10	8			**TYPICAL SCRIBING OPTIONS**:			
10	8	1		Scribe Filler. 			
10	8	2		Scribe Mold. 			
10	8	3		Scribe Allowance. 			
10	9			At tall and wall hung cabinets, closure panels shall be provided at top and bottom voids.	E	C	P
10	10			Allowable gap at the back bottom edge of wall hung cabinets shall not exceed that listed below and, when scribing is necessary, the use of a separate scribe mold is permitted:	E	C	P
10	10	1		1/2" (12.7 mm).	E	C	P
10	10	2		1/4" (6.4 mm).	E	C	P
11				**CLOSURE** provision is required at voids or open spaces between cabinets and walls, such as at the top of tall and upper cabinets and the bottom of upper cabinets caused by scribing or angle turns, and:			
11	1			At non visible voids, 1-1/2" (38 mm) or less in width, a piece of standard grade laminate may be used as a closure cap. 			

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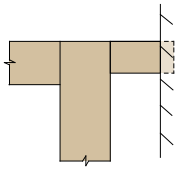
10.6.4 Basic General Rules

▲ From previous column

11 **CLOSURE** provision is required (continued)

11 **2** At non visible voids, exceeding 1-1/2" (38 mm) in width, a minimum 3/4" (19 mm) closure filler shall be provided of manufacturer's choice.



11 **3** At visible voids, a minimum 3/4" (19 mm) closure filler shall be provided matching the adjacent surface.

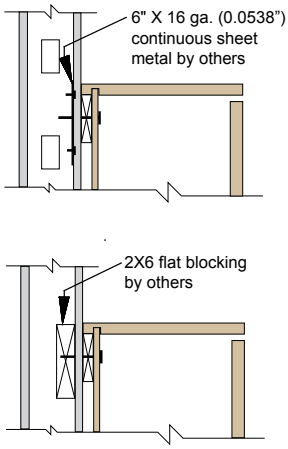
12 **EXPOSED FASTENERS** are not permitted at exposed exterior surfaces, except: | E | C | P |

12 **1** At access panels.

13 **CASEWORK WALL ANCHORAGE**, except for peninsula/island or base casework with mechanical spacing allowances (because of the need to be engineered on an individual basis), requires:

13 **1** **CONTINUOUS IN WALL BLOCKING** or **BACKING** of at least 2" x 6" (51 mm x 152 mm) nominal wood or 6" x 16 ga (152 mm x 1.4 mm) sheet metal, installed by others, shall be appropriately located in all wood or metal stud walls as shown below:

13 1 **1**



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10.6.4 Basic General Rules

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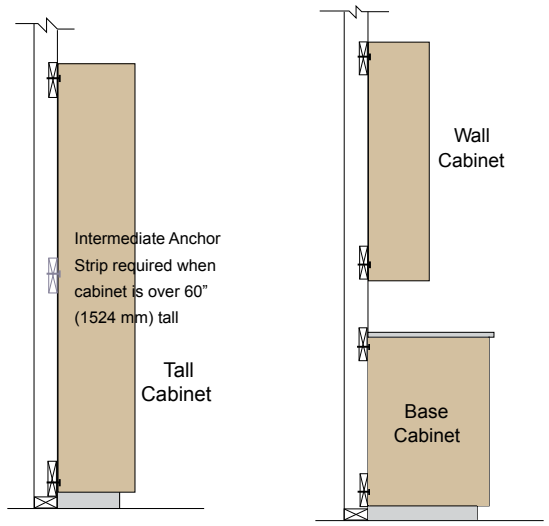
13 **CASEWORK WALL ANCHORAGE** (continued)

13 **2** **MANUFACTURER** to provide appropriate location layouts on their shop drawings for in wall blocking or backing for all tall, base, and wall hung casework for both top and bottom runs of fasteners, as shown below:

13 2 **1**



13 **3** **ADJACENT** cabinet units to be fastened together at the front with a minimum of two #8 x 1-1/4" (31.7 mm) flat, oval, or pan head screws, a maximum of 30" (762 mm) on center, and:

13 3 **1** Binder head sex bolts are permitted.

13 3 **2** At exposed interior surfaces, cover caps of compatible color to interior are required. | E | C | P |

13 **4** **ANCHORAGE FASTENERS** to be neatly installed through the back and anchor strip, at the top and bottom at each cabinet body, and:

13 4 **1** At the intermediate height of cabinets over 60" (1524 mm) tall.

13 4 **2** Within **UNITED STATES**, minimum of 3" (76.2 mm) x #14 (6.3 mm) diameter screw with a surface bearing head.

13 4 **3** Within **CANADA**, minimum of 3" (76.2 mm) x #10 (4.6 mm) diameter screw with a surface bearing head.

13 4 **4** Achieve a minimum penetration of 1-3/8" (34.9 mm) into the wall studs, in wall blocking, or masonry walls.

Continues next column ▼

10.6.4 Basic General Rules

▲ From previous column

13 CASEWORK WALL ANCHORAGE (continued)

13 4 ANCHORAGE FASTENERS (continued)

13 4 5 Use of drywall or bugle head screws is prohibited.

13 4 6 At Exposed Interior surfaces, exposed screw heads shall be painted or covered with caps of compatible color to interior surface. E | **C** | **P**

13 5 Each cabinet unit or undivided span shall have a minimum of four anchorage fasteners; two at the top and two at the bottom, subject to:

13 5 1 Horizontally, within 3" (76.2 mm) of the outside end and equally spaced, at:

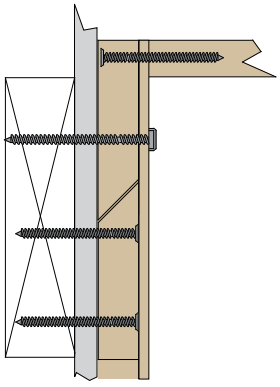
13 5 1 1 A maximum spacing of 16" (406 mm) on center, except:

13 5 1 1 1 Wall cabinet units over 48" (1,219 mm) in height shall be 12" (305 mm).

13 5 2 Vertically, within 3" (76.2 mm) of the outside top or bottom of the cabinet unit and must penetrate the anchor strip.

13 5 3 A locking hanging cleat, or other concealed method of installation may be used, provided it has been independently tested to show compliance to the Wall Cabinet Structural Integrity Test shown in the **APPENDIX**. a

13 5 3 1



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10.6.4 Basic General Rules

▲ From previous column

13 CASEWORK WALL ANCHORAGE (continued)

13 6 Bases or toes are not required to be anchored to the floor; however:

13 6 1 Separate bases or toes are required to be mechanically fastened in the field to the cabinet bottom with flat head screws set flush or slightly recessed, to prevent their movement, and:

13 6 1 1 Screw heads in cabinet bottoms, where exposed, shall be covered with color compatible adhesive caps.

14 NAIL HOLES through semi-exposed surfaces shall be countersunk and filled with color matched to the adjacent surface.

15 GLUE and filler residue is not permitted on exposed faces.

16 CAULKING, when used to fill gaps and/or voids, shall be color compatible and installed neatly.

17 REQUIRE allowable fastener holes, when:

17 1 Pre-finished materials to be filled by the installer with matching filler furnished by the manufacturer.

17 2 Unfinished materials to be filled by the paint contractor or others.

18 EQUIPMENT CUTOUTS, including electrical and plumbing, shall be cut out by the installer, provided templates are furnished prior to installation, and:

18 1 Shall be neatly cut and properly sized to be covered by standard cover plates or rosettes.

18 2 In **HPDL** shall have a minimum 1/4" (6.4 mm) radius at inside corners.

19 HARDWARE shall be installed:

19 1 Neatly without tear out of surrounding stock.

19 2 Per the manufacturer's instructions.

19 3 Using all furnished fasteners or fastener provisions and when fastener provisions are countersunk, fasteners shall be countersunk.

19 4 Properly, fitted and adjusted to ensure correct and smooth operation.

Continues next column ▼

10.6.4 Basic General Rules

▲ From previous column

20		**AREAS** of **INSTALLATION** shall be left broom clean of:
20	1	Debris shall be removed and dumped in containers provided by the contractor.
20	2	Items installed shall be cleaned of pencil or ink marks.
21		**FIRST CLASS WORKMANSHIP** is required in compliance with these standards.

Specific INSTALLATION Requirements for Seismic Casework Installation may be found in Annex E which follow herein.

Additional Requirements for
Seismic Casework Installation

Requires explicit specification requirement for such within contract documents.

10.5.E ADDITIONAL PREPARATION REQUIREMENTS

Applicable for all Grades

CAUTION - It is the users responsibility to confirm compatibility, acceptability and scope of these seismic engineered installation standards. The Sponsor Associations shall not be responsible to anyone for the use of or reliance upon these standards, nor shall they incur any obligation nor liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon these standards.

1 These engineered seismic casework installation standards are based on 2010 and 2013 California Building Code (CBC) requirements for use in California (approved by the California Office of Statewide Health Planning and Development (OSHPD) and accepted by California Division of State Architecture (DSA)); however, may also be adequate for use in other areas that base their requirements on the International Building Code (IBC). This engineering is applicable for the installation of casework in building structures:

1.1 At any height within the building where z/h <= 1.0

1.2 Where the SDS is not greater than:

1.2.1 1.93 for base, peninsula and mechanical chase cabinets

1.2.2 2.0 for wall and tall storage cabinets, and includes:

1.3 At concrete or concrete masonry unit (CMU) wall construction when grouted solid.

1.4 At wood or metal stud wall construction with either continuous 3 x 6 (76 x 152 mm) or 16 gauge in wall blocking respectively, with:

1.4.1 One or two layers of 5/8" (16 mm) sheetrock.

10.5.E ADDITIONAL PREPARATION (continued)

Applicable for all Grades

1.5 Where Casework construction is of plywood, particleboard, MDF or Solid Phenolic Core (SPC) and in compliance with the minimum requirements of the North American Architectural Woodwork Standards (NAAWS), including:

1.5.1 Base cabinets, up to 36" (914 mm) tall x 24" (610 mm) body depth x 48" (1220 mm) wide, including peninsula and those with mechanical chase

1.5.2 Wall cabinets up to 48" (1220 mm) tall x 18" (457 mm) body depth x 48" (1220 mm) wide

1.5.3 Tall storage cabinets up to 96" (2413 mm) tall x 24" (610 mm) body depth x 48" (1220 mm) wide

1.5.4 Peninsula base cabinets up to 36" (914 mm) tall x 36" (914 mm) body depth x 48" (1220 mm) wide

1.5.5 Mechanical chase base cabinets up to 42" (1067 mm) tall x 36" (914 mm) body depth and 48" (1220 mm) wide

2 **CONTRACTOR IS RESPONSIBLE FOR:**

2.1 **FURNISHING** and **INSTALLING** in wall blocking and backing anchorage required for seismic casework installation, in accordance with these standards, that becomes an integral part of the walls to which architectural woodwork shall be installed.

2.1.1 In the absence of contract documents calling for the contractor to supply the necessary in wall blocking/backing in the wall, either through inadvertence or otherwise, the architectural woodwork installer shall not proceed with the installation until such time as the in wall blocking/backing is installed by others.

2.1.2 In wall blocking/backing is installed by others shall be subject to inspection by the architectural woodwork installer and may be accepted or rejected for cause prior to installation.

Additional Requirements for
Seismic Casework Installation

Requires explicit specification requirement for such within contract documents.

10.5.E ADDITIONAL PREPARATION (continued)
Applicable for all Grades

3 **INSTALLER IS RESPONSIBLE FOR**

3.1 Ensuring that the casework shop drawings:

3.1.1 Are in compliance with the NAAWS's minimum requirements as established in Section 1, Including:

3.1.1.1 Casework elevations showing the center-line height and horizontal locations of all required, continuous, internal wall blocking furnished by others.

3.1.1.2 A casework fastener schedule, clearly showing the type, size, location and maximum spacing of the installation fasteners.

3.2 At wood or metal stud walls, prior to application of wall surfacing, examine, approve and acknowledge blocking compliance.

Additional Requirements for
Seismic Casework Installation

Requires explicit specification requirement for such within contract documents.

10.6.4.E Additional General Rules for Seismic Casework Installation

Applicable for all Grades

1 **CABINET FABRICATION** shall meet the following additional requirements:

1 1 Nailers shall be minimum ¾" (19 mm) in thickness, of veneer core plywood (Struct. 1), MDF Grade 150 or Douglas Fir with a specific gravity of 0.5 or higher.

1 2 Tall storage cabinets shall have a fixed shelf approximately mid height securely attached to the cabinet back and nailer.

2 **WALL BLOCKING/BACKING** shall be:

2 1 For wood stud walls, minimum:

2 1 1 3 x 6 Douglas Fir (#2 or better).

2 1 2 16 ga, x 6", 50 KSI sheet metal.

2 2 For metal stud walls, minimum:

2 2 1 16 ga, x 6", 50 KSI sheet metal.

3 **INSTALLATION FASTENERS** shall:

3 1 For **WOOD STUD WALLS** with wood or metal blocking/backing, be minimum:

3 1 1 #14 washer head wood screw (WS) with minimum 2-1/2" wood blocking penetration.

3 1 2 #14 washer head Sheet Metal Screws (SMS) with minimum 2-1/2" wood blocking penetration.

3 1 3 #14 washer head Sheet Metal Screws (SMS) with minimum of three threads extending beyond sheet metal backing.

3 2 For **METAL STUD WALLS** with metal backing, be minimum:

3 2 1 #14 washer head Sheet Metal Screws (SMS) with minimum of three threads extending beyond sheet metal backing.

Continues next column

10.6.4.E Additional General Rules for Seismic Casework Installation

Applicable for all Grades

From previous column

3 **INSTALLATION FASTENERS** shall (continued)

3 3 For **CONCRETE WALLS** of minimum 4" in thickness:

3 3 1 3/8" Hilti KWIK BOLT TZ, ICC ESR-1917 (or equal) with minimum 2" embedment and minimum 6" clearance from any wall edge.

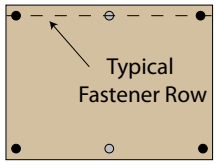
3 4 For **CONCRETE MASONRY BLOCK WALL** (CMU), grouted solid:

3 4 1 3/8" HILTI KWIK Bolt – 3 (or equal) with minimum 2-1/2" embedment and minimum 4" clearance from any wall edge.

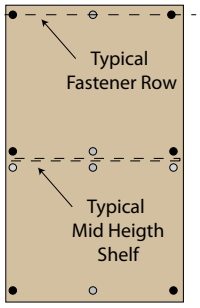
4 **INSTALLATION FASTENER PLACEMENT** requires:

4 1 **ALL CABINET** to have a minimum of 4 fasteners, one each in the four corners of each cabinet box,

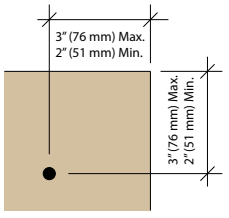
and:



4 1 1 Tall storage cabinets require a minimum of 6 fasteners with the additional requirement of one or two rows of fasteners at the mid-height fixed shelf.



4 1 2 Each fastener shall be centered a maximum of 3" (76 mm) and minimum of 2" (51 mm) from the outside edge, top and/or bottom of the cabinet box.



4 1 3 All additional fastener requirements outlined for specific cabinet types below:

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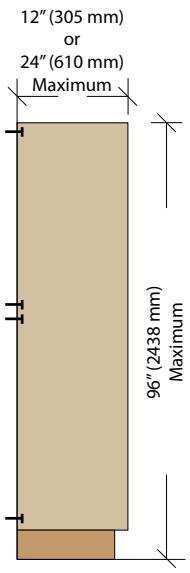
Additional Requirements for
Seismic Casework Installation

Requires explicit specification requirement for such within contract documents.

10.6.4.E	Additional General Rules for Seismic Casework Installation Applicable for all Grades

▲ From previous column

4	**INSTALLATION FASTENER PLACEMENT** (continued)						
4	2	For **TALL STORAGE CABINETS** not to exceed 48" (1220 mm) in width or 96" (2438 mm) in height, and either 12" (305 mm) or 24" (610 mm) Maximum  and:					
4	2	1	12" (305 mm) or less in depth, excluding doors or drawer fronts:				
4	2	1	1	At **WOOD** or **METAL STUD** walls:			
4	2	1	1	1	Requires two additional horizontal rows of fasteners, approximately 2" (51 mm) apart split vertical above and below the fixed mid-height shelf.		
4	2	1	1	1	1	**WITH UP TO** 1 layer of 5/8" (16 mm) drywall	
4	2	1	1	1	1	1	The maximum horizontal spacing between fasteners in the top, bottom or middle rows shall not exceed 12" (305 mm) on center.
4	2	1	1	1	2	**WITH UP TO** 2 layers of 5/8" (16 mm) drywall:	
4	2	1	1	1	2	1	The maximum horizontal spacing between fasteners in the top, bottom or middle rows shall not exceed 10-1/2" (267 mm) on center.

Continues next column ▼

10.6.4.E	Additional General Rules for Seismic Casework Installation Applicable for all Grades

▲ From previous column

4	**INSTALLATION FASTENER PLACEMENT** (continued)						
4	2	For **TALL STORAGE CABINETS** (continued)					
4	2	1	12" (305 mm) or less in depth (continued)				
4	2	1	2	At **CONCRETE** or **CONCRETE BLOCK** walls:			
4	2	1	2	1	Requires one additional horizontal row of fasteners below the fixed mid-height shelf.		
4	2	1	2	2	The maximum horizontal spacing between fasteners in the top, bottom or middle rows shall not exceed 14" (357 mm) on center.		
4	2	2	24" (610 mm) or less in depth, excluding doors or drawer fronts:				
4	2	2	2	At **WOOD** or **METAL STUD** walls:			
4	2	2	2	1	Requires two additional horizontal rows of fasteners, approximately 2" (51 mm) apart split vertical above and below the fixed mid-height shelf.		
4	2	2	2	1	1	**WITH UP TO** 1 layer of 5/8" (16 mm) drywall	
4	2	2	2	1	1	1	The maximum horizontal spacing between fasteners in the top, bottom or middle rows shall not exceed 6" (152 mm) on center.
4	2	2	2	1	2	**WITH UP TO** 2 layers of 5/8" (16 mm) drywall:	
4	2	2	2	1	2	1	The maximum horizontal spacing between fasteners in the top, bottom or middle rows shall not exceed 5-1/4" (133 mm) on center.

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Additional Requirements for
Seismic Casework Installation

Requires explicit specification requirement for such within contract documents.

10.6.4.E Additional General Rules for Seismic Casework Installation

Applicable for all Grades

▲ From previous column

4 **INSTALLATION FASTENER PLACEMENT** (continued)

4 2 For **TALL STORAGE CABINETS** (continued)

4 2 1 12" (305 mm) or less in depth (continued)

4 2 2 3 At **CONCRETE** or **CONCRETE BLOCK** walls:

4 2 2 3 1 Requires one additional horizontal row of fasteners below the fixed mid-height shelf.

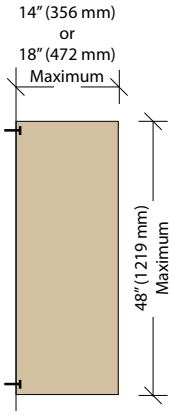
4 2 2 3 2 At **CONCRETE** walls:

4 2 2 3 2 1 The maximum horizontal spacing between fasteners in the top, bottom or middle rows shall not exceed 14" (357 mm) on center.

4 2 2 3 3 At **CONCRETE BLOCK** walls:

4 2 2 3 3 1 The maximum horizontal spacing between fasteners in the top, bottom or middle rows shall not exceed 21" (533 mm) on center.

4 3 For **WALL HUNG CABINETS** not to exceed 48" (1220 mm) in width or height, and either 14" (356 mm) or 18" (472 mm) Maximum



and:

4 3 1 14" (357 mm) or less in depth, excluding doors or drawer fronts:

4 3 1 1 At **WOOD** or **METAL STUD** walls:

4 3 1 1 1 **WITH UP TO** 1 layer of 5/8" (16 mm) drywall

4 3 1 1 1 1 The maximum horizontal spacing between fasteners in the top or bottom shall not exceed 8" (203 mm) on center.

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10.6.4.E Additional General Rules for Seismic Casework Installation

Applicable for all Grades

▲ From previous column

4 **INSTALLATION FASTENER PLACEMENT** (continued)

4 3 For **WALL HUNG CABINETS** (continued)

4 3 1 14" (357 mm) or less in depth (continued)

4 3 1 1 At **WOOD** or **METAL STUD** walls (continued)

4 3 1 1 2 **WITH UP TO** 2 layers of 5/8" (16 mm) drywall:

4 3 1 1 2 1 The maximum horizontal spacing between fasteners in the top or bottom rows shall not exceed 6" (152 mm) on center.

4 3 1 2 At **CONCRETE** or **CONCRETE BLOCK** walls:

4 3 1 2 1 The maximum horizontal spacing between fasteners in the top or bottom rows shall not exceed 14" (357 mm) on center.

4 3 2 18" (610 mm) or less in depth, excluding doors or drawer fronts:

4 3 2 1 At **WOOD** or **METAL STUD** walls:

4 3 2 1 1 Requires two horizontal rows of fasteners at the top and bottom, approximately 2" (51 mm) apart vertically.

4 3 2 1 1 1 **WITH UP TO** 1 layer of 5/8" (16 mm) drywall

4 3 2 1 1 1 1 The maximum horizontal spacing between fasteners in the top or bottom rows shall not exceed 12" (305 mm) on center.

4 3 2 1 1 2 **WITH UP TO** 2 layers of 5/8" (16 mm) drywall:

4 3 2 1 1 2 1 The maximum horizontal spacing between fasteners in the top or bottom rows shall not exceed 10" (254 mm) on center.

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Additional Requirements for
Seismic Casework Installation

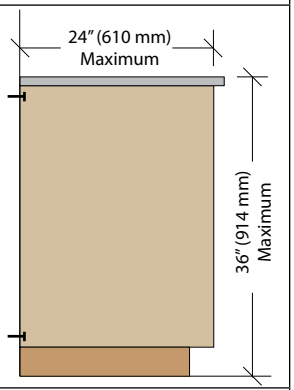
Requires explicit specification requirement for such within contract documents.

10.6.4.E Additional General Rules for Seismic Casework Installation

Applicable for all Grades

▲ From previous column

4					**INSTALLATION FASTENER PLACEMENT** (continued)
4	3				For **WALL HUNG CABINETS** (continued)
4	3	2			18" (610 mm) or less in depth (continued)
4	3	2	2		At **CONCRETE** or **CONCRETE BLOCK** walls:
4	3	2	2	1	The maximum horizontal spacing between fasteners in the top or bottom rows shall not exceed 10-1/2" (267 mm) on center.
4	4				For **BASE CABINETS** not to exceed 36" (914 mm) in height (including countertop) and 24" (610 mm) in depth (excluding doors or drawer fronts), and:
4	4	1			**INCLUDING** the two fasteners in each corner of the top and bottom rows of fasteners, the total number of fasteners per row shall be:
4	4	1	1		At **WOOD** or **METAL STUD** walls with up to 2 layer of 5/8" (16 mm)drywall:
4	4	1	1	1	2 for cabinets 12" (305 mm) or less in width
4	4	1	1	2	3 for cabinets 24" (610 mm) or less in width
4	4	1	1	3	4 for cabinets 36" (914 mm) or less in width
4	4	1	1	4	5 for cabinets 48" (1220 mm) or less in width



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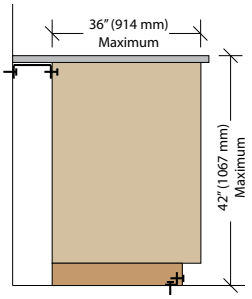
10.6.4.E Additional General Rules for Seismic Casework Installation

Applicable for all Grades

▲ From previous column

4					**INSTALLATION FASTENER PLACEMENT** (continued)
4	4				For **BASE CABINETS** not to exceed (continued)
4	4	1			**INCLUDING** the two fasteners in each corner (continued)
4	4	1	2		At **CONCRETE** walls:
4	4	1	2	1	2 for cabinets 24" (610 mm) or less in width
4	4	1	2	2	3 for cabinets 48" (1220 mm) or less in width
4	4	1	3		At **CONCRETE BLOCK** walls:
4	4	1	3	1	2 for cabinets 24" (610 mm) or less in width
4	4	1	3	2	3 for cabinets 36" (914 mm) or less in width
4	4	1	3	3	4 for cabinets 48" (1220 mm) or less in width
4	5				For **BASE CABINETS** with utility chase not to exceed 42" (1067 mm) in height (including countertop), 36" (914 mm) in depth (excluding doors, drawer fronts and utility chase) and 48" (1220 mm) in width requires:
4	5	1			Integral toe base construction.



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Additional Requirements for
Seismic Casework Installation

Requires explicit specification requirement for such within contract documents.

10.6.4.E	Additional General Rules for Seismic Casework Installation Applicable for all Grades

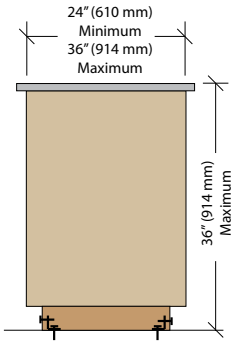
▲ From previous column

4	**INSTALLATION FASTENER PLACEMENT** (continued)					
4	5	For **BASE CABINETS** with utility chase (continued)				
4	5	2	Anchorage of the toe base to the floor at front only with:			
4	5	2	1	A continuous, for each cabinet unit, bent 16 gauge sheet metal 2.5" x 2.5" (64 mm x 64 mm) angle (FY+50KSI) shall be:		
4	5	2	1	1	Mounted to the floor with 3/8" diameter Simpson Strong Bolt 2 (or equal) with minimum 2" (51 mm) embedment within 2" (51 mm) of each end and a maximum of 11" (279 mm) on center.	
4	5	2	1	2	Fastened to the front left/right toe base member with # 12 sheet metal screws, driven through the toe base member into the metal angle within 4" (102 mm) of each end and a maximum of 12" (305 mm) on center.	
4	5	3	Anchorage of the cabinet to the wall as follows:			
4	5	3	1	A continuous bent 16 gauge sheet metal channel (FY=50KSI) with 2" (51 mm) legs shall be mounted just below the countertop to bridge between the cabinet back and wall, and:		
4	5	3	1	1	Shall be fastened to the wall with a uniformly spaced, continuous horizontal row of fasteners at a maximum of 11" (279 mm) on center with the end fasteners within 2" (51 mm) of each end of the channel.	
4	5	3	1	2	Cabinet backs shall be fastened to the continuous metal channel, including the two fasteners in each corner of the top row of fasteners, the total number of fasteners shall be:	
4	5	3	1	2	1	2 for cabinets 12" (305 mm) or less in width
4	5	3	1	2	2	3 for cabinets 24" (610 mm) or less in width
4	5	3	1	2	3	4 for cabinets 36" (914 mm) or less in width
4	5	3	1	2	4	5 for cabinets 48" (1220 mm) or less in width

Continues next column ▼

10.6.4.E	Additional General Rules for Seismic Casework Installation Applicable for all Grades

▲ From previous column

4	**INSTALLATION FASTENER PLACEMENT** (continued)					
4	6	For **PENINSULA CABINETS** of single row double faced casework not to exceed 36" (914 mm) in height (including countertop), a minimum of 24" (610 mm) or a maximum of 36" (914 mm) in depth (excluding doors and drawer fronts) and 48" (1220 mm) in width requires: 				
4	6	1	Integral toe base construction.			
4	6	2	Anchorage of the toe base to the floor at front with:			
4	6	2	1	A continuous, for each cabinet unit, bent 16 gauge sheet metal 2.5" x 2.5" (64 mm x 64 mm) angle (FY+50KSI) shall be:		
4	6	2	1	1	Mounted to the floor with 3/8" diameter Simpson Strong Bolt 2 (or equal) with minimum 2" (51 mm) embedment within 2" (51 mm) of each end and a maximum of 11" (279 mm) on center, with a minimum of:	
4	6	2	1	1	1	13.5" (343 mm) on center between front and back anchors at cabinets 24" (610 mm) in depth.
4	6	2	1	1	2	25.5" (648 mm) on center between front and back anchors at cabinets 36" (914 mm) in depth.
4	6	2	1	2	Fastened to the left/right toe base member with # 12 sheet metal screws, driven through the front of the toe base member into the metal angle within 4" (102 mm) of each end and a maximum of 12" (305 mm) on center.	

Continues next column ▼

Additional Requirements for
Seismic Casework Installation

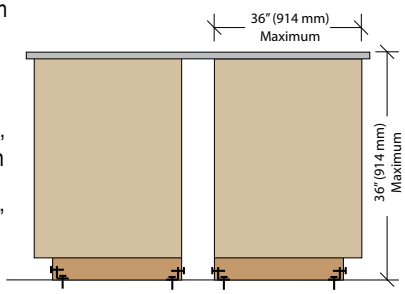
Requires explicit specification requirement for such within contract documents.

10.6.4.E	Additional General Rules for Seismic Casework Installation Applicable for all Grades

▲ From previous column

4 **INSTALLATION FASTENER PLACEMENT** (continued)

4 7 For **PENINSULA CABINETS** of double row casework with utility chase, each row of casework shall not exceed 36" (914 mm) in height (including countertop), 36" (914 mm) in depth (excluding doors and drawer fronts) and 48" (1220 mm) in width requires:



4 7 1 Same at **PENINSULA CABINETS** of single row double faced casework

North American Architectural Woodwork Standards - 3.1

SECTION - 11

COUNTERTOPS

Applicable Errata for this Section as of July 17, 2017

(Page links: BLUE indicates minor corrections, RED indicates Substantive Change)

Introductory Information

None

Compliance Requirements

See Page: 402

11.5 PREPARATION AND QUALIFICATION REQUIREMENTS

1. **CARE, STORAGE, and BUILDING CONDITIONS** shall be in compliance with the requirements set forth in Section 2 of these standards.

1.1 Severe damage to the woodwork can result from noncompliance. **THE MANUFACTURER AND/OR INSTALLER OF THE WOODWORK SHALL NOT BE HELD RESPONSIBLE FOR DAMAGE THAT MIGHT DEVELOP BY NOT ADHERING TO THE REQUIREMENTS.**

2 CONTRACTOR IS RESPONSIBLE FOR

2.1 Furnishing and installing structural members, grounds, in wall blocking, backing, furring, brackets, or other anchorage required for architectural woodwork installation that becomes an integral part of walls, floors, or ceilings to which architectural woodwork shall be installed.

2.1.1 In the absence of contract documents calling for the contractor to supply the necessary in wall blocking/backing in the wall or ceilings, either through inadvertence or otherwise, the architectural woodwork installer shall not proceed with the installation until such time as the in wall blocking/backing is installed by others.

2.1.2 Preparatory work done by others shall be subject to inspection by the architectural woodwork installer and may be accepted or rejected for cause prior to installation.

2.1.2.1 **WALL, CEILING**, and/or opening variations in excess of 1/4" (6.4 mm) or **FLOORS** in excess of 1/2" (12.7 mm) in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size are not acceptable for the installation of architectural woodwork, nor is it the responsibility of the installer to scribe or fit to tolerances in excess of such.

2.2 Installation site being properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

11.5 PREPARATION AND QUALIFICATION REQUIREMENTS (continued)

2.3 Priming the architectural woodwork in accordance with the contract documents prior to its installation.

2.3.1 If the architectural woodwork is factory finished, priming by the factory finisher is required.

3 INSTALLER IS RESPONSIBLE FOR

3.1 Having adequate equipment and experienced craftsmen to complete the installation in a first class manner.

3.2 Checking architectural woodwork specified and studying the appropriate portions of the contract documents, including these standards and the reviewed shop drawings to familiarize themselves with the requirements of the Grade specified, understanding that:

3.2.1 Appearance requirements of Grades apply only to surfaces visible after installation.

3.2.2 For transparent finish, special attention needs to be given to the color and the grain of the various woodwork pieces to ensure they are installed in compliance with the Grade specified.

3.3 Verification that installation site is properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

3.4 Verification that required priming of woodwork has been completed by others before woodwork is install.

3.5 Verification that woodwork has been acclimated to the field conditions for a minimum of 72 hours before installation is commenced.

3.6 Woodwork specifically built or assembled in sequence for match of color and grain is installed to maintain that same

sequence.

11.6 RULES

1 The following rules shall govern unless a project's contract documents require otherwise.

2 These rules are intended to provide a well defined degree of control over a project's quality of installation.

3 ERRATA, published at http://naaws-errata.com, shall take precedence over these rules, subject to their date of posting and a project's bid date.

11.6.4 Basic General Rules

1		**AESTHETIC GRADE RULES** apply only to exposed surfaces visible after installation.			
2		**INSTALLED** plumb, level, square, and flat within 1/8" (3.2 mm) in 96" (2438 mm), and when required:			
2	1	**GROUNDS** and hanging systems set plumb and true.			
3		**TRANSPARENT** finished woodwork shall be installed:			
3	1	With consideration of color and grain.	E	C	P
3	2	**COMPATIBLE** in color and grain.	E	**C**	P
3	3	**WELL MATCHED** for color and grain.	E	C	**P**
3	3	1 Sheet products shall be compatible in color with solid stock.	E	C	**P**
3	3	2 Adjacent sheet products shall be well matched for color and grain.	E	C	**P**
4		**REPAIRS** are allowed, provided they are neatly made and inconspicuous when viewed at:			
4	1	72" (1829 mm).	**E**	C	P
4	2	48" (1220 mm).	E	**C**	P
4	3	24" (610 mm).	E	C	**P**
5		**INSTALLER FABRICATION** or **MODIFICATIONS** shall comply to the general, material, machining, and assembly rules within the PRODUCT portion of this section and the applicable finishing rules in Section 5.			
6		**BUILD UP** or spacing materials required for installation of a countertop are the responsibility of the countertop manufacturer.			

Continues next column

11.6.4 Basic General Rules

From previous column

7		**HORIZONTAL REVEAL** between the lower edge of the countertop and the upper edge of the adjacent door or drawer front at base cabinets with countertops shall be a consistent 1/4" (6.4 mm) +/- 1/8" (3.2 mm), except:			
7	1	At laboratory casework, it shall be 1/4" (6.4 mm) to 1" (25.4 mm) and shall be consistent across elevations, except:			
7	1	1 At sink locations.			
7	2	Coordination of such is the responsibility of the cabinet manufacturer.			
8		**CURVED** front edges shall be solid machined, steam bent, bent solid lumber or laminated plies at the option of the manufacturer, and;			
8	1	In full compliance with all other applicable requirements of these Standards including Section 6.			
9		**COUNTERTOPS** shall be:			
9	1	Installed within 1/4" (6.4 mm) plus or minus the industry standard for height specified (see Section 10), except where ADA compliance is required.			
9	2	**SECURELY FASTENED** and tightly fitted with flush joints.			
9	2	1 The manufacturer's recommended CAULK and SEALANTS shall be used to achieve the best performance and color match.			
9	2	2 Joinery shall be consistent throughout the project.			
9	3	Of **MAXIMUM** available and/or practical lengths.	E	**C**	**P**
9	4	**INSTALLED** free of:			
9	4	1 Warp, twisting, cupping, and/or bowing that cannot be held true.			
9	4	2 Open joints, visible machine marks, cross sanding, tear outs, nicks, chips, and/or scratches.			
9	4	3 Natural defects exceeding the quantity and/or size limits defined in Sections 3 and 4.			
9	5	**SMOOTH** and sanded without cross scratches in conformance to the product portion of this section.			
9	6	**SCRIBED** at:			
9	6	1 Flat surfaces.	E	**C**	**P**
9	6	2 Shaped surfaces.	E	C	**P**

Continues next column

11.6.4 Basic General Rules

▲ From previous column

10 **GLUE** and filler residue is not permitted on exposed faces.

11 **EQUIPMENT CUTOUTS**, including electrical and plumbing, shall be cut out by the installer, provided templates are furnished prior to installation, and:

11 1 Shall be neatly cut and properly sized to be covered by standard cover plates or rosettes.

11 2 In **HPDL** or **SOLID SURFACE** shall have a minimum 1/4" (6.4 mm) radius at inside corners.

12 **MIRRORS**, that are wall mounted, shall not be supported by the countertop or back splash.

13 **EDGE OVERHANGS** shall be consistent, and:

13 1 Within a minimum of 1/2" (12.7 mm) and a maximum of 1-1/4" (31.8 mm) over the outer most cabinet face and finished end, and:

13 1 1 Be parallel with the cabinet face or end within +/- 1/8" (3.2 mm) in any 96" (2438 mm) run of countertop.

13 2 At appliance ends, be flush to a maximum of 1/4" (6.4 mm) over the cabinet end.

13 3 If specified, a continuous drip groove 1/8" x 1/8" (3.2 x 3.2 mm), approximately 3/8" (9.5 mm) back from the front edge, shall be provided.

13 4 If specified flush, shall not exceed 1/8" (3.2 mm) over the outer most cabinet face and finished end, and:

13 1 1 Be parallel with the cabinet face or end within +/- 1/16" (1.6 mm) in any 96" (2438 mm) run of countertop.

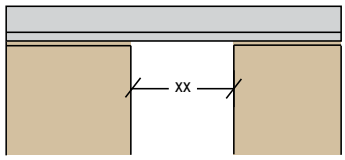
Continues next column ▼

11.6.4 Basic General Rules

▲ From previous column

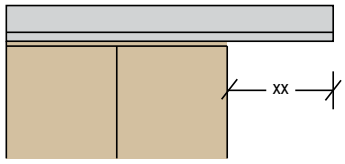
14 **UNSUPPORTED SPANS** and **CANTILEVERED COUNTERTOPS** or **OVERHANGS** of countertops shall be reinforced to prevent deflection in excess of 1/4" (6.4 mm) under a 50 lbs (22.7 kg) per square foot (kgs per 305 mm square) load in any 48" (1219 mm) span or portion thereof, and:,

14 1 **UNSUPPORTED SPANS** such as,



shall not exceed 48" (1219 mm) in width.

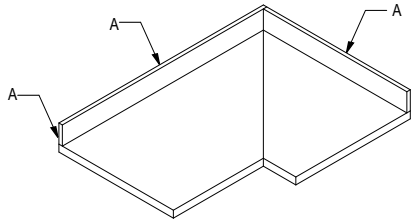
14 2 **CANTILEVERED OVERHANGS**, with or without a sub-top, such as



shall not exceed 12" (305 mm) from a support, whether in the front, back, or end.

15 **THESE STANDARDS** do not establish grade rules for joint flushness and or gap tolerances for woodwork products installed in a non climate controlled environment.

16 **GAPS** (see Test A illustrations in TESTS) such as,



and:

16 1 If caused by excessive deviations in the building's walls and ceilings being in excess of 1/4" [6.4 mm] in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size, or 1/2" (12.7 mm) for floors, shall not be considered a defect or the responsibility of the installer.

16 2 Shall not exceed 30% of a joint's LENGTH and:

				E	C	P
16	2	1	Be allowed if filled or caulked, and:	E	C	P
16	2	2	if color compatible.	E	C	P

Continues next column ▼

11.6.4 Basic General Rules

▲ From previous column

						E	C	P
16				**GAPS** (see Test A illustrations in TESTS) (continued)				
16	3			Of **WOOD** to **WOOD** shall not exceed:				
16	3	1		At **FLAT** surfaces:				
16	3	1	1	0.030” (0.76 mm) in width.		E	C	P
16	3	1	2	0.020” (0.51 mm) in width.		E	C	P
16	3	1	3	0.015” (0.38 mm) in width.		E	C	P
16	3	2		At **SHAPED** surfaces:				
16	3	2	1	0.040” (1.02 mm) in width.		E	C	P
16	3	2	2	0.025” (0.64 mm) in width.		E	C	P
16	3	2	3	0.015” (0.38 mm) in width.		E	C	P
16	4			Of **WOOD** to **NON WOOD** shall not exceed:				
16	4	1		At **FLAT** and **SHAPED** surfaces:				
16	4	1	1	0.075” (1.91 mm) in width.		E	C	P
16	4	1	2	0.050” (1.27 mm) in width.		E	C	P
16	4	1	3	0.035” (0.89 mm) in width.		E	C	P
16	5			Of **NON WOOD** to **NON WOOD** and/or all elements shall not exceed:				
16	5	1		At **FLAT** surfaces:				
16	5	1	1	0.075” (1.91 mm) in width.		E	C	P
16	5	1	2	0.050” (1.27 mm) in width.		E	C	P
16	5	1	3	0.035” (0.89 mm) in width.		E	C	P
16	5	2		At **SHAPED** surfaces:				
16	5	2	1	0.120” (3.05 mm) in width.		E	C	P
16	5	2	2	0.075” (1.91 mm) in width.		E	C	P
16	5	2	3	0.050” (1.27 mm) in width.		E	C	P

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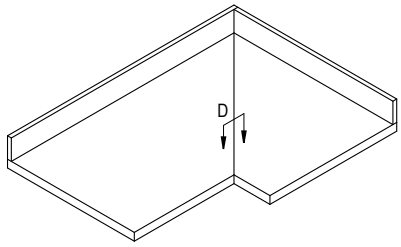
11.6.4 Basic General Rules

▲ From previous column

						E	C	P
17				**FLUSHNESS** of joinery (see Test D illustrations in TESTS), such as  and:				
17	1			Of **WOOD** to **WOOD** and HPDL to HPDL shall not exceed:				
17	1	1		At **FLAT** surfaces:				
17	1	1	1	0.025” (0.64 mm).		E	C	P
17	1	1	2	0.015” (0.38 mm).		E	C	P
17	1	1	3	0.010” (0.25 mm).		E	C	P
17	1	2		At **SHAPED** surfaces:				
17	1	2	1	0.040” (0.97 mm).		E	C	P
17	1	2	2	0.025” (0.65 mm).		E	C	P
17	1	2	3	0.020” (0.51 mm).		E	C	P
17	2			Of **WOOD** to **NON WOOD** shall not exceed:				
17	2	1		At **FLAT** and **SHAPED** surfaces:				
17	2	1	1	0.075” (1.91 mm).		E	C	P
17	2	1	2	0.050” (1.27 mm).		E	C	P
17	2	1	3	0.035” (0.89 mm).		E	C	P
17	3			Of **NON WOOD** to **NON WOOD** and/or all elements excluding HPDL to HPDL shall not exceed:				
17	3	1		At **FLAT** surfaces:				
17	3	1	1	0.075” (1.9 mm).		E	C	P
17	3	1	2	0.050” (1.27 mm).		E	C	P
17	3	1	3	0.035” (0.89 mm).		E	C	P
17	3	2		At **SHAPED** surfaces:				
17	3	2	1	0.120” (3.05 mm).		E	C	P
17	3	2	2	0.075” (1.9 mm).		E	C	P
17	3	2	3	0.050” (1.27 mm).		E	C	P

Continues next column ▼

11.6.4 Basic General Rules

▲ From previous column

18		**FASTENING** shall:	
18	1	Include the use of construction adhesive, finish nails, trim screws, and/or pins.	
18	2	Not permit the use of drywall or bugle head screws.	
18	3	Not permit exposed fastening through HPDL, except at removable panels.	
19		**EQUIPMENT CUTOUTS** shall be neatly cut out by the installer, provided templates are furnished in a timely manner.	
19	1	Cutouts in HPDL shall have radiused inside corners.	
20		**HARDWARE** shall be:	
20	1	Installed neatly without tear out of surrounding stock.	
20	2	Installed per the manufacturer's instructions.	
20	3	Installed using all furnished fasteners and fasteners' provisions and when fastener provisions are countersunk, fasteners shall be countersunk.	
20	4	Adjusted for smooth operation.	
21		**AREAS OF INSTALLATION** shall be left broom clean.	
21	1	Debris shall be removed and dumped in containers provided by the contractor.	
21	2	Items installed shall be cleaned of pencil or ink marks.	
22		**FIRST CLASS WORKMANSHIP** is required in compliance with these standards.	
23		At **SOLID** or **VENEERED WOOD**:	
23	1	**EDGES** , both Front and leading of countertop to withstand a 75 lb (34 kg) pull up pressure.	
23	2	**WATERPROOF CAULK** shall be used at miter and butt joints including splashes and return ends, and:	
23	2	1	Shall not exceed 1/16" (6.4 mm).
23	2	2	Shall be furnished by installation contractor, unless otherwise specified.
23	3	**INSTALLER ASSEMBLED JOINTS** shall be fastened together with a mechanical tightening system either routed into or mounted on the bottom side of the countertop.	

Continues next column ▼

11.6.4 Basic General Rules

▲ From previous column

23		At **SOLID** or **VENEERED WOOD** (continued)				
23	4	**SINK CUTOUTS** shall not fall within 18" (457 mm) of discretionary installer joints.				
23	5	**CUTOUTS**, subject to excessive moisture, shall have edges sealed with a color toned (for verification), water resistant sealer before trim or sink rims are installed.				
24		At **HPDL**:				
24	1	**COUNTERTOPS** shall be scribed to walls, and:				
24	1	1	Securely anchored to base cabinets with proper length screws, and:			
24	1	1	1	Properly aligned with uniform front edge overhang.		
24	1	1	2	**INSTALLER ASSEMBLED JOINTS** shall be glued and fastened together with a mechanical tightening system either routed into or surface mounted on the bottom side of the countertop.		
24	1	2	**EDGES** , both Front and leading of countertop to withstand a 75 lb (34 kg) pull up pressure.			
24	2	**WATERPROOF CAULK** shall be used at square butt joints including splashes and return ends, and:				
24	2	1	Shall not exceed 1/4" (6.4 mm).	**E**	C	P
24	2	2	Shall not exceed 1/8" (3.2 mm).	E	**C**	**P**
24	2	3	Shall be furnished by installation contractor, unless otherwise specified.			

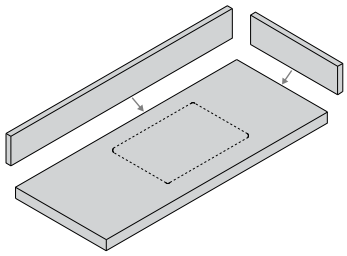
Continues next column ▼

11.6.4 Basic General Rules

▲ From previous column

24 At **HPDL** (continued)

24 3 At **ASSEMBLY 1** (wall mount) back and end splash construction, exposed top and ends shall be scribed to the wall configuration. **OPTIONAL** within **CANADA;** however, **NOT ALLOWED** within the **UNITED STATES,**



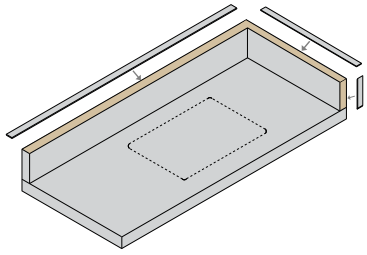
and:

24 3 1 Shall be caulked with clear or compatible color waterproof caulking (furnished by installer), so as to leave a visual bead not exceeding 1/8" (3.2 mm) between the bottom of the splash and the countertop.

24 3 2 Variation in building walls in excess of 1/2" (12.7 mm) in 144" (3658 mm) may result in gaps between splash and walls and shall not be considered a defect or the responsibility of the installer.

24 3 3 Mechanical fasteners are required between splash members and deck. E **C** **P**

24 4 At **ASSEMBLY 2** (deck mount) back and end splash construction, exposed top and ends shall be scribed to the wall configuration. **OPTIONAL** within **CANADA;** however, **REQUIRED** within the **UNITED STATES.**



24 4 1 Unbacked scribe spans shall not exceed 1/2" (12.7 mm) at ends and back walls, and gaps shall:

24 4 1 1 Not exceed 1/16" (1.6 mm) and be caulked. **E** C P

24 4 1 2 Not exceed 1/32" (0.8 mm) and be caulked. E **C** **P**

Continues next column ▼

11.6.4 Basic General Rules

▲ From previous column

24 At **HPDL** (continued)

24 5 **CUTOUTS** shall have a minimum of 1/4" (6.4 mm) radius at inside corners, and:

24 4 1 Sink cutouts shall not fall within 18" (457 mm) of discretionary installer joints.

24 4 2 Cutouts, subject to excessive moisture, shall have edges sealed with a color toned (for verification), water resistant sealer before trim or sink rims are installed.

25 At **SOLID SURFACE** (only available in Custom and Premium Grade):

25 1 **SEALANTS** and **ADHESIVES** shall be compatible with the individual manufacturer's recommendations or specially developed sealants to achieve the best color match.

25 2 **EXPANSION** joints shall be furnished where required by building design or manufacturer recommendations.

25 3 **SUPPORT** shall be adequately furnished to minimize stresses, and:

25 3 1 Minimum full perimeter and joint support is required on horizontal applications, with:

25 3 1 1 Maximum on center separation between supports of 30" (750 mm) for acrylic and 24" (610 mm) for non acrylic materials.

25 3 1 2 A maximum unsupported and unloaded overhang of 12" (305 mm) for 3/4" (19 mm) and 6" (152 mm) for 1/2" (12.7 mm) sheet thickness.

25 4 **JOINTS** shall be:

25 4 1 Square (butt) rather than mitered near corners to minimize material and facilitate installation.

25 4 2 Be fully supported.

25 4 3 Edges to be joined shall be straight, smooth, and clean.

25 4 3 1 All joints shall be made using the manufacturer's recommended adhesive.

25 4 4 L and U shaped corners shall have smooth, rounded inside corners, and:

25 4 4 1 Seams shall be offset a minimum of 3 times the inside corner radius.

Continues next column ▼

11.6.4 Basic General Rules

▲ From previous column

25 At **SOLID SURFACE** (continued):

25 **5** **CUTOUT CORNERS** shall be rounded, 1/4" (6.4 mm) minimum radius, with edges smoothed, and:

25 5 **1** At heat producing areas, corners shall be reinforced per the manufacturer's requirements and protected with approved heat reflective tape.

25 **6** **BACK** and **END SPLASHES** shall be securely adhered to the wall, butt joined to the countertop, and shall be:

25 6 **1** **CAULKED** with clear or compatible color waterproof caulking (furnished by the installer) so as to leave a visual bead not exceeding 1/8" (3.2 mm) between the bottom of the splash and the countertop.

25 6 **2** Variation in building walls in excess of 1/2" (12.7 mm) in 144" (3658 mm) may result in gaps between splash and walls and shall not be considered a defect or the responsibility of the installer.

25 6 **3** **COVED SPLASHES**,If specified, shall be hard seamed and integral to the countertop.

25 **7** **COUNTERTOP ADHESION** shall be made using a clear silicone sealant placed a maximum of 12" (12.7 mm) on center.

25 **8** **HARD SEAMS** shall be water tight and gap free.

Continues next column ▼

11.6.4 Basic General Rules

▲ From previous column

26 At **SOLID PHENOLIC** (only available in Premium Grade):

26 **1** **COUNTERTOP** shall be secured to supports with silicone cement or appropriately sized machine screws applied to each corner and along the perimeter edge at not more than 48" (1219 mm) on center.

26 **2** **JOINTS** shall be precision machined with tight joint fasteners and sealed with a biocide silicone prior to tightening.

26 **3** **SINKS** shall be stainless steel, polypropylene, or epoxy resin; either lipped or under mount, and:

26 3 **1** **LIPPED** shall be set in a rabbeted cutout in the countertop.

26 3 **2** **UNDER MOUNT** shall be installed using adjustable metal sink supports for underside installation or fastened directly to the underside of the countertop using machine screws and silicone adhesive.

26 3 **3** A biocide silicone adhesive shall be used at the juncture of the sink and countertop to produce a leak proof joint.

26 **4** **BACK** and **END SPLASHES** shall be securely adhered to the wall, butt joined to the countertop, and shall be:

26 4 **1** **CAULKED** with clear or compatible color waterproof caulking (furnished by the installer) so as to leave a visual bead not exceeding 1/8" (3.2 mm) between the bottom of the splash and the countertop.

26 4 **2** Variation in building walls in excess of 1/2" (12.7 mm) in 144" (3658 mm) may result in gaps between splash and walls and shall not be considered a defect or the responsibility of the installer.

Continues next column ▼

11.6.4 Basic General Rules

▲ From previous column

25	At **EPOXY RESIN, NATURAL/ENGINEERED STONE** (only available in Premium Grade):			
25	1	**COUNTERTOP** shall be secured to supports with epoxy cement applied to each corner and along the perimeter edge at not more than 48" (1219 mm) on center, and:		
25	1	1	**JOINTS** shall be butted and filled with a color matched epoxy cement.	
25	2	**EDGE OVERHANG** shall be provided on the front and ends of 1" (25.4 mm) nominal.		
25	3	**CANTILEVERED OVERHANGS** shall not exceed 12" (305 mm) for 3/4" (19 mm) and 6" (152 mm) for 1/2" (12.7 mm) sheet thickness.		
25	4	**BACK** and **END SPLASHES** shall be securely adhered to the wall, butt joined to the countertop, and:		
25	4	1	Shall be caulked with clear or compatible color waterproof caulking (furnished by the installer) so as to leave a visual bead not exceeding 1/8" (3.2 mm) between the bottom of the splash and the countertop.	
25	4	2	Variation in building walls in excess of 1/2" (12.7 mm) in 144" (3658 mm) may result in gaps between the splash and the walls and shall not be considered a defect or the responsibility of the installer.	
25	5	**HARD SEAMS** shall be water tight and gap free.		
25	6	**SCRIBING** is not required.		
25	7	**SINKS** shall be either lipped or under mounted, and:		
25	7	1	**LIPPED** shall be set in a rabbeted cutout in the countertop.	
25	7	2	**UNDER MOUNT** shall be installed using adjustable metal sink supports, and:	
25	7	2	1	An epoxy cement is required at the juncture of the sink and countertop to produce a leak proof joint.
25	7	2	2	The maximum gap between the countertop edge of the sink and underside of the countertop shall not exceed 3/16" (4.8 mm).

North American Architectural Woodwork Standards - 3.1

SECTION - 12

HISTORIC RESTORATION WORK

No Errata within this Section as of July 17, 2017

12.5 PREPARATION AND QUALIFICATION REQUIREMENTS

1 **CARE, STORAGE, and BUILDING CONDITIONS** shall be in compliance with the requirements set forth in Section 2 of these standards.

1.1 Severe damage to the woodwork can result from noncompliance. The manufacturer and/or installer of the woodwork shall not be held responsible for damage that might develop by not adhering to the requirements.

2 **CONTRACTOR IS RESPONSIBLE FOR**

2.1 Furnishing and installing structural members, grounds, in wall or ceiling blocking, backing, furring, brackets, or other anchorage required for architectural woodwork installation that becomes an integral part of walls, floors, or ceilings to which architectural woodwork shall be installed.

2.1.1 In the absence of contract documents calling for the contractor to supply the necessary blocking/backing in the wall or ceilings, either through inadvertence or otherwise, the architectural woodwork installer shall not proceed with the installation until such time as the in wall or ceiling blocking/backing is installed by others.

2.1.2 Preparatory work done by others shall be subject to inspection by the architectural woodwork installer and may be accepted or rejected for cause prior to installation.

2.1.2.1 **WALL, CEILING**, and/or opening variations in excess of 1/4" (6.4 mm) or **FLOORS** in excess of 1/2" (12.7 mm) in 144" (3658 mm) of being plumb, level, flat, straight, square, or of the correct size are not acceptable for the installation of architectural woodwork, nor is it the responsibility of the installer to scribe or fit to tolerances in excess of such.

12.5 PREPARATION AND QUALIFICATION REQUIREMENTS (continued)

2.2 Installation site being properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

2.3 Priming the architectural woodwork in accordance with the contract documents prior to its installation.

2.3.1 If the architectural woodwork is factory finished, priming by the factory finisher is required.

3 **INSTALLER IS RESPONSIBLE FOR**

3.1 Having adequate equipment and experienced craftsmen to complete the installation in a first class manner.

3.2 Checking all architectural woodwork specified and studying the appropriate portions of the contract documents, including these standards and the reviewed shop drawings, to familiarize themselves with the requirements of the Grade specified, understanding that:

3.2.1 For transparent finish, special attention needs to be given to the color and grain of the various woodwork pieces to ensure they are installed in compliance to match existing.

3.2.2 Installation site is properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

3.3 Verification that installation site is properly ventilated, protected from direct sunlight, excessive heat and/or moisture, and that the HVAC system is functioning and maintaining the appropriate relative humidity and temperature.

3.4 Verification that required priming of woodwork has been completed by others before woodwork is installed.

3.5 Verification that woodwork has been acclimated to the field conditions for a minimum of 72 hours before installation is commenced.

3.6 Woodwork specifically built or assembled in sequence for match of color and grain is installed to maintain that same sequence.

12.6 RULES

1 The following rules shall govern unless a project's contract documents require otherwise.

2 These rules are intended to provide a well defined degree of control over a project's quality of materials, workmanship, or installation.

3 **ERRATA**, published at http://-errata.com, shall take precedence over these rules, subject to their date of posting and a project's bid date.

12.6.4 Basic General Rules

1 **AESTHETIC** grade rules apply only to exposed and semi-exposed surfaces visible after installation.

2 **MATCH** of **EXISTING** installation methods is required, in:

2 1 Compliance with Sections 3 - 11, as applicable.

3 Where new materials are required to be distressed to blend seamlessly with original, mock-ups shall be approved by the design professional or conservator before proceeding.

4 **GROUNDS, BUCKS**, or **HANGING SYSTEMS** shall be installed plumb and true.

5 **TRANSPARENT** finished woodwork shall be installed:

5 1 Well matched for color and grain.

5 1 1 Sheet products shall be compatible in color with solid stock.

5 1 2 Adjacent sheet products shall be well matched for color and grain.

5 2 Installer shall pay special attention to the color and the grain of the various trim pieces to ensure they are installed in compliance with Premium Grade.

6 **REPAIRS** are allowed, provided they are neatly made and inconspicuous when viewed at 24" (610 mm).

Continues next column ▼

12.6.4 Basic General Rules

▲ From previous column

7 **INSTALLER FABRICATION** or **MODIFICATIONS** shall comply to the general, material, machining, and assembly rules within the Product portion of this section and the applicable finishing rules in Section 5.

8 **EQUIPMENT CUTOUTS**, including electrical and plumbing, shall be cut out by the installer, provided templates are furnished prior to installation, and:

8 1 Shall be neatly cut and properly sized to be covered by standard cover plates or rosettes.

8 2 In **HPDL** or **SOLID SURFACE** shall have a minimum 1/4" (6.4 mm) radius at inside corners.

9 **FIRST CLASS WORKMANSHIP** is required in compliance with these standards.

Applicable TESTS, may be found in Sections 6 - 11; however, these tests are only applicable to the exposed and semi-exposed portions of installed millwork products.

North American Architectural Woodwork Standards Committee requests your comments and suggestions.

Please complete and submit the form below:

NAAWS 3.1 Improvement Suggestion Form

I believe that the following suggestion(s) will improve the North American Architectural Woodwork Standards (NAAWS):

Please look at Division/Section #: _____ Page #: _____ Item #: _____

Suggestions (please fully describe the addition, deletion, and/or revision you feel will improve these standards):

Include any additional descriptive sheets, drawings, or product data that may be needed to fully explain your suggestions with your submission.

Submission date: _____
My Name: _____ Title: _____
Company Name: _____
Address: _____
City: _____ State/Province: _____ Zip: _____
Phone: _____ Fax: _____ Email: _____

After completing the form, save as PDF and submit it and any additional attachments to the NAAWS Committee through the NAAWS Editor at rob@woodinst.com.

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SECTIONS 8, 10 & 11

INCLUDES SEPERATE ANNEXES FOR THE PRODUCT REQUIREMENTS OF EACH MATERIAL TYPE.

GLOSSARY

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ANSI A161.1
AND A MULTITUDE OF ACCREDIATED COMPONENT STANDARDS
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ISBN 978-0-9909876-7-3