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SPRING/SUMMER 2013

ARCHETYPE

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To promote to the architectural design community, its suppliers and contractors, the development and dissemination of information relative to uses, advantages, and utility of millwork products. To provide the leading standards and quality assurance programs for the architectural millwork industry through the new Architectural Woodwork Standards, our exclusive publication The WI Approach, Certified Compliance and Monitored Compliance Programs.

To be the premier, industry-driven, equal opportunity, non-profit trade association resource provider for our membership.

ARCHETYPE

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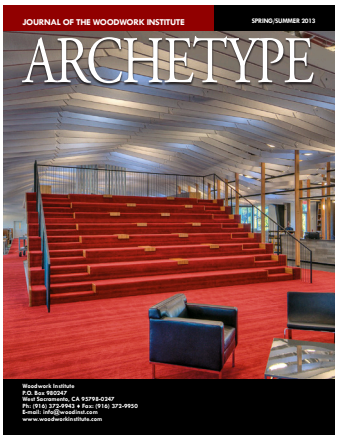

ON THE COVER
Winner of the 2012 Bernard B. Barber Jr. Award for Excellence

Claremont University Consortium

MILLWORK FABRICATOR
Dennis Reeves, Inc.

ARCHITECT
LTL Architects

GENERAL CONTRACTOR
Claremont University Consortium

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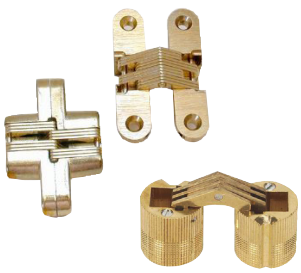

Bernard B. Barber Jr., Ralph B. McClure, & Wilbur L. Johnston

Awards

Bernard B. Barber Award of Excellence

This award is presented for excellence in architecturalmillwork. Design professionals or WI members who are contractually tied to the project may apply.
Specifications must require certified or monitored compliance to be eligible.

Ralph B. McClure Craftsmanship Award

This award is given in recognition of WI member firms that have fabricated and/or installed quality millwork conforming to the Institute's standards.

Wilbur L. Johnston Award of Excellence

This award honors specification writers for their use of our *Architectural Woodwork Standards*, and Certified or Monitored Compliance programs, within their specifications.

Applications are accepted year around; however, to be considered for 2013 applications must be received by May 31st.

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Best of the Best 2012

Bernard B. Barber Jr. Award for Excellence

The Woodwork Institute's most prestigious award, the Bernard B. Barber Jr. Award for Excellence is given to examples of outstanding architectural millwork. The award is named in honor of Mr. Bernard Barber, who has dedicated more than 40 years to the Woodwork Institute. Since the first Bernard B. Barber Jr. Award for Excellence was presented in 1965, more than 100 projects have received this recognition.

Bernard B. Barber Jr. Award for Excellence nominees may be submitted by any design professional or Woodwork Institute member who was contractually tied to the project. Specifications must require Certified or Monitored Compliance to be eligible. In 2012, the top honors went to Dennis Reeves, Inc. for their work on the Claremont University Consortium Administrative Campus Center in Claremont, CA.

Claremont University Consortium

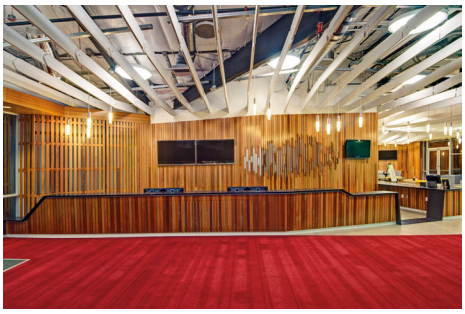
JOB DESCRIPTION
The Consortium consolidates the majority of CUC departments and services, previously dispersed across campus, into a single location.

SPECIAL CONSIDERATIONS
The project includes a 740-foot long cedar screen, 1,564 baffles creating the "cloud" ceiling, digital garden, and field of 168 solar chimneys that provide natural light throughout the space. The architect used a variety of materials throughout the building: 1x3 Western Red Cedar at the main entrance/Cafe, Walnut in the board room, Bamboo and 2x6 Douglas Fir throughout with ceiling baffles constructed of fire rated ¾″ MDF and PET felt (made from recycled bottles) on both sides 9″ wide x 108″ long, that's almost 5-1/2 miles of felt 9″ wide. The ends are notched and drilled, when fastened together this created a hinge point that allowed each baffle to be hung at a different height. The baffles are hung from seismic wire installed by a ceiling contractor. The colors on the baffles are created from different light sources between the artificial bay lighting and natural lighting from the skylights. The ceiling color changes throughout the day depending on sun location, cloud cover, etc. As clouds move over the sun, the ceiling changes with it. It deploys a series of intertwined, materially-rich, tactical elements that transform the space.

ARCHITECT
LTL Architects

GENERAL CONTRACTOR
Claremont University Consortium

MILLWORK FABRICATOR
Dennis Reeves, Inc.



As you walk into the main entrance, you see the Registration Counter. The front counter and wall paneling are Western Red Cedar with 60 sheen clear lacquer finish. The design between the monitors is 1x3 cedar slats on edge with mirrored back. The back side of the registration counter is Bamboo. The dropped section of granite top on the left of the picture is 18" high, it originates from outside creating exterior bench seating that flows into the building.

Kiosk Area — ¾" Bamboo with random holes throughout. Kiosk monitors are hung from 2x6 Douglas Fir posts.

This new Administrative Campus Center for the Claremont University Consortium (CUC) consolidates the majority of CUC departments and services, previously dispersed and fragmented across the campus, into a single location. The adaptive reuse of an under utilized 42,000-square foot maintenance building provides CUC with an environmentally sensitive and vibrant work area that has a well-defined public character and creates a collective gathering place for both the colleges and the broader community.

The project deploys a series of intertwined, materially rich, tactical elements that transform the existing facility and redefines its public presence. These include a 740-foot long cedar screen, custom ceiling cloud, digital garden, and field of 168 solar chimneys that provide natural light throughout the space.

While a major aspect of the project's sustainable strategy is to retain and reuse the existing prefabricated steel shed, its utilitarian exterior was neither inviting nor appropriate for the new use. To redefine the building's character, a continuous cedar surface wraps portions of its north, east, and south elevations.

The ribbon works with the original pitch-roofed geometry of the building, but slips free of its shell to produce a clearly defined entry point along with a series of outdoor gathering spaces. Moving from exterior to interior, the cedar screen defines the major public circulation and shared facilities. Illuminated at night with embedded LED lights, the cedar ribbon serves as both a way finding device — denoting the building's entry to vehicular and pedestrian traffic—and as a recognizable image for CUC.

Defining both exterior and interior spaces, the cedar ribbon exists in dialogue with the existing building envelope. On the north, the screen is folded to create a shaded patio that takes advantage of the Southern California climate. At the entrance, the ribbon slips into the interior, framing a new reception area and cafe, then continues out to the south patio, where it defines a large multipurpose area protected from the weather by a tensile structure covered with translucent fabric. When passing over windows, the spacing of the cedar panels is increased to allow light in.

In contrast to the open quality of the floor plan, the reflected ceiling plan is intricate and complex. Where the floor is a thin surface, the ceiling is multiple layered thickness, distributing air, light, electricity and data, while producing optical, acoustic and geometrical effects. Using 168 Solatube® skylights in combination with expanded windows along the perimeter, there is enough natural light to work at all stations without artificial lighting during the day, greatly reducing the building's energy consumption. As the sun sets, a grid of high-efficiency dimmable fluorescent lights slowly turns on,

maintaining a consistent level of illumination. To allow the light to filter into the space, a custom ceiling is composed of nearly 1,500 9-foot long by 8-inch high baffles, that are clad in felt made from recycled plastic bottles. The ceiling unifies the space, forming a sculpted interior cloud across the entire building that obscures the infrastructure and assists with sound mitigation in the open office.

A wide stair emerges from a central spine of red carpet, providing bleacher like seating for large gatherings. Hidden underneath the stairs is an existing electrical room, while vertical electrical conduits and a cactus garden inhabit the space above the stairs.

The interior exploits both the high ceiling and the large spans of the existing steel structure, providing an open

Located in the middle of the building is the coffee/mail area. Three-quarter inch thick Bamboo with 60 sheen clear lacquer was used for the cabinets, ceiling and wall paneling. The ceiling paneling was a challenge matching grain throughout — from the column on the left — wrapping from room to room and down the under side of the stairs on the right side. The upper cabinet runs in the coffee area are built in one unit to allow single vertical dividers. They are fastened to the wall using French cleats as LTL Architects did not want to see any visible fasteners, LED lighting is routed into the bottom of the runs.

Our scope of work in the Café area included the banquette seating with granite tops and bases, stainless steel wall paneling, stainless steel cladding on the base cabinets along with the cedar paneling and ceiling baffles.

Close-up of the cedar over windows and banquettes. 1x3's flow from wall to top of banquettes to floor. 15,000-linear feet of Western Red Cedar was used, it took 25,000-pan head stainless steel screws to install.

Our scope of work in the Board Room included the 20'x20' conference table, metal 4-screen monitor stand, walnut beverage bar with granite top and back-splash, walnut entry floor, wall paneling and ceiling paneling. The walnut was finished using a medium walnut stain with 60 sheen clear lacquer, we also finished the door jambs and doors.

office space with custom furniture for over one hundred employees. Containing a range of different size meeting rooms, the building also functions as a shared conference facility for Claremont Colleges. Taking advantage of an existing mechanical mezzanine that broke up the continuity of the interior, the bulk of these conference rooms was consolidated into one central volume inflected by the space's primary circulation routes and surfaced in an interactive LED art installation.

A digital garden installation, produced by the artist Jason Krugman and comprised of over 6,000 LED modules, envelopes the central core of meeting rooms. The LEDs are triggered by the motion of people walking nearby, and subtly shift from green to blue and back to green. Moving through the plane of the installation the LEDs shift from a crisp line, to a surface to a porous thickness.

The C.E. Bernhauer, Jr. Scholarship Award Winners

Each year the Woodwork Institute awards scholarships to young adults who show great promise in becoming valuable additions to the architectural and/or woodwork industry. This year we've awarded two recipients.

Tyler Kissinger

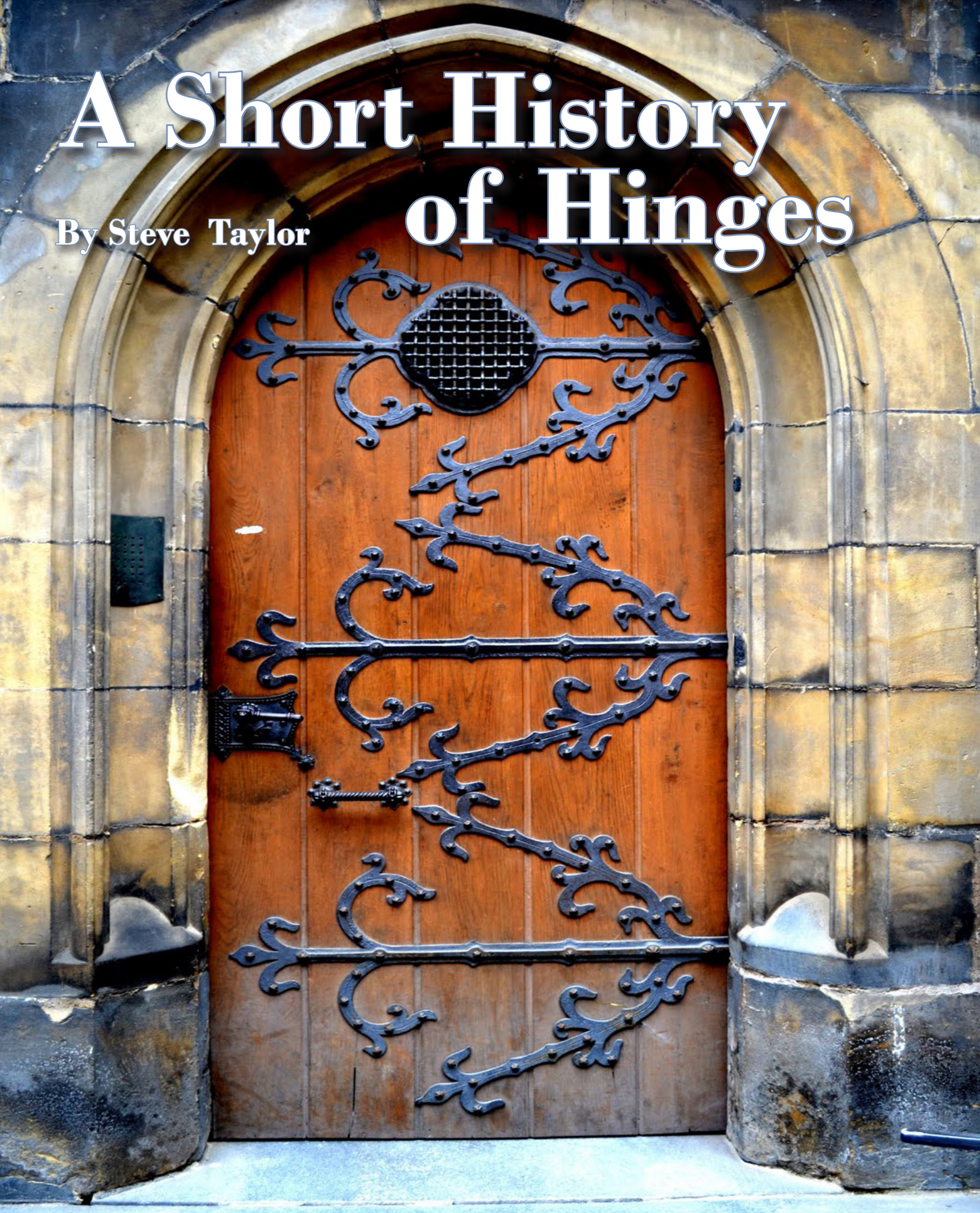
Tyler currently attends Vermont Woodworking School/Burlington College in Vermont. His goal is to receive an Associate Degree in Fine Woodworking and Craftsmanship. Upon completion of his college education, he plans to return to his home in Indiana and work under the tutelage of an established woodworking/cabinet/furniture business. Ultimately, Tyler would like to open his own shop in his hometown. He strives to become a small business owner and leader in his community. Tyler's favorite saying is "If you find a job that you love, you won't work a day in your life."

Alon Cohen

Alon graduated from Quinebaug Valley Community College in Connecticut this past Spring with an Associate Degree in Technology Studies specifically, Construction Technology. He is the Vice President of the Construction Technology Club, and also serves as the Treasurer of the QVCC's Student Government Association. He is continuing the family tradition of becoming a woodworker. His goal is to attend the New England School of Architectural Woodworking in January 2014. One day he would like to either own or work in an architectural woodworking company where he can build stairs, cabinets, doors, moldings, and windows.

A Short History of Hinges

By Steve Taylor

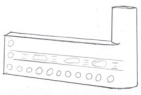


Janus

The history of hinges is not well documented. Archeologists, like the rest of us, find other things more interesting than hinges. Even when hinges turn up, the information may not be forthcoming. In doing the research for this article I found a story about a 5,000 year old door that was discovered in a construction excavation in Basel, Switzerland. The news story breathlessly reported that the door *still had the hinge on it!* But did they say anything about what kind of hinge or what it was made of — of course not. I searched every corner of the internet for that damned door and couldn't find a proper scholarly article anywhere.

Janus the god of doors (among other things) has two faces, so he can look both ways at once. Janus is associated with doorways, beginnings, and transitions. A two-faced god, he looks in and out, and to the future and the past. Being detail oriented the Romans had a goddess, Cardea, who was the deity of hinges.

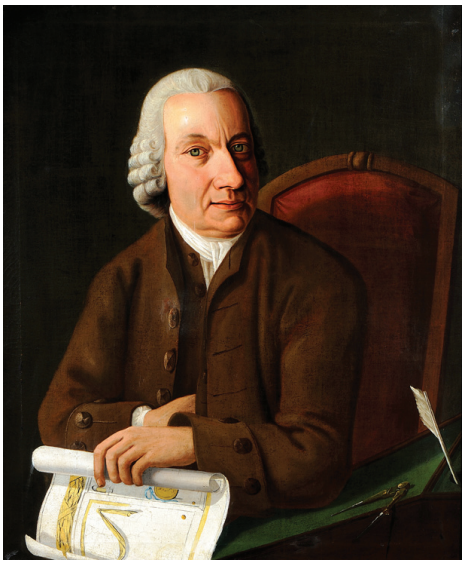
The oldest hinges in the archeological record are pivot hinges. Typically the sockets were holes drilled in the door sill and the lintel, and the pivots might be wood, stone, or metal. In many cases, we have only the holes in the stone to indicate that there was once a door. Before the iron age, brass or bronze would have been very precious. Metal pivots would only have been used by royalty or in temples. The oldest datable hinge I was able to find was this Egyptian example from Thebes, estimated to be about 2,700 years old.



To see this article online, click on the following link: www.britishmuseum.org/explore/highlights/highlight_objects/aes/b/bronze_door_hinge.aspx.

Pivot hinges similar to the Egyptian example have been found in China dating back to the Han Dynasty (200 B.C.). Similar examples are found in the Middle East, India, and Europe.

The relative abundance of metal with the coming of the Iron Age led to the development of the barrel hinge or knuckle hinge. It is possible that this type of hinge dates back much further, but they seem to have become abundant after about 200 B.C. The British Museum has two bronze strap hinges that are probably from Pompeii or Herculaneum, which would date them to 79 A.D. The actual origin of these hinges is not well documented. They were part of a collection acquired by the British Museum from Sir William Hamilton, who was British Consul to Naples from 1764 to 1798. It is



Portrait of Abraham Roentgen

known that his collection includes articles from Pompeii and Herculaneum, which were first excavated shortly before his tenure in Naples. Sir William was not as disciplined as he should have been about labeling his collection; the exact origin of these hinges is unknown. It may have been that he was distracted. In 1791, the sixty-year old Sir William married twenty-six year old Emma Lyon, who later became the lover of naval hero Horatio Nelson, Sir William's close friend. Link to: www.britishmuseum.org/system_pages/beta_collection_introduction/beta_collection_object_details.aspx?objectId=447518&partId=1&searchText=Hinge.

Butt hinges, strap hinges, T-hinges, and too many other configurations to list are all variations on the barrel hinge or knuckle hinge. They share the same configuration; two leaves linked to a pin by a series of interlocking loops. The versatility of this type of hinge makes it the most common type in use today.

While pivot hinges need not be conspicuous, knuckle hinges are always exposed on at least one side of the door. While iron, and later steel, was more abundant than brass and bronze, they were still expensive materials until the 19th century. Hinges and other ironmongery were frequently exuberantly decorative, such as the strap hinges in Prague, as shown on page 12. Strap hinges might also be important structural elements of the door.

As metallurgy and manufacturing techniques made iron and steel cheaper the possibilities expanded. The work of Abraham and David Roentgen illustrates the sophisticated hardware solutions which where possible by Late Renaissance. The 'Berlin Secretary' in the linked video www.metmuseum.org/metmedia/video/collections/esda/the-roentgens-berlin-secretary-cabinet uses lots of handmade hardware, including but not limited to hinges. I hope you'll take the time to see what was possible by the 18th century.

Butt hinges require a door that can support itself. They also reflect an economy in which metal isn't a symbol of wealth, but something to be hidden away. Butts are less conspicuous than strap hinges, but the exposed knuckles are unavoidable.

Joseph Schloss, a Rumanian emigrant whose name was changed to Soss by the immigration authorities, was a successful general contractor. Allegedly, Mr. Soss tripped over a hinge knuckle on a ship, and was so annoyed that he invented a concealed hinge more or less on the spot. The Soss Door Hardware Company was founded in 1903, and continues in business to this day. Their major business is automotive hinges, but they continue to manufacture fully-concealed hinges for architectural doors and cabinet doors.

In 1963, Grass KG began marketing a semi-concealed cabinet hinge. It isn't clear whether they were the first to develop such a hinge, but they were the first of the companies in business today to sell one. Julius Blum GmbH brought a similar hinge to market in 1964. While Euro-style hinges are more expensive than common knuckle hinges, they have a major advantage for the cabinet manufacturer – they are adjustable. The three-axis adjustment built into Euro hinges makes it easy for casework installers to correct minor misalignments of cabinet doors caused by variations in the manufacture or installation of the casework. Adjustment of knuckle hinges in this situation is neither easy nor simple.

Euro-style Hinge

This article has neglected any number of hinge variations: self-closing, double acting, and continuous geared hinges to name three. As noted above, the history of many developments is either poorly documented or poorly publicized. I've tried to concentrate on the earliest development of metal hinges, and on those hinges that are most commonly used in architectural woodwork.

One of the pleasures of writing these articles is learning new things. If there are any errors of fact in this article, or if you are aware of a fact I have missed, please let me know.

Steve Taylor *joined the Woodwork Institute as Director of Architectural Services for South-Central California in 2003. Prior to his retirement in 2011, Steve was charged with inspecting millwork products for Woodwork Institute standards and certification, and informing the architectural design community about the advantages of using Institute standards and certification in their specifications. He brings more than 30-years experience in the architectural millwork industry to the Institute, including working as a cabinet maker, stair builder and stair installer. Most recently, he was the vice president of Taylor Brothers Stair Company (formerly Taylor Millwork), a stair and millwork manufacturing company located in Gardena, Calif. He joined Taylor Brothers Stair Company in 1970 to become the third generation leader of this family-owned firm, which his grandfather founded in 1927.*

Prior to his Director of Architectural Services role, Steve served eight years on the board of directors for the Woodwork Institute. He continues to contribute to the institute through his writing, and by reviewing specifications in his spare time.

Soss Hinges

Specifying Hinges for Casework

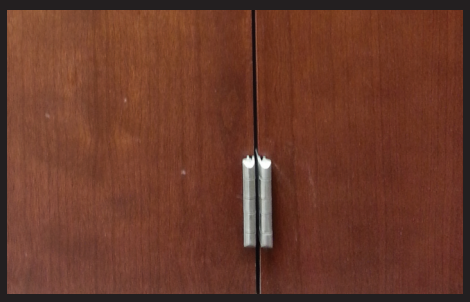
By Steve Taylor

Loosely speaking, there are four types of cabinet hinges: Knuckle hinges, Pivot hinges, European-style concealed hinges, and Soss-type fully concealed. The Builders Hardware Manufacturer's Association (BHMA) calls the Euro-type hinges "concealed." I will use their terminology, and refer to Soss-type hinges as 'fully concealed'.

There are also four types of cabinet door interface: inset, lipped, reveal overlay, and flush overlay. Hinges are designed to be used with one door interface. Of the four hinge types — knuckle hinges and concealed hinges are made for every door interface type. These hinge types are manufactured in hundreds of models, adapted for practically any cabinet door geometry. Pivot hinges and fully-concealed hinges, on the other hand, can only be used on flush inset doors.

Cabinets are either frameless or they have a face frame. Hinges that work on a frameless cabinet may not work with a face frame, and vise versa.

The Builders Hardware Manufacturer's Association establishes standards for cabinet hinges, as well as other hardware. There are three BHMA grades of hinges, based on BHMA testing standards. Grade 1: Heavy Duty, Grade 2: Medium Duty, and



Grade 3: Light Duty. The differences are not trivial. Grade 1 hinges are tested under much heavier loads and many more cycles that Grade 2 or Grade 3. Architectural Woodwork Standards requires Grade 1 hinges for schools and hospitals. I strongly recommend them for any application that will get heavy use. Concealed hinges are generally Grade 2, but may be Grade 3. I contacted Soss about their fully-concealed hinges. Deirdre Whitman of Soss Door Hardware informed me that Soss cabinet hinges are not rated.

Most knuckle hinges will open until the door hits something (up to 270 degrees) concealed, fully concealed, and pivot hinges have a limited swing angle. Depending on the manufacturer and model concealed hinges swing 90 to 170 degrees. Fully-concealed hinges are limited to a 180 degree swing, and pivot hinges vary depending on their geometry.

Like most selections made by a designer or specifier hinge selection is a matter of trade-offs. Grade 1 hinges would seem to be the obvious choice. They're stronger than Grade 2 hinges and they last forever. However, they are more difficult to install. It isn't uncommon to see cabinet doors that are misaligned if the cabinet shop doesn't use Grade 1 hinges on a regular basis. Poor machining is also not uncommon.

4.2 Test 1 Hinge Permanent Set Test

4.2.1 Open the door 5 ± 3 degrees and with no weight applied measure the position of the door with the indicators located as shown in Figures 1 and 2.

4.2.2 The specified load (4.2.6) shall be applied to the door as shown in Figures 1 and 3.

4.2.3 Slowly operate the door to a 90 ± 3 degree open position and then return it to the 5 ± 3 degree open position.

4.2.4 Remove the test load and then measure the position of the door as shown in Figure 2.

4.2.5 The difference in measurements made in 4.2.1 and 4.2.4 is permanent set.

4.2.6 **Maximum Permanent Set:**

Hinge Grade	Load - lbf(N)	Vertical set in.(mm)	Horizontal set in.(mm)
1	160 lbf. (712)	.030 in. (0.76)	.030 in. (0.76)
2	75 lbf. (334)	.060 in. (1.52)	-
3	75 lbf. (334)	.090 in. (2.29)	-

4.3 Test 2 Hinge Operating Life Test

4.3.1 Open the door 5 ± 3 degrees and measure the position of the door with the indicators located as shown in Figure 2

4.3.2 Open and close the door at a rate not to exceed 15 cycles per minute with each cycle consisting of opening 90 degrees from the 5 degree open position or completely closed position (all ± 3 degrees). For Self Closing Damper Hinges, allow the hinges to completely close the door in each cycle.

4.3.3 Upon completion of cycling, return the door to 5 ±3 degree position and measure the position of the door.

4.3.4 The difference in measurements in 4.3.1 and 4.3.3 is sag.

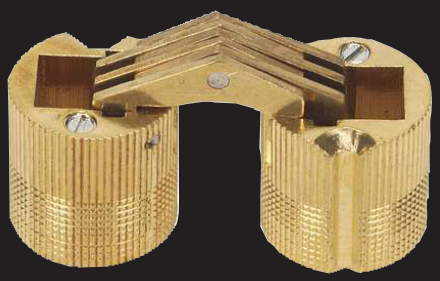
4.3.5 **Maximum Sag After Cycling:**

Hinge Grade	Cycles	Vertical - sag in.(mm)	Horizontal sag in.(mm)
1	100,000	.030 (0.76)	.020(0.51)
2	50,000	.030 (0.76)	-
3	25,000	.030 (0.76)	-

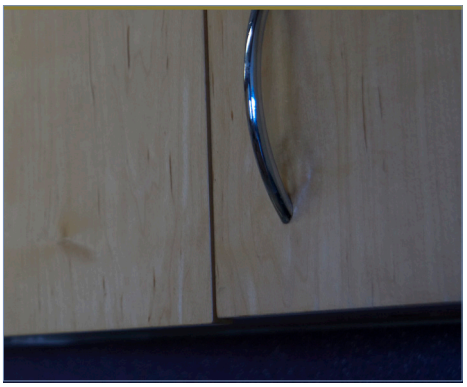
Paragraphs from ANSI/BHMA 156.9 Test 1 Hinge Permanent Set Test and Test 2 Hinge Operating Life Test.

Euro-type hinge

Five-knuckle hinge



Soss-type hinge



Euro hinges can work their way out of adjustment.

Concealed hinges are hidden when the doors are closed, and are adjustable. Designers frequently select Euro hinges because they like the uncluttered appearance. Manufacturers love them because the adjustments allow them to align all the doors in an elevation after the cabinets are installed. Unfortunately, because they are adjustable Euro hinges can work their way out of adjustment; and they do. I have found that I have to adjust the doors in my kitchen about once a year to keep them aligned. (In fact, I don't do it once a year; but it bothers me until I finally do.) Hinges that open 160 or 170 degrees lose their adjustment faster than those that open less. The stops that keep Euro doors from opening past their design angle can also cause the mounting plates to loosen up inside the cabinet.

If the hinge only opens 90 to 120 degrees, sometimes an open door will be pushed the wrong way, and the hinges are pulled loose from the cabinet side.

Soss hinges are the most difficult to install, and have no mechanism for adjustment. For this reason they are rarely used for casework, but they do turn up on furniture. I find them very elegant, but I suspect they are the solution looking for a problem.

Like everything else, you can specify hinges by description, as a proprietary product, or by reference to a third-party standard. You could specify the same hinge as:

Hinges: Five-knuckle wrap around hinge, 2-3/8 inch minimum height, Hospital Tips.

Hinges: RPC 851.

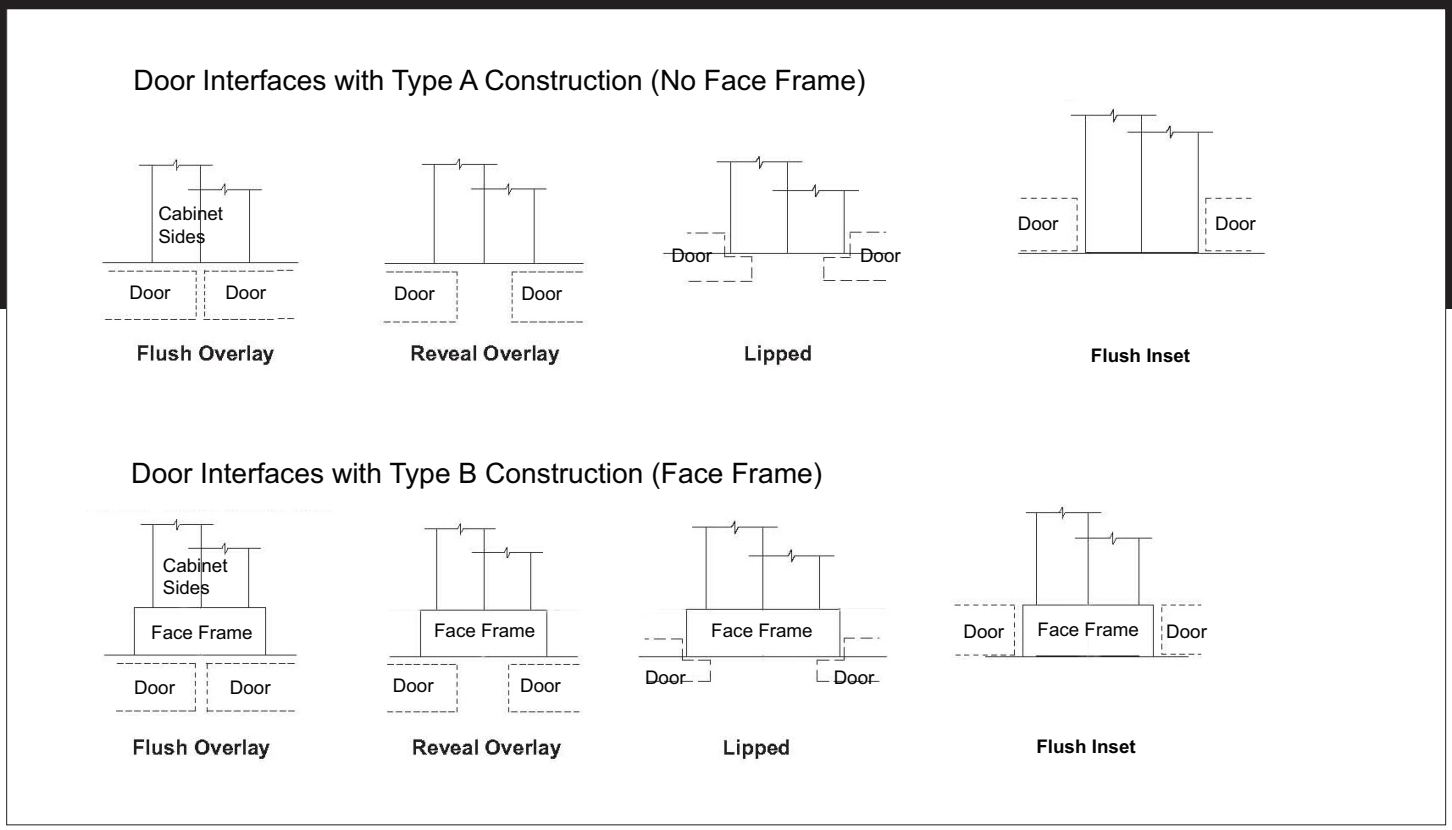
Hinges: BHMA BO 1521, Hospital Tips.

The same three methods for concealed hinges would be:

Hinges: European-style concealed, 120 degree opening, self-closing.

Hinges: Grass 300 Series, 120 degree opening.

Hinges: BHMA BO 1602, 120 degree opening, self-closing.



Examples of door interfaces with Type A and B Construction.

Because most Grade 1 hinges aren't self-closing, you will need to specify catches. For Grade 1 hinges you will need to specify the finish, either with the hinges, or once for all exposed hardware.

Specifying a proprietary product is the most dangerous approach. The hinge you choose needs to work with the door interface you're using, and with (or without) a face frame. If the hinge has an exposed knuckle it also needs to come in your specified finish. Using BHMA number can also be perilous. Those diagrams in the BHMA standard aren't as clear as they might be. For commodity hinges, I think descriptive specification is safest. If you choose a decorative hinge, you may need to modify the door interface to accommodate the hinge.

See page 15 for more information about Steve Taylor.

WOODWORK INSTITUTE

Effective March 25th, 2013, by Errata

By Errata, the 1st Edition *Architectural Woodwork Standards (AWS)* is changing with regards to its default treatment of **EXPOSED KNUCKLE HINGES**. Notching of the hinges will be at the option of the fabricator unless specifications require flush overlay construction.

Sec.	Page	Item	Description	Posted
10	251	1.2.18.3	Change to read: ". . . TYPE A or B casework, except:"	
10	251	1.2.18.3	Add new Item 1.2.18.3.1: "At **EXPOSED KNUCKLE HINGES**, defaulting to **REVEAL OVERLAY** is at the option of the manufacturer, and:"	
10	251	1.2.18.3	Add new Item 1.2.18.3.1.1: "If reveal overlay the reveal shall be determined by the hinge overlay."	
10	258	3.1	Change to read: ". . . Sections 3 and 4, except:"	
10	258	3.1	Add new Item 3.1.1: "At **EXPOSED KNUCKLE HINGES**, defaulting to **REVEAL OVERLAY** is at the option of the manufacturer, and:"	
10	258	3.1	Add new Item 3.1.1.1: "If reveal overlay the reveal shall be determined by the hinge overlay."	
10	270	4.4.6.9.2.6	Change to read: "**WRAP AROUND** hinges, at flush overlay construction, shall . . . be let"	

REVEAL OVERLAY will now be the default and the picture below shows the potential difference in appearance you may experience if **FLUSH OVERLAY** is not expressly required in your specifications and the manufacturer chooses to use **REVEAL OVERLAY** when five-knuckle hinges are required or specified.

REVEAL OVERLAY

FLUSH OVERLAY

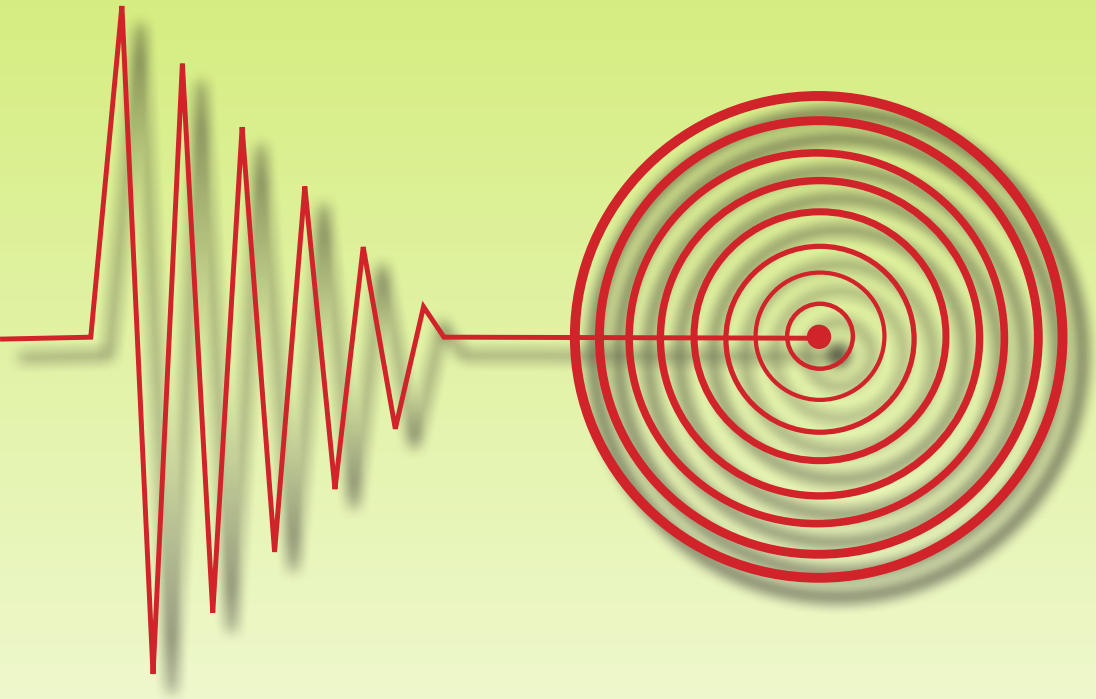
To get **FLUSH OVERLAY**, you must specify **FLUSH OVERLAY**.

If you have any further questions, please contact your Directors of Architectural Services, or call the WI Administrative Office at (916) 372-9943

WOODWORK INSTITUTE

Certified Seismic Installation Program (CSIP)

(OSHPD and DSA Compliant)



May be used on existing projects if acceptable to the Design Professional.
For more information call your WI Director of Architectural Services or our office at (916) 372-9943

Certified Seismic

Name: Certified Seismic Installation Program (CSIP)
Effective Date: June 1 , 2012

Status:
Stand-alone Quality Control Option, meaning it could be specified separately or in conjunction with our CC or MC programs.

Benefits To:
Design Professionals and Property Owners:

- Specified use of WI's seismic casework pre-approvals from the Office of Statewide Health Planning and Development (OSHPD), without any additional engineering costs and/or requirements Compliant to both OSHPD and DSA requirements
- Assurance that proper backing was installed in the walls for compliant casework installation
- Assurance that casework was installed in accordance with WI's seismic casework pre-approvals within OSHPD and/or Division of State Architect (DSA) compliance requirements
- Certified acknowledgement that the project's seismic casework installation requirements have been met

Installers:

- A consistent cabinet installation methodology
- Ease of specification compliance
- Discounted pricing through WI Member and/or Member Licensee status

Applicability: (OSHPD and DSA Compliant)
WI's OSHPD's pre-approvals are adequate for casework installation within the State of California at any height within the building where the SDS is not greater than 1.93 and includes:

- Concrete or concrete masonry unit (CMU) wall construction
- Wood or metal stud wall construction with either continuous 3 x 6 or 16GA in wall blocking respectively
- Casework construction of plywood, particleboard, MDF, or Solid Phenolic Core (SPC) in compliance with the minimum requirements of the Architectural Woodwork Standards (AWS), including:
- Base cabinets, up to 36″ tall x 24″ body depth x 48″ wide, including peninsula and those with mechanical chase
- Wall cabinets up to 48″ tall x 18″ body depth x 48″ wide
- Tall storage cabinets up to 96″ tall x 24″ body depth x 48″ wide
- Peninsula base cabinets up to 36″ tall x 36″ body depth x 48″ wide
- Mechanical chase base cabinets up to 42″ tall x 36″ body depth and 48″ wide

DSA Compliance – In accordance with the California Department of General Services (DGS), Division of State Architecture (DSA), Interpretation of Regulation Manual (IR), Section A-5, entitled Acceptance of Products, Materials, and Evaluation Reports (rev 10/05/12, 2007, 2010 CBC) – WI's Office of Statewide Health Planning and Development (OSHPD) OSHPD Preapproval of Anchorages (OPA) OPA-2649-10 meets the eligibility criteria when used in accordance with IR A-4 (Geologic Hazard Report Requirements, rev 10/11/11, 2007, 2010 CBC).

Copies of DSA's IR A-4 and A-5 may be found at:
www.dgs.ca.gov/dsa/Resources/IRManual.aspx

Cost:
Basic CSIP fee of $1,500 (including two hours of inspection time), subject to the following discounts:

- 10% for WI Member ($1,350), or
- 5% for WI Member (Probationary) ($1,425), or
- 15% for WI Licensee (Non-member) with a WI SB-E Type License ($1,275), or
- 25% for WI Member/Licensee with a WI SB-E Type License ($1,125), or
- 20% discount when specified in conjunction with either WI's CC or MC Programs ($1,200), plus the following additional discounts as applicable:
  - 10% for WI Member ($1,080), or
  - 5% for WI Member (Probationary) ($1,140), or
  - 15% for WI Licensee (Non-member) with a WI SB-E Type License ($1,020), or
  - 25% for WI Member/Licensee with a WI SB-E Type License ($900), or
- Additional inspection time, if required, will be charged at $200/hour, in quarter hour increments, subject to:
  - Applicable WI Member and/or Licensee discounts

Installation Program (CSIP)

Specification Requirement:
Should a Design Professional wish to take advantage of the Woodwork Institute's Certified Seismic Installation Program (CSIP), project specifications shall require conformance to the Architectural Woodwork Standards (AWS) and contain the following wording:

- All wood or metal frame wall construction shall be constructed with continuous in wall blocking of either 3x6 flat Douglas Fir or 16GA x 6″ wide, 50 KSI sheet metal provided in accordance with the location requirements included on the cabinet fabricator/installer's shop drawings. Responsibility for blocking installation shall be that of the wall fabricator.
- All casework installation shall be certified by the Woodwork Institute in accordance with their Certified Seismic Installation Program (CSIP) and their OSHPD Pre-approvals, including:
    - A CSIP Certificate indicating that all of the casework installation fully meets the requirements of the AWS, CSIP, and WI's OSHPD Pre-approvals.
- It is the responsibility of the installer to include within their bid, any and all costs for WI's CSIP certification. Certification is a prerequisite for final acceptance. For further information, please visit **www.woodworkinstitute.com**

Casework Installer Requirements:
The party responsible for installation of casework for any project requiring CSIP certification shall:

- Contact the Woodwork Institute and coordinate CSIP certification with them prior to submittal of shop drawings.
- Ensure that the casework shop drawings:
    - Are in compliance with the AWS's minimum requirements as established in Section 1
    - Include, in accordance with the minimum requirements WI's OSHPD Pre-approvals:
        - Casework Elevations showing the center line height and horizontal locations of all required, continuous, internal wall blocking furnished by others,
        - A casework fastener schedule, clearly showing the type, size, location and maximum spacing.
- At wood or metal stud walls, prior to application of wall surfacing, Casework Installer shall examine, approve and acknowledge blocking compliance to WI's OSHPD Pre-approval requirements, while providing documentation of such through:
    - An inspection report showing rooms/walls inspected type of blocking (wood or metal), confirmation of compliance or statement of non-compliance, inspectors name, date, and signature, with:
        - Photo documentation (referenced by room/wall) of at least 25% of the walls inspected, and inspection report shall identify which walls include photo documentation.
- Contact WI and arrange for final inspection of the casework installation by a WI Director of Architectural Services (DAS), and:
    - If Installation is found compliant, the DAS will authorize issuance of the CSIP Certificate.

Although it is not required, WI recommends, that those fabricators with the appropriate equipment pre-bore their cabinet backs with the proper number, spacing and location of the installation fastener locations in accordance with WI's OSHPD Pre-approvals to avoid field error.

WI License Requirements:
In order to qualify for the WI Licensee fee discount for CSIP certification, WI Licensee shall hold a WI SB-E Type License, which:

- Will be grandfathered to all existing WI Licensees with a Type B-E License, provided they complete the required examination and execute the additional SB-E Licensee Agreement.
- Will be offered to existing WI Licensee firms **without** a WI-Type B-E License and new WI Licensee applicants under normal application protocols.

CSIP is not applicable to the Institute's WI Licensee Sub-Sub discount

DISCLAIMER: The Woodwork Institute is an independent inspection service that determines whether work conforms to specific standards or requirements. The Institute does not certify or guarantee the safety or performance of any manufactured products, components, or installation thereof, or any standard or process related thereto, regardless of whether they comply with the *Architectural Woodwork Standards*, the *Certified Seismic Installation Program* approved OSHPD (OPA-2649-10) drawings and/or contract documents under said Standard/Program. Additionally, the Institute does not guarantee or certify the services, fitness for purpose, advice, materials or products provided by any third party, including contractors, architects, designers and engineers.

Out with the NEW – In with the OLD!

Using Reclaimed / Salvaged Wood on Millwork Projects

By Mark Scianna

Trends are changing in the millwork industry. We are seeing a dramatic increase in the specification of reclaimed and salvaged wood for millwork projects. It's like a treasure hunt to search out and find the right materials. It's fascinating to hear the stories of where wood was previously used. There's a sense of giving new life to precious resources that are rich with character. If they could only talk! At the same time, there is tremendous variability in supply, pricing and quality; and the added complication that current standards do not address Reclaimed and Salvaged Materials. Working with Reclaimed and Salvaged Wood can be treacherous territory.

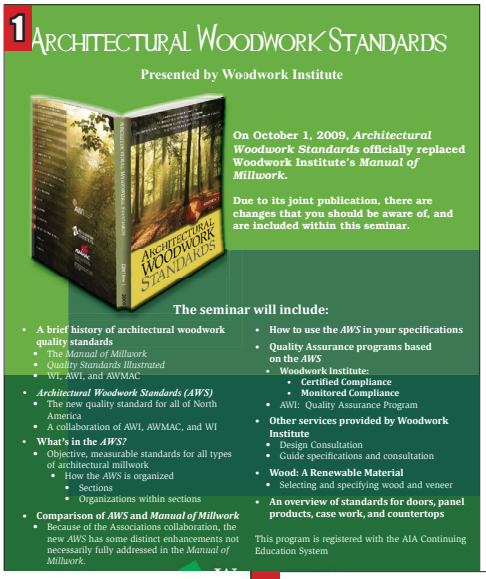
Some of the reclaimed material we've found is of such high quality that it would be impossible to purchase it new. The old-growth wood timbers are simply not available. The Hangar One Reclaimed Redwood from Moffett Field is a great example. Built in the early 1930's of what was then classified as "construction grade redwood," today the same material is classified as "clear all heart" redwood. It's stunning. The added appeal of the story – World War II, Cold War spying and space exploration – make this beautiful wood especially attractive for projects. "We don't normally purchase material in advance of projects" says Mark Scianna,"but when we found this material we knew that our customers in the Silicon Valley would be excited about including it." Mission Bell looks forward to working with ecologically conscious architects, designers, and general contractors to incorporate this rare part of Bay Area history into paneling, millwork and cabinetry.

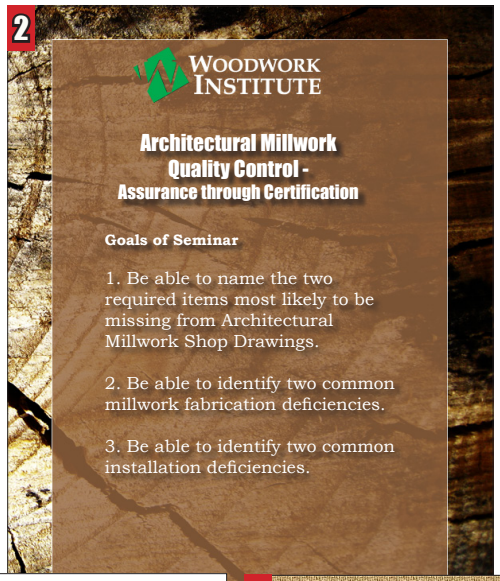
At Mission Bell, we feel a responsibility to provide our architect and general contractor clients with a good understanding of what's available as well as recommend the right material for their projects.

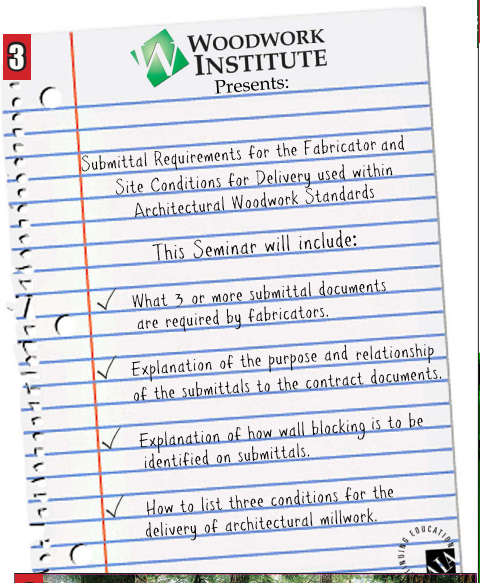
***Mark Scianna**, whose father founded Mission Bell some 54 years ago, has stepped into the role of Preconstruction VP with a special focus on developing a robust network of reclaimed and salvaged wood suppliers. He can be contacted at marks@missionbell.com or online at www.missionbell.com.*

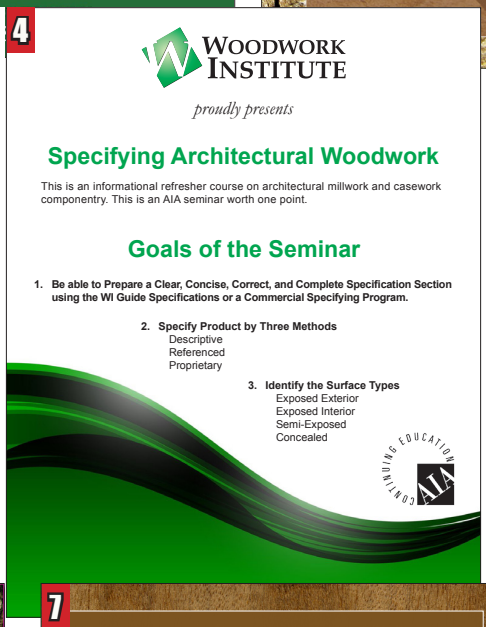
Woodwork Institute Seminars for AIA CES Credits

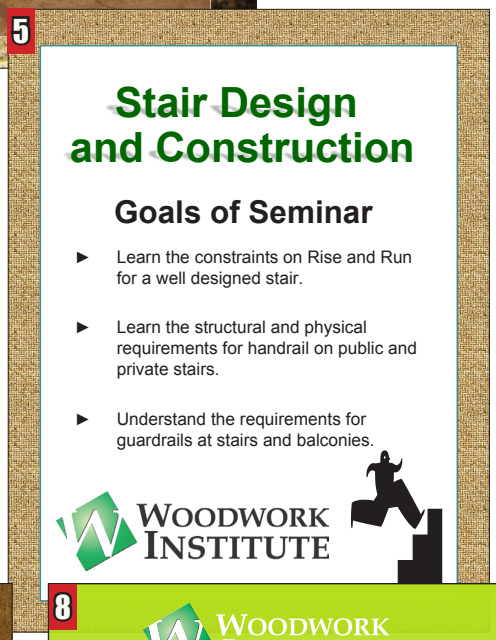
To get more information of the PowerPoint presentations of the Seminars and Sample Shop Drawings visit: **www.woodworkinstitute.com/seminars.asp**

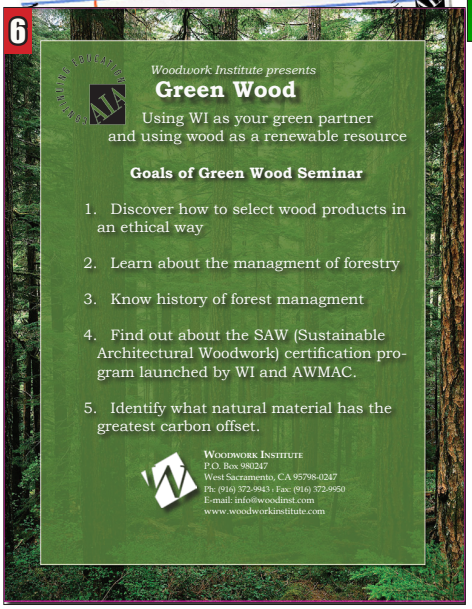


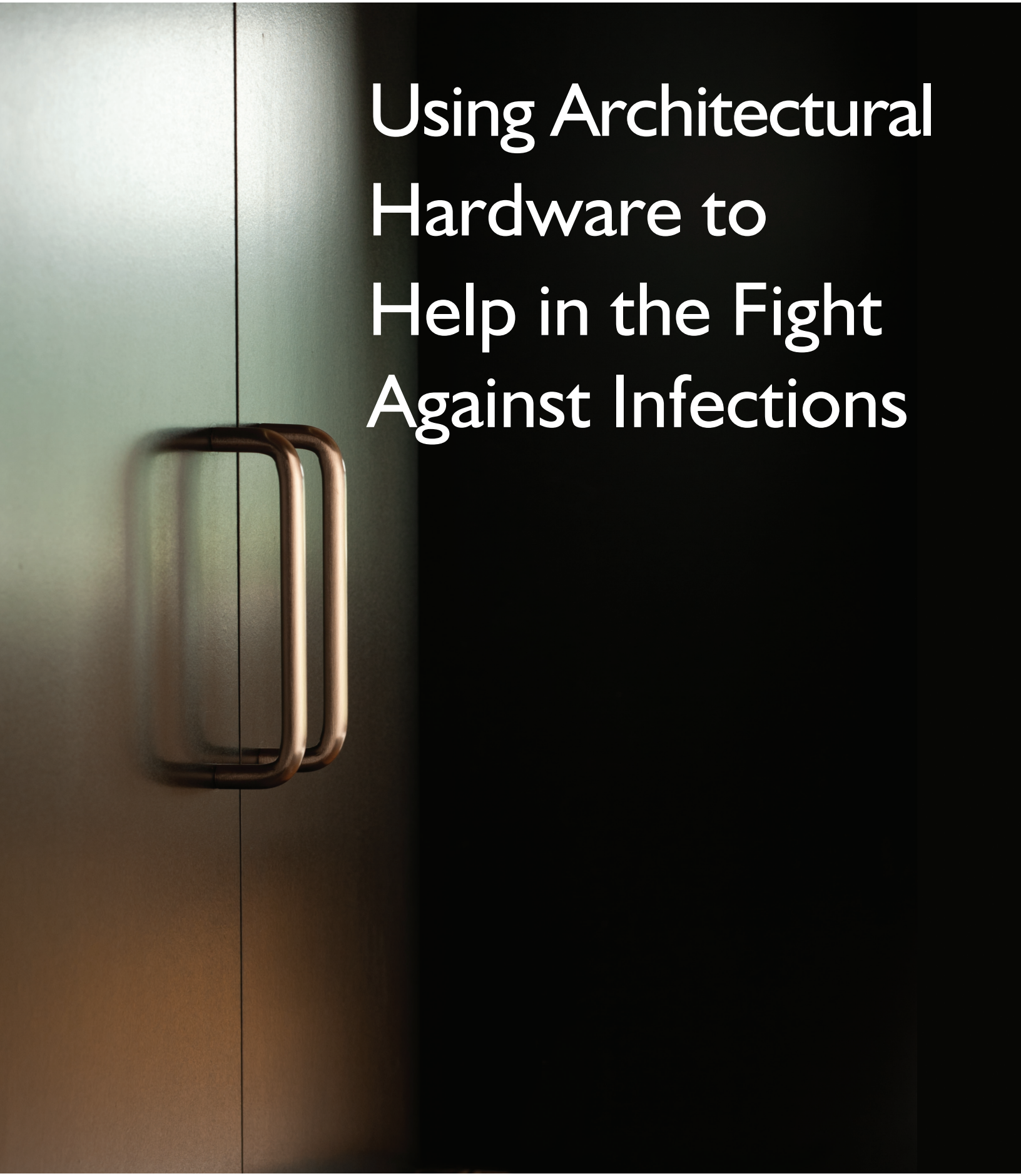










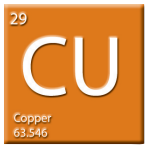


Using Architectural Hardware to Help in the Fight Against Infections

Have you ever reached to open the door to a doctor's office, school, bank, restaurant, grocery store, shopping mall, train terminal, airline luggage rack or public restroom and wondered, *"When was the last time this handle was cleaned…and how many people have touched it since?"*

Cleanliness of commonly touched surfaces like handrails and door levers has long been regarded with apprehension. To reduce the risk of transmitting germs, hospitals, hotels, schools and retail establishments encourage staff to routinely wash hands and regularly disinfect surfaces. Unfortunately, "regular cleaning" typically means only once a day, if that. And more often than we want to admit, dozens if not thousands of hands might come in contact with these public touch points between regular cleanings.

The good news is that there is a new technology that can reduce the likelihood of spreading infectious bacteria between people and surfaces. It is based on a material that has been around for millions of years — copper.



History

Long before the germ theory of disease was developed, copper and its various alloys (including brass and bronze) have been used to kill disease-causing organisms. For centuries copper and brass vessels have been used to store water because intuitively, civilizations understood copper's natural ability to purify drinking water.[1] In the modern world, copper tube remains the premier conduit for transporting potable water. Anecdotal accounts describe the use of copper to treat wounds in Greek and Roman times. British naval ships were clad in copper to protect against biofouling. Today, copper is used for its biocidal capacities a broad range of agricultural applications.[2]

Within the last few years, copper alloys have been recognized and *Registered* by the U.S. Environmental Protection Agency (EPA) for their innate ability to kill infection-causing bacteria[3] responsible for Healthcare Associated Infections (HAIs). Overall in the United States, approximately 2 million people develop infections each year as a consequence of hospital stays, resulting in 100,000 deaths and adding an estimated $45 billion to healthcare costs each year. HAIs

Courtesy of Colonial Bronze

often contaminate items within hospital rooms, allowing bacteria to transfer from patient to patient.[4, 5]

So, while copper's innate ability to kill harmful bacteria has been applied for millennium, new applications of this technology — with medical grade alloys that resist tarnish, hold up well to hospital cleaners, and can be fabricated into a wide array of healthcare products — are propelling these materials into the forefront of groundbreaking healthcare hygiene programs. From hospitals to hospitality; colleges to cruise ships; stadiums to spas, touch surfaces made from copper-based metals are being developed to help in the fight against transmitting infectious bacteria.

Scientific Evidence

Beyond historical accounts of copper usage, there is strong scientific basis in the metals' natural ability to kill harmful bacteria.

Courtesy of Rocky Mountain Hardware

- The EPA has registered solid copper alloys[6, 7] with associated public health claims that these alloys kill greater than 99.9% of bacteria[8] within two hours, and continue to kill more than 99% of bacteria even after repeated contamination.
- More than 50 research papers have been published documenting the inherent ability of copper-based metals to kill a wide range of bacteria, fungi and viruses — including superbugs like MRSA (Methicillin-resistant *Staphylococcus Aureus*), VRE (Vancomycin-resistant *Enterococci*), C.diff (*Clostridium difficile*); CRE (Carbapenem-resistant *Enterobacteriaceae*), Norovirus and black mold.[9]
- Clinical trials, independently funded by the Department of Defense, and conducted at leading US hospitals confirmed that bacteria levels drop by almost 90 percent on copper surfaces compared to traditional plastic, chrome, stainless or coated surfaces. [10, 11]
- A critical finding of the DOD study findings concluded that placement of copper objects on high-touch areas in intensive care unit (ICU) hospital rooms reduced the number of healthcare acquired infections (HAIs) in patients by more than half (i.e., compared to standard ICUs in the same hospitals).[12]
- And by the way, scientists have confirmed the age-old assumption that by allowing water to sit in copper vessels overnight, the water will be effectively decontaminated by the next day.[13]

Architects and designers are already taking advantage of this technology. In a recent installation at a Ronald McDonald House for families of patients with immune systems that are already compromised, living in the facility for extended periods of time with multiple families creates a greater possibility of being exposed to new illness and bacteria.[14] The facility was outfitted with door levers, locksets, cabinet pulls, hand-rails, grab bars and chair arms from EPA registered copper alloys. There were similar results to hospital trials – bacteria levels dropped by about 90 percent.[15]

Application

Infections — both Hospital Acquired (HAI) and Community Acquired (CAI) can be transmitted directly from person to person, as well as indirectly, as a result of patients, staff or family members touching contaminated surfaces such as bed railings and bathroom fixtures. This can occur whether or not gloves are worn or not. Gloves protect the individual; not what they touch. Although healthcare workers clean surfaces regularly, because of the frequency that many surfaces are touched, the surfaces can be contaminated from hundreds to thousands of infectious bacteria. Bacteria levels under 250 CFU/100 square centimeters are generally considered safe.[16]

Courtesy of Trimco

However, recent clinical trials frequently measured levels more than 28 times higher than levels proposed as benign immediately after terminal cleaning times on common surfaces in medical ICU's.[10]

Healthcare surfaces made from solid, copper-based materials offer a new weapon in the fight against infection, and a new approach to better patient care and lower healthcare costs. This technology presents an option that can help kill and prevent the spread of bacteria, including those that are antibiotic resistant. By combating bacteria on common surfaces, such as bed rails, IV poles, carts, door and cabinet hardware, light switches, bathroom fixtures and toilet handles, the metals can enhance current cleaning practices and help mitigate the risk of spreading bacteria, by touch.

Product Availability

Copper alloy technology has application well beyond hospitals — including hotels, resorts, cruise ships, long-term care facilities, schools, athletic facilities, stadiums and concert halls. A number of manufacturers are already supplying architectural hardware — including door levers, push plates, pull handles and exit devices;

Courtesy of Colonial Bronze

Components courtesy of Rocky Mountain Hardware, Cooper Wiring Devices, Trimco, and R.B. Wagner.

a broad variety of cabinet pulls; switches and switch plates; handrails, grab bars, towel racks, paper and soap dispensers and more.[17]

Benefits

While copper materials generally cost more than plastics, the additional cost for hardware, fixtures, furnishings and equipment made from these alloys is relatively small — and ***incremental benefits*** can be significant.

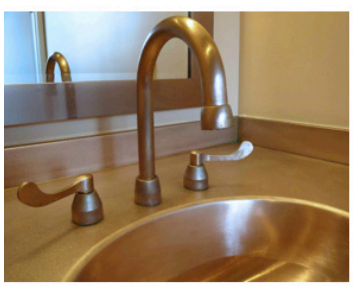
Bactericidal copper surfaces offer an attractive return on investment. Copper alloys remain cleaner between scheduled cleanings; and fewer infections translate to better patient care and lower operational costs. Once copper alloys have been installed, they require neither additional training, compliance, or oversight costs, nor any changes to current facility cleaning regimens. Copper alloys are durable and can last for decades. Some architectural hardware manufacturers offer lifetime warranties. And solid surfaces provide bactericidal protection through and through. Even natural tarnishing or scratching does not impair efficacy, as can be the case with coatings that will eventually wear off. In addition, solid copper alloy materials are 100% recyclable and environmentally sustainable.

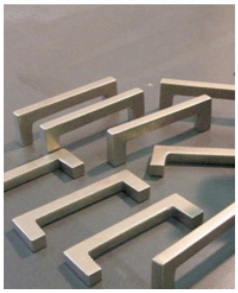
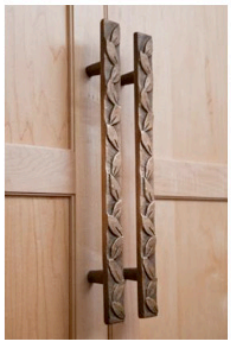
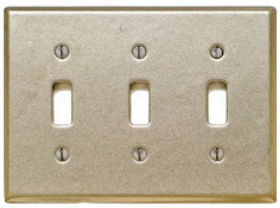
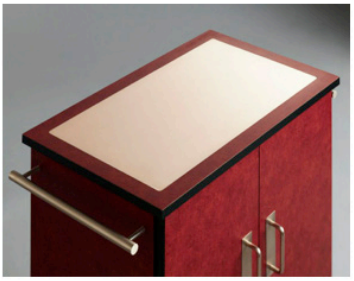
The Agency for Healthcare Research and Quality (AHRQ) reports that HAIs cost, on average $43,000 [18] and increase hospital stays, on average, 19 days for patients that develop an infection during routine course of care.[19]

According to one of the U.S. suppliers of EPA registered materials,[20] laboratory testing has shown that when cleaned regularly these CuVerro® surfaces:

- Kill greater than 99.9% of bacteria[8] within two hours, and continues to kill 99% of bacteria even after repeated contamination
- Deliver continuous and ongoing antibacterial action, remaining effective in killing greater than 99.9% of bacteria[8] within 2 hours.
- Help inhibit buildup and growth of bacteria[8] within 2 hours of exposure between routine cleaning and sanitizing steps.

- Kill greater than 99.9% of Gram-negative and Gram-positive bacteria[8] within 2 hours of exposure.
- Continuously reduce bacterial[8] contamination, achieving 99.9% reduction within 2 hours of exposure.



Components courtesy of Colonial Bronze, Rocky Mountain Hardware, and Denise Siegel Bronze.

In short, when used as a supplement to routine cleaning, inherently bactericidal copper alloys can provide continuously cleaner surfaces, reduce the risk of transmitting infections, and potentially help save lives.

Professional – Grade Materials

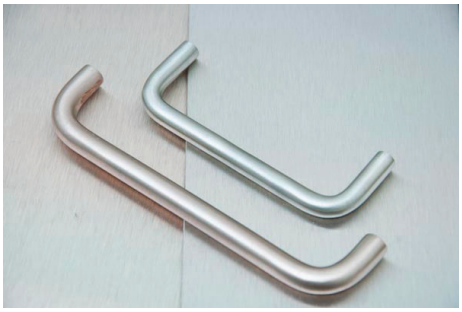
Copper, brass, and bronze hardware have been used for centuries because of the durability, formability, rich look, ability to be fabricated into a broad range of shapes and designs. In contemporary design, these copper alloys still provide the basis of much of the quality door and cabinet hardware being produced. However, these alloys are frequently coated with chrome, a polymer clear coat or other coating to help preserve their original appearance. And the result has been that these coatings have deprived architectural hardware products of their ability to provide safe passage — because the bactericidal properties of the alloys have been covered over.

The new class of professional-grade alloys[21] have addressed this issue, by providing surfaces that effectively and continuously kill bacteria, while maintaining their attractive 'out of the box' appearance over years of use. They are based on a blend of copper and nickel (similar to the metals used for most coinage) to provide the aesthetics, performance and sustainability of modern design.

Made from recyclable materials, these medical-grade alloys are strong, durable, easy-to-clean and even corrosion resistant. They can be formed to fit a variety of applications from forms including strip, ingot, tube, rod and stampings; and can be deep drawn, extruded, stamped, cut, cast, forged, welded, brazed and etched.

White Bronze Copper Rose

Courtesy of Arrow Hart/Cooper Industries



White Bronze and Copper Rose Door Pulls

Courtesy of Trimco

The copper nickel alloys are also available in different hues, including a "copper-rose" (with a distinctive, warm natural tone) and a "white-bronze" (to simulate the more institutional look of chrome or stainless). Most commercially available products are using the distinctive "rose color" because of its warmth, and to highlight its functional properties of continually ridding the surface of bacteria. Some of these products include door and cabinet handles, door and cabinet hardware (door lever, push plate and kick plate), handrails and grab bars, light switches and covers, and paper towel, soap and other dispensers. The light switches and door pulls to the left illustrate the difference between the rose and white bronze appearance.

Antimicrobial

As applied to inherent properties of touch surfaces, the word "antimicrobial" has been misused and over-used for years. By definition, it is a broad term, describing "an agent capable of destroying, killing or inhibiting the growth of disease-causing microorganisms." When applying this to touch surfaces, this leaves some confusion among the architectural community, medical community and the general public.

As applied to solid copper alloy surfaces, such as CuVerro®, the definition conforms to EPA registration claims — i.e.,that the touch surfaces are capable of *killing* harmful **bacteria**[1] — and more appropriately should be termed 'bactericidal.'

Virtually all other surface coatings and polymer additives that use silver, Triclosan, silane and even small amounts of copper can only claim to inhibit growth. They are *bacteriostatic*, not a bactericidal. These coatings and additives do not have EPA registration to make public health claims. Instead, they are listed with the EPA as ***exempt*** from making public health claims, and can only promote an ability to inhibit odor and growth of bacteria; and "protect" the surface itself (e.g., door handle) from deterioration from bacteria. According to the EPA, these coatings and additives are not permitted to claim the ability to kill bacteria.

Sources/Suppliers

Manufacturers of architectural hardware products from solid copper alloy materials supplying some of the architectural hardware products shown in this article include:

Arrow Hart/Cooper Wiring Devices
www.cooperindustries.com/content/public/en/wiring_devices/brands/CuVerroSwitchesPlates.html

Colonial Bronze
www.cusalus.com

Denise Siegel Bronze
www.denisesiegelbronze.com/2010/10/why-bronze-with-antimicrobial-copper/

Rocky Mountain Hardware
www.antimicrobialbronze.com

Trimco
www.trimcobbw.com/door-hardware/index.asp

R.B. Wagner
www.wagnerarchitectural.com/pages/ARS/pages/cuverro.html

Additional information can be found at:
cuverro.com/products-partners/showcase

www.antimicrobialcopper.com/us/find-products--partners/available-antimicrobial-copper-products-.aspx

References

1 www.copperinfo.co.uk/antimicrobial/downloads/brass-and-copper-containers-for-purification-of-water-in-rural-india.pdf

2 www.astm.org/SNEWS/OCTOBER_2006/michels_oct06.html
www.theoriginalcopperheeler.com/index.php?main_page=shippinginfo

3 www.epa.gov/pesticides/factsheets/copper-alloy-products.htm

4 thechart.blogs.cnn.com/2013/05/14/copper-in-hospital-rooms-may-stop-infections/

5 academicdepartments.musc.edu/pr/newscenter/2013/copper.html#.UZTbwpVNEwI

6 www.epa.gov/oppad001/pdf_files/test_method_copper_alloy_surfaces.pdf

7 www.thefabricator.com/article/metalsmaterials/antimicrobial-copper-displaces-stainless-steel-germs-for--medical-applications

8 According to the EPA registration label CuVerro® copper surfaces, "…continuously kill bacteria left behind by dirty hands, killing more than 99.9% of bacteria within two hours… Vancomycin-resistant *Enterococcus* (VRE), *Staphylococcus aureus*, Enterobacteraerogenes, *Escherichia coli* O157:H7 (E. coli O157:H7), *Pseudomonas aeruginosa* and methicillin-resistant *Staphylococcus aureus* (MRSA)."

9 www.antimicrobialcopper.com/uk/scientific-proof/scientific-references.aspx

10 www.ncbi.nlm.nih.gov/pmc/articles/PMC3405627/

11 www.jstor.org/discover/10.1086/663701?uid=3739808&uid=2129&uid=2&uid=70&uid=4&uid=3739256&sid=21102291293047

12 www.shea-online.org/JournalNews/PressRoom/PressView/ArticleId/204/Copper-Surfaces-Reduce-the-Rate-of-Healthcare-Acquired-Infections-in-the-ICU.aspx

www.medportal.cz/system/files/aktuality/Salgado%20et%20al%20ICHE%20HAI%20Reduction.pdf

13 V.B. Preethi Sudha, Storing Drinking Water in Copper pots kills Contaminating Diarrhoegenic Bacteria. Journal of Health Population Nutrition. 2012 March; 30(1): 17-21

14 healthcare-executive-insight.advanceweb.com/Features/Articles/Antimicrobial-Copper-Helps-Healthcare-Facilities-Reduce-Deadly-Infections.aspx

15 www.infectioncontroltoday.com/news/2012/02/antimicrobial-copper-used-at-ronald-mcdonald-house-of-charleston.aspx

16 Dancer, S. J., White, L. F., Lamb, J., Girvan, E. K., & Robertson, C. (2009). Measuring the effect of enhanced cleaning in a UK hospital: A prospective cross-over study. BMC Medicine, 7, 28. doi: 10.1186/1741-7015-7-28

17 www.cuverro.com/products-partners/showcase

18 www.hcup-us.ahrq.gov/reports/statbriefs/sb94.jsp

19 www.ahrq.gov/news/newsroom/news-and-numbers/082510.html

20 cuverro.com/claims-disclaimers

21 cuverro.com

Woodwork Institute / C.E. Bernhauer, Jr. Scholarship Foundation

First announced by the Woodwork Institute in 1997, the Woodwork Institute / C.E. Bernhauer, Jr. Scholarship Foundation was the brain-child of the Institute's Chief Executive Officer Emeritus, Mr. Bernard (Bernie) B. Barber, Jr. The program honors Mr. C.E. (Ed) Bernhauer, Jr., of Fresno Planing Mill, a longtime active and supporting member of the Institute. Mr. Bernhauer served as Treasurer and chaired the Technical Committee (responsible for publication and maintenance of the Manual of Millwork) from 1984 until his untimely death in 1993.

Established within the state of California as a non-profit, charitable corporation separate from the Woodwork Institute, the Foundation is run by a voluntary Board of Directors/Officers with no obligatory ties to the Institute. Granted both Federal and State of California charitable tax exempt status, contributions are fully deductible as charitable gifts under both Federal and California tax codes.

The Foundation's corpus stands in excess of $80,000 and it awarded $4,500 in scholarships during 2007. With the intent of offering scholarships substantial enough to be meaningful while allowing for multiple awards, the Foundation's Board has set the minimum individual scholarship award at $500, and the maximum at $2,500.

For recognizing major donors, the Foundation created the Journeyman Recognition Level of $250 or more, the Premium Level of $500 or more, and the Masters Level of $1,000 or more, in donations during any one-year period. To date, we have over 60 major donors within these levels.

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Please Join Us

This is your open invitation to join us in our efforts of providing an ongoing source of financial aid for individuals seeking further education and career enhancement in the architectural millwork or related industries.

- Pass this information along to someone you feel would benefit from our scholarship opportunities;

or

- Make a commitment to help us build and achieve our corpus goal through a monetary donation.

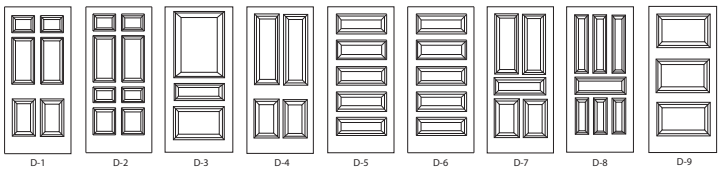
To find out more or request a scholarship application, contact the Administrative Office, (916) 372-9943, PO Box 980247, West Sacramento, CA 95798-0247.
Applications must be received no later than April 1, for scholarship monies funded that year.

WOODWORK INSTITUTE

Now available on www.woodworkinstitute.com
AWS CAD drawings in *.dxf format:

- **Door Designs**
- **Molding Designs**

AWS Stile & Rail Door Drawings



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AWS Chair Rail Drawings

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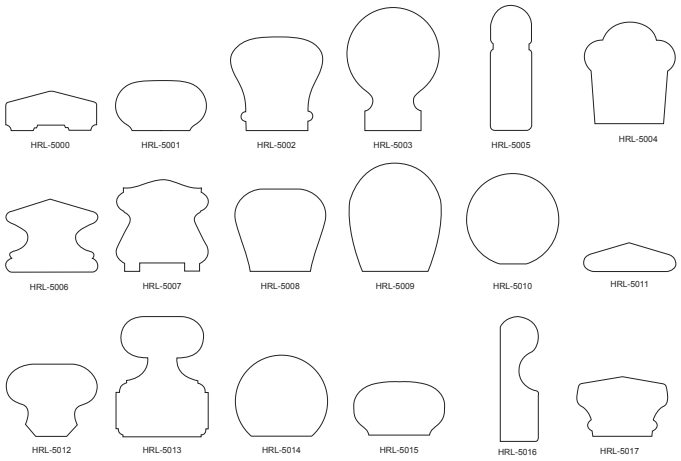
AWS Guard/Handrail Drawings



NOTE: Handrails may not be compliant with current building codes. Check with your local AHJ.

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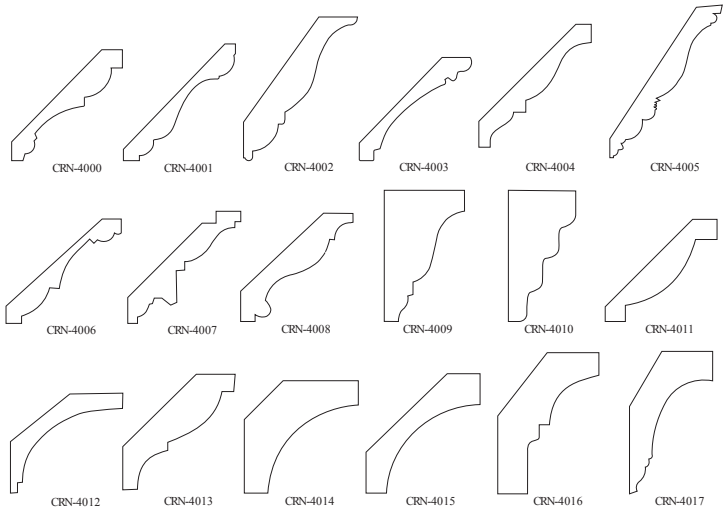
AWS Crown Mold Drawings



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Examples of some of the Door and Molding drawings (.dxf) above.
For full set of drawings go to www.woodworkinstitute.com.

**Handrails may not be compliant with current building codes.
Check with your local AHJ.

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