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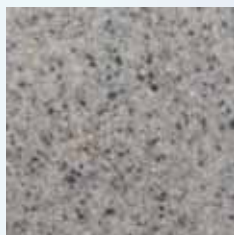
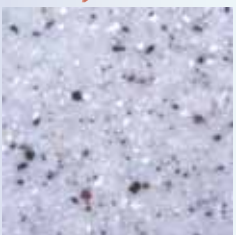
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inside this issue



Published by the

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ON THE COVER

Project
UCLA Physics and Astronomy Building

Architect
CO Architects, Los Angeles, Architects

Fabricator/Installer
Spooner's Woodworks, Inc.

Project Statement

The UCLA Physics and Astronomy Building is 116,000 square feet and sits within the historic core of the UCLA campus. The building houses general assignment classrooms for the whole campus, research laboratories, administration offices, as well as faculty and support offices for each of the departmental divisions. The use of cherry wood paneling, doors, and door frames, interior window frames, baseboards, shelving ceilings, and casework throughout the building unifies all the disparate functions into one cohesive whole.

chairman's commentary

Proud to Serve Once Again

I am proud to announce the board of directors has re-elected me to the position of chairman of the Woodwork Institute for the 2006-2007 term. It has been an honor to serve the members of the Institute and I look forward to continuing this into the future.

Our Institute has undergone many changes in the past year and I am proud of the results. I believe the organization is now stronger and I am pleased to be part of such a positive change.

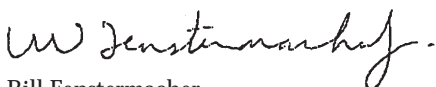
I am also excited about this issue of *Archetype*. It includes something for every reader. Steve Taylor, our exceptional Director of Architectural Services (DAS), has a great article about laboratory countertops. Whether you fabricate, install, or work with this unique surface, you will gain great insight from the article.

The Shasta County Administration Building is featured on page 18. This project was fabricated/installed by Shasta Wood Products. The architect, Les Melburg of Nichols, Melburg, and Rossetto Architects included the Institute's standards throughout his specifications. This ensured the building would be the highest quality. The project was awarded with both the Bernard B. Barber and Ralph B. McClure awards in 2005. The article gives you a closer look into the construction and planning process of creating this amazing building.

We also take an in-depth look at another construction project on page 10. The HP rehabilitation project gave the Union Planing Mill of Stockton, California challenges but, in the end, they felt it was one of the most rewarding projects. It consisted of updating the structural support and interior/exterior details of the garage and house where Bill Hewlett and Dave Packard created Hewlett Packard. The company they founded started the technology trend in the Silicon Valley and it was important to preserve the buildings as historical landmarks.

Elsewhere in this issue, you will find one of the important services the Woodwork Institute offers. The Institute's Directors of Architectural Services are accredited to teach the American Institute of Architect' (AIA) continuing education courses. These programs can be given to any architectural firm within our service area at no cost. They last about one hour and provide architects with the continuing education credits needed to maintain their license in many states. We have also included a class request form on page 8 to make it convenient to sign up for a class.

If you have ideas for future *Archetype* articles, please send them to me at info@woodinst.com. Until next issue, it's our Woodwork Institute. Help support us and make us strong.



Bill Fenstermacher
2006-2007 Chairman



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Recreating History



Photos courtesy of HP

By Megan White

Sentimental items can tell wonderful stories. However, keeping those items in condition to stand the test of time can be a great challenge. The challenge multiplies when the item is a building. This is exactly what faced the Union Planing Mill when it was awarded the job of restoring a home and garage on Addison Avenue in Palo Alto, California.

But, this was no ordinary house and 12 ft. x 18 ft. garage. It was the place where Bill Hewlett and Dave Packard created Hewlett Packard. The garage is a historical landmark and was in need of great structural repair and internal restoration.

Over the next eight months, employees of the mill worked on every millwork issue for the project. They repaired the wood damage caused by water and termites and installed improvements to prevent future damage. They replaced the wood floors and staircase. Weathered window frames were repaired and new glass was installed.

In addition to working on structural issues, a major goal was to return it to the

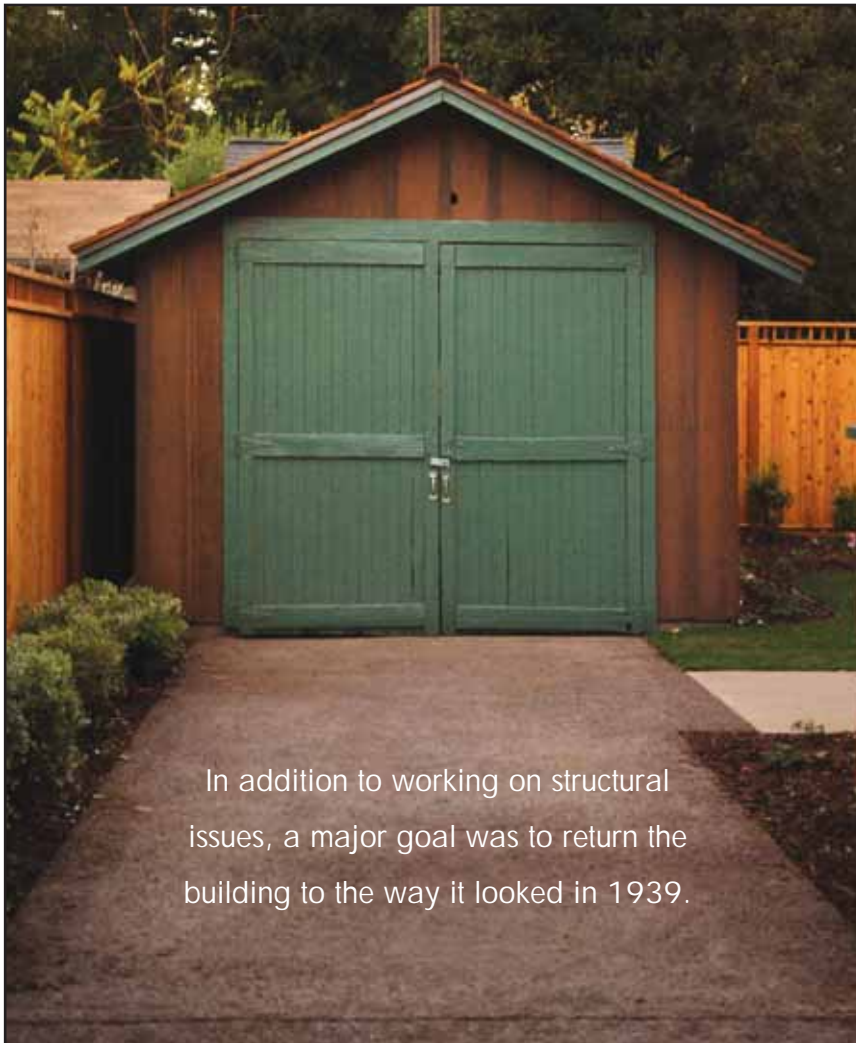
way it looked in 1939. That was the year Mr. Packard and Mr. Hewlett moved into the house and began their business in the garage. This proved to be one of the most challenging and exciting parts of the project.

“Whenever possible, we used the wood that was part of the garage and home already,” explained Steve Zarate, who worked on the building for Union Planing Mill. “When the wood was unsalvageable, new wood was used, but it was the same age as the original wood. We were careful how we integrated the new wood into the building. We used old photos as a guide for how things should look. A lot of time and thought was put into making it look exactly as it did over 50 years ago.”

Everything from trim to cabinets was rehabilitated. These items were removed from the home and taken back to Union Planing Mill in Stockton, California where employees worked on the pieces. After the items were fixed, they were returned to Palo Alto and installed.

Whenever possible, the house and

Through Building



In addition to working on structural issues, a major goal was to return the building to the way it looked in 1939.

garage were left “as is.” Building upgrades were designed to be unobtrusive and original materials were repaired and reused. Where replacement was needed instead of repair, the new feature had to match the old one exactly in design, color, texture and materials. Because the garage is now a historical landmark, all the rehabilitation was carried out according to the United States Secretary of the Interior’s “Standards for the Treatment of Historic Properties.”

In the end, Steve was very pleased with the work that went into this interesting project. “I was so impressed with the skill of craftsmanship our guys had with this project. We had to make old parts fit with new and repaired items instead of starting from scratch. It was a demanding, but rewarding project to be a part of.”

Putting a fresh face on an old building can be defined many different ways. Restoration, preservation, rehabilitation, and renovation are just a few of the terms thrown around. But, what is the difference between them all?

Restoration - Restoration is bringing something to its former condition. This can only be done if the original materials are available and in good enough condition for use.

Preservation - The goal of preservation is to update a structure so it is safe and intact for years to come.

Rehabilitation - The Secretary of the Interior views rehabilitation as bringing a structure back to the way it looked “during which significant events and activities occurred.” This is the goal with buildings that are historical landmarks.

Renovate - Renovating a building is bringing it back to the state it was in when it was new. Although you do not need to use original materials, any items used should replicate the building’s original look.

By Steve Taylor



Lab Tops



Selecting and specifying laboratory counter tops can be a complicated problem. The selection of materials available changes as new ones are introduced, and others lose their popularity. The materials currently used for laboratory tops differ in chemical resistance, resistance to heat and cold, and in their mechanical properties. In this article, I will attempt to summarize the differences among the most commonly available products: epoxy resin, solid phenolic core (SPC) and plastic laminate (LP).

The Scientific Equipment and Fixture Association (SEFA) has developed a system for testing laboratory surfaces for chemical resistance. The SEFA test requires that the surface be exposed to 49 chemicals, each for 24 hours, then examined for any effect. For each agent, the scoring is: 0 - no detectable change; 1 - slight change in color or gloss; 2 - slight surface etching or severe staining; 3 - obvious and significant deterioration.

Unfortunately, not all manufacturers perform the SEFA test according to the standard. The laminate manufacturers and Epoxyyn shorten the test duration to 16 hours. Durcon-Labora-

tory Tops and the laminate manufacturers do not provide data for all the chemicals on the SEFA list. Within these limitations, I have tried to compare the chemical resistance of the various products. The table within this article compares the data for the seven products I have researched. Several of the SEFA chemicals did not have any effect on any of the products. For simplicity, I have deleted those chemicals from the table. Where a manufacturer has not provided data for a reagent, I have indicated "nt" for not tested. The data I have provided is for the black version of each product; other colors may have differing chemical properties.

There are two manufacturers of epoxy resin tops; Durcon-Laboratory Tops, and Epoxyyn. Their products have similar, but not identical properties. In the SEFA chemical resistance test, the Epoxyyn products failed with exposure to only one agent (Sulfuric Acid, 96 percent), three additional chemicals had a slight effect, and 14 left a visible mark. The Durcon-Laboratory Tops failed for three chemicals, had five level two reactions, and seven additional agents caused a slight change in color or gloss.

and their Complications

Chemical Resistance

Agent	Epoxy Resin		Plastic Lam.		SPC		
	Duron	Epoxy* [*]	F*	W*	W*	Athlon	Toplab
Acetate, Amyl	1	0	nt	0	0	1	0
Acetate, Ethyl	0	1	0	0	0	1	0
Acetic Acid, 98%	0	0	0	0	0	1	0
Acetone	1	1	0	0	0	1	0
Acid Dichromate, 5%	nt	1	3	nt	nt	0	0
Alcohol, Ethyl	0	0	0	0	0	1	0
Alcohol, Methyl	0	0	nt	0	0	1	0
Ammonium Hydroxide	0	0	0	0	0	1	0
Benzene	0	0	0	nt	nt	0	0
Chloroform	1	1	0	0	0	1	0
Chromic Acid, 60%	3	2	3	1	1	1	0
Cresol	0	1	0	0	0	0	0
Dichlor Acetic Acid	nt	0	nt	nt	nt	1	0
Dimethylformamide	0	1	nt	0	0	0	0
Dioxane	2	0	0	0	0	0	0
Ethyl Ether	0	0	0	nt	nt	1	0
Formaldehyde	0	0	0	0	0	1	0
Formic Acid, 90%	0	0	0	0	0	2	0
Furfural	2	0	0	nt	nt	0	0
Hydrochloric Acid, 37%	0	1	0	0	0	2	0
Hydrofluoric Acid, 48%	3	2	nt	1	1	2	2
Hydrogen Peroxide, 3%	0	1	0	0	0	2	0
Tincture of Iodine	1	0	0	0	0	2	0
Methyl Ethel Keytone	1	1	nt	0	0	1	0
Methylene Chloride	2	nt	nt	0	0	1	0
Mono Chlorobenzene	1	0	0	0	0	1	0
Nitric Acid, 20%	1	1	0	3	3	1	0
Nitric Acid, 30%	nt	1	0	3	3	1	0
Nitric Acid, 70%	2	1	nt	3	3	2	1
Phenol, 90%	0	1	0	1	1	0	0
Phosphoric Acid	0	0	0	0	0	2	0
Silver Nitrate	0	0	0	0	0	1	0
Sodium Hydroxide, 10%	nt	0	3	3	0	0	0
Sodium Hydroxide, 20%	nt	1	3	3	0	0	0
Sodium Hydroxide, 40%	0	0	3	3	0	0	0
Sodium Hydroxide, Flake	0	0	3	3	0	1	0
Sodium Sulfide	0	0	3	0	0	0	0
Sulfuric Acid, 33%	0	0	0	3	3	1	0
Sulfuric Acid, 77%	2	0	0	3	3	1	1
Sulfuric Acid, 96%	3	3	nt	3	3	2	1
Sulfuric Acid, 77%, and Nitric Acid, 70%, equal parts	nt	2	nt	nt	nt	2	0
Total Reactions	3/2/1	1/3/14	6/0/0	10/0/1	6/0/3	0/9/21	0/1/4

Scale: 0 = no effect, 1 = slight change in color or gloss, 2 = Slight surface etching or severe staining, 3 Pitting, cratering, swelling or erosion of coating.

* tested for 16 hour exposure to each chemical, rather than 24.

Epoxy tops have excellent resistance to heat; they pass the SEFA high temperature tests and may be suitable for uses involving prolonged exposure to high temperatures. If flame spread or smoke generation are issues, epoxy resin does not burn. Epoxy tops do not perform as well in extreme cold; they may fail with exposure to dry ice or liquid nitrogen.

An advantage of epoxy resin is its formability. As a cast product, it can be made into sinks and troughs. Tops may be manufactured with raised edges and/or covered backsplashes. Drainage recesses around sinks and other special shapes can be manufactured. Epoxy resin is also homogenous—damage to the surface will not affect its chemical resistant properties.

Installation of large epoxy resin tops must be done in sections. Like all these products, there is a maximum size that can be efficiently manufactured, shipped and installed. Joints between sections of epoxy resin tops must be filled with 1/16 inch to 1/8 inch of epoxy, leaving a wide visible joint between sections.

Color is one of the new trends in laboratory tops. Not so long ago you could have lab tops in any color you wanted as long as it was black. With competition from LP and SPC, the epoxy manufacturers have developed more colors. This increase in design freedom has complicated the selection process because the chemical properties of the various colors are not identical.

There are three Solid Phenolic Core products being marketed for laboratory surfaces. Wilsonart SPC, Trespa Athlon and Trespa Toplab. SPC is similar to laminate in its structure; layers of craft paper are saturated with resin and laminated under high pressure. Unlike laminate, the SPC product is not intended to be bonded to a substrate. SPC is available in thicknesses up to one inch. In laboratory applications, tops are typically 3/4 inch or one inch thick. Like laminate products, the chemical resistance of SPC products is provided by a surface treatment. The Wilsonart product has the same surface coating as that company's Chemsurf laminates. The Trespa products use different technologies, reflected in their performance. The Trespa Toplab performs better than any other product in

the SEFA chemical resistance test. There are no failures for any of the 49 chemicals, and only one level two result (slight surface etching or staining.) Four chemicals produce a visible stain or change in gloss (level one.) Trespa Athlon has no level three reactions (failure), nine level two results, and 23 level one reactions. Wilsonart Chemical Resistant SPC has six failures, no level two results, and three level one reactions.

The three SPC products vary in heat resistance. The Toplab and Athlon pass

the SEFA high temperature tests (crucible and Bunsen Burner) while the Wilsonart must be protected from flame and high temperature. The Athlon and Toplab can be exposed to extreme low temperature, such as dry ice or liquid nitrogen with no ill effect. I have no data for low-temperature exposure for the Wilsonart product. Wilsonart reports a flame spread rating of 55, with a smoke index of 200 for their SPC product. Trespa reports that their Toplab product is self extinguishing, no smoke index is reported. Athlon is

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available with a flame spread rating of less than 30.

Because of the way that SPC is manufactured, it only comes in flat sheets. It is possible to create a built-up edge by mechanically attaching another piece, but sinks, troughs, and other complex shapes are not available. Cove backsplashes may be possible with some products, but not in all thicknesses. Epoxy resin sinks and troughs can be used with SPC tops.

When SPC is installed, joints may be assembled in two ways. A gap, similar to that left in epoxy resin installation, may be filled with epoxy, or a nearly invisible joint may be made using mechanical fasteners similar to those used on LP tops.

SPC products are available in a range of colors and patterns. Toplab offers a color range similar to that offered by the epoxy resin manufacturers. The Wilsonart and Athlon lines offer more extensive selections of colors and patterns. As with all laboratory counter top products, the chemical resistance qualities may vary with color.

Chemical resistant Plastic Laminate offers an economical choice for less demanding environments. Wilsonart and Formica are the two major manufacturers of chemical resistant plastic laminate. Their products presented 10 and six failures, respectively, with the SEFA chemical list. These products are also more likely to be damaged by high temperature than the others.

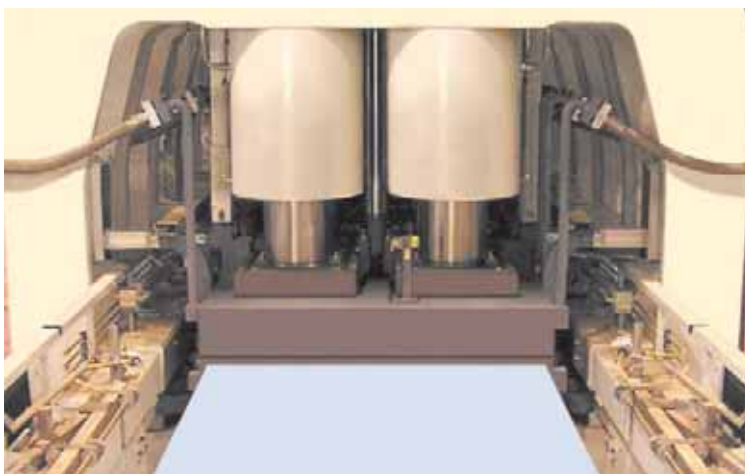
Chemical resistant LP is available in post forming grade, making it possible to build tops with no drip or bull nose front edges and cove back splashes. More complex shapes are not available. Epoxy resin sinks cannot be used with laminate tops, so metal or porcelain sinks must be used. Sinks should either be self rimming or be installed with a separate metal sink ring.

While the other products have recently begun to offer their laboratory surface materials in colors and patterns, the laminate manufacturers have led the way. Wilsonart offers the Chemsurf line of laminate in most of their colors and patterns. Formica manufactures Chemtop2 in 16 colors.

Unfortunately, the perfect laboratory work surface hasn't been developed yet. None of these products will have the ideal combination of attributes for any application. Ideally, the end user of the facility should be involved in the process of making a selection. The chemical, physical, and electrical properties which are important should be determined. If chemical resistance is an important consideration, it may be necessary to get samples of several products and test them with the compounds they are likely to contact. Electrical and mechanical properties may also be important. Whichever product is selected, compromises will have been made.

Note: All of the data for this article has come from the manufacturers or their representatives. While I have tried to be as accurate and thorough as possible, products change constantly. Please verify all data before specifying any product.

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COMMUNITY

Shasta Wood Products **Builds a Center** Dedicated to the Public

By Megan White

Each year the Woodwork Institute bestows the Ralph B. McClure Craftsmanship Award in recognition of outstanding workmanship in the fabrication and/or installation of architectural millwork. In 2005, top honors went to Shasta Wood Products for their work on the Shasta County Administrative Center in Redding, California.



PRIDE

Shasta Wood Products was started by brothers Jeff and Tom Aboud in 1986. They started small, but over the years have expanded, and now employ thirty people. Shasta specializes in the manufacturing and installation of custom, commercial and modular casework. Over the years they have worked on high-end custom homes, hospitals, casinos, and museums. Although they have been in business for twenty years the brothers had never taken on a project with the challenges that they faced with the Shasta County Administrative Center.

THE CENTER

After an extensive study, Shasta County officials found that their current facilities were inadequate and costly to operate and maintain. Departments were separated into numerous buildings instead of in one location. Administrators felt this made it more difficult for the public to get the services they needed in a timely

manner. Also many of these buildings were leased instead of owned by the County, which was not cost effective in the long run.

The study resulted in the idea to create a building that would house many different departments. It would become a one stop shop for the public to get what they needed - from building permits to attending a meeting with their County Supervisor or other public official. This idea became a reality with the design of the three-story, 106,000 square foot Administrative Center. It includes a 160 seat Board of Supervisors' Chamber room, administrative offices, and customer service counters for 12 County departments. It also provides much needed public space for outdoor gatherings and indoor meeting rooms. It currently houses 185 employees, but has a capacity to hold up to 300 as the County grows.

Les Melburg of Nichols, Melburg, and Rossetto Architects designed the build-

ing. The goal was clear- to create a place that is welcoming to the public. Mr. Melburg elaborated, "The client wanted a building that had a warm feel to it. For the Board of Supervisors' Chamber the goal was to have a space that was grand and formal, but also not intimidating. We kept these ideals in mind throughout the design and construction of the Center."

Planning is crucial to any project and Melburg kept that in mind. "I designed some things that I had never tried before, and I'm good friends with the guys at Shasta Wood Products so I asked them if they were possible to construct. They spent a lot of time with me. We worked out things before the final design was even complete, so when we were in the construction phase, all the kinks had been ironed out ahead of time. We had no change orders, which is rare with a project of this size."



CHALLENGES

Although Melburg and the Aboud brothers had the opportunity to collaborate before construction began, it doesn't mean there were not challenges ahead. Chuck Earbarg of Shasta Wood Products, was tasked with the installation of the casework. "It was my first time as the lead on a project of this size, so planning ahead was important. I started working on the Board of Supervisors' Chamber room first. I knew that room would pose the most difficult installation issues, so I wanted plenty of time to work them out."

One such issue was the safety needs for the Board of Supervisors. Their chamber room had to incorporate safeguards against gunfire and assault throughout the walls and dias. The material used as a bullet guard was made of fiberglass. This was installed underneath the wood panels that cover the dias and walls. The challenge with the installation was made greater since the walls of the room are slightly curved, and four sheets of 1/8 inch fiberglass had to be molded to fit the radius.

Additional challenges in the Chamber room were coordinating the audio visual technology. Electrical wires, phone lines, and a data system had to be installed before any casework could be started. The room also incorporates several maple trim profiles set at varying radii, curving

crown molding, removable maple wall panels, and a speaker's podium that can be raised and lowered to meet accessibility requirements for differing public needs. Each of these custom features required forethought and special installation as well as thorough planning.

Shasta Wood Products also completed the millwork installation throughout the rest of the building. This included an extensive handrail/guardrail system throughout the lobby and cap pieces for the carpet base. They analyzed the design for each of the departmental lobbies and found the most simple and effective way of constructing the millwork. They struck the balance of keeping a constant feel to the woodwork throughout the building, but also creating a unique look in each lobby. One way this was done was by using maple wood on the guardrail caps in the main lobby, which was the primary material featured in the Board Chambers. Subtle touches like these created a natural feel and consistent look to the entire project.

COMMUNITY PRIDE

Shasta County Supervisor, Dave Kehoe could not be more impressed with the end result. "The quality of workmanship on this building is second to none. The attention to detail is amazing. It is truly a building that is beautiful and

welcoming to the public."

Shasta Wood Products exceeded their goals and finished ahead of the estimated construction schedule with the Shasta County Administrative Center. The building was completed a month early and was \$500,000 under budget, which is a rarity in government projects. It is a prime example of how planning and creativity came together to accomplish challenging goals.

Each of the parties involved agree the best part of the project was community members coming together to build something important for their County. The building has become a centerpiece of pride for the community and has received numerous awards. "There were mostly local people that worked on this project. Each them took personal pride to make it the best for their community." Melburg stated. "I would walk onto the site and all the craftsman would pull me aside to show me something they had been working hard on. Everyone involved had a great attitude."

Supervisor Kehoe agreed, "The Center is so inviting. It feels like you are entering someone's home. It's how a public building should feel. The residents of Shasta County thank everyone involved in the project for their exceptional work."



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Hobby to Business: Keys to Success

Woodworking is a passion for many people. Numerous people learned the trade from their father or grandfather and developed their skills in a backyard shed. Beautiful furniture and practical handyman skills can be learned in afternoons of doing something that is an enjoyable hobby. While many people love to keep these skills as a past time, some have turned it into a full time job. Here are few things to consider before you open your doors for business.

Will it still be fun?

It is important to think about what you value about your hobby and how things will change when it becomes a business. Do you

get joy from woodworking because there are no deadlines and it is an escape from everyday life? If so, you might find that opening a business will take the enjoyment out of the trade. However, if pushing to meet a deadline is something that is exciting, starting a business will provide that aspect to your hobby.

A business takes up far more time than a hobby. Consider how you will feel spending hours in the shop. There aren't designated business hours, so it's vital to understand that many evenings and weekends will be spent on the new business.

Ask around

It is important to understand the

woodworking market you will be entering and see if there is a demand for your skill. Something one loves to receive as a gift might not be a steady form of income when people are asked to purchase it. A great way to see if your skill can make money is to ask other business owners in the woodworking trade. Listen to what has worked and failed in the past for them.

Trade associates are also a good way to network with others that have experience in the field. They can share their expertise, point you to valuable resources, and even give tips about where to get discounted machinery and tools. The more you hear about other's missteps, the less likely you are to make them.



GOVERNMENT RESOURCES

The Federal and State government provides services to people interested in starting a business. Many of these resources are offered at little to no cost.

U.S. Small Business Administration – This organization offers business consulting, assistance with writing a business plan, and low-interest loans to individuals opening a business. For more information, visit their website at www.sba.gov.

SCORE – SCORE is made up of retired CEOs and business owners. They can offer practical advice and business counseling to new and potential business owners.

Community Colleges – Many community colleges offer one-day seminars on the nuts and bolts of starting a business. They also have classes on everything from bookkeeping to environmental regulations.



Full time or part time?

You don't have to quit your 9 to 5 job if you consider opening your own business. Starting out by working weekends or after work can provide a great testing ground for your new company. This may be more time consuming than just focusing on your business, but it also gives you a great transition from past time to career. Remember, the important thing is that you still enjoy woodworking, even when it goes from a hobby to a job.



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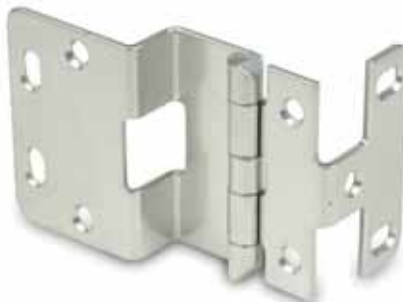
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Education To Go



Most of us have heard the expression “never stop learning.” While few people would disagree with this statement, sometimes it’s easier said than done. That can truly be the case when it comes to taking classes in your chosen field. Many employees and business owners barely have time to make a dent in their to-do list, so taking time off to attend a class is practically out of the question.

In recent years, many education providers have addressed this issue by offering distance education classes. In this case, the teacher comes to the student making it easier for everyone. Classes can be conducted over the Internet or via e-mail.

The American Institute of Architects (AIA) has established this exact program for their members to earn AIA’s Continuing Education Systems (CES) credits. It’s a useful and convenient method for architects to engage in professional development

and earn the credits needed in most states to keep an architectural license. The amount of credits required varies from state to state. Even if you are not housed a particular state, you may still need the required credits to practice in a different state. It is important to stay current on the requirements so you are not short handed at the last minute. AIA’s Continuing Education Department can help figure out the amount of credits you need.

The AIA program is flexible in the formats used for distance learning. Classes can be taken in the more traditional format of a teacher presenting to attendees, but classes are also available via satellite broadcast, over the Internet, and through a CD-Rom format. The important thing to consider is the best learning method for the individual.

Although the information can be presented in many different formats, the quality of the presentation must meet

the high standards of the AIA. In order to become a CES provider, an individual must become registered as a qualified provider and get approval of the information they will be presenting. They also have to evaluate their presentation on a regular basis to make sure it still provides the most up-to-date information. The provider must go through a re-registration process every four years.

Many different classes are offered through the CES program. A complete list can be found on AIA’s website at <http://www.aia.org/ces>. The Woodwork Institute is a registered CES provider for the *Manual of Millwork*, *Inspection Issues*, and *Wood Veneers*. A Director of Architectural Services (DAS) presents the class at the request of an architectural firm. The class is usually one hour and can be customized to meet the firm’s specific needs and concerns. After the class is taken, WI contacts AIA with the names of the attendees. Those individuals are then given the credits they have earned automatically.

Everett Nelms, a DAS for WI, has been giving classes for many years now.

“It’s great to present a class in the AIA/CES format,” he says. “I find out what the architects want to learn before I get there so I can incorporate it into my presentation. It really is the best way to inform them about the issues facing their industry.”

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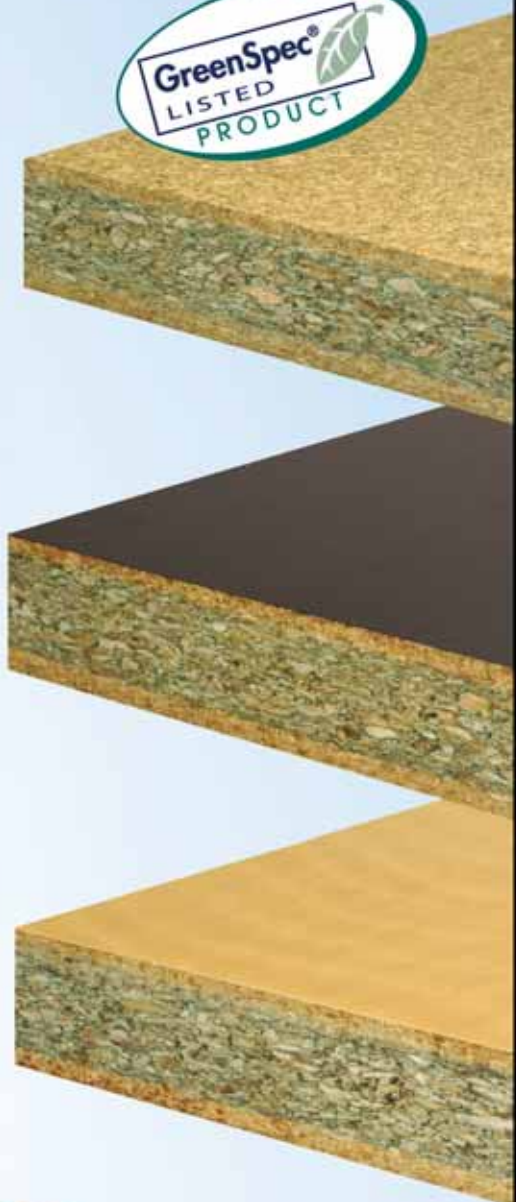
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