‘Day!

It’s that time of the year again ... the horses are out the gate and we are heading to the Del Mar Racetrack for our Annual Day at the Races. We always have so much fun and would love to see you there. So if you haven’t been before, bring a friend or loved one along, show us your culinary skills by bringing a plate to share, and throw a few dollars at the ponies all in a fun and laid back atmosphere.

Our Program Committee put together an informative and very relevant meeting last month at NewSchool. Howard Franco and Christie Swiss from Collins, Collins, Muir + Stewart LLP explained just how important the fine print really is. Their Powerpoint is available by contacting Christie at 760.274.2110 or email at cswiss@ccmslaw.com.

As you know, San Diego will be hosting the Tri-Region Conference in 2015, and now is the time to put your name into the hat as a volunteer. We need all levels of help, from a few hours to whatever your schedule can allow. Neal Drell, our CSISD superstar, is leading the charge so if you are interested, please let him know you want to help or that you can lend a hand, and I’m sure he will find something for you to help with!

August 31st is the final deadline to test for this year’s fall certification exams. CSI has a Facebook page dedicated to help you along with the workbooks and practice tests that are out there. You can receive a question a day from certain websites that can help keep you focused. Contact me if you need any help, and good luck to those who are taking on the challenge. I passed my CDT ... wasn’t easy, but it has certainly been beneficial.

Last call for this year’s Construct 2015 to be held in Baltimore. Let me know if you are going so we can fly the San Diego flag together.

Racquel McGee, CSI, CDT 2014-15 SDCSI President
Calendar of Events

♦ FRIDAY, AUGUST 22, 2014
CSI San Diego’s “A Day at the Races”
Location: Del Mar Thoroughbred Club
          Pacific Pavilion
Time: Gates open—2:00 PM
     First post—4:00 PM

♦ THURSDAY, SEPTEMBER 25, 2014—5:30 PM
CSI San Diego Monthly Dinner Meeting
Program: Disney Architect
Speaker: TBA
Location: NewSchool of Architecture + Design
          1249 F Street, Downtown San Diego
          (Enter near the corner of 13th & G Streets.)

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Location: Hilton San Diego Resort & Spa
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Click here to access the Third Quarter 2013 CSI West Region Membership Directory and Specifiers’ Guide.

This is a great resource!
Formaldehyde-Emitting Wood Bonding Adhesives: Separating Fact from Fiction

by Dr. Melinda Burn and David Stutzman, AIA, CSI, CCS, SCIP, LEED AP

Many manufactured wood products used to build and furnish schools, medical facilities and other commercial buildings and offices are made with formaldehyde-based adhesives. Thanks to their superior bonding properties, these wood-bonding adhesives are found in products such as construction-grade plywood, hardwood plywood, medium-density fiberboard (MDF), oriented strand board (OSB) and particleboard, as well as manufactured-wood furnishings, such as cabinets, desks, tables and engineered wood flooring.

However, the formaldehyde in these adhesives can be a concern, as well. That is because some of the formaldehyde in finished products made with these adhesives can be emitted into indoor environments. Since formaldehyde has been designated a human carcinogen by the U.S. government and other regulatory bodies around the world, concerns have been raised in the public and among public officials about the threat of these formaldehyde emissions to human health and the quality of indoor air, particularly when the formaldehyde is trapped indoors by increasingly tighter weatherproofing systems.

As a result of these heightened concerns, it is very important that specifiers separate the facts from fiction about formaldehyde-emitting adhesives in order to make informed decisions about the construction materials and manufactured-wood furnishings they specify.

Formaldehyde Emission Rates Vary

Several factors determine the amount and rate of formaldehyde emissions from wood-bonding adhesives.

- The nature of the bond within the formaldehyde adhesive system itself. The weaker the chemical bond, the more formaldehyde is released into the environment. Urea formaldehyde, one of the most commonly used materials, has the highest emission levels because its bond breaks down in high temperatures and very humid, moisture-generating conditions—a reaction called hydrolysis.
- The concentration of formaldehyde-based adhesive in the product itself. The higher the concentration, the more likely it will emit formaldehyde.
- Whether a “scavenger,” most commonly urea, has been added to the resin to bond with some of the free formaldehyde, so that it does not escape into the environment.
- Temperature and humidity. The higher the temperature and humidity, the more formaldehyde is released into the environment.
- Where the adhesive exists in the final product. With hardwood plywood and engineered wood flooring, for example, the top layer of the finished product is a wood veneer, which helps to seal the formaldehyde in the board and slow the rate of off-gassing.

Because the stakes have been raised, many adhesive manufacturers have found ways to reduce formaldehyde emissions from their products, although the fundamental chemistry has not changed significantly. As a result, there are more wood-bonding adhesive options on the market.

No Added Formaldehyde Adhesives

More and more manufacturers of engineered wood products are transitioning to no-added-formaldehyde (NAF) adhesives, which neither contain nor release any formaldehyde into the environment. Adhesives based on soy flour represent the newest industrial resin technology in the NAF category. They have gained significant market share in decorative plywood and engineered wood flooring and have been making in-roads into particleboard, MDF and OSB. Among their competitive advantages, soy-based adhesives meet performance specifications, can be substituted with relative ease in manufacturing processes and are safe to handle.

NAF resins also include isocyanates, which are extremely strong and highly resistant to water. They are widely used in OSB production and are gaining ground in other engineered wood products. However, the use of isocyanates in products such as plywood and engineered wood flooring is limited because manufacturers must install special environmental controls to protect workers from exposure to them and they are not compatible with some manufacturing processes.

(cont'd on page 4)
Formaldehyde in Adhesives

Also in the NAF category are polyvinyl acetate (PVAc) adhesives, which are commonly used by fabricators assembling furniture or small components and are occasionally found in plywood or engineered wood flooring. They are easy to pump and handle, but require very fast manufacturing times, which can complicate production. Some PVAc adhesives contain small amounts of formaldehyde, so care must be taken when specifying them and then claiming they are formaldehyde free.

No-Added-Urea-Formaldehyde Adhesives

Occupying the middle ground with respect to formaldehyde emissions are resins made with either phenol-formaldehyde (PF) or melamine-formaldehyde (MF). They are categorized as “no-added urea-formaldehyde” (NAUF) adhesives, a term that can be confusing to the marketplace and easily misinterpreted to mean that there is no formaldehyde of any kind in the adhesive. In fact, NAUF adhesives do contain formaldehyde reacted with either phenol or melamine.

PF adhesives have a very low formaldehyde emission rate due to the resin’s resistance to hydrolysis. They also have certain disadvantages. They are more expensive than more widely-used urea-formaldehyde (UF) adhesives, have higher processing requirements to cure, are very dark in color and may not be suitable with some manufacturing equipment.

NAUF adhesives made with MF resins are typically found in interior grade products that require greater strength and improved moisture resistance, although they are less resistant to hydrolysis than PF resins. These adhesives also cost more than UF adhesives and may not be suitable for use with some manufacturing equipment.

Urea-Formaldehyde Adhesives

Urea-formaldehyde (UF) adhesives are the most widely used today. These low-cost adhesives are easy to use in a wide variety of conditions, cure at low temperatures, have excellent thermal properties and the cured resin does not impart any color change to the finished panels.

UF adhesives release formaldehyde into the indoor environment at rates higher than other adhesives because of their reduced resistance to moisture and humidity, especially when the ambient temperature rises. These conditions result in the hydrolysis of the UF bond, which increases the rate of formaldehyde emissions. As a result, UF adhesives are most often found in products used in building interiors, where there is less exposure to moisture.

UF adhesives that contain melamine as a co-reactant are often called melamine urea-formaldehyde (MUF) adhesives. The melamine provides improved strength and durability to the adhesive, while reducing the hydrolysis rate, which helps to lower formaldehyde emissions from the adhesive.

LEED Compliant Engineered Wood Products

Recent updates to LEED (LEED v4) changed how manufacturers can produce LEED-compliant engineered wood products, as well as the information they are required to convey about the adhesive used to make them. LEED v4 requires either that composite wood products meet the California Air Resources Board (CARB) emission testing requirements for ultra-low-emitting formaldehyde (ULEF) products or that these products be made with a no-added-formaldehyde (NAF) adhesive. Specifiers searching for a level of transparency and information on formaldehyde content in an adhesive will have to rely on the Material & Resource (MR) section for Building Product Disclosure and Optimization of LEED v4. The MR section requires that there be no Benchmark-1 hazards using the GreenScreen v1.2 Benchmark system. Formaldehyde would be identified as a Group 1 Human hazard by GreenScreen and any adhesive using formaldehyde would not qualify for this point.

Dr. Melinda Burn is global business director, Sustainable Building and Construction, Ashland Inc. She can be reached at mjburn@ashland.com. David Stutzman is an architect and president of Conspectus, an independent specifications consulting firm that advises architects, designers, builders and others about building construction and building materials. He can be reached at dstutzman@conspectusinc.com.
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Contracting Between Design Professionals? ConsensusDocs Contracts Can Help
This webinar, given by two of the lead authors of the working group that drafted the new contract document, will highlight critical issues that any agreement negotiated between design professionals and consultants should address, and project-specific considerations that designers and consultants may want to consider addressing in the context of such contract negotiations. Order now.

Construction professionals perform better when they understand how a construction project comes together. That's why CSI's education programs focus on teaching the roles and responsibilities of each member of the team, what the project manual really says, and how products and materials interact on the jobsite. Watch the CSI Weekly, and your email for future member exclusive event notifications.

CSI Young Professionals Series
Understanding the Owner
August 21, 2pm ET

Construction professionals will tell you that owners pay for buildings – but do you understand how that affects your work? Join CSI as we begin a series of webinars that will help young professionals understand the roles of the building team. Each webinar will include a short presentation followed by audience Q&A. Register now.

In today's construction industry, every building team member is trained to feel like the core member that facilitates a successful building project. Join us for 10 webinars that examine the role each building team member plays, and how it affects the project. With in-depth interviews and presentations by experienced, practicing professionals, CSI hopes to show how every member needs to be both a leader and a supporting member of the project team.

CSI Task Team Invitation: Uniform Drawing System Task Team

Help shape the future of the National CAD Standard's Uniform Drawing System (UDS). CSI’s Uniform Drawing System Task Team is seeking new task team members with diverse backgrounds and a familiarity with the National CAD Standard and/or content contained within the NCS/UDS. The expected commitment includes monthly conference call meetings (1-1.5 hours in length) and additional tasks as they develop. If you would like to participate, contact CSI Technical Services Manager Christopher Gummo at cgummo@csinet.org for additional information.

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Calendar of Upcoming Events

Sponsored CSI Webinar: Air Barrier Systems—Silicone Solutions
August 27, 2pm ET
Learn more or register now.

Fall Certification Final Registration Deadline
August 31
Learn more.

CONSTRUCT and the CSI Annual Convention
September 9-12
Learn more.

Free Webinar: Designing with Durable, Abuse-Resistant Finishes
September 24, 2pm ET
Learn more, or register now.
Where Have I Heard That Before?

by Sheldon Wolfe, RA, FCSI, CCS, CCCA, CSC

"It is probable that few members of the profession will disagree with the statement that, considered broadly, the preparation of specifications receives less study and attention in proportion to its importance than any other phase of architectural or engineering practice. It is generally conceded that there is need for accurate, concise, yet comprehensive specifications in order to secure the best results from any set of plans. In our architectural schools … instruction in specification writing has been neglected to such an extent that those to whom the task of specification writing has fallen have usually been forced to educate themselves. As a natural sequence of this condition we find too many inaccurate and incomplete documents accompanying drawings under the guise of specifications."

If you participate in or visit CSI groups on LinkedIn, or follow discussions on 4specs.com, or talk with just about any specifier, it's likely you have heard similar comments. Most of those who work with specifications appreciate their value, and believe that, to be effective, they must contain all the information needed by the contractor, they must not contain irrelevant information, and they must be easy to understand.

Following is more of the comment from which I took the opening quotation.

"It is probable that few members of the profession will disagree with the statement that, considered broadly, the preparation of specifications receives less study and attention in proportion to its importance than any other phase of architectural or engineering practice. It is generally conceded that there is need for accurate, concise, yet comprehensive specifications in order to secure the best results from any set of plans. Yet to many architects and engineers the task of their preparation is onerous, and in order to produce a written document to accompany the drawings they sometimes even resort to the re-working of old specifications. It is usually discovered later that they do not accurately apply to the work in hand.

"In our architectural schools … instruction in specification writing has been neglected to such an extent that those to whom the task of specification writing has fallen have usually been forced to educate themselves. As a natural sequence of this condition we find too many inaccurate and incomplete documents accompanying drawings under the guise of specifications.

"It is because of these conditions that THE AMERICAN ARCHITECT notes with the greatest satisfaction the initiation of a movement to organize The American Specification Institute along the lines of the National Professional Societies.

"It is obvious that The American Specification Institute should have as its fundamental purpose the education of its membership so as to assure better and more uniform specifications, the dissemination of information relating to the production of raw materials, their manufacture or fabrication into finished products, and how, when and where to use the different materials. When the specification writer has acquired a thorough understanding of the materials and equipment described and called for in his specifications he will be able to write more intelligently and produce a document that will furnish protection alike to the client, the architect, the builder and the manufacturer.

The above was printed in 1920, in The American Architect, published from 1876 through 1938, when it was absorbed by Architectural Record. In following issues, readers responded.

"The average architect beginning practice to-day knows very little about this most important phase of his work. He little knows how much stress a client will put on his knowledge of stone and concrete; the grades of lumber; the most efficient kinds of paint for various purposes; what constitutes the various grades of glass; plumbing goods; hardware and electrical work. The architect to correctly specify must know these things intelligently and intimately so that he may not only be in a position to advise the client but to advise the builder if necessary. Architecture is the art of building thoroughly even as much as making buildings attractive." Heacock & Hokanson

(Cont’d on page 8)
and electrical work. The architect to correctly specify must know these things intelligently and intimately so that he may not only be in a position to advise the client but to advise the builder if necessary. Architecture is the art of building thoroughly even as much as making buildings attractive." Heacock & Hokanson

"It occurs to me that architects in the past have paid altogether too little attention to this important phase of their work, and too little opportunity for development has been given to those men who are engaged in specification writing. The result of this has been that often our well-conceived projects have been poorly constructed, and proper provision has too often not been made to protect various materials in the proper manner." H. Kenneth Franzheim, architect

"I agree that the specification practice of most architects offices is the least creditable part of their work, due probably to several things: First, ... in an effort to hasten the work, old specifications for similar buildings are often rehashed and made over with a greater or lesser degree of success, mostly less. Secondly, specifications are to the majority of architects the least interesting part of their work, the very essential to the best interests of their client. " An old subscriber

"Most specification writers receive their training at the present time solely in the school of experience, which is, of course, excellent, but does not cover the entire ground, for the reason that these men are usually the product of training of one or two offices which have their individual methods." Wm. O. Ludlow, architect

Not everyone agreed. I recently heard an architect express an opinion similar to the following.

"We, of course, do not approve of any institution that would seek to standardize so important a document as a specification, because we believe that personality and creativeness enter as much into this branch of the architect's work as in matters of design and execution of drawings. We do not believe that you can make specification specialists because we believe the specification maker must be imbued with all the art and questions of accomplishing a building and it is a subject as intimate as the architect himself." Edwards & Sayward

Isn't it interesting that we're voicing the same concerns now as were expressed nearly a hundred years ago?

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PLEASE DIRECT ALL QUESTIONS/COMMENTS TO:

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Friday - AUGUST 22, 2014

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**PACIFIC PAVILION**  
FIRST POST - 4:00 PM  
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