

S if you took a quick look around your shop floor right now, what would you see? Would you see clean surfaces, or are they coated in a fine layer of sawdust? Are your floors squeaky clean, are there piles of swept-up sawdust dotting the facility, or has dust settled everywhere? Does your building have exposed overhead beams or light fixtures? When was the last time you cleaned on top of them? Do you have exposed ductwork for heating or cooling? When was the last time it was serviced and cleaned?

WARNING:

This Is an Explosive Topic!

by Sean D. Shields

If you're thinking to yourself, "well, we could probably do a better job cleaning that up," or, "hmmm, I hadn't thought of that," please read on. Due to a series of high profile industrial explosions in the U.S. attributed to the combustion of fine dust, both the

Occupational Safety and Health Administration (OSHA) and Congress are actively pursuing greater enforcement of existing regulations and proposing stricter requirements on the clean up and disposal of "combustible dusts," including sawdust.

In the short term, it is likely that sawdust levels in your facility will be scrutinized more heavily during an OSHA inspection. In the long term, regulations governing the production, handling and disposal of combustible dusts will increase significantly, which could have a big impact on the way you run your facility. In order to sufficiently address these changes, you will likely need to implement a documented sawdust housekeeping plan and adequately train your employees on how to follow that plan.

Think you have nothing to worry about? Component manufacturers in several states—including Florida, Illinois, Texas and Wisconsin—have recently reported OSHA inspectors coming into their plants and conducting combustible dust inspections in addition to their original inspections. One VP of Operations at a Midwestern manufacturing facility that recently received a serious combustible dust citation by OSHA said, "If I knew then what I know now about combustible dust and OSHA's new requirements, I would have had a completely different housekeeping plan in place."

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—VP of Operations at a Midwestern manufacturing facility

Deadly Explosions

According to OSHA's website, any flammable material, such as wood, can burn rapidly when in a finely divided form. If such a dust is suspended in air in the right concentration, it has the potential to be explosive. The force from such an explosion can cause employee deaths, injuries and destruction of entire buildings.

In testimony given before Congress in June 2008, John Breslard, Chairman and CEO of the U.S. Chemical Safety Board (CSB), stated, "Since the CSB was established in 1998, three out of the four deadliest accidents we have investigated were determined to be combustible dust explosions." Breslard stated that in November 2006, the CSB completed a comprehensive study on the issue of combustible dust.

They found that combustible dust explosions had been a recurrent cause of disasters at U.S. industrial facilities, identifying 281 dust fires and explosions that occurred between 1980 and 2005. These fires and explosions resulted in 119 deaths and 718 injuries. Since the 2006 study, CSB has identified 82 additional dust fires and explosions in the U.S. The highest profile event was an explosion at the Imperial Sugar refinery in Savannah, GA. When it exploded on February 7, 2008, 14 people were killed and 38 others severely injured.

Increased OSHA Enforcement

Due to these findings, CSB strongly urged OSHA to issue new rules regarding the

at a glance

- ❑ OSHA and Congress are pursuing greater enforcement of existing regulations on the clean up and disposal of "combustible dusts," including sawdust.
- ❑ Component manufacturers in several states—including FL, IL, TX and WI—have reported OSHA inspectors conducting combustible dust inspections in addition to their original inspections.
- ❑ SBCA has created a formal housekeeping plan and online training program to prepare you for that surprise OSHA combustible dust inspection.

regulation of combustible dust in the workplace. As a first step, on October 18, 2007, OSHA released an expanded National Emphasis Program (NEP) on Combustible Dust. After the Imperial Sugar explosion, it reissued an even stricter NEP in March 2008. Under this NEP, OSHA says it plans to conduct over 300 additional combustible dust inspections each year. Structural wood member manufacturing (NAICS codes: 321213, 321214) is identified as a targeted industry according to the instructions contained in the Combustible Dust NEP.

Since the release of the NEP, OSHA inspectors have visited at least three component manufacturers' facilities to conduct follow-up inspections based on previous incidents. During those surprise visits, the inspectors conducted extensive combustible dust inspections, including measurements and collections of sawdust for testing. "At first we were confused by the questions the OSHA inspector was asking regarding the sawdust in our plant," said one Southern component manufacturer who recently had an OSHA agent come to their plant to conduct a combustible dust inspection. "But once he started measuring and collecting sawdust, we got very concerned."

Digging Deeper into NEP

Section E of the NEP states, "A Certified Safety & Health Official (CSHO) must determine that the wood dust he or she witnesses is combustible, is dispersed in air in a concentration above the lower explosive limit (LEL), and is near a combustion source, such as an electrostatic discharge, spark, glowing ember, hot surface, friction heat, or a flame that can ignite the dispersed combustible mixture."


This means that component manufacturers with sawdust accumulations on flat surfaces and overhead exposed light fixtures and roof rafters, located near running equipment (such as component saws) may be in violation of Section E.

Further, the CSHO has to find that these conditions exist within a confined enclosure,

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"the combustible mixture is dispersed within a confined enclosure (and the confined enclosure does not contain sufficient deflagration venting capacity to safely release the pressures) such as a vessel, storage bin, ductwork, room or building."

If you're located in a warm-weather state like Florida or Arizona operating an open air facility with no walls, it is highly unlikely a CSHO inspector could claim you are operating in a confined enclosure. But for those operating in a building with four walls and a roof, it is considered a confined enclosure if the sawdust accumulations are found to cover at least five percent of the area of the building.

Finally, the NEP adds, "It must be noted that a small deflagration can

disturb and suspend the combustible dust, which could then serve as the fuel for a secondary (and often more damaging) deflagration or explosion."

It is likely that this final stipulation will be considered very closely. The CSHO will stipulate how likely it is that an explosion (either from wood dust or another source like an air compressor) in the building or area would cause the witnessed wood dust to suspend in the air in sufficient quantity as to create a secondary explosion event. As a consequence, CSHO inspectors will be extra sensitive to large accumulations (anything over 1/32-inch thickness, which is the thickness of a dime) of saw dust on horizontal surfaces (floors, counters, tables, machinery, light fixtures, etc.).

The Midwestern component manufacturer who received multiple housekeeping citations based on the OSHA official's findings during an inspection had to review his processes and create a comprehensive housekeeping plan. "Most of the citations had to do with accumulated sawdust around the facility that would have been dealt with had we adopted a more comprehensive housekeeping plan, which we now have in place" he said

Due to the size and scope of these citations, this Midwestern manufacturer decided it was necessary to go through the OSHA appeal process. After devoting many hours to the process, and spending thousands of dollars on lawyers and OSHA consultants, they were able to reduce their citations. Beyond creation of the formal housekeeping program, they were also required to alter the way in which they collected and disposed of sawdust in their facility, and install sealed light fixtures and breaker boxes throughout their facility. In the end, a significant portion

of the heartache and cost borne by this manufacturer could have been avoided had they created and adopted their new housekeeping plan before the OSHA inspector appeared in their plant.

Congressional (Re)Action

The high-profile explosion at the Imperial Sugar refinery prompted Congress to take a new look at regulations concerning the control and disposal of combustible dusts and to push OSHA to increase enforcement. Further, U.S. Representative George Miller (D-CA), Chairman of the House Education and Labor Committee, introduced the Combustible Dust Explosion and Fire Prevention Act of 2008 (H.R. 5522), which would dramatically strengthen regulations governing

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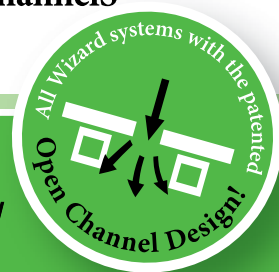
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Chapter Corner

For more information about SBCA Chapters and how to become more involved, contact Anna L. Stamm (608/310-6719 or astamm@qualtim.com).

Contributions to Chapter Corner, including pictures, are encouraged. Submissions may be edited for grammar, length and clarity.

SBCA – Arizona

Educational matters were high on the agenda at the Arizona Chapter's April meeting. Members continue to work with the Structural Engineers Association of Arizona (SEAoA) and its local chapters on presentation and tour requests. A mailing to architects and engineers on the education available from SBCA – Arizona is in the works. In addition, the chapter is working with staff on materials for specifiers that promote the benefits of using components.

Also in April, members and staff worked on a presentation for the City of Peoria on how to apply solar panels to roofs and how they should proceed in handling solar panel installation permits/approval. The county governmental agency overseeing the Phoenix area has asked local solar companies to work with SBCA to determine a best practices plan and possible testing that could be performed to assure best practices. This is an excellent example of how being proactive and involving SBCA on a local issue can produce results that will be applicable to communities across many states.

SBCA – New York

Continuing with its new practice of holding all chapter meetings online with **SBC Connection**, the New York Chapter welcomed staff member Ryan Dexter, P.E. as its guest speaker in April. The featured presentation was Design Responsibilities and TPI 1 Chapter 2, and a great discussion ensued on what the standard says and why all component manufacturers need to know. The idea of including a copy of the Design Responsibilities document with each contract was suggested, too, as one more way to record your expectations on a job. Also reviewed at the meeting was a *Tech Note* drafted at the chapter's request, "What Should

Constitute a Truss Submittal Package?" It will be revised based on their feedback and posted online at www.sbcindustry.com/technotes.php.

Structural Building Components Association of Michigan

The featured topic for the Michigan Chapter's spring meeting was codes and loads. With all of the activity at the national and state levels regarding the commercial and residential codes, the members welcomed the chance to discuss the items that component manufacturers need to know. In addition to discussing the Michigan building codes, attendees were able to review the new *Tech Note* on the changes to the ICC code development process and how this affects component manufacturers. Following the meeting, members were polled for their input on changes specific to the Michigan code, including the status of the Roof Loading Data Sheet, and volunteers to attend the code review committee meetings in Okemos, MI were sought to monitor any proposals that may adversely affect our industry.

Chapter members also voted to update the chapter's name from Wood Truss Council of Michigan to Structural Building Components Association of Michigan. An updated domain will be secured for the website and the current site, www.wtcmich.com, will be redirected.

Truss Manufacturers Association of Texas

Texas Chapter members gathered at River Crossing Golf Club in Spring Branch in April for their annual spring golf tournament. Photos of the event are posted in the photo gallery on the chapter's website at www.tmatchapter.com. **SBC**

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the handling and disposal of combustible dust.

If passed, the legislation would force OSHA to issue a new rule on combustible dust, requiring manufacturers to comply with combustible dust standards created by the National Fire Protection Association (NFPA). These standards, which are currently voluntary, would become mandatory, and would significantly alter the way in which combustible dusts (like wood dust) will have to be collected and disposed.

In the previous Congress, the bill quickly passed through the House on a 247-165 bipartisan vote. Although the bill laid dormant in the Senate for the remainder of the 110th session, Rep. Miller has reintroduced this bill in the new 111th Congress, and has vowed to get this measure approved into law as soon as possible.

Hire a New Housekeeper

The first thing you need to do is ascertain whether you have a

documented housekeeping plan. If you have one, figure out if your current housekeeping measures would allow you to pass an OSHA inspection under the NEP guidelines. For example, is your sawdust clean up and disposal schedule broken down by shift, week, month and year? Does that schedule include not only sawdust collection around the component saws, but also around assembly tables, and on top of exposed light fixtures and ceiling rafters?

"Another big issue was the use of compressed air to clean our equipment. This approach made the situation worse because instead of 'cleaning' we were actually suspending a lot of that dust in the air, which would then settle in other parts of our facility," added the Midwestern manufacturer. If you must use compressed air to clean out hard to reach areas, it is better to first suction dust up with a wet/dry vacuum before using compressed air.

You must also have a designated smoking area for employees separate and distinct from any area where there is the

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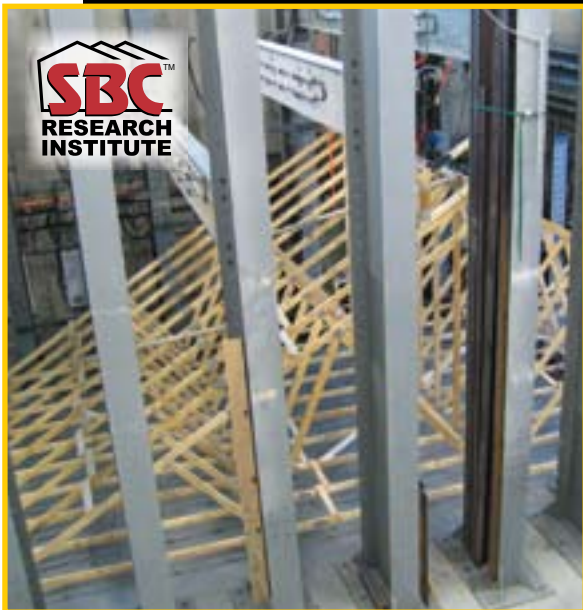
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potential for sawdust accumulations. Any receptacle used to store sawdust before disposal must be made out of metal and either be fully enclosed or have a lid that remains closed except when material is put in or taken out of it. It may be a good idea to review your sawdust or overall wood waste disposal procedures. Your collection containers should never overflow.

You also want to ensure your saw equipment is serviced regularly and runs efficiently. To minimize the potential for high heat levels generated from friction, sharpen saw blades regularly, and lubricate all moving parts. Limit the escape of sawdust into the air around your saws. This may mean locating saws in their own enclosed area, or installing canopies, hoods, or other devices over them (though, this would likely only be necessary if you find you are cutting enough volume that airborne sawdust is settling all over your facility and making clean-up a significant chore each shift or week).

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AN EXACT LIST OF SPECIFIC,
UNKNOWN PROBLEMS WE
MIGHT ENCOUNTER IN THE
NEXT FIVE YEARS.



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Finally, pay extra attention to any inaccessible or enclosed spaces (like ductwork, dropped false ceilings or areas above office spaces in the production facility) that have the potential to collect fine wood flour particles over time. These areas must be included in your monthly or annual housekeeping plan to ensure accumulations do not exceed 1/32nd of an inch.

Finally, employees should be trained to implement your housekeeping plan. To help you through this process, the Structural Building Components Association (SBCA) created a **Management Note** on Combustible Dust, which provides greater detail on the NEP instructions as well as various pertinent NFPA standards. SBCA has also developed a **Sawdust Housekeeping Training Program**. This program includes a sample housekeeping plan, as well as three online training modules for management and employees to use in understanding and implementing a housekeeping plan at your facility.

With a formal housekeeping plan and thorough training, you can be prepared for that surprise OSHA combustible dust inspection, and feel more at ease when you look around your plant. **SBC**

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