



## IES - Integrated Environmental Solutions

Brad Carr, president of Integrated Environmental Solutions (IES), has a passion for providing the best engineering solution to a business problem. He is a professional engineer, who has used his skills for over 39 years in air handling systems and equipment. In 2004 he founded IES in Winston-Salem, North Carolina with a singular mission: To eliminate the problems with fugitive combustible dust and lint of every client they serve. He was able to make that his mission once he had designed an innovative new Clean Fan Technology™ system, which is the engineering foundation for IES's full line of SonicAire fans. This approach was in stark contrast to the status quo of manual cleaning of plants, which did not allow facilities to stay continuously clean.



*The SonicAire 2.0 is the cleaning fan built to eliminate combustible dust in wood processor's plants.*

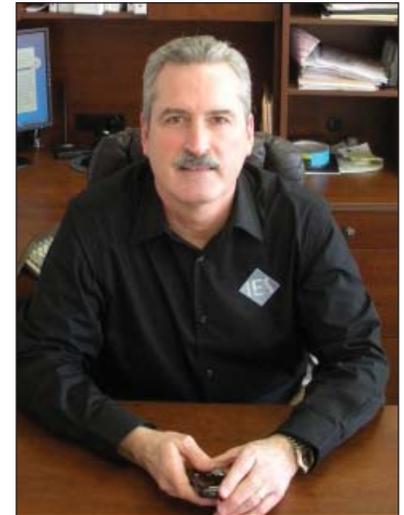
All the cleaning fans in the SonicAire line direct high velocity and high mass airflow via customized robotic engineering. This creates an overhead barrier to control the accumulation of combustible dust. All the SonicAire fans have a wide range of control, mounting, and safety options that allow clients to customize the fans to suit their particular plants.

Carr first introduced the SonicAire cleaning fans to the textile industry. The problem with combustible dust had been Carr's concern since he became aware of fires igniting and destroying linen and laundry plants; in just a flash, an entire facility could be gone. In fact, when Carr was first starting out, he received a call from a plant manager who told him his plant had almost burned to the ground because of a lint fire. "The manager called me right after it happened," Carr said, "and he ordered two fans. He told me he never wanted that to happen again. That was a gratifying moment. It confirmed that I was doing what I was supposed to do."

OSHA took this concern of fires and explosions starting from combustible particles to a national level in 2008. In February of that year, a combustible dust explosion in a sugar plant killed 13 employees and seriously injured another 60. After that tragedy, Congress was spurred to target the problems with combustible dust, and introduced HR522, which stated that "An emergency exists concerning worker exposure to combustible dust explosions and fires."

OSHA pressed hard for more rigorous enforcement of National Fire Prevention Association (NFPA) Standards 654 for controlling combustible dust. (Standard 654 deals with issues for all industries; Standard 664 addresses combustible dust issues specific to wood processing and woodworking facilities.)

OSHA then began its National Emphasis Program (NEP), which accelerated their on-site inspections for combustible dust compliance. What's more, the number of OSHA inspectors increased significantly, and OSHA required that all OSHA inspections must include inspections on combustible dust. The standards impacted all industries - textiles, timber, wood, pulp, paper, food, and recycling.



*IES President Brad Carr at work on new Clean Fan Technology designs.*



*Fan Technician Lance Lucas at work on the 2.0 cleaning fan.*

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Carr worked hard to study the specifics of the standards and regulations. He championed an educational initiative to make sure businesses knew what was happening with OSHA and what they, as business owners, could do about it. People in all industries paid attention because they wanted to avoid fines, keep their businesses intact, and protect their employees from harm.

Carr pursued his educational program by publishing articles and white papers on OSHA compliance in trade magazines. He has also made presentations at industry events, including timber processing and recycling venues. His clients include Georgia-Pacific, Flakeboard, Hampton Affiliates, Plum Creek, Forest Group, TMI Forest Products, Cintas, and Weyerhaeuser. Cintas recently acknowledged the effectiveness of Carr's inventions at a TRSA conference and an NFPA Symposium on quality control of combustible dust.



*Vice President of Engineering and Sales Jordan Newton with the SonicAire 2.0, which he helped to develop.*



*Joseph Cox, fan technician, constructs one of the SonicAire 2.0 fans.*

Within the last year and a half, there have been two deadly explosions in Canadian mills that have brought the dangers of fugitive combustible dust to the forefront of everyone's mind in the timber industry. Carr decided to become a member of Timber Products Manufacturers to better listen to the needs of the mill owners and find ways to solve their issues with fugitive dust particles.

As a company, IES is committed to values of progressive thinking, innovation, and reliability. The IES team follows Carr's commitment to solving problems through smart engineering. This commitment translated into the SonicAire line of fans, with unique fans designed for different industries. The fans have enjoyed worldwide distribution.

For the wood processing industry, they knew that the type of combustible dust varied significantly - some can be heavier, often different sizes, sometimes the dust is drier and then sometimes moister. This texture variation creates a greater challenge in trying to clean effectively.

For this reason, IES built a new SonicAire 2.0, designed specifically for the wood and timber processors who generated that type of dust. This fan is a powerful performer, able to create a barrier overhead and prevent the heavier dust from accumulating on all overhead structures. With a more powerful motor and an elongated shroud, it delivers more than twice the cleaning area of the original SonicAire fan, which dramatically reduces installation costs.

Carr is looking forward to delivering more innovation to meet the needs of the timber processing industry. "We never want to stop listening to our customers to help them find effective and efficient ways to control the dangers of combustible dust."



*Part of the IES team with their newest product: SonicAire 2.0.*

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