A close-up, black and white photograph of a shredder's internal components, showing multiple rows of curved, metallic shredding blades arranged in a circular pattern.

# **SHRED-TECH** IMPROVING SHREDDING AND RECYCLING SYSTEMS DEVELOPMENT WITH SOLIDWORKS ELECTRICAL SCHEMATICS

Case Study

By adding SOLIDWORKS Electrical Schematics software to its SOLIDWORKS mechanical design installation, Shred-Tech has improved the efficiency and accuracy of electrical system designs for the company's recycling and shredding equipment, such as the battery shredder shown here.

### Challenge:

Increase efficiency and resolve bill of materials (BOM) and drawing inconsistencies during electrical system design of the company's recycling and document shredding equipment.

### Solution:

Add SOLIDWORKS Electrical Schematics design software to its SOLIDWORKS Premium mechanical design implementation.

### Results:

- Cut electrical BOM generation time from five days to four hours
- Reduced electrical panel footprints by 10 percent
- Minimized schematics errors
- Anticipates additional time savings through automated routing of wiring and cabling

A global leader in designing and manufacturing mobile and stationary shredding and recycling systems, Shred-Tech® has installed more than 5,000 shredding and recycling systems worldwide and is recognized around the world for its commitment to engineering innovation, quality, and service. The company has helped thousands of customers shred plastics, metals, wood, construction debris, white goods, tires, medical waste, green waste, e-waste, and office paper. Headquartered in Cambridge, Ontario, Shred-Tech also has facilities in North Carolina, England, and Thailand, and works with distributors in the United Kingdom, Australia, and Japan.

Since its founding in 1980, Shred-Tech has leveraged the latest design and manufacturing technologies to spark innovation. For example, Shred-Tech's introduction of the Mobile Document Shredding Truck in the early 1980s revolutionized the document shredding industry and fueled the company's rapid growth, making Shred-Tech the largest shredding-truck manufacturer in the world.

In keeping with the company's commitment to innovation, Shred-Tech upgraded its development platform from AutoCAD® 2D design tools to the SOLIDWORKS® 3D mechanical design system many years ago. However, according to Controls Engineering Group Lead Rob Taylor, while the company's mechanical design function performed well using SOLIDWORKS mechanical design tools, electrical designers struggled to use AutoCAD mechanical tools to create schematics of electrical panels for the company's products, resulting in time, accuracy, and cost issues.

"I joined the company to help streamline the development of electrical schematics," Taylor explains. "We were simply not efficient using AutoCAD mechanical drawing tools to develop electrical schematics, and we experienced significant inconsistencies in BOM [bill of materials] information and drawings. I was brought in to implement SOLIDWORKS Electrical Schematics software, a package that I had never used."

As a former EPLAN® and AutoCAD Electrical software user, Taylor says he was initially unsure that SOLIDWORKS Electrical Schematics was the best solution for Shred-Tech. "I had no experience with the software, so I was a bit skeptical at first," Taylor recalls. "But once I did some research and started playing around with it, I became convinced that management had made the right choice. When it comes to electrical design, SOLIDWORKS Electrical Schematics is the cat's meow."

### FASTER BOM GENERATION

Upon implementing SOLIDWORKS Electrical Schematics, Shred-Tech immediately realized productivity gains in both schematics layout and electrical system BOM generation, cutting the time required to produce the latter from a full week to just a few hours. "SOLIDWORKS Electrical Schematics cuts down on ordering time because we can generate BOM information more quickly," Taylor notes.



**"Before we implemented SOLIDWORKS Electrical, it used to take five days to generate the BOM because we had to finish all of the drawings to manually create the BOM. With SOLIDWORKS Electrical, we can generate the BOM in about four hours."**

**— Rob Taylor, Controls Engineering Group Lead**

"Before we implemented SOLIDWORKS Electrical, it used to take five days to generate the BOM because we had to finish all of the drawings to manually create the BOM," Taylor says. "With SOLIDWORKS Electrical, we can generate the BOM in about four hours. Whenever you can reduce the time it takes to complete a task from a week to four hours, you're streamlining the process. And because SOLIDWORKS Electrical is easy to use, we can utilize junior-level designers to complete tasks that required a senior-level designer in the past."

### MINIMIZING ERRORS, REDUCING FOOTPRINTS

Not only is Shred-Tech faster at generating BOMs and creating schematics with SOLIDWORKS Electrical, BOM and drawing content is much more accurate, further streamlining product development. "Before we implemented SOLIDWORKS Electrical, we experienced huge numbers of errors in both the schematics and BOM information," Taylor recalls.

"The accuracy of our schematics and related information has improved dramatically, prompting us to redo all of our past schematics with SOLIDWORKS Electrical," Taylor continues. "In developing our electrical panels, we used to err on making them bigger to account for potential errors. Because the accuracy of our schematics is so improved, we've been able to reduce the size of our panels by 10 percent overall, which saves our customers money by reducing the cost per square foot on the factory floor."

## AUTOMATING WIRING AND CABLING

Building upon the success of the SOLIDWORKS Electrical Schematics implementation and working with an integrated mechanical/electrical design platform, Shred-Tech is planning to further streamline its development process by leveraging the automated wire and cable routing capabilities of SOLIDWORKS Premium software. "Now that we've sorted out our time and accuracy issues with SOLIDWORKS Electrical, we're planning to use SOLIDWORKS Premium software to automate the routing of wiring and placement of cable harnesses during a major revamp of our mobile products line," says Taylor.

"Working with a harmonized platform like SOLIDWORKS for mechanical and electrical design enables us to achieve additional efficiencies, like leveraging automation tools such as Routing, to continually improve and accelerate product time-to-market," Taylor says.

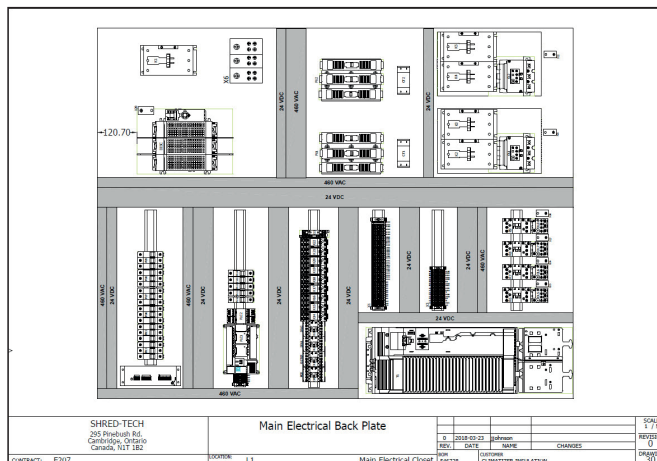
## Focus on Shred-Tech

VAR: CAD MicroSolutions, Inc.,  
Cambridge, Ontario, Canada

**Headquarters:** 295 Pinebush Road  
Cambridge, Ontario N1T 1B2  
Canada

Phone: +1 519 621 3560

**For more information**  
[www.shred-tech.com](http://www.shred-tech.com)



In addition to accelerating the generation of unified mechanical/electrical bills of materials (BOMs) and increasing electrical schematic quality and accuracy with SOLIDWORKS Electrical Schematics software, Shred-Tech anticipates additional productivity gains through the use of SOLIDWORKS Premium software to automate the routing of wiring and cabling, as well as the placement of cable harnesses.

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