

A background image of an industrial manufacturing facility. It shows yellow robotic arms, blue metal frames, and various mechanical components. A red safety barrier is visible on the right side. The text is overlaid on the left side of the image.

# VELUX LLC ELEVATING ELECTRICAL DESIGN AND AUTOMATION CONSULTING SERVICES WITH SOLIDWORKS ELECTRICAL SOLUTIONS

Case Study

Velux relies on SOLIDWORKS Electrical Schematic and SOLIDWORKS Electrical 3D software to help its manufacturing clients more fully automate existing production processes by delivering more complex and sophisticated electrical designs.

### **Challenge:**

Provide competitive electrical schematic development consulting services to manufacturers looking to increase the use of robotics and automation in production operations.

### **Solution:**

Utilize SOLIDWORKS Electrical Schematic design software for schematic development and SOLIDWORKS Electrical 3D design software for electrical panel design and wire routing and harnessing.

### **Results:**

- Cut schematic development time in half
- Increased automation throughput by 25 percent
- Automated generation of PLC I/Os
- Saved additional time through data reuse

As the owner and principal of Velux LLC, Marc Wilson has provided high-level electrical design, schematic development, and automation consulting services for more than a decade. Based in Michigan, Wilson has consulted for a range of top manufacturing clients across the United States. The holder of a patent for developing the “apparatus and method for applying tax stamps” to certain taxable commodities, Wilson is retained by manufacturing companies that have complex and sophisticated electrical design needs or that want to more fully automate existing production processes.

“Before I founded Velux in 2010, I was an electrical engineer, who, while I wore many hats, was always involved with electrical design,” Wilson explains. “When I began consulting, I soon discovered that customers typically want things done their way, which extends all the way down to their specific part numbering system and the manner in which they want labels done on schematics. Faced with the prospect of working on multiple projects—all with different numbering/labeling configurations—I realized that I would need a robust yet flexible electrical design and schematic development application that allowed me to work in 2D and 3D.”

Wilson needed a flexible 2D electrical design tool to quickly create electrical schematics and a 3D design package for designing electrical panels, routing wires, and developing complex wire and cable harnessing schemes. He had experience using other electrical design tools, including AutoCAD® Electrical and EPLAN®, when he discovered SOLIDWORKS® Electrical Schematic and SOLIDWORKS Electrical 3D design software.

“What struck me immediately with SOLIDWORKS Electrical software is that a lot of stuff happens quickly and easily, which had not been my experience using other electrical design packages,” Wilson recalls. “What I liked about SOLIDWORKS Electrical is that it includes 2D tools for creating schematics, has 3D tools for laying out electrical panels and configuring wire/

cable harnesses, is easy and flexible to use, and is illustrative to customers, providing high-quality schematics and drawings that customers can understand.”

## **ADVANCING ROBOTICS AUTOMATION**

Demand for Velux services has grown over the years from simple electrical schematic creation to more sophisticated robotics automation consulting services as a result of Wilson’s growing expertise in automating production. For example, he boosted throughput on the machine for applying tax stamps on certain taxable commodities, for which he holds the patent, by 25 percent.

“Manufacturing companies increasingly are looking to further automate production to save additional time, requiring more complex electrical designs and corresponding schematics,” Wilson notes. “SOLIDWORKS Electrical software helps me automate certain things, such as linking it to Microsoft® Excel to automatically generate I/Os [inputs/outputs] for PLCs [programmable logic controllers]. For another client, I needed to import the entire library of Allen-Bradley parts, which totals 40,000 parts. I was able to import part numbers and enough of the manufacturer’s description into SOLIDWORKS Electrical to employ filters and quickly find the specific components that I needed.”

**“With SOLIDWORKS Electrical software, I can have all of these projects open at the same time, and drag and drop common features from project to project. You can’t do that with other packages, and the ability to reuse data in SOLIDWORKS Electrical allows me to cut the time required to create a schematic in half.”**

— Marc Wilson, Owner and Principal

## **REUSING DATA PROVIDES FLEXIBILITY, SAVES TIME**

Wilson says that the aspect of SOLIDWORKS Electrical that is the most beneficial to his consulting business is its flexibility for reusing data and setups to save time and accelerate the completion of projects. “Almost every company has its own numbering and labeling system for electrical components, and I’m often working on multiple projects with different numbering/labeling configurations at the same time,” Wilson explains.

“With SOLIDWORKS Electrical software, I can have all of these projects open at the same time, and drag and drop common features from project to project,” Wilson points out. “You can’t do that with other packages, and the ability to reuse data in SOLIDWORKS Electrical allows me to cut the time required to create a schematic in half.”





## COMPLEX ROUTING, WIRE AND CABLE HARNESSSES

The flexibility afforded by SOLIDWORKS Electrical 3D software also applies to data associated with complicated wiring runs or complex wire and cable harnessing. "In many cases, wire routing is fairly simple and amounts to a list of wire lengths and cuts; but in a growing number of cases, wiring and harnessing are part of a complex system with complicated harnessing, such as including four- to five-cable bundles in each harness," Wilson says.

"Yet even with complex harnessing systems, the ability to reuse data in SOLIDWORKS Electrical saves time," Wilson stresses. "With SOLIDWORKS Electrical 3D software, I can utilize the same electrical system, or cable harnessing approach, that supports automation on two different machines. I can drag and drop portions of one design into another. In short, SOLIDWORKS Electrical solutions give me the agility and flexibility required to better serve my customers while staying ahead of the competition."

### Focus on Velux LLC

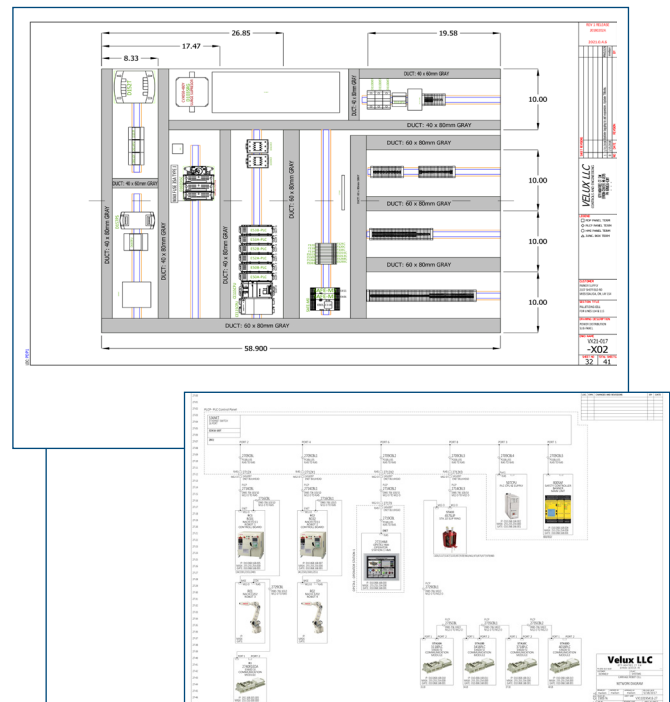
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Using SOLIDWORKS Electrical Schematic software, Velux can more efficiently develop the electrical schematics required to drive robotics automation designs, resulting in throughput increases of as much as 25 percent.

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