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# FLEXIBLE, STRONG, RESILIENT



### Written by Allison Dempsey

A family-owned Canadian enterprise founded in 1992, Calhoun Super Structure has since grown into a leading, fullservice manufacturing firm specializing in fabric building engineering, production, and project management for clients across North America and beyond. Proudly in its third generation, Calhoun provides peace of mind through its trusted and knowledgeable service to a variety of businesses, homes, public works professionals, and wholesalers, supplying solutions that help them meet their varied needs.

Celebrating 30 years in business this year, the company offers a diverse portfolio of engineered fabric structures for various industries and applications. Calhoun takes pride in the

ownership of every building it manufactures and sells through its dealer network throughout North America.

"Our family name is on every building that we produce, and you can be assured that if it isn't strong enough to go in our yard, we will not allow it in *your* yard," says Jeremy Calhoun, owner and Chief Executive Officer.

It's that dedication to providing quality product and service to customers that has helped Calhoun earn its exemplary reputation, as the company strives to fully understand customers' demands and takes pride in the commitment it shows them.

### Guided by vision

Over the course of its impressive 30 years in the industry, Calhoun's mission has remained steadfast: To diligently pursue excellence in all aspects of product design, manufacturing, and supply, by focusing on the development of people, innovation, and sound engineering. Calhoun is further bolstered by a vision as an industry leader to create the safest, most reliable and durable fabric structure.

"We are a true industry leader in many important ways," says Director of Marketing, Deanna Hope.

"Calhoun was the first to use hot-dip galvanizing as a standard, knowing that hot-dip galvanized steel structures last three times longer."

Being an industry leader means listening to clients, building relationships, providing superior service, and following through on commitments, all of which have contributed to Calhoun Super Structure's ongoing evolution. At the same time, the company adheres to a vision dependent on each team member's accountability, collaboration, quality, customer-centricity, and continual development. This has assured not only Calhoun's success, but the success of the organizations with which it collaborates.

Each project benefits from the leadership and responsibility of Calhoun's team of experts, which is made up of experienced and motivated professionals with more than a century of combined knowledge. Agricultural operations, warehousing and manufacturing buildings, retail outlets, temporary housing, fertilizer and composting operations, salt sheds and production facilities, mining sites, and more have all been part of the company's project portfolio.

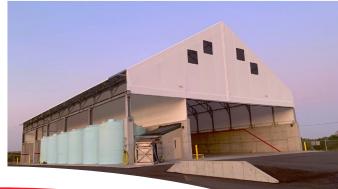
### **Always innovating**

While other fabric building companies were applying an in-line galvanizing system for their steel frames, Calhoun was the first to use hot-dip galvanizing as a standard, knowing that hot-dip galvanized steel structures last three times longer. The company was also the first to implement a true site-specific analysis design on every building produced by applying its unique 3D Nonlinear Finite Element Analysis to engineer its fabric structures to suit customers' unique locations.

Calhoun understood from the very beginning that the site of a customer's operation is unique, and a safe and reliable fabric building is paramount, says Engineering Manager, Allan Ball. "Therefore, we implemented a detailed site review to determine the exact conditions that the structure is under and account for those conditions in our design."

The site evaluation ensures that the appropriate parameters are used for the analysis of the structure. The configuration of the building is then validated, or changes are made to ensure the structure has the requisite reliability for the site.

Finally, the proprietary J-purlin design found only in Calhoun's Versatile Profile (VP) Series provides unmatched stiffness and capacity that allows the company to increase bay spacings while simultaneously reducing the quantity of purlin runs in the building, resulting in a more cost-efficient structure.







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### Working for the customer – and the community

Led by Jeremy Calhoun, Calhoun Super Structure's dedication to providing complete customer satisfaction means customer connections are just as vital as the construction projects themselves.

"All views and ideas are heard and appreciated at all times during the life of a project because of our customer-centric emphasis and open cooperation," he says. "Our customers receive the attention, commitment, and dedication they deserve from the earliest concept conversations through the final completion. We take pleasure in our work and in our customers' satisfaction."

That customer satisfaction has led to consistent company growth, new hires and the expansion of the manufacturing facility in Ontario.

Completed in March 2022, the 10,000-square-foot expansion of the production plant in Goderich, ON, involved an investment of approximately \$1 million. This new addition allows the company to constantly produce steel frames for stock production of its CC Series and HT Series to stay ahead of rising customer demands.

"We're not only excited about the capabilities this expansion brings our company, but also the positive impact it has on the Goderich community, including new jobs," says Calhoun. "We're celebrating 30 years of business and this addition will allow us to manufacture reliable building solutions for many more years to come."

News of purchased land for a second fabric production plant located in Dundalk, ON was recently announced, with the anticipation of a 20,000-square foot structure to be in operation by 2023. Also planned for later in the year is the formal launch of Calhoun's internal ERP system to streamline processes across its supply chain, allowing employees to better navigate complex processes across many locations, automate processes, reduce inventory costs, and offer better customer service overall.

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### **OUR MISSION**

Edge's mission is to continue to be an industry leader in innovative building structures, materials, and techniques. We have a complete understanding of fabric building structures, which allows us to offer unbiased solutions for a wide range of industries across Canada and the United States.

### **OUR VISION**

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### Exceptional engineering

It is Calhoun's exceptional engineering capabilities that continue to pave the path for exciting future plans. Offering one of the largest product series in the fabric structure industry with available widths up to 250 feet wide and in any length, the company has a standard line of building profiles it sells, while also developing new profiles every year to meet the evolving needs of customers. In fact, custom profile variations can be designed and engineered due to Calhoun's strong engineering expertise, and new building profile variations are always being added to its roster of available profiles.

Within these engineering capabilities, a comprehensive 3D Nonlinear Finite Element Analysis (FEA) is done – essential to providing guidance in the design of highly reliable and economical foundation systems.

This 3D analysis provides accurate load paths to, and forces at, foundation-resisting elements. Since the fabric structures rely primarily on tension-only bracing for stability, the pre-tension in the cables and initial inelastic stretch is critical to the performance of the structure. The pre-tension requirements and procedure for initial proof loading are determined through the non-linear analysis.





"Overall, the primary objective of the 3D FEA is to model the behaviour of the structure as accurately as possible under various code specified load conditions," says Ball.

In situations where an even higher degree of economy is desired, the foundation wall supported on soil springs may be modeled explicitly in conjunction with the fabric structures such that the interaction between the two can be appropriately addressed, wherein the resulting concrete stresses may be used to determine the concrete wall thickness and spacing for reinforcement. This frequently leads to as much as a 40 percent increase in foundation economy with a considerable improvement in overall reliability of the system, given the fabric structures and foundation interactions — including bearing pressures beneath the wall footings — are appropriately addressed in a comprehensive analysis.

Calhoun has developed a series of detailed calculations to determine what has worked and what hasn't worked over a long period of time and additionally, all of Calhoun's fabric structures are reviewed by independent third-party structural engineers to ensure strict objectivity of the design work.







### Navigating growth

While the company has much to celebrate and continues to expand, it has experienced its share of challenges, including ongoing labour shortages not only due to COVID-19, but due to the location of Calhoun's offices and manufacturing plant. Located only 50 km from Calhoun's head office is the region's largest employer – the world's largest operating nuclear facility employing more than 4,000 workers annually.

"It remains difficult to attract and retain quality welders, engineers, installation crews, and general labourers due to the competitive employment opportunities of the nearby nuclear power plant," says Dan Dalzell, Director of Sales & Operations. "COVID-19 did not help the situation either with aging and retiring workers, border controls and immigration limits, and

"We successfully doubled our growth while maneuvering through staffing shortages, border limitations, general supply chain issues, and limited manufacturing plant capacity."







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### employee demands for more flexible working arrangements fuelled by the global pandemic."

Nonetheless, Calhoun is enjoying growth. The company's biggest accomplishment to date was seen this past '21-'22 fiscal year where it saw a 52 percent increase in revenue versus a year ago, and a 35 percent increase in output versus last year.

"We successfully doubled our growth while maneuvering through staffing shortages, border limitations, general supply chain issues, and limited manufacturing plant capacity to meet the demands of customers," says Dalzell.

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It's that dedication to quality service and the continual improvement of product that keeps Calhoun ahead in the industry, while its proprietary engineering process in which it models the true behaviour of fabric continues to set the company apart from the competition.

"Our method produces the most suitable fabric structures to meet our customers' requirements, resulting in a quicker return on investment and the longest-standing structure in the industry," adds Hope. "Our key competitive advantage is truly within our engineering team," she says. "Our methods and structural efficiency cannot be mimicked.

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