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CALDER DEVELOPMENTS: The vision of a father executed by the son





Stephen and Nick Calder of Calder Developments view a sample fabrication structure at FICEP's Headquarters Academy of Technology during their visit in 2019

One of the greatest challenges that a privately owned family business faces is dealing with the generational change that transpires with the management of the firm.

Calder Developments, a family owned and operated construction and engineering firm located in New Zealand, was no exception to this type of generational challenge.

Wanting to continue the tradition of a family owned business Stephen Calder, the firm's founder, engaged his son Nick Calder to join the firm at an early age to make sure that they could continue to grow in the future and maintain the ownership within the family.

For over 40 years Calder Developments has exhibited a proven track record by expanding their business engaging in commercial, industrial and rural building projects throughout the South Island of New Zealand.

During the history of the firm their principle production methods were focused on skilled manual labour.

As Stephen and Nick evaluated the potential for future growth of the company in 2019, they jointly agreed they needed to position the firm to increase their competitive footprint in the market.

They felt this would be achieved by enhancing their productivity and reducing the manual labour content of their typical production on projects.

This represented a major investment and endorsing a level of technology that they had little experience in and this would represent their first major exposure to structural fabrication automation.

Stephen and Nick reached out to Francis Lee of FICEP of New Zealand to learn more about the current state of automation and how it could positively impact their business. Very quickly Stephen and Nick learned that FICEP offered an industry-leading line up of automated solutions.

Francis Lee, the FICEP representative, was able to consult them on the different advantages and relative features.

To gain a broader understanding of the diversity of the FICEP solutions Stephen and Nick decided to travel with Francis Lee to FICEP's facility in Italy.

Located within FICEP's manufacturing plant is their Academy of Technology which contains a complete assortment of automated systems for comprehensive demonstrations.



During this visit Stephen stated:

“We were impressed with FICEP’s level of technology and were able to view numerous automated solutions. This visit to the facility enabled us to determine which solution was the best fit for our current and future markets and would enable us to grow our competitive advantage.”

In the end Calder Developments decided to purchase the FICEP Valiant drill and saw with full automation. They determined that the fully independent spindles, each with sub-axis capabilities, generated the expansive processes that they needed to enhance their productivity going forward.

Stephen stated:

“Not only did the sub-axis capability enable simultaneous drilling of all three surfaces when holes are not inline, we also realized that four side scribing would be a game changer. The ability to download from a 3D model not just the holes and sawing programs but also the scribing locations and welding symbols for the interconnecting elements eliminated manual layout. The sub-axis capability also generated the ability to mill typical copes and mechanical openings in one machine at once.”

Unfortunately, before the delivery of the FICEP Valiant drill and saw line the family and friends of Stephen Calder were reminded about how fragile life is

with the unexpected passing of Stephen on October 19, 2019.

The timing of Stephen’s passing was certainly sudden but the changing of the leadership of the company to his son Nick had been planned for the future.



Both father and son had decided to invest in FICEP’s automated fabrication technology but as life would have it the next step of the system’s installation and integration would be the full responsibility of Stephen’s son Nick.

Even with the installation taking part during the height of the Covid pandemic, Francis Lee of FICEP was able to circumvent the challenging bureaucracy required to get the factory technician into New Zealand to perform the installation and training.

“All sizes really - 200 to 610 UB’s; 150 to 310UC’s; RHS/SHS >100 ; Angle >100.”



What is the average number of holes produced in each finished part?

“The most common hole sizes that we generate are 14, 18 and 22 mm. The number of holes per part varies quite a bit but probably averages about 15 per part.”

Recently we had the opportunity to sit down with Nick Calder to ask him about his FICEP experience.

You decided to purchase the saw with the miter cutting option. What percentage of the cuts that you make are mitered?

“At least one end of every beam normally and in some cases, we miter on both ends.”



What operations other than drilling are generated in your application?

For example, scribing, milling, tapping, countersinking, etc.

“In addition to drilling, we utilize the scribing and milling capabilities the most to increase the accuracy of the end product, eliminate manual layout and to allow for services by sub contractors to run through the building where required seamlessly.”

You are involved with a large range of structural steel projects with different applications. What are the typical profiles you currently process on your Valiant?

We also utilize the milling capability to generate copes that our Valiant can achieve with its sub-axis spindle positioning.”

How did you perform the drilling prior to the Valiant?

“This was a big jump as previously we produced all our holes with magnetic based drills.”

How many hours do you currently run your line per day?

“It is very job/work flow dependent, but a minimum of 4 days per week. The important part is not how many hours we use the line but rather how much time and labour that we are saving. The Valiant requires just only one operator to conduct multiple operations and eliminate manual layout.

Our goal is that when the parts leave the drill line there is normally only welding to be done before painting.

This FICEP machine allows this to occur.”

How many man-hours were required to manually complete (sawing, drilling, scribing, material handling, etc.) the same number of parts that your Valiant can generate in 8 hours of operation?

“Previously we would spend between 2-3 hours for manual marking and layout.

Now with the Valiant we complete the same layout task within 2-3 minutes.

Add the sawing and the drilling of the required holes and you end up with a total process time of 5-10 minutes!”



How has scribing impacted your fabrication accuracy and required man-hours for fabrication?

“We have increased our layout efficiency at least 50-fold and we are confident that the scribing achieves greater accuracy and it totally eliminates human error.”

What effect has the Valiant had on the accuracy and quality of the finished parts when compared to the same parts that you previously fabricated manually?

“It is more accurate when you compare it to our prior manual layout process and magnetic drilling. We have totally eliminated manual errors.”



Are you currently downloading the part files directly from TEKLA to generate the required CNC programs?

“Yes, this is performed in the office so all items are generated automatically without the need for manual programming.”

In reviewing data on the web about your firm it looks like you fabricate a lot of structural steel projects. Do you also perform miscellaneous fabrication?

“Our focus is structural steel beams, rafters, trusses, legs, etc. but we also fabricate miscellaneous shapes for such assemblies like stairs.”

How has your operator taken to operating your new FICEP line?

“He finds it exciting, interesting and enjoyable. It is a much cleaner and laid back process.”

Did the operator have any previous CNC experience?

“Nope, this is all new. The service tech was extremely helpful to explain from the operator’s viewpoint and allowed the learning experience to be more practical.

He helped a lot with implementing operational features to add to the efficiency of the operation.”

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Add the sawing and the drilling of the required holes and you end up with a total process time of 5-10 minutes!”

Previously, it was mentioned that the generational transitions in a family business is full of challenges in the best of circumstances.

The timing of the passing of the baton from Stephen to Nick was completely unexpected but working together as a team for years prepared Nick for this untimely event.

The success of the FICEP installation and the positive impact that it has had on the operations of Calder Developments is a credit to Stephen's vision of the future direction of the firm and Nick's ability to realize their collective plan for the future.

Family businesses need to take note how even an untimely transition can occur if the planning for the changes of the future is a daily process.

