

## COMPANY OVERVIEW



COMPANY WEBSITE  
www.alucraftgroup.com

Alucraft has a longstanding history of delivering exceptional architectural glazed façades in both Ireland and the UK. We work in tandem with visionaries in architecture and construction from the conception stage through to project handover, providing cost plans, design, engineering, manufacturing, installation and maintenance of our façade systems to meet the aspirations of our client's

design intent and quality finish. Operating since 1975, and with a turnover of circa €44Million in 2018, we currently employ over 180 across Ireland, the UK, Poland and the Philippines. Our systems include Unitised and Stick Curtain Walling, Roof-Glazing, Point-Fixed and Structural Glazing, Windows, Doors, and Cladding Solutions.

## OVERVIEW & BACKGROUND TO THE LEAN INITIATIVE

### AUTHORS



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This case study outlines the Lean journey within Alucraft Ireland. Alucraft's vision is "to be the specialist façade contractor and employer of choice in Ireland and the United Kingdom". Having experienced a huge growth spurt in the last two years, it was imperative that we reviewed the foundations on which our company's success is founded. We therefore decided to apply Lean thinking as we recognised areas within our business that would benefit from its implementation along with the value-add to our clients.

Our Lean journey commenced when we engaged with BPI Services to focus management on their aspirations for Alucraft. This involved reevaluating the Mission, Vision and Values, and from there strategic goals were developed. We focused on three key areas which are

paramount to our vision; People, Growth, and Delivery. We identified key projects, and from there a Master Continuous Improvement (CI) Plan was set out for 2018/2019. We applied the DMAIC methodology across all the identified projects: Define, Measure, Analyse, Improve, Control.

Projects implemented and achieved in 2018 include:

- Skills Matrix Development
- Streamlining Flow of Information and Processes from Design Stage to Manufacturing
- Implementing a Graduate Programme
- Investment in 3D Software
- Review of Annual Leave
- Standardised Estimating Practices
- Review of Residential Market Opportunities
- Alucraft CWCT Tested Rainscreen System

## LEAN INITIATIVE UNDERTAKEN – LEAN THINKING, TOOLS, TECHNIQUES

### *Skills Matrix Development*

As the headcount in Alucraft has almost doubled in the last 2-3 years, it had become harder to keep track of the required skills, existing skills, and skill gaps in our company. At the beginning of 2018 we had no standardised method for analysing skills, and this left us with the possibility of employee skills being under-utilised and a number of departments with skill gaps. Our goal for this project was to develop a process to identify the gaps and to develop a visual skills matrix graphic. An internal team was set up with members from an initial three departments which were to trial the matrix: Production, Design, and Site. Our Production Manager commenced mapping his team with role specific skills and populated a matrix. From there the project moved to our Design team with the same skills matrix template utilised under new headings, and finally our Site department was reviewed. The project ran smoothly until we reviewed sub-contractor skills – feedback was populated for a number of sites but was difficult when the sub-contracted

employees on a site changed frequently. As such, it was decided to modify the scope of the project and remove sub-contractors, focusing solely on direct site employees. The project resulted in a visual aid where gaps are easily identified, it is easy to assess what level an employee is currently at, and it highlights areas where further training and education are needed. This paved the way for a personal training development plan to be implemented for each employee.

### *Streamlining Flow of Information and Processes from Design Stage to Manufacturing*

This project involved a cross-functional group from Production and Design working together to, firstly, gain an understanding of the unitised project they were embarking upon. Secondly, this team needed to develop a suitable way to track the progress of information and process from the start to project completion. This team used a unique "Post-it" planning process to assist this, hosting weekly meetings on the unitised project to gain a status. This mechanism allowed



**Figure 1.** Master CIP Tracker

the team to work really well collaboratively, and like many other teams they went through the stages of team development, Forming, Storming, Norming to reach an incredible Performing stage. This visual tracking system not only allowed the team to communicate more, understand each other's roles and support one another, but it also allowed the team to meet, and in some cases, exceed their delivery timeframes and meet their invoice target each month. The team have adopted this approach so much that they decided to extend this methodology to all their projects going forward.



**Figure 2.** Streamlining Flow of Information and Processes CI Team

#### *Implementing a Graduate Programme*

As a specialist sub-contractor, we face challenges in attracting young emerging talent to our company with stiff competition from main contractors and leading consulting firms. Due to the recession, many potential employees emigrated or left construction related careers. This left a void and affected our ability to recruit new and emerging talent, in particular for our Design Office. To tackle this problem, we initially set up a team to brainstorm how we would attract graduates to our company. From our brainstorm we developed an action plan.

The project involved relationship building with specific colleges in Ireland where prospective employees are currently in education. We reached out to specific departments and

organised presentations with second- and third-year students with the aim of recruiting two summer interns for 2018 and two graduates for September 2019. We also attended career days and graduate fairs to expand the recruitment net and to build brand recognition within the third level sphere. A key measure of success was the number of applicants we received which grew from 9 for our 2018 Summer Internship to 90 for our 2019 Graduate Programme, an increase of 900%.



**Figure 3.** Alucraft Stand at Grad Ireland 2018

#### *Investment in 3D Software*

We commenced this project when we recognised the potential value-add for our clients. In this ever-evolving market, our clients were focusing more and more on 3D modelling and visualisation, and we wanted to deliver a seamless mechanism to bring our clients through our façade design. The project commenced with a design capabilities analysis where our current software was reviewed, and a cost and capabilities comparison was carried out for potential 3D software. We had to determine if the 3D software could be integrated across the three design stages within the department – Design for Architecture (DFA), Design for Production (DFP), and Design for Pressings (DFPP) – and therefore trialled it on complex parts of the façade on a project. We ran this trial in conjunction with the lead architects on a specific project, and on the back of its success we rolled out our 3D modelling to other ongoing projects. The project had dual benefits:

- internally it meant we invested heavily in our employees; and
- externally we are meeting and exceeding the expectations of our clients.

We now have over 50% of our design office fully operational on BIM 3D software. Our strategy is to have a 'cradle to grave' suite of 3D software that will satisfy the needs of our clients.

#### *Review of Annual Leave*

Historically, all Alucraft employees followed the holiday schedule set out by the Construction Industry Federation (CIF) which meant that the company shut down for the two set weeks during summer. Listening to the voices of our employees, a request was submitted to review this practice and a CI committee was set up. The committee comprised of individuals from each department across the

company and they were tasked with the objective of developing an annual leave policy which met the needs of the individual and the business. As part of the analysis and benchmarking activity, the CIF and other companies of similar size within the industry were contacted to get an understanding of annual leave practices elsewhere. A cost comparison analysis was then carried out and a mock annual leave schedule was set up for a specific department to show the feasibility of flexibility of annual leave. The proposal was created and presented to management for approval incorporating a number of guidelines for the change of policy. Management agreed to a year trial for 2019.

#### *Standardised Estimating Practices*

While carrying out a Gemba walk of a project lifecycle, we identified the handover process from the estimating department as being an area where significant value could be added. The current handover system did not cover all the requirements of the individual departments that relied on this process to fully set out their scope of works. There was also a need to reduce post-handover queries.

The project commenced with a review of each department's requirements. Brainstorming sessions were held and requirements were defined and prioritised. The tendering procedure was also reviewed in order to streamline information for the handover document. When the various feedback was collated, the resulting new handover document was trailed on a medium-sized project. Further tweaks were made to the layout and information, and a final handover document was rolled out for a large-scale project. Feedback from the brainstorming team has been very positive and post-handover queries have significantly reduced by 70%.

#### *Review of Residential Market Opportunities*

We identified this project as being business critical during the CI process as we recognised the need to have a more balanced business portfolio of residential and commercial

projects. The following steps were carried out:

1. The project commenced with a review of the market growth and also required a better understanding of both the Irish and UK market, suppliers and their offering.
  2. We defined a specific number of screens that would be most likely used on high-end to mid-range residential and industrial projects.
  3. From there we chose several system suppliers who we requested to complete a questionnaire based on a performance matrix. The evaluation criteria included both technical and commercial criteria along with the accompanied support provision from the suppliers.
- On analysing the residential market, we identified:
- the differentials associated with this sector compared with commercial projects; and
  - site requirements, installation timeline, contract management, approval processes and legislation differences between Ireland and the UK.

We are now in a position where we know the exact type of project we want to tender for in the residential market and our preferred supplier network.

#### *Alucraft CWTC (Centre for Window and Cladding Technology) Tested Rainscreen System*

While process mapping the manufacturing stage of a project's lifecycle, we identified the outsourcing of rainscreen cladding to be disadvantageous to our business in terms of cost, control, and the time it consumed in terms of procurement and contract management. We therefore began the process of designing and completing our own tested rainscreen system which would meet all CWCT, relevant standards, and performance specifications. This involved the design and engineering of prelim calculations and detailed drawings of the system which was then manufactured in our facility and sent to Building Envelope Technologies (BET) for testing. The rainscreen system successfully passed testing and we are currently working on increasing the range.

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## **LEAN INITIATIVE IMPROVEMENTS & IMPACT**

This programme brought the entire leadership of the Alucraft Group through a programme that has been truly transformational. It helped them understand how to analyse and improve their system performance. It gave them the aids to be in a position to behave as Lean Leaders in providing direction, driving performance and developing people.

Throughout the workshops, the Senior Leadership Team experienced a diverse number of Strategy, Lean, and Change Management tools, and in the latter workshops facilitated a number of breakouts with the extended leadership team using some of those tools. The programme challenged their current thinking and delivered a clear leadership accountability to deliver CI initiatives and a cascaded set of metrics and targets that tells them whether they are winning or losing.

The CI process brought together representatives from each of the departments around the company who identified the roadblocks in the way of delivering on our key pillars: People, Growth, and Delivery. This collaborative method meant that Lean thinking was implemented into each department in a holistic manner. The tactical improvement

plan which grew from this meeting of minds aligned to our business strategy and ensured that we were focused on the correct projects.

The onboarding of Lean thinking within Alucraft began in 2017 and the following outcomes were delivered:

- Vision Statement that generates excitement and aligns the organisation around a common future state was reviewed and confirmed.
- A 2-year Strategy Roadmap was developed with the input of the organisation so that there is a common understanding of the critical issues facing the organisation and what needs to be done about them.
- Tangible Tactical Plan that translates strategy into measurable and meaningful projects that can be delivered on the ground.
- Prioritisation and sequencing of improvement projects that ensure the organisation does not become overwhelmed by the pace of change
- Clear leadership accountability to deliver improvement initiatives.





**Figure 4.** Senior Management Team Vision and Mission Brainstorm Output

#### *Benefits of CI Programme*

- As part of our CI programme, the senior management team reviewed and updated the Vision and Mission Statements for the company. This was an important step for our team in defining, both internally and externally, what Alucraft do and to set a long-term goal for the future. We wanted to take the next step which involved setting new Guiding Principles (GP) for the Alucraft Group and defining what those values will mean to all individuals within our organisation. These GP will form the backbone of our organisation and, when implemented and demonstrated by each individual, will underpin the success of our vision for the future.
- Brainstorming and the use of Post-its have become a regular exercise in meetings throughout the company outside of the CI identified projects as Lean thinking and its benefits has been adopted and embedded throughout the company.
- While the primary objective of implementing Lean into our business is to see benefits to the bottom line, we noticed a massive culture shift within the company. The CI programme breathed a collaborative life into the business. Departments work together in greater harmony than they have done previously. Projects have had a knock-on effect as they have highlighted areas that need attention and have been added to the programme for 2019/2020.
- We currently have 10 people within the company undergoing Green Belt training who will become part-time Lean Six Sigma programme members able to lead a cross-functional project team using a range of Lean Six Sigma

project management, problem solving, and statistical analysis tools.

- We have a CI board in the main thoroughfare of the building which houses information on completed, live, and upcoming projects. The board also houses the live projects' A3s where the status of the project is easily identifiable with the use of visual aids. The visual aid selected was a simple traffic light system to indicate the current status against pre-set milestone dates. Regular CI briefings happen where project sponsors are accountable for updating board information and reporting the status of ongoing projects. These weekly briefings hold the team accountable and ensure that completion dates are met and that programmes are kept on track.

#### *Future of Lean in Alucraft*

The future of Lean looks bright in the Alucraft organisation:

- We continuously engage more staff in the programme.
- We are developing a number of Green Belts to carry the torch for Lean thinking in their departments and cross-functionally across the company.
- Our UK office has set up its own CI programme and taken learnings from the Dublin office.
- Our sister company, Williaam Cox, has also set up a CI programme, with many projects currently live and one of which is aimed at making the company paperless by September 2019.



**Figure 5.** Williaam Cox CI Team

