



Established in Ireland in 1984, Suir Engineering is an Irish-based European provider of Mechanical & Electrical services to high profile clients in the data center, life science, manufacturing, commercial, and substation and renewables sectors. Suir Engineering has offices in Dublin, Waterford, Sweden, Denmark, London, and across the UK, directly employing over 1,000 highly skilled staff. Having recently celebrated 35 years in business, Suir Engineering has developed a reputation for delivering cost-effective solutions for its clients whilst ensuring an uncompromised approach to safety, quality, and project delivery. Suir Engineering is part of the EDF Energy Services group of companies.

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Overview & Background to the Lean Initiative

Since 2015, Suir Engineering has continuously increased its investment in its strategic and company-wide improvement initiative entitled "Suir Way". Since April 2018, Suir has been rolling out new processes for managing the entire organisation. Suir Engineering has invested heavily in its employees by providing a significant amount of off-site and on-site training, and has developed its own purpose-built training centre at its Dublin location.

Thanks to the company's investment in its people, it is now seeing a transformation within the business: employees are using their new skills on projects of all sizes to remove the eight wastes; introduce JIT for site deliveries; run Kaizen events; value stream map processes; utilise look-ahead planning based on the LPS; apply 5S and Kanban systems to site stores; and develop standard work.

These tools are being driven by Suir Engineering's management system that promotes discussion, is data-driven, and ensures the correct and relevant information is channelled

through the business, thus empowering everyone from the SLT, project managers, supervisors, and trades, to make informed decisions with all the necessary information.

In the LCI Book of Cases 2018, Suir Engineering's case discussed the improvements being made around how it managed materials and waste with the implementation of 5S and visual management. In the LCI Book of Cases 2019, Suir Engineering's case discussed how it was developing its new on-site management system "The Suir Way" and how it was allowing the capture of information and for that information to flow smoothly throughout the organisation.

This 2020 case illustrates the progression of Suir Engineering's Lean journey and showcases how employees did not simply show up for training, but have embraced the idea of Lean and the Suir Way. The organisation has gone from implementing small and isolated Lean ideas and projects to being able to implement big Lean ideas and utilise Lean tools on large scale and high-profile projects.

Lean Initiative Undertaken – Lean Thinking, Tools, Techniques

Suir Engineering rolled out this Lean project on a large-scale pharmaceutical project in the north east of Ireland. Once complete, the project will be the largest pharmaceutical facility of its kind in the world. Suir Engineering is responsible for the Electrical & Instrumentation package, design-assist, testing, and commissioning, along with the temporary electrical package for the project. The project started in April 2019 and is expected to be complete in December 2020.

At the time of writing, Suir Engineering has 10 supervisors who manage 180 direct personnel on the site. With that many direct staff to manage, a Lean approach was required towards the assignment of tasks and how materials and resources would be managed on-site. In doing so, it would help to ensure that key milestone dates would be achieved and that issues and constraints could be raised and rapidly resolved at the correct level of the business.

Tier 4 Meetings

Each Suir Supervisor installed a Tier 4 (T4) meeting board in the work area they were responsible for (Figure. 1). The supervisors ran daily meetings at the workface at the start of each shift, at which everyone is made aware of what is expected of them for the day, issues and constraints are identified, safety watchpoints are highlighted, along with quality or coordination.



Figure 1. Tier Board & Meeting On-Site

On-Site Material Management

Material that is required to be brought to the area is also arranged. Planning is a key part of the T4 board and 2-week look-aheads are issued and monitored with the supervision to gauge plan adherence and to highlight any issues/delays. In order to reduce the time spent getting material in stores, small material workbenches were brought to the work area. This was implemented along with the reduction in time spent by employees travelling to and from stores, the materials benches also incorporated a Kanban system allowing material shortages to be managed effectively and to highlight when materials were low.

Suir Engineering also ensured that BIM stations were available at each level of the facility. This was to allow trades and supervision have the most up-to-date information,

empowering them to make decisions in the field and correctly sequence work. When the BIM stations are not in use, they automatically switch to play SOP and safety videos to enforce the safety culture on site (Figure. 2).

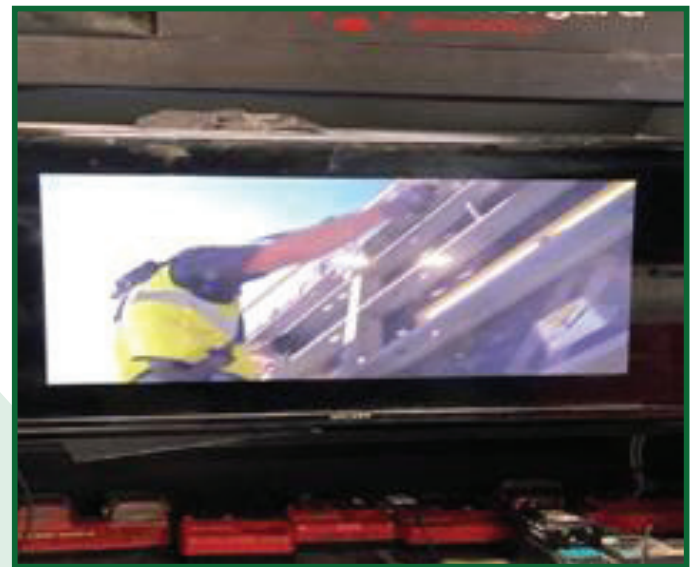


Figure 2. BIM Systems Used to Promote Safety When Not in Use

Tier 3 Meetings

The Tier 3 (T3) meeting is a focal point of the day and has been run successfully throughout the project. The Suir team has been fully engaged in the T3 meetings where conversations are open, honest, and to the point. The Project's Construction Manager chairs the meeting and ensures the conversation remains on topic and the meeting keeps pace. The meeting is attended by site supervision, store manager, safety lead, QA lead, lead planner, site admin, QS lead, and project director.

Tracking of Downtime Reworks and Covid-19 Issues

Obtained directly from the workface T4 boards, information flows freely on the site and is passed on and discussed with the site management team at the T3 boards. This allows for a lot of valuable information to be tracked in real-time. This has allowed the team react to issues that have arisen on site more quickly than they would have previously. This also allowed them to try different approaches and get feedback as to how it is working within 24 hours. This feedback has been invaluable as the team try and navigate through Covid-19, allowing the team to experiment with different approaches and help maintain productivity whilst also ensuring that employees are kept safe.

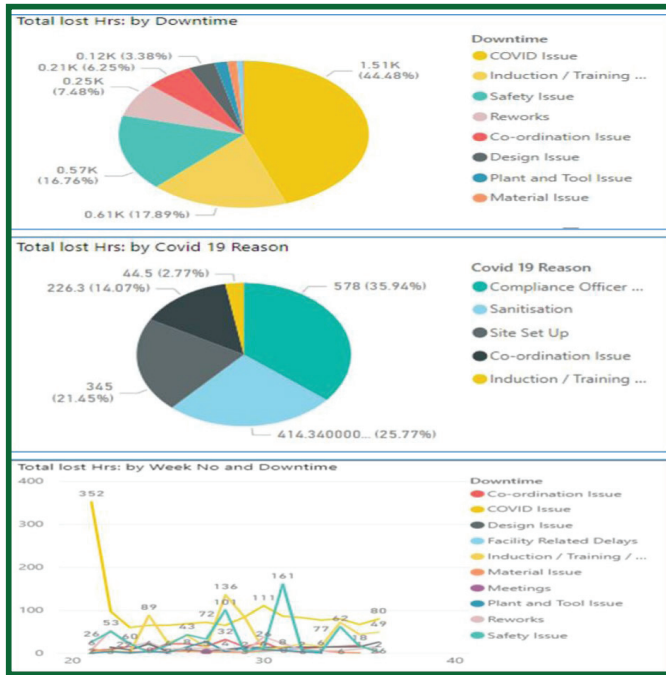


Figure 3. Downtime Tracking & Analyses

Quality – First Of Kind Wall

As with all Suir projects, quality plays a key part in our process. On-site, the team has implemented a “First Of Kind (FOK)” Wall to enable staff to review client and Suir expectations around install standards. This FOK Wall is on route to the workplace and sets the expectations around install standards for the staff. The wall has become part of the induction process for Suir Engineering. Everyone, regardless of their position in the company, understands what is the site standard. Even though containment only covers 15% of the overall job, traditionally it accounts for over 70% of site snags. With over 80% containment now complete on-site, the benefits of the investment can be seen with little-to-no containment issues identified in walk-downs.



Figure 4. First Of Kind (FOK) Wall

Stores Set-Up & Workplace Organisation

5S has been implemented to a high level on site. This means walkways are clear and materials are segregated and clearly identified, thus reducing time lost looking for materials and making it easy to establish stock volumes.



Figure 5. 5S Workplace Organisation

Just In Time Deliveries

Just in Time (JIT) deliveries were planned and coordinated with ceiling install and floor finish dates for all modular wiring so it could be delivered directly to the relevant floor. As a result, Suir Engineering benefitted from a simplified and accelerated installation process, whilst the client received a flexible, future-proofed, and cost-effective installation. Due to the lack of laydown space on site, the team utilised staggered deliveries arranging bulk orders with agreed call-off dates with suppliers. Bulk ordering has minimised the number of requisitions from site and also improved buying power for the project.

Lean Initiative Improvements & Impact

Suir Engineering has seen real tangible improvements since it began its Lean journey. These improvements had previously been small in scale and involved a limited number of individuals. The ability to implement multiple Lean construction ideas and teachings on a large-scale project was something that had not been previously realised until this project. The task of implementing Lean into a company is often referred to as a “Lean Journey”. This phrase was perhaps not fully understood by the Lean Team when they first set out to bring Lean into Suir Engineering. Lean is a journey with many highs and lows. It cannot be brought into an organisation overnight. To make meaningful change is more than just training staff in new rules and processes and expecting them to comply. Thanks to Suir Engineering’s investment in its people, and its high staff retention levels, most employees are now on their second or third site on which Lean initiatives have been implemented – they are now experienced Lean practitioners.

It is not only the company that has gone on a Lean journey, but the staff of Suir Engineering have also gone on their own personal Lean journeys. This has enabled them to see what has and has not worked on other projects. Everyone is now able to see the bigger picture and how small changes to their work practices can have major impacts to the overall project. The T4 and T3 boards have provided trades, supervision, and management with a shared platform to voice concerns and have them resolved in real-time and collaboratively.

Some of the key learnings from Suir Engineering's journey have been:

- People support what they create – By allowing staff the ability to voice and implement their ideas, you will get much better buy-in when they are part of the creative process.
- Encourage small ideas from all levels – Small improvements have enormous compounding effects over time and can be easily shared and implemented on other sites.
- Structure is key – A system to allow information to flow and people know where to get the correct information.

Key benefits from the implementation of Lean on the site:

- Increased planning of works – This focus on what needs to be in place before work starts has greatly improved workflow.
- Reduced Requisitions – A direct outcome of better planning has enabled the team to reduce the number of requisitions raised. This has relieved the pressure of the purchasing team. At present, and despite being one of the largest projects for Suir Engineering, the project raises far fewer requisitions than that of considerably smaller projects.
- A 60% reduction in modular wiring and lighting install – By engaging early, using the LPS and JIT delivery methods, Suir Engineering was able to achieve significant cost savings.
- Reduction in snags and rework – Utilising the FOK walk-downs has resulted in little-to-no rework or snags being produced.
- Improved Engagement – Staff morale has increased and employees feel valued.

