

An award winning house builder in Scotland since 1925, Mactaggart & Mickel have diversified into contracts, timber systems and commercial property lettings. As the company embraces modern methods of construction beyond 2010 read how an operational site team are changing the business culture to a truly Lean & Green Enterprise.



Lean Team

Leslie Duncan – Site Manager
Ronald Thriepland – Plumber
James Kelly – Facilities Labourer
Kevin Hyslop – Joiner
Justin Kilday – Joiner

Lean Implementation Project

The company's "Sustainability Working Party" has strategic aims that include:

- Building on the success of the code 4 home taking the product range to zero carbon
- Implementing site waste management plans for all sites going forward, reducing waste and landfill

This created a Lean initiative for the team to examine and recommend improvements to site waste management

Project Drivers

- Landfill tax – 22% annual accumulator
- Legislation
- Sustainable housing
- Community & Environmental impact

Process Mapping

The team mapped a product lifecycle from site arrival to disposal and this was presented to other companies engaging in lean projects. The process was broken down by build stages and waste was analysed throughout. The team demonstrated their findings using pareto charts which lead to further cost analysis

Waste Skip Management

Three types of skip were analysed

- 14 yard mixed recycling

- 14 yard plasterboard
- 14 yard waste to energy

Problem Statement

Having mapped out the process and quantifying the wastes the team realized that – "Currently 95% of waste leaving site goes to landfill at a cost of £855 per house constructed"

Operational waste examples

Storage and handling investigation demonstrated how certain materials that were temperature and moisture sensitive are not being managed appropriately. Too much Non Value Add (NVA) time was being recorded through the process with materials movement, people movement, fork lift movement etc – this had become a cultural norm.

Changing the culture.

The key to project success was now in changing the culture and this team being very operational and involved in on-site day-to-day activity began to motivate others in working to new and improved standards. The team set up a plan for change

- Train all employees in waste analysis
- Re-define site induction procedures
- Communicate to and train up sub contractors
- Improve site visibility for "lean thinking"
- Measure relevant and meaningful activities
- Link improvements to cost reductions

New systems are now being developed to minimise human error (poka yoke), improve site administration and monitoring, simplifying processes and being more proactive rather than reactive to legislation. The team has been instrumental in creating real continuous improvement through respect and development for people across the site. This will be rolled out across all sites looking ahead.

Initial Project Costs

The team has spent £1,382 on the Largs site on colour coded waste bins, more robust storage facilities, signage, and various Poka Yoke initiatives

Cost Benefits

The waste management project will save the company £510 on every plot in the future if sustained. This will save the Largs site £13,260

Environmental Benefits

Landfill reduced from 95% to 1.5%. Recycling on specific items increased from 3.5% to 98.5%, for example:

- Wood recycling increased by 84 tonnes reducing Co2 emissions by 57.12 tonnes
- Mixed Waste (MSW) recycling increased by 120 tonnes reducing Co2 emissions by 32.4 tonnes which has also saved the company £9,100.00

Further Recommendations

- Roll the Lean programme out across all sites training employees and sub-contractors
- Future tenders to include waste management and environmental impact weighting
- Subcontractors scope of works to include materials delivery, handling and waste management
- Appraisal system used to focus, incentivise and measure lean projects
- Lean thinking embedded into the culture

"Interesting and informative"

"Very comprehensive programme covering many different aspects"

"Practical application of theories"