Michigan Tech
Continuous Improvement Using Lean Principles
February 2018 Update

Daniell Heights Improvements Benefit the University

Michigan Tech's Daniell Heights Apartments maintenance team has undertaken a series of improvement cycles over the last three years. One of the many areas that has been transformed is the apartment inspection process. Years ago, inspections were performed by experienced maintenance employees who had decades of knowledge in their heads. These undocumented task procedures, called tribal knowledge, pose a challenging knowledge gap for an organization's new employees. Using Lean principles, the maintenance team at Daniell Heights created visual management and standard work to capture the tribal knowledge, making it easy for everyone to know what to do and when to do it. Now, great inspection results are consistently achieved by the inspectors.


Maintenance employees making repairs on a Daniell Heights apartment.

Morning huddles were started around an Attendance Board so employees could easily check in and out and safety messages could be shared. The board provides a place to communicate employee shift and leave schedules and a home for everyone's ID badge, which gives electronic key access. Employee contact information is written under their badges.

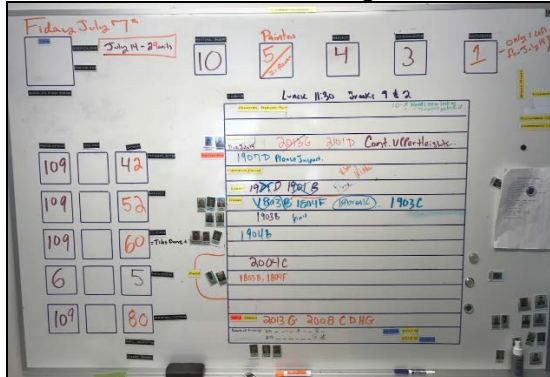The Attendance Board ensures everyone gets to work safely and electronic keys are accounted for.
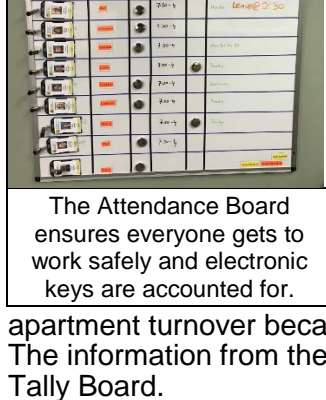
Apartment Reset Boards track the process of resetting vacated apartments from the time the request is received from the housing office. Each column represents a step in the apartment turnover process. This keeps maintenance teams from having to do an emergency apartment turnover because the task was misplaced. The information from the Reset Board feeds into the Tally Board.

The Reset Board shows the status of every apartment, improving communications with the housing office.

The Tally/Task Board clarifies work crew tasks and daily goals. The board tracks work to do and work completed, like a scoreboard, so managers can clearly see the status. The board also shows a running count of days to the deadline and provides a place to assign tasks to individual people or teams. In addition, it provides specific employee work locations in the extended Daniell Heights work site. This board has improved upward status reporting.

The Tally/Task Board is a scoreboard for the managers and highlights vital information.

Many benefits to the university have resulted from these changes. The apartments are inspected, cleaned, repaired, preventive maintenance performed, and re-leased faster, using a more capable process while creating a less stressful work environment for staff. A new zone manager was able to quickly learn the ropes, making a seamless transition. Also, communication between housing and facilities has improved, and the apartment turnarounds are being completed ahead of schedule, so the graduate student renters do not have to find temporary housing when they first arrive in town, with the added gain of leasing a better quality apartment. In addition, the new final inspection process supports the university when it's necessary to recover damages. Finally, renovations from the recent bond proposal will be more easily sustained for the long run.

Lean Outreach and Connections

- **Students Present to Presidential Council of Alumnae (PCA).** Two student Process Improvement Coordinators and the vice president of the Leaders in Continuous Improvement student organization delivered a presentation on *An Immersive Lean Experience* to the PCA. They partnered with Dr. Ruth Archer, the director of continuous improvement, to tell the PCA about student Lean involvement, training, and experiences at Michigan Tech.

- **Michigan Tech Employees Present Lean at 39th Annual International Ticketing Conference.** The manager of ticketing operations at Michigan Tech, Ashley DeVoge, and Erin Kemppainen, the office assistant for the unit, delivered a well-received presentation on *The Workflow Diet: Making Work Processes Lean.* Their case study told the story of how they used the Plan-Do-Check-Act cycle, the 5S workplace organization method, and a Kanban board (which provides task status at a glance) to transform the Central Ticket Office's workflow.

Before and after improvement pictures in the Central Ticket Office.

- **17 Trainees in New Lean Facilitator Cohort.** Seventeen Michigan Tech employees, representing the Executive Team areas of Academic Affairs (6), Administration (5), Student Affairs and Advancement (4), and Financial Services and Operations (2) are training to become Lean facilitators for Michigan Tech. When their training is complete, they will join the current campus facilitators and lead continuous improvement events, consult on Lean projects, conduct process map and workflow analysis, and teach and use problem solving skills and tools. They will graduate in April.

- **Professional Development Day Focuses on Respect for People.** The Office of Continuous Improvement presented a workshop to 122 Michigan Tech employees as part of Auxiliary Services, HR, and Public Safety's joint professional development day. Sustaining

The Lean facilitator trainees; these employees will lead others in process improvement using Lean principles.

a culture of excellence requires widespread respect for people. This workshop focused on understanding, influencing, and modifying one's own point of view by seeking the perspective of the customer, which can improve employee/customer interactions and also employee engagement and satisfaction.

Continuous Improvement Events as of January 24, 2018

Formal – Managed through OCI					Informal
Executive Team Area	**Active** as of 24 Jan 18	**Completed** since last report 20 Nov 17 – 24 Jan 18	**Completed** FY18 YTD 1 Jul – 24 Jan 18	**Completed** FY17 Full Year	Reported by Facilitators FY18 YTD 1 Jul – 24 Jan 18
Academic Affairs	1	0	1	4	8
Administration	4	2	7	6	4
Finance	0	0	0	3	0
Research	1	1	1	1	0
Student Affairs & Advancement	1	1	2	3	1
Total	7	4	11	17	13