

Case Study Title: Collaboration to maintain a predictable workflow

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Touchplan is a cloud-based, real-time software platform for intelligent construction planning. Touchplan enables general contractor and specialty contractor collaboration to prevent schedule and budget slippage and enhance jobsite safety. It also provides owners with the instant insights they need to track progress and anticipate problems

on projects of varying size and type. Using Touchplan reduces delays, mitigates risks, and improves operational efficiency, which results in more profitable projects. Touchplan is the software division of privately held MOCA Systems, Inc. To learn more, visit touchplan.io.

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Overview & Background to the Lean Initiative

Granger Construction undertook a \$3.1 million project to substantially renovate the 5 Foster Pediatric Unit of Sparrow Hospital in Lansing, Michigan. The project began when a pervasive mold issue was discovered in the course of minor work on the floor, necessitating a complete renovation.

In addition to the complexity of working within a functioning hospital, the looming threat of RSV season (respiratory syncytial virus, which commonly spreads in the colder months and poses a high risk to young children) added urgency to the completion deadline. Work began in mid-September of 2016, and the project was planned to finish in early February of 2017.

Conventional wisdom indicated that renovations within a working hospital cannot be completed in fewer than three to four months, and if patient rooms and wall movement are included in the scope, in fewer than six months. That timeline created a dilemma for Sparrow Hospital, which needed its pediatric unit back at full capacity sooner than that.

Further complicating the situation, all the work needed to be done

in tight, occupied space on the fifth floor of the hospital, taking care not to disturb the floors above or below. The floor below houses a cardiac recovery unit, and at one point, valves on that floor had to be shut off to isolate the fifth floor. This required extensive coordination with the nursing staff, hospital management and the owner's representative to ensure that no operations were disrupted. Walls could not be closed off until the valves and pipes had been replaced, so the timing of every step of the project needed to be accurately predicted and adhered to.

While the work was in progress, the pediatrics unit had to be relocated to other areas of the hospital, putting pressure on the operations of those units. Additionally, the project's scope increased as it progressed, which required stringent change management on the part of the project team to ensure that the pediatric unit could continue to operate.

In the face of these complexities, the project team, under the guidance of a lean consultant, decided to implement Touchplan to help with construction programming and to make sure they could still meet their deadlines.

Lean Initiative Undertaken – Lean Thinking, Tools, Techniques

The project's anticipated scope consisted of removing all the drywall and completing an architectural finish of the walls, floors and ceilings. However, the scope increased when it became clear that more work including valve replacements, plumbing work, the removal of galvanized piping, and servicing of med-gas outlets would also be necessary. Since the hospital was still fully operational, careful management was required to ensure that none of the work interfered with patient care.

To accommodate the increasing scope of an already challenging project, the team knew that they would have to work very strategically. Granger Construction implemented Touchplan and



Figure 1: Patient Room at Pediatric Unit

were the first team to combine it with takt planning. The takt planning approach centered on four flow units (the construction work product used for structuring work to pursue continuous flow); the twenty-six patient rooms, the nursing core, the pediatric rehab area and the corridor and support space. The teams adjusted their takt planning

process depending on the function of the space in which they were working. For example, work on the nursing core was more focused on systems due to the complexities of the plumbing and HVAC infrastructure than the work on the patient rooms. The patient room planning was primarily based around space constraints.

Lean Initiative Improvements & Impact

The team's takt planning enabled them to establish flow by working in smaller batches at an accelerated and constant pace. As each week went on, the weekly meetings got shorter as the team became comfortable with the process of developing tickets in Touchplan ahead of time, preparing for the next week in a six-week work plan, and making commitments for the promise period. Despite it being entirely new to them, the team embraced the process. As Senior Project Manager Mike Kissane described it, "There was value... in having the deliberate or intentional conversations of getting right down to the daily and hourly tasks and having them documented, which is where Touchplan comes in, because then you have a visual of what's supposed to be done that day; [You use] that visual in your afternoon promises made/promises kept conversation, so there's value in that visual and doing that every day."



Figure 2: Pediatric Unit Corridor

The emphasis on these conversations also helped to reinforce the

performer customer mindset on the job. By having each person or team view the people that would occupy the space next as their customers, they were able to facilitate one another's work. The team was also proactive about addressing punch list items on an ongoing basis so that there was not a substantial amount of rework left over at the project's end.

A key motivating factor for every team involved, from the Granger Construction staff to the building inspectors, was the ultimate purpose behind the work. According to Project Manager, Bill Bofysil, "The inspection process, with the HFES, the Health Department, and Bureau of Fire Services, went off without a hitch. Same with local inspectors. They [were] very accommodating to the workflow that we established, because they had to come out multiple times for inspection to allow us to keep progress... Everybody bought into the idea [that]... it's for the kids."



Figure 3: Visual Management for Rooms

Summary and Lessons Learned

Touchplan's relationship with Granger Construction has produced some mutually beneficial results, including:

- The project was completed six weeks ahead of schedule.
- The hospital was able to operate at full capacity during the onset of the RSV intensive winter season.
- Leftover funds were used to expand upon some of the renovations to deliver some of the hospital's wish-list items.

- The team became more accountable to one another when promising work due to the performer-customer mindset.
- The collaboration and communication also facilitated the coordination required to maintain a predictable workflow.

The productivity metrics from the Sparrow Hospital project are so persuasive that Granger won new work as a result.