

## TECHNOLOGY SOLUTIONS

**Goal:** To implement a range of technology solutions to enhance field productivity for both direct and indirects (ie. more tool time and less non-manuals), as well as eliminate the traditional bottlenecks for site access control points and materials management constraints.

**Challenge 1:** Site bussing program and brass alleys were analyzed in detail and found to add 20-30 minutes to each working day. This was not part of “tool time” but does impact on the workers overall day away from home and frame of mind. Our target was to reduce this by 50% in order to set-up the mindset for the workforce to be more productive, including better work/life balance.

**Achievement:** Implemented WIFI access in the offsite coaches with a link to a card reader upon entry/exit. Workforce can now “brass-in” on the bus and be transported direct to the Unit or work area. This eliminated approximately 20 minutes of on/off at the brass alley without compromising our site access control. We also figure we’re getting an extra 5 minutes of “tool-time” due to reduction in early outs at the end of the shift.

**Challenge 2:** Site materials management is always a challenge on major projects, particularly in the Canadian winter. Our target was to reduce the requisition cycle time by 50% and reduce material losses to \$0. If we achieved this, we figured we could also get a 5-10% gain in productivity in the field with the right material being available at the right time.

**Achievement:** Implemented RFID infrastructure at the material entry gates and mobile devices throughout the site. Over 50,000 re-usable tags have been procured and ship loose spools and materials are tagged either at supplier shop or at the time of inspection and receipt on site. A virtual “geo-grid” has been established and hand-held tablets are now available to locate materials in a fraction of the time. A time in motion study has been performed since implementation and requisition cycle times have been improved by up to 500%. A fundamental change to the previous work process has been implemented by 2 of our on-site CM contractors and to date, no material losses have been reported.

**Challenge 3:** Scaffolding has always been difficult to precisely estimate and is rarely under any budget. We set a target of 18% scaffolding hours when compared to above ground electro-mechanical direct. In order to accomplish this, a better planning and utilization tool/system was required.

**Achievement:** Implemented PERI system scaffolding solution in three (3) of our process units. Supplier design inputs were then incorporated into the 3-D model during engineering stage and a utilization study was performed by the Supplier/Contractor teams. The “system scaffold” was then designed, tagged and an MTO can now be generated in order to requisition the right materials at the right time. Optimized solutions in the design phase are setting us up for success towards our goal.