

Annex D – Profile of Unison Construction Pte Ltd

UNISON CONSTRUCTION PTE LTD

Unison Construction Private Limited was founded by a group of like-minded construction practitioners who have a strong passion for pursuing excellence in the construction business. The former colleagues who decided to form their own set-up, incorporated the company in Singapore on 2 July 2009. Although the company was set up barely 3 years ago, its key personnel - Managing Director Mr Tan Soon Kian, Contracts Director Mr Goh Boo Kui and Project Director Mr Tan Thiam Huat –have more than 20 years of building and construction experience each. Their wealth of experience, coupled with the array of projects they have managed, such as condominiums, HDB flats, landed properties and industrial projects, have allowed them to gain a foothold in this competitive industry. The company has made significant achievements over the few years and has received several accolades including ISO 9001, ISO 14001, WSH bizSAFE Star and BCA Green and Gracious Builder award.

The small and medium enterprise (SME) firm recognised that in addition to having a team of experienced and capable staff, they have to adopt more productive methods of construction to give them a competitive edge over the more established competitors.

TECHNOLOGY ADOPTION

However, Unison did not have a large capital to give them the head-start. Rising manpower cost is always a major challenge for them as construction works are often labour intensive. When BCA introduced the Construction Productivity and Capability Fund in 2010, the company was quick to tap on one of the schemes called MechC to purchase their first reflectorless total station. The equipment uses laser technology to carry out surveying on site, thus allowing greater accuracy and distance in measurement. More significantly, the technology also eliminates the need for an additional worker to carry a prism, thus helping them to achieve significant productivity improvement. The management recognised that **mechanising work processes is the quickest way to see a real difference in productivity on site**. Subsequently, the company decided to invest in another reflectorless total station, three builders' hoist and two scissor lifts. The MechC scheme co-funded the purchase of their much needed equipment which helped them to reduce the costs and manpower required to perform the works on site.

The company has also looked into other ways to improve their productivity.

The company participated in a BCA-led Productivity Improvement Project (PIP) which looks into the benchmarking of project and trade levels productivity. Part of the project involves the use of the biometric authentication system to monitor the manpower and measure the productivity on site. With the implementation of a new facial recognition system at one of their projects, the company can now accurately capture the manpower deployment on site,

prevent unauthorised access and monitor their productivity. The company is looking into extending the use of biometric authentication system to their other projects.

Unison has also set an ambitious aim to train their coordinators and draughtsmen to be trained in the Building Information Modelling (BIM) technology ready by 2012. The BIM fund assisted the company to defray the cost of training the staff and the purchase of BIM software.

IMPACT

The company has been very receptive towards adopting the latest technologies that could help improve their safety, productivity and quality. With the financial assistance from the various CPCF schemes, the company is able to make quantum leaps in their productivity (see table below). The company even shared their productivity experiences and actively encourage their subcontractors to attend seminars and talks (e.g. Smart Builders Leadership Series organised by BCA) to learn more about the ways they could improve their productivity and reduce costs.

The company aspires to be one of the leading innovative and productive contractors in Singapore. Mr Tan advocates all contractors to invest in productivity now and reap the rewards that come with the improvements. He strongly feels that businesses should set their sights on long-term productivity and naturally, they can become more effective and efficient. This in turn translates to a better bottom-line for the companies.

Table showing improvements in productivity

Equipment bought with MechC support	Conventional Method	How equipment helps with productivity	Estimated productivity improvement
Builders' hoist – materials handling equipment	<ul style="list-style-type: none"> Materials are transported manually to upper floors, particularly in low rise construction Laborious; requires considerable manpower 	<ul style="list-style-type: none"> Used for transporting materials from lower floors to upper floors, instead of manual means Overall reduction in manpower (from 6 to 2) and time spent on transportation of materials 	<p>Before: Requires 6 workers to transport 52500kg of materials over 6 days.</p> <p>After: Requires 2 workers to transport 52500kg of materials over 6 days.</p> <p>Result: 200% productivity improvement.</p>
2 units of Reflectorless total station – surveying equipment	<ul style="list-style-type: none"> A theodolite system is used during site surveys, with at least 2 workers, and with one carrying a reflector prism Time consuming, especially for large sites and for many intermediate survey points 	<ul style="list-style-type: none"> The total station uses laser technology to carry out surveying on site; allows greater accuracy and distance in measurement Reduction in number of workers on site (from 3 to 2), by eliminating the need for a worker to carry the reflector prism 	<p>Before: Requires 3 workers to survey 490 points at site over 20 days.</p> <p>After: Requires 2 workers to survey 660 points at site over 20 days.</p> <p>Result: 100% productivity improvement.</p>
2 units of scissor lift – aerial platform	<ul style="list-style-type: none"> Scaffoldings and staging are used to carry out demolition works at height Erection of scaffoldings is laborious and requires considerable manpower 	<ul style="list-style-type: none"> Used for accessing ceiling and works at height, to carry out architectural works like painting and plastering. Eliminates the need for scaffoldings Available in different sizes; can be manoeuvred around the site easily Overall reduction in number of workers (from 5 to 2) for scaffolding installation; manpower and time savings 	<p>Before: Requires 5 workers to erect scaffolds for skimming & plastering of 50m² of walls over 1 day.</p> <p>After: Requires 2 workers to operate scissors lift for skimming & plastering of 50m² of walls over 1 day.</p> <p>Result: 150% productivity improvement.</p>

Pictures from Unison Construction Pte Ltd



From left: Mr Goh Boo Kui (Contracts Director), Mr Tan Soon Kian (Managing Director) and Mr Tan Thiam Huat (Project Director).

Builders' Hoist



A simple equipment like the builders' hoist requires little storage area and yet helps to improve the productivity of transporting materials from lower floors to upper floors. It reduces the reliance on cranes and can be operated easily with one worker.

Scissor Lift



The scissor lift may not be a new machine but it helps to increase productivity and safety on site by eliminating the need to erect scaffoldings to carry out architectural works like painting, plastering. It can be manoeuvred easily around the site and requires only one worker to operate.

Reflectorless Total Station



The reflectorless total station has the ability to measure greater distance and eliminates the need for an additional worker to carry a prism. Only one surveyor is required to operate the equipment from a stationary point.