

Crown House Technologies Ltd (CHt)

Joint problem solving – working at height up to 4.5 m

Worker engagement case study 13

This case study describes how CHt used consultation and worker engagement in a study to find out how to identify the best piece of access equipment for use by their workforce when installing mechanical and electrical services indoors at heights up to a maximum of 4.5m.

The challenge

As a business, CHt is always looking to improve its health and safety standards and procedures. The vast majority of major M&E installation work is undertaken above the ceiling grid, so the selection of access equipment is a critical part of an employee's day-to-day activities. There are a number of different means of access equipment available, such as small, mobile, elevated work platforms (MEWPs), mobile scaffold towers, podium steps, stepladders and A frame type ladders.

The challenge initiated by CHt was to review the work at height procedures and guidance, and investigate which types of access equipment currently available from manufacturers provide the safest, most productive and cost effective options.

The informal feedback from the workforce indicated that small MEWPs were their favoured option. To consider this suggestion in the context of an overall review of the work at height approach, a worker engagement initiative was instigated.

The roadshows: 'What do **you** want to work from?'

Seven roadshows were held in April and May of 2008 in a variety of locations across the UK and attended by over 170 people. They were *very relaxed and informal, and targeted* the workforce with members of the management teams deliberately excluded to ensure the workforce felt comfortable giving full and frank feedback. These roadshows opened with a series of slides that encouraged people to express their views while some key messages were delivered by members of the HSE team. Participants were then able to explore in detail a range of equipment provided by various manufacturers who supported each roadshow. The final element of the roadshow involved a debate around the

Key facts

CHt is the international building technologies business within the Laing O'Rourke Group. CHt has an annual turnover of over £400 million (2008/09) and approximately 1700 employees, of which over 1000 of these hourly paid tradesmen across the UK are in a number of regional business units, supplemented by specialist subcontractors that can double the workforce on a daily basis. Across the UK, the number of projects will on average be around 65 with the value of each currently varying between £5 million and £100 million.

The majority of the work is new build working for a principal contractor installing mechanical and engineering M&E services, increasingly in prefabricated modules, in hospitals, schools and commercial premises across the UK as a specialist subcontractor.

CHt encourages formal worker engagement by enabling workforce engagement representatives on each project to feed comments and suggestions to regional workforce engagement representatives via a monthly meeting. CHT requires Project Leaders and Directors to carry out regular Tours of the worksite, involving conversations with workers. Informal engagement is active through near miss reporting, daily activity briefings, toolbox talk discussions and behavioural safety training known as Incident and Injury Free (IIF). Feedback on issues raised the key element of workforce engagement.

different types of equipment and the different tasks that CHt's workforce undertake and their views on the most suitable access equipment for each job.

Quotes from the workforce included:

'Using Mobile Elevating Work Platforms (MEWPs), personnel work faster when remaining at height from one section to another. By contrast, podium towers have to be cleared of personnel and tools, outriggers lifted, brakes released, moved, brakes applied and outriggers dropped.'

'MEWPs cost a lot and reduce profits, but are safe and easy to use, and the safety rail adapts to fit through ceiling grids.'

'Podiums – health and safety rules are easily breached using safety gates.'

'Steps are useful, but dangerous because they can topple...'

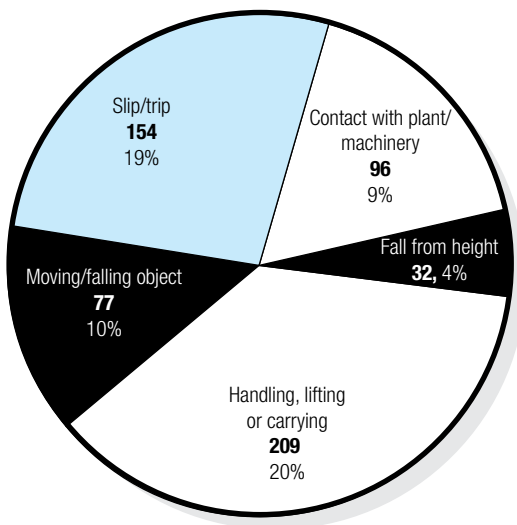
'Scaffold tower – returning them to the hirer – it is common to find they need costly maintenance'

As a result of the findings from these road shows CHT decided to invest in a four-month study. An internal management trainee under the supervision of the HSE leader was used to carry out time and motion studies examining which types of equipment offered benefits in practice. He also researched, in detail, the accident history of working at height and the different options available.

The accident history

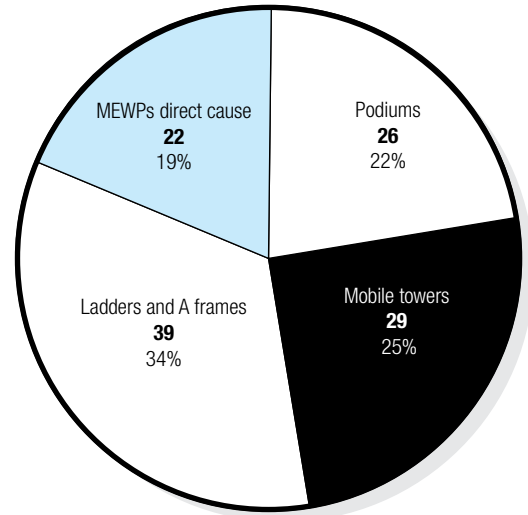
The study looked at all projects carried out between January 2005 and October 2008, examining all the recorded cases of work at height accidents. It was found that the number of projects and man hours worked grew gradually during this period, with the number of accidents also showing an increase in the same period. This association was felt by CHT management to be unacceptable.

The causes of these accidents were examined and the results are shown below.



The severity of these accidents were also studied and, unsurprisingly, working at height accidents were found to have the most cases of major (over-three-day injuries) and lost time incidents than any other category.

The study also reviewed the type of equipment that was involved in the work at height accidents. CHT was, however, unable to get hard data regarding the numbers of each item of equipment that was hired.



Claim costs and repair costs

A total of 875 accidents were studied, of which 155 were from working at height. A total of 6% of all the accidents recorded resulted in claims. However, over 25% of falls from height incidents resulted in personal injury claims highlighting the severity of falls from height.

Looking at the type of access equipment involved in these claims, the biggest proportion arose from accidents involving podium steps – MEWPs accounted for only 11%. Averaging the cost over all projects, the weekly cost to each project of working at height claims was greater than the weekly hire cost of one small MEWP!

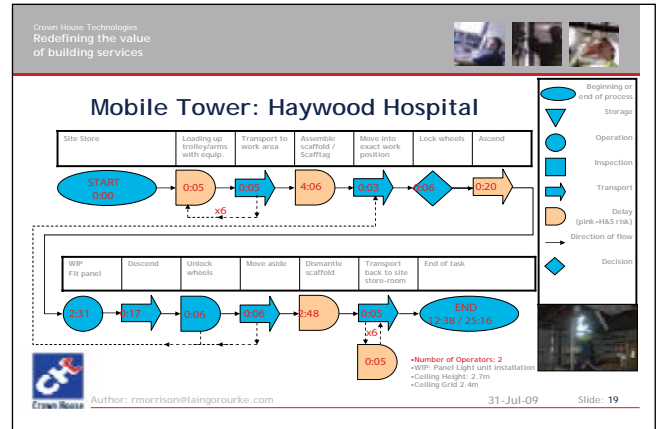
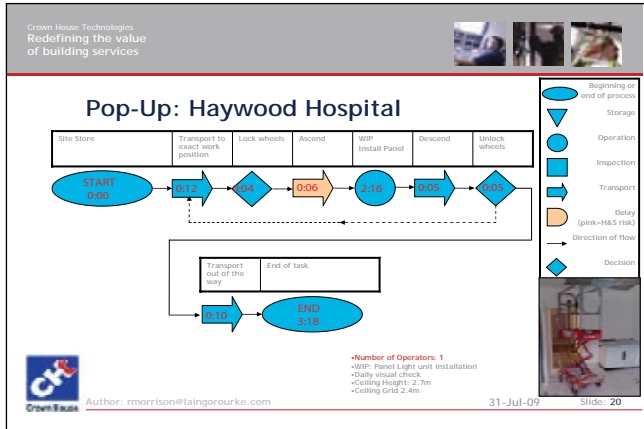
The time and motion study

A series of site visits and surveys were carried out to obtain evidence about the use of different methods of access. Formal time and motion studies were carried out on two sites recording the time taken, under ideal conditions, to erect, position and carry out a simple task using different methods of access. Time was spent with members of the workforce who were involved in the study, explaining the process and clarifying that the study was looking at the time spent using the equipment, not how quickly they worked as individuals.

Lessons learned

From a **productivity** perspective:

- MEWPs are safer, more productive and more economical to use in the long term given the extra hidden cost involved;



- MEWPs are ergonomically better and avoid unnecessary strain injury;
- MEWPs automation avoids accidents caused by human error and misuse of access equipment;
- general site opinion is that MEWPs 'get the job done better'. This ties in with the feedback from the roadshows; and
- MEWPs are less likely to be abused by the workforce (possibly due to fewer working parts). They therefore require fewer inspections by site managers for their constant safe use.

From a **health** perspective:

- MEWPs are easier to manoeuvre – less manual handling;
- MEWPs make access to the working platform less complicated;
- MEWPs ensure better working height due to a more variable working height; and
- MEWPs ensure there is no constant climbing leading to short and long-term fatigue.

From a **safety** perspective:

- falls from height are the primary cause of serious injuries;
- 5% of all accidents have resulted in personal injury payouts;
- 25% of all work at height accidents resulted in personal injury payouts; and
- MEWPs demonstrate lower health and safety risks of all the access plant for working at height.

From a **cost** perspective:

- weekly total claims over the period used in the study cost more than the weekly cost of a MEWP;
- MEWPs occupy only 14% of the total cost of repair to access equipment; and
- MEWPs were found to be three times more productive than other access equipment.

The outcome

CHt has set itself the goal of eliminating the inconsistent use of access equipment and standardising the selection of this equipment. This will benefit the workforce by reducing risks, including long-term health issues, and decrease the amount of time spent erecting and dismantling and moving access equipment which in turn will increase productivity and the potential for future work.

'At the roadshows our workforce told us that MEWPs were their preferred option to work from. By undertaking this comprehensive study, we have been able to prove that there are business benefits to using them as well. We have communicated the findings of the study extensively with different groups of people including our workforce and we have been able to demonstrate the benefits of consulting with our workforce for making business improvements.'

Gerry Mulholland, HSE Leader CHt.

CHt has reviewed its risk-assessment approach to the selection of access equipment and is now using the following chart to aid project teams by selecting the most appropriate equipment.

Recommendations: 80/20 Approach

GUIDANCE FOR THE SELECTION OF ACCESS EQUIPMENT
 *Necessary/Control for MAE Trades up to 4.5m Working Height

Equipment	Workload	Duration	Frequency	Complexity	Height	Access	Stability	Control	Visibility
MEWP	High	High	High	High	High	High	High	High	High
Mobile Tower	Low	Low	Low	Low	Low	Low	Low	Low	Low
Scissor Lift	Low	Low	Low	Low	Low	Low	Low	Low	Low
Step Ladder	Low	Low	Low	Low	Low	Low	Low	Low	Low
Extension Ladder	Low	Low	Low	Low	Low	Low	Low	Low	Low
Work Platform	Low	Low	Low	Low	Low	Low	Low	Low	Low
Manhole Access	Low	Low	Low	Low	Low	Low	Low	Low	Low
Roof Access	Low	Low	Low	Low	Low	Low	Low	Low	Low
Window Access	Low	Low	Low	Low	Low	Low	Low	Low	Low
Vertical Access	Low	Low	Low	Low	Low	Low	Low	Low	Low
Horizontal Access	Low	Low	Low	Low	Low	Low	Low	Low	Low
Diagonal Access	Low	Low	Low	Low	Low	Low	Low	Low	Low
Complex Access	Low	Low	Low	Low	Low	Low	Low	Low	Low
Unstable Access	Low	Low	Low	Low	Low	Low	Low	Low	Low
Controlled Access	Low	Low	Low	Low	Low	Low	Low	Low	Low

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