Building Innovation Management Ltd

Construction Issues Case Studies

Contents Page

1. Document Description

This document contains experiences that we have personally seen or heard about happening on sites which we were also working on. These cases have had any personally identifiable information removed and do not refer to the project they occured on for obvious reasons.

The issues listed within this document are in no way a complete list of the multitudinal issues that occur on every site worldwide, but are indicative of the issues caused by poor information flow and tracking around a construction site. These are the issues that Building Innovation Management Ltd are looking to solve.

2. Case 1 - Lack of Tracking During Install

2.1. Situation and Issue

During the construction of a large buildings, it is impossible for one person to do all the installation of a specific system due to the size of the project. In this case, we are referring to the fire alarm cabling installed by an electrical contractor.

The electrical contractor employed 12 labourers to install the fire alarm cable and associated equipment around the site, which amounted to 20 kilometers of cable and 2000 devices.

Towards the end of the project, and with handover day looming, the project manager asked the electrical contractor which parts of the system were installed and ready for commissioning (programming). The response from the electrical contractor was “I don’t know, my guys haven’t been keeping a record”.

It took 20 man days of surveying to update the paper drawings to show the installed cable and devices.

The project manager paid the electrical contractor on time even though the electrical contractor was unable to prove what works had been completed.

2.2. How BuildingIM Solves This Type of Issue

If the project had been using the Construction Workflow Solution (CWS) platform during this project, each labourer installing the cable would have ticked off each section of cable as “complete” through the phone app or web app during the installation period. This record of work would have been used to ensure that all labourers were working efficiently and payments would be made only to those who could prove they completed the installation.

A record would be made in the CWS platform for each piece of cable, auditable to find out who installed the cable in case of issues with the install.

3. Case 2 - Incorrect Order of Works Causes Electrocution

3.1. Situation and Issue

On building sites, tool-box talks are regular occurrences. During a tool-box talk, information is conveyed to all workers in attendance about a change in site status. These can be as diverse as the location of the canteen moving, change in policy such as the banning of certain tools after an accident, or reiterating a site safety policy.

In this instance, the tool-box talk conveyed to all attendees that the electricity was going to be turned on at 10am that day by the electrical contractor.

Unfortunately for a particular installer, he did not attend the tool-box talk because he was late to site. Unaware that the mains had been turned on in the building, the installer cut into cable to install device into it. The installer and was electrocuted with 240V AC and fell from his ladder.

The installer did not suffer any life threatening injuries from the electrocution, but was off work for 3 months with a fractured elbow due to the fall.

3.2. How BuildingIM Solves This Type of Issue

The BuildingIM Construction Workflow Solution (CWS) platform has a Digital ID for each worker on a site, and each worker has a phone app or web app login linked to the site.

Any notifications (such as tool-box talks) can be sent to all workers accounts; this allows the site Health and Safety team to have a record of who has confirmed they are aware of the site status change because the workers have to tap to say they have received and understood the notification.

No worker would be allowed onto site unless they had accepted all pertinent notifications.

4. Case 3 - Incomplete Works Cause Flood

4.1. Situation and Issue

Many important buildings have diesel generators fitted on the roof to ensure power can be maintained during a blackout in the area (hospitals, banks, cold store warehouses, etc). To power the generator, fuel tanks are also installed, designed to hold a quantity of fuel that will power the building until the power is restored.

In this situation, pipework from the diesel tank on roof to diesel generator on the roof wasn't complete. The generator test was scheduled to be performed on a specific day and the test team as unaware of the break in the pipe.

The test team opened the flow valve between the tank and the generator. This action caused 20,000 litres of diesel fuel to be emptied into a stairwell. This diesel fuel destroyed all electrical equipment and wall finishes in the stairwell, drenching 6 workers. In addition, half of the building's basement was inaccessible for 4 weeks while a cleanup was undertaken.

Due to the quantity of fuel released, the Environment Agency had to be notified and investigations took 15 weeks to complete. The building was opened without the generator being in an operable state.

4.2. How BuildingIM Solves This Type of Issue

With the Construction Workflow Solution (CWS) in place, the installation team, the test team, and the project managers would have seen the test date within the construction plan and discussions about achieving the date would have occured.

A quick check of the CWS app would have shown that the generator package was marked at less than 100% complete; this would have stopped the test until an inspection of the assets marked as incomplete was conducted.

5. Case 4 - Un-inducted Worker Drills into Colleagues Ankle

5.1. Situation and Issue

The proper procedure for working on a construction site is to look after yourself and those around you by working safely and reporting the unsafe working practices of others.

In this scenario, a worker was drilling a hole through a wall at a low level for some plumbing pipework. He was using a long drill bit due to the thickness of the wall and the size of hole that needed to be drilled.

On the other side of the wall, the workers colleague was installing the radiator that the pipework would be connected to. Suddenly the drill broke through the wall and the drill bit ended up protruding 12 inches from the wall, making contact with the radiator installers ankle.

Investigations showed that neither of the workers had passed the site induction and neither had and formal Health and Safety training. Incredibly, the worker who received the injury was back at work within a week with only a flesh injury.

5.2. How BuildingIM Solves This Type of Issue

For any worker to access the site they would have to be authorised by the site induction team on the Construction Workflow Solution (CWS) platform. The CWS platform would store the Digital ID of the worker which would be linked to all training courses and inductions that they had attended.

By allocating a worker a Digital ID for life, BuildingIM Ltd can offer an independent data store to all site managers regarding which courses every person on the site has passed and when they expire, helping to lower the chances of Health and Safety incidents like the one in this scenario.