GRID MESH CLIP- DESIGN INDUCED HUMAN ERROR?

A FATALITY IN HIDING

A Grid Mesh Clip is a clip which is used to hold a piece of grid mesh flooring by clamping the mesh to the supporting structure – the mesh is held in place by the clamping force – friction.

The style of the clip I am talking about is one that is screwed up tight by a battery operated screwdriver on the clamping bolt.

Before you read on – what can go wrong here??

During a routine walk around of a construction site – a single grid mesh clip was observed in a barricaded area on the concrete floor of a large screen house (30 m X 30 m). The floor was absolutely clean.

Question *– Why was this spotted and of interest to the safety inspector/adviser and would you have seen and questioned this ?*

The safety inspector/supervisor always adopted a forensic approach to inspections and employee behaviour. The inspector looked for seemingly small changes in the work area and if it did not make sense – looked further to explain the why – The Devil is in the Detail.

This observation and follow through potentially saved lives and occurred not long after another contractor's employee had fallen through loose grid mesh to the floor below and incurred a fatal injury.

This is why safety inspections *must never be done as a "Tick Box" exercise* to satisfy safety reporting key performance indicators (KPI's).

Question *– Where had it come from, had it fallen from above?*

Some days previously the floor above had been covered in grid mesh panels and clamped into place with grid mesh clips.

The floor area had been examined at the time and found to be installed safely and had been opened for general access.

There had been a fatality on this site several weeks previously when a person stepped on loose (unclamped) grid mesh which moved out of position, and he fell to the floor below. This area was still under construction and had not been opened for general access.

In many circumstances this single clip would have been ignored by construction personnel and put down to poor housekeeping but in this case, being lazy about the situation was not an option for me as I am a curious cat and will follow leads until an explanation was evident.

I teamed up with the area construction superintendent and we examined the floor above to see if there were any loose panels or missing clips.

Some panels were found have at least one loose grid mesh clip (out of a minimum of four clips per panel) and in some cases more than one loose clip per panel – pretty scary!!

The entire building was examined, and many loose panels were found, and some had lost grid mesh clips.

The reason the clips came loose is that they were over tightened to such an extent that the clip was bent in severely and lost structural integrity and consequently lost contact with the adjacent structure, allowed the panel to become loose and in some circumstances allowed the clip to fall out through the grid mesh.

Question *- Why were the clips overtightened and bent out of shape?*

Design of the Grid Mesh clip did not prevent overtightening and bending the clip

Installing grid mesh clips is a boring and repetitive, long job and assigned to any available trades assistant. No initiative was required, they did what they were told and then left alone.

The trades assistants had no training or understanding of the importance of doing the task correctly every time and the torque type screwdriver had no torque limit on the force it could apply to the screw.

In this case – astute observation, questioning and seeking real answers paid off and we avoided the grim reaper.

Lessons

- Do not be put off by Senior Managers who think these sorts of issues are trivial as they are too busy and not risk oriented – follow your instincts.
- All construction tasks require a quality installation procedure, training and supervisory reinforcement and routine site checks – especially when fixing structural and barricading elements.
- Treating your work force with a "Just do what I say" attitude is certain to get a poor and sometimes a catastrophic result down the track. You don't need the expense of rework and loss of trust from the client.
- The "Devil is in the Detail." Construction inspectors must be knowledgeable and anal on the detail and implications of any defects. The "Sherlock Holmes" approach

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