

Here is the footage from “Site Safety Seminar for Capital Works New Works Contracts”, which was held on May 12, 2014

The speaker is Mr. Eric WONG, Unit Safety Manager of Gammon

His presentation topic is “ELS Dismantling, Prevention of Fall of Person through Lift Shaft Opening, Working Near Moving Plant & Flame Cutting”

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Thank you everybody. I have four cases to share. The cases all share common causes on which you may reflect. In many accidents, not only were people injured, but also some were dead. It is not only a problem faced by themselves, but also by their families. Now let me share with you a short video to begin discussing the first case, which happened at a foundations work site. Just as usual, our workers worked at site in the morning. To do the lifting, normally we have a signaler and a rigger to help out. At that time, a rigger with 15 years’ experience stood here to watch objects being lifted from the basement below. When the crane and crawler were operating, look at this place, a person was crushed by the rear part of the crane to death. In other words, when the rigger was watching the process, he was not aware of the moving body of the crane and did not think it would hurt him. Since he was not aware of the danger, he was trapped.

We investigated the course of the incident. We found the rigger had 15 years’ experience and was responsible for the lifting works on the same site. Look at these fences, we called this “The Fatal Zone Management”, which were allocated and supervised by the rigger. We think there were problems on both communication and personal issue. He considered himself an experienced foreman/rigger, therefore he was relatively confident in carrying out this procedure and this caused him to become negligent or careless. After the incident, we reinforced the measures such as supervising the operation procedures and enforced installation of CCTV cameras and putting up yellow-black warning stickers at the back of all cranes. Let’s look at the same location again, many workers walked past under the crane. The inspection has revealed that not only the subject worker, but also other people at the site thought this area was not dangerous, so they always walked past it. It is a matter of awareness. We

need to pay attention to it. It does not mean there is no problem even if the incident did not happen.

Apart from the hardware, we also reinforced communication, as most people on site are not used to reading documents, hence, we conveyed the information, including the operation procedures to workers and frontline staff at site through graphics. We instruct the workers directly with clear instructions, if not, they will not understand the management's ideas. We use red fences to define the Fatal Zone that warn the workers not to enter this Zone.

Obviously, we would not use red fences for material storage areas. This could definitely help the frontline workers to do the right thing through better communication. Usually, the management had set a lot of rules and guidelines for the frontline workers to follow. However, the information was usually not clear. Especially for those companies owing a lot of sites and projects, the communication lead time may be longer, so we consider this way is rather effective.

The second case happened at a university campus under construction. What do we focus on in this case? It is one of their workers with many years' experience. During our accident investigation, the worker's colleagues told us that they had asked him why he did it that way more than once. I will share with you later in detail.

This is a university construction project which is in progress. At around 10:00 am that day, the worker was responsible to erect the frame for the beam. After constructing the foundation, we proceeded to construct the main building and basement. The worker cut the I-beams with oxy-acetylene and then lowered it down. Here was a pulley block. It is not the first procedure. He had cut 64 I-beams. He was working on the 65th one with another worker and cutting the beams with oxy-acetylene. Let me show you the video that clearly recorded the whole process. Thank you.

It does not have sound. They are simulating the situation at that time. The person who died stood inside and tried to cut this beam. You will see that the pulley block was pulling an I-beam which did not balance well. When he completed cutting the I-beam, the beam fell on his head. Soon after he shouted once, he passed away. As we observe the incident, the co-worker was in the vicinity helping him. It was also the first time to fasten the roadblock in this way. He leveraged the nearby I-beam to lift the pulley. It

was easy with the first 64 beams that he only needed to lift at the two sides. Just like this one. He only needed to pull the beam against the pulley at wall and cut the legs so that he could lift the pulley block. The I-beam, thus, could be settled on the ground. However, things went the other way round. You can see the I-beam was pulled this way horizontally. The co-worker had asked him twice, saying 'your procedure is different this time', but the worker only replied, 'I know what I am doing'. This was what the co-worker told us after the accident. After the incident, we had a practice that, when we found there were changes from normal procedures, our frontline foreman will have to discuss the construction methods with workers. This is also the aspect we think we are fairly weak. We have improved and reinforced various kinds of measures, in terms of construction methods.

We now use graphics to explain to frontline workers what they need to do step by step and where they should stop. We call it the 'hold point'. This is where they should hold on, meaning they should do something at the hold point. Take procedure of scaffolding as an example. If you start climbing the scaffolding as you move from step one to step two, you need to wear personal protective equipment and take some other steps before you move on to the next step. All these have to be stated clearly in the risk assessment when engineers are preparing the construction methods and frontline workers are carrying out the procedures.

Another kind of measure is Dynamic Risk Assessment (DRA). After this fatal incident, we have reinforced procedure management. The DRA requires them to observe the site with frontline workers every morning or afternoon. No matter what has been changed in environment or procedures, they need to communicate with workers, helping them know what to improve in terms of aspects from man, machine, material, methods and environment. For example, there would be many types of work in a factory or other sites. People of one type of work or a subcontractor do not coordinate with people of other types of work. The liaison and management were performed by the main contractor who decided whether subcontractor A or B should do it first. Then, DRA can come into full play. I hope I can share with you this kind of tools or anything applicable for you to think about. In terms of site management, we have additionally had Real Risk Review Meeting. This meeting is different from common site safety committee meeting or sub-contractor meeting. This one to one-and-half-hour meeting is attended by the site manager and the team only, without the presence of subcontractors. Take our five buildings as an example. Each block foreman needed to discuss if there was any need to modify construction methods or anything that obstructs the construction. This is a meeting for communication.

The site manager should sit down and listen if team members have met any problems. If yes, another meeting will be needed with an aim to take care of every detail in the plan. This is because, we observed from many incidents, including the cases we shared, many problems could have been avoided and the incidents would not have happened if we have a more detailed planning.

So why do subcontractors need not to participate in the meeting? It is because it will only make the meetings long-winding. Frontline workers and subcontractors usually have a lot of questions, but this meeting is to let our team to know what to do and what procedures to follow at sites; as well as truly designing or carrying out the plan, before discussing the construction methods with the subcontractors. These two important tools were conceived after the incident and have been used till now. The effect was quite good.

Let's look at the next case. The incident took place a few years ago on a Sunday at a commercial building. I am not sure if you will share with me the same feeling that it is very dangerous to work on Sundays and public holidays. In this incident, there was a worker responsible for lifting a crash deck inside the lift shaft that day. He was standing in front of the lift shaft, unluckily the lifting system was not installed well, and there was also a design problem in which the winch was ripped off from its floor mounting hitting him and pulling him together into the lift shaft. Photos will be provided later.

Let me talk about the background of the incident. The number of monitoring staff including frontline foremen and site managers on Sundays was relatively low. Thus we depended heavily on the supervision by subcontractors because they were familiar with lifting crash deck and that was not the first time they carried out the work. However, on that day, the worker responsible for signaling was on 20th floor. When the crash deck was raised from 14th floor, he needed to inform the worker responsible for controlling the winch when and where to stop. As the crash deck rose to 19th floor, but the installation of winch and pulley on the wall was substandard because they only put two instead of four anchor bolts onto the wall, causing the failure of the whole lifting system. When the winch and pulley were broken at the same time, part of the wall was taken down by the pulley, pulling both the worker and the winch down to the lift shaft.

After the incident, we pay more attention to work on Sundays, such as site supervision, construction methods and inspection of machines by registered professional engineers. The lifting system became the main investigation area of our team. Of course I hope everyone can understand that each time an incident happens, more restrictions will be put onto the system. It will bring about some noises and problems. Nonetheless, if we are to attribute the case to a number of factors, I want you to know that it is not the lack of trainings. We always said people were lack of trainings and more trainings should be provided, but I could tell you it is not true. We investigated the serious incidents in our company in the past three years. We arrived at a result that trainings for workers were enough. It is just that most of the time, it took less time on explaining the procedures, design and planning. In the incident that took place at the university, I can tell you that the construction methods were approved that day in the afternoon. Most of the time, the 60- or 70-pages construction methods were only something for consultants' and clients' reference. After the submission, it will be put into the drawer without much value.

I want to emphasize that, if we want to avoid similar incidents, the whole team, including our safety practitioners, frontline workers and project managers to formulate the methods. The most direct thing to do is to go to the site and see if the methods are feasible. Now I understand many of our site projects have involved such procedures. I am not too worried about those high-risk procedures, because the procedures are monitored by a lot of people. Workers do understand. The workers are under the supervision of many people with stringent inspection procedures. Usually people will neglect the dangers of normal or ordinary procedures, where the accident would happen.

So why do we have Real Risk Review Meeting? What are "real risks"? It means relatively high risk activities. Take Easter holiday as an example. Many workers would apply for annual leave during the long holiday, right? Take three days of leave for six days of holiday. But you should not forget that the manpower of construction industry is always insufficient. For example, if the foreman of Block 5 is on leave, the project manager will ask the foreman of Block 4 to monitor Block 5, but it is already very busy at Block 4. Problems will arise when your workload is increased as others are on leave, right? How can you manage so much workload, but to rely on the subcontractor? We all understand the work of a subcontractor. He may need to take care of the sites around Hong Kong. When you called him and asked him where he was, he usually answered that he was at another site. So it is important for us to address the problem directly. It is the problem that our company are encountering. I

won't say it is the best solution, but we can take some measures after identifying the crux of the problem.

From this incident, we can see the problem of working on Sundays. When you are having your holiday, it's not really a holiday. There are still people working at the site. In this regard, we enforce stringent procedures for working on Sundays and public holidays. If you need to work on Sundays, you need to apply on Fridays and get the approval from our Board members. So will the problems be prevented? Of course not. I am not going to talk about the winch and pulley in detail, but clearly the whole installation of lifting system was problematic. As I said, there were problems with the anchor bolts.

The following case took place at a mall under renovation. You may consider this hilarious when you hear it, but it did happen. The story was simple. When a welder was performing oxy-acetylene flame cutting, he had done all the measures, including getting hot work permit and laying a fire blanket before the work. Since the work was to be done at a mall, the client would ask for the protective measures. The worker did everything, including wearing a mask and making the fire blanket wet. So here came the problem. The worker mistakenly took a bottle of "thinner" for water and made the blanket wet with thinner. He should have smelled it right? The problem was that he couldn't because he was wearing a mask. It was a real case. Now he has recovered, but the wounds are still there. No worries. He is still alive. It was a 2nd-degree burn. There was no problem with his working procedures. The problem was that the thinner was contained in a water bottle. When he was about to soak the fire blanket, the co-worker at the site handed him the bottle without checking it. The worker trusted the co-worker and soaked the blanket with the bottle. When he turned on oxy-acetylene, he was immediately caught in a fire because of the high density of thinner. You may see his clothes were not burned seriously, but because of the high density of thinner he suffered from a 2nd-degree burn.

It is such an easy task, to cut these steel angles with oxy-acetylene. No matter what work you do, welding, oxy-acetylene or using a cutting machine, you or foremen need to fill out the hot work permit. The problem is if the person has checked out the working environment before he fills in the permit. The case is the same with filling a ladder form if you need to use a ladder, isn't it? It is just the same.

By discussing this case, I want to bring out the problem. The foreman may not have inspected the sites before issuing the permit. He may even issue a pile of permits in advance for people to take or safety officers to check with, right? When we check the hot work permit, we need to inspect the site first. We should not take the permit as a pass. Such case may not happen often in reality, but the case, just like the fellow said, happened when all the factors joined together. This was the problem we discovered when we inspected the scene and listened to the worker who worked with oxy-acetylene.

Now we have shared all the four cases with you. Now I would like to share with you this short video. We organize a reflection seminar every half year. The aim is simple. We want everyone to stop and think. The video is a story adapted from a real case in which the worker could recover. The story is worth-thinking for either the foremen or his boss. If the same working procedures are to be taken again, what they will do?

The video presented a true story. Of course we had found some actors to make the video. Apart from the subcontractors' responsibility, site management staff and all participants involved in the working procedures shared the responsibility. We should not overly rely on subcontractors. This is the end of my sharing. Thank you.