Emergency Lighting

Are you in the dark about the importance of safety lights?

Visiting technical facilities at production sites is an integral part of our consulting. In particular, the infrastructure set-up, which does not belong primarily to the production process and only has a supporting function, allows important insights into the general operational processes – and even into the thought process of the production teams involved.

This correlation is even more interesting in industries with state-regulated products, such as the pharmaceutical, cosmetics and food industries. The production areas in these companies underlie strict regulations due to very high quality standards, and therefore they usually are in good shape in terms of safety at work. However, the fact that an organisation is seriously committed to quality and safety becomes evident if the management also focuses its attention on surrounding areas.

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If we discover weak points there or conditions presenting a stark contrast to the production areas, it clearly reveals a certain kind of corporate culture: the company fosters a culture of reacting and obeying to rules, as opposed to showing initiative or self-reliant prevention.

Navigating hazardous paths

One example of our consulting experience illustrates this issue quite well: during our visit of a factory site at one of these above-mentioned industries, we also took a close look at the technical level of the large production site. This technical area was situated directly above the production level and only separated by an inserted ceiling. It mainly contained the technical equipment for air conditioning and lighting for the rooms of the lower levels, ▸

in addition to smoke detectors and sensors for detecting poisonous gases. Although there was no permanent work place on this floor, technicians regularly had to do maintenance and repair works on filters, ventilation systems or electric equipment.

On entering the technical area, we immediately noticed an obvious danger spot: it was only possible to walk on the floor on specifically marked pathways. In between these, the floor merely consisted of a simple, suspended ceiling for the production level underneath. Originally, this level was designed to be one large room without any internal partitioning. After a number of additional building works, however, there are several walls and doors nowadays. In combination with the technical infrastructure, the walkways are narrow, long and winding, so that only insiders are able to find their way properly. It is also important to mention that there are no windows on this floor; it is equipped with electric lights.

The dangers arising from this situation only become evident when analysing the complex background. Therefore, many of our questions began with "What if…?" Our questions addressed mainly scenarios underlining processes that are outside of daily routine.

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At the far end of a winding path used by technicians for doing maintenance work on a pipeline filled with ammoniac gas for the central cooling device, we asked the following question: "What would happen if there was a power cut right now?" The workers reacted with surprise and then realised that it would become completely dark, since there was no emergency lighting for escape routes. When asking them how any person could possibly escape safely from these entangled and confusing paths, they answered that everybody nowadays owned a smart phone with a flashlight function. They also proposed the idea of supplying torches as part of the workers' standard equipment from now on.

However, would a torch in a worker's tool bag or even on his helmet be sufficient?

Humans in fact are visual beings. Sudden darkness deprives them of their most important natural sense and leads to disorientation. People sense danger in darkness and fear for their safety. This fear can rise to panic. Human beings tend to react differently in emergencies than we plan. Leaking gases or accidents automatically result in ▸

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a higher production of adrenalin and lead to unexpected or even unpredictable behaviour.

Another example of our consulting experience highlights this effect of adrenalin.

At a production site for synthesis of organic chemicals the technicians noticed the start of a fire while doing maintenance works. With great presence of mind, a young man from the team ran into the corridor to fetch the nearest fire extinguisher, while another colleague raised the alarm of the plant fire brigade. When the fire brigade arrived shortly afterwards, the fire had already been extinguished and the situation was under control. The young worker, however, felt an inexplicable pain in his knee. The pain became so severe that the man had to be treated by a doctor. It only transpired later that the young worker had apparently collided with a steel pallet in the corridor while fetching the fire extinguisher without being aware of it. His level of adrenalin had been so high that he did not even realise his injury, which became so bad that he had to rely on support when he was walking.

In rooms without any daylight a complete failure of the lights and sudden darkness can easily lead to a feeling of confinement, triggering an escape reflex. In an extreme case, the rapidly rising level of hormones may lead to panic. In such a case, a systematic search for a torch is not imaginable.

Considering the confusing ways and hazards of falling down in the above outlined case, a severe accident is more than likely. If in addition, poisonous ammoniac gas evaporates, thus making a fast escape vital, the situation will consequently result in a fatal incident.

What is the solution in an emergency?

A simple solution for minimising the risks of accidents in emergencies is safety lighting. Functioning safety lighting has to be in place exactly for dangerous situations like these, when the regular electric lights fail, since it shows people the safe way out. Technically, it is easy to set up safety lights with battery-powered lamps, which also function in a general power cut. Safety lights have to be visible in every room. In addition, they should be marked with a clear symbol, pointing to the emergency exit with an arrow.

The question is why had this simple solution not been installed in these technical areas, despite being regulated by law in this particular country even though they were part of the instalments in other areas of the company site?

Apparently, an external expert view is necessary. Employees tend to focus on their daily operations, especially when there is a lack of time. These include the daily topics, such as productivity and quality, making the presence at other places necessary, where they have to regulate these issues again and again. In contrast, an external person is able to concentrate on crucial topics outside the core processes of production, for instance on safety at work. This way, the external expert reaches areas usually of less attention and gains more insight. Safety experts know from experience and due to their professional skills that very rare situations do occur, which may have terrible consequences. Therefore, they should always have awareness and think in advance according to the motto: "What would happen, if…?" It is important that they engage in a discussion on all possible scenarios in a constructive way, without being a know-it-all.

The example of the production site we were visiting revealed that neither the members of the management team nor the safety experts of the company had ever been in the technical area before. Moreover, the maintenance and repair processes were not integrated sufficiently into the risk assessment system. After identifying the risks and analysing the causes, it was easy to find effective measurements for minimising safety risks. The management, consequently, decided to allow maintenance work on the technical floor only with two workers being present. Furthermore, it became obligatory to carry emergency filters in case of gas leaks. Naturally, the management also resolved to install appropriate safety lighting. After a short discussion, the safety lighting also became part of preventive maintenance to ensure it works properly in an emergency. Technical experts are capable of imagining different causes for problems, which normally evolve without notice and therefore may lead to technical failures in emergencies.

Fortunately, the team itself had the idea that the underlying causes of the problem might also exist in other places. Consequently, without any exception, all areas of the ▸

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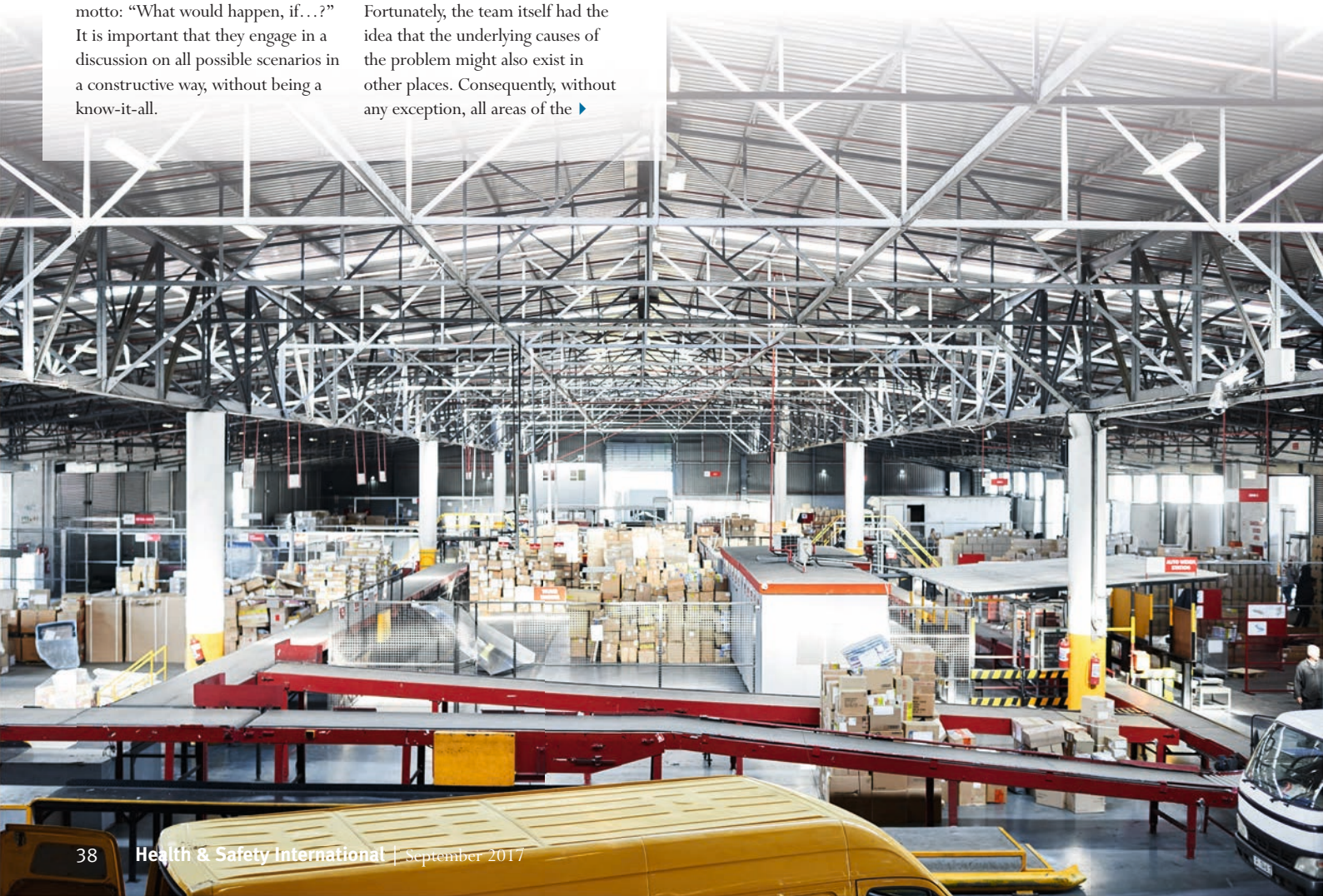

company became an integral part of the regular site visits. Organisational blindness was also an important topic of discussion: It was commonly agreed upon that colleagues from other departments should participate in future visits and share their observations.

One question remains: How can we train an organisation to look at things the way we do? The key element for motivation is willingness to observe closely, in order to identify weak points and remove them. This requires time and the ability to question all kinds of situations and to listen carefully. Since this process binds resources and demands certain qualifications, it can only be implemented top down in the company. However, to ensure its success, this approach has to be communicated through all levels of the organisation, while being enforced by the management. Safety at work relies on real commitment by the top management. If this is missing, the future looks dark. ■

Authors

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Elke Werner-Keppner graduated with a Master's degree in Educational Science and Psychology from Heidelberg University and founded etalon in 2016 after more than 20 years as a trainer, consultant and the last seven years before as general manager in a consulting company for behaviour oriented safety. She started her career as a freelance trainer and consultant for international companies with a focus on HSEQ – communication, leadership, cooperation in teams and change management in organisations. Elke is specialised in concepts and strategies for change processes in multi-national companies, supporting safety culture in various companies and industries.

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Dr Volker Koch holds a PhD in Chemistry from the Leibnitz University in Hannover and is General Manager at etalon international GmbH. In the course of his more than 25-year career as an EHS professional in multi-national companies he gained deep insights into different industries and got sound knowledge in the fields of safety and environmental protection. He led different EHS organisations and successfully initiated and managed sustainable change projects as well as optimisation processes.

The company

etalon international GmbH

The German based etalon international GmbH was founded by Elke Werner-Keppner and Dr Volker Koch based on their experience in supporting and leading change culture processes with innovative tools to improve knowledge, attitude and behaviour in multi-national enterprises. With its strong roots in behaviour oriented occupational safety, etalon is able to offer on one hand a broad scope of expertise ranging to environmental protection and health and on the other hand leadership development and coaching. The etalon team comprises experts with more than 20 years' experience in the fields of psychology, environmental protection and communication.

All team members are working in close cooperation with their clients as qualified specialists in projects as consultants, coaches, trainers, lecturers and seminar leaders and contribute to the successful management of customers' projects.

etalon carefully regards culture, history and leadership attitude of each client as unique and applies customised solutions in order to maximise the effectiveness of its services and products.