

BILFINGER

now!

we can

Safe and sound:
Using acoustic sensors to
detect defects in bridges

we care

A clean act:
Reducing emissions
with SCR catalytic
converters

we create

ALWAYS PLAY IT SAFE

Why occupational safety is part of our DNA
and how you can benefit from it.



BILFINGER

OCCUPATIONAL SAFETY

SAFETY FIRST: IT'S IN OUR DNA

Bilfinger employs around 36,000 people. For all of them, “safety first” is much more than a catchphrase. Occupational safety is a key component in our Mission Statement, corporate culture and everyday work

If there is one maxim that is paramount for mechanics, welders, scaffolders – basically, for all employees who work at industrial plants, on construction sites and offshore platforms – it's this: safety first. But accidents can also happen in offices. That's why we call the attention of our entire Bilfinger workforce to occupational safety on a regular basis as part of the Group-wide “SafetyWorks!” program.

RULES AND PROACTIVE STEPS

All occupational-safety measures are founded on training courses. In terms of content, they start with the Life Saving Rules, our seven elementary ground rules that apply to all employees and executives throughout the Group. These rules are designed to sharpen awareness for potential risks. A broad spectrum of courses and instruction, which vary by sector and job, then build on these rules. They deal with subjects such as the proper way to handle personal protective equipment or hazardous materials. Occupational safety guidelines are uniform throughout the Group, with some purposely designed to exceed the respective country's laws and requirements.

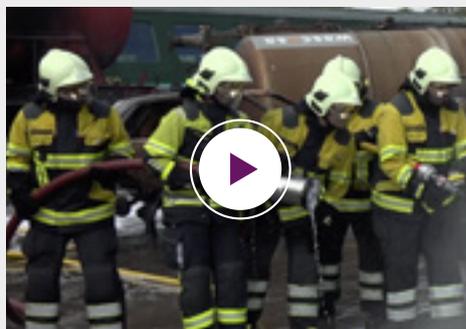
“Safety Moment”, published monthly, is another tool that brings home to staff the importance of occupational-safety matters. In “Safety Moment”, the Executive Board member responsible for Health and Safety or the division heads focus on a specific aspect where employees can contribute to enhancing safety in their day-to-day work.

In-house competitions are an added incentive to further boost safety standards. Time and again, our employees pinpoint safety shortfalls and put forward suggestions for improvement. The Executive Board presents the annual Safety Award to units whose special ideas or campaigns help raise awareness for safety and lower the accident rate.

OCCUPATIONAL SAFETY

STOP IF UNSAFE

How Bilfinger keeps employees out of harm's way



Safe and sound:
Bilfinger staff service
a chemical-industry
plant in Gersthofen,
Bavaria.

Title illustration: Jochen Stuhmann; Photos: Bilfinger



OUTSTANDING TRACK RECORD

All these measures are geared to entrenching safety even more firmly in our corporate culture. And they are succeeding: numerous Bilfinger entities boast excellent statistics and have received accolades from customers for them. Most recent examples are Bilfinger UK and Bilfinger Industrial Services België/Nederland. The British company has recorded more than 16 million hours worked without a lost time accident; in the Netherlands, the 450 employees working at the Shell-Moerdijk facility have passed the two-million-hour mark without a lost time accident. Another unit with an excellent track record is Bilfinger Industrier Norge, which was recently honored as Contractor of the Year by Esso in Norway.

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Our current campaign presents six specific steps which need to be systematically followed to ensure safe working.

NEW INITIATIVE

SIGHTS FIRMLY SET ON SAFETY

“We make permits work” is the motto of Bilfinger’s latest safety initiative. As the name implies, it focuses on the best way to handle permits. These are documents authorizing service providers’ employees to perform defined tasks on specific sections of a plant. The campaign aims to motivate employees not to merely rely on the information given in the permits; instead, they should check closely whether the requirements for working safely have in fact been met. The watchword here is: “Start safe – stop if unsafe.”

We value Bilfinger as a reliable partner – not least because the company meets our high standards when it comes to safety and shares our values.”

NILS WEBER, HEAD OF PRODUCTION AND TECHNICAL DEPARTMENTS,
TOTAL BITUMEN DEUTSCHLAND GMBH



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questions for...
Duncan Hall

Duncan Hall has been Chief Operating Officer of Bilfinger and an Executive Board member since 2019.

Occupational safety is firmly established in our Mission Statement. What is Bilfinger doing to ensure the highest standards?

We are executing safety every day. Literally, "We Make Safety Work" by focusing on delivering the right behaviors that lead to the right results. Our commitment starts at the top with our senior leaders all spending time engaging with our personnel at their workplaces – whether this is carrying out a safety walk at a refinery, a "safety moment" briefing in the office or sharing with colleagues the lesson learned from a near miss. All our leaders and first line managers know: their primary role is to demonstrate safe behavior and inspire our people to practice it every minute of every day. This focus on the part of our staff to make safety work is key to ensuring the constant vigilance needed to perform to the highest standards across the world in the varying industries in which we work.

To what extent do our customers benefit from this attitude?

It is a win-win situation. Working with like-minded customers is essential to driving performance improvement in both safety and efficiency, as these go hand in hand. Not only do we all have a corporate and social responsibility to keep our employees safe but a moral one as well – and our customers share the same outlook. A safe working environment and culture to build from is key to successfully driving incremental performance improvement.

Is a good safety record a competitive advantage?

Definitely! Safety is good business. When you deliver the right safety behaviors and results through multi-level engagement, you also have the time and data to improve effectiveness. The observations and feedback we get while interacting in the field show us firsthand the existing and emerging challenges our operatives face. By addressing these as part of a continuous improvement or lean process, we increase our effectiveness, making us even more competitive.

DOING A WATERTIGHT JOB

Special training and expertise are key to ensuring that flanged connections seal tightly. That's why Bilfinger also relies on augmented reality



Flanges are a common feature of process industry equipment. Their main job is to connect pipes. So above all, flange connections must be leak-proof and hence safe. But they should still be easy to undo and re-connect if, for instance, a seal or pump needs replacing. Employees at Bilfinger Industrial Services in Austria who undergo the training required to perform this work now make use of augmented reality spectacles that project holograms with additional information into the wearer's field of vision.

The training program comprises a theoretical and a practical component. Part of the practical training entails using a flange tree to practice opening connections, adding seals and correctly reassembling everything. Participants see the flange tree through the augmented reality spectacles, along with additional information and assigned tasks.

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"The digital technology lets us keep the training program leaner while also getting young people excited about an interesting activity."

GERHARD CIP,
BUSINESS UNIT MANAGER,
BILFINGER INDUSTRIAL SERVICES

THE BILFINGER MOMENT

SOUNDING OUT BRIDGES

Using Structural Health Monitoring to record changes in bridge integrity

CHALLENGE Are there cracks in the steel of an aging highway bridge? Our experts set out with an innovative method of testing for such defects

Close by the little German village of Eichenzell-Döllbach just south of Fulda, a roughly 20-meter-high highway bridge spans the Thalaubach stream, a road and several dirt tracks. Supported by 12 solid pillars of light-colored concrete and with a steel superstructure painted in blue, the bridge measuring some 300 meters appears sturdy. But looks can be deceiving.

The Thalaubach viaduct was opened to traffic in 1968 as part of the Rhönlinie route. While at that time, this section of highway ran through the economically underdeveloped area of former West Germany that bordered on East Germany, today, it forms part of the A 7 highway. When the highway was planned in 1959, traffic volumes were predicted to reach 17,000 vehicles per day in 1980. In reality, the figure was over 23,000 then – and had already risen to as many as 56,500 vehicles per day by 2015. This heavy-duty toll has made the steel structure brittle. Having reached the end of its life cycle, the bridge needs to be replaced in the next few years. Until then, it is critical to closely monitor the structure and respond immediately to any signs of damage.

To ensure that the bridge is kept under continual surveillance, those responsible at Hessen Mobil, the regional road and traffic management authority, decided to make use of an innovative solution offered by Bilfinger Noell in 2017. Acoustic emission testing is a tried and trusted measuring technology in many industries. The Bilfinger Noell experts have fine-tuned the technology to promptly detect and precisely locate any defects that start to form on bridges. Every hairline crack in a weld or minute change in the structure's fabric results in acoustic emissions. Sensors positioned at strategic points on the bridge provide data for round-the-clock assessment by a software program. Serious changes trigger an alarm, allowing Hessen



Alluring, but ailing: The Thalaubach viaduct in Germany's federal state of Hesse is to be replaced with a new structure starting in 2022.

Mobil to respond instantly to any damage sustained – including, if necessary, completely closing the highway.

Measuring acoustic emissions is an innovative and reliable method of monitoring bridges. It generates significant value added for operators and is now also being used on the Salzachtal bridge near Wiesbaden. Additionally, the technology is suitable for monitoring tunnels, other structures and machinery.

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STRUCTURAL HEALTH MONITORING PITCH-PERFECT SOLUTIONS

How Bilfinger Noell assures bridge safety



AVOIDING POTENTIAL EXPLOSION

Gas-tight habitats with overpressure make working in high-risk areas safe



In many areas where Bilfinger operates, explosive gases are extracted or processed. So working around gas facilities – on oil platforms or in the chemicals industry, for example – calls for the very highest safety standard. After all, in the event of a gas leak, even a tiny spark can cause a devastating explosion.

Headquartered in Aberdeen, Bilfinger Salamis UK has developed a system to conduct work such as welding on pipes safely: the Bilfinger Advanced Habitat System. The habitat lets the company offer customers, particularly those in the UK and Norwegian oil and gas industry, the very highest safety standards. A gas-tight habitat with overpressure that is set up around the work area forms the heart of the system, allowing work to be performed safely inside the enclosure. Multiple gas detectors monitor the system. Should gas be detected, the electric feed to power appliances such as welding tools or grinders is automatically shut down, thus avoiding the risk of an explosion.

Certified to the standards of the EU directive on work in explosive atmospheres (ATEX), the system significantly reduces the risks associated with working around explosive gases. That enhances safety for workers and the entire facility.

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Thanks to selective catalytic reduction, nitrogen oxide emissions at cement plants can be slashed by over 90 percent.

KNOW-HOW AT WORK

Transferring expertise successfully: SCR catalytic converters used in power plants now also benefit the cement industry

Bilfinger has decades of experience in optimizing and upgrading industrial processes as well as lowering the associated costs. This rich seam of experience is the foundation of our cross-sector capabilities when it comes to boosting the efficiency and availability of plants. Now we have adapted our proven skills to the specific needs of the cement industry.

This sector is currently facing the challenges involved in complying with stricter emissions limits for nitrogen oxides (NOx) and ammonia. So measures are called for that reduce factories' emissions of pollutants. Bilfinger came up with a solution enabling a prestigious customer to slash NOx emissions by over 90 percent through the use of an SCR (selective



catalytic reduction) reactor. This process allows nitrogen oxides already produced to be subsequently removed from the flue gas through a reduction reaction. In our work with this technology, we draw on decades of experience in flue gas denitration – a process Bilfinger has implemented in more than 50 power plants and waste incineration facilities to date.

Now we can also offer our customers in the cement industry an efficient solution that has been optimized to meet their specific needs. It will help them comply with standards while lowering implementation costs.

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ENGINEERING & MAINTENANCE

SCRUBBERS FOR NORTH AMERICA

Bilfinger's scrubbers are a cost-effective way to reduce sulfur emissions in ships' flue gases and meet the environmental requirements that will take effect starting in 2020. Going forward, more than 70 ships will employ our technology. In cooperation with Bilfinger Engineering & Technologies, the E & M North America division now also offers scrubbers in North America. Presented at an event staged by the Connecticut Maritime Association attended by some 2,500 visitors, the technology attracted a great deal of interest.

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Tom Blades has been Bilfinger's CEO since 2016. He considers occupational safety and compliance to be key elements in our corporate culture.

SUSTAINABLE BUSINESS MODEL

"Bilfinger's business model is designed with a long-term perspective. It is not short-term economic success that counts for us, but the sustained, growth-oriented development of our company. So we set great store by the integrity of our employees and our suppliers alike. Meeting our compliance standards and adhering to our occupational safety rules is a prerequisite for working with us."

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TECHNOLOGIES

PHARMA TECHNOLOGY FOR RUSSIA

Specializing in pharmaceuticals-industry plants, Bilfinger Industrietechnik Salzburg has now secured its first contract in Russia. The customer NovaMedica has tasked the company with designing three systems to produce chemical and biochemical products, emulsions and cytostatics under aseptic conditions. The production equipment will be installed in a newly built pharmaceutical complex within the Vorsino industrial park, 190 kilometers southwest of Moscow.

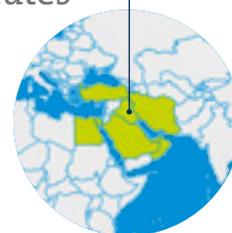


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ENGINEERING & MAINTENANCE

Bilfinger Deutsche Babcock Emirates employees were rewarded for a job well done: a turnaround in Abu Dhabi led to a contract for additional work on two furnaces. The tight deadline brought unique challenges. Thanks to the team's tremendous dedication, the two furnaces were completed on schedule – and with an outstanding HSEQ record totaling.



77,000 hours without a lost time accident.

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www.bilfinger.com