

# HILTI

**3rd Int. HSE  
Manager  
Conference**  
April 17-18, 2013



**HSE**

**Summary.**

**Hilti. Outperform. Outlast.**

## Program

### Wednesday, April 17, 2013

19:00 Networking Dinner

### Thursday, April 18, 2013

09:00 Welcome coffee

09:30 Welcome speech

09:45 Prof. Dr. Juhani Ilmarinen, Expert on age management and work ability:  
Concept and practices to promote work ability

10:45 Dr. Martin Braun, Fraunhofer Institute IAO:  
Organizational and technical measures for health prevention at construction sites

11:30 Dr. Andrés Wellmann, Head of Noise and Vibration Competence Center,  
Hilti: Hand-arm vibration management and technologies at Hilti

12:15 Networking lunch & HSE exhibition

13:45 Lawrence Waterman, Head of Health and Safety for the  
Olympic Delivery Authority, London 2012:  
Managing health at European largest jobsites (2006–2012)

15:00 Frank Becker, Head of Corporate Unit HSEQ,  
Bilfinger Construction GmbH/ENCORD: Best practice example

16:00 Summary & closing (ends at approx. 16:30)

### Friday, April 19, 2013

08:00 Transfer to BAUMA Trade Fair in Munich

10:30 Estimated arrival at BAUMA

14:30 Transfer to Stuttgart Airport

17:30 Estimated arrival at Stuttgart Airport

The official language was English.

## Ladies and Gentlemen,

Thank you for your interest and thank you for joining us at the third edition of the International HSE Manager Conference in Stuttgart on April 18. Many of you attended the conference for the second or third time – this proves that we are on a good track towards establishing a sustainable network of HSE experts. We were also very pleased about the “first time” participants who certainly brought an additional angle into the discussions and enriched the network with their experience.

We at Hilti are fully committed to our mission statement: “We passionately create enthusiastic customers and build a better future.” Understanding the growing importance of HSE topics for our industry, we see it as our duty to provide innovative solutions to continuously improve the user health and safety and further limit the impact on the environment. We have invented Dust Removal, Active Torque Control and Anti Vibration Systems for electric tools. Furthermore, we strive to incorporate green building standards as well as innovations leading to improvements in performance and energy efficiency in every new generation of product.

During the last couple of years, our customers were becoming increasingly aware of health and safety topics. Therefore, we decided to organize a conference for HSE managers to provide a platform for experience exchange and cooperation on health and safety related challenges in the construction industry. The Conference combines tremendous experience and expertise from the largest construction companies in Europe as well as industry experts and thus provides a great opportunity to share ideas, learn about industry trends and network. In addition, we get insights into our customers’ needs and with that let our customers contribute to shaping our new technologies and products. Ultimately, our goal is to support the construction industry in increasing HSE on the jobsites.

European accident statistics’ speak a clear language. Accidents occur with much greater frequency in the construction trade than in most other industrial sectors. (Averaging 1083 fatal accidents per year, or 7.3 for every 100,000 employees). Accidents not only generate significant human suffering, they are also a big economic damage. As we have learned from a joint study with Fraunhofer Institute last year, each occupational accident results in an average absence of 18 days and generates 15,000 in cost. The last conference was built around the topic of safety and accident prevention.

However, occupational health is often overlooked in the construction industry as it concentrates on accident prevention. Occupational health issues are not always and immediately visible but can have the same devastating impact as accidents and injuries, often causing prolonged and long term health problems. Combined with the demographic changes in the past years, occupational health is becoming one of the biggest challenges the construction industry will face. Under these circumstances, we felt there is a need to address this topic in this year’s conference.

Thank you for your active participation and see you at the next conference!

Sincerely,  
Matthias Gillner, Member of the Executive Board, Hilti Corporation



Matthias Gillner,  
Member of the Executive Board  
Hilti Corporation



Prof. Dr. Juhani Ilmarinen, JIC Ltd

## Concept and practices to promote work ability

Extensive research on the work ability of older workers has identified the core factors affecting individual work ability. The research findings can be depicted in the form of a 'work ability house' with four floors. The three lower floors of the house describe the individual resources: (i) health and functional capacities, (ii) competence, (iii) values, attitudes and motivation. The fourth floor covers (iv) working life.

Work ability is the balance between work and human resources. When work and individual resources fit well together, work ability is good. Staircases between the floors indicate that all floors of the house are interacting. The strongest interaction exists between the floors of 'work' and 'values & attitudes' (floors 3 and 4). Positive and negative experiences at work penetrate into the 3rd floor, which will then be weighted either positively or negatively. The 3rd floor reflects and summarizes our work situation and represents a worker's subjective understanding about their work – their opinions and feelings about a variety of factors connected with their daily work. The 3rd floor has a balcony, from where the worker can see the environment closest to their workplace: (v) family and (vi) close community. These factors both affect the worker's work ability every day. The more positively weighted the 3rd floor, the more likely it is that one will have a good working life and longer career.

Healthy lifestyles and hobbies strengthen health and functional capacities. Personal networks and human interactions affect values, attitudes and motivation.

The operational environment of organizations tends to change continuously due to globalization, new technology, financial crisis, etc. As a consequence, the work to be done in the organization is under continuous development. Simultaneously, the organization's human resources change, for example due to ageing of the workforce. Health problems may appear, and the need to update skills and competences become more acute. The unexpected dynamics between the floors of the house makes it difficult to reach a good balance between work and human resources. As a consequence, we need to try to get the best possible balance throughout our whole working life.

### Work ability and ageing

Work ability can be evaluated by the Work Ability Index (WAI), a subjective survey instrument that consists of seven items. The WAI score ranges from 7 to 49; the higher the better. The WAI score is classified into poor, moderate, good and excellent. The WAI has a high predictive value: of those having a poor WAI at age 45–57 years, about 60% were on a work disability pension 11 years later. The WAI has been translated into 26 languages and is widely used in different cultures worldwide.

Work ability tends to decline with age, although the mean values of the working population from 20 to 65 years remain in the categories of good and excellent. However, about 30% of male and female workers over 45 years of age show a marked decline of WAI in both blue- and white-collar jobs. Also, the ageing trend of WAI is different depending on the sector of the economy. Work ability seems to be lower in farming and agriculture, the wood industry, the metal industry and transport, as well as in social services and in some countries among teachers. The best fit between work and individual resources has been found in electronics and telecommunication, banking and insurance.

### Promotion of work ability

The 'work ability house' model suggests that actions in the workplace to promote work ability should cover all four floors. The workers and employees are more responsible for their health and competence, and the employer has more responsibility for the organization and arrangements of the work. The promotion concept is therefore based on cooperation between the employer and employee: together they can create a better balance in the workplace and enhance work ability.



Health promotion (1st floor) covers a variety of lifestyle habits in terms of eating, drinking, physical activities, recovery and sleep. Besides a healthy lifestyle, preventive and proactive measures by occupational health services as well as good treatment of acute health problems play an important role in achieving good health during the life course at work.

Because many health problems are work-related, the health risks of work should be identified and prevented in the workplace (4th floor). The strong interactions between health and work demand an active collaboration between occupational health and safety experts, employers and employees.

Maintaining professional competence requires continuous updating of skills and competences (2nd floor). On-the-job trainings together with various types of special staff training courses give older workers the opportunity to strengthen their capacities. However, changes in the learning process of older workers should be taken into consideration. Learning strategies, learning conditions, the use of images, relaxation and timetables for acquiring knowledge vary between younger and older workers. Learning during ageing is an important success factor of active ageing.

Values, attitudes and motivation (3rd floor) are not often the target of direct interventions. They tend to be influenced more indirectly. This means that activities should be focused mainly on the work floor. People should feel that they are respected and they can trust their employer. They expect to be supported by the supervisor in demanding and difficult work situations. They need feedback on whether the work was done well, and also to learn how to improve their performance. The dialogue between supervisor and workers should be a continuous process, not a one-off annual appraisal interview. Fair treatment and zero-tolerance of age discrimination will be noted and appreciated by the employees.

The 'work floor' is the largest and heaviest floor of the house. It consists of the work environment (physical, mental, social), work organization and work arrangements, working time, the work community and work tasks, as well as management. The managers and supervisors play an important role because they have the authority to arrange the work processes and individual work tasks. They are also responsible for occupational health and safety matters, including risk assessments. Adapting work to one's abilities, skills and state of health should be a continuous and dynamic process. The redesign of individual work tasks according to the strengths, needs and capabilities of older workers is crucial to secure the work ability, well-being and productivity of the employees.

### Benefits of promoting work ability among older workers

Good practice examples demonstrate that the cost of investments in work ability promotion is outweighed by the benefits. People can go on working productively, the work atmosphere improves, productivity improves, and age-related problems decrease. Cost-benefit analysis shows that the return on investment (ROI) can be very good: the return on 1 amounts to 3–5 after a few years.

The positive ROI is based on lower rates of sick leave, lower work disability cost and better productivity.



Dr. Martin Braun,  
Fraunhofer Institute IAO

## Fit for the future: Prospects on occupational health in the construction industry

A good state of health and the capability to work for the construction industry ARE becoming increasingly important. The question is, what impact a healthy designed workplace and humane working conditions might have, and what sorts of technical or organizational prevention measures have to be put in place primarily to achieve this?

It goes without saying that the construction industry currently is undergoing major conceptual changes. There is a characteristic shift from offering services as a building contractor to being present in the market as a profitable developer with a comprehensive all-round service. In the public opinion as well as according to public and private project managers, there are many opportunities for improvements to communication skills, the recruitment of qualified employees, quality management and advice. Considering the points raised, it is undoubtedly the case that insufficiently coordinated procedures are prejudicial to the outcome of any development.

Regarding the job design, the requirements of construction project managers follow the demand for an improved coordination of construction processes and individual skills within the industry. Health research shows that coherent processes in production, working conditions and individual capabilities have a positive impact on the state of health of employees. To correlate this shows: the state of health of a company's employees is an important indicator for effective teamwork and coordination of all relevant value-adding factors within the construction process.

Apart from physical damages to the workforce's health, which can be for example caused by inappropriate manual handling techniques, there are an increasing number of psycho-mental issues. Stress, distractedness, fatigue or strain are some examples. They hinder cooperation within the group and hamper the individual's capabilities and motivation. Relevant surveys among employees and project managers indicate that these are already prevalent problems. Yet they are still worsened by the fact that a great number of craftsmen and builders fear, that they will be in poor health by the time they reach their retirement age. So they display a lack of motivation and are more often absent from their workplace.

In order to best meet the owner's demands for quality, the project managers need to foster the specific skills of their workforce consistently and improve the conditions for teamwork during the total construction process. There is specific evidence that shows that the owners have a great impact on the quality of their project; they have a formative influence on the framework for productivity and occupational health on the site. Good conditions for a productive and healthy way of working are gained by consistently coordinating all aspects of trades, activities and value-adding processes on the construction site and by including the expertise of all project managers, planners, specialists, subcontractors and authorities. The state of health leads the focus on the importance of developing the workability of the employees, as well as on a way to communicate with an inherent attitude of good practice that will lead to a positive outcome.

## Hand-arm vibration management and technologies at Hilti

Hilti provides leading-edge technology to the global construction industry and offers systems and services to the construction professional. As a continuous process Hilti is striving to develop new tools with innovative solutions adding outstanding value such that the performance and the robustness stay on a top level. However, by maximizing the performance the vibration of the tool and, by that, the impact on the user may increase. This impact of hand-held tools on the users is called hand-arm vibration (HAV). Long-term exposure to excessive levels of this kind of vibration can cause a range of injuries collectively known as hand-arm vibration syndrome (HAVS) such as neurological or circulatory disorders and bone and joint disorders.

Two key factors do mainly influence the susceptibility to HAVS: the vibration transmitted to the operator and the duration of exposure. In order to minimize the first key factor Hilti created a competence center "Noise & Vibration" as part of the technology area. Based on the diverse competences of the group members new innovative technical solutions – the so-called Active Vibration Reduction systems (AVR) – are developed in order to reduce the Hand-Arm-Vibration impact on the worker. For that, a strong cooperation of this competence center with other cross-functional areas like numerical simulation and testing are essential. Typically, the development of a new AVR system contains the following work items:

- Understand the machine movement based on measurements
- Transfer this knowledge to simulation models
- Evaluate and adapt theoretically proper and efficient AVR measures based on experience
- Simulate the functionality of the AVR measures using the same simulation models
- Prove the functionality in reality using prototype parts
- Adapt the AVR system in virtual & hardware loops in order to get finally to serial implementation

Based on this approach, Hilti provides several different AVR solutions which are available to the customer separately or in parallel within the tools. Currently, the following AVR measures are available:

- Reduction of the excitation by developing improved hammering mechanisms
- Dynamic absorbers in terms of linear counter masses
- Two-dimensional decoupling of the main handle
- Sub-chassis solution as a complete decoupling of the moving parts and the outer housing

The second key factor named above, the duration of exposure, has to be managed by employees and employers. In order to facilitate the correspondent risk management Hilti is offering another service to the customers, the so-called Tool Selector. This document enables the customer to select the safest and most effective Hilti tool for his applications. Additionally, risk analyses of the daily work can be done using the given productivity values.

Of course the workers also have the possibility to reduce the risk of HAVS by keeping the following hints in mind:

- Select tools with low vibration ("It works even if it doesn't shake you")
- Avoid application of excessive pressure ("Let the tool do the work")
- Use sharp drill bits, chisels etc. to minimize vibration and maximize performance
- Bring worn tools to repair centers to ensure a fairly constant quality level
- Consider alternative methods of doing the job, e. g. direct fastening or diamond drilling instead of hammer drilling
- Use gloves and keep your hands warm



Dr. Andrés Wellmann,  
Head of the Noise and Vibration  
Competence Center, Hilti Corporation



Lawrence Waterman,  
Head of Health & Safety,  
Olympic Delivery Authority

## The London 2012 Occupational Health Programme

When the Olympic Delivery Authority was built the facilities for the Olympic Games and Paralympic Games in London, it was allocated a fixed budget and deadline and a difficult contaminated site in east London. It was also given a regeneration target, to create a legacy of employment, sports facilities, green spaces to address the health imbalance across the city which meant that life expectancy in poorer areas was about 7 years lower than in the wealthy parts. The ODA determined that the health improvements would start with the site construction workers, and established a health programme to not just prevent harm but to also enhance well-being.

Health has been seen as difficult – largely because of the long latency between exposure and ill healthy, and because of confounding factors such as smoking, diet, genetics. It has also been seen as a specialists' area, requiring medical experts. The London 2012 programme was to be different, looking for some immediate evidence of changes in risk exposures and behaviour, and achieving this through supporting managers to manage health as they manage safety. This led to a three part health effort:

**Worker** health meant pre-employment medical checks, and medical examinations for the safety critical workers, health surveillance, drugs and alcohol testing and an emergency response team with a site ambulance.

**Workplace** health meant identifying the health risks that could arise – from the contaminated site, from the work activities and the materials to be used – and planning to eliminate or minimise the exposure to those risks. This is traditional occupational hygiene, but not common as an on-site advisory service to project management teams.

**Well-Being** meant using health promotion – campaigns on smoking, diet, skin cancer and other general health issues – to engage with the workforce in a practical way that changed perceptions of occupational health and increased its value to all.

The outcomes have been independently evaluated and published, and have demonstrated that:

- The clinical, treatment service on the Olympic Park and the Athletes' Village paid for the whole occupational health programme by reducing lost production time and getting people back to work efficiently following accidents or ill health.
- The ill health prevention programme showed a very positive return on investment as higher risk activities were more effectively managed and ill health was prevented.

Well-designed occupational health programmes are an investment, not a cost. The lessons from London 2012 are applicable in every sector, in every country.

The independent research evaluations may be found at:  
<http://learninglegacy.independent.gov.uk/>





Frank Becker,  
Head of Corporate Unit HSEQ,  
Bilfinger Construction GmbH / ENCORD

## Best practice example

Best Practice in general terms is a practice “which has proved to be successful”.

The discussion and communication of best practice is a fundamental part of our continuous improvement process and therefore part of our daily business. The European Network of Construction Companies for Research & Development (ENCORD) and its Health & Safety Platform is a good example for an active best practice culture. Joint discussions between experts from several European construction companies about their health & safety activities in an open and transparent atmosphere combined with the exchange of best practice examples are a step forward to reach a common target: Zero accidents in our business.

In order to find a mutual understanding, the Health & Safety Platform has developed a document describing how to measure the company’s health & safety data (KPI’s) on a common basis. Current statistics based on 1 billion worked man hours per year are indicating an improvement of the safety performance measured by safety KPI’s. However, safety KPI’s are showing an indication only but the real objective of best practice must be the improvement of the safety culture.

The level of maturity of safety culture within a company or an industry branch is representing a meaningful status of safety. Safety culture is dealing with changes in the behaviour of all people involved in the organisation and only an improvement in the safety culture of the people and the organisation does finally reinforce a sustainable improvement of the safety performance. Best practice examples like safety observation cards, worldwide safety days combined with the usage of technical/organisational innovations like rear view cameras, high-tech ear protection, incentive schemes, tool-box talks, etc. are supporting the improvement of this process. But at the end the biggest key-driver for improvement is our awareness. The awareness for safety of each person for him-/herself or for others is the last barrier before an incident or accident occurs. The good thing with awareness is: Awareness is free of charge! The bad thing is: We cannot buy it! We have to develop it and that takes time. Although nobody would give the statement that safety is not important, people have to be convinced what that really means.

Taking this into consideration the ENCORD Health & Safety Platform has started a new project with the title “The safe jobsite and return on prevention”. The basic idea is to develop thoughts about the optimum jobsite conditions based on the principle approach that there are certain barriers to overcome in order to move forwards from the actual situation to a future optimum construction site situation and this combined with an understandable and demonstrable way to show the positive return on efforts and costs for prevention.

A very good example of best practice to raise the awareness for safety and to answer the question “How can we raise the awareness of a well-known message?” has been developed by the company Bilfinger Industrier Norway (affiliate of Bilfinger Industrial Services). They thought about the first person who started to take care for us and who was always present to correct and to educate us, our mum! But can mum be present on site? Yes, she can. On the premises of Bilfinger Industrier Norway you can find now huge posters showing the mums of the employees together with important safety messages. An action which has been well received by all employees and reminding them day by day to work in a safe manner.

## Impressions of the conference



## Participants

### Austria

ALPINE Bau GmbH	Dipl. Ing. Andreas Wessely
A. Porr AG	Martin Sonnberger
Pittel+Brausewetter GesmbH	Jutta Petri
PORR BAU GmbH	Wolfgang Wiesner

### Belgium

FIEC (The European Construction Industry Federation)	Domenico Campogrande
--	----------------------

### Denmark

Pihl & Son A.S.	Lasse Bentsen
-----------------	---------------

### Finland

Skanska Oy	Marko Kuukkanen
YIT International Construction Services	Jukka Pietilä
YIT Rakennus Oy	Ville Sivunen

### France

Eiffage Construction	Jean-Louis Marotel
Vinci Construction France	Jean-Francois Sammarcelli

### Germany

BAM Deutschland AG	Frank Holder
Bilfinger Construction GmbH	Frank Becker
Bilfinger SE	Hans-Peter Reiss
Hochtief	Dirk Grosche
STRABAG AG	Michael Chaberny
Wayss + Freytag	Dipl.-Ing. Dieter Schmelzeisen

### Great Britain

Balfour Beatty	John Dunne
----------------	------------

### GR (Middle East)

CCC	Makram Nouriddine
-----	-------------------

### Netherlands

Ballast Nedam N.V.	Annette Reumer
BAM Group N.V.	Geert van der Linde

### Spain

FCC Construcción	Maria Carmen Urrutia Fernandez
------------------	--------------------------------

### State of Qatar

STRABAG International	James Reilly
-----------------------	--------------

### Sweden

NCC AB	Lars-Gunnar Larsson
--------	---------------------

### Switzerland

Alpiq InTec Management AG	Robert Grossenbacher
Cofely AG	Pascal Brulhart



Peter Cavada  
Corporate HSE Manager,  
Hilti Group

## With joint forces towards healthier and safer jobsites

Dear Conference Participants,

It was a great pleasure to meet all of you at the 3rd International HSE Manager Conference and to spend the day with such an interesting group of individuals who gather a remarkable amount of expertise and experience in various areas of Health and Safety. 26 representatives of key construction companies from 13 different countries and top-notch speakers were promising ingredients for inspiring discussions about the state of HSE and its future prospects. In reality, you exceeded all expectations by your active participation, sharing experience and thought-provoking comments throughout the whole day, and so contributed to turning the HSE Conference into a unique event of its kind.

The feedback round conducted after the event showed a high satisfaction rate from your side – about 90 percent of the 21 respondents participating in the survey rated the overall impression of the HSE Conference as “very good”. More importantly, the responses confirmed yet again the interest in participating in the HSE Conference in the future, and suggested the event to take place about every 1.5 years. This feedback goes well in line with our objective to provide a platform for a sustainable network of experts from the area of health, safety and the environment.

We will continue to offer regular opportunities for HSE experts to get together and discuss ways to a safer, healthier and environmentally friendly jobsite. Our aims for the next conference comprise bringing even more interaction in the event and highlighting hands-on examples in the presentations. In addition, we will explore how we could continue the experience exchange initiated at the conferences between the events, for example by setting up an online platform. It would be highly appreciated to hear your ideas and suggestions regarding the next conference or other activities within the HSE network.

Let us continue raising the bar in positively influencing the HSE conditions on construction sites!

Best regards,  
Peter Cavada

## Your local partner

<b>Austria</b>	Thomas Auer, Regional Sales Manager	thomas.auer@hilti.com +43 166101 277	
<b>Belgium</b>	Vincent Diercxsens, Sales Manager	vincent.diercxsens@hilti.com +32 24679 901	
<b>Denmark</b>	Carsten Vissing, Key Account Manager	carsten.vissing@hilti.com +45 2027 5090	
<b>Finland</b>	Pasi Aittola Key Account Manager	pasi.aittola@hilti.com +358 207999 211	
<b>France</b>	Catherine Moulinier, Head of Technical Marketing, Region Western Europe	catherine.moulinier@hilti.com +33 13012 5092 +33 66290 0911	
<b>Germany</b>	Clemens Kopf Product Manager	clemens.kopf@hilti.com +49 819190 4344	
<b>Great Britain</b>	Siobahn Meikle, National KA Manager  Olga Katsanova HSE Product Manager	siobahn.meikle@hilti.com +44 7802 205812  olga.katsanova@hilti.com +44 161 886 1171	 
<b>The Netherlands</b>	Rob Jansen, National Sales Manager	rob.jansen@hilti.com +31 64618 5131	
<b>Spain</b>	Estela Noriega, Professional Services	estela.noriega@hilti.com +34 91334 8376	
<b>State of Qatar</b>	Elias Saba, Sales Director	elias.saba@hilti.com +974 5586 3865	
<b>Sweden</b>	Peter Wendel, Business Development Key Account Manager	peter.wendel@hilti.com +46 76119 1817	
<b>Switzerland</b>	Herbert Roost, Key Account Manager	herbert.roost@hilti.com +41 44 7121287	





**Hilti. Outperform. Outlast.**

Hilti Corporation | 9494 Schaan | Liechtenstein | P +423-234 2111 | F +423-234 2965 | [www.hilti.com](http://www.hilti.com)