



Dear readers,

This issue of our *flash* newsletter is characterized by outstanding projects: Find out about the trend-setting project *Campus Science Park Telegrafenberg Potsdam*, in which the Berlin branch of SCHNABEL AG is involved. It has developed an innovative concept for integrating a warm water cooling system into the data center of a new research facility. With this concept we are able to take another step towards Green IT. Furthermore, Planungsgesellschaft Karnasch mbH has undertaken the planning of all building services for the subterranean “event-elevator” that will connect Altena Castle to the city center of Altena.

We are also delighted to be able to announce two further projects which demonstrate, that our clients trust our work. After numerous completed projects, STRATO AG has engaged us to plan the retrofitting of another data center during operation. Moreover, we are able to report on the follow-up order of the *European Institute of Applied Buddhism* on reconstructing its facilities in Waldbröl.

What’s more, SCHNABEL academy has arranged a cooperation with the TÜV Rheinland Akademie.

Now enjoy the read of our *flash* newsletter.

Sincerely,
Frank Urban

Martin Niewiera

Chief Executive Officer
SCHNABEL AG

Chief Financial Officer
SCHNABEL AG



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NEWS

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Strong partners: SCHNABEL academy and TÜV Rheinland Akademie

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SCHNABEL AG plans retrofitting of data center during operation

Successful cooperation with STRATO AG continues

After having completed several projects with STRATO AG in the past, SCHNABEL AG has been awarded another contract by the web hosting company. The Berlin branch of SCHNABEL AG will plan the retrofitting of a data center with 4.000 m² of IT-area during operation. [read more ...](#)

EIAB continues reconstruction of Buddhist teaching institute

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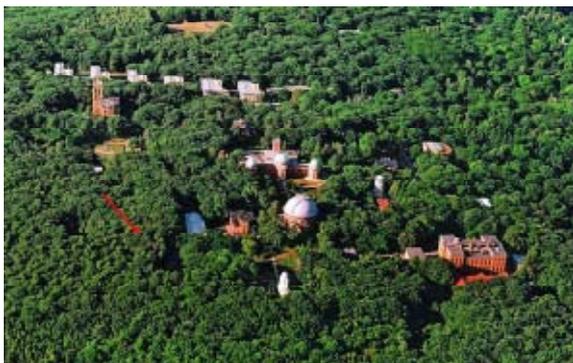
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SCHNABEL AG DEVELOPS CONCEPT FOR THE INTEGRATION OF A WARM WATER COOLING SYSTEM

A contribution to the cooperative project for the new research facility of PIK-Potsdam sponsored by the BMWi

The Berlin SCHNABEL-branch takes part in the cooperative project *Campus Scientific Park Telegrafenberg Potsdam* with an innovative cooling concept. In order to promote the inclusion of the new research facility of the *Potsdam-Institute for Climate Impact Research (PIK)* into the cooperative project which is sponsored by the BMWi, it has developed a concept for the integration of a warm water cooling system into the existing design.

The requirements for the new research facility of the PIK in the Scientific Park Telegrafenberg are high. The specifications of the energy conservation regulations of 2009 shall be undercut by 50 percent. Furthermore, a collegiate energy solution shall be developed for the network of users in the scientific park, which houses five institutions. Like this, the high standards of the institutions regarding resource conservation and sustainability can be met – all institutes are involved in research on the climate change and its



Campus Scientific Park Telegrafenberg Potsdam.
Photo: Lutz Hannemann, approx. 2002; © PIK

overcoming.

For this cooperative project, which is funded by the Federal Ministry of Economics and Technology (BMWi), SCHNABEL AG discussed a new and innovative way of cooling with the client and the Technical University of Dresden. The discussion had been prompted by the objective to use the waste heat of the high-performance comput-

er, that will be located in the new research facility. The available waste heat exceeds the needs of the energy efficient PIK-building by far and is therefore supposed to be utilized in the entire energy network. In order to use and store the waste heat of the computer directly, a cooling system with a high coolant temperature is required. Conventional cooling technology, however, doesn't reach temperatures above 30°C.

The problem isn't new. The triennial research project "The direct use of waste heat from liquid-cooled supercomputers: on the way to energy saving, emission-free high-performance computers and data centers" of the Swiss Federal Institute of Technology in Zurich has been developing and testing the supercomputer *Aquasar* since 2009, which is liquid-cooled, using warm water.^{1,2} By utilizing the technology of hot water cooling in the Leibniz data center for the first time in Germany, the technology and its prototypical application continue to get ready for the market.³

In order to cool components of computers (e.g. CPU, RAM) the technology includes introducing warm water into the computers and absorbing the waste heat directly at its point of origin with the help of special copper elements. High supply temperatures between 25°C and 45°C and very high return temperatures allow for the use of energy efficient free cooling and the direct usage of the cooling water for heating and adsorption-type refrigerators.

In adopting the new technology for the new PIK-building, the attention was directed to using the waste heat in the cooperative project of the campus. The warm water cooling system will secure that the cooling water will have a temperature level that can be used for heating in the energy network. The main challenge, however, was to develop a concept, which allows to decide on pre-equipping measures and to realize them immediately, even though the warm water cooling

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Model of the new research facility of the Potsdam-Institute for Climate Impact Research.

system is not yet fully determined and will be integrated at a later time. Furthermore, the concept had to meet the high demands for operational reliability of the data center. In addition, it is necessary that the warm water cooling system can be operated independently from the energy consumption of the network.

SCHNABEL AG has been able to integrate all these requirements into its concept, which includes three alternatives:

- 1) The waste heat can be used by the energy network.
- 2) The waste heat can be used for heating the new PIK-building
- 3) When there is no heat demand, the conventional cooling system will be used to cool the water cooling system. This third function secures the operation in case of an accident in or renovations of the other two systems.

The concept is arranged in a way in which the relation between temperatures in the warm water circulation can be adapted individually according to the current needs of the network.

By developing the concept, SCHNABEL AG has already completed the second project related to the new research facility of the PIK. The Berlin branch had planned the entire building services

for the data center of the building and thus supported the objective to optimize the building energetically (see issue 24 of the *flash*).

For further information on the new PIK research facility, please visit:

<http://www.pik-potsdam.de/services/infothek/telegraphenberg-d/forschungsneubau>

For further information on the Campus Scientific Park Telegrafenberg Potsdam please visit:

<http://www.eneff-stadt.info/de/pilotprojekte/projekt/details/campus-wissenschaftspark-albert-einstein-auf-dem-potsdamer-telegrafenberg/>

Sources:

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- 2 http://www.ethlife.ethz.ch/archive_articles/090623_liquid_cooled_computer/index
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„WE’LL BRING THE CASTLE TO THE BANK OF THE LENNE“

PKA plans building services and elevator systems for the new „event-elevator“ to Altena Castle

Planungsgesellschaft Karnasch mbh currently participates in planning an exceptional project: Altena Castle will be connected to the city center of Altena by a subterranean “event-elevator”. In the planning team, the PKA is responsible for the entire building services and the elevator systems. The project shall already be completed in 2013.

About 90 m of altitude difference separate Altena Castle from the city center. In order to overcome this hurdle comfortably and fast in the future, a subterranean elevator will be built in a tunnel in the castle hill – true to the motto of the project: “We’ll bring the castle to the bank of the Lenne”.



Bird's-eye view of Altena Castle.

For this purpose, a 95 m long horizontal and a joint, 90 m high vertical tunnel need to be cut through the mountain.

The PKA then is taking charge of planning the actual elevator technology and the entire building

services for the project. With this partial project leadership, it is responsible for the heat supply, the ventilation, the electrical engineering, telecommunications and the building management system of the facility.

With the elevator system, PKA will make sure that the distance from the city centre to the castle will be covered within 30 seconds. The elevator system is designed with an elevator cab for 16 persons. What's exceptional about the project: the elevator will be equipped with multimedia elements and will offer the passengers entertainment and information. Thus, the lift ride itself will turn into an event.

In order to complete the project cost-effectively and according to schedule, the first exploratory drillings have already been carried out. The actual tunnelling will begin in summer.



STRONG PARTNERS: SCHNABEL ACADEMY AND TÜV RHEINLAND AKADEMIE

Seminar organizers agree on sales cooperation

SCHNABEL academy and TÜV Rheinland Akademie have agreed on a sales cooperation at the beginning of this year. Due to this partnership, SCHNABEL academy is now able to offer its clients seminars and trainings in the areas of IT, project management, and data security and can thus enlarge its portfolio significantly.

Since its foundation, SCHNABEL academy has been renowned for offering trainings in the areas of both building automation and infrastructure and hardware of data centers. Due to the cooperation with the TÜV Rheinland Akademie, the largest seminar organizer in Germany, it is now able to offer its clients an even broader range of seminars regarding data centers.

SCHNABEL academy makes use of the encompassing offers of TÜV Rheinland Akademie in the areas of IT, data security and project management and has included eight TÜV-seminars into its own portfolio. TÜV Rheinland Akademie will offer eight seminars in cooperation with SCHNABEL academy in return. Like this, TÜV Rheinland Akademie will enter the strategically important field of data center design for the first time.

“SCHNABEL academy and TÜV Rheinland Akademie both offer diverse seminar programmes, which complement each other. Due to the partnership, our clients are now able to benefit from both company’s strengths even better”, Thomas Wawra, managing director of SCHNABEL academy emphasizes.

With its advanced training measures, SCHNABEL academy offers the know-how from nearly 40 years of SCHNABEL AG’s international activity in the data center industry. All trainers are internationally active data center specialists, work on running projects, engage actively in work groups, which develop new standards for data centers or participate in the work of associations like BITKOM e.V., VBI or DKE. Newly gained experiences and practical knowledge are thus immediately included into the seminars.

With its more than 12.000 events from 72 subject areas and more than 2500 trainers, TÜV Rheinland Akademie offers encompassing solutions for each qualification demand worldwide. The areas of IT and data security are only two of many spheres of competence of the specialist for training and development.

For further information on the seminars and dates and the possibility to enroll, please visit <http://www.schnabel-academy.com>

or send a mail to:
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in Kooperation mit



SCHNABEL AG PLANS RETROFITTING OF DATA CENTER DURING OPERATION

Successful cooperation with STRATO AG continues

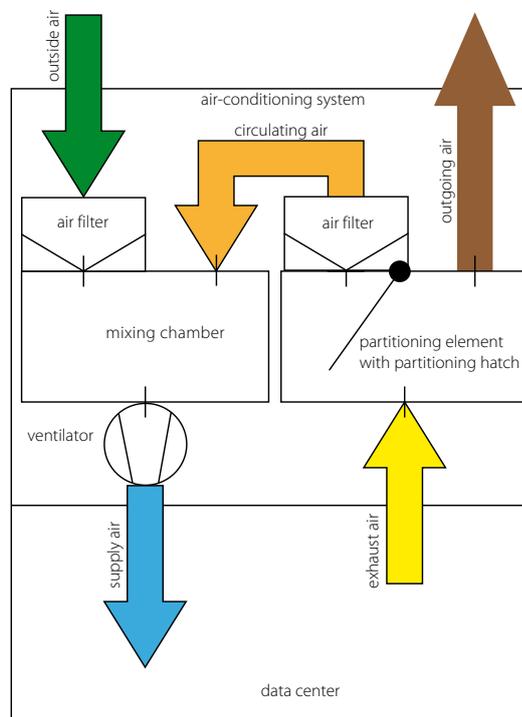
After having completed several projects with STRATO AG in the past, SCHNABEL AG has been awarded another contract by the web hosting company. The Berlin branch of SCHNABEL AG will plan the retrofitting of a data center with 4.000 m² of IT-area during operation.

During the conversion, the constant upholding of the operation is – without doubt – of top priority. In order to guarantee this, the conversion will be realized in five construction phases. Furthermore, SCHNABEL AG will take over all planning areas including the architecture and HVAC and thus ensure the optimal coordination of all tasks.

One essential goal of the reconstruction work is to design the data center and its air conditioning environment-friendly. The attention is therefore directed to the energy efficient dissipation of the server heat. For this purpose, SCHNABEL AG has projected an intelligent, direct free outside air cooling system with an intelligent mixing operation. Moreover, the efficiency of the electrical engineering and air conditioning in the data center will be elevated to 160% compared to the former state.

The fact that the data center building is under monument protection poses further challenges

to our engineers. The exact arrangements with all landlords and tenants in the building, however, allow for keeping the intrusions into the building as minimal as possible.



Schematic representation of the direct free cooling system.

EIAB CONTINUES RECONSTRUCTION OF BUDDHIST TEACHING INSTITUTE

PKA has been re-engaged for the second construction phase of the redevelopment measures

Until 2010, PKA had been a part of the conversion of a former training center of the Bundeswehr into an academe of the *European Institute of Applied Buddhism*. As the reconstruction of the heritage-protected building continues, PKA has again been engaged. It is responsible for the fitout of the ground-floor and for the installation of a combined heat and power plant.

Since 2008, the *European Institute of Applied Buddhism* (EIAB) is resided in the former training center of the Bundeswehr in Waldbröl. Shortly afterwards, the extensive reconstruction and redevelopment measures began, which will turn the historic and heritage-protected building into a modern teaching institute and shelter. The redevelopment has now entered the second construction phase.

Here, the PKA has assumed the planning of the entire building services for the ground floor and entrance area. The measures involve the design of a fire protection system including a me-

chanical smoke extraction and the installation of a combined heat and power plant (CHP). The plant's energy will be used for the safety lighting in the building and for the voltage supply of the smoke extraction system, among others.

By installing the CHP, the planning team meets the special requirements of the project: it is of utmost importance for the client to carry out all measures according to the Buddhist doctrine. Therefore, the saving of resources and protection of the environment are of high priority. At the same time, the requirements of the monument protection demand the special attention of all planners.

According to these propositions, PKA had already assumed several tasks during the first construction phase: the renewal of the water supply system including water saving devices and the installation of new security lighting across the whole building. All reconstruction measures are carried out during operation.



The former training center of the Bundeswehr in Waldbröl: Teaching institute and shelter of the *European Institute of Applied Buddhism*.