



Annual Report 2006

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BYG•DTU
Annual Report 2006

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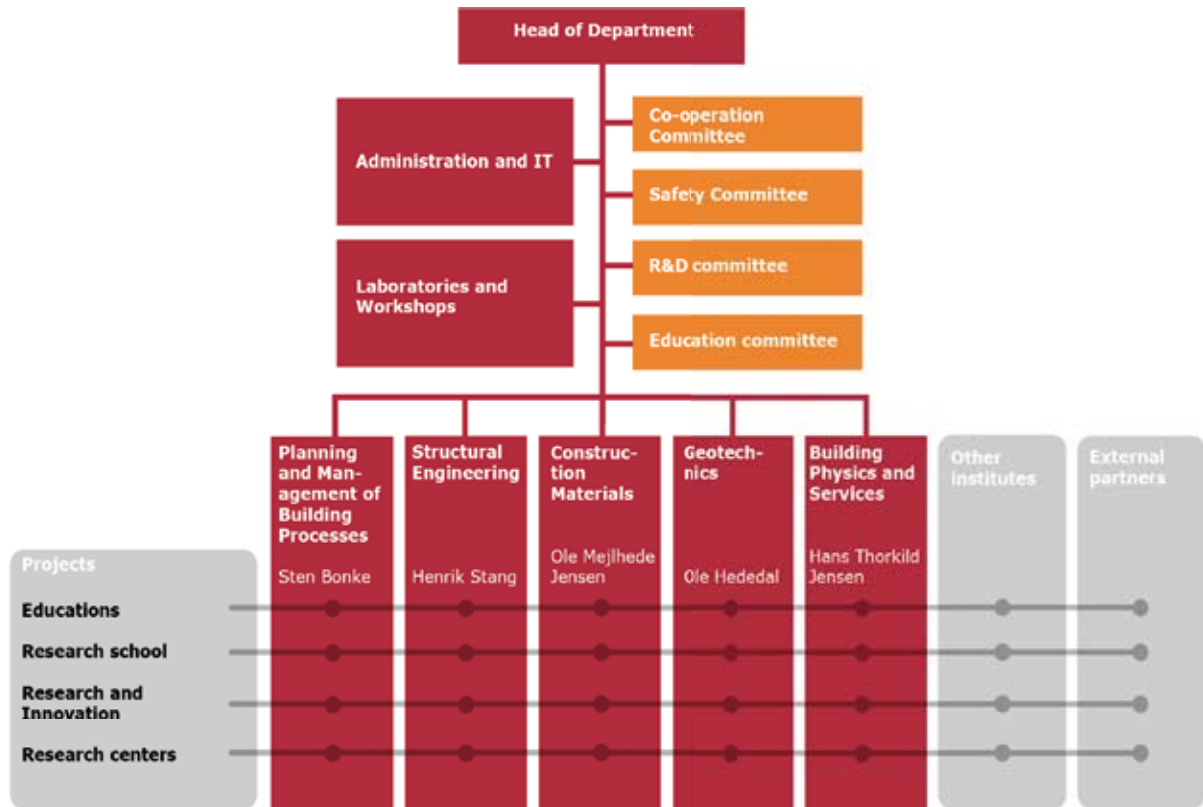
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Organisation



Study Programmes and Programme managers:

- Civil Engineering (MSc). Associate professor Kristian Hertz.
- Civil Engineering (BSc). Associate professor Per Goltermann.
- Architectural Engineering (BEng). Associate professor Kirsten Christensen.
- Civil Engineering (BEng). Associate professor Ole Mærsk-Møller.
- Arctic Technology (BEng). In Greenland, Associate professor Hans Peter Christensen. In Denmark, Associate professor Ole Mærsk-Møller.

Department of Civil Engineering hosts the following centres:

- IRS@BYG, The International Research School for Civil Engineering. Professor Stephen Emmitt.
- ARTEK, Arctic Technology Centre. Professor Arne Villumsen.
- C•PROSAM, Centre for Protective Structures and Materials. MSc Civil Engineer Benjamin Riisgaard.

The Advisory Board:

- Executive director Mette Lis Andersen, Københavns Kommunes Bygge- og Teknikforvaltning
- Development director Thomas Heldgaard, Rockwool A/S
- Executive director Peter Lundhus, Femern Bælt A/S - Sund og Bælt Partner A/S
- Executive director Klaus H. Ostenfeld, COWI A/S
- Senior advisor Jørgen Vorsholt, E. Pihl & Søn A.S

From the Head of Department

The Department of Civil Engineering, BYG•DTU, is a university institute within the building and construction sector.

Our mission is education, research, innovation and public sector consultancy. Through our work we contribute to the generation of social and commercial value.

Our vision is to become a leading European Civil Engineering Department and a preferred partner for companies, authorities and institutions in the building and construction sector.

The Department of Civil Engineering was established in 2001 through a merger of a number of smaller departments in order to unite the technical disciplines applied in a building or construction design process. Now six years later, it can be concluded that the merger is successful.

However, results do not come of themselves. The Department of Civil Engineering has, since it was established, conducted a series of prioritised development steps for selected areas of initiative. Each step has raised the institute to an international university level within the selected areas:

Organisation

The Department established the organisational and administrative framework and together with our Advisory Board we developed an ambitious new Strategy for the institute. In 2007 all major strategic goals in the Strategy will be reached.

Staff renewal

Focus was on a large generational change: Twenty-three faculty including four full professors plus ten permanent technical staff members were employed. The generation change has established a strong research and technical staff with an internationally reputed research background and with large experience from construction and consultancy for industry and authorities.

National esteem

The institute has established a national position as a favoured partner in research and continued education. The master education programmes in Fire Safety and in Construction Management have consolidated as well sought continuing education programmes. The industry network LavEByg on energy efficient buildings, and the industry network C-Prosam on protective structures and materials, together with an increasing number of industry sponsored research and PhD projects document the growth in collaboration with the national civil engineering community.

Education

Since 2001 the bachelor and MSc programmes in Civil Engineering have been revised. The Department opened the new bachelor programme in Arctic Technology in 2001, and the new bachelor programme in Architectural Engineering in 2002. All education programmes have since 2004 complied with the Bologna declaration. From 2007 the bachelor in engineering (diplomingeniør) programmes will follow the CDIO (Conceive, Design, Implement and Operate) system of education developed by MIT, KTH, DTU and a number of other technical universities. From 2007 all MSc programmes will be taught in English.

Priority areas

Alongside with the development in relation to organisation, staff, national position and education the Department has increased the quality of our research, innovation and public sector consultancy.

Based on the positive development since 2001, the Department is well prepared to engage in further initiatives in order to raise the international standing of the institute. Thus the priority areas for the coming years will be research, innovation and public sector consultancy at a high international level.

**Head of Department
MSc (Civil Engineering)
PhD Jacob Steen Møller**



Research

In 2007 our focus on research quality will be enhanced. An international research evaluation conducted by an international panel of experts will establish the basis for improvements in research over the coming years. In the years to come the Department will increase its contribution to the international research organisations such as RILEM (International Union of Laboratories and Experts in Construction Materials, Systems and Structures) and CIB (International Council for Research and Innovation in Building and Construction) and network such as ECTP (European Construction Technology Platform).

Innovation

In 2007 the Department in collaboration with IPU has established an Innovation Centre in Civil Engineering. IPU is a DTU controlled company facilitating industry collaboration. The Innovation Centre will enhance the collaboration with industry and help to increase funding for our research infrastructure.

Public sector consultancy

The university merger in Denmark in 2006 has added Public Sector Consultancy to the University portfolio. The Department is well prepared to take on this new challenge.

I am confident that the Department of Civil Engineering will make its

mark on the international research and education scene in the years to come.

Head of Department,



Jacob Steen Møller, PhD

Teaching glass and glass structures

Positive feedback from students and industry alike has made the test course in glass a regular part of the curriculum.

Load carrying structures made from glass give exciting possibilities both architecturally and from an engineering point of view. Glass structures can be very aesthetically pleasing, the transparency can be a significant asset and glass facades can be intelligently designed to allow for a maximum amount of daylight in the building. Though glass has many excellent properties as construction material, it is extremely brittle, the strength in tension is highly influenced by defects, and therefore the tensile strength is somewhat unreliable. Thus the design of structures using glass as structural material presents significant challenges. In particular care must be taken in mounting, fixing and joining glass elements.

Form test course to curriculum

In 2004 the need for consulting engineers with a background in glass and glass structures sparked the establishment of a special course in 'Glass and Glass Structures' in collaboration between Birch & Krogboe, Ove Aarup Consulting Engineers and BYG•DTU.

Now the course is a part of the regular teaching curriculum at the Department. The course contains an introduction to the structural use of glass and an overview of architectural aspects on the use of glass in buildings.

Since it is essential for the students to be aware of the special properties of glass, production and the microstructure of glass is also dealt with. Glass types relevant in construction are dealt with: laminated glass, toughened glass as well as typical mechanical properties, specifications and safety aspects. Structural design issues include plates, beams, cable supported structures, fins, shells and membranes. Finally, structural connections are considered: adhesive joints as well as bolted connections. Invited lectures on topics such as indoor climate and safety in relation to glass structures are also given.

Student projects

The establishment of the course has initiated a significant amount of Master and Bachelor projects dealing with many of the still unresolved problems related to the use of glass as structural material: the stress distribution and strength in adhesive joints and bolted connections, the long and short term stiffness of laminated glass, reinforced glass beams and analysis of shell structures made entirely from glass – to mention a few.

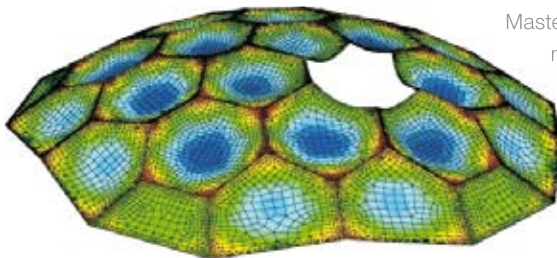
The research challenge has also been taken up, and at this point in time two PhD students are working with glass research projects related to bolted connections in toughened glass and analysis of faceted shell structures.



Master thesis project examining the long and short term stiffness of reinforced glass beams. Even after severe cracks in the beams much of the load capacity remained.

Preparing for the future

No doubt glass structures will play a significant role in the future, and much development in both technology and design tools is expected for instance in new innovative multi-functional, intelligent facades with daylight regulating, insulation and load carrying capabilities combined. Educating students with a solid competence in glass is the best way to ensure that both the research and innovation capabilities at DTU as well as in the industry are in place to meet these future challenges.



Master thesis on the FEM-modelling of a faceted shell. The picture shows the largest principal stress for snowfall on a shell with a broken facet

Professor Henrik Stang and Professor Jeppe Jönsson, Responsibles for the course in Glass and Glass Structures

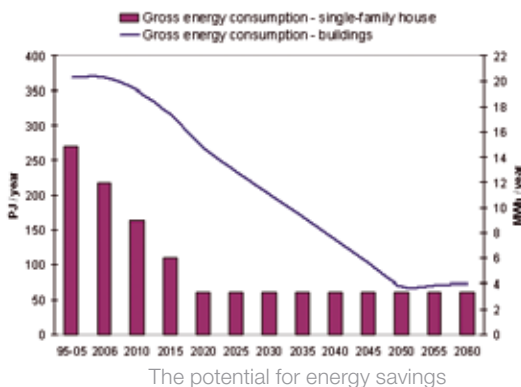
www.kurser.dtu.dk course number 11365



No need for oil in 2050?

Industry and science working together to reduce the energy demand from our biggest energy consumer - our buildings

LavEByg is a state-supported "Network on Integrated Low Energy Solutions in Buildings", a network of knowledge institutions and professionals in the building industry. BYG•DTU is the project leader with professor in building energy Svend Svendsen in front. The main partners are: ICIEE, SBi, AAU and Teknologisk Institut.



The aim of LavEByg is to ensure that the great potential for energy savings (60-80% over the next 40 years) is achieved - both in connection with new buildings and with energy renovation of existing buildings. Through stimulation of research and development of the necessary technologies, the network tries to realize the vision of low-energy buildings with a good indoor climate, but without the need for fossil fuels.

Energy use from our buildings

The energy use in our buildings is about 40% of the total energy use in EU. Most of the energy is used for low temperature heating of rooms and domestic hot water but electricity

is used for lighting, air conditioning, ventilation and other building services as well as all electrical equipment.

A sustainable development with no use of fossil fuels in the energy system may be realised by use of an economically optimised combination of extensive energy savings and use of renewable energy. The potential for energy savings in the building sector is very large and the technology for renewable energy supply of the buildings with heating and electricity is available.

The realisation of the energy savings in buildings is in focus in the EU Energy policy and especially in the EU Energy Performance of Buildings Directive (EPBD). Due to this directive a revolution is taking place in the way energy requirements are formulated in national building codes of EU.

How to save energy

With the implementation of the EPBD the focus has shifted from design of individual HVAC systems to integrated design of integrated building concepts, which allow for optimal use of natural or passive energy strategies

Highly insulated and airtight low-energy house in Kolding (Seest). The house has a mechanical ventilation system with high efficient heat recovery.



(daylighting, natural ventilation, passive cooling, etc.) as well as integration of renewable energy supply. Thus, there is a need for integrated overall solutions regarding energy savings and energy supply. Extensive energy savings and use of renewable energy can create an overall energy solution without fossil fuels. The basis for such a solution is to have new and existing buildings built or reno-



Integration of roof/ceiling construction and ventilation duct system in a low-energy house. A special rafter-solution makes it possible to install the ventilation ducts in the lower warm part of the ceiling construction instead of in the unheated attic (i.e. minimal heat loss).

vated to low-energy class 1 or better.

In urban areas the buildings may be heated by low-energy district heating based on incineration of waste or other renewable energy sources. There is a need to go all the way with 80 % energy savings and renewable energy to cover the remaining energy demand. Existing buildings should be energy renovated to almost the same level as new buildings, and that is a challenge. However, the Germans have shown that extreme low-energy renovation to passive house standard is possible.

Can it happen?

Extensive energy savings and use of renewable energy is now the general long term policy and strategy worldwide, and it is also the recommended path by the United Nations stated in the 2007 report on Buildings and Climate Change. But there is a great need to support the development of integrated low energy solutions for an optimal realization of low-energy buildings. This development is carried out in Denmark in the framework of LavEByg.



**Secretary leader Henrik M. Tommerup,
Secretariat for LavEByg**

www.lavebyg.dk

BYG•DTU and large ship diesel engines – A paradox?

The engines can be treated like any steel structures and at BYG•DTU we have the large equipment to handle the size.

BYG•DTU has for a period of almost 20 years been involved in a series of quite large Nordic research projects on fatigue in welded steel structures. These projects have had strong industry participation and financing by leading Nordic companies and Universities. All projects have had a considerable economical support from Nordic Innovation Center (Nordisk Industrifond).

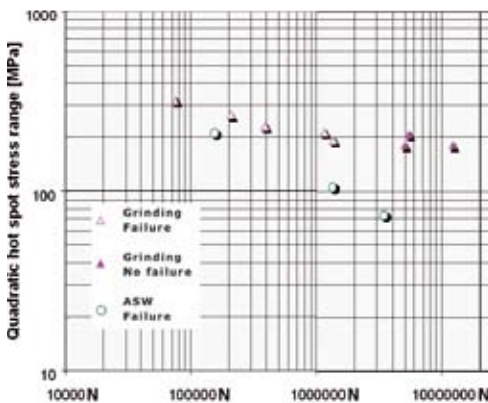
BYG•DTU and MAN B&W

The last two projects have involved a close cooperation between the two Danish participants, MAN B&W Diesel and BYG•DTU. And the main topic for these investigations has been fatigue life of large ship diesel engines.

Large diesel engine installed in 300,000 DWT tanker (Photo: MAN B&W Diesel)

From an immediate consideration it seems illogical that research on fatigue in diesel engines is carried out at BYG•DTU. However, these engines are carried out with the main parts as large welded steel structures, and with a total height as for a 4-storey building. And when studying the fundamental problems in connection with fatigue in welded steel structures, it appears that the physical and mathematical basis for fatigue crack initiation and crack propagation is independent of the type of structure. Thus, the results which are obtained in studies of fatigue in welded steel structures in diesel engines, ships or automobiles may as well be used for more

traditional civil engineering steel structures, as e.g. bridges, offshore structures or wind turbine towers.



The fatigue life is increased by a factor ranging from 2.8 to infinity, depending on stress level

Grinding the weld toes

BYG•DTU has carried out studies of the possibility for improvement of the fatigue life of welded steel structures by treatment of the weld toes by grinding. The results obtained showed that a considerable increase in fatigue life may be obtained by grinding the weld toes. If grinding is used, it will normally be carried out according to international recommendations. However, in this project an alternative type of grinding and its effect on the fatigue life was studied. The fatigue tests carried out demonstrated that the alternative type of grinding had at least as good fatigue life as the internationally recommended. And the advantage of the alternative type of grinding is that it saves about 30% of the machining time, which for these large structures has a considerable economical impact. In welded steel structures, a stress relieving by post-weld heat treatment is in some cases carried out to increase the fatigue life. The purpose is to remove harmful tensile residual stresses due to the welding. This has also

traditionally been done for the welded structures for diesel engines, and with the large components in question this is a costly process. However, theoretical determination of the residual stresses indicated that favourable compressive residual stresses from the welding

would develop at the critical areas with respect to fatigue crack initiation for the actual structures. The fatigue tests demonstrated this to be the case, since the as-welded test specimens were found to have significantly higher fatigue strength than the stress relieved specimens. Thus, a costly stress relieving could be avoided and at the same time a longer fatigue life was obtained.

The academic bonus

As well as having provided BYG•DTU income via BYG•innovation, which facilitates testing in the large laboratory a lot of academic rewards have been harvested as well. A strong network and very successful cooperation has been built up during these almost 20 years between leading Nordic industry companies and the involved universities. This is planned to continue in the years to come. The work has also fostered a large number of publications e.g. the latest project, Q-FAB, has resulted in totally more than 70 publications. Within Q-FAB, 8 international publications have been worked out in the MAN B&W Diesel/BYG•DTU project over the last 4 years.



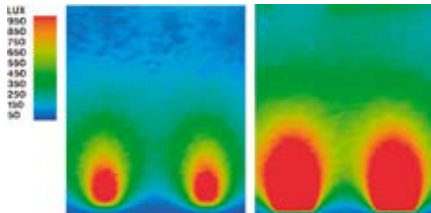
Professor Henning Agerskov, using BYG•innovation

www.byg.dtu.dk/english/byginnovation

The energy efficient window

Imagine windows which will contribute positively to the energy balance of your home in the heating season, provide your rooms with more light, and which require less maintenance

The windows in a building are not just responsible for letting out most of the heat they also bring in energy through sunlight. Energy-wise, the challenge is to have the windows gain more energy from the sunlight than they lose through the glass and joints. In the summertime, this is easy



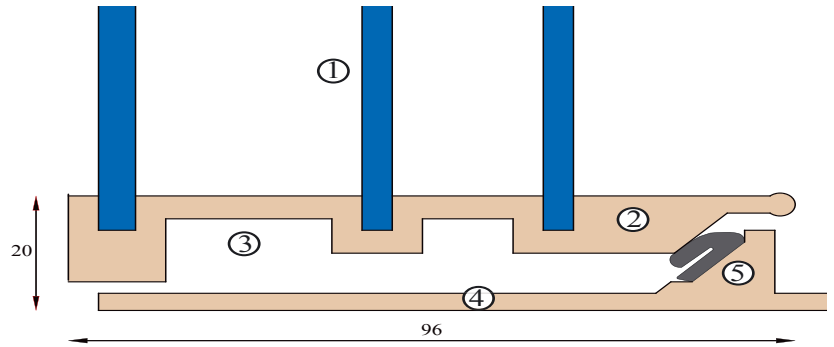
The influence of the smaller frame for the inflow of light to a room with a depth of 3,5 meters

because of the high temperatures and the many hours of sunlight. The real challenge lies in making a window that gives a positive result in the months where you normally will have to pay for heating up the building.

What are the principles?

Research projects funded by Villum Kann Rasmussen Fonden have, in combination with student projects, provided the window

design, which can match the above specifications. The window consists of three single layers of glass glued together in a profile of glass- fibre reinforced polyester, which makes it strong, easy to maintain and well insulated. Three sheets



Cross section of window design with dimensions in mm

- 1: Glazing of three single panes.
- 2: Glass-fibre reinforced polyester with the sheets glued in.
- 3: Container with desiccant that can be regenerated.
- 4: Window fitting attached directly to the wall.
- 5: Weather stripping and part of closing mechanism.

of glass with hard low emittance coatings towards the air gap reduce the heat loss of the glazed part of the window to a minimum. The air in the cavities of the glazings is kept dry by an externally placed container with desiccant that can be regenerated. The window fitting is attached directly to the wall with a 3 mm frame sheet. Overall, the profile of the window has been reduced from 10 cm to only 2

cm to provide a better field of view from inside the building and to let in more light. This increased amount of light entering the building also means a substantial increase in solar energy compared to a traditional window.

Future challenges

There are still a lot of challenges left for having a product fit for the consumer market. The design of the windows may cause superheating in the summer time, however calculations made by BYG•DTU suggest ventilation during the night and outer shading for the south-facing windows as a possible solution. The research continues in cooperation with Fiberline A/S, a leading company in the production of fibre-glass reinforced polyester profiles.

The energy savings in a 180m² house

Window type	Glazing	Glass area of Window	Net energy contribution	Annual energy use of building
Traditional	2-layer glazing unit	73 %	-47 kWh/m ²	87 kWh/m ²
Slim alu/wood	2-layer glazing unit	82 %	-39 kWh/m ²	85 kWh/m ²
Passive house	3-layer glazing unit	66 %	-4 kWh/m ²	74 kWh/m ²
BYG•DTU	3 single panes	94 %	15 kWh/m ²	69 kWh/m ²

The new energy demands BR-95 lists that the energy use per m² heated room space must be no more than 82 kWh/m² per year. BYG•DTU's window design provides the house with a positive net energy gain, which proves that the use of better windows

makes it easy to bring your living space up to these demands and even to the 25% increase in the demands expected in 2010.



Professor Svend Svendsen,
Section for Building
Physics and Services

www.byg.dtu.dk/english/bps

Full scale destructive load testing on a bridge in Sweden

BYG•DTU in collaboration with the Swedish rail authorities Banverket and the European founded project Sustainable Bridges seeks to bring more clarity around the shear problem and the shear capacity of existing concrete bridges.

In the early days, structures were designed by trial and error. This method gave eventually a structure, which succeeded in carrying the loads, but the high risk of a failure at some point of the building process was obviously the drawback. The development has led to generally accepted design criteria which, if properly used, should prevent failure. The failure is evaluated for different modes, i.e. shear and bending, and no failure should have occurred at the design load. The shear capacity is especially hard to determine due to analytical difficulties, and the shear failure is at the same time not desired as it is generally very brittle.

Strengthening

To be able to prevent a traditional bending failure and obtain a shear failure the bridge needed to be strengthened in flexure. The method chosen was Near Surface Mounted Reinforcement (NSMR) rectangular carbon fibre bars that was bonded with an epoxy adhesive in pre-sawed grooves in the concrete cover in the soffit of the bridge beams. The size

of the grooves was 15 x 15 mm.

The strengthening design is based on calculations regarding the bridge's original capacity, which was estimated to approximately 7 MN for the actual placement of the load. To obtain a shear failure, the bridge needed to be loaded up to approximately 10-11 MN. The strengthening design provided an additional flexural capacity of 4 MN, i.e. approximately a 40 % increase in flexure. The additional 4 MN corresponded to 18 CFRP rods, 9 per beam, with a length of 10.0 m. The rods chosen were provided by Sto Scandinavia AB with the brand name Sto FRP Bar M10C. These rods consisted of a high quality carbon fibre with the modulus of elasticity of 250 GPa and a strain at failure of approximately 11 %.

The tests

The performance of the strengthening system and the effects of it were analyzed by monitoring these four quantities: temperature, strain distribution, deflection and load. The strain distribution was established by applying strain gauges both on the compressed concrete, tensile steel reinforcement and the CFRP rod. In addition strain was also monitored by FOS (Fibre Optic Sensors).

The bridge was loaded during two occasions, one time before and after it was strengthened.

The load was applied by placing a beam reaching over the bridge deck

which was fastened by cables anchored into the rock some 6 metres below the ground surface. Two 1000 ton hydraulic jacks provided the force.

The result

The first test ended at about 2 MN, at which the cracking load of the slab was reached. For the second test the bridge was loaded up to failure and



Placing the high quality carbon fibre rods in the pre-sawed slots helped the bridge to resist a load increase from 2 MN to 12 MN before failure

at almost 12 MN the bridge failed and the load went back to zero.

At failure the CFRP rod reached a strain of approximately 8000 micro-strain before the bridge failed in shear. The bending capacity was consequently enough to force the desired failure mode to occur. The utilization of the strengthening material was fairly high, around 70%. A "fishbone-pattern" was formed around the slot, indicating that the concrete surrounding the sawed slot was taking damage from the transferred shear force. However, no bond problem was noticed during the failure test. The test was considered as very successful.



The Örnsköldsviks bridge: 12+12m two span concrete trough bridge with one railway track from 1955 was designed for an axle load of 250 kN. The new high-speed railway, the Botnia Line, has made this bridge redundant and thus soon to be the subject of full scale testing.

**Professor Björn Täljsten,
Section for Structural Engineering**

www.byg.dtu.dk/english/se



Greenlandic permafrost conditions – a geotechnical perspective

Permafrost is a section of the subsurface in which the temperature is continually below 0°C year round. Research helps with risk assessments for urban areas with respect to the predicted climatic changes

The much debated global warming effect is expected to cause a 2.8 to 7.8°C rise in the mean annual air temperature in the arctic region over the coming century, according to the fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Such an increase in temperature is expected to cause severe changes in the ground thermal regime and hence cause permafrost degradation. The resulting instability and settlement will severely affect existing roads, airports and buildings as well as large infrastructure projects currently under development.

Permafrost mapping with geophysical methods

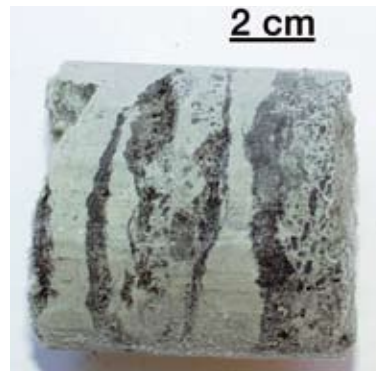
Our current research is aimed at describing permafrost conditions in West Greenland and at developing risk assessments for urban areas with respect to the predicted climatic changes. This goal is pursued through geotechnical and geological investigations and establishment of ground temperature monitoring stations.

Geophysical measurements have proven to be a valuable tool in this investigation. We are using an integrated approach, where the interpretation of geotechnical boreholes is extended to the surrounding areas by means of geophysical techniques. These are non-invasive surface based measurements that map the physical properties of



the subsurface materials.

With reference to the borehole information, the mapped distribution of physical properties can be used to establish material types, layer boundaries and whether the material is frozen or unfrozen. Especially a combination of electrical and ground penetrating radar measurements have proven powerful in determining the lateral distribution



Samples like this from the town Sisimiut in central West Greenland show that common permafrozen clay and silt rich sediments may have up to 25% vertical settlement during controlled laboratory thawing, due to the presence of massive ice lenses (dark areas) (Photo by Niels Foged).

of frozen sediments and the annual summer thaw depth. The electrical measurements are conducted by injecting a current into the ground using two electrodes at the ground surface, and measuring the resulting difference of potential between two additional

Resistivity profile obtained near Sisimiut. The highly resistive areas (red) correspond to frozen sandy and silty sediments, whereas the low resistive area (blue) is an unfrozen section of the same sedimentary unit. The unfrozen “talik” is caused by a small river, which drains the lake visible in the background photo. This example illustrates the unstable state of the permafrost in the Sisimiut area. The additional heat conducted into the ground from the flowing water is sufficient to keep the ground unfrozen year round.

electrodes. By combining a number of measurements with different electrode geometries, the resistivity structure of the subsurface can be obtained through a mathematical inversion procedure. As most of the current is conducted through the pore water in the sediments, the effect of frozen ground will be an increased resistivity compared to similar unfrozen material.

Not only natural water flow and global warming may cause permafrost thawing. Similar effects may occur below buildings that are not properly insulated or by the changes in albedo and insulation properties of the topsoil and vegetation induced by the construction of roads or airstrips. In regions with high ground ice content, this will lead to instability and settlement of the subsurface. Thus, the knowledge of permafrost conditions is of utmost importance in the planning of construction projects in the arctic.

Assistant Professor Thomas Ingeman-Nielsen,
Section for Geotechnics

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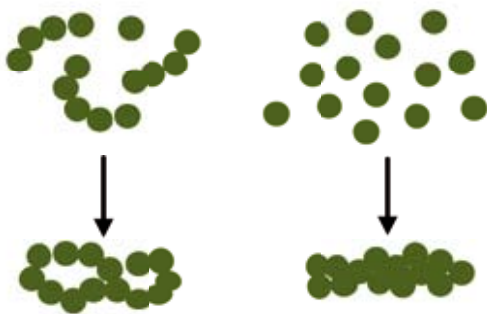
Bringing the use of concrete to its fullest potential?

One way is through microstructure manipulation. Research has brought us further down the road in the understanding of how this may be done

The microstructure of concrete is of paramount importance for almost all performance aspects of the material. Therefore, the ability to model both initial and hydrated microstructure is a key to the subsequent understanding and prediction of many macroscopic properties of the material. Correct modelling of the initial microstructure requires knowledge of, among others, the forces acting on and between the constituent particles. In the hydrated state, the pore structure of a cement-based material is often assessed experimentally. However, assessment is always based on a number of assumptions and simplifications. In the project, theoretical and experimental investigations of the effect of inter-particle forces on the consolidation behaviour of fresh cement-based materials have been carried out. Furthermore, the basis for interpretation of results obtained through an experimental method for pore structure characterization is assessed.

Three forces apply

The three main inter-particle forces



If the net inter-particle force is highly attractive, the particles will tend to agglomerate in a loose network (left). Reducing the attractive inter-particle forces by means of absorbing polymers can therefore facilitate a closer packing of the constituent particles (right).

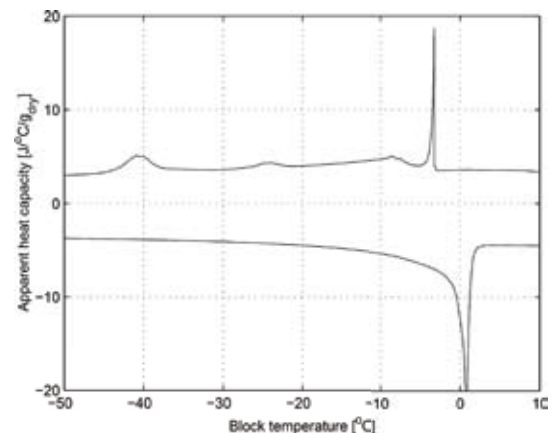
acting in the studied systems, the van der Waals force, the electrostatic force, and the steric force were theoretically evaluated, and changes in inter-particle forces were experimentally quantified. The changes were induced by the addition of different so-called superplasticizers. Superplasticizers are polymers that today are commonly used in concrete production to obtain a material with specific flow properties. The applied superplasticizers change the steric inter-particle force by adsorbing onto the cement particle. This helps prevent the particles from agglomerating, thus enabling them to rearrange during consolidation and form a dense network with a given packing density. The experiments verified, that changes in superplasticizer structure were reflected by changes in the obtained packing density and thus the inter-particle force.

Low temperature experiments

Assessment of the pore structure in a hardened cement-based material may be carried out experimentally, e.g. by the Low Temperature Calorimetry (LTC) equipment at BYG•DTU. The principle of LTC is based on that the freezing of liquid is an exothermic process and that at subfreezing temperatures a solid meniscus exists, whose curvature lowers the free energy of the pore liquid and induces a freezing point depression. When performing LTC heat flow to and from a saturated porous material is measured during controlled cooling and heating. From the resulting heat flow curves the amount of ice formed or melted at a given temperature can be calculated. This information may be used to estimate threshold pore sizes or the pore size distribution in the material.

The basis for interpretation of results from this experimental technique was assessed in order to determine the possibilities of using

LTC for characterization of the porosity of cement-based materials. Effects like super-cooling of the liquid in the material, bottle neck pores, and ions being expelled from the pore water during freezing, were treated theoretically and evaluated experimentally. It was found that taking into consideration the obtained results, LTC may be used for characterization of pore connectivity as well as pore size distribution in cement-based materials.



When performing LTC, heat flow to and from a saturated porous material is measured while cooling and heating is carefully controlled. The amount of ice formed or melted at a given temperature can be calculated from the heat flow curves. This information may be used to estimate threshold pore sizes or the pore size distribution in the material.



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Real estate strategies and building values

Developing theories of Facilities Management with studies of DR's building history during the last 80 years.

Facilities Management (FM) is a new discipline and has recently been included in BYG•DTU's research agenda. To understand how FM has originated, this research project has focused on the historical development of the roles as building client and building operator, and how these functions within the last 10-20 years have emerged into an integrated FM function together with various building related service functions. To understand the relations between building client and building operator, some theories, that connect the process of developing new buildings with the life cycle process of buildings in use, have been implemented and developed. These theories concern real estate strategies and values of buildings.

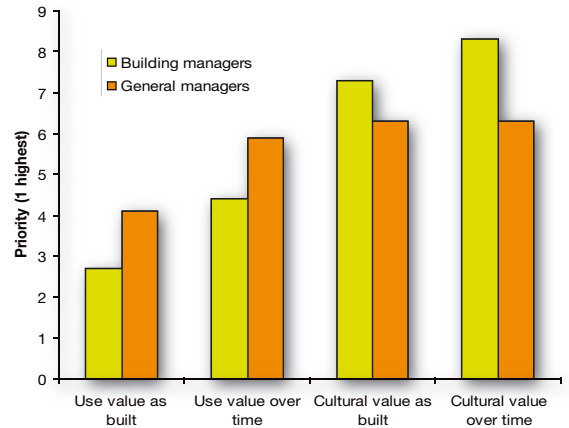
Studying DR

The empirical basis of the project has been a longitudinal case study of the buildings of DR (Danish Broadcasting Corporation) during the corporation's 80 years history as a public service broadcaster of radio and television in Denmark. The researcher had personal experience from 14 years of employment in DR. The personal knowledge

has been supplemented by literature and archive studies, interviews among former building managers in DR and consultants for DR, and a questionnaire survey about DR's buildings among present and former managers in DR.

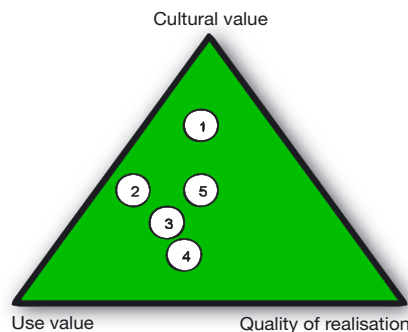
Real estate strategies and building values

In relation to real estate strategies seven periods can be identified during DR's history with different strategies, and these have generally changed between an incremental strategy and a value based strategy. Only a period in the 1970's can be characterized by a standardization strategy, and this followed the appointment of the first professional building client internally in DR. Each of the three periods with a value based strategy included the start of major new headquarters: Radiohuset, TV-Byen and DR Byen.

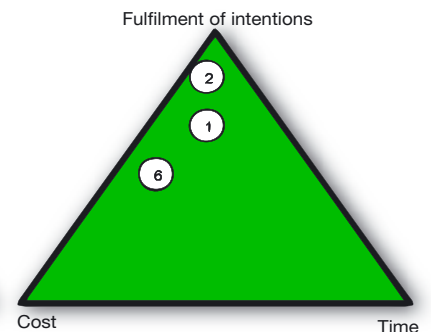


A questionnaire survey shows that 'value as built' is given considerable higher priority than 'value over time'. It also shows that building managers give higher priority to 'use value' than general managers. They however give higher priority to cultural value than building managers. This has important consequences for the way building managers communicate with top management about building investments, and how building consultants communicate with their clients.

Product integrity



Process integrity



- 1. Stærekassen 2. Radiohuset 3. TV-byen
- 4. R/TV-huset and Distrikthuse 5. DR Byen 6. TV-byen, R/TV-huset, Distrikthuse and DR Byen

DR's buildings is a combination of cultural important and technical complex buildings. The value aspects have had high priority in all building projects and in most cases there have been a good balance between cultural and use value. Cost and time have been given very little priority and this gives some background for understanding the present problems with cost overrun in the construction of DR Byen.



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Publications

Articles

- ISI-indexed

Christensen, Iben Vernegren; Pedersen, Anne Juul; Ottosen, Lisbeth M.; Ribeiro, Alexandr
Electrodialytic remediation of CCA-treated waste wood in a 2 m³ pilot plant DOI : <http://dx.doi.org/10.1016/j.scitotenv.2005.11.018> In: Science of the total environment, vol: 364 (1-3), pp. 45-54 (2006).Elsevier ISSN: 0048-9697

Dammann, Sven; Elle, Morten
Environmental indicators: Establishing a common language for green building In: Building Research and Information : International research, development, demonstration and innovation, vol: 34 (4), pp. 387-404 (2006).Routledge ISSN: 0961-3218

Engbæk, Jakob; Schiøtz, Jakob; Dahl-Madsen, Bjarke; Horch, Sebastian
Surface physics, nanoscale physics, low-dimensional systems - Atomic structure of screw dislocations intersecting the Au(111) surface : A combined scanning tunneling microscopy and molecular dynamics study In: PHYSICAL REVIEW B, vol: 74 (19), pp. 195434 (2006).

Guang, Ye; Lura, Pietro; van Breugel, K
Modelling of water permeability in cementitious materials In: Materials & Structures, vol: 39 (293), pp. 877-885 (2006).

Hertz, Kristian Dahl
Quenched Reinforcement Exposed to Fire In: Magazine of Concrete Research, vol: 58 (1), pp. 43-48 (2006).Thomas Telford Ltd. ISSN: 0024-9831

Ingeman-Nielsen, Thomas; Baumgartner, François
Numerical modelling of complex resistivity effects on a homogeneous half-space at low frequencies DOI : 10.1111/j.1365-2478.2006.00532.x In: Geophysical Prospecting, vol: 54 (3), pp. 261-271 (2006).Blackwell Publishing ISSN: 0016-8025

Ingeman-Nielsen, Thomas; Baumgartner, François
CR1Dmod: A Matlab program to model 1D Complex Resistivity DOI : 10.1016/j.cageo.2006.01.001 In: Computers & Geosciences, vol: 32 (9), pp. 1411-1419 (2006).Elsevier

Jensen, Ole Mejlhede; Lura, Pietro
Techniques and materials for internal water curing of concrete In: Materials and Structures, vol: 39 (9), pp. 817-825 (2006).Springer ISSN: 1359-5997

Jensen, Pernille Erland; Ottosen, Lisbeth M.; Ferreira, Célia; Villumsen, Arne
Kinetics of electro dialytic extraction of Pb and soil cations from a slurry of contaminated soil fines In: Journal of Hazardous Materials, vol: B138, pp. 493-499 (2006).Elsevier

Jensen, Pernille Erland; Ottosen, Lisbeth M.; Pedersen, Anne Juul
Speciation of Pb in industrially polluted soils DOI : 10.1007/s11270-005-9008-7 In: Water, Air and Soil Pollution, vol: 170 (1-4), pp. 359-382 (2006).Springer ISSN: 0049-6979

Jensen, Find Mølholt; Falzon, B.G.; Ankersen, J.; Stang, Henrik
Structural testing and numerical simulation of a 34-m composite wind turbine blade In: Composite Structures, vol: 76, pp. 52-61 (2006).

Kepp, Rikke; Struve, Anke; Christiansen, Christian; Lund-Hansen, Lars Chresten; Nielsen, Morten Holtegaard; Vang, Torben
Transport and hydraulically-induced recycling of phosphorous in the North Sea-Baltic Sea transition zone In: Oceanologia, vol: 48 (2), pp. 175-191 (2006).Institute of Oceanology PAS

Larsson, Bengt; Sundqvist, Jan; Emmitt, Stephen
Component manufacturers' perceptions of managing innovation In: Building Research & Information, vol: 34 (6), pp. 552-564 (2006).Routledge ISSN: 0961-3218

Lura, Pietro; Bentz, D.P.; Lange, D.A.; Kovler, K.; Bentur, A.; van Breugle, K
Measurement of water transport from saturated pumice aggregates to hardening cement paste In: Materials and Structures, pp. 861-868 (2006).

Meyer, Niels I
Influence of government policy on the promotion of wind power In: Int. J. Global Energy Issues, vol: 25 (3/4), pp. 204-218 (2006).Interscience Enterprises

Mufti, A.; Bakht, B.; Bantia, N.; Benmokrane, B.; Desgagné, G.; Eden, R.; Eriki, M.-A.; Karbhari, V.; Kroman, J.; Lai, D.; Machida, A.; Neale, K.; Tadros, G.; Täljsten, Björn
New Design Provision for Fibre Reinforced Structures In: Canadian Journal of Civil Engineering (2006).

Nordin, H.; Täljsten, Björn
Concrete Beams Strengthened with Prestressed Near Surface Mounted CFRP In: Journal of Composites for Construction, vol: 10 (1), pp. 60-68 (2006).

Nørgaard, Jørgen
Consumer Efficiency in Conflict with GDP Growth In: Ecological Economics : Transdisciplinary Journal of the International Society for Ecological Economics, vol: 57, pp. 15-29 (2006).Elsevier Science Publishers

Nystrom, Gunvor Marie; Pedersen, Anne Juul; Ottosen, Lisbeth M.; Villumsen, Arne
The use of desorbing agents in electro dialytic remediation of harbour sediment In: Science of the Total Environment, vol: 357 (1-3), pp. 25-37 (2006).Elsevier

Olesen, John Forbes; Østergaard, Lennart; Stang, Henrik
Nonlinear fracture mechanics and plasticity of the split cylinder test DOI : 10.1617/s11527-005-9018-3 In: Materials and Structures, vol: 39, pp. 421-432 (2006).Springer ISSN: 1359-5997

For a list of all BYG•DTU publications see orbit.dtu.dk/app

Ottosen, Lisbeth M.; Lepkova, Katarina; Kubal, Martin

Comparison of electro-dialytic removal of Cu from spiked kaolinite, spiked soil and industrially polluted soil In: *Journal of Hazardous Materials*, vol: 137 (1), pp. 113-120 (2006).Elsevier

Ottosen, Lisbeth M.; Lima, Ana Teresa; Pedersen, Anne Juul; Ribeiro, Alexandra B.

Electrodialytic extraction of Cu, Pb and Cl from municipal solid waste incineration fly ash suspended in water In: *Journal of Chemical Technology and Biotechnology*, vol: 81 (4), pp. 553-559 (2006).Wiley

Pedersen, Anne Juul; Ottosen, Lisbeth M.

Elemental analysis of ash residues from combustion of CCA treated wood waste before and after electro-dialytic extraction In: *Chemosphere*, vol: 65, pp. 110-116 (2006).Elsevier

Rojo, Adrian; Hansen, Henrik K.; Ottosen, Lisbeth M.

Electrodialytic remediation of copper mine tailings: Comparing different operational conditions In: *Minerals Engineering*, vol: 19, pp. 500-504 (2006).Elsevier

Thür, Alexander; Furbo, Simon; Shah, Louise Jivan

Energy Savings for Solar Heating Systems In: *Solar Energy : Journal of the International Solar Energy Society*, vol: 80 (11), pp. 1463-1474 (2006).Elsevier ISSN: 0038-092X

Thygesen, Lisbeth Garbrecht; Bilde-Sørensen, Jørgen; Hoffmeyer, Preben

Visualisation of dislocations in hemp fibres – a comparison between Scanning Electron Microscopy (SEM) and Polarized Light Microscopy (PLM) DOI : 10.1016/j.infcrop.2006.03.009 In: *Industrial Crops and Products*, vol: 24 (2), pp. 181-185 (2006).BYG-DTU

Tommerup, Henrik M.; Svendsen, Svend

Energy savings in Danish residential building stock DOI : 10.1016/j.enbuild.2005.08.017 In: *Energy and Buildings* (38), pp. 618-626 (2006).Elsevier B.V ISSN: 0378-7788

Walter, Rasmus; Østergaard, Lennart; Olesen, John Forbes; Stang, Henrik

Wedge splitting test for a steel-concrete interface DOI : 10.1016/j.engfracmech.2005.06.001 In: *Engineering Fracture Mechanics*, vol: 72, pp. 2565-2583 (2005).Elsevier ISSN: 0013-7944

Journal papers

- Peer Reviewed

Andersson, Niclas

Building Procurement : Book review In: *Construction Management and Economics* (2007).Taylor & Francis Ltd

Bjerregaard Jensen, Lotte

Naturvidenskab og 'det andet' : Historiografiske vinkler på dansk glas arkitektur In: *Nordic Journal of Architectural Research : Å se modernismen i bakspejlet*, vol: 19 (# 1), pp. 43-55 (2006).Nordisk förening för arkitekturforskning ISSN: 1102-5824

Carassus, Jean; Andersson, Niclas;

Kaklauskas, Arturas; Lopes, Jorge;

Manseau, André; Ruddock, Les; de

Valence, Gerard

Moving from production to services : A built environment cluster framework In: *International Journal of Strategic Property Management*, vol: 10 (3), pp. 169-184 (2006).Vilnius Gediminas Technical University ISSN: 1648-9179

Carlsson, Jörgen; Husted, Bjarne;

Göransson, Ulf; Dederichs, Anne

Anwendung von CFD-Programmen für brandtechnische Berechnungen paperid : 0711/78637150 - MAC Leonardo In: *Anwendung von CFD-Programmen für brandtechnische Berechnungen*, vol: 3, pp. 127-131 (2006).VFDB

Emmitt, Stephen

Investigating the synergy between teaching and research in a teaching led university : The case of an architectural technology undergraduate programme In: *International journal of architectural engineering & design management : Teaching and learning building design and construction special issue*, vol: 2 (1 and 2), pp. 61-72 (2006).Earthscan ISSN: 1745-2007

Emmitt, Stephen

Selection and specification of building products : Implications for design managers In: *Architectural Engineering and Design Management*, vol: 2 (3), pp. 176-186 (2006).Earthscan ISSN: 1745-2007

Enochsson, O.; Lundqvist, J.; Täljsten, Björn; Rusinowski, Piotr; Olofsson, T

CFRP strengthened openings in two-way concrete slabs : - An experimental and numerical study In: *Construction and Building Materials* (2006).

Enochsson, O.; Täljsten, Björn

Kolfiberförstärkning av betongplattor - med och utan öppningar In: *Bygg och Teknik* (7), pp. 12-18 (2006).

Koch, Christian; Buser, Martine

Emerging Metagovernance as an Institutional Framework for Public Private Partnership Network in Denmark. In: *International Journal of Project Management*, vol: 33 (6), pp. 548-556 (2006).Elsevier

Koverdynsky, Vit; Korsgaard, Vagn; Rode, Carsten

The Wick-Concept for Thermal Insulation of Cold Piping In: *Journal of Building Physics*, vol: 29 (4), pp. 313-327 (2006).SAGE Publications ISSN: 1744-2591

Löfgren, Ingemar; Olesen, John Forbes;

Flansbjerg, Mathias

The WST-method for fracture testing of fibre-reinforced concrete In: *Nordic Concrete Research*, vol: 34 (2), pp. 15-33 (2005).Norsk Betongforening ISSN: 82-91341-96-6

Ottosen, Lisbeth M.; Arevalo, Edurado;

Stichnothe, Heinz; Calmano, Wolfgang

Formation of ferric flocks for the removal of Zn and Cu from dockyard wastewater In: *Environmental Chemistry Letters*, vol: 3 (4), pp. 164-168 (2006).Springer-Verlag ISSN: 16103653

Ottosen, Lisbeth M.; Jensen, Pernille Erland;

Battisti, Achille De

Elettro risanamento di suoli contaminati da metalli pesanti In: *La Chimica e l'Industria*, vol: 88 (2), pp. 70-74 (2006).

Ottosen, Lisbeth M.; Villumsen, Arne

Heavy metal pollution in sediment from Sisimiut, Greenland. Adsorption to organic matter and fine particles In: *Environmental Chemistry Letters*, vol: 4, pp. 195-199 (2006).Springer

Roels,Staf; Janssen, Hans

A comparison of the Nordtest and Japanese test methods for the moisture buffering performance of building materials In: Journal of Building Physics, vol: 30 (2), pp. 137-161 (2006).SAGE Publications ISSN: 1744-2591

Täljsten, Björn

The Importance of Bonding : - A Historic Overview and Future Possibilities In: Journal Advances in Structural Engineering, vol: 9 (6), pp. 721-736 (2006).

Täljsten, Björn; Carolin,A

Förstärkning av betongkonstruktioner med fiberarmerede kompositer - en överblick In: Bygg och Teknik (7), pp. 22-27 (2006).

Täljsten, Björn; Hejll,A.; James,G

CFRP Strengthening and Monitoring of the Gröndals Bridge in Sweden In: ASCE (2006).

Täljsten, Björn; Sand,B.; Rusinowski, Piotr

Shear and Peeling Stresses at the End of Concrete Beams Strengthened with CFRP Laminates In: ASCE (2006).

Books**Emmitt, Stephen; Gorse,Christopher**

Barry's Advanced Construction of Buildings. - Firsted. -Oxford : Blackwell Publishing, 2006 (pp. 625) ISBN : 1-4051-1054-6

Emmitt, Stephen; Olie,John; Schmid,Peter

Principles of Architectural Detailing - China Electric Power Press, 2006 (pp. 203) ISBN : 7-5083-3995-9

Foged, Niels Nielsen; Schuppener,Bernd;**Powell,John; Escario Urbarri,Venturo;****Frank,Roger; Smits,Maarten; Melzer,Klaus;****Magnan,Jean Pierre; Bohac,Jan**

Eurocode 7 Geotechnical design - Part 2: Ground investigation and testing : EN 1997-2 CEN/TC 250 BSI. - BSI : CEN/TC 250, 2006 (pp. 192)

Jensen, Ole Mejlhede; Geiker, Mette Rica;**Stang, Henrik**

Knud Højgaard conference on Advanced cement-based materials : Research and Teaching. - 1sted. -Lyngby : BYG-DTU, 2006 (pp. 408) ISBN : 87-7877-227-3

Jensen, Ole Mejlhede; Lura, Pietro; Kovler,**Konstantin**

Volume changes of Hardening Concrete : Testing and Mitigation. - 1sted. -Bagneux, Paris, France : RILEM, 2006 (pp. 418) ISBN : 2-35158-004-4

Jensen, Per Anker

Håndbog i Facilities Management. - 2ed. -Taastrup : Dansk Facilities Management netværk, 2006 (pp. 224) ISBN : 87-988338-1-2

Jensen, Pernille Erland; Ottosen, Lisbeth M.;**Felland, Anne-Lene; Villumsen, Arne**

The Greenlandic Environment : Pollution and Solutions. - Lyngby : Department of Civil Engineering, technical University of Denmark, 2006 (pp. 103)

Li,Victor; Fischer, Gregor

International RILEM Workshop on High Performance Fiber Reinforced Cementitious Composites (HPFRCC) in Structural Applications : Proceedings - RILEM, 2006 ISBN : 2-912143-93-4

Nørgaard, Jørgen; Christensen,Bente Lis

Towards a Low Energy Society from me. - Beijing, China : Economy and Management Publishing House,, 2006 (pp. 148) ISBN : 7-80207-612-9 / F.528

Ovesen,Niels Krebs; Fuglsang, Leif D; Bagge, Gunnar

Textbook in Soil Mechanics. - 1ed. - - Polyteknisk Forlag, 2007 ISBN : 87-502-0961-2

Quintiere,James

Fundamentals of Fire Phenomena. - West Sussex, England : John Wiley & Sons Ltd, 2006 (pp. 439) ISBN : 100-470-09113-4

Sacks,R.; Bertelsen, Sven

Proceedings for the 14th Annual Conference in the International Group for Lean Construction. - Santiago, Chile : International Group for Lean Construction, 2006 (pp. 641) ISBN : 956-310-249-5

Scheublin,Frits; Pronk,Arno; Prins,Matthijs;**Emmitt, Stephen; den Otter,Ad**

Adaptables 2006 : Proceedings of international conference on adaptability in design and construction, volume 3. - Eindhoven : Eindhoven University of Technology, 2006 (pp. 155) ISBN : 90-72152-03-4

Book chapters

Bagge, Gunnar

Jords styrke In: Lærebog i geoteknik; kapitel 7, pp. 157-184 - 1ed. -Lyngby : Polyteknisk forlag, 2007 ISBN: 87-502-0961-2

Bagge, Gunnar

Plane pæleværker In: Lærebog i geoteknik; kapitel 17, pp. 393-410 - 1ed. -Lyngby : Polyteknisk forlag, 2007 ISBN: 87-502-0961-2

Bagge, Gunnar; Ovesen, Niels Krebs

Grundvandssænkning In: Lærebog i geoteknik; kapitel 4, pp. 97-111 - 1ed. -Lyngby : Polyteknisk forlag, 2007 ISBN: 87-502-0961-2

Fuglsang, Leif D

Ground anchors In: Textbook in Soil Mechanics - 1ed. -Polyteknisk Forlag, 2007 ISBN: 87-502-0961-2

Goltermann, Per

Teknisk Ståbi : Letbetonkonstruktioner In: Teknisk Ståbi 20.udgNyt Teknisk Forlag, 2006

Jensen, Hans Thorkild

Aflastning fra afløbssystemer In: Afløbsteknik, pp. 289-318 - 5th Rev.ed. -København : Polyteknisk forlag, 2006 ISBN: 87-502-0975-2

Jensen, Hans Thorkild

Bygværker, udformning og dimensionering In: Afløbsteknik, pp. 249-288 - 5th Rev.ed. -København : Polyteknisk forlag, 2006 ISBN: 87-502-0975-2

Jensen, Hans Thorkild

Udformning og funktion af afløbssystemer In: Afløbsteknik, pp. 23-44 - 5th Rev.ed. -København : Polyteknisk forlag, 2006 ISBN: 87-502-0975-2

Koch, Christian

Europæiske erfaringer med danske briller In: Det er så yndigt at følges ad : Offentlige Private Partnerskaber -En debat- og metodebog, pp. 182-199 - 1ed. -København : Børsens Forlag, 2006

Krogsbøll, Anette Susanne; Hansen, Bent

Brud i jordmasser In: Lærebog i Geoteknik, pp. 185-196 ; Fuglsang, Leif D ; Bagge, Gunnar - 1ed. -Lyngby : Polyteknisk Forlag, 2007 ISBN: 87-502-0961-2

Krogsbøll, Anette Susanne; Hansen, Bent

Jordtryk In: Lærebog i geoteknik, pp. 273-292 ; Fuglsang, Leif D ; Bagge, Gunnar - 1ed. -Lyngby : Polyteknisk Forlag, 2007 ISBN: 87-502-0961-2

Krogsbøll, Anette Susanne; Hansen, Bent

Stabilitet In: Lærebog i Geoteknik, pp. 197-220 ; Fuglsang, Leif D ; Bagge, Gunnar - 1ed. -Lyngby : Polyteknisk Forlag, 2007 ISBN: 87-502-0961-2

Nørgaard, Jørgen; Wilhite, Harold

Å forveksle effektivitet med reduksjon: Et selvbedrag i energipolitikken In: Mulighetsrommet : Årbok 2006, Stiftelsen Idébanken, pp. 30-39-Oslo : Stiftelsen Idébanken, www.idebanken.no, 2006 ISBN: 82-91686-18-1

Reimann, Gregers Peter

Energy and thermal comfort In: Thermal Comfort Honeycomb Housing : Affordable alternative to terrace housing-University Putra Malaysia, 2006

Conference papers - Peer Reviewed

Andersen, Elsa; Furbo, Simon

Fabric inlet stratifiers for solar tanks with different volume flow rates Presented at: Eurosun. Glasgow, Scotland, 2006 In: Proceedings of Eurosun 2006, 2006

Andersen, Elsa; Furbo, Simon

Investigations of medium sized solar combi systems Presented at: Eurosun. Glasgow, Scotland, 2006 In: Proceedings of Eurosun 2006, 2006

Andersson, Niclas; Andersson, Pernille Hammar

Interdisciplinary skills in architectural and engineering education programs : The pedagogical challenge Presented at: 4:e Pedagogiska inspirationskonferensen 2006. Lund, Sweden, 2006 In: 4:e Pedagogiska inspirationskonferensen 2006-Lund : Lund University Faculty of Engineering, 2006

Asferg, Jesper L.; Belytschko, Ted; Poulsen, Peter Noe; Nielsen, Leif Otto

Partly Cracked XFEM Interface Presented at: 16th European Conference on Fracture. Alexandroupolis, Greece, 2006 In: Proceedings of the 16 European Conference on Fracture

Asferg, Jesper L.; Poulsen, Peter Noe; Nielsen, Leif Otto

Modeling of Crack Propagation in Concrete Applying the XFEM Presented at: EURO-C 2006 Computational Modelling of Concrete Structures. Mayrhofen, Austria, 2006 In: Proceedings of EURO-C 2006 Computational Modelling of Concrete Structures

Astrup, Thomas; Damkilde, Lars;

Hergenröder, B; Berglund, Lars

Analysis of Glulam Subjected to Compression Perpendicular to Grain : An Experimental and Numerical Study Presented at: International Conference on Integrated Approach To Wood Structure, Behaviour and Applications. Florence, Italy, 2006 In: Proceedings of International Conference on Integrated Approach To Wood Structure, Behaviour and Applications, 2006

Astrup, Thomas; Jenstrup, Claus;

Kristensen, Kasper; Olesen, John Forbes; Hoffmeyer, Preben

Determination of cohesive fracture parameters for wood Presented at: 16th European Conference of Fracture. Alexandroupolis, Greece, 2006 In: Fracture of Nano and Engineering Materials : Proceedings of the 16th European Conference of Fracture

Bergström, M.; Täljsten, Björn

Degradation of Structural Performance - experiment introduction and expected results Presented at: Third International Conference on Bridge Maintenance, Safety and Management. Porto, 2006 In: Proceedings of the Third International Conference on Bridge Maintenance, Safety and Management; CD-Publication and extended extracts-Porto, 2006

Bergström, M.; Täljsten, Björn

Structural Health Monitoring of degrading concrete beams in a laboratory environment Presented at: Third International Conference on FRP Composites in Civil Engineering (CICE'06). Miami, Florida, 2006 In: Proc. 3rd Int. Conf. on FRP Composites in Civil Engineering (CICE'06), pp. 335-338-Miami, 2006

Bertelsen, Sven; Koskela, L.; Heinrich, G.; Rooke, J.

Critical Flow – Towards a Construction Flow Theory Presented at: The 14th Annual Conference in the International Group for Lean Construction. Santiago, Chile, 2006 In: Proceedings for the 14th Annual Conference in the International Group for Lean Construction, pp. 10-Santiago, Chile : International Group for Lean Construction, 2006 ISBN: 956-310-249-5

Bjerregaard Jensen, Lotte

Ideal Structures & Urban Context : Strategy for integration of ideal spatial structures and place: Virum Sports Hall designed by Finn Monies and Jørgen Nielsen Presented at: The Complexity of The Ordinary. Copenhagen, 2006 In: The Complexity of The Ordinary : Context as key to Architectural Strategies, pp. Chapter 8: Contextual Tectonics-Copenhagen : Royal Academy of Art, School of Architecture, 2006 ISBN: 87.7830.143.2

Blanksvård, T.; Carolin, A.; Täljsten, Björn; Rosell, E.

Mineral Based bonding of CFRP to strengthen concrete structures Presented at: The Third International Conference on Bridge Maintenance, Safety and Management. Porto, 2006 In: Proceedings of the Third International Conference on Bridge Maintenance, Safety and Management; CD-Publication and extended abstracts-Porto, 2006

Blocken, Bert; Janssen, Hans; Roels, Staf; Derome, Dominique; Carmeliet, Jan

Local wind speed near exterior building surfaces for convective transfer coefficients Presented at: 3rd International Building Physics Conference, 2006 In: Research in Building Physics and Building Engineering, 2006

Bullard, J.W.; D'Ambrosia, M.; Grasley, Z.; Hansen, W.; Kidner, N.; Lange, D.; Lura, Pietro; Mason, T.O.; Moon, J.; Rajabipour, F.; Sant, G.; Shah, S.; Sun, Z.; Voigt, T.; Wansom, S.; Weiss, J.; Woo, L.

A comparison of test methods for early age behaviour of cementitious materials Presented at: RILEM 2nd Symposium on Advances in Concrete through Science and Engineering, 2006 In: RILEM 2nd Symposium on Advances in Concrete through Science and Engineering; CDROM-Quebec City, Canada, 2006

Couch, John; Lura, Pietro; Jensen, Ole Mejlhede; Weiss, Jason

Use of acoustic emission to detect cavitation and solidification (time zero) in cement pastes Presented at: Volume changes of hardening concrete. Lyngby, Denmark, 2006 In: Volume changes of hardening concrete : Testing and Mitigation, pp. 393-400 - 1sted. -Lyngby, Denmark : RILEM publications SARL, 2006 ISBN: 2-35158-004-4

Dick-Nielsen, Lars; Stang, Henrik; Poulsen, Peter Noe

Condition For Strain-Hardening In Ecc Uniaxial Test Specimen Presented at: Measuring, Monitoring and Modeling Concrete Properties. Alexandroupolis, Greece - Democritus University of Thrace, 2006 In: Measuring, Monitoring and Modeling Concrete Properties, pp. 41-47 - 1ed. -Netherlands : Springer, 2006 ISBN: 1-4020-5103-4

Dick-Nielsen, Lars; Stang, Henrik; Poulsen, Peter Noe

Modeling of ECC materials using numerical formulations based on plasticity Presented at: PhD-symposion. Zurich, Schweiz, 2006 In: Proceedings: 6th International PhD symposium in Civil Engineering-ETH Zürich : IBK Publikation, 2006

Dick-Nielsen, Lars; Stang, Henrik; Poulsen, Peter Noe

Simulation of strain-hardening in ECC uniaxial test specimen by use of a damage mechanics formulation Presented at: Computational Modelling of Concrete Structure. Mayrhofen, Østrig, 2006 In: Computational Modelling of Concrete Structures, pp. 319-327 - 1ed. -Netherlands : Taylor & Francis/Balkema, 2006 ISBN: 0415397499

Emmitt, Stephen

Facilitating a value-based approach to design and construction through informal leadership : reflections on a Danish approach Presented at: Leadership and management in construction. Grand Bahama Island, Bahamas, 2006 In: Proceedings of the 2nd speciality conference on leadership and management in construction, pp. 274-281-Louisville, Colorado, USA : PM Publishing, 2006 ISBN: 0-9707869-1-3

Emmitt, Stephen

Researching a value-based approach to construction Presented at: 3rd international SCRI symposium. Delft, The Netherlands, 2006 In: Proceedings of 3rd International SCRI symposium, pp. 65-77-Salford : University of Salford, 2006 ISBN: 0 902896 95 4

Engelund, Emil Tang; Astrup, Thomas; Svensson, Staffan; Hoffmeyer, Preben

Modelling Time to Failure in Constant Deformation Experiments Presented at: 9th World Conference on Timber Engineering. Portland, OR, USA, 2006 In: Proceedings of 9th World Conference on Timber Engineering

Enochsson, O.; Elfgrén, L.; Olofsson, T.; Täljsten, Björn; Töyrä, B.; Kronborg, A.; Paulsson, B

Assessment and condition monitoring of a railway bridge in Kiruna, Sweden Presented at: The Third International Conference on Bridge Maintenance, Safety and Management. Porto, 2006 In: Proceedings of the Third International Conference on Bridge Maintenance, Safety and Management; CD-Publication and extended abstracts-Porto, 2006

Enochsson, O.; Täljsten, Björn; Olofsson, T

Structural Health Monitoring of a Concrete Bridge in Sweden Presented at: Int. Conf. Smart Materials and Structures and NDE for Health Monitoring and Diagnostics. San Diego, 2006 In: Int. Conf. Smart Materials and Structures and NDE for Health Monitoring and Diagnostics-San Diego, 2006

Furbo, Simon; Thür, Alexander; Fiedler, Frank; Bales, Chris; Rekstad, John; Meir, Michaela; Blumberga, Dagnija; Rochas, Claudio; Karlsson, Björn

Nordic Energy Research Cooperation on Solar Combisystems, 2006 In: EuroSun 2006 Proceedings, 2006

For selected full versions free for download see: www.byg.dtu.dk/Forskning/hentned.aspx

Geiker, Mette Rica; Bøhm, Anja; Kjeldsen, Ane Mette

On the effect of mixing on property development of cement pastes Presented at: Volume changes of hardening concrete. Lyngby, Denmark, 2006 In: Volume changes of hardening concrete : Testing and mitigation, pp. 303-310 RILEM Publications S.A.R.L., 2006 ISBN: 2-35158-004-4

Geiker, Mette Rica; Nielsen, Erik Pram

Prediction of chloride ingress and binding in concrete Presented at: The Knud Højgaard Conference on Advanced Cement-Based Materials. Lyngby, 2005 In: Knud Højgaard Conference : Advanced Cement-Based Materials: Research and Training, pp. 215-232 Technical University of Denmark, Department of Civil Engineering, 2006 ISBN: 87-7877-277-3

Goltermann, Per

Alkali-silica reactions: Mechanisms for crack formations Presented at: International RILEM Conference, Lyngby, Denmark, 2006 In: Volume changes og hardening concrete: Testing and mitigation : Proceedings og the international RILEM Conference, PRO52, pp. 175-184 ISBN: 2-35158-005-2

Hansen, Thomas

Effective Width Equations According to the Theory of Plasticity Presented at: XIth International Conference on Metal Structures. ICMS 2006, Rzeszów, 21-23 June 2006, 2006 In: Progress in Steel, Composite and Aluminium Structures

Hansen, Thomas

The Diagonal Compression Field Method using Circular Fans Presented at: 2nd fib Congress 2006, Naples, 5-8 June 2006, 2006 In: Proceedings of the 2nd International fib Congress

Hejll, A.; Täljsten, Björn; Carolin, C.

Structural Health Monitoring of the Gröndals Bridge in Sweden - : the behaviour of CFRP strengthening in cold temperature Presented at: Int. Conf. Smart Materials and Structures and NDE for Health Monitoring and Diagnostics. San Diego, 2006 In: Int. Conf. Smart Materials and Structures and NDE for Health Monitoring and Diagnostics-San Diego, 2006

Hens, Hugo; Carmeliet, Jan; Roels, Staf; Janssen, Hans

Whole building approach and hygrothermal risk analysis Presented at: 3rd International Building Physics Conference, 2006 In: Research in Building Physics and Building Engineering, 2006

Ingeman-Nielsen, Thomas

Mapping ice-bonded permafrost with electrical methods in Sisimiut, West Greenland Presented at: EAGE Near Surface 2006. Helsinki, Finland, 2006 In: Near Surface 2006 : Extended Abstracts EAGE Publications BV, 2006 ISBN: 90-73781-62-0

Ingeman-Nielsen, Thomas

The effect of electrode contact resistance and capacitive coupling on Complex Resistivity measurements Presented at: SEG 2006 International Exposition and Seventy-Sixth Annual Meeting, New Orleans, USA, 2006 DOI : 10.1190/1.2369776 In: SEG Technical Program Expanded Abstracts; 25, pp. 1376-1380 Society of Exploration Geophysicists, 2006

Janssen, Hans; Carmeliet, Jan

Adaptive integration of element matrices in finite element moisture transfer simulations Presented at: XVI International Conference on Computational Methods in Water Resources. Copenhagen, 2006 In: Proceedings of the XVI International Conference on Computational Methods in Water Resources, 2006

Janssen, Hans; Carmeliet, Jan

Hygrothermal simulation of masonry under atmospheric excitation Presented at: 3rd International Building Physics Conference, 2006 In: Research in Building Physics and Building Engineering, 2006

Jensen, Ole Mejlhede

Monitoring water loss form fresh concrete Presented at: Concrete durability and service life planning. Dead Sea, Israel, 2006 In: Concrete durability and service life planning, pp. 197-202 - 1sted. -Bagneux, France : RILEM, 2006 ISBN: 2-912143-89-6

Jensen, Ole Mejlhede

The Curing Meter Presented at: Advanced testing of fresh cementitious materials. Stuttgart, Germany, 2006 In: Advanced testing of fresh cementitious materials, pp. 139-146 - 1sted. -Stuttgart, Germany : Deutsche Gesellschaft für Zerstörungsfreie Prüfung E.V., 2006 ISBN: 3-9808542-6-4

Jensen, Per Anker

Continuous Briefing and User Participation in Building Projects Presented at: adaptables 2006. Eindhoven University of Technology, 2006 In: adaptables 2006 : Proceedings of the joint CIB, Tensinet, IASS International Conference on Adaptability in Design and Construction; volume 3, pp. 119-123 - 1ed. -Eindhoven, The Netherlands : Eindhoven University of Technology, 2006 ISBN: 90-72152-03-04

Jensen, Per Anker

Digital Handover of Data from Building Projects to Building Operation Presented at: European Facilities Management Conference 2006. Frankfurt am Main, 2006 In: Facility Management 2006 : European Facility Management Conference 2006, pp. 433-442 -Berlin - Offenbach : VED Verlag GMBH, 2006 ISBN: 978-3-8007-2938-8

Jensen, Per Anker

Strategy and Space for Broadcasting Facilities : A Longitudinal Case Study Presented at: Trondheim International Symposium 12.-14. June 2006. Trondheim, Norway, 2006 In: Proceedings Trondheim International Symposium : Changing User Demands on Buildings - Needs for Lifecycle Planning and Management - 1ed. -Trondheim : NTNU, 2006 ISBN: 82-7551-031-7

Jensen, Pernille Erland; Ottosen, Lisbeth M.; Allard, Bert

Remediation of the residual sludge from soil washing Presented at: 1st Joint Nordic Meeting on Remediation of Contaminated Sites. Malmö, Sweden, 2006 In: Proceedings of 1st Joint Nordic Meeting on Remediation of Contaminated Sites, pp. 102-105 Nätverket Renare Mark, 2006

Jensen, Pernille Erland; Pedersen, Anne Juul; Ottosen, Lisbeth M.; Villumsen, Arne
Electrolytic Remediation of Municipal Solid Waste Incineration Fly Ash from Nuuk Incineration Plant Presented at: The Greenlandic Environment. Sisimiut, Greenland, 2006 In: The Greenlandic Environment : Pollution and Solutions, pp. 94-97-Lyngby : Department of Civil Engineering, Technical University of Denmark, 2006

Jørgensen, Ulrik; Hoffmann, Birgitte
Viden og uddannelse i Grønland - bæredygtig udvikling af et moderne arktisk samfund Presented at: Regionalseminar. Nuuk, Greenland, 19-21 May, 2006 In: Arktisk Forskningsjournal/Hjemmestyret i Grønland, 2006

Koch, Christian; Alsdorf, Morten; Sander, Dag
Coaching at the Building Site – A Feasibility Study Presented at: 22nd Conference Association of Researchers in Construction Management. University of Western England, Birmingham, 2006 In: Proceedings 22th Annual Conference ARCOM., vol 1, pp. 249-260 - 1ed. -Birmingham : ARCOM, 2006 ISBN: 0-9555-2390-0-1

Koch, Christian; Bendixen, Mads
Facilitating project organised knowledge work –do clients drive organisational change in consulting engineering? Presented at: European Association of Management of Technology. Aston University, Birmingham, 2006 In: Technology and Global Integration : Proceedings of the Second European Conference on Management of Technology;1, pp. 376-383 ; Clegg, B. ; Greasley, A. ; Albores, P. - 1ed. -Birmingham : IAMOT, 2006

Koch, Christian; Buhl, Henrik
Project management and Enterprise systems : -Clients requirements between maturity and unpredictability Presented at: European Association of Management of Technology. Aston University, Birmingham, 2006 In: Technology and Global Integration : Proceedings of the Second European Conference on Management of Technology;1 ; Clegg, B. ; Greasley, A. ; Albores, P. - 1ed. -Birmingham : IAMOT, 2006 ISBN: 185449-416-3

Koch, Christian; Haugen, Tore
Can the Skipper Ride the Storm? : The State as ICT-Client in Danish Construction Presented at: Technology and Global Integration. Birmingham, 2006 In: Technology and Global Integration : Proceedings of Second European Conference on Management of Technology;2 - 1ed. -Birmingham : IAMOT, 2006 ISBN: 185449-416-3

Koch, Christian; Larsen, Casper Schultz
Quality in Construction- A Supply Chain Perspective Presented at: 22nd Conference Association of Researchers in Construction Management. University of Western England, Birmingham, 2006 In: Proceedings 22nd Annual ARCOM conference;1, pp. 459-471 - 1ed. -Birmingham : ARCOM, 2006 ISBN: 0-9555-2390-0-1

Koch, Christian; Larsen, Casper Schultz
Quality in Supply in Project Configured Networks Presented at: Technology and Global Integration. Aston University Birmingham, 2006 In: Technology and Global Integration : Proceedings of the Second European Conference on Management of Technology;2 - 1ed. -Birmingham : IAMOT, 2006 ISBN: 185449-416-3

Koch, Christian; Simonsen, Rolf
Operations Strategy and –Innovation? -A Contractor Implementing Lean Presented at: Proceedings 22nd Annual ARCOM Conference. University of Western England, Birmingham, 2006 In: Proceedings 22nd Annual ARCOM Conference;2, pp. 907-914 - 1ed. -Birmingham : ARCOM, 2006 ISBN: 0-9555-2390-0-1

Koch, Christian; Vogelius, Peter
Evaluation of Web and PDA-based Quality Assurance on a Building Site Presented at: 22nd Annual Conference Association of Researcher in Construction Management. University of Western England, Birmingham, 2006 In: Proceedings 22nd ARCOM Conference;2, pp. 685-696 - 1ed. -Birmingham : ARCOM, 2006 ISBN: 0-9555-2390-0-1

Koch, Christian; Vogelius, Peter
Quality check carried out by bricklayers –An E-business solution in a chaotic environment. Presented at: European Conference on Management of Technology. Aston University, Birmingham, 2006 In: Technology and Global Integration : Proceedings of the Second European Conference on Management of Technology;2 - 1ed. -Birmingham : IAMOT, 2006 ISBN: 185449-416-3

Krogsbøll, Anette Susanne; Fuglsang, Leif D
Physical and numerical modelling of earth pressure on anchored sheet pile walls in sand Presented at: International Conference on Physical Modelling in Geotechnics. Hong Kong, 2006 In: Physical Modelling in Geotechnics - 6th ICPMG '06 : Proceedings of the sixth International Conference on Physical Modelling in Geotechnics;Volume 2, pp. 1469-1474 ; Zhang, L. M. ; Wang, Y. H. - 1.ed. -Leiden, The Netherlands : Taylor & Francis/Balkema, 2006 ISBN: 04-15-41586-1

Lura, Pietro; Durand, Felix; Jensen, Ole Mejlhede
Autogenous strain of cement pastes with superabsorbent polymers Presented at: Volume changes of hardening concrete. Lyngby, Denmark, 2006 In: Volume changes of hardening concrete, pp. 57-65 - 1sted. -Lyngby, Denmark : RILME publications SARL, 2006 ISBN: 2-35158-004-4

Lura, Pietro; Durand, Felix; Loukili, Ahmed; Kovler, Konstantin; Jensen, Ole Mejlhede
Strength of cement pastes and mortars with superabsorbent polymers Presented at: Volume changes of hardening concrete. Lyngby, Denmark, 2006 In: Volume changes of hardening concrete : Testing and Mitigation, pp. 117-726 - 1sted. -Lyngby, Denmark : RILEM publications SARL, 2006 ISBN: 2-35158-004-4

Lura, Pietro; Jensen, Ole Mejlhede
Measuring techniques for autogenous strain of cement paste Presented at: Knud Højgaard conference on Advanced Cement-Based materials. Lyngby, Denmark, 2005 In: Knud Højgaard conference on Advanced Cement-Based materials : Research and Teaching;1, pp. 119-134 - 1sted. -Lyngby, Denmark : BYG-DTU, 2006 ISBN: 87-78877-227-3

Lura, Pietro; Mazzotta, G.; Rajabipour, F.; Weiss, W. J.

Evaporation, settlement, temperature evolution, and development of plastic shrinkage cracks in mortars with shrinkage-reducing admixtures Presented at: ConcreteLife'06, 2006 In: Int. RILEM-JCI Seminar on Concrete Durability and Service Life Planning (ConcreteLife'06), pp. 203-213-Ein-Bokek, Israel, 2006

Møller, Per; Geiker, Mette Rica

The virtual classroom Presented at: Knud Højgaard Conference. Lyngby, 2005 In: Knud Højgaard Conference : Advanced Cement-Based Materials: Research and Training, pp. 375-382 Technical University of Denmark, Department of Civil Engineering, 2006 ISBN: 87-7877-277-3

Mortensen, Lone Hedegaard; Rode, Carsten; Peuhkuri, Ruut Hannele

Effect of airflow velocity on moisture exchange at surfaces of building materials Presented at: International Building Physics conference. Montréal, Canada, 2006 In: Research in Building Physics and Building Engineering: 3rd International Conference in Building Physics (Montreal, Canada, 27-31 August 2006), pp. 187-191 ; Ge, Hua ; Rao, Jiwu ; Desmarais, Guylaine Taylor & Francis, 2006 ISBN: 0-415-41675-2

Mufti, A. A.; Bajht, B.; Bantia, N.; Benmokrane, B.; Desgagné, G.; Eden, R.; Eriki, M-A.; Karbhari, V.; Lai, D.; Machida, A.; Neale, K.; Tadros, G.; Täljsten, Björn

New CHBDC Design Provisions for Fibre Reinforced Structures Presented at: The 2nd fib Congress, June 5-8, 2006. Naples, 2006 In: Conf. Proceeding of the 2nd fib Congress; CD-Publications and extended abstract-Naples, 2006

Nielsen, Susanne Balslev; Jensen, Jesper Ole; Hoffmann, Birgitte; Elle, Morten

Practical Implementation of Sustainable Urban Management Tools Presented at: First International Conference on Sustainability Measurement and Modelling. Terrassa, Spain, 2006 paperid : p152 In: First International Conference on Sustainability Measurement and Modelling : ICSMM 2006, 16-17 November ; de Felipe, J.J. ; Sureda, Bàrbara ; Tollin, Nicolla - Firsted. -Barcelona, Spain : International Center for Numerical Methods in Engineering, 2006 ISBN: 84-96736-06-7

Norling, Casper Roland; Rode, Carsten; Svendsen, Svend; Kragh, Jesper; Reimann, Gregers Peter A low-energy building under arctic conditions – a case study Presented at: International Building Physics Conference. Montreal, 2006 In: Research in Building Physics and Building Engineering : 3rd International Building Physics Conference, pp. 587-594 ; Ge, Hua ; Rao, Jiwu ; Desmarais, Guylaine Taylor & Francis, 2006 ISBN: 04-1541-675-2

Ottosen, Lisbeth M.; Pedersen, Anne Juul Electrochemical Chloride extraction using external electrodes, 2006 In: Concrete solutions : Proceedings of the Second International Conference, pp. 367-374 ; Jaubertie, Raoul ; Lanos, Christophebre press, 2006 ISBN: 1 86081 915 x

Ottosen, Lisbeth M.; Pedersen, Anne Juul; Rörig-Dalgaard, Inge

Electrokinetic removal of salt from brick masonry Presented at: Structural Faults and Repair, 2006 In: Structural Faults + Repair : Eleventh International Conference.; CD-ROM BYG-DTU, 2006

Ottosen, Lisbeth M.; Rörig-Dalgaard, Inge

Drying brick masonry by electro-osmosis Presented at: 7th International Masonry Conference. London, UK, 2006 In: "Masonry (10)", Proceedings of the Seventh International Masonry Conference; CD rom, pp. Paper 31-British Masonry Society : British Masonry Society, 2006

Pease, Bradley Justin; Geiker, Mette Rica;

Stang, Henrik; Weiss, Jason Photogrammetric Assessment of Flexure Induced Cracking of Reinforced Concrete Beams under Service Loads Presented at: Second International RILEM Symposium. Quebec City, Quebec, Canada, 2006 In: Proceedings of the Second International RILEM Symposium : Advances in Concrete through Science and Engineering; CD PRO 51, 2006 ISBN: 2-35158-003-6

Peuhkuri, Ruut Hannele; Rode, Carsten; Hansen, Kurt Kielsgaard

Moisture buffer value: A comprehensive analysis of essential parameters Presented at: International Building Physics Conference. Montreal, 2006 In: Research in Building Physics and Building Engineering : 3rd International Building Physics Conference, pp. 19-26 ; Ge, Hua ; Rao, Jiwu ; Desmarais, Guylaine Taylor & Francis, 2006 ISBN: 04-1541-675-2

Rode, Carsten; Peuhkuri, Ruut Hannele

The Concept of Moisture Buffer Value of Building Materials and its Application in Building Design Presented at: Healthy Buildings 2006. Lisbon, 2006 In: Healthy Buildings 2006; III, pp. 57-62 ISBN: 978-989-95067-0-1

Rode, Carsten; Peuhkuri, Ruut Hannele; Woloszyn, Monika

Simulation Tests in Whole Building Heat and Moisture Transfer Presented at: International Building Physics Conference. Montreal, 2006 In: Research in Building Physics and Building Engineering : 3rd International Building Physics Conference, pp. 527-534 ; Ge, Hua ; Rao, Jiwu ; Desmarais, Guylaine Taylor & Francis, 2006 ISBN: 04-1541-675-2

Rode, Carsten; Time, Berit; Svennberg, Kaisa; Ojanen, Tuomo

Moisture Buffer Value of Building Materials Presented at: ASTM Symposium on Heat-Air-Moisture Transport: Measurements on Building Materials. Toronto, 2006 In: Journal of ASTM International, pp. 15 (2006). ASTM International

Roels, Staf; Janssen, Hans; Carmeliet, Jan; de Wit, Martin

Hygic buffering capacities of uncoated and coated gypsum board Presented at: 3rd International Building Physics Conference, 2006 In: Research in Building Physics and Building Engineering, 2006

Rusinowski, Piotr; Enochsson, O.; Täljsten, Björn

Numerical analysis of two-way concrete slabs with openings strengthened with CFRP Presented at: International Conference on FRP Composites in Civil Engineering (CICE'06). Miami, Florida, 2006 In: Proc. 3rd Int. Conf. on FRP Composites in Civil Engineering (CICE'06), pp. 387-390-Miami, 2006

Rusinowski, Piotr; Täljsten, Björn; Enochsson, O.; Olofsson, T.; Lundqvist, J
Numerical analysis of two-way concrete slabs with openings strengthened with CFRP Presented at: The Third International Conference on Bridge Maintenance, Safety and Management, Porto, 2006 In: Proceedings of the Third International Conference on Bridge Maintenance, Safety and Management; CD-Publication and extended abstracts-Porto, 2006

Samuelsson, Jack; Haagensen, Per; Agerskov, Henning; Marquis, Gary
Work in progress on fatigue of welded structures in the Nordic countries Presented at: International Institute of Welding Annual Assembly, Québec, Canada, 2006 In: IIW Doc. XIII-2101-06, pp. 1-14-Québec, Canada : International Institute of Welding, 2006

Sant, G.; Lura, Pietro; Weiss, J.
A discussion of analysis approaches for determining 'time zero' from chemical shrinkage and autogenous strain measurements in cement pastes Presented at: RILEM Int. Conf. Volume Changes of Hardening Concrete, 2006 In: RILEM Int. Conf. Volume Changes of Hardening Concrete, pp. 375-383-Lyngby (Denmark), 2006

Sant, G.; Lura, Pietro; Weiss, W.J.
Measurement of Volume Change in Cementitious Materials at Early Ages: Interpretation and Reconciliation of Testing Protocols and Results Presented at: TRB 85th Annual Meeting, 2006 In: Proceedings of TRB 85th Annual Meeting-Washington, D.C., 2006

Sant, G.; Rajabipour, F.; Fishman, P.; Lura, Pietro; Weiss, J.
Electrical Conductivity Measurements in Cement Paste at Early Ages: A Discussion of the Contribution of Pore Solution Conductivity, Volume, and Connectivity to the Overall Electrical Response Presented at: - Int. RILEM Workshop on Advanced Testing of Fresh Cementitious Materials, 2006 In: RILEM Workshop on Advanced Testing of Fresh Cementitious Materials, pp. 213222, 2006

Sant, G.; Rajabipour, F.; Lura, Pietro; Weiss, J.
Examining time zero and early age expansion in pastes containing shrinkage reducing admixtures (SRA's) Presented at: RILEM 2nd Symposium on Advances in Concrete through Science and Engineering, 2006 In: RILEM 2nd Symposium on Advances in Concrete through Science and Engineering; CDROM, 2006

Schultz, Jørgen Munthe; Furbo, Simon
Heat of Fusion Storage with High Solar Fraction for Solar Low Energy Buildings Presented at: Eurosun 2006, 2006 In: Eurosun 2006 : Conference proceedings; The Solar Energy Society, 2006 ISBN: 09-04-96373-1

Stang, Henrik; Dick-Nielsen, Lars; Poulsen, Peter Noe; Olesen, John Forbes
Recent developments in the modeling of matrix crack propagation in brittle matrix composites Presented at: Eighth International Symposium on Brittle Matrix Composites. Warsaw, Poland., 2006 In: Brittle Matrix Composites 8, pp. 221-238 ; Li, V.C. ; Marshall, I.H. - 1ed. -Cambridge : Woodhead Publishing Limited, 2006 ISBN: 1-84569-031-1

Stang, Henrik; Olesen, John Forbes; Poulsen, Peter Noe; Dick-Nielsen, Lars
Application of the cohesive crack in cementitious materials modelling Presented at: Computational Modelling of Concrete Structures. Mayrhofen, Austria, 2006 In: Computational Modelling of Concrete Structures, pp. 443-449 ; de Borst, Rene ; Mang, Herbert ; Bicanic, Nenad - 1ed. -Leiden, The Netherlands : Taylor & Francis/ Balkema, 2006 ISBN: 0415397499

Svensson, Staffan; Astrup, Thomas; Hoffmeyer, Preben
Testing long-term behavior by a duration-of-deformation method Presented at: WCTS 2006. Portland, Oregon, US, 2006 In: WCTS 2006 : 9th World Conference on Timber Engineering, pp. 249-Portland Oregon, US, 2006

Täljsten, Björn; Hejll, A.
Structural Health Monitoring of a CFRP strengthened concrete hollow box girder bridge Presented at: Third International Conference on FRP Composites in Civil Engineering (CICE'06). Miami, Florida, 2006 In: Proc. 3rd Int. Conf. on FRP Composites in Civil Engineering (CICE'06), pp. 331-334-Miami, 2006

Täljsten, Björn; Helmerich, R.
Sustainable Bridges : A European funded project for higher load and speed on railway bridges - WP6 repair and strengthening Presented at: The Third International Conference on Bridge Maintenance, Safety and Management. Porto, 2006 In: Proceedings of the Third International Conference on Bridge Maintenance, Safety and Management; CD-Publication and extended abstracts-Porto, 2006

Täljsten, Björn; Orosz, Katalin; Blanksvärd, T
Strengthening of Concrete Beams in Shear with Mineral Based Composites Laboratory tests and theory Presented at: Third International Conference on FRP Composites in Civil Engineering, Miami, Florida, 2006 In: Third International Conference on FRP Composites in Civil Engineering, pp. 609-612-Miami, 2006

Thür, Alexander; Furbo, Simon
Development of a compact solar combisystem Presented at: EuroSun 2006. Glasgow, Scotland, 2006 In: EuroSun 2006 : Conference Proceedings; 1-Glasgow : ISES, 2006 ISBN: 0-904963-73-1

Tommerup, Henrik M.; Svendsen, Svend
Innovative Danish Building Envelope Components for Passive Houses Presented at: 10th International Passive House Conference 2006. Hanover, Germany, 2006 In: 10th International Passive House Conference 2006 : Towards Sustainable Design, pp. 389-394 Passive House Institut, Darmstadt, Germany, 2006

Villumsen, Arne
Can we transfer remediation experience from Denmark to the Arctic Presented at: The Greenlandic Environment. Sisimiut, Greenland, 2006 In: The Greenlandic Environment : Pollution and Solutions, pp. 83-88-Lyngby : Department of Civil Engineering, Technical University of Denmark, 2006 ISBN: 87-7877-202-8

Villumsen, Arne; Ottosen, Lisbeth M.
Heavy Metal and TBT Contamination in the sediment around Sisimiut, Greenland Presented at: The Greenlandic Environment. Sisimiut, Greenland, 2006 In: The Greenlandic Environment : Pollution and Solutions, pp. 32-37-Lyngby : Department of Civil Engineering, Technical University of Denmark, 2006 ISBN: 87-7877-202-8

Wyrzykowski, M.; Gawin, D.; Pesavento, F.; Lura, Pietro

Multi-scale modelling of autogenous strains of an internally cured cementitious material
Presented at: RILEM Int. Conf. Volume Changes of Hardening Concrete, 2006
In: RILEM Int. Conf. Volume Changes of Hardening Concrete, pp. 137-146, 2006

Yang, Jinghai; Fischer, Gregor

Simulation of Tensile Stress-Strain Behavior of Strain hardening Cementitious Composites
Presented at: International Symposium on Measuring, Monitoring, and Modeling Concrete Properties. Alexandroupolis, Greece, 2006
In: International Symposium on Measuring, Monitoring, and Modeling Concrete Properties, 2006

Zillig, Wolfgang; Janssen, Hans; Carmeliet, Jan; Derome, Dominique

Liquid water transport in wood: a first step approach in mesoscopic modelling
Presented at: 3rd International Building Physics Conference, 2006
In: Research in Building Physics and Building Engineering, 2006

Reports

Andersson, Niclas

Construction management : Ett pilotprojekt inom Öresundsuniversitetets projekt "Nya strukturer för samarbete över Öresund inom högre utbildning"
ISBN : 87-7877-211-7
In: BYG Rapport;R-140

Arifovic, Fedja; Nielsen, Mogens Peter

Strength of anchors in masonry
ISBN : 87-7877-205-2
In: Byg Rapport;R-134

Dederichs, Anne

Formation of aerosols in and after the flame
Svenska Brandforskningsforening, 2006 (pp. 96)

Egebjerg, Christin; Storgaard, Kresten

Strategiske partnerskaber i byggeriet : Modul 3: case eksempler. Strategiske partnerskaber i danske byggevirkksomheder
ISBN : 87-7877-213-3
In: BYG Rapport;R-142

Elle, Morten; Hoffmann, Birgitte

Byøkologi og bæredygtighed i lokalplanlægningen
Dansk Byplanlaboratorium, 2006 (pp. 46)

Fan, Jianhua; Furbo, Simon; Andersen, Janne; Jørgensen, Rikke; Shah, Louise Jivan

Bæredygtigt arktisk byggeri i det 21. Århundrede - vakuumrørsolfangere
Slutrapport til Villum Kann Rasmussen Fonden - BYG-DTU, 271
In: BYG Sagsrapport;SR 06-10

Fan, Jianhua; Shah, Louise Jivan; Furbo, Simon

Bæredygtigt arktisk byggeri i det 21. Århundrede - vakuumrørsolfangere
Statusrapport 3 til Villum Kann Rasmussen Fonden
In: BYG Sagsrapport;SR 06-02

Furbo, Simon; Andersen, Elsa; Schultz, Jørgen Munthe

Advanced storage concepts for solar thermal systems in low energy buildings.
Slutrapport - BYG.DTU, 2006

Grau, Karl; Rode, Carsten

A Model for Air Flow in Ventilated Cavities Implemented in a Tool for Whole-Building Hygrothermal Analysis

Hertz, Kristian Dahl

Vejledning i dimensionering af bygningskonstruktioner for fuldt udviklet brand.
2-3ed. - København : Erhvervs- og Byggestyrelsen, 2006 (pp. 54)
In: BYG Sagsrapport;SR 06-09

Hoffmann, Birgitte; Søren, Gabriel

Grønne Regnskaber og Miljøledelse i Grønland : - erfaringer og vejledninger
BYG.DTU, 2007 (pp. 50)

Janssen, Hans; Rode, Carsten

Drying of aerated cellular concrete - Technical
University of Denmark, 2006
In: SR;06-07

Jensen, Per Anker

Ejendomsstrategier og bygningsværdier : En analyse af DR's byggerier fra Stærkekassen til DR Byen
ISBN : 87-7877-209-5
In: BYG Rapport;R-138

Jensen, Per Anker; Nielsen, Kjeld; Nielsen, Susanne Balslev

Facilities management : Eksempler på god praksis fra de nordiske lande
ISBN : 87-7877-217-6
In: BYG Rapport;R-145

Kragh, Jesper; Laustsen, Jacob Birck; Svendsen, Svend; Ramskov, Michael

Bæredygtigt arktisk byggeri i det 21. Århundrede - energirigtige vinduer : Slutrapport til Villum Kann Rasmussen Fonden
In: BYG Sagsrapport;SR 06-11

Kragh, Jesper; Rose, Jørgen; Svendsen, Svend

Bæredygtigt arktisk byggeri i det 21. århundrede - energirigtige ventilationssystemer
Statusrapport 3 til Villum Kann Rasmussen Fonden
In: BYG Sagsrapport;SR 06-03

Kragh, Jesper; Rose, Jørgen; Svendsen, Svend

Bæredygtigt arktisk byggeri i det 21. Århundrede - energirigtige ventilationssystemer
Slutrapport til Villum Kann Rasmussen Fonden
In: BYG Sagsrapport;SR 06-08

Kristiansen, Kristian

Strategiske partnerskaber i byggeriet : Modul 1: viden om strategiske partnerskaber - generelt og i byggeriet
ISBN : 87-7877-212-5
In: BYG Rapport;R-141

Kristiansen, Kristian

Viden om strategiske partnerskaber i byggeriet : Modul 1
BYG-DTU, 2006 (pp. 65)
ISBN : 87-7877-212-5

Kristiansen, Kristian

Værdi og Brugerorientering : Hvad er værdi i byggeriet
BYG-DTU, 2006 (pp. 47)
ISBN : 87-7877-224-9

Laustsen, Jacob Birck; Kragh, Jesper; Svendsen, Svend

Bæredygtigt arktisk byggeri i det 21. århundrede - energirigtige vinduer
Statusrapport 3 til Villum Kann Rasmussen Fonden
In: BYG Sagsrapport;SR 06-04

Nielsen, Laue Fuglsang

Power-Law creep as related to adapted Burgers creep representation : an incremental analysis
ISBN : 87-7877-208-7
In: BYG rapport;R-137

Naaman, Antoine; Fischer, Gregor;

Krstulovic, Neven

Measurement of Properties of Fiber Reinforced Concrete
ACI Committee 544 on Fiber Reinforced Concrete

Pease, Bradley Justin; Geiker, Mette Rica;

Weiss, Jason; Stang, Henrik

Results of Questionnaire on the Effect of Cracks on Durability of Reinforced Concrete Structures.

Lyngby, Denmark : DTU, 2006 (pp. 5)

Pedersen, Anne Juul

Elektrokemisk fjernelse af Cd fra bioaske i pilotskala og vurdering af mulighederne for nyttiggørelse af behandlet aske i beton BYG*DTU, 2006 ISBN : 87-7877-200-1 In: BYG Rapport;R-130

Pedersen, Elsebet Frydendal

Thi kendes for ret : Byggeriet anno 2006 ISBN : 87-7877-219-2 In: BYG Rapport;R-147

Rode, Carsten; Borchersen, Egil; Fan, Jianhua;

Furbo, Simon; Kragh, Jesper

Lavenergihuset i Sisimiut. : Notat om aktiviteter udført som led i KVUG-projekt: Indlejring af erfaringer fra lavenergihus i Sisimiut.

BYG-DTU, 2006 In: Sagsrapport;SR 06-13

Rode, Carsten; Borchersen, Egil; Fan, Jianhua;

Furbo, Simon; Kragh, Jesper

Lavenergihuset i Sisimiut : Årsrapport for lavenergihusets ydeevne. Juli 2005 til juni 2006.

BYG-DTU, 2006 In: Sagsrapport;SR 06-12

Rode, Carsten; Peuhkuri, Ruut Hannele;

Time, Berit; Svennberg, Kaisa; Ojanen, Tuomo

Moisture Buffer Value of Building Materials

Sandberg, Bo; Odgaard, Gunde;

Lubanski, Nikolaj; Bonke, Sten; Pedersen,

Elsebet Frydendal

Free mobility and EU's enlargement : Migration of the construction workers after May 2004

ISBN : 87-7877-144-7 In: BYG Rapport;R-081

Tommerup, Henrik M.; Nørgaard, Jørgen

Elbehovet til cirkulationspumper i én- og tofamiliehuse, nu og i fremtiden BYG-DTU,

2006 (pp. 43) ISBN : 87-7877-206-4

Täljsten, Björn; Carolin, C.

Undersökning av friktionsförband. - 16ed. -Luleå : Luleå Tekniska Universitet, 2006 (pp. 84)

Villumsen, Arne

Lavenergihuset i Sisimiut : Statusrapport nr. 6, September 2006. BYG*DTU : Sanaartornermik Ilinniarfik og DTU, 2006 (pp. 4)

Vogelius, Peter

Branchespecifik analyse af årsager til arbejdsulykker i ejendomsfunktionærbranchen

ISBN : 87-7877-199-4 In: BYG rapport;R-129

Xu, Xibin

Test and theoretical research of prestressed concrete berthing piles ISBN : 87-7877-

210-9 In: BYG Rapport;R-139

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Geophysical Techniques applied to permafrost investigations in Greenland, 2006 (pp. 179)

Villumsen, Arne

Jensen, Pernille Erland

Application of Microbial Products to Promote

Electrodialytic Remediation of Heavy Metal

Contaminated Soil, 2006 (pp. 150) ISBN :

87-7877-193-5

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Jørgensen, Bo

Integrating Lean Design and Lean Construction :

Processes and methods, 2006 (pp. 286)

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Walter, Rasmus

FRC-Steel Composite Bridge Deck : A Multi-

Scale Modeling Approach, 200606

Stang, Henrik

Xu, Xibin

Test and Theoretical Research of Prestressed

Concrete Berthing Piles, 2006 (pp. 113)

Stang, Henrik

MSc theses

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Coaching in the construction

Koch, Christian, Torben Klittgaard

Andersen, Christoffer, Peter Lund Christensen

Feasibility study – post-tensioning of concrete structures with CFRP tendons

Georgakis, Christos

Andersen, Signe Bondo

OPP in Healthcare

Koch, Christian

Bak, Christian, Alan Øskan

The plastic tension field method for steel girdes

Poulsen, Peter Noe, Jesper Gath

Bak-Kristensen, Kirstine Laurine

Load modelling on large bridges

Goltermann, Per, Leif Otto Nielsen

Banghøj, Klaus, Thomas Brink Laursen

Vibration control of symmetrical or near-symmetrical structures

Georgakis, Christos

Barrau, Xavier

Seismic performance of base-isolated rail bridges

Georgakis, Christos

Benito, Sergio De Lucas

Design a low energy office building in Spain

Svendsen, Svend

Bertelsen, Troels E.K., Johan S. Mathiesen

Industrial construction

Jensen, Per Anker

Biskopsto, Regin Kongsbak,

Feasibility of carbon-fibre cables on long-span cable-stayed

Georgakis, Christos, Bonke, Sten

Brix, Susanne, Ditte Alm

Non Destructive Testing of Building Materials – with Special Focus on Natural Stones in Outdoor Exposure

Hansen, Kurt Kielsgaard, Bent Grelk, Rambøll

Brolund, Axel D.

Modelling of ignition and flame spread phenomenaes in thin and thick materials

Sørensen, Lars Schiøtt

Burgos, Christian Gomez

Design of facades and ventilation systems for energy efficient office buildings

Svendsen, Svend, Peter Weitzmann,

Toke Rammer Nielsen

Carlquist, Anneli E.L.

Impact of heating system design on the performance of a solar combisystem

Furbo, Simon, Alexander Thür

Chrillesen, Casper, Ulrich Jørgensen

Development of Carlsberg area in Valby

Hoffmann, Birgitte, Morten Elle

Christensen, Jesper Hågendal

Product development of low energy houses

Svendsen, Svend

Christiansen, Michael Gould, Jesper Esmann

Emborg

Shear failure of fire exposed concrete beams

Olesen, John Forbes

Conejos, Marta del Val

Strain rate properties for cement based composites

Stang, Henrik, Benjamin Riisgaard

Czuba, Dennes John, Tim Andersen

Change Management

Koch, Christian

Elverdam, Peter, Kira Hvam

Redesign of one-family House

Engelmark, Jesper

Fazlic, Nidzara

Anchoring in lightweight concrete elements

Goltermann, Per

Fritt-Rasmussen, Janne

Oil Pollution in the Arctic

Villumsen, Arne

Hansen, Casper Roland

Indoor climate in Greenlandic homes

Rode, Carsten

Hansen, Jesper Holm

Galloping induced vibrations

Georgakis, Christos

Henriksen, Kåre

Special report on progressive collapse

Kjærbye, Per Oluf

Howe-Rasmussen, Helle

Non Destructive Testing of Building Materials – with Special Focus on Natural Stones in Outdoor Exposure

Hansen, Kurt Kielsgaard, Bent Grelk, Rambøll

Ingólfsson, Einar Thór

Pedestrian induced vibrations of line like structures

Georgakis, Christos, Jeppe Jönsson

Jacobsen, Thomas Krag, Jacob Clemmensen

OPP i brobyggeri

Koch, Christian

Jakobsen, Annette H.W.

Implementation of the vision: Copenhagen as a creativ city

Nielsen, Susanne B.

Jansson, Jacob

Assessment of concrete bridge decks affected by alkali silica reactions

Geiker, Mette, Kirsten Eriksen, Rambøll

Jensen, Gitte Dorthea, Jens Hansen Petersen

Digital construction

Koch, Christian

Jensen, Sara Ahle

Corrosion of reinforcement, identification of corrosion products

Geiker, Mette

Jessen, Jens Christian

Mixed mode fracture of concrete structures

Poulsen, Peter Noe

Johnsen, Nicolai L.

Management and labour cultures

Bonke, Sten, Elsebet F. Pedersen

Jørgensen, Ditte Marie

Natural ventilation with cooling an heat recovering

Svendsen, Svend, Peter Weitzmann

Jørgensen, Ditte Marie

Use of IESVE-program for natural ventilation(Forprojekt)

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- Jørgensen, Kasper C., Jonas H. Christoffersen**
Modelling of the Alfred P. Murrah building bombing
Poulsen, Peter Noe, Benjamin Riisgaard,
Per grove Thomsen, IMM
- Jørgensen, Natalie A., Rebecca S. Bjerre**
Refurbishment – alternative methods with steelbuildingsystem
Engelmark, Jesper, Henning Agerskov
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Barriers and possibilities for dissemination of solar heat
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Statically and cyclically loaded monopiles in soft clay
Hededal, Ole, Caspar Thrane Leth
- Maburi, Susi, Dennis C. Pedersen**
Analysis of a quasi-brick structure
Jönsson, Jeppe, Leif Otto Nielsen
- Madsen, Morten Werner**
Construction management and performance in Thailand
- Mikkelsen, Kristian K.**
Systems for bracing of load-carrying structures
Poulsen, Peter Noe, Jesper Gath
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Floating Windmill Foundations
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Analysis of cracked concrete structures using partial cracked XFEM elements
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Moisture conditions and indoor climate in arctic dwellings
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Smooth particle hydrodynamic modelling of giber reinforced concrete subjected to blast load
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Dream House Production
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Integrated district heating systems for low energy houses
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- Pade, Eigil**
Parameter study based on jointed limestone – with focus on tunnel structures in the “Øresund” region.
Foged, Niels, Ole Hededal
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Kjærbye, Per, Dr. Kuldeep Virdi, external
- Reynisson, Stefan**
Strengthening of concrete beam with CFRP
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Ecotoxicology in Denmark and Greenland
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Structural Design and Modelling of High Rise Buildings
Kjærbye, Per Oluf, Dr. Kuldeep Virdi, England
- Søgaard, Christine, Morten de la Motte**
Corrosion Monitoring of Concrete Structures – Evaluation of Methods
Geiker, Mette R., Per Goltermann
- Uyar, Birol**
Structural use of glass
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- Westergaard, Dorthea M.**
Bypass east of Nykøbing Falster
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Rock Mechanical Modelling with Reservoir Applications done by PLAXIS
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BEng theses

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Beenfeldt, Maria, Ivan Blom
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Permafrost foundations in Thule
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Reused material in cold asphalt – the road of the
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Stang, Henrik, Jan Jansen, ekstern

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Methods for Determination of the Energy
Performance of Dwelling with floor Heating
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Usability of Key Performance Indicators in the
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Møller, Sejer J., Andreas B. Ølgaard

Renovation of Wooden Structures
Traberg, Søren

Nielsen, Eva Marie Paaske

Design of Building
Per Kjærbye

Nielsen, Jens-Ole, Louise Finnerup Wille

Planning of Building(s) in Holbæk Harbour
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Elle, Morten

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Copenhagen
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Supply Management
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Pedersen, Martin

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Design of Steel Structures
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Risk Assessment in Partnering Projects
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Christensen, Kirsten, Niels Holck, MEK

Skifte, Hans-Ulrik T.

Design of Building for Arctic Conditions
Borchersen, Egil

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Stability of SCC during Casting
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Svendstrup, Mads L., Therese Schiang-Franck

Fire Technical Analysis of Seest-disaster
Sørensen, Lars Schiøtt

Tindbæk, Jonas, Lars Færch K. Hansen

Optimisation of Planning and Management
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Pent House
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Geiker, Mette, Lars Nyholm Thrane

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Design Proposal for a Stand Base don Laboratory
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Hansen, Kurt Kielsgaard, Lotte Bjerregaard
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Staff

As of December 31 2006

		2006	2005	2004
Scientific	Professor	7	9	11
	Associate Professor	46	38	44
	Assistant Professor	10	15	15
	Other VIP	9	6	4
	PhD students	37	44	40
	Total	109	112	114
Technical and Administrative	Academic	11	11	10
	Clerical	13	12	12
	Technician	18	22	22
	Other TAP	5	5	4
	Total	47	50	48
Total department staff		156	162	162

Education

STÅ ¹ – total		483	508	519
Projects (students)	MSc (civil)	85	92	74
	PMP/BSc (midterm)	31	36	56
	BEng (diplom)	130	62	82
Admission (students)	BSc (Building Technology)	62	72	60
	BEng (Architectural Engineering)	50	52	42
	BEng (Civil Engineering) - summer	75	63	58
	BEng (Civil Engineering) - winter	38	30	32
	BEng (Arctic Technology)	8	9	8

Research

Refereed papers	Total	45	61	63
	Of these in ISI	30	43	37
PhD theses		5	8	10
Doctoral theses		0	1	0

Finances

Finances in 1.000 DKK

Revenues	DTU-grant	56.656	53.184	52.523
	External revenue	31.033	30.862	28.563
	Total	87.689	84.046	81.094
Expenditures	Wages	63.021	62.725	62.917
	Other expenses	26.420	19.628	16.445
Total		89.441	82.353	79.362
Result		-1.757	1.693	1.732
Available amount	January 1	7.957	6.264	4.532
Carried forward	December 31	6.200	7.957	6.264

1 STÅ is one student annual work (1 STÅ=60 points/student)

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