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DENMARK

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AALBORG UNIVERSITY

Department of
Civil Engineering
news and figures 2009



Colophon

Title:

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news and figures 2009

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Vivi Søndergaard

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Welcome

Increased focus on research and internationalisation

In 2006 the government entered into an agreement with the Danish universities on doubling the number of PhD candidates over short period of years in order to strengthen the research field. In 2009, here at the Department of Civil Engineering we have enrolled 50% more PhD candidates than graduates.

A large part of the research in the department is done in partner projects with the business community and other universities around the world. The projects are funded by the department and other international universities through national and international pools where the business community also contributes. In 2009 at the Department of Civil Engineering we have started four new large projects where the combined project economy amounts to more than 100 million DKK with 40 million hereof controlled by the department. The economical situation at the department has proved strong and healthy in 2009 with room for further development.

In 2006 we were 3-5 international staff members at the department, and in 2009 we have 17-20 international colleagues among us. This has resulted in a host of languages in our coffee room where both the scientific and the administrative staff have gotten used to a working environment with international range. Combined with the increased research collaboration with other foreign universities, we can truly say that we have a work place with an international research profile.

Peter Frigaard.
Peter Frigaard
Head of the Department



Projects

The department undertakes contractual research projects for government institutions as well as for private companies. These projects comprise theoretical research as well as site measurements and experimental tests in the laboratories. If your company has a good idea for a small project where there may be need for further investigation, it could be a potential future student project. Many large projects start out as student projects. The students work for free as long as it is a part of their training.

Below is a short presentation of few of the largest projects which started in 2009:

- › **Strategic Research Centre on Zero Emission Buildings (ZEB)** was established at Aalborg University. The centre is led by professor Per Heiselberg, head of the centre (ph@civil.aau.dk, +45 9940 8541). See www.zeb.aau.dk.
- › **Structural Design of Wave Energy Devices (SDWED)**. Aalborg University will over the next five years work in an international research alliance to find cheaper and more efficient energy production with corrugated plants. Alliance is among 12 partners, of which half is Danish. Jens Peter Kofoed, project leader (jpk@civil.aau.dk, +45 9940 8474). See www.sdwed.civil.aau.dk.
- › **Storm and Wastewater Informatics** aims to develop a new weather warning system that can help prevent flooding caused by heavy rainfall. Michael R. Rasmussen, project leader (mr@civil.aau.dk, +45 9940 8485)



► **Sediment Transport in Sewer Systems.** The project aims to evaluate different models to describe the physical processes during rain events included in the transport of sediment into and out of drainage systems in common sewers urban areas. Michael R. Rasmussen, project leader (mr@civil.aau.dk, +45 9940 8485)

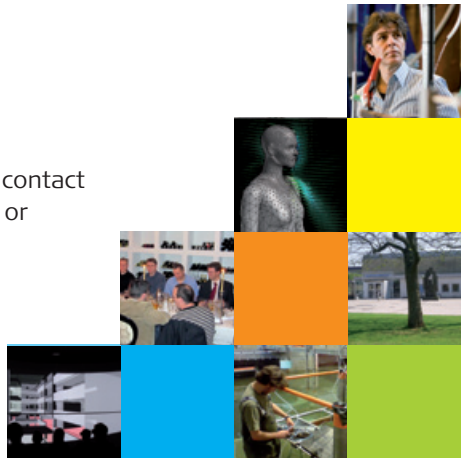
► **Reliability-based analysis applied for reduction of energy cost for offshore wind turbines.** The vision for the project is that increased research on main wind turbine uncertainties and risk and reliability will lead to less conservative designs and more cost-efficient wind energy. John Dalsgaard Sørensen, project leader (jds@civil.aau.dk, +45 9940 8581)

For further descriptions of presents projects see www.vbn.aau.dk.

Laboratories:

- › Indoor Environmental Engineering Laboratory
- › Geotechnical Engineering Laboratory
- › Hydraulics and Coastal Engineering Laboratory
- › Physical Geography Laboratory
- › Concrete Research Laboratory
- › Structural Research Laboratory

For further information about the laboratories, please contact
Lars Bo Ibsen, head of all laboratories (lbi@civil.aau.dk or
+45 9940 8458) or see www.civil.aau.dk.



PhD Projects

In 2009 the department had 24-27 PhD students. A particularly special international environment exists among the PhD students as 40% of them come from other countries. These include countries as different as Peru, Iran, China, Poland, Italy, Spain, Russia, Mexico and France. Our international PhD students strengthen the international environment we have in our staff with many international guest students and countless guest scientists. All of whom contribute to a strong professional and energetic social environment.

In the 2008-2010 development contract for Aalborg University, the university has entered an agreement with Helge Sander, Minister for Science, Technology and Innovation, in which we have agreed to educate significantly more researchers. Naturally, the department strives to achieve this goal. In 2009, six PhD degrees were awarded and during the same period nine new PhD projects were started.

Industrial PhD

An alternative to the traditional PhD programme is an Industrial PhD where you are employed at a company in which the research will have its origin, and the working hours are divided between the company and the university. An Industrial PhD shortens the distance between research and practice. Further information: <http://en.fi.dk/research/industrial-phd-programme>.



2009 PhD theses

- Below is the 2009 list of submitted and defended PhD theses at the department.
Among these is an Industrial PhD.
- Artmann, Nikolai / Cooling of the Building Structure by Night-time Ventilation.
(DCE Thesis; 16) Supv: Per Heiselberg (ph@civil.aau.dk or +45 9940 8541)
- Sørensen, Kristian Birch. / Virtual Models Linked with Physical Components in Construction. Industrial PhD thesis (DCE Thesis; 21) Supv: Per Christiansson
(pc@civil.aau.dk or + 45 9940 8545) and Kjeld Svidt (ks@civil.aau.dk or + 45 9940 8546)
- Holm-Jørgensen, Kristian. / Nonlinear Multibody Dynamics of Wind Turbines.
(DCE Thesis; 19) Supv: Søren R. K. Nielsen (srkn@civil.aau.dk or + 45 9940 8451)
- Réthoré, Pierre-Elouan. / Wind Turbine Wake in Atmospheric Turbulence.
(DCE Thesis; 22) Supv: Niels Sørensen (nsqr@risoe.dtu.dk or +45 4677 5053)
- LeBlanc, Christian. / Design of Offshore Wind Turbine Support Structures: Selected topics in the field of geotechnical engineering. (DCE Thesis; 18) Supv: Lars Bo Ibsen
(lbi@civil.aau.dk or +45 9940 8458)
- Margheritini, Lucia. / R&D Towards Commercialization of Sea wave Slot Cone Generator (SSG) Overtopping Wave Energy Converter : selected topics in the field of wave energy. (DCE Thesis; 24) Supv: Peter Frigaard (pf@civil.aau.dk or +45 9940 8479) and Jens Peter Kofoed (jpk@civil.aau.dk or +45 9940 8474)

On the department's website you can read more about the research and doctoral programme and see the list of all on-going PhD projects with a description of the individual projects. You will also find descriptions of the published PhD theses with links to the full text version of these.

Find vacant PhD stipends at the Faculties of Engineering, Science and Medicine at Aalborg University at the website of The International Doctoral School of Technology and Science:
<http://adm.aau.dk/fak-tekn/phd/vacant/index.htm>



Architectural Engineering

The division of Architectural Engineering is concerned with research and education in the analysis, design, construction, and operation of engineering systems for commercial, industrial, and institutional facilities.

The division focuses on an integrated, multidisciplinary approach to achieve optimal building designs and pays special attention to the impacts on the indoor as well as the surrounding environment. This implies integration of architectural design with engineering systems such as structural systems, communications and control, lighting, acoustics, fire protection, plumbing, heating, ventilation, and air conditioning as well as close cooperation with other key players in all areas of the building process.

Research Groups:

- 】 **Building Informatics:** Research on design, integration and structuring of ICT tools, and product and process models in the entire building process. Focus is on model collaboration and knowledge transfer between participants in design, construction, operation, maintenance and use of buildings.
- 】 **Indoor Environmental Engineering:** Research on ventilation and air flow processes in buildings and building services and their impact on energy and mass flow in buildings, thermal comfort, indoor air quality and health. Research on energy efficient building design, interaction of passive energy technologies and building design, and optimization of interaction between building services and passive systems.



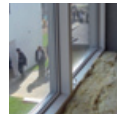
Students at present PhD projects:

- › Brunsgaard, Camilla / Concepts of Passive Houses in Denmark. Supv: Per Heiselberg
- › Marszal, Anna Joanna / Bolig+ Zero Emission Building Concept. Supv: Per Heiselberg
- › Mortensen, Andrea / Flexible Building Envelope Solutions for Renovation of Residential Buildings. Supv: Per Heiselberg
- › Pomianowski, Michal Zbigniew / Energy optimization of PCM-concrete element configuration. Supv: Per Heiselberg
- › Rong, Li / Reduction of Odor Source in and Emission from Swine Buildings. Supv: Peter V. Nielsen
- › Winther, Fredrik Vildbrand / Intelligent Glazed Facades. Supv: Per Heiselberg

Find descriptions of the individual PhD projects at www.civil.aau.dk

Further information:

- › The division of Architectural Engineering at www.civil.aau.dk
- › Kjeld Svidt, head of the Division of Architectural Engineering (ks@civil.aau.dk or +45 9940 8546)



Structural Mechanics

The division of Structural Mechanics deals with a wide spectrum of subjects covering theoretical/numerical modeling of non-linear structural behavior, experimental characterization of structures and structural materials and optimized design of structures. The research focuses on structural analyses of complex, load-bearing structures such as offshore structures, wind turbines, shell structures and large bridges. Analyses are carried out for complete structures, for structural details such as joints, and at the micro level for the materials used in these applications. The research has special focus on sustainable energy production e.g. wind turbines, and the section have very good competences within safety and reliability of structures and non-linear dynamics of structures.

Research Groups:

- 】 **Computational Mechanics:** The aim is to make a numerical simulation of a non-linear structure. The simulations are based on Finite Elements which allow for very general structural layouts, loadings and material behavior. The research deals with efficient and reliable non-linear analyses including material and geometrical non-linear effects. Another important area is optimization of structural layouts.
- 】 **Structural Design:** The aim is to provide an efficient method for design and analysis of structures i.e. use of information technology. Special focus is on the interaction between architects and engineers in the conceptual design phase. Other areas of interest are design with respect to acoustical behavior and kinetic structures.
- 】 **Structural Materials:** The aim is to formulate general mathematical models of material behavior which can be incorporated in a numerical analysis. The materials models are verified with experimental results. The focus is on concrete and wood materials which have time dependent material properties.
- 】 **Wind Turbine:** The research has focus on two major areas. The first deal with the dynamics of wind turbines, aerodynamics and aeroelasticity which is of significant importance in the ongoing optimization of windturbines. The second deals with

safety and reliability of wind turbines and also the related energy systems, and this is of great importance for an economical use of wind energy.

Students at present PhD projects:

- 】 Andersen, Søren / Material-point Method for Geotechnical Engineering. Supv: Lars Andersen
- 】 Bejder, Anne Kirkegaard / Wood House of the Future. Supv: Poul Henning Kirkegaard
- 】 Gilling, Lasse / Airfoils in Turbulent Inflow. Supv: Niels Sørensen
- 】 Nezhentseva, Anastasia / Composite shell foundations made of high-tension concrete and steel sheets. Supv: Lars Andersen
- 】 Nielsen, Janni Jessen / Risk-based Operation and Maintenance of Offshore Wind Turbines. Supv: John Dalsgaard Sørensen
- 】 Ramírez, José Guadalupe Rangel / Reliability Assessment and Reliability-Based Inspection and Maintenance of Offshore Wind Turbines. Supv: John Dalsgaard Sørensen
- 】 Rethore, Pierr-Elounan / . Wind Turbine Wake in Atmospheric Turbulence. Supv: Niels Sørensen
- 】 Sichani, Mahdi Teimouri / Estimation of Extreme Responses of Wind Turbines under Normal Operations by Means of Controlled Monte Carlo. Supv: Søren R. K. Nielsen
- 】 Toft, Henrik Stensgaard / Probabilistic Design of Wind Turbines. Supv: John Dalsgaard Sørensen
- 】 Westarp, Filip / Nonlinear Modeling of Reticulated Structures Using Beam Finite Elements. Supv: John Dalsgaard Sørensen

Find descriptions of the individual PhD projects at www.civil.aau.dk.

Find online versions of the published PhD theses at www.vbn.aau.dk

Further information:

- 】 The Division of Structural Mechanics at www.civil.aau.dk
- 】 Lars Damkilde, head of the Division of Structural Mechanics (lida@civil.aau.dk or +45 9940 7648)



Water and Soil

The division of Water and Soil concentrates on research and education within two main fields: 1) Geotechnical and flow-mechanical problems in civil engineering structures such as pipelines, harbour and canal structures, offshore structures, wind turbines and wave energy plants. 2) Hydraulics, hydrology, river morphology and ecology problems in relation to runoff from the urban areas, groundwater protection problems and the anthropogenic use of landscape resources. The division focuses on a research and education strategy that aims at integrating several key skills hosted in the division in order to solve civil engineering, geographical and environmental problems and producing successful candidates that can be employed in the public as well as the private sector.

Research Groups:

- 】 Coastal Engineering: Coastal and harbour engineering. Application of numerical and physical modelling to the analysis of coastal engineering phenomena; design of coastal structures against loads from waves and currents (loads determined by physical and numerical models); numerical wave disturbance models and scale effects related to small scale physical modeling.
- 】 Wave Energy: Aspects related to R&D (early testing and optimization), loads and structural behavior, real sea trial, assessment of performance and power production, control and environmental impact. The research is implemented by physical and numerical models.
- 】 Urban water: Measurement and quantitative prediction of precipitation with weather radar; Uncertainty analysis in relation to urban drainage systems; Basins – hydraulics and pollutants transport; Modelling of hydrodynamic and biological/chemical processes in wastewater treatment plants.
- 】 Geotechnical Engineering: Geotechnical and hydraulic aspects related to offshore wind turbines, in particular regarding the design and development of foundations and models for the determination of forces from ocean waves and current. Computational models and physical models in the laboratory and in the field. Modelling of such phenomena as scour



and sedimentation, debris flow, wave impact on structures, large deformations in saturated granular materials and liquefaction.

- 】 Landscape and Eco-hydrology: Interaction between vegetation, hydrodynamics and fine sediments in natural waters. Landscape assessment methods. Effects of changes in groundwater levels on biogeochemical processes in soils and impact of land-use and climate change on the emission of greenhouse gasses in coastal wetland areas. Application of natural tracers for studying the interactions between groundwater and surface water. The influence of hydrological conditions on vegetation in wetland habitats.

Students at present PhD projects:

- 】 Barari, Armin / Universal Foundation Concept. Supv: Lars Bo Ibsen
- 】 Hartvig, Peres Akrawi / Time Development of Scour Around Offshore Monopiles. Supv: Peter Frigaard
- 】 Johansen, Ole Munch / Eco-hydrological Modelling of Stream Valleys. Supv: Morten Lauge Pedersen and Jacob Birk Jensen
- 】 Köser, Claus / Sealing Material of Groundwater Wells. Supv: Michael R. Rasmussen
- 】 Larsen, Jakob Badsberg. / Using in-sewer sensors for accurate weather radar adjustment. Supv: Michael R. Rasmussen
- 】 Nielsen, Jesper Ellerbæk / Combining C-band and X-band weather radars for accurate precipitation measurements over urban areas. Supv: Michael R. Rasmussen
- 】 Pecher, Arthur / Hydraulic evaluation of wave energy converters. Supv: Jens Peter Kofoed
- 】 Ramirez, Jorge Robert Rodriguez / Wave Forces on Boat Landings. Supv: Peter Frigaard and Thomas Lykke Andersen
- 】 Sørensen, Søren Peder Hyldal / Seabed Wind Farm Interaction. Supv: Lars Bo Ibsen

Find descriptions of the individual PhD projects at www.civil.aau.dk. Find online versions of the published theses in www.vbn.aau.dk

Further information:

- 】 The division of Water and Soil at www.civil.aau.dk
- 】 Morten Lauge Pedersen, head of the Division of Water and Soil (mlp@civil.aau.dk or +45 9940 8477)

Publications

All publications written since 1990 by Aalborg University staff are registered in the research portal VBN. Since 2004 the main part of the publications from the Department of Civil Engineering has been subjoined with a .pdf-file with the full text uploaded to the reference. In connection to journal papers you will find a DOI-link to the full article.

ISI indexed journal and conference papers for the period 2006-2009

2006	2007	2008	2009
17	24	27	26

Publications in VBN for the period 2006-2009

2006	2007	2008	2009
224	300	316	278

ISI indexed journal and conference papers for the year 2009

- 】 **Andersen, TL & Burcharth, HF** 2009, 'Three-dimensional Investigations of Wave Overtopping on Rubble Mound Structures', Coastal Engineering, vol. 56, no. 2, pp. 180-189.
- 】 **Bentzen, TR & Larsen, T** 2009, 'Heavy Metal and PAH Concentrations in Highway Runoff Deposits Fractionated on Settling Velocities', Journal of Environmental Engineering, vol. 135, no. 11, pp. 1244-1247.
- 】 **Bentzen, TR, Larsen, T & Rasmussen, MR** 2009, 'Predictions of Resuspension of Highway Detention Pond Deposits in Interrain Event Periods due to Wind-Induced Currents and Waves', Journal of Environmental Engineering, vol. 135, no. 12, pp. 1286-1293.



- 】 **Clorius, CO, Pedersen, MU, Hoffmeyer, P & Damkilde, L** 2009, 'An Experimentally Validated Fatigue Model for Wood Subjected to Tension Perpendicular to the Grain', *Wood Science and Technology*, vol. 3-4, no. 43, pp. 343-357.
- 】 **Corgnati, SP, Perino, M, Fracastoro, GV & Nielsen, PV** 2009, 'Experimental and numerical analysis of air and radiant cooling systems in offices', *Building and Environment*, vol. 44, no. 4, pp. 801-806.
- 】 **Gao, NP, Niu, JL, Perino, M & Heiselberg, P** 2009, 'The Airborne Transmission of Infection Between Flats in High-rise Residential Buildings: Particle Simulation', *Building and Environment*, vol. 44, no. 2, pp. 402-410.
- 】 **Heiselberg, P, Brohus, H, Brohus, H, Rasmussen, H, Seinre, E & Thomas, S** 2009, 'Application of Sensitivity Analysis in Design of Sustainable Buildings', *Renewable Energy*, vol. 34, no. 9, pp. 2030-2036.
- 】 **Holm-Jørgensen, K & Nielsen, SRK** 2009, 'A Component Mode Synthesis Algorithm for Multibody Dynamics of Wind Turbines', *Journal of Sound and Vibration*, vol. 326, no. 3-5, pp. 753-767.
- 】 **Holm-Jørgensen, K & Nielsen, SRK** 2009, 'System Reduction in Multibody Dynamics of Wind Turbines', *Multibody System Dynamics*, vol. 21, no. 2, pp. 147-165.
- 】 **Iglesias, G, López, M, Carballo, R, Castro, A, Fraguera, JA & Frigaard, P** 2009, 'Wave energy potential in Galicia (NW Spain)', *Renewable Energy Journal*, vol. 34, no. 11, pp. 2323-2333.
- 】 **Margheritini, L, Vicinanza, D & Frigaard, P** 2009, 'SSG Wave Energy Converter: Design, Reliability and Hydraulic Performance of an Innovative Overtopping Device', *Renewable Energy*, vol. 34, no. 5, pp. 1371-1380.
- 】 **Nielsen, PV** 2009, 'Control of Airborne Infectious Diseases in Ventilated Spaces', *Journal of the Royal Society Interface*, vol. 6, no. Supplement 6, pp. 747-756.
- 】 **Pedersen, ML, Kristensen, E, Kronvang, B & Thodsen, H** 2009, 'Ecological effects of re-introduction of salmonid spawning gravel in lowland Danish streams', *Rivers Research and Applications: an international journal devoted to river research and management*, vol. 25, no. 5, pp. 626-638.

- 】 **Pedersen, ML & Friberg, N** 2009, 'Influence of Disturbance on Habitats and Biological Communities in Lowland Streams', *Fundamental and Applied Limnology*, vol. 174, no. 1, pp. 27-41.
- 】 **Perino, M & Heiselberg, P** 2009, 'Short-term airing by natural ventilation - modeling and control strategies', *Indoor Air*, vol. 19, no. 5, pp. 357-380.
- 】 **Qian, H, Li, Y, Nielsen, PV & Huang, X** 2009, 'Spatial Distribution of Infection Risk of SARS Transmission in a Hospital Ward', *Building and Environment*, vol. 44, no. 8, pp. 1651-1658.
- 】 **Ritter, E** 2009, 'Development of Bioavailable Pools of Base Cations and P after Afforestation of Volcanic Soils in Iceland', *Forest Ecology and Management*, vol. 257, no. 3, pp. 1129-1135.
- 】 **Sørensen, JD** 2009, 'Framework for Risk-based Planning of Operation and Maintenance for Offshore Wind Turbines', *Wind Energy*, vol. 12, no. 5, pp. 493-506.
- 】 **Schaarup-Jensen, K, Rasmussen, MR & Thorndahl, S** 2009, 'To what extent does variability of historical rainfall series influence extreme event statistics of sewer system surcharge and overflows?', *Water Science and Technology*, vol. 60, no. 1, pp. 87-95.
- 】 **Tedd, J & Kofoed, JP** 2009, 'Measurements of Overtopping Flow Time Series on the Wave Dragon, Wave Energy Converter', *Renewable Energy*, vol. 34, no. 3, pp. 711-717.
- 】 **Thorndahl, S** 2009, 'Stochastic long term modelling of a drainage system with estimation of return period uncertainty', *Water Science and Technology*, vol. 59, no. 12, pp. 2331-2339.
- 】 **Andersen, L & Clausen, J** 2009, 'Comments on "Flow rule effects in the Tresca model" by H.A. Taiebat and J.P. Carter [Computers and Geotechnics 35 (2008) 500-503]', *Computers and Geotechnics*, vol. 36, no. 5, pp. 911-913.
- 】 **Alonso, EM & Burcharth, HF** 2009, 'Spatial Damage Distribution over Cube Armoured Roundheads', In *Coastal Engineering 2008: Proceedings of the 31st International Conference : Hamburg, Germany, 31 August - 5 September 2008*, World Scientific, Singapore, pp. 3449-3460

- 】 **Andersen, TL, Skals, KT & Burcharth, HF** 2009, 'Comparison of Homogenous and Multi-layered Berm Breakwaters with Respect to Overtopping and Front Slope Stability', In Coastal Engineering 2008: Proceedings of the 31st International Conference : Hamburg, Germany, 31 August - 5 September 2008, World Scientific, Singapore, pp. 3298-3310
- 】 **Burcharth, HF, Andersen, L & Andersen, TL** 2009, 'Analyses of Stability of Caisson Breakwaters on Rubble Foundation Exposed to Impulsive Loads', In Coastal Engineering 2008: Proceedings of the 31st International Conference : Hamburg, Germany, 31 August - 5 September 2008, World Scientific, Singapore, pp. 3606-3618.
- 】 **Vicinanza, D, Margheritini, L, Contestabile, P, Kofoed, JP & Frigaard, P** 2009, 'Seawave Slot-cone Generator: an Innovative Caisson Breakwaters for Energy Production', In Coastal Engineering 2008: Proceedings of the 31st International Conference : Hamburg, Germany, 31 August - 5 September 2008, World Scientific, Singapore, pp. 3694-3705.

See full list of publications in vbn.aau.dk for the department or for one of our researchers.

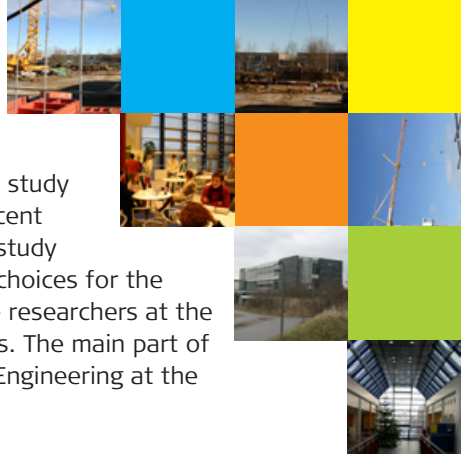


Study programme

The department strives to have as many subjects of study relevant, up-to-date and in demand as possible. Recent years have also seen an addition of subjects in the study programme. Subsequently, we offer a wide field of choices for the future graduating engineers at the department. The researchers at the department give lectures under several study boards. The main part of the lectures is required by the Study Board on Civil Engineering at the School of Engineering and Science.

As an employee at a private company or municipality, you can establish contact with researchers at Aalborg University through your professional network. New projects and cooperations are always welcome as new thoughts and ideas are best developed through dialog. On the website you can find contact information on all employees.

15% of the teaching at the semester programmes is given by external employees from the private business sector or another public organization. At the B-Study Board's website – www.bsn.aau.dk – you can find a description of the study programmes and available courses. If you have a good idea for a new course, please do not hesitate to contact us. New positions for external employees are continuously posted. You are more than welcome to contact Christian Frier, Chairman for Study Board for Civil Engineering (cf@civil.aau.dk or +45 9940 8582) for further information.



Conferences

In 2009 our department hosted the following conferences and seminars. Some of the events are organized in collaboration with another departments at Aalborg University or private companies. In major research projects and research collaborations, it is common to hold seminars where research results are presented.

» **Research Event**, 6 January 2009, Aalborg, Denmark

The Research Event at the Department of Civil Engineering is an annually recurrent event. It has become a concentrated presentation of the research done by the Department and of the growing expertise within the fields of engineering. The presentations at Research Event are filmed and put on the website.

» **The 22nd Nordic Seminar on Computational Mechanics (NSCM)**, 22-23 October 2009, Aalborg, Denmark

A meeting place for researchers developing computational methods and scientists and engineers focusing on challenging applications in broad aspects of mechanics. In particular, presentations by graduate students are welcomed.

» **The 1st KOMFORT HUS Conference : Technical Construction Challenges**, 10 November 2009, Aalborg, Denmark

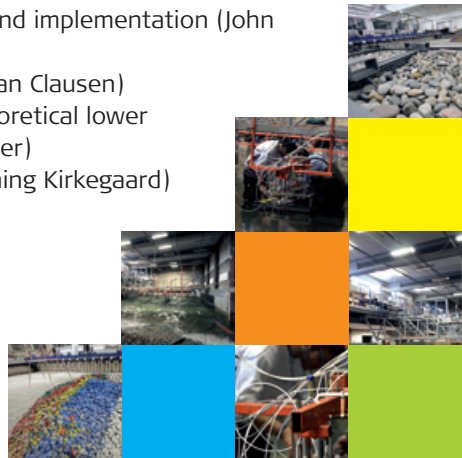
Conference with technical presentations and discussions on the basis of the COMFORT HUS project. The conference is cooperation between Aalborg University and Saint-Gobain Isover a/s.

Further information: see the departmental website www.civil.aau.dk where you can find the list with links to previous conference and seminar websites and further information about forthcoming events organized and hosted by the Department of Civil Engineering at Aalborg University.

Programme for Research Event 2009

- 14:00 Welcome (Peter Frigaard)
- 14:10 Information on study programmes at Civil Engineering (Henrik Brohus)
- 14.25 Retention of polluted materials in motorway pools (Thomas Ruby Bentzen)
- 14:40 Wave power as energy source (Jens Peter Kofoed)
- 14:55 Mono piles for wind turbine foundations (Anders Hust Augustesen)
- 15:10 Do trees grow on Island? Afforestation inspite of/ due to erosion and nutrient-low land (Eva Ritter)
- 15:25 Coffee break
- 15:45 Measuring programme for energy use and indoor climate in 10 Danish passive houses (Tine S. Larsen)
- 16:00 Study on Influence of Velocity, Turbulence Intensity and Temperature on Ammonia Mass Transfer coefficient (Li Rong)
- 16:15 Passive Cooling of Buildings (Nikolai Artmann)
- 16:30 Information technology moves into the construction site (Kjeld Svidt)
- 16:45 Coffee break
- 17:00 National annexes for Eurocodes: background and implementation (Johann Dalsgaard Sørensen)
- 17:15 New challenges with the element method (Johan Clausen)
- 17:30 Construction design by means of plasticity theoretical lower valuation solutions, a numerical method (Christian Frier)
- 17:45 Robustness and wood constructions (Poul Henning Kirkegaard)
 - cancelled due to exams

The 2010 programme for Research Event is available at civil.aau.dk.



Highlights

Awards

Professor Emeritus Hans F. Burcharth was selected as the 2009 recipient of the ASCE International Coastal Engineering Award. The committee recognised Prof. Burcharth's leadership in the development of design procedures for coastal structures. The award ceremony took place at the 4th international Short Conference On Applied Coastal Research in Spain 15-17 June.

Teacher of the Year

Every year students belonging to the Study Board on Civil Engineering elect a "Teacher of the Year". Thomas Ruby Bentzen was elected in 2009.

Special events

At the beginning of the year Connie Hedegaard, Minister for Climate and Energy (now EU's Climate Commissioner) contacted the department. The minister asked for a meeting where she wanted a presentation and status of the different technologies used in wave energy and an assessment of the needs for economic support by the Danish government. On 20 March 2009, the minister visited the Department of Civil Engineering.

New colleagues

Lars Damkilde, head of the division of Mechanical Engineering, moved from the Esbjerg department to the Department of Civil Engineering in Aalborg along with Ronnie Refstrup Pedersen, Sven Krabbenhøft, Jens S. Hagelskjær and Anders Schmidt Kristensen.

Retirements

Nich Flint retired at the end of July
Torben Christensen retired at the end of December
Solveig Hesselvang retired at the end of December

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