



**AALBORG UNIVERSITY**  
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## **The Density of Sustainable Settlements**

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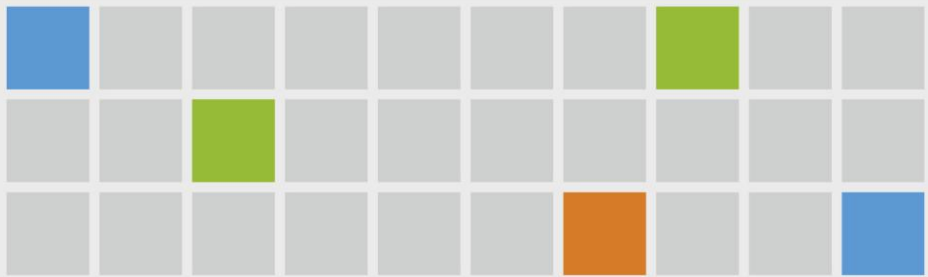
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3rd Nordic Passive House Conference 7 - 8 October 2010  
Aalborg Culture & Congress Centre

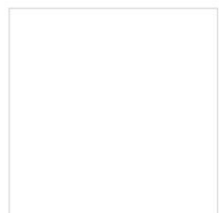
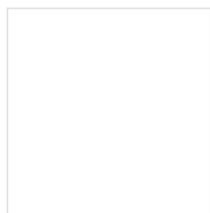
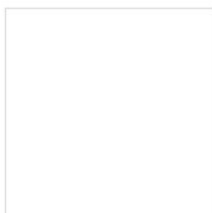
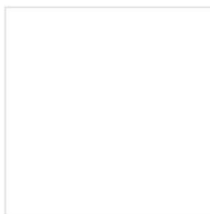
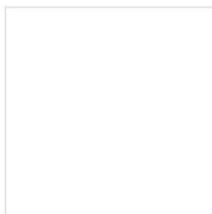
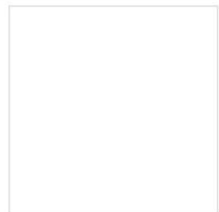
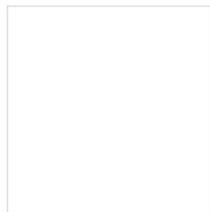
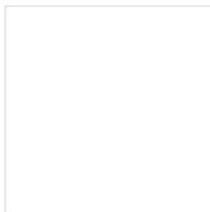
## TOWARDS 2020 – SUSTAINABLE CITIES AND BUILDINGS



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3rd Nordic Passive House Conference 2010 – Towards 2020 Sustainable Cities and Buildings.

Edited by Tine Steen Larsen, MSc (eng), PhD, Aalborg University, Søren Pedersen, MSc (eng), director, Passivhus.dk

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September 18, 2010

## Towards 2020 – Sustainable Cities & Buildings

The 3<sup>rd</sup> Nordic Passive House Conference focuses on the latest examples of energy efficient and sustainable building, methods, energy & building consultancy services and education.

Super energy efficient building creates new challenges for architects, consultants and contractors. It sets demands on materials, products, measuring and quality assurance. The building consultants will have to experience new ways of cooperation. They will ask for more training & supplementary education. The new solutions and higher quality should also contribute to better indoor climate, user experience and tolerance of our buildings to changing users, demands and climatic conditions.

The first Nordic Passive House Committee was appointed in 2007 and the first two conferences were held in Norway in 2008 and in Sweden in 2009. The next conference will be in Finland in 2011. Each year a new scientific committee is appointed to evaluate the submitted papers and to approve the program for the conference. Members of the Scientific Committee in 2010 were:

- Hans Eek, Passivhuscentrum, SE
- Simone Kreutzer, Tyréns, SE
- Tor-Helge Dokka, Sintef, NO
- Riikka Holopainen, VTT, FI
- Vesa Peltonen, Vahanen Consulting Engineers, FI
- Tine S. Larsen, Aalborg University, DK
- Per Heiselberg, Aalborg University, DK
- Inge Vestergaard, Aarhus School of Architecture, DK
- Elsebeth Terkelsen, Aarhus School of Architecture, DK
- Ruut Peuhkuri, Passivhus.dk, DK
- Søren Pedersen, Passivhus.dk, DK

We hope that the 3<sup>rd</sup> Nordic Passive House Conference will contribute to the implementation of energy efficient building and continuous development of the building standard towards sustainable cities and buildings in 2020.

Best regards  
The Organizers

Aalborg University, Aarhus School of Architecture, Passivhus.dk



## Towards 2020 – Sustainable Cities & Buildings

### Plenary Session Thursday 7 October

**Welcome to the Conference** by Aalborg University, Aarhus School of Architecture and Passivhus.dk, DK

**Passive House Building – Towards 2020**, Dr. Wolfgang Feist, Passive House Institute, Darmstadt, GE

**Building and the Overall Energy System**, Professor Henrik Lund, Aalborg University, DK

### Plenary Session Friday 8 October

**Welcome**, by Charlotte Bundgaard, Prorector, PhD, Associate Professor at Aarhus School of Architecture

**Examples of Refurbishment to Passive House Level**, Burkhard Schulze Darup, Schulze Darup & Partner Architekten, DE

**Challenges of Refurbishment in Social Housing**, Rolf Andersson, Building Director, the Social Housing Company KAB, DK

## Programme for the 3rd Nordic Passive House Conference

Thursday 7 October

13.00 – 14.30 Sessions Thursday 7 October 2010

### Session 1 Arkitektur mod 2020 – Architecture Towards 2020 DA/ EN

**4D Bæredygtigt Byggeri i Ørestad/ 4D Sustainable Building in Ørestad**, Lars Thiis, Architect maa, CUBO Arkitekter, DK

[Bolig+ Konkurrencen/ The "Bolig+" Competition](#), Lars Kvist, Architectural Engineer; Arkitema Architects; Rie Øhlenschläger Architect maa, AplusB; Simon Kamper MSc, Esbensen; TEAM+, DK

[Solar Decathlon Europe 2010, Zero-energy House for Warm and Cold Climates](#), Kimmo Lylykangas, Research Manager Architect SAFA, Aalto University, FI

### Session 2 Eco-Efficient Building from A-Z EN

[Northpass, Criteria for Very Low Energy Building](#), Søren Pedersen, MSc, Passivhus.dk, DK

[Certification and the International Passive House Criteria](#), Adrian Tschui, Bachelor of Science in HVAC Engineering, Passivhus.dk, DK

[From Passive House to Zero Emission Building: How Much Energy Generation is Needed?](#) Igor Sartori, PhD, Researcher, SINTEF, NO

[Passive House Design as an Important Path to +Energy Houses](#), Karin Adalberth, PhD, Prime Project, SE

**Session 3**

**Energy Supply and Renewable Energy**

**EN**

[The Density of Sustainable Settlements](#), Michael Lauring,  
Architect maa, phd, Assistant Professor, Aalborg University, DK

**Renewable Energy**, Solar Systems & Wind Power, Troels  
Kildemoes, MSc, Ellehauge & Kildemoes, DK

**Innovative District Heating in Low Energy Houses**, Charlotte  
Reidhav, industridoktorand, District Heating and Cooling Strategist,  
Göteborg Energy, SE

[Sustainable Energy Supply for Passive House Developments](#),  
Inger Andresen, Dr.ing., Senior Scientist

**13.00 – 14.30**

**Workshop 1 Komforthusene - Status efter 2 års Drift i  
nogle af de Første Danske Passivhuse/ The Comfort Houses –  
Status after 2 Years of Operation**

**In Danish**

**Without Translation**

**Velkomst og status for projektet**, Charlotte Højmark, ingeniør,  
Saint Gobain Isover A/S, DK

[Komforthusene – Udvikling af Passivhuskonceptet i en Dansk  
Kontekst](#), Tine Steen Larsen, MSc, PhD, Aalborg University,  
Charlotte Højmark, ingeniør, Saint Gobain Isover A/S, DK

[Kvantitativ og Kvalitativ Evaluering af Indeklimaet i Komfort  
Husene](#), Camilla Brunsgaard MSc, Aalborg University, DK

**Diskussion – fremtidens lavenergi og passivhuse**, Charlotte  
Højmark, ingeniør, Saint Gobain Isover A/S, DK

15.00 – 16.30 Sessions Thursday 7 October 2010

**Session 4**      **Arkitektur mod 2020 - Architecture Towards 2020**    DA/EN

**Integreret Projektering/ Integrated Design**, Vibeke Grupe Larsen,  
Architect maa, Akademisk Arkitektforening, DK

[Sunshinehouse](#), Arkitektur, Udvikling og Industrialisering/  
**Sunshinehouse**, Architecture and Industrialization, Brian  
Andersen, Architect maa, Aarstiderne Arkitekter, DK

[Aktivt Vindues Design/ The Active Window Design](#), Søren Riis  
Dietz, Architect maa, bjerg arkitektur, DK

[EUC Nord - The First Passive House School in Denmark](#), Mark  
Krebs, Architect maa Certified Passive House Designer, bjerg  
arkitektur, DK

**Session 5**      **Colder Climate**    EN

[Apartment Buildings in Timber Construction According to  
Passive House Principles](#), Ivana Kildsgaard, MSc, IVL Swedish  
Environmental Research Institute, SE

[Passive House Aitolahti - Matching the Challenge of Building a  
Small House within the Limit of 15 kWh/m<sup>2</sup>a in Finland](#), Juha  
Päätaalo, Passive House Consultant, FI

**The Norwegian Standard NS 3700**, Thor Helge Dokka, Senior  
Scientist, SINTEF Byggeforsk, NO

[The RENORD Project. Research Design for the Study of Passive  
House Modernisation Processes and Technologies](#), David N.  
Benjamin, PhD, NO



**Session 6**      **Life Cycle Assessments, LCA**      **EN**

[Life Cycle Primary Use of an Apartment Building Designed to the Current Swedish Building Code or Passive House Standard](#), Leif Gustavsson, Professor, Linnaeus University, SE

[Life Cycle Assessment of Norwegian Wood-based Building Materials](#), Catherine Grini, Scientist, SINTEF, NO

[Life Cycle Energy Flow, Costs and Emissions in the Norwegian Residential Building 1960-2050](#), Nina Holck Sandberg, PhD Candidate, NTNU, NO

[Tool for Very Low Energy Building System Analysis](#), Kaisa Svennberg, Senior Researcher, PhD, IVL Swedish Environmental Research Institute, SE

**15.00 – 16.30**      **Workshop 2 Future Cities - Green Cities**      **EN**

**In English**

*Moderator: Pia Høyer, Supplementary Education, Aarhus School of Architecture*

**Welcome by Claus Nickelsen**, Head of Technique & Environment, Aarhus Municipality

**Aarhus Climate Action Plan 2030**, Climate & Energy Projects by Jan Nielsen, Head of Climate Action in Aarhus Municipality

**Oslo Municipality Climate & Energy Action Plan** by Building Coordinator David Brasfield, Oslo Municipality

**FutureBuilt – Development of Climate Neutral Cities** with a High Standard and a Reduced CO<sub>2</sub> Emission Silvie Le Muzic, City of Oslo - Agency for Planning and Building Services, Head of unit, Architecture and Planning, The Resource Center.

**Debate**

**Conclusions**

17.00 – 18.00 Sessions Thursday 7 October 2010

**Session 7 Arkitektur mod 2020 - Architecture Towards 2020 DA/EN**

**Almene Boliger – Social Housing**

[Fra Energioptimering til 0-Energi Renovering/ From Energy Optimization to Zero-Energy Refurbishment](#), Anne Marie Holt Christensen, Architect maa, Albertslund Kommune; Henrik Mielke, Manager COO, Enemærke og Petersen

[Det Første 0-energireoveringsprojekt i Danmark/ The First Zero Energy Housing Renovation Project in Denmark](#), Peder Vejsig Pedersen, MSc, Cenergia, DK

[How to Cross Barriers - "Lærkehaven"](#), Sustainable Low Energy Housing and Passive Houses for Social Housing, Rie Øhlenschläger, Architect maa, AplusB, DK

**Session 8 Refurbishment of Single Family Houses EN**

[Refurbishment of Single Family Houses – an Emerging Market](#), Trond Haavik, MBA, Segel, NO

[Energy Refurbishment of Existing Buildings to Passive House Level](#), Louise Eriksen, Technical Manager, Rockwool International, DK

**Low Energy Refurbishment** of Single Family Houses from 1970, Jørgen Søndermark, Architect maa, Realea, DK

**Session 9 Quality Control for Ventilation and Air Tightness EN**

[Optimal ventilation & Heat Recovery. Quality Control](#), Svein H. Ruud, Tekn.Lic / M.Sc, SP Technical Research Institute, SE

[Air Tight Building Envelope: The Right Process](#), Eva Sikander, MSc, SP Technical Research Institute of Sweden, SE

## Friday 8 October

10.30 – 12.00 Sessions Friday 8 October 2010

### Session 10 Skoler og Daginstitutioner - Schools and Kindergartens DA/EN

[Fremtidens Daginstitutioner, Future Kindergartens](#), Charlotte Ankerstjerne Schunck MSc, Albertslund Kommune; Torben Vinge Rasmussen, MSc, Wissenberg, DK

['Marienlyst Skole' - The First Passive House School in Norway](#)  
Tor Helge Dokka, Senior Scientist, SINTEF Byggforsk, NO

["The Green Planet", Daginstitution/ Kindergarten in Copenhagen](#), Bo Christensen, MSC, Indoor Environments, Wissenberg, DK

[Passive House Kindergarten "Skogslunden"](#), Birgitta Grebius, Architect SAR/MSA, bleck arkitekter, SE; Kristin Åberg Nilsson, Project Manager, Tema Miljö & Energi, SE

### Session 11 A Developing Market EN

[Action Plan for Passive House as the Standard Solution](#), Lars Myhre, PhD, Norwegian Homebuilder Association, NO

[From Demonstration Projects to Volume Market - Market Development of Advanced Housing Renovation](#), Are Rødsjø, Project Leader, MSc, The Housing Bank, NO

[The Miljon Program to Become Passive House Standard](#), Helena Westholm, SAR/MSA Architect, Efem Architect Office, SE

**Debate**

**Session 12      Moisture Problems in Buildings    EN**

**[Risk of Performance Failure in New and Retrofitted Building](#)**

[Envelopes](#), Carl-Eric Hagentoft, Professor, Chalmers University of Technology, SE

**[Evaluation of Critical Moisture Problems in Building Elements &](#)**

[Wooden Constructions](#), Charlotte Svensson Tengberg, Licentiate in Engineering Building Physics, Skanska SE

**[Increased Insulation Thickness and Moisture](#)**, Stig Geving, PhD, SINTEF, NO

**[How to Prevent Natural Convection Causing Heat Loss and Moisture Problems in Thick Insulation Layers](#)**, Sivert Uvsløkk, MSc, SINTEF, NO

**13.30 – 14.45      Sessions Friday 8 October 2010**

**Session 13      Arkitektur mod 2020 – Architecture Towards 2020    DA/EN**

**Villa Alstrup**, Esbjerg, Mette Nymann Nielsen, Architect maa, C.F. Møller Architects, DK

**[Passivhuse, 0-energi & Plusenergiarkitektur/ Passive, Zero & Plus Energy Architecture in Denmark](#)**, Olav Langenkamp,

Architect eth-maa, Langenkamp.dk, DK

**[H2College, Passivhuse, Almene Ungdomsboliger i Herning/ H2 College – Passive House Youth Colleges](#)**, Lars Sylvester,

Architect maa, aarhus arkitekterne, DK

**Session 14      Developing Market      EN**

**How a Cluster for Passive Houses was Created** in Western Sweden, Åsa Lindell, Project Manager, Miljösekretariatet, Västra Götaland, SE

[IEE-project NorthPass: Promotion of the Very Low-Energy House Concept to the North European Building Market](#), Riikka Holopainen, Senior Research Scientist, VTT Technical Research Centre of Finland, FI

[LÅGAN - For Implementation of Buildings with Very Low Use of Energy](#), Åsa Wahlström, PhD, CIT Energy Management, SE

**Session 15      Indoor Climate      EN**

[Water Based Heating and Cooling in Low Energy Houses](#), Lars Sønderby Nielsen, Marketing Manager, Uponor, DK

**Evaluation of the Energy Use and Thermal Comfort in “Hamnhuset”** – the Largest Multifamily Dwelling in Sweden Constructed Using Passive-House Technology, Pernilla Gervind, MSc, SP Technical Research Institute of Sweden, SE

[DK Monitoring of Indoor Environment and Energy Use in the Renovated Buildings at Brogården in Alingsås](#), Kristina Mjörnell, PhD, SP Technical Research Institute of Sweden, SE

15.15 – 16.15 Sessions Friday 8 October 2010

**Session 16 Refurbishments EN**

**Sustainable Transformation of Danish Housing** after 1945, Terri Peters, BA, BEDS, Dip Arch, Aarhus School of Architecture, DK

[Life Cycle Costs and Prefabrication in Refurbishments](#), Erik Prejer, MSc, IVL Swedish Environmental Research Institute, SE

[Energy Refurbishment of "Langkærparken"](#), Simon Kamper, MSc, Esbensen Rådgivende Ingeniører, DK

**Session 17 Certification and Development EN**

**Green Building Council** - Certification Schemes for Sustainable Buildings, Klaus Hansen, Senior Researcher, SBI Danish Building Research Institute, DK

**Active House, Energy, Indoor Climate & Environment**, Kurt Emil Eriksen, Head of Active Housing and Strategic Projects, VKR Holding, DK

**Debate**

**Session 18 Windows EN**

[Intelligent Glazed Facades for Fulfillment of Future Energy Regulations](#), Frederik Vildbrad Winther, PhD Candidate, Aalborg University, DK

**Energy Performance of Windows**, Søren Pedersen, Passivhus.dk, DK

[Window Shutters](#), Helena Bülow-Hübe, Architect SAR, Tyrens, SE; Marja Lundgren, MSA, White Arkitekter, SE

15.15 – 16.15 Sessions Friday 8 October 2010

**Poster Session in the Workshop Room EN**

**[Considering the Possible Changes of the Future Climate in Designing the Sustainable Buildings](#)**, Vahid Nik, Chalmers University of Technology, SE

**[Elverhuset - Ny Børneinstitution i Høje Taastrup Kommune](#)**,  
New Kindergarten in Høje Taastrup, Mark Krebs, Architect maa og  
Søren Riis Dietz, Architect maa bjerg arkitektur, DK

**[Heating and Warm Water Heating for Low Energy Building and Passive Housing](#)**, Magne Mikal Våge, University of Agder, NO

**Debate**

10.30 – 12.00 **Workshop 3 Lavenergirenovering og Lavenergibyggeri i  
Almene Boliger – Low Energy Refurbishment and Low Energy  
Building in Social Housing DA**

**In Danish Without Translation into English**

**Velkommen** ved Rolf Andersson, Byggedirektør, KAB, DK

**Muligheder og barrierer**

Moderator Rie Øhlenschläger, Arkitekt maa, AplusB, DK.

Boligselskabet Rosenvænget, Energirenovering i Frederikssund,  
Bent Gordon Johansen, Regionschef, Domea, DK

Klimaprojektet i Langkærparken i Tilst, energirenovering,  
Forretningsfører Claus Poulsen, AI2bolig, DK

Energirenovering Skovgaardsparken, direktionssekretær Steen  
Thomsen, Brabrand Boligforening, DK

Passivhuse H2 College Herning, direktør Bjarne Krogh Jensen,  
Boligselskabet Fruehøjgaard, DK

Lavenergiboliger og passivhuse i Lystrup, direktør Palle Jørgensen,  
Boligforeningen Ringgaarden, DK

Energi0 Boliger, byggechef Ulrik Steen Jensen, Arkitekt maa,  
Lejerbo, DK

**Paneldebat**

Moderatorer Rie Øhlenschläger, Arkitekt maa, AplusB & Rolf  
Andersson, byggedirektør, KAB, DK

Michael Lynnerup Kristensen, Kontorchef, Socialministeriet,  
Boligfagligt område, Almen bolig, DK

Anni Kær Pedersen, Kommunernes Landsforening, Teknik og Miljø,  
Bygge og Boligområdet, DK

Olav Kirchhoff, Boligselskabernes Landsforening, sekretariatsleder  
'Almen Net', DK

**Konklusioner**



13.30 – 15.00    Workshop 4    Education & Low Energy Building    EN

In English

**Welcome by Søren Pedersen, Passivhus.dk, DK**

**[Evaluation of Passive House Workshop for Architects](#)**, Anders Linde Architect, Passivhuscentrum, SE

**Training of ‘Certified Passive House Designers in Sweden and Denmark**, Sonja Ritscher, Building Physics, Tyréns AB, SE, Ruut Peuhkuri, Senior Consultant PhD, Passivhus.dk, DK

**[Master Programme in Sustainable Architecture: Towards a Zero Emission Built Environment](#)**, Matthias Haase, Førsteamanuensis, Norwegian University of Science and Technology, NO

**MEGA Master in Energy and Green Architecture**, Merethe Kruse, Architect MAA, Aarhus School of Architecture, DK

**[Competences and Strategic Development on Sustainability](#)**, Jens Joel, Cand.Scient.Pol/ MA, Aarhus School of Architecture, DK

**[How can Architectural Education be Developed to Meet Future Energy Standards?](#)** Luna Fruensgaard M.S. Arch, Carnegie Mellon University, US

**Debate & Conclusions**