



PASSIVHUS Norden

PROGRAMME

GÖTEBORG OCTOBER 15 - 17

THE SIXTH PASSIVE HOUSE CONFERENCE IN THE NORDIC COUNTRIES

CHALMERS

CIT Energy Management AB

Energimyndigheten

Passivhuscentrum Västra Götaland



REGION VÄSTRA GÖTALAND

SVERIGES BYGGINDUSTRIER



City of Gothenburg

PROGRAMME – TUESDAY OCTOBER 15: GUIDED TOURS 12.30

- 12.00 – 12.30 Registration at Chalmers Conference Centre
12.30 All buses leaves from Chalmers Conference Centre (Sven Hultins gata 4)
- TOUR I: KUNGSBACKA – GUIDE: HANS EEK
- 13:30-15:00 Vallda Heberg (school, retirement home, villa, commercial buildings)
15:15-16:30 Kolla parkstad (apartments, Kollaskolan)
16.30 Return to Göteborg
- TOUR II: GÖTEBORG – GUIDE: ANDERS LINDE
- 13:00 – 14:00 Krokslätt
14:30 – 15:30 Katjas Gata
16:00 – 17:00 Gårdstensbostäder
17.00 Return to Göteborg
- TOUR 3: ALINGSÅS – GUIDE: JOHN HELMFRIDSSON
- 13:30 – 14:30 Brogården
14:45 – 15:15 Ljuset
15:15 – 16:30 Stadsskogenskolan and sports hall
16.30 Return to Göteborg

COME TOGETHER, BÖRSEN

- 18.00 – 18.30 Registration at Börsen, Östra Hamngatan 21
18.30 – Welcome reception hosted by the City of Gothenburg and Region Västra Götaland

PROGRAMME – WEDNESDAY OCTOBER 16: FIRST DAY OF THE CONFERENCE

- 8.00 Registration at Chalmers Conference Centre
9.00 – 10.30 Keynote Session in English, Room RunAn
Moderator: **Enno Abel, Professor Emeritus**
Welcome to Göteborg
Sören Kviberg, Region Counselor, Region Västra Götaland
Energy-efficient buildings – Challenges and opportunities
Maria Brogren, Swedish Construction Federation and LÅGAN
A Swedish strategy for investment in retrofitting that will improve the energy performance of the existing building stock
Carin Karlsson, Senior Adviser, Swedish Energy Agency
”How do we avoid bankrupting Nature?”
Anders Wijkman, Swedish opinion leader and author
- 10.30 – 10.50 Break and light refreshments
10.50 – 12.30 Parallel sessions Block 1
12.30 – 13.50 Lunch and exhibition
13.50 – 15.30 Parallel sessions Block 2
15.30 – 16.00 Break and light refreshments
16.00 – 17.15 Parallel sessions Block 3
19.00 – Conference dinner and entertainment at Chalmers Conference Centre



PROGRAMME – THURSDAY OCTOBER 17: SECOND DAY OF THE CONFERENCE

8.00 Registration at Chalmers Conference Centre

8.30 – 10.10 Parallel sessions Block 4

10.10 – 10.40 Break and light refreshments

10.40 – 12.20 Parallel sessions Block 5

12.20 – 13.00 Lunch and exhibition

13.00 – 13.40 Poster exhibition and coffee in room Valdemar

13.40 – 15.10 Keynote Session in English, Room RunAn

International pioneer in design of Passive Houses performance of new and existing building stock,
Torben Esbensen, Esbensens Consulting Engineers

Debate: **Political initiatives and building regulations**
This part will be held in Swedish

Moderator: **Jan-Olof Dalenbäck**, Chalmers University of Technology

Ola Johansson, riksdagsledamot Centerpartiet

Ulf Kamne, Fastighetsnämndens ordförande, Miljöpartiet

Kristina Gabriellii, Miljöchef Peab

Krister Kilersjö, VD Eksta

Anneli Mälargård, Utvecklingsledare Miljö Skanska

PARALLEL SESSIONS BLOCK 1

WEDNESDAY OCTOBER 16

| Room | SESSION 1, ENGLISH SCANIA | SESSION 2, ENGLISH VALDEMAR | SESSION 3, ENGLISH PALMSTEDTSSALEN | SESSION 4 SCANDINAVIAN CATELLA |
|---------------|--|---|--|---|
| 10.50 - 12.30 | Low energy buildings in northern climates | Assessment of indoor air quality and users satisfaction | Renovation track: BEEM-UP: Building Energy Efficiency for a Massive Market Uptake | Byggnadsfysik och kvalitetssäkring |
| Chaired by | Inger Andresen | Sören Pedersen | Kristina Mjörnell | Eva Sikander |
| 10.50 - 11.10 | Adaption of the passive house concept in northern Sweden a - case study of performance, <i>Itai Danielski, Mid Sweden University</i> | Investigation of the Air-Heating Concept for Norwegian Passive Houses, <i>Laurent Georges, NTNU</i> | BEEM-UP - Methodology, calculations and results, <i>Friedrich Reuter, LUWOGÉ consult GmbH</i> | Tunga klimatskal och värmeåtervinning i energieffektiva byggnader – lätt att bygga rätt, <i>Eva Sikander, SP</i> |
| 11.15 - 11.35 | Comparative Analysis of Norwegian Passive House criteria and of criteria related to the Concept of International Passive House Standard, <i>Karin Anton, Oslo and Akershus University College</i> | Post-Occupancy Evaluation of Low-Energy and Passive House Apartments in the Løvshagen Cooperative -Occupant Behavior and Satisfaction, <i>Magnar Berge, NTNU</i> | Tenant Involvement for a Successful Renovation, <i>Carolina Hiller, SP</i> | Beständighet hos lufttäthetslösningar för byggnader <i>Peter Ylmén, SP</i> |
| 11.40 - 12.00 | A prototype architecture for passive and plus energy building in Estonia, <i>Tõnu Mauring, University of Tartu</i> | Indoor Air Quality in Passive Houses: Methodology for assessment, <i>Sarka Langer, IVL</i> | Energy Efficient Retrofitting demonstrations, <i>Linda Martinsson, Skanska</i> | Fukt i passivhusvegger og -tak – målinger og beregninger, <i>Lars Gullbrekken, SINTEF</i> |
| 12.05 - 12.25 | Implementing zero energy buildings in harsh Nordic climate conditions, <i>Pasi Käkel, SPU Oy</i> | Heated atrium in multi-story buildings: A design for better energy efficiency and social interactions, <i>Itai Danielski, Mid Sweden University</i> | The Refurbishment of Brogården – the Development of a Method for Long-Term Economic Plans, <i>Ulf Alexandersson, AB Alingsåshem</i> | ByggaE - Metod för kvalitetssäkring av Energieffektiva byggnader, <i>Thorbjörn Gustavsson, SP</i> |



PARALLEL SESSIONS BLOCK 2

WEDNESDAY OCTOBER 16

| Room | SESSION 5, ENGLISH SCANIA | SESSION 6, ENGLISH PALMSTEDTSSALEN | SESSION 7, SCANDINAVIAN VALDEMAR |
|---------------|--|--|---|
| 13.50 - 15.30 | Nearly Zero Energy Buildings, policies and incentives | Renovation track: Decision making | Energiuppföljning i passivhus |
| Chaired By | Anne Grete Hestnes | Åke Blomsterberg | Stefan Olsson |
| 13.50 - 14.10 | A Norwegian Zero Emission Building Definition, <i>Tor Helge Dokka, SINTEF</i> | Norwegian Tax Administration Building Decision Making Process, <i>Trond Haavik, Segel AS</i> | Jämförande mätstudie av fyra flerbostadshus, <i>Eje Sandberg, ATON</i> |
| 14.15 - 14.35 | Active House – a global guideline for NZEB, <i>Carsten Østergård Pedersen, Grundfos</i> | Giganten och Späckhuggaren – Experiences of energy efficiency improvements during renovation of buildings from the sixties, <i>Åsa Lindell, NCC</i> | Energiuppföljning av projektet Blå Jungfrun, <i>Johanna Nordström, Skanska</i> |
| 14.40 - 15.00 | Enhanced EU policies required for passive house standard by 2050, <i>Eoin Ó Broin, Chalmers</i> | LichtAktiv Haus – a model for climate renovation, <i>Lone Feifer, VELUX Group</i> | Energibruk i 9 passivhus-Sammenligning mellom beregnete og målte verdier, <i>Anna Svensson, SINTEF</i> |
| 15.05 - 15.25 | Creating urban district values with energy, <i>Jonas Norrman, IMCG</i> | Primary energy and carbon dioxide implications of low-energy renovation of a Swedish apartment building, <i>Ambrose Dadoo, Linnaeus University</i> | Kv Fridhem, Trollhättan 174 nya hyreslägenheter i klimatsmarta passivhus, <i>Per Andersson, PEAB</i> |

PARALLEL SESSIONS BLOCK 3

WEDNESDAY OCTOBER 16

| Room | SESSION 8, ENGLISH PALMSTEDTSSALEN | SESSION 9, ENGLISH VALDEMAR | SESSION 10, SCANDINAVIAN SCANIA |
|---------------|--|---|--|
| 16.00 - 17.15 | Passive houses in wood construction | Practical track | Certifierade och prisbelönade exempel |
| Chaired by | Svein Ruud | Eje Sandberg | Åsa Wahlström |
| 16.00 - 16.20 | Engineered Timber Construction Systems for Multi-Storey Residential Buildings with Passive House Standard, <i>Michael Gruner, LINK Arkitektur</i> | SE's new Passive- and Plus Energy HQ and the Certification Process, <i>Rob Bindels, Hoffmann A/S</i> | Vallda Heberg – Sveriges första passivhuscertifierade villaområde med egengenerering av förnybar energi <i>Elsa Fahlén, NCC</i> |
| 16.25 - 16.45 | Wood Framework Passive House in eight stories -Portvakten, Växjö, <i>Stefan Olsson. Energy Agency for Southeast Sweden</i> | Challenging the possibilities <i>Olav Langenkamp, Langenkamp.dk Architects</i> | 1:a Passivhus Arkitekturpris i Sverige, <i>Simone Kreuzer, IG Passivhus</i> |
| 16.50 - 17.10 | Moisture risk in prefabricated wooden wall elements (TESelements) with a vapour retarder of OSB/3, <i>Silje Korsnes, SINTEF</i> | Experiences of prototyping passive house design, <i>Henrik Sundqvist, Skanska</i> | LÅGANs sammanställning av Lågenergibyggnader i Sverige, <i>Peter Filipsson, CIT Energy Management</i> |
| 19.00 - | Conference dinner and entertainment at Chalmers conference centre | | |



PARALLEL SESSIONS BLOCK 4

THURSDAY OCTOBER 17

| Room | SESSION 11, ENGLISH PALMSTEDTSSALEN | SESSION 12, ENGLISH SCANIA | SESSION 13, SCANDINAVIAN CATELLA |
|--------------|--|---|---|
| 8.30 - 10.10 | Renovation track: Design of renovation | Innovative design and components | Erfarenheter av passivhusbyggande |
| Chaired by | Jan-Olof Dalenbäck | Tor Helge Dokka | Anders Bernestål |
| 8.30 - 8.50 | Greenhouse gas analysis of insulation options in residential energy retrofitting, <i>Nicola Lolli, The Research Centre on Zero Emission Buildings ZEB</i> | The climatic challenge of designing a prefabricated catalogue house meeting the criteria of the Norwegian passive house standard, <i>Silje Korsnes, SINTEF</i> | Erfaringer med bygging av passivhus - Trenger vi å finne opp hjulet på nytt? <i>Judith Thomsen, SINTEF</i> |
| 8.55 - 9.15 | Cost optimal energy efficiency in multifamily houses <i>Åsa Wahlström, CIT Energy Management</i> | Investigation of prototype membrane based energy exchangers, <i>Hans Martin Mathisen, SINTEF</i> | Passivhusbyggande i Sverige - 12 års erfaringer, <i>Eje Sandberg, Sveriges Centrum för Nollenergihus och Hans Eek, Passivhuscentrum</i> |
| 9.20 - 9.40 | Innovative solution for heat recovery of ventilation air in older apartment buildings - with low intervention affecting the residents, <i>Björn Berggren, Lund University</i> | Net Zero Energy House with Direct Electric Heating, <i>Klaus Lund Nielsen, Danfoss Heating Solutions</i> | Erfarenheter från planering och byggande av den första villan i Sverige, passivhuscertifierad enligt internationell standard, <i>Michael Staffas, Fiskarhedenvillan AB</i> |
| 9.45 - 10.05 | Powerhouse Kjørbo: a plus-energy renovation office building project in Norway, <i>Marit Thyholt, Skanska</i> | Environmental perspective on two glazing typologies, <i>Nicola Lolli, The Research Centre on Zero Emission Buildings ZEB</i> | Hållbart- och energieffektivt byggande har fått en ny innebörd med certifierade flerbostadshus, <i>Johnny Kellner, Veidekke</i> |

PARALLEL SESSIONS BLOCK 5

THURSDAY OCTOBER 17

| Room | SESSION 14, ENGLISH SCANIA | SESSION 15, ENGLISH PALMSTEDTSSALEN | SESSION 16, SCANDINAVIAN RUNAN | SESSION 17, SCANDINAVIAN CAELLA |
|---------------|--|--|---|---|
| 10.40 - 12.20 | Indoor comfort in passive houses | Renovation track: E2ReBuild, industrialized energy efficient retrofitting of residential buildings in cold climates | Praktiska exempel | Installationssystem |
| Chaired by | Mari-Liis Maripuuu | Christina Claeson-Jonsson | Hans Eek | Birgitta Nordquist |
| 10.40 - 11.00 | The architects and the residents are in charge of the indoor temperature, <i>Björn Berggren, Lund University</i> | Industrialized energy efficient retrofitting of resident buildings in cold climates, <i>Christina Claeson-Jonsson, NCC</i> | Bjørnsletta skole - FutureBuildt, <i>Bjarte Hårklau og Petter L. Nøstdal Veidekke</i> | Installationssystem i energieffektiva byggnader, <i>Per Kempe, Projektengagemang</i> |
| 11.05 - 11.25 | Daylight and thermal comfort in a residential passive house -A simulations study based on environmental classification systems, <i>Magnus Heier, Ramböll och Magnus Österbring, NCC</i> | Collaboration Models for Industrialised Renovation – Opportunities, Barriers and Risks, <i>Sonja Geier, Lucerne University of Applied Sciences and Arts</i> | BDAB Huset, ett aktivt lågenergihus, <i>Henrik Jönsson, Bengt Dahlgren AB</i> | Värmepumpsystem för nära nollenergi- småhus och flerfamiljshus, <i>Martin Persson, SP</i> |
| 11.30 - 11.50 | Indoor comfort in the Passive house Tennis Court, Växjö – Evaluation of the first year in operation, <i>Tommy Wesslund, Enerwex</i> | Innovation in early planning and design for energy efficient retrofitting, <i>Kajsa Flodberg, NCC</i> | Nya Kollaskolan - projektering av ett av Sveriges största passivhus, <i>Joakim Kaminsky, Kjellgren Kaminsky Architecture AB, Efraim Ljung, Tuve Bygg, Christer Kilersjö, Eksta</i> | Lågenergihus till en låg kostnad – utvärdering av värme- och lagringssystemet ASES, <i>Jan-Erik Eskilsby, AB Svenskt Klimatneutralt Boende</i> |
| 11.55 - 12.15 | Integrated dynamic simulations of indoor climate and energy use, <i>Søren Gedso, Erichsen & Horgen AS</i> | Partnering as a tool for a cost and energy efficient retrofitting of existing buildings –Halmstad demonstration project, <i>Stephen Burke, NCC</i> | Uppföljning Väla Gärd - plusenergikontor , <i>Per Kempe, Projektengagemang</i> | Energieffektivitet med åpent soveromsvindu i passivhus, <i>Vegard Heide, Husbanken</i> |



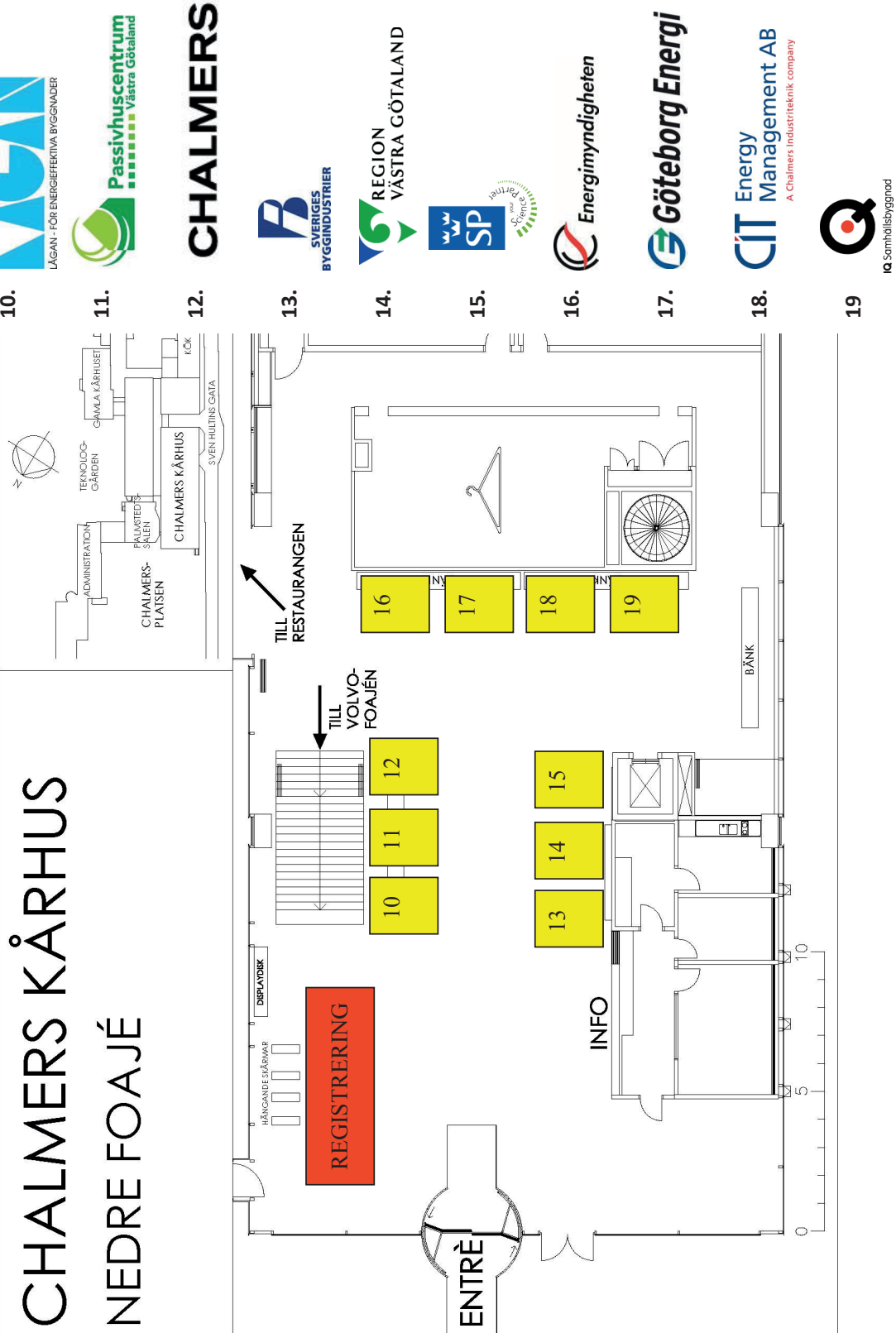
POSTER EXHIBITION

THURSDAY OCTOBER 17 ROOM VALDEMAR

POSTERS

- 1 Better, faster and cheaper energy facades for transformation of multi-storey blocks built between 1960 and 1976 – how to optimize renovation through an industrialized process?
Inge Vestergaard, Aarhus School of Architecture
- 2 Ventilation system with low pressure drop,
Amalie Gummer, The Danish Building Research Institute
- 3 Decreasing the carbon footprint of energy efficient buildings, what comes next?
Diego Peñaloza, SP
- 4 Integrated Energy Design,
Ronnie Hollsten, KanEnergi Sweden AB
- 5 Energy savings and CO2 emission reduction using a ground coupled heat pump for a passive house,
Calin Sebarchievici, Politehnica University of Timisoara
- 6 Ventilated Palikka: Dry and sound passivehouses,
Birger E. Wasenius, Palikka Oy
- 7 A comparison between Ventilation Air Heating and Electric Radiators in regard of Low Energy Houses' indoor climate,
Rickard Adlercreutz, Rettig ICC / LVI
- 8 Moisture properties of vapor open roofing underlays in winter conditions
Magnus Vågen, SINTEF
- 9 Energieffektivisering av befintlig byggnation till en låg kostnad – går det?
Jan-Erik Eskilsby, AB Svenskt Klimatneutralt Boende
- 10 Fra laft til passivhus
Begrensninger og muligheter,
Bozena Dorota Hrynyszyn, HiST
- 11 Driftuppföljningsmetodik
– erhålla utlovad energiprestanda och funktion,
Per Kempe, Projektengagemang
- 12 Erfarenheter från certifiering av passivhus och nollenergihus,w
Eje Sandberg, Sveriges Centrum för Nollenergihus
- 13 Passiva hus kräver aktiv styrning,
Henrik Jönsson, Bengt Dahlgren
- 14 Kompakt byggande ger passivhusnivå med standardkomponenter,
Robin Fritzson, Fritzson VVS-teknik AB
- 15 Forenklet behovsstyrt klimatisering av kontorbygg med svært lavt oppvarmingsbehov
Kari Thunshelle, SINTEF
- 16 Hur köper man ett passivhus?
Charlotta Winkler, WSP











EXHIBITION ON ENTRANCE FLOOR
ENTRANCE FLOOR

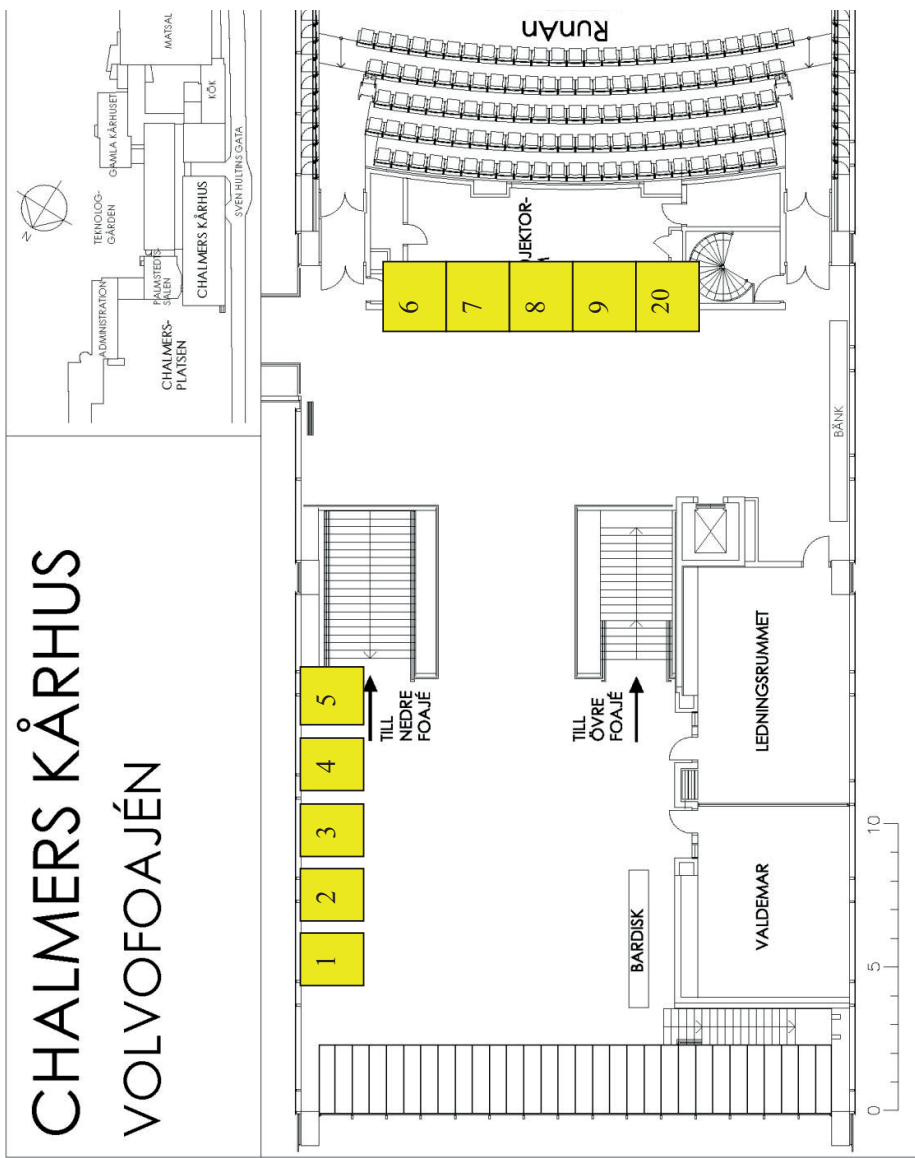


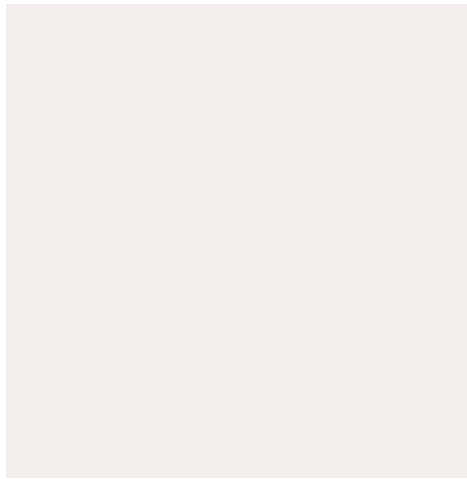
EXHIBITION IN VOLVOFOAJÉN

SECOND FLOOR

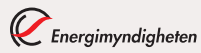


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Evaluation –

of the 6th Passive House Conference in the Nordic countries

The 6th Passive House Conference in the Nordic countries was held in Göteborg, Sweden 15th to 17th of October 2013. In total 300 persons from substantially Sweden and Norway, but also from other Nordic countries as well as countries outside Scandinavia participated.

Since this conference is recurrent the part consisting of an evaluation of the conference is an important tool for the future conferences.

An evaluation form was sent to all the participant of the conference. 86 answers was registered and evaluated with respect to a variety of parameters presented below.

Background of participants

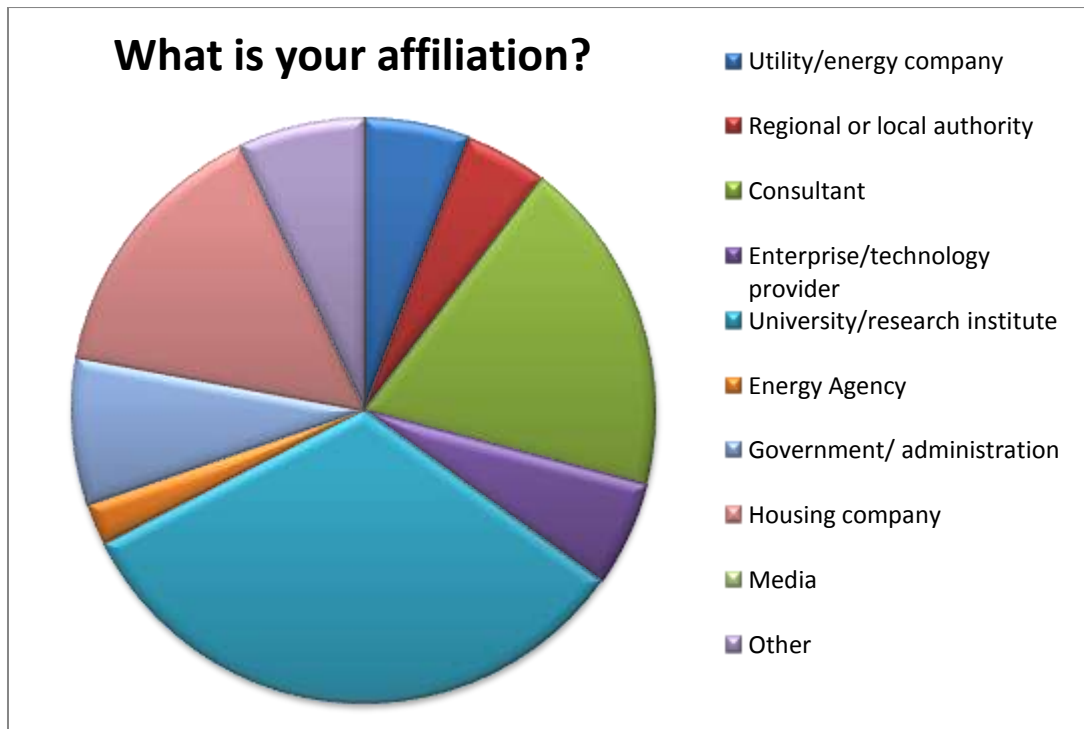


Figure 1. Affiliation of participant answering the evaluation form

The majority of the participant came from a University or a research institute. Consultants and housing companies were also two well represented affiliations. On the contrary participant from Energy Agencies were poorly represented.

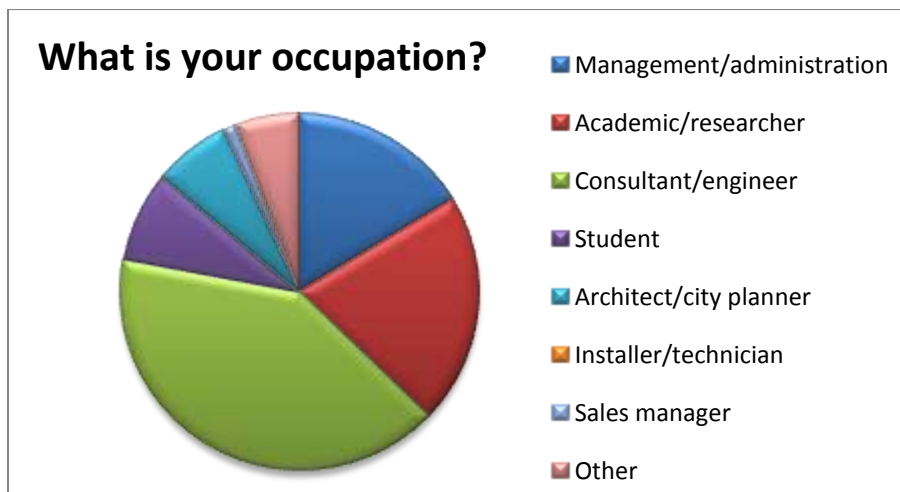


Figure 2. Occupation of participant answering the evaluation form

More than 40 % of the participants work as consultants/engineers. Management and administration as well as Academics and researchers were also well represented occupations at the conference. Participators working as Sales managers was poorly represented.

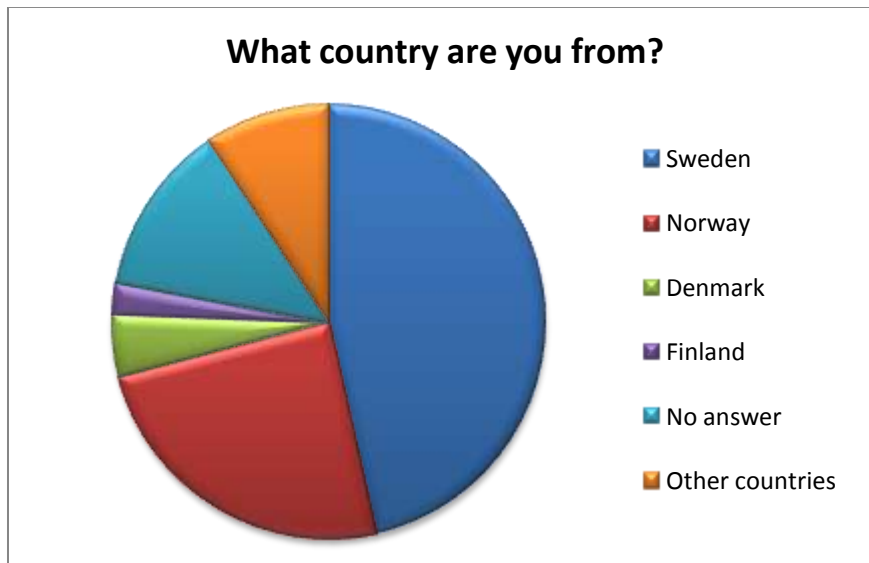


Figure 3. Countries represented at the conference.

Almost 50 % of the participants were Swedish. Norway represented about 25 % of the participants answering the questionnaire. In the orange part which includes “Other countries”, participants from Rumania, Estonia and Poland were represented among others.

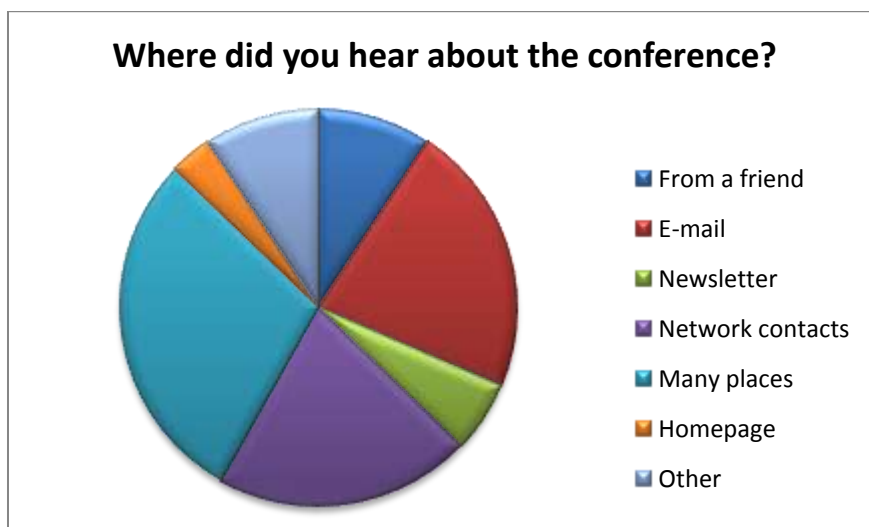


Figure 4. Marketing and information about the conference.

Most people answered that they had heard about the conference from many different places. Network contacts and E-mail were also two usual channels for hearing about the conference.



Figure 5. Previous participation in Passive house conferences.

50 % of the people answering the evaluation form had never participated in a Passive house conference before. Over 25 % had participated in one conference before. About 15 % of the participants were those with frequent participation in Passive house conferences.

The conference overall

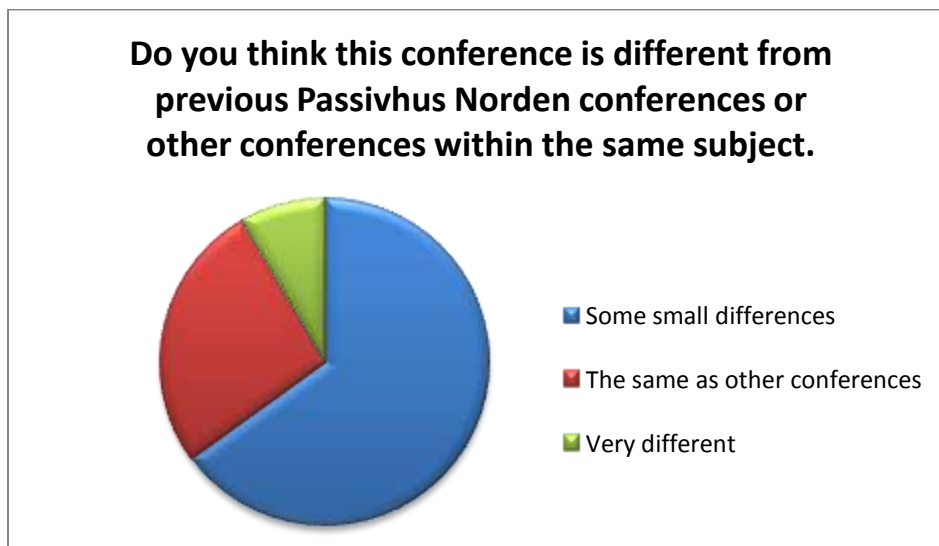


Figure 6. The conference distinctive from other conferences on the same subject.

65 % of the answers indicate that there were some slight differences in this conference compared to others within the same subject. Only about 10 % found the conference very different from others and about 25 % found the conference to be the same as others.

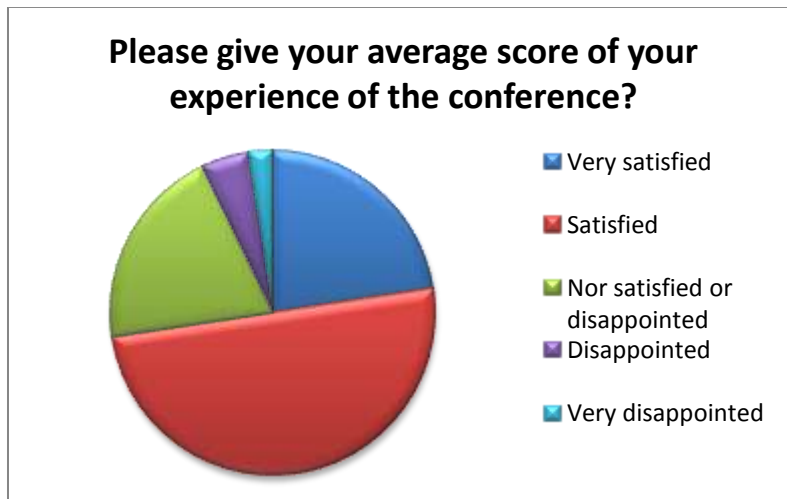


Figure 7. Experience of the conference.

The majority, nearly 75 %, of the participants were satisfied or very satisfied with the conference. Nor satisfied or disappointed corresponds to 20 % of the participants. The remaining part, about 8 % were disappointed or very disappointed with the conference.

Study tour, sessions, dinner and exhibition

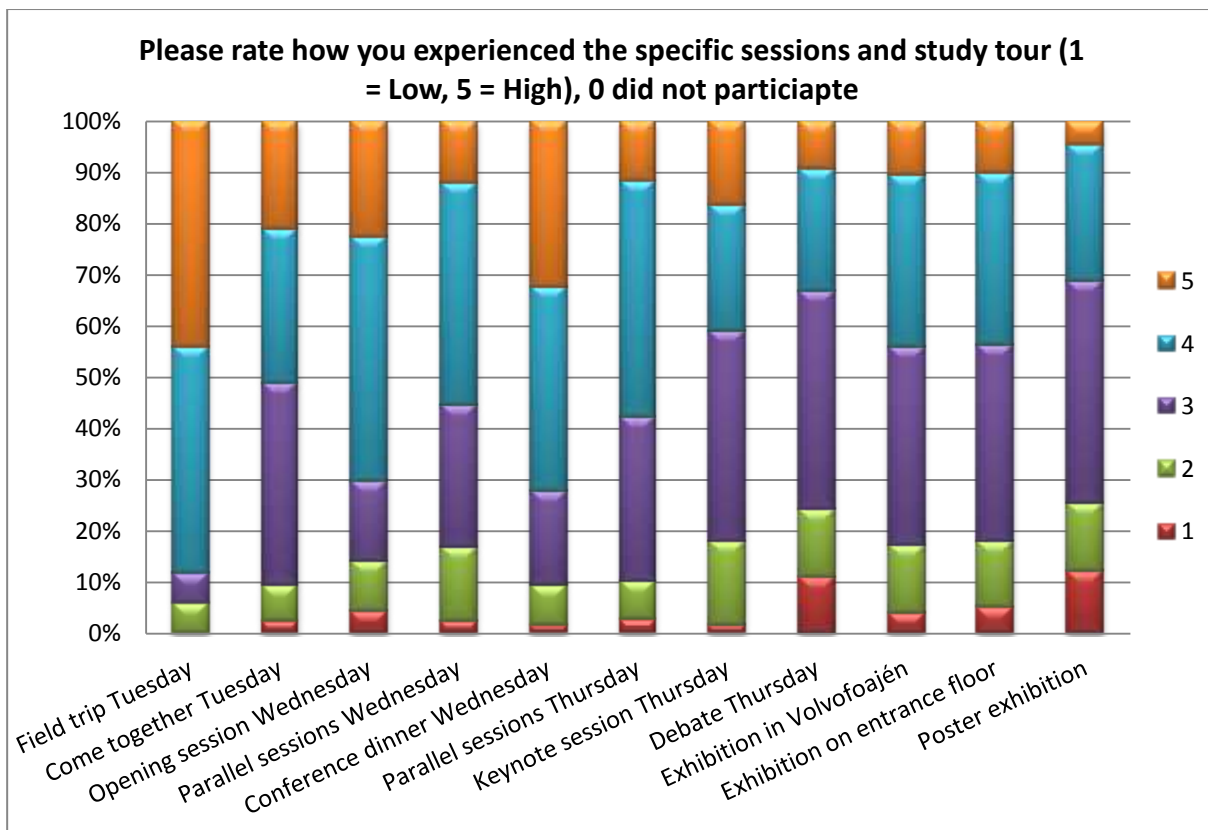


Figure 8. Experience of the study tour and the different sessions including conference dinner and poster exhibition.

Of those who participated in the study tour 90 % graded the tour 4 or 5, which indicates a high and good experience. Overall, the sessions, conference dinner and come together were mainly graded from 3 to 5. A grade of 4 or 5 was given in the opening session by 70 % of the participants. It seems that the experience from the keynote/opening sessions was better on the first day of the conference rather than at the second and last day of the conference. Overall 80 % of the answers about the exhibition was given a grade of 3,4 or 5, which indicates that the experience from the exhibition was rather good. The exhibitions was not given a lot of 5 in the grading. The average grade of the exhibitions was that of grade 3.

Sessions overall

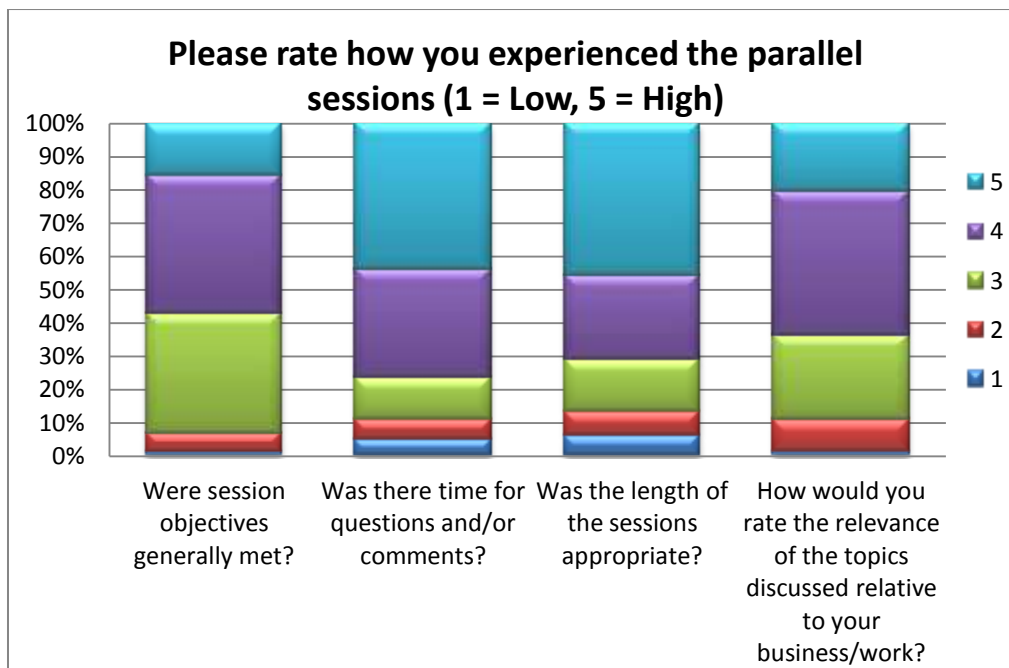


Figure 9. Overall experience of the sessions

In the question of whether the objectives in the sessions were met, the experience from most participants was high or medium high. Almost 80 % of the participants found that there was enough of time for questions and comments. Only about 10 % were dissatisfied with the time for comments and questions. The length of the sessions seems to be good, since 70 % gave the grade 4 or 5 in this question. The topics at the conference sessions were also graded high. However this question wasn't rewarded with that many 5, but with a lot of 4 and 3.

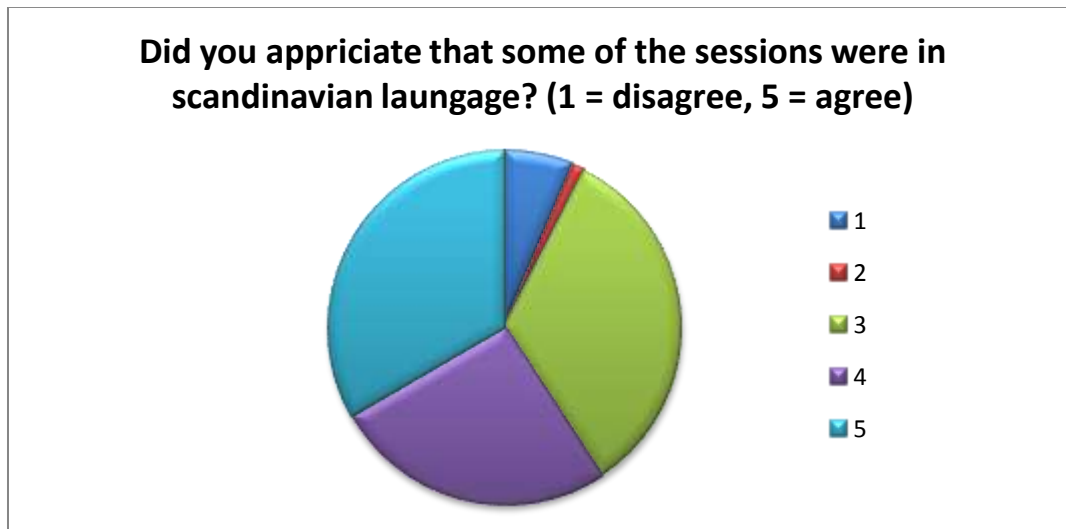


Figure 10. Language at the conference

The question about the language showed a varying result. 34 % of the participants gave the grade 3, i.e. their attitude to this was neutral. About 60 % of the participants graded the Scandinavian input with a 4 or a 5. The rest of the participants, about 8 % were discontent with the choice of Scandinavian for some sessions.

Facilities around the conference

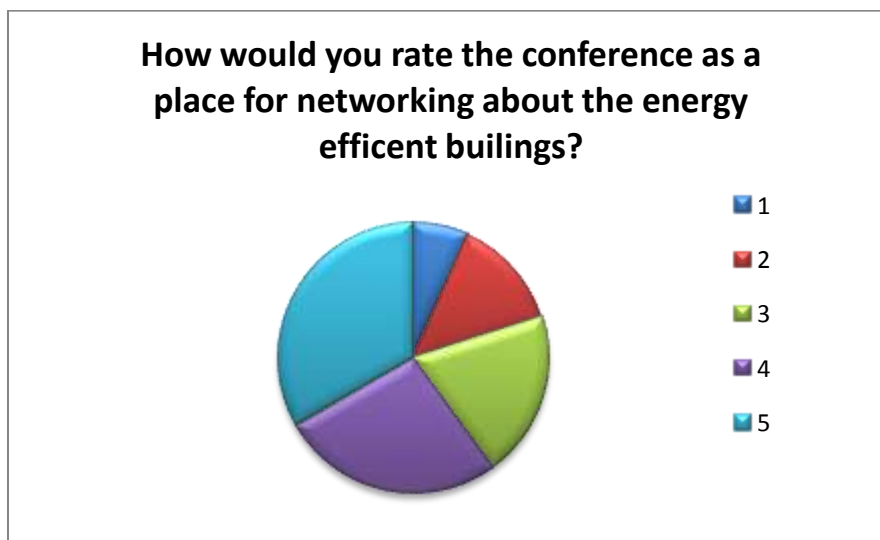


Figure 11. Place of the conference

The place of the conference was also given a spread impression to the participants. Most participants (60 %) however found Chalmers to be a good or very good place to hold the Passivhus Norden conference. 20 % were not satisfied with the choice of place for the conference and the last 20 % was neutral.

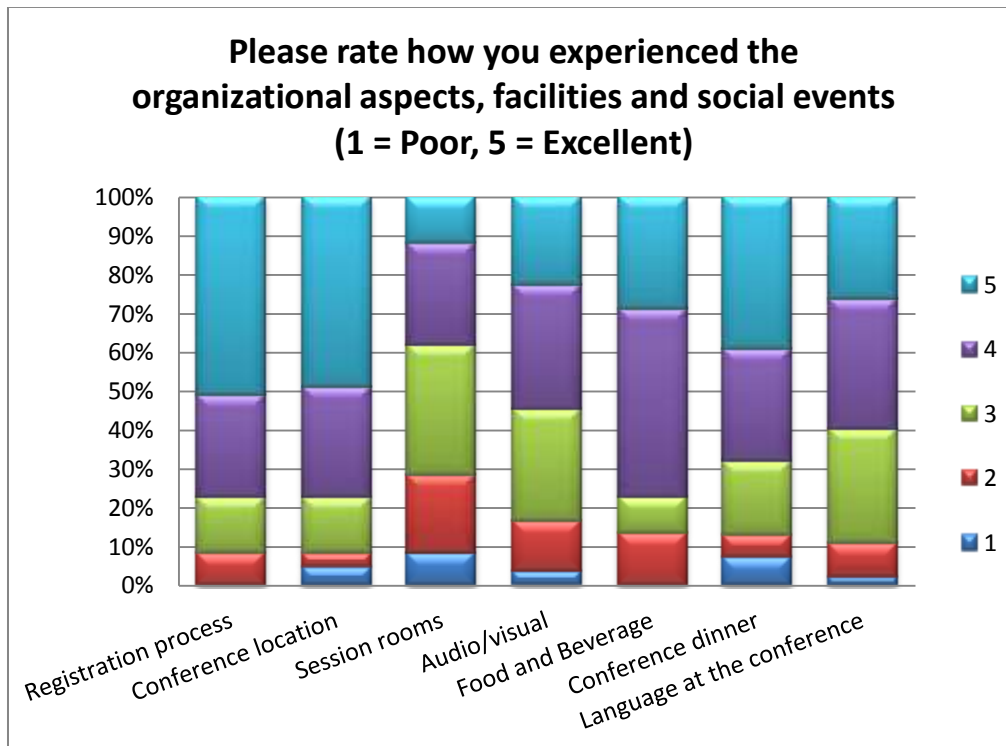


Figure 12. Organizational aspects, facilities and social events

Participants seem to be very pleased with the registration process. None of the participants found the registration to be poor. The session rooms were graded as poor as well as excellent. From comments in the evaluation the answer to this seems to be that two of the rooms were too long and not really meant for this kind of large interface.

Audio and visual also had a spread grading, but more than 50 % was very pleased and 30 % was neutral. 80 % of the participants gave the grade 4 or 5 to food and beverage, and were also pleased with the conference dinner.

Previous participation in a Passivhus Norden Conference

Of those who answered that they had been to one or several Passivhus Norden conferences before (42 participants out of 86) about 57 % were satisfied or very satisfied with their experience of the conference. About 29 % answered that they were neither satisfied nor disappointed and 12 % were disappointed.

Comments

Positive experiences from the conference:

“I was very happy with the exhibition this year. The session schedule is very good, demanding concise presentations, and allowing people to move between rooms. However not all moderators had understood the importance of sharply sticking to the agenda.”

“Very professionally organized, lot of time for socializing, excellent tours, loads of examples, great organic food and even lovely weather! In short a very inspiring three days, thank you!”

Negative experiences from the conference:

“The conference should take place every second year and not every year”

“Those sessions I have attended were brief and they covered very simple topics which are obvious to most of the passive house builders/designers. I was expecting more technological/design solutions.”

Suggestions:

Better parking facilities needed for this type of conferences.

Quite many participants are asking for more sessions in Scandinavian since many presenters were uncomfortable with speaking English. There are also those with the opposite opinion pointing out that conferences of scientific art should be held in English. But those who prefer Scandinavian are overrepresented.

The sessions also seem to be too many and too short. Several participants are suggesting fewer topics and more time for every presenter. Some participants who have been to the Passivhus Norden conference before also found that many topics were recurrent.

Best about PHN 13:

A lot of the participants were happy about the possibility to move between the sessions. Some moderators however didn't stick to the timetable and therefore it was a little messy with people going in or out sometimes.

Passivhus Norden 2013 seems to have fulfilled the ability for networking since many participants commends the possibility to discuss and exchange experiences with colleges.

Also the field trips were given a high score and a lot of positive comments in the evaluation form.

Anders Wijkman was given good credit from several participants.

Things that needs to be improved:

More information about practicalities is needed, for example the program could have included a map showing the session rooms. Better information about changes, signs to the various places would facilitate for example.

The experience about the poster exhibition was a bit mixed. Some thought that the exhibition should be skipped and others say that it was too short and placed in an inconvenient place.

Again sessions should have been longer and with higher quality in language as well as content of the paper.

Some participants were requesting more low-energy and eco friendly food.

Solenergi - en självskriven del i framtidens lågenergibyggnader

Passivhus Norden 2013 omfattade nära 80 presentationer om lågenergibyggnader, många av dem visade intressanta solenergilösningar. I det följande beskrivs tre intressanta exempel mer i detalj.



Åsa Wahlström och Catrin Heincke,
LÅGAN och CIT Energy Management AB
Jan-Olof Dalenbäck, Svensk Solenergi och CHALMERS

Passivhus Norden är en årlig konferens som i år arrangerades i Göteborg av LÅGAN (Energimyndighetens program för byggnader med mycket låg energianvändning). Uppförandet av lågenergibyggnaderna ökar i hög takt i Sverige och konferensen lockade därmed 300 deltagare, främst från Sverige och Norge, men också från Danmark, Finland, Polen, Estland, Tyskland och Schweiz.

EU's direktiv om byggnaders energiprestanda inspirerar många att uppföra så kallade Plushus, det vill säga byggnader med lågt energibehov (ofta passivhus) som kompenseras av en motsvarande mängd solenergi. Det bygger på att man kan sälja ett överskott av solenergi under sommarhalvåret och köpa det som saknas på vinterhalvåret. Två av de följande

de projekten, en villa i Estland och två kontorshus i Norge, är sådana exempel, medan det tredje projektet bygger på en kombination av solenergi och biobränsle för en helt ny liten stadsdel i Sverige.


Estlands första passivhus

Ett solenergiprojekt som presenterades under konferensen var en passivhusvilla i Estland. Villan med sin golvarea på 260 m² ska rymma en typisk estnisk familj på fem personer och visa på möjligheten att uppföra passivhus (enligt PHPP)



ESTLAND. Solcellerna fungerar även som ett solskydd under sommarhalvåret. Elen från solcellerna räcker för att driva en bergvärmepump och all fastighets- och hushållsel.

Vill ni ha solenergi ?



Vi levererar kompletta produkter för solenergi till VS och VV eller t.ex återladdning borrhåll. Beräkningar samt schemor.

även i nordliga länder med låga årsmedeltemperaturer som i Estland. Och dessutom kunna generera den mängd energi som behövs över året med hjälp av solenergi.

Husets arkitektur är speciell. Istället för att integrera solceller i taket har man valt att placera dem likt en ställning som överlappar villans södra sida och på så sätt fungerar som ett solskydd under sommarhalvåret. Utöver solcellerna har man valt att placera södervända solfångare för varmvatten på takets norra del och vertikala solfångare integrerade i söderfasaden för att ge värme på vintern när solen står lågt. Den el som genereras av solcellerna under ett år räcker för att driva en bergvärmepump med två 80 m djupa borrhål och till all fastighets- och hushållsel under ett år.

Norska kontorshus med livscykelperspektiv

Ett annat var Powerhouse Kjørbo, en ombyggnation av två befintliga kontorshus från 1980 i Bærum, Norge. Även i detta projekt vill man visa på möjligheten att bygga passivhus på nordliga breddgrader med låga årsmedeltemperaturer (Bærum 6°C). Dessutom vill man visa att energi från solceller kan balansera den totala energianvändningen för byggnadens hela livscykel. Kontorshuset har miljöklassats med betyget "BREEAM-NOR Outstanding".

Innebörden av ett Powerhouse är en byggnad som under sin livscykel genererar mer förnybar energi än som behövs för produktion av byggmaterial, uppförande, drift och rivning av byggnaden. De renoverade kontorshuset har solceller som placerats horisontellt på de platta taken, vilket ger lite lägre elutbyte per modularea, men högt elutbyte per takarea. Sedan använder man två värmepumpar, en för värme och en för varmvatten. Under sommarhalvåret utnyttjas frikyla från 10 borrhål för att säkerställa inneklimatet, på vintern används dessa för att värma byggnaden. Värmepumparna kan också tillgodogöra sig värmen från serverrum.

Nästan hälften solenergi i ny stadsdel

Vallda Heberg är ett annat uppmärksammat projekt i form av en ny liten stadsdel i Kungälv. När den är färdigbyggd 2014 kommer den att bestå av 26 enbostadshus, fyra fyrbostadshus, sex radhuslängor med plats för 22 seniorboenden samt ett äldreboende med 64 lägenheter. Samtliga byggnader ska uppfylla svensk passivhusstandard och värmeförsörjs från en lokal panncentral med en pelletspanna och vakuumrörsolfångare med 70 procent lutning för att öka solvärmeutbytet under höst och vår, samt plana solfångare på undercentraler och flerbostadshus. Solvärmens ska täcka



STADSDEL. I Kungälv växer en ny liten stadsdel, Vallda Heberg fram, där samtliga hus är av passivhusstandard och försörjs av solenergi i kombination med en panncentral med pelletspanna.

40 procent av den värme som behövs för uppvärmning och varmvatten. På äldreboendets tak har man dessutom installerat en solcellsanläggning som ska täcka nära hälften av fastighetsenergin och all elenergi som krävs för att driva byggnadens kylanläggning. Resterande elbehov täcks med vindkraftsel. □

Fotnot:

Alla de närmare 80 artiklar om lågenergibygnader som presenterades under Passivhus Norden 2013 kommer inom kort att finnas tillgängliga på LÅGAN's hemsida, www.laganbygg.se.

Övergripande data för de presenterade projekten.

| | Passivhus Estland | Powerhouse Kjørbo, Norge | Vallda Heberg, Sverige |
|--------------------------------|-------------------|-----------------------------|------------------------|
| Byggnadsarea [m ²] | 260 | 5 200 | 14 000 |
| Solfångare [m ²] | 25 | - | 700 |
| Solceller [m ²] | 90 | 1 390 | 600 |
| Andel solenergi | > 100% (el) | > 100% (el) Hela livscykeln | ~50% (el) ~40% (värme) |

På plats

Vad? Passivhus Norden, konferens om passivhus.
Var? Chalmers i Göteborg.
När? 15–17 oktober.



Skärpta byggregler efterfrågas

Den sjätte nordiska passivhuskonferensen samlade cirka 200 deltagare. Huvudtema i år var befintliga byggnader som behöver renoveras inom en snar framtid.

Höjdpunkter:

Vallda Heberg. Den första eftermiddagen ägnades åt studiebesök. Ett objekt var Vallda Heberg i Kungsbacka, ett område som innehåller bostäder av olika slag, förskola och äldreboende. Energt användningen i området uppgår bara till en tredjedel av kraven i Boverkets byggregler, BBR och 40 procent av områdets energiförsörjning kommer från solen. Christer Kilersjö, vd på Eksta Bostads AB, berättade att det är en självklarhet för företaget att bygga till passivhusstandard. Det spar pengar i driftskedet och hyresgästerna är nöjda med inneklimatet. Certifiering är bra. Kontrollerna höjer kvaliteten och husägarna får ett papper på detta, som höjer fastighetsvärdet.

Fiskarhedenvillan. Michael Staffas berättade i sitt föredrag om en fö-

redömlig process där utbildning, erfarenhetsinhämtning, samverkan och noggrannhet gjort att man uppnått sitt mål, nämligen att passivhuscertifiera en hustyp enligt internationell standard. Bara det inte stannar vid ett flaggskepp, tänker jag. Det borde inte vara svårt för Fiskarhedenvillan och de andra typhusföretagen att förmå alla sina kunder att köpa ett passivhus, om man pratar om miljö, boendekostnad, värdet vid en försäljning, och inte bara pris.

Byggbkrav. I den avslutande paneldebatten var alla eniga om att de svenska byggreglerna skulle kunna skärpas ordentligt. I Norge kommer byggreglerna att ligga på passivhusnivå efter 2015. Nu hållkar Sverige efter. I frågan om huruvida kraven ska samordnas enligt Byggbkravutredningens förslag eller inom Norden var församlingen däremot inte alls överens.

Så var det:

Konferensen lockade bara ett tiotal arkitekter. Det fick till följd att arkitektoniska, konstnärliga och sociala aspekter knappt fick något utrymme alls. Är det för att det är så tekniskt som arkitekterna inte kommer – eller är det för att arkitekterna inte anmäler sina projekt som det är så tekniskt? ●

Helena Westholm



Sweden has taken the baton for Passivhus Norden 2013

More than 400 of the leading passive experts in the Nordic countries were gathered in Trondheim the 21-23 of October at the conference Passivhus Norden 2012.

Director from the Energy Efficiency Department at Enova SF Audhild Kvam stated that a lot has happened in the four years that have passed since the first Nordic passive house conference were arranged in Trondheim in 2008. There are more passive projects, and there are ambitions beyond passive house level, reflected Kvam.

The Swedish delegation totally agrees with this statement. From the 6 field trip of energy efficient buildings in Trondheim on Sunday 21 October we could observe the recent developments in Norway. The conference participants showed that Norway definitely has an ambitious road map in implementation of the Recast of the Energy Performance Building Directive.

The invited speaker EU MEP Fiona Hall, who for several years has fought for policy changes in terms of climate, building quality and energy efficiency in the European Parliament, pointed out that it takes longer than desired to improve the continent's building stock, and that the reason could be too vague political ambitions in the area of energy efficiency. She also stated that it is important to recognize that it is a big challenge to do something with the existing building stock in the various European countries. It needs both research and political will and Nordic Passivhus Conferences are an important forum to discuss these issues to reach more resolutions.

Congratulations to the Norwegian *organizers* (SINTEF, DiBK, NTNU, Lavenergiprogrammet and Husbanken) for a successful conference.



Are Rødsjø from the Norwegian Housing Bank handed over the baton to Pär Åhman from Swedish Construction Federation and LÅGAN and wished good luck with arranging the Passivhus Norden conference in 2013.

Nordic Passive House Conferences have previously been arranged in Trondheim Norway 2008, Göteborg Sweden 2009, Aalborg Denmark 2010, Helsinki Finland 2011 and Trondheim Norway 2012. For more information about the last conference see <http://passivhusnorden.no>

by
Åsa Wahlström, LÅGAN

