

Passive House Consultant Training Part I
Passive House Planning Package and
Basic Passive House Principles

Oct 13-15, 2008

Location: Lewis Faculty Center, 919 West Illinois St, Urbana Illinois 61801
Ph: 217-367-1544

Presenters:

Katrin Klingenberg M-Arch, Architect and Director of e-co lab and PHIUS
Ian Schnack M-Arch, Certified Passive House Consultant

Monday, Oct 13, 2008

Morning Session Day I – Passive House Basic Design Principles:

This session will be an introduction to the most important theoretical basics of energy efficient and high performance building. Various passive house solutions based on over 20 years of research and experiences with high performance building, presented in a compact form, will illustrate the process and the specifics that need to be considered when planning a passive house.

9.00 am-10.30 am

- Passive house: exceptional thermal comfort in summer and winter
- Why build airtight and thermal-bridge free
- The window: an essential passive house component
- Balanced ventilation with highly efficient heat recovery
- Superior air quality

10.30 am-10.45 am

Short Break

10.45 am-12.30 pm

- Minimized mechanical systems for space conditioning and domestic hot water
- Integral planning processes, quality insurance and passive house planning tools
- Discussion, exchange of experiences

12.30 pm-1.15 pm

Lunch

Afternoon session Day I – PHPP Energy Balancing Introduction:

1.15 pm-3.00 pm

- Introductory overview of the Passive House Planning Package

3.00 pm-3.15 pm

Short Break

3.15 pm-4.00 pm

- Continued introductory overview of the Passive House Planning Package
- Discussion, exchange of experiences

Tuesday, Oct 14, 2008

Morning Session Day II – Introduction to the PHPP calculations, areas, envelope, U-values:

Course Requirements:

1. Your own laptop with MS Excel 2000 or newer if available
2. Basic knowledge of MS-Excel desirable
3. Basic Passive House Knowledge (Day I)

The Passive House Planning Package software is the basis for quality insurance. It was specifically developed for this task. It is a spread-sheet based energy balancing tool. Its calculations have been proven and tested to reliably predict the space conditioning demands of buildings.

The PHPP is a MS-Excel work book that allows the planner to calculate the energy demand of a building that is needed to assure its thermal performance, in an easy and simple way. It contains lists and data bases of passive house approved components like windows, glazing and wall components as well as simplified methods to enter surface areas and the ability to associate them with the appropriate U-values. The course over the next two days will provide the participants with an overview over these calculation methods.

Presentations over the next two days will alternate with practical exercises using a prepared passive house project that will have to be correctly entered by each participant. The number of participants is limited to assure individual tutoring during the two-day session.

9.00 am-10.30 am

- Overview and Introduction to the methodology
- Naming conventions for building component areas



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- Treated floor area, envelope and volume calculations
- Heat losses through opaque building components, windows, doors and thermal bridges

10.30 am-10.45 am **Short Break**

- Solar heat gains and influence of shading elements
- Temporary shading devices for the summer case
- Introduction to the exercise

12.30 pm-1.15 pm **Lunch**

Afternoon session Day II – Entering a sample Project: the Fairview House

1.15 pm-3.00 pm

- Exercise

3.00 pm-3.15 pm **Short Break**

3.15 pm-4.00 pm

- Exercise continued
- Discussion, exchange of experiences

Wednesday, Oct 15, 2008

Morning Session Day III – Introduction to the PHPP calculations, space conditioning and mechanical systems:

9.00 am-10.30 am

- Sizing of the ventilation system
- Calculation of the annual heating demand
- Calculation of the heat load/cooling load in a passive house
- Domestic hot water demand and solar thermal systems

10.30 am-10.45 am **Short Break**

- Verification of the primary energy demand (source energy) for space conditioning, DHW, household electricity
- Certification process for a “Quality approved Passive House”
- Continuation of the exercise

12.30 pm-1.15 pm **Lunch**



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Afternoon session Day III – Entering a sample Project: the Fairview House

1.15 pm-3.00 pm

- Exercise

3.00 pm-3.15 pm

Short Break

3.15 pm-4.00 pm

- Built examples – construction experiences
- Discussion, exchange of experiences