

Can a musician say: "Some days I play correctly, and some days I play beautifully"?

[Mårten Belin, Sydsvenskan.se, 28.01.2008. Translated from Swedish]



Student project: The Linesøya passive house

A co-operation between NTNU and LiPa Miljøprosjekt in Spring 2010
(illustration: Linesøya)

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Introduction

LiPa Miljøprosjekt and the Norwegian University of Science and Technology (NTNU) hereby invite you to contribute to the development of Linesøya passive house by means of a student project.

The overall goal for this project is to raise awareness regarding resource efficiency measures in architecture, and particularly in relation to the existing building mass.

The specific topic of the project in Spring 2010 is to develop an attractive concept for the renovation of the Linesøya school building to an environmental building with passive house standard. Attractiveness, in this context, is related to three main issues:

- (1) the renovation of the existing building to passive house standard
- (2) zoning of multiple functions according to usability, local climate and site
- (3) a meaningful connection to local history, context and community

We wish you the best of luck!

Annemie Wyckmans
Per Monsen
Matthias Haase
Arild Gustavsen
Nicola Lolli
Luca Finocchiaro
Anne Solbraa
Linda Emdal

Thomas Flower-Ellis
Sukhi Karlsen

Context: The LiPa Environmental project

Is it possible to lower resource use and at the same time increase the quality of the built environment? Is there necessarily a conflict between low-energy design and usability? Can architecture and planning actually contribute to lowering a local community's carbon footprint? And can this be achieved while maintaining a high quality of life and a stimulating built environment?

These questions form the background for the renovation of a 1950's school building at Linesøya. The core of the project, generated by building owners Thomas Flower-Ellis and Sukhi Karlsen, is to generate a showcase project for sustainable architecture and environmental measures.

Linesøya Passive House is an interdisciplinary project in which all of the participants are driven by a strong environmental engagement and a desire to raise awareness and increase competency regarding sustainable architecture in the building sector and society in general. In order to maximise the transfer of knowledge and learning experiences on a local, national and international level, marketing, demonstration and dissemination activities have been given high priority.

The project aims to provide a hands-on example with regards to energy efficiency, architectural design and craftsmanship for a low-carbon society. The building will incorporate housing as well as environmental demonstration and meeting facilities.

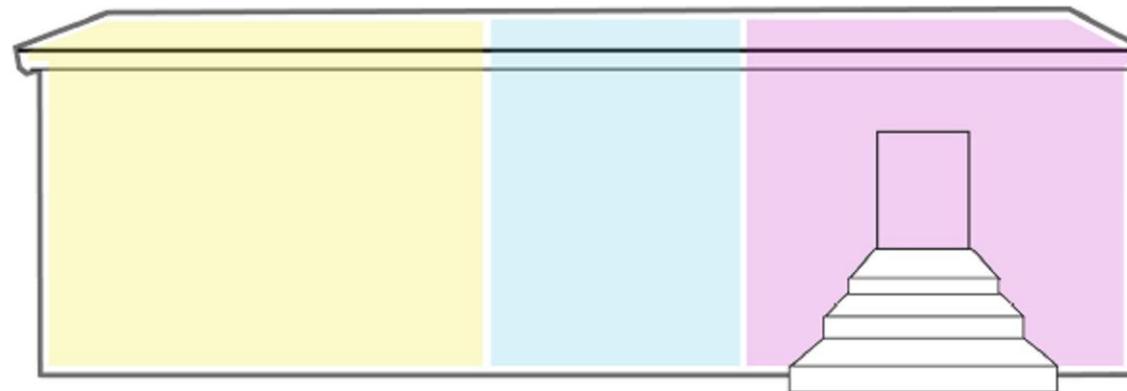
In order to achieve a low carbon footprint, the project should encompass the following issues:

- **The construction phase and its relation to the building's lifetime**, including issues like the transportation of materials, along with their embodied energy; the durability of the component design; the flexibility of the connections; and the generality of the floor plan and building geometry to facilitate a second service life
- **The operation phase during the entire lifecycle of the building**, including issues like energy supply systems, for example with community heating networks based on renewable energy sources; the reduction of energy use; the use of renewable energy; intelligent control systems; and focus on the combination of good indoor comfort with resource conservation
- **Lifestyle issues**, including topics like the creation of a city of short distances; food supply; travel and transportation

The project

The project website: <http://www.linesoygalleri.no> / <http://www.lipa.no>

Drawings as well as project newsletters are posted on It's:learning. The drawings have been kindly provided by Eggen Arkitekter in Trondheim, the architect office in charge of the Linesøya passive house project (illustration below: Linesøya).



Housing

Common
kitchen

Conference and
Demonstration Facilities

Goals for the project

The specific topic of the project in Spring 2010 is to develop an attractive concept for the renovation of the Linesøya school building to an environmental building with passive house standard.

Three issues are fundamental to the project:

(1) The renovation of the existing building to passive house standard

- Integrated design solutions in which architecture & technology support and enhance each other.
- Choice of energy concept and performance: you are free to choose whether you want to aim for the Norwegian or German passive house standards, and whether you want to use ECOTECH, the PHPP Passive House tool or another method to document the energy performance
- Choice of materials: use of local materials and solutions that are robust and durable, and that have low embodied energy

(2) Zoning of multiple functions according to usability, local climate and site

- The concept should show a thorough understanding of the nature of the site and its connection to the surrounding environment: orientation, built environment, view, traffic ...
- Different use according to season
- A space efficient development related to the use and occupancy of different types of rooms, and the corresponding need for heating, shading, ventilation and lighting.
- Combination of good indoor comfort with resource conservation
- Think flexibility and usability during the building's entire lifecycle!

(3) A meaningful connection to local history, context and community

- Identity of the new centre in between conservation, refurbishment and new design/use
- Relation to local population and nature
- Public – private space

Functional programme

The project should include area for housing facilities, kitchen, conference facilities, exhibition area, entrance/toilets etc. It should also be considered to include sunspace for growing vegetables, solar energy for the facilities etc as part of the concept. Hostel facilities can also be considered.

In addition, the project encompasses an outdoor shed and garage which can be transformed should you prefer to do so. It is also allowed to add new volumes to the existing structures, provided they add value to the overall concept.

Students should submit the following documents

- Site plan, showing the disposition of the site, access, outdoor areas etc 1:200
- Site sections showing the height of the planned building(s), and the building(s) in the landscape 1:200
- Schematic diagrams, plans, and sections showing the environmental and architectural concept 1:100
- Sections and details 1:20 / 1:5

- A description of the environmental concept / strategies used
- A short summary of the environmental goals for the project
- A visualisation (with sketches) of the design process in the group: which options were considered, which choices were made, and why?

- Diagrams showing the integration of environmental issues in the architectural concept
- Diagrams showing the project's adaptation to local climate and site conditions

- A report including calculations to show the achievement of the passive house requirements. The report may include assessments made in ECOTECT, PHPP or another tool.

Format

- The proposal should be presented on four A1 posters. The posters' mounting sequence must be stated. The drawings must be oriented with North facing upwards. (the projects will be exhibited first at Gløshaugen and at Linesøya afterwards)
- A digital version in A1 and A3 size in pdf should be submitted on it's:learning for the assessment and publication afterwards.

NB! All project entries need to be submitted in English

Time table

Start of the project

2nd of March at NTNU, with introduction by the Linesøya building owners and Eggen architects.

Excursion to Linesøya

4th and 5th of March. See separate programme

Draft presentations of the student projects

Monday 22nd of March at Mellomrommet

Deadline for submission of project entries

Monday 10th of May

Final presentations of the student projects

Monday 10th of May.

Public exhibition

The design entries will be exhibited at the 2nd floor gallery of the Central building for two weeks.

Afterwards, the posters will be moved to Linesøya.

The pdf files of the projects will be posted on a public website, so make sure you're not using any unauthorised pictures / material!

And add references if you use other people's illustrations!