

THE BUILDINGS AND COMMUNITIES OF THE FUTURE

LOW ENERGY-, ZERO- OR PLUS-

WHAT'S NEXT ?

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With the recent development of *extreme temperatures* on the US West coast, in Europe and elsewhere, it seems a discussion is due as to how we build our buildings in response to this. After having spent 30 years in the field I find our time fascinating and a lot of positive environmental developments are taking place.

But: *Do we question all new ideas thoroughly enough?*

In my recent paper entitled *Climate Change and building insulation. Does Research results have an impact ?* in the Taylor & Francis journal *Advances in Buildings Energy Research*, I questioned whether the correct response to climate change (with warmer and more extreme weather) is more insulation. Higher average global temperatures should lead to the opposite than more and more insulation. In spite of this, in Northern Europe we now insulate our buildings so that they become *thermoses*, with 40-60 cm thick envelopes! Yet we do very little to evaluate the comfort of humans in such tight buildings. Overheating has been recorded in many of them.

I have argued that instead of loading more and more insulation onto the envelope, a more moderate approach could be tried with fair insulation around the majority of the envelope and in addition inside it *a crisis space*, a minor highly insulated space that is safe within each dwelling, where we can be warm when it is extremely cold and be well tempered when it is extremely hot – even if externally supplied centralized energy supply breaks down. Such a space must be physically strong and be equipped with its own renewable energy and water system. Since it is for a small space and for limited time only this is fully realistic, but it must be planned.

In the lecture I will share excerpts from my own work. The following will be touched upon:

-Net Zero Energy Buildings.

The outcome of the IEA SHCP Task 40 on NZEB (2009 – 2013, where 50 experts from 18 countries have developed the new design tool; calculation- and simulation tools, example books.

-Solar energy systems for buildings flowing into the landscape, based on our Wiley paper by Dr Arch. A. Scognamiglio, ENEA, Italy and Prof Røstvik). DOI: 10.1002/pip.2286

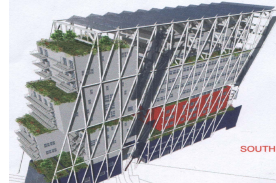
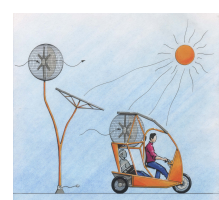
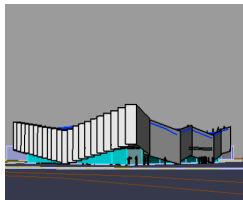
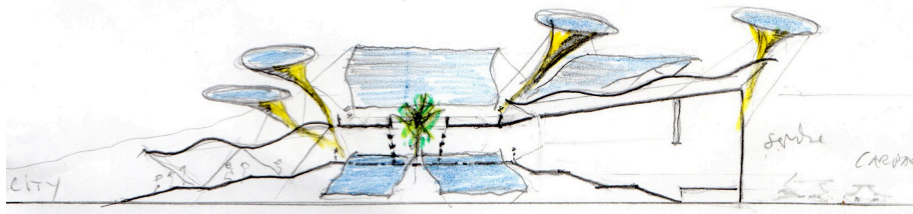
-Listed buildings and solar energy. Based on the Røstvik paper in the latest Routledge *Journal of Architectural conservation*. Volume 19, issue 1 2013, 49-67.

-Zero Energy Mass Customized Housing. Another Røstvik paper to be published in the autumn 2013 issue of the IHO Journal (founded by John Habraken) containing the best 9 papers from the international ZEMCH conference in Glasgow, UK (2012).

Harald N. Røstvik



Professor Harald N. Røstvik was educated at the School of Architecture, University of Manchester, UK. He is a pioneer and a visionary of sustainable design, since 1977 having designed sustainable buildings, communities and transportation systems in a range of European countries as well as in Mali, Western Africa and Sri Lanka, Asia. He pioneered the legendary approach of the International Solar Energy Society (ISES) as Chairman of the Norwegian section, in alliance with Eurosolar towards the 1992 UN Rio Conference to get Energy up as a separate theme in the Rio Conference negotiations. At that time Energy was not even on the agenda as a separate issue and most people and institutions ridiculed the potential of solar energy.



He's behind a range of solar buildings and solar vehicles, including Europe's first modern attempt at designing a zero energy house in 1985, Sri Lanka's first grid connected solar building for the media company WGM in 2001, as well as the solar electric taxi Butterfly. He has participated in a range of IEA Solar Heating and Cooling Programme tasks as a national expert and in several EU Framework projects within urbanism and energy.

He publishes widely, both popular and academic peer review papers.

He is active in international conferences and also led and chaired the huge EVS24 in Norway in 2009, the world's largest conference on urbanism and innovative electric transportation.

His seventh book *A Source of Energy* (2012) is his first as e-book.

His first book *The Sunshine Revolution* (1992) sold in 52 countries, resulting in an award winning film.

Harald N. Røstvik has been nominated for the Aga Khan Award for architecture and have received a range of prizes including the Gro Harlem Brundtland Award and with Swedish colleagues he was responsible for the solar part of the project that won the World Habitat Award 2005.

Nowadays he divides his working time between the practice and a 50% Professorship at the Bergen School of Architecture (BAS) in Norway.