

Minergie® and Minergie-P®, the Swiss Energy Labels

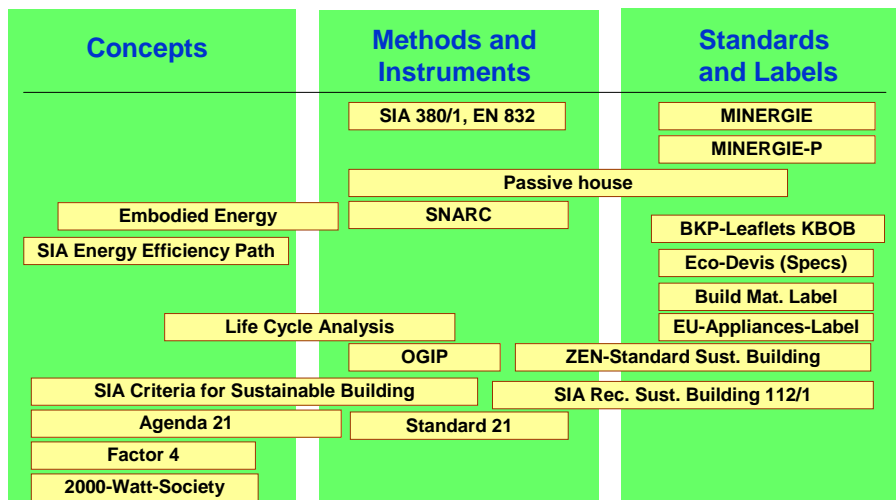
Armin Binz, Institute of Energy in Building



MINERGIE

MINERGIE-P

Energy and Sustainability - from Concepts to Labels



MINERGIE® – Standard, Label, Trade Mark

- **Registered trade mark of the cantons of Zurich and Berne (Owners)**
- **Standards for buildings and building components. Label as quality assurance and selling proposition (certificate and badge).**
- **MINERGIE-Standards are defined for new buildings and for renovations of buildings with year of construction 1990 or before.**
- **Requirements regarding energy demand, comfort and economy.**
- **Label valid for 5 years. May be used beyond with indication of year of acquisition.**
- **MINERGIE and MINERGIE-P are two products of the trade mark MINERGIE. „MINERGIE Modules“ (buildings elements) is a further product. „MINERGIE professional partner“ can be acquired by accomplishing courses.**
- **MINERGIE: Energy demand (heat) approx. $\frac{1}{4}$ to $\frac{1}{2}$ of regular standard**
MINERGIE-P: Energy demand (heat) approx. $\frac{1}{8}$ of regular standard

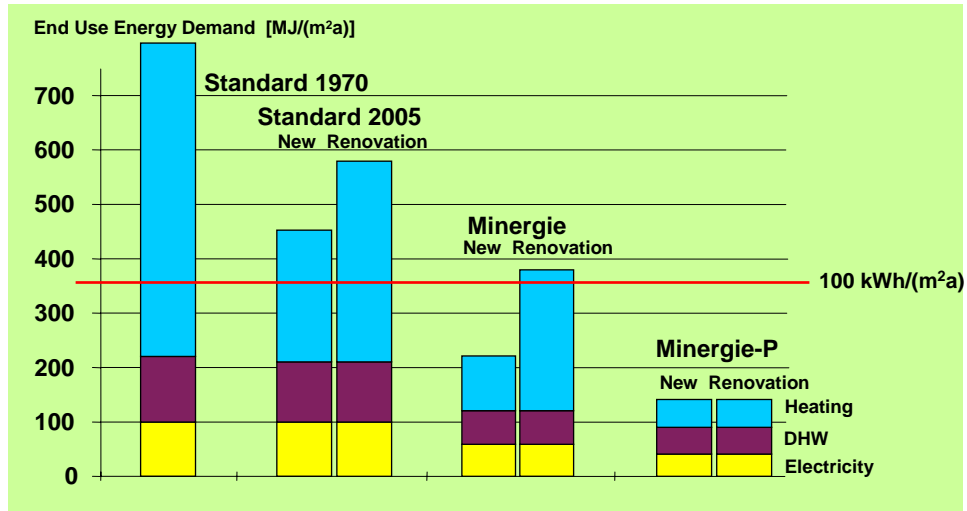
MINERGIE®

- **High comfort**
 - **Considerable added value**
 - **Small demand of resources and little dependency on energy-carriers**
 - **Proven building and building equipment technology – low building damage risks**
 - **Fair economic performance**
- ➔ **proper standard for competent architects and a rational decision for well informed building owners**

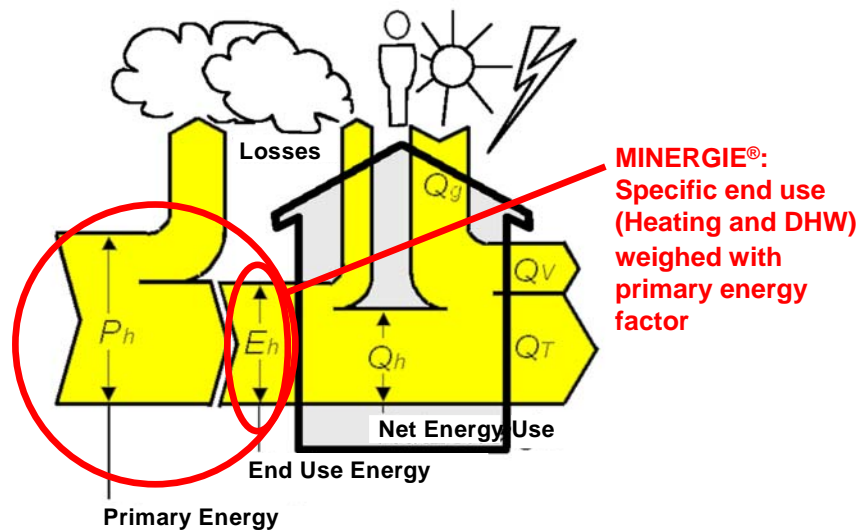
MINERGIE-P®

- **Negligible energy demand thanks to innovation in building and technical equipment**
 - **Higher costs for building envelopes and less expenses for heating technology**
 - **Preference of renewable energies**
 - **Comfort und added value in the long run**
- ➔ **The standard for innovative and committed architects and building owners**

Limiting Values for Specific Energy End Use for new Residential Buildings and Renovations



Conversion Steps of the Supplied Heating Energy



Example of a MINERGIE-calculation

Single family house, fossile heating, domestic hot water by heat pump, all values in kWh/(m²a)

	Net Energy	η	Primary Energy Factor	End-Use Energy
Heating Demand EN 832 Ventilation Heat Recovery	44 - 19			
Heating Demand MINERGIE	25	0,85	1	29,4
Energy Demand DHW	14	3	2	9,3
Electricity of Ventilation	4	1	2	8
			Sum	46,7 42 ?

MINERGIE-P® - Innovation Driver and Technological Challenge

- Walls: Slim constructions with U-values below 0,15 W/(m²K)
- Windows: Super values (U- and g) and architectural design vehicle
- Building and particularly building services technology: simple and providing better comfort
- Renewable energies: Realising the 2000-Watt-Society

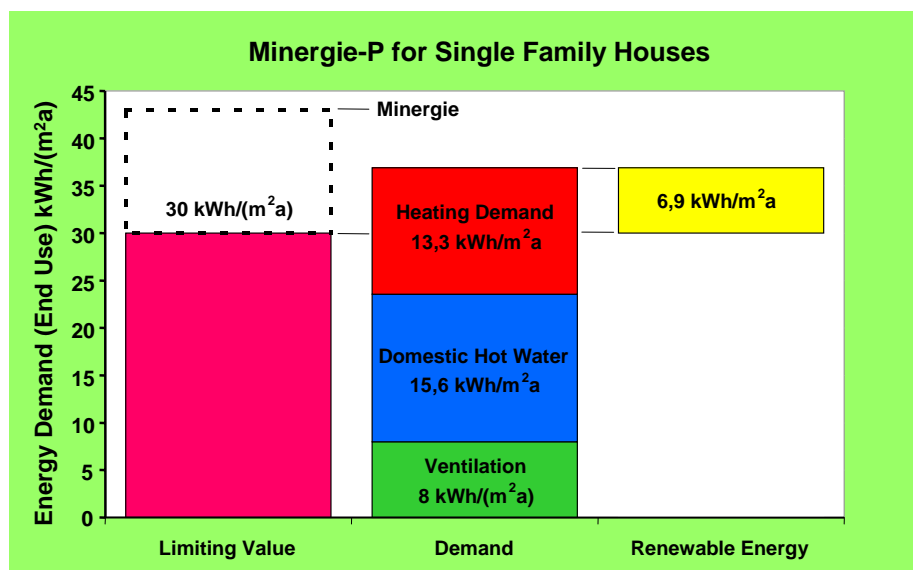
And of course: the whole package for reasonable prices and in top quality...

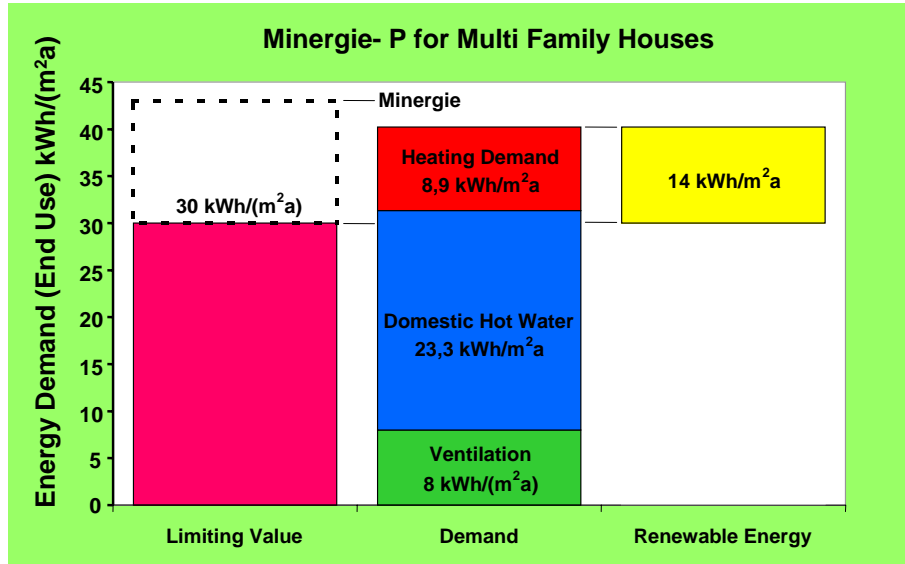
Example of a MINERGIE-P-calculation

Multi-family house, fossile heating, DHW with heat pump, all values in kWh/(m²a)

	Net Energy	η	Primary Energy Faktor	End-Use Energy
Heating Demand EN 832	25			
Ventilation Heat Recovery	-17			
Heating Demand MINERGY	8	0,85	1	9,4
Energy Demand DHW	21	3	2	14
Electricity of Ventilation	3,3	1	2	6,6
Sum				30 ≤ 30 ✓

Minergie-P for Single Family Houses

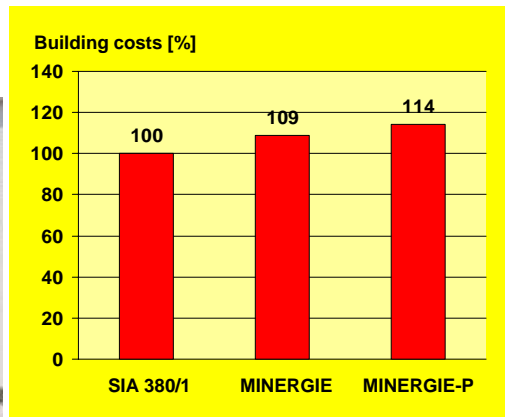




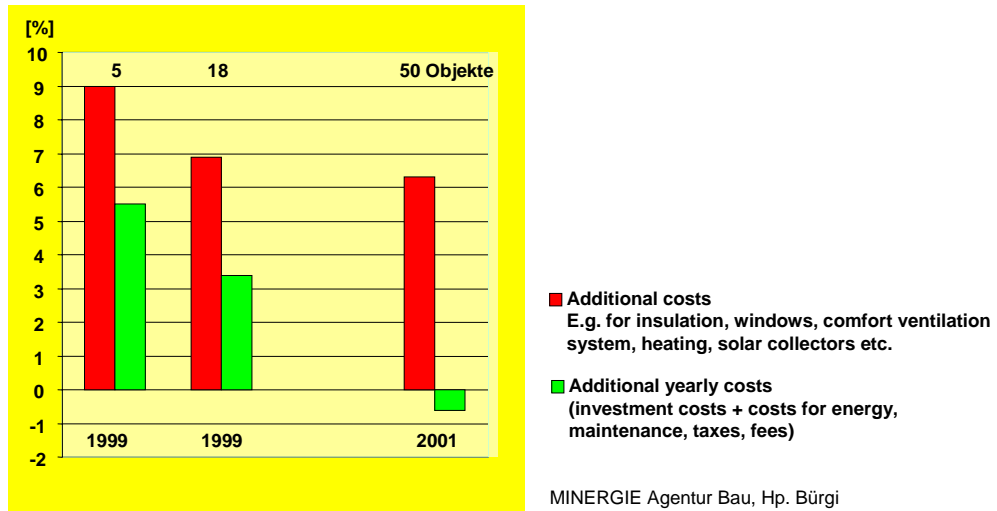
MINERGIE® and MINERGIE-P® - Additional Costs

MINERGIE-P® apartment building (8 units) in Stans, wood pellets heating, heat distribution by ventilation system, thermal solar collectors

B. Bossard, R. Keiser, Zurfluh und Lottenbach



MINERGIE® - Additional Costs and Energy Costs Savings Results of three investigations



Specific Energy Demand (End Use) according to Year of Construction and amount of Built Floor Area

