



EGS-plan (Bangkok) Co. Ltd.



Innovative Energy Concepts for Sustainable Buildings in Southeast Asia

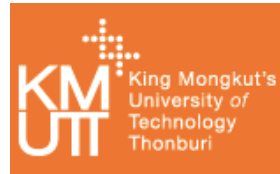
07th March 2016

Dr.-Ing. Robert Himmler



Sustainable buildings and neighborhoods

Theory...



- **Energy Plus Buildings**
Energy and sustainability concept for zero and plus energy buildings
- **Master of Sustainable Design**
Development of a new Curriculum “Master of Sustainable Design”
- **Life Cycle Costs of Buildings**
Calculation of economic efficiency of energy saving measures

... and Practice!



- **EGS-plan Germany**
More than 60 engineers working on zero energy and energy plus buildings
- **EGS-plan Bangkok**
Newly established subsidiary to provide engineering and consulting services:
 - Energy and sustainability concepts
 - Building simulation
 - Quality control
 - Green building certification

G7 Summit in 2015

Green Business | Mon Jun 8, 2015 7:21pm EDT

Related: WORLD, ENVIRONMENT, UNITED NATIONS

G7 leaders bid 'Auf Wiedersehen' to carbon fuels

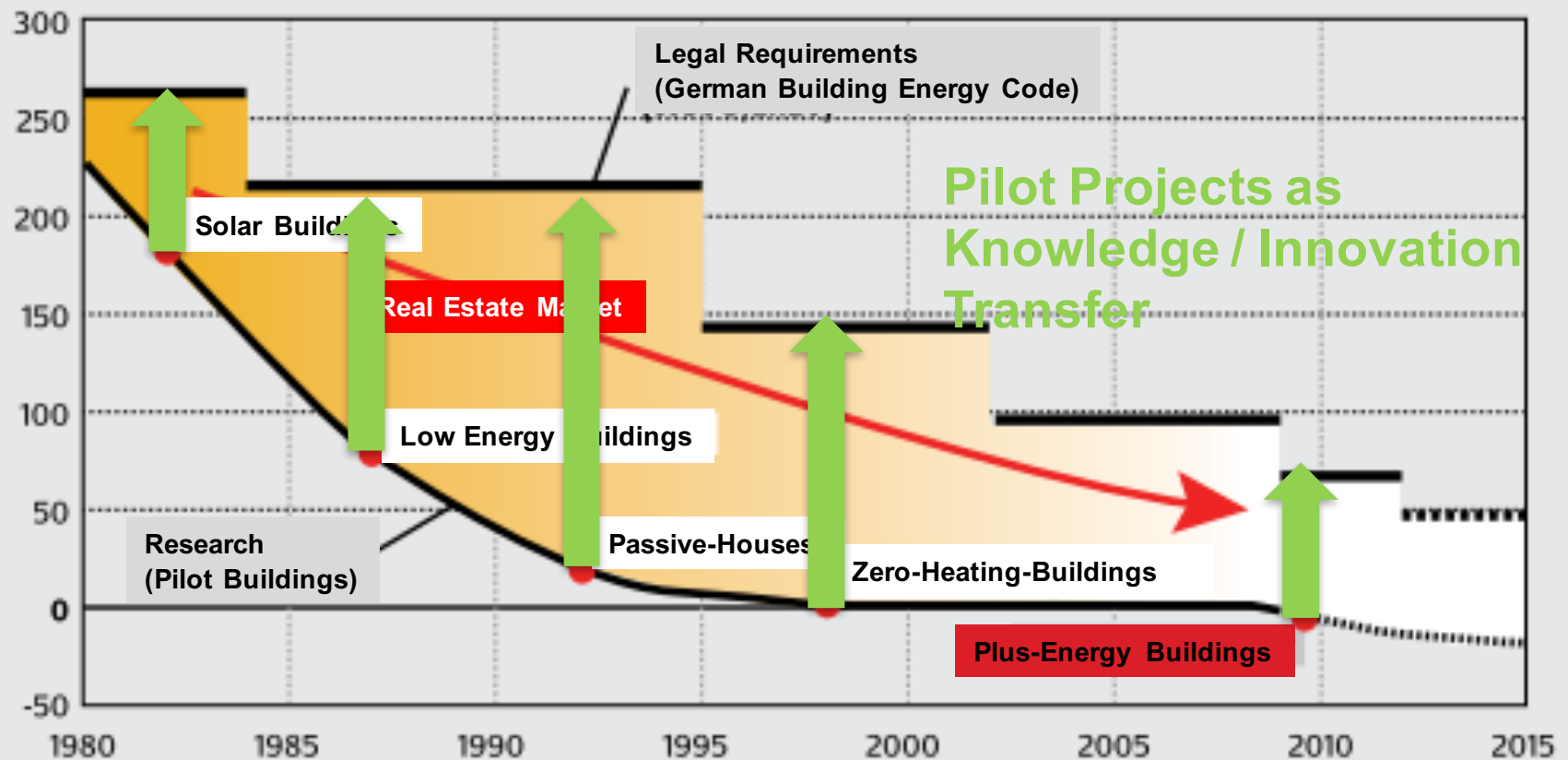
KRUEN, GERMANY | BY PAUL CARREL AND MICHELLE MARTIN



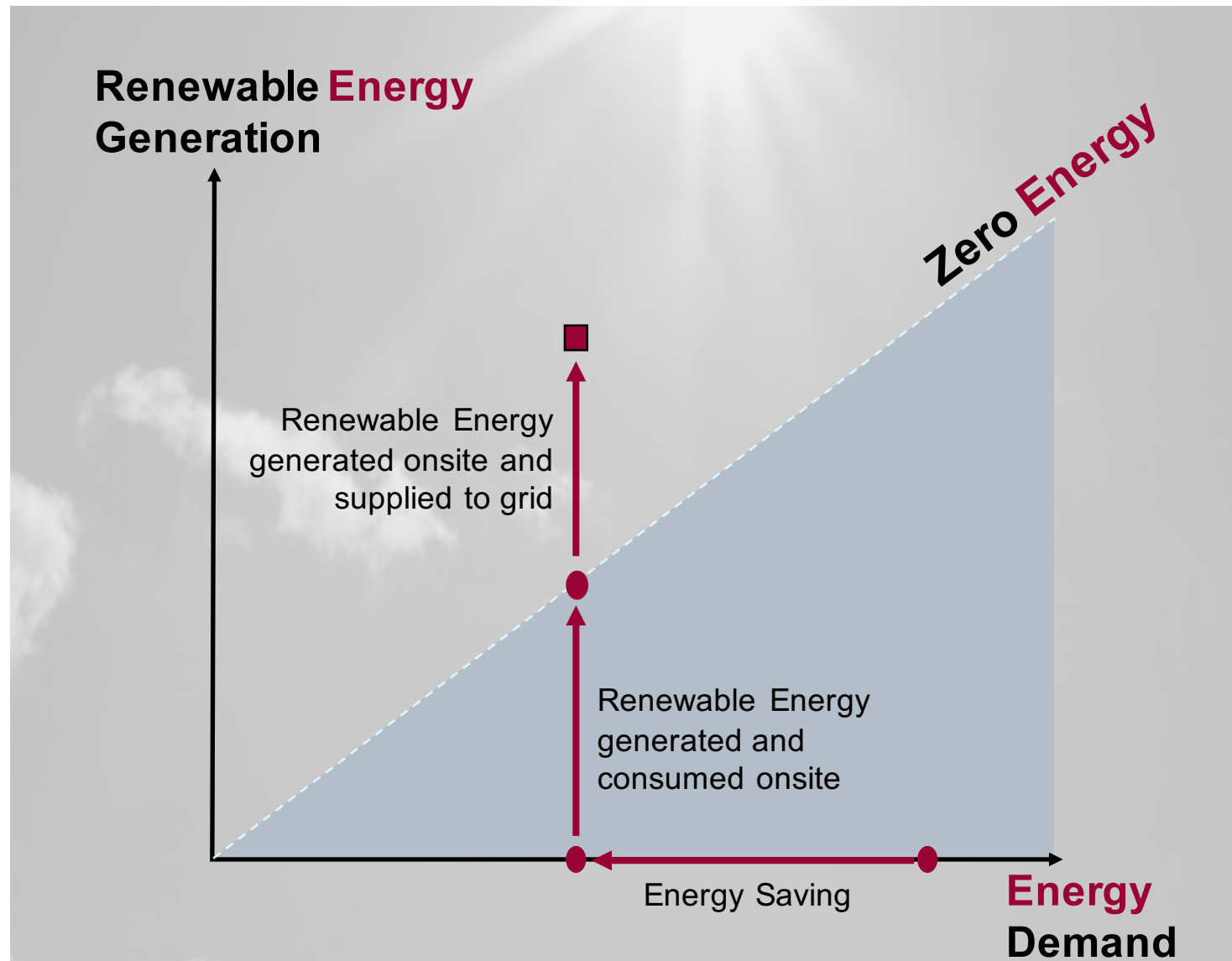
"We commit to doing our part to achieve a low-carbon global economy in the long-term, including developing and deploying innovative technologies striving for a transformation of the energy sectors by 2050," the communique read.

Development of the Energy Demand of Buildings in Germany – Pilot Projects and Real Estate Market

Primary Energy Demand – Heating [kWh/(m²a)]

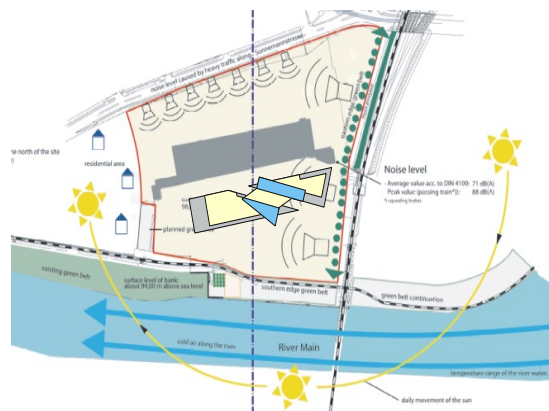


Definition of Energy Plus buildings

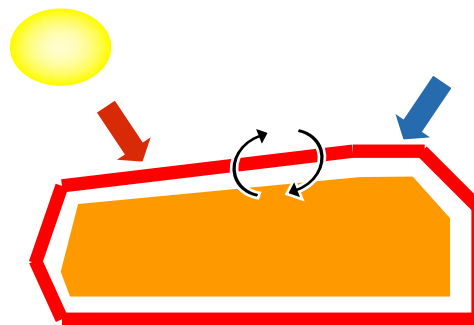


How to achieve energy efficiency in buildings?

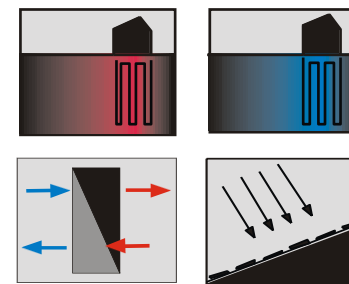
Location



Building envelope



Technology

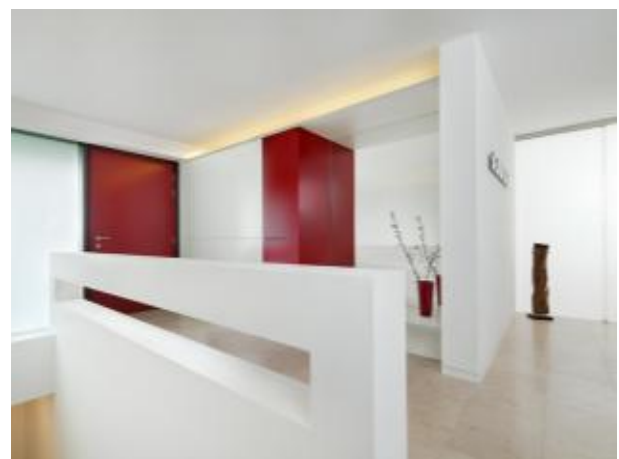
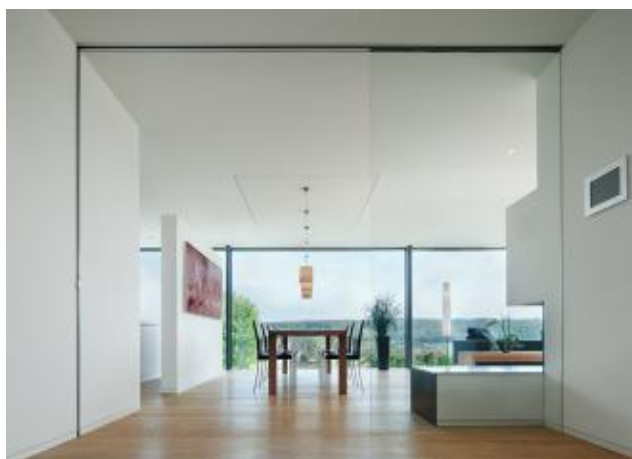


Energy Design

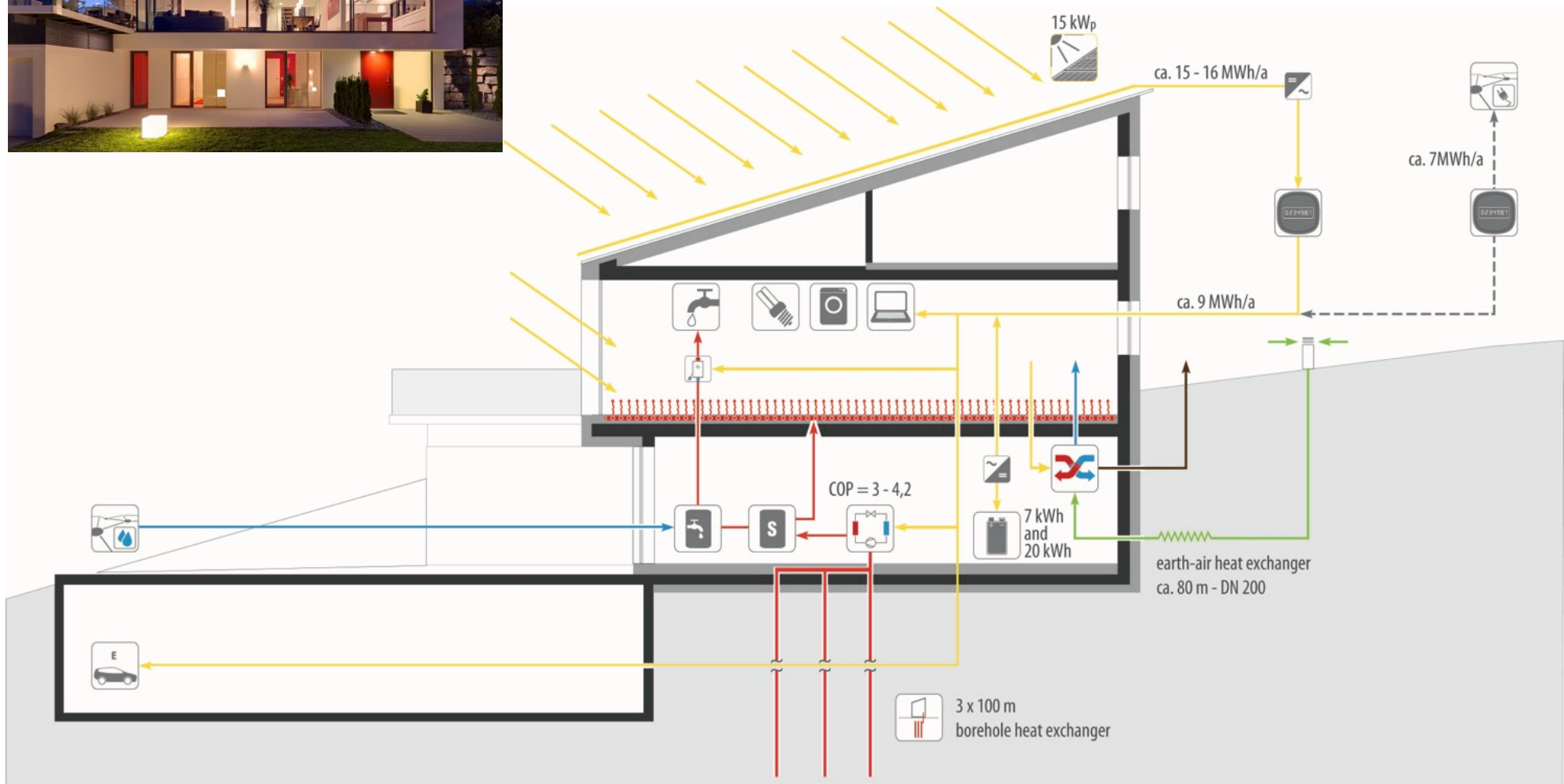
single - family house Leonberg, Berghalde



Lean, contemporary architecture

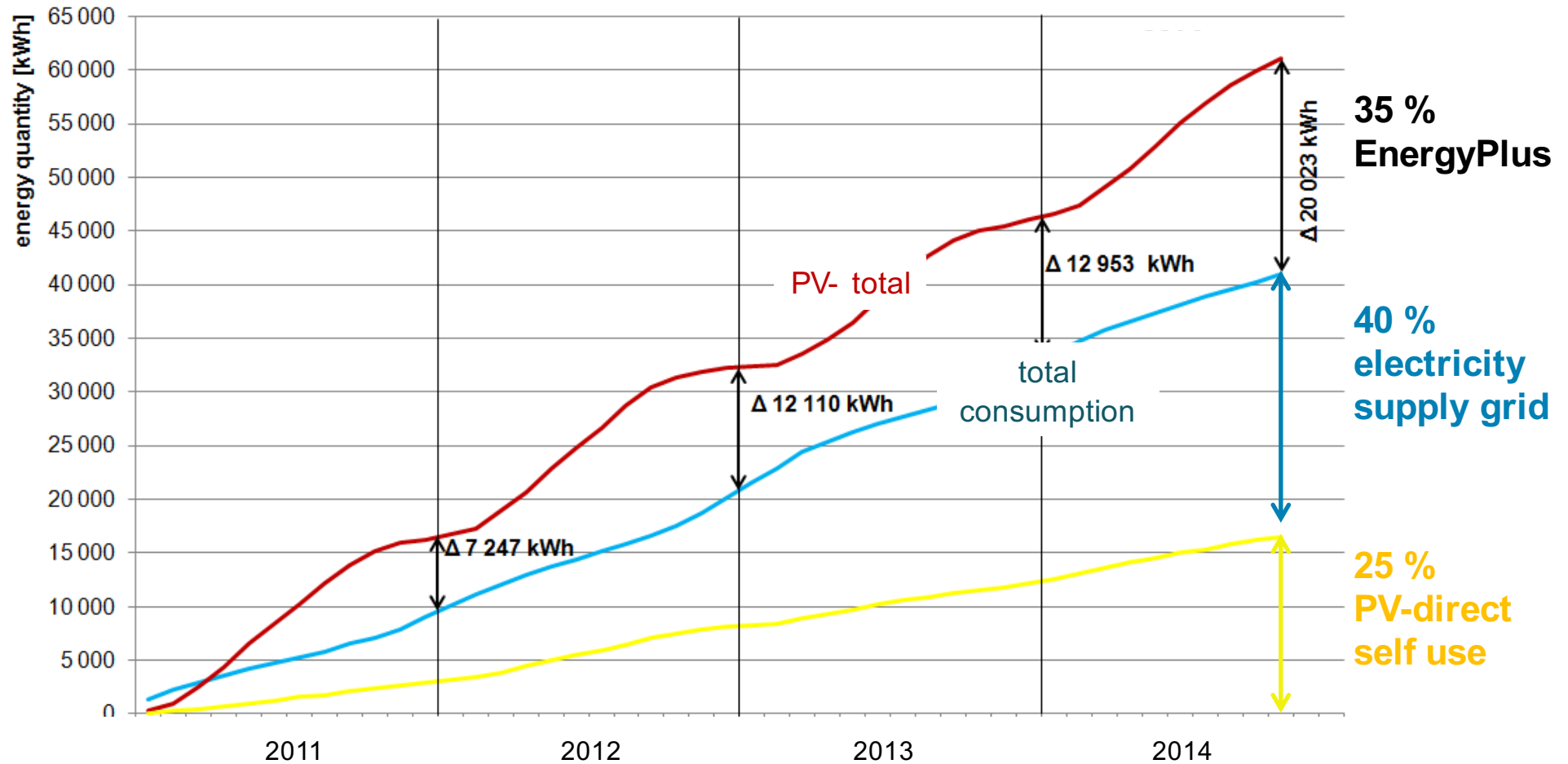


Energy Concept

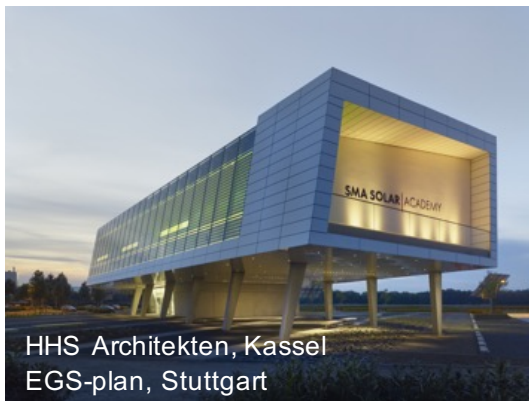


Measurement Results after 4 years

Power production/-consumption (accumulated)



Further Energy Plus Projects in Germany



PROM des Jahres

PROM des Jahres ... für
Energieeffizienz, Nachhaltigkeit
und soziale Integration bei
Immobilien



The Pruksa+ Project in Bangkok

Idea:

Design of a single family house, which fulfils the highest sustainability and energy requirements.

Implementation:

- 50 % reduction of cooling energy demand by passive measures
- 50 % of total energy demand (cooling & household appliances) will be covered by solar energy
- DGNB Gold sustainable building certification anticipated

Current status:

- Structural works
- Building finished spring of 2016

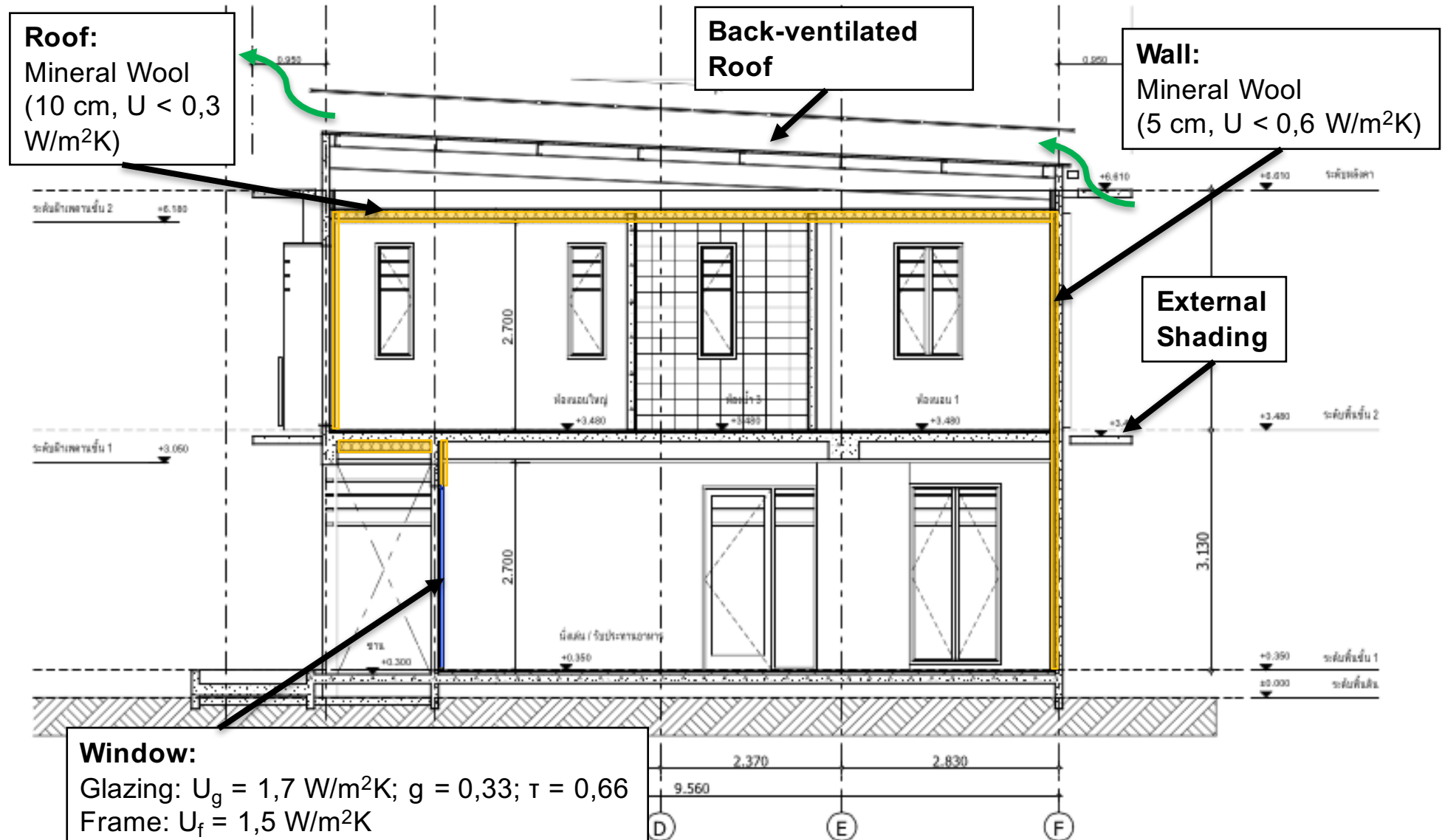


[source: unexpected Architects]



Current status on construction site

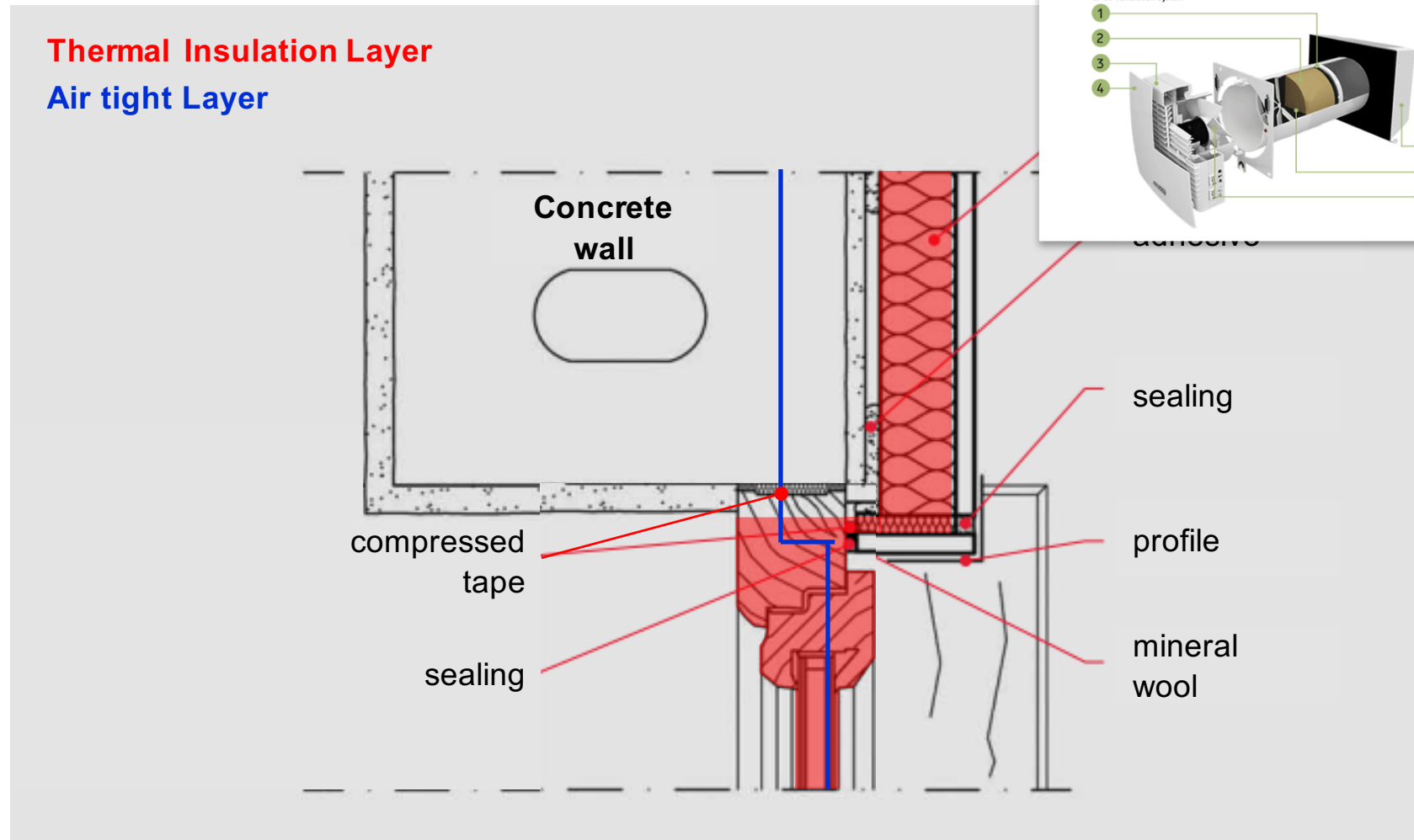
Building Physics



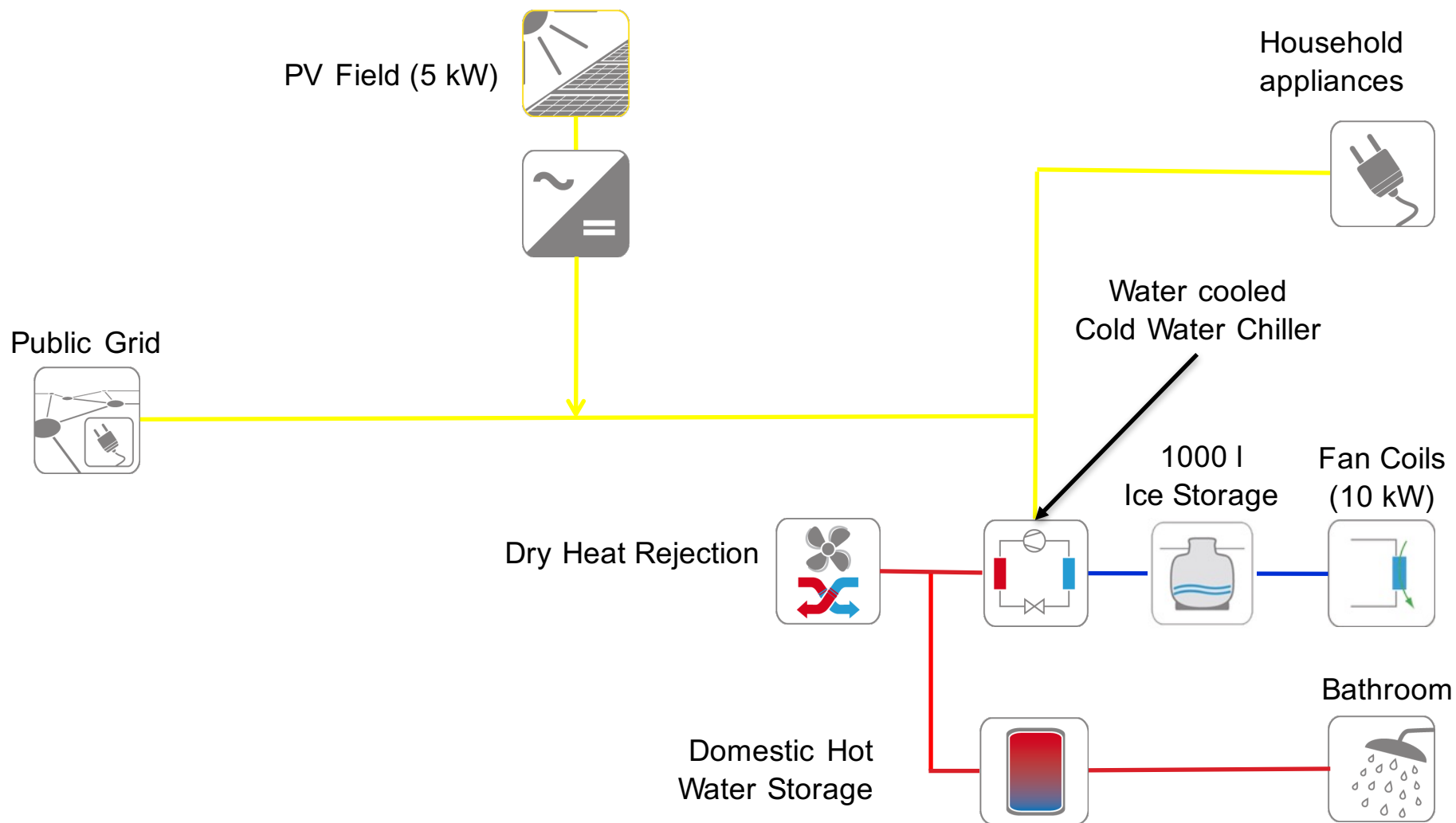
Detailed insulation and air tightness concept

Thermal Insulation Layer

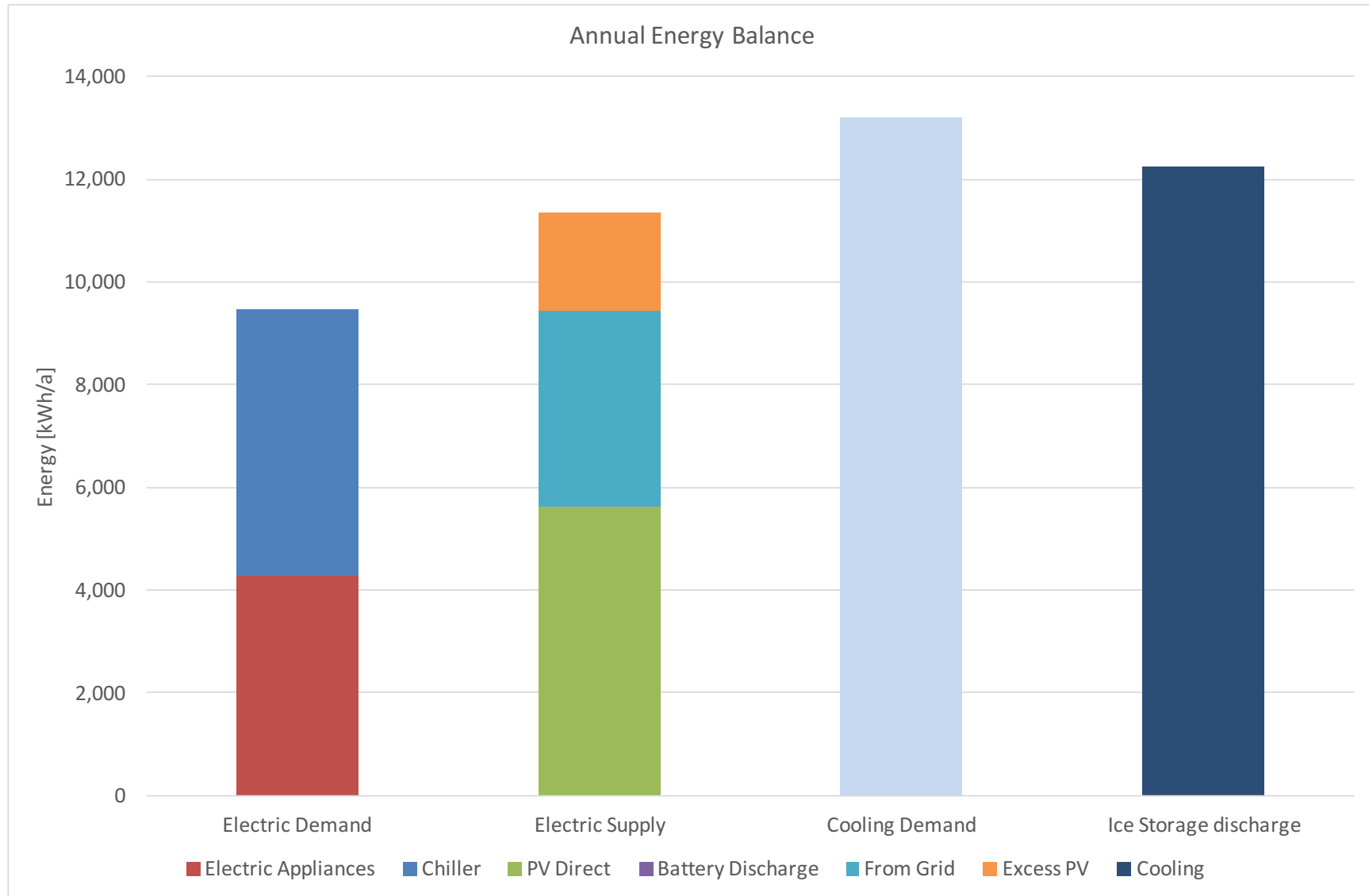
Air tight Layer



Energy Supply with 5 kW PV field and a 1000 l ice storage



Annual Energy Balance



Green Factory in the North of Thailand

[source: OIA Architects]



© EGS . AHK event . 29.02.2016

The Factory Project in Thailand

Goal:

Green and sustainable real estate with 7 buildings and a total 30.000 m².

Implementation:

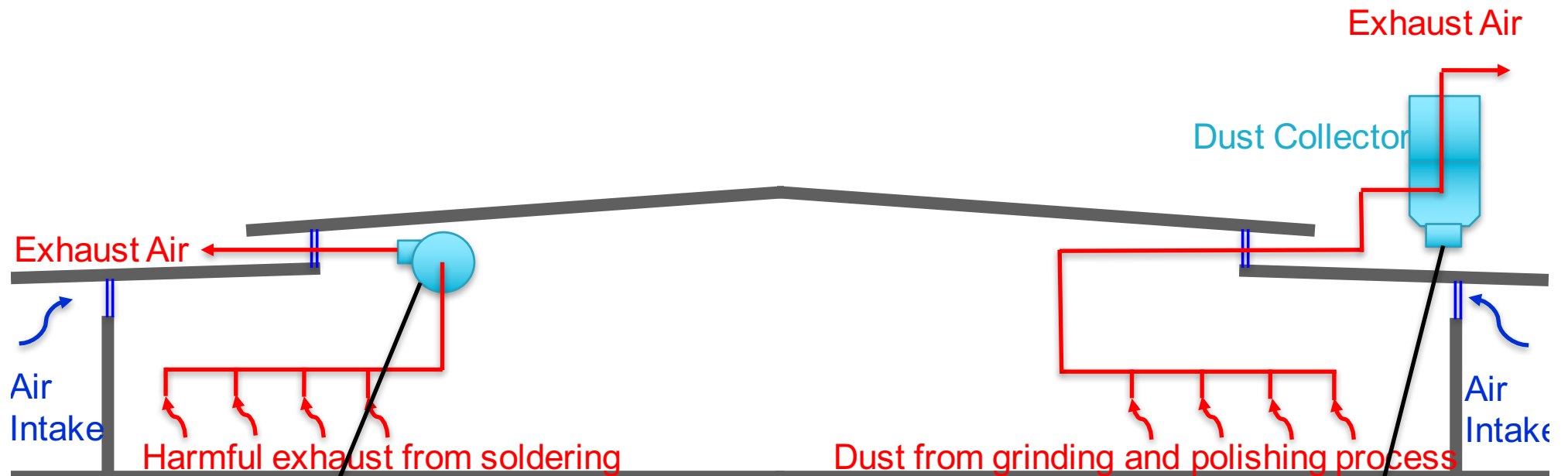
- High quality building envelope
- Reduction of the energy demand through an innovative ventilation concept
- Energy efficient technologies such as energy recovery, LED lighting and VSD pumps and ventilators
- LEED Sliver certification anticipated

Current status:

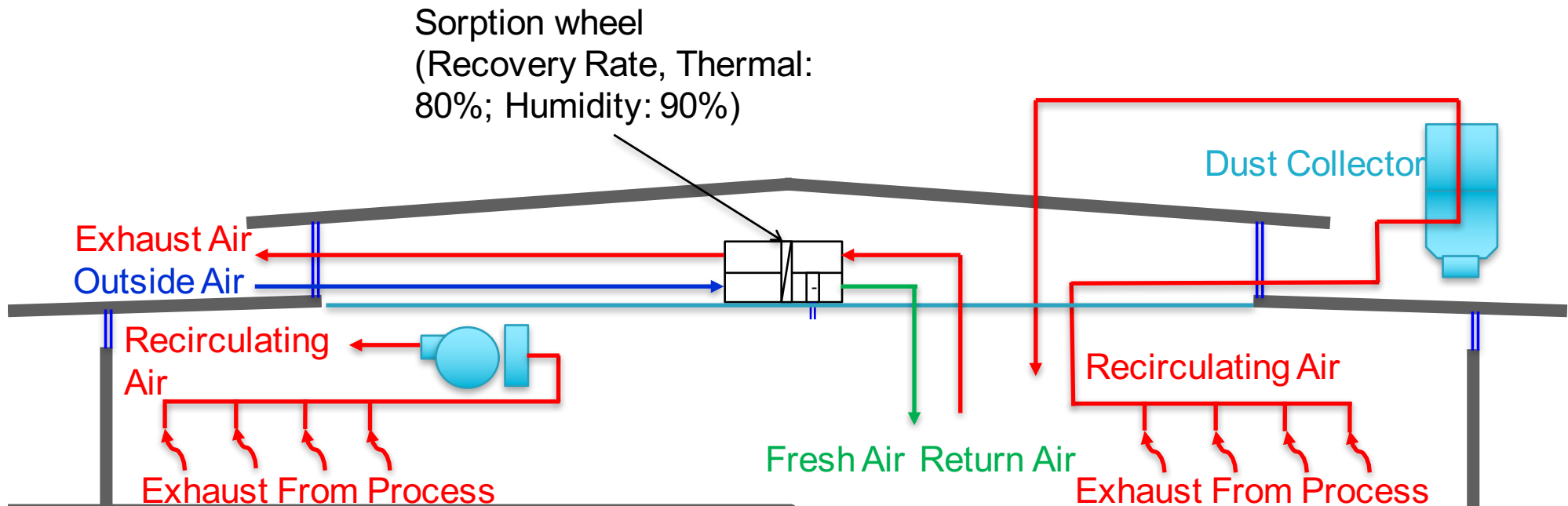
- Structural works
- Building finished third quarter of 2016



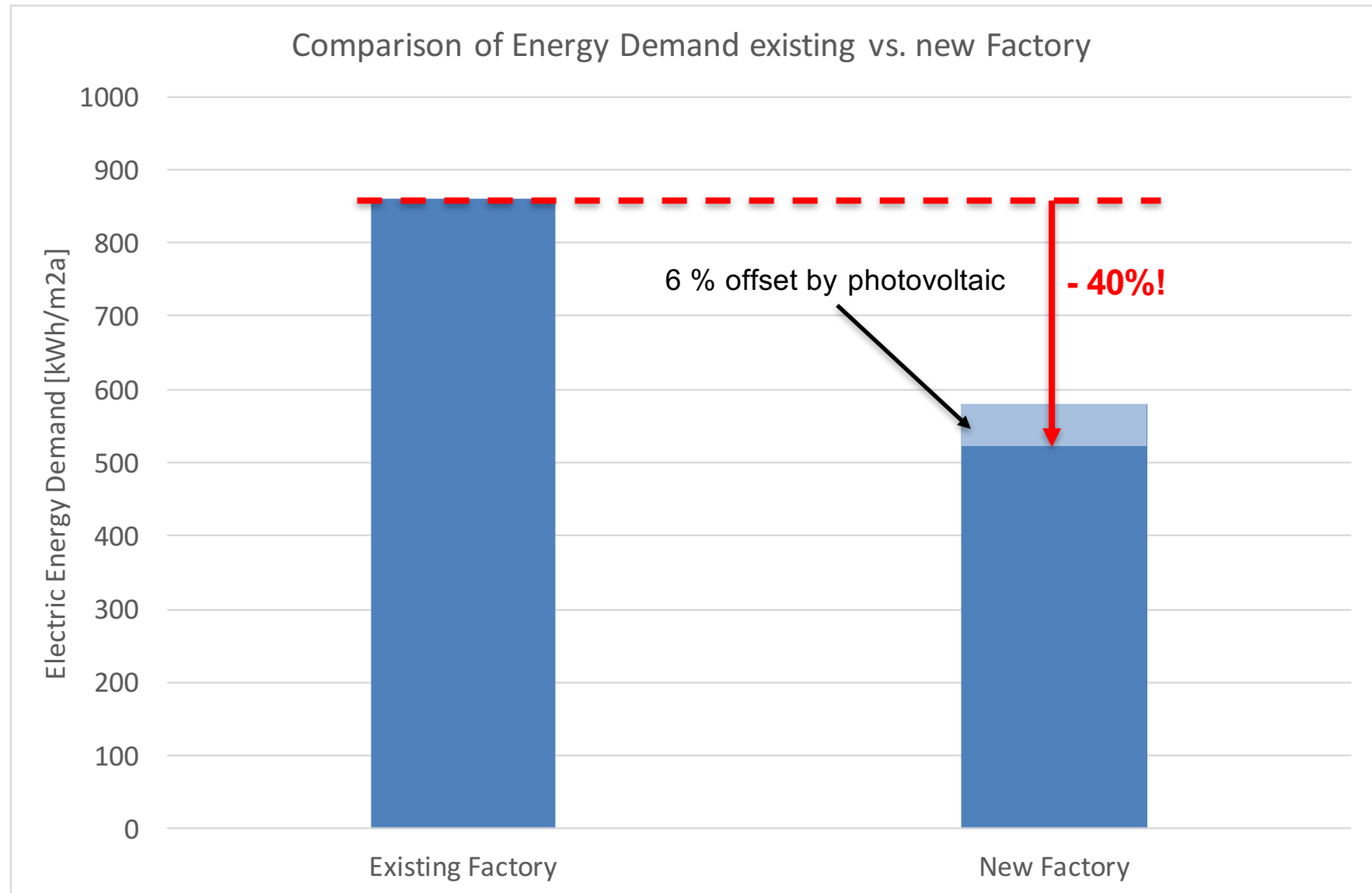
Ventilation Concept of the existing factory: air conditioned air exhausted to the outside!



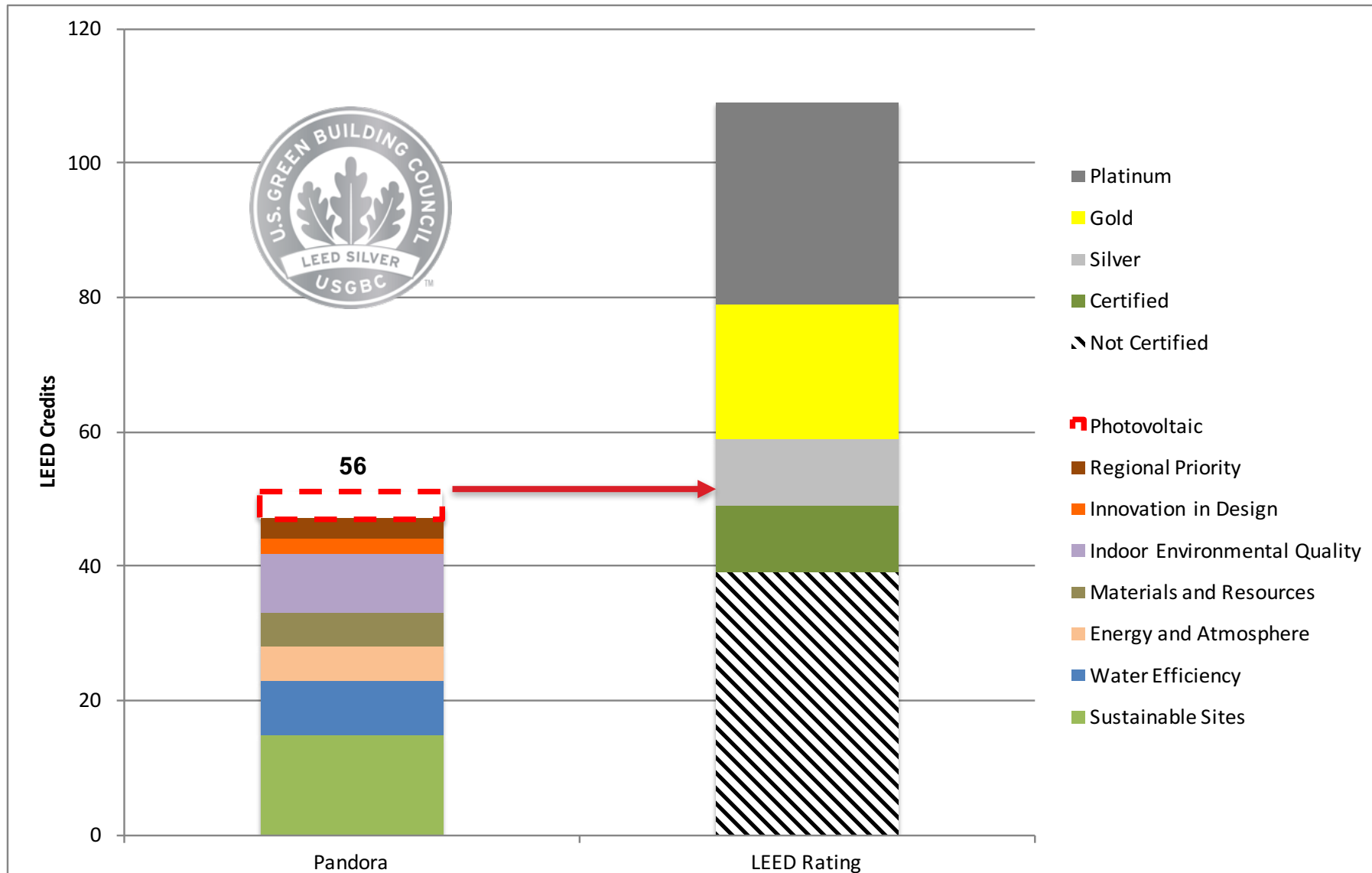
Ventilation Concept of the new factory: Exhaust air is filtered and returned back to the building



Energy Savings according to simulation



LEED Point Status (anticipated: LEED Silver)





Thank you for your Attention!



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