

Wansdronk Architektuur
Renee Wansdronk
rw@wansdronk.com

Organisation and objectives

Organisation

Small & Medium Enterprise

Architecture, engineering & innovation

- Emporium building concept
- Research & development

Main objective

Emporium building concept

Solar energy and zero emission building concept

- seasonal energy storage integrated with building
- no energy storage loss and minimal exergy loss

Tasks

Research & development

European research networks and programmes

- Cooperation in Science and Technology (COST)
- Innovation Partnerships and Framework Programmes

Emporium building concept

Storage concept

**prefabricated, above ground,
collapsible & material saving**

- no energy loss (heat storage integrated with building)
- low exergy loss (all system $T^{\circ}\text{C}$ close to demand $T^{\circ}\text{C}$)
- small scale implementation (house by house)

Energy system

**flattening imbalance in the
long, medium & short-term**

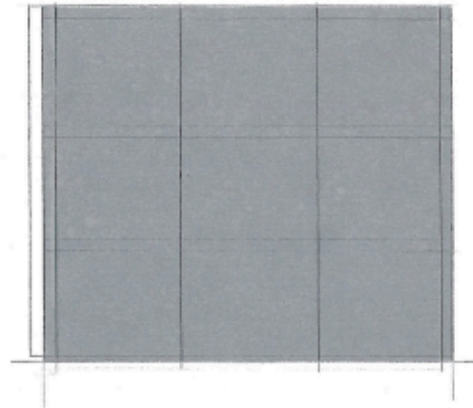
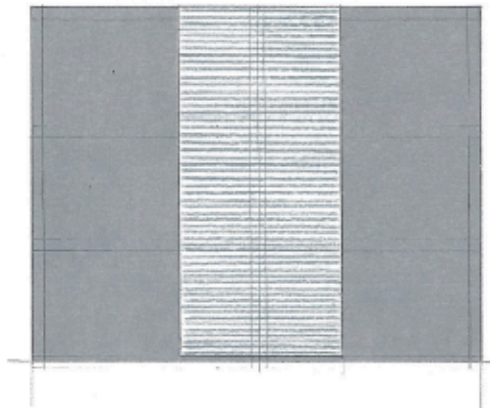
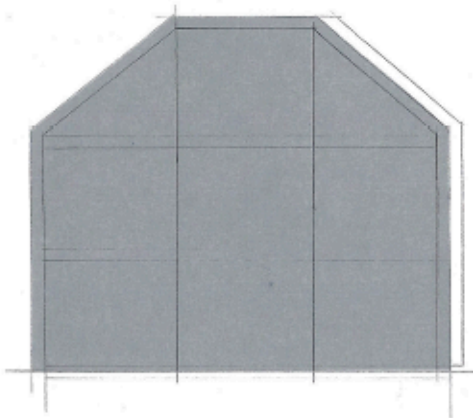
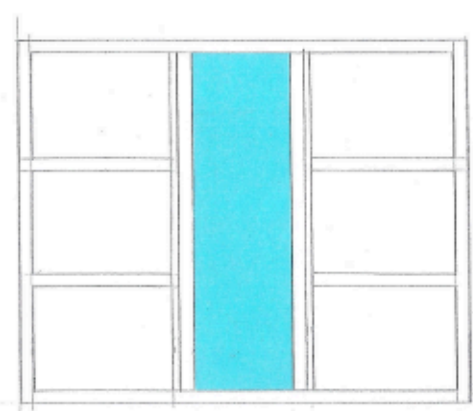
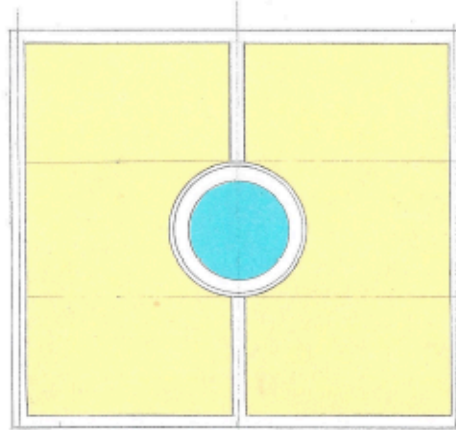
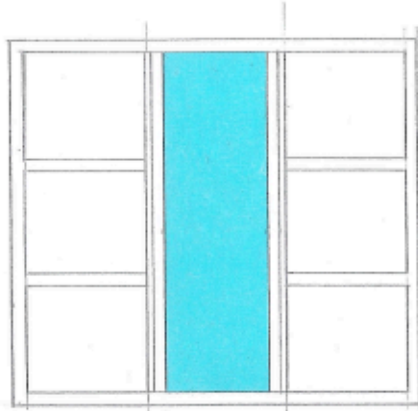
- seasonal storage zero-emission energy (solar heat)
- electricity market imbalance (solar & wind power)
- district heating imbalance (heat & power demand)

Network support

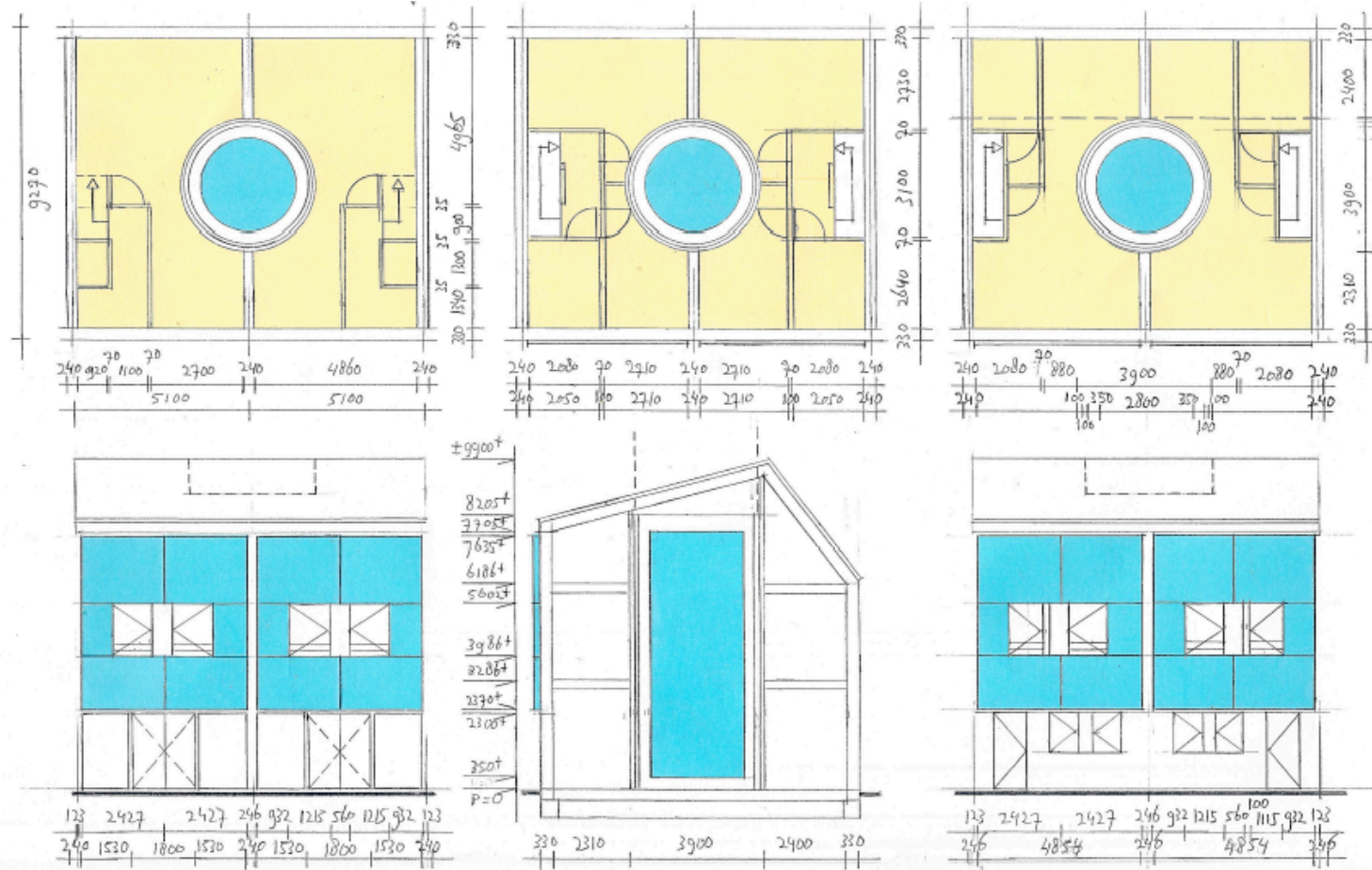
**affordable, applicable, simple
& usable integrated solution**

European Innovation Partnership (EIP)
Smart Cities and Communities (SCC) Key Innovation
'Zero-energy Buildings with Low-exergy Storage'

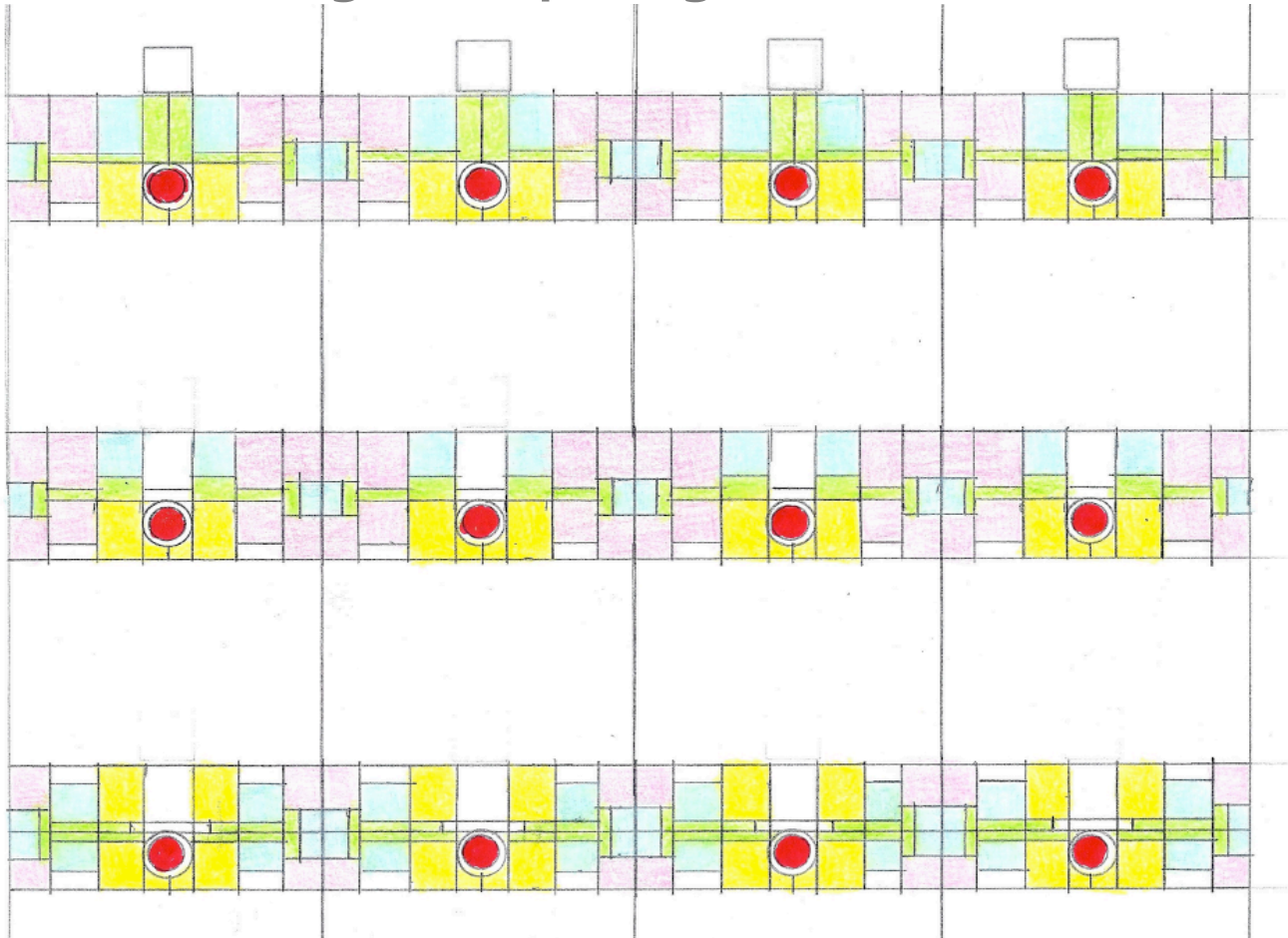
Emporium building concept (low rise)



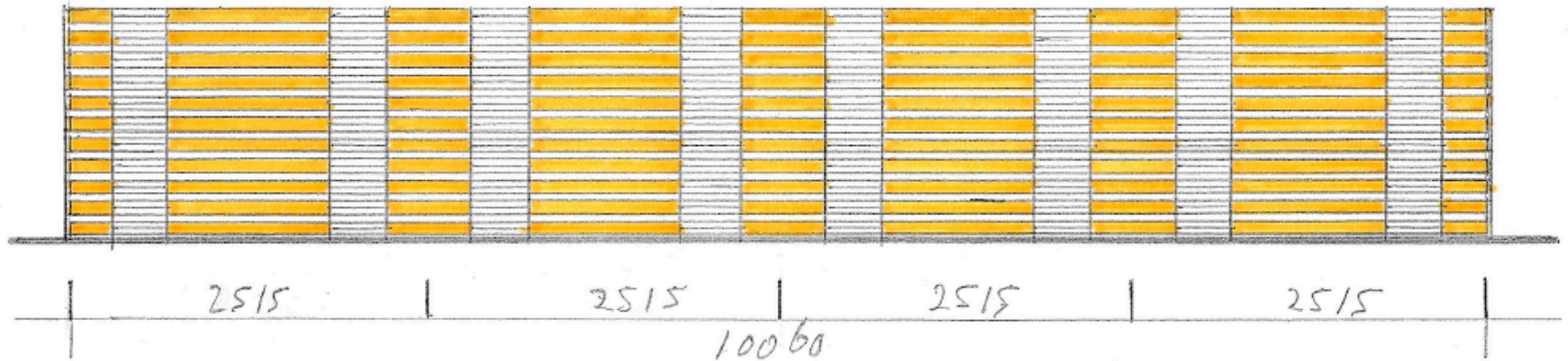
Emporium building concept (low rise)



Emporium building concept (high rise)



Emporium building concept (high rise)



Cooperation in Science and Technology (COST)

COST TU1205

Building Integration of Solar Thermal Systems (BISTS)

- key parameters, thermal modelling and simulation
- fabrication and demonstration of prototypes



COST TU1303

Novel Structural Skins through Textile Materials

- standardization of material and structural testing
- development of new structural skin products



COST TU1403

Adaptive Façades Network

- multi-functional and adaptive building envelopes
- development of modelling and simulation techniques



Innovation Partnerships and Framework Programmes

EIP SCC

Smart Cities and Communities

- FP7 Energy Efficiency & Buildings (EE&B)
- H2020 Positive Energy Blocks (PEB)



FP5 PETUS

Practical Evaluation Tools for Urban Sustainability

- database case studies, tools, EU legislation, glossary
- guidance checklist, matrix



FFP7 MESSIB

Multi-source Energy Storage System Integrated in Buildings

- electric vanadium redox-flow battery, flywheel
- thermal ground storage, phase change material



Renee Wansdronk
Wansdronk Architectuur
The Netherlands
*31.85.8784298
rw@wansdronk.com
<http://wansdronk.com>