

RINO

Electronics AG

Hydrobus all-in-one management system for thermal and electrical energy storage



RINO Electronics AG
Energy Management System Hydrobus

MSc Remo Ritzmann
Charles d'Heureuse
MB Ing. Jürgen Banholzer

Content

Introduction

Use cases

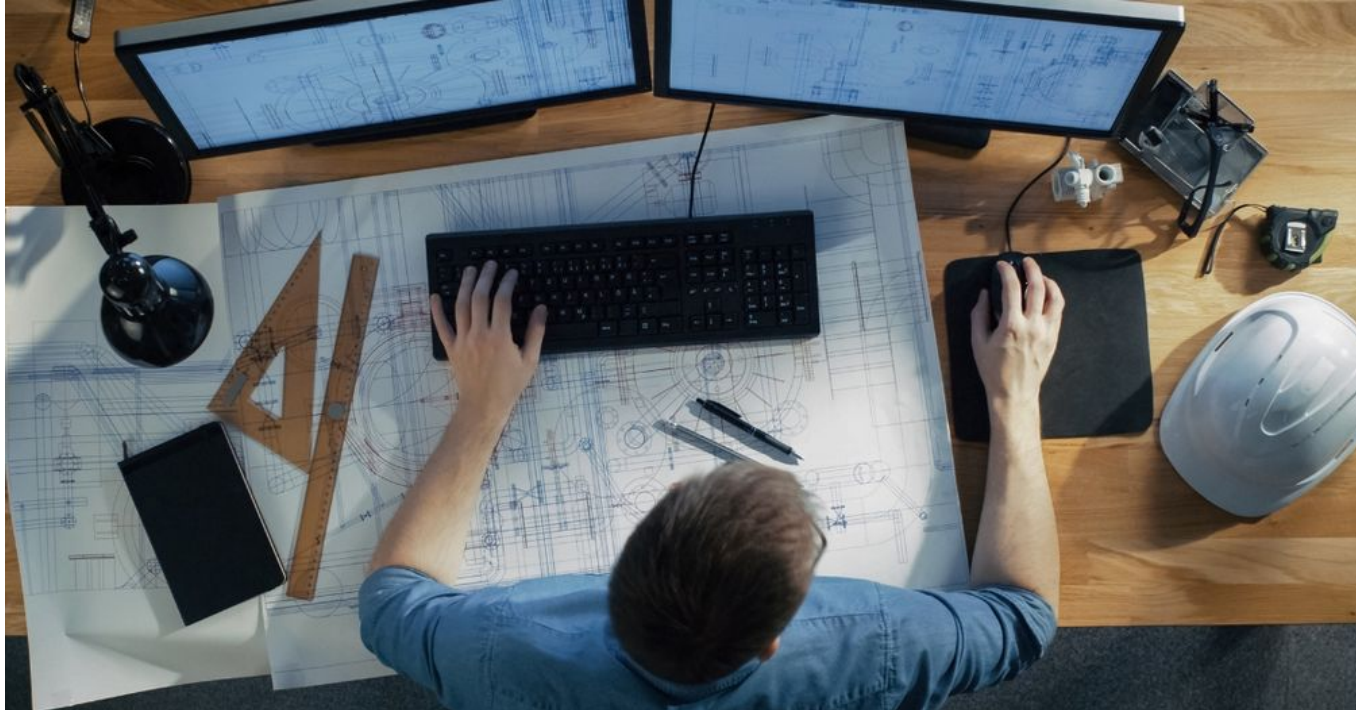
What is Hydrobus?

Connect with Questions and Answers

RINO

Electronics AG

Founder Remo Ritzmann

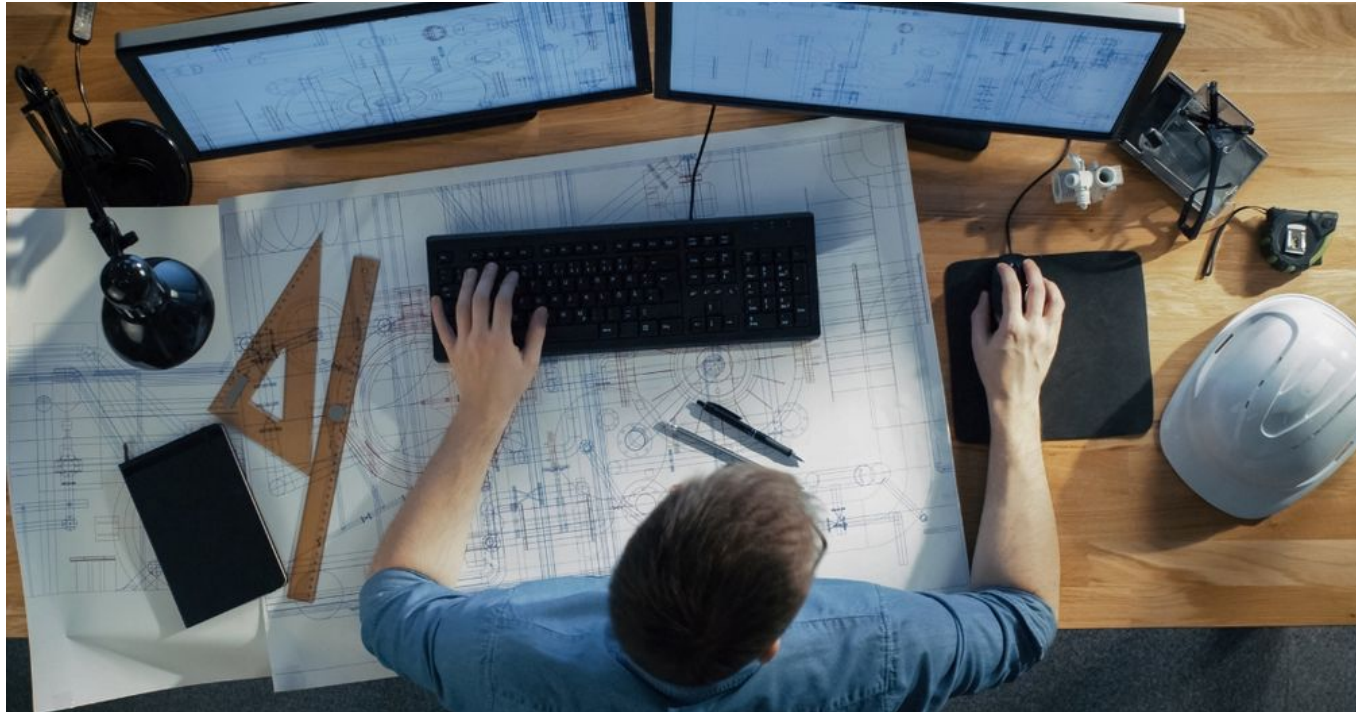


Remo Ritzmann
Master of Science in
Industrial Electronics

RINO

Electronics AG

1st Product: The Analysis



Analysis

a creative process
to find solutions
with minimal
operating costs.

RINO

Electronics AG

2nd-Life Energy Storage (Patchwork Battery)



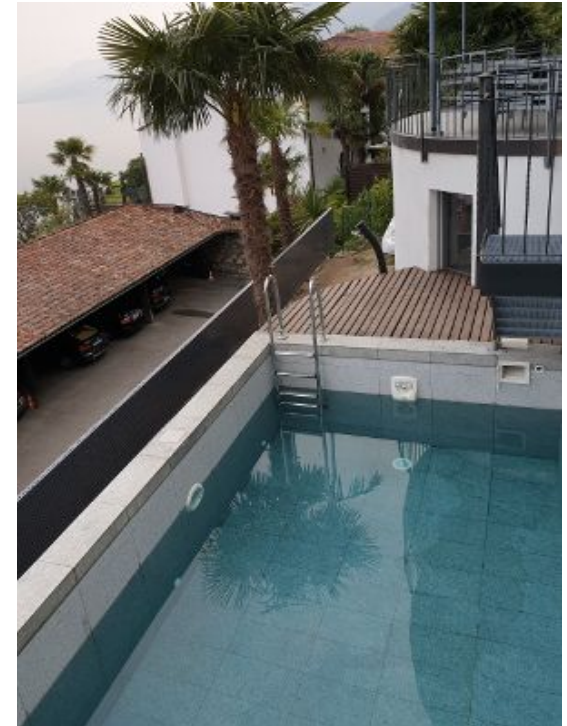
Remo Ritzmann, 28.1.22

RINO

Electronics AG

Use case Brissago

Holiday home heated with the swimming pool and hybrid (pvt) solar-fence



RINO

Electronics AG

Use case Wenzikon



Remo Ritzmann, 28.1.22

RINO

Electronics AG

Use case Wenzikon

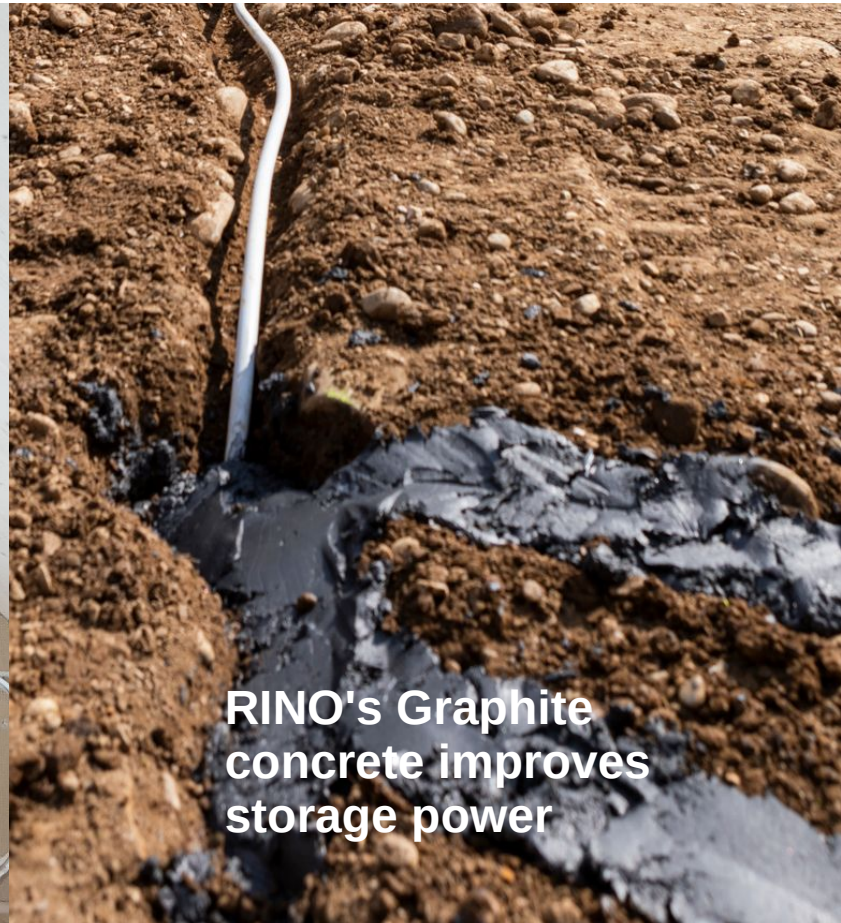


Remo Ritzmann, 28.1.22

RINO

Electronics AG

Use case Wenzikon



RINO's Graphite
concrete improves
storage power

RINO

Electronics AG

Use case Filzbach (PVT Hybrid Modules)



Remo Ritzmann, 28.1.22

RINO

Electronics AG

Use case Filzbach (Ice Storage)



RINO

Electronics AG

Pilot Plant Sunnegg in Schaffhausen



Remo Ritzmann, 28.1.22



RINO

Electronics AG

Multiple sources, 10 kW Vacuum Tubes

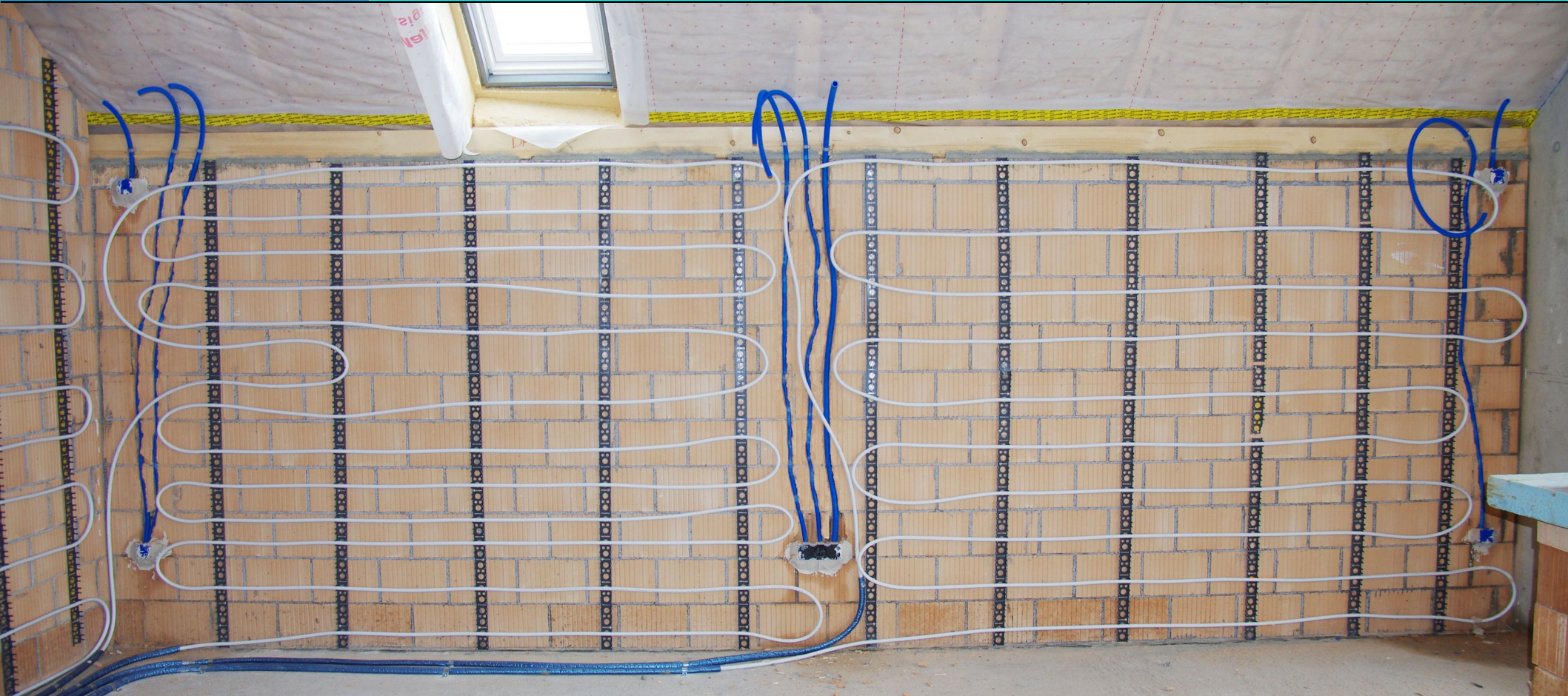


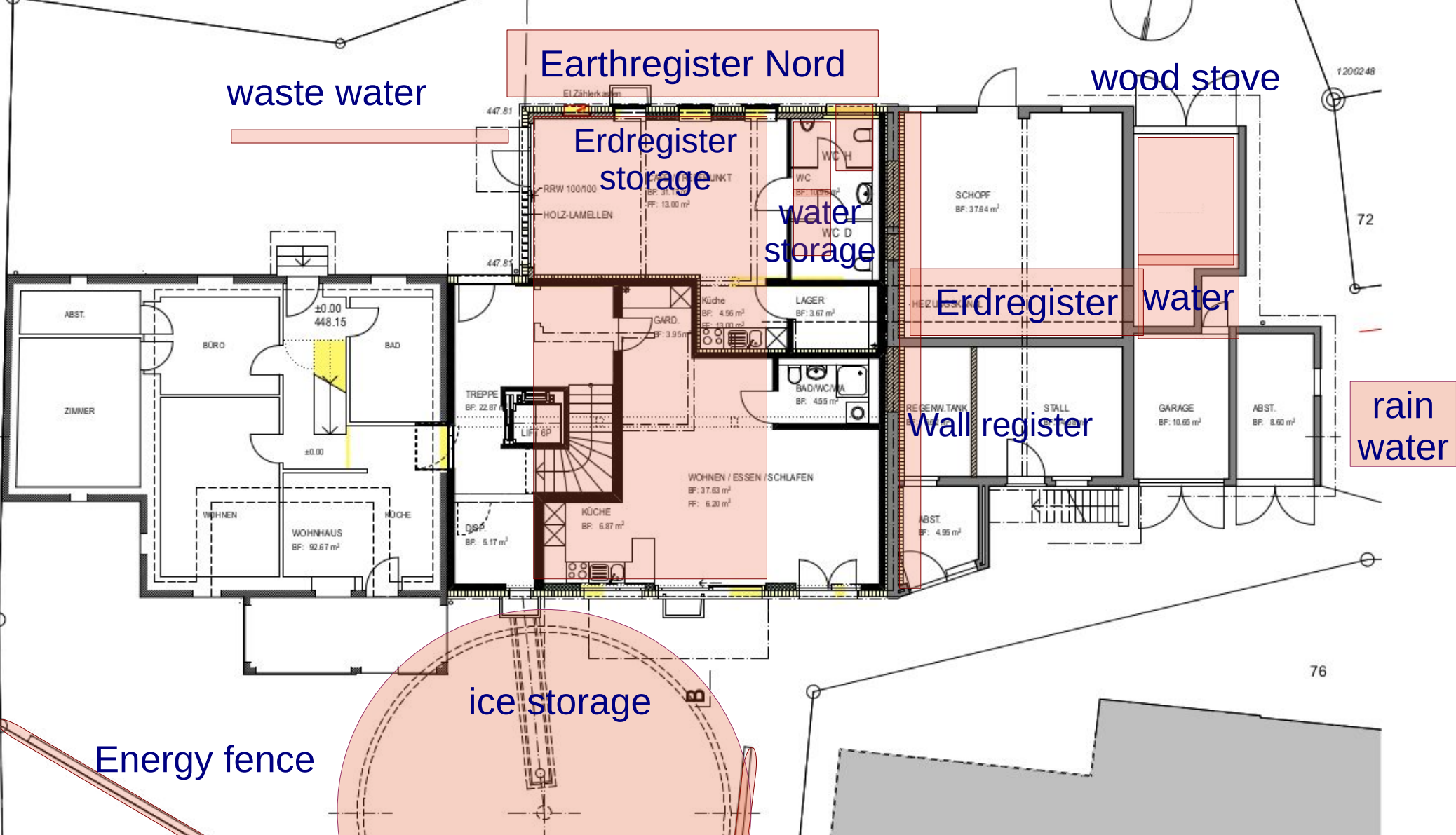
Remo Ritzmann, 28.1.22

RINO

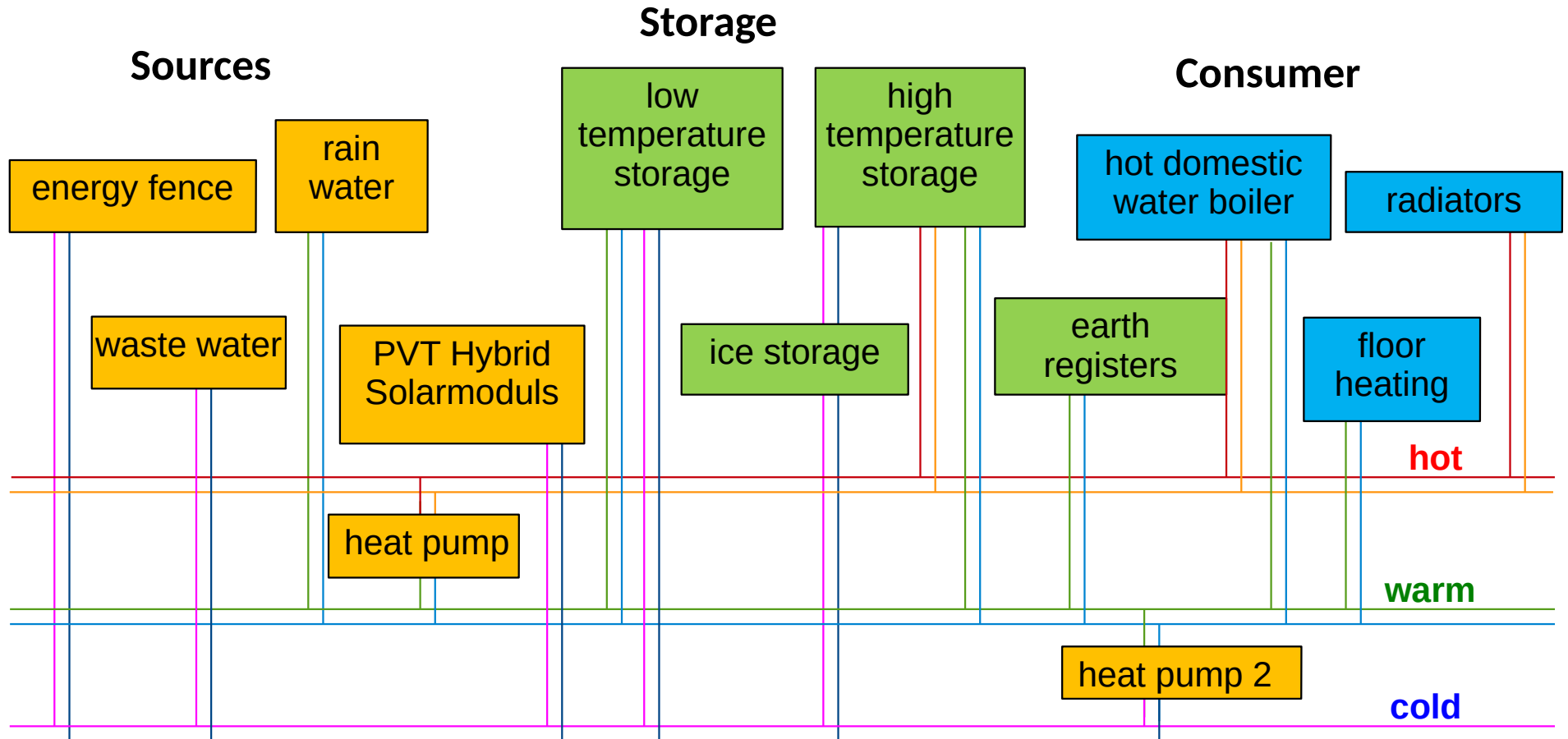
Electronics AG

The bigger the area the higher the COP





Hydrobus principle schematic Sunnegg



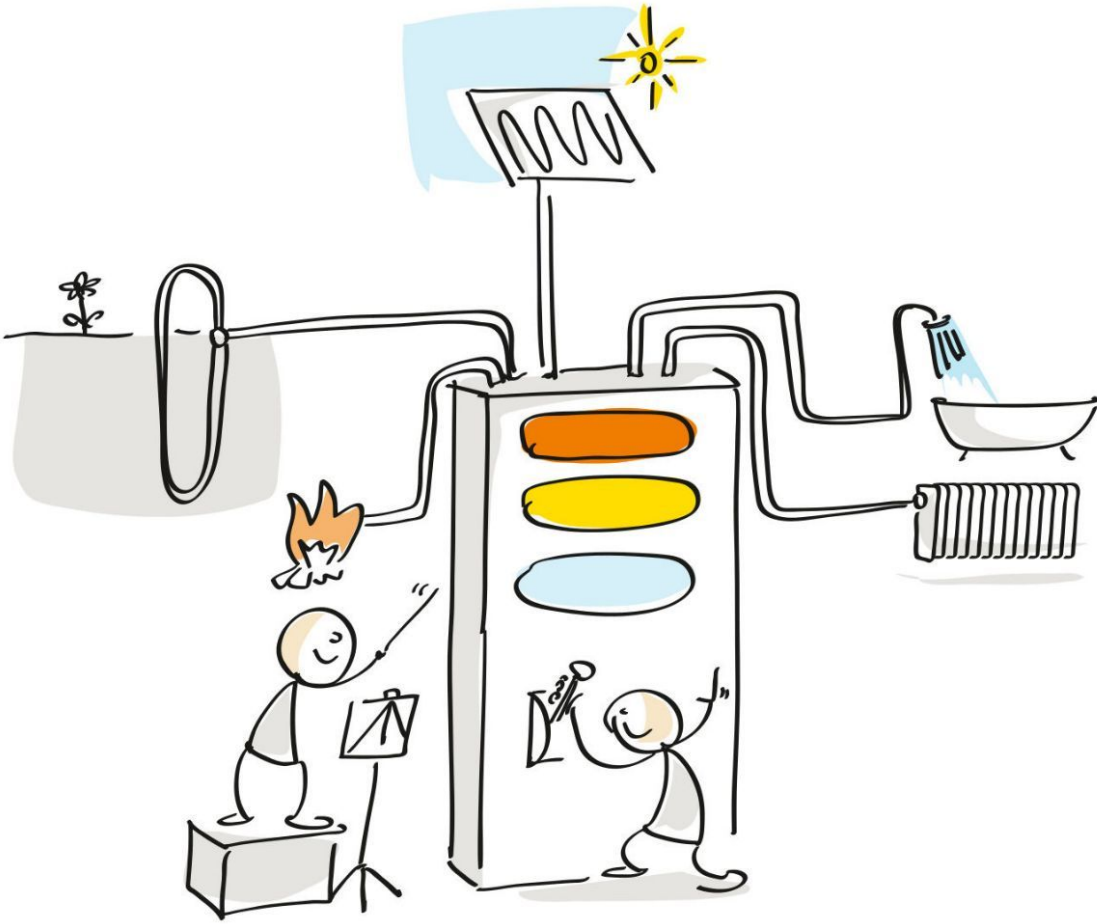
RINO

Electronics AG

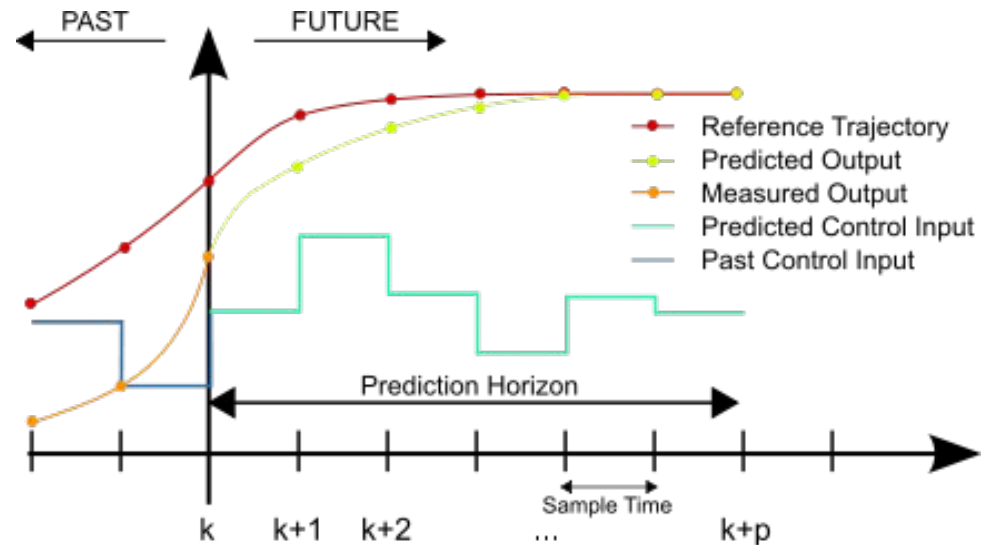
Modular Hydrobus

Wenzikon

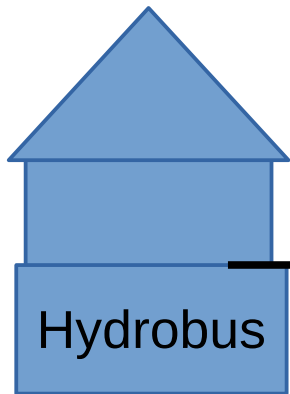




The RINO conductor looks up to 18 h into the future and regularly selects the most favorable setting.

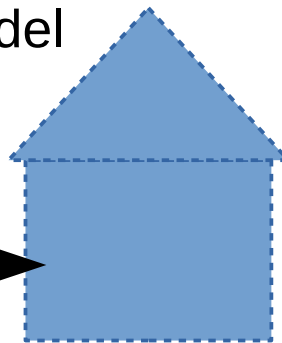


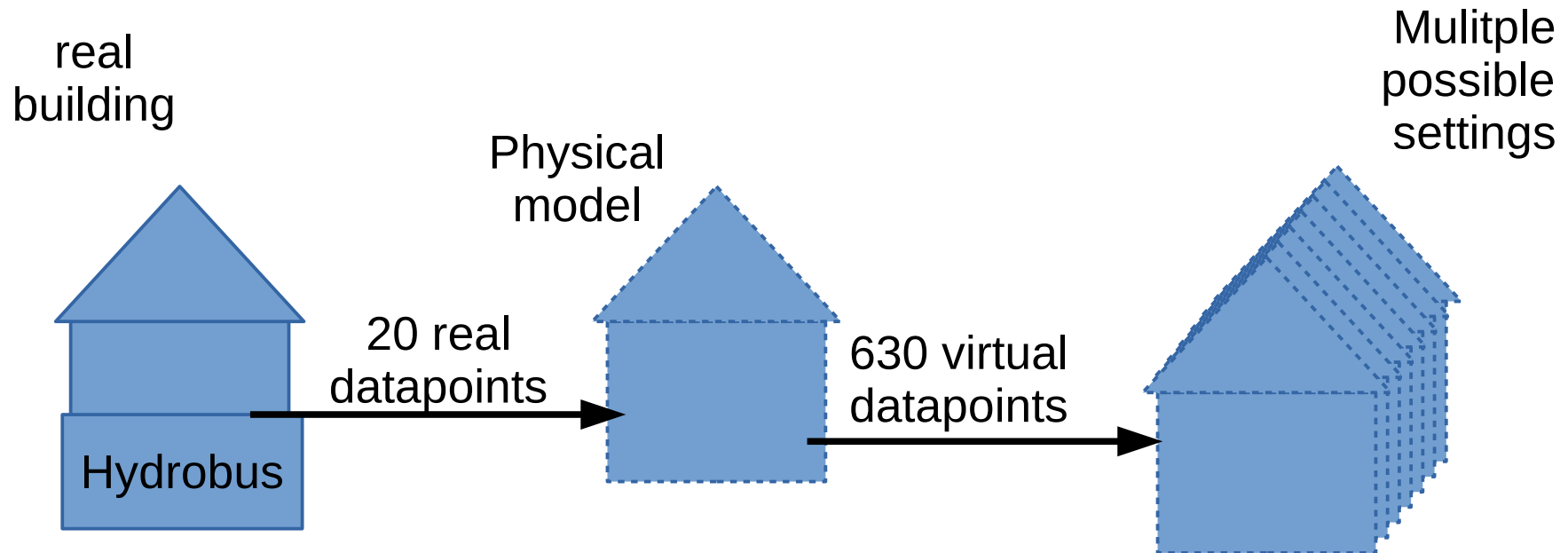
real
building

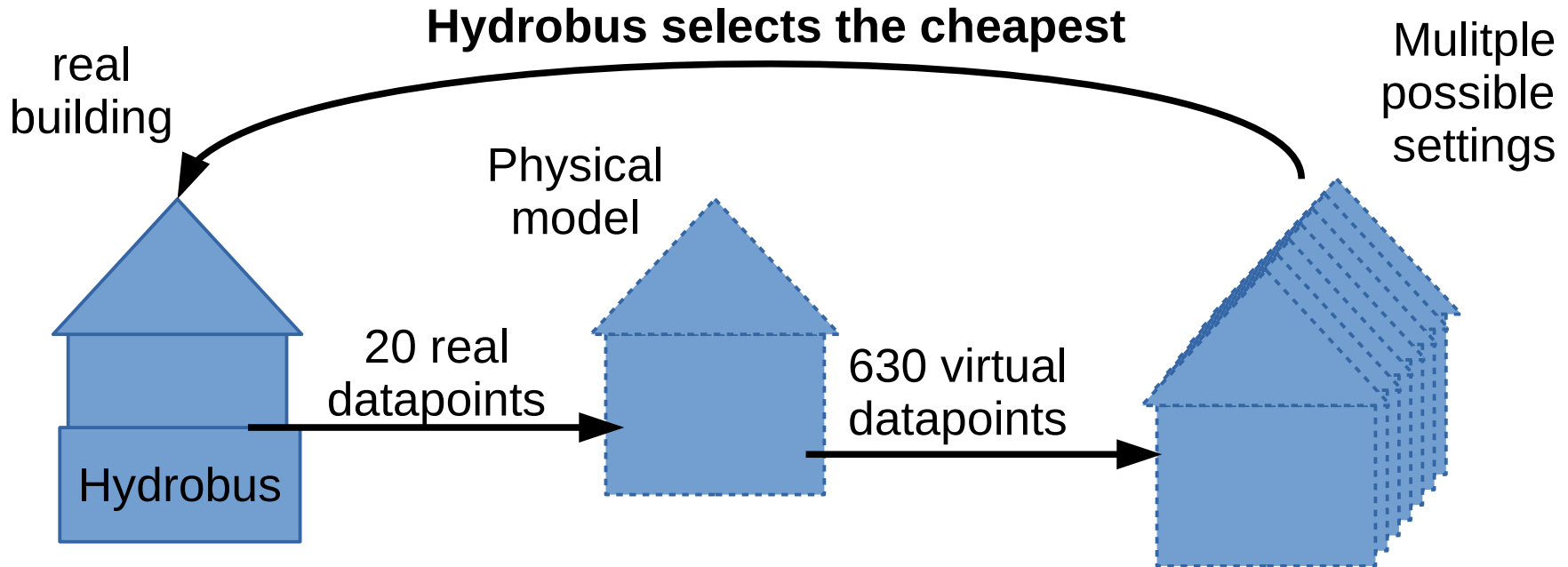


20 real
datapoints

Physical
model









Our partners



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Zürcher Hochschule
für Angewandte Wissenschaften



School of
Engineering

IAMP - Institut für Angewandte Mathematik und Physik

**IEFE - Institut für Energie Systeme und Fluid-
Engineering**

JANSEN