

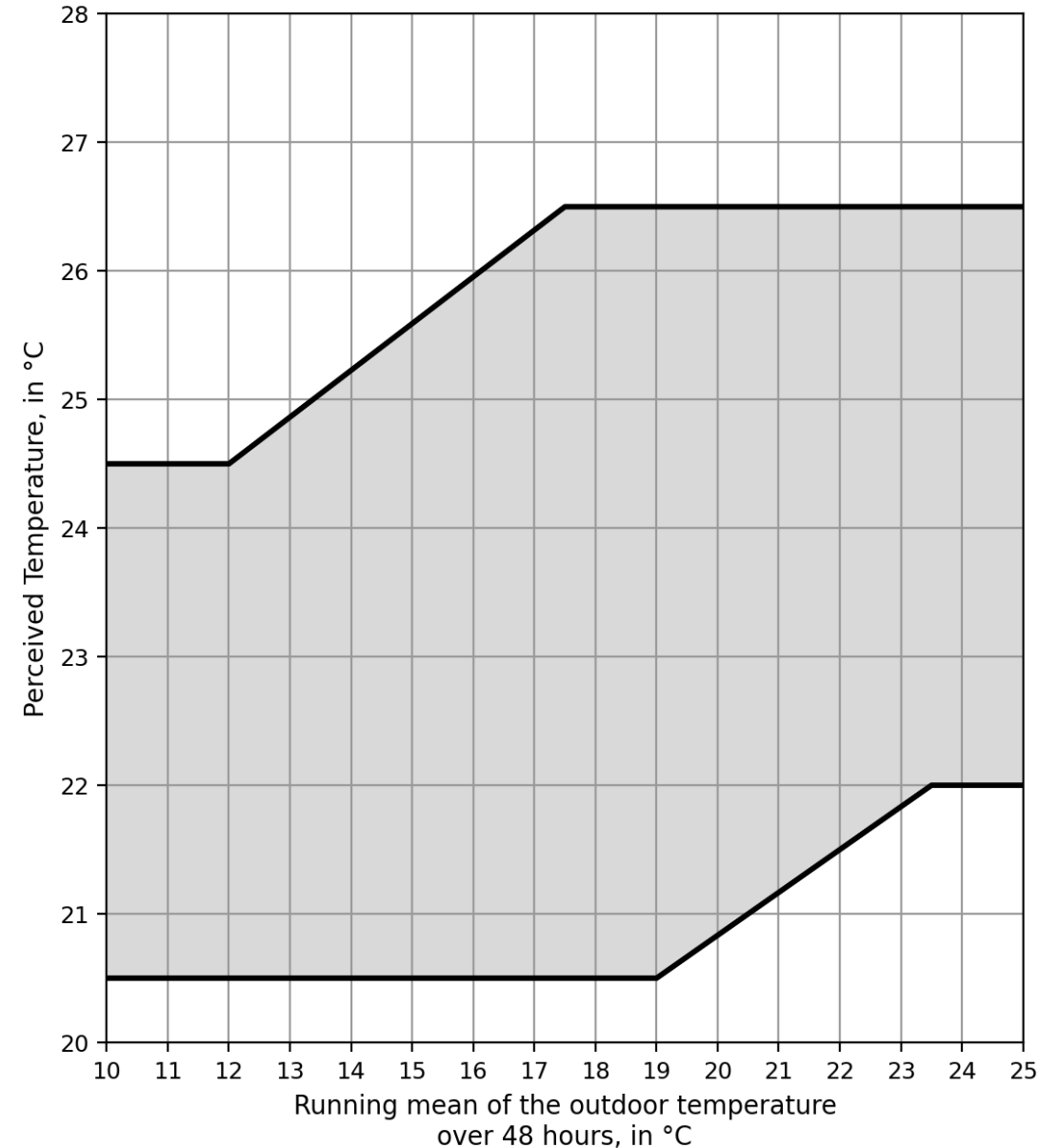
How much control is enough?

Analysis of simplified control strategies for a grid-friendly building operation

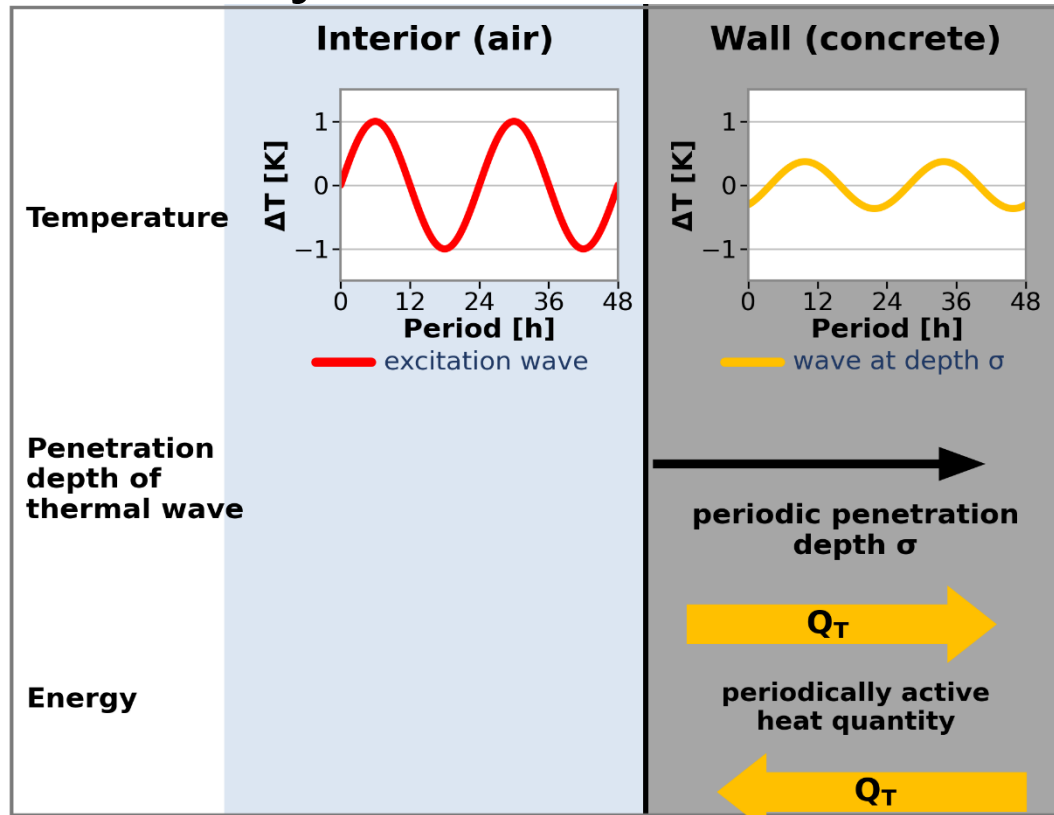
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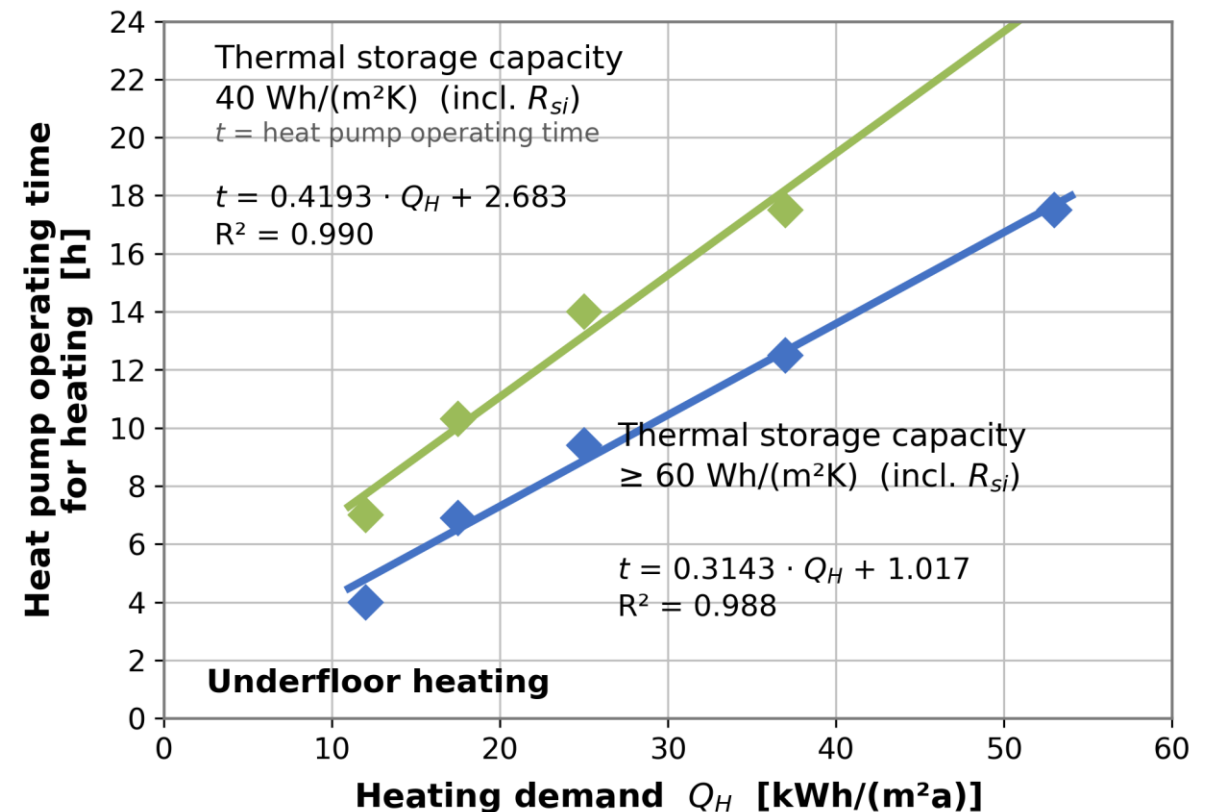
20.08.2026



Convert high thermal capacity, slow (thermal) response into flexibility



«Gebäude als Wärmespeicher», FHNW + Stadt Zürich, 2018



20. brenet status-seminar, M.Hall (FHNW), 2018

Capabilities (requirements) of conventional and advanced controllers contrast strongly

Capability	Conventional	Advanced
Extension of existing framework to new objectives	--	++
Self-learning	-	++
Constraints handling	-	++
Multiple inputs multiple outputs	-	++
Propagation of measurement noise	+	+
Include operational know-how of system	++	+
Numerical stability	++	-
Robustness against model error	++	--
Simplicity of set-up	++	--
Cybersecurity	++	--

++ Very High, -- Very Low

Advanced control facilitates depth per installation; conventional control facilitates breadth of deployment.

Towards flexibility-ready conventional controllers

- Inventory and assessment of available low-tech measures
- Demonstration in real-operation
- Requirements for interfaces and signalling
- Requirements for aggregation
- Implementation guidance for practice

	Effort	Shiftable Power	Usage	Comfort risk
Provide Flexibility				
Release window instead of fixed schedule	++	+	+	+
Heating curve offset	++	+	+	+
Widened dead band	++	+	++	-
Power limitation	-	+	+	+
Flow rate reduction	-	-	++	+
Plant state incl. auxiliaries	--	-	++	+
Suitable for Aggregation				
Staggering across sub-zones	-	NA	+	NA
Randomised start delay	++	NA	NA	NA

++ Very Favourable, -- Very Adverse

Interested in developing the idea further?

Using the example of **TABS at FHNW Campus Muttenz**, we explore:

- How can existing control architectures be analysed and adapted for flexibility?
- How can operational data be used to develop simplified models for flexibility control?



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«Der Speicher, der schon gebaut ist
Thermische Gebäudemassen als Flexibilität
für das Stromnetz»,
Planned in Issue 5/26