

## Heat Recovery at Valla Torg

The renovation of Valla Torg, a 1960s-built, City-owned social housing complex, updated 6 buildings with a wide range of efficiency measures, including heat recovery applications, like exhaust air heat pumps and wastewater heat exchange systems. Separate heat exchangers were installed in every building for direct, efficient connections to the district heating system. These strategies, in tandem with aggressive insulation and airtightness improvements, enabled significant heat recovery for reuse across the complex, with excess sold back into Stockholm Exergi's district heating system. In total, the improvements resulted in a nearly 50% drop in energy intensity.

year built:	1961
size:	302 apartments across two 4-floor buildings + four 14-floor buildings
ownership:	Stockholmshem (major Stockholm-based public housing company)
timeline:	6 buildings, mostly unoccupied, between 2016-2019
consumption:	pre-retrofit 154 kWh/m <sup>2</sup> /year post-retrofit ~80 kWh/m <sup>2</sup> /year
retrofit measures:	heat recovery (exhaust air heat pumps, wastewater heat exchange systems) full overclad (added insulation, new windows, new balcony doors, increased airtightness) finetuning set-points, climate controls

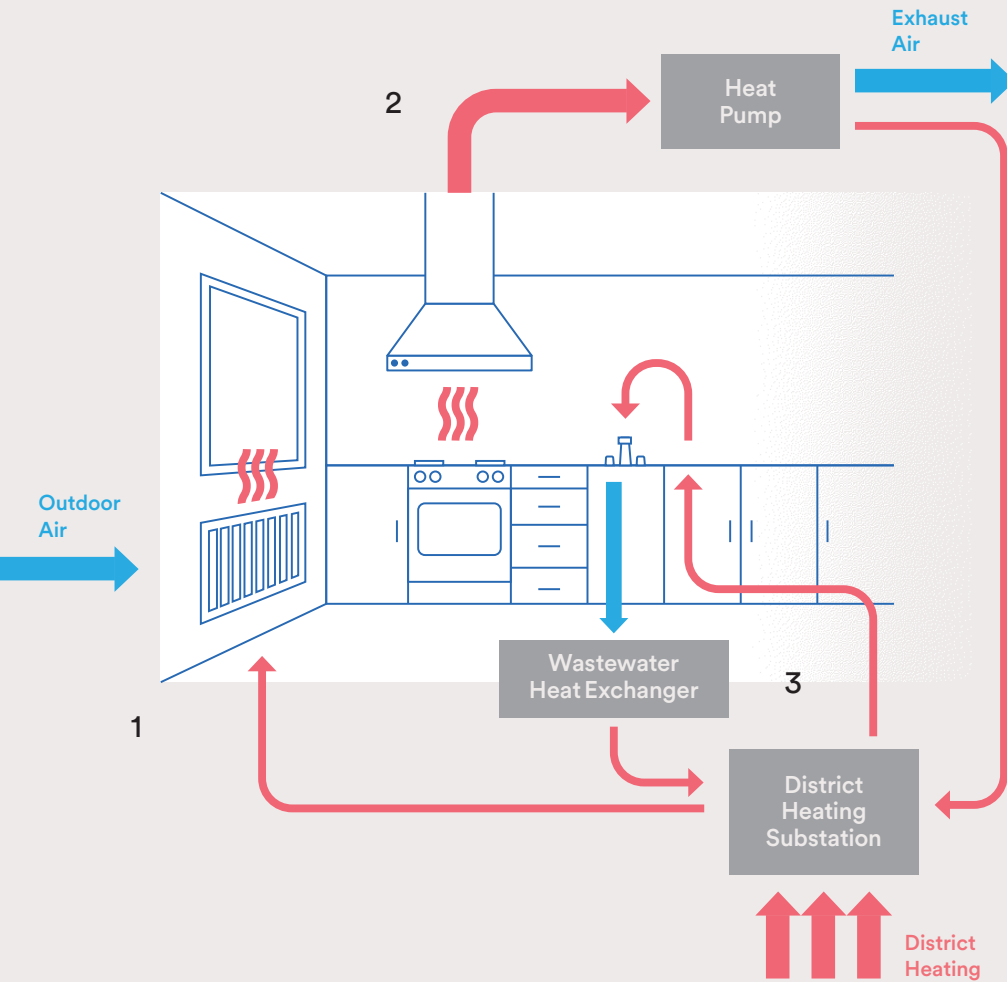




## case study:

### Energy Flow

Heat recovery at every opportunity, incentivized by participation in Stockholm's open district heating system



1 Outdoor air is tempered by hot water from the district heating substation.

2 Exhaust air is sent to an air-to-water heat pump, which recovers and returns heat back to the district heating substation.

3 Wastewater heat exchanger recovers and returns heat from wastewater back into the district heating substation.

