

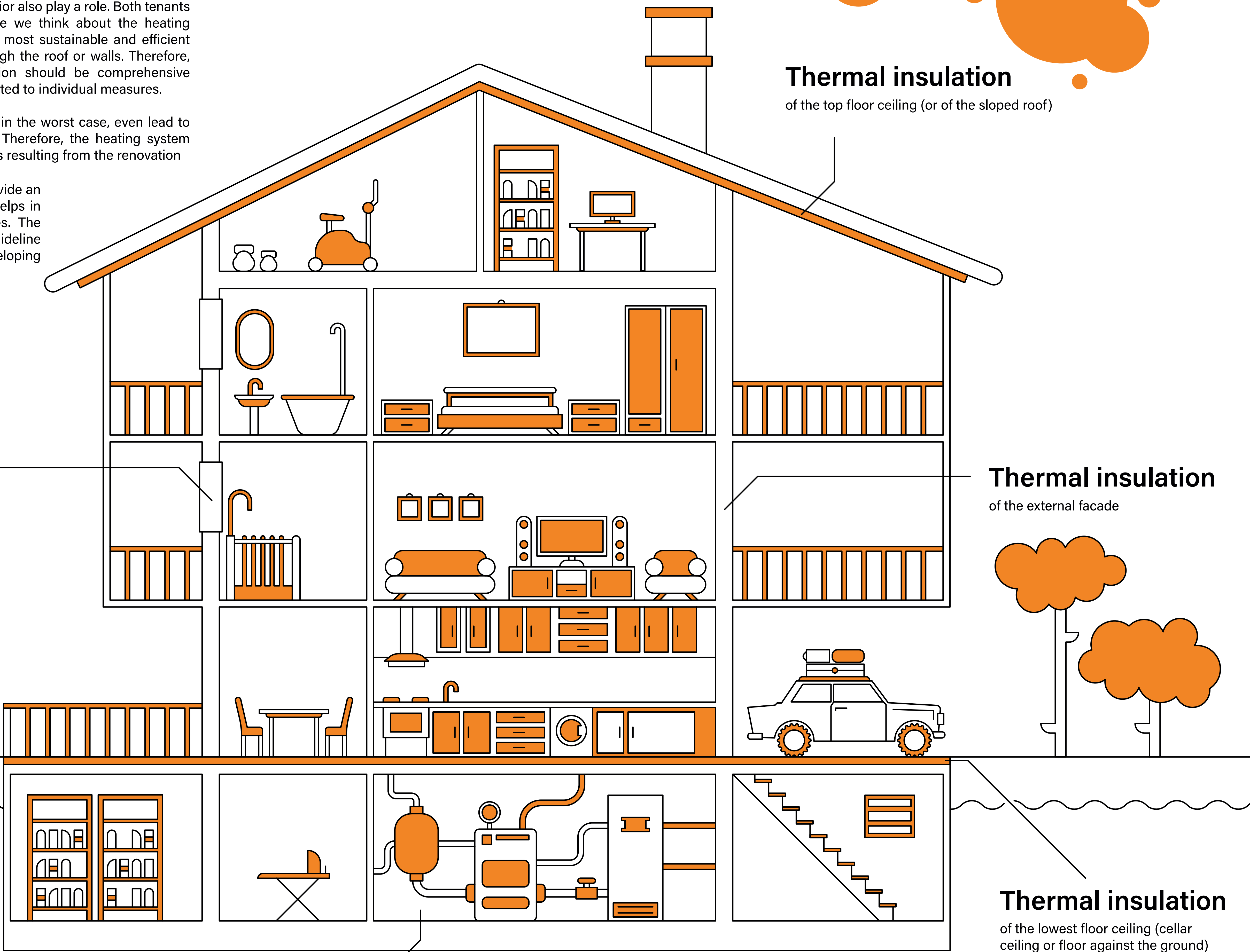
Warmth

How we will heat in the future

A wasteful use of energy is no longer affordable in light of the climate crisis. The level of greenhouse gas emissions depends primarily on the heating system and the building envelope, but heating and ventilation behavior also play a role. Both tenants and property owners have various options. Before we think about the heating system, we should address the building itself. The most sustainable and efficient heating system is of little use if we lose heat through the roof or walls. Therefore, sufficient insulation is essential. Such a renovation should be comprehensive (windows, facades, roof, and basement) and not limited to individual measures.

The savings effects can otherwise be minimal and, in the worst case, even lead to increased energy consumption and higher costs.¹ Therefore, the heating system should be adapted to the (new) energy requirements resulting from the renovation

measures.² The building's energy certificate can provide an initial guideline for this. Professional consultation helps in developing appropriate renovation plans measures. The building's energy certificate can provide an initial guideline for this. Professional consultation helps in developing appropriate renovation plans.³



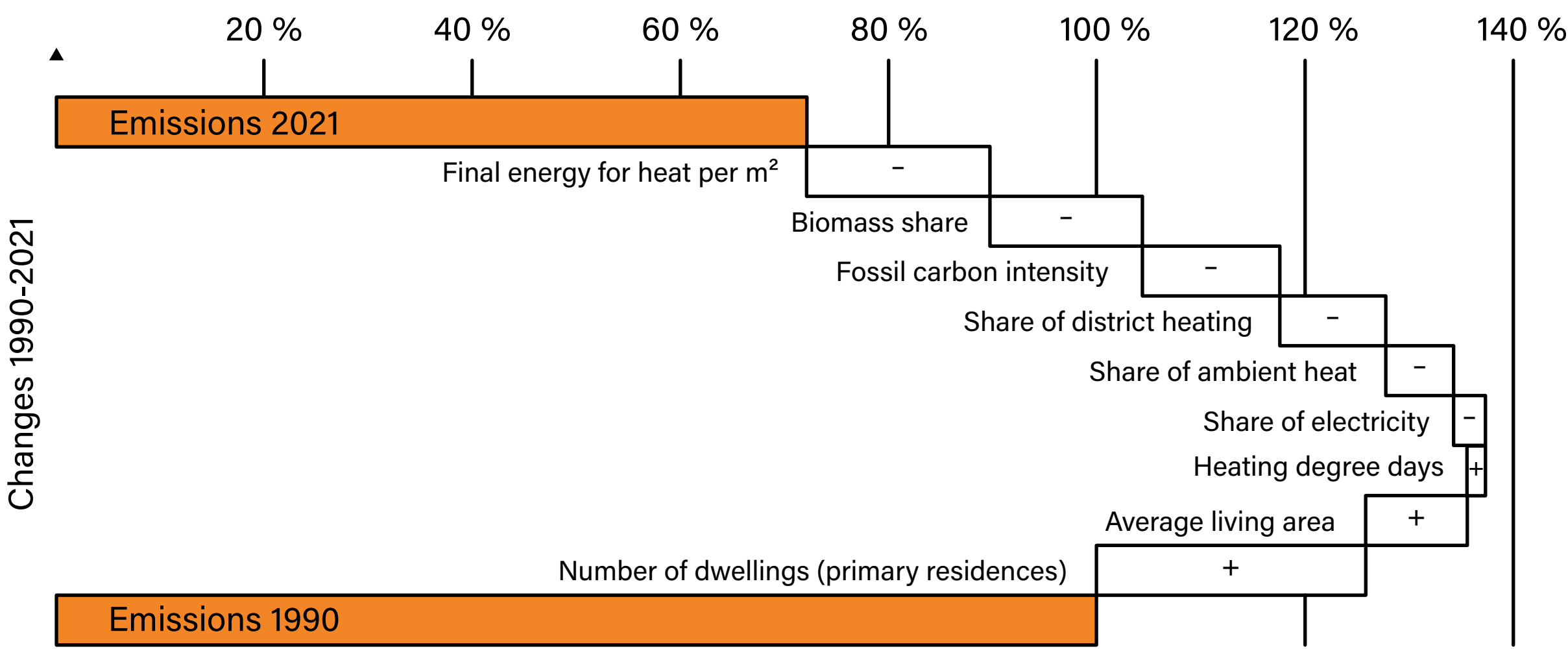
How warm do we need it?

In addition to housing type and technical efficiency measures, our behavior plays an important role in combating the climate crisis.^{4,5} Proper heating and ventilation behavior ultimately also affect our energy costs and comfort. Lowering the temperature by just one degree already saves an average of 6% on heating costs.⁶ However, this does not mean you need to sit in the cold wearing a fur coat. Appropriate winter clothing, regular ventilation, and keeping doors closed between heated and unheated rooms are fundamental principles for efficient heating.⁷

Which heating system?

An efficient heating system should be based on renewable energy sources. Gas, coal, and oil heating systems are increasingly being replaced by more sustainable and often cheaper energy sources: district heating and heat pumps, local heating, as well as biomass heating systems (log wood, pellet, and wood chip boilers) or solar thermal energy. The transition to a new heating system is subsidized by the federal government and the state of Styria. Costs are fully covered (100%) for low-income individuals.⁸

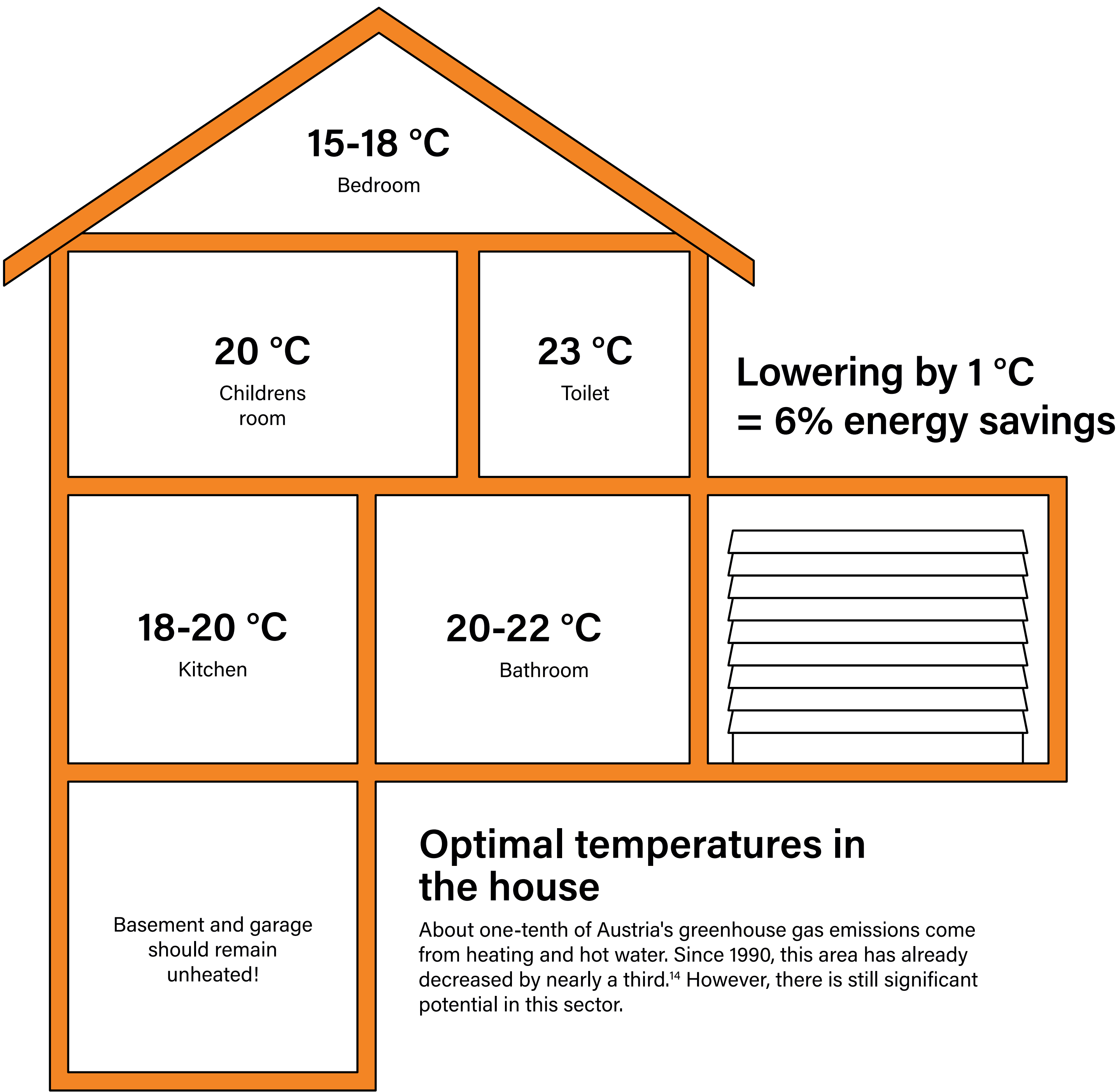
What increases and what decreases emissions in the "Buildings" sector?



Pic. 2

The increase in single-family homes is highly critical in combating the climate crisis because they have a high energy demand.⁹ Similarly, single-family homes are the most expensive housing type for the state due to the required infrastructure.¹⁰ Multi-family buildings represent more sustainable housing forms compared to single-family homes:

1) lower space requirements, 2) higher energy efficiency with the same building standard.^{11,12} Natural factors should already be considered during the design of buildings: sunlight exposure during different seasons and wind conditions. A green facade can save energy as it provides cooling in summer and thermal insulation in winter.¹³



Pic. 3

Optimal temperatures in the house

About one-tenth of Austria's greenhouse gas emissions come from heating and hot water. Since 1990, this area has already decreased by nearly a third.¹⁴ However, there is still significant potential in this sector.

¹ vgl. UBA, 2023a, S. 176f.
² vgl. UBA, 2023a, S. 176f.
³ vgl. Land Steiermark, 2022b, S. 17.
⁴ vgl. Kirchgang et al., 2019, S. 112.

⁵ vgl. Novy et al., 2022, S. 7f.
⁶ vgl. Land Steiermark, 2022b, S. 17.
⁷ vgl. Land Steiermark, 2022b, S. 18.

⁸ vgl. BMK Infothek, 2022b.
⁹ vgl. Kirchgang et al., 2019, S. 41, 64.
¹⁰ vgl. Kirchgang et al., 2019, S. 149.
¹¹ vgl. UBA, 2023a, S. 101f.

¹² vgl. Jany et al., 2022, S. 4.
¹³ vgl. Bude und GSG, 2021, S. 14f.
¹⁴ vgl. UBA, 2023a, S. 101f.

Pic. 1: Eigene Darstellung.
Pic. 2: Eigene Darstellung basierend auf UBA, 2023a, S. 183f. Pic. 3: Eigene Darstellung basierend auf Energie Steiermark, 2022a, S. 21, Energie Steiermark, 2022b, S. 39.