

Low Temperature and Floor Heating

1 Technical Introduction

- Heating systems provide a room or building with a specific temperature.
- A balanced temperature is important for ensuring a comfortable healthy environment.
- low temperature systems only need 35-45°C, which makes them very efficient
 - lower energy loss during transportation
 - lower energy requirement in the heating process itself.
- Low temperature heating systems can include renewable energies better.

1.1 Types of low temperature heating systems

Apart from the available energy source, the installed heaters or distributors can play a big role in the efficiency of the heating system. There are many different types, each having their advantages and requirements. Not all systems are reasonable in every circumstance.

	Radiators	Floor heating	Active Component	Ceiling heating boards
Energy efficiency	Modified versions are energy efficient,	Very energy efficient	Energy efficient in combination with other heaters	Very energy efficient
Implementation	small, private environments, offices, others	mostly in living environments, offices	mostly bigger buildings, business, public spaces,	large halls, business areas, public spaces
Heating and cooling	No	Yes	Yes	Yes
Visible	Yes	No	No	Yes
Installation	Easy installation	Easy, best in renovated or new building	Difficult, only new buildings	Easy installation
Requirements	Heating circuit, space	Floor must be compatible	New buildings for installed in the building structure	High ceilings (3-40 meters)

2 Conclusion

Low temperature heating systems are a key to lower energy consumption in the building sector and help integrate renewable energies more efficiently. There are different systems which can be considered to fit the circumstances.

- Private buildings best option is **floor heating**:
 - Energy efficient, very low supply temperatures
 - Balanced temperatures for comfortable and healthy environment
- **Ceiling heating boards** are good options for business, industry, public areas:
 - Radiation is very efficient, heats up large spaces
 - Easy installation, open floors and cooling is possible as well
- Support for these systems can be an **active component**:
 - Good addition for new big buildings, marginal energy input
 - Supports temperature conservance of building components
 - Heating and cooling is possible