The future of architecture is sustainable. As global warming and overpopulation has become a global concern, it is crucial that the building industry reduces the carbon footprint and provides flexible living spaces. To achieve that, renewable materials choices and sustainable building techniques are required.

Wood: eco-friendly construction material

Datscha's primary construction material is locally-sourced wood. It requires significantly less energy to produce and transport than the typical building materials such as steel. The wooden construction provides the structural integrity needed for towing the tiny house against strong headwinds and has great thermal properties - the space to be easily heated or cooled-down in comparison to e.g. a brick house. All the residual material created while cutting the wood was reused as a fireplace fuel. Wood provides unique aesthetics - some even believe that living in wooden spaces is beneficial for mental health and well-being.

Insulation

We have used both PIR-insulation and glass-wool. Unfortunately none of this materials is produced sustainably, but our main focus was energy efficiency.. As our walls are only 8 cm thick we needed to select material with outstanding insulation properties such as PIR. It has great structural integrity ideal for flooring and keeps its properties even when wet but it does not allow the walls to breath. Therefore we combined it with the glass wool - a very lightweight and breathable material. The proper insulation allows the home to cool down easily in the summer and keep the warmth in winter.

Energy consumption and off-grid equipment

All the electrical equipment used in the house, such as the refrigerator and lightbulbs have a high energy class. We do not use any of the high-energy domestic appliances such as hair dryers or electric kettle. For cooking we installed an alcohol stove. Smell-free freezing toilet does not require connection to sewage, the grey water is connected in a tank. We installed infrared heating panels on the floor. The infrared heating is programmable, convenient to use and does not take up any of the precious space. Infrared technology assured no loss in heat transfer, as the system utilizes 100 percent of the heat which it generates to heat up the floor.

Datscha 2.0

We are currently designing a next version of the house that can fully operate off-grid thanks to the solar energy.