

CONCEPT

The architecturally integrated cooling module is designed to enable the storage of food using local energy resources. Through the principle of concrete core activation, the coldness of water is transferred to the building component without consuming the water in the process. The water flows through water pipes in the building component before being further used, causing the cooling modules to take on the temperature of the water after an initial activation period. The system maintains itself as long as water is further used in the building or within a cooling cycle, longer breaks are compensated by the inertia of the concrete material. The large surface area inside the modules transfers the cold to the narrow interior space,

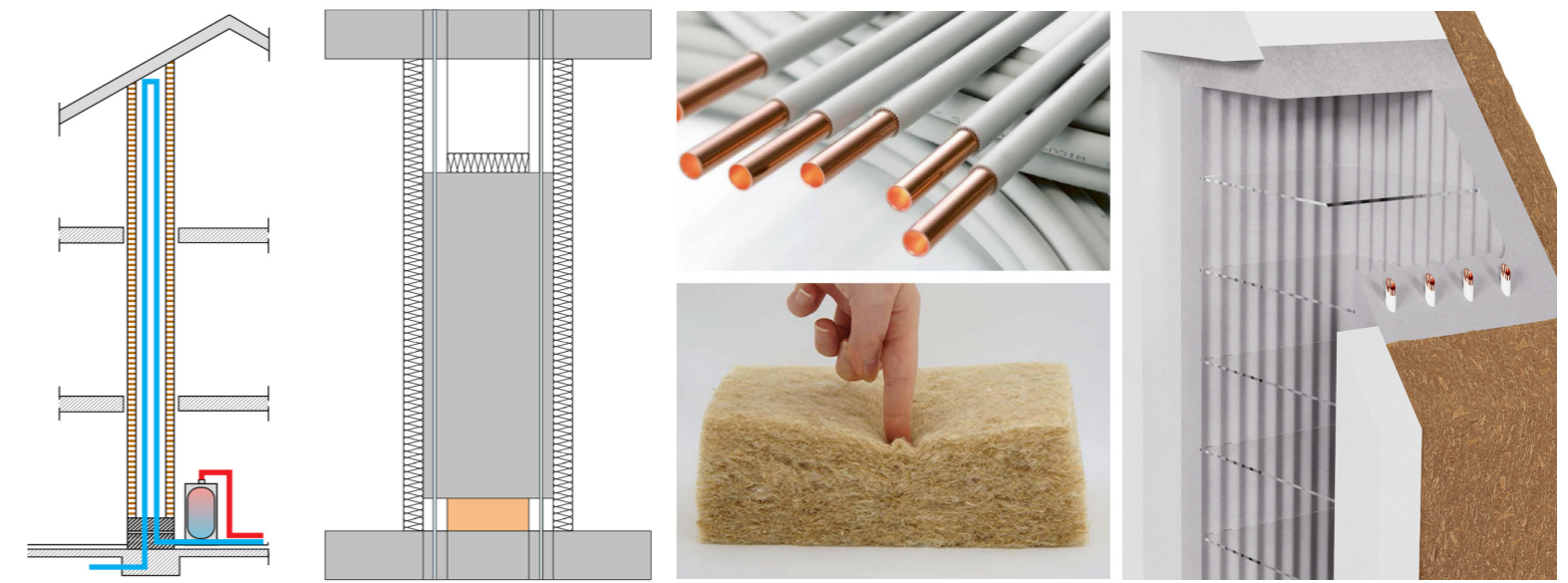
creating a cold room for food. On the outside, the walls are insulated with natural insulating materials and an insulating door acts as an interface between the living space. Inside, inserted and replaceable glass or concrete panels allow food to be stored. Along the undulating walls, condensation can drain away optimally, which accumulates at the front floor edge due to the slope of the floor and can be easily removed. The advantages of the design are the use of local energy resources, a leaning towards modern building design and a material-friendly cooling option, integrated centrally in the building instead of multiple conventional refrigerators.

WATERCOURSE

The water is passed through the modules before it is used or heated in the house or alternatively in a separate cooling cycle. For example Vienna's extremely cold groundwater with a temperature range of 5-8°C or new technologies like district cooling with 5-6°C are ideal. After an activation time, the concrete is core-activated by the cold of the water and a cooling chamber is created. The modules themselves are supported on the main architectural beams and can be placed between floors. They are variable in height so that the needs of different users can be met.

MATERIALS

The basic material is water-repellent concrete. Thinly coated copper pipes ensure optimal energy transmission and the preservation of water quality, while also protecting the pipes from corrosion. Insulation panels made of organic fibre material protect the system from energy loss, and an insulated door forms the closure to the user. Removable glass shelves form a hygienic basis for the food storage compartments.



FROM LEFT TO RIGHT: 1 - WATER CIRCULATION, 2 - TECHNICAL DRAWING OF A SINGLE MODULE AT ROOM HEIGHT, 3 - EXAMPLE OF COATED COPPER PIPES 4 - EXAMPEL OF NATURAL INSULATION MATERIAL, 5 - RENDERING MATERIAL STRUCTURE, 6 - CONCRETE MODEL CUTOUT 1:1

