



## Żabka Eko Smart

**Technologies applied in the Żabka Eko Smart at 2 Powstańców Wielkopolskich Street in Poznań were supplied by 14 companies, most of them Polish companies. The solutions revolve around five key categories: green energy, second life, clean air, green transport, and smart solutions.**

### GREEN ENERGY

**PEROVSKITES** - Groundbreaking photovoltaic technology, generating green energy from both sunlight and artificial light. The perovskites printed on the film are a highly innovative material. They perfectly absorb light, so that, like silicon, they can be used to obtain electricity. The lightness and flexibility of perovskite cells makes them suitable for many different surfaces. Furthermore, they are characterized by their ability to absorb light at almost all visible wavelengths, making them extremely efficient. The Żabka Eko Smart uses one of the first such installations in the world - in this breakthrough technology, blinds were made to cover one of the walls of the building. The perovskites were also installed on electronic price tags, which additionally allows to save paper.

**PHOTOVOLTAIC PANELS** - 15 modules are installed on the roof of the facility; they cover part of the demand for green energy, reducing the carbon footprint - to make visits to Żabka even more environmentally friendly.

**CLOSED REFRIGERATION** - Intelligent, lockable refrigeration allows for high energy savings and improves food safety. This solution also increases the life of the device, by optimizing the conditions of its operation. In addition, **the refrigerator insulation was made of hemp mats**. This is a promising alternative to the commonly used polyurethane foam, as hemp - as a natural material - is fully biodegradable. It is also a material that in no way endangers human health.

In turn, **glycol shelves** were used in freezer cabinets. As the name suggests, they are filled with glycol, which allows you to store the cold and give it away at the most critical moments of furniture work. This cold battery undergoes a phase change (PCM - phase change material), which ensures that a stable temperature in the device is maintained at each exposure level. The cold storage shelf also allows for faster cooling of products during loading by personnel and increases the safety of stored products during external failures. As a result, it also increases the energy efficiency of the entire refrigeration system.

**SOLAR BENCH** - Green energy can also be used directly by customers of the chain - in front of the store, there is a solar bench, thanks to which one can charge their phone. Each year, the bench's solar panels produce 80 kWh of energy - that's 16 thousand hours of charging a standard smartphone. A phone will get the power it needs quickly with USB 3.0 ports and an induction charger. The solution is completely safe (it only has charging circuits) and very environmentally friendly.

### SECOND LIFE

**TILES MADE OF WASTE COFFEE GROUNDS AND HUSKS** - The wall next to the coffee maker is covered with tiles made of coffee grounds and husks, which are waste resulting from the roasting and brewing of coffee, combined with resin. Not only are they robust, but they are also a great way of managing the waste coffee grounds and husks that would otherwise be thrown away. In addition, the tiles decorate the interior of the store, giving it an individual character, and at the same time help to protect the environment, by reducing the amount of waste.

**EKOMAT** - A device for collecting bottles and cans. New containers will be created from the collected empty beverage containers, which have a carbon footprint 33% smaller than the traditional packaging. What's more, it will result in less plastic ending up in landfills. For bottles thrown into the ECOMat, consumers receive loyalty points in the Žappka application, i.e. žapps; in addition, they also learn how much carbon footprint was saved by their actions.

**ORGANIC COTTON CLOTHING** - The franchisees and their employees wear t-shirts made of 100% organic cotton, which has a smaller water footprint than conventional cotton, and the complete exclusion of chemicals in its production. The cotton has been dyed green with organic certified dyes. The highest quality of environmental standards is guaranteed by the GOTS (Global Organic Textile Standard) certificate, granted to the manufacturer of clothing. It is the world's leading standard for the certification of textile products. It covers all stages of the production of products from natural fabrics - from the raw material to the finished product. Social and environmental considerations are also taken into account.

**RECEIPTS ON RECYCLABLE PAPER** — Receipts from cash registers, as proof of purchase, are printed on recyclable paper — the total percentage of recyclable mass is determined at 98,2% (result confirmed by an independent laboratory). This paper can therefore be thrown into the waste paper fraction.

### **GREEN TRANSPORT**

**BICYCLE REPAIR STATION** - The bike is the most ecological and healthy means of transport. Therefore, in front of the Žabka Eko Smart, there is a bicycle stand and repair station, which will allow one to quickly adjust the brakes and gears, inflate the wheels, as well as make emergency repairs. The QR code, placed on the station, will redirect to instructions on how to perform basic repairs.

### **CLEAN AIR**

**VERTICAL GARDEN** - To reduce the amount of dust and harmful substances that enter the atmosphere, one of the walls of the building where the Žabka Eko Smart is located has been covered with plants. Not only do they produce oxygen, but they also absorb dust and harmful compounds from the air. Plants grow right next to the parking lot and absorb up to 85% of the exhaust gases that would otherwise end up in the atmosphere. In total, 532 plants were planted in 280 pots.

**ANTI-SMOG PAVING** - The paving placed in front of the store has a photocatalytic surface consisting of nanoparticles of titanium dioxide. The paving reduces the concentration of nitrogen oxides in the air by approximately 50% on average compared to asphalt. The effect is particularly felt by young children, as the cleanest air rises close to the ground and reaches up to the height of the baby stroller.

### **SMART SOLUTIONS**

**SMART SHOP CONTROL** – Innovative system for managing many devices, including refrigerators. It allows for remote monitoring and control of their functions and parameters, as well as troubleshooting (e.g.

switching on/off the light, switching on/off the device, blocking the control panel, temperature control of the device). Allows immediate detection of failures, which ensures a high level of food safety. This is possible thanks to the continuous analysis of the operation of the equipment. Helps protect the environment and conserve energy (including green energy) by optimizing equipment operation, preventing failures, and providing early warning of failures. Smart Shop Control extends the life of the equipment and avoids greenhouse gas emissions resulting from possible leakage of refrigeration systems. Optimizes service operation - thanks to the ability to remotely adjust operation, service visits are limited only to those related to the physical fault. This revolutionary solution increases safety while taking care of the environment.

**HYBRID SYSTEM** – Multifunctional air conditioning and ventilation management system, which thanks to continuous air exchange, ensures its freshness, optimizes temperature and humidity and guarantees energy efficiency through the recovery of heat from the removed air. Thanks to the remote monitoring of the store's performance parameters, it determines the optimal values for it. It also ensures even temperature distribution and removes microbes, allergens, and harmful dust.

**INTEGRATION WITH THE COFFEE MAKER** - The coffee maker in the Žabka Eko Smart is always available and ready to make the selected drink. The system integrates (via the appropriate interface) the coffee maker and exchanges information with it to detect any irregularities. Using the sound system installed in the store, it generates messages directed to selected zones, e.g. sales zone, storage, or manager's room. Messages may include, for example, refilling milk, coffee, or chocolate, emptying the water tray or bins, closing doors/covers, and cleaning or descaling.

**SAUSAGES ANALYTICS** - Using a camera and an advanced recognition and counting system, the number of sausages on the grill is analysed. This value is compared to the forecast sales and compared to the schedule to verify that the product is distributed correctly on the device. The aim is to ensure the right amount of product at times when hot dog sales are intense and to minimize product losses at times when customers' appetite for them is lower. The solution prevents food waste.

**SAFETY SYSTEM** - In Žabka Eko Smart safety system has been extended, among others, with special additional breakage sensors (glass breaking). Access control is also installed on the back door - only the users with a card through which they are authorized can cross the doorstep.