

## New concrete structure for SAUSKA Winery in Tokaj

The building of the winery based on two organically linked parts with different structure.

The three-storey part of the building under the ground level is an expansion unit, which is a rectangular-shaped, self-contained building block. Furthermore, the structure of the building part is a pillar-system, with reinforced concrete structures. The floor structures are reinforced concrete slabs, typically supported by points, flat on the top and bottom, and there are reinforced concrete basement walls on the edge. The basement space is divided into three levels (arrival level + gallery level + first-floor level) by the volume of the building part. The roof slab is green roof designed which fits into the existing ground plane.

The main load-bearing pillars are made of reinforced concrete, which cross-sectional dimensions are 40/40 and 50/50 cm.

The thickness of flat plate slabs which are supported by pillars and walls are 28 cm. The roof slab is 30 cm thick. The strength class of concrete: C30/37-XC2-24-F2 MSZ 4798-1/2004.

The organically linked and concaved ball shaped slices have intersection and they form complex reinforced concrete stressed-skin structure. The stressed-skin structures are stiffened by reinforced concrete ribs and slabs. These ribs have directrix and generatrix directions as well. This part of the building is supported by steel columns which are fixedly connected to the fundament. The horizontal projections of the ball shaped slices are two circle which have 20 meter radius and the distance between them is 28 meter.

Reinforced concrete ribs which are the basis of the reinforced concrete stressed-skin structure are necessary because of the concentrated loads. The ribs with directrix direction, which are on the top of the steel column and on the edge of the stressed-skin structure are necessary to absorb the tensional forces. The reinforced concrete surface components with ribs together are able to absorb the membrane forces. The cross section of the ribs is 40/65 (25+40) cm. The planned thickness of the surface components is 25cm.