10. Vertical Load-Bearing Monolithic and Prefabricated Structures





Europäische Union







Monolithic concrete and reinforced concrete walls

- Concrete wall structural system is roughly 10 times more bearable compared to brick masonry system.
- Monolithic concrete load-bearing walls are used mainly for civil buildings, for buildings of diverse shapes and complicated floor plans, receding and overhanging structures, high-rise buildings and buildings with high architectural demands.
- Formwork: partial x tunnel x sliding or drawn x built-in lost formwork
- Surface coating of monolithic walls is made by plastering or facing









Monolithic reinforced concrete column structure

- Monolithic reinforced concrete column systems are solid structures made of columns, beams or heads and ceiling structure.
- Monolithic reinforced concrete skeletons are made as:
 - Frame skeleton system the transverse direction, in the longitudinal direction or in the two-way direction.
 - Flat slab with column head skeleton system is used for objects loaded with large payloads, complicated formwork.
 - Flat slab skeleton systém are used for objects with lower payloads. Their advantage is a flat view.
 - Expansion joints can be made in several ways: duplication of columns x duplication of supporting beams x created by an inserted field.









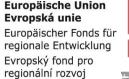


Prefabricated concrete reinforced concrete walls

- **Blocks** are wall element panels, their height is ½ to 1/3 of floor height, thickness 300 to 400 mm.
- Blocopanels are wall element of floor height and a width of 1200 to 1500 mm. The thickness of the blockopanels is 250 400 mm.
- Wall panels typically have an area of 10 to 20 square meters. The height corresponds to the height of the floors. Their usual is 150 mm.
 - Internal load-bearing panels thicknesses of 150 200 mm and in a length of multiple 300.
 - The perimeter wall pane the thermal insulation function
 - The stiffening panels provides stability prefabricated buildings. Their thickness varies from 80 to 100 mm











Prefabricated reinforced concrete column structure

- Frame assembled skeleton is made up of supporting beam mounted on columns.
- Frames are formed by dividing the monolithic frame off its joints, at the sites of the smallest bending moments
- Console columns and split beams are formed by separating the beam from the columns on which the brackets remain.
- Columns with continuous beams are formed by dividing monolithic skeletons in the joint.
- During the development, more than 30 systems of prefabricated skeleton systems were built.







