

# 11. Openings in Walls

# Openings in Walls

- The openings are designed to ventilation and illuminate the room with daylight (window openings, door openings, gate openings, passes, the niche).
- All openings have head of openings and jambs.
- **The jamb** is the lateral surface of the opening in the wall.
- The **window ledge** is the bottom part of the niche and the entire lining under the window.
- Door and gate openings have a **threshold** at the bottom or they are without a threshold.

# Lintels

- **The lintel** must be placed over the openings (Static and Thermal insulation requirements x Compositional).
- Loads of lintels may be:
  - **equally continuous** (e.g. reinforced concrete slab)
  - **solitary loads** (e.g. Beams)
  - **one-sided load eccentricity** (the peripheral wall)
  - **load-sided** (at the middle of the wall).
- The lintels must ensure the transfer of loads to the adjacent supports. According to the technological implementation, the lintels may be monolithic or prefabricated

# Lintels

- **Stone and brick lintel** - The direct **stone lintels** are made up of precisely placed bevelled blocks and connected by stoneware clinch. The lintels from stone blocks should have upper and lower obverses horizontal. Simple brickwork head of openings is done as a reinforced brick lintel. The brick strip is vaulted in the wall thickness on the wooden, or mortar, shoulders.
- **The Steel lintel** from rolled I-beams are used for heavy loads and large spans (up to 6 meters) as well as for renovations.
- **Ceramic lintel.** Ceramics have the low tensile strength and thus **ceramic lintels** are complemented by the reinforcement in ceramic blocks.

# Lintels

- **Lightweight concrete lintel.** The lintels from lightweight concrete can be box, roller, segment or arc.
- **Prefabricated reinforced concrete lintel** are assembled from prefabricated rod-shaped elements of which it is possible to compose multipart lintels. The lintels are made in lengths from 1.2 to 3 meters.
- **Monolithic reinforced concrete lintel** are applicable for any load range. The advantage of monolithic lintels is their shape and dimensional variability. The disadvantage is considerable labor, the need for formwork and the possibility of loading until the concrete is hardened.