

## APARTMENT BUILDING K76 Darmstadt (Germany)

### NEW BUILDING

<b>Client:</b>	K76 eG, Darmstadt
<b>Architects:</b>	werk.um architekten GbR, Darmstadt
<b>Our services:</b>	Full structural design Establishing the basis Preliminary design Final design Approval documentation Execution drawings Preparation of contract award Structural fire protection Earthquake engineering Sound insulation

**Brief description:** Construction of an apartment building with 14 flats, some of which designed as maisonettes, day nursery on the ground floor and an underground garage with 16 parking spaces

#### Building

- 5-storey reinforced concrete skeleton building with the outer wall made of sand-lime brick (for better sound insulation), other walls in a lightweight design
- flat roof with photovoltaics
- floor spans of 4.5 m in keeping with partitional grid matrix of the building
- supporting structure allows a flexible concept, i.e. flats can be vertically and horizontally partitioned in different sizes according to the building's basic grid matrix
- stiffening through the internal stairwell with lift
- due to design considerations surface of outer walls partially set outwards and staggered vertically. Load transfer through the floor edges
- porches

#### Underground car park

- underground car park set into hillside, Bessunger Kies (a loose form of rock)
- during the building phase existing foundations demolished and earth excavation
- construction take into account the sloping terrain, e.g. padding with lean concrete
- underground car park roof slab 60 cm under the ground
- due to high risk of wide cracks from external earth pressure underground special walls constructed out of impermeable concrete
- safeguarding against uplift using discharge openings in the base plate allowing water seepage necessary because of unusually dense rock bed
- two openings for skylights (5 x 1.5 m) with rising, fixed 1.8 m high reinforced concrete walls acting as an outside edge and support
- strip and spot footing

**Completion:** 2017

Award "Prize for Innovation and Public Spirit in Housing",  
Hessian Ministry for the Environment, Climate Protection,  
Agriculture and Consumer Protection

