

High-rise Tower

Diaphragm wall - Barrettes - Piles - Structural work

MECHNIKOVA STREET - PARUS OFFICE CENTRE

KIEV - UKRAINE



Foundations and structural work for a tower with 31 floors and four basement levels

Osnova Solsif, Solétanche Bachy's Ukraine subsidiary, was appointed to build the foundations and all structural framework (concrete core, floor slabs, walls) of the Parus Office Center in Kiev. The tower has 31 floors and 4 basement parking levels and is located in the centre of a new business district and at the intersection of the city's main roadways.

The foundations

The initial work involved building a Berlin-type retaining wall with anchors beneath the street for excavations to be carried out to produce a horizontal work platform at an elevation of + 144.00

A diaphragm wall 0.80m thick and 32 m deep and with a perimeter of 265m was then built down from the platform. Outside the area of the building, 579 C.F.A. piles were constructed down to a depth of 23m and metal struts fitted to extend the excavation down to the third basement level.

The barrettes, 2.80m long with a thickness of 1.00m, were



Start of the superstructure

OWNER :	MANDARIN PLAZA
ENGINEERS:	BIP PM
FOUNDATIONS & STRUCTURAL :	OSNOVA SOLSIF
CONSTRUCTION PERIOD: MARCH 2003 (FOUNDATIONS) TO OCTOBER 2005 (END OF STRUCTURAL WORK)	

MAIN WORKS QUANTITIES:

- Diaphragm wall : Perimeter 265m ; thickness 0.80m ; depth 32m
- Tower foundations barrettes: 52 units of which 42 are fitted with plunged steel columns
- Building foundation piles, excluding the tower : 579 units of diameter 820mm and depth 23m
- Structural :
 - 4 basement levels: 12,206m²
 - 31-floor tower : 60,000m²
 - Total tower height : 131m
 - Concrete : 47,600m³



Construction of the 131 meter high tower



The completed tower

installed from the new platform and were fitted with plunged steel columns to carry a ring slab on basement level 3. Once the barrettes were installed, the ring slab was cast in situ.

Structural

All the structural work, except for the core, was carried out using traditional techniques and a tall tower crane.

The superstructure of the central core of the tower was built using DOKA SKE-50 automatic climbing formwork,

enabling three floors to be completed each month, with excellent quality and operator safety.

The central core is 24m long and 8m wide, and, not counting the perimeter wall, features 6 internal walls, with a total of 150m³ of concrete for each floor. The use of this method meant that it was possible to perform regular, repeated cycles of formwork erection, reinforcing, pouring and striking, with minimum manpower and a high production rhythm.



The excavation between Lesi Ukrainky boulevard and Mechnykova street



The ring slab under the struts