Amstetten, October 2011

Presse release

# Reliable forming of some pathbreaking architecture

Mestia, in the Caucasus mountains of Georgia, is a mediæval town known for its many stone-built defensive towers. As a UNESCO World Heritage Site and centre of a major winter sports region, the town has considerable tourist potential, which the Georgian government is making great efforts to develop. Some examples of these efforts may be seen in Mestia’s futuristic airport building, and in a new police station embodying pathbreaking fair-faced concrete architecture. Both these projects were designed by the Berlin firm of Architekten J. Mayer H. For the five-storey police station, Doka delivered high-performing formwork solutions and provided dependable support to the construction operations with a package of services.

**Truncated fair-faced concrete pyramid**

This five-floor police building has a typical storey height of 3.60 m and is topped by a wave-shaped roof. It was built entirely in fair-faced concrete, with a special surface structure designed to be reminiscent of the mediæval stone walls of the old town. Knowing that they had only six weeks in which to complete the structure shell of this CIP concrete construction, with its flame-shaped window openings, contractors Zimo contacted the Doka Formwork Experts.

The geometry of the structure resembles the base of a pyramid, a shape intended to allude to Mestia’s stone towers. As the initial 140 m² groundplan tapers with every succeeding casting section, the formwork elements could only be used one time each. To make matters more difficult still, the tight schedule did not permit any downtime. Doka thus proposed a formwork solution consisting of 380 m² of Large-area formwork Top 50 and an ingenious forming sequence. While one team was setting up and aligning the formwork, a second team preassembled the timber-beam formwork elements for the next casting section directly on the site, under the direction of a Doka Formwork Instructor. Large-area formwork Top 50 was the ideal solution for this project. The system offers immense flexibility with only three different system components, as the shape and size of the elements can be adapted to meet any requirement, as can the tie-hole pattern. The special concrete finish was achieved by placing structure matrices into the formwork.

**Flame-shaped box-outs**

Another challenge was the flame-shaped window openings extending across several storeys in the facade. Each of these openings is unique in terms of both its shape and its dimensions. To ensure that this formwork gave a perfect fit and so as not to lose any time on-site, Doka had precision-fitting box-outs prefabricated by the Ready-to-Use Service of Doka Slovenia, and supplied them to the site on time and ready for operation. Prefabricating the formwork professionally in this way saved assembly costs and delivered outstanding concrete results.

To transfer the concrete loads from the wave-shaped roof, Doka proposed fielding the high-performance Load-bearing tower Staxo 100 system. Its extremely sturdy steel frames, in three different heights, are easy to erect safely and feature an integral ladder with non-skid rungs that ensures safe up-and-down access.

**About Doka:**

Doka is one of the world's leading companies for developing, manufacturing and distributing formwork technology for use in all fields of the construction sector. With more than 140 sales and logistics facilities in over 70 countries, the Doka Group has a highly efficient distribution network which ensures that equipment and technical support can be provided swiftly and professionally. The Doka Group is part of the Umdasch Group and employs more than 5200 people worldwide.

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**Captions:**

**Doka\_2011-10\_Police Station Mestia Georgia\_IMG\_01**

The flame-shaped window openings in the facade extend across several storeys. For these, Doka fabricated box-outs with last-millimetre precision.

Photo: Doka

**Doka\_2011-10\_ Police Station Mestia Georgia \_IMG\_02**

To transfer the concrete loads from the wave-shaped roof, Doka supplied its high-performance Load-bearing tower Staxo 100.

Photo: Doka

**Doka\_2011-10\_ Police Station Mestia Georgia \_IMG\_03**

The geometry of the structure resembles a truncated pyramid, with the result that each formwork element could be used only once.

Photo: Doka

**Doka\_2011-10\_ Police Station Mestia Georgia \_IMG\_04**

Large-area formwork Top 50 is a customisable "construction kit" formwork system designed to accomplish many very diverse types of task.

Photo: Doka