DYWIDAG Post-Tensioning Systems secure "Archaeological Reconstruction" of the Church of Our Lady in Dresden

Reference Details:

Owner Stiftung Frauenkirche Dresden (Foundation for the Dresden Church of Our Lady), Germany +++ **Main Contractor** JV Frauenkirche Dresden - Walter Bau-AG, Philipp Holzmann AG, Sächsische Sandsteinwerke GmbH, Germany +++ **Subcontractor** SPESA Spezialbau und Sanierung GmbH, Nordhausen/Thuringia, Germany +++ **Main Designer** IPRO DRESDEN Planungs- und Ingenieuraktiengesellschaft, Germany

DSI Unit SUSPA-DSI GmbH, Germany
DSI Services Supply of various DYWIDAG Post-Tensioning Systems and *GEWI* ® Bars; Stressing operations; rental of technical equipment and comprehensive technical assistance.

Reconstruction of the Church of Our Lady, Dresden, Germany

Once Dresden's Church of Our Lady was deemed the most beautiful urban artwork in the world. The Church of Our Lady withstood the bombing of February 13, 1945, but two days later the meanwhile completely burnt out church collapsed as a result of the enormous heat.

In 1992 the Dresden city council gave its consent to the historical reconstruction of the world-famous Dresden Church of Our Lady in order to return to Dresden its most important landmark decades after the end of the Second World War.

From the very beginning of this quite unique building project, SPESA Spezialbau and Sanierung GmbH Nordhausen, Germany, chose SUSPA-DSI as its preferred supplier of critical construction elements. During the process of removing the "Trümmerberg" formed out of approximately 20,000 m^3 of war debris in 1993, the remaining remnants of the old structure substance were secured by means of Ø 26.5 mm gr 835/1030 prestressing bars and appropriate flat bearing plates and domed hex nuts. The rebuilding of the church began at the end of 1994. At that time, SUSPA-DSI supplied large quantities of Ø 26.5 mm and 32 mm steel bars for the static and structural reinforcement of the basement vault of the lower church.

In the course of further construction progress of the church, SUSPA-DSI supplied extensive material including numerous multistrand bonded tendons made of Ø 26.5 mm and Ø 32 mm gr 835/1030 DG steel. The services provided by SUSPA-DSI not only included the supply of post-tensioning tendons, but at the same time it also included comprehensive technical consultation to the engineers in charge and the main contractor as well as the undertaking of part of the post-tensioning work required on site. In addition, galvanized Ø 50 mm *GEWI* ® Bars were used - amongst others - in the connection area between the vault arches and the piers of the church to a large extent. Here, as well, SUSPA-DSI successfully carried out the stressing operations which posed quite a challenge due to the specific characteristics of sandstone, a natural product, and the unique nature of the structure itself.

Another significant challenge was the installation of permanent single-bar anchors to secure the lantern (the tower-like structure with windows above the opaion of the external cupola) that now constitutes the observation platform for the Church of Our Lady in Dresden. Four permanent single-bar anchors with a total length of up to 11 m were installed in each of the four latern columns. SUSPA-DSI provided the technical equipment required for the relevant stressing operations.

The church was finished in July 2004. Following completion of the finishing of the interior, the Church of Our Lady in Dresden was solemnly consecrated on October 30, 2005.

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