

Saudi Arabia Tower



What is recognized today as the highest building of Saudi Arabia started in April 1997. Taking over responsibility for all surveying work of the Al-Faisaliah Tower in Riyadh we had to lay out the main points for the location of the building and its main axis. Using a Leica TC1800L total station with EGL guidance we achieved an accuracy of $\pm 3\text{mm}$ for the traverse. To control the core wall verticality we set out 40cm permanent offset points at each corner of every wall at the base of the tower. With the help of our Leica ZL plumbing level we were able to check the verticality before every pouring of concrete without shifting control points. To prevent obstacles in the ranging way of the plummet line 10cm diameter sleeves were left at every floor. Having reached a height of 100m from basement level

we measured with our Leica total station corner coordinates of the core wall form work. This cross checking method proved the accuracy of every instrument and of our surveying methods. From the 16th floor on we used the Leica ZNL Nadir plummet level and cross-checked all shifted points and verticality. By targeting these points with the Leica TC1800L total station we were able to define each point with millimetre accuracy. In this way we completed the 270 metre high tower with an excellent vertical accuracy of $\pm 12\text{mm}$ of the last main concrete structure.

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