Indoor Swimming Pool Wassenberg – Moisture and Leakage Scan from 2009-01-22

On 2009-01-22 we carried out moisture scans in the object Parkbad Wassenberg, an indoor swimming pool.

The measurement was done to find the areas affected by water ingress in a partial area between stairway to swimming pool and facade axis 02-06.

The scan took about 1 hour for a total area of 200 m² at a lateral resolution of 15 cm, that was completely investigated.

Measurements:

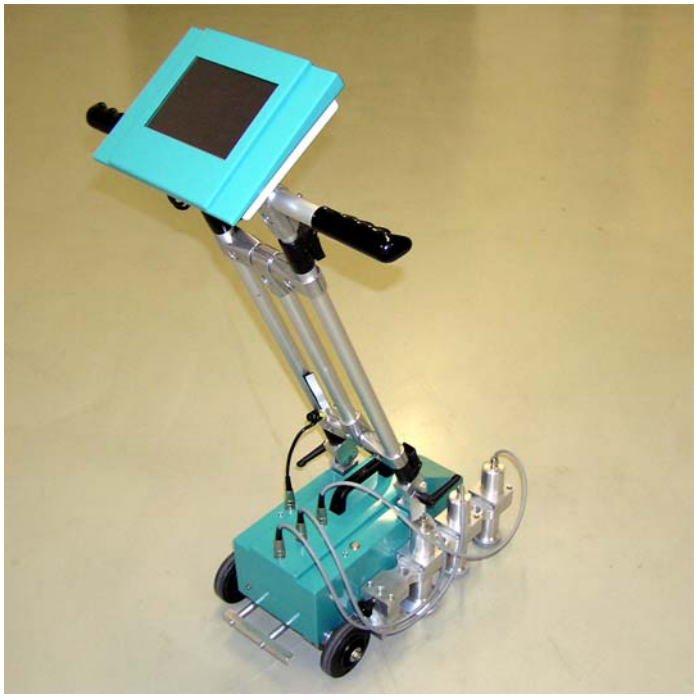
Surface and volume measurements were carried out at the areas of interest in terms of moisture distribution. The measurement was accomplished with the microwave based moisture scanner MOIST SCAN 100.

MOIST SCAN was developed for high resolution investigation of moisture distributions on large areas. Using MOIST SCAN it is possible to scan up to three depth layers in one track. MOIST SCAN was equipped with the microwave sensors

– MOIST R2S (for surface layer up to 4 cm penetration depth)
– MOIST DS (for mean layer up to 10 cm penetration depth)
– MOIST PS (for volume layer up to 20 - 25 cm penetration depth).

The moisture scan was recorded in measuring mode FI (moisture index). FI gives the moisture-dependent microwave reflectivity of the underground and delivers a dimension-less number between 0 and 4000. FI is a measure for a material under test being dry or wet. Low moisture index compared to its environment means “dry for the measurement described herein, while high moisture index in comparison to the environment means “wet”.

The scan was accomplished systematically with a scan grid of 25 cm and visualized as a graphics in the images following. All measurements are in top view. The counting is starting always at left side.



Results

As an example one scan of the area close the stairway is shown here. From the scan image important information can be won.

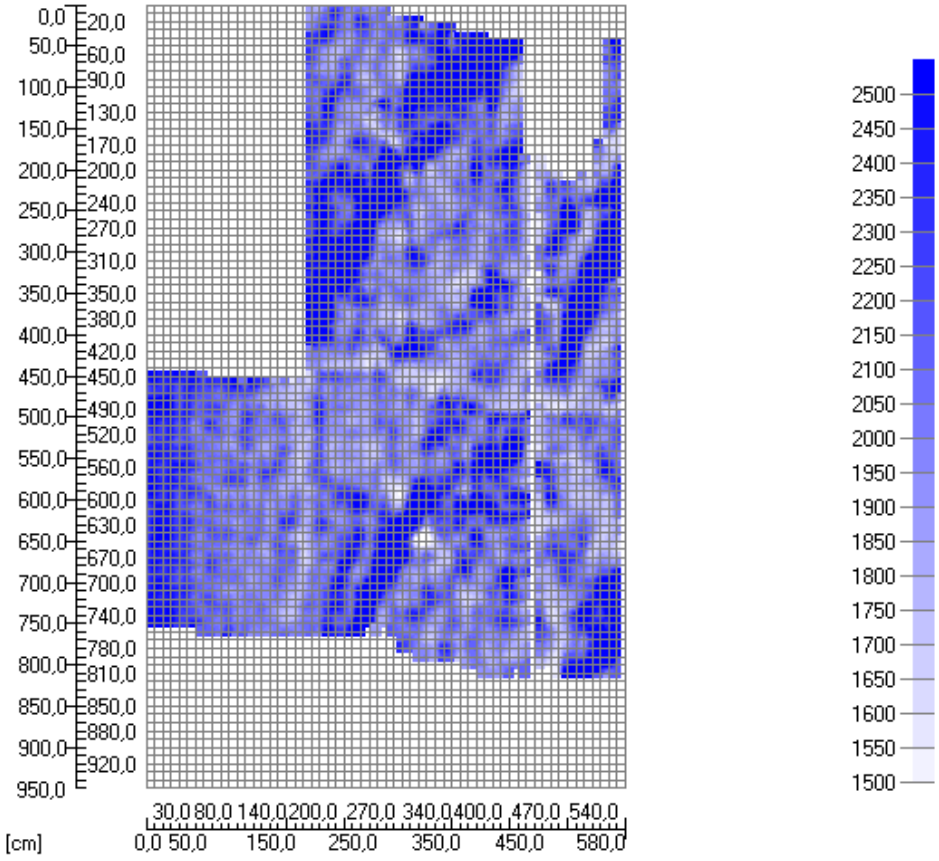


Fig. 1 FI-distribution sensor MOIST R2S – Surface

The surface scan with MOIST R2S shows wet areas with increased moisture directly under the tiles and above the sealing. Concluding this is the normal and permissible situation in an indoor pool.

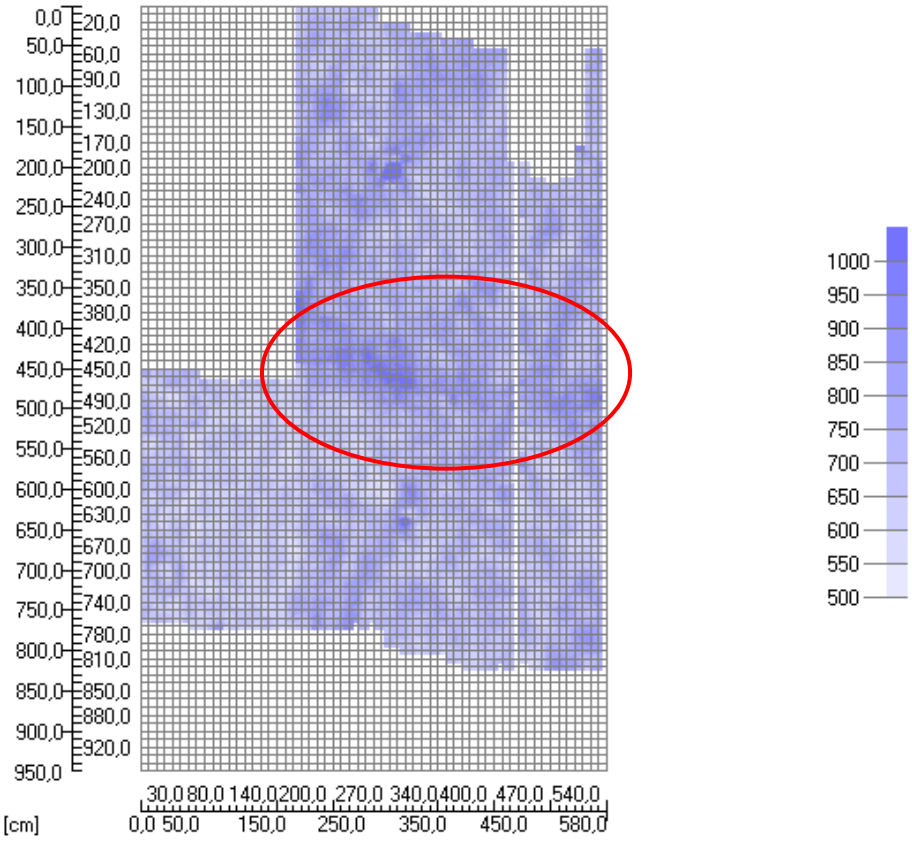


Fig. 2 FI-distribution sensor MOIST DS – Mean volume layer

The scan of mean volume layer with MOIST DS shows an emerging water leakage from left to right at height of the lower end of the stairway into the swimming pool.

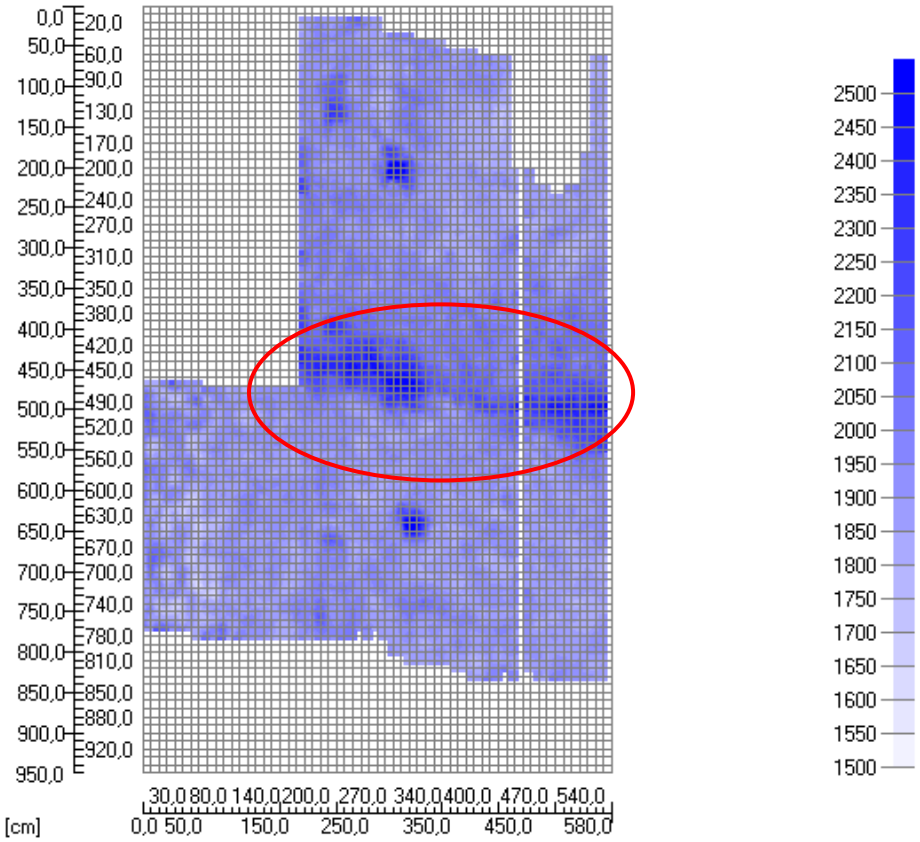


Fig. 3 FI-distribution sensor MOIST PS – Volume layer

The scan of volume layer with MOIST PS is confirming and highlighting the water ingress from left to right at height of the lower end of the stairway into the swimming pool.

The two dark points are water inlets with metal cover.

Concluding the leakage was found in the named area at the lower end of the stairway into the swimming pool with high feasibility.