



Glass Wall Köln-Westhoven on the Rhine

The stationary gravity wall on the Westhoven high bank reaches up to a height of 10.90 m of the Cologne level. According to the new Cologne Flood Protection Concept, the required protection goal is within this range at 11.30 m of the Cologne level. In the Rheinaustraße area, the missing 40 centimetres of the mobile flood defence system have been secured with mobile aluminium flood defence walls. In the area between Rheinaustraße and Pfarrer-Nikolaus-Vogt-Weg, mobile flood defence walls were not an option due to the private lots that border directly on the gravity wall.

In order to coordinate the interests of adjacent owners and the flood protection properly, the gravity wall was raised by 40 centimetres with a transparent structure. The solution thus achieved represents the consideration to the justified interests of adjacent owners and the district along with achieving the protection goal, the adherence to calculation defaults and the bringing about of the required building lease.



Element lengths as long as possible had to be realised for the glass wall structure to appear transparent and diaphanous in spite of the great load requirements. The use of high-performance laminated safety glass and resilient yet filigree frame structures allowed the realisation of spans of 2.0 m length. The laminated safety glass was made up of single pane safety glass of two external sacrificial panes each and two internal support panes. All glass elements were tested with a special procedure, the so-called heat-soak test, in order to meet the high safety requirements. In spite of all safety measures, the replacement of a laminated safety glass pane may still become necessary some

times. The frame structure has accordingly been designed demountable without any silicone/adhesive seal for this replacement process to take place as planned without damage to the basic or the frame structure and with minimum effort.

The glass wall construction not only fits into the architecture of the waterside promenade and the mobile flood defence system ideally, but it also enhances the situation with the high-quality and resilient workmanship quality of the transparent glass wall elements.

Client: Stadtentwässerungsbetriebe Köln, AöR
Approving authority: District government of Cologne
Protection Height: HQ100 + 0.1 m freeboard
Design Criteria: hydr. water pressure + 30 kN single load or 20 kN/m² dummy load
Heights: 0.4 m
Length of the defence line/Area: 310 m/124 m²

