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GANGWAYS AND STAIRWAYS FOR INSPECTION PURPOSES IN A HOSPITAL WASTEWATER TREATMENT AREA

CLIENT	THIS COMPANY WORKS IN HOSPITAL UNITS AND THEIR GOAL IS TO IMPROVE THE HOSPITAL ENVIRONMENT BY SIMPLIFYING THE WASTE DISPOSAL AND THE HOSPITAL'S WASTEWATER TREATMENT
LOCATION	ROTTERDAM - THE NETHERLANDS
USE	CONSTRUCTION OF WALKWAYS AND STAIRWAYS FOR INSPECTION OF FILTERS AND DEPURATION TANKS IN THE WASTEWATER TREATMENT AREA OF ROTTERDAM HOSPITAL
PRODUCT	GANGWAYS MADE BY SCH52/30 IFR GRATING, STAIRWAYS AND HANDRAIL SYSTEMS
SERVICE	STRUCTURAL DESIGN, 3D DRAWINGS, INSTALLATION

OBJECTIVE

The company needed a system of structures for the access to the complex wastewater treatment area in order to allow and ease the maintenance activities of equipment and tanks.

- In the Bioreactor Area, walkways in order to allow the inspection of the valves in the wastewater tanks were requested. The available space over the tanks for placing these structures was very narrow and there were only a few points where structural supports could be foreseen. The situation required 20-meter walkways in two parallel directions.
- A 3-meter high walkway in order to allow the maintenance of the filters in the Membrane Area was required. The area underneath the walkway had to be as free as possible in order not to interfere with the usual working activities, the movement of the workers and the handling of materials with forklifts. For this reason, the supporting columns needed to follow the design limitations required by the customer. Furthermore, any interference with existing pipes and electric wires had to be avoided.
- A 3-meter high non-standard walkway, capable of supporting 3 machines weighing 450 kg each, was also requested. Considered the limited available space, a trapdoor had to be foreseen in order to allow the lift and the proper positioning of the machinery on the structure.

SOLUTIONS

The above requirements were fulfilled as follows:

- In the Bioreactor Area, in order to increase the supported points of the walkway, additional FRP beams were installed between existing steel beams. The reduction of the distance between the supports allowed the construction of the walkway with profiles less than 100 mm high. Thus, it was not necessary to forgo the height over the gangway and in spite of the narrow space, the assembling of the structure was carried out easily.
- In the Membrane Area the supporting columns were placed as required. The requested free space underneath the structure was realized by designing the parallel walkways with a cantilever solution. The connecting walkway that allows the passage from one gangway to the other one was designed to be directly supported by the two cantilever parts. No additional supporting columns were therefore required. The study of possible interferences with the existing structures was carried out by integrating the FRP structures in the 3D drawing provided by our customer.
- The walkway was designed as partially supported by stanchions and partially fixed to the contiguous concrete wall. The beams were arranged in order to support the machine loads placed on the structure and to fit a trapdoor that enables the passage of the machines through the framework.