

CASE STUDY – Snap Fitness 24/7



CLIENT: Catalyst Housing

PROJECT: Snap Fitness 24/7, Wembley, London, England

DATE: July 2019 through October 2020

FUNDING: Client

CLIENT COMMENT: After the gym had flooded internally twice, in June & July 2018, the gym owners & their insurers commissioned a flood risk report from an independent surveyor who recommended a series of drainage and flood mitigation measures to address surface water flooding. Although the flood events were not severe, they caused the gym to close for over a year, so the customer appointed Aquobex to undertake these works.

The Background

Numerous issues were identified at survey. As built drawings failed to record a huge slab of concrete at the roadside of the gym, which prevented us from installing our 1st choice SUDS solution (ECO90). A flood attenuation holding tank had been installed in the wrong part of the site with inadequate connections to the mains sewer. The rainwater downpipes (that did not take into account the huge volume of water discharging from the roof area) emptied onto the impermeable surfaces outside the gym entrances, as they were not connected to the storm drain. The connection to the main sewer was **uphill** and not governed by a hydro-brake or non return valve (NRV), making the existing attenuation system redundant and allowing the road flooding to surcharge the front of the site next to the main entrance.

Mitigation Strategy

The overall goal was to keep the floodwaters out of the property entirely, using the fabric of the building and planned flood mitigation products.

This meant introducing more on site storage capacity and creating further above ground storage using the building fabric and additional flood barriers

The presence of the concrete slab, which held the adjacent highway wall in place, did not allow us to drain the site through the subsoil, so a single layer SUDS crate system was installed on top of this and connected by new drainage to the misplaced attenuation tank at the rear of the site.

The excavation exposed the building's foundations, and the above ground storage was estimated to rise 600mm above ground level, so a mechanical tanking membrane was used to protect the foundations with a further layer of cementitious material to protect the seals on the lower portion of the curtain walling.

A reverse-installed duckbill NRV was installed in the stormwater drain from the road to prevent that flow from entering the site, but due to the topology and lack of space to provide further attenuation, flood barriers were installed on the front and rear entrance doors to the gym.

Horizontal flood barriers were selected to manage this flash flood event, with a new aisle created into the front door to accommodate this barrier and allow it to seal effectively.

A holistic approach to a complex surface water flood issue was addressed with a multitude of solutions and design including upgrades to flood attenuation, reconnection of rainwater downpipes, tanking of foundations and glazing, non-return valves and passive flood barriers.

Outcomes, Performance & Insurability

The property has been protected with a solution that is designed to manage a 1 in 100 year storm in the below ground storage tanks and a 1 in 1,000 year event with the additional above ground storage using flood barriers and the curtain walling of the building to provide additional storage outside the building, without any flood water entering the gym.



The contour of the ground showing the slope to the front door is clear in the above photo. The barriers at the side of the building and the front door, along with the stormwater attenuation under the permeable paving slabs, highlight both the below and above ground storage areas that were created in this unique flood mitigation strategy.

Insurance cover was reinstated at the completion of the works, and a very heavy downpour soon after completion proved the system worked as designed



This photo shows the French drain that is used along with the permeable paving to aid infiltration into the below ground tank, whilst also showcasing the tanking (beige) of the foundations and curtain walling seals.

The curtain wall was certified as structurally sound up to the designed flood protection height of 600mm.