

# Wilmar Autoroute control building

Version 30/3/2021

## InterDam designed, supplied and installed

Complete blast/fire-resistant building envelope consisting of:

- Bi-level steel support frame.
- 500 m<sup>2</sup> blast/fire-resistant external walls
- 275 m<sup>2</sup> blast/fire-resistant roof
- 15 pcs offshore blast/fire-resistant windows
- 3 pcs offshore blast/fire-resistant external doors

## Project description

An existing processing- and storage plant for edible oils in Holland was extended and needed an additional control building close to the reactors and the loading/unloading jetty. It was planned to be the light grey building as shown in the above illustration.

The main contractor of the entire extension project provided an outline design and performance specification to InterDam for them to design-and-build the complete building within fixed cost and time limits.

## Project challenges

Being the last part of a large plant extension project, timely completion of this control building was essential. Part of InterDams contract was to organize full acceptance by the ultimate client and all authorities involved. These authorities included the client's safety department, the national labour (H&S) inspectorate and the local building authorities. Generating an effective solution in compliance with their sometimes contradicting requirements was a real challenge that was put onto InterDam's shoulders.

The main requirements were:

### Blast resistance

One side of the building had to have a blast resistance of 20.0 kN/m<sup>2</sup> (0.2 Bar). No effect on the other sides of the building had to be taken into account. The roof of the building had a resistance of 10.0 kN/m<sup>2</sup> (0.1 Bar) which can act simultaneously with the one blast-resistant side of the building.

### Fire resistance

The entire enclosure had to be EI30 fire rated and EW30 for the windows.

### Safe escape

As the building houses not only the control room, but also a laboratory and some offices, a considerable number of people will generally be inside. In case of a calamity, the structure shall provide for their initial protection, but afterwards safe escape to the muster areas must be possible in any scenario.



## Integrated components

The entire envelope shall be proven fire and blast safe. That means that performance shall not only be granted by an addition of individual certificates of walls, doors, windows and penetrations, but also by compliant interfaces between them.

## Architectural appearance

Even though the site was in an industrial area, the local authorities had strict requirements for the architectural appearance of the building. In addition the client wanted a color scheme that would match the company's brand logo colors.

## InterDam solutions

The challenges were carefully analyzed and standard InterDam products were selected to suit the requirements.

### Support frame

The entire building was modelled and an open-frame support structure was designed and built in compliance with the environmental and accidental loads.

### Walls and roof

The walls were made of the InterDam G21 sandwichpanel system that complies with the fire and blast requirements and is also architecturally pleasing. Extra contrasting flashings provide the finishing touch and cover the fixing bolts. Thus, the experience of InterDam Projects with architectural cladding was successfully utilised for the industrial application. The roof was made as a metal deck with non-combustible insulation and membrane.

### Doors

The doors were single and double hinged and taken from the IDM standard blast/fire resistant range with stainless steel panic devices.

### Windows

Bespoke steel-framed windows with blast/fire-resistant glass were designed to match up with the wall system without weak spots at the interfaces.

### Penetrations

The nature of the building required a number of overground penetrations through the walls. The openings were specially framed and provided with standard fire/blast-rated seals after installation of the conduits.