

## Rainwater storage tanks made of lengthways-ribbed SIMONA® Twin-Wall Sheets make a valuable contribution to environmental protection



Top: Rainwater storage tank made of lengthways-ribbed SIMONA® PE 100 black Twin-Wall Sheets; bottom left: lengthways-ribbed SIMONA® PE 100 black Twin-Wall Sheet; bottom right: loaded and secured rainwater storage tanks on a special transport vehicle with a width of 4.6 m

Use rainwater instead of wasting drinking water – that was the motto to be embraced when it came to refurbishing a locomotive shed being used as an event location in Göttingen. In this case, the old rainwater utilisation system was to be replaced by two maximum-capacity rainwater storage tanks. To construct these plastic tanks Hopfgartner Kunststoff- & Umwelttechnik GmbH opted in favour of lengthways-ribbed SIMONA® PE 100 black Twin-Wall Sheets, which proved to be a convincing option on account of their high strength, easy processing capability and long service life.

### The project at a glance

#### Project

Development and construction of two maximum-capacity rainwater storage tanks made of lengthways-ribbed SIMONA® PE 100 black Twin-Wall Sheets

#### Requirements

- Optimum space utilisation and volume optimisation
- No corrosion
- Long service life
- Fast delivery capability
- Verifiable structural analysis
- 100% leak tightness for all welded seams and joining seams

#### Client

Krausse Ingenieure, Göttingen, Germany, on behalf of GWG Gesellschaft für Wirtschaftsförderung und Stadtentwicklung Göttingen mbH

#### Contractor

Hopfgartner Kunststoff- & Umwelttechnik GmbH, Ilmendorf, Germany

#### Products used

Lengthways-ribbed SIMONA® PE 100 black Twin-Wall Sheets, 3,000 x 1,000 x 54 mm

#### Duration of project

3 months



From left to right: Installing the rainwater storage tanks on site with a crane; assembly of the joints and connections to the overall rainwater utilisation system; connection of the two rainwater storage tanks by means of a DN200 overflow pipe

## SIMONA® Twin-Wall Sheets – high strength, light weight

### Initial situation

The locomotive shed in Göttingen is over 100 years old and it has been used by GWG Gesellschaft für Wirtschaftsförderung und Stadtentwicklung Göttingen mbH as a multi-purpose event location since 1998. To ensure that this historic industrial monument will be geared to future requirements, a comprehensive refurbishment is to make the popular, award-winning event location more sustainable, more customer-friendly and even more attractive. In the course of this conversion work the existing rainwater utilisation system had to be renovated and enlarged. As large quantities of drinking water were still required for the toilet flushing systems at large-scale events, it was important to install a maximum-capacity rainwater storage facility in the available frost-protected basement room.

### Task

The planning consultancy for building services that was commissioned to refurbish the locomotive shed, Krausse Ingenieure from Göttingen, drew up a public tender for the development and construction of two rainwater storage tanks made of PE-HD plastic with a storage capacity of 35 m<sup>3</sup> and 25 m<sup>3</sup>, respectively. It was not quite clear whether they could be delivered before or after completion of the concrete slab of the exposed basement room. As a result, the bid submitted by the potential service provider had to make provisions for crane-assisted installation of the fully assembled plastic tanks, Free Construction Site, as well as on-site assembly by welding. Hopfgartner Kunststoff- und Umwelttechnik GmbH was able to offer both methods and consequently won the contract. When it came to executing this challenging project, Hopfgartner was looking for a high-quality plastic product that would be able to satisfy the demanding material requirements.

### Solution

To ensure that the two rectangular rainwater storage tanks would have a high level of tank strength and deformation resistance, Hopfgartner decided in favour of using lengthways-ribbed SIMONA® PE 100 black Twin-Wall Sheets. The high rigidity of the tried-and-tested Twin-Wall Sheets with a total thickness of 54 mm was further enhanced by internal steel sections. SIMONA® PE 100 black meets all the essential requirements with regard to media resistance, pressure resistance and temperature resistance, and especially weld seam strength and tightness in compliance with DVS. In addition, the material is easy to clean, corrosion-free, durable and 100% recyclable.

The two tanks were expertly fabricated by Hopfgartner in the workshop and checked for leak tightness in a 24-hour test before being delivered to the site as part of a special transport operation. On site, the rainwater storage tanks were hoisted into the basement room of the locomotive shed by a crane and all the necessary joints and connections were made to the overall rainwater utilisation system.

### SIMONA® Twin-Wall Sheets

#### Properties

- High rigidity and strength
- High fracture resistance
- Corrosion-free
- Rectangular tanks possible without steel reinforcement
- Lighter weight than with solid material due to cavities

#### Fields of application

- Tank and plant construction
- Gas and waste air scrubbers
- Swimming pool construction

#### Product range

- Lengthways-ribbed Twin-Wall Sheets made of SIMONA® PE 100 black, SIMONA® PP-H AlphaPlus® and SIMONA® PPs, 3,000 x 1,000 x 54 and 58 mm
- Cross-ribbed Twin-Wall Sheets made of SIMONA® PE 100 black, SIMONA® PE 100 UV white, SIMONA® PP-C and SIMONA® PPs, 2,000 x 1,000 x 40 mm
- Corner elements, 45° and 90°
- Flat connections

### Further information

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