

# Structural strength of the AquaCell Lite rainwater cassette

## Product description

AquaCell Lite rainwater cassette is used as attenuation and infiltration tanks of rainwater. It can be used for non-trafficked areas as well as for private car parking's (1 ton/wheel load).

## Characteristics

|                  |                  |
|------------------|------------------|
| Length [mm]      | 1000             |
| Width [mm]       | 500              |
| Height [mm]      | 390              |
| Weight [kg]      | 7                |
| Gross volume [l] | 195              |
| Net volume [l]   | 187              |
| Void ratio [%]   | 96%              |
| Material         | Recycled PP      |
| Color            | Black            |
| Certifications   | BBA <sup>1</sup> |

Table 1: Characteristics.

## Structural strength

BBA (1) approval (03/4018) values for characteristic compressive strength and equations for estimation of long-term deflection can be used as basis for defining structural strength and window of application for the AquaCell Lite.

| For loads up to (kN/m <sup>2</sup> ): | Equations for estimation of long-term deflection (mm)            |
|---------------------------------------|--|
| 52                                    | Vertical deflection = $0.1069 \ln [\text{time (days)}] + 1.2561$ |
| 13                                    | Lateral deflection = $0.9344 \ln [\text{time (days)}] + 1.3841$  |

Table 2: Equations for estimation of long-term deflection.

Based on BBA values and using the Rankine theory for soil pressure and Boussinesq Theory for traffic load distribution the AquaCell Lite unit can be used with 1 ton wheel load as described in table three.

## Applications

|   |      |
|---|------|
| Min. cover depth without traffic load (m)   | 0,30 |
| Min. cover depth with LKW3* load (m)        | 0,45 |
| Max. installation depth with LKW3* load (m) | 1,50 |
| Max. number of cassettes (layers)           | 2    |

Table 3: Window of application.

<sup>1</sup> The British Board of Agrément (BBA)

\* LKW3 equals to 1 ton wheel load per m<sup>2</sup> (passenger car)