Rainwater harvesting tank size calculator to BS 8515:2009

Created by and for Graf UK Ltd

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Project:	Court Park Pavilion, Uxbridge, UK
Plot/type:	
Quantity:	

The intermediate approach (extract from BS 8515:2009)

To apply the intermediate approach to sizing the rainwater harvesting system for non-potable domestic use, storage capacity should be calculated from the following equations and should be the lesser of 5% of the annual rainwater yield or 5% of the annual non-potable water demand.

5% of the annual rainwater yield should be calculated using the equation:

$$Y_R = A \times e \times h \times \eta \times 0.05$$

where:

Y_R is the annual rainwater yield (L);

A is the collecting area (m²);

e is the yield coefficient (%);

h is the depth of rainfall (mm);

η is the hydraulic filter efficiency.

A	=	97	m²		Y_R	=	A	x	e	x	h	x	η	x	0.05
e	=	0.8	%		2857		97.00	x	0.8	x	775	x	0.95	x	0.05
h	=	775	mm		↓										
η	=	0.95			2857 Litres										

5% of the annual non-potable water demand should be calculated using the equation:

$$D_N = P_d \times n \times 365 \times 0.05$$

where:

D_N is the annual non-potable water demand (L);

P_d is the daily requirement per person (L);

n is the number of persons.

P_d	=	50	L		D_N	=	P_d	x	n	x	365	x	0.05
n	=	3			2738		50.00	x	3	x	365	x	0.05
					↓								
					2738 Litres								

Final recommended tank size in accordance with BS 8515: 2009

5% of annual rainwater yield	=	2857 L
5% of annual non-potable water demand	=	2738 L
Lesser of the two above figures	=	2738 Litres
Closest/Most suitable tank size	=	3,000 Litres

Notes & Rainfall statistics;	*FEH Annual average rainfall (mm)*		
	From To		Max.
Rainwater statistics taken from Figure 2 (page 9) BS 8515:2009			
Above equations taken from 4.1.2.3 (page 12) BS 8515:2009	520 to 650	=	650
Enter site specific figures in to YELLOW boxes	650 to 775	=	775
Filter efficiency based on GRAF Optimax Pro filter (self-cleaning)	775 to 890	=	890
Tank sizes based on GRAF GmbH tanks by Graf UK Ltd	890 to 1000	=	1000
	1000 to 1250	=	1250
	> 1250	=	1250