Plaster Quantity: Cement, Sand and Bags

Cement bags and sand for cement plaster from the area, thickness and mix ratio, with the dry volume factor and wastage, by the usual site method.

Method: Dry volume method of estimating (site practice)

Input parameters

Unit system: SI

Parameter	Value	Unit
Area to plaster	100.00	m²
Plaster thickness	12.000	mm
Sand parts per part of cement	4.0000	
Dry volume factor Allowance for voids and bulking of sand; 1.27 to 1.33 is usual.	1.2700	
Wastage allowance Covers uneven surfaces and joints filled; your site figure.	20.000	%
Bulk density of cement	1,440.0	kg/m³
Mass of one cement bag	50.000	kg

Calculated results

Parameter	Value	Unit
Wet volume of plaster	1.2000	m³
Dry volume of materials (with wastage)	1.8288	m³
Cement volume	0.36576	m³
Cement mass	526.69	kg
Cement bags	10.534	
Sand volume	1.4630	m³

Notes for this case

- A site estimate: the dry factor and wastage are conventions, so use your own figures where your practice differs.

Formula and method

$$V_w = A\,t, \quad V_d = V_w\,f_d\,(1 + k_w)$$

$$V_c = \frac{V_d}{1+s}, \quad N_b = \frac{V_c\,\rho_c}{m_b}, \quad V_s = \frac{s\,V_d}{1+s}$$

Variables

A	Area to plaster	m²
t	Plaster thickness	m
s	Sand parts per part of cement	-
f_d	Dry volume factor	-
k_w	Wastage allowance	-
ρ_c	Bulk density of cement	kg/m³
m_b	Mass of one cement bag	kg
V_w	Wet volume of plaster	m³
V_d	Dry volume of materials (with wastage)	m³
V_c	Cement volume	m³

m_c	Cement mass	kg
N_b	Cement bags	-
V_s	Sand volume	m³

Method and standards

Dry volume method.

Assumptions and limits

- Conventions entered by the user.

References

- Dry volume method of estimating (site practice)

Report details

Report reference	FCC-7M24-YJH1 (the same inputs always give the same reference)
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Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/civil/quantities/plaster-quantity

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.