KWIKBUILD CEMENT

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• SPECIFICATIONS YIELD AND WASTAGE •

WASTAGE

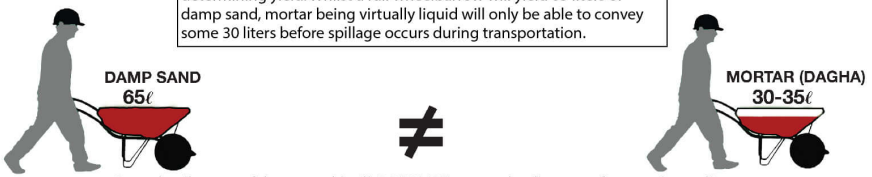
Most contractors' experience significant differences between the calculated quantity of mortar to be used and the actual quantity used, often as much as 20%-30%. Typical areas of concern are:

- Make sure the site where the cement is stored has good security to avoid theft.
- Where sand is being bought by volume, always measure the truck as this is often overlooked.
- When mixing, always use a level concrete surface and mechanical mortar mixers are preferred to hand mixing. The mixing area must be contained and not be allowed to spread out.
- Mixing from pockets is not always efficient as a full pocket must be mixed and used every time, which is not always possible. Are mix proportions consistently batched and homoge neously mixed?
- Counting wheelbarrows is not always accurate due to the varying sizes of the wheelbarrows.
- Irregular brickwork is also a factor as it requires a far thicker plaster coat than the normal 15-20mm normally allowed for.
- In summary, poorly supervised transporting, storing, mixing and application of mortar are the most common reasons for unacceptable losses.

YIELD

Wheelbarrows of sand versus wheelbarrows of dagha

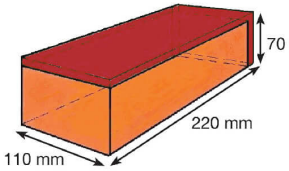
Counting wheelbarrows of mortar is an inaccurate method of determining yield. Whilst a full wheelbarrow will yield 65 liters of damp sand, mortar being virtually liquid will only be able to convey some 30 liters before spillage occurs during transportation.



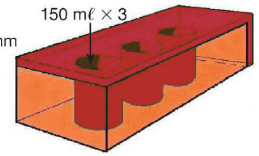
One wheelbarrow of damp sand (65ℓ) DOES NOT = one wheelbarrow of mortar (30-35ℓ)

Solid bricks vs perforated bricks

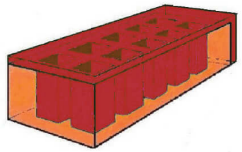
Often overlooked is the amount of extra mortar required when laying bricks with frogs or perforated with cavities. Illustrated below are examples of how mortar quantities can escalate.



Amount of mortar required to cover one vertical and one horizontal surface = **320ml**



Amount of mortar required to cover two surfaces plus an additional 3 cavities = **770ml (140% extra)**



Amount of mortar required to cover two surfaces plus all wafer cavities = **820ml (156% extra)**

SPECIFICATIONS

Mortar classes, mix proportions and strength (most common mortar used is Class II)

1	2	3	4	5	6
Mortar class	Compressive strength at 28 day, MPa, min.		Portland cement 32,5	Water	Sand (measured loose and damp)
	Prliminary (laboratory) test	Work test	kg	ℓ	ℓ, max.
I	14,5	10	50	0-10	130
II	7	5	50	0-40	200

Recommended limits for various properties of sands for use in bedding mortar and plaster

PROPERTIES OF SAND	TEST METHOD	LIMIT	
		BEDDING MORTAR	PLASTER
Fineness modulus	SANS 201 : 2008	0,8-2,0	1,0-2,0
Size of sieve through which all particles must pass		2,36 mm (maximum)	2,36 mm [A] (maximum)
Preferred maximum fraction of material between any two successive standard sieve sizes(%)		35	35
Content of material passing 75-µm		5-25 [B]	3-20 [B]
Methylene blue absorption value	SANS 6243 : 2008	0,7 maximum	0,7 maximum
Content of material with equivalent particle diameter ≤ 5µm (%)	SANS 6241 : 2006	6 [C] maximum	3 maximum
Content of material with equivalent particle diameter ≤ 2µm (%)		2,0 [D] maximum	2,0 [D] maximum

PROPERTIES OF FRESH MORTAR/PLASTER	TEST METHOD	LIMIT	
		BEDDING MORTAR	PLASTER
Preferred maximum water requirement of mix made with 5 parts sand to 1 part cement by mass (1/m³)	PCI TM 5.17	360	330
Bleeding capacity of mix (%)	ASTM C232-09	0,35 maximum	0,35 maximum
Range of water retentivity for masonry cement to BS 5224:1965 (%)	BS 4551	70-95	70-95
Suggested range of water retentivity for non air-entrained mortar (%)	BS 4551	85-95	85-95
Drying shrinkage of mix (%)	SANS [E] 6085 : 2006	0,14 maximum	0,12 maximum

(A) Maybe increase to 4,75mm for coarsely textured plaster or scratch coat (undercoat).	(B) These values assume that the recommended maximum clay contents are not exceeded.	(C) 3% for unplastered exterior work.	(D) These values refer to active clays such as smectites and an be exceeded if less-active clays are present.	(E) Except that specimens are 50 x 50 x 185mm.

References: Concrete/Beton April 1995 Issue No 76 SABS 0164 Part 1 1980.