Calculating Total Bags of Cement and Tones of Sand Require in a Particular Volume of Concrete

As a Civil Engineer on site, you should be able to know the amount of cement and sand require for a particular volume of concrete.

Knowing this will prevent you from running loss. I will explain to you how to calculate the amount of cement and sand require for any volume of concrete.

The calculations below is all about **1:2:4 mix ratio** of Concrete

CALCULATING FOR CEMENT

TOTAL RATIO = 1+2+4
= 7
Since:
Cement = 1
Sand = 2
Granite = 4

We are dealing with cement, we have $1/7 = 0.143$

For $1m^3$ of cement = $1m^3 * 0.143$
= $0.143m^3$

Addition of waste and shrinkage 25% = $25/100 * 0.143$
= $0.036m^3$
= $0.143 + 0.036$
= $0.179m^3$

1m3 of cement = 28.8 bags
$0.179m^3$ of cement = X bags

X = 5.2 bags of cement

Now for 1:2:4 mix ratio, the number of cement require to mix $1m^3$ of concrete
= 5.2 bags.

Assuming you are to calculate the amount of cement require for 0.55m^3 of concrete

1m^3 of Concrete = 5.2 bags of cement

0.55m^3 of concrete = X bags of cement

X = 2.86 bags of cement.

This means 2.86 bags of cement will mix 0.55m^3 of concrete.

CALCULATING FOR SAND

TOTAL RATIO = 1+2+4
= 7
Since we are dealing with sand, we have 2/7 = 0.285
For 1m^3 of sand = 1m^3 * 0.283
= 0.283m3

Addition of 35% bulking = 0.099m^3
Addition of 10% waste = 0.03m^3
= 0.283 + 0.099 + 0.03
= 0.4125m^3

0.65m^3 of sand = 1 ton of sand
0.412m^3 of sand = x tons of sand

X = 0.635 tons.

Now for 1:2:4 mix ratio, the number of sand require to mix 1m^3 of concrete
= 0.635 tons.

Assuming you are to calculate the amount of sand require for 0.55m3 of concrete

1m^3 of concrete = 0.635 tons of sand

0.55m^3 of concrete = X tons of sand

X = 0.35 tons of Sand

This means 0.35 tons of sand will mix 0.55m^3 of concrete.

This is a must know calculation for civil engineer on site for you to avoid wastage of resources

Comment below to ask question, Add or Subtract

Thanks for Reading.

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