



Four Steps to Estimate the Volume of Concrete Used in a Wafflemat Foundation

Step 1: Determine the number of 8.5 inch or 12 inch Waffleboxes in the foundation.

This can be estimated by taking the total sf of the foundation footprint and dividing by 4.15. This results in an upper-end estimate of the number of Waffleboxes in that foundation. Alternatively, have the licensed engineer doing the design provide the exact number of Waffleboxes from the completed foundation design plans.

Step 2: Determine volume of concrete in foundation if there were no Waffleboxes.

For 8.5 inch Waffleboxes:

Determine how high the foundation is above ground. This is the 8.5 inch high Wafflebox plus the thickness of the slab over the top of the Waffleboxes. Divide that number of inches by 12 to convert to feet. Multiply the total thickness in feet by the foundation area in square feet, and then divide by 27. The result is cubic yards.

For 12 inch Waffleboxes:

Determine how high the foundation is above ground. This is the 12 inch high Wafflebox plus the thickness of the slab over the top of the Waffleboxes. Divide that number of inches by 12 to convert to feet. Multiply the total thickness in feet by the foundation area in square feet, and then divide by 27. The result is cubic yards.

Step 3: Take the number of 8.5 inch Waffleboxes from Step 1 and divide by 16.04, or the number of 12 inch Waffleboxes from Step 1 and divide by 11.36. The result is the number of cubic yards of void space occupied by the Waffleboxes.

Step 4: Take the cubic yards in Step 2 and subtract the cubic yards in Step 3. The result is the number of cubic yards of concrete in the Wafflemat foundation.

Example

The total foundation area, including attached garage and attached patios = 3,000 sf.

Step 1: 3,000 sf divided by 4.15 = 723 Waffleboxes.

Step 2:

For 8.5" Waffleboxes: The design shows a 4.5 in slab in the house, garage, and patios. Total slab thickness then is 8.5 in + 4.5 in = 13 in. This is 13 in/12 in per ft = 1.08 ft total thickness. Total volume of foundation without Waffleboxes = 1.08 ft x 3,000 sf = 3,240 cf. 3,240 cf/27 cf per cy = 120 cy.

For 12" Waffleboxes: The design shows a 4.5 in slab in the house, garage, and patios. Total slab thickness then is 12 in + 4.5 in = 16.5 in. This is 16.5 in/12 in = 1.38 ft total thickness. Total volume of foundation without Waffleboxes = 1.38 ft x 3,000 sf = 4,140 cf. 4,140 cf/27 cf per cy = 153 cy.

Step 3:

For 8.5" Waffleboxes: The volume occupied by the Waffleboxes is 723 Waffleboxes/16.04 Waffleboxes per cy = 45 cy.

For 12" Waffleboxes: The volume occupied by the Waffleboxes is 723 Waffleboxes/11.36 Waffleboxes per cy = 64 cy.

Step 4:

For 8.5" Waffleboxes: The volume of concrete in the Wafflemat foundation = 120 cy - 45 cy, or a total of 75 cy.

For 12" Waffleboxes: The volume of concrete in the Wafflemat foundation = 153 cy - 64 cy, or a total of 89 cy.

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