



# The Magic Number Method

by George Geelan

For contractors and designers, adding and subtracting strings of dimensions is an everyday ritual. Some days it's an ordeal!

So I've always thought, wouldn't it be great if you could add and subtract feet and inches on your regular calculator without converting inches to decimals? Well, you can. You don't need to be a math wizard or have a calculator with a bazillion functions, or even one of those expensive, complicated feet-inches calculators either.

Quickly adding and subtracting dimensions on your basic, four-function calculator is easy to do. If you can remember a couple of simple rules and one easy Magic Number, you will be able to astound your friends and co-workers in about five minutes from now. (Okay, ten minutes, tops.)

I learned the Magic Number Method about ten years ago from a cantankerous old structural steel detailer named Bob Alvis. When I asked Bob where he had learned about the Magic Number Method, he growled. When I asked him how it works, he grumbled something about if I would think about it a little it would make sense. Bob passed away a couple of years ago. I would like to pass the Magic Number Method on in his memory.

So get out your calculator and let's learn Bob Alvis's Simplified Magic Number Method of Calculating in Feet-Inches.

## Learning to Read

The first step is to read the calculator a bit differently. In the Magic Number Method, the decimal places on the calculator are reserved for fractions of an inch — 0.75, for instance, represents  $\frac{3}{4}$  inch. The first two whole numbers to the left of the decimal point are reserved for inches. Therefore 03.75 represents  $3\frac{3}{4}$  inches. All whole numbers to the left of the decimal (inches) are reserved for feet. Thus 1603.75 means 16 feet  $3\frac{3}{4}$  inches. Go ahead and punch 1603.75 into your calculator.

## Adding It Up

Now let's try adding. We'll add 7 inches to our 16 feet  $3\frac{3}{4}$  inches. On your calculator, add in the usual way:  $1603.75 + 7$ . You'll get 1610.75 on your display, which reads 16 feet  $10\frac{3}{4}$  inches.

That's pretty easy, isn't it? Now let's add  $4\frac{1}{4}$  additional inches:

$$1610.75 + 4.25 = 1615.00.$$

The answer reads 16 feet, 15 inches. Of course you know in your head that 15 inches is 1 foot 3 inches, so the answer should be 17 feet 3 inches. But how do you get your calculator to display it? This is where

the Magic Number comes in.

## Round Up by 88

The second simple rule to remember is that when the number in the inches column is twelve or greater, add the Magic Number — 88 — to get the correct number of feet and inches. Don't worry why this works. Just trust me.

So, add  $1615.00 + 88$ , and you get 1703.00, or 17 feet 3 inches.

Pretty simple!

Just for fun, let's add 1 foot  $10\frac{1}{2}$  inches to our 17 feet 3 inches:

$$1703.00 + 110.50 = 1813.50.$$

Add the Magic Number again:

$$1813.50 + 88 = 1901.50,$$

or 19 feet  $1\frac{1}{2}$  inches.

Let's say you forgot to use the Magic Number until you were finished adding the above string of dimensions. No problem. Let's add them all at once:

$$1603.75 + 7 + 4.25 + 110.50 = 1725.50.$$

Scratch your head a minute, you realize that's 19 feet,  $1\frac{1}{2}$  inches. To convert it, add the magic number repeatedly if necessary, until the inch

column is less than 12:

$$1725.50 + 88 = 1813.50 + 88 = 1901.50,$$

or 19 feet  $1\frac{1}{2}$  inches. Amazing!

## Does This Work Backwards?

The method works for subtraction too, only backwards — if you subtract and get an answer with an inches reading (the two digits left of the decimal) over 12, you subtract 88 to get the conversion.

From our 1901.5 above, let's subtract 2 feet  $1\frac{1}{2}$  inches:

$$1901.50 - 201.50 = 1700.00$$

or seventeen feet even.

So far, so good. Now let's subtract six feet five inches:

$$1700.00 - 605.00 = 1095.00.$$

Since the number in the inches column is twelve or greater, we'll just subtract the Magic Number. Here's what we get:

$$1095.00 - 88 = 1007.00,$$

or 10 feet 7 inches.

Now let's subtract 4 feet  $8\frac{1}{2}$  inches:

$$1007.00 - 408.50 = 598.50.$$

Since the number in the inches column is greater than 12, subtract the Magic Number again for the correct answer:

$$598.50 - 88 = 510.5,$$

or 5 feet  $10\frac{1}{2}$  inches.

As with addition, if you forgot to use the Magic Number until the end of your subtractions, you can subtract the Magic Number until the inches are less than 12:

$$1901.50 - 201.5 - 605.00 - 408.50 = 686.50 - 88 = 598.50 - 88 = 510.50.$$

I prefer to use the Magic Number whenever the inches come out greater than twelve, just to keep myself straight! You can add and subtract dimensions in any order. Just make sure to convert the inches to less than twelve before changing from addition to subtraction, or vice versa. Otherwise you may forget whether you need to add or subtract the Magic Number to get the correct answer.

Pretty simple, right? Just remember these easy rules:

- Decimals represent fractions of an inch
- The first two whole numbers to the left of the decimal point represent inches
- Any whole numbers to the left of the inches are feet
- Add or subtract 88, as appropriate, when the total number of inches is twelve or greater.

You've got it! Now you can go astound your boss. Who knows, maybe you'll even get a raise! ■

