

# How is WIP Calculated

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## Disclaimer

While we have independently verified our base formula with accountants and 3<sup>rd</sup> parties it is advised that your financial reporting be undertaken with expert advice. Every effort has been made on our part and we accept no liability at all for use of this WIP calculation.

## Definitions

To be clear let's define the terms we use.

### **Everything in the WIP report is tax exempt**

- **Contract price** is the amount invoiced to the client to date including any variations.
- **Invoiced to date** (or claimed to date) is the budget amount including any subsequent variations.
- **Invoiced %** (or claimed %) is the % of the contract price invoiced to the client to date including any variations. It is calculated as *Invoiced to date/Contract Price*
- **Estimated costs** (or budgeted costs) is the budget amount including any subsequent variations

- **Actual total** (or invoiced total) is the total of the actuals column on the costings screen, it includes received PO's, completed WO's and any actuals manually added. This makes up expenditure and as expenses come as invoices it is sometimes referred to as such.
- **Variance %** (or invoiced %) is the difference between the estimated cost and the actual total as a percent of the estimated cost, essentially showing how far through the budget the spend is. It is calculated as *Actual Total/Estimated costs*
- **Markup %** is the amount of markup added to the estimate/job initially. When we use it in formulas we use it as a decimal. For example, 25%=.25

## The base formula we use

There are essentially four types of jobs that run through buildXACT and they all have WIP calculated based on the same base formula, but in cases some values aren't available so other formulas are substituted to aid the calculation.

$$\text{WIP} = \text{Actual total} - (\text{Estimated costs} * \text{Invoiced \%})$$

## Types of jobs

The types of jobs we must consider are:

- Contract job – started from an estimate
- Contract job – not started from an estimate
- Cost plus job – started from an estimate
- Cost plus job – not started from an estimate

Let's have a look at how each one is different.

Type of Job	Description	Markup	Contract Price	Invoiced to Date	Invoiced %	Estimated Costs	Actuals totals	Variance %	When is this used?
Contract Job	Full contract price and full Budgeted Costs	Yes, set in estimate	Yes	Yes	Yes	Yes	Yes	Yes	Most common type of job
Contract Job	Full contract price and no budgeted Costs	Yes, asked on job creation	Yes	Yes	Yes	No	Yes	Unable to calculate without estimated cost	When there is no estimate or the estimate is done elsewhere, but the contract job is run in buildXACT
Cost Plus	No Contract Price & full Budgeted costs	Yes, asked on job creation	No	Yes	Unable to calculate without contract price	Yes	Yes	Yes	If a cost plus job is run it is typically run like this
Cost Plus	No Contract Price & no budgeted Costs	Yes, asked on job creation	No	Yes	Unable to calculate without contract price	No	Yes	Unable to calculate without estimated cost	When there is no estimate or the estimate is done elsewhere, but the cost plus job is run in buildXACT

## Contract job – started from an estimate

This is a standard contract job where our software has also been used to estimate the job costs. In this case we do not need to alter the base formula as this job has everything needed to calculate. So we simply use:

$$\mathbf{WIP = Actual\ total - (Estimated\ costs * Invoiced\ \%)}$$

## Contract job – not started from an estimate

This job lacks the estimated costs needed to calculate WIP. In this case, we rely on another formula.

$$\text{Contract price} = \text{Estimated Cost} * (1 + \text{Markup \%})$$

Which rearranges to...

$$\text{Contract price}/(1 + \text{Markup \%}) = \text{Estimated Cost}$$

Which substitutes into the base formula as...

$$\mathbf{WIP = Actual\ total - ((Contract\ price)/(1 + Markup\ \%)) * Invoiced\ \%}$$

## Cost plus job – started from an estimate

This job lacks the contract price needed to calculate invoiced % in the WIP formula. In this case, we rely on two formulas.

1.  $\text{Contract price} = \text{Estimated Cost} * (1 + \text{Markup \%})$
2.  $\text{Invoiced \%} = \text{Invoiced to date}/\text{Contract Price}$

Substituting 1 into 2 gives...

$$\text{Invoiced \%} = \text{Invoiced to date}/ (\text{Estimated Cost} * (1 + \text{Markup \%}))$$

Which substitutes into the base formula as...

$$\text{WIP} = \text{Actual total} - (\text{Estimated costs} * (\text{Invoiced to date}/(\text{Estimated Cost} * (1 + \text{Markup \%}))))$$

Which can be simplified to...

$$\mathbf{WIP = Actual\ total - (Invoiced\ to\ date)/(1 + Markup\ \%)}$$

## Cost plus job – not started from an estimate

This job lacks the contract price needed to calculate invoiced % in the WIP formula, as well as the estimated costs. In this case, we rely on two formulas.

1.  $\text{Contract price} = \text{Estimated Cost} * (1 + \text{Markup \%})$

## 2. Invoiced % = Invoiced to date/Contract Price

Substituting 1 into 2 gives....

$$\text{Invoiced \%} = \text{Invoiced to date} / (\text{Estimated Cost} * (1 + \text{Markup \%}))$$

Which substitutes into the base formula as...

$$\text{WIP} = \text{Actual total} - (\text{Estimated costs} * (\text{Invoiced to date} / (\text{Estimated Cost} * (1 + \text{Markup \%}))))$$

We also make a presumption that the **Actuals Total** is the **Estimated Costs**. This is based on the fact that the **Estimated costs** are not fixed but instead updating as purchases are being made. Note that we use the **Actuals total** (based on purchases) and not the **Invoices to date** so that the WIP in this case captures purchases that are made BEFORE they been invoiced to the client but after the WIP has been calculated, this is to avoid the risk of showing higher incoming funds and ignoring the most recent outgoing items.

This leads to....

$$\text{WIP} = \text{Actual total} - (\text{Actual Total} * (\text{Invoiced to date} / (\text{Actual Total} * (1 + \text{Markup \%}))))$$

Which can be simplified to...

$$\text{WIP} = \text{Actual total} - (\text{Invoiced to date} / (1 + \text{Markup \%}))$$