

ENGINEUITY TUTORIAL



The Labour Used to Progress a Job



The Labour used to Progress a Job

The labour used to progress a job is classified in a number of ways :-

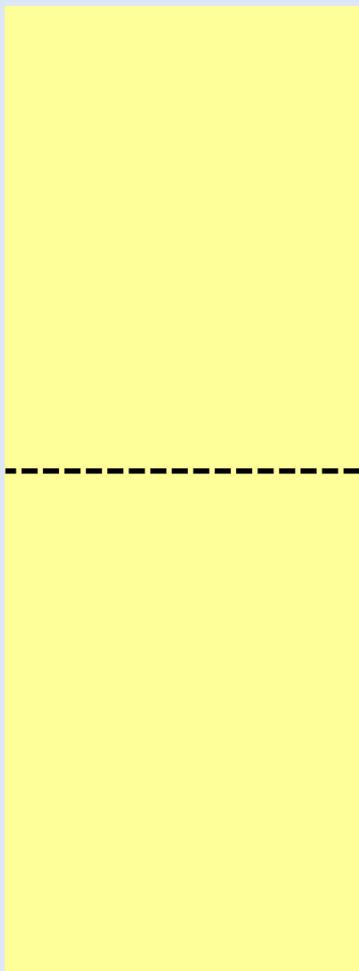
- Planned labour
- Effective labour limit
- Total labour allocated
- Effective labour
- Ineffective labour

The following example should demonstrate the classifications.



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Planned Labour Level



PLANNED LABOUR

The planned labour level for each period was estimated when the job was identified in order to complete a contract on time.

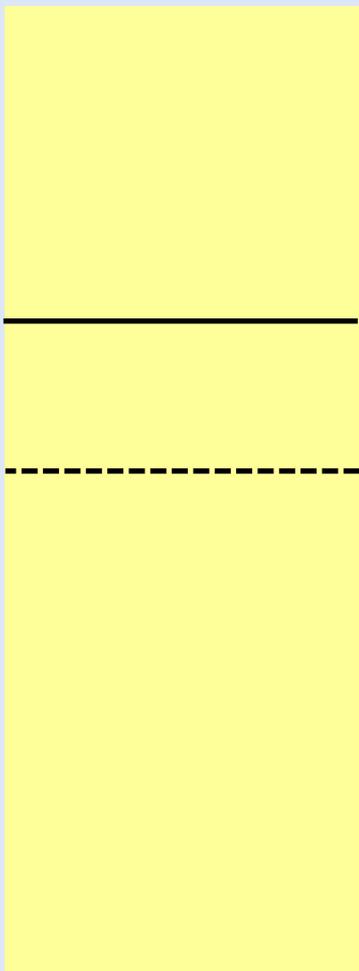
Job period	Estimated build cost	Estimated site cost	Planned labour	Cumul % complete
1	761,072	152,215	17	30
2	1,268,454	253,691	29	80
3	507,382	101,476	12	100
	2,536,908	507,382	58	



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Effective Labour Limit

Planned Labour Level



EFFECTIVE LABOUR LIMIT

The planned labour can be exceeded each period up to a point known as the **effective labour limit**.

The overmanning limits are sector based, and shown in the **Industry parameters**.

KEY POINTS

- It would be necessary to overman a job to complete it early e.g., to complete a 5-period job in 4 periods, 4-period job in 3 periods etc.
- 2-period jobs can never be completed in 1 period.

Industry parameters

FINANCE OVERHEADS PROCUREMENT COMMISSION

PROJECT MANAGERS Recruiting costs: 15 % annual salary
 Paying off costs: 15 % annual salary
 Relocating costs: 6 % annual salary

OVERMANNING LIMITS

Sector	Effective labour limit above the planned level
Industrial	35 %
Building & Commercial	35 %
Transport	45 %
Energy	18 %
Water & Sewage	25 %

OWN LABOUR New recruits limited to: 70 this period
 Training cost for each new recruit: 2,500 per person
 Labour payoff rate: 750 per person
 Each idle labourer costs: 6,000 per annum

SUBCONTRACT LABOUR Additional cost for each subcontractor each period: By country

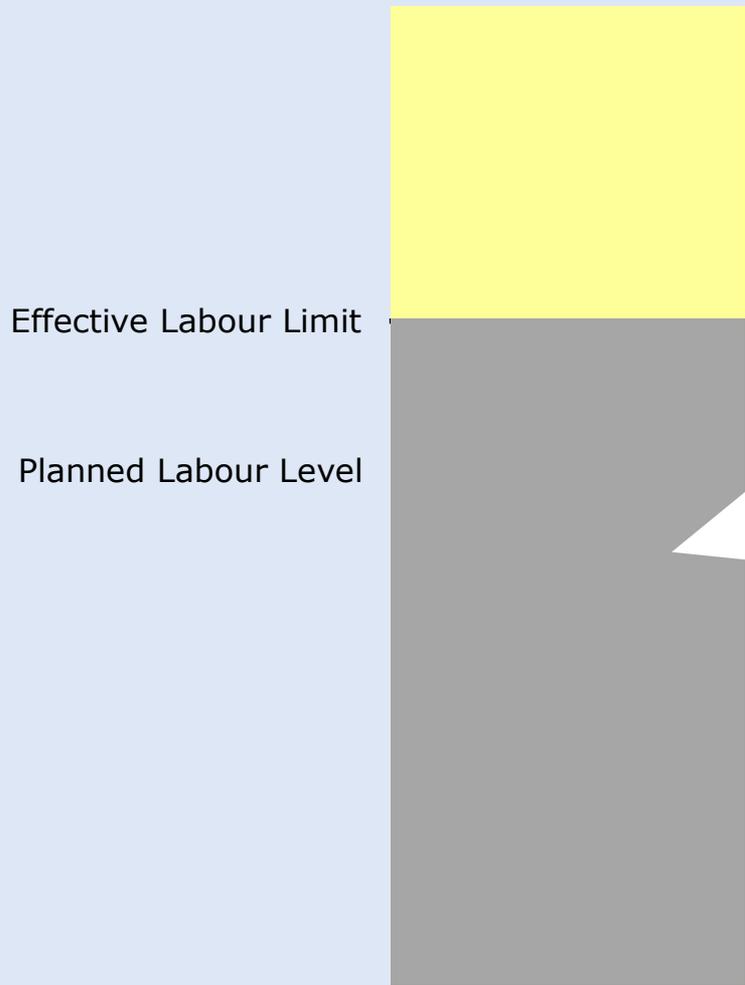
ALL LABOUR Each ineffective labourer costs: 22,500 per annum

JOB COMPLETION Retention, late completion penalty and early completion bonus: By client

Legend: Fixed for all periods
 Can vary each period



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LABOUR ALLOCATED TO SITE

The Construction Manager determines the **total labour** to allocate to site in the period depending upon the requirements of the job.

The total labour level is adjusted by affect of any delays to leave the 'potential' effective labour on site.

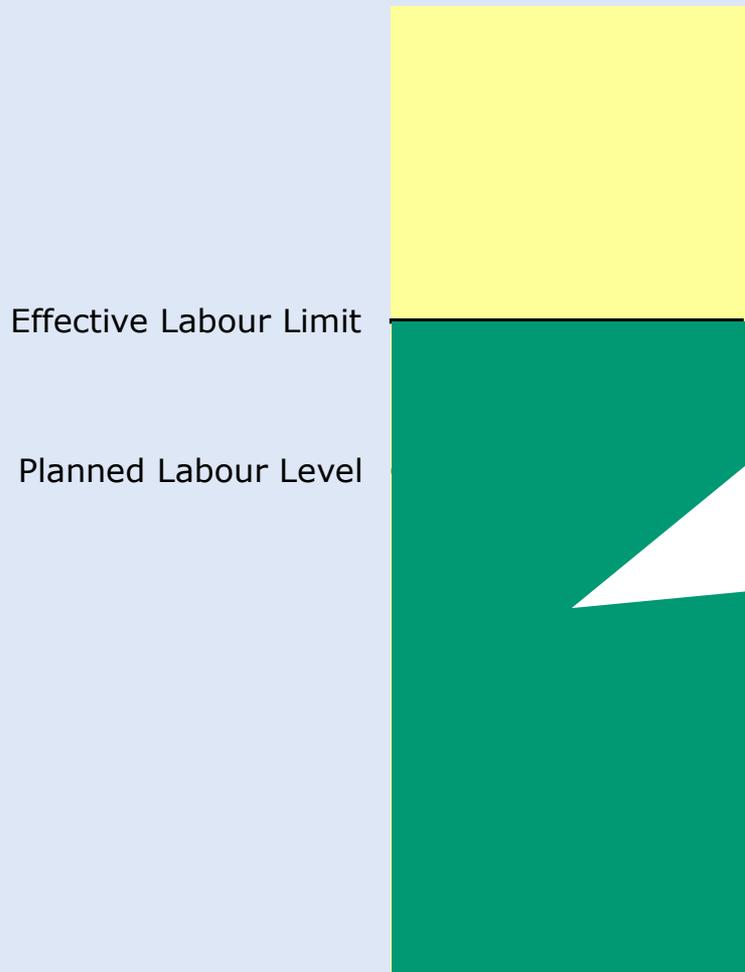
The labour lost by delays is **classed as 'ineffective' labour.**

KEY POINTS

The total labour level allocated may be higher than the anticipated required level to compensate for any delays to the job that may occur.



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EFFECTIVE LABOUR

After allowing for delays the labour BELOW the effective labour limit is classed as the **effective labour on site**, and contributes to progressing the job.

Only effective labour generates value, or money from the client.

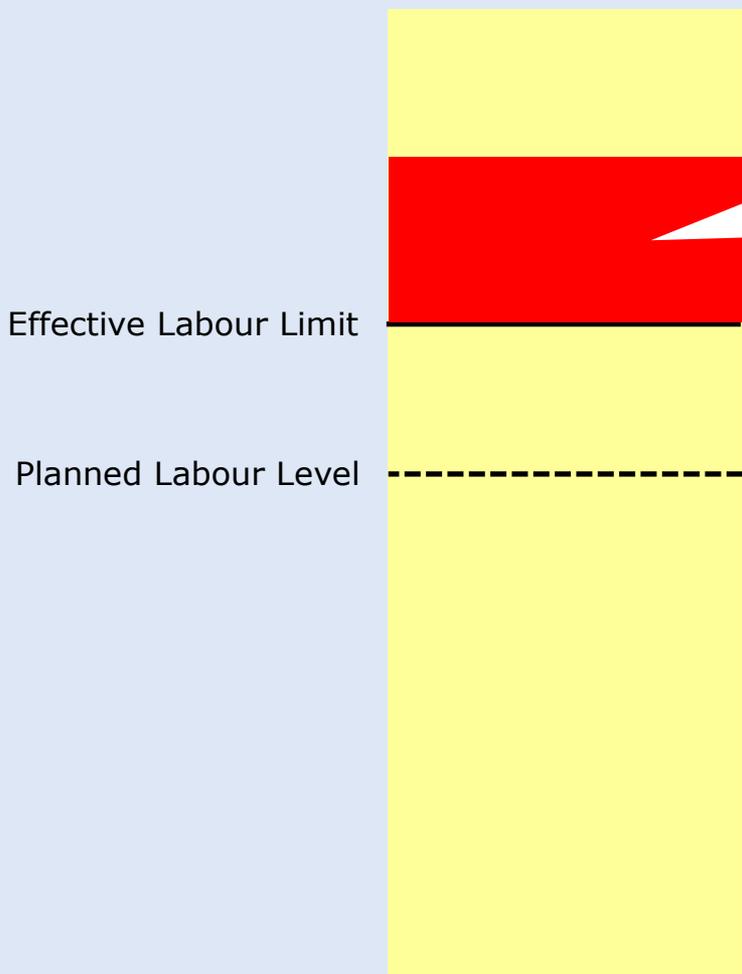
As a rough guide, if the effective labour on site is 30% of the total labour required to complete a job, 30% of the job's value (original bid) should be earned from the client.

However, there are numerous other factors that can affect the measured value recovered, including :-

- The quality of the project manager on the site
- Morale of the company's own labour
- Measurement effort across the company



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INEFFECTIVE LABOUR DUE TO OVERMANNING

After allowing for delays the labour ABOVE the effective labour limit is classed as **ineffective labour due to overmanning**, and does not contribute to progressing the job.

The cost of ineffective labour is shown in the **Industry parameters**.

Industry parameters

FINANCE OVERHEADS PROCUREMENT **JOB PROGRESSION**

PROJECT MANAGERS Recruiting costs: 15 % annual salary
 Paying off costs: 15 % annual salary
 Relocating costs: 6 % annual salary

OVERMANNING LIMITS

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SUBCONTRACT LABOUR Additional cost for each subcontractor each period: By country

ALL LABOUR Each ineffective labourer costs: 22,500 per annum

JOB COMPLETION Retention, late completion penalty and early completion bonus: By client

Legend:
 Yellow box: Fixed for all periods
 Red box: Can vary each period



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Job 32 (Completed on time)

Management consultants report Risk analysis

JOB SUMMARY

JOB PROGRESS

Job progression												Profit analysis			
Planned schedule			Actual progress									By period		Cumulative	
Job period	Planned labour	Cumul % complete	Period	Status	Actual labour	Ineffect due to delays	Ineffect due to overman	Effective labour	Actual % complete	Completion status	Profit	Profit % of cost	Cumul profit	Cumul profit % of cost	
1	68	40 %	4	Past	92	6.1	0.0	85.9	51.4 %	Ahead of schedule	-25,162	-0.8 %	-25,162	-0.8 %	
2	102	100 %	5	Past	85	0.0	0.0	85.0	100 %	Completed on time	61,241	2.2 %	36,079	0.6 %	

Total planned labour needed to complete the job is 170.

PERIOD 4

CLICK ON A LINE IN THE THE SUMMARY ABOVE TO SHOW THE DETAILS FOR EACH PERIOD THE JOB HAS BEEN PROGRESSED

LABOUR ANALYSIS	COST ANALYSIS	VALUE AND PROFIT ANALYSIS
PLANNED SCHEDULE	BUILD RELATED	Measured value: 2,983,563 ?
Required labour: 68	Build cost: 2,305,925 ?	Early completion bonus: 0
Overmanning of: 35 % permitted	Site cost: 492,476 ?	Total value: 2,983,563
Effective labour limit (ELL): 91.8	Risk cost: 29,662 ?	Total cost: 3,008,725
LABOUR ALLOCATED	Late completion penalty: 0	Total profit: -25,162 (-0.8 % of costs)
Own: 22		
Sub: 70		
Total labour allocated: 92 ?		
(less) labour lost by delays: 6.1 (ineffective)		
Effective level after delays: 85.9		
(less) overmanning above the ELL: 0 (ineffective)		
Effective labour on site: 85.9		

The **Job details** shows the labour breakdown each period between the different classifications, and the costs incurred.

TOTAL LABOUR ON SITE

The total labour allocated contributes to the site costs.

EFFECTIVE LABOUR

Effective labour contributes to the build costs.

As a rough guide, if the effective labour is 30% of the total labour required to complete a job, 30% of the job's total build costs will be incurred.

INEFFECTIVE LABOUR

Ineffective labour costs are shown in the **additional labour costs**.