From Dates to Dollars

Advanced Cost Modeling in MS Project

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What You'll Learn Today

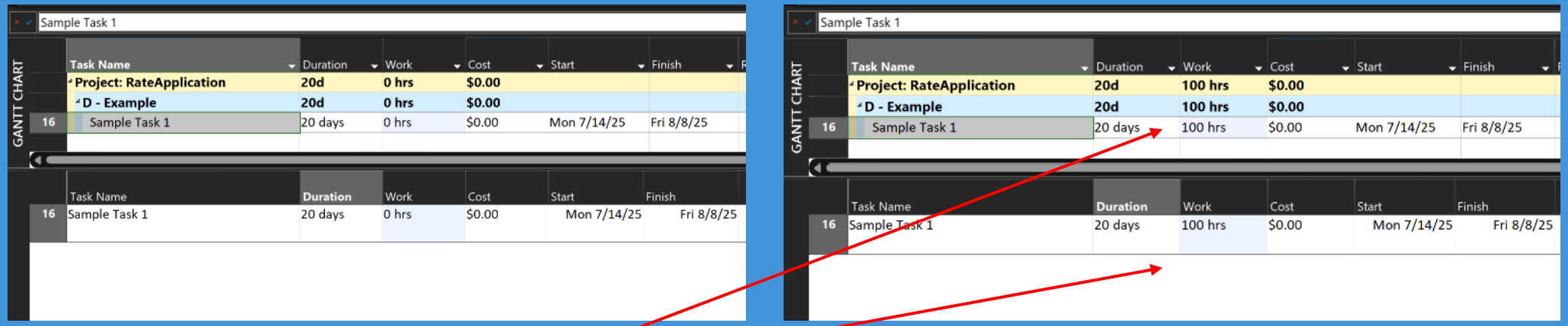
What will this plan cost – and can I trust the number in MS Project?

- Why default cost modeling in Project Fails
- Basics of indirect costs – fringe, overhead, G&A, and fee
- The rounding and reconciliation problem
- Using rate tables A-E for cost perspectives
- Loading precision rates with Excel and VBA
- Modeling labor and non-labor costs
- Live cost switching

How MS Project Handles Work and Cost

Both Work and Cost may be manually entered in task fields

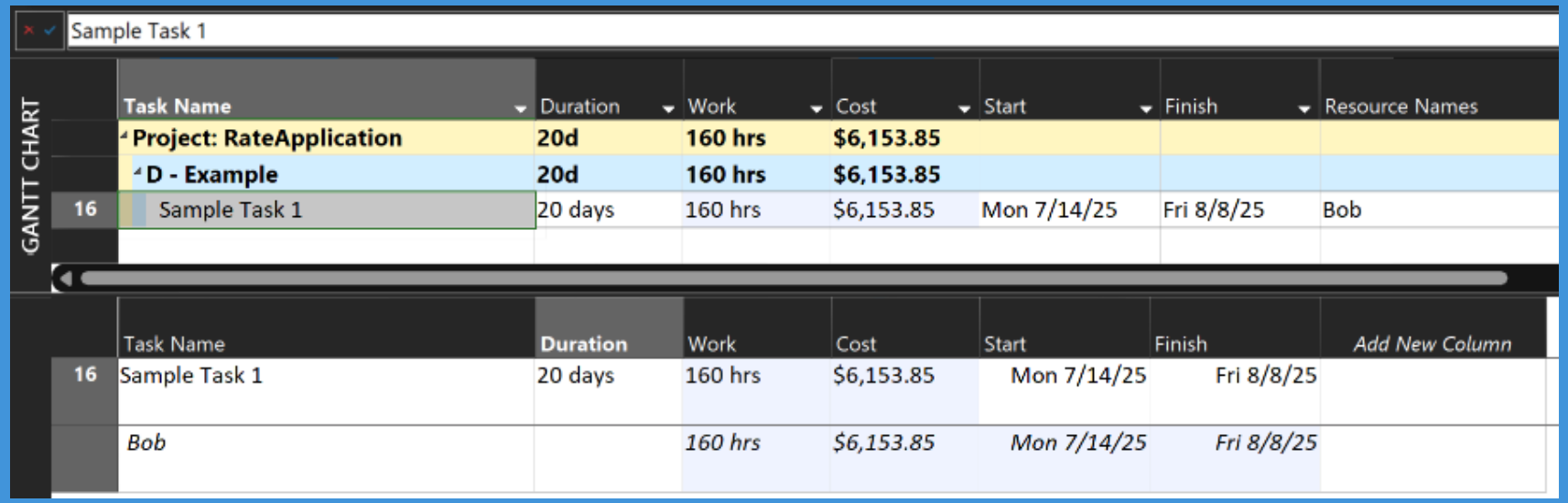
Work – If there are no assignments, the task Work field will accept the value and store it in the task work field WITHOUT any related assignment.



Hours typed in Work field of task – no assignment created

How MS Project Handles Work and Cost

If I then make an assignment to this task, the prior work value is replaced by the assigned hours.

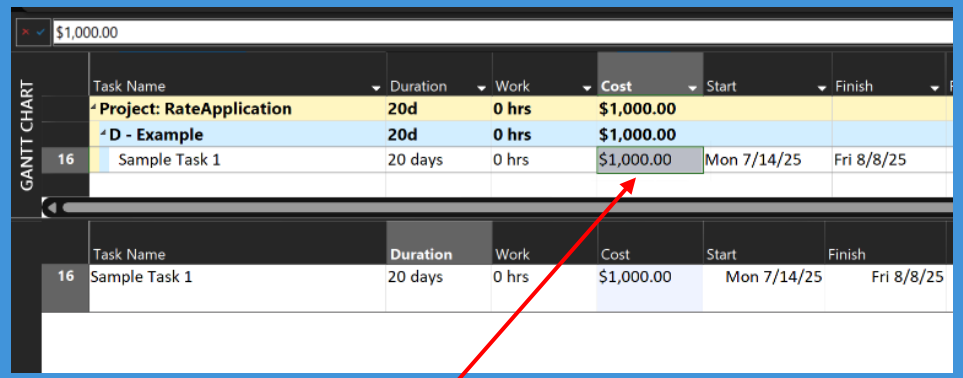


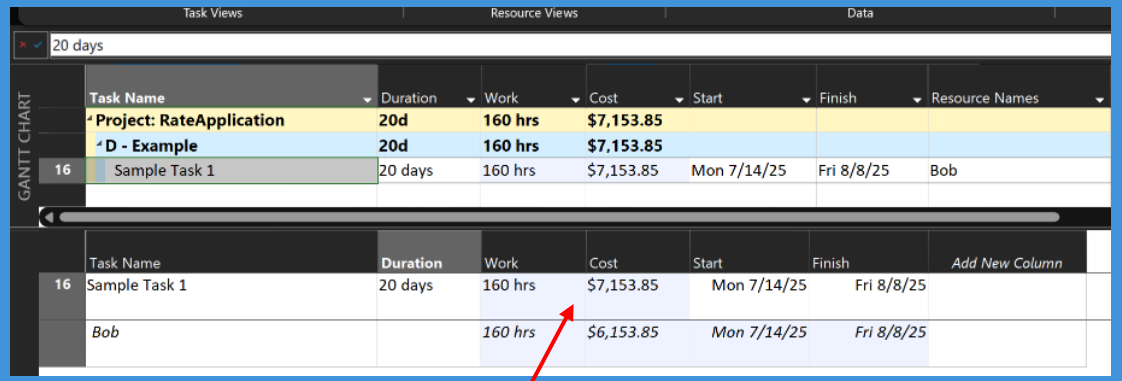
Bob was assigned at 100% for 20 days, MS Project calculated 160 hours. The old "phantom" work value of 100 hours is overwritten by the assignment.

How MS Project Handles Work and Cost

Cost Behaves Differently.

If I enter a value into the cost field, MS Project will store this value and it will persist if I then add a resource assignment



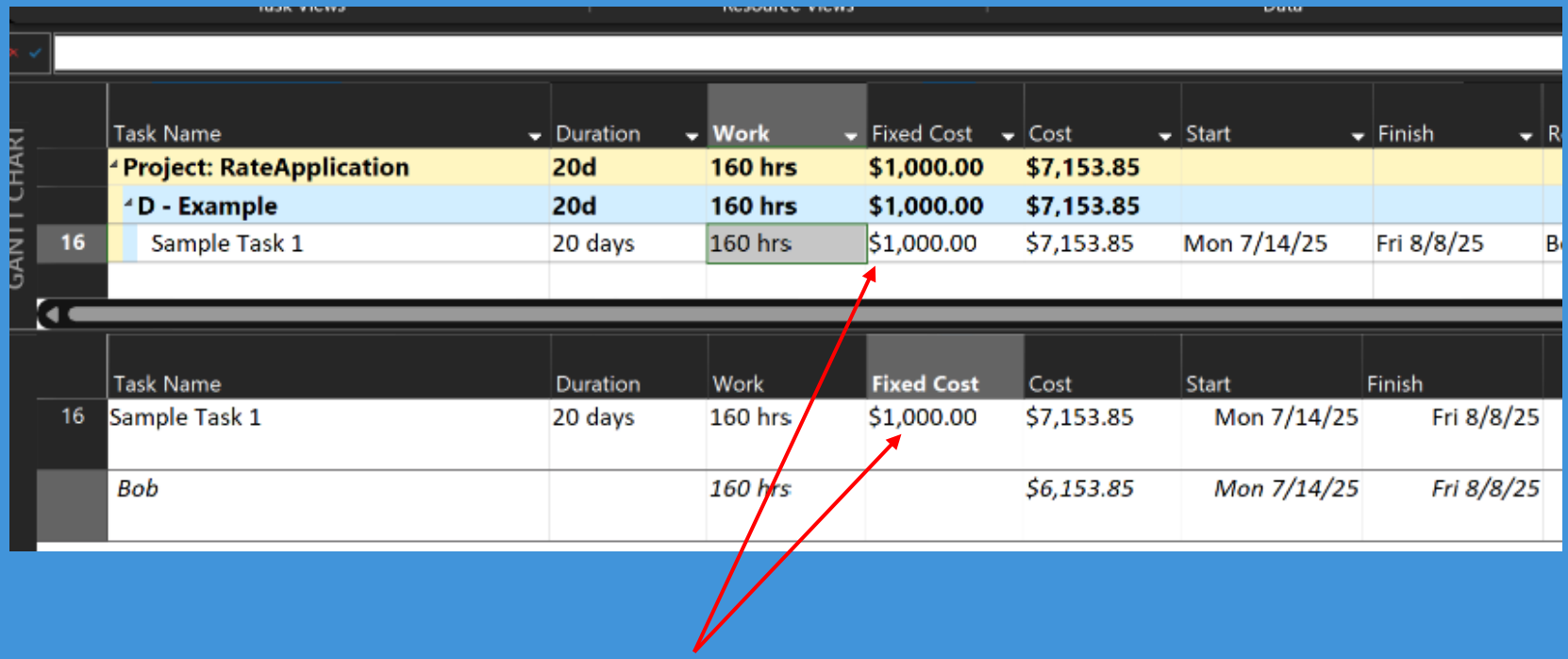


Type $1,000 into cost field on task.

Now assign a resource that has cost associated with it – the task cost data is stored as an offset

How MS Project Handles Work and Cost

If the task holds a cost offset value, it is visible in the field “fixed cost”



	Task Name	Duration	Work	Fixed Cost	Cost	Start	Finish
	Project: RateApplication	**20d**	**160 hrs**	**$1,000.00**	**$7,153.85**		
	D - Example	**20d**	**160 hrs**	**$1,000.00**	**$7,153.85**		
16	Sample Task 1	20 days	160 hrs	$1,000.00	$7,153.85	Mon 7/14/25	Fri 8/8/25

	Task Name	Duration	Work	Fixed Cost	Cost	Start	Finish
16	Sample Task 1	20 days	160 hrs	$1,000.00	$7,153.85	Mon 7/14/25	Fri 8/8/25
	Bob		*160 hrs*		*$6,153.85*	*Mon 7/14/25*	*Fri 8/8/25*

Fixed Cost Retained at Task Level

Moral of the Story – NEVER type cost values into task cost fields for cost modeling!

Primer on Direct and Indirect Costs

Direct Costs	Indirect Costs
Labor, materials	Fringe, overhead, G&A
Task-specific	Business-wide support

Example Rate Buildup for Labor Salary = $97,850/yr Hourly = $97,850/2080 = $47.0337

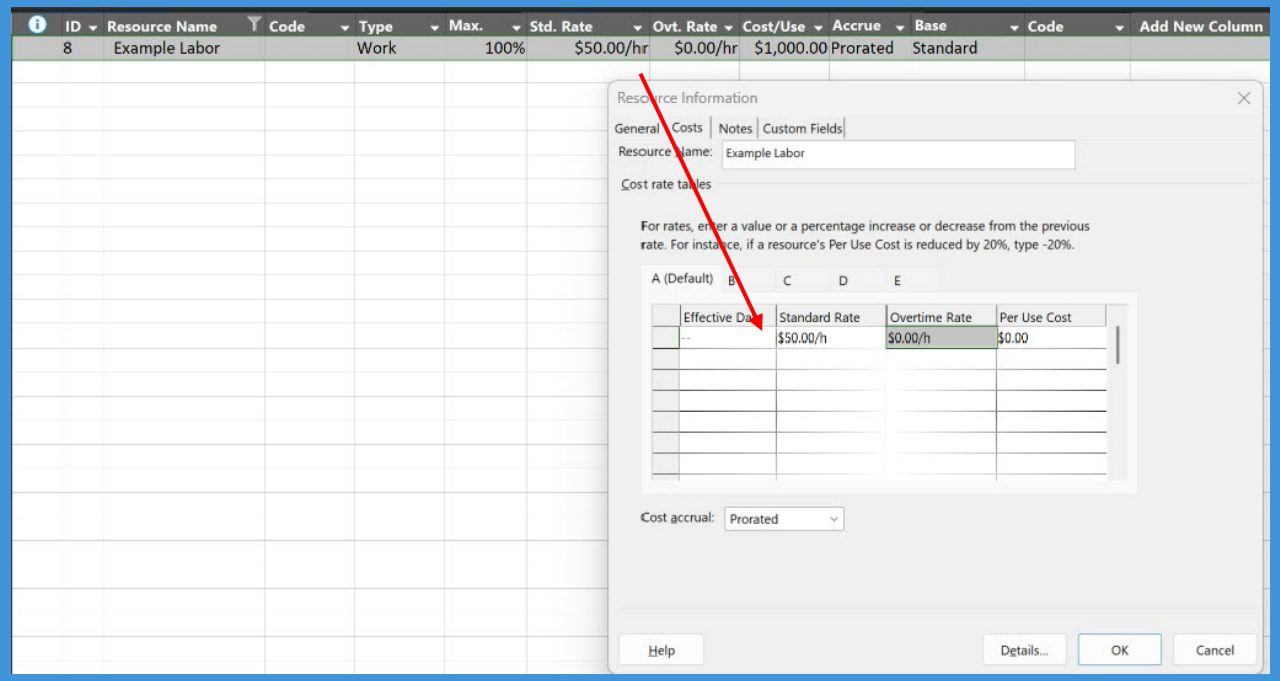
Component	Calculation	Result
Fringe (30%)	$47.0337 × 0.30	$14.1101
Base + Fringe	$47.0337 + $14.1101	**$61.1438**
Overhead (60%)	$61.1438 × 0.60	$36.6863
Base + Fringe + Overhead	$61.1438 + $36.6863	**$97.8301**
G&A (10%)	$97.8301 × 0.10	$9.7830
Subtotal (Burdened)	$97.8301 + $9.7830	**$107.6131**
Fee (5%)	$107.6131 × 0.05	$5.3807
Total Rate	$107.6131 + $5.3807	**$112.9938/hour**

Adding Cost Information to MS Project

From the Resource Sheet, you can add a standard rate to a resource and the tool will apply that rate.

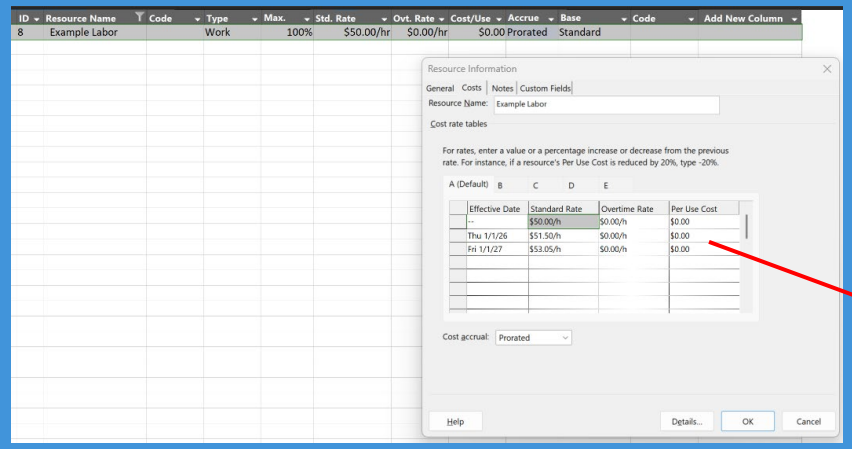
What it's really doing behind the scenes is updating the default entry in row 1 of Cost Rate Table A

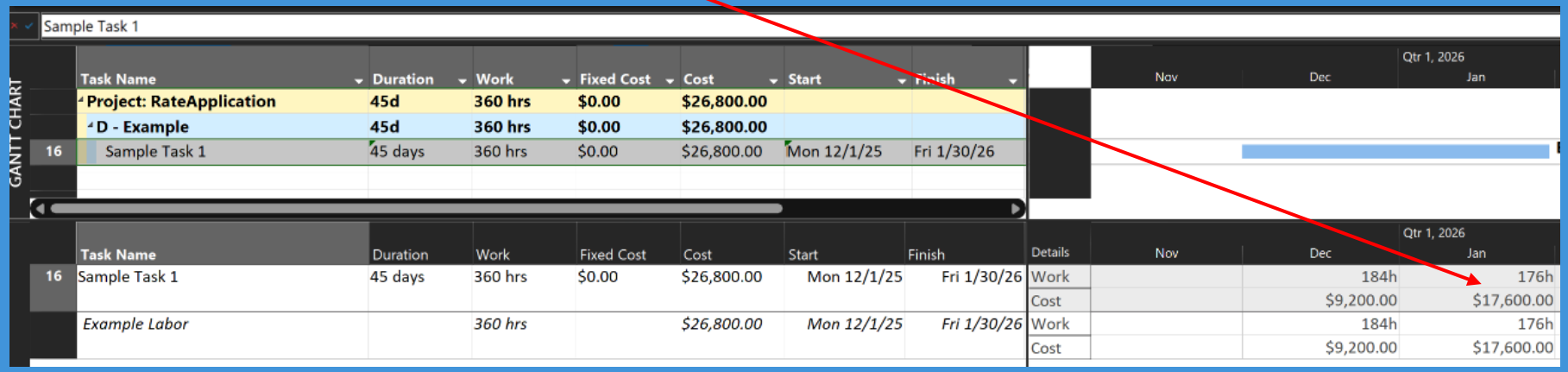
Row 1 has no effective date, which translates to 1/1/1984 in MS Project



Adding Cost Information to MS Project

What if I want to change this labor value over time?
I can add new rows to apply a new effective rate at date boundaries.





Additional Rate Application Levers

Per Use Cost – Assigns a value in addition to the calculated work * rate to the cost per assignment

Overtime – Allows for a different rate for hours planned over standard

Cost Accrual – Prorated, Start of Finish

- Start and Finish do not honor effective dates, and will calculate the cost of the entire assignment based on the start or finish date based on accrual method set.

The Penny Problem

The Cost Rate interface restricts all values to 2 decimal point precision.

We cannot model precise rates in the same way pricing, accounting, or EVMS cost engine tools do because we always have rounding errors.

An Example with 250,000 hours of a burdened labor source

Rate Input Style	Hourly Rate	Total Cost	Delta from True Value
Full precision	$110.048077	$27,512,019.25	0
Manual entry (rounded)	$110.05	$27,512,500.00	+$480.75
Manual entry (truncated)	$110.04	$27,510,000.00	–$2,019.25
Simplified entry	$110.00	$27,500,000.00	–$12,019.25

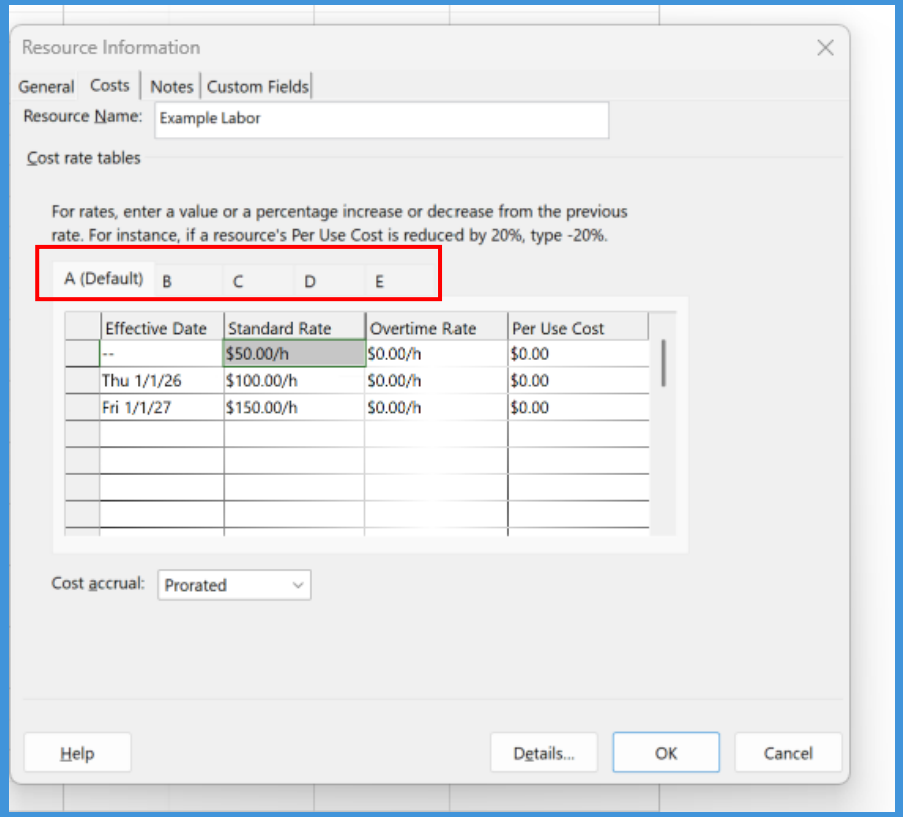
Reconciling to Different Result Units

What if we want to see direct labor costs separately from fully burdened costs? How about total cost including any associated profit or fee?

Which Value to we put in the Standard Rate?

These are the Cost Rate Tables A through E

Loading these rate tables, and subsequently applying them is terribly slow and difficult in the primary user interface. Even if we get them loaded, we still have the Penny Problem.



Advanced Scenario

Here's a reasonably standard federal government planning integration problem:

I'm supporting a proposal that has labor, material, and travel. Travel cannot carry fee, and the customer is giving 5% fee on material and 10% fee on labor. I have a target cost to stay within and my management is trying to hit a target aggregate fee of > 7%.

How can I use MS Project to model this?

Advanced Scenario – Solution Setup

For labor I create resources of type Work
For material and travel, I create resources of type Material

Why not Cost? Cost type resources do not use the Cost Rate Tables! We can't apply any of these techniques against a cost type resource.

I define my rate tables as follows:
A = Labor Direct Cost
B = Material Direct Cost
C = Total Burdened Cost without Fee
D = Total Price (Cost + Fee)
E = Fee Only

Live Demo

Using the RateApplication.mpp file and the excel load file MS Project Rate File.xlsx, show how we can load this scenario and review results.

Step 1 – Load the schedule file with the plan
Step 2 – Assign Resources
Step 3 – Load the rate import excel file with rate information
Step 4 – Import rates
Step 5 – Demonstrate Rate Views and Macro based switching
Step 6 – Live “What-If” demonstration

Summary

MS Project Cost Rate Tables a very powerful and flexible feature BUT:

- There is no bulk load feature and the UI is clunky
- The UI forces rounding to the nearest penny

With a little VBA knowledge, we showed how you can create a simple but flexible rate management utility in excel, and import the results directly into MS Project.

We can also automate the assignment switching between cost rate tables to apply those rates in real time.

You have the power to assign the cost rate tables to reflect any answer that matters to you.