

USING UNITS PERCENT COMPLETE IN PRIMAVERA P6

Do you want to track schedule progress based upon actual labor units expended? If yes, you will want to become familiar with the Units % complete type in Primavera P6 Professional. Here we take you through progressing a schedule using Units % complete.

This article demonstrates how to use the Units % complete type to progress activities that have multiple resource activity assignments. Use of the progress reporter is beyond the scope of this demonstration.

If you are working in the construction industry for example, it is generally more preferable to use the Physical % complete type for progressing your schedule. In fact, that is true in any industry where there is a physical deliverable (rather than, say, lines of code in a software development project) that can be discretely and tangibly measured. This is because Physical % complete is based upon the work physically achieved. If you are working in the research & development industry, it might make more sense to use Duration % complete type.

The Duration % complete type requires less manual input from the scheduler, and it assumes that the percentage of work achieved relates directly to the remaining duration. Again, this is better where physical work achieved and/or physical work remaining is difficult to measure.

If you have multiple resources assigned to an activity and your labor burn rates among these resources are not uniform, then Units % complete type is the more accurate way to go than Duration % complete. The Units % complete type is most often used in conjunction with Primavera Progress Reporter; an additional module that is integrated with Primavera P6 and more recently integrated with another module called [Team Member](#). Primavera Progress Reporter is a tool for capturing progress and labor resource's time from timesheets.

We have in Figure 1 our demonstration schedule.

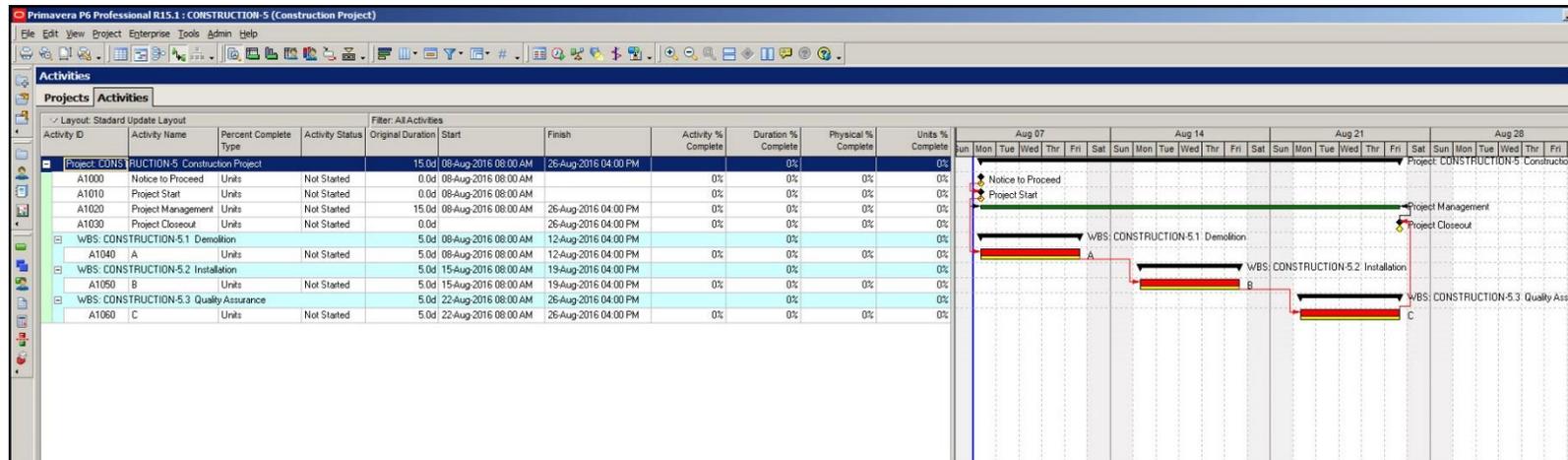


Figure 1

This is a simple schedule with three deliverables: demolition, installation, and quality assurance. Activities are all five days duration and are connected by finish-to-start (FS) relationships. Note that our percent complete type is Units for all activities in the schedule (see Percent Complete Type column).

In Figure 2 we have entered the status of activity A; it is complete.

Activity ID	Activity Name	Percent Complete	Activity Status	Original Duration	Start	Finish	Activity % Complete	Duration % Complete	Physical % Complete	Units % Complete
Project: CONSTRUCTION-5	Construction Project	15.0d	08-Aug-2016 08:00 AM A	26-Aug-2016 04:00 PM			0%	0%	0%	22.22%
A1000	Notice to Proceed	Units	Completed	0.0d	08-Aug-2016 08:00 AM A		100%	100%	100%	100%
A1010	Project Start	Units	Completed	0.0d	08-Aug-2016 08:00 AM A		100%	100%	100%	100%
A1020	Project Management	Units	Not Started	15.0d	08-Aug-2016 08:00 AM A	26-Aug-2016 04:00 PM	0%	0%	0%	0%
A1030	Project Closeout	Units	Not Started	0.0d		26-Aug-2016 04:00 PM	0%	0%	0%	0%
WBS: CONSTRUCTION-5.1	Demolition	5.0d	08-Aug-2016 08:00 AM A	12-Aug-2016 04:00 PM A			100%	100%	100%	100%
A1040	A	Units	Completed	5.0d	08-Aug-2016 08:00 AM A	12-Aug-2016 04:00 PM A	100%	100%	100%	100%
WBS: CONSTRUCTION-5.2	Installation	5.0d	15-Aug-2016 08:00 AM	19-Aug-2016 04:00 PM			0%	0%	0%	0%
A1050	B	Units	Not Started	5.0d	15-Aug-2016 08:00 AM	19-Aug-2016 04:00 PM	0%	0%	0%	0%
WBS: CONSTRUCTION-5.3	Quality Assurance	5.0d	22-Aug-2016 08:00 AM	26-Aug-2016 04:00 PM			0%	0%	0%	0%
A1060	C	Units	Not Started	5.0d	22-Aug-2016 08:00 AM	26-Aug-2016 04:00 PM	0%	0%	0%	0%

General	Status	Resources	Predecessors	Successors	Codes	Notebook	Steps	Feedback	WPs & Docs	Expenses	Summary
Activity: A1040		A		Project: CONSTRUCTION-5							
Duration	Status										
Original	<input checked="" type="checkbox"/> Started	08-Aug-2016 08:00 AM Units % 100%									
Actual	<input checked="" type="checkbox"/> Finished	12-Aug-2016 04:00 PM Suspend									
Remaining	Exp Finish										
At Complete	Resume										
Total Float	Constraints										
Free Float	Primary	< None > Secondary < None >									
	Date										
	Date										
Labor Units											
Budgeted	80.0h										
Actual	80.0h										
Remaining	0.0h										
At Complete	80.0h										

Figure 2

In the Labor Units section, we see the zero day remaining duration and the 80-hours actual labor units. We want to more accurately represent the distribution of resource effort on activity A.

The proper procedural order to update progress on a multiple resourced activity is to first enter the activity status and remaining duration, and second enter the actual labor units of each resource. In Figure 2 our activity remaining duration was automatically populated when we declared that activity A is finished (assuming that we have our resources set to Autocompute Actuals). In Figure 3, we dive into the resource assignments for activity A and input a more accurate distribution of actual labor units.

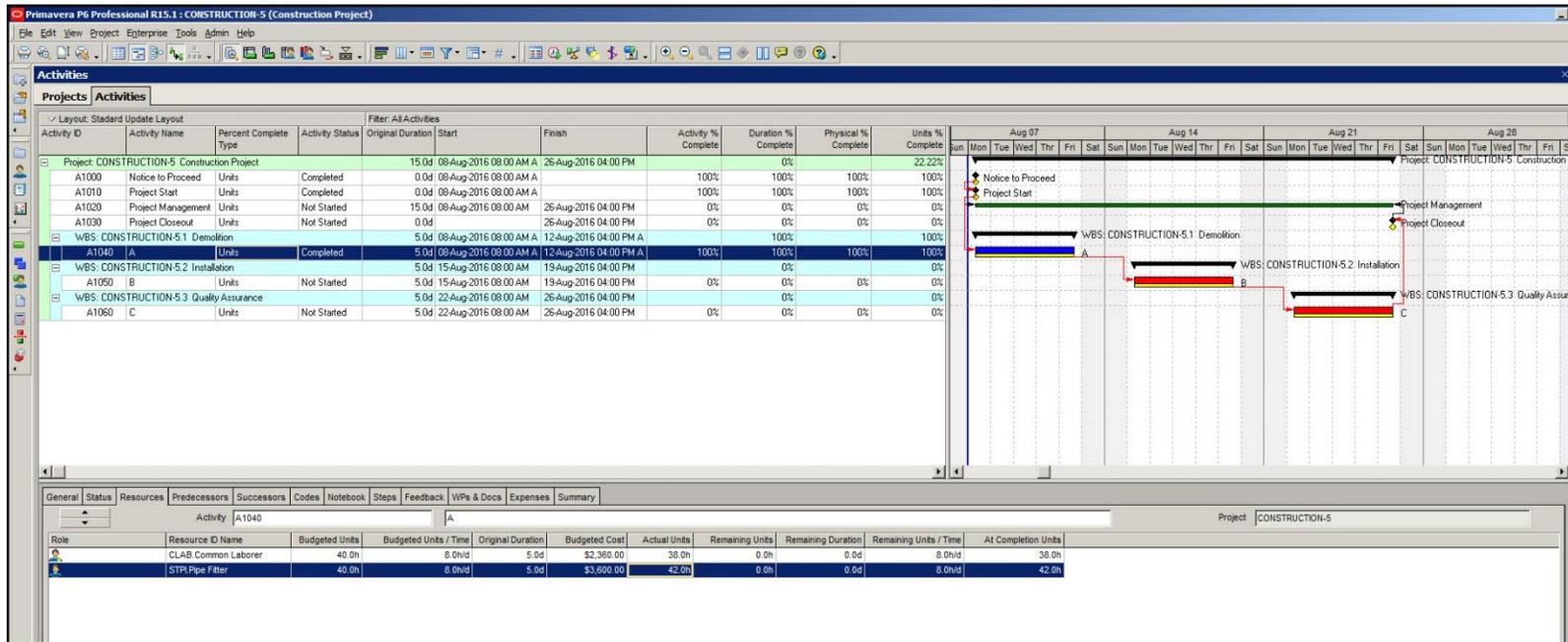


Figure 3

Note that the common laborer worked 38-hours and the pipe fitter 42-hours. These two resources, however, even out to an 80-hour work week, so all our % complete values become 100%. In Figure 4 we have moved the data date forward one week and recalculated the schedule.

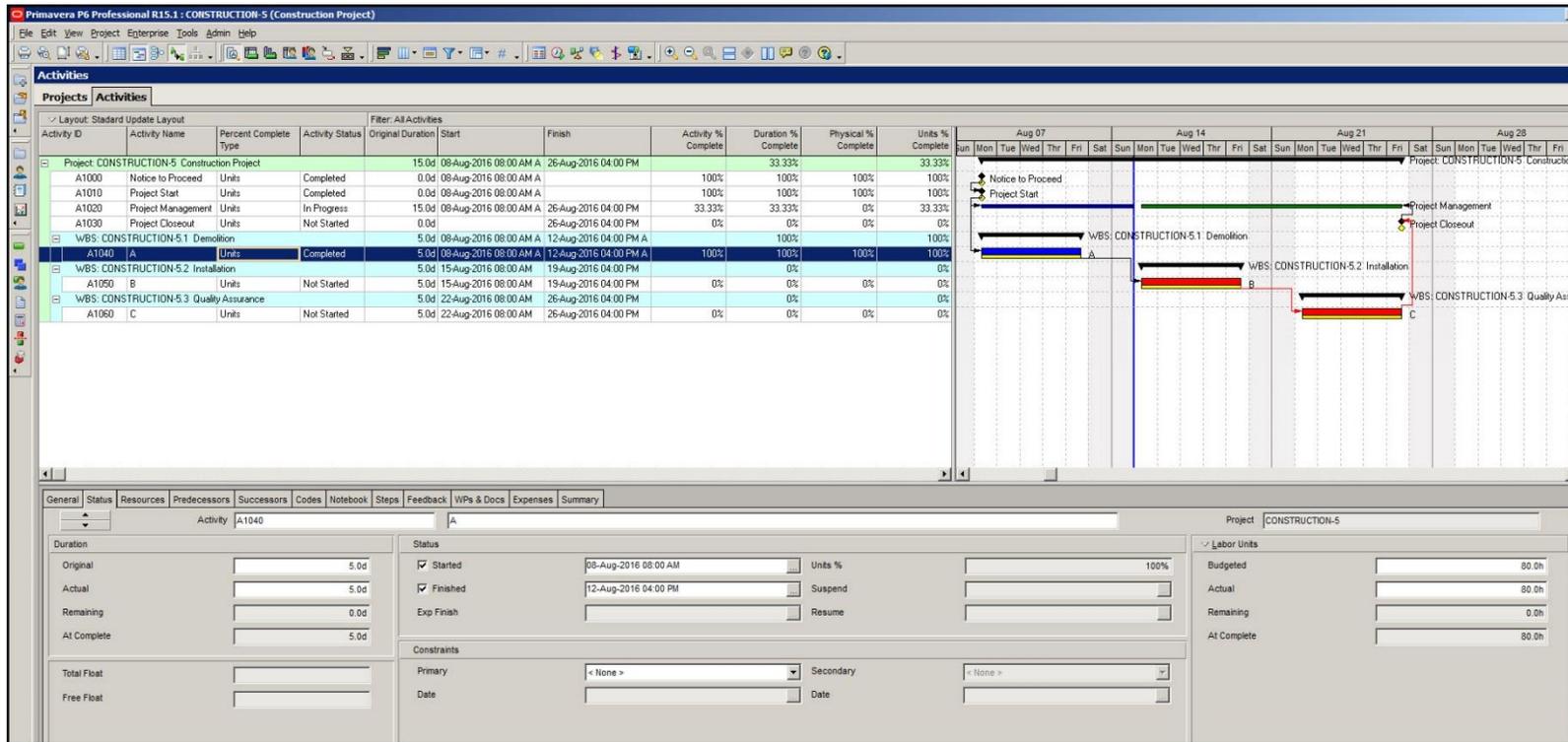


Figure 4
 As mentioned above, the Units % complete, Physical % complete, Duration % complete, and Activity % complete are all 100% for activity A. In Figure 5 we enter the status for week two.

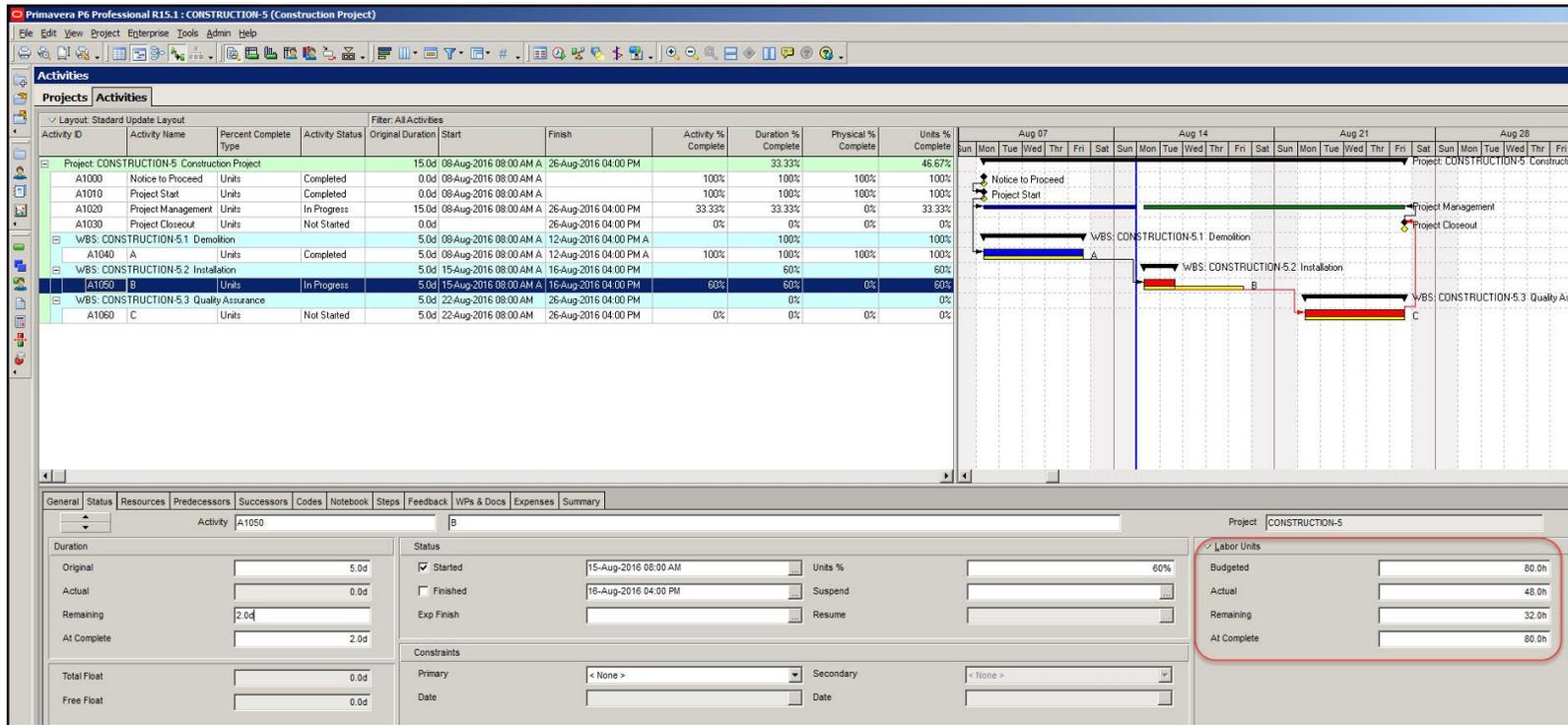


Figure 5

Not only do we toggle activity B as having started, but we enter a remaining duration of 2-days. This means that three days' work are complete. This is reflected in the actual labor units of 48-hours and the Units % complete of 60%. But this assumes all our labor resources uniformly worked 24-hours each the second week.

The reality is that the labor burn rates among the resources was not uniform. In Figure 6 we update the actual labor rates.

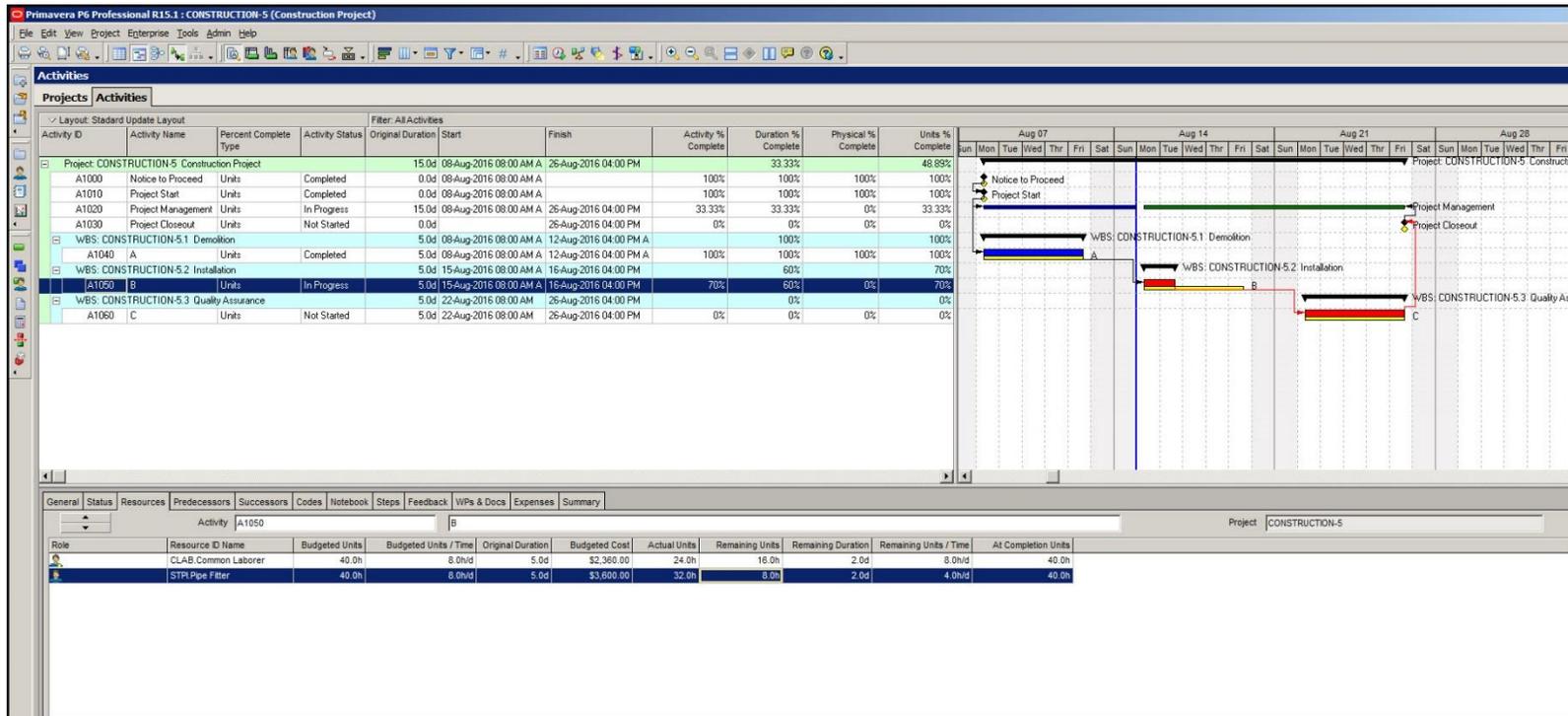


Figure 6
 The common laborer worked 24-hours in five days and has 16-hours remaining, no change here. The pipe fitter, however, worked longer hours, and actually put in 32-hours of work in five days. We update the pipe fitter's actual units to 32-hours and the remaining units to 8-hours. The remaining units/time computes to 4-hours/day for the pipe fitter.
 In Figure 7 we see the results of our more accurate description of labor burn rates.

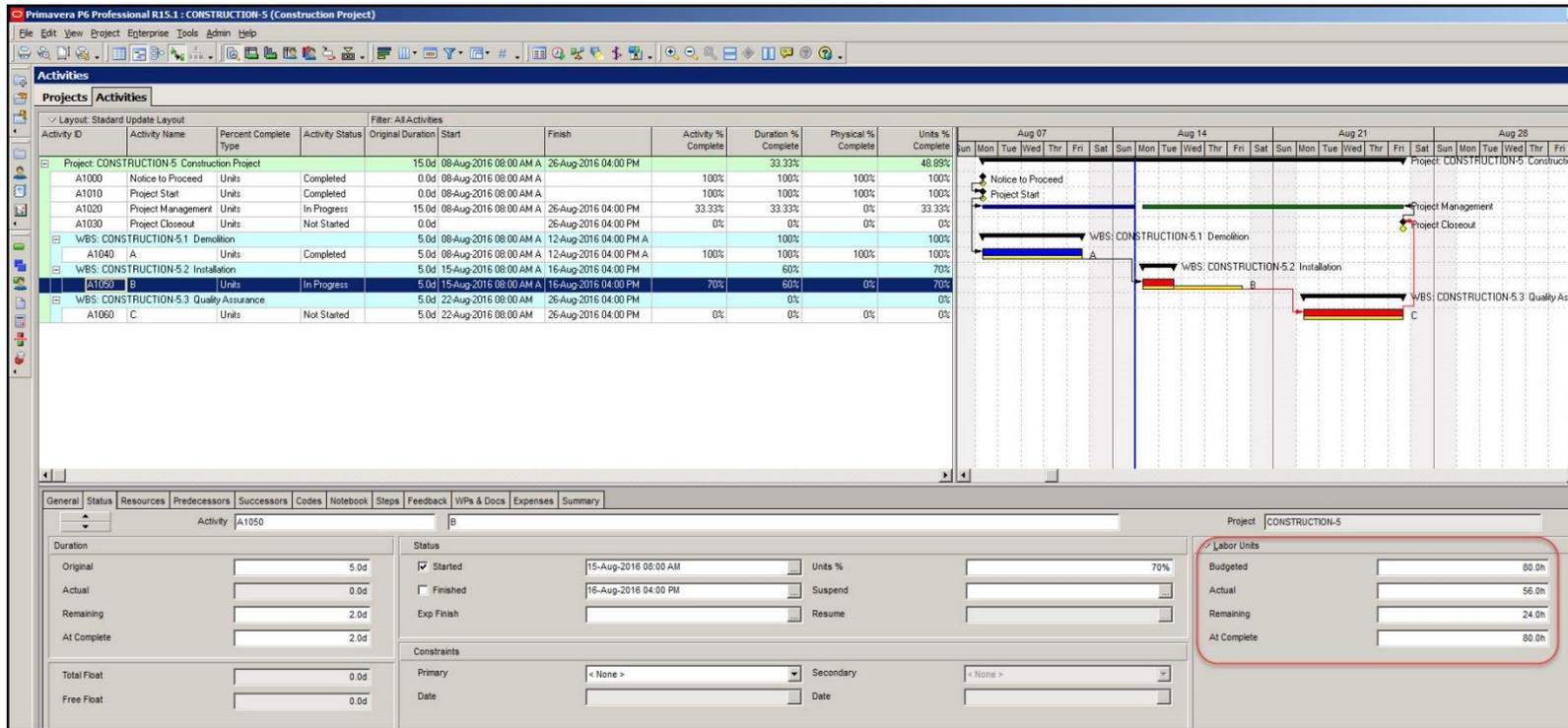


Figure 7

See in the labor units section of status details that the actual labor units is now 56-hours, up from 48-hours. The remaining labor units updates to 24-hours, Figure 7.

Let's pause here and examine our Duration % complete and Units % complete equations. The Duration % complete the first week of activity B's progress computes from 2-days duration remaining duration and 5-days original duration.

$$\text{Duration \% Complete} = \frac{\text{Original Duration} - \text{Rem. Duration}}{\text{Original Duration}} * 100 = \frac{5 \text{ days} - 2 \text{ days}}{5 \text{ days}} * 100 = 60\%$$

Computation of Units % complete is a little more detailed. Both the common laborer and pipe fitter were scheduled to work 40-hours the first week of activity B. However, the common laborer and pipe fitter only worked 24-hours and 32-hours, respectively. Computation of Units % complete for activity B's first week of schedule progress is as follows:

$$\text{Units \% Complete} = \frac{\sum \text{Resource Actual Units}}{\sum \text{Resource At Completion Units}} * 100$$

$$\text{Units \% Complete} = \frac{\text{Common Laborer Actual Units} + \text{Pipe Fitter Actual Units}}{\text{Common Laborer At Completion Units} + \text{Pipe Fitter At Completion Units}} * 100$$

$$\text{Units \% Complete} = \frac{24 \text{ hours} + 32 \text{ hours}}{40 \text{ hours} + 40 \text{ hours}} * 100 = \frac{56 \text{ hours}}{80 \text{ hours}} * 100 = 70\%$$

So the Units % complete value is higher than the Duration % complete. The Units % complete computation accounts for the whole 4-days of pipe fitter actuals, whereas, the Duration % complete assumes both common laborer and pipe fitter worked only 3-days each.

Again, we move the data date one week forward and recalculate the schedule, Figure 8.

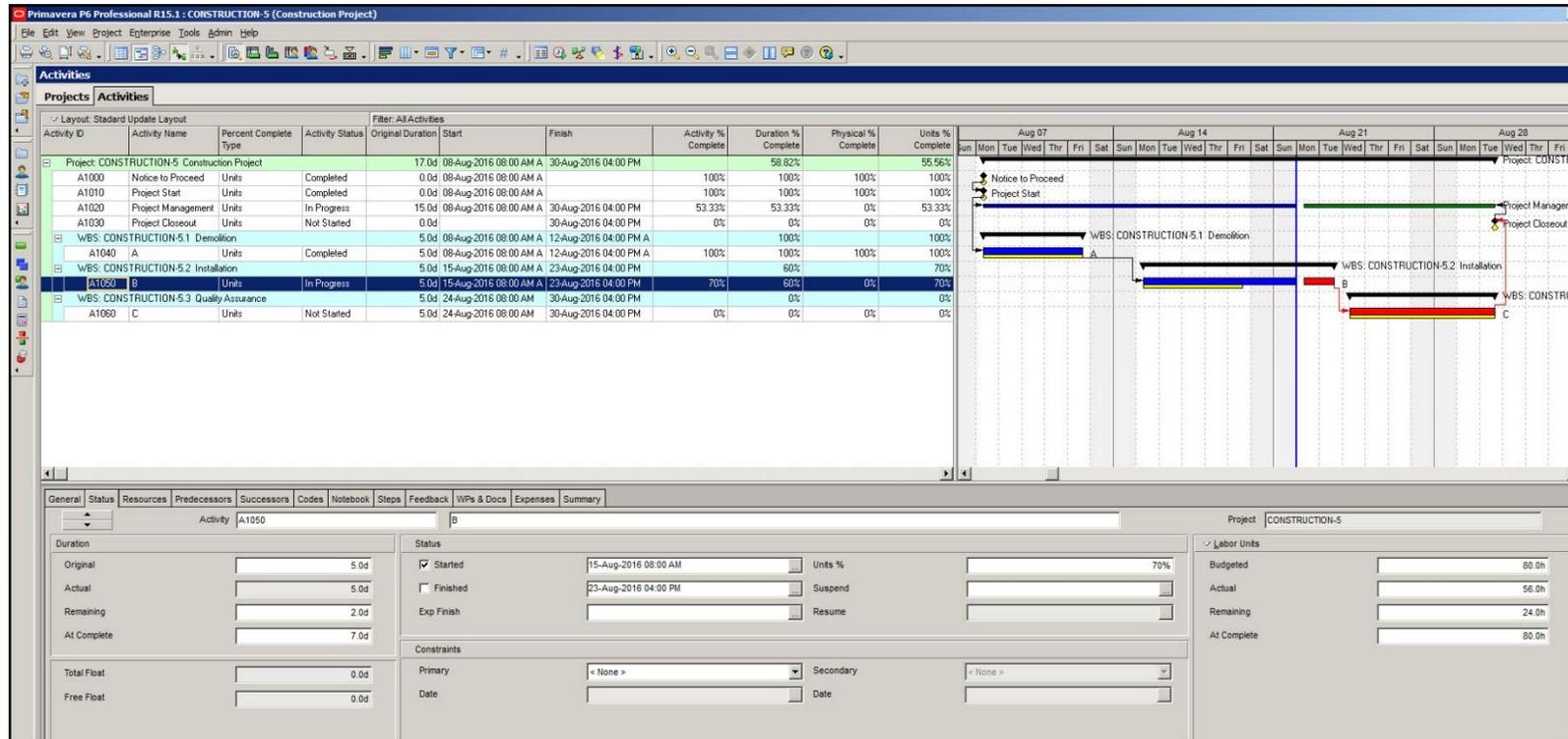


Figure 8

Based on our updated labor rates the Units % complete and the Activity % complete both increased to 70%. This Units % complete and Activity % complete value more accurately describes the labor units expended. The 60% Duration % complete value represents uniform burn rates. The Units % complete value accounts for the 8-hours more effort that the pipe fitter worked above the common laborer the first five days of activity B. The Units % complete type is therefore a more accurate modeling of the non-uniform resource burn rates. Its data entry, however, is more involved.

Summary

Can you measure the physical work achieved or remaining? If so, use the Physical % complete type. If not than Duration % complete and Units % complete are your choices.

The next question is, are your resource burn rates the same? If they differ you will want to use Units % complete type. For multiple resourced activities and non-uniform labor rates, the Units % complete type provides a more accurate measure of actual labor units expended.

As mentioned, the Units % complete type is most often used in conjunction with a timesheet progress reporter software module. Manually entering the labor units of all resources on a large project may quickly become laborious.

Also, note for demonstration purposes, we displayed Physical % complete and Duration % complete values when all activities were assigned Units % complete type. Therefore, in our schedule it is only accurate or safe to display the Units % complete type, as that is the percent complete type assigned to all our activities.