



PROJECT PLANNING & SCHEDULING STANDARD CONVENTIONS

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PROJECT PLANNING & SCHEDULING STANDARD CONVENTIONS

The following Standard Planning and Scheduling Conventions should be applied to your Project Plans and Schedules to ensure compliance with -Contractors Contract. These conventions are based on the original work by ICT Operations Research team responsible for the development of ICT 1500 and 1900 Series PERT Systems, in conjunction with the work carried out by the Operations research Society and others in the UK in the mid 1960's, of which the author was a member of the OR Society and the ICT PERT teams.

The following conventions are now generally accepted in the Planning and Scheduling profession for many years throughout UK, NZ and Australia and will be applied to the project planning and scheduling from the construction sub-contractor to the project:

- Convention 01: The Scheduling Methodology used Should Be Documented and Approved (i.e. PRINCE/2, or PMBOK, or CIOB or IPMA standards)
- Convention 02: The Schedule Should Have the Complete Project Scope Definition through a Project Charter and Project Management Plan
- Convention 03: There should be a Risk Management Plan, Quality Management Plan
- Convention 04: There should be a Work Breakdown Structure to decompose the entire Project Scope (as per AS4817:2006 or EAI:748-C)
- Convention 05: Level-of-Efforts Should Not Be Critical and Should not Have Variance (Summaries in Microsoft Project and Hammocks in Micro Planner X-Pert)
- Convention 06: Activities Should Have Meaningful Unique Id's and not Complex-Names
- Convention 07: Activity Description (Name in MSP) Should Have a Verb (to describe the work) and properly indicate the work that will be performed – see figure x for an example
- Convention 08: Each Activity Should Have At least One Predecessor and One Successor
- Convention 09: Activities Should Not Be Dangling
- Convention 10: Most Relationships Should Be FS
- Convention 11: FS Should not have negative lag durations
- Convention 12: SF Relationships Should Be Avoided
- Convention 13: Long Lags Should Not Be Used
- Convention 14: The Number of Lags Should Be the Fewest Possible
- Convention 15: The Number of Leads Should Be the Fewest Possible
- Convention 16: Activities Should not Have Negative Floats
- Convention 17: Activities should not Have Long Floats
- Convention 18: Activities Should not Be Split into too many steps (P6)
- Convention 19: Milestones should be either Start or Finish Milestones
- Convention 20: Date Constraints should be Implemented only Through Milestones
- Convention 21: Date Constraints --Should be only those specified in the contract
- Convention 22: Milestone Start --if Constrained should start at the beginning of the working day (i.e. 07:00am)
- Convention 23: Milestone Finish --if Constrained should Finish at the end of the working day i.e. 17:00
- Convention 24: Activities Should not Have Long Durations (the general Contract conventions generally, specify a maximum of 30 days)
- Convention 25: Duration Units should Be the Same (i.e. Days), do not vary the size of the Units
- Convention 26: Minimize the number of calendars to avoid calendar creep and invalid Total Float calculations

Example of poor activity descriptions:

Descriptions that are too vague can cause confusion, such as repeated activities with no distinction.



Project: RESERVE CENTER			428
Critical Path			312
2060	01	ERECT STEEL COL'S & BEAMS	5
2330	01	ERECT STEEL COL'S & BEAMS	7
2460	01	ERECT STEEL COL'S & BEAMS	10
2470	01	DETAIL STEEL	3
2480	01	METAL DECKING	3
2500	01	INSLAB MECHANICAL R/I & HANGERS	5
2520	01	PREP/POUR SLAB ON DECK	3
2530	01	MISC TUBE STEEL	5
3080	01	PARAPET & CLERESTORY FRAMING/SHEATHING - HR E	8
3090	01	SET ROOF TOP CURBS/PENETRATIONS - HIGH ROOF	5
3100	01	ROOF INSULATION - HIGH ROOF EAST	12

Good schedule example:

Project activities are given details that help the user scan it quickly and distinguish activities from one another



Project: RESERVE CENTER - May 2012			427
Critical Path			310
2060	01	SECTOR B Erect Steel Col's and Beams	5
2330	01	SECTOR A Erect Steel Col's and Beams	5
2460	01	SECTOR C Erect Steel Col's and Beams	10
2470	01	SECTOR C Install Detail Steel	3
2480	01	SECTOR C Install Metal Decking	3
2500	01	SECTOR C In Slab Mechanical R/I & Hangers	5
2520	01	SECTOR C Prep/Pour Slab on Deck	3
2530	01	SECTOR C Install Misc Tube Steel	5
3080	01	ENC ROOF Parapet & Clerestory Framing/Sheathing - HR E	8
3090	01	ENC ROOF HIGH ROOF Set Roof Top Curbs/Penetrations	5
3100	01	ENC ROOF HIGH ROOF EAST Install Roof Insulation	12
3110	01	ENC ROOF HIGH ROOF EAST Install Membrane Roofing	12
12100	01	EAST 1ST FLOOR Elec Rough-In	10

ADDITIONAL GUIDANCE AND ADVICE

Some additional conventions to minimise the chances of the project plans failing and ensuring that the project completes either on time or before are as follows

Most importantly the Project Planning and Scheduling must involve decisions concerning:-

- The overall strategy of how the work processes are to be decomposed for control
- How the control is managed
- What methods are to be used for design, procurement, development (construction)
- The strategy for control of the sub-sub-contractors and their design procurement and development
- The inter-relationships and Inter-dependencies between the various vendors
- The Zones within the new building where work is to be integrated
- Maximising efficiency of the project strategy with respect to cost and time
- Risk and Opportunity management

In the process of converting the plan into a schedule, the schedulers should determine

- The duration of the Activities
- The vendor and people who will perform the activities
- The resources to be applied to the activities and
- The method of sequencing of one or more activities in relation to other activities

Depending upon the density of the schedule, the purpose for which it is to be used and the information available, activity duration must be derived from the following only. Any assumptions must be documented in case they need to be validated in the future

- Experience
- Industry standards
- Benchmarking
- Comparison with similar construction projects
- Calculation from resources applied
- Scope and specification

The schedule must demonstrate a realistic and practical project plan showing how the construction project is intended to be, in a form that is sufficiently accurate for its identified density

The schedule must be capable of identifying the following:-

- The longest path to completion
- The longest paths to intermediate key dates, or specific deliverables or cross vendor dependencies
- The logic and activities, which are critical from those, which are not critical to one or more of the delivery dates of Technical and Commercial Acceptance. And those which are inter-dependent on each of the vendors
- Total Float on each path
- Free Float on each activity, on each path

The strategy for schedule review must take into account of the development of the schedule as time elapses and as improved information becomes current and as the project proceeds, the increasing density of the schedule develops from the initiation through the work packages by each vendor to integrated commissioning and building commissioning to the completion project

When the inevitable changes occur, the scheduler must be able to identify it contemporaneously, the impact of delaying and disruptions to the activities on the planned sequence of work and make sure that all team members know the likely impact of any recovery strategies that may be put in place to alleviate the delay

There is always Risk in any project and it has to be dealt with well in order to bring any dangers under control. It behooves the scheduler to ensure that contingency has been planned into the schedule and these risks have been designed to be identifiable for both the joint venture and sub-contractors risks for those risks which are related to;

- An activity, or chain of activities
- The contractor, the various vendors, suppliers, or any other project dependent resource
- Access to inter-related activities, completion of predecessor activities by dependent vendor
- The work, any defined area of work or any part of the works related to delivery of the vendor Products

For reporting of the schedule, it is not advisable or practicable to use the whole of the schedule at one time in its detail. Effective reporting relies on summarisation of the activities, at WBS rollup levels or by Activity codes or any level of summarisation for differing purposes. The software products that are able to be used on the project are very capable of focused reporting

The schedulers should adopt "Finish to Start" logic as much as is possible and avoid negative lag durations as well.

Avoid dangles (open ends) as these are generally not permitted as defined in a Contract defining the Master Works Schedule