

Revised April 10, 2002. *capacity\_planning.doc* Author: Dean Ziegler, CPIM

## Rough Cut Capacity Planning

Rough Cut Capacity Planning considers key constrained work centers only.

“RCCP using Capacity Bills” usually considers bills of materials and routings, with standard lot sizes, set-up times, and run times per operation.

“RCCP using Resource Profiles” also considers standard lead times.

### Advantages

Because RCCP considers only key constrained work centers – it is fast and easy to implement.

RCCP provides a good enough ballpark estimate of capacity capabilities for many production environments.

RCCP is usually adequate for “Lean” production environments. The closer your company gets to reaching the holy grail of “lean” methods – the less complicated capacity planning becomes. Why? Because once you establish a few “control point” constrained resources, and begin controlling them, all other resources are by definition “unconstrained” and usually don’t require detailed capacity planning & management.

### Limitations

Because RCCP does not consider partially-completed work in process, it is of limited usefulness for long jobs.

If your RCCP software only considers standard lot sizes, it is of limited usefulness unless:

1. You almost always produce in those standard lot sizes
2. You establish a lot sizing policy of “lot-for-lot” (which allows you to change your lot size with every lot), and your RCCP software supports “lot-for-lot” planning

## Capacity Requirements Planning (CRP)

Capacity Requirements Planning (CRP) is performed at the MRP level of detail, and considers actual lot sizes for component items, partially completed work in process, and current inventory levels.

CRP considers service parts, and other sources of demand not considered by RCCP.

### Limitations

CRP considers requirements for items with bills of materials and routings. It does not consider unforecasted products, engineering & other operations not included in the routing, rework, service orders, or unplanned scrap.

APICS estimates that fewer than 1% of manufacturers utilize CRP. Why? Because if you are complex enough to need CRP, you are probably complex enough to justify Finite Capacity Planning.

## Finite Capacity Planning

Finite Capacity Planning is more than just capacity planning. It also involves scheduling of operations – at least gating operations, and often non-gating operations and outside processes.

Finite Capacity Planning requires:

1. At least one full-time planner with expert planning skills, computer skills, process modeling skills, people management skills, and intimate knowledge of all of your company’s processes
2. Very accurate models of every little nuance of every process – constantly updated as things change

Finite Capacity Planning benefits from:

1. Integration with a Manufacturing Execution System – to provide real-time feedback for last-minute changes like actual yields, unplanned scrap and rework, failed quality tests, employee absenteeism, machine downtime, unfavorably environmental conditions, etc.
2. Lean manufacturing methods to:
  - a. Reduce process complexity
  - b. Establish control points so that people can focus on the “meaningful few” instead of the “overwhelming many”

There are many different algorithms and philosophical foundations underlying each Finite Capacity Scheduling system. They are too varied and complex to explain here, but suffice it to say that you will probably find that each FCS system that you evaluate will be radically different from the next. And the deeper you dig, the more differences you will find.

Finite Capacity Scheduling is nothing to jump into without considerable thought, research, and preparation.

In 10 out of 10 cases – you will benefit from implementing as many Lean methods as possible BEFORE selecting and implementing a Finite Capacity Scheduling system.