



# Distribution Center MANAGEMENT

Managing people, materials and costs in the warehouse or DC

## Facility Management

### Time, space, and cost ideas for improving warehouse operations

“[The] dimensions of time, space, and costs are the three cornerstones by which an efficient and effective warehouse is measured,” says Maida Napolitano, senior industrial engineer with Gross & Associates consulting firm in Woodbridge, N.J., in the revised, second edition of *The Time, Space & Cost Guide to Better Warehouse Design*.

#### Develop labor standards

The book is divided into three sections. In the first, Napolitano looks at four techniques for developing time, or labor, standards.

A time study, which is the most widely used method, basically entails using a stopwatch to time defined activities. This is especially useful for short, repetitive, highly variable tasks.

Predetermined time standards utilize a collection of already established standards for certain operations or activities. This method is useful for new operations where there are no precedents by which tasks can be measured.

Work, or activity, sampling uses a random sample to record whether a worker is active or idle at several random points during the day. The standard time is then calculated based on the employee's performance over that time period.

Historical data is useful when accurate records have been kept. It is a good approach for establishing a baseline for a current operation that is being improved.

Napolitano also offers a few tips for establishing successful labor standards, including:

- When standards are used for productivity measures, improve operations first before setting

#### Five steps to establishing time standards

In *The Time, Space & Cost Guide to Better Warehouse Design*, Maida Napolitano offers this five-step process for developing time standards.

- **Cycle definition.** The first step should be to define the activity you are going to measure as a distinct cycle with clearly defined beginning and end points.
- **Element-by-element analysis.** Next, you need to break down the activity into simple, definable elements.
- **Determination of time standards.** For each element, decide which method you are going to use to create standards — time studies, predetermined time standards, work sampling, or historical data.
- **Frequency determination.** In this step, you must determine how often each element occurs in the operation in order to create a comprehensive standard.
- **Factor in personal fatigue and delay allowances.** Finally, you must allow for employee fatigue in the final standards that you develop.

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time standards. This ensures that the times are based on efficient operations.

- When used in incentive programs, avoid problems by having all parties involved agree to the method for establishing standards and the conditions underlying those standards.
- Use a computer spreadsheet program to set up and maintain time standards.

### Consider impact of equipment

In the section on space, Napolitano evaluates the impact of various storage and material handling equipment methods on space utilization.

For example, typical counterbalanced lift trucks “generally require aisle widths starting at approximately 12 feet,” she says. While a stand-up model is more expensive, it can usually operate in an aisle width of 10 feet.

Napolitano also recommends factoring in the effects of honeycombing — the wasted space brought about by partially filled rows and stacks.

### Analyze investments

Napolitano looks at two methods for analyzing investments in the chapter devoted to costs.

The first is the simple payback period analysis, which determines the number of years that have to elapse to recover the invested capital. You can determine this simply by dividing capital costs by the difference between revenue and expenses. This method is useful for a quick, general analysis, but it is not exact.

The second is the annual worth method. This analysis takes into account the present and future value of cash inflows and expenditures by using the interest rate over the period.

*The second edition of *The Time, Space & Cost Guide*, published by the Distribution Group, will be available at the end of this month. You can order the book at [www.DistributionGroup.com](http://www.DistributionGroup.com), or by calling 800-232-4317.* **DCM**

Predetermined time standards are a good approach for new operations when there are no precedents by which tasks can be measured.

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