

## FACILITY PLANNING METHODOLOGY

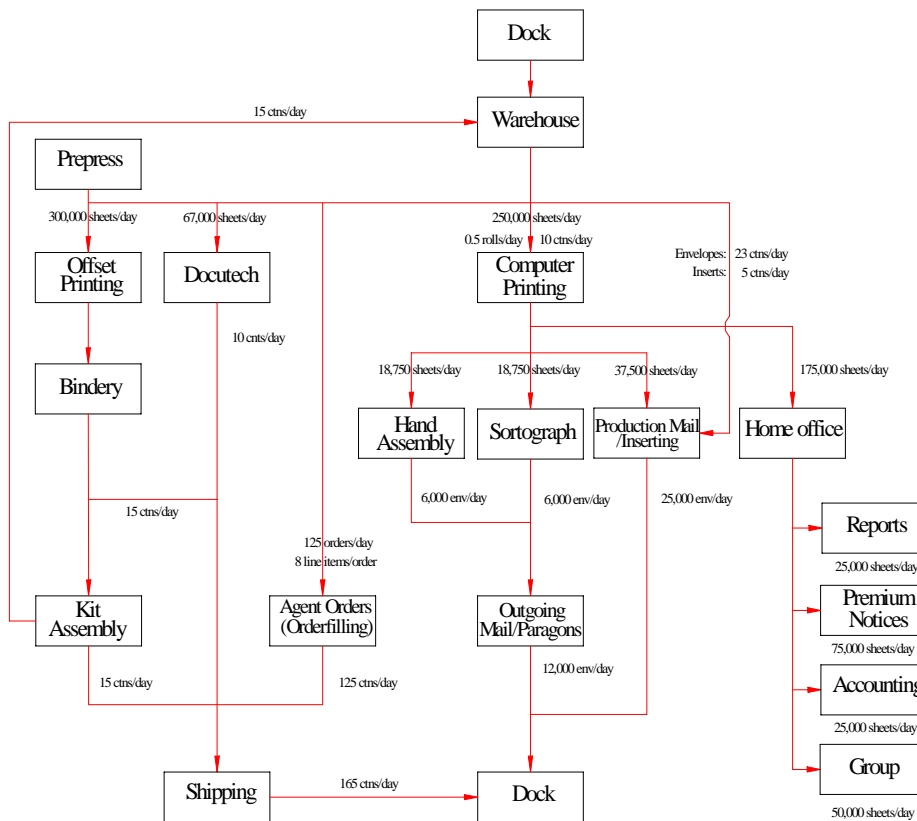
Whether you are developing a new facility plan or an expansion plan, without the correct tools, methodology, and knowledge, you may end up with a costly mistake. When embarking on any facility planning project, we use a process called Systematic Layout Planning (SLP). This process developed by Richard Muther, is widely taught in universities and used by industrial engineers for facility planning projects.

Following the SLP steps outlined in this article allows us to develop a facility plan that will meet your future needs and result in savings and additional capacity.

### Document the Present Operation

Prior to the development of a new facility plan, it is necessary to document your current operations. To begin Flow chart the operation, documenting material and information flow. In addition, document current methods and the present equipment layout. Once you have completed documenting the current operation, the next step is to develop *improved* flows. Study your flow chart for the current state and look for steps that are redundant or may no longer be necessary. In addition, you may also want to add steps that will improve the operation. See Figure 1 for a sample flow chart for a print/mail business.

**Figure 1**



## Define the Activities

While you have been documenting the present operation, you probably have been defining specific activities. Activities are present or future operations, specific pieces of equipment, workspaces, or areas that will make up the space that you are planning. Activities may include: Dock, Warehouse, Break Room, Shipping Area, etc.

## Develop Space Requirements

Once you have defined the activities that will make up the new facility plan, you must decide on a planning horizon (e.g. 10 years). In addition, we need to determine what is to be included in terms of the amount of space, equipment, and operational improvements for each activity. These requirements vary from activity to activity. A common mistake is to say “Our corporate growth is 10%. So, let’s take our current space and grow it annually by 10%.” Although this may be adequate for some activities, it does not hold true for all. This is why it is necessary to look at each activity individually. For example, it may be necessary to increase the warehouse’s pallet space by 3% annually, but your present shipping operation space may decrease in size due to operational improvements. Some activities may even disappear. See Figure 2 for an example.

**Figure 2**

<b>PROCESSING CENTER SPACE REQUIREMENTS</b>	
September 30, 2003	
Activity	Space Needs (10 Year Plan) 20% Growth Plan
1 General Offices Includes Banking Services, Human Resources, administrative offices, and a training/meeting room.	Existing space is sufficient for Human Resources. Allow space for a 75 seat training/meeting room. Human Resources to be near front door of facility. Increase Banking Services' existing space by 20% and plan for an additional 20% growth over 10 years.
2 Conference Room	Existing space is sufficient. Bodi Engineering to confirm.
3 Break Room	Allow space for 100 seats and vending.
4 Restroom	Allow space for 2 restroom complexes. Half-height lockers will be distributed in each department.
5 Dock	Allow space for the following: 3 - 48" H docks and 1 UPS dock. 1 - compactor for landfill. 1 - compactor for corrugate. 1 - compactor for white paper.
6 Warehouse	Plan for 9' aisles, 42" deep racking, 8' load beams and wire mesh decking. Bodi Engineering to determine space requirements.
7 Distribution Services Reports from printing are distributed.	Existing space is sufficient. Replace existing tables with generic workstations. Allow space for box storage.



## Develop a Square Footage Requirements Spreadsheet

During this step, a square footage is assigned to each activity. The space assigned to each activity is predicated on the discussion that took place during the Space Requirements step. Therefore, the square footages may consider operational improvements, automation, new equipment, and growth. See Figure 4 for an example.

**Figure 4**

<b>PROCESSING CENTER PROJECTED SQUARE FEET</b>			
			September 1, 2003
Activity	Present Sq. Ft.	10 Year Plan	
		20% Growth	50% Growth
1) General Offices	10,502	15,550	16,430
2) Conference Room	729	730	730
3) Break Room	4,554	3,000	3,750
4) Restrooms	875	2,400	2,400
5) Dock	1,780	3,600	3,600
6) Warehouse	13,401	12,600	13,530
7) Distribution Services	2,169	2,200	2,750
8) Sorting/Extraction	5,378	5,770	8,300
9) Manual Entry/Account Look-Up	1,361	2,140	2,675
10) Batch Prep Area	602	600	750
11) BancTec Transports	5,319	5,830	8,330
12) Balancing	821	1,310	1,600
13) Deposit Area	1,012	2,030	2,540
14) Detail Pull Area	571	570	720
15) BancTec/Data Entry	9,620	6,650	8,310
16) Detail Look-Up	1,390	2,000	2,500
17) Detail Storage	3,116	4,360	5,450
18) Laser Printing	-----	8,120	10,380
19) Check-In	1,102	-----	-----
20) Inserting	19,182	30,890	38,700
21) Folding	265	300	380
22) Hand Stuffing	129	350	420
23) Computer Room	-----	1,010	1,010
24) UPS Room	-----	1,080	1,080
25) Presorting	-----	3,000	4,500
26) Miscellaneous Areas, Walls, etc.	1,235	3,910	1,165
<b>Total Available Square Footage</b>	<b>85,113</b>	<b>120,000</b>	<b>142,000</b>

**Basis:**

1. Square footages based on 'Space Needs' spreadsheet requirements.
2. Check-in included in laser printing square footage.
3. Warehouse storage based on 2 weeks of inventory on hand.

**Develop Block Plan Layouts**

Once the relationship chart has been completed, it is time to move onto the next step, developing block plan layouts for the facility. A block plan layout is just as it sounds, a layout of a facility using blocks of space, no details. The block plan is developed by using the Square Footage Requirements Spreadsheet and the Relationship Chart that have been previously developed. With this information, blocks of space are developed and positioned according to their relationships defined in the Relationship Chart.

It is a good idea to develop a few alternative block plans and then compare the pros and cons of each layout. Many times, each layout has good traits that are then combined into a final block plan layout. See Figure 5 for a sample block plan.

Figure 5

