Warehouse Design and Layout

Talk to Your Operators

Somewhere between the strategic decisions regarding its character and a warehouse’s actual start-up, there’s a whole world of operational decisions that have to be made. Entirely too many warehouses are built without that operational input.

While historically a warehouse has been a large box used to store surplus inventory for long periods of time, tomorrow’s warehouse facilities are becoming “distribution activity hubs” that add value by processing goods, not storing them.

Such value-added services are, by definition, very labor-intensive. This change speaks volumes for the need to focus attention on productivity and operational efficiency.

While a warehouse in fact is a large box, the input of experienced operational people, like managers, supervisors and operations managers, can drastically improve the productivity and efficiency of the material handling as well as the use of storage space. Architectural design, construction techniques and warehouse operational know-how are easily compatible if they work together through the initial planning stages.

Here’s a checklist of things to discuss with operations personnel in the early stages:

- Finalization of management strategy
- Growth plans and alternatives
- Conceptual design developments
- Material handling system alternatives
- Detailed layout and alternative layout planning
- Staffing and manpower requirements
- Developing operational outlines
- Detailed design along with equipment specification
- Drafting operations procedures

Through operation’s personnel participation in these steps, not only can their input, but also their commitment to the process can be insured.

Last-minute modifications and after-construction rework, to accommodate operational necessities, are interruptive and time consuming, not to mention considerably more costly than original construction.

For example, dock locks and automatic dock levelers are costly, even in construction, but their expense may approach four-fold if they are installed after initial construction is complete.
Below is a checklist of operational issues that must be considered when making your plans:

- Loading dock requirements
- Location and ventilation for battery changing areas
- Building support columns configured for optimal aisle layout
- Adequate doors to handle volume
- Offices and break area locations
- Adequate lighting throughout the facility
- Obstacles that impede the smooth flow of traffic
- Minimal travel distances from receiving docks to storage areas and shipping docks
- Sprinkler requirements, which include high-pressure pumps, reservoirs, in-rack sprinklers, high-density systems
- Aerosol and/or explosion-proof rooms
- Adequate foundation drainage
- Knock-out expansion walls
- Roof design that minimizes maintenance
- Building insulation
- Heat rotation systems
- Heavy-duty landing wheel pads
- Computer station hook-up locations
- Radio frequency installation issues
- Empty pallet storage areas
- Waste disposal dumpster staging locations
- Security issues, which include a parking area that is not contiguous with the building
- Considerations that will accommodate future plans for expansion, automation and/or a change in product offerings

Good operational design isn’t an accident. It takes a lot of hard work and planning. The results will often reward the effort.

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