

## **How to Evaluate Areas of Inefficient Materials Handling**

### **Introduction**

Materials handling is important to an efficient supply operation. Distribution management is concerned with the movement of goods into the warehouse, the placement of goods in a warehouse and the movement of goods from storage to order picking areas and eventually to dock areas for transportation out of the warehouse. Materials handling is usually concerned with the selection and efficient use of mechanical equipment for short-distance movement; such equipment includes conveyors, forklift trucks, overhead cranes and containers. Inefficient materials handling practices add no value to an operation in fact they add cost.

Sometimes the volume of business, availability of labor, or other factors may dictate that a brand new system or facility is needed. However, in the majority of cases materials handling improvements can be made within an existing facility before expending money on new equipment and/or facilities.

In order to help improve materials handling practices and procedures, we need to evaluate these practices and procedures from time to time (and on a regular basis) as a first step towards developing a plan to reduce and/or improve materials handling. This document will provide you with the basis for evaluating materials handling in the warehouse. The information presented will help you to identify areas for improvement; with a view to developing an improvement plan to reduce ineffective materials handling.

By reading this, you will discover how to:

- Identify what to look for in the warehouse when assessing materials handling performance.
- Create a framework through which to assess materials handling practices and help warehouse staff focus on areas for materials handling performance improvement.
- Use a comprehensive checklist of areas for improvement so that you can then develop a materials handling improvement plan.

### **Main Area- Indicators of Inefficient Materials Handling**

Before expanding any funds, it is a good idea to audit your existing operations on a regular basis, in search of problem symptoms.

Even after one or more problems have been identified, some collection and analysis of data will be needed before the problem can be fully understood.

## *Indicators of Inefficient Materials Handling*

The types of data that are important will have to be determined by you or your staff but typically the kinds of relevant data include the following:

- Material characteristics (properties of materials being handled).
- Movement or flow of materials through the facility.
- Handling methods.
- Work activity (including time studies and work sampling).
- Cost factors (for materials, equipment, and labor).

Once the data are analyzed and interpreted, the objectives and requirements of any proposed materials handling solution start to take shape. From this point, alternative solutions can begin to be formulated, including possibly consulting outside suppliers for ideas and solution plans.

In order to effectively plan and control materials handling, the following main principles and guidelines should be followed:

- The distances materials are moved in a warehouse should be as short as possible in order to minimize labor and equipment costs.
- Move materials in a straight line wherever possible. Provide an operation sequence and layout that optimizes materials flow.
- Use the principle of popularity storage-store high volume items at the shortest distance from the point of use/the shipping area.
- Once items are in motion they should stay in motion as long as possible-stopping and starting are expensive for labor and equipment.
- Routes of materials should be on the same level as much as possible given a particular building configuration-moving items up or down contributes to higher labor and equipment costs.
- Minimize the number of times and the length of time an item is handled. Simplify handling by reducing, eliminating or combining unnecessary movements and/or equipment.
- Increase the quantity, size or weight of unit loads or their flow rates.
- Use mechanical and automated equipment for materials whenever travel routes, volume and cost trade-offs justify this investment. In other words mechanization and automation in and of themselves will not necessarily lead to low cost and efficiency.
- Materials handling equipment should be as standard as possible (standardize handling methods as well as types and sizes of handling equipment) and as flexible as possible to lower costs.
- Use gravity wherever possible.
- Materials handling equipment should minimize the ratio of deadweight to payload.
- Plan for optimum utilization of handling equipment and labor.

## *Indicators of Inefficient Materials Handling*

- Replace obsolete handling methods and equipment when more efficient methods or equipment become available.
- Determine handling performance effectiveness in terms of expense per unit handled.
- Provide suitable methods and equipment for *safe* handling.

A checklist for areas of inefficient materials handling is provided below.

## **Conclusion**

Enhanced materials handling practices are integral to enhanced warehouse performance. The information in this document will help you evaluate your supply operation for areas for materials handling reduction & improvement.

Once you establish potential areas for improvement you will need to undertake further work to verify that significant issues do exist and to what extent these exist. Based on your findings you can then begin to develop a plan for materials handling reduction & improvement in key areas.

## Indicators of inefficient Materials handling

Situation	Yes	No	Situation	Yes	No
<p><b>General</b></p> <ol style="list-style-type: none"> <li>1. Crowding and clutter</li> <li>2. Missed deadlines</li> <li>3. No room for expansion</li> <li>4. Unused floor &amp; cube space</li> <li>5. Poor housekeeping</li> <li>6. Excess manual handling</li> <li>7. Casual or erratic inspection</li> <li>8. Excess customer complaints</li> </ol> <p><b>Receiving</b></p> <ol style="list-style-type: none"> <li>1. Truck tie-ups</li> <li>2. Cluttered docks</li> <li>3. Materials piled on floor</li> <li>4. Excess inventory at dock</li> <li>5. Excess manual loading, unloading</li> <li>6. Use of clipboards, manual data entry</li> <li>7. Inefficient coordination of vendor deliveries</li> </ol> <p><b>Storage areas</b></p> <ol style="list-style-type: none"> <li>1. Wasted cube space</li> <li>2. Long operator walking distances</li> <li>3. Damage to products and equipment</li> <li>4. Backtracking to complete orders</li> <li>5. Lack of ergonomic planning (fast movers most accessible, etc.)</li> </ol> <p><b>Production (Manufacture, assembly, order filling)</b></p> <ol style="list-style-type: none"> <li>1. Complicated materials flow paths</li> <li>2. Backtracking in flow path</li> <li>3. Delays and idle time at work stations</li> <li>4. Production bottlenecks</li> <li>5. Overstocking in departments due to "push" method used over "pull."</li> <li>6. Lack of standardization in container use</li> <li>7. Excess work-in-process storage</li> <li>8. Long hauls through the plant</li> </ol>			<ol style="list-style-type: none"> <li>9. Excess use of lift trucks for transportation vs. stacking, retrieving</li> <li>10. Conveyors form barriers to materials flow.</li> <li>11. Overhead spaces not used</li> <li>12. Lack of on-line materials tracking</li> <li>13. No automatic identification</li> <li>14. Excess equipment maintenance</li> <li>15. High reject rate</li> <li>16. Excess pallet damage</li> <li>17. Long setup changes</li> <li>18. Rehandling (excessive picking up, putting down)</li> </ol> <p><b>Packaging</b></p> <ol style="list-style-type: none"> <li>1. Clutter and disorder</li> <li>2. Excess inventory</li> <li>3. Uncompleted orders</li> <li>4. Lack of package uniformity</li> <li>5. Inadequate facilities for unitizing loads</li> <li>6. No smooth interface with other departments</li> <li>7. Material and information flows not integrated</li> <li>8. Excess manual handling</li> </ol> <p><b>Shipping</b></p> <ol style="list-style-type: none"> <li>1. Delays in shipping orders</li> <li>2. High customer complaint level</li> <li>3. Wasted space in truck trailers &amp; railcars</li> <li>4. High return-trip costs</li> <li>5. Excess finished goods inventory</li> <li>6. Slow, costly labeling procedures</li> <li>7. In-line weighing never used</li> <li>8. Damaged packages</li> <li>9. Inadequate shelters</li> <li>10. Traffic congestion</li> <li>11. Inadequate safety provision</li> <li>12. High workmen's compensation costs</li> </ol>		

*Checklists of this type are useful tools for conducting an audit of materials handling effectiveness, especially in a preliminary survey. However, keep in mind the fact that no rules of thumb are foolproof, nor do they apply in every situation.*