Material Handling Classics™

Papers in the classics series have appeared in previous publications of the Material Handling Institute and are at least ten years old. Nonetheless, their value in contributing to the evolution of the industry and to current practice is viewed to be timeless, even though in many cases the authors and companies credited are no longer in the industry.

AUDIT YOUR MATERIAL HANDLING

FIRST ANNUAL IMMS/MHI SEMINAR
OCTOBER 6-8, 1976

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During the course of this seminar, you've been hearing about improving your return on investment, about reducing inventory, about solving problems, about reducing capital expenses, and if you were to save all of the money that you've been told you can save, then you would indeed be extremely rich. After all, if you save first 10%. of the material handling cost, then you are able through the implementation of a new materials handling system save 50% of your materials handling cost, and if you listen very carefully to some of the experts, you'll find that you can even get to a system that will save you an additional 50%. which means that in the final analysis, you've saved 110%. of your materials handling cost, or you've turned your materials handling from a cost item into a profit item. At the minimum you can always save 100% by going out of business.

Now with this kind of accounting, you really are going to be out of a job because I don't think you are ever going to get it past the auditors. But at the same time, many of the things that the accountants do give you about as much information and are about as valuable as the method of accounting that I just mentioned. When it comes to auditing materials handling systems to know whether or not they are accomplishing their purpose, the standard methods of accounting fall completely apart.

First of all, the accountants are more interested in how each department is doing and they are only using this to find out how the company as a whole is doing. You on the other hand want to know that's going on within each department. You are more interested in the microcosm, while they are more interested in the macrocosm.

Secondly, accountants do not label things the same way that you label them. For instance, is the accounting definition of somebody who is doing materials handling as their major job function identical with your description of that same individual? Many of the materials handling job functions are a combination of several different chores and your materials handling system will lessen these chores, but at the same time, they may increase other chores, and there is no way in the traditional accounting system to show what is going on.

Basically what you want to do instead of auditing by traditional accounting techniques is to audit by comparison, and use your comparisons as the basis for maintaining and upgrading your materials handling systems.

Good materials handling technique means that you make the most of what you have and that you conserve your resources. The materials handling engineer has been into conservation of resources probably as long or longer than the Audubon Society and has probably done just as much bird watching as that illustrious group. But the birds that we watch and the things that we conserve bear no relation to what the traditional accountants and managers have audited. The materials handling engineer is in charge of saving time, money and manpower, while the accountants are only interested in dollars.

Each of these resources can be used interchangeably and unless you are developing an auditing system that takes this into account, you really are not finding out what is going on.

Perhaps you have never realized it, but the three resources of time, money and manpower are completely and totally interchangeable. If you think about it, it is easy to see that by putting more dollars into equipment, you can get by with less labor. Similarly, if you have lot of time, almost anything can be accomplished. Those of you who have ever watched a job being done in a labor intensive or "underdeveloped" country are aware that we in the United States generally will tend to use a machine to do a job that in another country would be done purely through manpower. A good example of this is ditch digging. By using a piece of mechanical equipment it's possible to dig more in one day with one man than a hundred men could accomplish in the same amount of time. But, if you have nothing but time you could do the same job with one man working for one hundred days.

One of the things that the industrial revolution has accomplished is to put more dollars into developing complex and expensive materials handling and production equipment to reduce the amount of labor content and to increase the individual productivity. With rising inflation and with the cost of labor rising tremendously, in some industries as much as 30% per year, we find that it becomes increasingly beneficial to put dollars into capital equipment rather than into people.

Simultaneous with the rise in wages has been a rise in the level of education. This is the first country in the history of the world where the literacy rate is so high that we are running out of uneducated people to do the menial tasks. This has advantages and disadvantages, but is it something that has to be coped with?

So where does this leave you, the materials handling engineer, with the system that already exists and another system that you are trying to plan? Let's go through some of the things that can be done by you to look at your resources and audit them so that you can make valid comparisons.

The first thing to do is to divorce your costs from those of the accounting department. This means we are going to go back to the basis. The only way that you will know how much time and manpower is invested in the existing system is by the old standby, namely, time study or predetermined times. While accountants lump things together materials handling engineers take things apart to get an accurate picture of the real costs. You've got to get into time study to find out what is going on with the existing labor. A system can be deve1oped that will save half of the labor that is presently being charged to a department, but what happens if that labor is actually doing other jobs, such as janitorial services, truck driving, general utility men. These people would not be let go even if your system did save some of the labor in the department. In other words, your system can do wonders, but will you really get the labor out of it that you planned? There is no way to know this without some detailed time study.

Secondly, you should develop some method of having a flow chart or series of descriptions of what the tasks involved are that you can use as your base line for existing operations. Time study is great for finding out what the individual worker does, but you also have to develop some techniques for determining the interaction of these workers. Here too we have the traditional tool of flow charting which will show what is going on within the area or department on an overall basis.

The third thing to look at and to establish for your base line is to ask "why". Frequently this simple question will eliminate much of the work that you will have to do later and many of the idiosyncrasies of a complex materials handling system. You've got to be able to evaluate your "why questions" as objectively as possible and you should be trying continually to streamline what you are doing. Frequently, if there is any failing that a materials handling engineer will exhibit, it is the failure to properly ask why you are doing a particular function to begin with, and sometimes the answer to the why can be terribly embarrassing, such as one company who answered why they were doing something with "well, back in 1930, that's the way we started out". It's not the 30's any more, and your questioning of why may ultimately save you a tremendous amount of work.

Fourth is to look at the things that are outside of your control. Many a system can be justified on what is happening in the real world over which you have no control instead of justified on your internal company affairs. Such things as labor availability and the level of the skills of the available labor can frequently dictate to you what your materials handling system must be geared to do. In addition, this audit of the outside world will tell you what you should be planning for in the future. A good example of this is the fact that it takes a year to two years to develop a decent training program. In the same two years, if the neighborhood around your plant is changing, you may find that your training program is obsolete because it is geared to the labor that left and it is not geared to the labor that has come in. A glaring example of this would be programs that are English only and are not geared for the Spanish-speaking people who are enrolled .in the training program. All too often we look in our own backyards and audit our own backyards, completely

forgetting that the real world is constantly changing and the types of skills we're asking for may not be available when we need them.

All of these factors and methods come together and tell you what is going on now, but to be effective in auditing your system, you must have a fifth step which goes in after the design of the system and after the implementation of the system and after the system is operating. This is a periodic review that will tell you whether or not things are performing as predicted.

It is a good practice to start out a new project with a list of goals and objectives. These lists can be as simple as a statement that you want to save 50% of the labor no matter how much the business increases. Or, it can be more effectively stated that you want to save 50% of the labor over what is used on such and such date projected against an increase of business activity by 20%. Obviously, the more specific your objectives are, the easier they will be to evaluate by comparison.

Keep in mind, however, that it isn't just saving labor that you are doing. There is no point in saving 50% of the labor if your costs are going to rise by 200% because of the high cost of the capital that you had to raise to pay for the system. Similarly, what good is a materials handling system that cannot be maintained in an operating condition because there is no labor it. The area that is qualified to do the work and the cost of obtaining such is so high that you might just as well scrap the whole system. Such things have been designed.

A final method of comparison to audit how you are going and probably the most fallacious and potentially disastrous means of doing so is to look at how you stack up with your competitor. No two companies do the same job exactly the same way, and it is this kind of innovation that fosters competition, so why should your company be in the position where you are comparing yourself with your neighbor simply because he happens to be in the same business you are The only people who are really interested in this kind of comparison are the marketing people who have to say that your product is priced too high or to low in a particular market place. And, because of competitive pressures, to come back to you demanding that you save dollars so you can reduce the cost of the materials you sell so that they will have an easier time selling them. Granted you can't be too far out of range in a competitive market, but at the same time, is price your sole means of competition? Is company A turning out something for a dollar less than you are, but when it arrives at the custom door, is it all scratched up, damaged and looking crude whereas your product arrives in good condition, completely finished and exactly the way the customer expects to see it. That $1.00 differential may mean nothing in the customer's eyes if your competitor's product doesn't hold up, but yours does.

All too often two companies will compare themselves with each other and discover that one or the other is lacking. According to Professor Parkinson, maximum productivity and the maximum efficiency is reached when you are operating out of a Quonset hut or a backwoods garage. In actuality what is being mistaken here is that efficiency and low overhead are not synonymous. You may have put more dollars into capital equipment while your competitor has put more dollars into hand labor, and if he only looked at your labor figure, you probably would have him tearing his hair out but if you look at the overall figure, then maybe he's gloating over your being stuck with an expensive piece of capital equipment that has to be paid off.

Now let's put it all together. The only valid means of making an audit of your materials handling system is to compare it with yourself, and the only way that you can make this comparison is to have a pre-established base line for what you are comparing against. All evaluations should be made in the light of all the available resources, time, money and manpower, not on the basis of dollars or labor alone. You must look to the outside world to establish your constraints, but you should not covet your neighbor's labor figures or overhead figures. All this does is lead to ulcers. And finally: if you are going to audit by comparison, your most valuable tool and the most overlooked one is to go back and review the actual system performance again: the goals that were originally set as part of the initial planning. Without a clear cut set of objectives to start with, you will have no valid comparison and no means of making an audit to determine how well you are performing and more importantly, to improve your performance with each successful project.