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# "Material Handling: A Supplier's Perspective" by Jim Oakley

How significant is the effect of material handling on component manufacturing? Is there a “how to” guide that addresses the issues and opportunities for the component manufacturer? The goal of this article is to shed some light on the subject of material handling in the component manufacturing plant. The significance of material flow and its impact on the bottom line—profitability—certainly merits serious consideration.

The topic of material handling may be broken down into three questions:

- What are the factors that define effective material handling methods?
- Why is improving material flow efficiency a good investment?
- Where are the best areas to consider improved methods for material flow?

The answers to these three questions will not be the ticket to insuring your company's future profitability. However, there are dynamic influences on your company's profits and productivity that result from your understanding of material flow. A better understanding of these factors should create positive opportunities for your company's more profitable future.

## WHAT ARE THE FACTORS THAT DEFINE EFFECTIVE MATERIAL HANDLING METHODS?

The criteria for effective, engineered material flow methods typically focus on maximizing material throughput, reducing labor overhead and minimizing exposure to work related injuries. Each segment of this analysis stems from the view that moving lumber is absolutely and unavoidably central to the process of manufacturing wood components. This view applies to all varieties of structural building components without exception.

The current “systems” approach to component fabrication evolved from traditional “stick-built” framing methods. But even the most up-to-date methods in manufacturing plants assemble wood components essentially one stick at a time. In the absence of technology that can move, measure and fabricate components automatically, the focus needs to be on attaining optimal levels of throughput with the use of mechanized material handling systems.

In fact, advancements in the technology of production equipment are forcing the issue of effective material flow. Equipment automation innovations promise potential for production, assuming that enough material can reach critical destinations in a timely fashion. In reality, automated production equipment can outpace multiple manual machines. Saw crews now have the potential to reach production levels that, a few years ago, were not possible. Granted, new component saws are much faster and easier to operate, but when married to the old methods of material flow, this new technology yields only marginal gains in production output. Inadequate material flow will diminish the effectiveness of a large capital equipment investment. Poor

material flow management, when combined with the higher throughput expectations promised by high-tech equipment manufacturers, will often result in injuries to the employees who are trying to keep the lumber moving to satisfy the appetite of these ambitious machines.

Innovative component saw designs are an obvious example of technology exposing inefficient material flow bottlenecks. In addition, there are other examples of the confounding nature of material handling as it affects component manufacturing. Unlike simply plugging in a new machine, material handling can often defy simple remedies. But the real costs of material handling, when assessed in an overall production model, are significant and impact every production element in a manufacturing facility. Conversations suggesting only theoretical outputs, while helping to sell automated machines, only lead to naïve expectations. As a more realistic barometer of production success, useful evaluations must consider effective material handling methods that predict the actual throughput of lumber into and away from production equipment. Managers who give their companies the best opportunities for optimizing profits are addressing the issues associated with effective material flow. By having a better understanding of the impact of material flow on their processes, managers will position their organizations for a brighter future while protecting the health of their most important assets—their fellow workers.

**WHY IS IMPROVING MATERIAL FLOW EFFICIENCY A GOOD INVESTMENT?**

Considering the relative value of optimal material handling is something that demands attention. The ways that material flow impacts manufacturing productivity can be subtle and defy easy quantification. An analogy may be made to the relative importance of ball handling in basketball. Winning scores are not evaluated in terms of ball handling; winners and losers are not defined in terms of ball handling; box scores don't list ball handling as a component of the game. Instead, the score at the end of the game determines winners and losers. But, how do the skills associated with ball handling affect the outcome of the game? How often are successful teams described as having only “adequate” skills in this area? In a similar way, the subtle skills involved in material handling for component manufacturing will also separate the winners from the rest of the players.

Effective material handling will optimize a company's output relative to its equipment investment. Regardless, if your saw operation is automated, if you're fabricating trusses with laser technology, or if you're building wall panels on wooden tables, your company's investment in material flow considerations will impact the volume of your output per man hour unit as well as the consistency of that volume. Significant added production can be achieved with the integration of mechanized material handling systems.

Machines can consistently handle more material than manual motions. This statement has been accepted as a reality since the era of John Henry and his hammer. However, challenge yourself to project your company's future in such a discussion today. Accounting for the increasing shortages of good employees, your business's need to grow and the opportunities that new production technologies will bring, choosing not to be engaged in the opportunities that more effective material handling methods will bring is not a realistic option. Further to the discussion of labor shortages, take the time to calculate the wear and tear that a ten-hour shift, with an automated component saw, can yield on the human body—3,000 to 4,000 pieces of lumber add

up to many tons of work. Is it any mystery that your best production potential is most likely early in the day? Predictably, less backbreaking production is a reality when a more systems-driven method is integrated into what has been a very labor-intensive, manual production model. There is a better solution.

**WHERE ARE THE BEST AREAS TO CONSIDER IMPROVED METHODS FOR MATERIAL FLOW?**

The nature of material flow, and its application in manufacturing plants, is as unique as the circumstances in each plant. The real challenge to understanding the implementation of material handling systems is creating a vision of your methods as a complete system. By viewing your process as a complete system, rather than a series of “hot spots” that need attention, you can take a look at the bigger picture. In practice, effective material handling is usually implemented in design phases. This phased approach allows a manager to first develop a view of his facility, create priorities and begin to initiate solutions.

The least effective solution for material handling is to wait for the “silver bullet.” Well designed and effective material handling answers defy that “one size fits all” application. The most effective solutions for material handling are custom applied, according to your facility and your business. Many successful component builders are evolving into component manufacturers with a “big picture,” systems-oriented mindset. Traditional manual material handling is an obstacle that must be overcome. By comparison, many manufacturing industries such as the automotive and electronics industries couldn't survive without an engineered material flow plan.

Imagine the possibilities of a totally automated material flow path through your plant: Automated systems could utilize a magazine fed lumber dispenser to auto-feed the components saw; out-feed processing would assemble cut packages and shuttle them to the correct assembly line; packages are ergonomically placed next to the line; and finished trusses roll out the door and are automatically stacked for delivery. Ask yourself if such a system is possible and if this system would give your company a competitive advantage. How would you react if your competitor installed such a system? The technology associated with developing such systems exists; it is simply a matter of integrating the pieces. In the near future material flow innovations will separate the winners from the losers.

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