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Human centric design

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“Human centric design.” *What does that mean?* That was the question I asked myself when looking at the only words on the cover of a new distribution center marketing brochure targeted to corporate occupiers outside of Tokyo.

The distribution center site selection and design business was not always so complicated. Put down a concrete slab, tilt up four walls, throw in some racking and hire some people to start moving boxes in and out. Simple, right?

Not today. As everyone knows, the world of supply chain management has changed significantly with the rapid advances of both e-commerce and technology. This in turn is impacting the way companies look at their distribution networks, as well as industrial building design.

Everyone in the labor force would likely prefer to work in an attractive, productive, comfortable and safe space. That being the case, why have those attributes and the supporting amenities typically found in an office environment not been incorporated into industrial distribution center designs?

This paper will provide insights on the traditional influencers of distribution site selection and the changes going on relative to more human centric industrial building design.

THE BIG PICTURE

Let's first start with the “big picture.” As a supply chain consultant and practitioner for over 30 years, I can tell you that the methodology behind how companies go about determining their distribution strategy—How many warehouses? Where should they be? How big?—begins by first understanding the cost components as well as customer service requirements.

When looking at the total operating cost of a distribution center, the biggest costs include transportation (goods in and out), labor (handling), inventory carrying costs and rent (lease expense).

- **Transportation** costs have historically been the largest consideration for site selection. Freight costs—the movement of goods into and out of a distribution center—can be as high as 50 percent of the total operating costs.
- **Labor** expense has also been a significant cost consideration but was not historically a huge influencer, because the skill sets and number of people to staff even a fairly large distribution center were not all that difficult to obtain. This has changed dramatically, as this paper will delve into in more detail.
- **Inventory carrying costs** are influenced by the number of facilities in the network. If you have one facility, all of your inventory is located there. More facilities means more inventory, not necessarily two times more, but you will be carrying additional safety stock, which has a cost associated with it.
- **Rent or lease expense** typically represents just 3–5 percent of the total operating cost, but it is clearly important to get your building located in the right place.

Although transportation costs have always been an important focus for corporate occupiers, it is labor that has jumped up in importance. There's not much value in having a distribution center if you cannot find the right labor pool to staff it.

No longer your grandfather's distribution center... Distribution center design is evolving, in large part to address the critical need companies are challenged with today—attracting and retaining good people.

LABOR HAS BECOME ONE OF THE BIGGEST INFLUENCERS ON SUPPLY CHAIN DECISION-MAKING TODAY

Identifying markets with stronger labor pools, as well as how to attract and retain skilled employees, is what's keeping supply chain professionals "up at night" these days.

The rapid growth of e-commerce has changed the game of fulfillment. In a "traditional" distribution center, one that would replenish retail stores for example, a 500,000-square-foot facility might employ 100–150 workers.

A similarly sized building, but one focused on fulfilling individual customers' online orders, might employ **3 to 10 times as many people** (during peak seasons) and require a higher skill set. Movement from palletized shipments to more frequent, smaller, individual orders results in more "pick and pack" or case picking, which is far more labor-intensive.

This, along with a robust economy and an unemployment rate of just 3.7 percent (in the U.S.) as of this writing, has made **attracting and retaining labor one of the most influential determinants of distribution center site selection today.**

Given this challenge, our team interviewed corporate occupiers, investors and developers of industrial real estate—to uncover some of the latest innovations and trends.









TRENDS AND INNOVATIONS IN INDUSTRIAL DISTRIBUTION

Corporate occupiers have always understood and valued well-designed office buildings and floor space. Floor-to-ceiling windows, good ventilation/air conditioning and white noise, as well as beautiful, modern common areas, have been in vogue for years. Why? It has been critical to recruiting and retaining employees.

So why not for industrial real estate? Why not employ similar ideas when it comes to distribution centers?

Founded in October 2014, the International WELL Building Institute (IWBI) is leading a global movement to transform our buildings and communities in ways that help people thrive. Their WELL Building Standards are revolutionizing the way people think about buildings.

IWBI explores how design, operations and behaviors within the places where we live, work, learn and play can be optimized to advance human health and well-being. The IWBI suggests there are seven categories or features of a "well facility": air, water, light, nourishment, fitness, comfort and mind.

 <p>INTERNATIONAL WELL BUILDING INSTITUTE</p>	 <p>Air</p> <ul style="list-style-type: none"> • Quality • Purification • Humidity 	 <p>Water</p> <ul style="list-style-type: none"> • Quality • Treatment • Drinking Promotion 	 <p>Light</p> <ul style="list-style-type: none"> • Natural Access • Color • Dimming/Circadian Rhythms
 <p>Nourishment</p> <ul style="list-style-type: none"> • Selection/Availability • Serving Size • Information 	 <p>Fitness</p> <ul style="list-style-type: none"> • Fitness Centers • Stairs • Bike Room • Incentives Programs 	 <p>Comfort</p> <ul style="list-style-type: none"> • Ergonomics • Sound Reduction • Olfactory Comfort 	 <p>Mind</p> <ul style="list-style-type: none"> • Collaboration • Quiet Rooms • On-site Child Care • Health & Wellness Library

These seven features focus on the promotion of employee health, well-being and enrichment. The outcome? Higher retention rates and more productive employees. **BINGO!**

Designing and building attractive, productive, healthy and comfortable industrial buildings incorporating similar amenities to those typically expected in office buildings is inevitable.



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Based on our interviews with corporate occupiers as well as leading industrial real estate investors, developers and builders on the topic of design trends, we have learned that while improvements are being made in working conditions, economics still plays a major role.

That being said, various innovations are being adopted to address the labor challenge and to become more competitive. Here is the “Top 10” list:

1. The trend is toward more goods-to-person automation and, in some cases, advanced robotics. These material handling systems can significantly reduce the walking, bending and lifting required to fulfill orders and reduce human body stress and fatigue while increasing productivity.
2. High-quality common areas, multiple break rooms and cafeterias are a must. Subsidized food service along with simple things, like plenty of refrigeration and microwave oven capacity, are also well received by employees. Common areas that appear outside the building for exterior enjoyment including patios, grilling areas, and even firepits add flare to special employee events (work anniversaries, birthday celebrations, employee-of-the-month festivities, etc.).
3. Exercise amenities such as gyms, locker facilities, walking paths, jogging tracks and even more elaborate amenities such as rock climbing walls are well received by employees. Yes, rock climbing walls.
4. Locating core warehousing elements (e.g., restrooms, break rooms, battery charging stations) within proximity to employee workflow areas with the goal of creating the shortest travel times will improve employee efficiency, productivity and morale. Amenitization
5. Ample and convenient parking should be located in areas that minimize walking time into the building and avoid heavily trafficked areas for both trucks and passenger cars. This seems like a basic idea, but it's more important than ever in facilities employing 3–10 times as many employees.
6. Locate in proximity to public transportation. Nothing new here, but this is especially critical in more urban environments, where many potential workers do not own a car or where, for safety concerns, parking for employees needs to be separated from trailer or loading dock traffic. Industrial developers are working more closely with local jurisdictions to increase or add mass transportation services (bus and train stops) to facilities.
7. More flexible scheduling is valued especially by millennials. Multiple scheduling choices are good, but 15 minutes of arrival/ departure flexibility is most desirable. As most households are now dual-income or single-parent (everybody works), additional flexibility for parenting is desired.
8. Improved connectivity inside the building, with multiple WAPs (wireless access points) and wireless RF antennas, allow for better/more consistent access to employees working in large distribution centers that have had poor overall connectivity in the past. The focus has long been on ensuring connectivity for warehousing systems/ processes, but there is now an additional focus on the employee experience (via better human productivity) while in the workplace.
9. Provide better lighting and increased natural light by designing additional glass line and skylights at and above the dock window line, as well as mounted lights on equipment, so employees do not have to strain their eyes to read barcodes or order labels when picking products in densely stored areas.
10. Improved ventilation and air circulation through improved ridged insulation, as well as fans mounted on various warehousing equipment and efficient HVAC where appropriate, all vastly improve the employee working environment.

About CSCMP Hot Topics

Issues of *CSCMP Hot Topics* may include early results from ongoing research being conducted for CSCMP or other organizations; new supply chain practices, thought-provoking ideas, or emerging trends; discussions of changes in the broader business and regulatory environment that may impact the supply chain and logistics field.



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KEY TAKEAWAYS

Industrial facility design will need to evolve to address the critical need companies are challenged with today—*attracting and retaining good people*.

Designing and building attractive, productive, healthy and comfortable industrial buildings incorporating similar amenities to those typically expected in office buildings is inevitable.

Human centric design...we are already seeing it, but why is it not as prevalent in industrial facilities? It is the right thing to do. Think about it.

ABOUT THE AUTHOR

Rich Thompson leads the global Supply Chain & Logistics Solutions consulting practice for Jones Lang LaSalle (JLL), a global, Fortune 500 commercial real estate and professional services firm.

Rich is a recognized supply chain veteran with over 25 years of combined consulting and industry experience. Prior to joining JLL, Rich was senior vice president of Schreiber Foods, a \$7 billion global food company, and a partner in the global supply chain consulting practice at Ernst & Young.

Rich holds a BS degree in marketing from Miami University (Ohio) and an MBA degree in finance and marketing from the University of Chicago Graduate School of Business. He resides in Chicago.

ABOUT JLL

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