



THE TOP 5 TIPS TO SAVE TIME AND MONEY

Converting existing warehouse spaces into manufacturing facilities seems like a no brainer. It's an open box, usually with existing loading docks, high ceilings and a site positioned for moving goods onto trains or highway access, and most of all, there is often a lot of it to choose from in urban areas for cost-effective expansion.

However, if you're not investigating the right aspects, these conversions can have substantial hidden costs. The following are HED's top tips for emphasizing efficiency optimization, cost reduction, and a seamless transition from warehouse to manufacturing.

IS THERE ENOUGH STRUCTURAL CAPACITY?

Most warehousing facilities are constructed with thinner concrete slabs designed to accommodate loads from racking and fork trucks. Overall, they tend to have a lower capacity than a manufacturing facility. Early investigation on slab thickness will help determine if the building is suitable for heavier manufacturing needs. If a clean/ humidity-controlled environment is required, it's imperative the concrete slab have proper vapor barrier projection to avoid moisture migration. This can also affect what type of floor finish is desired. If vibration sensitive equipment is required, it's imperative that the concrete slab, subgrade, and foundations are all evaluated and designed appropriately to support proper equipment operation. Bridge cranes and other heavy loaded items will need an additional structural system and foundations to operate and almost never can be supported wholly by the building structure.

Once you've established the slab suitability, look to the roof. Typical roof load capacity in a warehouse-designed building is lower than roofs designed for manufacturing. Often the roof steel members have minimal capacity to support additional HVAC equipment, process equipment, conveyors, or heavy ductwork.



IS THE LAYOUT AND BUILDING ENVELOPE FUNCTIONAL?

Warehouses can be ideal for manufacturing as they usually provide wide column to column spacing to meet manufacturing process requirements to assist in streamlining the process flows. However, it is dependent on the scale of the processes at hand and the prior use of the warehouse: if the building was designed for cross docking operations, this could present a challenge for a larger manufacturing floor area, often requiring the expense to remove existing dock equipment and having to adjust the manufacturing operations to a narrow building footprint. If the warehouse was used for cold storage, the additional infrastructure, insulation, and wall separations could hinder the desire for a wide-open manufacturing floor. If a dry, clean environment is required, considerations for thermal wall performance improvements and additional vapor barriers are essential for specific manufacturing environments.

CAN THE USE OF THE BUILDING BE CHANGED?

This is a very preliminary consideration, but changing the use of a building from storage to factory use can be challenging, specifically compliance with local zoning regulations. Building occupant loads required for warehouse uses are far lower than those required for manufacturing.

Considerations for restroom counts, egress paths, building thermal envelope performance, potential parking increases, building separations and planning department opinion of best building use can all play a factor in a successful conversion both in time and money.

ARE THE BUILDING SYSTEMS ADEQUATE?

In a typical warehouse configuration, there is more emphasis on general temperature control rather than control to support manufacturing operation or occupant comfort. The ventilation and temperature control systems are rarely cross-compatible for both uses and the cost to upgrade these systems in their entirety can be costly. In many instances, we have recommended the existing ventilation or heating systems remain with the addition of supplemental HVAC systems to supply the appropriate amount of air changes and temperature. This solution may not be viable though if the manufacturing processes involve hazardous materials being stored or used onsite, in which case full replacement to a more robust system will likely be required.

Capacity of existing utilities such as power, natural gas and domestic water also need to be taken into consideration. Power capacity is often a challenge, as most manufacturing facilities require a significant amount of power for their operations.

If you're not investing the right aspects, these conversions can have substantial hidden cost.



A warehouse building has far less power demand than a manufacturing facility, as most loads in warehouse applications are HVAC and minimal lighting, whereas the manufacturing facility will utilize process power and the motors/systems that drive these processes can be multiple times denser power per square foot than shelved storage.

CAN THE BUILDING ACCOMMODATE FLEXIBILITY?

Manufacturing buildings are usually designed for expandability to accommodate growing operations. Anticipating future growth and planning for expansion is prudent when searching for an existing building or designing new manufacturing space because such planning accommodates expansion or changes to existing operations, creating flexibility with how you can use your space. Early investments in infrastructure to expand can accommodate later changes to the production process or addition of new equipment. If the warehouse building is designed as a pre-engineered building; expandability may be challenging, often requiring additional foundations and separation from the existing building structural system. .

These aspects considered, converting warehouse space into a manufacturing facility can offer a cost-effective and efficient means of expanding operations.

In addition, environmental upgrades such as lighting fixture upgrades, more energy efficient HVAC equipment, increased thermal values, daylight, solar, and natural gas reduction or eliminations should be considered during any major renovation.

HED

*Written by Todd Drouillard AIA | Business Leader
- Manufacturing + Project Development and Rich
Gazdik PE, CRM | Electrical Engineering Leader
Explore more market and design insights at
www.hed.design/insights*

HED