

the evolution of manufacturing design

by Steve Kimball



Rethinking manufacturing facilities for today's needs.

When planning a new manufacturing facility—or renovating an existing one—leaders must now consider far more than operational efficiency. Modern facilities serve not only as productive workplaces but also as recruitment tools, brand statements, and community assets.

ATTRACTING AND RETAINING TALENT

Today's manufacturing workforce is increasingly selective about workplace environments, valuing design as highly as compensation and location.

- 21% of employees would accept a 10% pay cut for a better work environment.
- 69% would trade other benefits for a well-designed space.
- 54% say office design is as important—or more important—than location, rising to 64% among mid-level employees.

To remain competitive, manufacturers must offer spaces that appeal to younger, highly technical workers. Desired features now include:

- High-tech, collaborative environments
- A variety of indoor and outdoor workspaces
- Attractive campuses that support all-day onsite work
- Amenities such as green spaces, trails, and water features

At AeroHub in Cincinnati, for example, the campus master plan prioritizes active, shared environments that foster informal interaction, creativity, and innovation—key factors in attracting top talent.

The building or campus' presence must now also serve as a recruiting tool, a reinforcement of the brand, and a testament to the company's mission and values.

VALUES REFLECTED IN DESIGN

Younger workers increasingly seek employers whose values align with their own. According to Glassdoor, culture and values are the #1 driver of employee satisfaction. Facility design often becomes the most visible expression of those values—particularly around:

- Innovation
- Wellness
- Sustainability

Design tools such as WELL Building Standards and LEED® certification help organizations showcase commitments to health, environmental stewardship, and thoughtful resource use.

A strong example is emersion’s \$23 million rehabilitation of a 1930s aircraft hangar into a state-of-the-art Advanced Power and Thermal Laboratory. The project preserved historic architecture, achieved LEED Gold Certification, and earned a Federal Energy & Water Management Award, demonstrating how sustainable design and modern performance can coexist.

DESIGNING FUNCTIONAL, FLEXIBLE FACILITIES

While aesthetics and amenities support talent goals, facilities must also deliver efficiency and adaptability in a rapidly evolving manufacturing landscape. Key considerations include:

Future-Ready Flexibility

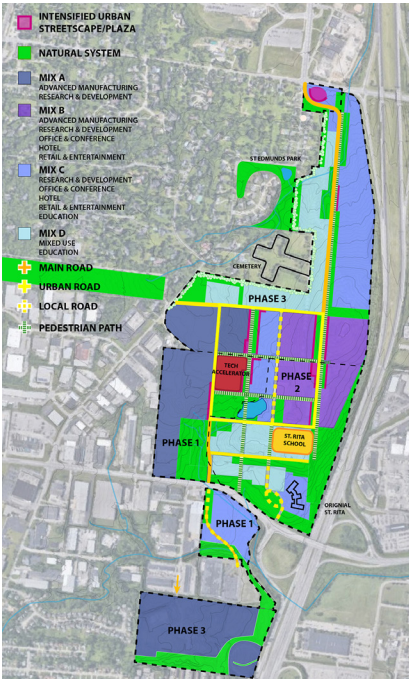
Facilities should be designed for expansion, reconfiguration, and the integration of advancing technologies—particularly in highly automated manufacturing environments.

Optimized Flow and Safety

Effective production layouts minimize handling, reduce bottlenecks, improve storage efficiency, support smooth communication, and protect worker safety. Architects and manufacturing teams should collaborate closely to design spaces tailored to specific processes, rather than defaulting to traditional rectangular layouts or linear production lines.

Space Planning Essentials

- Space utilization: Adequate traffic lanes and vertical storage.
- Shipping and receiving: Often undersized—allocate more room than anticipated.
- Communication: Provide easy access to meeting areas and visitor spaces.
- Safety: Ensure compliance with OSHA guidelines.





Layout Types

Manufacturers typically choose between two layout strategies:

- Product layout: Aligned with assembly lines; ideal for high-volume, repetitive operations.
- Process layout: Organized around specialized processes; suited to custom or low-volume production.

Industry differences, such as chemical manufacturing versus tooling, mean facility layouts must be customized to operational needs.

IMPACT ON PRODUCTIVITY AND BRAND

Research consistently shows that workplace design directly influences employee wellness, attendance, satisfaction, and productivity:

- Increased fresh air and reduced pollutants can boost productivity by 11%.
- Better lighting and ventilation can reduce absenteeism and raise satisfaction by 24%, resulting in 16% higher productivity.

Well-designed facilities also strengthen brand perception. A clean, attractive environment reinforces pride, care, and professional reputation.

the competitive advantage

Manufacturers that combine thoughtful aesthetics, employee-centered design, and operational excellence gain significant benefits—from higher talent attraction and retention to improved productivity and stronger brand identity. Those who embrace this holistic approach to facility design will create environments that deliver lasting returns and outperform competitors slow to adapt.

“I have worked with
 emersion on multiple
 occasions...
 Their efforts on designs,
 design-build,
 and design-bid-build
 projects often include
 innovative approaches,
 helpful solutions,
 and quick problem
 resolution with expert
 recommendations and
 advice when needed....
 I look forward to working
 with them again
 in the future.”

- Rob Lesko,
 Sr . CM Project Engineer

about the author



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Steve has over 40 years' of business leadership and project management experience. Prior to co-founding emersion DESIGN, he was the President and CEO for a 100-person architectural/engineering firm with offices in Ohio and Florida. He has expertise with projects such as campus master plans, computer centers, research and testing facilities, healthcare facilities, labs, university academic buildings, and engineering centers. Steve has managed over \$1 Billion in construction projects.

emersion DESIGN, located in Cincinnati, Ohio is a collaborative architecture, interior design, planning, structural engineering and sustainable design firm driven by a passion for exceptional designs that advance clients and society.

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