Warehouse Design: Quick Guide of Steps, Activities, and Key Items to Consider

Introduction

Designing a finished goods warehouse that delivers reliable performance and acceptable ROI requires more than layout drawings or vendor proposals. It requires a structured, fact-based process that aligns operational realities, future growth, and financial expectations before capital is committed.

GoBlock's Warehouse Design Process is built to give leadership confidence at every decision point. We start by establishing a clear, objective understanding of today's operation. We then translate business growth and service goals into practical, scalable design concepts.

Finally, we convert the selected design into a board-ready business case and implementation roadmap that reduces risk and accelerates execution. The outcome is not just a warehouse design, but a decision-ready plan that balances performance, cost, scalability, and operational practicality.

Note: This warehouse design process is intended for multi-warehouse brands seeking to establish a modernized, scalable operating model across their distribution network. In many cases, an ideal concept is developed, and the implementation effort begins with a pilot warehouse.

Where circumstances differ, the specific emphasis, sequencing, and level of detail of this process needs to be tailored to your operations to ensure relevance, practicality, and return on investment.

If you have questions, would like to discuss your specific operation, or want to explore whether this approach fits your situation, the GoBlock team is available.

Contact us: contact@goblock.co or www.goblock.co

Document Organization

This quick guide organizes the journey of conceptual warehouse design into three stages:

Step 1: Concept the Ideal Facility

Step 2: Tailor Design to Pilot Facility

Step 3: Build the Implementation Roadmap

Each stage includes **Activities, Key Outputs, and Leadership Alignment Points** to reduce risk and ensure capital discipline.

Overview of Steps, Activities and Deliverables

STEP	WHAT WE DO (ACTIVITY)	WHAT YOU GET (DELIVERABLE)
STEP 1: CONCEPT THE IDEAL FACILITY	✓ Gather current state operational data and KPIs ✓ Map required material and process flows ✓ Benchmark current state against best practices ✓ Define growth, service, and cost goals ✓ Establish ROI-driven design success criteria ✓ Develop up to two (2) block layout and flow options ✓ Calculate ROI and select one design	✓ Clear summary of today's business drivers ✓ Benchmark analysis vs industry ✓ Growth model to plan for the future ✓ Design aligned around cost/service goals ✓ A selected warehouse design in concept block format ✓ ROI model with scenario and sensitivity comparisons
STEP 2: TAILOR DESIGN TO PILOT FACILITY	✓ Assess layout, space, and automation capability of Pilot facility ✓ Adapt the design layout to Pilot facility ✓ Evaluate equipment and automation fit ✓ Refine labor, process, and cost impacts ✓ Update ROI and payback in Pilot facility ✓ Finalize design to implement	✓ Optimized layout to best utilize space ✓ Bottleneck report to identify what's limiting your performance ✓ A warehouse design in concept CAD format ✓ Quantified labor, productivity, equipment, and cost model ✓ Updated ROI model with scenario and sensitivities
STEP 3: BUILD THE IMPLEMENTATION ROADMAP	✓ Develop implementation plan with cash flows ✓ Finalize board-ready business case ✓ Define vendor selection criteria for MHE and systems ✓ Develop detailed specifications and CAD drawings ✓ Finalize RFP Package	✓ Clear, phased roadmap aligning all stakeholders ✓ Business case deck for leadership ✓ A narrative of how the design will work and perform ✓ Detailed CAD drawings for MHE selection ✓ System specifications to enable the design ✓ Request for Proposal to engage vendors

Step 1: Concept the Ideal Facility

The following section discusses the design of a concept on paper for the ideal facility.

Activity: Gather Current State Operational Data and KPIs

Key Items to Consider: Identify authoritative data sources for volume, labor, inventory, and cost metrics. Confirm KPI definitions, calculation logic, and time periods are consistent. Document known data gaps, estimates, and assumptions explicitly.

Questions Leadership May Ask: Do we trust this data enough to base investment decisions on it? Does this represent normal operations or an unusual period? Where are assumptions being made due to missing data?

Things to Watch Out For: Using outdated reports that no longer reflect current operations. Mixing KPI definitions across departments or systems. Overlooking informal workarounds that inflate true effort or cost.

Activity: Map Required Material and Process Flows

Key Items to Consider: Map end-to-end product flow from receiving through shipping. Identify decision points, handoffs, and rework loops. Capture both standard and exception flows.

Questions Leadership May Ask: Where does work actually flow versus how it is supposed to flow? Which steps introduce the most delay or variability? How many times does product get touched and why?

Things to Watch Out For: Documenting ideal processes instead of real-world behavior. Ignoring exceptions, rework, and peak-period behavior. Missing informal steps handled outside formal procedures.

Activity: Benchmark Current State Against Best Practices

Key Items to Consider: Select benchmark peers with similar scale, mix, and complexity. Normalize metrics to account for volume, SKU count, and order profile. Focus on gaps that materially affect cost or service.

Questions Leadership May Ask: Who exactly are we being compared against? Are these benchmarks realistic for our business? Which gaps matter most to ROI and service?

Things to Watch Out For: Comparing against operations with fundamentally different profiles. Treating benchmarks as targets without context. Overreacting to averages instead of ranges.

Activity: Define Growth, Service, and Cost Goals

Key Items to Consider: Validate volume and SKU growth assumptions with business leadership. Clarify non-negotiable service requirements. Define acceptable cost tradeoffs and investment tolerance.

Questions Leadership May Ask: How confident are we in these growth projections? What service failures are unacceptable? Where are we willing to spend more to protect service?

Things to Watch Out For: Overstated or unsubstantiated growth assumptions driving over-design. Vague or conflicting service expectations. Misalignment between operations and finance priorities.

Activity: Establish ROI-Driven Design Success Criteria

Key Items to Consider: Define the financial hurdle rate (payback, IRR, ROI) and confirm it matches how leadership approves capital. Translate business goals into measurable design outcomes (cost per case, throughput capacity, service level, peak handling). Agree on the "must-haves" versus "nice-to-haves" so the design does not drift.

Questions Leadership May Ask: What does "success" mean in measurable terms, and how will we prove it? Which outcomes matter most if we have to trade off cost versus flexibility? What conditions would cause us to stop or re-scope?

Things to Watch Out For: Success criteria that are vague and cannot be verified later. Finance and operations using different definitions of ROI or benefit timing. Criteria set without acknowledging real constraints such as labor market, space limits, or channel variability.

Activity: Develop up to Two (2) Block Layout and Flow Options

Key Items to Consider: Create layouts that reduce travel, touches, congestion, and cross-traffic between inbound and outbound. Ensure each concept includes a clear growth path with expandability, modular zones, and a scalable equipment approach. Keep the flow simple enough to operate reliably during peak and staffing variability.

Questions Leadership May Ask: What are the biggest operational differences between the two options? Which option is more resilient to mix changes, seasonality, and labor shortages? How do these options impact service, cost, and risk?

Things to Watch Out For: Layouts optimized for "happy path" logic that ignore practical realities like dock patterns, staging, and trailer flow. Designs that look efficient on paper but create operational complexity with too many zones or handoffs—keep it simple. Overfitting to today's profile, leaving no path for future channels or SKU growth.
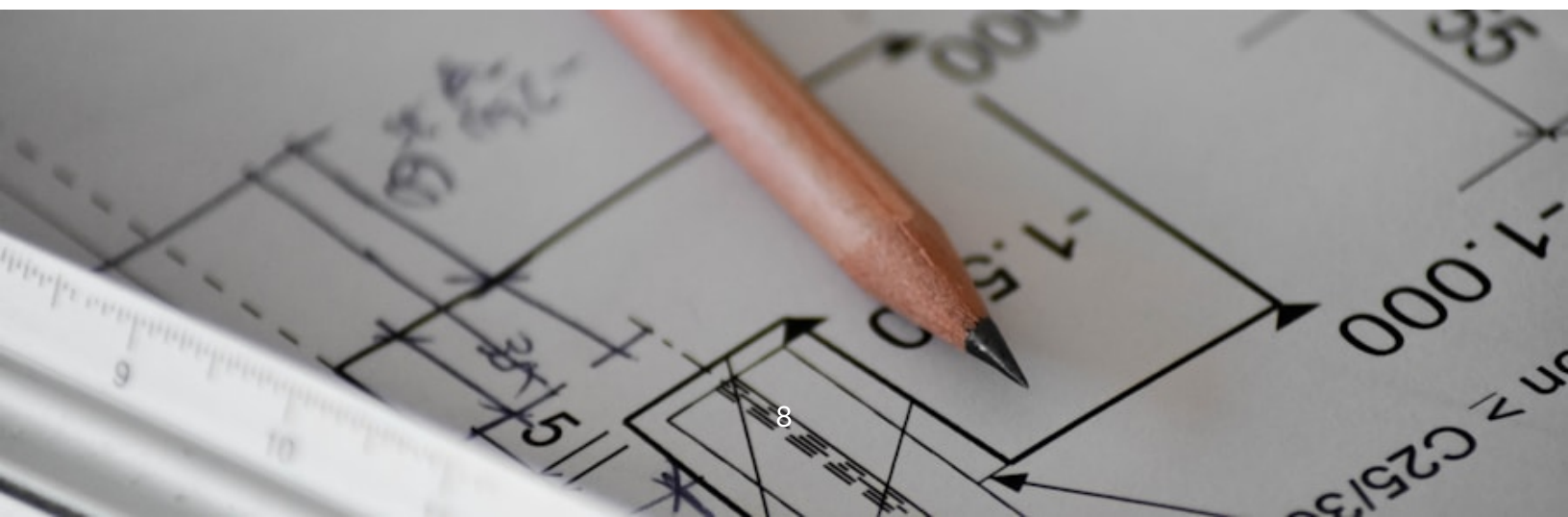
Activity: Calculate ROI and Select One Design

Key Items to Consider: Build ROI from transparent assumptions including volumes, labor rates, productivity, equipment cost, maintenance, and downtime. Run sensitivity scenarios for the variables leadership worries about such as growth slower or faster, labor cost increases, and peak demand. Provide a clear recommendation tied to outcomes, not just numbers.

Questions Leadership May Ask: What assumptions drive ROI the most, and how confident are we in them? If growth is delayed or labor costs rise, does this still make sense? Why is this design the best choice versus alternatives?

Things to Watch Out For: Benefits based on best-case productivity rates that are not credible in real operations. Double-counting savings, for example counting labor reduction in two different places. Presenting analysis without a clear decision recommendation and tradeoff explanation.

Step 2: Tailor Design to Your Facility

The following section transitions from concept to application. With a selected concept and quantified ROI, focus turns to tailoring the design inside a pilot building, protecting service during change, and refining the economics to a board-ready level of confidence.

Activity: Assess Layout, Space, and Automation Capability of Pilot Facility

Key Items to Consider: Document facility constraints such as clear height, columns, dock quantity, staging depth, fire code limits, and circulation. Evaluate whether the building supports the target operating model in terms of flow, storage type, and automation footprints. Identify where automation is physically feasible and where it will be compromised by building limitations.

Questions Leadership May Ask: What physical constraints will limit performance or growth? What automation options are realistic in this building? Are we using vertical space effectively, or are we space constrained by design choices?

Things to Watch Out For: Assuming "it will fit" without validating critical dimensions and clearance requirements. Underestimating staging and flow needs, not just automation equipment. Treating automation feasibility as a yes or no instead of understanding degrees of compromise.

Activity: Adapt the Design Layout to Pilot Facility

Key Items to Consider: Adjust block layout and flows to fit real docks, column grid, offices, traffic lanes, obstructions, and safety requirements. Preserve the intent of the concept design while making changes explicit and traceable. Protect expansion and flexibility, even when fitting into a constrained building.

Questions Leadership May Ask: What changed from the ideal concept, and what is the impact? Where did we compromise, and what does it cost us in performance? How will this layout handle growth without major disruption?

Things to Watch Out For: Forcing the concept into the building and creating hidden operational complexity. Making layout compromises that permanently block future expansion. Untracked design changes that later cause scope creep, rework, or vendor disputes.

Activity: Evaluate Equipment and Automation Fit

Key Items to Consider: Confirm each equipment choice solves a specific operational problem tied to measurable outcomes. Evaluate required operating discipline including training, maintenance, and process adherence to run the solution reliably. Compare alternatives using total cost of ownership, not just purchase price.

Questions Leadership May Ask: Is the equipment we chose in Step 1 still correct for this specific building, or do we need to reconsider? Can we operate and maintain this solution with this specific team and building's culture? What are the long-term costs, risks, and support requirements?

Things to Watch Out For: Vendor-driven standard solutions that do not match your product mix or variability. Underestimating implementation disruption and learning curve impacts on service. Ignoring maintainability, spare parts strategy, and downtime exposure.

Activity: Refine Labor, Process, and Cost Impacts

Key Items to Consider: Update the labor model specific for this building by function—receiving, putaway, replenishment, picking, packing, and shipping—with clear productivity assumptions. Model peak versus non-peak requirements and identify where flexibility is needed via cross-training, temp labor, or overtime. Ensure cost impacts include indirect roles, supervision, and support labor where relevant.

Questions Leadership May Ask: What labor reductions are real, and when will they be realized? How do we staff for peak, and what happens when we can't hire? Where do costs shift—labor to maintenance, labor to capital, labor to systems?

Things to Watch Out For: Using productivity rates that ignore travel distance, congestion, and real variability. Assuming labor goes away immediately after go-live rather than ramping down over time. Missing indirect labor and operational support needs that affect true cost.

Activity: Update ROI and Payback in Pilot Facility

Key Items to Consider: Improve ROI with facility-specific constraints, layout changes, and equipment selections. Include transition costs such as temporary space, downtime risk, training, and process change support. Re-run sensitivity scenarios based on the real facility, not the ideal concept.

Questions Leadership May Ask: How does the facility-specific design change the ROI versus the concept? What risks are higher in this building, and how are they mitigated? If we phase the investment, how does ROI shift?

Things to Watch Out For: Reusing concept-stage assumptions even after major layout or equipment changes. Ignoring costs of transitioning operations during construction or cutovers. Overlooking facility-driven performance ceilings that limit expected benefits.

Activity: Finalize the Design to Implement

Key Items to Consider: Use agreed success criteria to drive a transparent decision process. Confirm cross-functional alignment across operations, finance, IT, safety, and HR before locking the design. Validate readiness factors including leadership sponsorship, change capacity, vendor availability, and timing.

Questions Leadership May Ask: Why this design and why does it work in this building? Who has aligned, and who still has concerns? What must be true for implementation to succeed?

Things to Watch Out For: Decision paralysis caused by chasing perfect information. Late stakeholder objections surfacing after vendors are engaged. Selecting a design that requires operating discipline the organization cannot sustain.

LiveRamp in US-Dollar

2016 2017 2018 2019 2020 2021

15 20 30 40 50

Step 3: Build the Implementation Roadmap

The following section develops the plan to move from paper to reality.

Activity: Develop Implementation Plan with Cash Flows

Key Items to Consider: Define phases that protect service and minimize disruption to current operations. Map cash flow timing to procurement, construction, commissioning, and ramp-up. Identify critical dependencies including permits, long-lead equipment, IT integrations, and labor readiness.

Questions Leadership May Ask: When do we spend money, and when do we realize benefits? What is the plan to keep shipping during changes? What are the long-lead risks, and how are we protecting the schedule?

Things to Watch Out For: Big-bang plans that assume operations can pause. Missing transition costs such as temporary labor, alternate processes, and overtime. Underestimating commissioning and ramp time needed to stabilize performance.

Activity: Finalize Board-ready Business Case

Key Items to Consider: Build a clear narrative including problem, options, recommended solution, investment ask, expected outcomes, risks, and mitigations. Present financials in a format leadership trusts with assumptions transparent, timing realistic, and sensitivity scenarios included. Align with finance early so the numbers and logic are defensible.

Questions Leadership May Ask: What decision are you asking the board to make, and why now? What could go wrong, and what is our mitigation plan? How will we measure success post go-live?

Things to Watch Out For: Too much technical detail without a crisp executive story. Hiding downside risks, then losing credibility when challenged. Presenting benefits without a clear measurement and accountability plan.

Activity: Define Vendor Selection Criteria for MHE and Systems

Key Items to Consider: Create objective criteria that balance cost, capability, implementation risk, and long-term support. Weight criteria based on what matters most including reliability, speed to implement, maintainability, and integration strength. Define how proposals will be evaluated so vendors bid to the same scope and assumptions.

Questions Leadership May Ask: How are we ensuring a fair, apples-to-apples comparison? Which vendors have proven success in similar operations? Who supports us after go-live, and what does that cost?

Things to Watch Out For: Choosing based on lowest price while ignoring delivery risk. Vendors bidding different scopes because requirements were unclear. Underestimating post-implementation support and ongoing software costs.

Activity: Develop Detailed Specifications and CAD Drawings

Key Items to Consider: Produce RFP-ready documentation including dimensions, throughput requirements, interfaces, safety requirements, and controls philosophy. Confirm integration requirements across systems such as WMS or WES, controls, data visibility, reporting, and exception handling. Validate constructability and operability, not just mechanical feasibility.

Questions Leadership May Ask: Is this detailed enough to bid and procure without ambiguity? How do systems integrate, and who is responsible for what? What are the key design risks that could cause change orders?

Things to Watch Out For: Specs that leave interpretation room, creating cost growth later. Late IT involvement causing integration gaps or rework. Treating concept drawings as final, then discovering fit issues during procurement.

Activity: Finalize RFP Package

Key Items to Consider: Clearly define scope, assumptions, required performance, inclusions and exclusions, and acceptance criteria. Specify the vendor response format so bids are comparable and evaluation is efficient. Include commercial protections and expectations such as warranties, service response, spares, training, commissioning, and performance testing.

Questions Leadership May Ask: Are vendors bidding the same thing, with the same assumptions? How will we evaluate proposals and make a decision quickly? How are we protecting ourselves commercially if performance falls short?

Things to Watch Out For: Unclear requirements leading to inconsistent bids and hidden scope gaps. Changing evaluation criteria midstream, undermining credibility and timeline. Weak commercial terms that shift too much risk to the client.

For discussions, support, or to explore a pilot, contact GoBlock at

contact@goblock.co

or visit www.goblock.co.