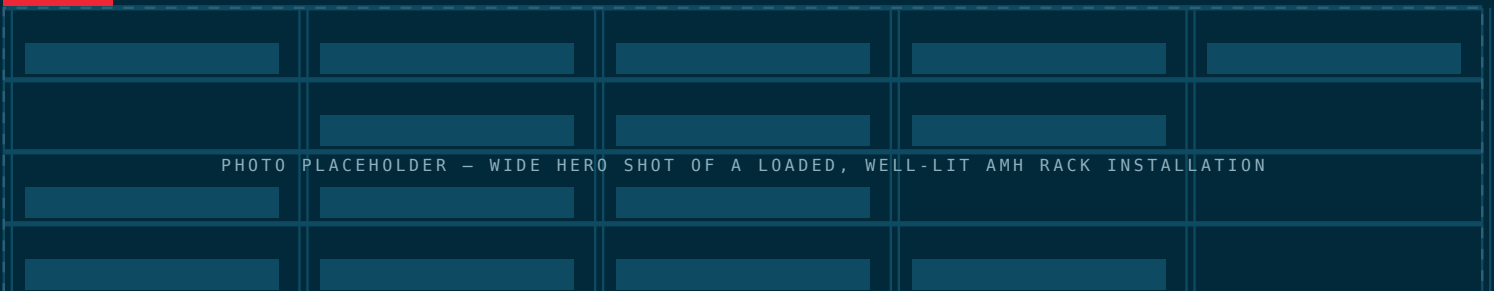


THE COMPLETE WAREHOUSE STORAGE FIELD GUIDE

THE PALLET RACK FIELD GUIDE

New, used, refurbished, or hybrid: how smart operators choose the right storage solution.

FIG C1



FROM THE TEAM

A NOTE FROM AMERICAN MATERIAL HANDLING

We started American Material Handling in 1979. In the decades since, we have helped companies of every size, regional 3PLs, Fortune 500 distributors, startups moving into their first real warehouse, figure out what they need, get it installed, and keep it running.

What we have noticed over 47 years is that the same mistakes get made over and over. Not because people are careless, but because good information about pallet racking is genuinely hard to find. The industry does not do a great job of educating buyers. Most vendors would rather you call them first and figure it out later.

This guide is our attempt to change that. It is written for people who take their operations seriously and want to make an informed decision, not just the fastest one. We cover new rack, used rack, refurbished material, and hybrid systems with equal weight, because the right answer depends on your project, not on what a vendor happens to have on the shelf. We have also included the things that matter after installation: planning, compliance, maintenance, and what to do when something eventually goes wrong.

If you have questions after reading it, we are happy to talk through your specific situation. That is what we are here for.

The Team at American Material Handling

RELIABLE · VALUE-DRIVEN · BUILT TO LAST

47

YEARS IN WAREHOUSE STORAGE

32+

STATES SERVED IN FIVE YEARS

1.5M+

PALLET POSITIONS INSTALLED IN FIVE YEARS

INSIDE THIS GUIDE

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\$10M+

IN RACK INVENTORY — NEW & USED

Read it cover to cover — or jump straight to the section that fits the project in front of you. The appendices are built to be pulled out and used on the floor.

HOW TO USE THIS GUIDE

INTRODUCTION

Pallet racking doesn't get much attention until something goes wrong. A forklift clips an upright. A lease starts before the rack ships. A facility doubles its SKU count, and the system that made perfect sense two years ago becomes a daily bottleneck. Most racking decisions, good and bad, are made without enough information. This guide exists to change that.

It covers what you need to know before you buy, during installation, and long after the last beam is set. Whether you are outfitting a facility for the first time or rethinking what is already in place, the goal is the same: **decisions based on facts that you won't have to undo.**

A STORAGE SOLUTIONS APPROACH

This guide is deliberately agnostic about where your steel comes from. New rack, used rack, refurbished components, custom fabrication, and hybrid systems that mix them are all legitimate paths to the same destination: a safe, compliant, correctly-sized storage system that fits your budget and your timeline. Each path has conditions where it clearly wins and conditions where it clearly doesn't. We cover both, for all of them.

That evenhandedness is not a stylistic choice. It reflects how the best projects actually get built. Many of the strongest installations we have delivered mix new uprights with used beams, or pair custom-fabricated components with standard in-stock material. A vendor committed to one answer before understanding your project is solving their problem, not yours.

THE FRAMEWORK: SPEED, PRICE, PRECISION

Throughout this guide you will find a framework called the **Decision Triangle**. Every rack purchase is a negotiation between three forces: **Speed** (how fast material reaches your dock), **Price** (total cost), and **Precision** (exact specs, finish, documentation, and uniformity). Rank them 1 to 3 for the project in front of you. Most projects get all three; the order tells us where to start. Your top two set the path: Speed and Price point to used, Speed and Precision point to new, Price and Precision point to hybrid. Your third is never lost. It simply shapes the conversation.



Use this guide however it is most useful to you. Read it front to back, or jump to the section that fits the project in front of you. The appendices are designed to be pulled out and used as standalone references on the warehouse floor.

01

SECTION 01

THE LANGUAGE OF RACK

What pallet rack is, how it carries load, and the vocabulary you need to evaluate any system, new or used, with confidence.

IN THIS SECTION

1.1 What Pallet Rack Is & How It Works

1.2 Load Capacity: The Real Numbers

1.3 Brand Compatibility & Connection Types

1.1

WHAT PALLET RACK IS & HOW IT WORKS

Pallet rack is a structural steel storage system designed to hold palletized goods in organized, accessible rows. Every system works the same way: vertical uprights carry the load, horizontal beams span between them, and wire decking or pallets rest on the beams. The load transfers down through the uprights to base plates anchored in the concrete. Understanding the parts, and the language around them, is what lets you evaluate any rack with confidence.

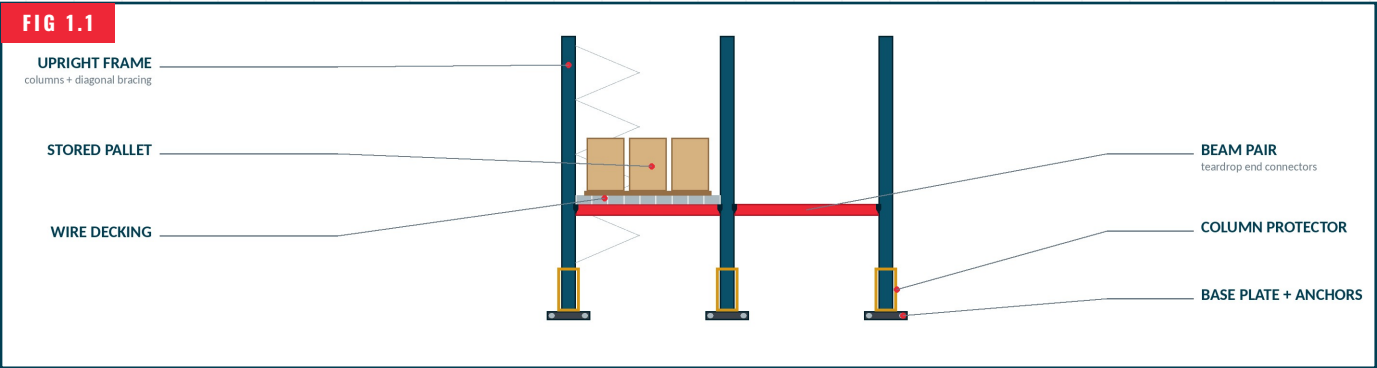


FIG 1.1 Clean line diagram of a single selective bay with leader lines calling out each component: upright frame (columns + diagonal/horizontal bracing), a beam pair with teardrop end connectors, wire decking, base plate + anchors, and a stored pallet. This is the visual key readers refer back to for the vocabulary used throughout the guide.

CORE COMPONENTS			EVERY SYSTEM · EVERY BRAND
UPRIGHTS (FRAMES)	WHAT IT IS Vertical columns that carry all load to the floor; two columns joined by horizontal and diagonal bracing form one frame.	WHAT SETS ITS CAPACITY Frame capacity is set by column gauge, bracing pattern, and the vertical distance between beam levels.	
BEAMS	WHAT IT IS Horizontal members spanning between uprights. Sold and rated in pairs.	WHAT SETS ITS CAPACITY Capacity is set by beam face height, gauge, and span. A 4-inch and a 6-inch beam of the same length are very different products.	
WIRE DECKING	WHAT IT IS Steel mesh panels that support pallets and let sprinkler water pass through.	WHAT SETS ITS CAPACITY Waterfall-style decks lock over the beam; capacity is rated per pair of supports and assumes a uniformly distributed load.	
BASE PLATES & ANCHORS	WHAT IT IS Footplates that distribute load into the slab; wedge anchors secure them.	WHAT SETS ITS CAPACITY RMI design practice calls for every column to be anchored. Larger seismic plates are required in some regions.	

□ SELECTIVE Direct access to every pallet position. The default for high-SKU, high-turnover operations, and roughly 90% of the market. BEST FOR → MOST OPERATIONS	□ DOUBLE DEEP Two rows back-to-back, accessed with a reach truck. Trades some selectivity for about 40% more density. BEST FOR → DENSITY + SELECTIVITY MIX	□ DRIVE-IN Forklifts enter the structure; pallets rest on rails. High density, low selectivity, last-in/first-out. BEST FOR → FEW SKUS · HIGH VOLUME
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▣ PUSH-BACK Nested carts on inclined rails, 2-6 pallets deep. Last-in/first-out with better selectivity than drive-in. BEST FOR → DENSE BUFFER STORAGE	▣ PALLET FLOW Gravity rollers, first-in/first-out. Loads from the back, picks from the front. BEST FOR → FOOD & BEV · FIFO DATES	▣ CANTILEVER Arms projecting from columns, no front upright. For lumber, pipe, furniture, and long or odd loads. BEST FOR → LONG & AWKWARD PRODUCT
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90%

Selective teardrop rack dominates the North American market. That dominance is what makes the used market work: parts are plentiful, interchangeable, and easy to match, which protects your ability to expand later, whatever you buy today.

1.2

LOAD CAPACITY: THE REAL NUMBERS

Capacity is where rack buying gets serious, because the numbers are engineering facts, not marketing claims. Three values matter on every project: beam capacity per pair, upright frame capacity, and the vertical beam spacing those two numbers assume. Change one and the others move.

BEAM CAPACITY

Beam capacity is rated **per pair**, assumes a uniformly distributed load, and falls fast as span grows. The ranges below are typical for step-style teardrop box beams in common gauges, always verify against the manufacturer's tables or documented ratings for the exact beam you are buying. **No two beams are created equal:** the same 96-inch, 4-inch-face beam can rate near 4,000 lb per pair in one manufacturer's 16-gauge design and above 5,400 lb in another's. Gauge, steel, design bends, and connection points all move the number.

TYPICAL TEARDROP BEAM CAPACITY (PER PAIR, EVENLY DISTRIBUTED)		VERIFY AGAINST DOCUMENTED RATINGS
96" x 3" FACE	approx. 2,800 - 4,400 lb per pair, light-duty levels, hand-stack, and case-pick work	
108" x 3" FACE	approx. 2,300 - 3,700 lb per pair, light duty on the wider bay; watch deflection at this span	
96" x 4" FACE	approx. 4,300 - 6,100 lb per pair, the workhorse for standard 2,500 lb pallets, two per level	
96" x 5" FACE	approx. 5,800 - 8,000 lb per pair, common in food & beverage and heavier consumer goods	
96" x 6" FACE	approx. 7,300 - 10,000 lb per pair, heavy unit loads; also used to stiffen long-span applications	
108" x 5" FACE	approx. 5,000 - 7,000 lb per pair, the common wide-bay step up; deflection starts to govern	
144" x 6" FACE	approx. 5,000 - 7,500 lb per pair, long-span; check deflection and consider a center support	

L/180

The **deflection limit**. ANSI MH16.1 limits beam deflection under load to 1/180th of the span: a loaded 96-inch beam may bow no more than about 0.53 inches. A beam can pass on strength and still fail on deflection. For long spans, deflection is usually the governing number.

UPRIGHT FRAME CAPACITY

Frame capacity is not a single number stamped on the steel; it depends on the **vertical distance between beam levels**. Longer unbraced column lengths buckle at lower loads. A frame rated 20,000 lb at 36-inch beam spacing may carry materially less at 60-inch spacing. This is the single most misunderstood fact in rack buying, and it is why moving beams up or down after installation without an engineering check can quietly erase your safety margin.

WHAT SETS FRAME CAPACITY		ALL FIVE INTERACT
COLUMN SECTION	3" x 1-5/8", 3" x 3", and 4" x 3" closed column are the standard footprints; the 4-inch column face is today's spec norm, and seismic zones or racks over 24 ft rarely approve a 3-inch column.	
STEEL GAUGE	14 ga is light duty; 13 ga standard; 12 ga and structural C-channel for heavy or high-impact duty	
BEAM SPACING	The unbraced length between levels; capacity falls as spacing grows	
BRACING PATTERN	Horizontal + diagonal bracing pitch affects column stability	
HEIGHT & SEISMIC	Taller frames and seismic design zones reduce allowable loads and change base plate requirements	

One more pattern worth knowing: **older rack is often heavier steel**. Manufacturers have engineered gauge out of new rack over years of price competition. Material from well-built 1990s-2000s distribution centers frequently out-gauges what ships new today at the same nominal size, one reason properly inspected used rack is not a compromise product.

500K⁺
BEAMS INSTALLED BY AMH IN FIVE YEARS

100K⁺
FRAMES INSTALLED IN FIVE YEARS

L/180
THE DEFLECTION STANDARD EVERY BEAM MUST MEET

THE SUPPORTING CAST IS RATED TOO

COMPONENT RATINGS BUYERS FORGET TO CHECK		SMALL PARTS · REAL CAPACITIES
WIRE DECKING	Typical 42" x 46" waterfall decks carry roughly 2,500 lb evenly distributed, point loads (a stack of steel, a stored machine) can exceed that locally even under the beam rating	
ANCHORS	Standard practice: 1/2" wedge anchors, one to two per base plate, embedded 2.5-3" into sound concrete; seismic designs specify larger plates and more anchors	
SAFETY CLIPS	Beam locks are required on every connection; they resist forklift uplift, the most common cause of dropped beams	
COLUMN PROTECTION	Guards and end-of-aisle protectors are not rated components, but they are why the rated components stay rated	

1.3

BRAND COMPATIBILITY & CONNECTION TYPES

The single most practical question in the used market, and in any future expansion, is whether one manufacturer's beams will connect to another manufacturer's uprights. The answer depends entirely on the connection type, and it is knowable before you spend a dollar.

THE TEARDROP STANDARD

The teardrop connection, a keyhole-shaped punch on the upright column that accepts studs on the beam end connector, became the de facto North American standard decades ago. Punching is on 2-inch vertical centers, and **most major teardrop brands interchange:** Interlake, Unarco, Ridg-U-Rak (teardrop line), Steel King, Husky Rack & Wire, Mecalux, Hannibal, Speedrack USA, and others. In practice this means a deep, mixed inventory pool works as one system, and your add-on order two years from now does not depend on one mill's lead time.

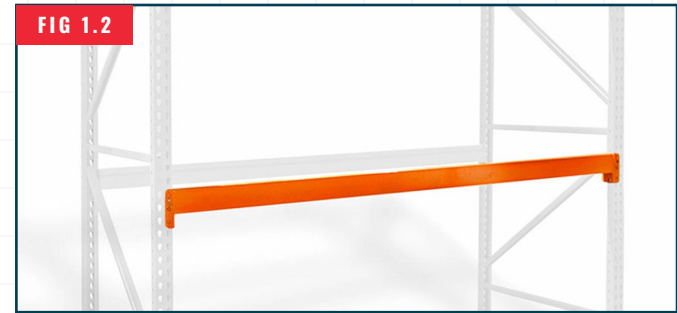


FIG 1.2 Tight macro shot of a beam end connector seated into a teardrop upright, safety clip engaged. Shows the keyhole punch pattern clearly. It is the detail this whole section turns on.

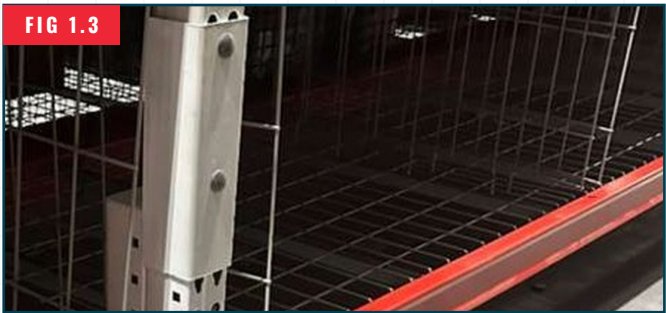


FIG 1.3 A through-bolted connection detail, shown on an engineered repair splice: bolts and plate carry the load. The structural principle behind bolt-on rack, beside the teardrop for contrast.

CONNECTION TYPES: WHAT INTERCHANGES			CONFIRM WITH A PHYSICAL TEST-FIT BEFORE COMMITTING
TEARDROP (ROLL-FORMED)	HOW IT WORKS Interchanges across most major brands; 2" vertical adjustability; the bulk of the used market.	COMPATIBILITY REALITY Minor fit variations exist between brands, always test-fit a sample beam and confirm the safety clip seats fully.	
STRUCTURAL BOLT-ON	HOW IT WORKS Hot-rolled C-channel columns and beams joined with bolts. Heavier impact resistance; common in cold storage and high-abuse docks.	COMPATIBILITY REALITY Bolt patterns are consistent enough to mix in many cases, but hardware grade and hole spacing must be verified.	
PROPRIETARY / LEGACY	HOW IT WORKS Keystone, T-bolt, Sturdi-Bilt, older Speedrack, Redirack and similar slotted or hooked systems.	COMPATIBILITY REALITY Generally do NOT interchange with teardrop. Parts can be sourced, but treat these as closed systems when planning expansion.	

WHY THIS MATTERS FOR YOUR PROJECT

- Bigger inventory pool.** Cross-brand compatibility means a dealer can fill a 500-bay order from multiple sources without forcing a redesign, and price it against a wider market.
- Easier expansion.** Standard teardrop configurations can almost always be matched later, used or new. Proprietary systems lock you into a single supply channel.
- Honest matching takes knowledge.** Column face widths, punch offsets, and clip styles still vary. A dealer who handles all major brands daily can match by eye and verify by fit. A catalog reseller cannot.

2"

The pitch that unified an industry. Teardrop punching on 2-inch centers is why beams move freely between brands, and why AMH stocks material brand-agnostically and matches to what is already on your floor rather than pushing one mill's product.

02

SECTION 02

THE BUYING DECISION

New, used, refurbished, or a mix, a clear-eyed method for choosing the right material for the project in front of you, without second-guessing it later.

IN THIS SECTION

- 2.1 The New Rack Path
- 2.2 The Used Rack Path
- 2.3 Condition Standards

- 2.4 How the Used Market Works
- 2.5 Making the Call
- 2.6 Questions to Ask Before You Buy

2.1 THE NEW RACK PATH

New rack is the right call more often than a used-rack dealer would tell you, and less often than a manufacturer's rep would. Here is the honest version of both.

WHERE NEW RACK CLEARLY WINS

Precise dimensional requirements. When ceiling heights, building columns, rail-guided trucks, or automation tolerances demand exact configurations, controlled fabrication from the mill is the better fit. Tolerances are documented from day one.

Engineering documentation & seismic. New rack ships with current load tables, stamped calculations on request, and a clean paper trail, the shortest path through permitting in strict jurisdictions and under FM Global mandates.

Very large capital projects. Above roughly \$5 million in rack, the used inventory pool rarely exists in the required volume and uniform configuration. Specifying new in quantity is the practical answer, and mill pricing improves at scale.

Brand and finish uniformity. Multi-site portfolios and customer-facing facilities where consistent color and finish matter. Paint is the cheapest part of a new system and the most expensive part of a used one.

Warranty. Manufacturer warranties on new material are real, transferable value, particularly for automation-adjacent systems where uptime is contractual.

THE HONEST TRADE-OFFS

Lead time. Domestic mill lead times typically run 6-10 weeks and stretch further in high-demand periods. If your lease has started, that wait is rent on empty space.

Steel market exposure. New rack is priced off the steel market at order time. Tariffs and demand spikes land directly in your quote.

Lighter steel than you may expect. Nominal sizes hide gauge reductions made over years of price competition. Compare documented capacities, not catalog silhouettes.

6-10 WKS

Plan backward from go-live. If new rack is the right answer for your project, the decision has to be made early. The single most common failure we see is a buyer who waited eight weeks to decide and then discovered the mill needed ten.

2.2 THE USED RACK PATH

Used rack, sourced and inspected correctly, is not a second-rate product. It is the same structural steel, often heavier than today's equivalent, at up to 50% less cost, available in days instead of weeks. The qualifier matters: sourced and inspected correctly.

FIG 2.1



FIG 2.1 Wide shot inside an AMH warehouse: rows of sorted, inspected used uprights and banded beam bundles staged for shipment. Communicates depth of owned inventory and that used material is organized and ready, not a scrap pile.

WHERE USED RACK CLEARLY WINS

Cost. On an equivalent per-bay basis, buyers routinely save up to 50% versus new. On a \$200,000-\$500,000 project, that funds more bays, better forklifts, or simply preserved capital.

Speed. Material sitting inspected in a dealer's warehouse ships in days. When a lease start or client contract is fixed, in-stock used rack is frequently the only option that makes the date.

Steel price insulation. A dealer who owns inventory bought it before the current market. Buyers are insulated from steel spikes in a way new orders never are.

Proven material. Rack out of a well-maintained 1990s-2000s distribution center is often heavier gauge than new equivalents. In cold storage installs we have watched mixed systems age, the refurbished sections held up as well or better.

3PL economics. A 3PL on a three-year contract should not capitalize new rack for a building it may vacate in 36 months. This is the heaviest-use segment of the used market for good reason.

THE HONEST TRADE-OFFS

You work within what exists. Color, beam face, and exact heights come from the inventory pool. 'Close enough to spec' is normal; exact-match everything is not.

Condition risk without inspection. Material history varies enormously, see Section 2.3. The entire risk profile of used rack lives in who inspected it and how.

Documentation takes work. Original load tables may be gone. A competent dealer re-establishes capacity by profile identification and engineering reference, a broker often cannot.

30-50%

TYPICAL SAVINGS VS. NEW, PER BAY

DAYS

SHIP TIME FOR OWNED, IN-STOCK INVENTORY

\$10M+

IN USED RACK INVENTORY, IN STOCK NOW AT AMH

2.3

CONDITION STANDARDS

Buying rack, new or used, without understanding how to evaluate quality is the fastest way to end up with a problem. **Condition is measurable, not a matter of opinion.** These are the factors that determine whether material is fit for service, and the thresholds that determine what happens next.



FIG 2.2 Close-up of a straight, sound upright column with legible capacity placard, the 'pass' reference. Surface wear/paint scuffs visible but no structural deformation.

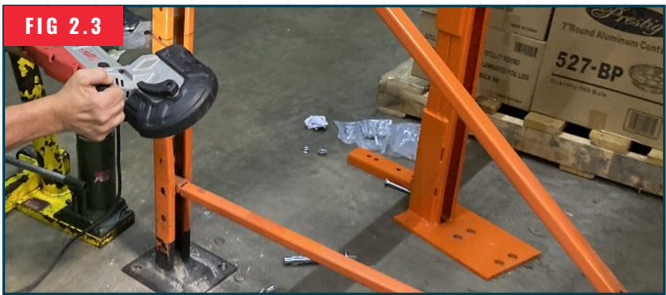


FIG 2.3 A flagged column at the base: struck, out of tolerance, and cut out for an engineered repair. The contrast with FIG 2.2 is the point.

CONDITION EVALUATION CRITERIA			INSPECT BEFORE PURCHASE · ALL MATERIAL		
RUST / OXIDATION	ACCEPTABLE		FLAG FOR ASSESSMENT		
	Surface oxidation on beams or uprights. Cosmetic only, steel cross-section intact.		Deep rust pitting or thinning the cross-section. Reduces column capacity; fails inspection.		
DEFORMATION	ACCEPTABLE		FLAG FOR ASSESSMENT		
	None on structural members. Minor dings that do not affect member geometry.		Any dent in a beam flange or bend in a column: capacity loss cannot be judged by eye.		
CAPACITY LABELS	ACCEPTABLE		FLAG FOR ASSESSMENT		
	Legible, accurate placards installed, an OSHA expectation, not a courtesy.		Missing or illegible labels. Must be resolved before the rack enters service.		
PAINT / COSMETIC	ACCEPTABLE		FLAG FOR ASSESSMENT		
	Scratches and wear are normal and structurally irrelevant. Repaint available at premium.		Fresh paint concealing damage: ask what the refurbishment process actually covered.		
CONNECTORS & CLIPS	ACCEPTABLE		FLAG FOR ASSESSMENT		
	Beam end connectors square; safety clips present and seating fully.		Elongated stud holes, cracked welds at the connector, or clips that will not lock.		

WHAT REFURBISHMENT ACTUALLY MEANS

Refurbishing is not a euphemism for painting over problems. Properly refurbished material has been cleaned, inspected member by member, straightened where engineering allows, repainted, and fitted with accurate capacity labels, with anything that cannot be brought back to spec **removed from service and scrapped**. The question worth asking any dealer: what does your inspection and refurbishment process actually look like, and who performs it? A dealer running their own operation has a concrete answer. A broker reselling someone else's material may not.

L/180

Beam deflection standard. Allowable deflection under load is 1/180th of the beam span. The standard applies equally to new and used material, and it is checkable with a tape measure on a loaded bay.

2.4 HOW THE USED MARKET WORKS

The buyers who get the best material at the best prices are not the ones who treat used rack as a fallback. They are the ones who understand where inventory comes from, who actually owns it, and when the market favors them.

WHERE INVENTORY COMES FROM

Large facility decommissions. A million square feet of well-maintained 20-year-old rack, taken down professionally in one window, produces the best material in the market. One decommission can supply dozens of buyers.

Closures and liquidations. Quality varies enormously, some excellent, some neglected. A dealer who evaluates and sorts is buying selectively; an as-is liquidation pass-through is not a bargain, it is a transfer of risk.

Reconfigurations. Companies changing storage systems in place produce smaller volumes, usually in good condition, from stable indoor environments.

OWNED INVENTORY VS. BROKERED INVENTORY

This is the most important and least understood distinction in the market. A dealer who **owns inventory** bought the material, hauled it to their facility, inspected it, and priced what they know. They carry holding cost and stand behind condition claims. A **broker** matches you to material that exists somewhere else, for a markup, often without firsthand knowledge of its condition, and with limited accountability when something is wrong. There is nothing inherently improper about brokering, but you should know which one you are talking to. Ask directly: "Do you own this material, and can I see it?"

TIMING THE MARKET

Used rack availability moves with the economy. When new-rack lead times stretch and steel is expensive, demand for used spikes, prices firm, and good material moves in days. In softer conditions, decommissions rise, inventory deepens, and flexible buyers find excellent material at favorable prices. Geography matters too: freight erodes the used-rack advantage beyond roughly 500-600 miles from the inventory. A dealer hub near Memphis reaches the Southeast, Texas, and the Midwest overnight, which is not an accident of our address.

1st

Buying from a decommission in progress is often the best price-to-quality combination in the market: documented configuration, motivated seller, and first access before the material hits the open market. If your timing is flexible, tell your dealer to call you when the next one starts.

2.5

MAKING THE CALL

The new vs. used decision is not binary, and it is not permanent. Many of the best projects mix both. The goal is not ideological, it is the right material for each role in the system, at the best total value.

THE HYBRID APPROACH

On projects with tight lead times and real specification requirements, the strongest answer is often both: **new uprights where dimensions and documentation are critical, used beams and wire deck where the configuration is standard** and the components are commodities. The uprights set the structural envelope; beams and deck perform identically at up to 50% less. A vendor with both capabilities, and manufacturer relationships across all major brands, executes this as one project, one crew, one accountability chain.

MATCH YOUR TWO PRIORITIES TO THE PATH

THE DECISION TRIANGLE, APPLIED		PICK TWO · SECTION 1.2
PRICE + SPEED	In-stock used rack from an owned-inventory dealer. The classic 3PL and expansion play.	
PRICE + PRECISION	New rack on a standard mill schedule, or curated refurbished material with documented ratings: you trade time for it.	
SPEED + PRECISION	New rack from a vendor with strong mill relationships, certified-refurbished stock, or a hybrid build: you pay for it.	
PROJECT SIZE CHECK	Under \$2M: used likely viable for most or all. \$2M-\$5M: hybrid often optimal. Over \$5M: new typically required for volume and uniformity.	

WHAT YOUR CFO NEEDS TO SEE

The financial case is total cost of ownership, not sticker price. Properly inspected used rack carries the same load ratings and service life as comparable new material, and the acquisition savings do not come back as maintenance costs when sourcing was done correctly. The compelling internal framing is not "we are buying used." It is: **"we are sourcing inspected structural material meeting the same load specifications, at up to a 50% cost reduction, with a two-week lead time instead of ten."**

RENT

Lead-time risk is a line item. When a project slips because new rack didn't ship and the lease already started, the carrying cost of empty space frequently exceeds the entire savings the buyer was negotiating over. Price the wait, not just the steel.

2.6

QUESTIONS TO ASK BEFORE YOU BUY

A vendor who answers all of these clearly and without hesitation is worth trusting, with new or used material. A vendor who deflects, goes vague, or redirects to price before answering has told you something too.

ABOUT THE INVENTORY

- Do you own this material, or are you brokering it from another source?
- Where is it located, and how quickly can it ship?
- Has it been physically inspected? By whom, and what does the inspection cover?
- Can you provide load capacity documentation for the exact configuration I am buying?
- Has it been refurbished? What did that process include, and what was scrapped?

ABOUT THE VENDOR

- How long have you been in this market, and can I visit your facility to see inventory in person?
- Is installation performed by your own crews or subcontractors?
- What is your process when something goes wrong on a project?
- Can you provide references from projects like mine?

ABOUT THE PROJECT

- What is the real lead time from order to delivery for this specific material?
- Who pulls permits, and is that in the scope? Who handles the engineering review if one is required?
- What does installation include: crew size, experience, timeline, post-install inspection?

ABOUT AFTER THE SALE

- What happens if material is damaged in transit?
- If I need additional bays in six months, can you match this material?
- Do you offer rack repair if something gets damaged after installation?

❑ RED FLAG "We have access to material" instead of "we own it and it's in our warehouse." PRESS FOR OWNERSHIP	❑ RED FLAG No load capacity documentation for the specific configuration quoted. DO NOT INSTALL UNRATED RACK	❑ RED FLAG Unvetted, anonymous subcontract labor, unwritten warranties, or pressure to close before you can evaluate. SLOW THE CONVERSATION DOWN
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03

SECTION 03

GETTING IT DONE

Planning, permitting, decommissioning, compliance, and the maintenance program that protects the investment after the crews go home.

IN THIS SECTION

- | | | | |
|------------|---------------------------------|------------|----------------------------------|
| 3.1 | Planning Your Project | 3.3 | OSHA, RMI & FM Global Compliance |
| 3.2 | The Decommissioning Opportunity | 3.4 | Maintenance & Repair |

3.1

PLANNING YOUR PROJECT

The decisions made before the first quote is requested determine more about the outcome than almost anything after. This is the practical walkthrough of what needs to be settled before a productive vendor conversation can happen.

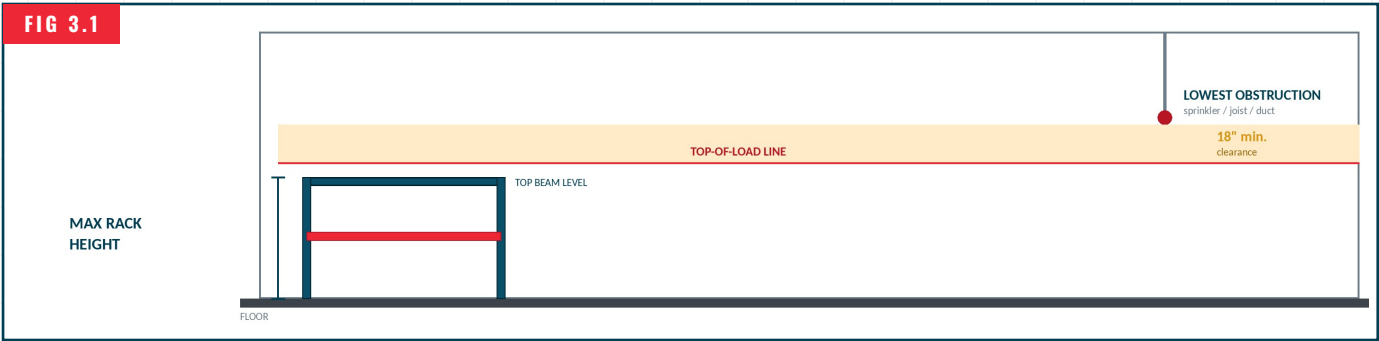


FIG 3.1 Cross-section diagram of a building bay showing how clear height is measured: floor to the lowest obstruction (sprinkler head / joist / duct), the 18-inch fire-code clearance above top-of-load, top beam level, and the resulting max rack height. Dimension arrows labeled. Turns an abstract rule into a picture buyers can measure against.

FACILITY ASSESSMENT: THE FOUR NUMBERS		MEASURE BEFORE YOU CALL ANYONE
CLEAR HEIGHT	Floor to the lowest obstruction, sprinkler heads, ducts, joists, lights. Not the deck. Sets maximum rack height; leave 18" minimum sprinkler clearance above top-of-load per fire code.	
COLUMN GRID	Building columns set the envelope. Rack rows must align with or work around the grid, know the spacing before layout, not after.	
FLOOR CAPACITY	Loaded rack concentrates thousands of pounds at each base plate. Verify slab rating and thickness (5-6" minimum for typical anchoring) from the building spec or an engineer.	
DOCKS & FLOW	Where forklifts enter, turn, and travel drives aisle widths, which drives how many rows fit.	

FORKLIFT COMPATIBILITY SETS YOUR AISLES

TYPICAL MINIMUM AISLE WIDTHS BY TRUCK TYPE		VERIFY AGAINST YOUR EQUIPMENT'S DATA PLATE
SIT-DOWN COUNTERBALANCE	12-13 ft aisles, the standard workhorse; needs the most room to turn	
REACH TRUCK	8.5-10 ft aisles, the density play for most distribution operations	
VERY NARROW AISLE (VNA)	5.5-7 ft aisles, turret/order-picker trucks, usually wire- or rail-guided; highest density, highest equipment cost	

Buy the rack and the truck as one decision. A configuration designed around equipment you do not own yet, or equipment specs you have not verified, is how aisles end up six inches too narrow to use.

PERMITS AND THE TIMELINE

Most jurisdictions require a permit for rack above a certain height (commonly 8-12 feet) or for high-piled storage above threshold areas, and many require stamped engineering drawings. The review runs from days to multiple weeks. Settle **who pulls the permit, owner, tenant, or vendor, before the contract is signed**. A vendor who handles permitting in-house, with established relationships in their service area, moves faster and more predictably than a buyer navigating a building department alone.

Then work backward from go-live: subtract installation (one to two weeks for a mid-size project), delivery (days for in-stock used; 6-10+ weeks for new), and permitting. What remains is your real order deadline, and most projects hit at least one delay, so build the buffer in explicitly.

PM

A salesperson closes the deal; a project manager lands it. Whatever the dollar amount, and especially on a project with a hard go-live date, ask specifically who manages your project from order to completion, and what their availability is during your installation window.

3.2 THE DECOMMISSIONING OPPORTUNITY

Decommissioning is the most underserved topic in warehouse storage; most people don't think about it until they are in the middle of one, which is too late to make good decisions. It is also where installed rack turns back into capital.

WHAT A DECOMMISSION INVOLVES

A full takedown means unloading all product, disassembling each bay top-down in sequence, palletizing and bundling components for transport, and hauling out, safely, and on a lease-end date that does not move. A 500,000+ sq ft facility is a multi-week labor project; a smaller building can be cleared in days. The controlling risk is the deadline: a vendor who cannot commit crews to a hard date, in writing, is an operational risk regardless of their price.

Takedowns are labor-intensive and scale up fast, so this is where staffing models differ most. AMH runs decommissions with **in-house crews plus a bench of vetted subcontract partners** it has worked with for years, the same standards, safety expectations, and project-management oversight apply whether the hands on site are ours or a partner's. The distinction that matters to you is not "employee vs. subcontractor." It is whether the vendor knows the crew, manages them directly, and stands behind the work.

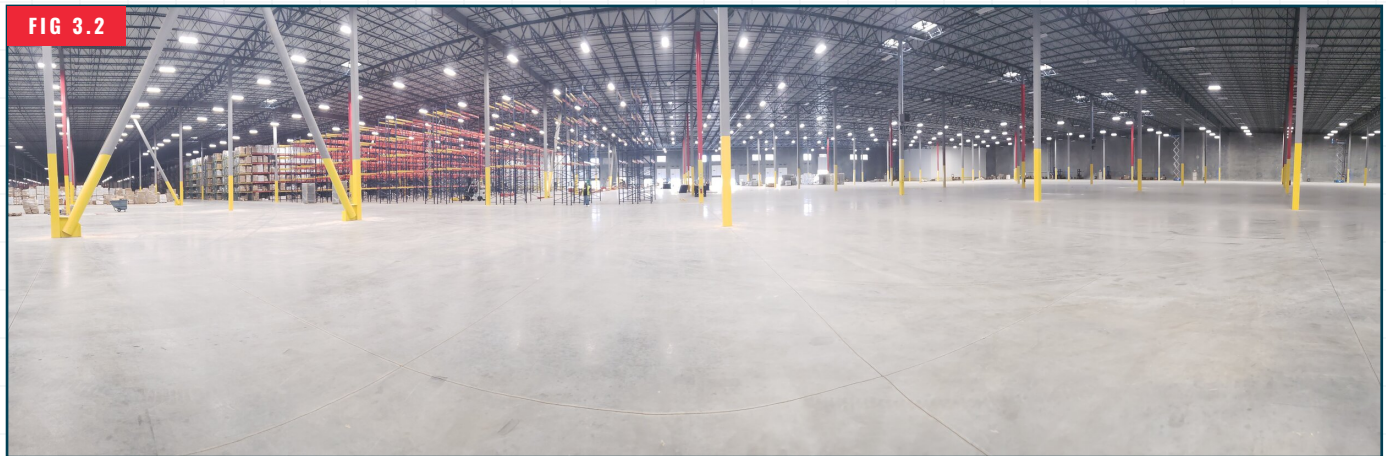


FIG 3.2 Mid-teardown at the 350,000 sq ft Memphis decommission: half the racking already down and cleared, lift equipment on the floor, remaining rows staged to come out against a fixed lease-end date. AMH manages the takedown end to end.

YOUR RACK HAS A BUYBACK VALUE

If you are vacating a facility with rack in decent condition, that material has real market value. This is AMH's **Sell Your Equipment** service: we buy used pallet rack and warehouse equipment, our own crews handle the teardown, and payment is quick. The process: a dealer assesses the system, offers for the usable material, brings **a crew it manages directly** to execute the takedown, and hauls it to their facility. Your payment offsets, sometimes fully covers, the decommission cost, and the steel recirculates instead of being scrapped. A million-square-foot facility with well-kept 20-year-old rack can carry hundreds of thousands of dollars in recoverable value.

Run it as an asset-or-liability test: **what the material is worth minus what it costs to get it out**. The cost side is bigger than the scrap math suggests: teardown labor, freight, and above all time. If removal runs past your lease window, every extra week is rent on a building you no longer use, and on a large facility a teardown that slips from 30 days to 45 can add six figures of holding cost. Value minus cost positive, your rack is an asset, sell it like one. Negative, it is a liability, and the goal becomes the cheapest safe exit. AMH runs that line-item math with you before anyone touches a wrench.

WHY MOVING RACK RARELY PAYS

The instinct is understandable: the rack was expensive and the new building is similar. But disassembly downtime, freight, reassembly labor, new permits, and the modifications needed to fit a different column grid routinely add up to more than buying inspected used rack that is already down, cleaned, and ready. Exceptions exist, cold storage systems, highly custom configurations, but they should be proven with a line-item comparison, not assumed.

1,140 SECTIONS REMOVED IN ONE 350,000 SQ FT MEMPHIS TEARDOWN · 3 WEEKS	1,000 SECTIONS OF TEARDROP SPEEDRACK CLEARED IN CHICAGO	\$0 WHAT A WELL-SOLD DECOMMISSION CAN NET TO COST AFTER BUYBACK
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3.3

OSHA, RMI & FM GLOBAL COMPLIANCE

The compliance standard does not care where your steel came from. New or used, the installed system must meet the same requirements. What follows is the practical map of who requires what.

THE REGULATORY MAP		WHAT APPLIES TO EVERY INSTALLED SYSTEM
OSHA 29 CFR 1910.176	Materials storage: stored materials must not create hazards; secure racking, maintained clearances, marked aisles.	
OSHA 29 CFR 1910.178	Powered industrial trucks: the regulation behind aisle discipline and load handling; forklifts are the leading cause of rack damage.	
OSHA GENERAL DUTY	Section 5(a)(1): a workplace free of recognized hazards. Damaged, overloaded, or unrated rack is a recognized hazard; this is the citation path after an incident.	
ANSI MH16.1 (RMI)	The national design/testing/utilization standard for steel storage rack. Performance-based, it does not distinguish new from used.	
FM GLOBAL DS 8-9	Insurer loss-prevention standard for rack storage: documented configurations, load ratings, flue spacing, in-rack sprinklers where required, damage repair programs.	
LOCAL BUILDING CODE	Permits, stamped drawings above threshold heights, seismic design categories, including the New Madrid zone in our own backyard.	

THE PRACTICAL OBLIGATIONS

- Rate it and placard it.** The installed configuration must carry documented load ratings, and capacity placards must be posted and legible to the people using the system.
- Do not exceed or modify without review.** Raising a beam level changes frame capacity (Section 1.2). Any reconfiguration needs an engineering check against the load tables.
- Document at installation.** Configuration drawings, capacity documentation, permit records, engineering letters, and the vendor's condition documentation, filed where the next facility manager can find them. Facility managers turn over; paper protects the operation.
- When original documentation does not exist, common for used material of uncertain origin, a qualified engineer can re-establish ratings from profile identification and current design standards. This is routine work for a dealer with engineering relationships, and a red flag if your vendor has never heard of it.

FM

For enterprise operators, the insurer drives the program. FM Global and Amazon-grade internal safety audits are more prescriptive than OSHA and flag damaged or undocumented rack explicitly. Used rack in an FM-insured facility needs the same paper as new, plan for it at purchase, not at audit.

3.4

MAINTENANCE & REPAIR

Rack damage is not a question of if; it is when, and how bad. Forklifts and rack share a workspace; over thousands of operating hours, contact happens. What separates a well-run operation is not the absence of impacts. It is what happens in the ten minutes after one.

WHY 'IT LOOKS OKAY' IS THE EXPENSIVE ANSWER

A bent column keeps carrying load, at reduced capacity, with eroded safety margin, sometimes for months before failure. Without formal assessment there is no reliable way to quantify the loss, so the informal glance becomes the standard. For a high-bay operation with heavy loads and real traffic, the exposure from a collapse, injury, workers' comp, OSHA citation, destroyed product, business interruption, runs into millions. The repair that fixes it costs a few thousand dollars. That asymmetry is the entire argument.

□ COSMETIC Paint scratches, minor surface rust, dings that do not affect the member cross-section. ACTION → MONITOR MONTHLY	□ MODERATE Visible column or beam deformation, base plate damage, impacted anchoring. Capacity likely reduced. ACTION → ASSESS • REPAIR/REPLACE	□ SEVERE Major column deformation, rack out of plumb, base plate torn from floor, damaged beam connection. ACTION → UNLOAD & REMOVE FROM SERVICE
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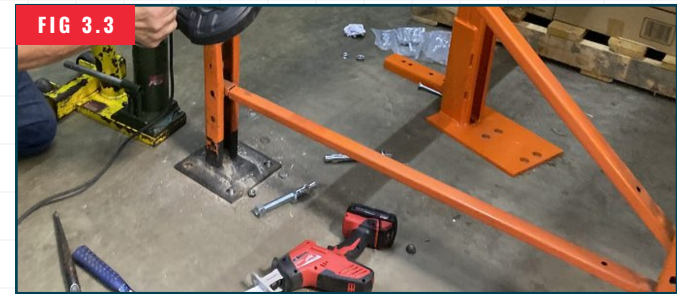


FIG 3.3 A struck column coming out of service: the damaged base section cut away mid-repair. Damage like this keeps carrying load at reduced capacity right up until someone addresses it.

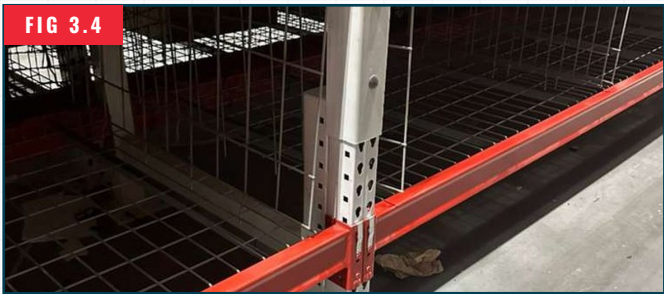


FIG 3.4 The finished engineered repair: a replacement column section bolted in, restoring full rating without a teardown. The repair-vs-replace point in the text, shown.

THE INTERNAL INSPECTION PROGRAM

FOUR ELEMENTS • THAT'S THE WHOLE PROGRAM
Monthly visual inspection of all rack by a designated, named employee; thorough annual inspection of the full system
A dated log of findings and corrective actions, the record that protects the company after an incident
A reporting path employees trust: damage reported, damage addressed, visibly
A post-impact protocol: any forklift strike triggers formal inspection before the area returns to service

REPAIR VS. REPLACE

Rack repair has matured. Engineered repair kits restore a damaged column to its original rating without replacing the upright, typically faster and cheaper than replacement, and without unloading the whole bay group. The decision depends on damage severity and location, system age, and kit availability for the profile; a vendor with in-house fabrication can build kits for profiles the catalog does not cover. This is the logic behind AMH's dedicated repair division at rackrepair.com: the company that sells, installs, and decommissions

rack is already positioned to repair it, with your system's history in hand.

24HR

Guard the uprights before they are hit. Column protectors, end-of-aisle guards, and honest aisle widths are the cheapest capacity insurance you can buy. Most severe damage we repair traces to one unprotected corner on one busy dock.

04

SECTION 04

THE AMH RECORD

Forty-seven years, thirty-two states, and the project log to show for it. What working with American Material Handling actually looks like.

IN THIS SECTION

4.1 The Project Log

4.2 Case Studies

4.3 Frequently Asked Questions

4.4 About AMH

4.1

THE PROJECT LOG

A sample of recent completed work, real projects, real numbers. Whether the job is 10,000 or 1,000,000 square feet, an install or a hard-deadline teardown, our in-house crews, backed by vetted subcontract partners when scale or geography calls for it, carry it from conception to completion under AMH project management.



FIG 4.1 Hero shot of a completed, loaded install: clean aisles, straight rows, good lighting. The 'this is what you're buying' image, tied to the double-deep and 300,000 sq ft mixed new/used case studies that follow.

RECENT PROJECTS		IN-HOUSE CREWS + VETTED PARTNERS · AMH-MANAGED
MULTI-PHASE DOUBLE DEEP · MEMPHIS	8,500 pallet positions, delivered 8 weeks faster than a new-rack schedule	
300,000 SQ FT · MIXED NEW + USED	1,650 sections installed in 24 days, the hybrid model at full scale	
CUSTOM REEL RACK · OKLAHOMA	80 bays of in-house fabricated reel rack; 400 sections, 2,500 beams, 7 installers, 10 days	
100,000 SQ FT · HASTINGS, NE	420 sections, 4,272 pallet positions; 3,360 beams, 450 uprights, set in 7 days	
458,000 SQ FT · TENNESSEE	270 sections installed in 9 days	
500,000 SQ FT · MEMPHIS	350 selective rack sections plus 100 carton flow sections	
350,000 SQ FT TEARDOWN · MEMPHIS	1,140 sections decommissioned in 3 weeks, on a fixed lease-end date	
MEDICAL MANUFACTURING · MEMPHIS	120 sections of new rack installed in 3 days	

"American Material Handling was quick, resourceful and flexible to convert their project ideas to reality. The material delivered was as agreed and the installation was professionally done according to schedule. We are happy with the outcome.", 300,000 sq ft mixed new/used project

4.2 CASE STUDIES

Three projects that show the Decision Triangle working in practice. Details are drawn from completed AMH work; they are presented as representative of how each path plays out.

01	The Fixed Go-Live: 8,500 Positions, Eight Weeks Early 3PL • MEMPHIS • DOUBLE DEEP • PRIORITIES: SPEED + PRICE
THE SITUATION	A third-party logistics operator signed a client contract with a start date that could not move. New rack quotes put material on the dock after the contract began.
THE SOLUTION	AMH filled the configuration from owned, in-stock used inventory, inspected, capacity-documented, and staged in phases so installation tracked the client's onboarding schedule.
THE OUTCOME	8,500 pallet positions operational roughly eight weeks ahead of the best new-rack schedule, at a per-position cost the operator could carry inside a three-year contract.

02	The Hybrid Build: 1,650 Sections, New Where It Counts DISTRIBUTION • 300,000 SQ FT • PRIORITIES: PRICE + PRECISION
THE SITUATION	A 300,000 sq ft facility needed exact upright specifications for its racking envelope, but the budget could not absorb an all-new system.
THE SOLUTION	New uprights ordered to spec set the structural envelope; used beams and wire decking, commodity components that perform identically, filled the bays. One vendor, one project manager, one accountability chain.
THE OUTCOME	1,650 sections installed in 24 days. The customer's words: "quick, resourceful and flexible... delivered as agreed... professionally done according to schedule."

03	The Problem Standard Rack Can't Solve: Custom Reel Storage MANUFACTURING • OKLAHOMA • CUSTOM FABRICATION • PRIORITY: PRECISION
THE SITUATION	Cable reels, heavy, round, and dimensionally hostile to standard pallet rack, needed organized, high-density storage.
THE SOLUTION	AMH designed and fabricated 80 bays of custom reel rack in-house, integrating it with 400 sections of standard material, custom steel only where the product demanded it.
THE OUTCOME	Seven installers, ten days, 2,500 beams set. Custom fabrication priced sanely because it was limited to the bays that actually needed it.

4.3 FREQUENTLY ASKED QUESTIONS

Is used rack safe?

Yes, when it has been properly inspected, refurbished where needed, and installed correctly. The governing standards (OSHA, ANSI MH16.1) are performance-based, not age-based; used rack meets the same requirements as new. The key is a dealer who physically inspected the material and can document condition and load ratings.

How do I know what will fit my facility?

Four numbers drive everything: clear height, building column spacing, your pallet specs (footprint and weight, average and heaviest), and your forklift's minimum aisle. A reputable vendor asks for these before quoting. If they don't ask, that omission is your answer.

Can I match my existing rack later?

Usually, yes. Major teardrop profiles have been in production for decades and interchange across brands (Section 1.3). The better question is whether your dealer carries enough owned inventory to fill an add-on order when you need it.

How long does a project take?

From in-stock used inventory, a small-to-mid project (1,000-5,000 positions) typically runs two to four weeks from quote to installed. Comparable new-rack projects run 10-14 weeks with manufacturing lead time. Larger projects add crew scheduling and permit time either way.

Can I lease rack instead of buying?

Available but uncommon, usually through external equipment-finance companies. AMH arranges leases in specific cases, typically needs of two years or less. For longer horizons, purchase is almost always the better economics.

What happens to my rack when I move or close a facility?

Three options: sell it to a dealer (usually best, professional takedown plus recovered value), scrap it, or move it. Moving rarely survives a line-item cost comparison (Section 3.2).

Does AMH only sell used rack?

No, and this matters. AMH is approved with all major domestic manufacturers, stocks deep used inventory, and fabricates custom steel in-house. We are brand-agnostic and source-agnostic: the project determines the material, not the other way around.

Who actually performs the installation or teardown?

Both AMH in-house crews and a bench of vetted subcontract partners, depending on the project's size, timeline, and location, larger decommissions and some installs use partner crews to scale quickly. Either way, the crew is one we know and vet, the work is run by an AMH project manager, and AMH stands behind it. We would rather tell you that plainly than pretend every hand on site is a payroll employee.

How do I get a quote?

Contact AMH at amh1979.com or (888) 490-1181 with your configuration requirements, facility dimensions, timeline, and approximate pallet-position count. Larger projects get an in-person or virtual site visit so the quote is accurate the first time. For rack repair specifically: rackrepair.com.

4.4

ABOUT AMERICAN MATERIAL HANDLING

Family-owned since 1979. Two Arkansas campuses totaling 400,000 square feet of warehouse on a 39-acre combined campus, a sales and service office in Birmingham, AL, in-house crews, and an AMH project manager on every job.

American Material Handling operates from two Arkansas campuses, West Memphis (headquarters) and North Little Rock, serving the Little Rock, AR metro, with a sales and service office in Birmingham, AL. Inventory and crews stage from the Arkansas campuses; the Birmingham office extends sales and service coverage into Alabama. We carry new and used pallet rack across all major profiles and configurations, in quantity, plus more than \$10M in used rack ready to ship.

Our capabilities run the full storage lifecycle: in-house layout and CAD planning, new, used, and hybrid rack supply, pallet rack installation, cantilever rack, warehouse mezzanines, industrial shelving, conveyor systems as an award-winning Daifuku distributor (recognized in 2026), custom steel fabrication, warehouse relocation, warehouse decommissioning, our **Sell Your Equipment** buy-side program (we buy used pallet rack and warehouse equipment), Facility Services (storage and material-handling equipment kept running, not building trades), and rack repair through **RACKCYCLE** at rackrepair.com.

We staff projects with **our own in-house crews and a bench of vetted subcontract partners**, a model that lets us scale up for large decommissions and multi-site installs, and travel for national accounts, without cutting corners on the ground. What stays constant is direct AMH oversight: every project is run by an AMH project manager, to AMH safety and quality standards, and we stand behind the result regardless of whose hands set the steel.

We are approved with all major domestic rack manufacturers and maintain a deliberately agnostic approach to brand and source: new, used, or hybrid, the fit is chosen by availability, lead time, and specification, not by what we would prefer to sell. We work across the Southeast, Texas, and the Midwest daily, and travel for larger national accounts. Over the past five years we have installed 1.5M+ pallet positions across 1,200+ projects with zero major safety incidents, serving 1,000+ customers in 32+ states, backed by a 98% first-pass permit approval rate.

1,200+

PROJECTS, ZERO MAJOR SAFETY INCIDENTS

1,000+

CUSTOMERS SERVED

50K+

TONS OF STEEL RECYCLED PER YEAR

CONTACT		TALK THROUGH YOUR SPECIFIC PROJECT
PHONE	(888) 490-1181	
EMAIL	info@amh1979.com	
WEB	amh1979.com	
RACK REPAIR	rackrepair.com (RACKCYCLE)	
WEST MEMPHIS, AR (HQ)	540 E. Barton Ave, West Memphis, AR 72301	
NORTH LITTLE ROCK, AR	9013 Highway 165 South, North Little Rock, AR 72117	
BIRMINGHAM, AL (OFFICE)	3300 Cahaba Rd, Suite 216, Birmingham, AL 35223	



A

SECTION A

APPENDICES & CHECKLISTS

Pull these out. Use them on the floor, in the pre-bid meeting, and at the monthly inspection.

IN THIS SECTION

A Buyer's Checklist

B Decision Framework

C Inspection Reference

D Glossary of Terms

A

BUYER'S CHECKLIST

Use this before committing to any rack purchase, new or used.

VENDOR QUALIFICATION	
☐	Owns the inventory (not brokering), or is transparent about the difference
☐	Physical facility you can visit to see material in person
☐	In-house installation labor, named project manager
☐	References from comparable projects
☐	Five or more years in this market
MATERIAL CONDITION	
☐	Physically inspected, by whom, covering what, in writing
☐	Load capacity documentation for the specific configuration
☐	Capacity placards included or specified
☐	Refurbishment scope documented (what was done, what was scrapped)
☐	No structural deformation on uprights or beams; no cross-section rust
PROJECT EXECUTION	
☐	Lead time confirmed in writing
☐	Permitting responsibility assigned in the contract
☐	Installation scope detailed: crew size, timeline, inclusions
☐	Post-installation inspection protocol defined
☐	Damaged-in-transit process documented

B

DECISION FRAMEWORK

Three steps to locate your project on the Decision Triangle.

STEP 1 · RANK SPEED, PRICE, PRECISION 1-2-3		BE HONEST; THE THIRD SHAPES THE CONVERSATION
PRICE	Total material cost is a primary constraint	
SPEED	The go-live date is fixed and non-negotiable	
PRECISION	Exact specs, finish, documentation, or compliance drive the decision	

STEP 2 · YOUR TOP TWO PICK THE PATH		SECTION 2.5
PRICE + SPEED	In-stock used rack from an owned-inventory dealer	
PRICE + PRECISION	New rack on standard lead time, or curated/certified refurbished material	
SPEED + PRECISION	New rack via strong mill relationships, or a hybrid build with new uprights + used commodity components	

STEP 3 · PROJECT SIZE CHECK		RULES OF THUMB, NOT LAWS
UNDER \$2M	Used rack likely viable for some or all of the project	
\$2M - \$5M	Hybrid approach (new + used) often optimal	
OVER \$5M	New rack typically required for volume and configuration uniformity	

2 OF 3

A vendor who promises the lowest price, instant availability, **and** perfect condition on every order is making a promise worth examining closely.

C

INSPECTION REFERENCE

For monthly visual inspections. Anything Moderate or Severe gets documented and assessed by a qualified person before the section returns to service.

UPRIGHTS			MONTHLY • ALL ROWS
COLUMN DEFORMATION	PASS		
	Straight columns; dings only in non-structural zones.		FLAG Dents, bends, buckling: Moderate to Severe by extent. Out-of-plumb beyond 1/2" per 10 ft of height: assess.
BASE PLATES & ANCHORS	PASS		
	Plates flat to floor, all anchors present and tight.		FLAG Damage or detachment: Severe. Missing/loose anchor: Severe.
SURFACE RUST	PASS		
	Surface oxidation only.		FLAG Pitting into the cross-section: treat as structural damage.

BEAMS & DECK			MONTHLY • ALL LEVELS
DEFLECTION	PASS		
	Under L/180 of span at rated load; returns flat when unloaded.		FLAG Visible bow exceeding L/180, or permanent set after unloading: Moderate.
END CONNECTORS	PASS		
	Square to column, clips seated.		FLAG Connector damage or cracked welds: Moderate. Missing safety clip: replace immediately.
WIRE DECKING	PASS		
	Channels intact, mesh sound.		FLAG Damaged or missing deck: Cosmetic to Moderate by use; replace before point-loading.

GENERAL • ADDRESS IMMEDIATELY	
	Load capacity placard missing or illegible
	Any post-impact area returned to service without formal inspection
	Row spacers or column protectors missing in active forklift zones

D GLOSSARY OF TERMS

Anchor Concrete fastener securing a base plate to the slab. Design practice: every column anchored.

Bay One storage unit of rack: two upright frames and the beams between them.

Cantilever rack Arms projecting from columns with no front upright; for lumber, pipe, and long or odd loads.

Carton flow Gravity-fed shelf lanes that present cartons to pickers; case-level first-in, first-out.

Beam Horizontal load-carrying member spanning between frames; rated in pairs.

Beam deflection Downward bow of a loaded beam. Allowable limit: L/180 of span (ANSI MH16.1).

Clear height Floor to lowest overhead obstruction; sets maximum rack height.

Column protector Guard at the base of an upright in forklift traffic areas.

Decommission Full professional disassembly and removal of an installed system.

Double deep Two selective rows back-to-back, accessed by reach truck.

Drive-in rack Deep-lane rack the forklift enters; maximum density, last-in/first-out access.

FIFO First in, first out. Rotation where the oldest stock ships first; pallet flow and carton flow enforce it structurally.

Flue space Vertical gaps in and between rows that let sprinkler water penetrate; regulated under fire code and FM DS 8-9.

FM Global Commercial property insurer whose loss-prevention data sheets are a de facto rack standard for large facilities.

Frame (upright) Two columns joined by bracing; the vertical structure carrying load to the floor.

Gauge Steel thickness; lower number = thicker steel. 14 ga light, 13 ga standard, 12 ga heavy.

LIFO Last in, first out. The rotation trade-off deep-lane systems like drive-in and push-back make for density.

Load rating Maximum engineered weight for a configuration, per level and per bay.

Mezzanine Freestanding steel work platform that adds a usable second level inside existing clear height.

Pallet position One storage location for one pallet; the standard sizing unit.

Pick module Multi-level structure combining rack, flow lanes, and conveyor into one picking system.

Placard Posted capacity label; an OSHA expectation on every installed system.

Push-back rack Nested carts on inclined rails, 2-6 pallets deep; dense buffer storage, last-in/first-out.

RMI Rack Manufacturers Institute; publishes ANSI MH16.1, the U.S. rack standard.

Seismic design category Code classification (by site and geography, e.g., the New Madrid zone) that changes engineering, base plates, and permits.

Selective rack Direct access to every pallet position; the most common system type.

Teardrop The keyhole-shaped connection standard; interchanges across most major brands.

VNA Very Narrow Aisle, turret truck systems running 5.5-7 ft aisles, usually guided.

Wire deck Steel mesh laid on beams to support pallets and allow sprinkler penetration.

