



## UNARCO MATERIAL HANDLING, INC.

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# UNARCO



MATERIAL HANDLING SYSTEMS

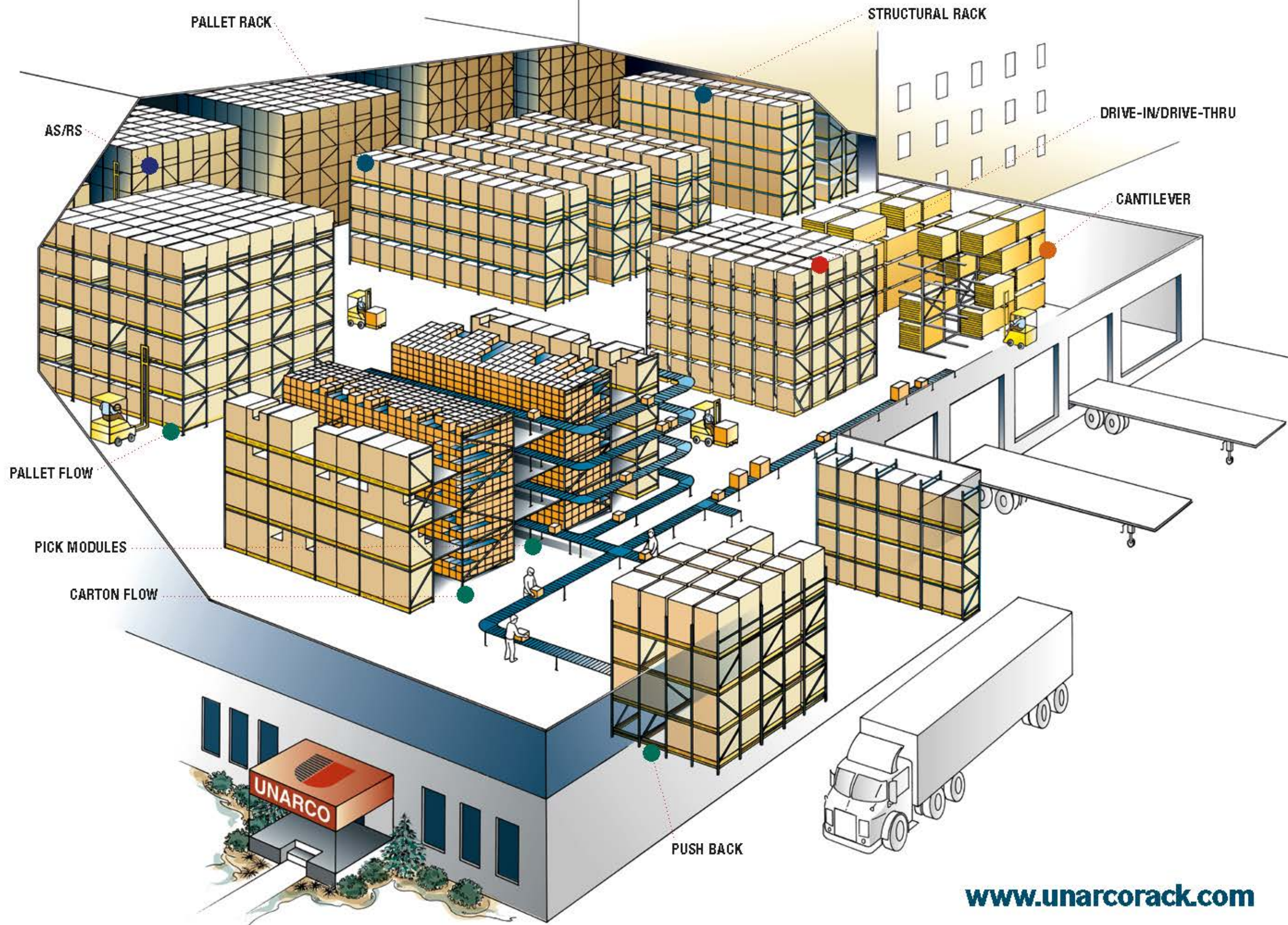


## PRODUCTS CATALOG

COMPLETE STORAGE SOLUTIONS

STRUCTURAL AND ROLL-FORMED  
PALLET RACK

ENGINEERED SYSTEMS



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[www.unarcorack.com](http://www.unarcorack.com)

● RETAIL ACCESSORIES

# Single-Source Capability

UNARCO handles projects from the simplest warehouse to the most complex pick module. Our team of qualified engineers can solve any application issue presented. We have big ideas for even the smallest warehouse. When coupled with project management and installation services, you can leave the coordination to us. Put your project in our hands and let innovation work for you.

## ENGINEERING INSTALLATION PROJECT MANAGEMENT



PALLET RACK



STRUCTURAL RACK



MEZZANINES



PICK MODULES



CARTON FLOW



PALLET FLOW



CANTILEVER



RACK REPAIR



PUSH BACK



DRIVE-IN/DRIVE-THRU



RETAIL ACCESSORIES



AS/RS



UNARCO

The wide range of UNARCO's products allows for an efficient solution to any warehousing requirement. Because of our long history in the industry, we have developed a product line that has been successfully implemented for many years. From standard pallet rack to carton flow and push back, to complicated AS/RS systems, UNARCO manufactures rack systems to increase your warehouse productivity.

- Selective Pallet Rack
  - Roll-Formed
  - Structural
- Pick Modules
- Carton Flow
- Pallet Flow
- Push Back
- Drive-In/Drive-Thru
- Cantilever
- Mezzanines
- AS/RS
- Retail Accessories
- Rack Repair

UNARCO was the first pallet rack manufacturer in the industry. With nearly sixty years in production, engineering and design, no one offers more experience in how to increase efficiency in warehouses and distribution centers.

Flexibility that you will not find in other large pallet racking manufacturers stems from the ability to produce an entire line of warehouse storage solutions including carton flow, pallet flow, push back, drive-in/drive-thru and cantilever. But more importantly, UNARCO has structured its customer service and manufacturing facilities to LISTEN to customers' needs and respond with custom designs and smarter solutions.



### Strategic Plant Locations

UNARCO's network includes field representatives and stocking distributors across the country.



PANDORA, OHIO



LEWISVILLE, TEXAS



SPRINGFIELD, TENNESSEE



### STATE OF THE ART PAINT APPLICATION

UNARCO has invested millions of dollars in state of the art powder coat paint lines for a superior finish. Parts begin at a four-stage washer which meticulously deans the product before sending it through booths with over 25 guns. The parts then travel through a 200-foot-long bake oven to insure a durable finish.



Powder Coat Paint Booth

### MODERN MANUFACTURING AND PROFESSIONALLY SKILLED LABOR

UNARCO's plants of over one million square feet are streamlined for maximum efficiency and computer guided accuracy. The modern manufacturing process starts with coils of high-strength steel, certified to meet our demanding specifications for chemistry and thickness. Beams and uprights are formed and welded to exacting standards by advanced robotic equipment and A.W.S. certified welders. UNARCO maintains top quality throughout the manufacturing and finishing process with a highly skilled work force.



Computerized Mills



High-Strength Steel Coils

- America's first manufacturer of pallet rack
- Complete product line for any storage requirement
- History of successful working relationships with consultants and integrators throughout the United States
- Proven engineering and design history
- Seismic calculations and local building code compliance
- Installation and project management capabilities
- Vast distributor network
- Member of Rack Manufacturers Institute (RMI) with R-Mark certification, which guarantees compliance to latest RMI specifications
- Solid financial backing of multi-billion dollar corporation



The Renco Group, Inc.



# Selective Pallet Rack ROLL-FORMED



- Roll-formed
- All-welded construction
- Wide variety of column sizes
- Closed tube or open section columns
- Available with bolted or automatic locking devices
- Sturdy miter-cut bracing
- Rigid connections
- 40-foot continuous length capability

Standard Selective Pallet Rack is the basis for most warehouse storage systems. UNARCO can provide all varieties from light to heavy-duty, open to closed tubes and bolted to automatic locking connections. Computerized mills insure that tolerances on all roll-formed beams and uprights are precise and install with ease.



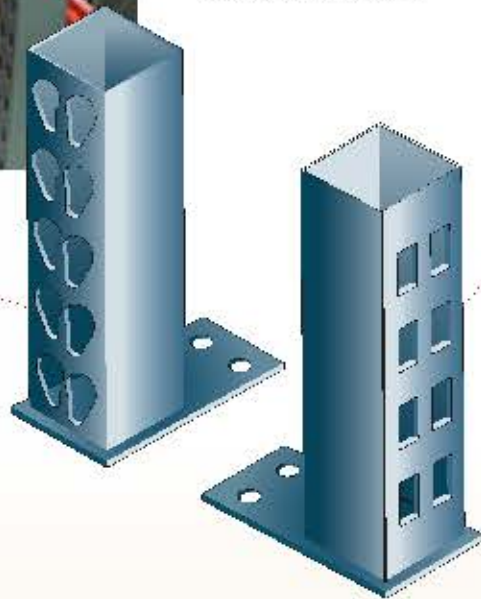
## SUPERPOST CLOSED TUBE

- 30% - 40% greater load capacities than same gauge open back design uprights
- Over 200 times more resistant to torsional forces
- Cleaner - no areas to trap dust and debris
- Resists frontal impact five times more than structural column

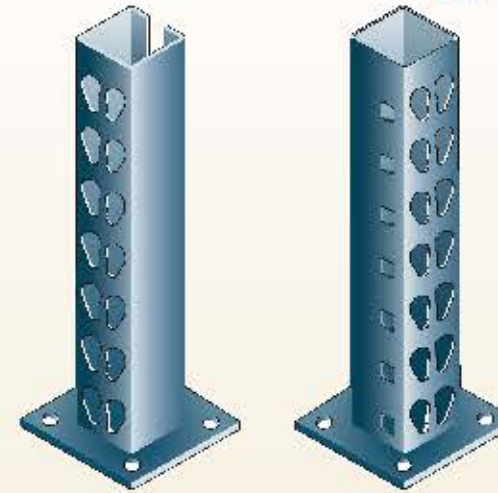


Interchangeable

T-Bolt

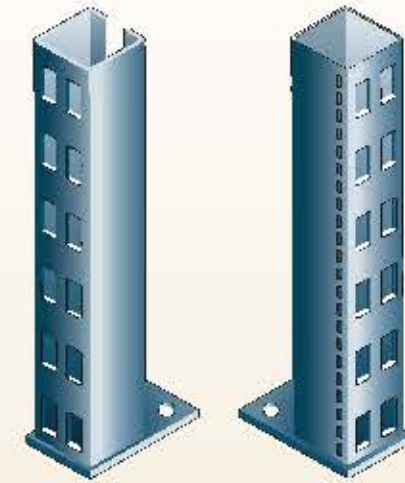


## UPRIGHTS



Shown with optional seismic base plate

Shown with optional side punching



Shown with optional UPICK side punching

### INTERCHANGEABLE Non-Bolted Connection

Interchangeable tear drop upright columns will accept most industry standard "Interchangeable" beams

• Manufactured with or without side holes

• Available in open or closed tube sections

### T-BOLT Bolted Connection

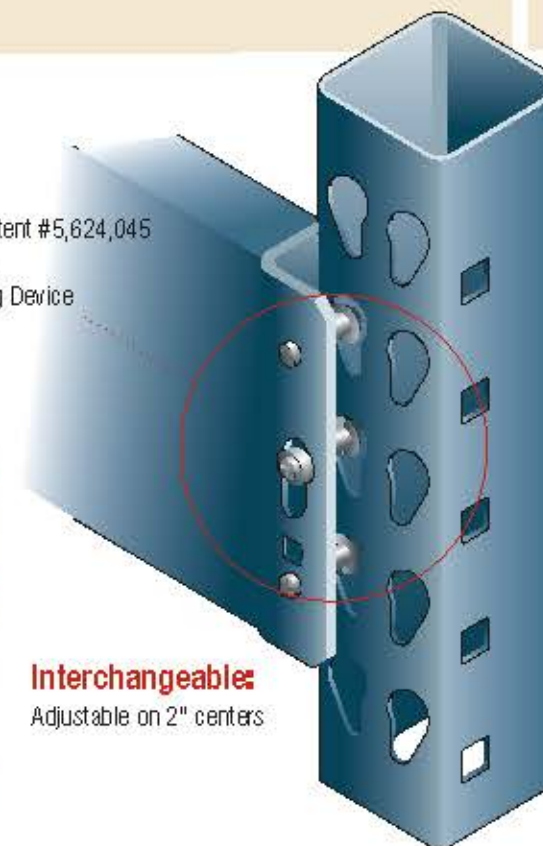
T-Bolt upright columns front-end-only connection allows for easy installation because you never need to reach into the column

• Extra rigid connection

• Available in open or closed tube sections

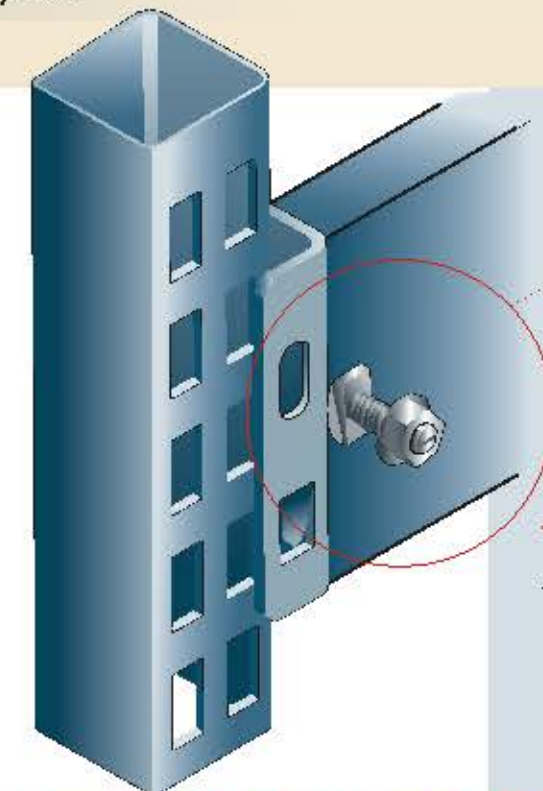
Pallet Rack: See pages 8-9 for available column sizes and capacities

U.S. Patent #5,624,045  
Gravity Locking Device



Interchangeables  
Adjustable on 2" centers

U.S. Patent #4,496,061  
T-Bolt Locking Device



T-Bolt:  
Adjustable on 3" centers

## BEAM CONNECTIONS

# Selective Pallet Rack COMPONENTS

## ROLL-FORMED UPRIGHTS

GENERAL UPRIGHT CAPACITY GUIDELINES FOR T-BOLT UPRIGHTS

### SUPERPOST T-BOLT

COLUMN SIZE	3 x 2	3 x 2	3 x 2	3 x 3	3 x 3	3 x 3	3 x 3	4 x 3	4 x 3	4 x 3
PART NO.	T0142	T0132	T0122	T0143	T0133	T0123	T0103	T0134	T0124	T0104
MAXIMUM UNSUPPORTED LENGTH	POUNDS	POUNDS	POUNDS	POUNDS	POUNDS	POUNDS	POUNDS	POUNDS	POUNDS	POUNDS
36"	33,620	30,545	36,181	32,023	43,716	52,950	65,590	50,281	64,143	83,278
48"	22,242	28,680	33,990	27,556	36,983	44,585	55,039	47,403	60,224	77,937
60"	17,655	22,437	26,498	22,631	29,811	35,742	43,928	42,129	53,092	68,233
72"	13,249	16,587	19,502	17,709	22,889	27,279	33,347	36,405	45,475	57,998
84"	9,816	12,186	14,328	13,330	16,965	20,143	24,572	30,567	37,834	47,863
96"	7,556	9,330	10,970	10,320	13,008	15,422	18,813	24,923	30,566	38,323

### OPEN SECTION T-BOLT

COLUMN SIZE	3 x 1 5/8	3 x 1 5/8	3 x 3	3 x 3	3 x 3	3 x 3
PART NO.	T0145	T0135	T0146	T0136	T0126	T0106
MAXIMUM UNSUPPORTED LENGTH	POUNDS	POUNDS	POUNDS	POUNDS	POUNDS	POUNDS
36"	17,902	22,751	25,618	34,383	43,637	53,939
48"	13,913	17,607	20,691	27,257	34,076	42,035
60"	11,196	14,042	17,165	22,304	27,569	33,895
72"	8,721	10,831	13,860	17,761	21,700	26,549
84"	6,771	8,354	10,922	13,856	16,802	20,537
96"	5,375	6,600	8,771	11,045	13,320	16,272

All values in the above tables assume that each column carries half of the frame load. The table values are expressed in pounds per frame. These values are based on gravity loading only that is purely axial. Any condition where the axial load is accompanied by moment, the axial load capacity will be less. This will occur for non-symmetrical loading conditions. The capacities also assume the base plates and the bracing are of adequate strength and that all other parts of the rack have been properly designed. All values are for undamaged racks that are installed plumb. It is the rack user's responsibility to properly maintain the racks to ensure that the carrying capacity of the racks is not reduced by damage and that any changes to the rack configuration do not cause an unsafe condition.

Frame capacities are based on maximum unsupported length, which is the measurement of the distance between the floor and the top of the first beam or the maximum spacing between beams, whichever governs.

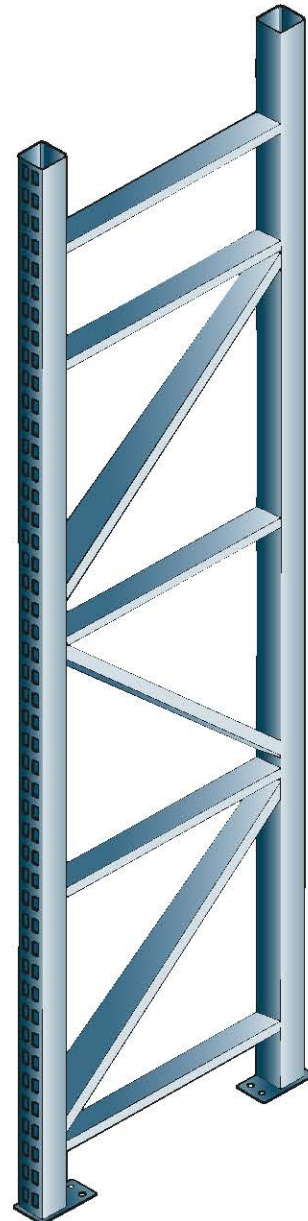
Refer to [unarcorack.com](http://unarcorack.com) for latest updates to installation instructions and user manuals.

#### CONTACT THE UNARCO SPRINGFIELD OFFICE FOR ANY OF THE FOLLOWING CONDITIONS:

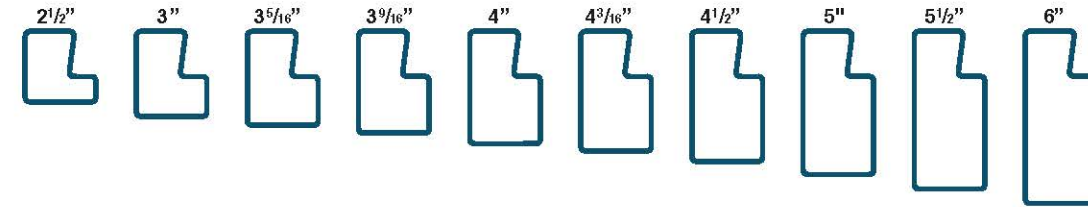
- Any application where the frame load exceeds 31,000 lbs. (23,600 lbs for 3 x 1.625 columns or 28,700 lbs. for 3x2 column). These frames may need larger base plates or heavier bracing.
- Any application that requires seismic design where the design ground acceleration  $S_s$  exceeds 25%g in IBC areas.
- Configurations that require a frame deeper than 60 inches or higher than 40 feet.
- Applications that involve support of platforms or catwalks or any application other than normal pallet rack.
- Any single row where the height-to-depth ratio exceeds 6 to 1. These must be checked for anchorage against overturning.
- Any condition which creates uncertainty as to the proper use of these tables.

Please visit [unarcorack.com](http://unarcorack.com) for interchangeable capacities and uprights with side punching.

Column protection is recommended for uprights subjected to potential column abuse from lift trucks.



## ROLL-FORMED BEAMS



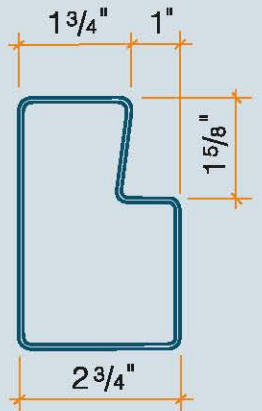
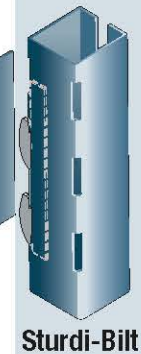
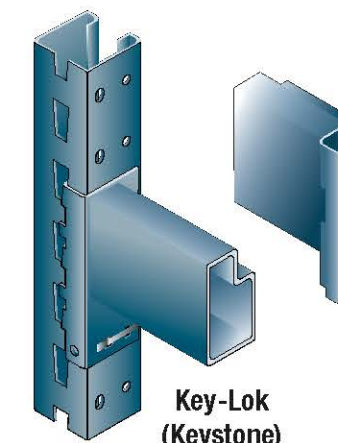
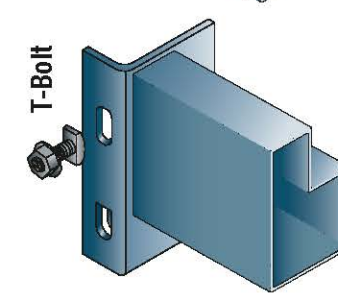
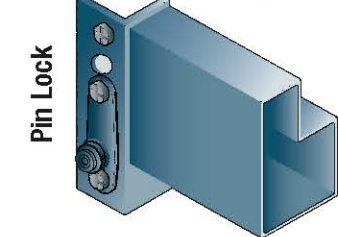
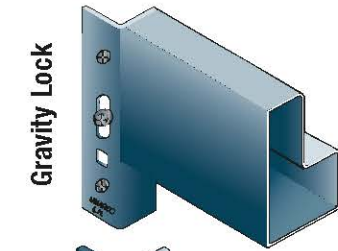
### BEAM CAPACITIES FOR T-BOLT - GRAVITY LOCK - PIN LOCK

BEAM SPAN	PART NUMBER	RMI CAPACITY
48"	F2 6356 04800SS000	7991# ..... 3.56" x 48"L... 16 ga.
	F2 6356 06000SS000	6544# ..... 3.56" x 60"L... 16 ga.
	F2 6356 07200SS000	5573# ..... 3.56" x 72"L... 16 ga.
60"	F2 6356 08400SS000	4876# ..... 3.56" x 84"L... 16 ga.
	F2 6250 09600SS000	2126# ..... 2.50" x 96"L... 16 ga.
	F2 6331 09600SS000	3452# ..... 3.31" x 96"L... 16 ga.
72"	F2 6356 09600SS000	3972# ..... 3.56" x 96"L... 16 ga.
	F2 6400 09600SS000	5009# ..... 4.00" x 96"L... 16 ga.
	F2 6418 09600SS000	5296# ..... 4.18" x 96"L... 16 ga.
	F2 6450 09600SS000	5832# ..... 4.50" x 96"L... 16 ga.
	F2 6500 09600SS000	6730# ..... 5.00" x 96"L... 16 ga.
	F2 6550 09600SS000	7701# ..... 5.50" x 96"L... 16 ga.
84"	F2 6600 09600SS000	8742# ..... 6.00" x 96"L... 16 ga.
	F2 4600 09600SS000	9897# ..... 6.00" x 96"L... 14 ga.
	F2 6356 10800SS000	3206# ..... 3.56" x 108"L... 16 ga.
96"	F2 6400 10800SS000	4044# ..... 4.00" x 108"L... 16 ga.
	F2 6418 10800SS000	4431# ..... 4.18" x 108"L... 16 ga.
	F2 6450 10800SS000	5184# ..... 4.50" x 108"L... 16 ga.
	F2 6500 10800SS000	6038# ..... 5.00" x 108"L... 16 ga.
	F2 4500 10800SS000	6800# ..... 5.00" x 108"L... 14 ga.
	F2 4600 10800SS000	8842# ..... 6.00" x 108"L... 14 ga.
108"	F2 6356 12000SS000	2649# ..... 3.56" x 120"L... 16 ga.
	F2 6400 12000SS000	3329# ..... 4.00" x 120"L... 16 ga.
	F2 6418 12000SS000	3643# ..... 4.18" x 120"L... 16 ga.
	F2 6450 12000SS000	4254# ..... 4.50" x 120"L... 16 ga.
	F2 6500 12000SS000	5353# ..... 5.00" x 120"L... 16 ga.
	F2 4500 12000SS000	5943# ..... 5.00" x 120"L... 14 ga.
120"	F2 4600 12000SS000	7997# ..... 6.00" x 120"L... 14 ga.
	F2 6356 14400SS000	1902# ..... 3.56" x 144"L... 16 ga.
	F2 6400 14400SS000	2377# ..... 4.00" x 144"L... 16 ga.
144"	F2 6418 14400SS000	2596# ..... 4.18" x 144"L... 16 ga.
	F2 6450 14400SS000	3021# ..... 4.50" x 144"L... 16 ga.
	F2 6500 14400SS000	3785# ..... 5.00" x 144"L... 16 ga.
	F2 4500 14400SS000	4192# ..... 5.00" x 144"L... 14 ga.
	F2 4600 14400SS000	6369# ..... 6.00" x 144"L... 14 ga.
	F2 2600 14400SS000	8979# ..... 6.00" x 144"L... 12 ga.

- All capacities are expressed in pounds per pair of beams. Only gravity loading and the RMI required impact have been considered.
- All values are based on a uniformly distributed load (i.e. each beam carries 50% of the load) and assume proper installation and no beam damage.
- The deflection limit for all beams is the length divided by 180.
- Roll-formed beams that are longer than 150" require crossbars, lateral ties, wire decks or some other type of lateral restraint.
- Values in the table are for beam bending only. Shear on the connectors and weld strengths, etc. are not taken into consideration.
- Capacities include 12.5% impact for two pallets side by side. For a three-pallet-wide shelf, the values should be multiplied by 0.95. For one pallet per shelf the values should be multiplied by 0.90.

#### PLEASE CONTACT THE UNARCO SPRINGFIELD OFFICE FOR THE FOLLOWING CONDITIONS:

- Beams that are longer than 144"
- Ground acceleration  $S_s$  exceeds 25%g in IBC areas
- Shelf load in excess of 10,000 lbs.
- Beam application where the proper use of the tables is unclear



UNARCO rack designs conform to the latest Rack Manufacturers Institute (RMI) specifications and AISI Cold Formed Steel Design Manual.

Original Sturdi-Bit and Key-Lok (Keystone) products may be ordered to add to an existing rack system.



# Structural Rack

Structural racks are designed with high-strength structural steel C-Channels for added toughness and rigidity. UNARCO offers 3" and 4" upright posts with sturdy structural steel bracing. Heavy-duty structural beams range from 3" to 6" in height to meet the most demanding load criteria.

UNARCO also manufactures a 3" structural column with teardrop punching. This allows the addition of interchangeable roll-formed beams as an economic and efficient option.

The high-strength and durability of structural steel combined with UNARCO engineering and design can solve any project dilemma and create a more efficient warehouse space.



## HIGH-STRENGTH STRUCTURAL STEEL

UNARCO Structural Racks are designed to prevent damage from forklift abuse. The posts are constructed from structural steel and are much thicker than roll-formed posts, particularly at the corners which are the primary impact points.



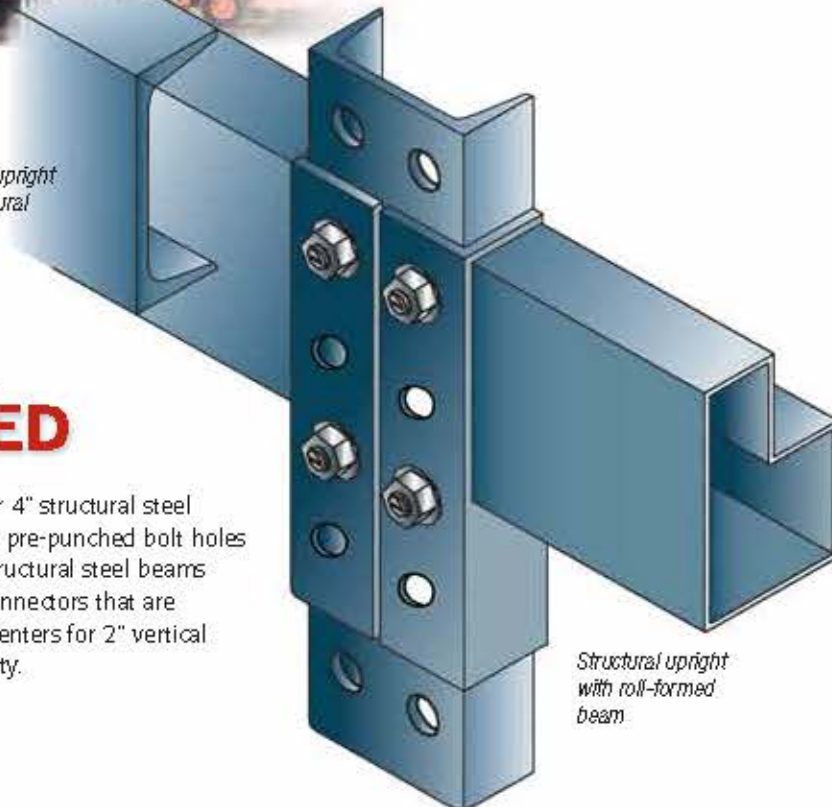
Structural Push Back Rack

AS/RS

Structural upright with structural beam

### STRUCTURAL BOLTED

Heavy-duty 3" or 4" structural steel C-Channels have pre-punched bolt holes on 4" centers. Structural steel beams include beam connectors that are punched on 2" centers for 2" vertical beam adjustability.



Structural upright with roll-formed beam

**RIGID**

**EFFICIENT**

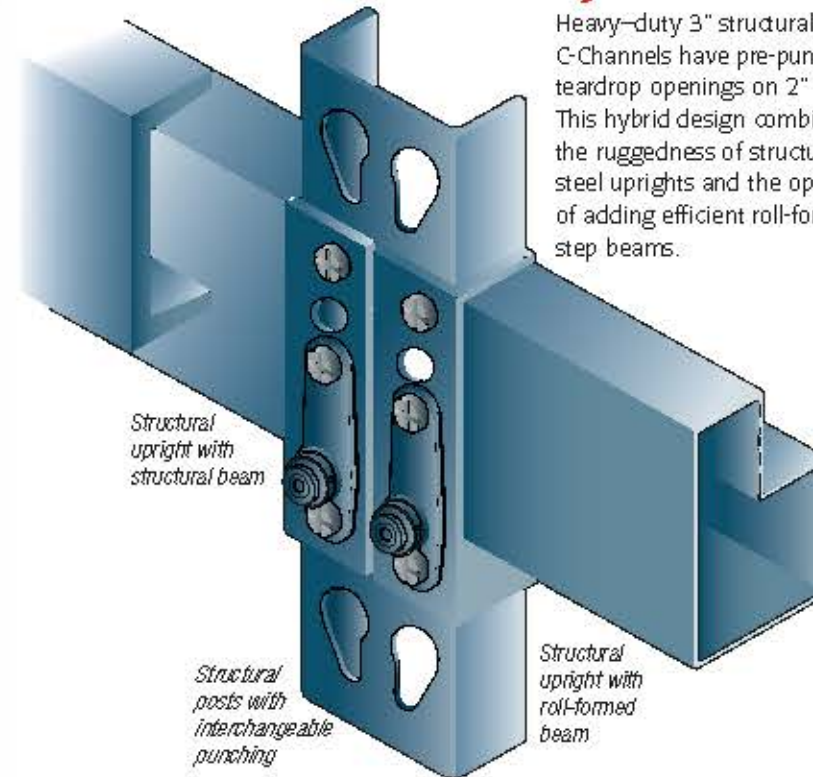
**ECONOMICAL**

UNARCO Engineering uses the high-strength and durability of structural steel for large projects with heavy loads or highly engineered pick modules.

- Strength
- Durability
- Easily Repaired
- Abuse Resistant
- Heavy-Duty Structural Bracing

### STRUCTURAL INTERCHANGEABLE Hybrid

Heavy-duty 3" structural steel C-Channels have pre-punched teardrop openings on 2" centers. This hybrid design combines the ruggedness of structural steel uprights and the option of adding efficient roll-formed step beams.



Structural upright with structural beam

Structural posts with interchangeable punching

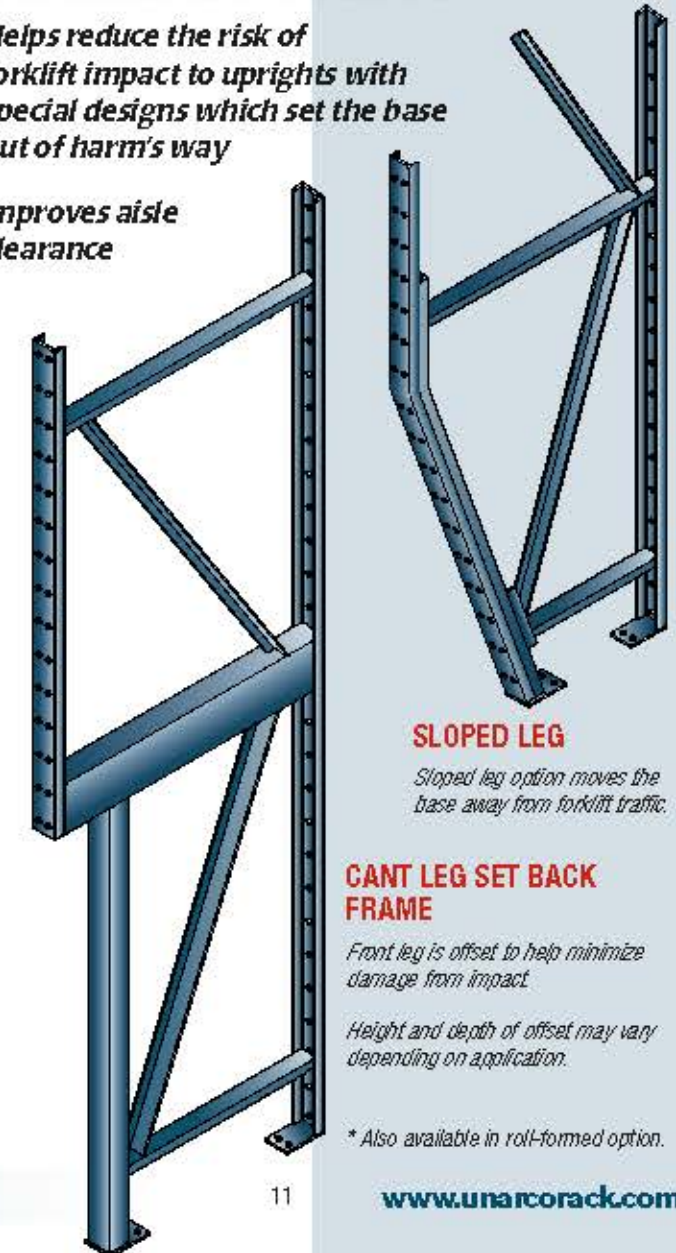
Structural upright with roll-formed beam



pallet rack - structural

### FRAME OPTIONS

- Helps reduce the risk of forklift impact to uprights with special designs which set the base out of harm's way
- Improves aisle clearance



#### SLOPED LEG

Sloped leg option moves the base away from forklift traffic.

#### CANT LEG SET BACK FRAME

Front leg is offset to help minimize damage from impact.

Height and depth of offset may vary depending on application.

\* Also available in roll-formed option.

Structural Pallet Rack: See pages 12-13 for structural capacities



# Structural Uprights

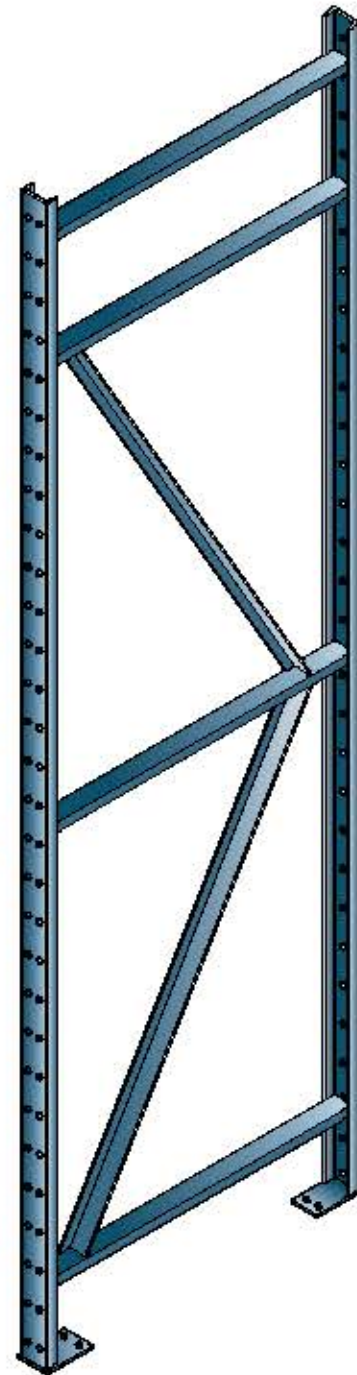
## UPRIGHT FRAME SELECTION

### STRUCTURAL CHANNEL FRAME TABLES BOLTED

COLUMN SIZE	C3 x 3.5#	C3 x 4.1#	C4 x 4.5#	C4 x 5.4#
Shelf Space	40" Pan.	40" Pan.	40" Pan.	40" Pan.
36"	27,515	29,821	44,172	47,134
42"	27,515	29,821	44,172	47,134
48"	27,515	29,821	44,172	47,134
54"	27,515	29,821	44,172	47,134
60"	27,515	29,821	44,172	47,134
66"	27,515	29,821	44,172	47,134
72"	27,320	28,037	44,172	47,134
78"	23,940	24,400	44,172	47,134
84"	20,724	21,033	44,126	46,257
90"	18,053	18,322	40,610	42,229
96"	15,867	16,103	37,162	38,328

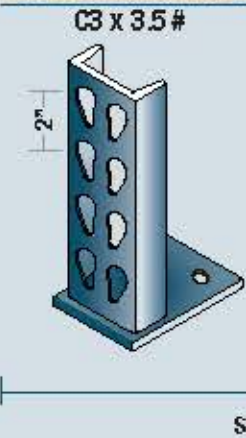
### STRUCTURAL CHANNEL FRAME TABLES TEAR DROP

COLUMN SIZE	C3 x 3.5#
Shelf Space	40" Pan.
36"	26,848
42"	26,848
48"	26,848
54"	26,848
60"	26,848
66"	26,848
72"	26,657
78"	23,360
84"	20,222
90"	17,616
96"	15,483

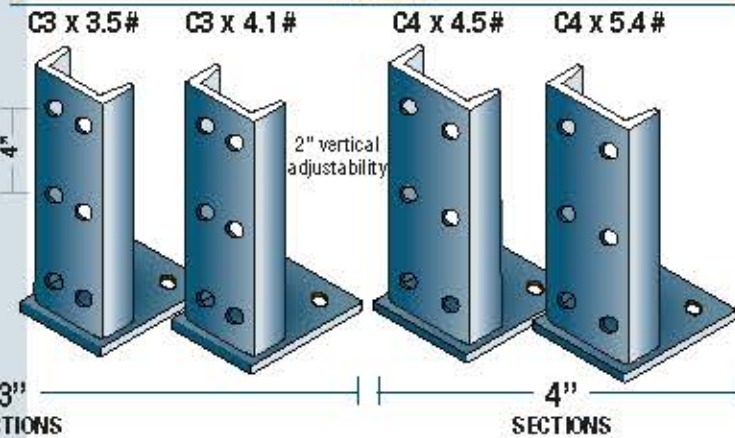


\* Indicated in pounds.

### STRUCTURAL INTERCHANGEABLE



### STRUCTURAL BOLTED



All values in the above tables assume that each column carries half of the frame load. The table values are expressed in pounds per frame. These values are based on gravity loading only that is purely axial. Any condition where the axial load is accompanied by moment, the axial load capacity will be less. This will occur for non-symmetrical loading conditions. The capacities also assume that the base plates and the bracing are of adequate strength and that all other parts of the rack have been properly designed. All values are for undamaged racks that are installed plumb. It is the rack user's responsibility to properly maintain the racks to ensure that the carrying capacity of the racks is not reduced by damage and that any changes to the rack configuration do not cause an unsafe condition.

Frame capacities are based on the unsupported length, which is the measurement of the distance between the floor and the top of the first beam or the maximum spacing between beams, whichever governs.

Refer to [www.unarcorack.com](http://www.unarcorack.com) for latest updates to installation instructions, user manuals and safety notices.

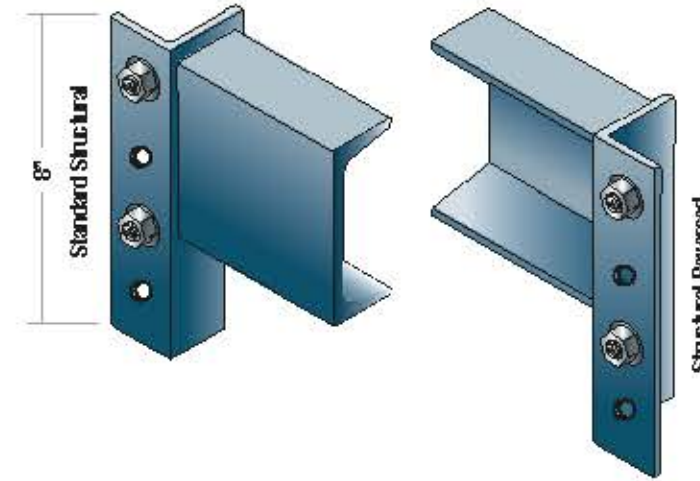
Capacities do not take seismic, wind or other lateral forces into consideration.

Upright frames have to be anchored with at least one anchor bolt in each post and require a minimum concrete floor strength of 3,000 PSI for the maximum loads.

#### CONTACT UNARCO FOR ANY OF THE FOLLOWING CONDITIONS:

- Any application where the frame load exceeds 31,000 lbs. These frames may need larger base plates or heavier bracing.
- Any application that requires seismic design where the design ground acceleration  $S_s$  exceeds 25%g in IBC areas.
- Configurations that require a frame deeper than 60 inches or higher than 40 feet.
- Applications that involve support platforms or catwalks or any application other than normal pallet rack.
- Any single row where the height-to-depth ratio exceeds 6 to 1. These must be checked for anchorage against overturning.
- Any condition which creates uncertainty as to the proper use of these tables.

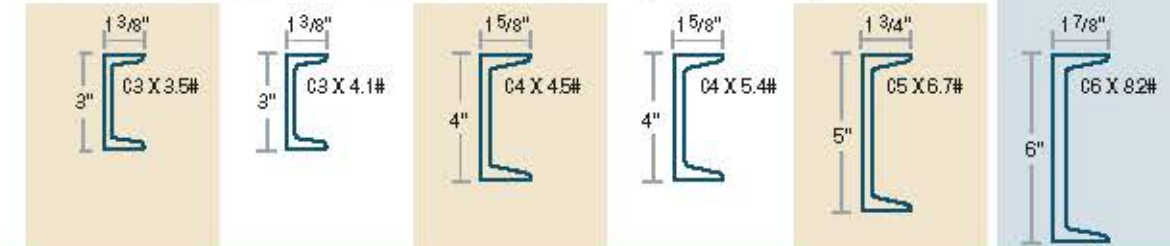
Column protection is recommended for uprights subjected to potential column abuse from lift trucks.



pallet rack

2" vertical adjustability

## BEAM CAPACITY CHART (indicated in pounds)



BEAM SIZE	C3 x 3.5#		C3 x 4.1#		C4 x 4.5#		C4 x 5.4#		C5 x 6.7#		C6 x 8.2#	
	W/O Tie	W/ Tie	W/O Tie	W/ Tie	W/O Tie	W/ Tie	W/O Tie	W/ Tie	W/O Tie	W/ Tie	W/O Tie	W/ Tie
48"	12,593	12,858	13,521	13,632	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000
60"	9,602	10,470	10,364	11,100	15,246	16,000	16,000	16,000	16,000	16,000	16,000	16,000
72"	7,577	8,680	8,231	9,057	11,801	14,074	12,917	15,132	16,000	16,000	16,000	16,000
84"	6,106	6,502	6,883	6,777	9,046	11,900	10,263	12,802	15,379	16,000	16,000	16,000
90"	5,402	5,716	5,954	5,954	7,865	11,028	9,005	11,868	13,351	16,000	16,000	16,000
96"	4,777	5,068	5,276	5,276	6,904	10,263	7,908	11,048	11,676	16,000	15,871	16,000
102"	4,258	4,527	4,709	4,709	6,112	9,486	7,003	9,947	10,300	15,580	13,941	16,000
108"	3,821	4,070	4,231	4,231	5,451	8,493	6,246	8,903	9,155	14,577	12,344	16,000
114"		3,680		3,824		7,650		8,015		13,678		16,000
120"		3,345		3,473		6,928		7,255		12,867		16,000
126"		3,054		3,169		6,304		6,598		12,133		16,000
132"		2,800		2,903		5,760		6,026		11,163		16,000
138"		2,577		2,669		5,285		5,525		10,222		15,444
144"		2,379		2,463		4,865		5,084		9,395		14,619
150"		2,203		2,279		4,494		4,692		8,663		13,859
156"		2,046		2,114		4,163		4,344		8,012		13,156

- Please consult Springfield Engineering for any shelf load over 10,000 lbs.
- All capacities are expressed in pounds per pair of beams. Only gravity loading and the RMI required impact have been considered.
- All values are based on a uniformly distributed load (i.e. each beam carries 50% of the load) and assume proper installation and no beam damage.
- The deflection limit for all beams is the length divided by 180.
- Structural beams that are longer than 108" require lateral ties.
- Values in the table are for the beam bending only.
- Capacities include 12.5% impact for two pallets side by side. For a three-pallet-wide shelf, the values should be multiplied by 0.95.
- For one pallet per shelf, the values should be multiplied by 0.90.
- Capacity chart is based on current RMI specifications.

UNARCO rack designs conform to the latest Rack Manufacturers Institute (RMI) specifications and AISC 14th Edition.

Refer to [www.unarcorack.com](http://www.unarcorack.com) for latest updates to installation instructions, user manuals and safety notices.



# Engineered Systems

UNARCO has over a half century worth of experience designing and manufacturing highly engineered rack systems including Pick Modules, Rack Supported Buildings and AS/RS projects. The industry's strongest engineering team integrates a multitude of storage solutions into multi-level work platforms including UNARCO Carton Flow, Pallet Flow, Push Back and Drive-In Systems.

Integration of miles of conveyor and sortation systems that help product flow through the distribution center are all supported by UNARCO pallet rack. Level after level of high speed product movement from pallet to carton to conveyor to the dock, all works because UNARCO Engineers have the experience to plan and design a complete distribution system.



Conveyors run through multi-level rack-supported systems for product sortation

## AS/RS

Automated Storage and Retrieval Systems (AS/RS) are computer controlled systems for storing and retrieving large quantities of products with virtually no manual labor. AS/RS systems can store and retrieve pallets, totes, trays or cartons. Systems use cranes to move through narrow aisles of pallet rack guided by a raised metal rail attached to the concrete. An automated mechanism reaches into the storage locations within the rack to retrieve or place the load. AS/RS provides order picking accuracy at a higher speed than traditional picking systems.

Large cranes run on rails in the aisles to store and retrieve product automatically.



## Order Fulfillment and Distribution Center Efficiency

### SINGLE SOURCE

- Calculations
- Permitting
- Codes Interpretation
- Seismic Criteria
- Installation Drawings
- Site Surveys
- Purchase Integration
- Project Management
- Turn-Key Solutions



Integrated stairs and work platforms help product breakdown from pallet to carton to piece for easy order fulfillment.

## Pick Modules

Pick Modules are multi-level engineered racking systems that store and move pallets and cartons through a distribution center efficiently. UNARCO designs warehouse storage facilities capable of fulfilling over one hundred thousand orders per day or processing millions of orders per week.

- Efficient product distribution
- Smaller warehouse footprint
- Lower operating costs



UNARCO flooring systems support multiple layers of order picking and sortation equipment.



# Carton Flow



All of UNARCO's carton flow systems are gravity driven. Product is loaded from behind onto sloped shelves and easily flows forward to the picking position. UNARCO offers UPICK modular shelves or KPICK welded shelf design, both with snap-in rollers. UNARCO's premium carton flow line, RHINOTRAC, has pre-assembled, full-width lay-in roller units.

Separation of the loading, restocking and retrieval aisles allow pickers to operate more efficiently. Carton flow systems can grow into multi-level modules to take full advantage of vertical area and let you maximize your warehouse floor space.

RhinoTrac fully assembled carton flow lanes drop into any manufacturer's pallet rack.



**CARTON TRAX**  
STEEL AXLE PREMIUM CARTON FLOW



Carton Trax: steel axle carton flow with UPICK knock-down modular shelves.

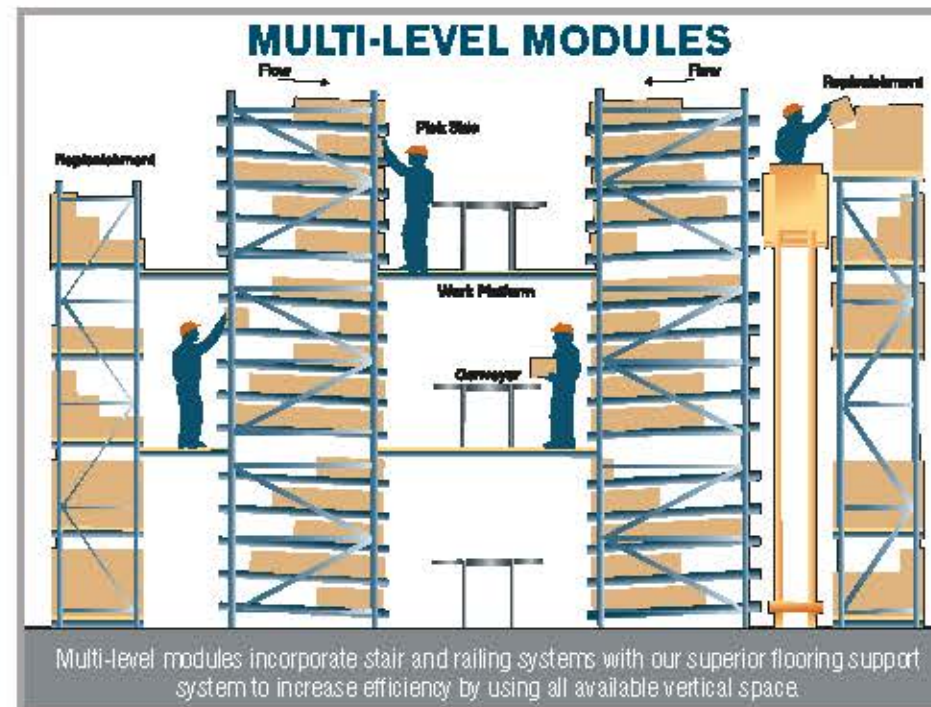


RhinoDeck with 11" high galvanized steel side channels will drop into any existing carton flow system with no hardware or hanger brackets required.

- **First-in/First-out**
- **Dedicated Stock/Retrieval Aisles**
- **Split Case Picking**
- **Case/Carton Picking**



**PICK MODULES**



carton flow

**OPTIONS**



**UPICK**  
UPICK Snap-In Roller Track Modular/Knock-Down Shelves



**KPICK**  
KPICK Snap-In Roller Track Factory Welded Shelves



**RHINOTRAC**  
RhinoTrac Full-Width Carton Flow Roller

**UNARCO manufactures traditional snap-in roller track and full-width lay-in roller units**



# RHINOTRAC HEAVY-DUTY CARTON FLOW



RhinoTrac rests below beam level in the front for maximum storage and a helpful product stop.

- **Compatibility** with all pallet rack brands
- **Easy installation** – No hardware required
- **Damage resistant** aluminum rollers
- **Galvanized side channels** supported by heavy-duty end-plates for constant impact loading

## RHINOTRAC END SUPPORTS

- Integrated supports mean no brackets to install
- Slotted end supports adjust to vary the length and insure proper fit



## STURDY CONSTRUCTION

- .75" diameter aluminum, diamond embossed, damage-resistant rollers
- Superior bushing design with heavy-duty axles
- 2.5" high galvanized steel side channels with .25" diameter carriage bolt tie rods for increased capacity

**STANDARD ROLLER WIDTHS:**  
6", 9", 12", 15"

**STANDARD ROLLER CENTERS:**  
1", 2" and 3" on center



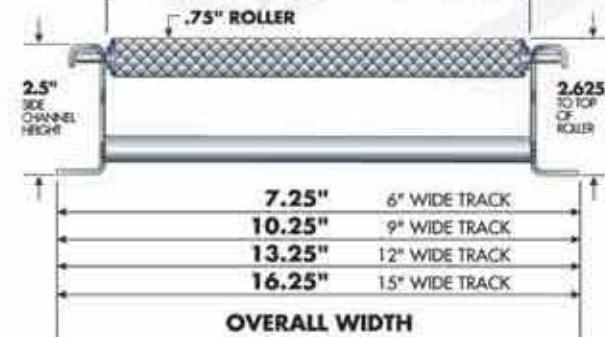
## TRACK SUPPORT



## RHINOTRAC Roller Dimensions

### NOMINAL WIDTH

5.375"	6" WIDE TRACK
8.375"	9" WIDE TRACK
11.375"	12" WIDE TRACK
14.375"	15" WIDE TRACK



7.25"	6" WIDE TRACK
10.25"	9" WIDE TRACK
13.25"	12" WIDE TRACK
16.25"	15" WIDE TRACK

### OVERALL WIDTH

## OPTIONS



**Internal Knuckle Shelf**



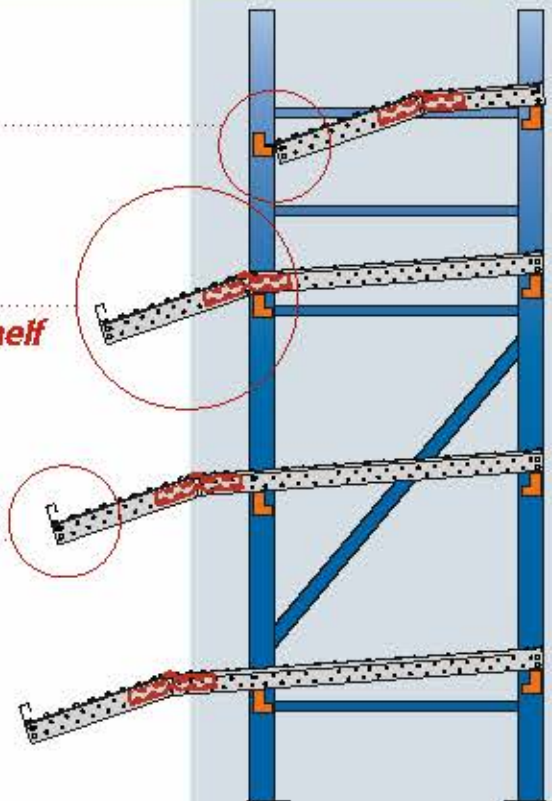
**External Knuckle Shelf**



**Tilt Tray**



**Box Stop**



carton flow - rhinotrac



**RHINOTRAC**  
www.rhinotrac.com

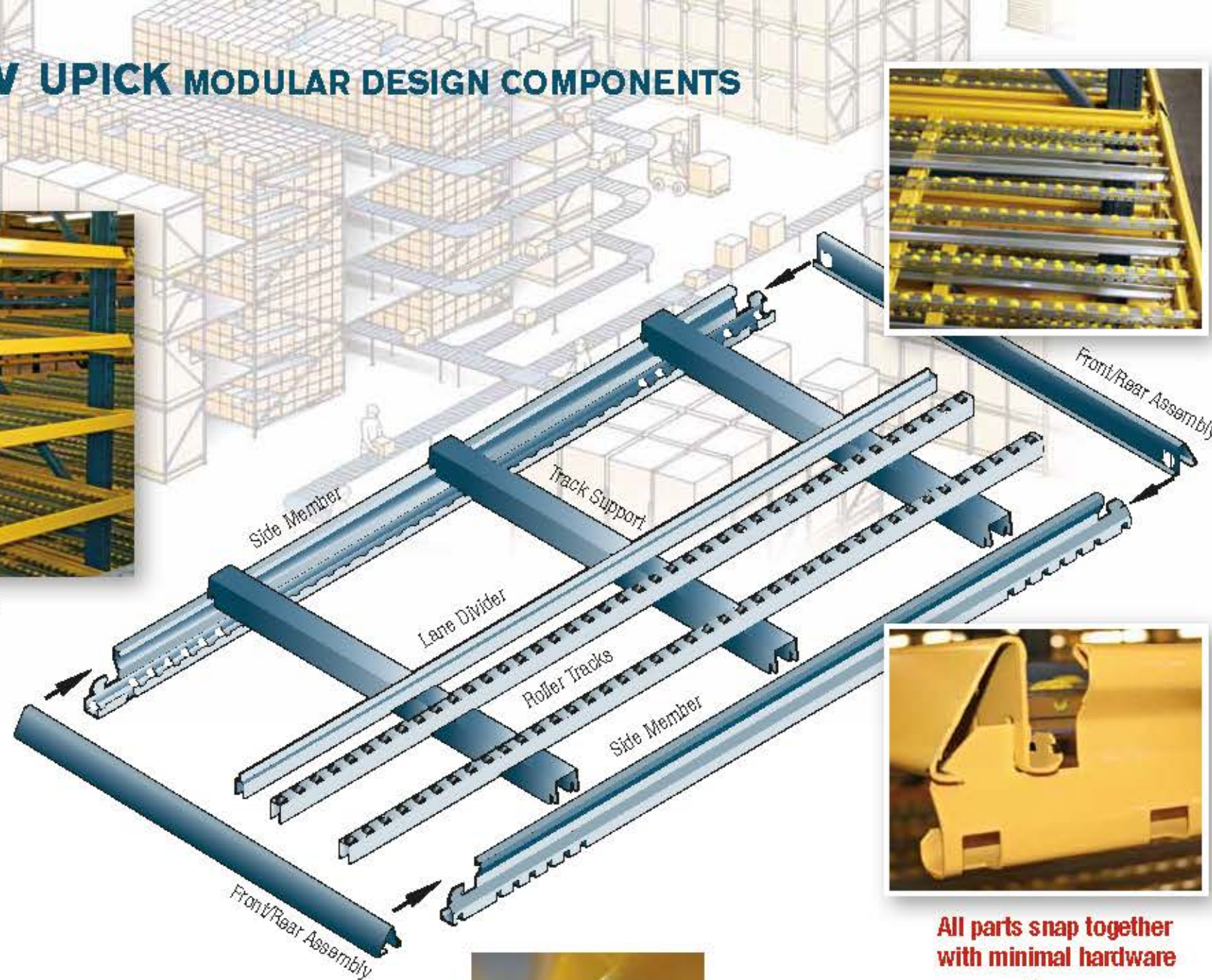


# Carton Flow UPICK MODULAR DESIGN COMPONENTS



UNARCO's UPICK modular system makes installation of even the most complex modules simple.

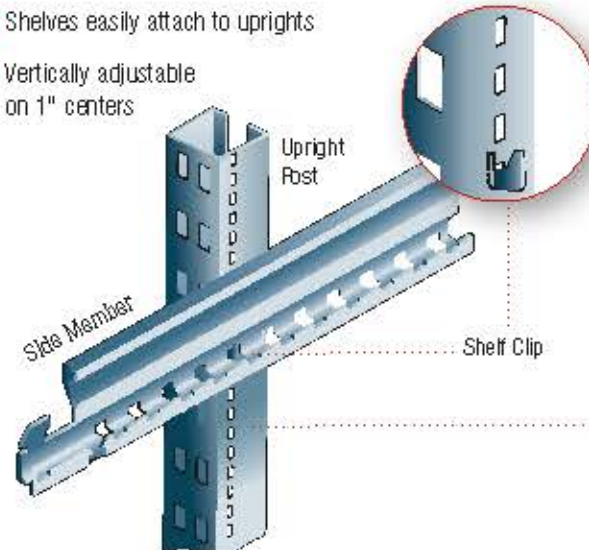
- **Modular design for shipping ease**
- **Quick and easy installation**
- **Designed for projects ranging from single-level to multi-level modules**
- **Easily modified as product sizes or capacities change**
- **May be added to existing rack**
- **Easily works around building columns**



**All parts snap together with minimal hardware**

## Modular design makes it simple to add shelves or supports

- Shelves easily attach to uprights
- Vertically adjustable on 1" centers

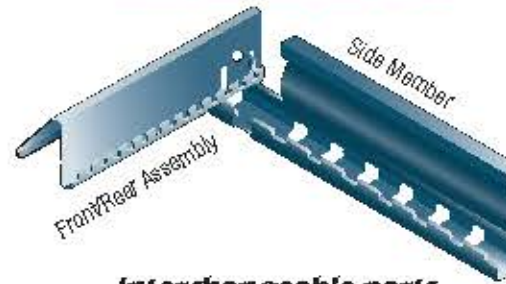


Shelf Clip



UPICK Side Punching

UNARCO also offers W-Strip retrofit add-on for existing uprights with no side punching.



**Interchangeable parts make installation and ordering less confusing**

- Front and rear assembly are interchangeable
- Side members are not left and right specific

**CARTON TRAX**  
STEEL AXLE PREMIUM CARTON FLOW



Carton Trax steel axle carton flow track



Front Tilt Tray tilts cases forward for easier picking and access



Side Profile - Lay-Back Shelves

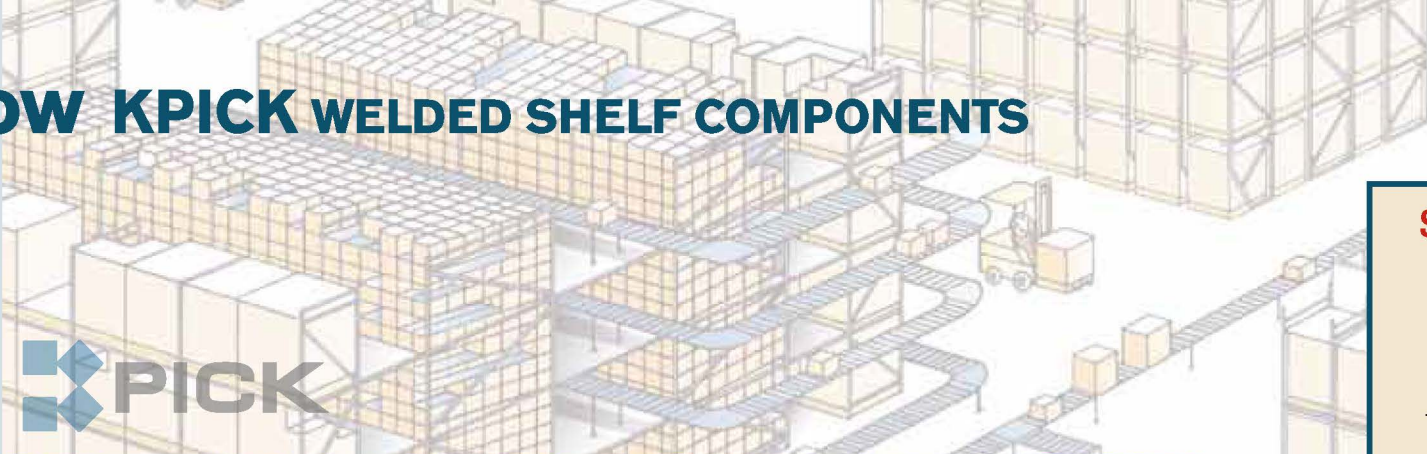
gravity flow - upick

# Carton Flow KPICK WELDED SHELF COMPONENTS

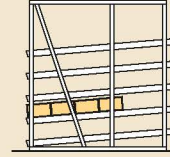
UNARCO KPICK is a welded shelf carton flow option which requires no shelf assembly and fits with all Kingway carton flow. Inclined shelves have snap-in roller track to move cartons by gravity from the restocking to the picking side of the system.

A full range of components are available to customize the system to every customer's needs. Standard bays can combine with overhead storage options or mezzanine capabilities for pick module applications.

Customization is easy as load requirements and box sizes change. Assembly is logical and requires no special tools.

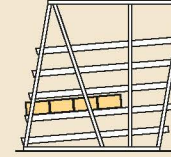


## Standard Vertical Frame and Shelf Combinations



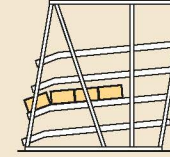
Square front vertical frame with straight shelves.

Full case picking



10° layback vertical frame with straight shelves.

Open case picking when cases vary in size



10° layback vertical frame with carton tilt shelves.

Open case picking with similar size cases



Optional impact deck helps prevent track damage.



Optional numbered scales for rapid assembly.

### Shelf Hanger Clip

Unique clip fits into a single slot to attach the pre-assembled, welded shelf. No tools are required.



Snap-in track

### Roller Track

Allows movement at the lowest slope angle to maximize space utilization.



**OPTIONS**

Designed for multiple configurations to optimize space.

- **Welded shelf**
- **Snap-in track**
- **Numbered scales for rapid assembly**
- **Precision slots**



Mult-level systems offer substantial savings in floor space.

	60" DEEP BAYS	90" DEEP BAYS	120" DEEP BAYS
STANDARD BAY			
WITH PALLET BARS			
WITH OVERHEAD STORAGE RACK			

180" AND 240" DEPTHS ARE ALSO AVAILABLE

# Pallet Flow

UNARCO's Pallet Flow system is also driven by gravity. It is perfect for fast-moving product with first-in/first-out stock rotation.

Heavy-duty skate wheels on sloped shelves let palletized loads flow forward for picking. The high-density storage utilizes warehouse space with fewer aisles.



gravity flow - pallet flow



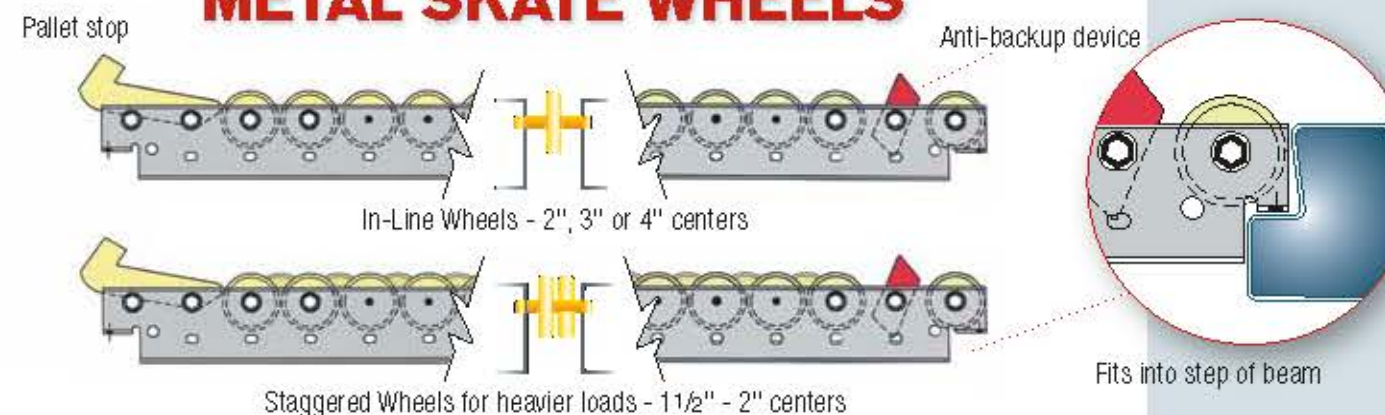
Pallets rest against pallet stop

Poly-wheel deep-lane pallet flow is available in single or staggered wheel configurations to fit any load. Pneumatic brakes control pallet speed

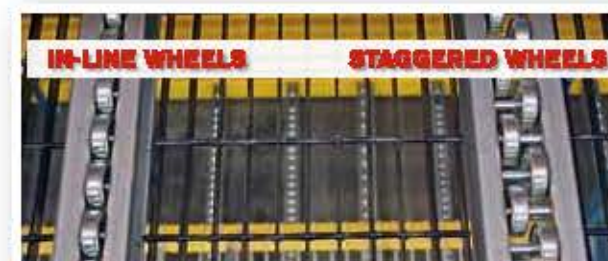


Pallet flow rails are notched to rest on the step of the beam for a lower profile that protects ends of flow rail

## METAL SKATE WHEELS

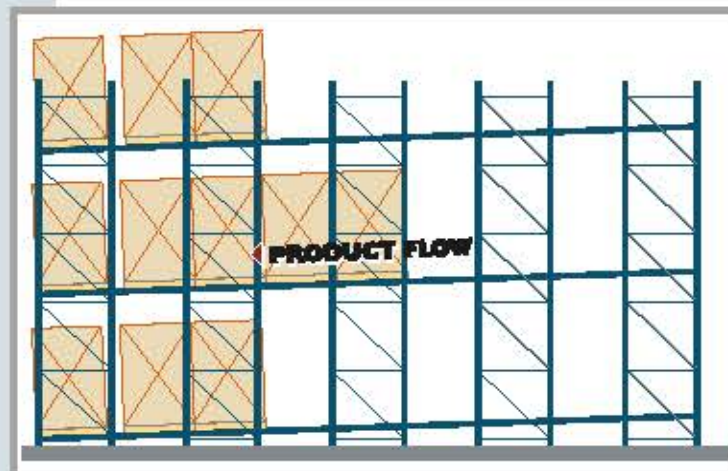


- Full case picking
- Dense storage with minimal aisles
- Able to accommodate full pallet loads
- Heavy-duty skate wheels provide excellent rolling surface for loads to flow



## PALLET FLOW

Optional in-line wheels with poly rollers



## DEEP LANE PALLET FLOW

Store as many as 20 pallets deep with the use of electro-mechanical or pneumatic speed braking systems



Pallet Flow used in pick module application with carton flow above



# Push Back

Push Back systems work when pallet loads rest on a series of nesting carts. As a pallet is loaded from the front, it pushes the pallet behind it back one position. When it is time to unload (LIFO), the front pallet is removed and the rear pallets come forward to the front picking position, automatically.



Colored carts let drivers identify pallet positions to help place and retrieve pallets in the system.

## Available in Structural Steel or Roll-Formed designs

- Available in 2, 3, 4, 5 and 6 deep configurations
- Lift truck drivers never enter the rack
- Nesting carts require minimal vertical space
- Product loads are always in picking position
- No special pallets are required
- Suitable for coolers and freezers with temperatures as low as -30° F



Product loads flow automatically to front picking position.



Carts nest together and pallet is loaded onto top cart. The final pallet rests on rails and allows all pallets from behind to come forward when pallet is removed.



Bottom view of nesting carts



4-deep system



Carts flow automatically on four sealed wheels



Strong structural sides and rails

gravity flow - push back

## The Benefits of a Push Back System

- Better floor space utilization
- Front loading only
- Automatic pallet placement to front position
- Versatile - more pick faces



STANDARD PALLET RACK



3-DEEP PUSH BACK SYSTEM



6-DEEP PUSH BACK SYSTEM

# Drive-In

Pallets are placed on rails that run the depth of the rack. Drivers then enter the rack to remove pallets. Drive-In is perfect for high-density storage with minimal space devoted to aisles.

**Drive-In: Load and retrieve from same side (LIFO)**



## Drive-In and Drive-Thru ROLL-FORMED OR STRUCTURAL

- Used for high-density pallet storage
- Depth of systems reduces the need for aisles and increases space utilization
- Specifically for uniform pallet loads
- Easy to assemble
- Cost effective



Typical entry view



Z-Rail support system option



Structural angle rail option

# Drive-Thru

As with Drive-In, pallets are placed on rails that run the depth of the rack. Drive-Thru, however, allows drivers to load from one side and unload from the other with an added aisle on the opposite end. This system creates First-In/First-Out (FIFO) inventory management.

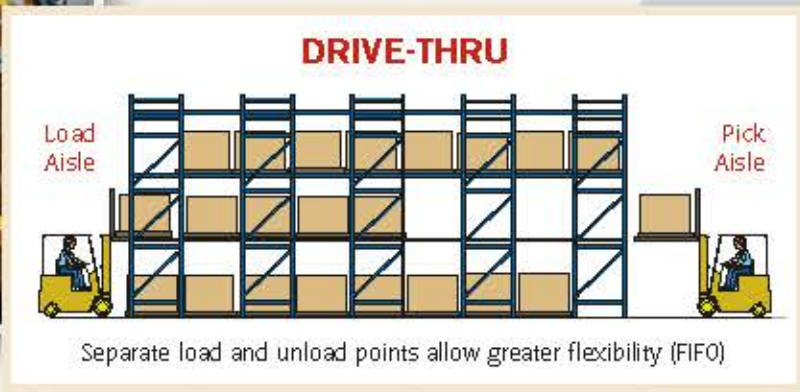
**Drive-Thru: Load from one aisle, retrieve from separate aisle (FIFO)**



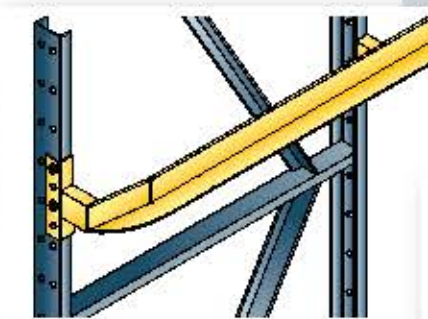
Sloped leg structural upright option



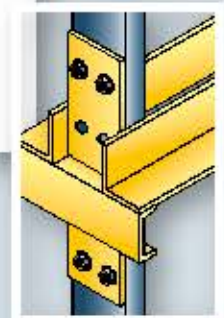
Pallets rest on rails within the bay.



## STRUCTURAL



Drive-In Rail with Space Saver Arm for easier placement of pallets (shown with rounded and flared entry rail)



Straight entry rail option for structural

drive-in/drive-thru





# Cantilever

UNARCO Premium Cantilever is the perfect storage solution for elongated materials and tough storage applications. The system allows complete accessibility from the front with no horizontal obstructions. The entire length of the rack may be used for storage and easy order picking.

Flexible systems allow loads of varying length to be stored on the same rack and columns are pre-punched to easily convert from single-sided to double-sided applications. The Key Wedge connector allows arms to be moved easily as load requirements change.

## Ideal for:

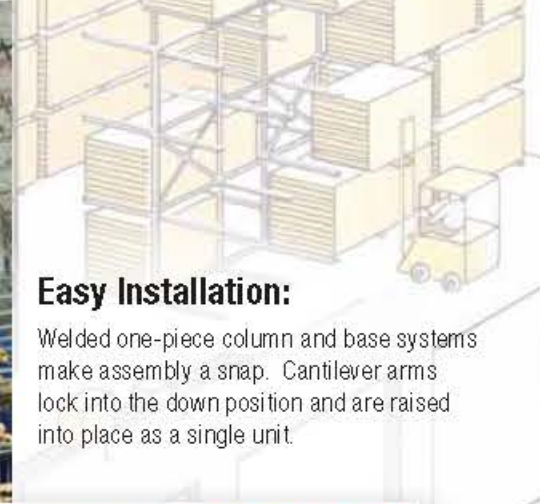
- Pipe and Tubing
- Lumber & Plywood
- Building Materials
- Furniture
- Sheet Steel
- Conduit
- Extrusions



## ROLL-FORMED



Full access to stored material with no obstructions



### Easy Installation:

Welded one-piece column and base systems make assembly a snap. Cantilever arms lock into the down position and are raised into place as a single unit.



Pipe storage cantilever



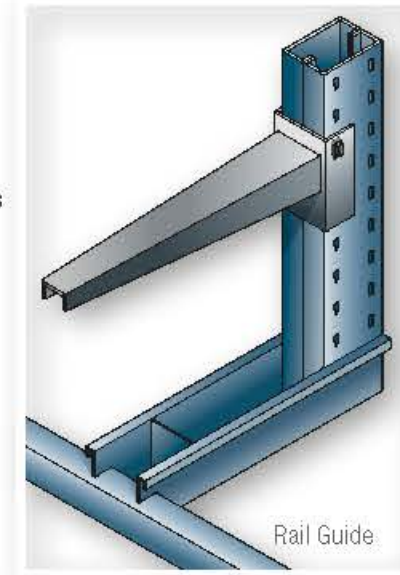
Furniture storage cantilever



Tapered columns prevent arms from protruding into the aisles under maximum load deflection.

### Slotted Base Design

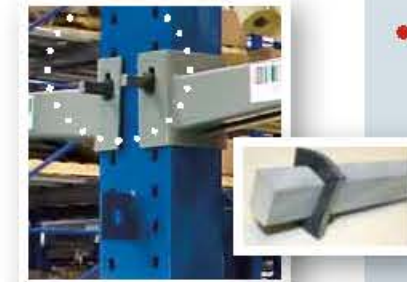
The slotted base design notches around rail systems to maximize aisle width and help operators move lift trucks safely through narrow aisles.



Rail Guide

### Tapered Arms

Improved vertical load clearance



### Key-Wedge Pin

Positive-locking rectangular pin allows a fast-track installation and a larger bearing area than round pins or bolts.

● cantilever

## Flexible Design

- Single-sided or double-sided storage
- Columns up to 48 feet
- 3" vertical adjustability
- Tapered arms
- Heavy-gauge welded brace panels

## SINGLE OR DOUBLE-SIDED STORAGE

### Flexibility

Columns are pre-punched on both sides to allow conversion from single-sided unit to double-sided unit.



### Custom Storage Accessories

Optional material trays can hold bar and cylindrical stock.



### Lumber Yard

Convert your lumber yard into a covered showroom with UNARCO's canopy arms and roof system.



# Retail

UNARCO has been supplying pallet rack to the retail industry for many years, not only on the distribution center side, but also on the sales floors of home centers and warehouse style stores. Our store fixtures are versatile, space saving and feature your product with maximum room for the stock levels required. Inventive designs lead to simple installation and allow for flexibility as your product changes.

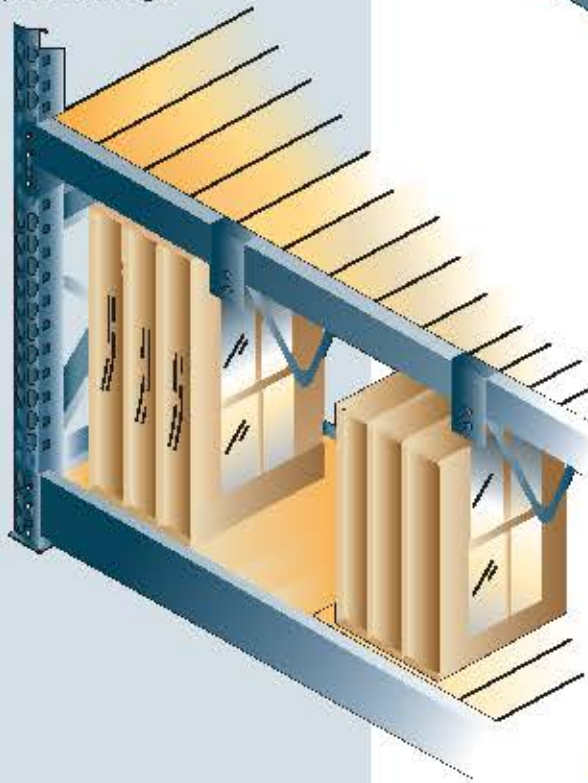


Separate pipe or tubing stored vertically

## M-DIVIDERS

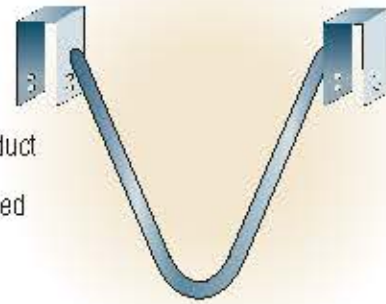
- Attach to rear beams
- Available up to 72" tall
- Light-duty: 3/8" wire
- Medium-duty: 1" tubing
- Heavy-duty: 2" tubing

Separate wooden boards stored vertically



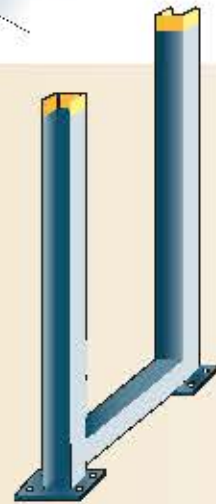
## V-DIVIDERS

- Hang down to separate tall product
- No additional rear beams required
- Sturdy 1" tubing



## LUMBER CRADLE

- Keeps lumber in orderly stacks
- Two separate units to contain any length product
- Customers able to pick product without worry of stacks falling

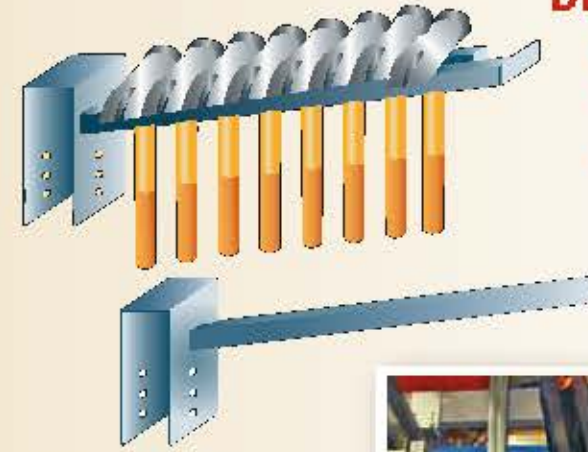


Divider Arms separate vertically stored product.

Double-Arm Tool Holders provide support and organization for both long and short handled tools.

## TOOL HOLDERS AND DIVIDER ARMS

- Single arm
- Double arm
- Available with price signage plate



## VERTICAL POST SYSTEM

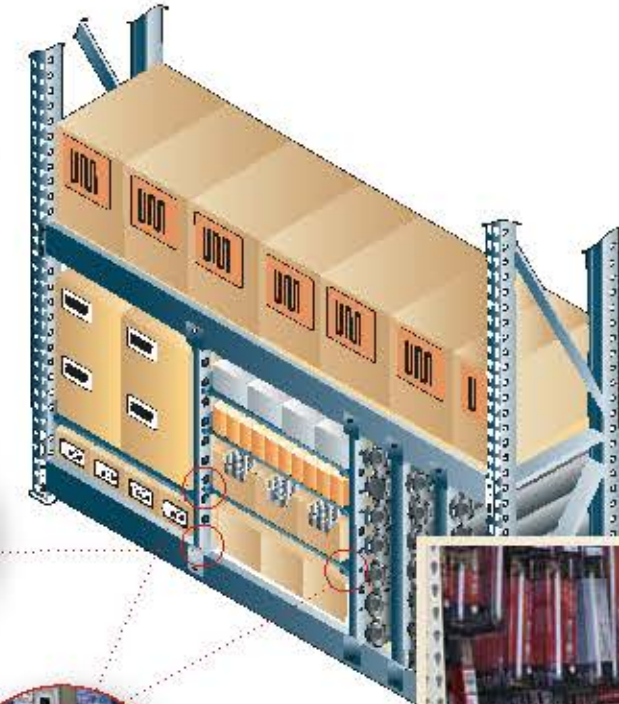
- For maximum storage versatility within a bay when carton sizes are not uniform
- Can be added to existing rack
- Displays merchandise variety without adding a beam level



Vertical posts may be mounted to the beam below or anchored to the floor



Side shelf support rail



A pair of side support rails with snap-in tabs make a shelf

Plywood or other decking surface rests on either side

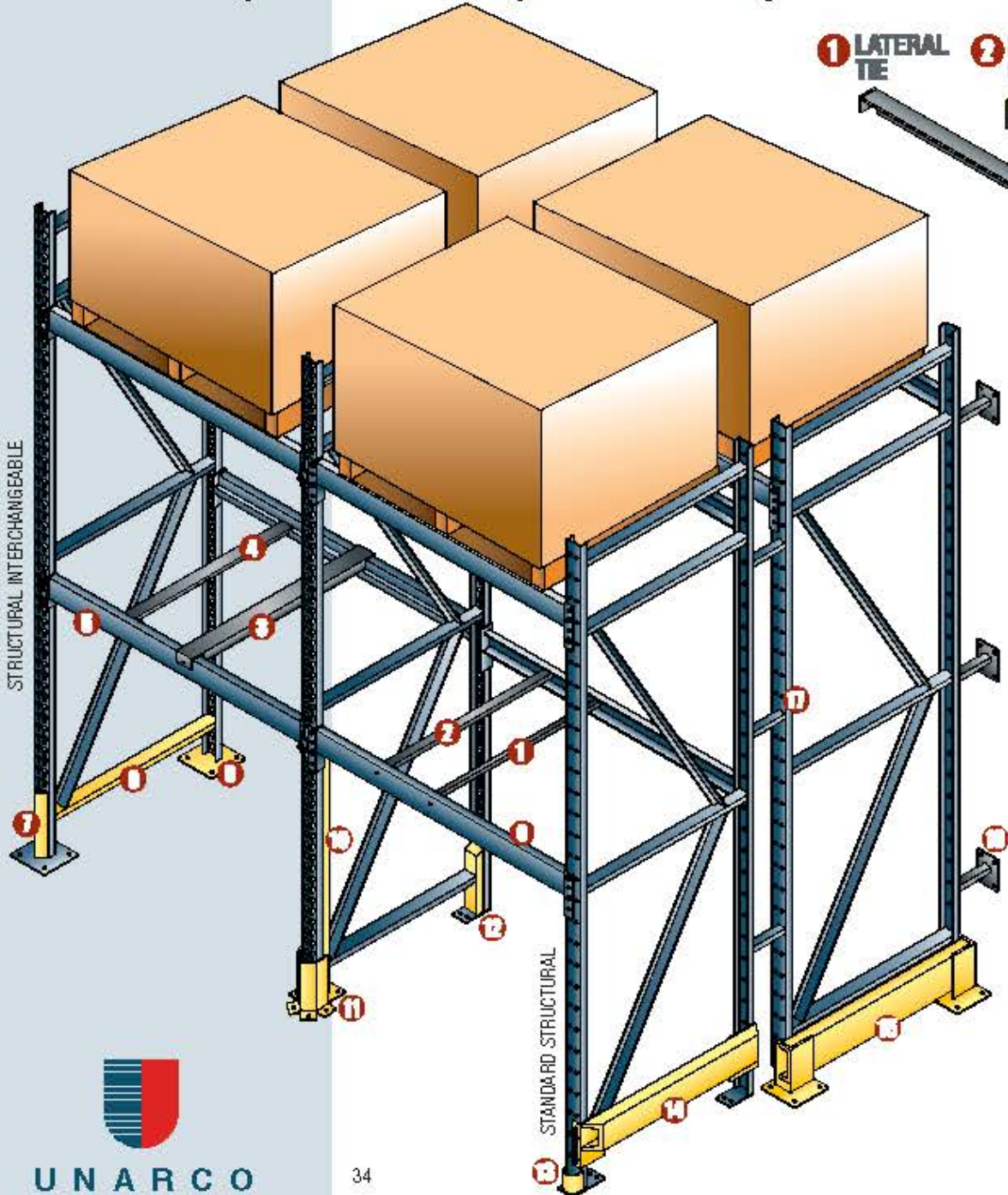
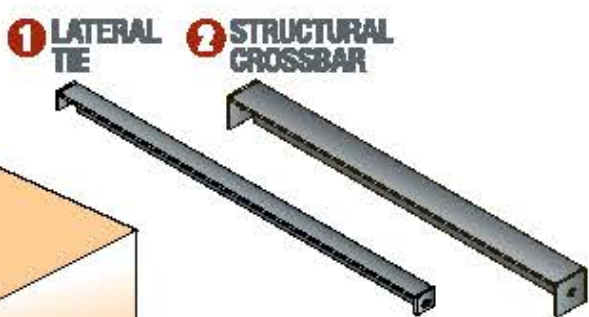
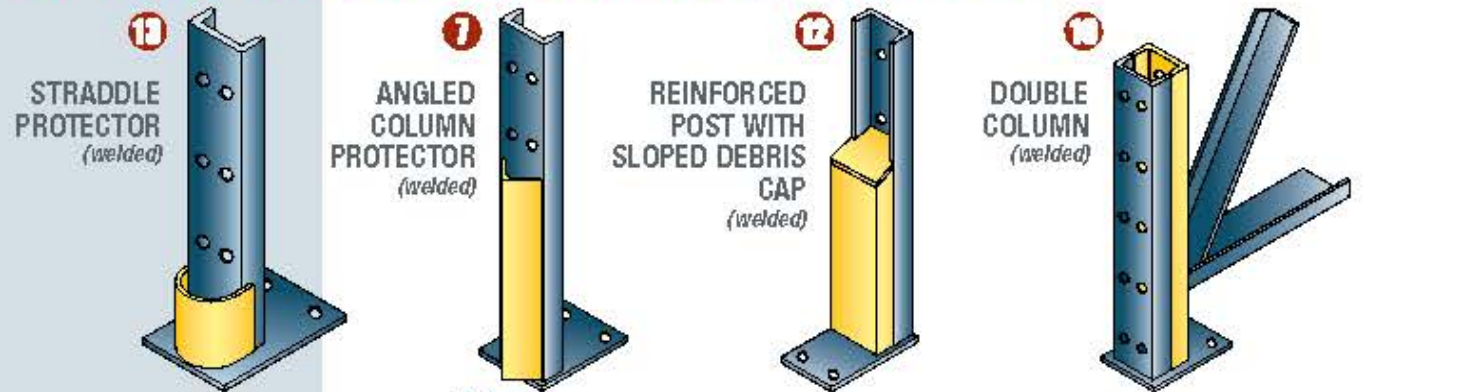


- *M-Dividers*
- *V-Dividers*
- *Lumber Cradles*
- *Tool Holders*
- *Divider Arms*
- *Vertical Post Systems*



# Upright Rack Safety Options

## STRUCTURAL DURABILITY OPTIONS



1. Lateral Tie
2. Structural Crossbar
3. Overlap Crossbar\*
4. Drop-In Crossbar\*
5. Roll-Formed Beam\*
6. Structural Beam
7. Angled Column Protector
8. Heavy-Duty Horizontal
9. Seismic Base Plate
10. Double Column
11. Anchored Column Protector
12. Reinforced Post/Debris Cap
13. Straddle Protector
14. Bolt-on End of Aisle Guard
15. Anchored End of Aisle Guard
16. Wall Tie
17. Row Spacer

\*Accessories for use with structural interchangeable uprights and roll-formed beams.

## ROLL-FORMED DURABILITY OPTIONS



**DOUBLE COLUMN**

- Two posts welded together help protect against damage



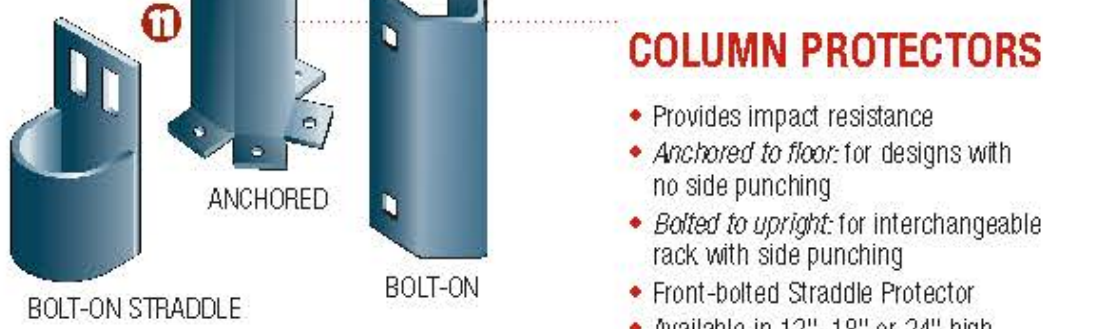
**WOOD-FILLED UPRIGHTS**

- UNARCO's patented design lets the wood absorb the shock of impact and limits damage to column



**FRONT STRADDLE PROTECTOR ADD ON**

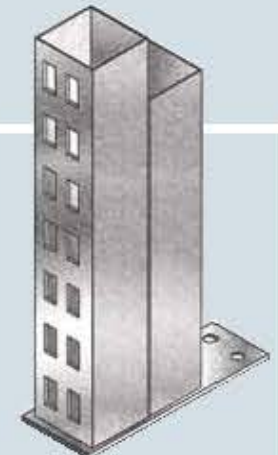
- Welded to uprights during manufacturing
- Protects upright from damage
- Durable 1/4" thick steel



**COLUMN PROTECTORS**

- Provides impact resistance
- Anchored to floor: for designs with no side punching
- Bolted to upright: for interchangeable rack with side punching
- Front-bolted Straddle Protector
- Available in 12", 18" or 24" high

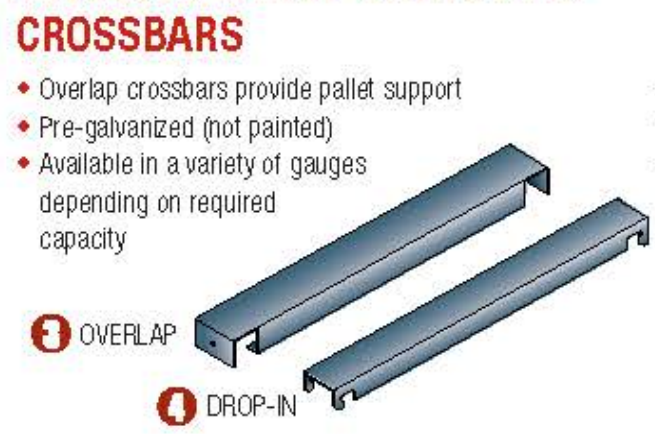
rack safety options



**WEATHER RESISTANT**

Hot dipped galvanized finish available on any pallet rack order for freezer or outdoor usage

## Rack Hardware



**CROSSBARS**

- Overlap crossbars provide pallet support
- Pre-galvanized (not painted)
- Available in a variety of gauges depending on required capacity



**BACK CONNECTORS**

- Available in 6", 8", 10", 12", 18"
- Pre-galvanized (not painted)
- Includes (2) T-Bolts and whiz nuts



**SHIM PLATES**

- All rack on unlevelled floors should be leveled with shims

Available in multiple sizes and thickness

# Upright Rack Repair

**MORE ABUSE RESISTANT THAN THE ORIGINAL UPRIGHT**

**SAFETY**

MINIMAL FACILITY INTERRUPTION  
REDUCE MAINTENANCE COSTS

Before attempting to repair damaged rack and to insure rack capacities are adequate, please consult UNARCO Engineering.

Rack repair kits should only be installed by trained personnel.

Let UNARCO set up a scheduled inspection and maintenance program to help insure the safety of your warehouse.

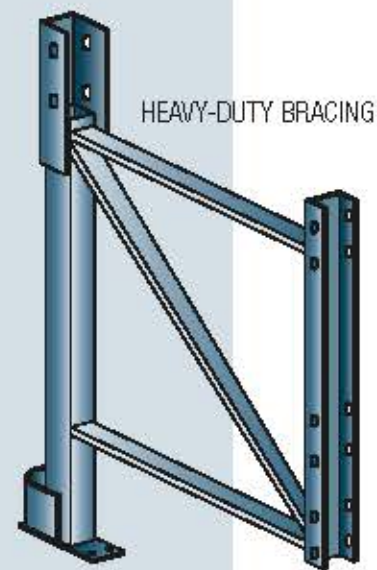
## OPTIONS

Trained technicians can install bolt-on options to fix low-level damage with specially designed repair kits.

- Engineered repair options
- In most cases no welding is required
- Installs easily into existing rack of most manufacturers
- Available in structural channel or tubular roll-formed versions



Bolt-on sloped leg option gets the upright out of the forklift traffic path to prevent repetitive damage.



HEAVY-DUTY BRACING

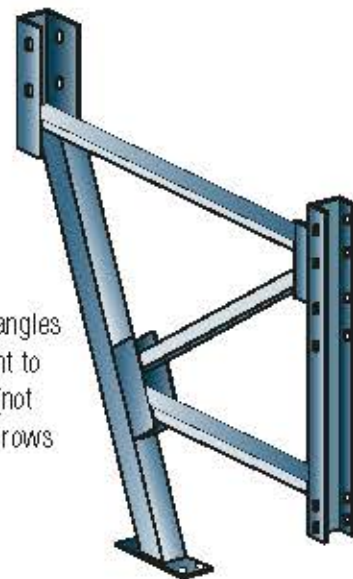
### STANDARD STRAIGHT-LEG REPAIR KIT

Shown with welded straddle column protector.

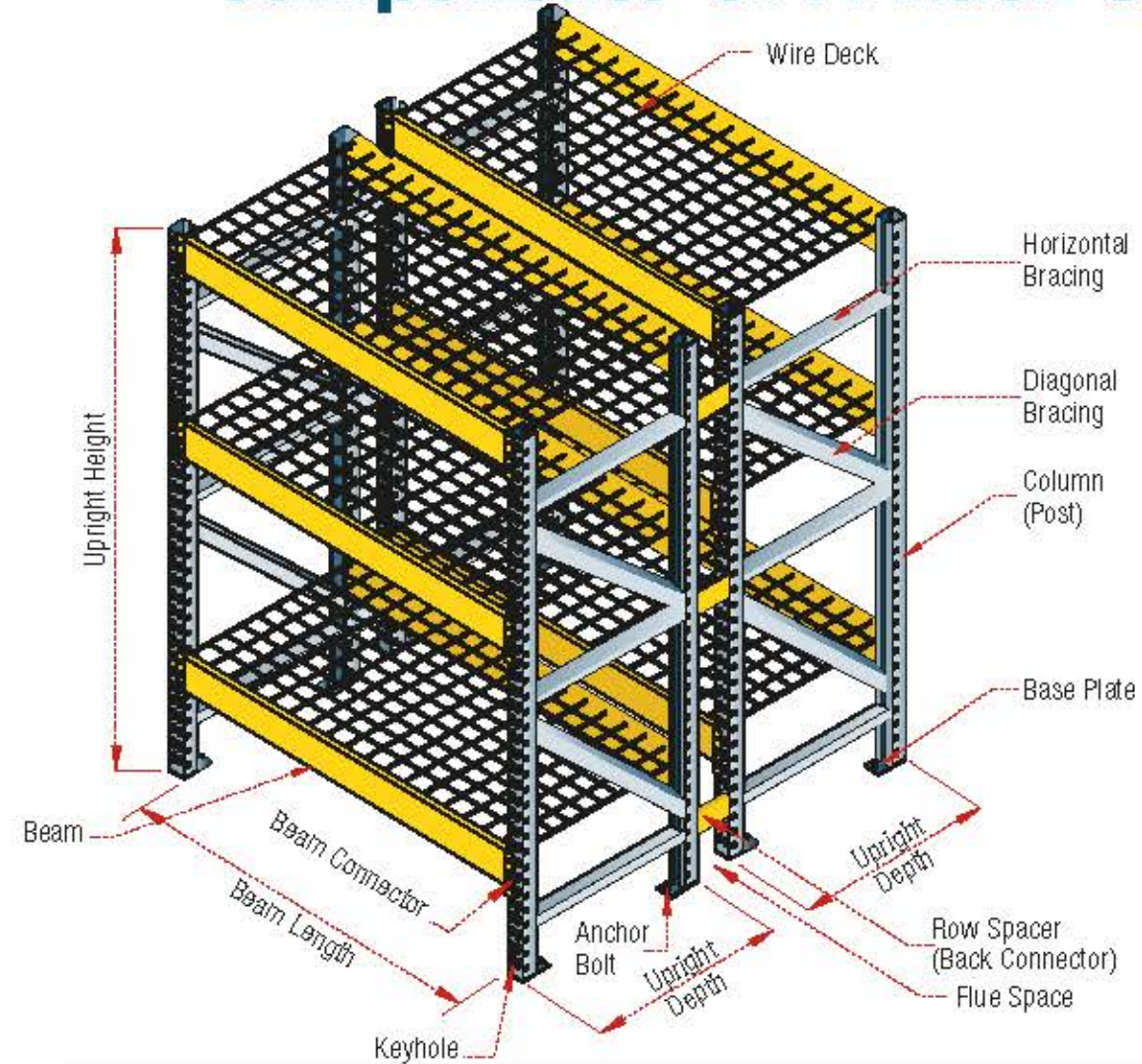
Roll-formed options allow beam placement at lower levels.

### SLOPED-LEG REPAIR KIT

Optional Sloped-Leg Kit angles the front leg of the upright to improve aisle clearance (not recommended for single rows of rack).



# Components Of A Rack System



In-Stock and Ready to Ship  
Order Online:  
Phone, Tablet, Computer  
Anytime - Anywhere  
with  
Mobile Rack Warrior



UNARCO Mobile App

## UNARCO Standard Colors

High-quality powder coated finishes for durability and rust resistance

BLUE 100	BEIGE 107	YELLOW 101	UNIVERSAL BLUE 187	GREEN 126
GRAY 104	ORANGE 178	WHITE 105	RED 188	ECO-GRAY 197



ECO-GRAY

**EARTH-FRIENDLY  
OPTION**

Made from recycled  
Class-A  
reclaimed powder