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MH-USA

Material Handling USA



# STRUCTURAL RACK APPLICATIONS

## SELECTIVE RACK

Selective Rack is the most commonly used pallet rack. It allows for the maximum number of SKU facings and is cost effective. Selective rack allows for the most flexibility in slotting design.



*"I had my doubts when we changed our rack specification from structural tube to structural channel, but we saved a great deal of money, and the rack still looks brand new 2 years later. I believe that we now have a new rack specification. Advance did a great job with the project, as we expected after having very successfully completed several other projects together."*

*- Larry Schell  
Manager, Plant Services  
Unified Western Grocers, Inc.*

## PUSHBACK



Lo-Pro™ Pushback rack systems are used extensively in high-cube storage facilities to provide superior selectivity and cost benefits when compared with other deep storage alternatives. Lo-Pro™ Pushback systems are available in 2 - 6 deep.

*"Advance's Project Management was well coordinated and executed to enable them to install 44,868 pallet positions of rack in just 60 days. Their commitment of completion within a short timeline shows dedication to Customer Service."*

*- William Fowks  
Becton Dickinson Liaison  
West Coast Distribution Center  
Warehouse Operations*

## DOUBLE DEEP REACH

Double Deep Reach rack allows storage of 2 pallet positions from a single aisle (4 pallets back to back). The rear pallet is accessed with a deep reach forklift. Double Deep Reach provides high density storage at a lower initial capital cost when compared with other high density storage systems.



*"After 8 years of operation, the rack system, case flow, pallet flow, pushback, double and single deep storage has needed very little maintenance. The rack system has held up extremely well. I have been pleasantly surprised with the amount of abuse the rack system has taken. The pushback racks above our pick aisles are a great space and time saver."*

*-Ricardo Frias  
BD Genco*

## SINGLE AND DOUBLE WIDE DRIVE-IN RACK



Drive-In provides inexpensive high density storage for users with few SKU's to store. Drive-In rack is less flexible than other solutions because only a single SKU can be stored in each bay and pallets must all be the same size.

*"Our partnership with Advance has produced many successful high-density storage solutions over the years. Our customers have benefited from the Advance team throughout all aspects of the sale from detailed product engineering on custom jobs to extensive aftermarket support when required. They are happy to help."*

*- John R. Calkins  
Meyer Material Handling  
Products, Inc.*

# BOLTED CONNECTION STRUCTURAL RACK SPECIFICATIONS



## UPRIGHT PART Nos.

sample no.: USA6F

<b>U</b>	U designates this is an upright frame assembly				
<b>S</b>	S = Standard				
<b>A</b>	Column Size:	A = C3 x 3.5	B = C3 x 4.1	C = C4 x 4.5	D = C4 x 5.4
	EL=	5 x 6.1	E = C5 x 6.7		
<b>6</b>	The number of panels in the frame				
<b>F</b>	Doubler position: F = front R = rear FR = front and rear blank = no doublers				

## UPRIGHT CAPACITY

Max Open Span Level	Capacity (Static*) / lbs.				
	3' x 3.5	3' x 4.1	4' x 4.5	4' x 5.4	5' x 6.7
60	33,148	36,536	50,963	63,239	80,040
66	29,370	32,019	47,732	59,390	77,608
72	25,338	27,256	44,327	55,335	75,064
78	21,591	23,224	40,742	51,069	72,410
84	18,616	20,025	36,969	46,585	69,648
90	16,217	17,444	32,998	41,869	66,777
96	14,253	15,331	29,048	37,001	63,798
102	12,626	13,581	25,731	32,776	60,708
108	11,262	12,114	22,951	29,235	57,508
114	10,108	10,872	20,599	26,239	54,192
120	9,122	9,812	18,591	23,681	47,203
126	8,274	8,900	16,862	21,479	47,203
132	7,539	8,109	15,364	19,571	43,520
144	6,335	6,814	12,910	16,445	36,597

\* Consult Engineering for seismic applications. Open span is selected from maximum of 1st or 2nd level.

## LOAD BEAM PART Nos.

sample no.: BA2F

<b>B</b>	B designates this is a beam assembly				
<b>RB</b>	RB designates this is a reversed beam assembly				
<b>A</b>	Beam Size:	A = C3 x 3.5	B = C3 x 4.1	C = C4 x 4.5	D = C4 x 5.4
	EL=	5 x 6.1	E = C5 x 6.7	F = C6 x 8.2	G = C7 x 9.8
<b>2</b>	System Width:	1 = 1 wide	2 = 2 wide	3 = 3 wide	
<b>F</b>	Beam Position:	S = selective	F = front	I = interior	R = rear

## LOAD BEAM CAPACITY

Beam Length	Capacity (Uniformly Distributed**) / lbs.			
	inches	3' x 3.5	4' x 4.5	5' x 6.7
48	10,657	19,624	32,634	46,911
54	9,473	17,758	29,064	41,699
60	8,525	16,259	26,207	37,529
66	7,750	15,026	23,870	34,117
72	7,104	13,994	21,922	31,274
78	6,558	13,116	20,274	28,868
84	6,090	12,359	18,861	26,806
96	5,328	10,898	16,565	23,456
102	5,015	9,794	15,620	22,076
108	4,736	8,860	14,779	20,849
120	4,263	7,375	12,619	18,764
144	2,613	5,388	8,763	15,327
180	1,476	3,691	5,609	9,809

\*\* Impact Load must be used to determine capacity of Load Beams subject to impact during loading. Impact Load = Static Load + 25% x Single Pallet Weight

## STRUCTURAL UPRIGHTS

ASD (Allowable Stress Design) & LRFD (Load & Resistance Factor Design) 1.92 Safety Factor, 50 ksi min., yield hot-rolled structural channel and 1-1/2" x 1-1/2" x 1/8" diagonal bracing. Meets current RMI specifications.

## STRUCTURAL LOAD BEAMS

Capacities based on uniformly distributed loads per pair of beams, minimum of one cross bar per pair of beams, 65 ft. lb. minimum torque on all beam hardware, L/180 maximum deflection. Meets current RMI specifications.

Standard Beam Orientation

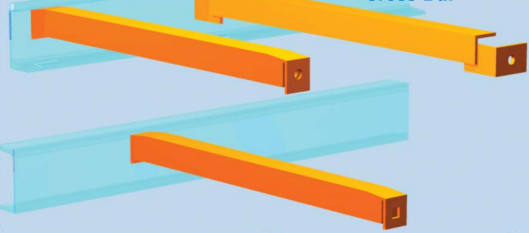


Reverse Beam Orientation



# ACCESSORIES & COMPONENTS

**XB = Standard Cross Bar**      **XBW = Standard Welded Cross Bar**



**XBR = Reversed Cross Bar**



**RFS = Row Spacer**

**RFSW = Frame Spacer**

**RR = Rub Rail**

## Cross Bars

sample part no. XB142

<b>XB</b>	XB designates this is a Cross Bar assembly (XB, XBW, XBR)	
<b>1</b>	Material size:	1 = 1-1/2" x 1-1/2" x 1/8"      2 = 2" x 2" x 1/8"
<b>L</b>	Length in inches	

Cross bars are typically used to help prevent misplaced pallets from falling between the load beams. The addition of cross bars will also increase beam capacity and reduce spreading. Standard construction is from high strength 2" x 2" x 1/8" structural angle. "L" is equal to upright frame depth.

## Row Spacers

sample part no. RFS112

<b>RFS</b>	RFS/W designates this is a Row / Frame Spacer assembly		
<b>(A)</b>	Frame size (RFSW only):	A = 3"      C = 4"      E = 5"	
<b>1</b>	Material size:	1 = 1-1/2" x 1-1/2" x 1/8"      2 = 2" x 2" x 1/8"	
<b>L</b>	Length in inches		

Row Spacers are used for typical frame to frame spacing. Frame Spacers must be used with frame to post connections.

## Rub Rails

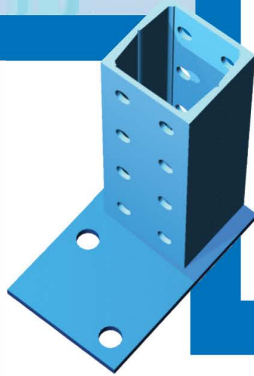
sample part no. RRA48

<b>RR</b>	RR designates a Rub Rail assembly			
<b>A</b>	Channel size:	A = C3 x 3.5      B = C3 x 4.1      C = C4 x 4.5      D = C4 x 5.4		
<b>L</b>	Length in inches			

Heavy duty rub rails are used for deep storage systems to protect uprights against forklift damage.

## Foot Plates

Standard Foot Plates are punched with (2) 5/8" holes to accommodate (1) or (2) 1/2" anchors. Other foot plate configurations are available.



## Impact Protection

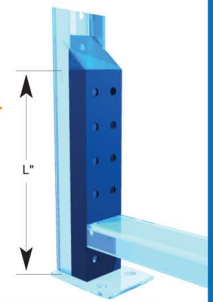
### Heavy Bottom Horizontals      part no. HBH



Heavy Bottom Horizontals will significantly reduce damage to uprights caused by forklift impact.

### Doublers

Doublers are frequently provided in the aisle "impact zone" to reduce damage from fork lifts. Doublers are also used to increase column capacity for heavily loaded uprights.



### Angle Column Protectors

Column protectors are used to reduce damage to the front of the upright from fork lift impact. The protectors are constructed from 1/4" heavy duty structural angle. Dust caps are standard.

part no. AP-L



### Bullnose Column Protectors

part no. BP-L



Bull nose column protectors are used in high tempo applications with severe forklift impact. A bull nose protector allows a 3/4" anchor to be installed in front of the upright column to significantly strengthen the connection to the slab.

# WHY USE ADVANCE STRUCTURAL RACK?

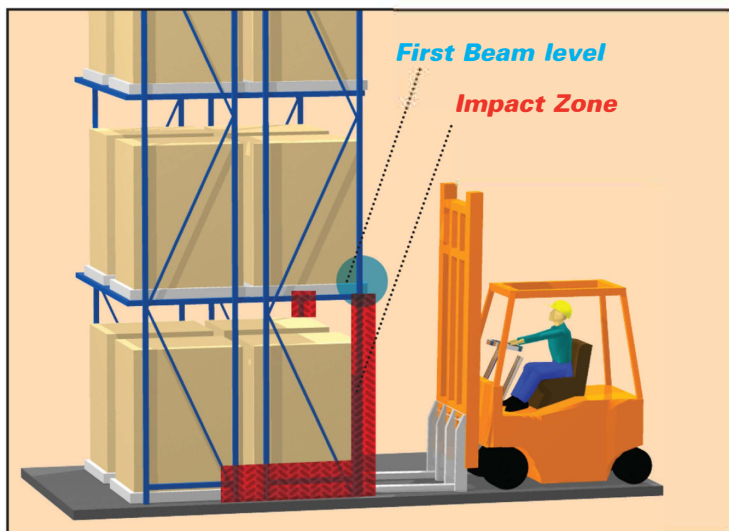


Structural Rack is used extensively in applications where durability and impact resistance are required.

The applications are limitless:

- Selective
- Pushback
- Double Deep Reach
- Drive In
- 2Wide Drive In
- Pallet Flow
- Pick Modules
- ASRS/High Bay
- Grocery
- Beverage
- Food
- Cold Storage

	Structural Rack	Roll Formed Rack
Abuse Resistant	✓	
Positive Bolted Connections	✓	
Repairable	✓	
Built to Withstand High-Tempo Operations	✓	

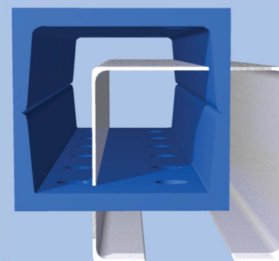


## COMPARISON: STRUCTURAL RACK VS. ROLL-FORMED RACK

ASP structural steel pallet rack systems provide durability and resistance to abuse. Our structural rack is ideal for high-volume, heavy throughput applications.

Compared to roll-formed rack, structural steel construction is heavier, with reinforced

### DOUBLED STRUCTURAL COLUMN



### ROLL-FORMED RACK

channel corners and thicker steel columns. Structural racks withstand far greater impact than roll-formed racks – a significant safety advantage. Greater durability translates into longer life and reduced need for maintenance,

resulting in lower costs over the long term. If damaged, most structural racks may be repaired on site with no downtime.

**If you want a rack system that will hold up to years of hard use, buy Advance ASP.**

## PAINT FINISH

The Advance ASP Structural rack is painted with a durable, high quality baked enamel finish, formulated specifically for the rigors of the warehouse environment. Eight standard colors are available.

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# Customers Come First

At Advance, our customers come first. We are committed to exceeding their needs and expectations, and are constantly looking for ways to anticipate their requirements ahead of time. We value and build long-term customer relationships. As a result, over 70 percent of our orders come from satisfied repeat customers. We make the extra effort our customers expect in today's competitive business environment.

For over 50 years, Advance has provided significant material handling installations, encompassing all sizes and types of storage equipment.

We offer the skills, capabilities and resources to ensure that projects are engineered, manufactured and installed to our customers' absolute satisfaction.

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- ▶ Quaker Oats
- ▶ Procter & Gamble
- ▶ H.E.B. Grocery
- ▶ Johnson & Johnson
- ▶ Pepsi
- ▶ Colgate Palmolive
- ▶ Amgen
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- ▶ Unified Western
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## MANUFACTURING LOCATION

