



**NORTH AMERICAN STEEL**

## **INNOVATIVE STORAGE SOLUTIONS**



ENGINEERED FOR  
**STRENGTH**  
FOCUSED ON  
**SERVICE**



# **STRUCTURAL RACK**



## Food Industry

The inventory management and storage of food products typically rely on the FIRST-IN FIRST-OUT (FIFO) principle. Ease of inventory turn-around and minimal spoilage are key factors in our solution proposals.

NAS offers a full range of storage systems to efficiently store and retrieve pallet and case goods. Our team of specialists understand the challenges and requirements of warehousing in today's food industry and have successfully provided systems for both production and distribution facilities.

**FOOD GRADE APPROVED** paint is available in optional colour choices with our standard acid/corrosion resistant coating.



## Cold Storage

Cold Storage facilities demand the highest storage density and operational efficiency due to their significant operating costs per square foot for climate controlled spaces.

Our Engineers will optimize your layout to accommodate the highest number of pallet positions, combining ease of access to product while minimizing door openings and air exchanges.

Our protective coatings and quality products are designed to withstand the extreme temperatures and humidity common to these environments.



## 3rd Party Logistics

Managing a variety of SKUs that are constantly rotating requires maximum storage flexibility and quick access. NAS recognizes the need for various systems in a 3PL environment.

Our Design Engineers are seasoned experts in pallet, case, and broken case pick applications.

They utilize our varied storage products to attain optimum efficiencies (including pick speeds and retrieval times) allowing easy elevation and layout modifications.



## Outdoor Storage

Outdoor storage is one of the most economical options when storing large and unwieldy items that are not sensitive to weather conditions.

NAS outdoor storage products are manufactured to withstand extreme weather conditions and can also be designed to provide shelter for your products.

NAS can offer galvanized finish which improves life expectancy of outdoor racking.



# STRUCTURAL RACK

North American Structural Racking, constructed of hot rolled channels, is capable of withstanding the wear and tear of the toughest environments, making Structural Racking popular for use in distribution facilities, coolers and freezers.

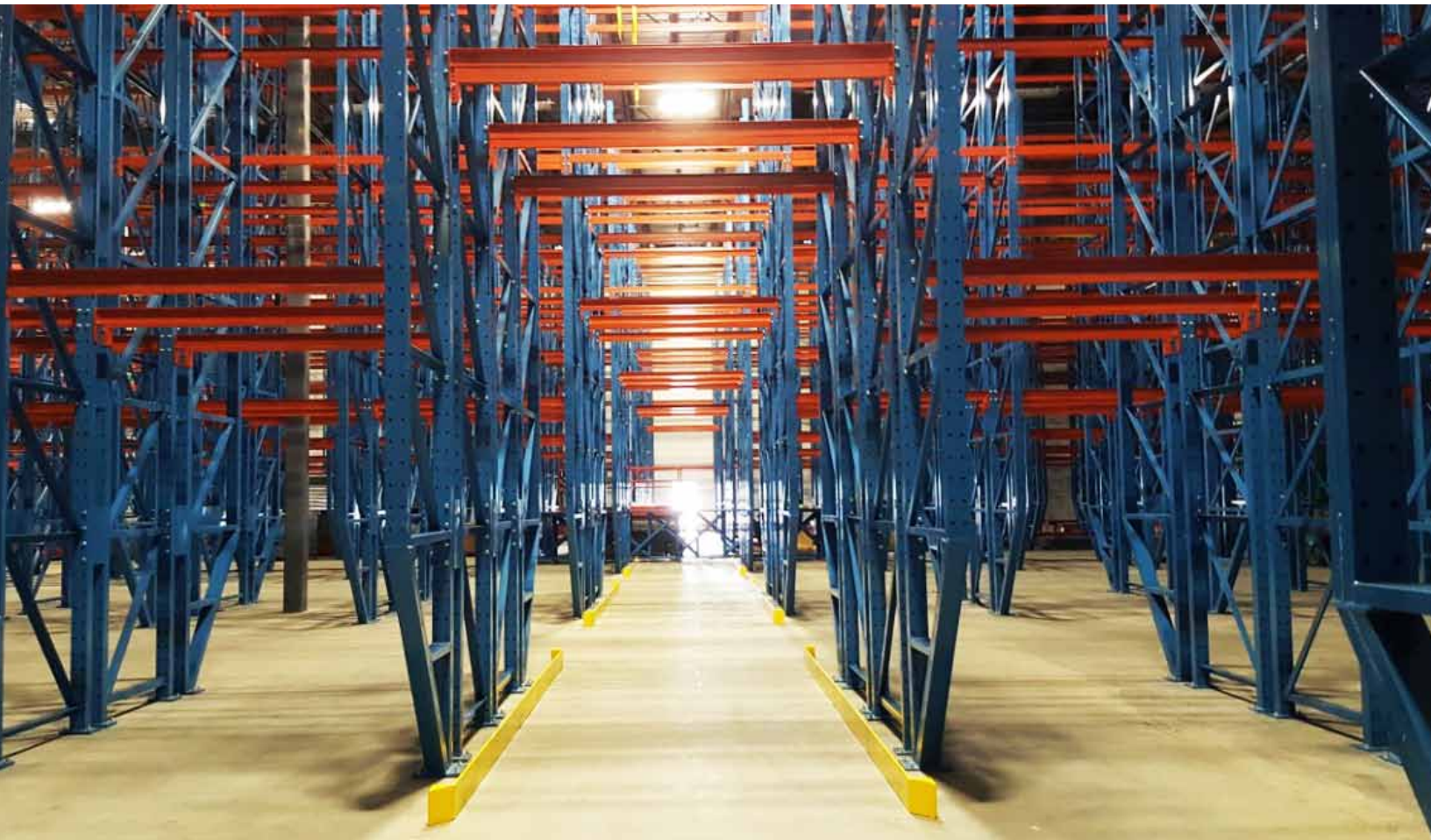
Structural Racking is ideal for high rise systems, heavy traffic and high abuse areas. It is available in a variety of column sizes and meets the required frame loads of today's higher ceilings and heavier pallets. It can also be integrated with Rollformed Rack components to provide a more economical 'Hybrid' alternative, using the best features of each style, and minimizing cost.

Lift truck damage is reduced due to both the structural shape of the column and by placing the greatest amount of steel at the front face corners.

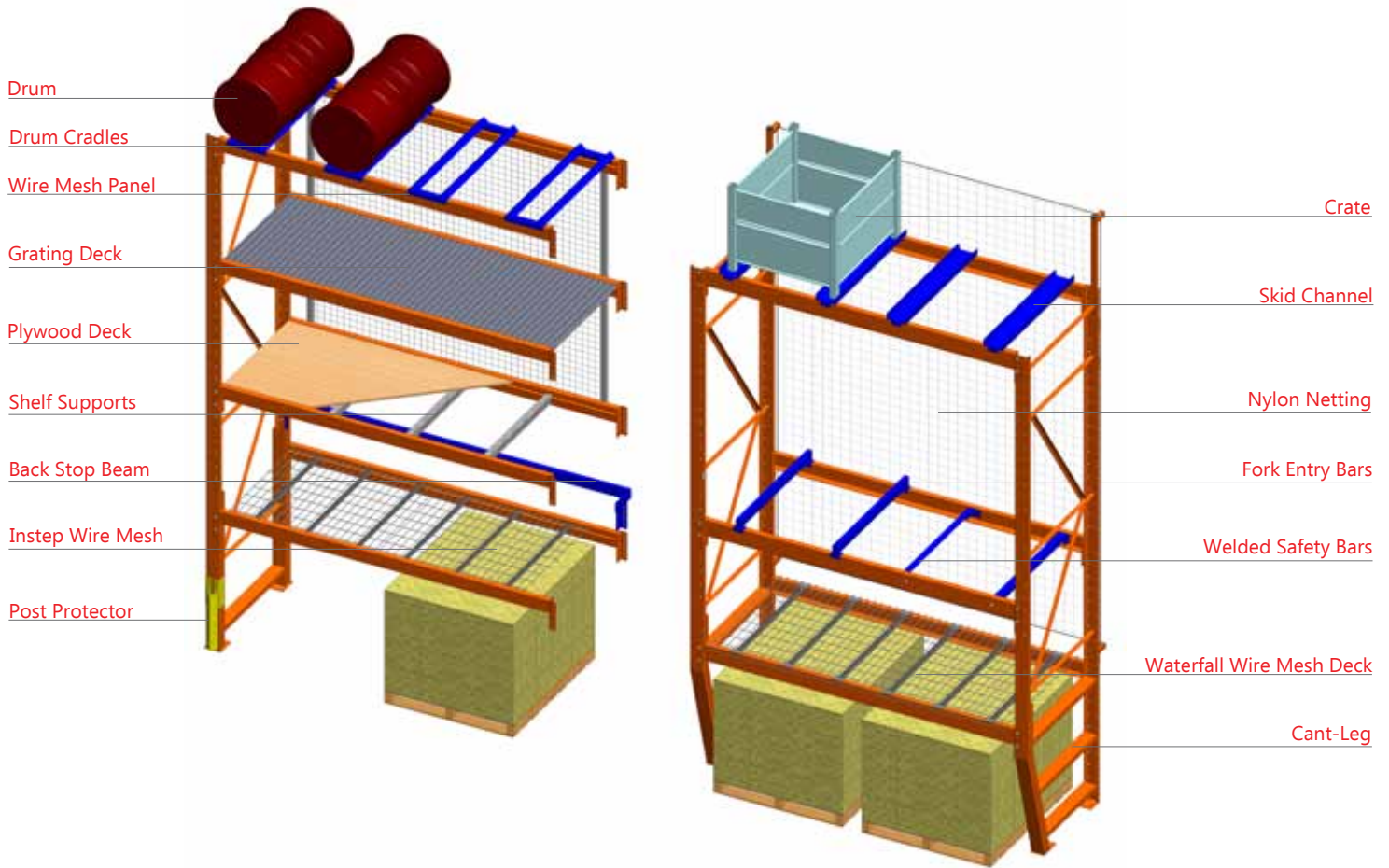
Initial relatively small investment at the design stage, such as heavy duty lower braces, welded-on protectors, cant-leg or recessed leg or double posting to first beam level, will reduce long term maintenance on endframes or even replacement cost for high traffic areas.

## Features & Benefits

- › Paint Finish: Our Structural Rack is finished with an environmentally friendly powder coat paint over a cleaned and phosphate etched surface, then oven baked at the correct temperature/time ratio to produce a durable scratch resistant finish. This high quality finish is unmatched in the industry. Choice of paint colours, food grade approved and acid resistant finishes are available
- › Meets standards established by RMI and CSA, and exceeds all government safety standards.
- › Capacities of up to 100,000 lbs per bay
- › Beam adjustability on 1" increments
- › Front Double Posting increases torsional bending resistance by 400% and increases impact resistance
- › Serrated flanged nuts offer larger clamping area and require less re-torquing or re-tightening
- › Structural Racking sections are thick enough to allow repairs to be made using ordinary cutting and welding equipment. Note: Any re-work must be completed by fully qualified personnel



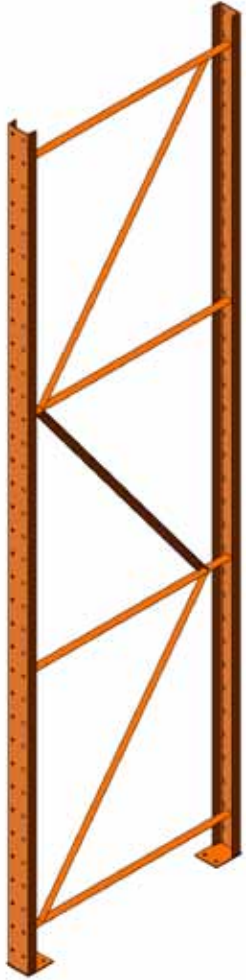
# RACK ASSEMBLY



CHARACTERISTIC	STRUCTURAL	HYBRID	ROLLFORMED
Abuse Resistance	High	High	Medium
Load Bearing Capacity	3000 lbs pallets and higher	3000+ lbs pallets and higher	Ideal for 2800 lbs pallets and less
Connection	Bolted	Bolted	Clip On
Repairs	Onsite repair may be possible with qualified welder	Onsite repair may be possible with qualified welder	Requires factory supplied bolt on kits, installed by factory personnel only
Type of Steel	Hot Rolled Channel	Utilizes both types	Cold Rolled Strip
Durability	High	High	Low without additional protection
Adjustability	Slower, on 1" Increments	1" Increments	Quick on 2-3" depending on design
Paint Coverage	Excellent adhesion, no hidden cavities	Best of both types	Smoother Finish
Cost	High	Medium	Low
Moment Resistance	High	High	Medium



# ENDFRAMES



NAS Structural Endframes are manufactured mainly from C3, C4 and C5 channels. Other sizes are available on request.

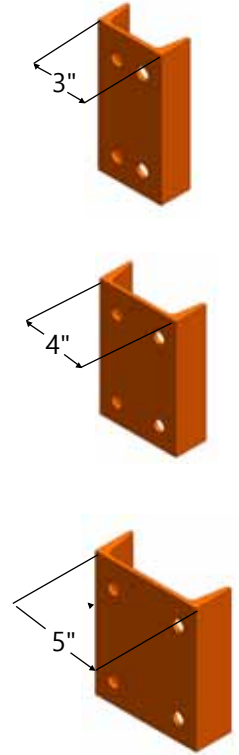
We follow either a 36" or a 44" brace pattern depending on the capacity required.

Frames are available with standard or seismic foot plates.

The chart below reflects capacity ratings for standard 44" brace centres.

FRAME POST	CAP*
C3 x 3.5	19,950
C4 x 4.5	30,730
C5 x 5.4	41,030
* Capacity per Bay in lbs at 48" Beam Centre in non-seismic conditons	

*Please contact NAS if different capacities are required.*



## Endframe Options

## Advanced Leg Options

### Heavy Duty Lower Brace

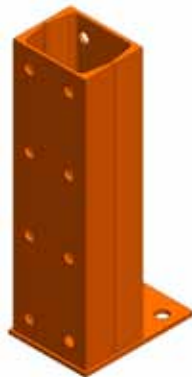
Transfer frontal impact energy to the back post of the Endframe. Prevents column from rotating and acts as a Rub Rail for pallet entry.



### Double Post

Increase the capacity and transfers axial load to the second post if front post becomes damaged.

Front double posting increases torsional bending resistance by 400% and provides increased impact resistance.



### Cant-Leg Frame

Angles the front aisle post away from the load aisle to prevent accidental damage from pallet entry on the lower level. Severe Cant-Leg frames are often used in Double Deep applications to allow clearance for Straddle Legs.



Cant-Leg

### Recessed Leg Frame

The front aisle post is recessed to allow greater aisle clearance for lift truck turning and pallet entry.

Recessed Leg heights can be shorter than Cant-Leg options making this ideal for installing beams on lower levels for carton flow or pick level locations.



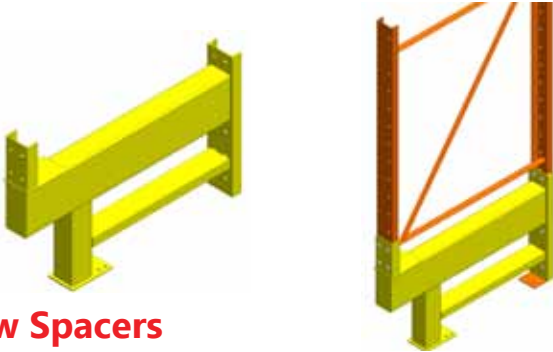
Recessed Leg

# ENDFRAME PROTECTION



## Removable Base

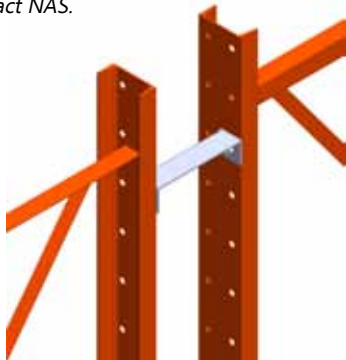
Removable Bases are bolted on to frame legs. Designed to be replaceable in the event of impact damage, saving the time and cost of replacing the entire frame. Unlike 3rd party repair kits, frames supplied with removable bases can be replaced by North American Steel without re-certification (Pre-Start Health & Safety Document).



## Row Spacers

Row Spacers are used for back-to-back rows to tie the endframes together for stability and consistent spacing. Row spacers can also support in-rack sprinkler systems.

*Recommended: 2 pair for frames up to 12 ft, 3 pair for frames up to 20 ft, 4 pair for frames up to 26 ft, 5 pair for frames up to 32 ft. Over 32 ft contact NAS.*



## Cross Aisle Ties

Cross Aisle Ties are attached on top of two endframes that are adjacent to each other to stabilize single rows of racking. Required if the height-to-depth ratio of a single row exceeds 6:1. Can also support electrical equipment if required (ie. extra aisle lighting).



## Post Protectors

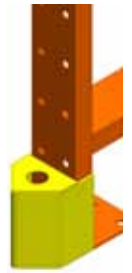
Post Protectors provide added protection in high traffic areas. The angle helps deflect rather than absorb direct frontal impacts whereby reducing the possibility of rack damage.

### Welded

Factory welded to the front of the upright. This is the most economical option for protection. Available on new installations only.



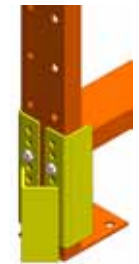
Structural Angle



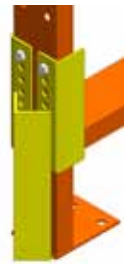
Bull-Nose with Side Plate

### Clip-On

Clip-on to the front face of rack frame. The longer (15") style is designed for use with base plate beams.



Clip-on 6"



Clip-on 15"

### Floor Mounted

The most common type of stand-alone protectors. Anchored to the floor separate from the column.



Bolted Angle with Foot Plate



Rounded with Foot Plate

## End Aisle Guards

### Tapered Floor Mount

Provides protection for end of row frames against lift truck damage. Adds a neat finished appearance.



### Raised Guards

Raised Aisle Guards are preferred where cleaning under the guard is a sanitary necessity.



### Frame Mounted

Protects frames and braces from impact above floor level.

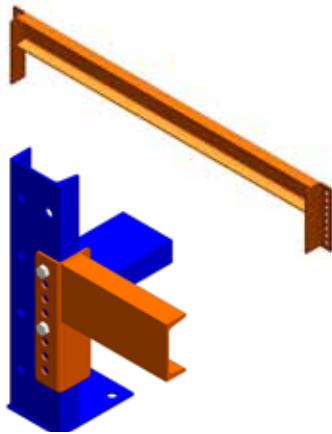


# STRUCTURAL BEAMS

## C-Channel Beams

C-Channel beams are recommended for heavy traffic and high abuse areas (e.g. front beams on Push Back and Pallet Flow Rack).

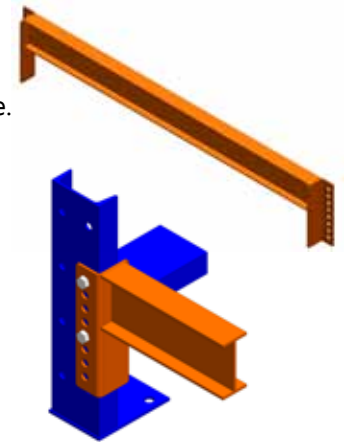
The structural shape places the greatest amount of steel on the face corners to prevent damage at impact. To obtain the full rated capacity, C-Channels require tie bars to prevent rotation.



## I-Beams

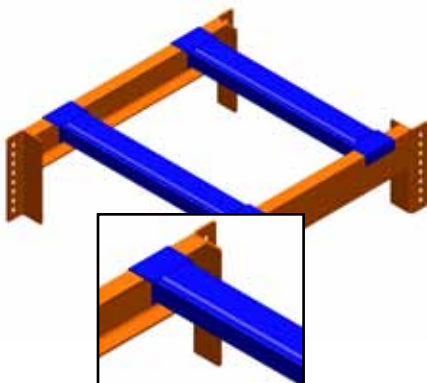
Recommended for long span or heavy loads such as tunnels, mezzanine applications and die storage.

The symmetrical shape of the I, W, or S sections have a higher twisting resistance under load than similar size channel beams.



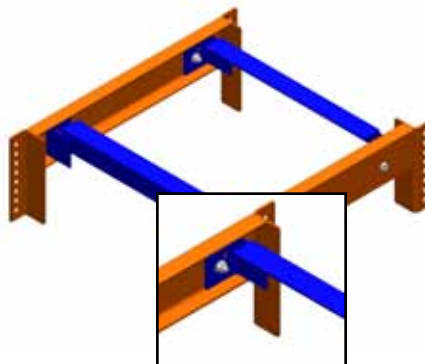
## Hookover Safety Bar

Hookover safety bars prevent accidental displacement of pallets on the beams. Also prevents beam from spreading.



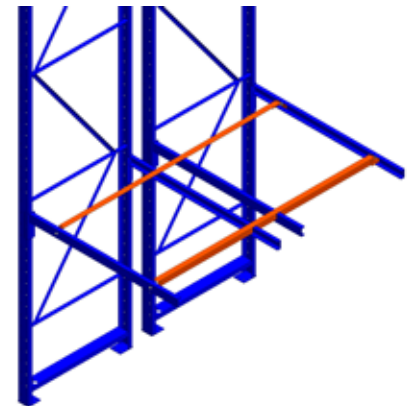
## Bolted Safety Bar

Bolted Safety Bars provide rotational stability for Channel Beams and can be designed for oversized or heavy pallets.



## Continuous Safety Bar

Designed for double deep applications where the pallet support spans the middle flue space, preventing the pallet from snagging during loading/unloading.

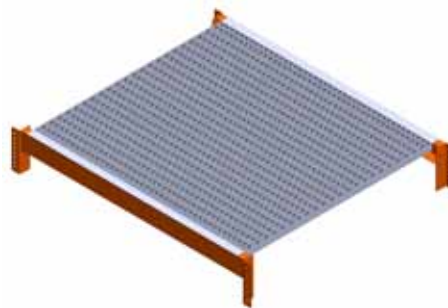


## Universal Wire Mesh Deck Grating Deck

Universal Waterfall Wire Mesh Decks are designed to fit on all structural steel beams. The U-Channel support is welded to the wire mesh for added strength and sits on top of the beam. Channels are available in standard and sanitary configurations.



Available in bar grating and a presslock option, grating is often used where over sized or point loads fall between support beams. Also commonly used as Mezzanine and Pick Tower flooring. Permits light and water to penetrate the shelf/floor levels.



## Solid Deck

Available in steel or wood, Solid Decking is often used to support non-palletized or heavy components stored between primary support beams. Decks can be manufactured with internally welded load supports to enhance functionality and can be used as heat or smoke barriers between beam levels.





## HYBRID RACK



North American Hybrid Racking combines the strength and durability of Structural Rack Endframes with cost effective Rollformed Beams to deliver flexible, modular storage bays. The Rollformed Beams can accommodate a full range of racking accessories, such as Safety Bars, Wire Mesh Decks, Dividers and other unique accessories.

### Hybrid Racking Systems are ideal for:

- Multi-level storage platforms or Pick Towers
- Very Narrow Aisle (VNA) racking with full pallet loading using turret lift trucks or hand picking
- Selective Racking with full pallet loading on upper levels using reach trucks and floor level picking using *Walkie* pallet trucks
- Double Deep Racking with Cantilever or Recessed Leg

### Features and Benefits:

- › Double Deep and Push Back Hybrid Rack systems can incorporate Structural front components for added impact durability, as well as low cost Rollformed components at the rear, where damage is less likely to occur from lift truck impact.
- › Hybrid Pallet Rack Endframes with reinforced leg options provide additional impact resistance qualifying for extended warranty. We offer three leg options, ideal for high traffic warehouses:  
**\* STRAIGHT LEG WITH BULLNOSE PROTECTOR \* CANT-LEG BASE \* RECESSED LEG BASE\***
- › Endframes can also be double posted and reinforced with Heavy Duty Lower Horizontal Braces (or Rub Rails) and Bullnose for added impact resistance.
- › Rack Beams and Safety Bars can be easily adjusted for 3PL distribution centres where maximum flexibility and adjustment of pallet load sizes are required on a regular basis.



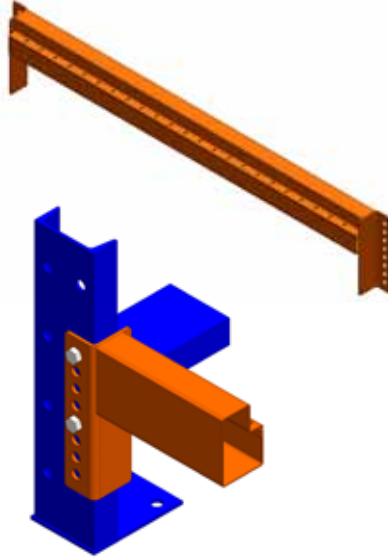
**Western Canada Toll Free: 1-800-241-8968**

# HYBRID BEAMS

## Step Beams

A one-piece multi-purpose beam with a rolled in-step, pierced to accommodate safety bars, shelf supports and other unique accessories. Full 1-3/4" top face for superior pallet support.

Our one-piece rollformed tube provides strength and safety. The seam of our beam is at the rear under the step, preventing accidental fork lift or pallet "hooking". The 3" deep bracket allows welding of beams in front and rear.

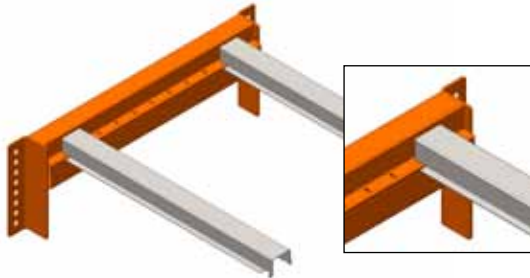
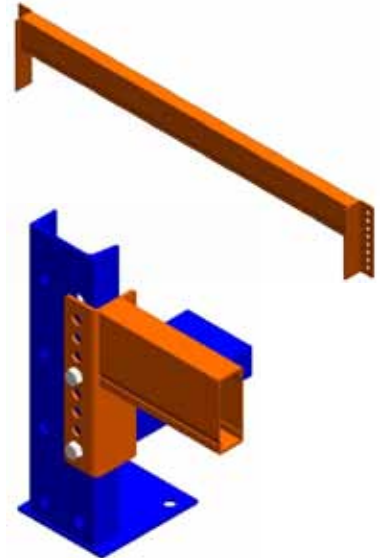


## Box Beams

Ideal for heavy pallet loading and tunnel bays with 3 pallet loading. Box beams offer the highest capacity per dollar of all beam types.

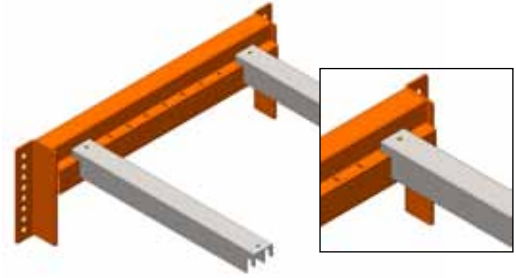
The 2-piece interlocked design is ideal for point loads and engages Tek Screw threads better than single layer beam designs.

Our Box Beam seam is at the bottom and folds upward to prevent hooking by lift trucks or pallets.



## Safety Bars Medium or Heavy Duty

Sit flush in pre-slotted step beams to stop improperly placed pallets from falling between beams. Safety Bars prevent spreading of extra wide racks under heavy loads. Two safety bars per pallet position are mandatory on installations over 16 ft. high.

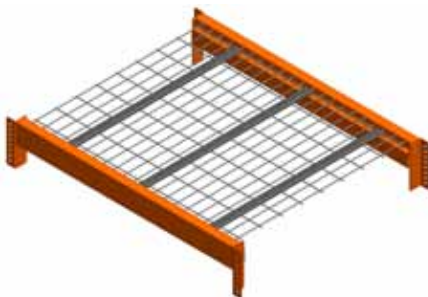


## Combination Shelf Supports & Safety Bars For Step Beams

This shelf support has all the same features as the medium duty safety bars. It sits 7/8" below the top of the beam to provide a flush surface, when plywood or other shelving material is used. Minimum 4 per 96" shelf.

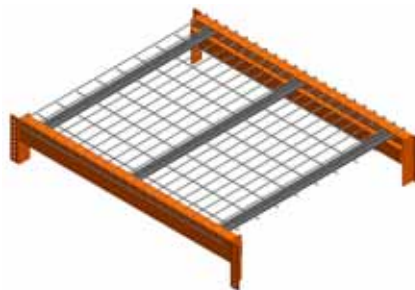
## Instep Wire Mesh Deck

The Instep Wire Mesh Deck rests on the step of the beam and is hidden behind the beam. Not recommended for longer beam applications.



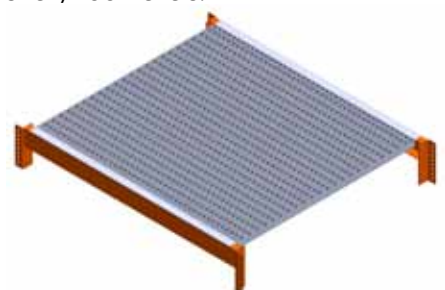
## Waterfall Wire Mesh Deck

The Waterfall Wire Mesh Decks wrap over the front and back of the beam to keep the deck in place and prevent the beam from spreading.



## Grating Deck

Available in bar grating and presslock options, grating is often used where over-sized or point loads fall in between support beams. Also commonly used as Mezzanine and Pick Tower flooring. Permits light and water to penetrate the shelf/floor levels.



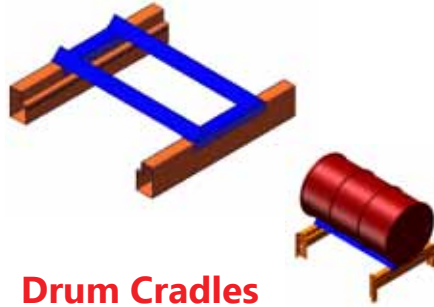


# HYBRID ACCESSORIES



## Fork Entry Bars

Support non-palletized loads, such as wallboard, plywood and metal sheets.



## Drum Cradles

Designed to adapt racking to hold cylindrical objects. The unit is completely welded and fits securely on NAS Beams.



## Skid Channels

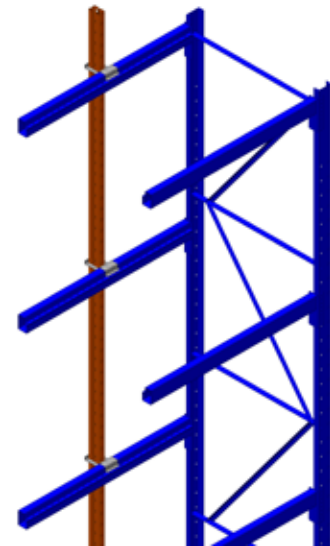
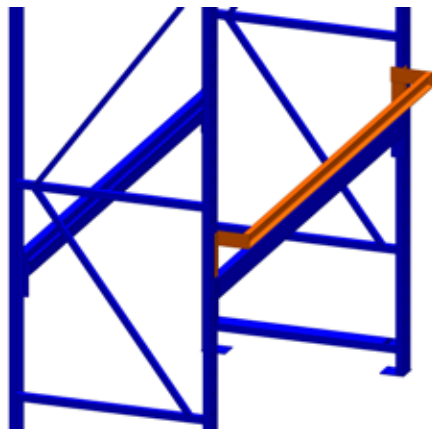
Adapt rack to the storage of semi-live and stationary skids.

## Back Stop Beam

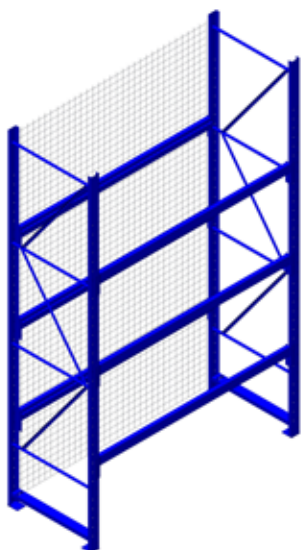
Back Stop Beams are offset loadbeams which create a barrier at the rear of the pallet bay. Typically used to create flue space between back-to-back rows, prevent pallet contact with building walls, or to mount safety netting onto pallet rack adjacent to pedestrian walkways.

## Vertical Back Stop Beam

Vertical Column Back Stops are mounted at the centre of a pallet position and can extend one pallet position above the top beam.



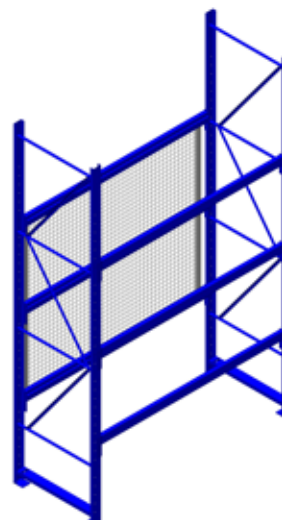
## Protective Nylon Netting



Nylon rack netting can be placed on the back of racking bays or attached to the backstop columns to allow for pallet overhang. Can also be attached under Pallet Flow and/or Carton Flow lanes.

Netting can also be used as protection in tunnel bays or in areas where pallets are stored over picking aisles.

## Protective Wire Mesh Panel



Wire mesh panels are attached to racking column or pallet stop rails. The panels can be fitted to the rack to provide protection above the first beam level or above the top beam level. They also can provide a security barrier by preventing people from accessing valuable items. Made from metal mesh, plastic or chain link, they can be galvanized or powder coated.

## Other Catalogues

 **Proudly Canadian**



**SELECTIVE RACK**



**DRIVE IN RACK**



**PUSHBACK RACK**

## Advanced Production Methods

**HIGH SPEED  
ROLLFORMING LINES**



**ROBOTIC  
WELDING**



**POWDER COATED FINISH**

All NAS products use environmentally friendly powder coatings with a durable scratch resistant finish.

## Installations & Services

**OUR EXPERIENCED ENGINEERING TEAMS  
STAND READY**

to assist you in planning and designing your Storage Systems.

**OUR PROFESSIONAL INSTALLATION CREWS**

can handle all of your racking and shelving installations, repairs and maintenance. Union and non-union crews available.

**MULTIPLE MANUFACTURING PLANTS**

strategically located across the country to offer improved service and reduced freight costs.

## Certifications



## Warranty

All materials are guaranteed to be free from defects in workmanship and material.

Extended Warranties vary depending on products.

Installation Warranty applies to all racking installed by our certified installation crews.

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With 60 Years

Manufacturing Experience

**NORTH AMERICAN STEEL**

is the leading name for

Innovative Storage Concepts