Welcome to Session 329

STORAGE EQUIPMENT
Selection, Application, and Use

Presented by:
Nelson Cantillo – Tri Boro Shelving & Partition
Hue Schlegel – Wildeck
Brian Pelto – Ohio Gratings
Greg Doppler – Cornerstone Specialty Wood Products

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About SMA and Shelving

Presented by:

Nelson Cantillo

_Tri-boro Shelving and Partition Corporation_
ABOUT SMA

• Non-profit Product Section of MHIA.
• Formed in 1974 by visionary industry leaders.
• Mission: To advance standards, quality, safety and general fitness for intended use of industrial storage equipment.
MEMBERSHIP REQUIREMENTS

- Must manufacture & control structural design of storage equipment for sale in USA.
- Pay dues.
- Attend meetings.
- Participate in monthly statistical information program.
- Voluntarily support design and manufacture of products in accordance with appropriate American National Standards.
WHO ARE SMA COMPANIES

• Leading manufacturers from throughout the world.
• Up-to-date listing can be accessed at http://www.mhia.org/sma.
SHELVING – THE FLEXIBLE SOLUTION
SHELVING — ADJUSTABLE. OPEN & CLOSED
ACCESSORIES

- Drawers
- Doors
- Dividers
- Bin Fronts
- Shelf Boxes
- Front Bases
ADJUSTABLE METAL/WOOD SHELVING – RIVET/STUD

STARTER
Angle Post is used to start and finish a row

ADDER
Tee Post is used to connect adjoining units
HIGHLY FLEXIBLE
SHELVING-BASED WORK PLATFORMS
Mezzanines

Presented by:

Hubert Schlegel

Wildeck Inc.
MEZZANINE SYSTEMS

► Optimize existing overhead space
► In-plant offices, storage, manufacturing
► Cost less than new construction
► Easier to expand up — not out.
Single-Level Mezzanine

- Access Gate
- Stairs
- Mezzanine
- Guard Rail
Mezzanines optimize existing overhead space to gain valuable office, storage, or manufacturing area at costs lower than new construction.

Multi-Level Mezzanine

Designed for Heavy Duty Use

Make Space Work For You

Versatility to Meet Your Needs
Mezzanines optimize existing overhead space to gain valuable office, storage, or manufacturing area at costs lower than new construction.

Hybrid Mezz/Crane

► Increase Efficiency…
  Move Material Easier and Quicker

► Improve Safety…
  Reduce Manual Material Handling

► Increase Capacity…
  Better Utilize Existing Cubic Space and Increase Usable Floor Space
Mezzanines optimize existing overhead space to gain valuable office, storage, or manufacturing area at costs lower than new construction.

BOLTED C-SECTION DESIGN

► Most economical on smaller mezzanines

► Uniform live loads of up to 200 lbs. per square foot

► Short lead time
BEAM & C-SECTION DESIGN

► Small to medium size mezzanines
► Uniform live loads of up to 200 lbs. per square foot
► Features large spans
Mezzanine - Framing

BEAM & BEAM DESIGN

► Small to medium size mezzanines
► Load capacity is unlimited
► Span size is unlimited
BEAM & BAR JOIST DESIGN

- Medium to large size mezzanines
- Uniform live loads of up to 300 lbs. per square foot
- Span size is unlimited
Mezzanine - Framing

TRUSS GIRDER & BAR JOIST

- Large size mezzanines
- Uniform live loads of up to 300 lbs. per square foot
- Span size is unlimited
Decking/Flooring

Presented by:

Brian Pelto
Ohio Gratings, Inc

Greg Doppler
Cornerstone Specialty Wood Products, LLC
Components of an Elevated Platform

Decking Surface, Stairs & Handrail
Types of Flooring Surfaces Available

- Concrete
- Bar Grate
- Plywood, OSB
- Laminated Panels
- MR Engineered Wood Composites
Advantages - Concrete

• Strong
• Fire Resistant
• Poured in Place
• Paintable Surface
Disadvantages - Concrete Mezzanine

Flexural Damage Caused by Pallet Jack Loads
Bar Grate - Advantages

- Sprinklers Effective From Above
- Generally Cheaper than Concrete
- Spans Well
- Weighs Less
- No Corrugated Required
PressLock Grating

- Smooth surface due to flat bearing and cross bars
- Affordable close mesh grating; cross bars space closely
- Easily handles rolling hand carts and pallet jacks
- High point load capacity
- Open mesh promotes air, light and water penetration
PressLock Grating

- Smooth surface due to flat bearing and cross bars
- Affordable close mesh grating; cross bars space closely
- Easily handles rolling hand carts and pallet jacks
- High point load capacity
- Open mesh promotes air, light and water penetration
Plywood & OSB - Advantages

- Less Expensive
- Good Working Surface
- Allows Light Rolling Loads
- Readily Available
Plywood & OSB - Disadvantages

Surface Wearing With Rolling Loads
Laminated Panels

- Cleanable
- Takes Heavier Wheel Loads
- Different Colors and Textures
- Will Tolerate Scratches
- Wide Variety for Different Loads
- Some Size Flexibility
Wood Fiber Separation

BEFORE – Laminated Panels

AFTER – MR Engrd Wood Composite Panels
Using the proper Flooring System will result in Good Versatility & Long Term Performance
Mezzanines Accessories

Presented by:

Hubert Schlegel

Wildeck Inc.
Warehouse Applications

- Swing Gate
- Walkway Bridge
- Mezzanine
Retail Back Rooms

- Swing Gate
- Stairs
- Mezzanine
- Guard Rail
Automotive Parts Rooms

Slide Gate

Mezzanine

Stairs
Distribution Centers

Moisture Resistant Engineered Wood Composites

Stairs, Handrail and Kickplate

Mezzanine for Conveyor Support
Knock-Down Stairs

- Economical Design, Easy to Assemble
- Fits into facilities where space is limited
- Meets OSHA and IBC code requirements
Mezzanine Access Gates

Tilt Gate  Slide Gate  Overhead Safety Gate

Double-Drop Safety Gate  Swing Gate
New ANSI Standard for Access to Mezzanines

ANSI MH28.3-2009

Specification for the Design, Manufacture, and Installation of Industrial Steel Work Platforms (mezzanines), paragraph 6.4.3

“Any gate that provides an access opening through the guards for the purpose of loading and unloading material onto a work platform shall be designed such that the elevated surface is protected by guards at all times.”

Download new ANSI standard for work platforms at www.MHIA.org
Pivot Safety Gate

► Unique Cut-to-Width design (10 ft to 3 ft)
► Side rails can easily connect to mezzanine railings for a seamless barrier
► Complies with new ANSI Standard
► Meets OSHA and IBC code requirements
Overhead Safety Gate

► When one side opens, the other is closed
► Spring assist slows descent of gate
► Integral kick-plate keeps objects from falling off mezzanine
► Complies with new ANSI standard
Double-Drop Safety Gate

- Simultaneous loading and unloading
- Ideal for high-cycle forklift access
- Complies with new ANSI standard
- Meets OSHA, IBC, and UBC
Mezzanine Lifts - VRCs

- Material Lifts
- Freight Lifts
- Vertical Conveyors

Easily transfer material between levels

Versatile and Efficient
- Whatever the Load or Need

Reliable and Safe

Material Only – No Riders!

Meet ANSI/ASME B20.1 safety standards for conveyors
Configurations & Loading Patterns

- **STRADDLE**: “C” or “Z”
- **CANTILEVER**: “C”, “Z” or 90 degree
- **4-POST MECHANICAL**: “C”, “Z”, 90 degree, or 4-sided loading
Mechanical VRCs

STRADDLE

► Lift capacity up to 6,000 lbs.

► “C” or “Z” loading patterns
Mechanical VRCs

CANTILEVER

► Lift capacity up to 5,000 lbs.

► “C”, “Z”, or 90 degree loading patterns
Mechanical VRCs

4-POST

► Lift capacity up to 15,000 lbs.

► “C”, “Z”, 90 degree, or 4-sided loading
Mechanical VRCs

AUTOMATED SYSTEMS

► Conveyor feed available
► Multiple control options
► “C” or “Z” loading/unloading
Mechanical Modular VRCs

AUTOMATED TOTE LIFT

▶ Modular, Flexible, and Safe
▶ 50 - 75 lbs. load capacity
▶ “C” or “Z” loading patterns
STRADDLE

- Structurally stable configuration
- “C” or “Z” loading patterns
Hydraulic VRCs

**CANTILEVER**

- Small equipment footprint
- “C”, “Z”, or 90 degree loading patterns
CANTILEVER

► Single cylinder design
► Easy to install & test
► Fewer parts & less maintenance
► Lower cost
► “C”, “Z”, or 90 degree loading patterns
Guard Rail

Protection for Better Operations

Protection for Your Safety
Storage Rack Protectors

► Prevent fork truck damage
► Protect your investment
Custom Solutions

Specially-designed custom solutions can combine:

► Mezzanines
► Cranes
► Vertical Lifts (VRCs), and
► Safety Guarding Products

to meet customer needs for safe, lean, and efficient operations.
SPECIFICATIONS

Considerations and Guidelines

• Shelving Users Guide.
• Shelving Bracing Considerations.
• Mezzanine Users Guide.
• Nomenclature for Industrial Grade Shelving.
• Shelving Applications Brochure.
• Multi-Level Shelving Using Industrial Grade Shelving.
Q & A
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