Finding and Utilizing Your Space

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Objectives

To help you find answers for working **smarter not harder** by unlocking the power of your existing space.

We’ll discuss how to:
• “Use your cube” to get more out of your existing facility
• Provide easy access for your facility team
• Find smarter ways to transport loads between floor levels
• Keep personnel – equipment – infrastructure safe!
Why You Might Need to Find More Space

- Landlocked
- Cost / Timeline for new construction
- Consolidating multiple facilities
- Business is growing and I need space now!!

FIND YOUR WOW
Use Your Cube!

Start with looking at your facility and recognize how it could be better…
Perform a Facility Audit

Do you have overhead space that could be used for:

• Product storage?
• Product processing?
• Product assembly or kitting?
• Facility equipment?
• Second level offices?
Remember, you’re already paying for…

Light  Heat / AC  Taxes
Based on your needs & the facility audit…

It might be time to move *up* and not *out*
Use a free-standing, bolt-together mezzanine platform to increase usable floor space in key parts of your building.
It all starts with a plan:

1. Location
2. Size
3. Height
4. Stair locations
5. Access gates
6. Obstructions to design around
7. Flow of operations
8. Employee safety
Enlist the help and guidance of an experienced material-handling professional to help you through the nuts and bolts planning steps.
Mezzanine Platform Advantages

• Maximum existing space utilization
• Quick, bolt-together installation
• Minimal disruption to current operations
• Modular
• Capital Equipment depreciation (7 years vs. 31 for permanent building structures)
Today’s bolt-together mezzanine systems are just like a giant Erector Set.
Commonly used framing members include:

- Beam & C-sections
- Beam & Beam
- Beam & Bar Joist
- Bar Joist & Truss Girder
Different types of framing combinations result in various spans & capacities

- **Light Duty**: General storage; personnel access walkways / equipment access; records storage

- **Medium Duty**: Second level office; shelving system with product storage; second level assembly or kitting operations

- **Heavy Duty**: Heavy / bulky item storage; tanks: chemicals, oils, powdered goods; equipment installation
Capacity & Loading on Mezzanines are expressed by their PSF (pounds/sq. ft.) rating

C-Section Systems
• Up to 75-125 psf
• Small to medium sizes
• Up to 20 ft spans
• Smaller Bay sizes

Bar Joist Systems
• Up to 125-200 psf
• Large size
• Wide spans
• Clearance for electrical/sprinklers

Beam Systems
• 300 psf & higher
• Small, medium & large sizes
• Wide spans
• Heavier loads
A Variety of Decking Options are Available

• With 20-gauge corrugated-metal sub-deck underneath:
  • ¾” Resin Board in Unfinished or Gray
  • Poly-coated ¾” decking
  • ESD (anti-static) coated Resin Board
  • Diamond Plate or plain metal decking

• Metal bar grating

• Concrete finished deck with corrugated sub-span
Some things to think about when designing your mezzanine…

Obstructions at floor level / where can columns go?

• Floor-level equipment
• Existing building columns & floor drains
• Key traffic aisles
• Space allowance for stairs
• Identify designated areas for overhead access gates
Some things to think about when designing your mezzanine…

Additional Costs:
• Additional lighting & sprinklers
• Concrete footers for wide span loads
• Overhead fans
• Installation permits
• Specify “platform” instead of “mezzanine” to reduce future property tax liability
Safety and access for your new space…

**Kick-plate:** Guards against objects falling from floor

**Handrail:** Guards perimeter areas to prevent personnel falls

- 2-Rail to 5-rail systems
- Must meet OSHA / IBC requirements
- Besides cross-rail, options can include: Expanded Metal, Plexiglas & Vertical Picket Barriers
Safety and access for your new space…

Product loading & unloading

Many gate options are available. Specify a Safety Gate where possible, or add an Open Gate Alarm to access gates.
Safety and access for your new space…

You can also use mezzanine gates for pick module applications:

Impact Gates

Net Gates
Open Gate Alarms for safer gate operation

• Gate Alarms allow access gates to remain open for short periods, then audible and visual alarms are triggered

• Available on new gates and for retrofit

Swing Gate  Slide Gate
Safety and access for your new space...

Stairways: located in key access areas
- Straight run
- L-Shaped
- U-Shaped

Stairs can be designed for **external** or **internal** access to mezzanine
Safety and access for your new space…

Stairways

• Fully-welded, or

• “Knock-down” / modular
  • Shipped flat & bolted together on site
  • Ideal where space is limited (pick modules)
Safety and access for your new space…

Crossovers and Ladders

• Get up and over conveyors or other obstructions
• Ladders for maintenance or roof access
Utilize your new space…

Vertical Reciprocating Conveyors (VRCs)

• Offer a safer, controlled, and more efficient method for material transport than forklift loading / unloading

• Material transfer only (No Riders)
  • Per ANSI B20.1 Code
Utilize your new space…

VRCs are available in different capacities, configurations and custom designs to match your needs

Heavy Duty

Medium Duty

Light Duty
Utilize your new space…

VRCs

• Can be manually loaded / unloaded; or part of an automated conveyor system

• Select a supplier who can meet your needs

Auto-Loading & Off-Loading via conveyor

Manual Load / Unload operation
Utilize your new space...

VRCs

• **Hydraulic Drive**
  • Lower initial cost
  • Redundant dual-cylinder lifting system
  • Ground plus one stop
  • Handles heavy loads at moderate cycle rates

Carriage guards not shown for clarity

Hydraulic pump system
Utilize your new space…

VRCs

• **Mechanical Drive**
  • Electric motor / gear box / roller chain drive
  • Handles most demanding applications
  • Lower maintenance cost
  • Multiple stops (up to 10 levels)
  • Handles heavy loads at faster cycle rates
  • Automated systems available
  • Advanced control options
Utilize your new space…

VRCs: Safe Loading & Operation

• Gates
  • Variety of manual or motorized gate options available

- Single swing
- Bi-parting swing
- Vertical acting
- Horizontal slide
Utilizing your new space…

VRCs: Safe Loading & Operation

• Electro-mechanical Gate Interlocks prevent VRC operation until gates are fully closed at each level
Utilizing your new space...

VRCs: Safe Loading & Operation

- VRCs can be pit-mounted or installed at ground level with an optional ‘standard’ or ‘winged’ loading ramp
Utilizing your new space…

VRCs: Controls & Protection

• Operator controls at each floor level allow “push-to-call” to bring or send the VRC carriage for loading or unloading

• Key or digital lock options are available to control access for VRC operation
Utilize your new space…

VRCs: Controls & Protection

• “Smart” controls with PLCs can protect your VRC from damage caused by unstable loads, product jams or mechanical / electrical errors

• Allow fast / easy trouble-shooting & error resolution

• Deck locks prevent carriage descent during maintenance or inspection
Utilize your new space…

VRCs: Loading & Unloading

• Plan the best location for your VRC – where & how to load/unload material?

• Carriage designs provide solutions for various loading/unloading operations

“C”
“Z”
“90°”

Cantilever

“C”
“Z”

Straddle

“C”
“Z”
“90°”

4-Post

4-side access
Utilize your new space…

VRC applications are anywhere you need to:

• Safely move finished products between levels
• Free up forklifts typically used to move material between levels
• Transport product between levels as part of an automated conveyor system
Utilize your new space…

Whether you need a manual or automated system, consult a material handling professional for a lift design that will fit your application.
Utilize your new space…

Type-B Rideable Material Lifts (RML)
• In a class by themselves (not a VRC)
• No need to limb stairs to follow material
• One operator can ride with cargo to upper level
• Licensed Elevator Contractor required for installation. Check local & State codes
• Lift meets A17.1 Elevator & Escalator Code
Now that we’ve “found” your new space…

Let’s protect it!
Protect your investment in personnel, equipment and facilities with Safety Guarding Products
Guard against forklift damage

Has your operator been trained?

Support column damage

Protect main traffic aisles
Prevent damage to valuable equipment, inventory and facilities

Conveyors • Racking • Mezzanines • VRCs
Loading Dock Doors, etc.
Personnel are your most valuable resource; Make sure they can work safe!
Avoid OSHA fines: Make sure your facility is in OSHA compliance for safety & worker protection

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<thead>
<tr>
<th>TYPE OF VIOLATION</th>
<th>PENALTY (as-of January 2018)</th>
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<tr>
<td>Serious</td>
<td>$12,675 per violation</td>
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<tr>
<td>Other-Than-Serious Posting Requirements</td>
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<tr>
<td>Failure to Abate</td>
<td>$12,675 per day beyond the abatement date</td>
</tr>
<tr>
<td>Willful or Repeated</td>
<td>$126,749 per violation</td>
</tr>
</tbody>
</table>

Wrong

Right
Guarding applications are everywhere!

- Personnel walkways, lunch or break areas
- Floor level offices close to traffic aisles
- Facility storage equipment such as rack, shelving, mezzanines
- Equipment protection: pipes, conveyors, lifts, carousels, stretch wrappers, palletizers, assembly equipment, CNC lathes, robots, etc.
Put it all together to stay ahead of your competition

Find your space.
Put it all together to stay ahead of your competition

Access your space.
Put it all together to stay ahead of your competition

Utilize your space.
Put it all together to stay ahead of your competition

Protect your space.
Find it all at Promat 2019!

Talk to the material handling equipment manufacturers and experienced professionals who can help you:

• Find
• Access
• Utilize, and
• Protect your space!
Questions?
For more information, contact:

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