The Complete Guide to Material Handling Damage Prevention

McCue

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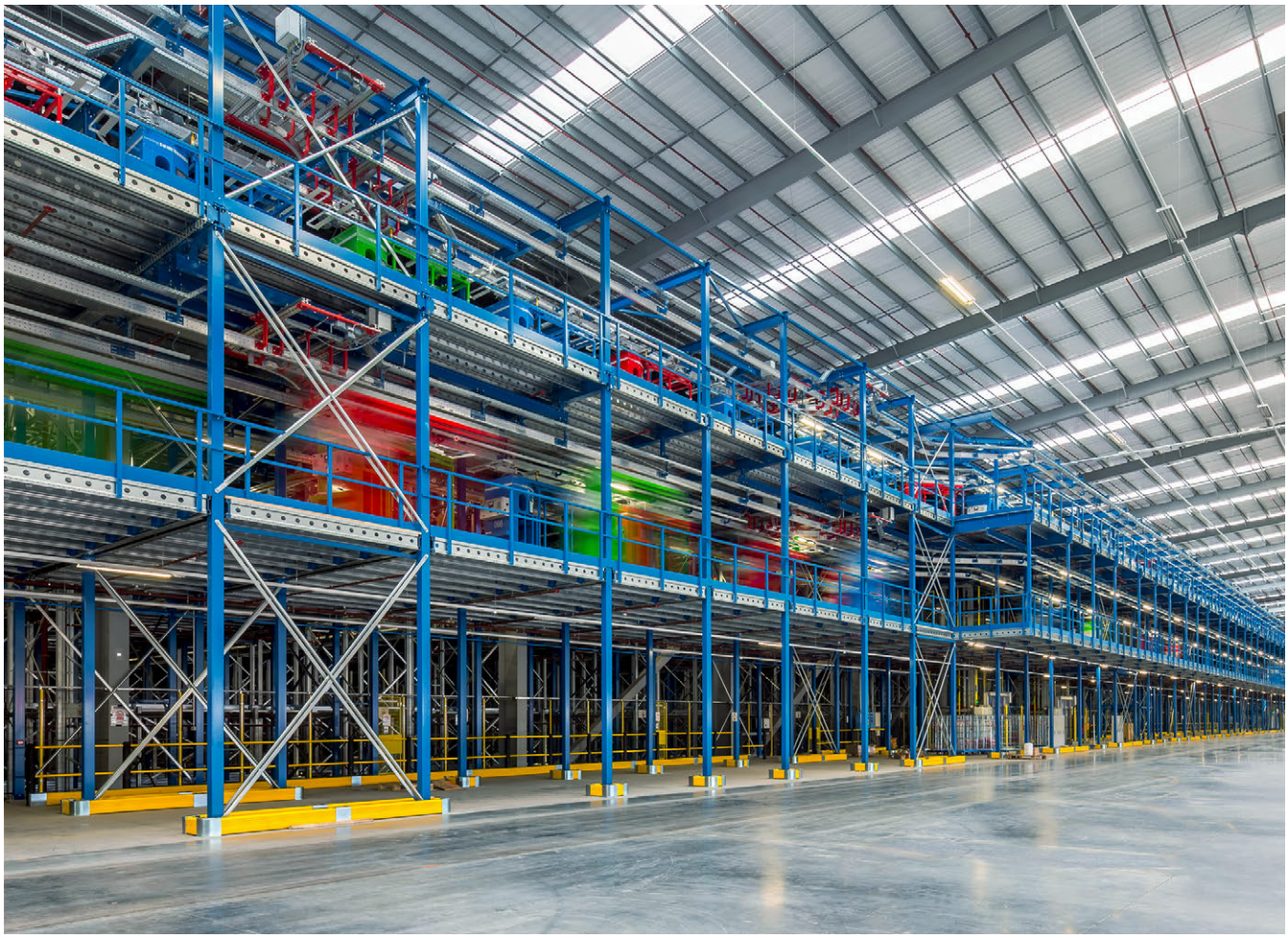


Developing a scalable, safe, high-efficiency site is about so much more than just getting the site to operational level. All of the thought, strategy and design you pour into the project may be all for naught if just one critical piece is overlooked: damage prevention.

Today's state-of-the-art manufacturing and distribution facilities deserve solutions for damage prevention that are just as advanced as the rest of the material handling infrastructure. Without them, or with an unsuitable level of protection, your facilities won't maximize profit. They might even take losses.

There are a multitude of ways inadequate or nonexistent damage prevention measures can impact your bottom line. In this guide, we're going to focus on four potential causes of profit loss all stemming from that inadequacy: inventory shrinkage/product loss, storage cost increases, repairs, and injuries/safety. Before we dive into how of each of these causes can impact profit and how you can prevent losses while increasing efficiency, let's take a look at the basics.

For the purposes of this guide, we've defined asset protection, material handling and protective guarding as follows:

Asset protection

Asset protection most often refers to shareholders and financial health, but in the case of manufacturing sites and distribution centers, it refers to the literal protection of employees, warehouse equipment and product. Asset protection can refer to a type of product that prevents these people and items from suffering damage, or it can refer to the act of damage prevention in general.

Material handling

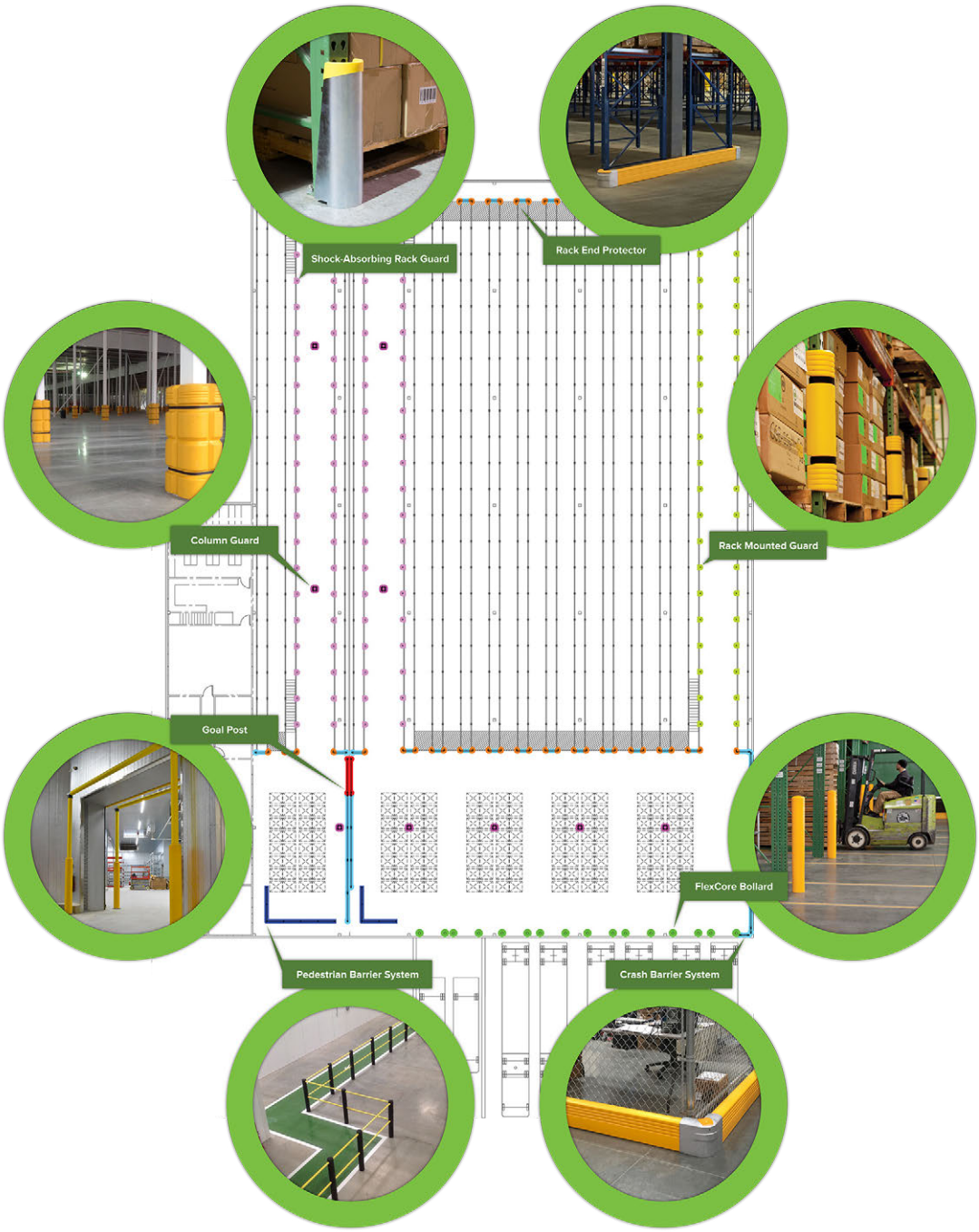
A great definition of material handling comes from the authority on such a subject, MHI.

> *"Material handling is the movement, protection, storage and control of materials and products throughout manufacturing, warehousing, distribution, consumption and disposal. As a process, material handling incorporates a wide range of manual, semi-automated and automated equipment and systems that support logistics and make the supply chain work."*

Material handling is the whole infrastructural system of goods movement.

Protective guarding

Protective guarding is specific to products (not strategies, though those are important too) that serve your goal of asset protection. Products include protective netting, barriers, bollards, etc.



01 Identifying Causes of Asset Damage

To better prepare for prevention opportunities, it's important you identify potential causes of product damage or employee injury. (Employees are assets too!) As you identify, be sure to keep realism at the front of your mind. In other words, devote the most strategic energy to probable causes, not the least likely ones — though, to be safe, you'll want to factor in mere possibilities in as well.

Here's a list to get you started:

Natural disasters

Specifically, floods are likely culprits of product damage. Other possible causes include fire (natural or not), wind (especially if employees ever work outdoors), and earthquake.

Employees

Employees can damage product in a million different ways, intentional or not. They can be injured due to a million random circumstances. People are always a risk factor.

Equipment malfunctions

What if a forklift inching brake totally malfunctions? What if a rack suddenly loses a leg or tips?

Incorrect equipment choices

These can include having the wrong equipment for the job, poor maintenance or utter neglect, and installing incorrect or inadequate protective guarding for the site's design.

Poor design or layout

If you design a space that doesn't have enough room for safe and efficient operation, equipment, product and employee damage is almost a guarantee. For example, forklifts might hit and take out sprinkler systems hidden inside a rack, causing major problems.

02 Why Should You Care?

Aside from the personal reasons — that you care about doing good work, increasing efficiency and solving problems — why should you be concerned about asset protection via damage prevention?

Two great reasons:

1. Damage is insanely costly
2. You actually have the power and skill to do something about it

We talked about natural disasters, but because they're a) unpredictable and b) rare, we're going to focus here on the ways that employees, processes and equipment create loss via damage in the warehouse, thereby decreasing overall profit and profitability. And that's why you should really care.

The Cost of Inventory Losses

One way you might incur costs (or at least lose profit) through damage is via actual product loss and inventory shrinkage. When the amount of inventory recorded doesn't align with the physical inventory on site, your accounting department will reflect the loss.

And it's not only missing product that causes loss, but the deduction of unsellable or unusable product, too. Sometimes the product has been misplaced; sometimes it's been crushed or soaked or straight-up broken. Regardless of whether you can't locate it or it's right in front of you in poor condition, any damage to your inventory is directly correlated to loss in profit.

In addition, lost and damaged product come inventory time adds a whole bunch of headaches to the material handling teams' processes. Hunting for lost product or trying to discover where something went wrong is both stressful and a time sink, resulting in net loss of efficiency and dollars.

And often, warehouse managers won't ever know why or how the product was lost or damaged — a lack of knowledge that contributes to an inability to fix this problem. There might be unit measurement errors, bill of material issues, theft, spoilage — any number of discrepancies. That's why you need to take it upon yourself to work damage prevention strategies into your designs and upgrades, perhaps beginning with security that helps you avoid loss from theft.

As business writer Tim Aldred explained in The Guardian, "The first stage of security is in the design of your premises, such as keeping the number of exit doors at a minimum and thinking carefully about the location of cloakrooms and toilets, where items can be concealed."

So inventory shrinkage and general product loss is one way to incur costs/lose profit. But there's another inventory problem here that's rarely discussed: storage. If your facility needs to house bad product for any length of time, you may need to plan for more or better storage facilities to do so — a totally avoidable cost, if you know that the reason it's incurred is preventable damage. If you don't have those facilities on site, you could end up housing the products in space that could otherwise be utilized to create added efficiencies and safety measures. Maximized space and use of space means better, safer driving, picking, packing, cleaning, machine setup, ladder placement, etc. In addition, if you don't pay for that storage and have to house this inventory on the floor, it could interrupt efficiencies and flow, causing lost time.

The Cost of Repairs

As you enumerate all the possible ways in which you might lose profit due to asset damage, you can't forget how many hours and dollars are spent repairing equipment and your facility (floors, walls, doors, etc.) when any of the following occur:

Careless collision

When machines aren't properly operated, there's a high probability those machines will collide with racks, walls, doors, and the like, causing not only costly product damage, but also equipment or architectural damage.

Think about forklifts colliding with steel. Yes, forklifts are built for strength and hard surfaces, but a crash between two pieces of steel results in at least one of those two — if not both — incurring significant damage. Either your barrier will take the heat, requiring an upgrade, or your forklift will, requiring a repair.

You might also see additional repair costs in the form of defects remediation, the effort to inspect for issues and then fix any product defects caused by damage in order to keep inventory on track.

The Cost of Injury

Injury is a cost in itself. If the injury is serious, not only will your employee's health costs be felt by the company, but his or her absence will be felt in productivity declines, too.

The Economic Policy Institute has reported that on average, there are 23,000 on-the-job injuries in the United States every day, and that injuries and illnesses combined cost the United States roughly $250 billion annually.

Injuries can occur when racks or storage equipment aren't properly secured and protected. Falling product, forklift flips and collisions can all injure employees, as well. There is some overlap between product protection and employee protection — not only because a driver's body might absorb impact that could otherwise be absorbed by a protective measure, but also because a whole new set of safety hazards is created during repairs to failing or failed damage protection mechanisms, adding to the long list of reasons to prevent, rather than fix, these types of issues.

03 Ways to Achieve True Damage Prevention

Remember how we said that one good reason to care about this issue is because you have the power to do something about it? Here are the three proven areas where that power lies, and each relates to how your facility operates. Implementing established warehouse best practices is the right starting point. One of those best practices? Training.

Employee Training

Training isn't just for forklift drivers, but for everyone who might work with or around product and machinery. With the right programs in place, you can teach employees how to take extreme care with product, equipment, machinery and themselves, avoiding damage and the need for repairs.

Injury prevention through training

As Fred Elliot wrote for Occupational Health and Safety's online magazine in 2015, "Manual material handling can lead to fatigue and to injury, especially when a worker performs the tasks repeatedly or for long periods of time. NIOSH and other authorities report the main risk factors leading to injuries in manual material handling tasks include awkward postures, repetitive motions, forceful exertions, and static postures."

To address lifting and ergonomic issues, check out the guides provided by OSHA, including the seven steps, which include involving workers in hazard

assessments and providing training about symptom reporting.

We also know that forklift driver training is instrumental to safety and injury prevention. With almost 35,000 forklift accidents resulting in serious injury per year, there's almost no question that driver training is of serious value to your employees' health and your bottom line. OSHA and HSE provide clear guidelines for this training, and working within those guidelines (and of course, the law), can create benefits not only for personnel safety, but also for our next topic of discussion: product damage.

Product & equipment damage protection through training

You and the warehouse managers you work with know better than anyone how hazardous a forklift can be to product health (in addition to employee health). Forklift repairs themselves can cost thousands per year (NIOSH says that 80% of forklift repair and maintenance costs are due to operator abuse of the equipment) and damaged product due to collisions can do the same. So one way to address product damage is through reducing risk using effective training. But what exactly is effective?

As Bottom Line Training puts it, "Effective forklift operator training accomplishes several things. The information is easily understood, is presented in a multi-media format, and is internalized by the students through awareness and motivation. Just telling the operator what to do is not enough — you must hit awareness and motivation. Consistent enforcement by a well-trained management team is vital."

It's not just forklift training that needs to be effective, but all training. Material handling requires a lot of moving parts and incorporates multiple manual touch points where issues can arise. Reducing manual touch points is a good starting method, but reducing damage or loss overall requires training on how and where products should be stacked, on the ways in which they should be loaded onto on and off of pallets, and even on warehouse security.

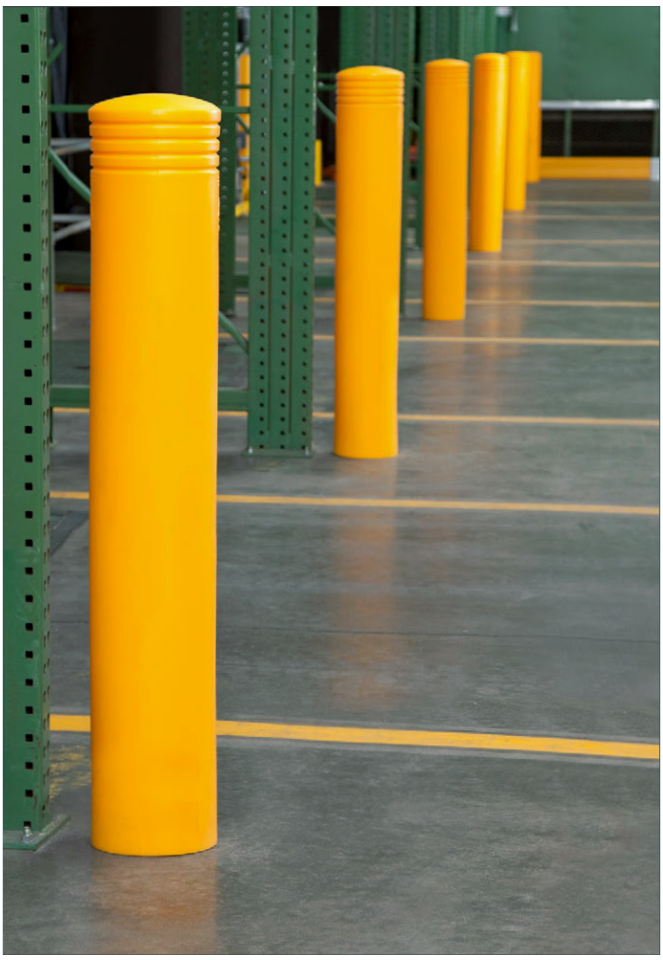
Process Implementation

All the training in the world won't matter at all unless proper processes are implemented. To discover the right processes to implement in the first place, work under the popular 5S methodology: sort, set in order, shine, standardize, sustain — and add a sixth for "safety." Each process followed in the facility should fall under one of these important efficiency and effectiveness parameters. Importantly, processes designed under the 5s methodology have one other effect: they make issues more clear, so those issues can be fixed.

We aren't saying that process implementation isn't a major challenge. We are saying that instituting policies such as lockout/tagout, creating teams to clean certain areas of the facility on certain days, and working toward better control over product and personnel damage should be at the top of every warehouse manager's priority list. Processes specific to damage prevention could include the above, as well as those mentioned in the training section, i.e. a process for pallet unloading, a process for picking, a process for each machine's use, etc.

Equipment With the Sole Purpose of Protection

There is, of course, another way to prevent damage that's much more tangible and much less time consuming, overall, than the previous two we mentioned. That doesn't imply your facility manager or trainer shouldn't still train on all aspects of safety and damage prevention, just that you have one more assurance in place, and that's definitely best practice.



04 Types of Protective Guarding

Members of the MHI group Protective Guarding Manufacturers Association (ProGMA) create and produce the type of equipment described above, such as barriers, bollards, column guards and protective netting. If you can design a facility with these physical measures in mind, or even if you install these types of products at the same time as other upgrades, you'll be taking leaps toward damage prevention.

Rails and Barriers

With the correct rails & barriers, you can:

- Avoid the wall damage or rupturing that comes with heavy equipment collisions
- Keep employees safe and separated from dangerous equipment
- Avoid column structure collisions — and avoid damage when they do happen

A crash barrier, for example, has the power to keep heavy equipment away from any walls, create clear traffic lanes and separate equipment from people on your facility floor. Features like high visibility and the ability to absorb impact or deflect it, based on the angle of the hit, make crash barriers a simple way to both create clarity and negate product damage.

Bollards

You already know bollards are everywhere, and that you'll use them in any design that takes heavy equipment into account. But did you know that concrete bollards can create an impact on the floor they stand in, the equipment that hits them and the body of the forklift driver in a crash? A flexible solution made with the right material installs more quickly, with less expenses, and can actually withstand impact and deflect it, not just take the hit and break.

Rack Protection

Racks shouldn't be rattled or scuffed up or damaged in any way. To help you avoid both equipment damage to your racks and product damage caused if they were to fail, consider end protectors and floor-mounted guards. Operating vehicles around pallet and storage racking is a constant hazard, so a high-strength floor-mounted solution — again, one that can withstand impact — is a must.

Material Handling Damage Prevention Starts With Design

Whatever design choices you make as you move forward, bear in mind that material handling equipment errors — poor maintenance, inadequate protective guarding, installation of an ineffective guarding solution (and the later removal), or just picking the wrong product all around — will result in increased damages. You have the power to proactively decrease product and personnel damage by understanding which types of material handling solutions are or should be in place, and assessing the effectiveness of each.

If you're designing a brand new facility, you have an opportunity to test impact of each initiative (training, material handling equipment installation, etc.) on profit not lost to damage. If you're working on an existing facility, and that facility is experiencing a loss in profit that's directly due to product damage, then it's time to assess that damage and understand what you have in place already and what you need to put in place in the future in order to combat such a loss. Implement the right solutions and you'll decrease asset damage even more than you might have thought possible.