

SLIP, TRIP, FALL SERIES: PREVENTION THROUGH DESIGN



ATTACKING HAZARDS HEAD-ON

Prevention through Design (PtD) is the concept of applying methods to reduce risk early in the design process. Greater attention to design elements (e.g., walking surfaces, traffic flows, maintenance, and water sources) upstream in the design process is the least expensive and most effective risk management tool to mitigate STF hazards.

Managing Slip, Trip and Fall (STF) hazards ideally starts from the moment your organization decides to build or refurbish a property. It is a challenging task that requires participation of architects, designers, operations, risk managers, safety staff, purchasing, maintenance, and housekeeping. However, the long-term benefits and avoidance of both direct and indirect costs associated with a claim or litigation against your organization will certainly outweigh the initial efforts and investment. PtD is truly the best and least expensive risk mitigation option available to you today.

Ask yourself...

- Do our planning processes include PtD concepts in the facility design to reduce the likelihood for STF incidents?
- Do we actively monitor our facilities to identify indicators of risk, such as incident reports and claims, to see where we can improve our designs?

The following information includes practical guidance on how to improve pedestrian and employee safety on your property.

Design Inputs

No doubt, developing, designing, and renovating a property is a complex and exciting time in the overall life cycle of a property. And, these points in the property's life cycle present the perfect opportunity to improve the overall employee and customer experience while reducing inherent risk.

PtD thinking starts with leadership engagement and awareness of the factors that contribute to STF risks by those responsible for design, operation and maintenance of the property. After all, it is during the design phase that a property can be improved for the least amount of capital and time. Moving methodically at this phase can pay off significantly over the life of the facility.

The goal of STF PtD solutions is to eliminate the causal factors that lead to the development of STF hazards and ultimately risk. Design improvements can help create a safer environment for pedestrians, staff and guests. However, before you can start designing or making property improvements, you must first know which improvements are the most beneficial.

Consider the following areas during the PtD process:

- **Equipment** – Primary PtD philosophy involves attention to equipment placement and use to eliminate fluids or debris from reaching a walkway.
- **Walkways and walking areas** – Select flooring materials with the lowest (best) slip resistance for the different conditions to which it will be subjected.

Design and construct to minimize surface material transitions to avoid trip hazards.

- Route storm water and roof drainage from walkways to remote collection areas.
 - Cover outside walkways to provide shelter from weather events. (rain, snow, ice, leaves, debris).
 - Consider enhanced controls for high traffic pedestrian through-ways and for seasonal changes in foot traffic.
 - Provide sufficient lighting to aid visibility of the walking surface. Allow for gradual lighting transitions wherever possible.
- **Special Features** – Consider placement and access to mechanical systems to support temporary events and structures.

THE PTD CONCEPT AT WORK

Entry Areas Considerations

- Floor transitions – intersections and changes in base materials, consistent slip resistance and height. Consider the entire “commute” from the curb – walkway – door threshold – vestibule – door threshold – lobby/entrance area. For example, New York City Sidewalk Code defines a trip hazard, where the vertical surface differences between adjacent sidewalk flags are greater than or equal to ½ inch. For additional information click [here](#).
- Lighting – consider a soft transition from bright to darker areas. This is a dynamic function of the entry; For example, the U.S. General Services Administration recommends a nominal Illumination level of 200 lumens/square meter for entries. However, recommendations for adjacent exterior areas may be much lower, for example 50 lumens is recommended for parking structures. Simply following standards may not be the best choice to ease lighting transitions. In this case you might consider exceeding the standard and illuminating the parking lot at 125-150 lumens to create an easier transition for people to navigate. For additional information click [here](#).

As you can see, seemingly simple construction concepts are complex when introducing users and their interaction with the design. Every building entry has its own additional

characteristics. The below are some other common features found at entries that need to be assessed and scrutinized in detail.

- Anticipated use – user population, e.g., children and people with diminished capacity
- Government design standards – Americans with Disabilities Act, Local Ordinances, etc.
- Flooring materials – Select flooring materials with the lowest (best) slip resistance for the different conditions to which it will be subjected
- Water exposures – snow, ice, water
- Floor mats - type, location, height, temporary/permanently
- Recessed foot grilles – type, location
- Signage and distractions – potentially distracting signage
- Decorative architectural features – flowerpots, curbed or recessed planters
- Water features – over spray, runoff, maintenance access
- Downspouts – location, type, volume, discharge routing
- Landscaping features – location, type of vegetation, growth, irrigation demands, trip hazards, hard-scape migration into walkways
- Other exposures inside and outside of the entry – vehicular access, exposure

As illustrated above, the design phase potentially incorporates thousands of small decisions including facility use, size, construction type, materials, colors, finishes and, of course cost. Each of these decisions offers the team opportunities to reduce STF risks in a fiscally responsible manner.

ACTIVE PROPERTY “SURVEILLANCE” AS A LEARNING AND IMPROVEMENT MECHANISM



Our experience shows that even when basic STF controls are in place, there remains a need to actively manage hazards on your property. Pedestrians and guests will tease out the weak spots in any design, some of which were not reasonably foreseeable even by the most experienced architects, engineers and facilities personnel.

Three key “surveillance” elements include periodic inspections, video monitoring, and post-incident analysis. Video monitoring is the most prominent of these elements that can be addressed during the design process.

The data from video monitoring can be used to reduce STF liability, improve physical security, and to gain valuable business intelligence. For example, by collecting and aggregating video data over time, property owners can better understand trends to make informed, data-driven business decisions regarding customer flow, shopping patterns and, of course, STF risk.

Thoroughly evaluating system capabilities and limitations during design will allow you to fully monitor a property in the most economically feasible manner. Unfortunately, all too often these systems are afterthoughts and result in either extremely costly installations or the failure to provide complete coverage of a property. Both situations that can be avoided if the process is moved upstream in your project timeline.



SUMMARY

At The Hartford, our experience clearly illustrates that there is opportunity for both education and improvement in the area of PtD. To truly get ahead of STF risks, organizations should move their thinking upstream and attack hazards at both the design and renovation stages of facilities planning and management.

RESOURCES AND REFERENCES

For additional resources, please log into [My Account](#) with your policy number to access related content that includes the following:

- Combating Slips and Falls in the Real Estate Industry
- Preventing Slips and Falls Through Effective Floor
- Slips Trips and Falls
- Controlling Slips Trips and Falls
- Customer Reporting Process and Report Form

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