

INSIDE: KAUAI TOURISM BOOM \* ARE YOUR RAILINGS & WALKWAYS SAFE?

# HAWAII *hospitality*

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# PROTECT *every* STEP



Bergeman Group conducts approximately 30 to 50 assessments annually for both maintenance and new construction projects.

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## Concrete Advice

Dana Bergeman, president and CEO of Bergeman Group, offers the following tips on concrete repair:

### For Concrete Walkways and Spalling

“There are a variety of concrete repair mortars available—varying in price as well as application. SikaTop 122 and SikaRepair 222 are great products widely used in the industry, along with Sika’s line of concrete repair corrosion inhibitors.”

### Glass Fiber Reinforced Polymer (GFRP) Rebar

“In certain applications, fiber-reinforced polymer rebar is an effective solution,” he says. But it is “only rated for concrete flat work such as curbs, gutters, sidewalks, concrete paving, parking lots and when designed-in by an engineer and used for spall repair and limited-height structural walls and columns.”

### Epoxy Injections

“Epoxy injections should be used on a case-by-case basis for structural cracks,” he says, and are “effective where minimal or no movement occurs, where there is an absence



Elite Railings installed a frameless glass system (CRL Base shoe system) in 2017 for street and lobby level railings at The Laylow, Autograph Collection. (Right) At the Outrigger Waikiki Beach Resort, Elite Railings used an Elite 1000 series glass railing system on a guestroom replacement project.

PHOTOS COURTESY ELITE RAILINGS & WINDOWS



of an unusually heavy load and the concrete is sound." Epoxy welds the two separated sections together, but if the cause of the split is not addressed, separation will continue. "Structural cracks and structural members that have not spalled are usually candidates for epoxy injections."

### Polyurethane Grout Injection

"Polyurethane grout injections are usually a good solution in occupied spaces," he says. However, "they shrink over time and are eventually prone to fail. An acrylate injection, such as Aquafin or similar, is generally recommended for these types of cases."

## Somewhere on your property there is an accident waiting to happen

BY BRETT ALEXANDER-ESTES

**D**oes your maintenance budget cover regular repairs to railings, walkways and staircases? If not, your bill could be catastrophic. A man fell to his death in 2016 when a railing at Ala Moana Center reportedly gave way. His friend, who tried to stop the fall, was severely injured. The resulting lawsuit was settled in March.



Kenneth Kasdan

"The public record does not reflect any party admitting fault, there was no trial, and no judicial finding of fault," says Kenneth Kasdan, senior partner at Kasdan LippSmith LLC, a Hawaii law firm. "This is typical of a settlement. Given the gravity of the matter, it is likely the settlement was for a substantial sum.

"The implications of the railing failure and lawsuit are clear," Kasdan continues. "The owner of a mall or hotel or other hospitality property holding itself out as inviting the public has an obligation to provide safe premises."

How can you be sure that your railings—and your other pedestrian structures—are safe?

### Know What to Look For



Abel Libisch

Hawaii's ocean chlorides corrode steel railings. So look for "corrosion, mainly at the base of the post" and peeling paint, says Abel Libisch, architect and project engineer at Elite Railings & Windows. Aluminum railings don't corrode, Libisch notes, so look for loose components due to broken steel screws.



Damien Enright

Failing steel and aluminum rails both show cracks in surrounding concrete. "With our harsh salty environment, our metal guardrail systems and the concrete they are attached to degrade at an accelerated rate," says Damien Enright, president of Structural Systems Inc., a Hawaii firm specializing in guardrail replacement and concrete work.

"The driving issue, many times, is dissimilar metal," says Dana Bergeman, president and CEO of Bergeman Group, a construction management firm based in Honolulu with

*"With our harsh salty environment, our metal guardrail systems and the concrete they are attached to degrade at an accelerated rate."*

— Damien Enright

offices on the Mainland. “For example, an unprotected aluminum railing comes into contact with steel reinforcement . . . that can weaken the rail’s connection.”



**Richard Malmgren**

If ocean chlorides reach steel reinforcements, the rods will rust, expand and shatter surrounding concrete, a condition known as “spalling.” This often happens “with aluminum railing post assemblies where rainwater infiltrates through the joints of the extruded aluminum, drips to the bottom, and promotes rusting of nearby rebar,” says Richard Malmgren, president of RCM Construction Corp., a concrete restoration company. “On many occasions, we have had to replace entire lanais due to the extensive rusting of rebar.”

## Schedule Regular Inspections

“Regular inspection of older railings is recommended, at least once a year,” says Libisch. “Properties located near the ocean should be inspected more often.”

Also check concrete at the base of the rails. And don’t forget concrete stairs, lanais and walkways.

Walkway defects—some as tiny as half an inch in elevation—typically cause two Hawaii lawsuits a year. “Will high heels get caught, and someone likely to trip?” Kasdan asks. “A recent award for damages in a Hawaii walkway lawsuit was in the amount of \$6 million.”

Your maintenance department can make the inspections, but “make sure the staff is qualified to observe defects or faults,” says Kasdan. On large, complex properties, this may require a professional assessment.

## Put It in Writing

An assessment “should generally be done by a consulting firm, architecture or engineering firm that specializes in building repairs and working on existing structures,” says Bergeman.

This assessment, Enright adds, should survey “your guardrail systems and concrete surfaces. Failing concrete or railings can be identified, areas can be secured to prevent any accidents or injuries, and a repair or replacement plan can be put in place.”



## Railing Risks

“To tag dangerous railings, says Kenneth Kasdan, senior partner at Kasdan LippSmith LLLC, a Hawaii law firm, look for the following:

- **Corrosion:** Flaking, peeling, holes and brittle cracks in the metal.
- **Cracked or Crumbling Concrete at the Base:** Spalling concrete shows deterioration “very likely resulting in loss of strength,” Kasdan says, “and a system subject to catastrophic failure.”
- **Dimensional Deficiencies:** “Code-compliant, but too low. Or railing pickets spaced too far apart on the bottom rung, or too high.”
- **Missing or Unstable Railings:** “Often obvious by physical inspection.”

## Read the Report

“Make sure the inspection report is reviewed by (your property’s) management,” says Kasdan. “Do not ignore the reports.”

## Make the Repairs

The sooner repairs are made, the better, says Libisch. “For steel railings, fix the paint to prevent further corrosion.” But painting is only a first step, cautions Kasdan. “Corrosion has to be removed,” he says. “Then proper remedial measures implemented.”

For aluminum railings, “loose railing components (like pickets) need to be fixed immediately,” Libisch says. “Fasteners in aluminum railing systems need to be coated to prevent the reaction between dissimilar metals (steel and aluminum).” Cracked concrete at the base of both steel and aluminum posts must also be repaired.

“It is good practice to install railings using epoxy anchors to isolate the metal from the concrete, and to prevent spalling in the future,” Libisch notes.

Fixing walkway cracks, says Malmgren, is expensive and time-consuming. But “if cost is no object, then one could argue that all surface cracks should be addressed.” Repairs that

route the crack and apply sealant are acceptable in the short term, he says. But “a longer-lasting approach is to route the crack and apply an epoxy resin.”

## Major Surgery

Spalling caused by corroding rebar deep in concrete walkways, lanais and staircases can be costly to repair, Bergeman says. Since the steel rods must be



**Dana Bergeman**

replaced, he says, “in certain applications, fiber-reinforced polymer rebar is an effective solution. Since it cannot corrode, it is increasingly used for spall repair.”

Paul Kane, owner and manager at Aloha Marketing LLC, says a similar product called GatorBar is one such solution. “GatorBar cannot corrode, period,” he says. “Since GatorBar is made with a basalt rock and epoxy, there is nothing to corrode.”



**Paul Kane**

Enright also recommends fiberglass rebar when specified. “Over the past five years, Structural Systems’ concrete remediation projects have been 30 percent hotel and 70 percent residential,” he says. Fiberglass rebar “has been successfully used on many concrete restoration projects.”

Just as an Isle hospitality property projects a unique image, “each situation is unique depending upon how the building was originally built, what the exact problem is, and how severe the rate of corrosion may be,” says Bergeman. “We always provide a recommended set of repair options to our clients, including any architectural, engineering and construction administration services that may also be necessary.”

Owners and operators of Hawaii’s hospitality properties should take heed. After the Ala Moana incident, Kasdan says, the property’s railings were redesigned with a low concrete wall supporting an above-grade railing system.

“Ultimately,” Kasdan says, “over 10,000 feet of railing was replaced at an approximate cost of \$4 million.”