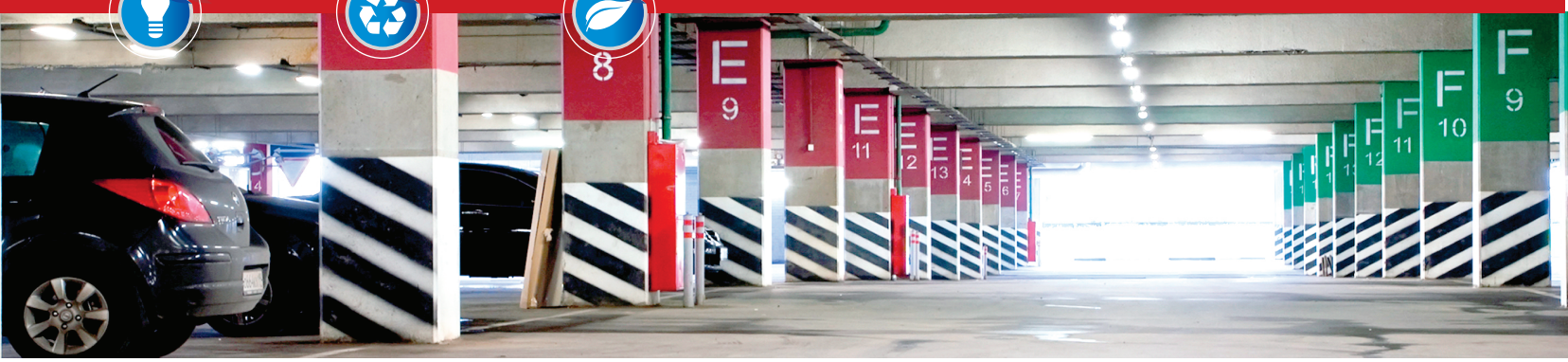
## A NEW METHOD OF APPLICATION FOR A TIME PROVEN INTEGRAL WATERPROOFING SYSTEM

**A revolutionary new application process for crystalline technology. Easy to apply**

**Sprays on the surface without changing the surface profile**

**Self-healing waterproofing which is chemical resistant. Environmentally friendly**

# Parking Structures




## Foxfire's P-1007 offers a cost effective solution to prevent parking deck failures due to corrosion.

*Environmental Friendly Products*

Studies show most garage collapses occur during construction or a number of years later due to the effects of corrosion weakening the structure. Parking structures are primarily constructed of reinforced concrete. These structures represent a major challenge of viability because they are exposed to harsh environmental elements. Premature corrosion related deterioration is common.

### The Cycle of Deterioration

Parking structures in the United States frequently show signs of deterioration within ten to fifteen years of construction. The removal of the loose and cracked concrete will expose the reinforced bars exposing them to harsh environmental elements. This starts the cycle of deterioration. In some situations the corrosion will cause complete section loss. The deterioration would require repair to maintain acceptable levels of serviceability and safety in the structure.

There are 3 types of parking structures:

- Precast Concrete
- Steel Framed Structures
- Cast In Place (CIP)

Conventionally reinforced concrete structures represent 36% of the market.

All types of garages are exposed to moisture problems. Water penetrates the concrete and causes the rebar to rust, which in turn expands and causes cracking and spalling of the concrete. This corrosion is caused by "carbonation". This is a natural process where carbon dioxide in the air interacts with moisture in the hydrated cement minerals creating gaps and voids.

This process will occur in northern regions because chlorides (d-icing salts) brought into the garage on tires and the undersides of cars permeate the concrete deck. In other geographical regions chlorides in the air are carried via rain into the pores of the concrete. These mechanisms lower the pH and lead to water entry and rust.

Preventative maintenance and corrective actions are required to achieve the desired useful life of a concrete parking structure in a cost-effective manner. The advantage of addressing the deterioration early before it accelerates reduces ongoing repair costs significantly. It is extremely difficult to catch up after deterioration in the structure starts to accelerate. The cost of repairs increase and their effectiveness decreases.

### Deterioration Solutions

There are two primary ways the concrete surfaces on parking structures have been addressed:

Membrane Coating
Water Repellents

A membrane coating, usually an epoxy or urethane, is applied over the concrete floor surface. The benefits of a membrane coating are that it protects the concrete from water migration and it can add an aesthetically pleasing look to the floor through color and texture. The lifetime of the coating depends on UV exposure but is typically 10 years. A membrane coating requires maintenance and is prone to pinholes caused by trapped moisture in the concrete. If the membrane is applied over "in service" concrete, trapped contaminants within the concrete cannot escape and continue to cause deterioration of the concrete.

Water repellents work to repel water for 1- 3 years. Water repellents cannot withstand the pressure of wind-driven rains over 35 mph. The tire pressure from vehicles over water is similar to a 70 mph wind, thus standing water and contaminants within the water on concrete can be pushed into the concrete substrate.