

Fiber Reinforced Composite

Any composite material consisting of a matrix reinforced by continuous or discontinuous fibers.

Fiber Reinforced Polymer (FRP)

A general term for a composite material comprising a polymer matrix reinforced with fibers in the form of fabric, mat, strands, or any other fiber form.

Concrete Crack Repair

With low-pressure crack injection, you can permanently repair a basement leak and foundation crack without high cost and disruptive excavation.

Coatings and Linings

Applications of coatings and linings can make a structure resistant to chemicals, abrasion, moisture, heat, impact, and freeze-thaw damage. In addition to their preventive qualities, they also serve an aesthetic purpose. National Concrete Preservation has experience and technical know-how to protect structures based on their given environment and chemical exposure. This experience translates to long-lasting repairs and extending the service life of structure. Coating and Lining Systems:

- Waterproofing Systems
- Epoxy Systems
- Urethane Systems
- Fiber Reinforced Systems
- Anti-microbial Systems

Chemical Grouting for Leaks

Water leakage entering or exiting a structure may be a significant problem requiring repair. An effective method of reducing, controlling, or eliminating leakage is pressure injecting a material into the passageway between the source of fluid and the leakage point. Materials come in many different forms and many techniques are available for placement. Successful long-term water control requires an understanding of the variables affecting the installation and operating conditions. Grout materials to choose from:

- Urethane
- Acrylate
- Epoxy
- Microfine Cement

Cathodic Protection Systems for Corrosion Control

Cathodic protection reduces the corrosion rate by cathodic polarization of the reinforcing steel in concrete. The rationale behind cathodic protection is to prevent the reinforcing steel from giving up electrons so that corrosion can be mitigated. This is achieved by supplying the electrons from another source. Sacrificial Systems Sacrificial anodes, also called a galvanic anodes, corrode preferentially producing electrons. Typical anodes are zinc, aluminum, magnesium and their alloys, which are more active than iron to protect reinforcing steel. Unlike impressed current systems, sacrificial systems do not require a power supply or monitoring. Epoxy Injection Resin is a system for welding cracks back together. This welding restores the original strength and loading originally designed into the concrete. Epoxy injection restores the structural qualities the concrete design intended. In other words under most conditions it makes the concrete as good as new. It creates an impervious seal to air, water, chemicals, debris, and other contamination.

Repair and Replacement of Expansion Joints

Expansion joints are an integral part of concrete structures. They are built into deck systems to control the stresses of volume changes in concrete. Depending on the type of construction (cast-in-place, precast, etc.), joints are installed to isolate ramps, buildings, and large expanses of deck surface. They may also be needed to provide free rotation of deflecting members. Most joints open and close according to daily and seasonal fluctuations in deck surface temperatures. Joints provide a natural place for water, salts, and debris to collect. They also present a hazard to pedestrians who may trip over them. To prevent these problems, joint seals can be installed. Seals must be designed for the intended movement of the joint, as well as for watertightness, wheel action (traffic, equipment), pedestrian safety, and repairability.

Post-Tensioning Cable Repair

Method of pre-stressing in which internal or external pre-stressing tendons are tensioned after concrete has hardened.

- Post-tensioning, bonded: post-tensioned construction in which the annular spaces around the tendons are grouted after stressing, thereby bonding the tendon to the concrete section.
- Post-tensioning, external: post-tensioned construction in which tensile forces are maintained through anchorages at each end of the exposed tendons.
- Post-tensioning, unbonded: post-tensioned construction where tendons are permanently prevented from bonding to the concrete after stressing.

Balcony Repair and Waterproofing

High rise structures with concrete balconies, especially in coastal areas, are exposed to elements that attack structural reinforcement systems. Once the corrosion process begins, small cracks and spalling lead to an accelerated attack upon the structure's integrity.

Masonry Restoration

The integrity of masonry structures can be compromised by factors such as deteriorated mortar joints and cracked bricks. These problems are caused by stress buildup in masonry facades, water penetration within and behind masonry walls, original construction defects and a host of other issues.

Polymer Cement Overlays

Polymer cement overlays can be applied thinly or up to several inches thick, without delaminating, as a surface restoration material for concrete surfaces. Polymer cement overlays are much more resistant to damage from salt, petrochemicals, UV, harsh weather conditions and traffic wearing than conventional concrete surfaces. This treatment can be used for concrete resurfacing, regrading and in conjunction with stamping and staining.

Shotcrete

Shotcrete is concrete (or sometimes mortar) conveyed through a hose and pneumatically projected at high velocity onto a surface, as a construction technique. Shotcrete is usually an all-inclusive term; gunite is a term sometimes used for some dry-mix types. Shotcrete undergoes placement and compaction at the same time due to the force with which it is projected from the nozzle. It can be impacted onto any type or shape of surface, including vertical or overhead areas

Slab Jacking

If your concrete is sinking, there is a very good possibility that the concrete slab was installed on poorly compacted fill dirt. Sub-surface erosion and shrinking soils are also possibilities. simply drill strategically placed holes into the slab. Using a portable pump and flexible hoses, they fill these holes with the special mixture. Lifting a slab using this

method can often be accomplished in a few hours. Often the cost to perform this service is less than half that of replacing a new slab. There are numerous benefits to slabjacking.

- It can be done in virtually any weather. The material injected beneath the slab provides a strong base.
- There is little or no disruption to landscaping.
- Nothing needs to be moved off the slab, as the pump can lift the weight of the slab and anything you have placed on it.

Spalling

Spalling occurs when the finished surface breaks away from the base aggregate of a concrete slab. The most common cause for spalling is when the concrete is improperly maintained or improperly sealed and is exposed to winter de-icing chemicals, such as salt and calcium chloride, as well as typical freeze-thaw associated with winter weather. It can be as little as the salt that drips from automobiles onto driveways or in garages. Spalling can occur at any time... even in less than a year.

Waterproofing

Waterproofing products are added to a concrete mix or on to a concrete surface to prevent moisture from flowing through the masonry materials. This is typically applied to vertical poured concrete and block foundation walls.