STRENGTHENING THE NATION

GUBBI CIVIL ENGINEERS

STRENGHTHENING THE NATION SINCE 1993

About Us

We are a group of specialized civil engineering professionals offering high quality solutions to all types of structural repairs and waterprooing, foorings and external coating cum painting needs of residential, commercial, industrial buildings and other infra structural facilities. In the last two decades of continuous service, we could get the privilege to serve clients in almost all the spectrum in the Indian industry.

We adopt the latest technology in our feld and complete the projects with high quality , and with very high level of safety measures encompassing our labour, who are real assets in our business , with cost effective manner and within the shortest possible time.

We believe in world class quality service using innovative technology that creates trends through value engineering. We strongly believe in striking a balance- eficient engineering and thoughtful process for sustained development across all projects.

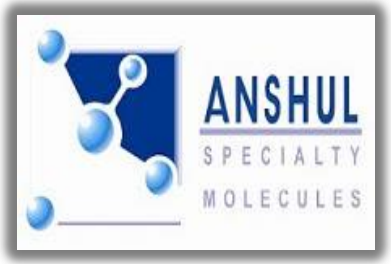
Our Sister Concerns

Gubbi Enterprises

Gubbi Waterproofing

Gubbi Industries

Client List of Chemical Sector



Client List of Energy and Power sector

TATA POWER

adani Power

MAHATRANSCO

आरजीपीपीएल RGPPL

एनटीपीसी NTPC

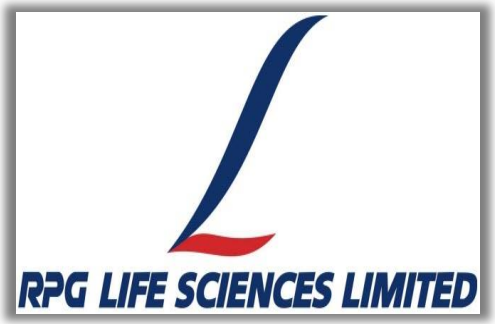
INDIA
CREATING WEALTH FOR WELL BEING

राष्ट्र की सेवा में परमाणु
भा प अ कें
BARC
ATOMS IN THE SERVICE OF THE NATION

NPCIL
Nucler Power Corporation of India Limited.

torrent POWER

Client List of Pharmaceutics Sector



Client List of Oil and Lubricants

Client List of FMCG Retail Sector

Client List of Manufacturing Sector

GUBBI

asianpaints

TATA STEEL

ASB

PARRYS

Manjushree 2.0

PSL

Shree Cement

MUKAND
Infinite resolve

Client List of Electronic Sector

SIEMENS

TOSHIBA

Bharat Bijlee

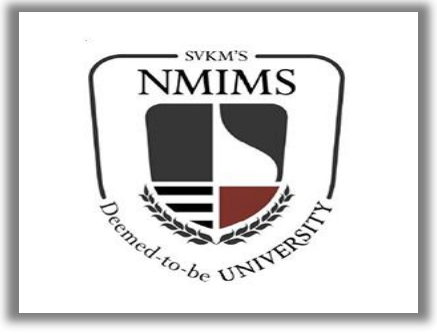
SULZER

sify

VOLTAS

Client List of Banking and Insurance Sector

Client List of Institutes



Client List of Others

GUBBI

GODFREY PHILLIPS INDIA LIMITED

CPWD

CIDCO
WE MAKE CITIES

रेल विकास निगम लिमिटेड
Rail Vikas Nigam Limited

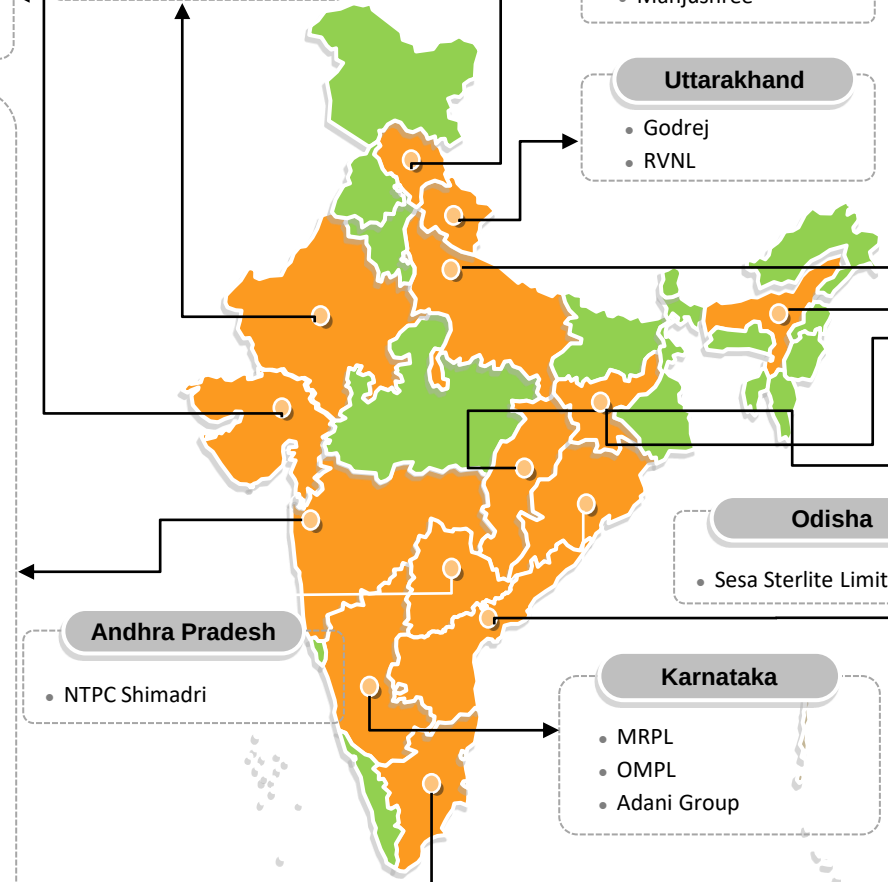
huber group

HUHTAMAKI

STAR TV
FILM, LIFESTYLE & ENTERTAINMENT

Indo Count

Sri Shanmukhananda
FINE ARTS & SANGEETHA SABHA



Gujarat
- RIL Jamnagar
- RIL Dahej
- Torrent power

Maharashtra
- TATA Power
- Reliance Corporate Park
- RGPPL
- RCF
- Reliance Industries
- HPCL
- Total Oil
- Hindustan Unilever
- Britannia Industries Ltd
- Godrej
- Aditya Birla Group
- Times of India
- HDFC Bank
- HSBC Bank
- Indian Bank
- Johnson and Johnson
- Johnson Matthey
- RPG Life Sciences
- ASB international Pvt Ltd
- Galaxy Surfactnats
- Voltas Limited
- Bharat Bijlee
- Siemens
- BARC
- DMART

Rajasthan
- Shree Cement

Andhra Pradesh
- NTPC Shimadri

Himachal Pradesh
- Manjushree

Uttarakhand
- Godrej
- RVNL

Uttar Pradesh
- Reliance Corporate Park

Assam
- Reliance Industries

Jharkhand
- Jusco

Chhattisgarh
- NTPC Korba

Odisha
- Sesa Sterlite Limited

Telangana
-

Karnataka
- MRPL
- OMPL
- Adani Group

Tamil Naidu
- NLC India Ltd
- IIT Madras
- Canara Bank
- CPCL
- BARC

STRUCTURAL REPAIRING

- **Fiber Wrapping.**
- Glass Fiber wrapping.
- Carbon Fiber wrapping.
- Carbon Laminates.

- Spray Polymer.
- Polymer Mortar.
- Epoxy Mortar.
- Corrosion Inhibitor.
- Sacrificial Anode.
- Micro Jacketing.
- Steel Flithching.

- Fiber Wrapping.
- Glass Fiber wrapping.
- Carbon Fiber wrapping.
- Carbon Laminates.

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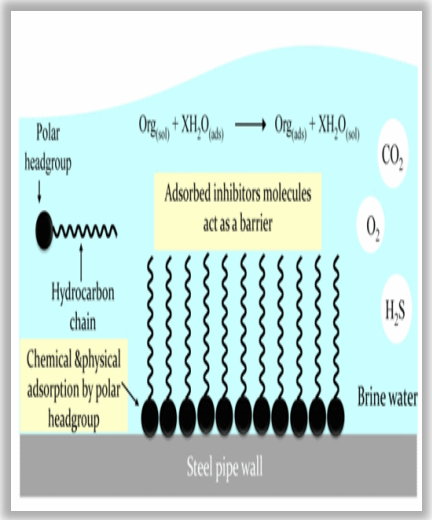
- Polymer Mortar.
- Epoxy Mortar.
- Corrosion Inhibitor.



- Sacrificial Anode.

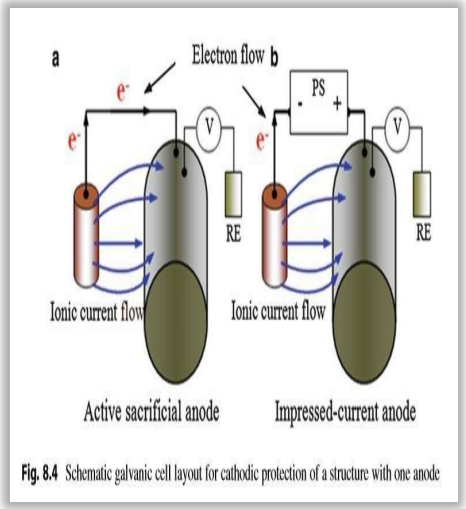


Fig. 8.4 Schematic galvanic cell layout for cathodic protection of a structure with one anode

- Micro Jacketing.

- Steel Flithching.

Fiber Wrapping

Carbon and Glass Fibre Reinforced Polymers (FRP), also called composite materials, are popularly used in structural strengthening for steel, wood, concrete, seaport and aerospace applications. Traditional techniques for strengthening, such as adding concrete and reinforcing steel around the outside of a structural member, external post-tensioning, or adding structural steel supports (shoring) often are more expensive due to the extra work to get everything into place. In appropriate applications, FRP strengthening can be 30% to 50% less expensive than traditional strengthening due to the ease of installation.

- **Glass Fiber wrapping.**

Glass Fiber Wrapping is considered the go-to solution when concrete loses its capacity or design strength resulting in corrosion. Corrosion can be a factor caused due changes in the usage of the structure or demand for change in design to adhere to load-carrying capacity.

Glass fiber wrapping is known to be a helpful process for the rehabilitation and retrofitting of structures and structural strengthening. Glass fiber is cheaper and marginally less brittle than carbon fiber when used in structural composites.

Advantages Of Glass Fibre Wrapping

• Glass Fiber with multiple layers becomes ductile and aids in strengthening the rehabilitation and retrofitting of structures.
• Glass fiber is cheaper and marginally less brittle than carbon fiber when used in structural composites.
• For the retrofitting of structures against seismic activity, glass fiber reinforced polymer or GFRP wrap act as a shield.
• Glass fiber is lightweight and is available at the required length. Glass FRP wrapped concrete columns have the power of resistance against any chemical or factors that cause weathering.
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• The Glass fiber reinforced polymer bonds between concrete and wrapping material it can significantly enhance the strength and become highly adaptable to concrete.
• Glass fiber also ensures an increase in flexural & shear strength of structural members, hence causing no disturbance to other structural members like columns, beams, walls, floor decking, and roof decking.
• Glass fiber is an excellent agent of structural strengthening as it increases tensile strength and impact resistance.
• Glass fiber is easy to adjust and fit existing components in a way that ensure structural strengthening.

• Carbon Fiber wrapping.

Carbon fiber wrapping for industrial and carbon fiber wrapping for commercial buildings

Carbon fiber wrapping for columns or carbon fiber reinforced concrete is applicable in various construction projects. They work towards building maintenance or concrete structure strengthening for residential or industrial buildings, commercial properties, industrial chimneys and bridges.

Carbon fiber wrapping for industrial purposes applies to strengthen structures subject to heavy loading and machinery vibrations.

The application of carbon fiber wrapping for commercial enables repairing apartment buildings, sports arenas, concrete slabs, and more.

Importance of Carbon Fiber Wrapping Columns in Structural Strengthening

With the growing population, infrastructural and construction demands are at the peak. The construction industry is searching for ways to speed up work without compromising the quality of material used.
The need for sustainable construction material has made use of carbon fiber popular.
Carbon fiber wrapping for columns is beneficial for improving the performance of the structure against seismic activity.
Carbon wrapping for columns is an ideal alternative to the traditional method of structural strengthening.
Fiber wrapping concrete columns act as a shield to corrosion. The carbon fiber wrap concrete repairs and reinforce the concrete structures.
Application of carbon fiber to the exterior of a concrete column, beam, or slab, adds significant strength without giving additional weight on foundations and other structural members.
Carbon fiber wrapping for columns reduces the need for further maintenance and repair work.
Fiber wrapping concrete columns improve durability. Carbon fiber wrapping columns is simple due to the flexibility in use of carbon fiber mesh. The material makes it easy to wrap it around structures that are unsuitable to traditional methods.
Fiber wrapping are a cost-effective method and safe against seismic events or natural disasters.
Carbon fiber wrap concrete repairs the buildings that are damaged or dilapidated.

• Carbon Laminates.

Carbon laminate has the property of being extremely stiff and strong because the woven layers of pure carbon fiber are bonded together by hardened plastic.
In the repair and rehabilitation of structures, the carbon fiber reinforced polymer laminates are an effective material to strengthen existing reinforced concrete wood or masonry members structurally.
If there is a faulty or a defect in the structural components, carbon laminate come in handy.
Carbon Laminate are known to be resistant to water and chemical. Carbon Laminate and Carbon fiber together help in adding strength and durability to the structure.
Over the years, if the structure is damaged or depreciated, CFRP laminates add the necessary strength. Carbon fiber laminates are a convenient repair option when the building's loading capacity undergoes structural pattern changes or there is the need of Seismic retrofitting.
The carbon fiber laminate is similar but lighter in weight than steel plates. Adding carbon laminates to the repair process brings strength to the structure without putting any additional dead weight nor increasing the size of the member.
CFRP laminates are known to be corrosive resistant which, makes the structure durable against damages and deterioration.

Benefits of Carbon Fiber Laminates

- They reinforce and make the structure stronger.

- Carbon fiber laminates are a shield to the structure against seismic activity. The seismic retrofitting reduces the risk to vulnerable and weak buildings. Seismic retrofitting of buildings is the best way to ensure the safety of the occupants and assets against endangered activities.

- Carbon laminates are easy to install and use.

- To improve appearance of concrete surface

- Carbon fiber laminates certify the durability of the structure and also enhances the appearance.

- Carbon laminates tend to boost the functional performance of the structure.

• Spray Polymer.

This structural repairs technique is a ready-to-use sprayable – cement based repair mortar, giving high early strength, reduced rebound and allows for thickness upto 150mm in one go. This polymer based mortar is to be pressure sprayed ,with addition of required amount of water and no in-situ addition of any other material. The repair work is speedy and the set mortar attains strength upto 40N/mm^2 in 28 Days. Repair is the technical aspect of rehabilitation. It refers to the modification of a structure, partly or wholly which is damaged in appearance or serviceability. Repair and rehabilitation of existing damaged concrete structures have emerged as one of the most important construction activity. Structural rehabilitation involves the upgrading or changing of building's foundation. Rehabilitation of Structures & repair has become a major part of the construction industry. Repair & Rehabilitation of Structures work execution & Health monitoring of deteriorated structures. It structures involve removal of rust, damaged plaster and Concrete, anti corrosion coating, polymer coating, polymer modified mortar, repair of masonry cracks, grouting, column jacketing, repair RCC cracks.

Advantages of Rehabilitation of Structures

- Remove all cracked and loose concrete.
- Support the structural members properly as required
- Apply protective coatings over the repaired surface.
- Improve structural strengthening
- Increase the performance of structure
- Improves the life of structure
- Better appearance and aesthetically appealing

• Polymer Mortar.

Where concrete structures have deteriorated due to corrosion and where changes in use and/or design code do not demand increase in loading capacity, Efficient repairing of concrete structures can be done by application of **polymer modified mortars**. In structural repairs include Polymer modified mortar. The buildings were originally constructed with concrete mix (1 cement: 1.5 sand: 3 coarse aggregates) with minimum strength requirement of 20 N/mm2 min., so it was decided that the polymer modified repair mortar must have compressive strength of 25 N/mm2. Based on the polymer test reports, concrete mix used in the construction of these buildings, extent of damage. Polymer Modified Mortar Contractor

Retrofitting of Buildings

In the old buildings, there are not enough non-ductile columns and they are spaced too far apart typically about 16 inches apart. The wrapping confines the columns, making them stronger and more ductile. That means the structure can tolerate more movement. Some of the most common problems facing in retrofitting includes air leakage, rising damp, under ventilation, overheating. Many buildings are still evaluated and retrofit using relatively simple force-based methods. Seismic Retrofitting or retrofitting of buildings is a suitable technology for protection of a variety of structures. Optimization techniques are needed to know the most efficient retrofit for a particular structure. The existing walls of a building are added certain thickness by adding bricks, concrete and steel. existing structures to be retrofitted may differ from those assumed when the structure was first designed and built, due to various factors at the construction stage as well as load action and environmental action during use. When retrofitting of buildings of existing structures is being studied, performance items specified as performance requirements shall be examined to verify whether or not the structure has the required performance at the time of the study.

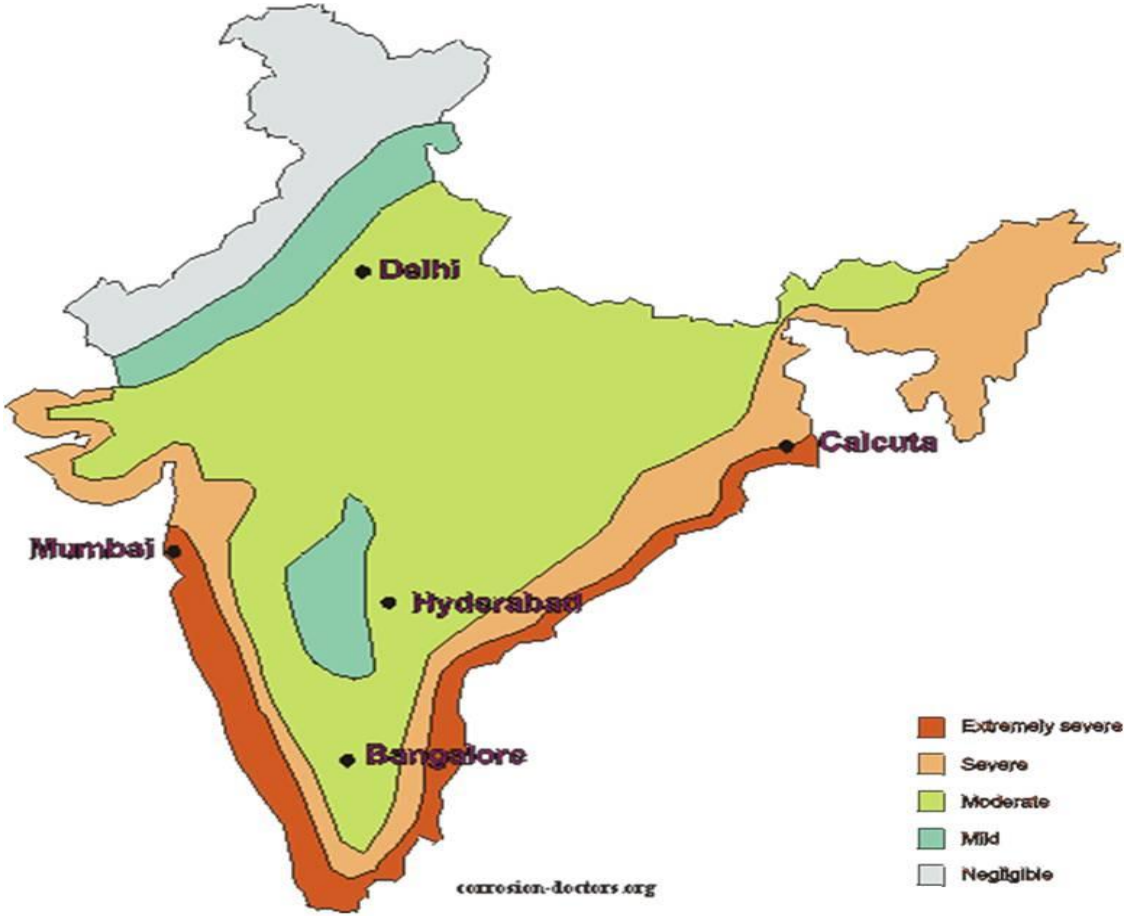
• Epoxy Mortar.

A three-component, water-washable 100% solids epoxy mortar system for installations where exceptional high-strength and chemical and impact resistance is required. 100% solids epoxy systems unique formula produces a mortar with greater bond and compressive strengths and improved chemical resistance over conventional cement or emulsion-based setting systems. Use for epoxy mortar patching and overlays on interior, horizontal substrates.

Epoxy-based mortar is amixture of materials such as epoxy resins, solvent, binder, mineral fillers and some additives in certain measurements depending on the desired properties after curing. It is used as an adhesive and mortar for structural repair of damaged, dished or dangerous concrete and floors.

The epoxy-based mortar has thixotropic properties and other qualities such as:

- High strength and hardness after curing
- Provides good adhesion to construction material
- They are easy to mix and apply; it also cures faster, even in dump surroundings (synthetic resin)&Heavy traffic friendly.
- They have improved fluid permeability resistance; it is also stain-resistant
- They have improved abrasion, impact and chemical resistance
- Easy all-in-one packaging
- Provides a range of color mix
- Does not shrink or crack



The corrosion map of India was prepared by the Corrosion Advisory Bureau, Metals Research Committee (Council of Scientific & industrial Research) Jamshedpur

• Corrosion Inhibitor.

What Does Corrosion Inhibitor Mean?

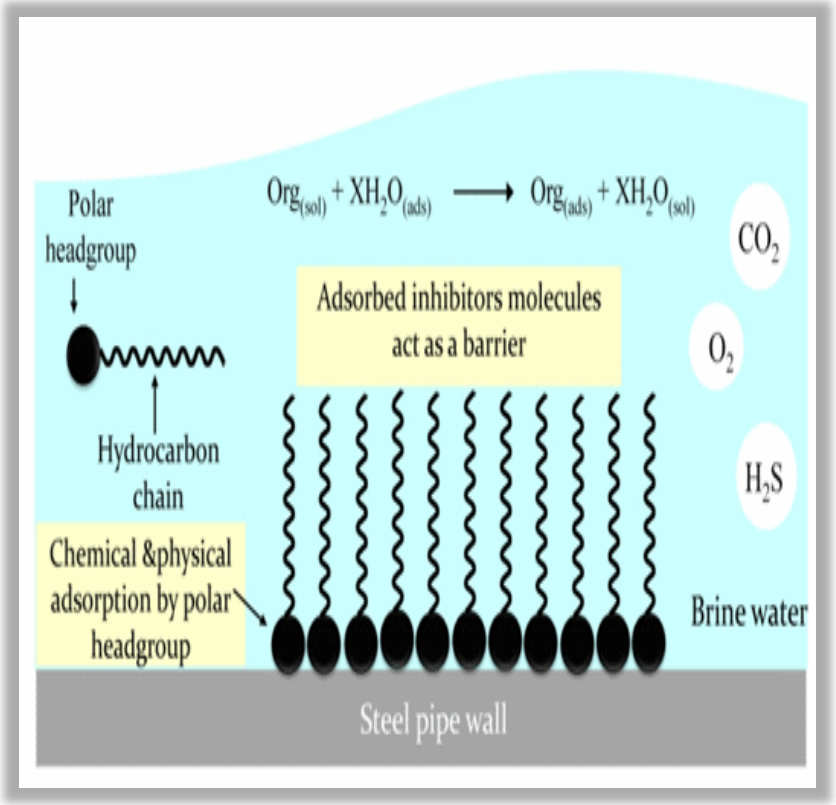
A corrosion inhibitor is a substance which, when added to an environment in a small concentration, effectively reduces the corrosion rate of a metal exposed to that environment.

There are three types of corrosion inhibitors:

•Anodic inhibitors

•Cathodic inhibitors

•Mixed inhibitors



• Corrosion Inhibitor.

Corrosion inhibition usually results from one or more of three general mechanisms:

• The inhibitor molecule is adsorbed on the metal surface by the process of chemisorption, forming a thin protective film either by itself or in conjunction with metallic ions.
• The inhibitor causes a metal to form its own protective film of metal oxides, thereby increasing its resistance.
• The inhibitor reacts with a potentially corrosive substance in the water.

When choosing the corrosion inhibitor for your application, several things need to be considered, as follows:

• Materials to be protected
•Method of application (dip, spray, brush, etc.)
• Type of protection required (in process, storage or shipping)
• Type and thickness of coating residue desired
• Storage, packaging and/or shipping conditions (temperature, humidity seasonal conditions)
• Interaction with subsequent processes, if not removed
• Environmental, health and safety requirements
• Type of product (oil/solvent or water-based)
Electrochemical methods are routinely used for the evaluation of corrosion inhibitor efficiency. The advantages of electrochemical methods are their short measurement time and mechanistic information, which help in the design of corrosion protection strategies, as well as the design of new inhibitors.

- **Sacrificial Anode.**

Corrosion causes the metal to degrade and weaken thereby raising high concerns regarding the safety, durability and the strength of the construction. Metals used in construction are zinc, steel, iron andaluminum. The oxidation process that occurs between iron, steel and oxygen is one of the most critical corrosion problems faced by the industry, commonly termed as 'rust'.All steel and iron structures are prone to corrosion and need a systematic method to prevent that from happening.

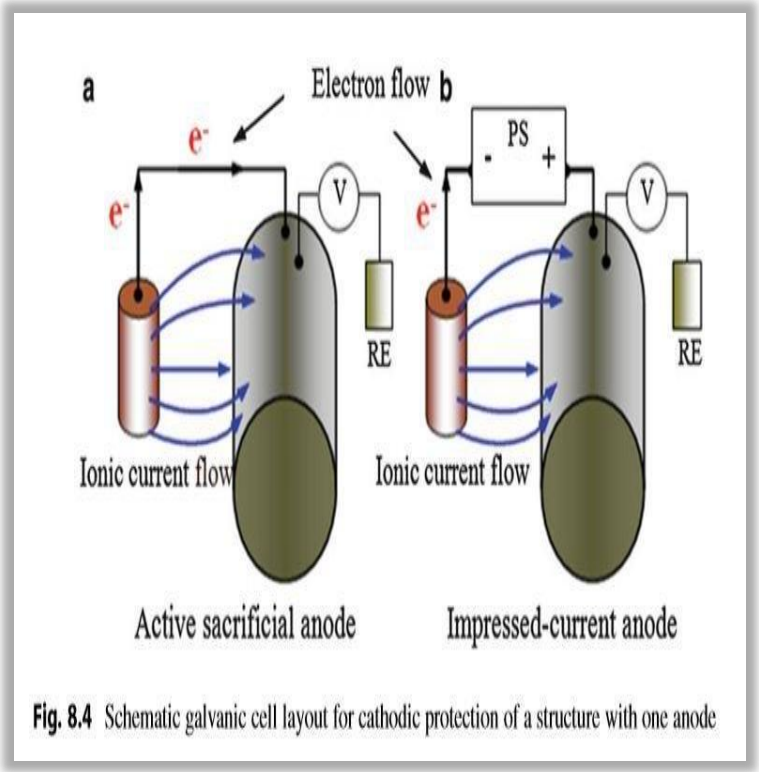


Fig. 8.4 Schematic galvanic cell layout for cathodic protection of a structure with one anode

Anode at the rescue

One most proven and established method of mitigating corrosion risk to enhance the strength and life of reinforcement structures is using ***Sacrificial Anodes***.It is so termed because one of the metals is sacrificed to protect the reinforcement.

To demonstrate the benefits of this method, we tried an experiment. We removed a part of an overhanging eave, tied an anode to it and covered it with a plaster.

After 2 years we checked the results using a herself potentiometer. The readings of the anode protected area and the readings of another spot just 4 meters away, were the proof of the potential benefits of a sacrificial anode. We then extracted the entire structure and the volume of the anode protected area was found to be intact, whereas corroded area appeared to be swollen and the volume was higher.This implies that ANODE is effective in safeguarding the properties of the structure and protecting from damage.

To simplify this, consider the magic of anode and cathode. In the Sacrificial Anode Mechanism, the electric potential difference between two metals one of them being zinc, is used to create free flowing ions and the more active metal begins to corrode, thereby loosing electrons. Anode has an alkali activate mortar covering. The electrons then travel through the structure thereby causing a chemical reaction that helps to prevent corrosion of the structure.

Sacrificial anode systems have the advantage of being simple and easy to install, requires no external electric power source and com across as a cost-effective solution as compared to other anti-corrosion techniques. Anodes work very well in high aggressive weather conditions for industries, chemical industries, cooling towers, chimneys, bridges etc.

Column Jacketing & Concrete jacketing.

The technique of column jacketing improves and restores the capacity of the reinforced concrete column. Column jacketing for RCC columns helps to increase the load-bearing capacity. Column jacketing improves the axial and shear strength of columns.

Concrete jacketing or micro concrete jacketing technique increases existing strength of structural components like a beam, column.

Concrete jacketing shields the concrete against deterioration and nourishes its strength capacity.

The technique of steel jacketing with variable vertical angles upgrade the load-carrying capacity of the rectangular reinforced concrete column under eccentric loads.

Advantages of the column jacketing include high early and ultimate strength, durability, appearance, protection of steel, increase the column's shear capacity, preventing shrinkage in the plastic stage due to gaseous properties and increases its flexural strength.

Beam Jacketing

The jacketing of beams gives the ultimate strength and stiffness to the structure by providing continuity to the columns. The jacketing of beams is one of the beneficial methods for strengthening and repairing RC beams. Beam jacketing safeguards the structural beams against design errors, concrete production deficiency, earthquakes or environmental factors, or changes in the functionality of the structure etc.

Beam jacketing of RC beams adds a new layer of concrete to the existing cross-section reinforced with longitudinal and transverse reinforcement.

Steel Flitching

Steel Flitching is required to be done for RCC members for increasing its load bearing capacity or in case where the members have deteriorated and increase in size, by jacketing is not possible.

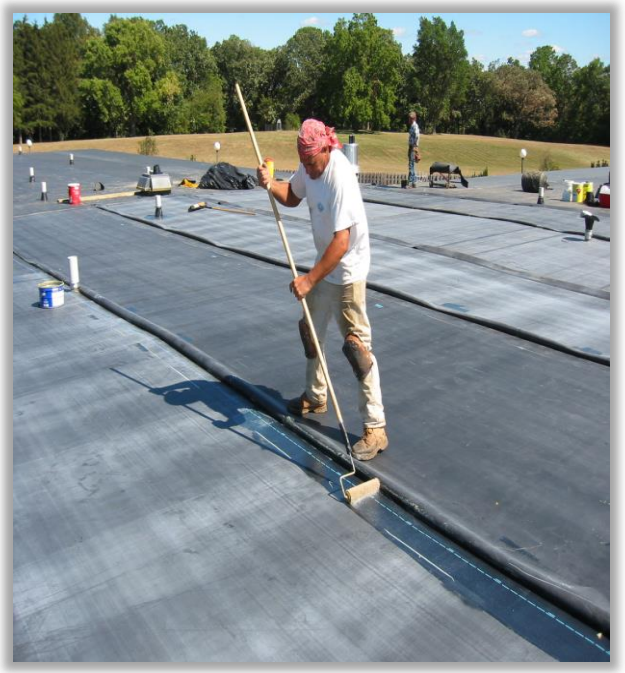
Waterproofing

- Membrane Waterproofing
- EPDM Membrane Waterproofing
- PVC Membrane Waterproofing
- APP Membrane Waterproofing

- Polymer Modified Mortar with Screed Course Watery
- Brick bat coba waterproofing with Stamped Finish
- Light Weight Waterproofing

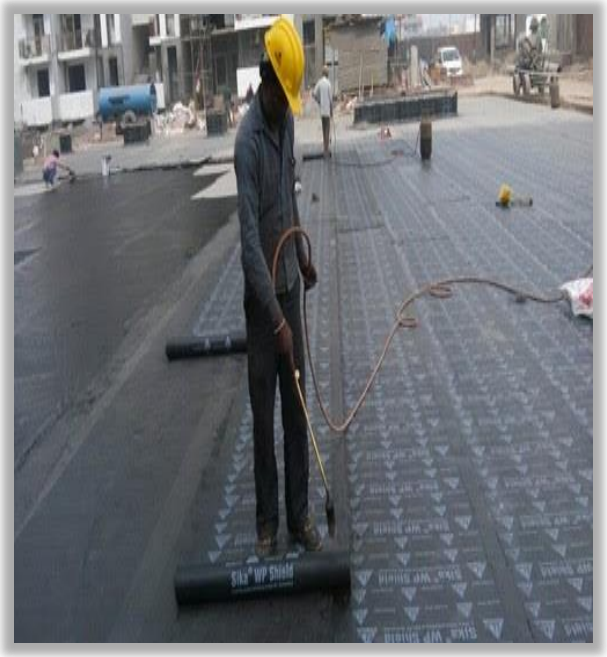
- Membrane Waterproofing

- EPDM Membrane Waterproofing



- PVC Membrane Waterproofing

- APP Membrane Waterproofing



- Polymer Modified Mortar with Screed Course Watery

- Brick bat coba waterproofing with Stamped Finish

Light Weight Waterproofing

• Membrane Waterproofing

We are leading Liquid waterproofing contractors or APP membrane waterproofing contractors. Waterproofing is the combination of materials used to prevent water intrusion into the structural elements of a building or its finished spaces. Its main purpose is to resist hydrostatic pressure exerted by moisture in the liquid state. Waterproofing membranes consist of waterproof plastic, rubber, or coated-fabric materials. The materials are used in a system to prevent the ingress of water into foundations, roofs, walls, basements, buildings, and structures when properly installed. Depending on the structure and need, the waterproofing membrane can either be applied to the interior (negative), such as the case with repairs, the exterior (positive).

Liquid waterproofing membrane involve App Membrane Waterproofing is the formation of an impervious watertight barrier over surfaces of foundations, roofs, walls and other structural members of building to prevent water penetrations through these surfaces. Watertight Membranes can be formed by using materials like cementitious material, bituminous material, liquid polymeric waterproofing membrane and polyurethane liquid membrane etc or ready made membranes like APP, PVC, EPDM, TPU or HDPE membranes. Gubbi Civil Engineers is an liquid waterproofing membrane or app membrane waterproofing contractors in India. Liquid waterproofing membrane is available in the form of liquid and is sprayed or applied by brush or roller to the concrete surface which forms a thick joint free membrane in contact with air. These liquid applied systems feature coatings have elongation properties, durability, flexibility, abrasion, chemical resistance providing successful installation. The liquid waterproofing membrane provides optimized performance and also most importantly longevity. Our services in waterproofings are PVC membrane waterproofing, EPDM Membrane waterproofing, APP Membrane waterproofing, TPO Membrane.

Advantages of Liquid waterproofing Membrane:

- Easy to install.
- Excellent weatherabilty.
- Excellent Waterproofing strength.
- Impermeable to water.
- Durable.
- Economic

• EPDM Membrane Waterproofing

The **EPDM Membrane Waterproofing** that is an EPDM rubber based membrane and can be used for waterproofing of various areas such as basements, roofs/terraces, expansion joints, wet areas (toilet blocks), facades, etc. It is a single product that can be used for waterproofing most parts of a building. The EPDM Membrane Waterproofing are techno-commercially much better than substitutes such as bitumen membranes, crystalline products, admixtures, various coatings, etc. The use of these products may be avoided in projects where EPDM membranes are used. The EPDM Membrane Waterproofing is an excellent substitute to the torch-on membranes.

Advantages of EPDM Membrane Waterproofing

- **Superior mechanical properties:** Good tensile strength and high elasticity.

- **Superior aging properties**. Resistance to UV and ozone: Long service life and low life cycle costs.

- **Ease of installation:** Applied using Polygomma Bonding Adhesive. **No need of flames or torches during application.**

- **Acid resistant:** Rainwater as a pH of less than 7 (acidic). Polygomma EPDM membranes perform well even is acidic environments. It is important for any waterproofing system to work in such conditions.

• PVC Membrane Waterproofing

PVC waterproofing membrane is a modern roofing material, which is made of high quality flexible (plasticized) polyvinylchloride.
Depending on the application area there are reinforced and unreinforced membranes. Reinforced waterproofing membrane has a reinforcing base in the form of polyester mesh or glass fiber and it is used for waterproofing of roofs. Reinforced membranes have increased durability. Unreinforced membranes are more flexible, have high tear resistance and are used for waterproofing of underground structures, tunnels, swimming pools.

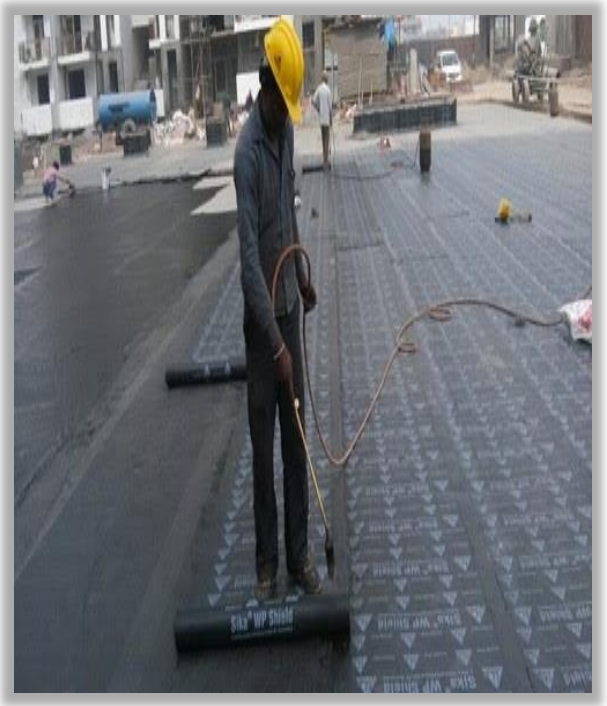
Main advantages of PVC waterproofing materials

PVC membranes are one of the latest high-tech solutions for waterproofing of roofs, foundations and so on. Unlike bituminous materials PVC films have higher:

- strength;
- elasticity and tightness;
- strength of the welds (at the junction of sheets);
- atmosphere and chemical resistance;
- vapor permeability at 100% water resistance;
- resistance to wind loads;
- frost-proof;
- resistant to changes in temperature;
- precision in the execution of complex elements;
- resistance to the movements of structural elements of buildings;
- resistance to oxidation and UV rays;
- high durability;
- fast to mount;
- fire resistant;
- diversity of colors.

• APP Membrane Waterproofing

The APP membrane, short for Atactic Polypropylene Membrane, is a special waterproofing material that is manufactured from Bitumen. They comes in rolls. Each roll measures 10 metres by 1 metre and covers an area of 8.7 m^2. With proper workmanship, the APP membrane is a very efficient and durable waterproofing material used in most constructions. It is a common waterproofing material used on concrete flat roofs (which are still roofs) or roofs with low pitch. Apart from concrete roofs and low pitched roofs, other areas of application are concrete gutters, basements and retaining walls.



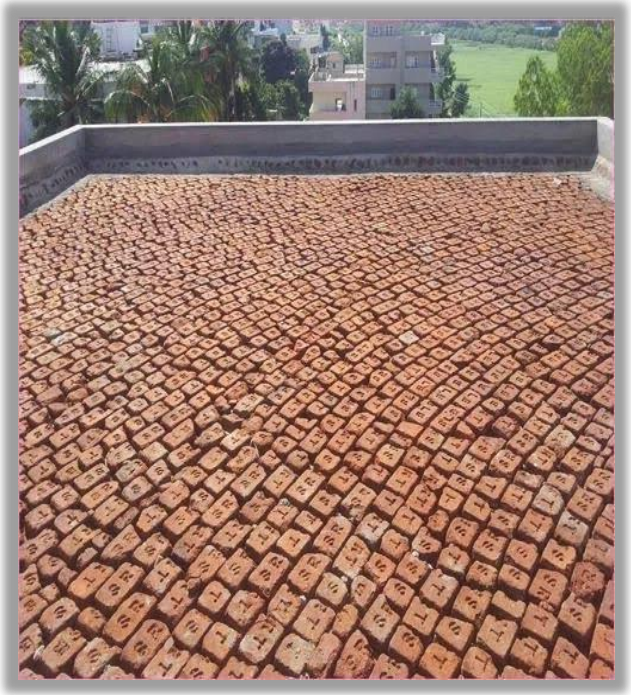
• Polymer Modified Mortar

Polymer modified mortar is produced by mixing water with polymeric admixtures, Portland cement, and sand. The addition of polymer improves mortar's performance and consequently can be utilized advantageously and economically in several applications. Latex polymers, redispersible dry polymers, water-soluble polymers are the different types of polymer used to produce polymer modified mortar. In addition to improving the workability, Polymers enhance adhesion, toughness, flexural or tensile strength, and resistance to chemicals, and freezing and thawing resistance of mortar.

Polymer modified mortar also requires less water compared to traditional mortar which results in a more dense mortar with fewer pores.

Brick bat coba waterproofing.

The oldest and the effective method of waterproofing. Brickbat waterproofing or Coba waterproofing is the process of laying brickbats on the flat concrete roof and covering with IPS with an addition of waterproofing compound and a slope to drain the surface water. Brickbat coba waterproofing is said to be an excellent and one of the most effective forms of waterproofing and insulation solution. The brickbat coba waterproofing process uses old bricks that absorb rainwater, preventing it from seeping into the structure. Brickbat coba waterproofing is used on the flat concrete roof to provide a slope to drain the water and prevent problems caused because of water leakage. The roof slabs constructed by RCC require thermal comfort insulation and effective waterproofing treatment. Brickbat coba waterproofing meets these requirements successfully.



Brickbat waterproofing or coba waterproofing seals the cracks, stops water leakages, hides the untidy marks and gives an aesthetically appealing coverage. Choose Gubbi Civil Engineers for Roof Waterproofing and terrace leakage solution. Roofs are an essential part of any structure; hence shielding them from water is of utmost importance. At Gubbi, we provide a calculated and efficacious roof waterproofing solution that prevents water penetration and leakage. We aim to keep your property safe against potential damage caused by water with our roof waterproofing solutions. With many successful projects under our wing, we are undoubtedly the best roof waterproofing contractor in India. Gubbi, one of the most renowned terrace leakage solution expert, aims to provide the best terrace leakage solutions to our clients to save future repair and maintenance cost that can be caused because of water damage. If you are looking out for the most effective terrace leakage solution, the team at Gubbi Civil Engineers is here for you.

•With expert knowledge and experience, Gubbi has established itself as the leading waterproofing contractors and waterproofing applicator.

•Being one of the top waterproofing companies, we consider vital requirements and guidelines that help us deliver a successful project.

•We are waterproofing contractors that use safe and sustainable materials and methods for the best output.

•We lead our waterproofing services with expert knowledge and structure understanding because imperfectly done waterproofing can cause severe damage to the structure.

•Our trained and qualified research and development team have a solution to treat any waterproofing damage or problem.

• Light Weight Waterproofing

A seamless topping Of light weight foamed concrete sandwitched between 2 layers of Polymer / PU coating. Gubbi Civil Engineers is one of the leading contractors in waterproofing services of best waterproofing solution.

Advantages of Light Weight Waterproofing

- Eco friendly
- Good compressive strength
- Less water absorption
- Sound proofing
- Fire resistance
- Excellent Thermal insulation
- Durable

Application Area

- Residential Building
- Commercial building
- Corporate offices
- Industries
- Warehouses
- Heritage Structure projects
- Industrial Projects
- Companies
- Commercial Projects

Flooring

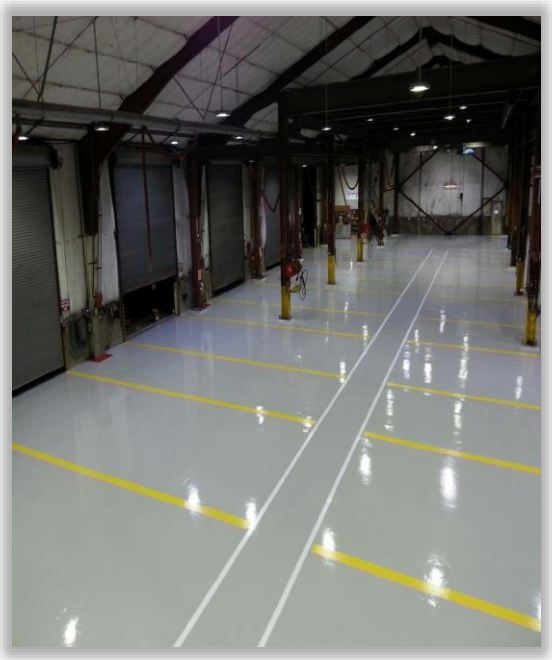
- Tremix Flooring.
- Poly Urethane Flooring.
- Industrial Concrete Flooring.
- Epoxy Flooring.
- Stamped Concrete.

- Tremix Flooring.

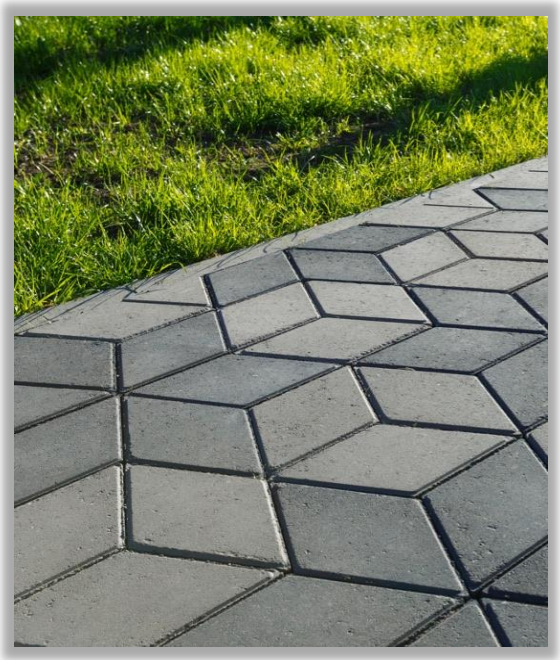
- Poly Urethane Flooring

- Industrial Concrete Flooring

- Epoxy Flooring



Stamped Concrete



• Tremix Flooring.

Tremix flooring is a well-known form of flooring applicable in the industrial sector. Tremix flooring has strong wearing and tearing properties that make it durable and sustainable.When it comes to the industrial sector, heavy machinery, light load carriers, and lightweight cranes come to mind that requires a sturdy flooring surface like tremix flooring.Apart from industrial flooring, other areas/places where tremix flooring can be a good application include manufacturing plant, warehouses, garages, industrial roads, workshops, storerooms.

Tremix Concrete flooring has enormous advantages and increases compressive strength, tensile strength and provides resistance to erosion.Tremix concrete flooring reduces floor shrinkage and floor wraps.

What makes Gubbi Civil Engineers the best Tremix Flooring service provider

• We, Gubbi Civil Engineers have skilled and specialized professionals on the team. They work with an expert team and offer Tremix concrete flooring as a qualitative solution. We hold experience of more than 25 years as flooring contractors.

• Gubbi Civil Engineers are flooring contractors who provide services like tremix flooring, epoxy flooring, polyurethane flooring, stamped concrete flooring, paver block flooring.

• Our tremix flooring services aim to give excellent results in tremix flooring finish, abrasion resistance, strength, impact resistance and smoothness.

• With various services offered, we ensure to create an even & uniform levelled surface that can help save extra cost spent for the floor finish.

• Sticking to tremix in construction can lead to several benefits including, dustproof, floor abrasion resistance, resistance against wear and tear, heavy-duty performance, good resistance, increase the life of the concrete of Tremix flooring and much more.

• Poly Urethane Flooring.

The technique of polyurethane coating uses a polyurethane layer applied on a substrate surface to protect it from damages. Polyurethane coating protects the substrate from corrosion, weathering, abrasion or any other form of wear and tear or deterioration process. PU coating is a recommended volatile solvent applied to a surface where high abrasion resistance is required.

PU Coating gives a gloss finish and has high UV value, high workable capacity, impervious to almost all types of chemicals, water and saline atmosphere resistant, and is super durable.Polyurethane coating is customizable; hence implementing them to have a glossy, muted, opaque or transparent appearance is easy.The polyurethane coating is available in various colours and at an affordable maintenance cost.

What makes Polyurethane Coating popular?

•PU coating has properties that make them distinct from other coating forms.The durability of polyurethane coating makes them softer and more elastic than their epoxy coating. This quality is what makes the floor with PU Coating prone to heavy pedestrian traffic. The slight springiness that polyurethane coating provides allows it to absorb the impact due to heavy loading.

•Floors using PU coating are resistant to abrasion and less subject to dents and scratches.

•With the quality of being highly elastic, floors with polyurethane coating can maintain their original shape and mechanical properties even if the temperatures drop below 30°F

Which structures require a floor with a polyurethane Coating?

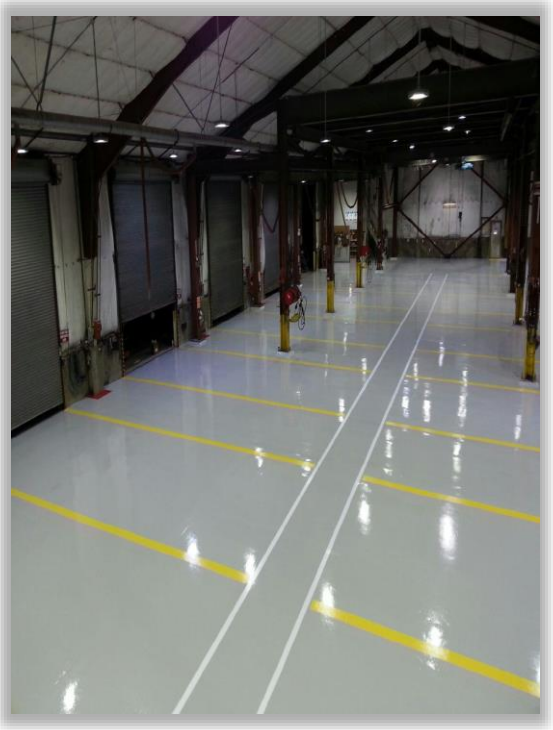
PU coating has several exclusive mechanical properties and characteristics that make them an ideal choice for floor coating.Polyurethane coating is applicable at airports, hospitals, malls or any other busy commercial creations.Non-flammable water-based polyurethane coating is favourable for application in environments prone to combustion.Polyurethane coating is also used on wood floors, metals or as a layer on other coatings.

Industrial Concrete Flooring

When it comes to choosing the best industrial floors for your industrial facility, there are numerous factors to consider. Is it better to replace the entire floor and start fresh or to restore the existing floor? What design options are available, and are they customizable? How much downtime will there be for my staff between surface preparation, application, and returning to the work floor? What safety issues need to be addressed by the new floor coating? The process seems daunting, but it doesn't need to be. As experts in industrial concrete floor solutions, Creative Maintenance Solutions, LLC, has the answers you need. Let's begin by discussing the recommended types of industrial concrete floor solutions.

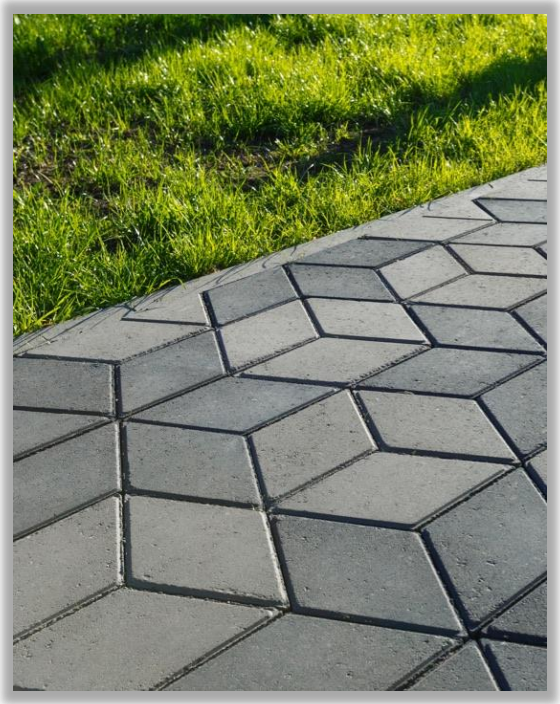
- **Epoxy Flooring.**

Epoxy flooring, other known as resinous flooring, is highly durable, customizable, sustainable, and decorative for any surface. What appeals most to epoxy flooring is it's resistance to high levels of wear and tear, making it the most long-lasting flooring options. If you are considering epoxy resin flooring, here is an explanation of what epoxy floors are made up of, the different types epoxy resin, and where to use specific types of epoxy flooring systems.



- **Stamped Concrete.**

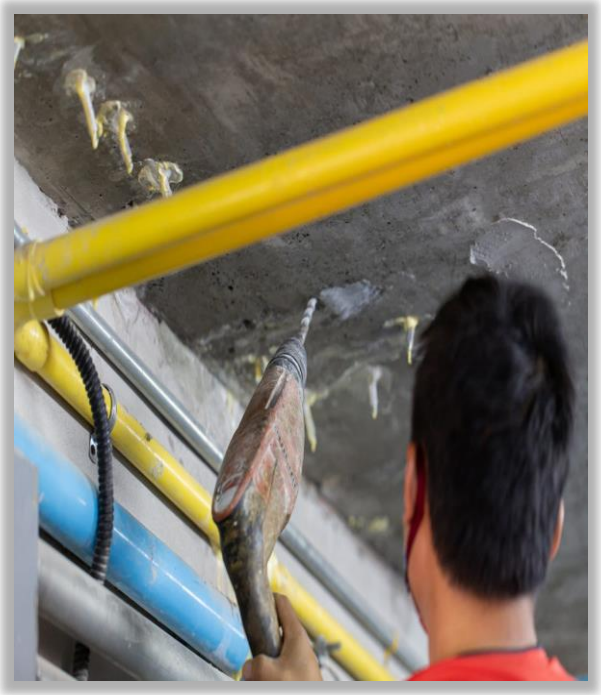
Stamped concrete, often called textured or imprinted concrete, replicates stones, such as slate and flagstone, tile, brick and even wood. The wide variety of pattern and color choices make it popular for beautifying patios, pool decks, driveways and more. Additionally, it's an affordable paving option that requires less maintenance than other materials.



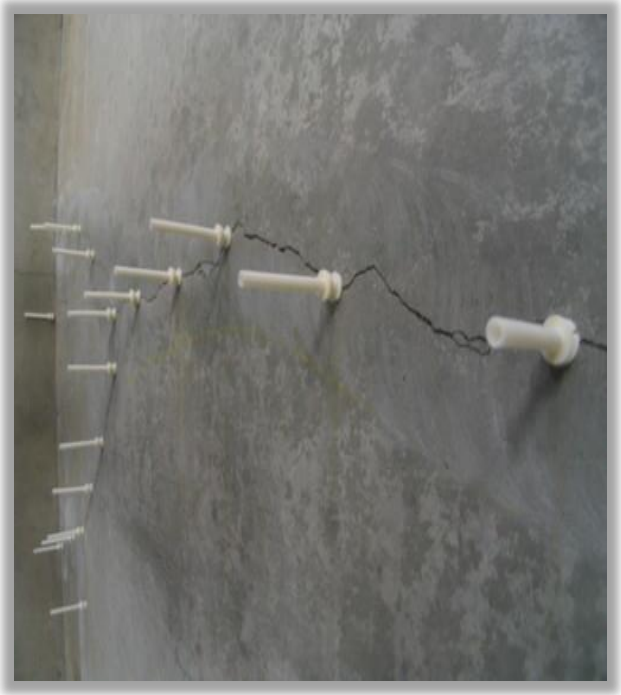
Grouting

- PU Foam Grouting
- Epoxy Grouting
- Micro Fine Cement Grouting
- Cement Grouting

- PU Foam Grouting



- Epoxy Grouting



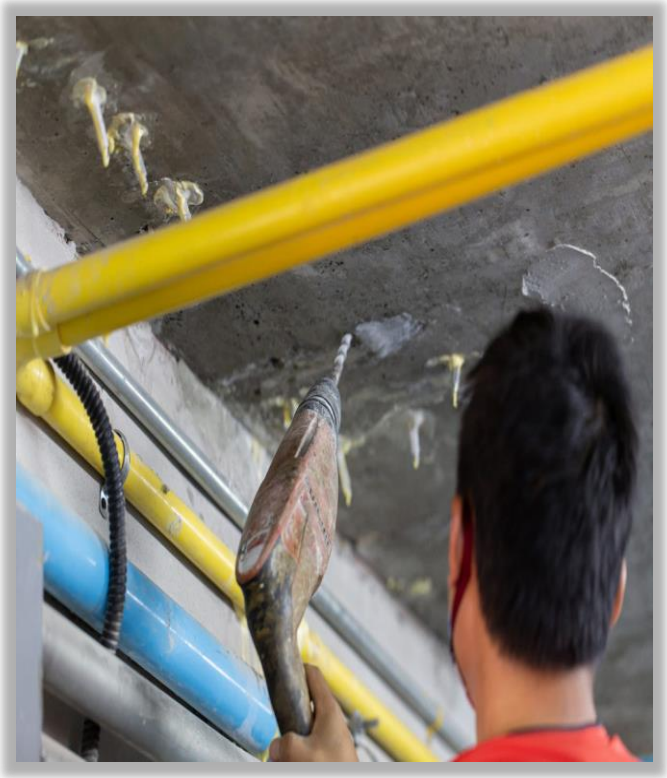
- Micro Fine Cement Grouting

- Cement Grouting

• PU Foam Grouting

The method of PU grouting uses polyurethane mixed with other active accelerators, grouted under high pressure in concrete structures.Polyurethane grouting helps to cut off high pressure and velocity gushing water.During PU grouting, grout materials used with uniform plastic packers react with water/moisture and expands to form a tough, closed rubber that becomes resistant to a corrosive environment.

This method of grouting is known as a productive water retaining method.PU grouting is a widely used waterproofing method that creates a barrier to water flow, a structured re-levelling, seals joints and structural cracks.The impact and effectiveness of PU grouting are more on being applied on the underside or negative side of the water seepage.PU grouting is a known method in the construction sector and utilized in infrastructure and industrial markets for slab lifting of streets or interior floors.



Advantages of using the PU grouting method

•Among the most notable features of PU grouting, it is quick and fast and is cost-effective.

•Owing to the property of materials used in PU Grouting, they have low viscosity, allowing them to expand and seal tiny cracks that can cause leakage.

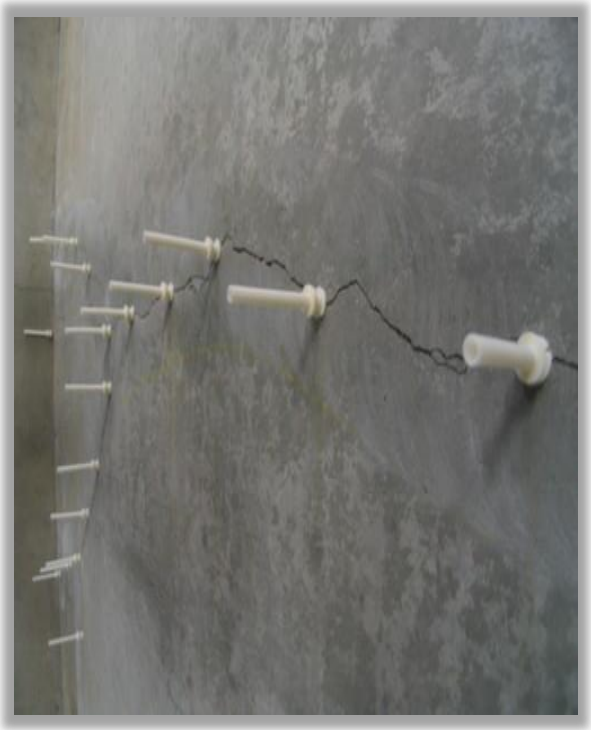
•The light equipment requirement and materials used in PU grouting make it a time-efficient than any other grouting method.

•This method is applicable as it is clean and uncluttered.

•The PU Grouting uses an injection method. The injection rods cause small drill holes, making the process light and less disruptive for other structural members.

• Epoxy Grouting

The Epoxy injection grouting method consists of a solvent-free base material called epoxy resin and a low viscosity liquid hardener.The method of epoxy injection grouting may take place with free-flow under gravitational force or by injecting using a hand or mechanical pump.Epoxy injection grouting is by far the most effective method of repairing cracks in concrete structures. The process of epoxy grout is taken into consideration depending on the type of crack, its width and depth. Epoxy Injection grouting helps to fill the joints, cracks, and spaces between old piping and new pipe.



Key benefits of epoxy injection grouting

• Epoxy injection grouting is preferred owing to its quick setting and very low viscosity shrinkage.

• The epoxy grout method acts as an excellent adhesive and has high strength.

• The low viscosity of the epoxy injection grouting protects the formation of hairline cracks and provides good resistance to most chemicals.

• Epoxy grout is a waterproof method and is also known to entirely stain-resistant.

• Epoxy injection grouting helps in filling and bonding cracked concrete.

• Epoxy grout act as structural support in areas where a grouting solution is required and where dynamic load resistance is required.

The epoxy grout method requires deep-dive knowledge, research and development by expertise for application. Hence choosing the right company for epoxy injection grouting service is very important. If you are looking for an effective epoxy grout service, then Gubbi Civil Engineers is where you need to be. We are known to provide the best and successful epoxy injection grouting services under expert supervision.

• Micro Fine Cement Grouting

The micro fine cement grouting process lets the cement penetrate tiny pores and cracks.The tendency to penetrate minor cracks and microscopic rock openings allows it to increase strength, durability and reduce permeability.

The micro fine cement grouting uses a mixture of the expander and vulcanizing agents.In the construction areas where the grouting is impossible, the micro fine cement grouting method proves to be beneficial as it grouts medium-to-fine sands.This type of grouting method is known for the exceptional flow properties and potential characteristics.Micro fine cement grouting is known as non-toxic, odourless, pollution and shrinkage free, making it a widely used method.

The Benefits of Micro Fine Cement Grouting

•The ideal purpose that the technique of micro fine cement grouting aims to solve is to increase the strength of the bearings, assure the filling of gaps and making them airtight, seal water and stop seepage.
•This process of grouting does not bear the brunt of strength reduction over time.
•Micro fine cement grouting is a non-disruptive method. It prevents settlement and heaving

The Application of Micro Fine Cement Grouting

•Micro fine cement grouting is a suitable method for cracks in dams that require grouting, creating an underground waterproof curtain, strengthening the foundation settlements on high ways, bridges, airport or runway. Other few places where micro fine cement grouting prove to be beneficial are as follows:-The method of micro fine cement grouting helps in averting settlements of roads and embankment.
•Cofferdams are prevented from heaving or boiling with the help of the micro fine cement grouting method.
•It stabilizes the soil in landslide-prone areas.
•It fixes and conducts water sealing in damaged zone/areas.
•Micro fine cement grouting proves to be a remedy for preventing differential settlement of oil tanks.

• Cement Grouting

The cement grouting process involves cement injection under a certain amount of pressure to fill fractures and voids formed in concrete structures.
The simple form of cement grouting helps fill the gaps, increase the strength & impermeability capacity of the RC member and reduce the porosity of honeycomb members. Pressured cement grouting involves injecting a grouting material – an admixture of cement and water and an non shrink material, into an inaccessible but interconnected pore or void space of the concrete structure.Another use of cement grouting is to correct the construction faults in concrete and masonry structures.Cement grouting has applied usage in several structural works including, bridges, marine applications, dams, and rock anchors.

Advantages of Cement Grouting

- Cement grouting has an economic advantage over other forms of grouting methods.
- Cement grouting can be performed even in areas with space constraints and difficult access.
- Cement grouting is effective and is easily adaptable to the existing foundation of structures.
- It doesn't disrupt or cause inconvenience to the normal operations of the building.
- Cement grouting acts as a barricade to the flowing groundwater.
- It is a successful application for underpinning foundation.
- Cement grouting is said to provide excavation support.
- The method of cement grouting initiates the stabilization and strengthening of granular soils.
- Cement grouting is the best method to fill underground voids.
- Cement grouting pressured into rock fractures improves the stability of the rock formation.
- This method provides pre-construction site improvement and arrests foundation settlements.

In the case of rocking slabs in warehouses or fixing and repair fractures in machine bases, cement grouting is an effective method.

- Cement grouting also allows the rectification of issues related to sinks.
- The method of cement grouting is favourable for lifting and levelling slabs and in supporting settlements on soft grounded granular soils.

Industrial Construction

- Tower Foundation
- Shed Foundation
- PEB construction

• Tower Foundation

The word foundation in itself suggests its importance in any construction.For any structure, either a building or tower, the foundation construction, the right design and methods are vital. Foundation is the part that has connects the soil and the load of the structure safely. Ensuring that the tower foundation is well built and durable enough to take the structural load is crucial. The strength of the foundation determines the safety of the tower.Depending on the strength of the tower foundation, one can determine the stability.

Consideration of various parameters like the quality of soil, the tower height, the nominal load plays a role in tower foundation construction.

Transmission Tower Foundation

A transmission tower foundation requires designing that it is safe and sound for passing electrical transmission. A transmission line tower has to support conductors that carry electrical power and wires above the ground level. For establishing a successful.Transmission tower foundation, the strength design, stability analysis of the foundation, the study of the soil on site must be thorough. All possible factors like a failure by overturning, uprooting of stubs, sliding and tilting of foundation, should be well thought of in advance.

Tower Crane Foundation

Designing a tower crane foundation is requires in-depth research and knowledge. Reviewing all the safety measures to produce a safe and sound design is vital. While building a tower crane foundation, a few things must be kept in mind. The steps of the tower crane foundation include the crane model and specifications, crane base reaction, assignment of load areas, load combinations and the foundation designs.The foundation designs check includes pull-out check, punching shear check and crack width check.

At Gubbi Civil Engineer, we construct various Tower Foundation works like cold rolling mill foundation, hot rolling mill foundation, bell furnace foundation and pickling line foundation work done with a precise line, level etc.

• Shed Foundation

An industrial shed is a cost-effective solution that is opted by various commercial and industrial sectors. Industrial sheds allow storage of everything right from machines, equipment to raw materials or products used in manufacturing. While constructing industrial sheds, steel frames are the most preferred choice.

Industrial sheds vary in sizes as per the requirement. Industrial sheds are operational as a warehouse, factories, godowns, workshops, storage plants etc. Immense planning, designing, quality and trustable component fabrication goes in constructing an industrial shed.

Steel Sheds and Factory Sheds

The materials used in constructing industrial shed have a direct effect on their stability. Steel is known as the sturdiest and most durable material and can withstand natural hazards and disasters. Steel sheds are resistant to fire and termites.Steel sheds protect against splitting, wrapping or cracking. Steel sheds are favourable to vulnerability and rotting.Factory sheds are low-rise buildings that are in much demand owing to their safety measures and structural adaptations.

A few of the prominent features of factory sheds is that they are lightweight and durable, good resale value, economical construction, low maintenance cost and earthquake resistance.

Factory sheds cover large areas, specifically in industries they are needed the most.

Why choose Gubbi Civil Engineer?

If you are on the hunt for the best industrial shed manufacturers, then Gubbi is the right choice. We are prominently known for providing quality and durable roofing construction for sheds. Roofing construction for sheds requires precise planning and experience. Roofing construction needs to be on point to ensure safety against unfavourable weather or natural disasters is what we believe at Gubbi.We have created our name in the market as one of the fine industrial shed manufacturers who deliver work nothing below excellent. As a renowned industrial shed manufacturer, we treat every stage of constructing an industrial shed right from planning to completion with utmost importance.

• PEB construction

We, at Gubbi Civil Engineering have an unmatched process, methodology and techniques for deliveringPEB structures. The fastest and the safest method of completing construction are through PreEngineered Buildings and the same is our forte. Pre-engineered steel and metal buildings have gained tremendous popularity in the construction industry due to its flexibility, durability and adaptability. All aspects of PEB buildings, such as aesthetic, dimensional, occupant comfort and fire safety are considered during the planning stages itself. Reach us for the best output for your projects.The Construction industry is working towards generating process or methods that can increase faster work output without compromising quality.Pre-engineered buildings and peb structures are an approach that the construction industry has undertaken over the years. Pre Engineered Buildings (PEB) are designed and engineered at a factory with customized sizes and shapes. These built structures are then later assembled at the actual site with bolted connections. Most of the peb buildings are steel structures. One of the pros of PEB structures is that they are prefabricated curated buildings. Peb structure is applicable for designing aircraft hangers, airport terminal, industrial buildings & enclosures, factory, cold storage buildings, metro stations, warehouses, bridges, etc. Nowadays, contractors are using the peb method for residential structures.

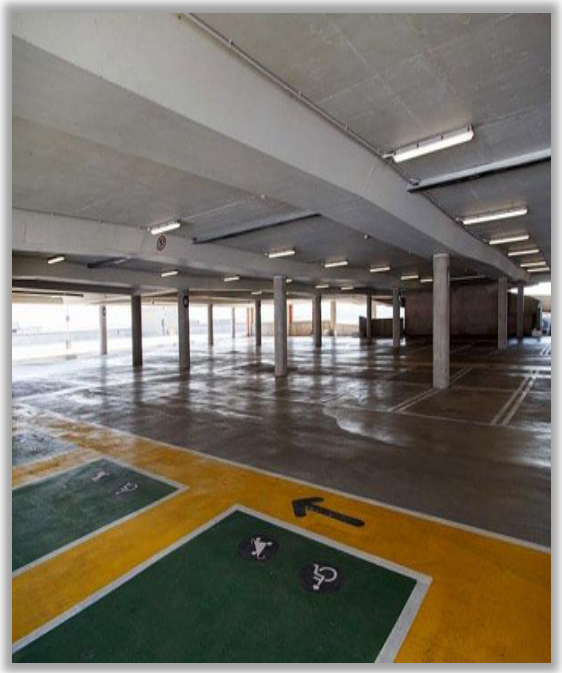
Painting / Coating

- Elastomeric Coating
- Texo-Elastomeric Coating
- Anti Carbonation Coating
- Heat Reflective Coating

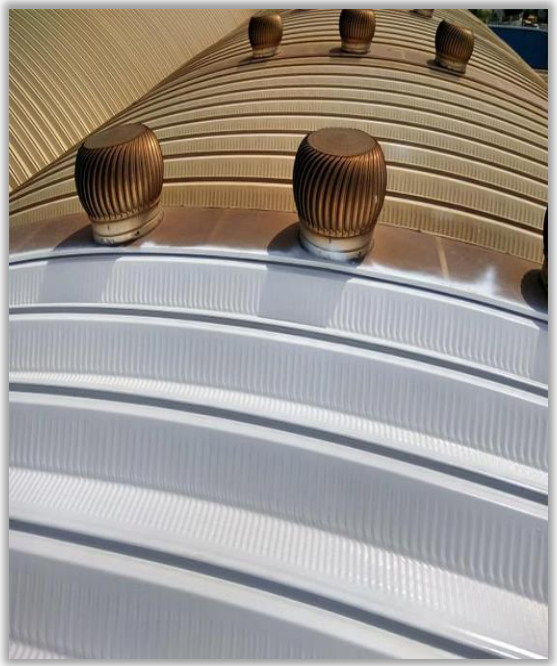
- Elastomeric Coating

- Texo-Elastomeric Coating

- Anti Carbonation Coating



Heat Reflective Coating



• Elastomeric Coating

The elastomeric coating uses a single component acrylic copolymer. The elastomeric coating applied to a surface form a film that safeguards it against atmospheric components such as carbon dioxide, sulphur dioxide, chloride irons. The formed film during the elastomeric coating can holdup at least 200% elongation. Hence it is favourable for bridging cracks in the structure even under temperature variation.Elastomeric coating is a known method applied on an exterior wall or roof. The coating is approximately ten times thicker than normal acrylic paint and flexible enough to waterproof the structure's exterior.The elastomeric coating is an airtight but breathable ,sealed waterproofing solution as it can effectively repair hairline cracks.Elastomeric coating is in a liquid form when applied and dried , hardens but remains flexible enough to be bent or moved.Apart from being a suitable waterproofing solution, the elastomeric coating also helps protect the structure from moisture damage.The elastomeric coating is applicable on surfaces such as concrete or masonry structures.

What makes elastomeric coating a favourable process?

• The film used in the elastomeric coating is available in a variety of colours which helps maintain the appearance of the building's exterior and brush off the unattractive look caused due to damage, wear and tear.

• The elastomeric coating method uses films that are highly durable and sustainable. Long term durability makes it the desired option for the owner of the building/structure.

• This method of coating acts as a sunblock due to its UV resistant property.

• One of the notable features of elastomeric coating that it is cost-effective and environment friendly.

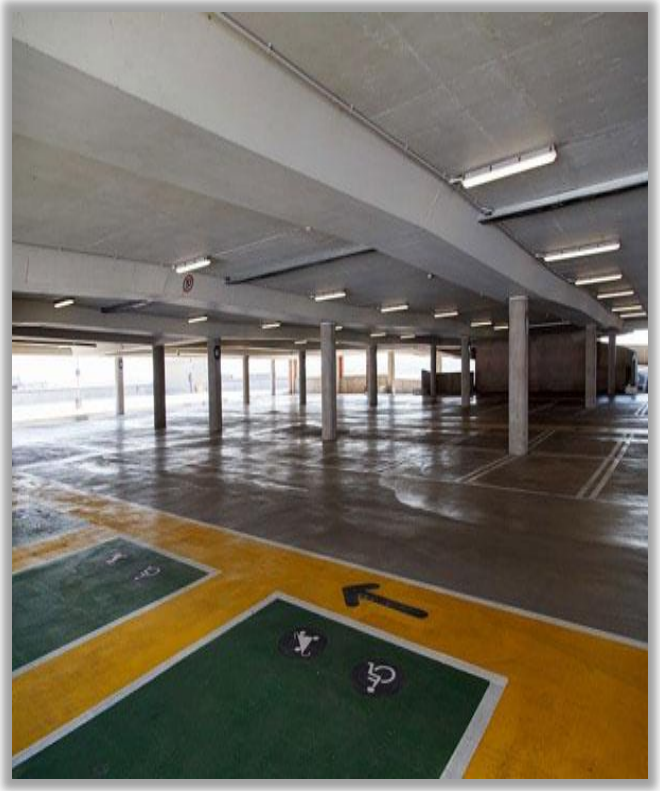
• The elastomeric coating is known to be heat resistant. Hence this aspect marginally improves the energy efficiency of the building to which it is applied.

• Texo-Elastomeric Coating

This is a waterproof texture coating ,applied on external façade, followed by application of Elastomeric waterproofing coating.This coating is highly used for structures where patch plaster is done,and to give a complete new aethetical look,texture is applied ,and coating of desired shade and color. Advantage of covering the irregular and dissimilar textured plaster.

• Anti Carbonation Coating

Anti-Carbonation coating is known to protect concrete and masonry structures with high exposure to carbon dioxide, sulphur dioxide, chloride irons, etc.It is a single component, high-performance acrylic resin-based coating that safeguards the wear and tear of the structure against corrosive materials for the long term.Anti-carbonation coating is critical in maintaining the structural integrity of both new and existing structures.Anti-carbonation coating makes a structure visually attractive and reduces the cost of maintenance and repair throughout its lifespan.Anti-carbonation coating for concrete floor is essential, but considering other structural components exposed to concrete such as beams, columns, slab, and restraining RCC walls also require anti-carbonation coating Bridges and flyovers, overhead tanks, industrial building and power plants use anti-carbonation coating technique for protection.



Advantages of Anti-Carbonation Coating

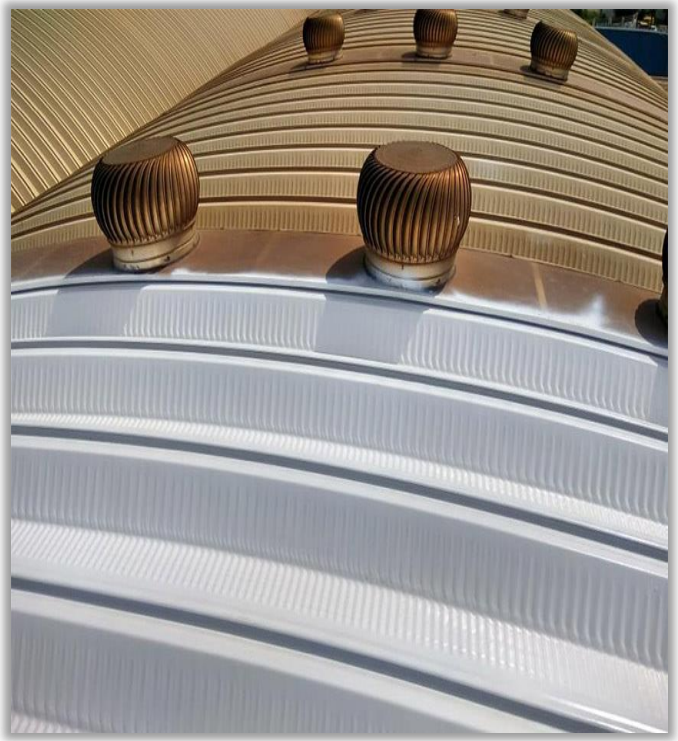
•The anti-carbonation coating is known to be an extremely durable and stable form of protection.

•Anti-carbonation coating is capable of allowing moisture inside the concrete to respire out.

•The process of anti-carbonation coating has the flexibility to deal with minor cracks that form in concrete.

• Heat Reflective Coating

As a contribution to fight against the global warming and to project the era of global building, we explore the possibilities of energy saving and using minimum natural resources. This heat reflective paints; reflects up to 60% of the heat load thereby reducing surface temperature. The painted surface dries to tightly packed layers of hard micro spheres to form thermally efficient barriers.



• Pre-engineered buildings are gaining popularity over the traditional method of construction due to an innumerable number of advantages. Peb buildings have high adaptability and are easier to construct.

• Peb buildings and peb structures are economically beneficial. They require a lesser amount of time and money, thus reducing operational expenditures.

• Pre-engineered buildings designs are aesthetic that makes the structure looks elegant and classy. It allowsexperimenting with innovative and modern design.

• The fabrication and assembling are what makes this form of construction quick and easy.

• Peb building and peb structures take the calculations and capacity into account required for dead load, live or imposed pressure, wind load, seismic load and other moving loads.

• Peb buildings and peb structures provide quality control, are cost-effective, require low maintenance, and the warranty duration is longer than other forms of construction.
Gubbi Civil Engineer is a pre-eng

Repetitive Business Model

- Customer Satisfaction

- Safety First

- Value for Money

- Better Understanding of Customer Needs

- Trained Buffer Resources

- Timely Execution of Projects

PROCESSESS

- Procedure for Quotation and Order
- Procedure for Document Control
- Procedure for Objectives & Targets
- Procedure for Risk and opportunities
- Procedure for Purchase
- Procedure for Control of NonConformance
- Communication Participation & Consultation
- Procedure for Calibration
- Procedure for Control of Records
- Procedure for Internal Audit
- Procedure for Management Review
- Procedure for Identification & Traceability
- Procedure for Incident information and reporting
- Procedure for Legal & other requirement
- Procedure for Management of Change
- Procedure for Outsourcing
- Procedure for Corrective Action
- Procedure for Training

Quality Procedure

- Dealing with Statutory Authorities
- One page Emergency plan
- One to One Communication
- Procedure for Emergency Preparedness & Response
- Procedure for First Aid
- Procedure for Handling Fire Hazards
- Procedure for Hazard Communication
- Procedure for Incident Investigation
- Procedure for Medical Information Confidentiality
- Procedure for Office Safety
- Specification for PPE Safety Devices
- Vehicular Safety

Training for worker

- Safety attitude of the job is a primary component.
- Life saving training programs to our work force for working at height.
- Job specific safety training & regular refresher training imparted to the workforce.
- Regular medical fitness tests of our supervisors and work force.
- All PPEs are ISI Marked with relevant test certificates and these were regularly checked by the Safety Officer.

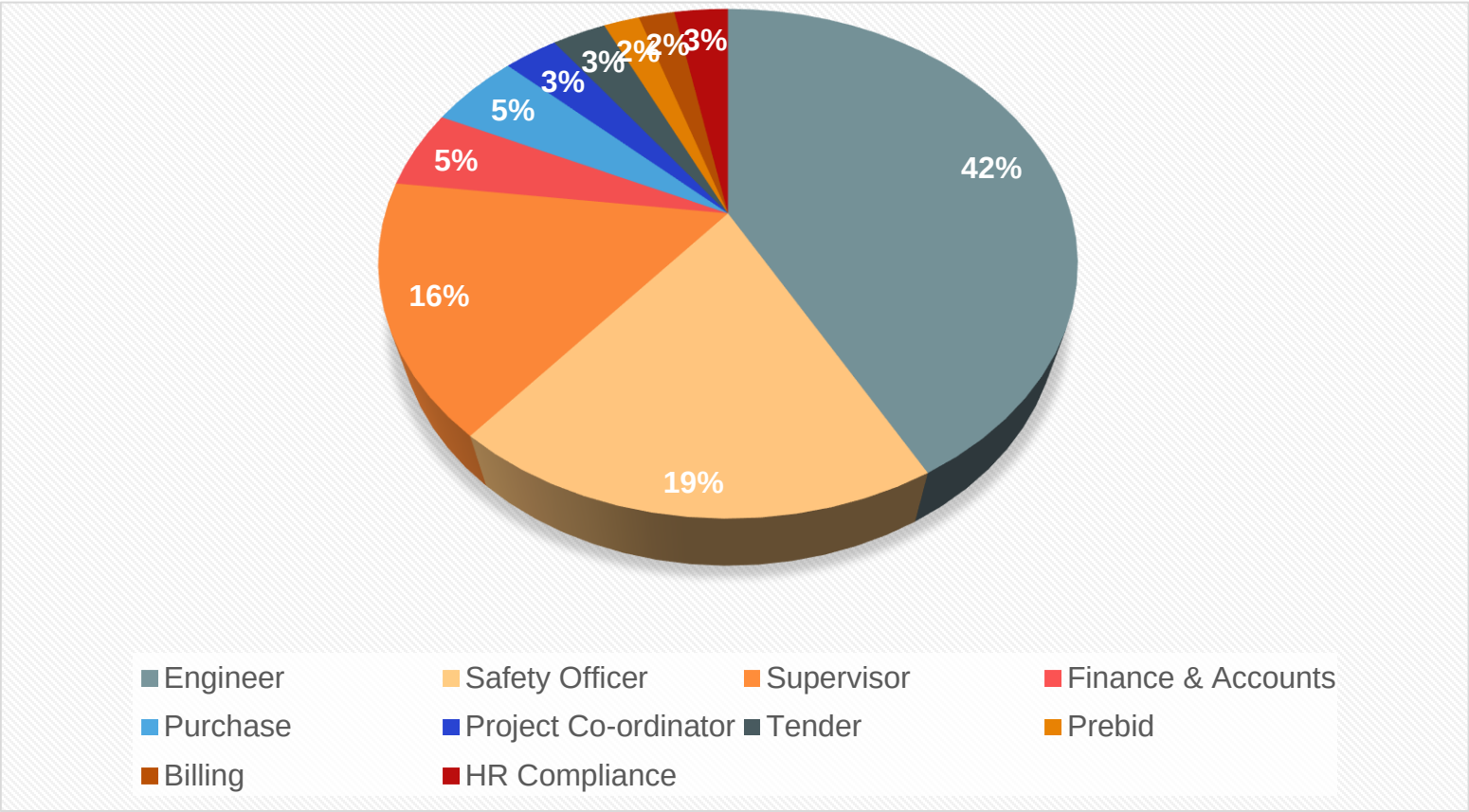
Monitoring & Reporting

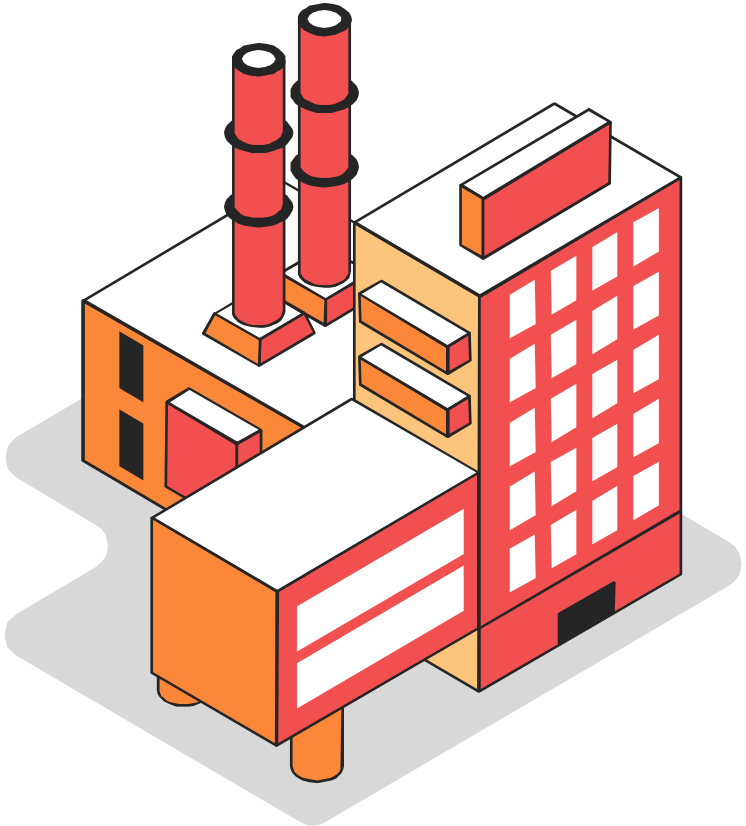
- Daily Tool box talk Reports
- PPE Checklists
- Machine and Equipment Safety Checklist
- Accident and Near Miss Reports
- Weekly Training Reports
- Site Inspection Checklist
- Safety Inspection Checklist
- Job Safety Analysis Reports
- HIRA
- Daily Safety Observation

Supervision Procedure

- Daily conducting Tool Box Talk – in general and about the specific works to be executed, on that day. Also to maintain proper records of the same.
- Coordinate at all levels of management regarding safety.
- Assist in solving safety – related problems & making recommendation for improving safety.
- Set up standards to prevent losses/ injury.
- In case of accidents/ dangerous occurrences and fire, report verbally and in written format to the client and management. 1 Coordinate in investigation by the client.
- Investigate near miss accidents and accident reports and monitor the project safety assists management in reviewing and modifying procedures from time to time.
- Assists management in a reviewing and modifying procedures from time to time.
- Exercise authority to stop work when need arises.
- Advice on legal requirement affecting safety.
- Propagate safety through leaflets, memo, posters, notices, etc.
- Arrange and participate in periodic safety inspection of work area.
- To establish and maintain check list for inspection of all PPEs, equipment's, hand tools, scaffolding before usage.
- Act as the emergency contact point and hold a list of emergency telephone, which shall included key personal.
- Would ensure that all critical and tools have a valid statutory test certificates and are being maintained in good conditions.
- Refresh safety instruction, monthly refreshment training is arranged by GCE on every month of end.
- Provide fire fighting and resource capabilities at time of emergency.
- Ensure that all persons at site shall use IS marked relevant personal protective equipment & in good condition on their site activities.
- Maintain all records of HSE are required by the client

Workforce


42%
19%
16%
5%
5%
3%
3%
2%
2%
3%
Engineer
Safety Officer
Supervisor
Finance & Accounts
Purchase
Project Co-ordinator
Tender
Prebid
Billing
HR Compliance



Thank You