

DURAFLOOR CONCRETE SOLUTIONS LLP

BUILT STRONG! LASTS LONG!

Phenomenal concrete flooring solutions with Design, Build and Warranty for warehouse and industrial applications

+91 75065 09604

sales@durafloor.in

AWARDS AND ACHIEVEMENTS



Durafloor MD Mr. Akash Singhai & Technical Director Mr. Samit Singhai receiving Vidarbha Udyog Gaurav 2019 award from honorable Minister for Road Transport & Highways Mr. Nitin Gadkari for "The Best Service Provider" award in the year 2019



Durafloor MD Mr. Akash Singhai receiving "The Best Industrial / Warehouse Flooring Solution Provider of the Year" award in the year 2021

WHAT DO WE DELIVER

01

Design Assistance as per TR34 standards with Design, Build, and Warranty

Durapro is a specially designed software developed by Kasturi Metal Composites for designing slabon grad flooring as per TR-34, ACI 360 standards. It is to help our customers to provide optimum SFRC solutions by replacing partially or completely removing REBAR.

Various Parameters are considered for designing such as sub-base properties, concrete mix design, loading conditions such as UDL point load, rack load, type of steel fiber reinforcement, slab thickness, MHE movements, load transfer reinforcement at joints and also safety factor.

02 Joint-Less Floors

Revolutionizing Jointless Floors with our design capability, world class products resulting in floors with phenomenal performance and zero maintenance

QC with Testing and Certifications

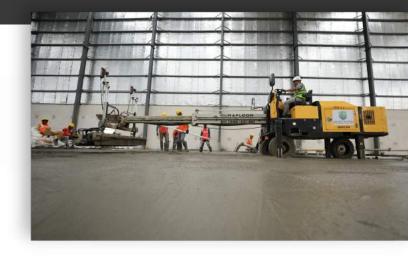
Durafloor ensures phenomenal floors from the inception of the project by testing the subbase, optimizing mix design, providing clients with precise BOQ and optimized screed plan, and handing over the floor with third-party FM2 certification.

O4 Low-maintenance flooring solutions

By using durafloor, you are guaranteed zero maintenance and a high-performing floor that ensures high-quality output.

Pioneers in high-performance jointless floors with 15+ years of experience delivering quality floors to our clients with a design, built, and warranty principal. Durafloor Concrete Solutions LLP is a turnkey solution providing vertical of Kasturi Group, with a vision to provide our clients phenomenal concrete flooring solutions.

Our fleet of equipment includes best-in-class machinery from the USA and Europe to cater to every small or big requirement. We are a unique company in India having state of art manufacturing facilities for steel fiber, armor joints, and allied products that ensures world-class products are delivered for your flooring requirements at most optimum with least possible lead time.



OUR SERVICES



FM1/ FM2 Grade -Laser Screed Floors



VNA Floors - DM1/DM2 Category



Steel Fiber Reinforced Concrete Flooring



Jointless Floors



Concrete Polishing and Densification



Tests and Certifications

OUR PRODUCTS



Duraflex - Steel Fibers



Durashield - Armour Joint



Durasleeve - Plate Dowel Sleeve



Durashrink - Shrinkage Compensating Additive



Duracure - Curing Compound



Durocrete - Polypropylene Fiber



LASER SCREED FLOORS



(FM1/FM2 Grade)

Like most industries, constructing concrete floors is competitive and demanding. Owners want their floors done faster and flatter than ever before. The drive to achieve these goals fostered an eagerness among concrete contractors to push the performance envelope. The laser screeding technique allows you to lay concrete floors in wider bays of any size.

It dramatically reduces the time, reduces the number of construction joints, improves the flatness of floors. It also reduces the number of labor on the site. It eliminates the need of fixing guide rails to every four meters. Laser Screed simultaneously cuts, vibrates & levels the concrete in a single pass. All above operations are controlled by laser transmitters, receivers & computers. So manual errors are eliminated.

Using the latest laser screed machinery, we can lay and high tolerance concrete floor slab of up to 1200m2 in a single day. The tolerances achieved with this machine in free movement slabs are FM1, FM2 (special), FM2, and FM3 in accordance with the TR34 Document.

Floor Class	Floor Classification For Free Movement	Property E Levelness	Property F Flatness
FM1	Where every high standard of flatness and levelness are required. Reach trucks operating at above 13m without side-shift	4.5	1.8
FM2	Reach trucks operating at 8 to 13m without side shift	6.5	2.0
FM3	Retail floors to take directly applied finishes Retail trucks operating at up to 8m without side-shift Retail trucks operating at up to 13m without side- shift	8.0	2.2
FM4	Retail floors to take applied screeds. Workshops and manufacturing facilities where MHE lift heights are restricted to 4m	10.0	2.4

ADVANTAGES

- Assures laser-precise flatness and
- VNA floors are best suited for ASRS
- Due to fewer joints get maximum
- Aisle space has no joints enabling
- Achieve more precise flatness and
- Reduces the overall construction

Note: Side-shift is the ability of a truck to adjust the pallet transversely to the fork direction



VNA FLOORS

(DM1/DM2 Category)

Super flat or VNA floors are required where very narrow aisle material handling equipment (MHE) are employed to place and pick goods stacked to heights over 12m,where the path of the MHE is fixed via guided rails.

While moving down the aisles, these MHE can raise their forks to retrieve or place products at various levels. For these MHE to perform as intended, defined-traffic floors must be extraordinarily flat and level, or superflat.

levelness through Laser Screed Technology

(Automated storage and retrieval system)

productivity and zero maintenance

smooth operations of MHE movement

levelness floor than FM2 grade

due to bigger panel sizes



Design. Build. Warranty.

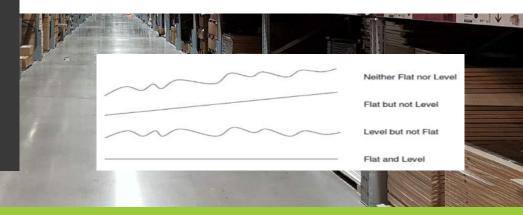
Floor Classification	Racking top beam height	Property Z Slope (mm per m)	Property dZ	Property dZ	Property dX	Property d2X
DM1	Over 13m	1.3	Z × 1.3	Z × 1.0	2.9	1.5
DM2	8-13m	2.0	Z × 2.0	Z × 1.5	4.4	2.0
DM3	Upto 8m	2.5	Z × 2.5	Z × 1.9	5.5	2.5

Floor Classification for Super Flat VNA Floors

Since the MHE travels the same route over and over, the smoothness of the wheel paths in superflat aisles becomes extremely important. Superflat slabs are placed in long, narrow strips approximately 4-6m wide.

Teamwork, craftsmanship, and experience combined are required to make a concrete floor SUPER FLAT. Durafloor Team is well trained with skilled employees and experienced floor engineers help in assisting with mix design review and adjustments, the planning and preconstruction process to achieve the level of tolerances required.

The importance of the equipment used, should not be neglected as it is very important that high quality, well calibrated and dependable equipment will impact the quality of the Super Flat Floors.





DURAPRO (DESIGN ASSISTANCE SOFTWARE)

Durapro is a specially designed software developed by Kasturi Metal Composites for designing slab-on grad flooring as per TR-34, ACI 360 standards. It is to help our customers to provide optimum SFRC solutions by replacing partially or completely removing REBAR.

Various Parameters are considered for designing such as sub-base properties, concrete mix design, loading conditions such as UDL point load, rack load, type of steel fiber reinforcement, slab thickness, MHE movements, load transfer reinforcement at joints and also safety factor.

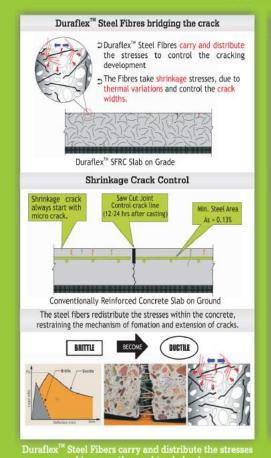
DURAFLEX™ STEEL FIBER REINFORCED CONCRETE FLOORS

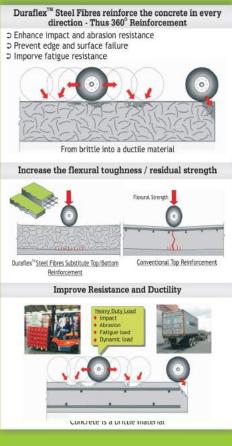


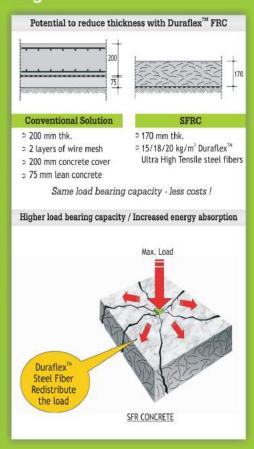
SFRC floors are the latest norm for warehousing and factories. The reason being, SFRC Floors are preferred over the conventional RCC Floors is the toughness (energy absorption capacity), ductile behavior, crack and impact resistance of the floor.

When the project duration is limited then SFRC floors help to reduce the overall construction duration by minimizing the reinforcement preparation time, labour management, and overall costs. Consumption of steel with Duraflex™ steel fiber is comparatively less than Rebar.

360° Reinforcement for Concrete Flooring







- High load-bearing capacity floors
- Significantly speeds up construction and reduces labour time by completely eradicating the need for TMT reinforcement
- Tough, impact and crack resistant floors Increases the post crack flexural strength and the fatigue resistance of the floor



CONCRETE POLISHING AND DENSIFICATION



Concrete polishing is the most significant flooring finish alternative followed in the last couple of decades due to the increasing requirements of high abrasive, low maintenance, dustproof, chemical and solvent resistance of the floor in the emerging units of manufacturing/ distribution facilities, retail spaces, FMCG (Fast-moving consumer goods).

The major ones are -

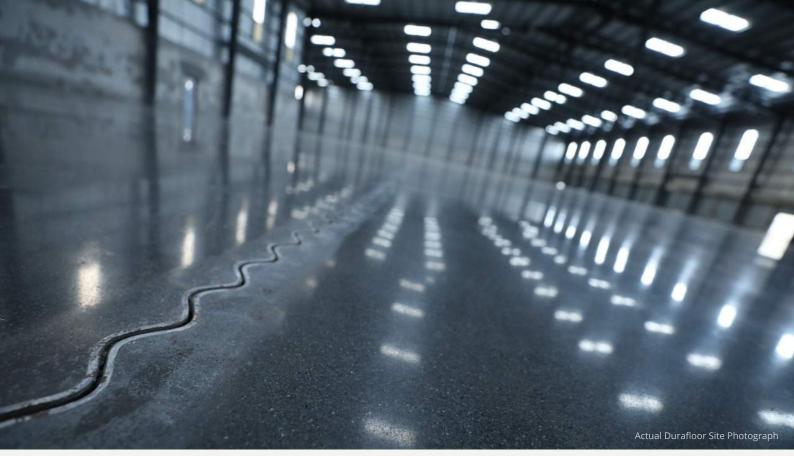
No regular maintenance as epoxy requires
Feasible for heavy movement in which epoxy underperforms
Stays glossy and intact for decades without any maintenance in which epoxy underperforms.

How do we do it

It is a process by which the surface of the concrete is densified and polished using a penetrating hardener to yield a surface that exhibits reflectivity and increased abrasion resistance. It makes the surface shine, which is also durable and permanent. All one has to do is clean with a scrubber machine using water to maintain it

Instead of coating the surface with organic solids, densifiers (Lithium Silicates) react with the concrete itself. This reaction fills in the natural pores and voids in the concrete and provides a dense, hard surface that is easy to clean. The concrete is densified internally. In addition, the floor surface is rendered free of dust.





JOINTLESS FLOORS



The trend toward jointless floors is growing wherever fewer joints, fewer cracks, less maintenance, and excellent durability are required, from warehouse floors to high-tech, pharmaceutical, and food processing facilities. Concrete contractors are faced with the task of producing a concrete floor that is both joint-free and crack-free in order to meet this demanding performance.

Durafloor Proflex Jointless Floor makes the floor versatile and offers higher energy absorption properties to any kind of loading and racking. Any client pursuing Durafloor Proflex Jointless Floor has the freedom to use the heavy and continuous movement of MHE (Material handling equipment) on joints without any maintenance.

HOW WE DO IT

We can obtain joint-free and crack-free slabs with a high-quality concrete solution using shrinkage-controlled concrete prepared with a shrinkage-controlled additive. Larger placement sizes lower the number of joints required, as well as the number of mobilizations and load transfer reinforcement requirements, allowing us to stay on schedule and under budget. Also, the inclusion of **Duraflex ultra hooked end steel fiber** offers a crack control mechanism which withstands post cracking behavior of the concrete and offers high bearing capacity.

ADVANTAGES - High Load-bearing capacity of the floor - Reduces cracks and controls the crack behavior - Improves impact and fatigue resistance - Reduces thickness of the slab - Reduces thickness of the slab - Easier and more accurate installation. Actual Durafloor Site Photograph



TESTS AND CERTIFICATIONS

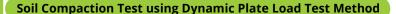


Durafloor undertakes testing and certifications to ensure that owners, developers, contractors, and end-users receive the best industrial concrete floor slab possible. We also offer concrete Floor examination and troubleshooting services for concrete Floor construction concerns.

SERVICES WE PROVIDE

Surface Regularity Inspection and FM/DM Floor Certifications

We specialise in quality control and our unique surveying equipment – Profilometer and deflection meters of SMG AXIOM 1155 enables us to measure flatness with utmost precision and technology and pace. Our intuitive Excel Report Generator gives you the ability to easily generate powerful 3D heat maps for any floor. Free movement areas are those where trucks can travel in multi-directional paths. These movement areas are considered less critical in terms of flatness and TR 34 sets out parameters on how an individual floor should be checked. The Free Movement (FM) specification (TR 34) has 3 classifications for flatness within free movement areas.



Dynamic Plate Load Test for sub-base using LIGHT WEIGHT DEFLECTOMETERASTM E2835-11, USA It's a Standard test method for measuring deflections using a portable impulse plate load test device. It's a very fast accurate method with precision results and onsite reporting Its applicable for subbase testing for variety of sites such as concrete flooring, trenches, canal linings, road works, pavements, runways etc.

Polished Concrete Flooring Inspections and Measurements

Grinding gives concrete a smooth matt finish by grinding the concrete surface and exposing the aggregates. Smoother (polished) concrete surfaces can be achieved through extended grinding using progressively finer abrasives (finer grinding grit heads/pads) to impart a lustre to the concrete surface.

In the concrete polishing industry, quantitative testing is replacing qualitative testing. By having consistent objective measurements, a client can be assured of consistent results. The key measurements should include properties for surface refinement such as:

- Gloss level (as discussed in ASTM D523)
- DOI (distinction of image, discussed in ASTM D4039)

Abrasion resistance (discussed in BS 8204/ EN13892-4)



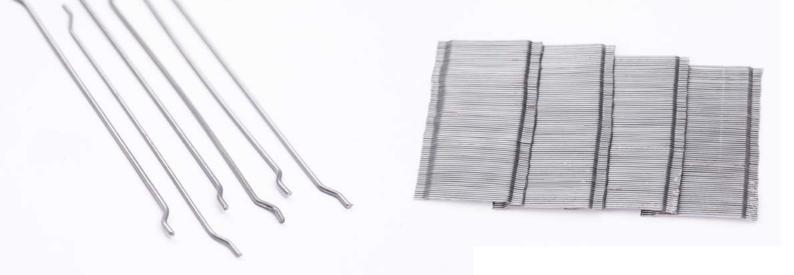












DURAFLEX™ STEEL FIBER

360° reinforcement in concrete flooring

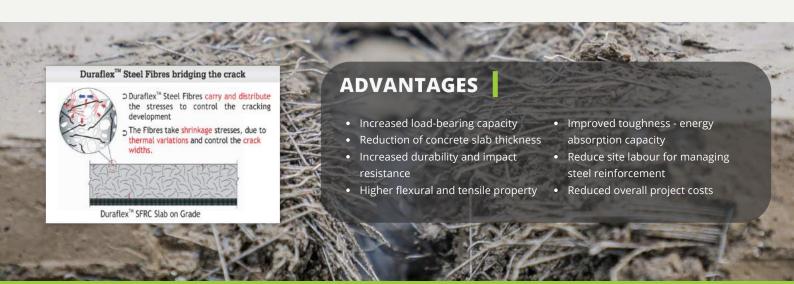


How Duraflex™ steel fiber works

As we know, Concrete is naturally brittle, and typical stresses like impact fatigue, loading leads to cracking, and eventually failure.

Adding steel fiber to the concrete helps it to absorb these stresses and to limit the formation of cracks, increasing the load-bearing capacity and ductility of the concrete structure.

Steel fiber is just as strong and reliable as any other concrete reinforcement because steel fiber is part of the concrete matrix, turning it into a composite material. Instead of providing strength in distinct locations, steel fibers form a 360degree reinforcing network in the entire structure and help to absorb tensile stresses at any point and at any direction hence increasing its overall ductility. Our Duraflex steel fibers conform to the ASTM A820/A820M and EN 14889:2006 part 1.



OUR RANGE OF PRODUCTS







Duraflex™ Loose HookEnd Steel Fiber

Duraflex™ Hook End Steel Fibers ; available in loose and glued form are especially designed to offer required performance and cost-effective product for concrete reinforcement. The Fibers are made from high tensile strength wire > 1250 Mpa in accordance with ASTMA820 M04 Type I, and EN 14889. Duraflex Steel Fibers enhances the ductility and load-bearing capacity of the concrete.

*For Technical Details - Please feel free to ask for a product datasheet

Duraflex™ Glued HookEnd Steel Fiber

Duraflex™ Glued Steel Fibers are specially designed and manufactured to avoid balling issues while mixing and for high dosage of SFRC applications while Loose Fibers offers an economical solution for low to medium dosage FRC applications. The Fibers are made from high tensile strength wire > 1250 Mpa in accordance with ASTMA820 M04 Type I, and EN 14889.

*For Technical Details - Please feel free to ask for a product datasheet

Duraflex™ Flat Crimped Steel Fiber

Duraflex Flat Crimped Steel Fibers is made of low carbon steel wires and has a tensile strength of 600 Mpa. The fiber contains deformations in zig-zag shape giving an excellent mechanical anchorage. to the concrete matrix increasing first crack resistance. Manufactured as per ASTM 820 Standard.

*For Technical Details - Please feel free to ask for a product datasheet



DURAflex™ SFRC Floors - Durafloor



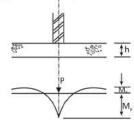
- · Less Cost, High Quality, Longer Life of Floors
- Resistance to micro-cracks propagating into macro
- Provides high impact resistance
- Excellent surface finish can be achieved
- Eliminates spalling due to corroding reinforcement
- Reinforces the edge helping to prevent joint failure



- **Cusomized Design Support**
- Suitable for wide range of applications
- Ease in designing for complete life span of Concrete
- Ensures Optimum use of Material and Technology.
- Reduce steel reinforcement requirements



Toughness Test as per ASTM C-1018









DURASHIELD ARMOUR JOINT



For protecting the heavy duty operational / construction joint

How Durashield Armour Joints work

Durashield armour joints are installed into position at designed construction joint, once the concrete is placed the shrinkage forces are generated by the drying concrete slabs at the time of curing process.

This leads to the shearing of the plastic bolts which allows the two steel profiles to open at a permitted joint opening.

Durashield permits the minor controlled slab movements, caused by the drying shrinkage and thermal variation in horizontal direction of the slab planes and restrict vertical displacement of the slabs. Durashield Armour Joint conforms to joint aris EN 10277-1:2018, shear studs conform to EN ISO 13918 :2017, Duraplate conforms to EN 10025-2:2004 and Durasleeves's material is ABS and Design refs. to TR-34.

Applications of Armour Joints

- Industrial Floors
- Warehouses and Distribution Centres
- Industrial Storage Facilities
- Roads and Pavements
- Airports and Runways
- Dockyards

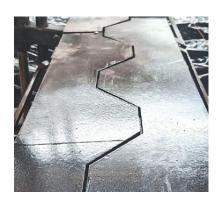
Figure 1. Load Transfer

- Improves bearing strength of joint in terms of shear and bending
- Resistant to twisting caused by the impact of wheeled traffic
- Efficiently transfers load between adjacent concrete slabs with plate dowels.
- Allows controlled horizontal slab movement, preventing random cracking.
- Eliminate vertical movement between slabs during concrete contraction, for a level floor surface.
- Mitigates joint repairs, curling and spalling
- Allows for continuous pouring on both sides of the joint
- Armours heavy duty joints

OUR RANGE OF PRODUCTS









Durashield " + " junction armour joint

Durashield Optima Armour Joint

Durashield Optima Armour Joint profiles are created in accordance with requirements caused by impact load and abrasive property for arris protection. Durashield Armour Joint provides resistance in case of traffic load especially for MHE (Machine Handling Equipment) in which wheels are repetitively in contact with the construction joint.

*For Technical Details - Please feel free to ask for a product datasheet

Durashield Sinus Armour Joint

Durashield Sinus profile is a revolutionary design and evenly moves tension which gives correct mutual horizontal and side-by-side movements. There is the ease of installation as anchoring elements size and shape are designed to give the biggest surface to move the tenses between parts of the floor. Due to its unique construction and design, it has the ability to absorb shocks which assures the MHE (Machine Handling Equipment) operator to surpass the joint without any constrained movement. Using Sinus profile you could avoid joint ruptures and reduces damaging of fork-lift wheels, loading equipment thereby reducing expensive reparations.

*For Technical Details - Please feel free to ask for a product datasheet

Durashield Spectra Wave Joint

The unique design of semi hexagon profile in a plate with minimum surface area allows the prevention of joint in case of impact point load, surface deterioration subjected to huge repetition and integrity of dynamic loads, cold storage where the contraction is minimum and the expansion requirement is more. Allows the joints to perform in a manner for a smooth transition in any direction.

*For Technical Details - Please feel free to ask for a product datasheet



Durashield "T" junction armour joint





DURASLEEVE PLATE DOWEL & SLEEVE



Ideal for load transfer between concrete slabs

How Durasleeve Plate Dowel & Sleeve works?

When there is a movement across the joint such as forklift, MHE, and other machinery that joints between the concrete slab, it needs to be strengthened since there is load transfer between adjacent slabs, and these joints should be capable of bearing that load which is acting on that joint and also needs to transfer it from one slab to another without disturbing the serviceability of the slab.

This could be achieved by introducing Durasleeve plate dowels (Diamond or Rectangular) which are capable of increasing the shear, bending strength and overall load capacity of the joint.

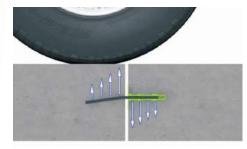
The effective loads at joints are reduced by load transfer through Durasleeve - Plate dowels and protects from the failure of the construction joint. Duraplate conforms to the EN 10025-2:2004, Durasleeves's material is ABS and Design refs. to TR-34.



Rectangular Sleeve With Plate Dowel



Diamond Sleeve With Plate Dowel



Load Transfer Mechanism

- Provides load transfer across the joint
- Increased bending strength and shear strength of joint
- Enhanced load-bearing capacity
- Minimises differential deflection between adjacent slabs
- Allows diagonal shrinkage movement in the horizontal plane
- Allow perpendicular and parallel differential shrinkages
- Maximizes surface area of joint line
- Eliminates drilling or processing on formworks
- Reduces risk of restraint
- Speed and accuracy of the dowel placement



DURASHRINK



SHRINKAGE COMPENSATING ADDITIVE

Anti cracking mechanism

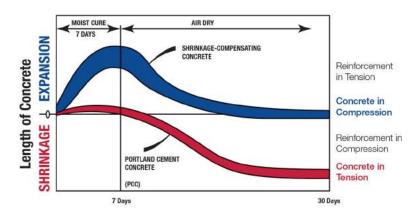
How Durashrink shrinkage compensating additive works

Durashrink is a powdered admixture used for compensation and total overall reduction of net shrinkage for Portland Cement concrete. Durashrink ingredients enable you to properly regulate the reaction rate with water. Durashrink has no known detrimental effects on either plastic or hardened properties of concrete and cementitious mixes. This technique is based on a volume expansion that is induced in the concrete by a specific chemical reaction whose effects can be adequately designed and controlled by the correct proportioning of the concrete.

APPLICATIONS

Durashrink is used to compensate for concrete shrinkage and more specifically for: Reinforced and prestressed concrete structures.

- · industrial flooring;
- sports facility flooring: skating, cycling, track, tennis
- cold storage flooring
- underground structures beneath the water table, cellars, bunkers
- bridge deck slabs
- tunnel enclosures
- box profile and dome roofs



- Helps in building jointless, seamless floor
- Controls, reduces cracks and optimize the concrete mix
- · Improved workability of concrete
- Good paste fraction
- Bleed water removal helps in keeping up the solidity of the WC ratio at the surface of the concrete
- Efficient in high abrasion and impact resistance of the surface.
- Resists laitance and other debris in the concrete from being brought up to the surface.



DURACURE



CURING COMPOUND

For hydrating and hardening of the concrete surface

How Duracure curing compound works

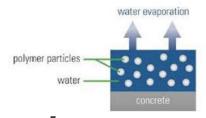
Duracure creates a transparent impervious film which controls the evaporation of water from the surface, helps in continuing the hydration process of the concrete.

Duracure traps the moisture of the wet concrete and aides in curing which makes the top layer dense thereby increasing the hardness and abrasion resistance of the applied surface. Duracure conforms to the standard specifications by ACI 308.1-98.

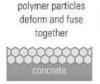
APPLICATIONS

As a more effective and economical alternative to separate curing and priming/sealing regimes. Suitable for use on all concrete surfaces.

- No need to remove it after application
- Economical enhancement of concrete flatwork.
- Industrial/Warehouse flooring
- Concrete Roads & Pavements









- It is economical, ready to use curing compound . It saves labour, time, and precious water. Transparent compound and NO Need to remove it after application as compared to other wax based curing compound
- Penetrates & it hardens and decreases the porosity of the treated surface. This traps water in wet concrete which is used for hydration/curing.
- Improves abrasion resistance of the surface and prevents efflorescence.



DUROCRETE

POLYPROPYLENE FIBER

Secondary reinforcement for concrete slabs shrinkage crack control

How Durocrete PP Fiber works

Uniform distribution of Durocete™ PP fibers increases the tensile strain capacity of concrete when it is in its most vulnerable early 'plastic' stage. When the concrete starts to harden and shrink, the formation of plastic shrinkage cracks takes place and because of that weakened planes that develop into these cracks are minimized because of DURO-CRETE™ PP fiber.

Millions of DURO-CRETE™ fibers distributed uniformly throughout concrete are equally elastic in all directions, impact and shatter forces are easily resisted. The fibers help absorb the shock of the force, as well as giving the concrete maximum integrity to withstand the force.

OUR RANGE OF PRODUCTS



Durocrete™ Macro Structural Polypropylene Fibers



Durocrete™ Fibriliated Polypropylene Fibers



Durocrete™ Mono Filament Polypropylene Fibers

- Resists impact and shatter forces
- Improves abrasion resistance
- Significant improvement in fire protection
- Reduces water bleeding in concrete
- Provides lasting reinforcement



FLOOR REPAIRS AND REFURBISHMENT

DURASMART FLOOR REPAIR SOLUTIONS

What are the problems faced

- Defective steel profiles
- Loose joints
- Broken edges
- Loss of water tightness
- Damage to wheel bearings (forklifts, pallet trucks, etc.)
- · Vibrations while trafficking
- Noise while trafficking

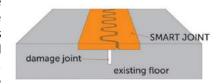
What are the consequences

- Costs for floor joint maintenance
- Costs for forklift maintenance
- Direct impact to forklift driver health
- Cost for long down times when standard systems is used for refurbishment



SOLUTION

Dura Repair Joints are standard panel for new build and refurbishment of joints for concrete screeds with normal up to medium-heavy wear e.g. for storage and assembly halls, maintenance workshops, hospitals, schools, and warehouses. Prefabricated steel or polymer composite panels with extremely high physical properties. It ensures the flatness and continuity of your floor and averts premature degradation of your vehicles, and in particular the wheels. It also eliminates bumps and knocks, with undoubted advantages both for the operators, both in order to reduce the occurrence of occupational diseases.



TECHNICAL ADVANTAGES

- No vibrations while traffickingSoundless trafficking
- Short downtime
- High chemical resistance
- Waterproof
- · No unevenness, ultra flat
- No welding required
- High Mechanical properties
- Can be over coated



OUR LANDMARK PROJECTS



Flipkart - Fullfiment Centre Bhiwandi, Mumbai



Amazon Sort Centre - Jaipur



Jointless Floor - Bhiwandi, Mumbai



Amazon Sort Centre- Bhiwandi -



Bosch - Warehouse, Chennai



Embassy Industrial Parks - Chakan - Pune



Jakson Engineering - Delhi



Mahindra Logistics, Hyderabad



Amazon - Chennai - Sort Centre, Chennai

OUR PRESTIGIOUS CLIENTS











































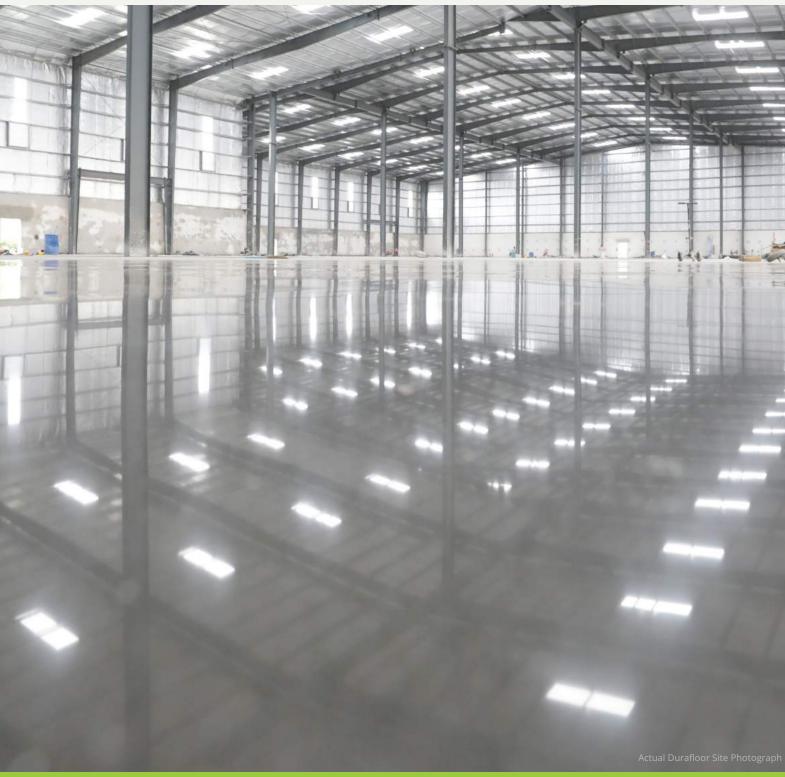






Design. Build. Warranty.





DURAFLOOR CONCRETE SOLUTIONS LLP



General Enquiry Email: sales@durafloor.in **Website:** www.durafloor.in

Mumbai Office: Satara Plaza, 1st Floor, Office No 171, Sect 19D, Vashi, Palm Beach Road, Navi Mumbai 400703, Maharashtra, India.

Contact: +91 75065 09604

Chennai Office: Old No 61 , New No 58, Kamdar Nagar, Second Street, Nungambakkam,

Chennai – 600 034, India. **Contact: +91 8056099777**

