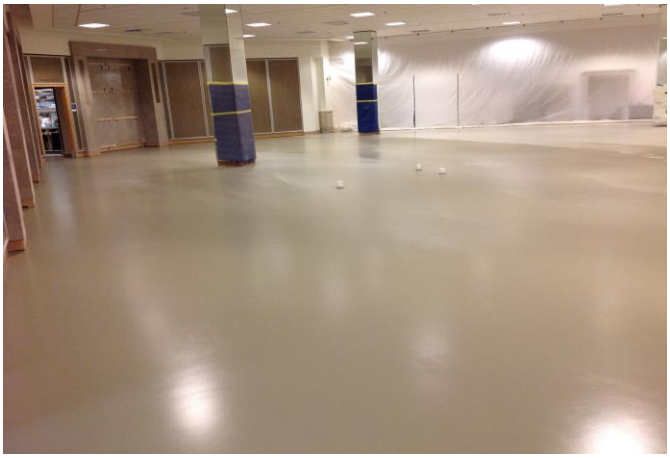
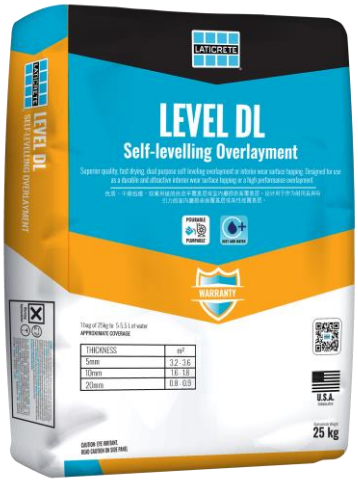
Globally Proven
Construction Solutions

Level DL

Level DL is a superior quality, fast drying, dual purpose self-leveling overlayment / interior wear surface topping that can be accented with a wide variety of coloring systems & finishes. Designed for use as a durable and attractive interior wear surface topping or a high performance overlayment. For application over a wide variety of substrates including concrete, VCT and tile. Level DL can be placed from 5-20 mm in a single lift.





FEATURES/BENEFITS

- Dual purpose; for use as an attractive interior wear surface or as a high performance overlayment
- Can be topically stained or integrally colored to match specific design needs
- For use as overlayment where fast turn around time and high strength is desired
- Fast drying
- Can be applied directly over wet concrete (RH 95% or less per ASTM F2170)
- Inorganic; will not contribute to or harbor growth of mold or mildew
- Will not contribute to damaging emissions or irritating fumes upon settling or curing

USES

- Used to level floor & correct any surface irregularities
- Fix uneven surfaces, smoothing rough, spalled concrete & finishing rough screed concrete slab especially floor surface
- Can be used to repair and re-surfacing to damaged concrete & other imperfections
- Can be used as a screed to level unevenness of floor surface
- Protective screed for industrial floor in high wearing areas
- Provide a smooth & durable new surface for decorative treatment
- Interior application to dry and wet areas for new and upgrading projects in both residential and commercial applications

MANUFACTURER/ DISTRIBUTED BY

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STANDARDS/CERTIFICATIONS

- ASTM C109
- ASTM C348

Suitable Substrates

- Concrete
- Vinyl Tile^
- Cement backer board*
- Non-cushioned Sheet Vinyl^
- Linoleum^
- LATICRETE® MVB ^
- Exterior glue plywood**
- Ceramic tile and stone**
- Cement mortar beds
- Cement terrazzo**

* Consult cement backer board manufacturer for specific installation recommendations.
** See 5. Installation—Surface Preparation
^ See Section 5 Installation Over Vinyl Tile, Linoleum, Sheet Vinyl and LATICRETE MVB

Packaging

25kg bag / 80 bags per pallet

Color: Grey and White

Approximate Coverage

25kg bag of Level DL can cover about 16 m^2 to 18 m^2 per mm thickness

Shelf Life

Factory sealed containers of this product are guaranteed to be of first quality for 6 months if stored off the ground in a dry area.
‡ High humidity will reduce the shelf life of bagged product.

Limitations

- Apply only over ceramic or quarry tile which is applied to a concrete substrate and well-bonded.
- For interior use only.
- Do not install when surface temperature is below 8°C or above 35°C, or when ambient air temperature is expected to fall below 10°C during placement or before material takes final set.
- Do not install over painted or gypsum-based surfaces.
- Do not exceed recommended mixing ratio as indicated in mixing instructions. Over watering may weaken product properties.
- Never mix with cement or admixtures.
- Do not apply Level DL over waterproofing or crack isolation membranes.
- Adhesives/mastics, mortars and grouts for ceramic tile, pavers, brick and stone are not replacements for waterproofing membranes. When a waterproofing membrane is required, use a LATICRETE Waterproofing Membrane (see Section 10 FILING SYSTEMS).
- Do not bond directly to luan, OSB, particle board or Masonite® surfaces.
- Not for use in submerged applications
- Level DL should not be installed over any moving joints or structural cracks (cracks greater than 1/16" [1.5mm] in width or any crack which experiences vertical displacement). All existing expansion joints, cold joints and control joints must be brought up through the wear surface cement. Failure to honor movement joints will result in cracking or loss of bond.
- LATICRETE concrete overlay's are not intended to be perfectly homogeneous in appearance. Shade of color may vary slightly as these use natural mined resources. The typical application procedures of spreading and smoothing, along with the sanding process, will result in optical variations in the appearance of the floor. The aesthetic appearance that is created is subject to possible technical and artistic tolerances. Variations in the overall finished appearance should be expected.
- Note: Surfaces must be structurally sound, stable and rigid enough to support ceramic/stone tile, thin brick and similar finishes. Substrate deflection under all live, dead and impact loads, including concentrated loads, must not exceed L/360 for thin bed ceramic tile/brick installations or L/480 for thin bed stone installations where L=span length (except where local building codes specify more stringent deflection requirements)

Cautions

Before using any LATICRETE product:

- Check **se.laticrete.com** for any technical bulletins or updated information about the product and its application
- Contact your local LATICRETE Technical Sales representative with any questions
- Consult Safety Data Sheet for more safety information
- During cold weather, protect finished work from traffic until fully cured.
- Contains Portland cement and silica sand. May irritate eyes and skin. Avoid contact with eyes or prolonged contact with skin. In case of contact, flush thoroughly with water.
- Do not take internally. Silica sand may cause cancer or serious lung problems. Avoid breathing dust. Wear a respirator in dusty areas.

TECHNICAL DATA

Performance Properties

Test	Test Method	Results
Compressive Strength (28 days)	ASTM C109	43 N/mm^2
Tensile Strength (28 days)	ASTM C307	4.5 N/mm^2
Flexural Strength (28 days)	ASTM C348	10.7 N/mm^2
Shrinkage (28 days)	ASTM C531	<0.05%

Working Properties

Thickness	5 – 20mm
Working Time	30 – 45 minutes
Foot Traffic	3 – 4 hours

Specifications subject to change without notification. Results shown are typical but reflect test procedures used. Actual field performance will depend on installation methods and site conditions.

INSTALLATION

Surface Preparation

Installation Over Concrete Slabs

- If Level DL is intended for use as a self-leveling overlayment (not as a wearing surface) then ALL CONCRETE SURFACES MUST BE SHOT BLASTED/MECHANICALLY ABRADED if minimum 72 psi (0.5 MPa) tensile pull strength is not achieved or the substrate is contaminated.
- If Level DL is intended for use as a wearing surface (not as a self-leveling overlayment) then ALL CONCRETE SURFACES MUST BE SHOT BLASTED/MECHANICALLY ABRADED if a minimum 217 psi (1.5 MPa) tensile pull strength is not achieved or the substrate is contaminated.
- All surfaces must be primed with Admix & Primer and should be between 8°C and 35°C. Surfaces should be structurally sound, clean and free from all dirt, oil, grease, adhesives, paint, sealers or curing compounds.
- New concrete surfaces must be at least 28 days old.
- Expansion joints shall be provided through the tile work from all construction or expansion joints in the substrate. Follow ANSI specification A108.01-3.7 "requirements for movement joints: preparations by other trades" or TCNA detail EJ–171 "Movement Joints—Vertical & Horizontal". Do not cover expansion joints with mortar.

Installation Over Wooden Sub-Floors

- Installer must verify that deflection under all live, dead and impact loads of interior plywood floors does not exceed industry standards of L/360 for ceramic tile and brick or L/480 for stone installations where L=span length.
- Minimum construction for interior plywood floors:
  SUBFLOOR: 15 mm thick exterior glue plywood, either plain with all sheet edges blocked or tongue and groove, over bridged joists spaced 400 mm o.c. maximum; fasten plywood 150 mm o.c. along sheet ends and 200 mm o.c. along intermediate supports with 8d ring-shank, coated or hot dip galvanized nails (or screws); allow 3 mm between sheets and 6 mm between sheets edges; all sheet ends must be supported by a framing member; glue sheets to joists with construction adhesive.
  OVERLAYMENT: 15 mm thick exterior glue plywood fastened 150 mm o.c. along sheet ends and 200 mm o.c. in the panel field (both directions) with 8d ring-shank, coated or hot dip galvanized nails (or screws); allow 3 mm to 6 mm between sheets and 6 mm between sheet edges and any abutting surfaces; offset overlayment joints from joints in subfloor and stagger joints between sheet ends; glue overlayment to subfloor with construction adhesive. Refer to Technical Data Sheet 152 "Bonding Ceramic Tile, Stone or Brick Over Wood Floors" for complete details.
- Prime cleaned and properly prepared surface with Admix & Primer as described in "Priming" section.
- Allow primer to dry accordingly. Install 3.2# galvanized diamond metal lath over entire wood floor. Ensure proper fastening to eliminate any loose sections. Do not install over wet primer.

  Note: Galvanized diamond metal lath can be omitted when installing Level DL over Floor HEAT.
- Install Level DL over floor in accordance with "Application" section below.

Installation Over Cutback Adhesive (over concrete only)

- Mechanical removal of cutback (i.e. grinding, sanding, blasting) can be hazardous, as old cutback adhesive may contain asbestos. Consult adhesive manufacturer and any governmental agencies for proper removal of any adhesive containing asbestos.
- For adhesives that do not contain asbestos remove the non-water soluble cutback adhesive to a thin residue by razor scraping or equivalent and then remove any loose particles by thoroughly sweeping, vacuuming and then wet mopping the substrate.
- Since the weakest link of the system will be the bond of the adhesive to the substrate, it is important that the adhesive be very thin, firm and have a good bond to the substrate. After scraping the non-water soluble cutback down to a thin "transparent" residue, and if the floor then passes the pull strength requirements (as stated under Surface Preparation - Installation Over Concrete Slabs) then Level DL can be placed without shot blasting. If the floor does not pass the minimum tensile pull strength requirements (as stated under Surface Preparation - Installation Over Concrete Slabs) you must thoroughly shot blast the floor to a CSP of 3–5. It is the responsibility of the installation contractor to ensure the substrate is properly prepared prior to the installation of any material.
- Water soluble vinyl adhesives must be completely removed (e.g. shot-blasted) from the floor surface.

Installation Over Vinyl Tile, Linoleum, Sheet Vinyl and MVB (over concrete only)

- All vinyl tile, linoleum, non-cushioned sheet vinyl and MVB must be well adhered to the substrate and free from any bond breaking or bond inhibiting surface contaminates. Ensure tensile pull strength of the vinyl tile, linoleum, non-cushioned sheet vinyl and MVB to the substrate is a minimum 72 psi (0.5 MPa) when Level DL will be used as a self-leveling overlayment, or, a minimum 217 psi (1.5 MPa) tensile pull strength is achieved when using Level DL as a wearing surface. If the floor does not pass the 72 psi (0.5 MPa) pull strength test you must remove the tile and thoroughly shot blast the floor to a CSP of 3–5. It is the responsibility of the installation contractor to ensure the substrate is properly prepared prior to the installation of any material. Cementitious decorative coatings and epoxy resin floor coverings including epoxy terrazzo are excluded from this application. Consult Technical Services prior to any installation over vinyl tile. See "Priming" section for specific instructions over vinyl tile, linoleum, sheet vinyl and MVB.

Installation Over Existing Ceramic Tile, Stone or Cement Terrazzo

- All tile and stone must be well adhered to the substrate and free from any bond breaking or bond inhibiting surface contaminates. If Level DL is intended for use as a wearing surface (not as a self-leveling overlayment) then existing tile or stone must achieve a minimum of 217 psi (1.5 MPa) tensile pull strength. If Level DL is intended for use as a self-leveling overlayment (not as a wearing surface) then existing tile or stone must achieve a minimum of 72 psi (0.5 MPa) tensile pull strength. If the floor does not pass the minimum pull strength test requirements you must remove the tile or stone and thoroughly shot blast the floor to a CSP of 3–5.
- Mechanically abrade existing ceramic tile and stone with a carborundum disk. Wash and rinse thoroughly with clean water. Allow to dry. Skim coat existing ceramic tile, cement terrazzo or stone with Premium Skimcoat Patch Overlayment (min. 3mm thick continuous coating). Allow to dry.
- Prime surface according to "Priming" section and install Level DL according to "Application" section.

Priming

Use Admix & Primer as a primer/bonding agent before application of self-leveling overlayment materials. Shake thoroughly before using. Apply an even thickness of 1 coat of Admix & Primer to the cleaned substrate using a bristle broom or roller. Ensure primer is absorbed into the substrate, removing any puddles or thick areas. Allow Admix & Primer (milky-white colour) approximately 30 to 45 minutes to dry depending on the site conditions. If substrate is excessively dry, the drying time may become shorter. Keep primed surface clean. Do not allow any foot traffic onto surface. When primer turns to a clear film and feels dry to touch ("sticky"), Level DL can be applied.

Mixing

Level DL should be mixed with 5 - 5.5 litres of clean potable water per 25kg bag when used as wear surface. Do not over water. For manual application, add product to water and mix for 5 minutes with a heavy duty drill (1000 – 1400 rpm) to obtain a lump free mix. Allow mix to sit for 2 minutes before use. Level DL can also be used in most pump equipment. Please consult with a representative to verify equipment compatibility. A slump test should always be performed to ensure that mix is homogenized and free from separation. The ideal slump range for Level DL is 280– 300 mm for overlayment, 250 – 280 mm for wear surface using a Flow Test Kit.

Note: Keep primed surface clean. Do not allow any foot traffic onto surface.

Application

Pour blended material onto substrate at a thickness of 5–20mm for all surfaces. Immediately smooth the poured slurry with a smoother. After initial set of material, remove all overlap marks, seams, and inconsistencies by scraping with steel trowel. Material can be walked on after 3 – 4 hours.

Perimeter Isolation Strip

It is essential that all walls and building elements are isolated from the self leveling overlayment pours to ensure proper expansion allowance against all restraining surfaces.

Note: It is recommended to install a perimeter isolation strip before the installation of Level DL. Attach the perimeter isolation strip to the perimeter wall of the entire subfloor, as well as around the perimeter of any protrusions, in order to isolate the floor and wall/restraining surfaces. Temporarily fasten perimeter isolation strip in place with staples masking, duct, or carpet tape. The perimeter isolation strip can then be removed after the tiles have set firm. The joints can then be filled with LATASIL™.

All concrete surfaces are to be shot blasted/mechanically abraded to ensure any contaminants, such as sealers or glue, are removed. Pour or pump the Level DL over the primed substrate and spread with a spike roller or gauging rake. Use a smoothing paddle to combine pours and to obtain a flat smooth surface. When Level DL has hardened, ceramic tile may then be installed using a LATICRETE® Latex Thin-Set Mortar. Follow manufacturer's recommendations for installing vinyl tile, linoleum, carpet, wood parquet or seamless epoxy flooring over concrete. Before installing wood or resilient flooring, consult manufacturer for recommendations on substrate moisture content requirements. Allow Level DL to dry in accordance with those recommendations.

Time to Traffic

Allow 3 – 4 hours for foot traffic, 7 days for heavy traffic (i.e. fork truck, etc.)

Flooring Installation

Finished floor goods can be applied to surface 6 hours after application, depending on thickness, drying conditions and type of finished floor. Due to the relatively low pH level of floor leveling overlayments, finished floor goods can be applied rapidly. Consult finish flooring manufacturer for the required relative humidity levels which overlayments need to achieve prior to the installation of finishes. RH levels should be determined according to ASTM F2170. Always test performance suitability and compatibility of finished floor systems prior to their application. Sample surfaces should be installed as a field test so as to be representative of entire surface and tested for intended use. Always refer to finished floor manufacturers recommendations regarding installation instructions, restrictions and compatibility.

AVAILABILITY AND COST

Availability

LATICRETE and LATAPOXY materials are available worldwide. For distributor information, call:

Telephone: (65) 6515-3028

Fax: (65) 6515-3037

For on-line distributor information, visit LATICRETE at **se.laticrete.com**

Cost

Contact a LATICRETE Distributor in your area.

WARRANTY

LATICRETE South East Asia Pte Ltd warrants that Level DL is free from manufacturing defects and will not to break down, deteriorate or disintegrate under normal usage for a period of one (1) year from date of purchase subject to terms and conditions stated.

MAINTENANCE

LATICRETE and LATAPOXY grouts require routine cleaning with a neutral pH soap and water. All other LATICRETE and LATAPOXY materials require no maintenance but installation performance and durability may depend on properly maintaining products supplied by other manufacturers.

TECHNICAL SERVICES

Technical Assistance

Information is available by calling:

LATICRETE South East Asia Pte Ltd
No. 38 Sungei Kadut Street 2
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Technical and safety literature

To acquire technical and safety literature, please visit our website at se.laticrete.com