

# LEVEL-X52, 52-XT

SELF-LEVELING, SELF-SMOOTHING CEMENT-BASED TOPPING

## DESCRIPTION:

**LEVEL-X52** and **52-XT** are one-part, cement-based, polymer-modified floor topping and leveling compounds designed to provide smooth and level floors with a minimum of time and labor.

**LEVEL-X52** can be used to prepare a wide variety of sub-floors for installation of tile, carpet, resilient flooring, wood flooring and many types of surface coatings. It may also be left exposed as a final finish in light industrial or commercial environments.

**LEVEL-X52-XT** provides rapid-curing, economical repair, leveling and casting in exterior exposures and in wet environments. It readily accepts a variety of finishes, or may be left exposed to traffic and weather.

## USES:

- ✓ Leveling uneven concrete
- ✓ Resurfacing frozen, rained-on or scaled concrete
- ✓ Correcting camber problems
- ✓ Filling depressions, sags or “birdbaths”
- ✓ Topping and leveling pre-cast planks or tees
- ✓ Smoothing rough concrete

## FEATURES:

**Bonding:** Polymer modified formula develops high adhesive strength on properly prepared sub-flooring.



## Ease of Application:

Requires no special skills, tools or additives. **LEVEL-X52 & 52-XT** are simply mixed with water using a drill or other mechanical mixer, poured, spread and left to harden. May be installed in any thickness in one lift. Readily pumpable using any standard grout pump for large installations, without separation, settling in lines or “bleeding”.

**Compatibility:** May be used over concrete, wood, steel or polystyrene foam. Readily accepts many types of coatings, adhesives and mastics typically used in setting tile and installing carpeting or other types of flooring.

**Non-Dusting and Water Resistant:** Does not tend to “dust” through carpeting or crumble upon contact with moisture, the way gypsum based self-leveling compositions tend to do. Keeps from soiling carpets, lifting tiles and blistering coatings and coverings.

**High Strength:** Cement-based composition builds strength up to 5800 psi, matching high quality concrete.

**Safety:** Contains no toxic resins, solvents or diluents. Odorless, non-flammable, non-corrosive.

## APPLICATION:

**1. Surface Preparation:** Remove all grease, oil, dirt, laitance, wax, curing compounds, unsound concrete or other materials which may interfere with adhesion. Frozen or other substandard concrete surfaces must be cut back to the depth required to reach sound substrate for bonding.

**2. Priming:** Non-porous floors may require the use of **SYSTEM 42** as an adhesion promoting primer. Highly porous floors may require the use of two applications of **SYSTEM 42** as a sealer/primer. Steel Decking should be free of rust and scale, and should be primed with **SYSTEM 42**.

**NOTE:** Test areas should always be installed prior to large scale application to assure compatibility and performance under actual use conditions.

### 3. INSTALLATION:

**A. MIXING:** To fully develop self-leveling properties without the use of excessive amounts of water, product should be mechanically mixed using mortar mixer, grout mixer or slow speed drill with mixing paddle (250 rpm). Avoid whipping excessive air into mixes. Add **LEVEL-X 52** powder to water and mix for 2-4 minutes to achieve a homogeneous, flowable, fine batter consistency. If excess liquid readily “bleeds” onto surface upon standing, reduce water ratio. Adjust consistency as required by adding more powder or water. Be consistent from batch to batch once optimum ratio for job conditions has been determined. Mix only as much material as can be applied in 5-10 minutes.

**B. PLACEMENT:** Pour or pump **LEVEL-X 52** in place and spread with screed, float, squeegee or broom. No troweling is required, unless “feather-edging” is desired at the perimeter of the pour. Sub-floor high spots should receive a minimum 1/8” cover. Do not re-temper material which has begun to set. Discard any material not used within 20 minutes of mixing. For deep sections (1" or more), the addition of up to 50% 1/4” to 1/2” gravel is

acceptable, although this will affect workability and necessitate installation of a finishing coat of neat **LEVEL-X 52**.

**4. Curing:** Although **LEVEL-X52** is a cement-based product, it does not require extended moist cure, and most installations will require no special curing procedures. When working in hot, dry and/or windy conditions, some misting of the surface during the first 1-3 hours after pouring may be required to avoid too-rapid drying. After this initial period, the product should be allowed to dry cure.

**LEVEL-X52** must be kept from freezing for 12 hours after installation. Do not apply at temperatures below 40<sup>0</sup>F or when temperatures will drop below 40<sup>0</sup>F within 8 hours of application.

**5. Storage and Handling:** Store powder in dry area, off the floor. Contains cement and free silica. Avoid skin and eye contact and avoid breathing dust. Use NIOSH-approved toxic dust filter for silica. Observe all safety and handling guidelines as detailed in the Material Safety Data Sheet supplied with this product.

Keep tools clean and wet during use, and clean up immediately after use. Keep packages closed when not in use.

For further information or assistance, contact your Edison Coatings representative.

### FOR COMMERCIAL AND INDUSTRIAL USE



Rev. 2/2003

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# ***GUIDE TO THE INSTALLATION OF LEVEL -X 52, 52-XT SELF-SMOOTHING, SELF-LEVELING TOPPINGS***

## **1.General**

This publication is intended as an aide in achieving level, durable floor surfaces using Edison LEVEL-X 52 products. It is not intended for use as a specification, but rather as a more extensive set of instructions, complementing product label information. The information contained herein is believed to be reliable, but Edison Coatings, Inc. makes no warranty as to its accuracy and expressly disclaims any implied warranty of merchantability or fitness for a particular purpose. Nothing in this publication shall be construed as granting of permission or license to infringe on any patented technology.

## **2.What You Need to Install LEVEL-X52**

The size of your project will probably have the greatest influence on your choice of product application methods. The degree of flatness required is also a central consideration. For the purpose of this publication, it is assumed that the desired finish should be smooth and level in general appearance, with some reasonable degree of variation to be considered acceptable. Super-flat flooring will not be targeted, therefore, although many of the general techniques discussed herein may also be useful in creating super-flat floors.

Small projects, involving a bag or two of LEVEL-X 52, such as many residential projects, may not require any special tools. Larger projects will benefit significantly from the use of mechanical mixing equipment, pumping equipment and/or product spreaders.

### **a.Priming**

Applications including the use of RL-1 primer will benefit from the use of a floor brush or roller to evenly apply the primer. Ordinary paint rollers may be used.

### **b.Mixing Equipment**

While small quantities of LEVEL-X 52 can be mixed by hand, this is too time consuming and tedious for any commercial-scale project. LEVEL-X 52 offers limited flow time, before it begins to stiffen and build strength. Time wasted in mixing by hand is therefore time lost in placing the product and achieving a smooth, level finish,

At the very least, an electric drill mixer should be considered. The type of drill which works best is a slow speed (250-450 rpm), heavy duty (1/2 HP mm.) drill which is properly grounded, as it will be used in a damp environment. A variety of mixing attachments is commercially available, and many will work well. Rectangular mud mixers, Wagman epoxy mixers, and Jiffy mixers may all be used with the proper size container. The key is to get thorough product mixing without whipping excessive air into the material. Excess air may cause bubbles in the surface finish, and may reduce topping strength.

For larger projects, mortar mixers (not concrete mixers) may be used. A mortar mixer features slowly rotating ribbons in a stationary U-shaped drum, rather than fixed paddles or baffles in a rotating drum. Better still are the unitized grout mixing and pumping devices used for the largest applications. Typically these include one or more circular mixing chambers situated above a grout pump, allowing convenient, continuous operation. Some units also include such useful amenities as automatic water metering, assuring consistent mixes from batch to batch.

### **c. Material Placement**

Small mixes will probably not require anything more involved than simple pouring or dumping of the mixed product onto the surface to be topped. If desired, trowels or other hand tools can be used to aid the flow and leveling of the product, particularly into corners and out to thin, feathered edges. The more “help” given the product in placement, however, the better the finished result.

It is preferable to pour the material out in ribbons across the area to be topped, rather than dumping it all in one spot. For areas where multiple batches will be used, do not spread too far. This will be covered in greater detail, later, as we address the need to maintain a ‘wet edge’ on larger projects.

Pumping provides the steadiest and most convenient placement. Grout pumps require no special modification to handle LEVEL-X 52. Just remember to flush the unit thoroughly with water before shutting down, even if just for a 10-minute break.

When restarting, the first liquid out of the pump will have an exceptionally high water content. This material should be discarded, and only material of the proper mix consistency should be placed.

### **d. Spreaders**

Spreaders are sometimes used to help the topping achieve proper depth and finish. Again, for small applications, any type of hand trowel, squeegee or flat edge may be adequate. But on large, open expanses controlling depth is more critical, both in terms of economics and finish.

Epoxy spreaders are essentially straight edges with adjustable height guides. Once the guide depth is set, the spreader is used to push or drag the wet product, leaving behind material of the proper depth. Generally this is intended as an aide, rather than as a positive method of controlling depth. Uneven floors, in particular, will require that the worker make changes in spreading technique to deposit more material in low spots and less material in high spots. Epoxy smoothers are used to make final adjustments to height and finish, just before the product sets. The smoother is a flexible, angled blade mounted on a pole. Smoothing should not be necessary for the entire surface, only for surface irregularities.

Spreaders are generally needed only for edge work and very thin sections in pumped applications.

### **e. Miscellaneous**

Although LEVEL-X products are designed for minimum hazard to installers, LEVEL-X 52 does contain silica sand. Silica is a toxic dust, and may cause long-term bodily harm. Read and observe all guidelines for safe handling as detailed in the Material Safety Data Sheets furnished with this product. Other ingredients are nuisance dusts. Use proper ventilation to keep work area dust levels below the TLV. Provide NIOSH-approved respiratory filters rated for toxic dust exposures (silica).

In some applications, it will be desirable for one of the installers to be able to walk through the wet product, to perform such tasks as smoothing or feather-edging. In most cases, this will leave unsightly impressions in the underlayment. To avoid such damage to the finish, workers should wear spiked shoes or golf shoes. Do not walk through material which has begun to set or which has been in place for more than 10 minutes.

Finally, a method of measuring mixing water will be required. This should depend on the number of bags being mixed per batch. LEVEL-X 52 will require between 1.5 and 2 US gallons per bag. Once the exact ratio you will use has been determined, the same level should be used for every mix. Graduated containers are best, but almost any plastic container can be marked with indelible marker to permit consistent volumetric batching.

### **3.Preparing Surfaces for LEVEL-X 52**

The same basic guidelines apply to LEVEL-X as to any cement-based repair material. The surface being topped has to be clean and hard. Loose or crumbly materials must be removed. Paints, coatings, oils, stains or anything else that may hinder adhesion must be eliminated. While sound, bare concrete may require nothing more than sweeping or washing, some surfaces will require more aggressive preparation. This may include chemical cleaning, acid etching, scarification, sandblasting or shotblasting.

While LEVEL-X 52 has excellent adhesion characteristics it is better to apply to rough surfaces than smooth ones, and better on damp surfaces than dry ones. There should be no standing water or chalk, however.

While priming is not strictly required in most applications, it is never contraindicated. RL-1 primer is an inexpensive means of assuring adhesion to porous surfaces. For hard or smooth surfaces, it may be diluted at 1:1 with clean water. Primers may be applied by roller, brush or spray. Apply heavily enough so that material ‘stands’ for several minutes before being absorbed. If the primer is completely absorbed, reapply. If primer is allowed to dry out before topping, it should leave behind a lustrous film, If primer is dry for more than 2 hours, reapply before topping. If primer is wet during topping application, it may be necessary to slightly adjust mixing water levels to maintain proper flow and consistency.

### **4.How to Mix LEVEL-X 52**

LEVEL-X 52 contains flow and set controlling additives which must be dissolved in order to be effective. This dissolution is aided by mechanical shear. Accordingly, not all the mixing water should be added immediately. Working a slightly dry mix will help assure that full flow and leveling is achieved when the product is placed.

Start by adding a portion of the mixing water to the mixer or mixing container. While mixing, add the LEVEL-X 52 powder in a steady flow, at a rate which allows product to be quickly incorporated in the mix. All product should be added within 2 - 3 minutes, however. As the mix becomes too dry, add the remainder of the mix water while continuing to add dry LEVEL-X, maintaining a viscous, paste consistency. Continue mixing after all water and powder have been added, and viscosity should drop, while any lumps are homogenized. If homogeneous mixes are not obtained within 4 minutes, batch size is too large for the mixer being used. If mix remains too viscous, increase water level slightly. Maximum strength is obtained when LEVEL-X 52 is mixed in accordance with label directions for mix proportions. For many applications, this produces a somewhat “dry” mix, however, and it is advisable to increase water use level slightly. It is not advisable to add more than 2 US gallons per 50 pound bag, however. Some of the signals that can be observed if too much water is used include “bleeding” of milky liquid onto the product’s surface, and in extreme cases, separation of a layer of liquid and LEVEL-X on the floor. NOTE: More water also slows set time.

Of course, mixing water should be clean, of drinking quality, and free of salts or other materials which may upset LEVEL-X’s cement chemistry.

### **5.How to Place LEVEL-X 52**

Continuity is the key to a finished installation that is consistent and free of apparent “breaks” in the work. This requires that all the operations - Priming, Mixing, Placement and Finishing - be manned sufficiently and coordinated in such a manner as to allow work to proceed without interruption.

Priming should be performed just far enough in advance for the primer to turn clear, rather than milky, before topping. Mixing should be paced to provide a steady flow of fresh material. This allows a “Wet edge” to be maintained as material is placed. The wet edge, consisting of soft, freshly-placed product, allows the next batch of mix to be blended into the previous batch without difficulty. When large installations are being performed, a pattern for topping the floor should be planned before starting. The approximate rate of progress should be calculated to ascertain whether some areas will set before the adjacent area is topped. If equipment capacity is inadequate or floor dimensions too large to maintain the “wet edge”, seams should be laid out in advance, and these can be marked with sturdy pressure-sensitive tape. As the work nears one of these seams, material may either be feathered into the seam or simply applied over the tape.

Tape should be lifted immediately after material stops flowing, before the product takes a hard set. Later, the next section can be blended into the previous one by placing a new strip of tape several inches beyond the original tape line, overlapping the previous work. New material is then feathered to meet the old work’s elevation, or placed to abut the original seam.

Elevation control using epoxy spreaders and smoothers has been discussed earlier. The most positive control of elevation can be exercised if actual elevations of the floor are surveyed and marked. Depending on the situation, the desired new floor elevation can be marked on columns or other fixed vertical surfaces, or guide “pins” may be adhered to the floor. A guide pin may be any sturdy material which can be cut to the required length and fastened or adhered in place. Topping level is then controlled by filling just to the point of covering the tip of the pin. Lasers may also be used to closely control the amount of material deposited.

Techniques for filling thin sections vary. Pushing the product up the “hill” and letting it flow back down is one approach. Troweling is another. Vibrating the surface with the spreader in fine up-down movements is also effective in increasing localized flow.

Thick sections are another matter. LEVEL-X can be placed up to several inches or more in depth in one application. But if floor variations are large, the time required to fill deep sections may be too long to facilitate maintenance of the “wet edge”. A technique that successfully addresses this problem is to pre-fill the largest and deepest areas first. These are allowed to set, and then a thinner, continuous topping is poured over the entire floor. For example, a floor which periodically sags into 3 or 4” cavities could be treated by first installing 2 to 3” in the low spots, and a couple of hours later, a finer leveling coat could be applied over the entire floor at ½ inch or so, as required.

## **6. After Placement ..**

There is a limit to how much spreading and smoothing can be done. Learn to recognize the point at which the material is too far along to handle further, and let it set. Any minor imperfections can be ground or scraped shortly after set, at 2 - 6 hours’ age.

Curing is rarely required in interior applications. Under hot, dry, windy conditions, it may be necessary to keep surfaces moist for 1 - 3 hours to avoid plastic shrinkage cracking. Mist with cool water after initial set, in such cases.

After initial set, LEVEL-X builds strength rapidly. Typically, surfaces are ready for foot traffic in 2-4 hours. Carpeting, tile or resilient flooring can be installed the next day. In cases where epoxy or other impervious systems will be installed, it is important to reach the degree of dryness recommended by the finish manufacturer prior to application. Except for deep sections under damp and/or cool conditions, LEVEL-X 52 should through-dry within 24 hours. If uncertain, a simple moisture test can be performed by taping down a 2’ x 2’ polyethylene sheet with duct tape all along the edge. Allow the sheet to remain overnight. If moisture collects underneath the sheet, it is an indication that moisture level is still too high. Remove the

sheet and allow additional drying, and then repeat the test. Slabs on grade in high water table areas may never reach acceptable levels of dryness unless a good vapor barrier has been installed beneath the slab.

Moderate vehicular traffic is acceptable in 24 hours. Heavy traffic time is 4 - 7 days. Full cure is 28 days.

While LEVEL-X 52 is a high-strength material, highly abrasive exposures or heavy moisture exposures are best protected by a high-performance coating. Edison AQUEPOXY 250 HD and FLEXI-GARD 500-S are particularly recommended.

Generally, LEVEL-X 52 is compatible with all types of coatings and adhesives which are designed for use on concrete.