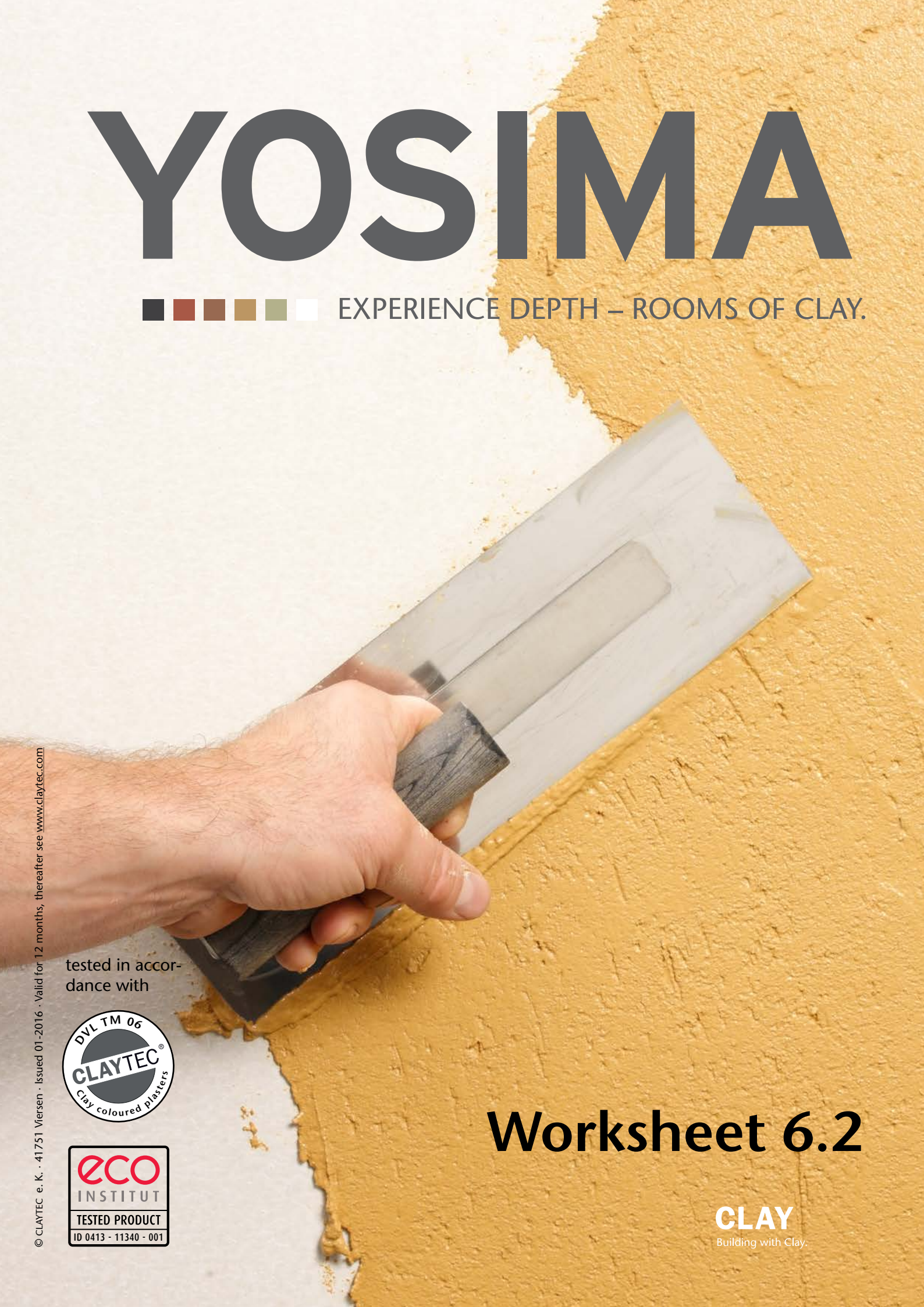
YOSIMA

EXPERIENCE DEPTH – ROOMS OF CLAY.



tested in accordance with

DVL TM 06 CLAYTEC® Clay coloured plasters

eco INSTITUT TESTED PRODUCT ID 0413 - 11340 - 001

Worksheet 6.2

CLAY
Building with Clay.

General preparation of the substrate

The plaster substrate must be fully dry, stable, firm, smooth, flat, clean, dust-free, sufficiently rough and free of fatty residues and stains. Highly alkaline substrates such as concrete must be neutralised, especially when using strong and dark colours, to avoid an uneven end result with lighter patches. When using open-pore materials such as YOSIMA clay design plaster, stains from substances such as lignin, nicotine, rust, various salts, etc. can affect the plaster, showing through as patches or colour deviations on the surface. For this reason, it is imperative to conduct trails on test surfaces prior to plastering. If stains cannot be covered effectively, the substrate must be pre-treated with an appropriate blocker. This is especially important when using lighter colours such as WE 0 colour. The same applies for dark substrates that may show through thin coats of light-coloured plaster. All surfaces must have sufficient and evenly distributed suction characteristics. Any sustained levels of moisture or salt contamination must be remedied in advance, even when in deeper-lying layers. The substrate and the ambient air temperature must remain over at least 5°C until the plaster is fully dry.

Special attention must be given to the adhesion of the plaster base, its mechanical stability and the proper joint reinforcement of drywall and dry lining constructions. Coloured clay plasters are finely balanced surface coatings, and cracks are not as easy to repair at a later date. The introduction of a reinforcement mesh in the undercoat layers can contribute significantly to the stability of the plaster substrate.

A perfectly crafted surface finish begins with the proper preparation of the substrate. An essential factor for the quality of the resulting coloured clay plaster finish is **a uniform level of dryness** when working the surface. This is because wetter plasters (worked sooner) produce a rougher finish while drier plasters (worked later) produce a finer finish. If worked too soon, material can even be rubbed out of the plaster. The smoothness or roughness of the plaster is perceived as a different colour. It is therefore important to consider the following aspects:

Flatness: Only when the surface is evenly flat can thin layers of plaster be applied at a uniform thickness and dry at the same rate. Differences in the flatness of can result in an uneven "cloudy" appearance to the finish.

The preparation of clay base coat plasters for YOSIMA design plasters is more time-intensive than for the following coarse or fine topcoat plasters. For an excellent result, we recommend an intermediate layer of CLAYTEC fine-finish topcoat plaster.

Equalised suction characteristics: Substrates with good suction characteristics dry out plaster coatings more quickly than other adjacent substrates and this is visible later in the surface. When repairing holes or cracks in the plaster substrate, care should be taken to ensure that different materials have similar suction characteristics. The same applies to filler used to fill joints in drywall surfaces.

All typical absorbent substrates can be prepared for YOSIMA clay design plasters with the help of our *YELLOW primer*. For substrates with no suction characteristics (oil paints and varnishes, tiles, adhesives etc.), a polyurethane or epoxy resin product must be used.

Priming helps to equalise variations in the suction characteristics of the plaster substrate. It also retards the process of drying, increasing the working time of the plaster. Surfaces with strong suction characteristics may need priming twice. Non-water-soluble substrates can be prepared, to a limited degree, by carefully and evenly wetting the surface (with a fine water spray!).

Closure of shrinkage cracks in the base coat: Cracks in lower-lying layers can show through to the surface finish because the thickness of the thin layer of YOSIMA design plaster is uneven at the cracks. Cracks in the base coat must therefore be sponged closed or filled and covered with a thin application of plaster. Hairline cracks are not a problem.

EXPERT TIP

Beware of old plasterboard panels! The paper backing can contain yellowing substances that show through the plaster.

Surface texture of a well-prepared gypsum fibreboard surface

Surface texture of a well-prepared clay base coat plaster

EXPERT TIP

Mix the primer regularly while working using a power mixer and stainless spatula (e.g. bucket trowel) to retrieve any sediment from the base of the bucket.

EXPERT TIP

As with any plastering work, the surfaces of other building elements must be covered and protected against soiling.

YELLOW Primer

The YELLOW Primer is a cost-effective, ready-to-use primer for preparing fine-finish clay plaster surfaces (grain size < 1 mm), and YOSIMA clay design plasters in particular. It contains coloured earths and has a granularity of 0-1 mm. The 10 litre bucket is sufficient for 50 m² (CLAYTEC 13.425), the 5 litre tub (CLAYTEC 13.420) for 25 m².

PREPARATION CHECKLIST FOR DIFFERENT SUBSTRATES

- Wait until fully dry
- Close larger shrinkage cracks
- Rub down entire surface with a felt float or sponge to create a fine surface texture
- **An especially good result can be achieved by applying a thin coat of CLAYTEC fine-finish topcoat plaster**

CLAYTEC clayboards
- Carefully reinforce joints or the full surface as per Worksheet 5.2 or 5.3
- Apply a thin coat of CLAYTEC fine-finish topcoat plaster

Existing clay plasters, other clay plasters
- Preparation according to Worksheet 6.1
- Conduct a trial to check the suitability of clay plasters from other producers

Existing mineral plasters
- Remove remains of wallpaper and any residues of wallpaper paste
- Check for presence of stains that may show through
- Repair plaster with a mineral mortar that corresponds to the existing plaster
- Stabilise sandy substrates with CLAYTEC deep penetrating primer and stabiliser
- Apply reinforcement to problematic surfaces
- If necessary, prime with YELLOW primer

Concrete
- Remove any residues of shuttering release agent
- New concrete surfaces with sinter skin, and in particular when applying strong or dark colours, should be suitably neu tralised
- Only in the exceptional case that the concrete is sufficiently flat, prime with YELLOW primer and apply coloured plaster coat directly
- In all other cases, prime with YELLOW primer and apply a layer of clay fine-finish topcoat plaster according to Worksheet 6.1

Resin-bonded existing plasters
- Check plaster stability
- Fill rough furrows if necessary with mineral filler mass
- Prime with YELLOW primer

Plasterboard and gypsum fibreboard
- Check stability of the entire construction
- Ensure all panels have no residual moisture
- Apply self-adhesive scrim tape to panel joints and additionally work in non-woven mesh tape when applying filler mass
- Check the manufacturers specifications for joint treatment
- Allow filler to dry properly (3-4 days)
- Apply full-surface reinforcement mesh to flat systems (e.g. a non-woven mesh but not flax, jute or fibreglass)
- Carefully prime with YELLOW primer to equalise the suction, improve surface key and reduce moisture uptake of the panels from the plaster
- If necessary, apply a full surface filler coat

Porous dispersion paints
- Carefully check surface stability
- Roughen/sand very smooth surfaces
- Prime with YELLOW primer

Fibreglass wallpaper
- Check adhesion stability carefully
- If suitably rough, the plaster coat can often be applied without further priming (conduct a trial first). Otherwise prime with universal primer

Other uneven, uncoated construction surfaces and wood wool boards
- Plaster with two layers of plaster with a base coat of CLAYTEC base coat plaster or CLAYTEC fine-finish topcoat plaster
- Prepare in accordance with Worksheet 6.1

IN ALL CASES: TEST ON A TRIAL SURFACE!

All the details on substrates provided here are based on experience. However, as each situation varies (different roughness, suction characteristics or surface stability), a different approach may be advisable. It is therefore always a good idea to evaluate the respective combination of factors on site. This is ultimately the responsibility of the person applying the coating. To properly evaluate the end result, a sufficiently large test area should be undertaken on the surface in question. This can be used to assess the resulting surface quality and colour.

Preparation of mortar

The plaster mortar should be prepared with 5.5 litres of **clean water** per bucket, although the precise quantity can vary depending on the colour. The water should be added to the mixing container first and the 20 kg dry mortar mix added successively, mixing with a stirrer (Ø paddle ~8 cm). If a mixer drill is used, it should have a power rating of > 800 Watt.
The mixture is left to soak for at least 30 minutes and worked through once more, adding water if necessary to reach the desired consistency. Already mixed YOSIMA plaster mortar remains workable for 24 hours if kept in a closed container.
The mortar is only roughly pre-mixed in the factory. The final homogenous colour results from mixing into a plastic mass on the building site!
Additional pigments can be added to achieve specific colours not in the YOSIMA range. A wide range of high-quality pigments is available, for example, from KREMER (www.kremer-pigmente.de). Pigments are always added to the dry mass prior to preparing the mortar. Care should be taken not to add too much pigment or the blend in the recipe may be altered to such a degree that the coloured plaster surface rubs off or cracks. The suitability of pigment-coloured mortars should be visually assessed and tested on trial surfaces of the respective substrates by the plasterer.
To create colour highlights or special effects, pigment can also be worked into the wet plaster surface (conduct a trial first!).

EXPERT TIP
When plastering large contiguous surfaces, prepare a sufficient batch of mortar from several buckets:

- Slight colour variations are possible from bucket to bucket
- The mixed mass gradually becomes thinner as it stands, and the mortar consistency determines the surface finish and colour appearance
- Mortar stored for different lengths of time can exhibit slight colour variations

For large surfaces, prepare a sufficiently large container of plaster mortar.

Adding the YOSIMA mortar mix to the the water. Leave to soak for 30 minutes.

After 30 minutes, work through thoroughly. The photo shows the application consistency.

Mixing paddle

Applying the plaster mortar

As a rule, always work with clean, or even new, tools. The plaster thickness should not exceed 2 mm!
When applying plaster with a stainless steel smoothing trowel or Japanese trowel, a thin layer is first applied to level the grain, with a second final coat applied once dry. This makes the final application more straightforward and leads to good results, but it is also possible to apply the plaster in one go.
The plaster can also be applied with a notched trowel or combed spatula (4 mm notches). This is an effective way to ensure the mortar is applied evenly across the entire surface. The mortar is then levelled and the surface worked smooth. A notched or combed utensil is not recommended when plastering over clay plaster substrates.
The plaster is applied either in long sweeps or in smaller 'organic' movements in alternating directions. Right angles, steps and straight lines in the plaster application should be avoided. New mortar should always be applied to a still wet edge (working wet in wet). Work diagonally from the bottom left to top right of a surface.
Ridges in the plaster application can be removed using a finishing spatula (scraper) directly after application. When plastering the ceiling and walls of one room, begin with the ceiling, then two walls on opposite sides, then the remaining two walls covering the junctions to the already plastered walls with painter's masking tape to protect it against

Claytec offers Japankellen, stencils and other select professional tools:

damage when working the junction with a trowel or float. This also makes it possible to apply the same vigorous strokes into the corners as the rest of the wall surface.
The mortar can also be spray-applied with a plastering machine. In most cases, this helps only in applying the plaster. Information on different plastering machines and the contact details of the manufacturers are available on our homepage: http://www.clay-tec.de/produkte/maschinentechnik.html.

Information on suitable plastering machines

Loading the mortar onto the trowel

Applying with the smoothing trowel

Finishing with a finishing spatula (scraper)

First rub-down with a felt float

EXPERT TIP

When masking the junction to an adjoining surface, the edge of the masking tape should be set back by the thickness of the plaster (2 mm). This prevents the plaster being pulled off when removing the masking tape. The masking tape should be removed immediately after the plaster surface has been worked, i.e. when the plaster is still wet.

EXPERT TIP

When applying mortar with textural additives, regularly reload the trowel with fresh material from the bucket. The textural additives in the mortar mass will successively accumulate on the trowel during application. This should be returned to the bucket and mixed back into the mortar.

Working the plaster and surface finishes

To ensure all surfaces can be worked evenly, measures should be taken to prevent individual sections drying out too quickly. Draughts and air movement in the vicinity of windows and air convection cycles from heating can cause surfaces to dry out more quickly, and in warm rooms, the upper section of the wall dries out more quickly than lower surfaces. Too rapid drying may also lead to cracking. As a consequence: windows should be kept closed and the heating turned off. After the plaster surface has been worked, moderate ventilation and heating can be reinstated.
The first step when working YOSIMA plaster surfaces is to rub the surface with a felt float as soon as the plaster transitions from a wet-reflective to a moist-matt state. This distributes sand and aggregates evenly over the plaster surface. The resulting surface finish is even but rough and can be left as the final finish if desired. Repeat treatment with a felt float can refine the surface texture further.
The surface can be worked in different ways. A trowelled finish leaves traces of the trowel movement in the surface of the plaster lending the surface a rustic, country-style. In addition to working the surface with a sponge float, a felt, wooden or plastic float can be used. As a rule, the later the surface is worked (i.e. the drier the plaster), the finer the surface finish.

Felted plaster surfaces

Using a felt float, both coarse as well as fine surface textures are possible depending on the number of times it is undertaken. A coarse orange felt float should be used as the pores of finer felt floats become clogged too quickly with mortar. Fine felt floats are only suitable for very fine surface treatment. The felt float should be moist but not too wet. This can be ensured by rolling the float over rollers, e.g. as used by tilers (see photo). The surface can be rubbed a **second time** after 2-4 hours depending on the suction of the substrate and the ambient air conditions. The surface can be rubbed a **third time** 2-3 hours later. The plaster should still be dark, i.e. still moist. Light, dry patches should not yet be visible.

EXPERT TIP

To achieve a homogenous surface finish, the surface must be evenly dry when working the plaster!

Rolling out the sponge board

Smoothed plaster surfaces

Smoothing is a more demanding and time-intensive process than rubbing with a felt float as the distribution of straw and other additives requires experience. Smoothing can begin soon after the first felt rubbing.

Always work with good quality tools, for example from well-respected manufacturers to minimise the risk of metal wear and particles rubbing off. **CLAYTEC Japanese trowels**, for example, are made especially for this purpose. Developed over hundreds of years in Japan, they are perfectly balanced and distribute the force applied to the handle evenly across the blade. This traditional tool is imported directly from Japan. For further information, see our *CLAYTEC Accessories Catalogue*.

The Japanese plastic smoothing trowel makes it possible to create especially smooth surfaces. The soft material of this tool wears more quickly and the cost of replacements should be factored into the cost of producing the plaster.

EXPERT TIP

As YOSIMA clay design plaster is water soluble, the plaster can be made workable for longer by carefully moistening the plaster surface.

Take care not to introduce too much moisture as this can lead to shrinkage cracking and dusting of the surface!

Rubbing with a felt float

Surface finish

EXPERT TIP

Light-coloured plasters with *Herbs* or *Country* additives should be allowed to dry quickly. The natural chlorophyll in the organic fibres can otherwise leach into the surrounding plaster. Slight discolourations can be equalised by lightly sponging down the surface (with just a little water).

Smoothing

Surface finish

Japanese fine-finish and smoothing trowels, a thin plastic smoothing trowel and external and internal corner trowels

Wiping down, brushing and working in pigments

All plasters will appear more brilliant in colour after wiping down the surface once it has dried. This is especially effective for plasters with textural additives. Wiping down the surface also improves the long-term durability and abrasion resistance of the surface.
The plaster must first dry fully (at least 48 hours). Light coloured plasters are wiped down with a clean, moist sponge in 2-3 swipes. The sponge should be washed out with fresh water from a hose or spray gun. Be very sparing with water, especially when working dark or strong coloured plasters, to avoid creating an uneven effect ('clouding').
Alternatively, the plaster surface can be brushed down. After gently wetting with a plant spray, the moist-matt surface is brushed down softly with a wallpaper brush or a short-haired brush, which also serves to lightly polish the surface.

Pigments for special effects can be worked into the still moist surface with a brush, sponge, sponge float or smoother.

Masking and clean junctions between surfaces

Plastering two adjoining surfaces can be achieved as shown below: masking tape is stuck down to mark the edge of a plaster surface and then removed immediately after washing or brushing down the surface. The surface should still be slightly damp. Once the surface is fully dry, the finished surface can be protected by applying masking tape to the edge and the neighbouring surface plastered. Masking tape can also be used to protect already plastered surfaces at corner junctions. The clean, damage-free removal of the masking tape should be tested beforehand.

Application of the first colour up to the masking tape

Removal after wiping down

Renewed application of masking tape once dry

Application of the second colour

Basic principles for a good surface finish

CHECKLIST

- Prepare the substrate carefully, priming where necessary with YELLOW primer.
- Surfaces must be flat and even to achieve a uniform 2 mm thick plaster application.
- Shrinkage cracks must be closed.
- The suction characteristics of the substrate must be equalised, too strong suction retarded.
- Pre-treat any stains with a suitable stain blocker.
- Dark substrates should be primed with white primer prior to applying a light coloured plaster.
- The plaster should be mixed with not too much water.
- After mixing, YOSIMA plaster should be left to soak for 30 minutes and then worked through thoroughly.
- Water for the mortar and for surface treatment must always be clean.
- Mixing containers and tools must always be clean, especially when applying light-coloured plasters.
- For large contiguous surfaces, prepare enough mortar using a mix of dry mortar from several different buckets.
- Apply YOSIMA design plaster at a uniform thickness of 2 mm.
- Plaster an entire surface in one go. Avoid stopping and re-starting mid-surface.
- Ensure heating or ventilation does not produce draughts while the plaster dries.
- When working or wiping down surfaces be very sparing with water.
- **IN ALL CASES CONDUCT A TRIAL IN ADVANCE!**

Repairs, durability and renovations

Clay design plasters are high-quality, finely-balanced surface finishes. It is important that the plaster substrate is stable and firm and that care is taken to avoid damage after use. Any cracks or dents that may appear over time and during use can, however, be repaired with YOSIMA mortar. To this end, it is advisable to set aside enough of the dry plaster mortar used to plaster the wall for later repairs, in particular because clays and earths can vary slightly in colour with age. The following steps have proven effective in the repair of damages to YOSIMA plaster surfaces:

- Wet the patch concerned (with a light water spray).
- Allow the water to be absorbed.
- Repair the damaged section with plaster mix and a fine tool.
- After a short drying period (surface is matt and damp), carefully blend the repaired section into the surrounding area with a sponge, if necessary sponging down the entire surface.

Equalising coatings such as CLAYFIX Clay Direct can be used but the depth and brilliance of the YOSIMA design plaster will be detrimentally affected by the coating.
To remove surface soiling or to refresh the colour, the surfaces can be sponged down using just a little water or renovated with a brushable plaster.
If YOSIMA clay design plasters are to be painted or wallpapered over at some time in the future, the treatment of clay plaster surfaces is described in CLAYTEC worksheet 6.1.

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