

alkus plastic sheets

Instruction Manual



Panel facing without swelling or shrinkage

How often did it already annoy you that plywood is sometimes already penetrated by moisture after only a few applications? This leads to changes in dimensions and the bearing capacity can sometimes drop by more than 50 %.

With the alkus-sheet there is no swelling and shrinkage. As no water can penetrate the panel, there are no changes due to moisture. Neither to the geometry nor to the mechanical values. Of course there is also no decay due to rotting.

Nail-holding as plywood

On nailing through, one unavoidable disadvantage of plywood becomes obvious: the face veneer chips off at the back, moisture and release agent can penetrate. The biodegradable release agent is already infected by the air and goes moldy, and the veneer decays.

The alkus-sheet is nailable as plywood, however there is no chipping off of the face veneer and no risk of being destroyed by mold. Of course, the nail pull-out strength has been confirmed by comparative tests with plywood.

Simple repair

In case of mechanical damages, a costly repair with a 2-component epoxy resin compound (which has limited durability only) is necessary to repair plywood.

The alkus-sheet is repaired with the same plastic material as the upper layer consists of. This increases the quality of the repair and extends the life span of the panels.

Favourable ecobalance

The plastic surface of the alkus-sheet does not enter into a chemical reaction with concrete and the cleaning effort is reduced to a minimum.

Last but not least: old and used up alkus-sheets can be recycled to identical products, without consumption of timber resources.

Use of self-compacting concrete

The technology institute "Heidelberger Technologie Center HTC" highly recommends the use of solvent-based release agent, for example MevaTrenn FT 8, when using special or self-compacting concrete. If the special concrete has a retarded setting by using fly ash or CEM III (cement norm as per DIN EN 197-1), the stripping time is extended. If this extension is not observed and the formwork is stripped too early, the top concrete layer might adhere to the panel facing, because the concrete strength at the surface is still too less.

Extremely long life span

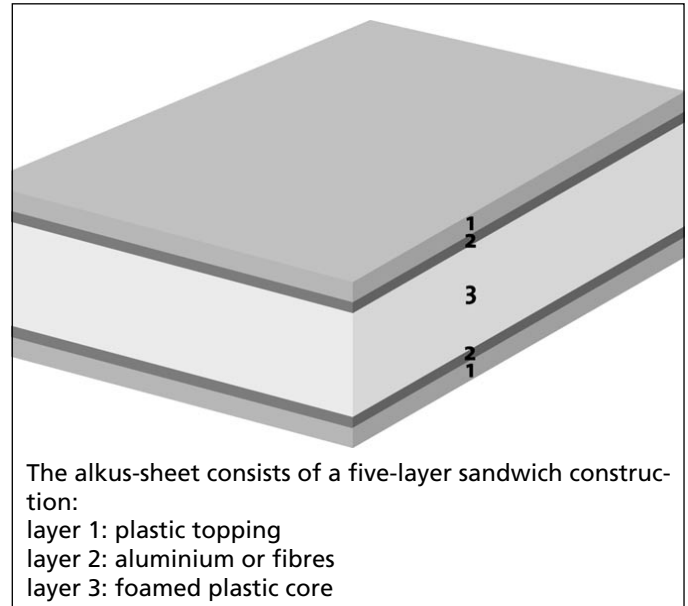
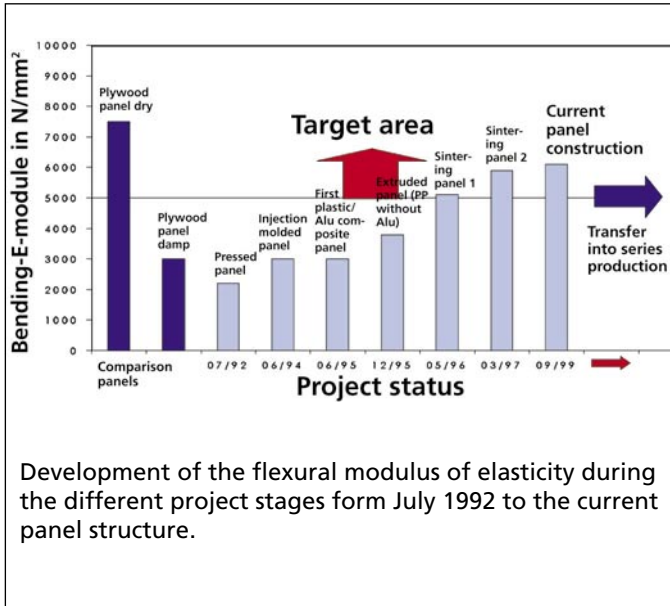
The sum total of advantages:

- no destruction due to moisture
- no chipping off of face veneer during nailing
- no decay due to mold
- repair with the same plastic material as the upper layer results in a life span of the alkus-sheet as long as the life span of the frame (712 reuses documented until December 2004).

Acceptance for return

MEVA guarantees the acceptance of returned alkus-sheets, worldwide.





Please note:

The technical manual contains information, instructions and hints how to use the alkus-sheets and the related tools. Generally, only as-new material may be used.

Please apply only original MEVA spare parts for replacement. When using our products, the federal, state and local codes and regulations must be observed.

What is shown on the following pages are assembly sketches for demonstration purposes. To display details more clearly, safety factor aspects are not always included.

Most examples shown are standard applications as they occur in practice most frequently. In case of problems or special cases not dealt with in this manual, please contact the MEVA experts for advice.

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Properties

The crucial property of the alkus-sheet

is the fact that no moisture can penetrate the sheet, and therefore there is no swelling and no shrinkage.

Surface damage (nailing, screwing, sawing, etc.) does not result in destruction or decay caused by water, and consequently there is no decrease in bearing capacity during the whole life span.

Increased flexural stiffness by thicker sheets

As the profile noses of the formwork panels need to have a projection to compensate for the swelling of the plywood, the alkus-sheets can be built in approx. 2 mm thicker, since they do not increase in thickness. This means, that the flexural stiffness $E \times I$ (modulus of elasticity \times moment of inertia) improves by 37 % for a 20 mm alkus-sheet compared

Improved concrete surface

Until now, the swelling of the plywood facing required the frame profile to project past the plywood face. This resulted in the profile nose leaving a mark in the concrete.

With the alkus-sheet this is no longer a concern as thickness growth due to moisture is a thing of the past (Fig. 4.1 - Fig. 4.3).

Hints on nailing

We recommend hammering the plastic mass projecting around the nail holes after the nails have been pulled out with a flat hammer (Fig. 4.4).

This flattens the surface again, and no water or slurry can leak through the holes while pouring.

Penetrating water (e.g. rain or cleaning from the other side) is no problem for the alkus-sheets and does not harm them.

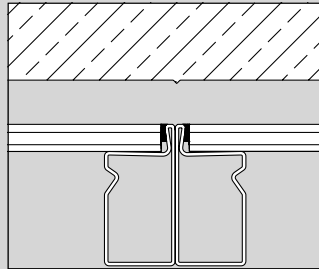


Fig 4.1



Fig 4.2

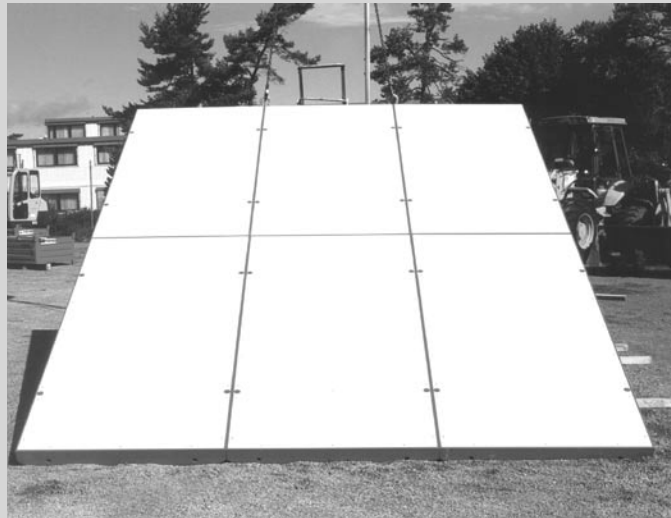


Fig 4.3



Fig 4.4

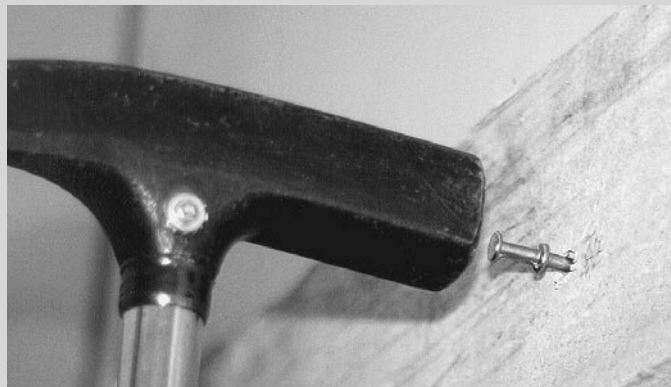


Fig 4.5



Fig 5.1



Fig 5.2

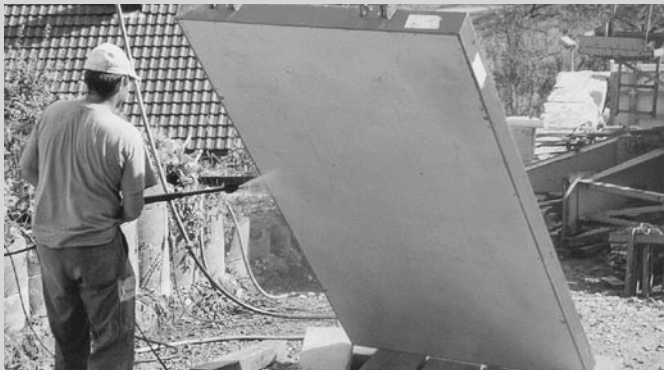


Fig 5.3



Fig 5.4

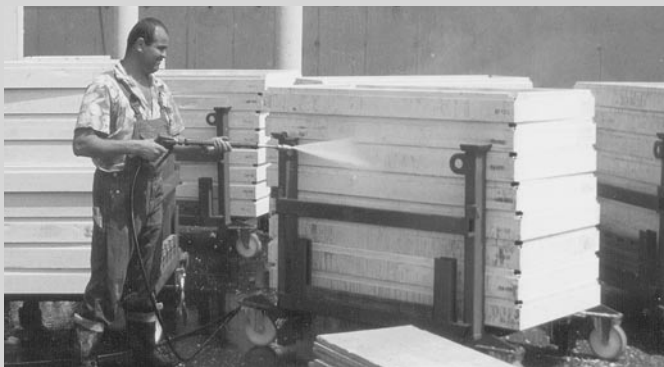


Fig 5.5

Effects of water-soluble release agent

Especially water-based release agent emulsions have a tendency to drip off and not to form a film coating.

If you apply water-soluble release agent the film coating at the upper edge of the formwork might be washed away if concrete is poured by using a bucket. As there is no film coating left, concrete will adhere to the formwork.

How to use the release agent FT 8

As the alkus-sheets absorb neither water nor lubricant, there is no need to oil the sheets after stripping. As experience shows a treatment before every application is recommended.

Besides treating the frames, it is required to spray the alkus faces immediately before assembling (Fig. 5.3).

MEVA recommends the use of the solvent-based release agent MevaTrenn FT 8 (Fig. 5.1). Make sure not to spray too much of the release agent, since a thick separating layer tends to be sticky.

The additional use of release agent is determined by jobsite conditions.

Application of the stainless steel jet FT 8

The release agent FT 8 must be sprayed only in thin layers, so that the solvent can evaporate immediately and only a very thin film coating remains. Therefore, it is recommended to use the stainless steel jet FT 8, which produces a steady fine mist (Fig. 5.2).

Wax

A fluid wax is recommended for all types of formwork. It is either sprayed or evenly applied with a brush or sponge to those parts of the formwork that will not get into contact with concrete. We suggest to spray the panel stacks (wall and slab forms) all around (Fig. 5.4 - Fig. 5.4).

As ever, the facing should be sprayed with the release agent FT 8, since any wax remainders on the concrete might lead to problems with finishing works.

Description	Ref.-No.
MevaTrenn FT 8.....	29-203-93
Stainless steel jet FT 8.....	29-203-94
Wax	29-203-95
Sprayer.....	29-903-70

Sheet repairs

Repair of scratches

Coarse damages or single deep scratches are repaired with the same plastic material as the upper layer of the alkus-sheet consists of: polypropylene. The result is a high-quality surface ready for the next application (Fig. 6.1).

Repair with patches

Surface damages caused by vibrators or reinforcement are repaired with plastic patches with a diameter of 35 mm (Fig. 6.4).

The maximum area of surface damages to be repaired can be the size of a hand. For this, several patches are put in a row.

Repair procedure

Use the hot air welder to preheat the thermoplastic material at the damaged spot. In case of scratches fill the damaged area with the heated polypropylene welding rod (Fig. 6.1). A commercial paint remover is used to grind off protruding parts (Fig. 6.3).

Drill holes and greater damages are drilled thoroughly and filled with plastic patches. Drill holes and other holes up to a diameter of 25 mm are repaired with a plastic plug (Fig. 6.2).

In case of greater damages a complete section of an alkus-sheet is welded between two cross stiffeners of a wall or slab form panel.

alkus-repair set

For the repair of the alkus-sheets a complete repair set is available. Nevertheless, all tools can be ordered separately (Fig. 6.5).

Description	Ref.-No.
alkus-repair set.....	29-912-00
Aluminium box (without contents)	28-100-10
Hot air welder	29-912-10
Quick-welding jet	29-912-15
Metabo paint stripper	29-912-20
Spare knives for Metabo paint stripper.....	29-912-22
Drill	29-912-30
Drill stand.....	29-912-35
Special step drill ...	29-912-50
HM cylinder head drill.....	29-912-55
Scraper.....	29-912-70
Cutting blade	29-912-75
Depth gauge, 6 mm	29-912-80
Welding rod, PP 20 m	29-912-95
Repair plug 23.....	29-913-10
Repair plug 20.....	29-913-15
Repair plug17.....	29-913-20
Repair patch D 35	29-913-25
AS-conical tube D29/24.....	42-010-16



Fig 6.1

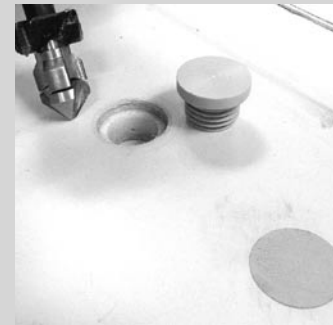


Fig 6.2

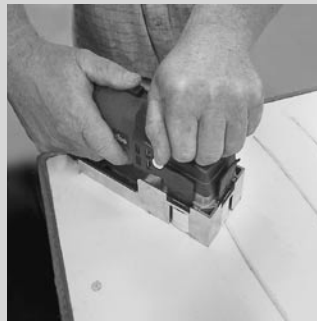


Fig 6.3



Fig 6.4



Fig 6.5

Cleaning and replacement



Fig 7.1



Fig 7.2



Fig 7.3

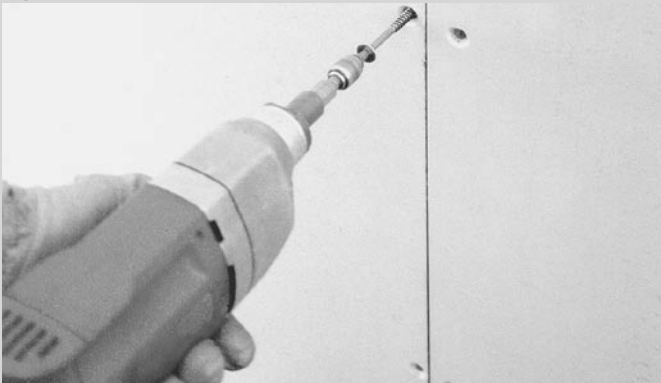


Fig 7.4

Cleaning after stripping

In principle, cleaning should not be carried out with hard and scratching metallic devices, like scrapers with hard metal blades (Fig. 7.1).

Manual cleaning

Spatulas, a piece of hardwood or a wet cloth are sufficient to remove concrete remnants from the alkus.

Rotation cleaner

Make sure to attach only a plastic pad to the rotary disc so that the alkus-sheet will not be damaged. We recommend to use water plus sawdust (Fig. 7.2).

High pressure cleaning

The most effective way to clean the panels is with a high pressure cleaner (up to 200 bar). The water consumption for this is extremely little. You can also use this steam jet to hose down the formwork after pouring (Fig. 7.3).

Professional cleaning

If using a professional cleaning machine, make sure to use only appropriate plastic brushes.

Replacement of plywood

MEVA offers the new and durable alkus-sheets for modular forms of all common brands.

A specially designed machine removes the old facing and cleans the frames from concrete remnants. Then the frames are re-aligned and the new alkus-sheets are installed.

The new plastic sheets have the same life span as the frame.

Hints on replacement

Temperature effects might cause that the aluminium layer of the alkus-sheet shears off the screw heads. Therefore, the drill hole should be one millimeter more in diameter than the diameter of the screw (Fig. 7.4).

The gap between the profile nose of the panel frames and the alkus-sheets (if more than 2 mm) is sealed with transparent silicone.

Recycling

Already during the design stage, the hundred percent recyclability was among the indispensable requirements.

The diagram on the right explains how old and used panels are recycled into identical products with the alkus recycling concept. This means a hundred percent recycling cycle.

