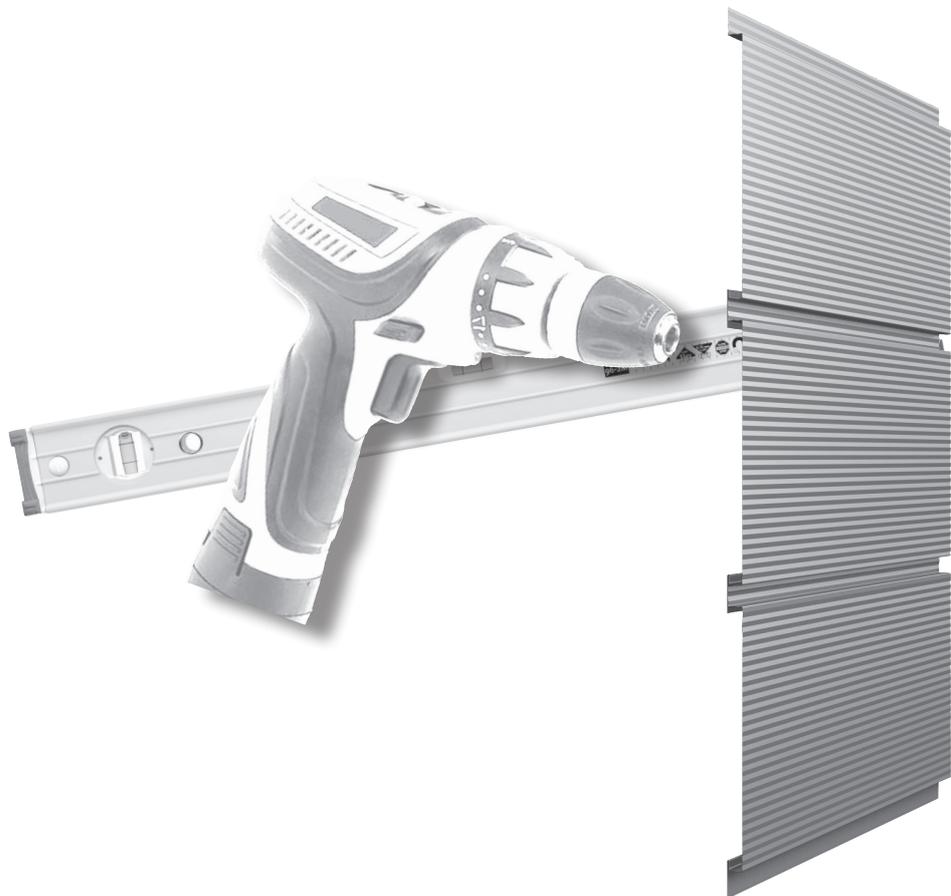


## Sidings



These installation notes for panels are applicable in addition to the generally recognised codes of practice and are one of the basic principles for professional installation. We assume that the valid DIN standards DIN EN 1090, DIN EN 14782, DIN EN 508, DIN 18516, DIN EN 13501, DIN 4108, DIN EN 1991, DIN 18201, DIN 18202, DIN 68800 and DIN 4420 are known; they must be taken into account. In addition, the mounting instructions of IFBS and FVHF are applicable. Compliance with the installation notes does not exempt the users from acting on their own responsibility.

### Alternations of Length and Tolerances

Temperature-dependent alternations of length and width of the components must absolutely be taken into account. At a temperature difference of 100 Kelvin the alternation is:

- for steel 1,2 mm/m
- for aluminium 2,4 mm/m

### Production-related tolerances (steel / aluminium)

- overall widths 190 - 400 mm tolerances + 1 / - 2 mm
- lengths 400 - 6.000 mm tolerances + 5 / - 2 mm

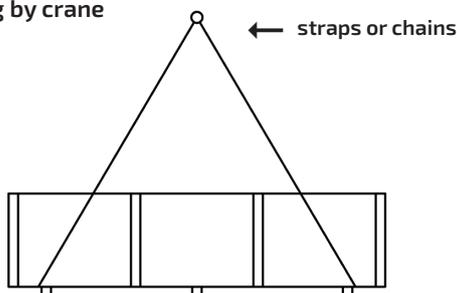
Due to the properties of the primary material, material-related stresses may occur in the processed condition which may result in a slight unevenness.

## Unloading

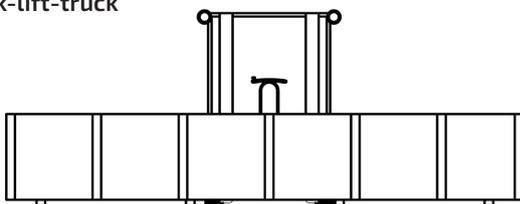
When unloading the packages only appropriate lifting equipment and slings may be used. The lifting equipment is only to be attached to the packaging, in no event to the Siding itself as otherwise deformations may occur (Fig. 1).

Fig. 1 Loading and unloading

### Unloading by crane



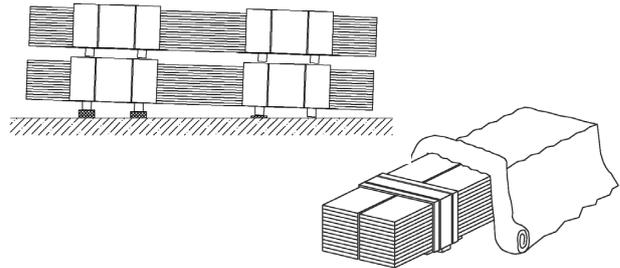
### Unloading by fork-lift-truck



## Storage

The storage on the construction site must ensure that the panel elements are stored evenly, inclined and without any deflection. For a weatherproof outdoor storage a suitable tarpaulin should be used - this tarpaulin must be well ventilated to avoid any formation of condensation water (Fig. 2). The weather protection is also necessary to avoid any problems when removing the protective foil at a later date.

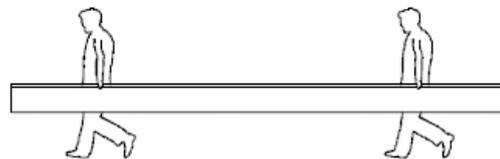
Fig. 2 Storage



## Handling during Transport

Longer Siding panels should be carried in an upright position in pairs (Fig. 3) to avoid any deflection deformation.

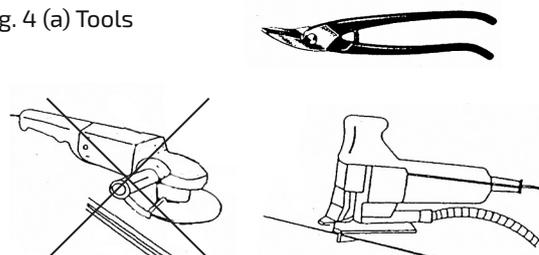
Fig. 3 Transport



## Processing the Sidings

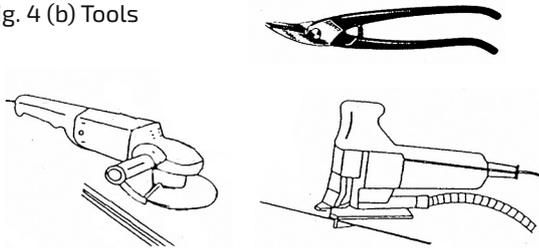
When processing **steel panels**, only cold-cutting tools and machines should be used (jigsaw with suitable saw blade, Fig. 4 (a)). In no case angle grinders should be used as these high-speed rotating tools and machines would destroy the protective zinc-lacquer coating which would cause the loss of corrosion protection. Any sawing and drilling chips must be removed immediately.

Fig. 4 (a) Tools



When processing **aluminium panels** suitable hand-held circular saws or angle grinders can also be used. It is essential to ensure that a suitable carbide-tipped saw blade or a suitable cutting disc is used. The appropriate number of revolutions according to the manufacturer's specifications must be observed.

Fig. 4 (b) Tools



### Substructures made of metal

Two-part or multi-part metal constructions should be used as substructures for the panels. In case of one-piece constructions, the levelness which is particularly important for the panels can normally hardly be ensured. **Steckpaneel PLUS** must be mounted on a metal substructure according to the general design approval. In case of steel substructures a minimum thickness of  $t \geq 1.5$  mm must be observed; for substructures made of aluminium the mandatory minimum thickness is  $t \geq 1.8$  mm. The minimum width of the support of 40 mm must also be observed. The substructures must be mounted flush and perpendicular, statically dimensioned in relation to the dimensions of the respective cladding elements. The type of connections and fastenings of the substructure as well as the cladding elements to one another must be done in such a way that movements of the components and the structure can be absorbed with low noise; this requires an installation free of any restraint.

### Substructures made of wood

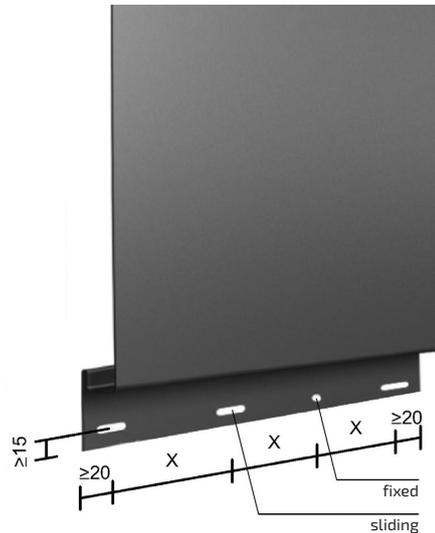
The dimensioning of a wooden substructure must be done according to DIN 1052. Wooden substructures are allowed to be used. The dimensioning of a potential wooden substructure must be done according to relevant standards. Due to the natural shrinkage process strong deformations of the cladding elements may occur. We therefore do not recommend wooden substructures.

## Installing the panels

The panels may only be installed on flat aligned substructures. All elements must be inspected for defects before installation, defective or damaged elements must not be used. The first panel must be precisely aligned (horizontally or vertically). We recommend to check the pattern at certain intervals to compensate for tolerances. When handling, transporting and instal-

ling the panels it must be ensured that the panels are always handled with proper care. In order to achieve an optically perfect result it is absolutely necessary to ensure an accurate installation of the substructure and the panels. It is essential that the installation is done free of any restraint (provision of fixed and sliding points, Fig. 5).

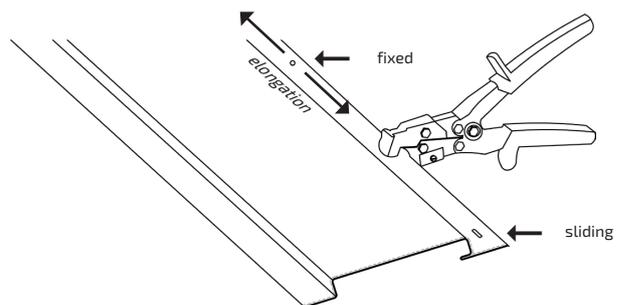
Fig. 5 Mounting scheme



sliding and fixed mounting point

Per panel, one fixed point must be provided. It is essential to design all additional fastening points as sliding points (Fig. 6).

Fig. 6 Slot-hole punch



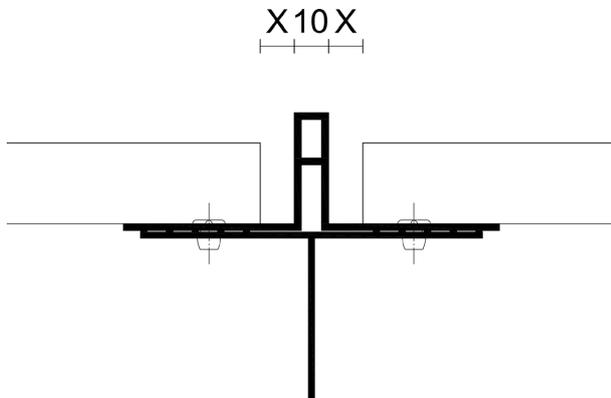
Only screws or rivets made of aluminium or stainless steel which are approved by the construction supervision agencies are allowed to be used as fastening elements. Screws must not be overtightened. When using rivets we recommend a riveting tool (Fig. 7).

Fig. 7 Riveting tool



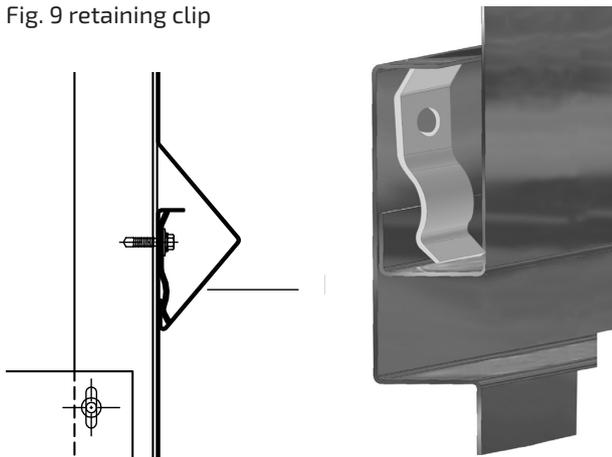
In case of lesenes, corners or reveals (Fig. 8) it must be ensured that there is sufficient space for the longitudinal expansion (X) of the panel (see clause 2 „alternation of length and tolerances“ on page 2).

Fig. 8 Transverse joint with lesene profile



For certain panels with a respective geometry of the profile a concealed fastening by means of a retaining clip is used (Fig. 9).

Fig. 9 retaining clip



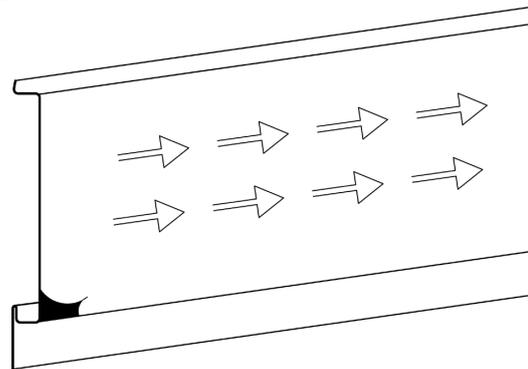
The retaining clip is made of stainless steel with a thickness of 1.5 mm and is available with a clearance of 1 mm or 2 mm. Depending on the material thickness of the panel, either version can be used alternatively. When using retaining clips the installation is normally done from the bottom to the top. Retaining clip and covered panel are fixed together to the substructure in the upper locking area of the panel (riveted or screwed). Afterwards the lower locking area of the covering panel is clamped into the retaining clip so that the clip is concealed. Taking the temperature-dependent alternations of length and width of the panels into account the design of the joints can be varied to a large extent.

For an optically perfect result the highest demands must be made on the accurate installation of the substructure and the panels. Here special attention should be paid to the fact that the surface of the panels reflect light in various intensity depending on their gloss level. When then looking at the panels at a later date from different angles of view and at changing light conditions various reflections are caused which reveal the unevenness of the substructure and the panels by the varying shadow effects.

## Protective Film

After installing the protective film applied (Fig. 10) must immediately be removed; removing the protective film at a later time may cause problems (UV radiation). The protective film should be removed at a material temperature of min. + 10° C to prevent any residues of adhesives.

Fig. 10 Protective film



## Statics

For the substructure, the panels and their fastening a structural analysis must be prepared to ensure the structural safety of the facade and to achieve the optimum in economic terms.

If you have any questions or need further information about LAUKIEN panels or our other products we would be pleased to help you!

