



LINDNER FASSADEN GMBH

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1. Universal regulations

Dear Ladies and Gentlemen,

You have decided to purchase a facade system from LINDNER.
We have professionally delivered and installed your facade system.

The installed elements are commodities for which warranty is initially assumed within the framework of the agreement or the statutory regulations.

To maintain the safety in use and suitability, regular checks, care, maintenance and servicing are required, starting already during the warranty period.

The tasks mentioned are not part of the contractual service.

Maintenance - in particular of parts exposed to normal wear and tear - is the responsibility of the operator.

We are happy to offer you a maintenance contract for regular servicing and maintenance.

The technical properties of the facade are only fulfilled with closed windows, doors, flaps etc.
In case of wind, all openings must be closed.

The precondition for a comprehensive warranty and product liability is, in addition to maintenance measures, the proper use and proper operation of the components.

2. Safety instructions



Risk of entrapment

When operating windows, pay attention to the danger of clamping between casement and frame.



Risk of falling

There is always a danger of falling out of open elements. Do not leave open items unattended.



Danger of falling due to slamming elements

Opened items could strike due to drafts and objects could easily get swept away.



Risk of injury due to opened elements

When handling under open elements, there is a considerable Risk of injury.

Close open wings before handling underneath or at the latest just as children enter the room.



Risk of injury due to popping element wings

Tilting elements can accidentally get popped when unlocking the holding system-

Tilt- and Turn windows pose the danger that the wings could lead to injuries due to the wide swinging wing.

3. Fire doors

Fire doors are sophisticated safety systems that require regular maintenance to maintain their lifesaving function. The maintenance is the responsibility of the owner of the property.

The owner can either carry out the maintenance work by himself or transfer it to a specialist company. In order to ensure perfect functionality, professional maintenance with an interval of 12 months or according to the specifications of the respective approval is required. As far as functional impairments are determined such as stiffness, unfamiliar noise development etc. a specialist company is to be charged immediately

The following work must responsible be carried out:

Seals

The seals must be checked for contact pressure and suppleness. Brittle or defective seals must be replaced. Seals need to be rubbed with a grease or Vaseline. Lowerable bottom seals must be checked for release function and tight support on the shelf.

Hinges

Adjustment of the bolted door hinges due to the shadow gap between door leaf and frame. For welded bands, bending the bands should be avoided. The hinge pins also need to be greased and finally control of the attachment.

Locks and handles

Check that the latch locks into place and the correct fastening.

Checking the antipanic function

Grease the latch and possibly electric door openers on both sides with resin and acid grease.

(Do not use spray oil)

Door closers

The door closers must be adjusted so that the doors close automatically from any opening angle (Observe the instructions for installation of the door closer).

4. Hold-Open Systems

After the ready-to-use installation of a hold-open system at the place of use, its proper function and correct installation must be determined by an acceptance test.

The manufacturers of release and hold-open devices shall draw attention to this test and is to be arranged by the operator.

Locking systems must be kept operational by the operator at all times and checked at least once a month for proper functioning.

In addition, the operator is legally obliged to carry out an inspection at least once a year for proper and trouble-free interaction of all devices, as well as maintenance, or to have such an inspection carried out.

This inspection and maintenance may only be carried out by a specialist or a person trained for this purpose. The scope, outcome and timing of the periodic monitoring shall be recorded and the resulting records must be kept by the operator

5. Power-Operated Doors and Gates (Swing-Door-Drives, Automatic-Sliding-Door Systems)

The safety requirements for power-operated windows, doors and gates are regulated in the "Guidelines for Power-operated Windows, Doors and Gates", the BGR232 (Berufsgenossenschaftliche Regel für Sicherheit und Gesundheit bei der Arbeit). These guidelines supplement the §§9-11 of the "Arbeitsstättenverordnung" as well as §§28 and 29 of the accident prevention regulation "Allgemeine Vorschrift" (VGB 1). (German Guidelines).

According to Section 6 "Inspection" of the Directives, power-operated windows, doors and gates must be inspected by an expert before initial operation and as required, but at least once a year. Doors in escape and rescue routes as required, but at least twice a year, which is to be arranged by the operator.

Qualified persons are persons who, due to their training and experience, have sufficient knowledge in the field of power-operated windows, doors and gates and are familiar with the relevant state occupational health and safety regulations, accident prevention regulations, guidelines and generally recognised technical regulations (e.g. VDE regulations, DIN sheets) to such an extent that they can judge the safe working condition of power-operated windows, doors and gates. These persons include, for example, specialists of the manufacturer or supplier companies, relevant experienced specialists of the operator or other persons with appropriate expertise.

6. Escape Route Control

Building requirements for electrical locks of doors in escape routes:

Before the doors with electrical interlocks in escape routes are put into operation for the first time, their compliance with the proof of suitability must be confirmed by the manufacturer's certificate and it must be determined by an expert whether the electrical interlock has been correctly installed and is functional.

Doors with electrical interlocks in escape routes must be inspected by an expert at least once a year. The expert must issue a certificate for the periodic inspection, which the operator must present to the building supervisory authority on request. The inspection can also be carried out within the framework of a maintenance contract with a professionally suitable company.

7. Windows

7.1 Fittings

The windows are equipped with high-quality fittings to ensure that they function flawlessly over the long term, which are sufficient for normal functions of the window.

If, for example, burglar resistance is an additional requirement, additional adjustment work may be necessary due to the increased operating forces and must be initiated by the operator.

In order to maintain the ease of movement permanently, the accessible movable fittings must be lubricated once a year or greased with acid-free lubricants.

Safety-relevant fittings should be checked by a specialist for tight fit and wear. Adjustment and readjustment are inevitable results from the intended use and therefore does not constitute a defect. Due to the smooth running of the fittings, it is not always possible to prevent the window sashes from opening or closing. This can be prevented by a so-called opening damper.

Incorrect operation and misuse of the sash must be avoided. A misuse exists in particular if:

- Objects are trapped in the opening area of the opened window
- Windows or french doors are pressed against the window reveal uncontrollably (e.g. by wind) or are opened and closed. This could damage or destroy the fittings, the frames or other parts. A defined opening range can be maintained using special additional fittings.
- Apply additional loads to open windows or French windows (e.g. by hanging, supporting).
- When closing windows or french doors, the fold between the frame and sash is gripped (risk of injury).
- The operating handles are not only actuated in the direction of rotation or beyond the stop.
- The handle is actuated when the window is not completely closed. Handle vertical downwards = closed, handle vertical upwards or horizontal = open (rotary position).

Any resulting inevitable errors do not constitute defects.

Any necessary readjustment of the fittings, e.g. stripes of the sash, at the latest, but adjustment work on fittings or the replacement of parts and the removal and fitting of sashes should only be carried out by a specialist company.

If fittings with more complex functions are used, a special operating guide will be provided on request.

7.2 Window seals

The seals must be checked for contact pressure and suppleness. Brittle or defective seals must be replaced. Rub seals with a grease pencil or Vaseline.

7.3 Ventilation

New windows are characterized by particularly high consistence. This ensures optimum thermal insulation and energy-saving heating.

When closed, they largely prevent uncontrolled air exchange and draughts between inside and outside. Controlled ventilation is therefore required to prevent moisture damage:

- Ventilate all rooms for approx. 5 to 10 minutes in the morning.
- Ventilate several times during the day depending on the amount of moisture.
- The windows should not only be tilted, but opened completely, so that an intensive air exchange is guaranteed by the shock ventilation in shortest time.
- Turn off the heating during ventilation.
- Don't let the room temperature drop below 15°C.

Additional ventilation measures are necessary during the construction phase! When replacing windows in old buildings, a significant change in ventilation habits is usually necessary. While with old and leaking windows there was a constant (partly unwanted and unnecessary) exchange of air and humidity, with new and leaking windows the exchange of air must be intentionally brought about by targeted and needs-based opening (shock ventilation), which at the same time removes humidity and odours and - in comparison with the persistent tilting position - saves energy.

8. Doors

8.1 Seals

Check the seals for contact pressure and suppleness. Brittle or defective seals must be replaced. Rub seals with a grease pencil or Vaseline. Lowerable floor seals must be checked for their release function and tightness on the floor.

8.2 Hinges

Adjustment of the bolted door hinges due to the shadow gap between door leaf and frame. For welded bands, bending the bands should be avoided. The hinge pins also need to be greased and finally control of the attachment.

8.3 Locks and handles

Check that the latch locks into place and the correct fastening.

Checking the anti-panic function

Grease the latch and possibly electric door openers on both sides with resin and acid grease.
(Do not use spray oil).

8.4 Door closers

The door closers must be adjusted so that the doors close automatically from any opening angle (Observe the instructions for installation of the door closer).

9. Glasses

Glass breakage in flat glass (also with heat protection coating) is a random event caused by external influences, which - if it occurs in the useful area - is not covered by the warranty and can be insured against corresponding premiums in the so-called glass insurances.

The risk of glass breakage can be significantly increased by certain processes or activities, e.g. by painting, coating, gluing, backing panes, partial shading by protruding objects (e.g. trees), close approach of furnishings, installation of interior roller blinds at a very small distance.

In all these cases, there is usually no defect subject to warranty.

On request, we will be pleased to send you a leaflet from the glass industry.

10. Sealants

In the case of manual processing, tolerances may occur in the appearance of the seal.

Joint materials age depending on environmental influences and stress. For this reason, they must be inspected regularly by visual inspection and replaced if necessary.

11. Cleaning

Facades lose their original decorative appearance and become unsightly over time. With soiling, the corrosion load increases at the same time. Cleaning of decorative facades is therefore necessary:

1. To preserve the decorative appearance of the facade.
2. To reduce the corrosion load by removing the dirt.

Detergents must be suitable for cleaning. In the context of this suitability, the cleaning effect is an important purpose, but not the crucial one. It is crucial that the surfaces to be cleaned are not damaged by the detergents. Cleaning agents must always be matched to the anodised or painted surface. However, other materials used in construction such as sealing materials, plastics, coated glass, etc. must not be damaged.

Use neutral all-purpose cleaners to clean the components. Do not use cleaners that contain aggressive substances, solvents or abrasives as these can damage the surface.

Aluminium profiles should be washed at least once a year with a soft sponge or cloth and a neutral wetting agent (e.g. washing-up liquid) and then washed off.

In case of heavy soiling, profiles can be cleaned with neutral cleaning agents and fibre fleece. Neutral cleaning agents with polishing additive (e.g. silicone-free car polish) are suitable for coated profiles.

Conservative care products give the profiles additional dirt and water protection.

Drainage openings ensure that rainwater is discharged to the outside in a controlled manner. Assure regularly (at least once a year) that the openings remain continuous and functional.

For sliding and folding elements, dust and dirt must be removed from the roller guides on the underside of the frame with a vacuum cleaner at least once a year.

Any impurities on the glass surface caused by installation, glazing, stickers or spacers can be carefully removed with a soft sponge or plastic scraper and plenty of warm soapy water.

Alkaline building materials such as cement, lime mortar or similar must be washed off with plenty of clear water as long as they have not set. For uncoated glass surfaces, commercially available kitchen cleaning emulsions can be used to polish or remove strongly sticking adhesive remains or dirt.

Do not use cleaning products with abrasive particles (abrasive cleaning agents) on glass. You should leave the use of glass planes, razor blades, steel scrapers, sandpaper and other metallic objects to specialists.

Change the cleaning object and liquid frequently to prevent washed off dirt, dust and sand from getting back on the glass surface and scratching it. If the glass is coated on the weather side, it is essential to follow the manufacturer's instructions for cleaning.

Special cleaning and care sets for aluminium windows and doors can be purchased from us.

12. Cleaning of anodized components

The artificial oxide layer produced by anodic oxidation on aluminium is approx. 200 times as thick as the natural oxide layer. It makes it possible to maintain the original surface appearance of the components permanently. As practice has shown, surfaces properly anodised and compacted in accordance with DIN 17611 (German Guideline) are resistant to the effects of the weather. This is demonstrated by anodized components that have been exposed to the weather for decades.

Over time, anodic oxidised components also become soiled, which can impair their decorative appearance.

Therefore, facades, doors, window frames etc. should be cleaned from time to time. In which periods a cleaning is to be carried out can not be defined uniformly. The degree of soiling - depending on the location - and the requirements for the decorative appearance of the components are decisive.

Cleaning measures (see table) and cleaning intervals, e.g. annually or several years, depend on this.

Cleaning	abrasive	non abrasive
Initial cleaning	X	(X)
Basic cleaning	X	
Interval cleaning	(X)	X

12.1 Initial cleaning / Basic cleaning

The initial cleaning as well as the basic cleaning should be carried out abrasively with light, mechanically produced surface removal, analogous to the case of heavy soiling. The facade cleaning is always carried out in individual steps from top to bottom, whereby the measures depend on the result of the sample cleaning. Wash off with water and sponge, root brush or suitable pad. Carefully rub the surface with a suitable abrasive detergent or pad. Wash off the cleaning residues. Aftercare with preservative and polish carefully.

Work is carried out with the necessary contact pressure in rolling and pressing direction. Cleaning should not be carried out in direct sunlight. The valid application and safety regulations must be observed.

12.2 Interval Cleaning

Interval cleaning depends on the degree of soiling and the requirements placed on the decorative appearance of the facade in terms of time and cleaning performance.

12.2.1 Light Soiling

Light soiling should only be removed with the sponge, cloth and water to which neutral wetting agent is always added. After cleaning, wash thoroughly with water. Soap suds must not be used because they are too alkaline. It may also be possible to use high-pressure cleaning equipment. These must be handled in such a way that the natural water drainage direction of the facade construction is maintained and no water enters into the facade. The application of high-pressure sprayers must therefore be adapted to the respective construction. The applicable work and safety regulations must be observed.

12.2.2 Heavy Soiling

In the case of heavy soiling, abrasive cleaning is carried out using the same procedure as described under 12.1 „Initial cleaning / Basic cleaning“.

12.2.3 Oil and grease containing contamination

If the dirt also contains substances containing oil and grease, a special cleaning agent (with solvents for oils and grease) should be used.

13. Cleaning of powder-coated components

The initial cleaning and the subsequent regular interval cleaning are carried out in the following cleaning steps:

- Washing off with water containing wetting agents.
- Clean with a neutral cleaner adapted to the paint system using a sponge or soft brush.
- Rinsing with the addition of a washing preservative.
- Peel off with window wiper and/or leather.

13.1 Light Soiling

Organically coated facades should be cleaned and preserved at least once a year. Dirt deposits can be easily removed with water and a sponge using wetting agents.

13.2 Heavy Soiling

The cleaning described under 13.1 will not be sufficient for heavy soiling and oily residues. In this case, special cleaning agents should be used which have a dirt or grease removing effect but do not damage the coating.

13.3 Basic Cleaning

A basic cleaning is necessary for lacquered surfaces that have been weathered for many years and not cleaned. Carefully check whether a satisfactory result can be achieved with the available cleaning agents by means of cleaning. Dirt and chalk products must be cleaned with suitable abrasive special cleaning agents, e.g. polishing pastes (type Ib), similar to those used for car polishing. A consistent surface appearance requires a lot of work for large area components due to the easily occurring greasing formation.

14. Protection of aluminium profiles

Aluminium components must not be exposed to scratching and impact stresses. They should only be installed after bricklaying, stucco work and plastering, as well as cast stone and slabs have been completed in order to prevent chalk and cement splashes from affecting the surface. They must be rinsed off immediately with plenty of water. In case of long-lasting exposure, the anodic oxide layer can be etched, which initially becomes noticeable in the formation of whitish spots and can lead to a breakthrough through the oxide layer. Serious damage - if any - can only be repaired by removing the corroded parts, stripping off the oxide layer, mechanical post-treatment of the surface and renewed anodic oxidation.

The pH value of freshly cast concrete and mortar masses as well as of asbestos cement products is above 10. The pH value of saturated lime water can even rise to 12. For this reason, alkaline components can still be dissolved out of exposed aggregate concrete or unprotected asbestos cement products after months by rainwater. Even when acidifying stone facade parts, aluminium parts are endangered and must be protected.

15. General information

15.1 condensation water

Condensation (precipitation of steam) occurs when warm, moist air meets cold surfaces. The humid air cools down. Since cold air can absorb less moisture, the excess moisture forms a fog on the surface.

Fogging can occur on the inside and outside of the window. On the room side, condensation occurs first in the glass edge area, on the outside first in the glass surface.

Many measures, e.g. thermal insulation on the exterior walls such as changes in the conditions of use within the building can have an effect on condensation on the window.

If ventilation is mostly provided by tilted window sashes, condensation may occur in the roller shutter box.

15.2 Condensation on the room side

Moist rooms such as bathrooms, swimming pools, kitchens or other rooms with high humidity are particularly affected. Modern window constructions are denser than old windows, which means less heat loss but less moisture exchange. Multiple short airing mostly prevents the fogging!

New highly heat-insulating glasses automatically contributes to reduced internal condensation. The side facing the room is warmer than with conventional insulating glass. Warm, moist room air can therefore practically no longer find any cold window surfaces on which condensation can be formed. If condensation nevertheless occurs on the window surfaces, this is usually a sign of higher room humidity, which must be removed by shock ventilation.

15.3 Condensation on the outside

The surface on the weather side is relatively cold. This is why condensate forms when there is sufficient moisture. Insulating glass with particularly high thermal insulation has little warming on the outside. This aspect of the low energy loss to the outside is also the heating cost saving benefit. Naturally, external condensation will occur due to weather conditions until ice formation. This phenomenon is physically conditioned and therefore does not represent a defect. Roof windows are more affected because they radiate more intensively against the cold night sky than vertical glazing.

15.4 Condensation in the fold

Due to slight but permissible leakage between window sash and window frame, humid room air can enter the rebate area and condense at the temperatures present there. Short-term condensation is harmless and permissible. A continuous formation of condensate leads to an increased moisture load. At very low outside temperatures, ice formation can also occur in the window rebate. In the case of house or sliding doors with metal thresholds, condensation cannot be ruled out on the room side.

15.5 Leakage under extreme loads

Windows have defined properties with regard to air permeability when the leaf is closed ("joint permeability") and water tightness ("driving rain tightness"), for which different classes are formed in corresponding standards. Extreme events, in particular storms with very high wind speeds or spraying against the window with the water hose or even high-pressure cleaners, represent unscheduled loads that windows cannot or must not resist. An increased air passage or water ingress cannot be avoided in such a case.

16. Consequences of inadequate maintenance

Failure to carry out regular maintenance can lead to the following consequences as examples

- The owner is liable to third parties for unlimited damages caused by a malfunction of the fire door from the point of view of a violation of a traffic obligation.
- The warranty is excluded if the defects are due to insufficient maintenance.
- Once the building authorities have determined that a fire door has malfunctioned in its function, they can take measures to prevent danger, which can even include prohibiting use.