HCTC
windows and exterior doors

WOODEN WINDOWS AND DOORS USAGE AND MAINTENANCE INSTRUCTION MANUAL

INTRODUCTION

"HCTC" windows are created for efficiency, beauty and your comfort. This booklet presents information about the doors and windows you acquired and advices you on their usage and ways of preserving them beautiful and secure as long as possible.

If you encounter the problems described in this booklet, please contact JSC "HCTC" or authorized representatives of JSC "HCTC". Website of JSC "HCTC" is: **www.hctc.lt**

Thank you for purchasing JSC "HCTC" products.

Please read the instruction manual issued by the producer and follow the advices of how to properly mount our products and render them relevant maintenance. If you consider these instructions too complicated to follow and carry out all the maintenance works described here, please ask our specialists company authorized representatives to do that for you.

1. INSTALLATION

1.1 GENERAL

Correct installation is crucial for the functioning and life of the units. Therefore, the work should be performed by workmen skilled in the installation of windows and external doors. The following instructions cover some of the main aspects of the installation work but not all the details which may play a role in the installation.

Normally, windows and doors are supplied with the glazing units fitted but in the case of fixed lights, glazing units are often fitted after the frames have been installed. Such glazing units must be fitted in accordance with the fitting instructions provided by Glasindustrien (the Danish Glass and Glazing Industry Federation) or as directed by the window supplier.

It will facilitate the installation of most types of unit to remove the casement or door leaf before the first stage of the installation of the frame.

The frame is normally positioned in the wall hole with a uniform gap around jamb and head while taking account of the level of the frame sill in relation to the wall sill/floor level.

The gap between the frame and the surrounding brickwork/wall structure should normally be around 12 mm.

At the hinge side, the frame must be level and plumb (wide and narrow side). The frame must be adjusted and fixed to allow the correct fit and prescribed clearance all the way round between frame and casement.

1.2 FIXING

Windows and external doors must always be fixed to the surrounding brickwork or building structure by means of mechanical fasteners such as frame screws/dowels or brackets.

Fixing to the inner skin of brick built buildings before erecting the outer leaf requires the use of special fixing brackets capable of transferring all future vertical and horizontal forces.

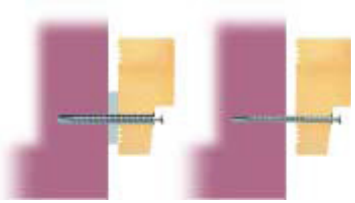
Alternatively, the units must be permanently fixed to the brick face (outer leaf) in accordance with the instructions below. When using expanding foam to fill the gap between the external face of the frame and the surrounding brickwork or building structure, you must apply the same mechanical fixing method as described below.

If the frame is secured by fasteners (frame screws and dowels or brackets) at each individual fixing point in the opening, the unit will not need permanent blocks. Other fasteners require the use of firm, permanent blocks of a material which remains stable under moisture, such as marine plywood or a synthetic material, possibly with the addition of a damp proof course.

Permanent blocking must not be used at the head of wide units, e.g. lift-and-slide doors, where there is a risk of exposure to load from the structure above. In general, the distance between fixing points must not exceed 90 cm, cf. ill. 1.

ill. 1

Fasteners such as frame screws and dowels are normally located in the frame rebate, cf. ill. 2.



ill. 2.

1.3 SPECIAL INSTRUCTIONS

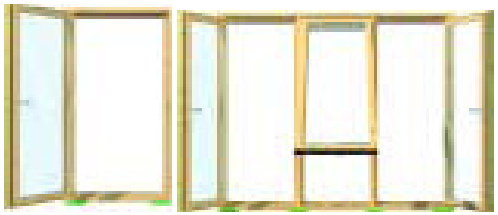
- WINDOWS

If units are less than 120 cm wide, no fixing at head and sill is required. Permanent blocks must be inserted under the extremes of sills at both ends; units with mullions also require permanent blocks under the sills below the mullions, cf. ill. 3. The blocking material must meet the requirements stated for permanent blocks/damp proof courses.

ill. 3

- DOORS

At the hinge side, the upper and lower fasteners are located close to the respective hinges. Permanent blocks must be inserted under the extremes of sills at both ends; wide doors must be permanently blocked below the centre of the sill, cf. ill. 4.



ill. 4

Double leaf doors with or without a centre post must be permanently blocked under the post/where the leaves abut. The blocking material must meet the requirements stated for permanent blocks/damp proof courses. The frame must be permanently blocked behind the strike plate at the closing side, cf. ill. 4. This block serves primarily to make the door intrusion resistant.

WARNING!

After window/door assembling remove protective film from aluminium cladding, but not later than 3 months after window/door production.

2. GENERAL CONDITIONS

2.1 CARE AND SUPERVISION OF WOODEN DOORS AND WINDOWS INCLUDES:

- Supervision of inside and outside paint or varnish cover;
- Checking and regulation of fittings functioning;
- Oiling of moving parts and closing places of fittings;
- Checking of gaskets;
- Cleaning of gaskets and drainage holes;
- Checking of glass;
- Coating the outside cover with special supervisory ointment (not required for aluminium cladding).

WARNING!

Beware overbalancing when cleaning the windows. If needed, use longer window cleaners. Do not leave children without any supervision when cleaning the opened windows.

For maintenance of wooden windows, it is necessary to understand that it is a high quality product, requiring proper usage and more care and supervision than plastic windows.

Mounted products are often spoiled during finishing works of the premises - splashed with various grouts, glazing units and casings-scratched, moving parts of fittings-littered with various kinds of construction rubbish, windows and doors-warped and swelled due to improper microclimate (temperature and humidity).

It is necessary to take care that premises during carrying out the finishing works (plastering, laying the concrete) and several months afterwards are ventilated enough, because due to increased humidity mould can propagate on casings, windows may become warped (leaky, difficult to open), the varnished surfaces may become pale, the wood colour may change. Covers and coatings as well as wood tinge may change from splashes or other contact with constructional materials. In such cases products are irreversibly spoiled.

It is **necessary** during the finishing works to cover products with transparent wrapping, cardboard, etc. so that plaster, putty materials or paints could not drop on painted, varnished and glass surfaces, get into locks, bolts, hinges and other parts of fittings. Plastic wrapping cannot be kept longer than for 3 days. After mounting, it is necessary to rip up the plastic wrapping so as to prevent condensation of humidity between the wrapping and the product.

If a glazing unit or casing is scratched, the product is aesthetically spoiled. Defects of such type can rarely be eliminated without replacing the product or a part of it by a new one.

If any particles and dust of wall plaster, putty, polishing and construction litter crumble off into hinges, they may start opening with difficulty, sometimes break. Badly closing sashes may get warped.

One of mostly unobserved conditions while using wooden doors and windows is atmospheric microclimate. In case of improper microclimate, the products swell out, warp and deform. Therefore they may start putrefying, catch a mould, become leaky or inconvenient to use.

WARNING!

- Water condensation (clouding) on windows is one of signs that temperature and humidity proportion (microclimate) in your home is improper.
- Condensate on windows and doors may cause mould and deformation of weather strips and casings.
- Windows and doors **shall be** maintained in premises of sufficient humidity to prevent water condensation or drying out. In wintertime it is not recommended to raise the temperature above 25 °C when there is big cold outside. Otherwise deformations of the opening part of windows or doors may appear, they may become non-hermetic.
- While carrying out finishing works or repairs of the premises, it is **necessary** to cover fittings from litter, dust, glue and painting, otherwise anti-corrosion coating may be damaged or fittings may be broken.
- If you cover windows or doors from damages during construction works or use blinds,**be careful** not to damage the glazing panes or casing of the product.
- Do **not put** any additional things between the sash and the casing (do not protrude anywires, cables) - casing of the window or door and fittings may deform due to that.

2.2 GLAZING UNITS

Glazing unit is one of the most important components of windows and doors, therefore caution must be taken to protect them against actions causing cracking.

The biggest area in the window is occupied by the glazing unit, therefore its permeability and transparency properties are very important.

WARNING!

- **Do not stick** any films or coatings on the glass pane (especially on the toned glass pane). In case of different thermal tensions, glazing unit may crack.
- All **the** area of a toned glass pane must be lighted up or be in shade. When just a certain area is in shade, unevenly heated glass may crack.
- If a glass pane is **affected by temperature differences of more than 36** °C, probability of glass thermal crack increases very much.
- Heating apparatus shall be placed at a distance of **no less than 20 cm** from the glass pane surface.
- Distance of cookers, fridges shall be **no less than 30 cm** from the glass pane surface.
- **Temperature of heating apparatus** placed besides the glass pane **shall not exceed 65 °C.**
- When starting to heat the premises, **raise the temperature gradually, not sharply.**
- When using heaters, **do not direct** the warm air flow **into the glass pane.**
- **Glass pane may crack** also due to freezing or conditioning apparatus, placed not far from the glass pane.
- Glass thermal crack **can happen** also **due to insufficient warmth of the premises** (especially if it is absolutely non-heated during wintertime).
- Glass surface **shall in no way touch** inside or outside blinds - due to surface temperature differences glazing unit may crack. Distance between the blinds and the glass surface shall be **mo less than 2 cm.**
- Guarantees against glazing units' thermal cracks and cracks due to air pressure differences and strokes **are not provided.**

Paste the cracked glazing unit with thick sticking band in different directions across the crack and cover the floor with cardboard or some other material that falling glass could not damage your floor cover. Call in professional glazers or JSC "HCTC" authorized representatives.

WARNING!

Do not allow children approach the cracked or broken glass pane!

HOW TO TAKE CARE OF PAINT AND VARNISH COVERS

Seeking to preserve your windows beautiful and undamaged, you will have to take care of the varnish or paint covers every year - clean them and use various wooden cover cleansers.

If varnish or paint cover of your windows or doors has changed its tinge a little, this is a normal outcome of the environmental impact (sun, air, humidity).

At least twice a year clean the surfaces from dust and dirt. If not cleaning them away, mould or moss may appear. It is recommended to remove hard dirt by cleanser *Teknoclean**. Clean surface is cleaned with water-moistened sponge or wiper. Do not use any strong cleansers, because they can harm varnish cover or wood and varnish may subsequently change their colour. Besides, strong cleansers may harm glass pane and fittings of the window.

Please attentively read cleanser producer's recommendations and follow them. While cleaning brick wall or other surfaces next to the window, cover them or otherwise protect the window. If acid-based cleanser drops onto the surface of the window, immediately wash it with clean water.

Don't use powder or other abrasive** cleansers.

For supervision of varnished and painted surfaces we recommend *Teknovax** or *Glasurit Quick&Easy**. Using one of these cleansers, the surface is coated by layer, protecting from dirt and the cover becomes more elastic and shiny. These products can be applied by wiper or sponge. It is not necessary to additionally polish the surface. Before using supervision products, please necessarily read the producer's instructions.

WARNING!

Paint cover shall be cleaned and spread with supervision ointment once a year (ex., before winter), varnish cover - twice a year (best - in autumn and spring).

2.3 HOW TO REPAINT AND RE-VARNISH DOORS AND WINDOWS

Acrylic paints and varnish suit your products best. They will not have any undesirable interaction with gaskets and previous covers of doors and windows. It is recommended to use acrylic paints of Finish company *Teknos**.

Before painting or varnishing the products, please get acquainted with general recommendations for painting:

- Do not paint the sealing seams, gaskets, locks, handles, plastic finishing, silicone seams next to the glazing unit, insect lattice and other moving parts.
- Before painting, prepare the surface. Remove the previous paint or varnish cover by sandpaper or polishing sponge. Dust it with dry soft wiper.
- Do not use any abrasive or other surface-damaging cleansers.
- Before painting, use fat removers or priming.
- Observe that painted surface is not damaged by opening and closing of the window and touching other surfaces before full drying of the paint.
- Before closing painted or varnished sashes of the doors or windows, oil the gaskets with some fat ointment (ex., vegetable oil) that after contacting with the paint or varnish cover they would not tear off it from the wooden surfaces until full drying of the cover.

2.4 HOW TO RENEW OILY SURFACE OF DOORS AND WINDOWS

- Dust it with dry soft wiper.
- Overlay olive on wood surface at least 2 layers. In particular, carefully apply the last layer.
- After about 30 minutes remove possible oil surplus.

WARNING!

Polishing and cleaning with chemical cleansers, painting, varnishing and other finishing works shall be carried out in well **ventilated premises.**

Paint only the opened windows and do not close them until full drying of the paint. Before painting, fat remover or priming shall be fully dried.

Never leave an oily cloth rolled up. As the oil oxidizes it generates heat and it is not unusual for the cloth to spontaneously combust. Even if you intend to throw the used cloths away, you must first allow them to dry, unrolled, outside.

To know when you have to repaint your wooden products (windows and doors), we recommend you to indicate your products' outside cover group. You can do that by following tables presented below:

Establish sort of wood of your product

Softwood	Deciduous
Pine Larch	Oak, Meranti, Sipo Black chuglam (kemp)

Establish, what kind of tone your product outside colour is attributed. This table presents only varnish colour codes, you will have to establish your paint colour tone yourselves

Colour tone	Colour code
Light	TM 1531, TM 1702, TV3165x2
Medium dark	TM1522, TM1706, TM1709, TM1711, TM1712, TM1713, TM1715, TM4066/97, TV16, SAD6, SAD29
Dark	TM1520, TM1530, TM1701, TM1703, TM1705, TM1717, SAD9

According to previous data and impact of weather conditions your products' outside finishing group is established:

Load	Colour tone	Varnish		Paint		Olive
		softwood	deciduous	softwood	deciduous	deciduous
Indirect weather impact – when products are protected against direct rain and sun, but outside temperature and humidity is affecting them	All	A	A	A	A	D
Normal weather impact – direct weather and sun impact on the product up to the 3th floor	Light	E	E	B	B	
	Medium	C	B	C	B	
	Dark	C	B	C	B	
Extreme weather impact – direct weather and sun impact on the products placed higher than 3th floor	Light	E	E	B	B	
	Medium	E	B	C	B	
	Dark	E	B	E	B	

Source: IFT Rosenheim laboratory classification "Window and door finishing cover groups

Different surface renovation intervals are recommended for every finishing group. Following the below table, you may establish what product repainting interval is recommended for you:

Finishing cover group	Recommended supervision
A	It is recommended to repeatedly process the surface every 5 years
B	It is recommended to repeatedly process the surface every 3 years
C	It is recommended to repeatedly process the surface every 2 years. This is recommended because there may appear resin leakages and/or gaps in the wood or in casing joints, therefore finishing cover may be damaged
D	It is recommended to repeatedly process the surface every year or if after the rain on the wood surface does not show up water droplets.
E	It is not recommended to mount due to insufficient resistance of the surface to weather and sun impact

Presented intervals of repeated processing of surfaces (repainting, re-varnishing) are given on condition that finishing cover will be regularly supervised.

WARNING!

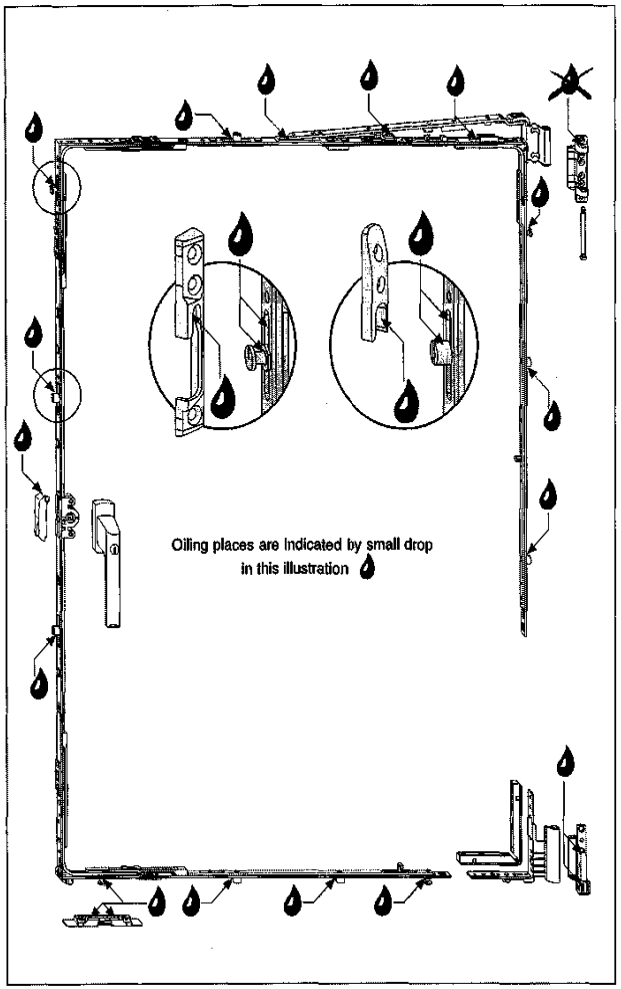
Outside surface finishing works are not necessary for surfaces of aluminium-cladded products, because aluminium covers protect wood surfaces from outside weather conditions.

2.5 HOW TO SUPERVISE FITTINGS

There is a high quality German "Siegenia AUBI" (Euro type windows) or IPA (Scandinavian type windows) fittings mounted in your windows. To assure their irreproachable functioning and long existence, they must be always clean and oiled. Thus twice a year (in autumn and spring) it is necessary to carry out the following supervision works:

- Wipe the fittings from dust, constructional litter and rubbish with a dry wiper.
- Check, if hinges hold tightly and if hinges of opening and closing windows are not sunk down. If they wobble, it is necessary to tighten them up or, if needed, change them. These are the safest places of a window.
- If hinges are without finishing covers, make sure that upper hinge "finger" is fully thrust in.
- Clean the window fittings only with weak and non-powder cleansers (ex., soapsuds suits well). Acid or powdery cleansers may damage the anti-corrosion cover of the fittings, therefore it may start corrode. Dry it with a dry wiper.
- After cleaning the fittings, oil the moving joints and closing places of it with ointment or oil (see ill. 5). Use acid-free and resin - free ointments or oils. Consumer oil for sewing-machines suits well.

MAINTENANCE LUBRICATION INSTRUCTIONS
„Siegenia AUBI“

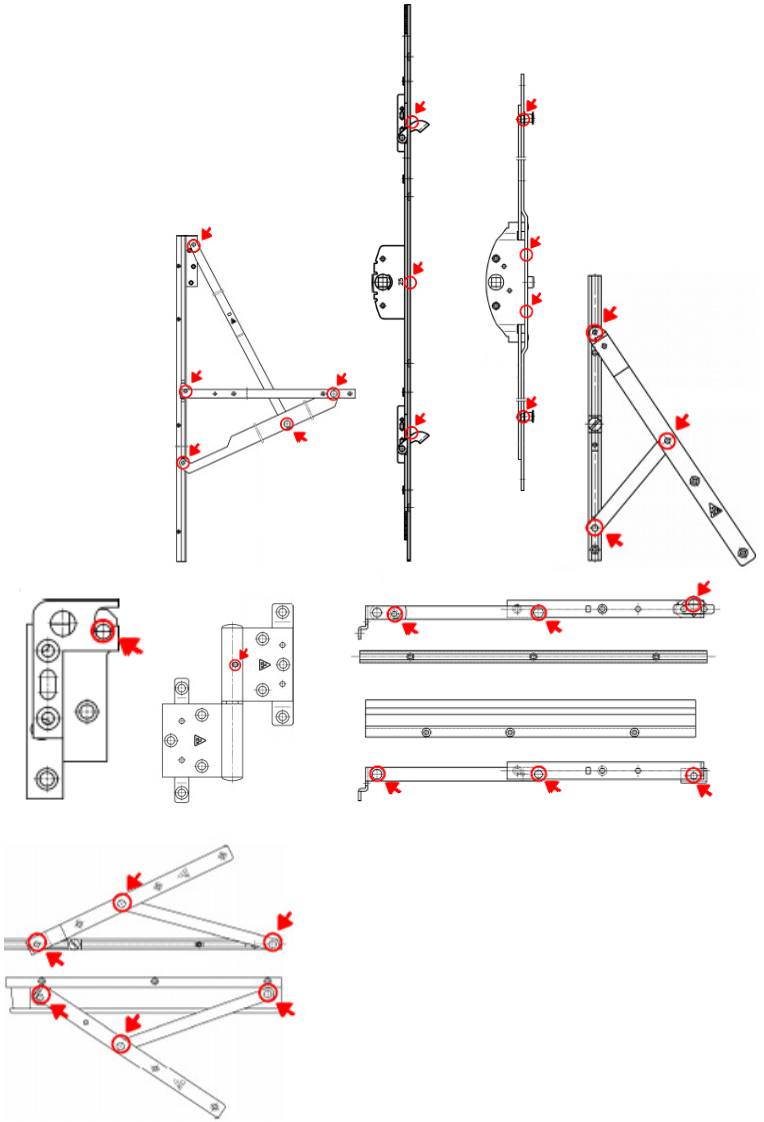


ill.7. Ointment spreading places

LUBRICATE BETWEEN THE MOVING PARTS WHILE ACTIVATING REPEATEDLY.
DO NOT GREASE THE ALUMINIUM RAILS.

Ill 5.

MAINTENANCE LUBRICATION INSTRUCTIONS
IPA Beslag



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DO NOT GREASE THE ALUMINIUM RAILS.

Ill.5

WARNING!

Only qualified window producer's specialists can carry out the following works:

- Change components of fittings;
- Install and uninstall the opening parts of windows (sashes);
- Regulate the cladding (especially scissors and hinges)

If the opening part opens with difficulty, make sure that there is no paint, dust, stones or litter in the moving joints. It is necessary to remove them, clean the moving parts and to oil them. If you do not do so, the fittings may break. Besides, in case of improper closing of fittings, sash may be deformed or fall out of the window casing.

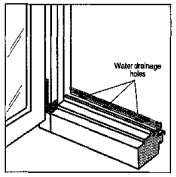
2.6 HOW TO SUPERVISE GASKETS AND WATER DRAINAGE HOLES

If your window or door sashes have rubber (elastomer) gaskets, it is **necessary** at least twice a year to oil them with silicon ointment (ex., used for lubrication of automobile door gaskets). This prevents the gaskets from fractures, ensures their elasticity, non-freezing in wintertime, hermetic pressing to the casing and thus ensuring tightness of a window.

When cleaning windows, it is necessary to clean their gaskets as well. Various kinds of liner may tear or deform them.

When checking and cleaning the gaskets, after opening the sash you will be able to check if condensate drainage holes in aluminium drainage fixed to the bottom of the casing are not clogged (ill. 6). If the holes are littered and dirty, it is **necessary** to clean them and ensure that . water can freely run outside, in opposite case it may accumulate on the frame and leak inside the premises.

Sashes (only Euro type windows) also have such holes. If these holes are clogged, water accumulates between the casing and the glazing unit. In due course glazing unit, sodden in water, start condensate between the glazing panes, selective coating oxidizes and stains appear. Besides, accumulated water wets the casing (it starts putrefying) and the weather strip (it starts deforming).



ill. 6. Casing with drainage containing water drainage holes

2.7 HOW TO CARE AND SUPERVISE PLASTIC AND ALUMINIUM COMPONENTS

Clean plastic and aluminium components with soft solution of water and cleanser. Abrasive cleansers may scratch the surface of these components and damage the paint. You may use mild solutions of alcohol and water.

2.8 HOW TO CARE AND SUPERVISE GLAZING UNITS

Glazing units do not require any special supervision. They should be protected against factors, conditioning fractures. Besides previously mentioned factors (in more detail - see subsection 2.2 of this instruction manual), glazing units should be protected against casings slamming, which can be caused by crosswinds. Do not leave open doors or windows without supervision. In days of hard wind, it is best not open them at all.

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WARNING!

- **Do not clean** the glass panes with any powder or abrasive cleansers.
- **Never clean** the hardly removable dirt (paint, remains of construction mixes, etc.) **with rough and sharp materials** (rough sponges, wipers, scissors, knifes or razor blades, etc.). By using sharp tings, you may scratch the glass surface.

If after several cleanings of windows with chemical cleansers, fat stains appear on it, it means that the cleanser is not suitable. Try to clean away the stains with other cleanser suitable for glazing units.

Before using the mentioned cleansers, it is necessary to read the usage instructions of producer.

Paste the cracked glazing unit with thick sticking band in different directions across the crack and cover the floor with cardboard or some other material that falling glass could not damage your floor cover. Call in professional glazers or JSC "HCTC" authorized representatives.

WARNING!

Do not allow children approach the cracked or broken glass pane!

3. MOST FREQUENT QUESTIONS:

What is condensate?

Moisture, which settles down on windows and doors, is water condensate. It consists of water vapour existent in the air. It may settle on both outside and inside surfaces.

Why does condensate form up?

When warm and humid air contacts with cooler surfaces, the surplus of moisture oondensates in the air. It happens when cool air approaching cool surfaces very close can no longer hold the moisture existent in it as does the surrounding warm air.

Window condensate may be a caution signal. It may mean that humidity of the inside premises can cause invisible harm to other places in your home.

Where does inside moisture come from?

There are lots of factors, determining increase of humidity in the air. A family of four persons normally breathing and sweating emit about 0.30 liter of water vapour per hour. During preparation of food three times per day another 2.30-2.80 liters of water vapour are released into the air. One taking of shower - additional 0.30 water vapour. Moreover, all the other activity including water usage (dish - washing, floor - cleaning, laundering, etc.), additionally moistens the air.

Every day a family of four persons releases about 60 liters of water vapour into the air. The more vapour is in the air, the bigger is relative humidity. Additional sources of humidity are room flowers, natural burning gas, drying laundry, etc.

What is relative humidity?

Air can hold only a certain amount of water vapour. This quantity is dependent upon the air temperature. When the air of a certain temperature is maximum saturated with the quantity of water vapour it can contain, relative humidity is 100%. When the air contains half of total quantity it can hold - relative humidity is 50%. Cooler air can hold less quantity of water vapour than warm. Thus, in the air of 10 °C warmth and 100% humidity there is less water vapour than in the air of 20 °C and 100% humidity.

How to measure relative humidity of inside premises?

You may use humidity measuring instrument called **hygrometer.** It is not an expensive measuring instrument available in many shops of consumer goods and utensils.

What are the surplus humidity indicators?

Window condensation usually shows humidity surplus in the premises. Check, if there is any water or ice on your window surfaces. Observe if there are any moistened areas on your ceilings or wardrobes. Paint layer blisters of the outside walls filled with water may also indicate surplus humidity of inside premises.

Does relative humidity influence health?

Majority of scientists and doctors agree that relative humidity does influence people's health. Recommended humidity of inside premises is from 30% to 50%. According to conclusions of World Health Organization, relative humidity of more than 65% increases risks of upper airway illnesses and such humidity negatively influences asthma or allergic patients' health. Lower relative humidity (<30%) may cause skin dryness and itch.

What can excess humidity do for my home?

Excess humidity accelerates our physical wear-out. Humidity penetrates walls and other constructions of a house. It may accumulate in empty cavities and freeze during the cold season. Year after year house constructions are gradually destroyed due to expanding ice. During the warm season it melts and moistens ceilings and walls. Moreover, in case of excess humidity, mould propagates.

Is condensate forming only in winter?

Condensate most often forms in winter, but it can also form up when the water vapour existent in the air contacts surfaces of lower temperature than dew drop (temperature at which air becomes saturated with water vapour and releases dew). Ex., in cold winter days warm inside air humidity may condensate on usually colder surface of glass.

In rare cases, in autumn and spring (very rarely on hot and humid summer days) condensate may form on the outer side of a window. Usually it shows that a window is well preserving the inside warmth.

Is intensity of condensate formation dependent upon the house?

Most frequently, yes. Earlier, when energy saving was not a big concern for many people, houses were not so much hermetic as those of new construction. Heat insulation materials were simple. Walls and ceilings were made from more porous material and windows were not so tight and kept the warmth by several times worse than nowadays wooden and PVC (plastic) windows.

Therefore, water vapour in the air could move into premises and out them more freely. Due to new construction technologies and heat insulation materials, contemporary houses are much more hermetic and energy-saving. This is also what contemporary windows are - saving the warmth and hermetic.

When premises are tight, humidity rising up from bathroom, kitchen, laundry room, plants, people, etc., increases relative humidity of premises. In worse conditions this humidity becomes unhealthy or even harmful.

How are humidity and comfort interconnected?

Whether you feel comfortably at home or not depends on many factors, including temperature of air, its humidity, air movement, temperature of surfaces in the premises, quantity of light, intensity of sun radiation. Because humidity is one of main factors of comfort, you have to take care of it at home both in winter and summer. Some people think that increased humidity at home provides bigger comfort in winter. They think that humid air is easier to breathe. But when air in premises is humid, the human body does not release enough of its own humidity as it should. Additionally, cold catching risks increases.

Sometimes the air of premises should be additionally moistened, because too dry air negatively influences human body. Therefore, it is necessary to observe the environment of your home and assure that it is comfortable and healthy for you and your family.

Majority of people feel well when relative humidity at home is 30-50% and warmth is 20-22 °C. Probably most of you have experienced discomfort in summer when temperature is high and the air is very humid. In order to increase work efficiency and improve sleep, conditioners eliminating excess humidity in premises are used in summer.

Temperature of air and surfaces, relative humidity, air movement and direct radiation determine our well-being. Majority of people in summer feel well when relative humidity of inside premises is 25-55% and air temperature - 22-28 °C.

Can I reduce temperature and save warmth by increasing relative humidity in winter?

You may think that there is a connection between relative humidity and how warm you feel, but human body quickly gets used to change of humidity level. So, if you feel cold at 18 °C, humidity level will not have any influence. At higher or lower humidity you will also feel cold.

Besides switching off the humidifier, how else can I diminish humidity in premises?

- Regularly air the premises and if there is more activity in your home (more people in premises, more cooking in kitchen, more laundering, laundry drying in rooms), airing should be more frequent (if there are air vents, it does not mean that they ensure enough ventilation, because it depends upon the life style of your family). While ventilating, switch off your heating appliances or reduce their power - this will help you to save energy.
- Do not put anything to dry on heating appliances next to the windows (dry in bathroom, balconies or other places foreseen for that).
- When preparing food in kitchen, use steam collector. When having a bath or shower, switch on the ventilators until there is no vapour on the mirror. But caution - do not use ventilator for too long, because you may overheat it.
- Do not keep firewood at home or in basement - while drying it emits humidity.
- Do not grow very many plants.
- If in your home mechanical airing system is equipped, make sure that fresh air gets in.
- If outside temperature drops down, you should reduce humidity level in your home. You can do that by reducing the number of humidity sources.

Is quantity of condensate dependent on the window type?

Bow-windows and winter garden windows usually cloud over more frequently, because air circulation next to the window surfaces is insufficient. Moreover, they are cooler, because they do not contact directly with outside walls of the building.

In such cases it is recommended to use additional electrical air-blowing heaters, improving warm air circulation near the windows.

High windows (glass-cases) cloud over more often if window casing is not sufficiently insulated.

Are curtains, roll-ups or interior blinds affecting window clouding?

Curtains and other window covers may increase possibility of condensate, because they disturb warm air circulation from heating appliances near window surfaces. So, if curtains are drawn, rollers or interior blinds are down, windows may cloud more.

Why does a 3-centimeter condensate strip form around the edge of the glass?

If condensate strip of such width forms near the edge of casing or glass-pane, it may be due to reason that casing of the glazing unit is aluminium one and just as any other metal, while conducting cold, it cools the glass-pane. Condensate forms up in cooler part of a glass-pane. Because the middle part of the glass-pane remains warmer than glass edge near the casing of the glazing unit, it does not cloud over. Strip of condensate does not mean that window is of improper quality or that it permeates cold inside. It is often recommended to use plastic casings (Sw/sspacer™ or *Thertnix™)* instead of aluminium ones. Plastic holds warmth much better, glass surface near the casing is usually warmer and possibility of clouding is therefore lower. That also assures better thermal properties of a window.

Why does condensate form inside the window (inside casing and sash)?

All opening and closing parts are more or less permeating the air. When warmer and more humid air contacts with cooler air or surfaces, by cooling it emits humidity. Released humidity settles down on the interior side of window casings and sashes. To assure that condensate does not accumulate on the mentioned surfaces of the window and runs outside, condensate drainage holes are made in the aluminium drainage hole. If the holes are clogged, condensate may start gathering inside the casing and accumulated water may run inside the premises and in cold season, after converting into ice may damage, deform or even break the window. Therefore it is important to check if your window condensate drainage holes are not clogged with dirt or litter.

Why does condensate form on the outer side of the window?

Dew on the outer side of a window is a natural phenomenon. It happens to majority of the outside surfaces when their temperature falls down below outside air dew point. And this in no way means that your windows are of bad quality. As a matter of fact, outside clouding shows that window preserves interior warmth well (warmth does not reach the outside surface of the window).

Can condensate spoil the windows?

Condensate may cause flaking off the window and door paint, varnish or deform the weather strips. Due to long lasting humidity doors and windows swell and change their form, therefore they may cease to close tightly or not close at all. Mould can penetrate the wood and putrefy it; appearance of the window can be spoiled. To renovate the window takes quite much time, effort and money.

Are there any cases when window clouding is a temporary phenomenon?

There are three cases when window clouding is temporary:

New construction, repairs, finishing: wood, plaster, concrete and other constructional materials used in a new construction or renovation is major source of humidity formation. At the beginning of the heating season humidity from constructions is emitted in the air of inside premises. Usually this process of constructions drying lasts one season.

Heating season: at the beginning of the heating season there is a possibility of temporary condensate. During wet summer days house constructions absorb certain quantity of humidity and evaporate it after few weeks of heating.

Temperature fluctuation: sudden, substantial falling of outside or inside temperature may also cause temporary condensate during the heating season.

Why does condensation form between glass-panes inside the glazing unit?

Condensation between glass-panes inside the glazing unit is one of the most unpleasant and irritating problems. This is not only obscuring the view through the window but also causes stains on the surface inside the glazing unit after condensation evaporates. Formation of such condensate shows that sealant of the glazing unit is damaged.

Sealant of the glazing unit holds the gases filling the unit inside. Due to it glazing unit retains thermal properties.

Most often leakiness of sealant is a defect of glazing unit production. Then, regarding guarantee provided by the producer, it is necessary to contact the producer and replace the glazing unit.

Nevertheless, there are cases when sealant is damaged by surplus water quantity inside the window, on the casing, near the glazing unit. It accumulates due to clogged condensate drainage holes (in sash we can see them from the bottom side). In due course the water, affecting the sealant, penetrates through the sealant causing cloudiness of the glazing unit between the glass-panes. In such cases the glazing unit is not given the guarantee and the owner himself is responsible for that.

Seeking to avoid such mistakes, it is necessary to supervise that condensation drainage holes do not get clogged, so that water cannot get through the wall constructions inside the window (between the glass-pane and the casing).

How to air home?

- In the morning open the windows and ventilate premises for about 20-30 minutes (especially bathroom and bedroom).
- If there are any air-holes in your windows, they do not assure full and good ventilation of the premises. Ventilate the rooms 3-4 times per day. Make a cross-wind which will assure quicker airing of the premises. Ventilate rooms after cooking, shower or bath.
- While airing the rooms, reduce or switch off the heating.
- It is more expensive to heat humid air accumulated in the premises than fresh one.

Heat the premises evenly; if temperature at night is lower than 5 °C and more, there is a big probability that cooler surfaces will gather condensate (in wall and window corners, etc.).

4. GUARANTEE IS PROVIDED FOR:

- Sashes and casing - 5 years;
- Glazing units - 5 years;
- Aluminium drainage holes and cladding - 5 years;
- Fittings (handles, bolts, hinges, etc.) - 2 years;
- Gaskets and silicone sealing (seams) - 2 years;
- Paints and varnish cover - no longer than term after which it is recommended to repaint the product (see section PRODUCT PASSPORT).

4.1 SELLING PRODUCTS WITHOUT MOUNTING SERVICE, JSC "HCTC" GUARANTEES THAT:

4.1.1 Glazing unit will not get clouded between glass-panes and will not accumulate dust or stains;
4.1.2 Hinges will hold well the opening part and will not break from its load and will not corrode;
4.1.3 Outside weather conditions will not cause irreparable cover and casing defects;
4.1.4 Casing will not fracture from its own weight and quality of material, if it is mounted according to the requirements established by the producer and if following the previously mentioned microclimate conditions;
4.1.5 Aluminium drainage holes will not deform due to weather conditions, paint will not peel off;
4.1.6 Paint or varnish cover will not peel off or fracture, if following the previously mentioned microclimate conditions of premises;
4.1.7 Hermetical gaskets and silicone sealing will preserve elasticity and will not fracture.

4.2 SELLING PRODUCTS WITH MOUNTING SERVICE, JSC "HCTC" GUARANTEES THAT:

4.2.1 Glazing unit will not get clouded between glass-panes and will not accumulate dust or stains;
4.2.2 Glazing unit will not fracture due to natural deformation of casing. Thermal, mechanical, pressure fluctuation, increased window load, breakage are not the subject of the guarantee;
4.2.3 Hinges will hold the opening part and will not break from its load and will not corrode, inside fixing components will not break while properly using windows and doors;
4.2.4 Outside weather conditions will not cause irreparable cover and casing defects;
4.2.5 Casing will not fracture from its own weight and quality of material, if following the previously mentioned microclimate conditions;
4.2.6 Aluminium drainage holes will not deform due to weather conditions, paint will not peel off;
4.2.7 Paint or varnish cover will not peel off or fracture, if following the previously mentioned microclimate conditions of premises;
4.2.8 Hermetical gaskets and silicone sealing will preserve elasticity and will not fracture;
4.2.9 Tightness of casing-sash and casing-wall joints (if casing-wall tightening up is foreseen in the contract) will be preserved.

WARNING!

- Guarantee of products shall not be provided if contract provisions have not been fulfilled and requirements of the producer concerning product mounting, usage and supervision have not been observed and followed.
- During guarantee supervision it is necessary to present this manual with filled in PRODUCT PASSPORT approved and sealed by the enterprise-seller of the windows or doors.

PRODUCT PASSPORT

Your windows and doors were sold by:

Contract No: _____ _____

Order (manufacturing) No: _____

Profile, wood: _____

Glazing: _____

Fittings (producer, properties): _____

Aluminium cladding* ☐Yes ☐No
** Mark the proper one*

Inside colour: _____

Outside colour: _____

We recommend to renew

The outside finishing after** ☐2 years ☐3 years ☐ 5 years
*** Marked when products are non-aluminium-cladded*

Product mounting*** ☐ Yes ☐ No
***** Mark the proper one

Selling date: _____

_____

Name, surname and signature of a responsible person