Fitting normal - ordinary windows

- Pre-conditions
- Preparation
- Self-inspection
- Execution

This **work instruction** is designed for use in detailed planning and preparation of work on construction projects. With thorough planning high levels of personal safety and optimal work apportionment can be achieved at the same time as the work can be organized efficiently and cost effectively.

Work activity & Problem	P	C	Risk= P*C	Action
Overloading, straining	10	70	700	Use the transport and lifting devices for windows
Crane work with windows, crushing injuries	30	5	150	Education in crane routing/strapping
Cluttered workplace =Twist/fall injuries	10	15	150	Regular tidying
Pinching, windows tips	1	70	70	

		Assessment of probability		**Assessment of consequences**		
Probability = P	P = 0,1	Very unlikely	(<1 times/10 years)	C=0,5	Trifle	
Consequence = C	P = 1	Unlikely	(1 times/10 years)	C=1	Tiny	(1 - 2 days sick leave)
Risk = P * C	P = 3	Low probability	(1 times/3 years)	C=5	Small	(3 - 7 days sick leave)
	P = 10	Relative probability	(1 times/year)	C=15	Tactile	(8 - 29 - ” -)
	P = 30	Probable	(1 times/month)	C=70	Severe	(30-299 - ” -)
				C=500	Very severe	(>300 - ” -)

Text from the Working Environment Authority's brochure Safer Construction Work

Personal Protective Equipment § 71

Safety helmet and protective footwear should be used unless this is clearly unnecessary. Other personal protective equipment such as eye protection, hearing protection and gloves should be worn when required.

Access routes § 63

For each location where work is performed there shall be a safe means of access such as stairway or gangway. Ladders are not usually suitable as an access.

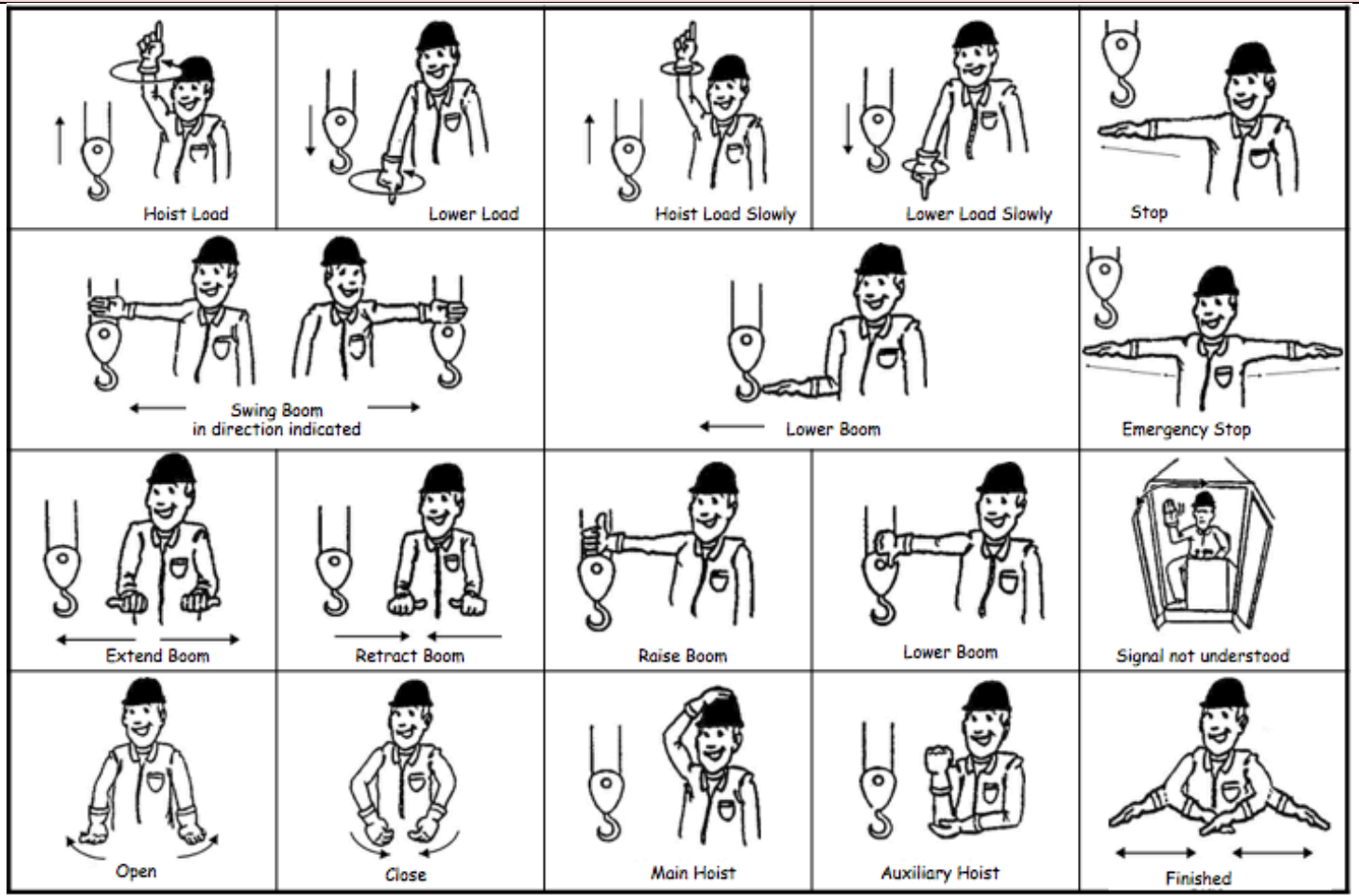
Access and transportation § 38-41 and 53

Between the various levels will normally be stair or ramp. If the level difference between the two levels is more than ten meters, and this means that workers have to walk a lot up and down stairs access to a lift shall be made available.

Transport up to or down from levels more than two meters above ground level or equivalent shall be carried out in such a way that the guardrail or other protective device does not need to be removed. If this is not possible, transport shall instead be performed using intake bridges, cargo openings in facades, specially designated ramps or specially arranged transport . On the intake bridges there shall normally be a gate or barrier.

It is only in certain specified exceptional cases that a guardrail or other protective installations may be removed during such transportations.

The Regulations contain detailed provisions for these eventualities.

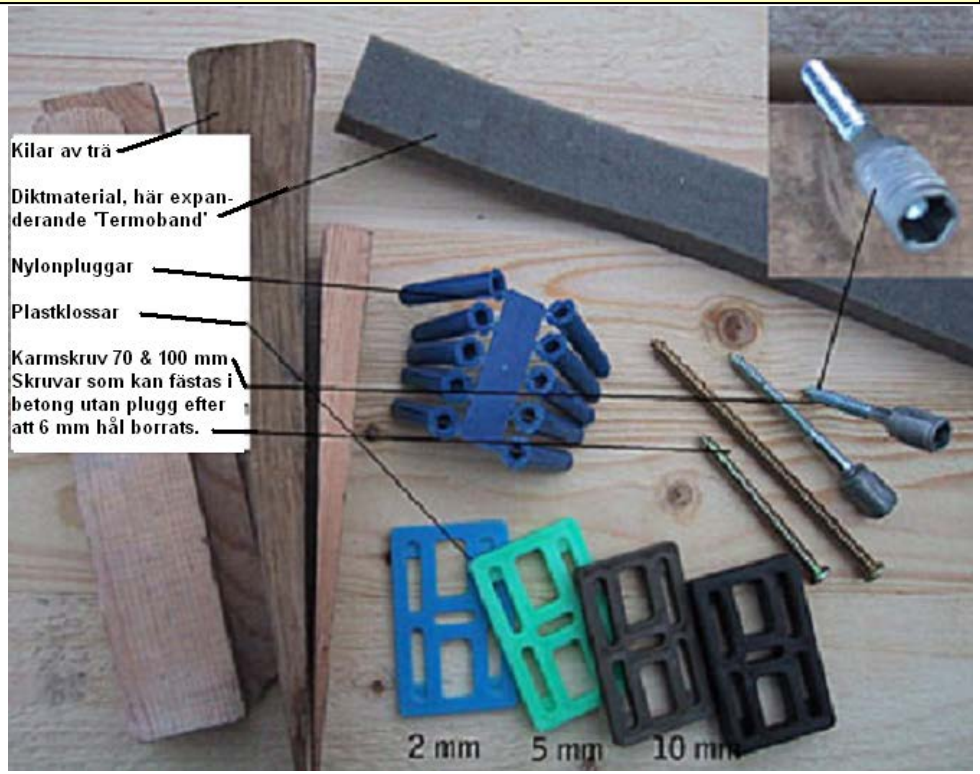

Hoist Load
Lower Load
Hoist Load Slowly
Lower Load Slowly
Stop
Swing Boom
in direction indicated
Lower Boom
Emergency Stop
Extend Boom
Retract Boom
Raise Boom
Lower Boom
Signal not understood
Open
Close
Main Hoist
Auxiliary Hoist
Finished

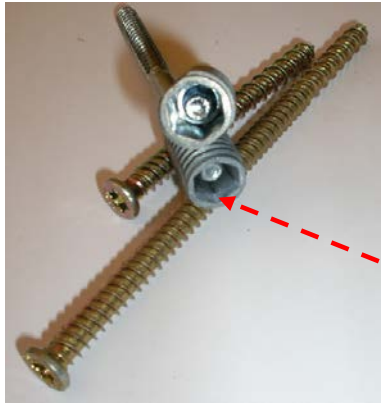
Preparation 1(4)

Equipment and machinery

- Trolley for windows and, possibly, a window lift.
- Screwdrivers and possibly drill
  Note: Cord feeding machines should be used for frame bolts and concrete drilling.
- Crowbar and screwdriver
- Concrete drill 6 mm, for fixtures into concrete
- Spirit levels, both long and short
- Universal Key for frame screws - Two 6-point keys in one tool kit
- Possibly - rulers for measuring diagonal measurements
- Jointing gun

- Window
- Pallet distance pieces e.g. of plastic: 2.5 and 10 mm
- Installation wood wedges, 8 pcs
- Possibly: Waterproof paper/foil
- Fasteners: frame bolts and possibly nylon plugs
- Caulking Materials in roll
- Sealant in tube
- External wooden strip
- Cover plugs, supplied with window
- Possibly - cill plate and nails





Frame bolts 70 and 100 mm with internal 10mm sextagonal for frame unit and outer 5 mm of the screw.

Control of the quantities and availability

Upon delivery to the construction site it should be checked to see if there is any shipping damage and that it is the right windows in the correct quantities have been delivered.

Faults and defects shall be noted on the consignment note and the carrier and window supplier notified.

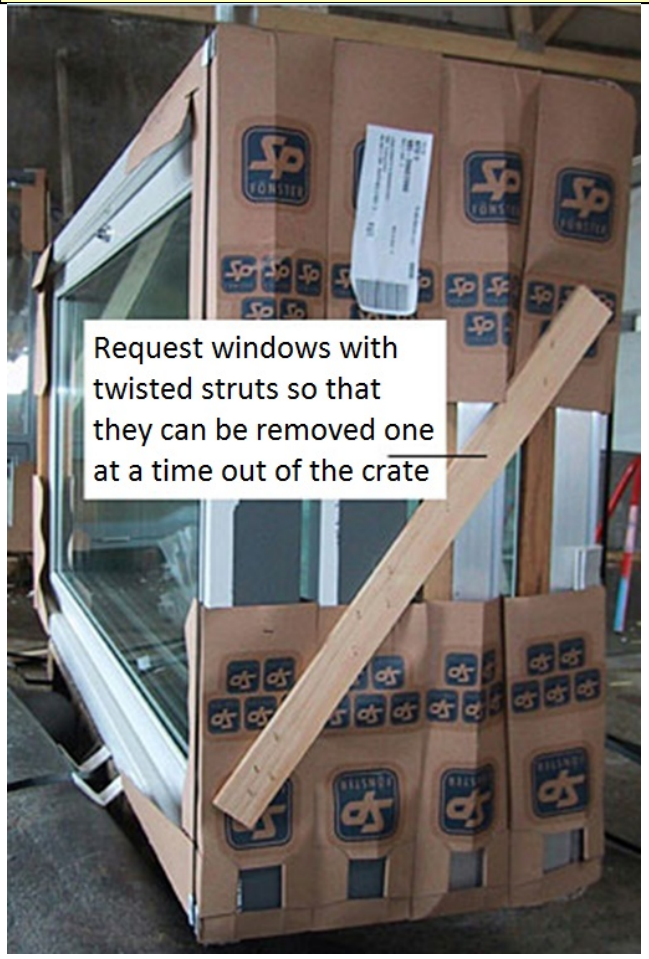
Transport, storage and handling

Glazed windows and doors must be transported and stored in the same position as they are be mounted, i.e. with the bottom piece and the threshold down. Alternatively, the transport and storage may take place in another position if the goods are fitted with transit bolts inserted between frame and sash and between frame and door leaf.

Must be **stored** flat, dry, well-ventilated and weather-protected location.

Fittings supplied separately shall be stored indoors.
Windows and doors should not during any part of the construction period be subjected to a moisture load above the normal moisture load to be experienced during the use of the product.

Manufacturer's instructions for transport, storage and installation shall be followed.



Request windows with screwed struts so that they can be removed one at a time out of the crate.

Storage

Windows shall be stored upright on a level surface in a dry and well-ventilated place.

Outdoors

If storage must take place outside then it may be only for a short time and under tarpaulin.

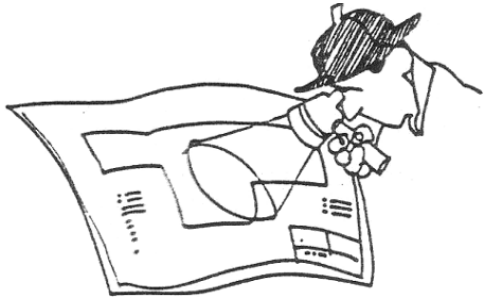
A space of 20 cm shall be allowed below the podium for ventilation.

No	Check	Method or equipment	Frequency	Result	Date Signature	Deviation/Remedy Approval/Non-A
1	A plumb assembly					
2	Fixing brackets					
3	Function					
4	Strips, inside and out					
5	Seal, bow/blade/frame					
6	Child security					
7	Lock					
8	Other fittings					
9	Caulking					
10						
11						

Note:
Installation in the warm part of the wall - drain over window
The correct kind of fixings. Adjustable is good. Right kind of caulking material for fire and sound requirements. Nailing of lining up c/c 300 mm

Quality criteria for the project and the product

- Study Drawings, Specifications and Inspection planning
- Think through the alternative **methods of production** and handling of materials, tools etc. that can meet the requirements

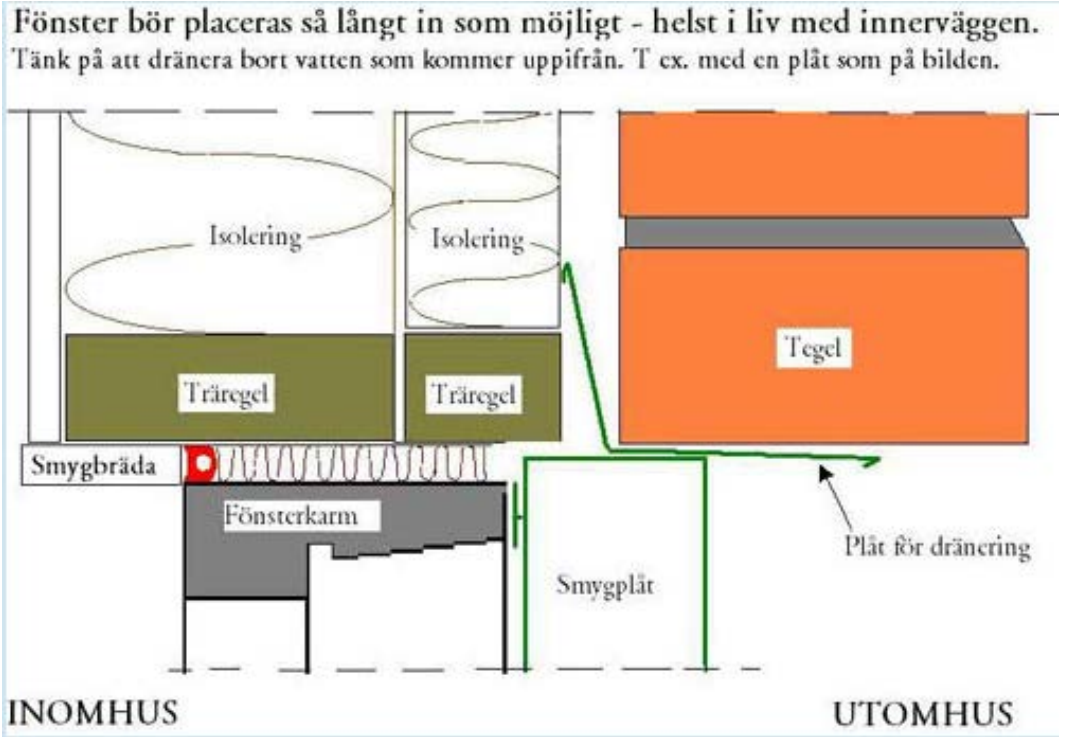


Pay particular attention to

- attach the window as shown in the Specification and in accordance with the Manufacturer’s instructions.
- check the marking on the windows - so they end up in the right place
- do not mount damaged window

Placing in the wall

Windows should be placed in the warmest part of the wall, preferably as close to the inside wall surface as possible.
According SNIRI 's recommendations the retracted position is best.



Some placements require special devices - mounting iron or the like.
Make sure to order in time

Demountable panes

Raise the sash and place them. Protect.

A Window

Use a “window-holder” which holds the window in place until it is screwed into place.

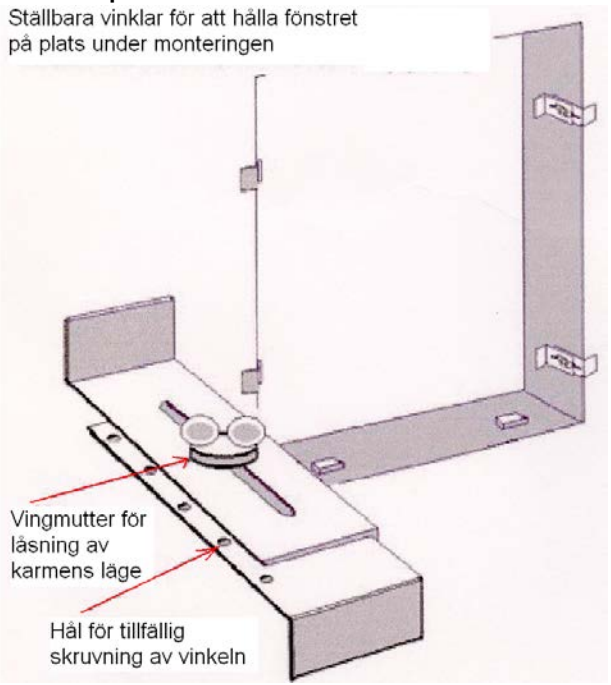
Prepare – The window holders can save a lot of time!

There are different solutions for temporarily fixing the window in the correct position until it is permanently fixed into position. It is necessary that the “window-holders” provide adequate space around the window for caulking/sealed and they can be easily removed after fixing.

1.Figure 1 shows a simple homemade bracket that is secured temporarily into place with a screw

2 A more flexible solution

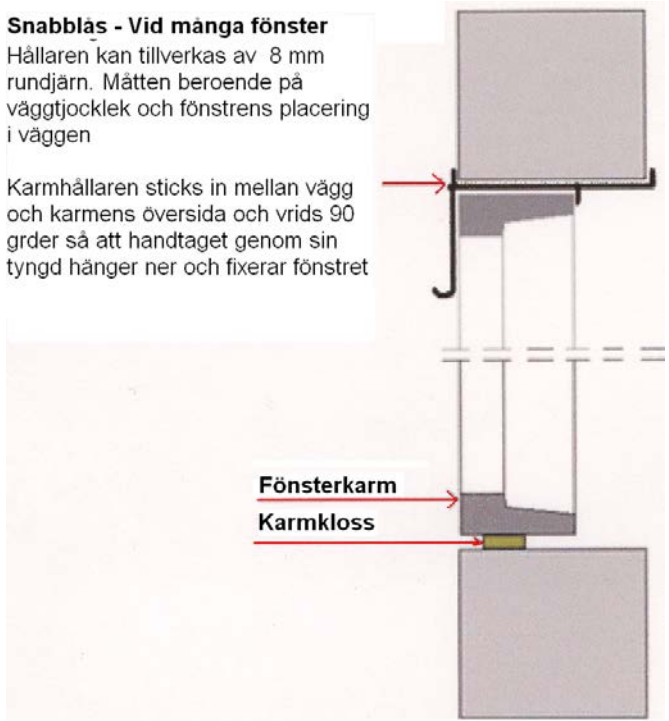
3 If many windows are to be fitted - this is quick to assemble



Snabblås - Vid många fönster

Hållaren kan tillverkas av 8 mm rundjärn. Måtten beroende på väggtjocklek och fönstrens placering i väggen

Karmhållaren sticks in mellan vägg och karmens översida och vrids 90 grder så att handtaget genom sin tyngd hänger ner och fixerar fönstret



Transporting the windows with a window wagon or…

…with a window lift for the transportation and lifting of heavy windows.

Check during installation that the concrete recesses are clean.

Attach the plastic distance pieces under the window frame so that the window is in the correct height and level.
Note: The distance pieces shall not be water absorbent.

With the distance pieces one can build quickly to the correct height.

Black distance piece	= 9 mm
Green “	= 5 mm
Blue “	= 2 mm

Fitting window – A window is lifted into place

The window is heavy. There are different types of lifting aids which are secured into the screw holes. A window lift can be used to both carry the windows and lift them into place.

The window wedged

After the window is secured with window holder so that it does not fall out fix it with wedges. They should be as close to the attachment points as possible so that the screws can be tightened without the frame becoming deformed.

Alignment

Checked with a spirit level.

Fastening to concrete walls

Through the holes in the frame, drill holes in the wall frame - less than 45 mm.

Thereafter the frame screw are drawn with screwdrivers and hexagonal spider keys.

Frame screws screwed into the boreholes. The inner frame screw screwed in at least 45 mm into the frame.

The wedges are removed and the right angle is checked again. If necessary, adjusted with the “outer” head of the frame screw.

The sash is raised and accessories are installed.

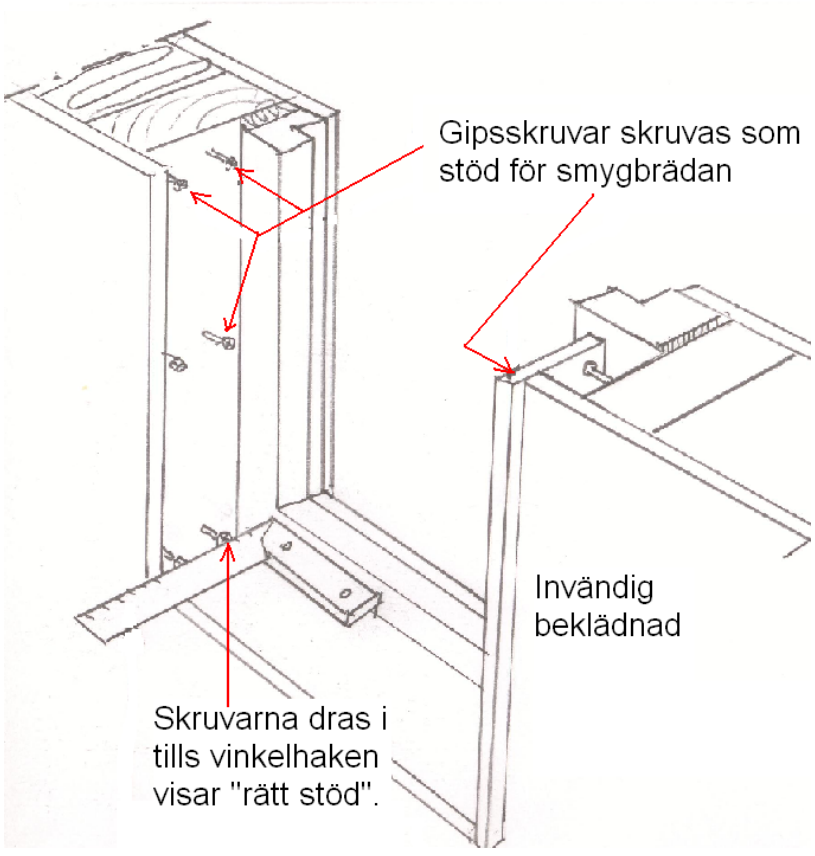
Check:

- Function
- The space between the pane and sash are equal all round
- The frame is not bent in the middle.

Finally

Put on the plastic covers over the holes and, if necessary, protect the windows.

Window linings



Installing windows – subsequent finishing work

Window cills

Manufactured and assembled as a rule by metalworkers.