



HAMPSTEAD GARDEN SUBURB TRUST SUPPLEMENTARY GUIDANCE ON STEEL WINDOWS



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INTRODUCTION

*No feature in domestic architecture requires
more consideration than the window.*

– George Gilbert Scott (1858)

The windows on a house or in a block of flats are integral not only to how it functions, but also to its appearance and character. Much of the joy of Suburb architecture is in its detail and variety, and the Suburb's original architects went to great trouble to design them so that their details and proportions were appropriate to the intended architectural effect. As well as preserving the character of the area, sympathetic window treatment is key to understanding the style and period of a house.

It is important therefore that any alterations to windows are considered carefully and in detail. Windows on the Suburb are generally made from either steel or timber, but come in many varying types and details. The Trust's Architectural Team spends many hours working with architects and contractors to ensure that the original appearance of the windows, and therefore the character of the property, is maintained.

The purpose of this guidance is to provide homeowners and agents with detailed information on the Trust's requirements in relation to repairing, upgrading, or replacing steel windows. It also aims to provide general advice on what to consider when thinking about alterations to a steel window. Guidance on timber windows can be found in a separate document.

It is not possible in the context of a guidance document to give advice on specific windows. Specific advice can be obtained by contacting the Trust's [Architectural Team](#).

CONSENTS

Replacing windows requires a formal application to the Trust.

To make an application you should submit:

- an application form specifying which windows are to be replaced and the proposed manufacturer
- photograph(s) of the exterior of each existing window to be replaced.
- a window schedule with specifications and construction detail drawings (including elevations and sections) for each window

If required, you should also make arrangements for a sample window to be made up and viewed.

Repairs and upgrades which alter the external appearance of the property require Trust Consent. This includes altering the windows to accommodate double glazing. If you plan to alter windows in a way which will change their appearance, you should submit:

- exterior photographs of the existing windows and,
- a detailed method statement of the proposals

All documents can be in digital copy sent to planning@hgstrust.org or in physical copy to the Trust's Office at 862 Finchley Road, Hampstead Garden Suburb, London, NW11 6AB.

Any work of maintenance and repair that does not alter the external appearance of the windows does not require Trust consent, although you should inform the Trust of your intention to carry out repairs. There are companies that regularly carry out this type of work in the Suburb, details can be supplied on request.

It is the responsibility of homeowners to ensure that all necessary consents are obtained. Replacing windows requires the planning permission from the London Borough of Barnet. If your home is a listed building you will need to obtain Listed Building Consent from the London Borough of Barnet. If you live in a block of flats, you may need permission from the block manager or landlord to replace windows.

If you are unsure whether your proposals require Trust Consent, please contact a member of the [Architectural Team](#).

WINDOWS CHECKLIST

Step 1 – Assessing the state of the existing windows

- Understand what material the window frames are made from
- Understand how changes to the windows might impact on the performance of the rest of the house, including energy performance and ventilation
- Understand whether windows need repairing, upgrading, or replacing
- Think whether independent professional advice is needed

Step 2 – Deciding on a course of action

- If **repairing** or **upgrading** existing windows:
 - Have a detailed specification of all the necessary repairs
 - Have a detailed specification of all upgrades
- If **replacing** windows:
 - Ask the manufacturer to produce a specification, accurate drawings and, if they are not known to the Trust, a sample window
 - Ensure that the proposed replacement window matches the details of the original exactly
 - Check that double glazing unit is no more than 16mm thick (exceptions may be possible for safety glass or fire resistant glazing)
 - Check that the proposed spacer bars match the colour of the window frame if the windows are double glazed
 - Check that concealed friction hinges are not specified for opening casement windows. Hinges should match the originals.
 - Check that trickle vents are not specified
 - Ask the Trust for specific pre-application advice. A list of window manufacturers known to the Trust can be obtained

Step 3 – Obtaining consents

- Check with the Trust if the proposals require an application
- Submit application form, drawings, photographs, and specifications to the Trust.
- Apply to the London Borough of Barnet and/or a landlord

Step 4 – Post-consent

- Check the windows match approved drawings and specifications
- Ensure the windows have been installed correctly
- Obtain Final Consent from the Trust

STRUCTURE OF A STEEL WINDOW

A steel casement window



A leaded light window



Side hung opening light
(hinges on the side)

Lead comes

Fixed light

Top hung opening light
(hinges on top)

Brick mullion
Timber mullion

Transom





Lead came

Boss (where two
lead cames cross
each other)

CONSIDERATIONS WHEN REPLACING STEEL WINDOWS

SUPPLIERS AND MANUFACTURERS

The important thing to consider when choosing a window manufacturer is whether they can produce replacement windows which match the originals and can supply drawings for approval.

Steel windows are standardised products which come in a relatively limited range of profiles. Window suppliers should be able to advise which products and specifications best match the existing windows.

The Trust keeps a list of steel window manufacturers recommended by Suburb residents and known to have produced acceptable work in the past. This list is available to residents on request. It is not obligatory to choose a manufacturer on the list.

If a window manufacturer is not known to the Trust, a sample window may need to be submitted for approval by Trust staff. Please note that some manufacturers claim to have worked in the Suburb before, but are not known to the Trust.

If you are unsure about choosing a window manufacturer, please contact the Trust's [Architectural Team](#).

DRAWINGS

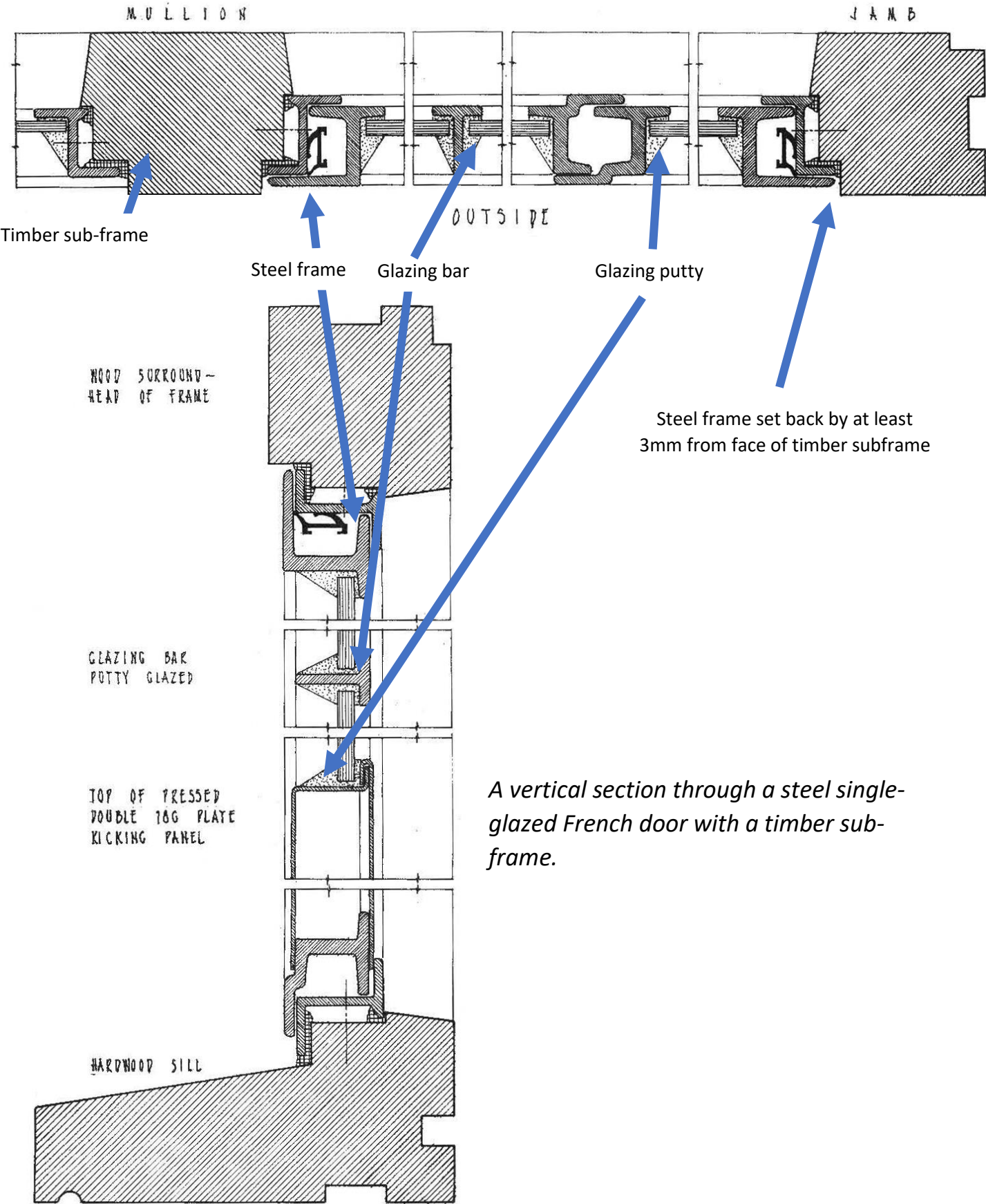
Detailed drawings are required when making an application to the Trust to replace windows. This is in order to assess whether the proposed replacement windows match the originals in every detail.

A window manufacturer should produce accurate, measured, detailed construction drawings of the proposed replacement window(s). These are often standard steel sections

Drawings should be produced showing the proposed window(s) in elevation and in section. The drawings should be to 1:5 or 1:10 scale and must include a full sized glazing bar detail in section. If double glazing is proposed the dimensions of the glazing should be specified.

The drawings should replicate the original windows closely, including the profile of the beading, glazing bars and cill. If there is a set-back between the casement and the sub-frame in the original windows, this should be reflected in the drawings of the replacements.

A horizontal section through a steel window with a timber sub-frame. The window is single glazed.



SAMPLES

A sample window may need to be provided in addition to construction drawings if the type of steel window or manufacturer is not known to the Trust.

GLAZING

One of the main reasons for replacing windows is to have double-glazed units. Double glazing impacts the appearance of a window and has to be carefully considered. The larger the gap between the panes of glass, or the thicker the glass, the greater the impact on appearance will be. For this reason, the Trust will usually allow double glazing up to a maximum overall depth of 16mm (4mm glass – 8mm gap – 4mm glass). Internal spacers must match the colour of the frame.



This steel window has a silver spacer bar which does not match the colour of the frame and draws the eye

LEADED LIGHTS

A leaded light is a form of glazing where small panes of glass are held by lead comes. On the Suburb leaded lights can have a timber frame, steel frame or steel frame with timber sub-frame.

When replacing leaded lights windows, replacements should be genuine leaded lights formed in the traditional way and the lead comes must match the originals in profile, colour, texture and width.

Leaded lights, due to the way they formed, cannot be faithfully replicated with double glazing. Double glazed units with applied lead comes have a different appearance to traditional single glazed ones. Consequently, the Trust does not generally accept double-glazed leaded lights on front elevations as this would be detrimental to the character of the house and the area. It may be possible to have double-glazed leaded lights on some side and rear elevations, depending on the product and visibility of the window.

For further advice on leaded lights, please contact the Trust's [Architectural Team](#).



SIZE AND SHAPE

The original steel windows on Suburb houses will be standard Imperial sizes. It is important that the replacement window units are the correct size for the window opening. Sometimes the replacement windows are too small and have to be altered to fit into the window opening. This is sometimes achieved by packing out the gap with additional pieces or timber, a large mortar joint, mastic or expandable foam which can look unsightly.

Some windows on the Suburb have horned cills. It is important to ensure that the replacement units also have horned cills to fit in the window opening correctly. It is not generally acceptable to enlarge the brickwork joints or infill the space around the cill horns with mortar in order to accommodate the new cills.

MATERIAL

Generally, an existing steel window should be replaced with a steel window.

In some instances, original windows have been replaced with windows of other materials, such as aluminium or plastic. Often this happened before current Trust controls were in place or without Trust consent. Such windows usually fail to match

the form and appearance of the originals and damage the character of the property.

Replacing a non-compliant building element, such as plastic windows, with something appropriate is not considered to be genuine restoration, but simply rectification of previous unsympathetic and most likely unauthorised work. In most cases the Trust would expect uncharacteristic windows to be replaced with steel windows to match the originals. Replacing a non-compliant window requires an application for Trust Consent.

A plastic window. This does not match the appearance of the original windows and damages the character of the house



THERMAL PERFORMANCE

The thermal performance of a window is an important factor to consider. However, a window does not function in isolation from the rest of the house and replacing windows alone will not necessarily result in an improved room temperature.

It is essential therefore, to take a whole house approach and consider replacing windows in conjunction with other energy efficiency measures, such as insulation.

VENTILATION AND DRAUGHTPROOFING

If you are considering replacing windows, it is essential to reflect on how this will impact ventilation and draughtproofing in the building.

Many homes of traditional construction were designed to have natural ventilation, for example opening a window to allow moisture to escape. This is still an effective way of ventilating and less invasive and energy intensive than installing mechanical ventilation.



An aluminium window off the Suburb with a trickle vent. Neither the window nor the trickle vent are characteristic of homes on the Suburb.

Traditionally windows on the Suburb were not fitted with visible trickle vents. These are not characteristic and **replacement windows should not be fitted with visible trickle vents.**

Information on draughtproofing can be found in the Trust's [Energy Guidance](#). The most effective form of draughtproofing windows is to have rebated draughtproofing integrated into the window. You should ask your architect or window manufacturer about this.

HINGES

Many original opening casement windows, including opening top lights, have traditional butt hinges. Some have projecting hinges (see page 6) or pear drop hinges. The replacement windows should replicate the original detail.

Friction hinges are not typical of traditional windows and must not be used.



Above: a pear drop hinge

Left: a butt hinge

Below: a concealed friction hinge

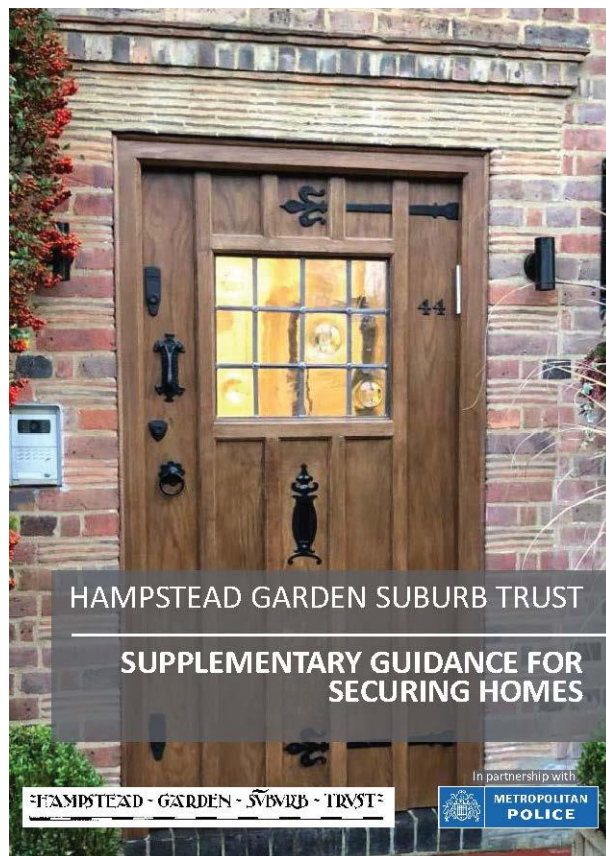


SECURITY

You should consider how replacement windows will be secured. This might include looking at heavy duty hinges or locking systems for example. Any security measure which impacts the external appearance of the window will require Trust Consent.

More information on security in relation to windows can be found in our [Security Guidance](#) (pp.3-4).

For further advice, please contact a member of the Trust's [Architectural Team](#).



COST

Replacing the windows of a property is a major undertaking. It can be a costly exercise for a homeowner and therefore it is worth ensuring that all options for repair and upgrading of the existing units have been considered. It is also worth considering the environmental impact of producing new windows unnecessarily.

If you are unsure whether your windows need replacing or not, you should consult an independent professional such as an architect or surveyor.

LEAD TIME

It can often take several months from ordering a window to installing it. It is important that the lead time is factored in when planning window replacement. The Trust will not accept windows which do not meet its requirements in order to accommodate a particular schedule.

INSTALLATION

Frequently a window opening has a decorative surround on the external wall. This might include a tile cill or brickwork details like queen closers. Sometimes installing the windows can damage the window surround. It is essential that all details to the windows surround are retained or replicated faithfully when installing windows.



Matching a proposed tile with an existing tile cill before window replacement

Some window frames are structural, meaning that the wall should be supported when the window is removed for replacement.

REPAIRING AND UPGRADING STEEL WINDOWS

It is important to consider carefully whether major repairs or upgrades are required. In some instances, major interventions may damage the windows and reduce their performance, in which case not intervening may be the best option.

REPAIRS

Windows should be regularly maintained so that they function properly, for example repainting or oiling hinges. Indications that a window might need attention include flaking paint, cracking, warping and distortion, staining or rusting, and difficulty opening and closing.

It is advisable to seek the advice of an independent professional if you are unsure whether a window needs attention.

A thorough survey of the window(s) should be made to establish what repairs, if any, need to be carried out. It is advisable to speak to an independent professional if you are unsure about what repairs need to be carried out or the suitability of particular repairs. You should ask an independent professional to produce a specification or method statement for a contractor to price.

Steel windows may need to be removed to repair them. This might involve welding in new sections of steel or removing rust by shot blasting. Some repairs can be carried out on site like removing rust with a bristle brush.

In general, the costs of repairing a window are significantly cheaper than replacing it. A well-maintained window kept in good repair can also last a very long time.



Leaded lights and parts of the timber sub-frame have been removed for repair

Employing good quality materials and an experienced professional to repair a window is advisable as the repair will be more cost-effective in the long term.

UPGRADES

Upgrades can improve the mechanical function, thermal performance or security of a window, such as:

- Draughtproofing
- Adding secondary glazing
- Additional or improved locks, hinges, bars or bolts

If undertaking major repairs, windows can also be upgraded at the same time.

It is possible to upgrade an existing window so that it performs at a similar level to a replacement window. While it is sometimes possible to integrate double glazing into an existing window, it is not always advisable as it can look poor and affect the performance of the window, eliminating the benefit of double glazing. In most circumstances secondary glazing is the most effective option in terms of improving thermal performance and sound insulation.



This secondary glazing is unobtrusive from both the inside and out

STEEL WINDOWS ON THE SUBURB

While steel windows can be found on some pre-WWI homes on the Suburb, they are mostly characteristic of interwar houses and apartment blocks. Steel casements can have a traditional look, with leaded lights, but more frequently they are units in a 'moderne' style, with horizontal glazing bars, and sometimes 'curved-on-plan' units fitting into a bay. These were based on standard sections and marketed en masse.

FURTHER READING

Trust Guidance

[Design Guidance](#) (pp. 26-27)

[Energy Guidance](#) (pp. 8-12)

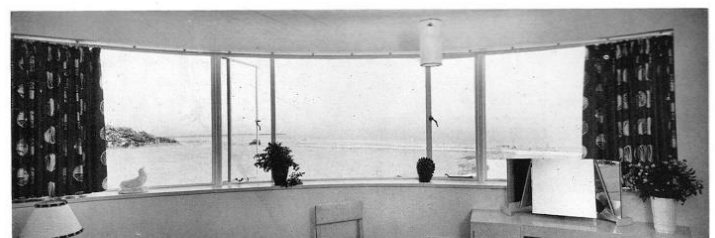
[Security Guidance](#) (pp.3-4)

Historic England

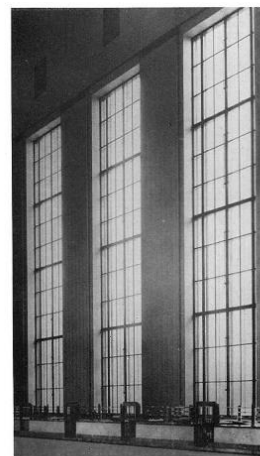
[Traditional Windows: their care, repair and upgrading](#)

Books

Michael Tutton et al., *Windows: History, Repair and Conservation*. Abingdon, Oxon: Routledge, 2015 (revision forthcoming)

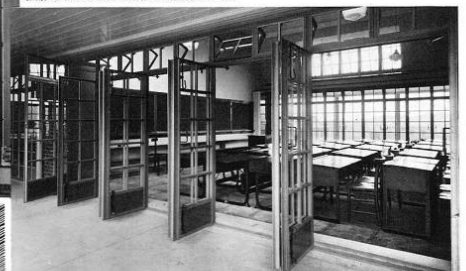


BEACON METAL WINDOWS ... the modern outlook



"Fitness for purpose" is perhaps the best description that can be given to these modern metal windows.

They are architecturally pleasing ... draught and waterproof ... open easily and shut tightly ... do not warp, shrink or swell.



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