Glass and Glazing Federation

Code
of Practice

Working at Heights in the Domestic Replacement Window Industry

March 2006

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Working at Heights in the Domestic Replacement Window Industry

…working in partnership…

British Glass Manufacturers' Confederation

HSE Health & Safety Executive

GGF Glass and Glazing Federation

Working at Heights in the Domestic Replacement Window Industry

Code of Practice

1 Scope

These guidelines are aimed at persons working within the replacement window sector, including the removal, installation and trimming/sealing of windows in domestic premises. These guidelines have been produced in conjunction with HSE and represent good practice.

They are not intended to cover the requirements for the removal or installation of Roofline products.

2 General Principles for working at height

The traditional approach to working at height in the replacement window industry has developed to involve a mix of access equipment for the removal and installation of windows. Current industry good practice is based on the general principles detailed on the following pages, which should be followed at all times:

GP1 Each job involving working at heights must have a specific risk assessment carried out by a competent person (usually a surveyor) prior to the start of work to ensure that all H+S requirements have been met. This must be recorded and will determine what the most suitable access equipment is and the control measures to be followed for that specific job.

GP2 Ladders will not be used for removal or installation above first floor window level or for the removal or installation of any Roofline product such as soffit or barge boards.

GP3 Ladders must only be used for removal or installation where all of the criteria specified in the Use of Ladders Section 5 of this document can be met. If they cannot, then another form of access equipment must be specified as appropriate.

GP4 Mobile towers will only be used for removal or installation where all of the criteria specified in Section 7 of this document can be met. If they cannot then another form of access equipment must be used.

GP5 All access equipment must be fit for purpose, regularly checked, and inspected at least twice per year and properly maintained, in accordance with the manufacturer's instructions. Records must be kept of inspection and maintenance activity.

GP6 Any access equipment, ladders, mobile towers, MEWPs or full scaffold, must be used in line with the safe systems of work defined in this document.

GP7 Persons involved in any work at height must be competent through training, and be fully conversant with all appropriate procedures, work instructions, safe systems of work, pre-use checks and manufacturer's information. Certification may be required for certain equipment (eg MEWPs).

GP8 All persons working above ground level should be instructed during training, of the specific risks and limitations that are associated with the equipment that they are required to use, of the dangers of falling, and of the potential for serious or fatal injury, either to themselves or others, while carrying out works. In addition to instruction and training in the safe systems of work that they should use.

GP9 During all works at height, effective measures should be taken to protect/ prevent other people from the dangers of falling materials. For example, the placing of safety signs to prvovide hazard warning information to any person who could be affected by such works, and barriers erected if appropriate.

GP10 All working platforms must be maintained in a clean condition, with debris cleared on a regular basis. Strict attention must be paid at all times to tripping hazards caused by such debris and equipment.

GP11 Inclement weather such as rain, snow, ice, high winds etc increases the danger associated with the use of any form of access equipment As such, all persons must take such conditions into consideration when assessing the risks involved in working at height, and if such risks are unacceptable, the works must be aborted until environmental conditions improve.

GP12 Careful consideration should be given to the selection of access equipment for any work at height in public areas such as above shops or similar situations. Where adequate separation is not possible, special precautions such as debris nets or scaffolding fans may be required to protect members of the public from falling debris etc.

3 Control Measures

Safe systems of work must be produced and communicated for the safe use of each type of access equipment. These will define the control measures needed to reduce risk to the minimum that is reasonably practicable. Generic systems from which individual companies may develop their own safe systems of work are defined in this document. The main priorities in consideration of your control measures prior to starting the work should be:

1) Can the need for working at height be avoided?
   As much work as is possible should be carried out from inside the building. For example, tasks such as drilling, knocking out, sawing and pulling should, so far as is reasonably practicable, be carried out from inside. You need to establish:

2) How will the existing window be safely removed and the new unit safely installed?
   Take into account the weight, shape and centre of gravity of the window, either known for new unit or estimated for the existing. Assess the type and condition of the building and current window installation to establish the structural condition of the building and in particular the lintels without using invasive methods.

3) After assessing how the windows will be removed and installed, assess and define what access equipment is required for the site taking into account:

   - Where work at height has to be carried out what can be done to prevent any person falling a distance likely to cause personal injury.

   - What can be done to prevent any person being struck by a falling object likely to cause personal injury?

   For example, additional equipment will be needed for work over conservatories.

4) Consider and define what safe systems of work will need to be in place and train installers in their use.

5) Assess and define what Personal Protective Equipment (PPE) is required on site.

6) Review access equipment, site conditions and PPE while the particular job is in progress to ensure that measures are and continue to be adequate.

7) Have appropriate systems been put in place to check, inspect and maintain access equipment, PPE and other work equipment?
   (Refer to manufacturer's instructions for details)

Control measures should be regularly reviewed throughout the life of any project to ensure that they remain effective.

4 Equipment

When selecting equipment for working at heights the following should be considered (these considerations are to some extent built into the following sections regarding ladders, mobile towers and full scaffold. Companies should, however, consider all of these when developing their own systems):

– Ground conditions

– Site access

– Existing structures on site

– Amount of weight placed on working platforms

– Volume of use

– Presence of overhead cables

– Space available on site

– Length of project

– Required maintenance of equipment

– Method for erection of equipment

– Material movement to working location

Training required to work on site, including the loads being handled at height and any special precautions that arise

5 Use of Ladders – General SSOW

Ladders can be used as a place of work or means of access for surveying, cleaning, trimming, removal or installation up to and including first floor windows providing that the safe system of work includes the following:

The ladder must be serviceable in all respects.

Prior to daily use, all ladders must be checked for defects such as:

- Missing or damaged rungs.
- Cracks to the assembly.
- Damaged feet.
- Serviceability of locking or pulley devices for extensions.
- Bending or twisting of stiles and rungs.

All ladders must be long enough and positioned correctly, to allow persons a safe access to the working location without requiring over reaching. There must always be a minimum of three ladder rungs above the one that is being stood on.

All ladders must be secured during use. Wherever practicable ladders should be tied, by both stiles, at the top. Where this is not practicable, ladders should be fitted with suitable proprietary stabilisers both at the base of the ladder to prevent bottom slip and at the top of the ladder to prevent side slip. These are referred to as ladder stability devices and wall stand-offs.

Ladders must only be used on firm level ground and must form an angle of approximately 75° to the horizontal, ie 1m out for each 4m of height. Such an angle minimises the potential for base slippage when in use. This angle is indicated on Class 1 ladders by a line or arrow on one stile, when this mark is vertical the ladder is at the correct angle.

Working time from a ladder should be kept to a minimum. Normal activity should only involve continuous work of between five and ten minutes. Breaks must be taken to ensure that no single ladder event lasts more than twenty minutes.

To prevent overreaching, the "belt buckle" of the installer must remain within the ladder stiles and both feet on the same rung. If work must be carried out further away then the ladder must be moved.

The manufacturer's instructions for the use of the ladder must always be followed.

The installer will always face the ladder.

The correct footwear to give a secure grip must be used at all times together with appropriate gloves to protect the hands .

Tools must be carried up and down the ladder using a tool belt or a hand line, and be carried in accordance with the Manual Handling Regs (See "Manual Handling" Guidance on Regulations L23, HSE 3rd edition 2004).

Metal ladders should be carried horizontally by two people, and not used, when in the direct vicinity of overhead power cables. Such handling can lead to an electrical discharge, especially in damp or wet conditions, which could result in a severe or fatal electric shock to the user by transmission through the ladder.

All ladders will be maintained free of defects and will be inspected twice per year by a competent person. An inventory will be kept and inspections logged. Any repair work must only be carried out by competent personnel.

Only Class 1 ladders should be used; domestic ladders, with a red label are Class 3 and are not suitable for commercial work.

6 Use of Ladders – SSOW for Removal or Installation at first floor level

In addition to Section 5:

Ladder stays must be used and where practicable the ladder must be tied off to an appropriate location in order to prevent sideways movement of the ladder in either direction.

Ladders are not suitable for heavy or strenuous work. If a task involves carrying more than 10kg up or down a ladder it will need to be justified by a detailed manual handling assessment. The maximum load should not exceed 25kg for a single person or 36kg for a tandem lift.

Any carrying of weights up ladders and especially tandem lifting imposes eccentric loadings on ladders which might lead to stability problems.

When carrying items up or down a ladder one hand must be free and that hand must be used to hold onto the ladder. Installers should be able to grip the load with their

free hand either around the outside of the frame/glazing unit or through de-glazed spaces within the frame, leaving the other hand free to grip the ladder.

As far as is practicable, during the removal of windows, the amount of material carried down a ladder should be kept to a minimum and as much material as is possible should be taken back through the building or lowered to the ground safely. If material has to be carried down a ladder those parts to be carried down a ladder should be reduced to 25kg or less.

Heavy materials should be taken back through the building. Larger sections should be removed by at least two installers working together in accordance with a safe system of work.

During removal or installation as many tasks as possible should be carried out from inside.

No item should ever be thrown down to the ground.

As far as is practicable, during the installation of windows, the amount of material carried up a ladder should be kept to a minimum and as much of the product as is possible should be taken through the building. Before installing a window, it should be devented and/or de-glazed so as to reduce the weight of any part of the unit that has to be carried up the ladder by a single person to 25kg or less. Parts that can be installed from inside the building should be installed in that way.

It should be possible at all times for an installer to be able to place one hand on a secure handhold on the ladder.

Where larger units are to be fitted it may be necessary to undertake a lift using two ladders (tandem lift). In this case all other sections of this SSOW apply. In addition the unit should be devented and/or de-glazed, so that individual items weigh 36kg or less. Any carrying of a unit should be done in accordance with the Manual Handling Regs (See "Manual Handling" Guidance on Regulations L23, HSE 3rd edition 2004).

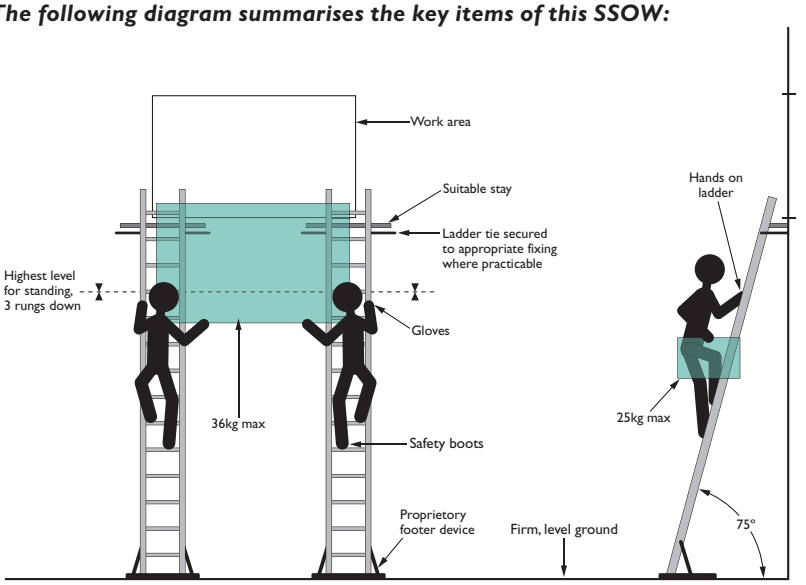
The use of proprietary vacuum lifters are beneficial both in providing a safe handhold during lifting and improving the stability of the load.

Try to ensure symmetrical weight distribution of de-glazed windows to avoid off centre loads.

As part of a safe system of work, particularly when doing a tandem lift, consider how you will deal with the window if it does not fit into the aperture.

During post installation operations, such as mastic application or the removal of protective coverings, care must be taken to prevent overbalancing or ladder instability by the use of wall stand-off or ladder stability devices and the relocation of ladders to prevent over-reaching.

The following diagram summarises the key items of this SSOW:



Tandem lift
36kg or less (see text)

Single lift
25kg or less (see text)

7 Safe Systems of Work for mobile towers

All mobile towers must be erected as shown in the Manufacturer's/Supplier's instructions, by a competent person. For example those trained to PASMA (Prefabricated Access Supplier's and Manufacturer's Association) or an equivalent standard.

The equipment must be examined for defects or damage prior to assembly, and any defective components replaced prior to use.

As a rule of thumb the maximum platform height of the tower must not exceed 3 times the minimum base measurement eg tower length 1.5 metres, width 1.0 metres, maximum platform height – 3 metres, or ensure compliance with manufacturer's instructions.

The tower must be erected on a firm, flat base capable of supporting the combined weight of the assembly, personnel, tools, materials, and equipment. The S.W.L (Safe Working Load) for the tower should be marked on the framework, for the users information. Where any doubt as to the stability exists eg on a grassed area or loose surface, scaffold or similar boards must be placed under the base/stabilisers/ outriggers to spread the load.

For enhanced safety, the mobile tower should be physically tied into the property, where practicable, and at all times when the required height/base rate cannot be achieved due to lack of ground space for the fitting of outriggers/stabilisers. The use of strong chains, wire cable or tubing attached to fixing anchors, or the fitting of tubing to through ties, is required in such instances. At no time must fixings such as ropes be attached to downpipes or similar weak structures.

Equipment such as gin wheels or pulleys must not be fitted to lift or lower loads up the outside the tower due to the risk of the tower toppling or tubing breakage as towers are of a light alloy construction. Lifting equipment can be used to lift or lower items internally within the tower, provided the proposals for lifting are agreed as acceptable by the tower manufacturer in advance and the lifting support beam and it's attachment to the tower is designed by a competent person.

Wheels fitted to mobile towers must be locked in position prior to use. During movement between locations, all equipment/materials must be removed from the platform. In addition, no personnel must remain on the platform during such movement.

Access ladders to the working platform must be attached to the inside face of the tower assembly and must provide safe access to the platform by use of a trap door where possible. Such trap doors must always be closed when working on the platform.

If a half platform is in use, a guard rail must be fitted, with toe-board, to prevent falling from the inside of the platform. At no time should operatives climb on the outside of the tower scaffold, particularly during erection and dismantling.

All working platforms must be fitted with guard rails and toe-boards on all exposed sides. Where deck-boards are used to join two towers they must create a walkway width of at least 600mm or a working space of at least 850mm width and also be fitted with handrails and toe-boards.

8 Safe Systems of Work for scaffolding

All scaffolding must be erected by a competent person, and prior to use a signed inspection certificate must be issued confirming that the equipment has been erected in accordance with construction legislation and is safe to use. British Standards on scaffold use (BS EN 12811-1: 2003) should be adhered to at all times.

Where work extends beyond a week then weekly inspections of the equipment must be carried out to ensure that the scaffold is safe to use and a record kept.

All users must carry out additional checks on the equipment on a daily basis before use. The check should include visual examination for:

- Stability and serviceability of all fixings/ tubes/base plate/sole boards.
- Ladder access/security.
- Identification of any obvious defect in the general structure.
- Serviceability of guard rails/toe-boards/platform boards.

On completion of daily works, base access ladders must be removed to prevent access by non-authorised persons. Base areas should have a barrier or be fenced at all times to prevent injury through unauthorised access. In most instances, the equipment should be contained within the customer's property minimising the action to be taken. However, if general external access is identified, the erection of security fencing around the base may be warranted.

Any scaffolding encroaching onto a public road or walkway must only be erected after the issue of a local authority licence authorising such a structure. The fitting of reflective tape and/or lighting up to a height of 2.5 metres on the structure, to provide a hazard identification, is a requirement in such instances. The provision and fitting of such items should be carried out by the Supplier in compliance with the terms of the licence.

The need for hoists/gin wheels must be specified to the supplier at the order stage to enable the appropriate design calculations to be produced. They should only be fitted by the supplier and should not be fitted retrospectively by the end user.

Strict attention must be paid at all times to the potential hazards associated with working from scaffolding. The hazards when using such scaffold with other Companies/trades increase the risks generated, and all personnel must maintain a high degree of Safety Awareness, especially in terms of housekeeping, the identification of moved or missing platform boards and general working conditions.

In the event of strong winds, or damage (eg vehicle strike) additional mandatory inspections must be carried out on the scaffold equipment and recorded.

9 Specialist Equipment

Photographs or line drawings of these might be useful to be clear about the type of kit that is being referred to.

Specialised equipment such as Easi-Dec, MEWP such as scissor lifts and Mast Climbing Working Platforms (MCWP) should only be used to the manufacturer's specifications and by trained personnel.

MCWP require specialist installation and should only be installed by competent personnel – usually the specialist hire company and a hand over certificate should be requested that states that the equipment has been correctly installed and is safe to be used.

The above principles and safe systems of work are the most reasonably practicable at this time. However, the industry does recognise that the thrust of legislation and the development of technology require it to work towards the reduction and eventual elimination of the use of ladders for removal and installation work. The industry will continue to search for reasonably practicable solutions over the next two to three years.

Companies should keep in touch with developments through the GGF, plan for the future and set budgets accordingly.

10 Case Samples

The following examples illustrate how the SSOWs above should be used in different circumstances:

a) A small bathroom window is to be fitted at first floor level at the rear of a terraced property with a total weight of less than 25kg. There is access via a passage at the bottom of the garden and there is a level concrete area 2.5m wide between the house wall and the grass.

   Consideration should be given first to fitting the window from inside the property. Where this is not practicable due to the construction of the window or access restrictions within the property, a ladder may be specified using the appropriate SSOW.

b) New soffit, barge boards and guttering are to be fitted to a semi-detached property built on level ground and surrounded by wide, level, paved areas.

   Mobile towers/Easi-Dec may be specified using the appropriate SSOW, ladders must not be used.

c) A larger window is to be fitted to a first floor window with clear level access at ground level. Although the window weighs in excess of 36kg it can be devented and/or de-glazed so that the weight of the individual components is less than 36kg.

   Consideration should be given first to fitting the window from inside the property. Where this is not practicable due to the construction of the window or access restrictions within the property, a tandem lift using two ladders may be specified to install a devented or de-glazed window frame.

d) A window is to be fitted at first floor level immediately above a conservatory. Consideration should be given first to fitting the window from inside the property. Where this is not practicable due to the construction of the window or access restrictions within the property, specify access equipment to safely bridge the conservatory.

Care must be taken to ensure that ladders used to access the platform are secured and that the weight of the operatives and the product does not exceed the SWL of the access equipment specified. Where there is any doubt about the appropriateness of the access equipment selected then traditional scaffolding should be specified.

11 Definitions

Check

Most frequently undertaken assessment of the condition of work equipment. Typically done by the operator with no legal requirement to record (see Inspection below). The style of frequency of the check depends upon the equipment for example:

a) Ladders:
   A visual check each working day, ideally against a "check list", to ascertain whether or not there are any obvious defects prior to the using it.

b) MEWP:
   Checking operation of the equipment, fluid levels, tyres condition, etc.

Refer to the manufacturer for details of nature of the checks and frequency for each piece of equipment.

Competent Person

A competent person is someone who has sufficient technical and practical knowledge, usually obtained through training or experience or a combination of both, to be able to effectively carry out a given task.

Inspection

An inspection is a thorough, recorded review of a piece of equipment's condition and suitability for purpose by a competent person. The inspection will only be passed if the equipment can be considered likely to be safe to use over the period until the next inspection.

Ladder Stability Device

A device, including anti-slip devices, fitted to the top or base of a ladder, which by altering the geometry or coefficient of friction between the ladder and supporting surface (ground or wall) enhances its stability making the ladder more secure from a stability induced failure. Devices can be used in combination with each other. See Wall stand-off below.

MEWP

Mobile Elevating Work Platform.

Properly Maintained

A piece of equipment will be regarded as properly maintained if it is checked, inspected, repaired and routinely serviced eg lubrication according to the manufacturer's instructions.

Roofline

Fascias, soffits, bargeboards and rainwater goods.

Tandem Lift

A lift involving two people working on two separate adjacent ladders.

Wall Stand-Off

Device fixing to the top of a ladder to enable it to be held at a distance from the supporting surface (from prEN131-5). See Ladder stability device above.

12 Further Reading, References and Standards

HSE Guidance:

- L23 Manual Handling
- L25 PPE
- HSG 150 Construction
- INDG401 Work at Height Guidance
- INDG402 Safe Use of Ladders and Stepladders
- INDG403 A Toolbox Talk on Leaning Ladder and Stepladder Safety
- INDG405 Top Tips for Ladder Safety
- CIS10 Tower Scaffolds
- CIS49 General Access and Scaffolds
- INDG212 Workplace Health & Safety : Glazing
- HSE Video A Head for Heights

BS Standards:

- BS 7981 : 2002 — Mobile Elevated Work Platforms
- BS 1129:1990 — British Standard Specification for Portable Timber Ladders, Steps, Trestles and Lightweight Stagings
- BS 2037:1994 — Specification for Portable Aluminium Ladders, Steps, Trestles and Lightweight Stagings
- BS EN 131-1:1993 — Ladders Part 1: Specification for Terms, Types, Functional Sizes
- BS EN 131-2:1993 — Ladders Part 2: Specification for Requirements, Testing, Marking
- BS EN 12811-1:2003 — Temporary Works Equipment: Scaffolds, Performance Requirements and General Design

Other relevant GGF Guidance:

- Code of Practice for Asbestos Removal in the Glass Industry
- Code of Practice for PPE in the Glass Industry
- Code of Practice for Safe Window Installation

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