

Reducing the Manual Handling of Glazing Units

Information Sheet

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Introduction

This information sheet focuses on risk-reduction measures for systems of work used for the manual handling of glazing units from a storage area on site to the point of installation.

It highlights the physical risk factors associated with the manual handling of glazing units and presents examples of how such risk factors can be reduced through the introduction of systems of work which reduce or eliminate the manual handling of glazing units, thereby reducing the risk of injury, particularly back injury.

It illustrates examples of good practice and bad practice in terms of systems of work for handling glazing units.

Risk Factors for the Manual Handling of Glazing Units

A glazing unit is made up of the window frame with the glazing assembled to it. The units can vary in weight from 25kg to 250kg, depending on the size of the window. They can vary in weight, size and type. Recent building practices have also shown that larger glazing units are now being incorporated into building design. This guide aims to take account of this and suggest appropriate methods for handling such units.



Example of a large glazing unit

In the example below, the glazers are manually lifting a glazing unit using suction grips



This glazing unit weighs up to 100kg and it is an unsafe system of work to lift this glazing unit manually. Below is a summary of risk factors associated with handling such glazing units:

Force

The glazing unit being installed weighs up to 100kg and it is too heavy to handle manually. The ****Health and Safety Executive (HSE) UK Mac Tool** indicates that a two-person team handling loads greater than 50kg results in a high level of risk in that it may expose a significant proportion of the working population to a risk of injury.

Posture

The glazers will have to engage an awkward, constrained posture in order to get a grip of the load. It is likely that their arms will be angled away from the body and their trunk bent forward during the manual transfer of the glazing unit, which will require them to manoeuvre, lift and carry the unit into position for fitting in the opening in a building.

Physical Effort Required

The weight and size of the glazing unit means that the physical effort may present a risk, particularly of back injury, as it is too strenuous and likely to result in a sudden movement of the load during transfer and installation.

The Manual Handling of Loads Regulation was developed to regulate manual handling of loads involving the risk of back injury. The regulations have three key requirements:

- Manual handling operations should be avoided where possible.
- Manual handling that cannot be avoided must be assessed.
- Actions to eliminate or reduce the risks must be taken by the employer.

These regulations apply where there is a real risk and a foreseeable possibility of injury. The manual handling of large, heavy glazing units is an example of a work activity that is governed by the Manual Handling of Loads Regulation and where actions need to be taken to avoid or reduce the risk of injury.

Actions to Avoid or Reduce the Risk

In planning for the transport of glazing units to site and installation on site, there are a number of factors that need to be considered, including:

- Is there an assigned area where the glazing units can be stored and accessed safely on site?
- Who is responsible for offloading the glazing units on site?
- Who is responsible for controlling the work area where the glazing units will be installed?
- Who is responsible for setting up a work exclusion zone?

****** The HSE Mac Tool was developed to allow assessment of the most common risk factors in lifting, carrying and team handling operations.

- Has a system of work being identified to transfer the glazing units that includes mechanical lifting aids, training information for employees and safe access and egress at the glazing installation point (i.e. cherry picker or safe work platform)?
- Is there supervision of the glazing installation process by a competent person?

An example of good practice for handling large glazing units: The use of a glass suction appliance for lifting glazing units into position

Step 1

A visual inspection is performed on the glass suction appliance by a trained operative prior to use to ensure that it is safe to use and defect free. The glass suction lifter is brought into position in preparation for glass suction.



Step 2

The pressure plate and cap are fixed prior to full suction



Step 3

The glazing unit is manoeuvred into position ready for installation.



Step 4

The glazing unit is then lifted into a position where it can be installed into the opening of the building.



This system of work of using the glass suction appliance to handle the glazing units eliminates the high level of risk of injury to a significant proportion of the working population to a risk when handling glazing units manually on site.

Example of good practice using an installation robotic system

There are other types of equipment that are available to handle glazing and glass units, including a battery-operated window robot with a lifting capacity of 575kg. The machine can facilitate the mounting of window elements or similar sealed items. Below is an example of a unit being used for handling large glass units in a factory environment. However, it is primarily used off site to handle glass units and mount them into position on shop fronts or other buildings. In the example below, the glass unit measures 3.4 metres x 2.5 metres and weighs over 150kg. It is important that full training is provided on the safe use of the equipment and that an appropriate method statement is agreed and approved to allow the safe use of the equipment while being used off site.



Conclusion

In a new build, it is foreseeable that there will be a requirement to fit glazing units, whether they are large windows, small windows or doors. The contractor needs to:

- Understand the technical specifications of the glazing units, including the dimensions and weights of the units.
- Understand the potential hazards or risk

factors in installing the glazing units into position at the openings in the build; particularly those that introduce a risk of back injury or other musculoskeletal injury.

- Assess and select the sub-contractor who will be responsible for the installation of the glazing units on site.
- Consider the planning and scheduling of work to allow the glazing units to be fitted using appropriate mechanical handling aids.
- Approve the method statement for transport and installation of the glazing units on site and ensure that the method statement clearly details the method of handling the glazing units on site which will eliminate or reduce the risk factors; thereby reducing the risk of injury, particularly back injury. Typically this will involve the use of a glass suction appliance or other appropriate handling aids.
- Ensure that everyone is given full instruction on the method statement and that the appropriate equipment is available to complete the handling tasks safely.

The manual handling of glazing units should be the exception rather than the norm, and should only be used in situations where the weight of the glazing units are deemed to be low risk following completion of a manual-handling risk assessment.

Further Information

An Introduction to the Management of Manual Handling in the Construction Sector

Safety, Health and Welfare at Work General Application Regulations 2007 – Manual Handling of Loads

Safety, Health and Welfare at Work (Construction) Regulations 2013

Safety, Health and Welfare at Work Act 2005

