

# The Glasgow School of Art

## Practical Health and Safety Solutions for Art Installations

January 2019

Policy Control

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Supporting Policy	Occupational Health and Safety Policy Occupational Health and Safety Policy: Arrangements GSA Health and Safety Risk Assessment Procedure
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Author	Kerrie Wynn – Health and Safety Advisor
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Benchmarking	Edinburgh College of Art - Guidance on the preparation for display of works (including exhibition spaces, Degree show, Symposium and other events etc.)

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## 1. Introduction

When planning exhibitions and displays of work, both staff and students must ensure that the Health and Safety of all users of GSA premises, including visitors and children, is not compromised.

A great deal of thought needs to be taken in the planning of students' exhibits, including the consideration of materials used, flammability, size, electrical requirements and hazards of structures.

Attention must also be given to the maintenance of safety during the erection of exhibits, for example avoiding temporary blockage of escape routes and exits. Detailed planning, which should include the provision of drawings illustrating layouts, exits and means of escape, will help prevent problems arising at a later stage.

Jeopardising safety could result in the removal or re-location of any installations.

This guidance note seeks to identify important areas – including giving examples of previous student work - where attention needs to be paid in order that these aims are met by exhibits. These measures are in place to protect the health and safety of all students, staff and members of the public, ensuring that all GSA art installations are inclusive and accessible to all.

Any student requiring any support in relation to this guidance should speak to their Programme Leader in the first instance.

## 2. Electrical Safety

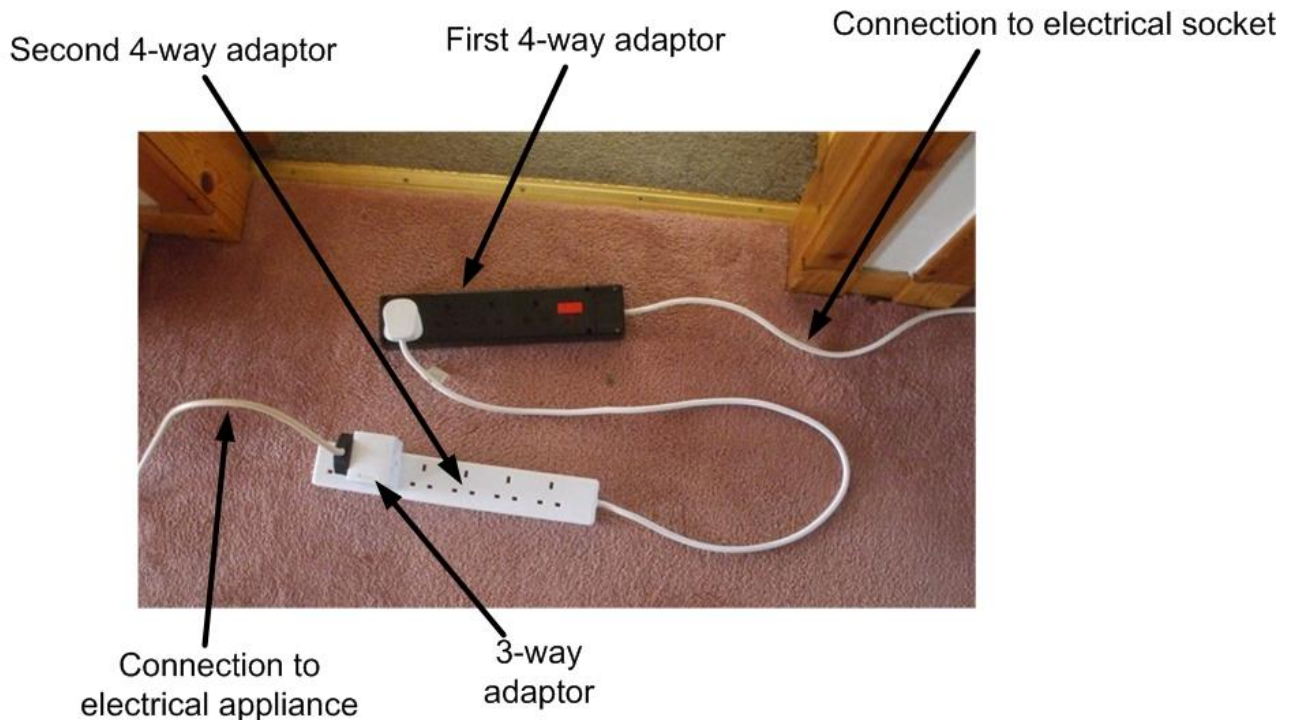
Although the use of 4 socket extension leads remains the preferred option within GSA, it is recognised that on occasions (e.g. during Degree Shows) the use of 6 socket extension leads may be required to accommodate work. Further information can be found in the GSA Guide to Safe Use of Electrical Extension Systems. The '**by exception**' use of 6 socket extension leads may be considered where:

- a) There are no other aspects of the proposed work which could present significant risk in their own right or combined with the equipment to be used
- b) The School's Degree Show Protocols will be fully applied and signed off at all stages (N.B. Any further additions/changes)
- c) The student is able to verify: that the electrical equipment was purchased from a reputable source; when the equipment was purchased; and, if applicable, equipment complies with any relevant product safety standards
- d) The work will be covered by the School's arrangements for verifying electrical supply to work and, where appropriate, PAT testing
- e) The student is able to demonstrate that the total power load does not exceed that of the extension lead being used. Overloading of sockets should also always be avoided. You can avoid overloading sockets by:
  - Checking the current rating of the extension lead before plugging appliances into it. Most are rated at 13A, but some are only rated at 10A or less. The rating should be clearly marked on the back of the extension lead. If it is not, refer to the manufacturer's instructions.
  - Plugging in appliances that together will exceed the maximum current rating stated for the extension lead. This could cause the plug in the wall to overheat and possibly cause a fire.

Below is a link to an online calculator that can assist in calculating power loads and preventing the overload of a multi-socket extension lead:

<https://www.electricalsafetyfirst.org.uk/guides-and-advice/around-the-home/overloading-sockets/>

Electrical systems are not designed to run numerous appliances off single sockets, so you should NEVER connect extension leads together in a 'daisy chain'. Daisy chaining is demonstrated in the photograph below:



If one extension doesn't have enough sockets on it or is not long enough, you should consider alternative ways of providing power (e.g. using less appliances/6 socket extension). For further information, including how to avoid overloading sockets, refer to the GSA Guide to Safe Use of Electrical Extension Systems:

<http://www.gsa.ac.uk/media/1317594/GSA-Guide-to-Safe-Use-of-Electrical-Extension-Systems-.pdf>

### 3. RCD protection

An RCD is a device that constantly compares current in and out. When it detects a change i.e. when the cable is cut or the current finds a better path to earth via the user, it will trip out and cut the supply.

RCD's should be used with all electrical equipment within any installations with the exception of the Reid Building, which has RCD protection built into the building system.

Easy access to on/off isolation for electrical items needs to be readily available.

For further information on RCD's you should refer to the GSA Guide to Safe Use of Electrical Extension Systems.

Below are examples of RCDs being used correctly.



#### 4. Cable Management

Throughout the degree show and all other installations – in all premises being used by GSA - cable protectors should be used where trailing cables present a tripping hazard. This is demonstrated in the photograph below.



In one GSA location, the wood workshop has previously manufactured angled wooden cable protectors, which have been painted to blend in with the floor colour and screwed down to ensure they would not move during the traffic of the Degree Show. Examples of this can be seen below.



Easy access to on/off isolation for electrical items also needs to be readily available.

## 5. Plinths and standing structures

All work, including any associated display structures (e.g. screens, plinths etc.) should be adequately robust and stable. This includes supports required during installation and de-install, when works may not have the full support of the final structure in place.

Plinths and other structures should be able to withstand reasonable 'jostling' on a busy exhibition night, as well as any other imposed loads (e.g. wind) if applicable, to reduce the risk of being knocked over. This can be done by incorporating weighting within the structure of the plinth, or by fixing the plinth/structure to the floor using brackets (NB – please ensure you are permitted to fix to the floor of your studio space before doing so).

Any items displayed on plinths (e.g. projectors/monitors etc.) should be sufficiently secured by means of fixings or a retaining lip to prevent them falling, if their doing so would present a risk. Plinths must be of sufficient size to accommodate the chosen equipment.

Similarly, any other works (e.g. sculptures, structures, models, displays) may require integral fixing points to provide them with sufficient stability and support.

All of the above should be incorporated from an early stage of the design.

The following photographs show various plinths used in exhibitions and how they can be secured.



*Circled in yellow in the picture are brackets that have been used to secure the plinth to the floor.*



## 6. Curtains and dark spaces

Various spaces within the degree show and other installations become dark areas for projection purposes, usually using curtains or dark coloured material. Any curtains and other fabrics used within an installation should also be flame retardant. Luminescent/fluorescent tape or a suitable equivalent should be added to openings of these exhibitions to ensure visitors can find the exit in case of an emergency. Below are examples of a blackout curtain with luminescent tape around the edges, and an example of the tape that could be used.



Please note that the use of plastic sheeting as a curtain, as pictured below left, is not recommended for fire safety reasons. Also note that white/coloured duct tape or gaffa tape – as shown below right - is not a suitable equivalent as it cannot be seen within the dark spaces.



## 7. Use of glass in installations

Planned installations using glass should ***always*** use safety glass – or a suitable plastic alternative - with bevelled edges and, where required, corner protectors.

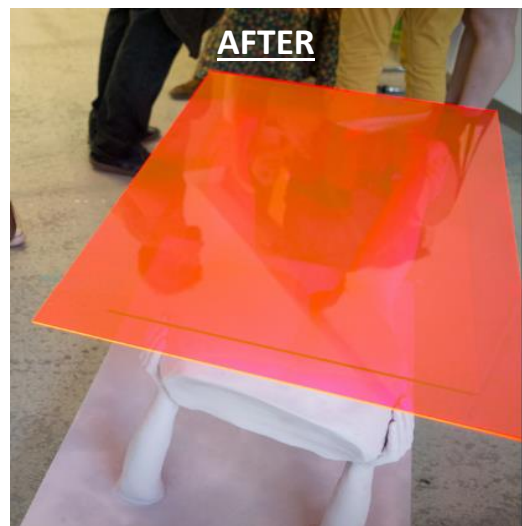
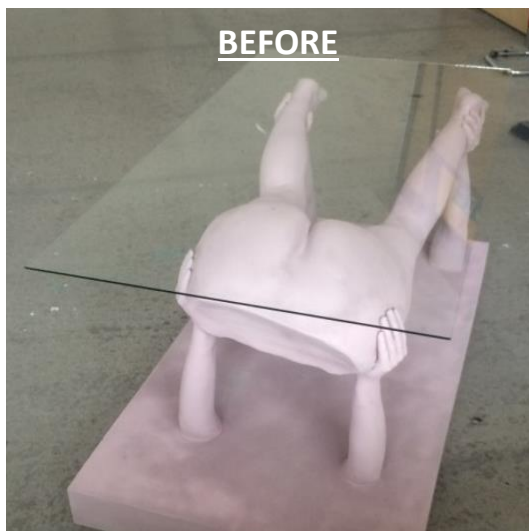
There are different categories of safety glass. However, the two types detailed below reduce the risk of shatter and the risk from cutting injuries:

- a) **Toughened:** Toughened-glass is heat-treated and does not shatter. It disintegrates into small, granular pieces, which are not sharp, and reduces the risk of injury. Small pieces will still be dangerous to children so ensure they are kept away in the event of breakage.
- b) **Laminated:** Laminated glass consists of two or more sheets of ordinary glass attached together by a plastic interlayer. On impact any broken glass will remain attached to the plastic reducing the risk of injury

There are also different types of plastic sheeting which is suitable for use in art installations as protective coverings:

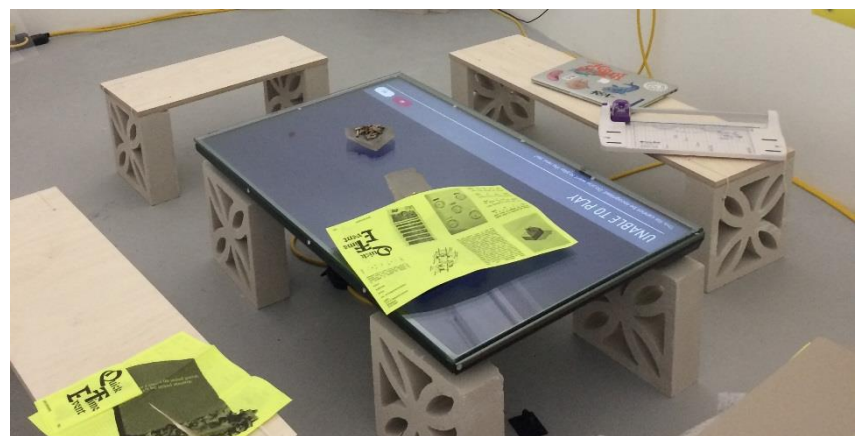
- a) **Acrylic:** Acrylic sheeting has 10 times the impact resistance of glass. Acrylic is extremely rigid and can be polished to restore clarity.
- b) **Polycarbonate:** Polycarbonate sheeting has around 250 times the impact resistance of glass. Polycarbonate can be purchased in flexible grades.

The following installation was curated as part of the Phoenix exhibition. Originally, the student used normal glass on the table top. This was only flagged up at the pre-opening checks of the exhibition. The student had to source safety glass within a very short time frame. This resulted in having to use a coloured acrylic sheet over the glass to give strength to the overall piece.



This last minute alteration could have been avoided if the student had planned and risk assessed the installation in advance of the opening.

The below installations features a television monitor on the ground, facing up. For this type of installation, students should source safety glass, or acrylic/polycarbonate sheeting, to be placed over the monitor screen to reduce the risk of injury if stepped/fallen on.





## 8. Use of furniture/upholstery

Many installations have involved the use of home furnishings (e.g. scatter cushions/upholstery). The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (amended 1989 and 1993) relate to the fire safety of domestic upholstered furniture.

Items covered by the Regulations include:

- Beds, mattresses, sofa beds etc.
- Garden furniture (which is suitable for use in a home/caravan)
- Scatter cushions, seat pads and pillows
- Loose and stretch covers for furniture

When using such items, students should be able to verify that the items were purchased from a reputable source, ensuring that they have the necessary label/guarantee and that they meet the relevant standard. Further information can be found in the following guidance:

<https://www.fira.co.uk/images/FIRA-Flammability-Guide-PDF-with-links.pdf>

## 9. Window blinds/cords

Students and staff should be aware of window blinds and cords and their interaction with exhibits/installations. Young children can be seriously injured or killed by loops in window blind cords, chains, tapes and inner cords that operate the product. To avoid strangulation or injury, cords should be kept out of reach of persons attending exhibitions, and the following should be considered:

- Ensure pull cords on blinds are kept short and out of reach
- Tie up cords or purchase cord tidies, clips or ties so that they are out of reach
- Do not hang items – including artwork or parts of an installation – from pull cords

The following student installation had used the window blind cords to hang part of the artwork from. This was only identified during the pre-opening checks of the exhibition. As a result of the danger to the public – particularly to young children - this particular part of the work had to be removed from the show.



Further information can be found on the Royal Society for the Prevention of Accidents (RoSPA) website here: <https://www.rospa.com/rospaweb/docs/advice-services/home-safety/blind-cord-safety.pdf>

## 10. Case studies of student installations

### CASE STUDY 1

A photography student installed a solid glass sheet as part of their final year piece. To begin with the sheet of glass was not secured in any way. The main concern was that the glass would slip from the bottom or that it could be easily knocked over by a small child. This could cause the glass to smash, not only potentially injuring members of the public/staff/students but the artist would also lose their work.

Following discussion and consideration from Programme Leader, the student and Health and Safety Team, it was agreed that the glass would need to be secured before the public could enter the space. This was done by securing a Perspex strip shaped to suit the angle of the glass to ensure it could not slip or fall forward away from the pillar.



The solution allowed the installation to remain as it was and involved only a minor alteration.

This principle should be applied to any materials leaning or resting against walls during exhibitions.

## CASE STUDY 2

Another installation which involved a suspended piece of glass was made more complex by the student applying graphite to the floor surface. This was done to achieve a particular look and feel on the floor surface but made the floor extremely slippery.

The piece therefore created a slip/trip hazard which could have caused someone (including children) to fall into the suspended glass.

It was agreed that the graphite would be covered in a water-based, clear floor varnish which would be easily available from a local DIY store. This gave the floor a matte finish and a close to normal surface friction therefore limiting the impact on the aesthetic look of the work.



## CASE STUDY 3

The images below show a student installation which included a shallow glass tank on top of a marble structure. The student had installed a thin, low wire as a barrier indication for the tank. However, due to the height and thickness of the wire, it was difficult to see and could potentially cause a trip hazard.



Following discussion with the student and Programme Leader, it was agreed that the wire should be replaced with a thicker rope to make it more visible. The student painted this rope barrier black to ensure in keeping with the overall aesthetics of the installation. In addition, the height of the barrier was raised so make it more visible against the background of the space.

The alterations are shown in the picture below:



#### **CASE STUDY 4**

The following images show a student installation which was to include rubble and debris scattered on the floor of the studio space. The student wanted the public to walk over the rubble/debris to create sound. However, this would create trip hazards for the public accessing the area.



**BEFORE**



The debris/rubble was only highlighted at a very late stage, a few days before degree show. Following discussion with the student, it was agreed that the rubble/debris would be moved to the perimeter of the space and away from the entrance/exit. This reduced the risk of slips, trips or falls to members of the public. Amendments to the work are shown in the picture below:



### **CASE STUDY 5**

A Simulation and Visualisation student planned to incorporate a real gas mask from the Second World War as part of their exhibited work.



Guidance from the Health and Safety Executive for education establishments and others, states that it is not appropriate for anyone to wear or to handle a Second World War gas mask, because the majority of vintage

gas masks – like those photographed above – have been found to contain asbestos. Following discussion with the programme tutor, this item had to be removed from the exhibit at a late stage. This could have been avoided if research into the risks from such items was carried out in advance of the show. Further information can be found using the following link:

<http://www.asbestosexposureschools.co.uk/pdfnewslinks/Gas%20Masks%20-%20Letter%20with%20Advice.pdf>

## **CASE STUDY 6**

Recent installations have involved the use of items that are usually associated with children’s play areas and equipment (e.g. slides, climbing frames). Students and staff should be aware of the public’s interaction with items associated with children’s playgrounds, as injury can occur from incorrect use. The European Standards for Playground Equipment: EN 1176, outline requirements of playground equipment. Equipment that does not meet these standards is not considered appropriate for use as playground equipment.

The following student installations demonstrate children’s play equipment being incorporated into art work. These examples illustrate what was originally in place, and what amendments/controls were put in place to improve safety.

- a) A Sculpture and Environmental Art student constructed the slide below which, during the degree show, visitors would be invited to use.

Health and Safety issues/concerns were:

- Handrail behind slide needed to be strengthened. The window placed directly behind it added a more serious hazard from falling
- Overloading of the structure i.e. controlling numbers
- Possibility of a hard landing at the bottom of the slide

### **BEFORE**



In order to reduce the potential for injury to those interacting with the work, the following were implemented (as shown in the photographs below):

- The student secured the banister and strengthened it by filling in the gap between both handrails.
- Signage was placed around the structure to manage overcrowding/overloading. This also helped the invigilators in the space to manage the flow of people around the structure.

- It was agreed that cushions would be made available to participants to give a softer landing. This took away the need for a mat at the bottom of the slide and did not disturb the aesthetics of the work.

### AFTER



b) A Fine Art Photography student installed a rope ladder as part of Degree Show work. Health and Safety issues/concerns were:

- The temptation for members of the public – in particular, children – to climb on the rope ladder
- The stability and strength of the rope ladder
- The positioning of the rope ladder within the space
- The amount of other pieces within this space



Discussion took place with the student and the Programme Leader about removing the rope ladder in order to prevent members of the public from using it. After further discussion, it was agreed that the rope ladder would be shortened and tied up on the wall of the studio space, making it less accessible. In the end, the student chose to arrange the work as shown in the following photograph:



- c) The following installation involved a small ‘children’s playhouse’ – constructed by a student – set at height. This ‘playhouse’ was accessible via a wooden ladder. The main concerns with this installation was that members of the public – particularly children – would be tempted to climb the ladder to the ‘playhouse’ and that it would be unstable.



Following discussions, it was agreed that the work could be shown, provided that there was constant immediate supervision by invigilators at this exhibit for the duration of public openings. If no invigilator was available when the display was open to the public, the ladder would have to be removed.

## 11. Further information

For further information, you should refer to GSA guidance, which can be accessed on the GSA webpage here: <http://www.gsa.ac.uk/about-gsa/key-information/occupational-health-and-safety/>



Specific GSA guidance that may be of help include the following:

- GSA Health and Safety Risk Assessment Procedure
- GSA Guide to Safe Use of Electrical Extension Systems
- GSA Guide to the Safe Use of Projectors within an Art Installation
- GSA Student Safety Guidelines

There are also a wide range of publications and other materials available online. Links below for information:

- **Electrical Safety First** - <https://www.electricalsafetyfirst.org.uk/guides-and-advice/around-the-home/overloading-sockets/>
- **Fire Safety of Furniture and Furnishings in the Home** - <https://www.fira.co.uk/images/FIRA-Flammability-Guide-PDF-with-links.pdf>
- **Blind Cord Safety (British Blind and Shutter Association)** - <https://www.rospa.com/rospaweb/docs/advice-services/home-safety/blind-cord-safety.pdf>
- **Asbestos Exposure in Schools Advice** - <http://www.asbestosexposureschools.co.uk/pdfnewslinks/Gas%20Masks%20-%20Letter%20with%20Advice.pdf>