

**THE UNIVERSITY OF MANCHESTER**  
SCHOOL OF ENVIRONMENT, EDUCATION AND  
DEVELOPMENT



*Models in Progress 2024*

**B.15 MODELMAKING  
WORKSHOP  
GENERAL USERS GUIDE**

**August 2024**

Scott Miller  
August 2024

## B.15 MODELMAKING WORKSHOP CODE OF PRACTICE

- VISITORS ARE NOT PERMITTED TO ENTER THE WORKSHOP WITHOUT THE PERMISSION OF TECHNICIANS WITHIN AGREED OPENING HOURS.
- NO UNIVERSITY STAFF MUST WORK IN THE WORKSHOP WITHOUT FIRST UNDERTAKING A WORKSHOP INDUCTION.
- STUDENTS ARE ONLY ALLOWED TO WORK IN THE WORKSHOP WHEN A QUALIFIED MEMBER OF TECHNICAL STAFF IS PRESENT.
  - ALL MACHINES ARE POTENTIALLY DANGEROUS, WOODWORKING MACHINES PARTICULARLY SO. WHEN USING, OR JUST VISITING A WORKSHOP CARE MUST BE TAKEN TO AVOID INADVERTANTLY TOUCHING ANY MOVING PARTS, CUTTERS, SPINDLES, ETC.
- THE WOODWORKING MACHINES REGULATIONS 1974 STATE: (Training, Paragraph 13) *"NO PERSON SHALL BE AT ANY KIND OF WORK ON A WOODWORKING MACHINE UNLESS HE OR SHE WORKS UNDER THE SUPERVISION OF A PERSON WHO HAS A THOROUGH KNOWLEDGE AND EXPERIENCE OF THE WORKING OF THAT MACHINE"*.

*THEREFORE*, NO STUDENT OR MEMBER OF STAFF IS TO USE MACHINERY OR HAND TOOLS WITHOUT PRIOR INSTRUCTION FROM A QUALIFIED PERSON. MACHINE STANDARD OPERATING PROCEDURES (SOP) MUST BE FOLLOWED.

- THE USE OF FIXED MACHINERY AND EQUIPMENT IN THE WORKSHOP BY STUDENTS IS RESTRICTED TO THE BANDSAWS, FRETSAW, PILLAR DRILL, DISC/BELT/BOBBIN SANDING MACHINES, AND RISK ASSESSED HAND AND POWER TOOLS.
  - STUDENTS AND STAFF WHO USE WORKSHOP EQUIPMENT IN A DANGEROUS AND UNSAFE MANNER WILL NOT BE PERMITTED TO WORK IN THIS AREA AGAIN AT THE WORKSHOP STAFF DESCRETION.
- THE MAXIMUM NUMBER OF STUDENTS ALLOWED INTO THE WORKSHOP AT ANY ONE TIME IS 20 (B.15) & 15 (B.12) AT THE DISCRETION OF WORKSHOP STAFF.
  - IN THE ABSENCE OF SCOTT MILLER ARRANGEMENTS FOR STUDENT ACCESS TO THE FACILITY SHOULD BE MADE WITH

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JONATHAN LILLIE ([jonathan.lillie@manchester.ac.uk](mailto:jonathan.lillie@manchester.ac.uk)) Tel: 0161 275 2871)

- IT IS A CONDITION OF TECHNICAL STAFF AND THE DEPARTMENTS IN THIS BUILDING THAT THESE GUIDELINES ARE OBSERVED. STUDENTS OR STAFF WHO FAIL TO ABIDE BY THESE CONDITIONS WILL NOT BE PERMITTED TO USE THE WORKSHOP FACILITIES.
- STUDENTS ARE NOT PERMITTED TO USE ANY MACHINE/TOOL OR ACCESS ANY STORAGE MARKED WITH THE FOLLOWING SIGNAGE:

**'STAFF USE ONLY'**

## **WORKSHOP OPENING HOURS**

Inducted Undergraduate, postgraduate students and staff may use the facilities during normal working hours and if capacity permits. Normal working hours are:

Monday to Friday  
9.30 - 13.00 & 14.00 - 16.30

On occasion where the workshop staff cannot attend a note will be placed providing details and where possible, notice will be sent out via Moodle and or on the B.15 Blog page.

## **WORKSHOP BLOG AND SOCIAL MEDIA**

This is an important link to take note of. Here you can find up to date information about the workshop facilities, material costs, workshop events and project case studies.

**[www.manchester.ac.uk/b15workshop](http://www.manchester.ac.uk/b15workshop)**

Follow us on Instagram and Twitter @b15workshop

## **WORKSHOP ROOMS – DESCRIPTION AND CONTENTS**

B.15 workshop is located in the basement of The Humanities Bridgeford Street Building, Bridgeford Street, M139PL.

The workshop is situated over two accessible rooms for students and one for staff only.

- **B.15 - Main Modelmaking Workshop**

Used for tutoring and model production for individual or groups of students.

**This room has a strict maximum of 20 students at a time at staff discretion.**

The main student workspace is equipped with:

Two Bandsaws, Two Disc Sanders, A Belt Sander, A Bobbin Sander, A Pillar Drill, A Fretsaw, A Pedestal Polishing Machine, A Hot-Wire Strip Heater, A bead blaster, A CNC machine, Two Laser Cutters and a range of hand and power tools. These are all for use by undergraduate and postgraduate research student project work.

Students working in this area will be under constant supervision by technical staff.

The staff only workshop space is equipped with:

A Circular Table Saw, A Compound Mitre Saw, A Trenching Saw, A Woodturning Lathe, A Thickness Planner, A Pedestal Grinder, These items are for use by trained staff only. Any student tasks requiring the use of these machines must be discussed with staff.

Both workshop spaces described above are **EYE PROTECTION AREAS**. The machine area is clearly labelled within the workspace and will be pointed out during your workshop induction. Safety glasses and aprons must be on your person at all times on entering this workshop. Eye protection should always be worn when using and in the proximity of a machine when in use.

A small recycling space adjacent to the main B.15 space houses an additional work bench, 2 x computers for CAD File prep and shelving/drawers that house recycled materials that a free for student use.



*The Main B.15 Workshop Space*

- **B.12 Annex space**

Room B.12 is located on the opposite side of the basement and can only be accessed when instructed by workshop staff. **This room has a student capacity of up to 15 people at a time at staff discretion.**

This room contains additional assembly space, Vac-forming machine, 3 x multimedia 3D printers, Spray bench for spray painting and other approved water-based spray paint application, Paper plotter/printer, Moulding and Casting area.

Spray painting can be undertaken here using the spray bench area after being inducted and seeking permission from a member of staff.

Lockable metal cabinets for spray paints, solvents and glues etc. are located at different points around the room. These are for staff access only as clearly marked.



*The B.12 annex space*

- **Photographic Studio B12A**

This room can be accessed via B.12 after seeking permission from a member of staff. It contains fixed and mobile controllable lighting, backdrops and camera equipment for documenting student projects. There is no booking system to use the space except during busy periods. Students must not undertake modelmaking activities in the studio space and are expected to keep it clean for all users.



*Photographic Studio*

- **B.14 Materials Store**

This is a staff only access room. The material store houses a range of new and recycled construction materials such as sheets of Acrylic, paint, MDF and Plywood for students to use. New materials are available to purchase. Full listings can be found on our blog.

- **B.19 Model Store**

This room is used to store ongoing model projects and archive material. Access to this room is staff only unless supervised.

## **Paying for Materials and Services**

If it is deemed necessary for you to use new materials for your project the workshop holds a fluctuating stock of modelmaking and craft materials that are commonly used for modelmaking. The full list items we sell can be found via our blog on the materials list page.

Payment for materials and services such as 3D Printing is made through our online store, whilst you are in the workshop and is done using a bank card transaction only.

This will be explained to you in more detail if and when you need to make a payment.

We cannot accept MET card or cash payments here.

As we cannot guarantee stock levels or machine availability, please do not pay in advance of any service or materials collection.

## **Booking system and use of Laser cutting, 3D Printing and CNC services**

These machines are often in high demand. Whilst MSA students are entitled to have access to these machines, as with any of our equipment, we only allow access if the use is deemed appropriate and well considered.

Booking can only be done through conversation with one of the workshop staff about your project on the day that you wish to use the machine.

You must have your file checked to allow staff to estimate the time required before any booking is confirmed on the day.

- Laser cutting is charged at the cost of materials used.
- 3D printing is calculated at the cost per cubic centimetre of material and support material used and varies depending on the chosen machine.
- CNC is free to use but materials may be charged for. Time considerations are key and individual requirements must always be discussed with staff.

Do not:

- use the computers for extensive drawing/modelling work. Your files should be completed before your arrival for your booking.
- presume that these are the only means of you completing your model because they are computer controlled. There are often quicker ways of getting to the result you need that are less tech-reliant.
- begin a laser cutting job without checking the job run-time with a member of staff. This is to avoid over running into someone else's allotted time.
- attempt to use any of the equipment if you have not used it before. Always seek assistance from a member of staff.

## **GENERAL WORKSHOP RULES FOR ALL B.15 SPACES**

- New students are not permitted to work in the workshop without first completing the Video Induction and In person tour. Students should then begin by discussing their project in person with a member of the B.15 team, and undergoing 1 to 1 inductions on any machines, tools or processes that they are undertaking.
- Returning students must approach workshop staff to undertake 1 to 1 refresher inductions on machines before commencing any use.
- Workshop users must sign in on arriving to begin work.
- Working aprons must be worn at all times in the workshop.
- Safety glasses must be worn at all times in the workshop area when using machinery, equipment, paints, solvents or adhesives.
- No food or drink is to be consumed in the workshop at any time.
- Mobile phones, personal music players and headphones are not to be used in the workshop machine area or when using machines.
- Workshop capacity is capped at 20 students in B.15 and 15 students in B.12 at any one time at the discretion of workshop staff.
- All students must sign the register to agree they have read and understood the general users guide and agree to follow the rules and regulations set out for the B.15 workshop area.

## **ACCIDENTS AND INCIDENTS**

All accidents and incidents must be reported to the Technician, or the nearest First Aider.

The nearest First Aider, Fidel Peacock (Ext: **52871**) can be found in room 1.03, 1<sup>st</sup> floor Humanities Bridgeford Street Building.

Telephone Numbers in case of emergency

Scott Miller, Lara Gerrard, Teagan Dorsch or Paulina Voang  
B.15 Workshop Number: Ext: **56853** Office Number Ext: **56876**

Security Ext: **52728**

Emergency services Ext: **9999**

A full list of University first aiders can be found here (UoM Login required):

<https://www.healthandsafety.manchester.ac.uk/toolkits/firstaid/>

If anyone is taken to hospital notify Health and Safety Services immediately. Tel: 50971/64003 and complete an Accident form, which can be found at the following link:

<http://www.campus.manchester.ac.uk/healthandsafety/index.htm>

A copy must be filed with a technician.

## **FIRE SAFETY**

Should the fire alarm sound all work must stop immediately and workshop equipment should be switched off if possible.

You should leave the workshop via the nearest exit immediately and proceed out of the building as directed by emergency exit signage or Fire Marshal.

If there is a fire in the workshop, you should:

- Raise the alarm. Inform Technical staff immediately and break glass at Fire Point.
- Summon the Fire Brigade. Dial 9999 from the telephone.
- Immediately evacuate the building.

## **USING WORKSHOP EQUIPMENT**

Equipment users must be aware of correct Standard Operating Procedures when using any equipment. Each machines Standard Operating Procedures (SOP's) can be found in its locality. Technical staff are available to give advice on any equipment and machinery.

No individual is permitted to use workshop equipment without a prior one to one induction by B.15 technical staff and seeking permission from a member of staff.

Risk Assessments have been conducted for all equipment and activities permitted in all B.15 spaces. Standard Operating Procedures (SOP) for each fixed machine can be found in their proximity.

**EYE PROTECTION** and **APRONS** must be worn at all times when operating but also when waiting for machines.

**PUSH STICKS** should be used when required as outlined on the SOP's. Always ask a member of staff if you are unsure how to proceed.

The use of the following machines is only permitted after instruction:

Use of the Bandsaw  
Disc Sanders  
Bobbin Sander  
Belt Sander  
Pillar Drill  
Fret saws  
General hand and power tools  
Laser cutters  
Bead Blaster  
All types of 3D Printers  
Hot Wire Strip Heater  
Hot Wire Cutters  
Pressure Forming Machine  
Spray Painting Extraction Bench  
Cricutter

**NOTE:** The use of the following machines is only permitted by trained staff:

Use of the circular saw  
Wood turning Lathe  
Planner  
Routers



CNC Machine  
Metal grinder  
Radial arm saw  
Compound Mitre saw  
Use of any chemicals  
Modification of Pantographs in the Photographic Studio  
Use of any equipment not on the approved list.

### **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Non-compliance of instruction to wear PPE will result in persons being excluded from the workshop. PPE will be provided at your allocated workspace upon arrival at the workshop. Any additional PPE for specific tasks can be provided upon request or alternative advice given.

### **PERSONAL CONSIDERATIONS and HEALTH ISSUES**

Long hair must be tied back to avoid entanglement in machines or exposure to glues/paints etc.

Loose clothing (sleeves, shirts etc.) must be secured when using machines to prevent entanglement. Due to the nature of the workshop environment there is always a chance that clothing can be damaged with adhesives/paints etc. so make sure you dress appropriately.

Wood dust is a sensitiser and is controlled through the use of SOP's in the workshop. A certain amount of airborne and surface dust is unavoidable and therefore special consideration should be given by anyone who knows of skin conditions that they have which may be affected by this exposure.

If you are affected by any health issues such as Epilepsy, Asthma, Hearing Problems or Skin Conditions please inform a member of staff before commencing any work so that we can ensure any specific hazards are addressed and your safety and wellbeing in the workshop are correctly supported. You can speak to us at your discretion in person or via the contacts listed at the end of this document.

### **EYE PROTECTION**

The main workshop machine area is an eye protection area and thus eye protection must be worn at all times when using equipment in this facility. This applies to the use of any glues or solvents to protect against possible accidental exposure. Several standards of safety glasses are provided by the workshop for different uses. For users who wear glasses there are larger safety goggles which must be worn in order to conform to safety standards. Full face protection should be worn where there is a risk of ejection or when using the lathes (Trained Staff only).

### **EAR PROTECTION**

Based on a full noise survey of the space it has been determined that hearing protection is not required at all times however it is available on request. Disposable ear plugs and ear defenders are available on request. Personal ear plugs are also provided by the workshop. Ear defenders are provide and required in the CNC area and staff machine space when machines are in use.

## **BODY PROTECTION**

Working aprons must be worn at all times in the workshop area to protect students and staff when undertaking practical work.

## **PROTECTIVE GLOVES**

When using paint, resins or solvents you must wear disposable vinyl gloves which are provided by the workshop. The correct type of gloves must be worn for the activity to be undertaken. If in doubt always consult with technical staff

## **GENERAL RESPIRATORY PROTECTION & WHEN SPRAY PAINTING**

For small amounts of sanding or intermittent general use the workshop provides disposable dust masks which conform to European Standards EN149-2001 for comfort.

Providing the Standard operating procedures are followed for the use of the BenchVent spray booth there is no requirement to wear a mask.

## **FOOT PROTECTION**

Robust or safety shoes are recommended although not compulsory. Open top shoes such as sandals must not be worn in the workshop.

## **USING CHEMICALS**

- No procedures that use chemicals must be undertaken without first carrying out a COSHH assessment (Control of Substances Hazardous to Health Regulations 1988). The completed form must be checked and signed by the Technician. Hazard data sheets are held on the computer in the main Workshop.
- Appropriate protective equipment must be worn at all times when required. Other Workshop users should also be made aware of any dangers.

## **RISK ASSESSMENTS AND STANDARD OPERATING PROCEDURES**

When carrying out particular machine based tasks or when using casting materials or chemicals within the workshop these Risk Assessments can be used for reference or created to suit. Standard Operating Procedures (SOP's) are affixed to or near to each machine and should only be used as a guide for machine operation in conjunction with an induction.

These are kept digitally and can be viewed along with copies of the most recent SOP's via the following link or QR Code (UoM login required):

[https://livemanchester.ac.sharepoint.com/:f:/s/UOM-HUM-SEED-B15/Er\\_HDIvDk1pOoJ7uX7J3WjgB6Z5vLBkhDx7xKfmMz6NPtQ?e=f4gz9W](https://livemanchester.ac.sharepoint.com/:f:/s/UOM-HUM-SEED-B15/Er_HDIvDk1pOoJ7uX7J3WjgB6Z5vLBkhDx7xKfmMz6NPtQ?e=f4gz9W)



### **University of Manchester First Aiders list:**

<https://www.healthandsafety.manchester.ac.uk/toolkits/firstaid/>



## RECYCLING AND DISPOSING OF WASTE MATERIALS

The disposal of waste chemicals and solvents is covered by the Environmental Protection Act 1990 and by the Special Wastes Regulations 1996. The person generating (consigning) the waste has duty of care to ensure that all such waste is disposed of in a controlled manner. All wastes generated in the workshop are to be disposed of under the supervision of the technical staff.

Whilst it is the responsibility of the workshop staff to ensure adequate bins are available and for the safe disposal material and chemical waste, it is each individuals' responsibility to correctly and conscientiously clear their waste and recycle where possible in the receptacles provided. This responsibility begins when we set out to start our project, making sure we are using as much recycled material as possible as opposed to using new material.

This is a key part of our working practice in all B.15 spaces.

<b>Type of waste</b>	<b>Disposal method</b>
Sharps, Blades and Saw Blades	A sharps bin is located at the technicians desk spaces. <b><u>DO NOT</u></b> throw sharps into the general waste bins
Acrylic & plastics	Put in the appropriate recycle bin within the B.15 workshop.
Timber, MDF & Plywood	Put in the timber recycle bin within the workshop. Unsuitable items should go in the general waste bin.
Plaster, Silicone	Never pour waste plaster down the drain. Before set, clean plaster out of the mixing bowl and into the general waste bin. Catalysed Silicone should be left to set before peeling out of the bowl and disposing of in the general waste.
Paint, Thinners, Brush Cleaner & Solvents	Never pour down the drain. Consult a member of staff for disposal.
Batteries	Taken to battery recycling bins on ground floor.
Resins	Mixed resin and mixing containers should be immersed in water until fully cured before being disposed of in general waste.
Spray Paint and Aerosol Cans	Should be stored in the metal storage cabinet before disposal via arranged collection by staff.
Paper	Put in the blue labelled recycle bin in the workshops or in the corridor outside the workshop spaces
Cardboard	Put by the bins outside the workshop entrance or in recycling bins in the bin room on the ground floor.
Foam/Polystyrene	Place in clear plastic bin bag next to general waste bins in the corridor outside the workshop.

## B.15 WORKSHOP TECHNICAL STAFF

Technical staff are available to give advice on modelmaking theory, practical procedures, and the proper and safe use of workshop machinery and equipment. It is preferred that any contact is made in person but you can also email to our contacts listed below. No bookings are taken remotely so you must come in person to make a machine booking through consultation of your project.



**Scott Miller,**  
Technical Workshop Manager  
Email: [Scott.miller@manchester.ac.uk](mailto:Scott.miller@manchester.ac.uk)



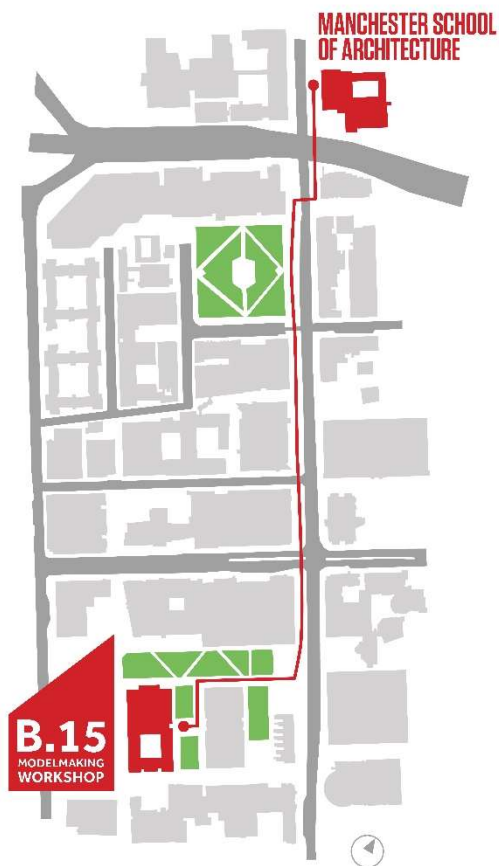
**Lara Gerrard,**  
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**Paulina Voang,**  
Workshop Technician  
Email: [paulina.voang@manchester.ac.uk](mailto:paulina.voang@manchester.ac.uk)



**Teagan Dorsch**  
Workshop Technician  
Email:  
[Teagan.dorsch@manchester.ac.uk](mailto:Teagan.dorsch@manchester.ac.uk)



Route from MTC to B.15

## WHERE IS B.15 MODELMAKING WORKSHOP?

We can normally be found in:

B.15 Modelmaking Workshop  
School of Environment, Education and  
Development,  
**Humanities Bridgeford Street Building,**  
The University of Manchester  
Oxford Road  
Manchester M13 9PL

Or alternatively in our office room 1.02 of  
Humanities Bridgeford Street

Tel 0161 257 6853 or 0161 275 6876  
[www.manchester.ac.uk/b15workshop](http://www.manchester.ac.uk/b15workshop)



Plan of Humanities Bridgeford Street basement showing B.15 & B.12 Annex