



Welding

A proposal to provide a basic welding facility at Bristol Hackspace

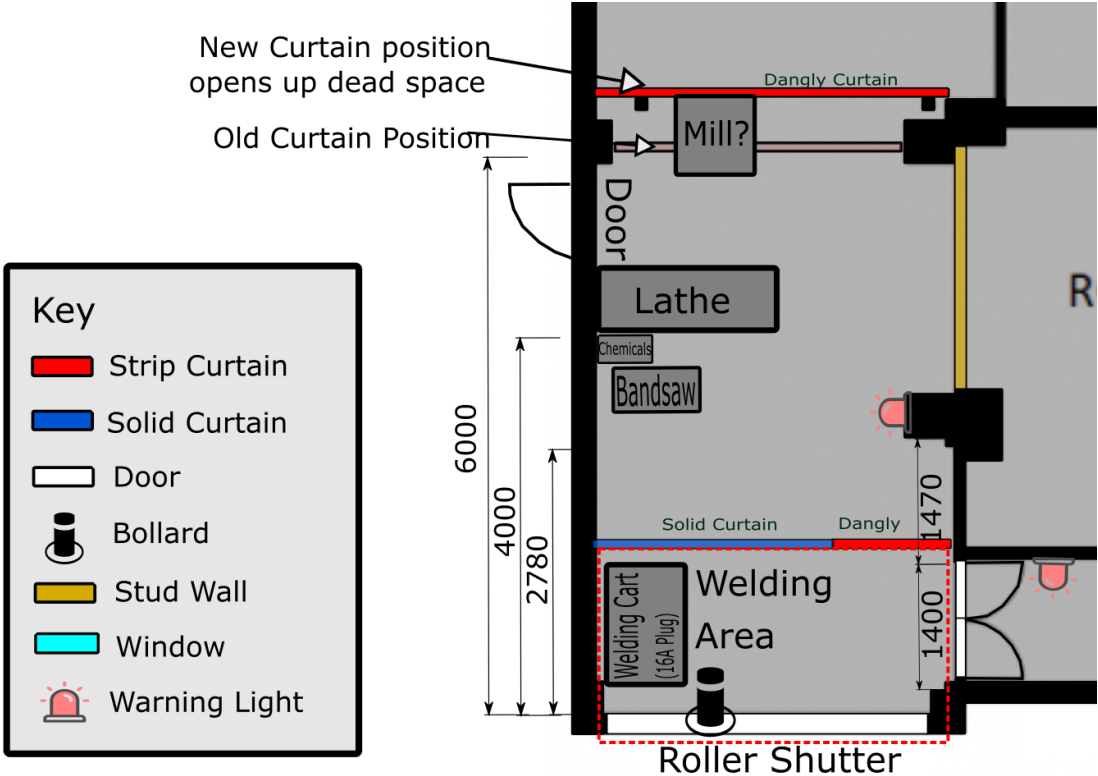
Alex Rowe – Infrastructure Director

Sam Stedman

INTRODUCTION

This proposal seeks to provide a basic welding facility at Bristol Hackspace. As with the first phase of the metal shop build, it is designed to provide the “minimum viable facility” – focusing on introducing welding in a safe and compliant manner, without spending large sums on the latest and greatest technology. Should the desire arise, it will be relatively straightforward to bring in further welding technology and hot works capabilities later.

PROPOSED SPACE LAYOUT



The metal shop is to be subdivided, with a semi-permanent, welding-specific curtain. Although not strictly part of the welding proposal, the diagram shows the red strip curtain moved to the other side of the mezzanine support pillars. This opens up some unused space, which could potentially be home to a future milling machine.

WELDING TECHNOLOGY & SPECIFIC MACHINE

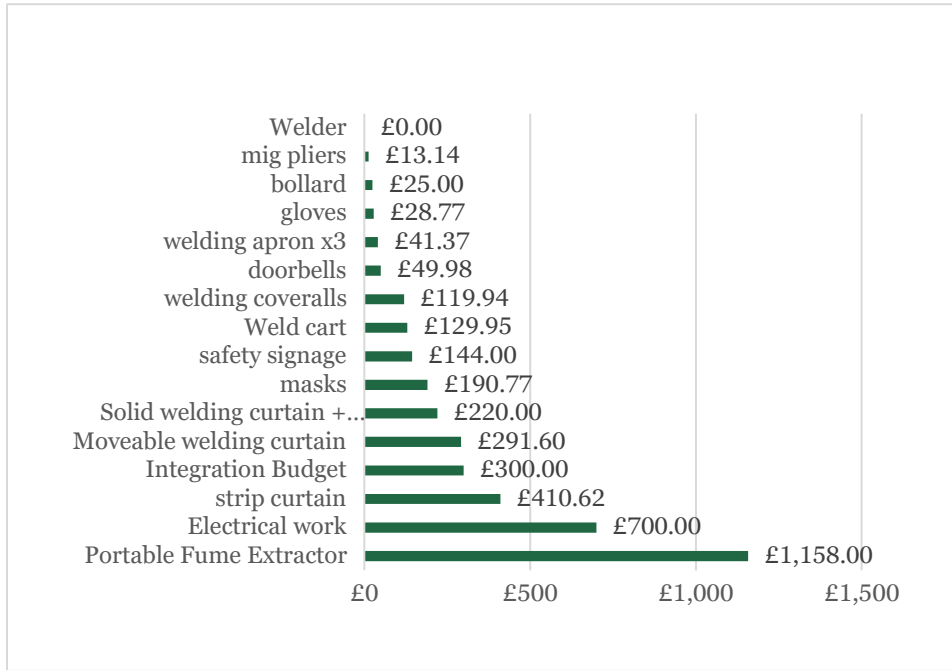


Gasless (flux cored) MIG will be used as it is easy to learn and does not require the storage and management of compressed gasses within the space. The specific welder is a Machine Mart MIG 160EN donated by Fraser Howell. This machine can be used for both gas and gasless MIG welding. Therefore, there is scope for the future introduction of welding gasses.

COSTS

Grand Total

£3,823



The main costs of the project are the fume extractor, electrical work¹ and welding curtains. These are not cheap. However, they will make the addition of future hot works capabilities much easier.

A full breakdown of costs can be found below:



Welding%20costs%20V2.xlsx

¹ The electrical work is a budget for supplies, as specified in section: Electrical work to building.

EXTRACTION & AIR QUALITY



Local Exhaust Ventilation (LEV) will be provided through the purchase of a portable fume extractor.

The roller shutter will be required to be open at all times when welding is taking place, to provide further ventilation.

Users will be required to wear respirators. For hygiene reasons, users will be expected to provide their own (they are inexpensive)

ELECTRICAL WORK TO BUILDING



The welder requires a 16A industrial socket. This will be controlled by a rotary isolator switch, which can be padlocked, restricting access to inducted users. When the isolator is switched on, it will also provide power to two beacons at the entrances to the hot works area, alerting members and visitors to the fact that welding is happening.

The electrical fit-out will be lead by Alex R and Felix H. The final connection to the consumer unit, inspection, test and certification will be performed by a qualified electrician. This is how all the electrical work was done when we first moved into our current building and will provide a significant cost saving.

A budget of £700 has been set for the electrical work. However, it is envisioned that we will come in significantly under budget.

WELDING CURTAINS

A solid curtain, running most of the way across the room, will divide the space semi-permanently (it will be bolted to the floor).

A strip curtain will cover the remaining 1.5m, providing easy pedestrian access.

A moveable curtain will be deployed across the open roller shutter, to shield anyone outside. It can additionally be deployed in the loading bay, so large objects can be welded outside.²

PERSONAL PROTECTIVE EQUIPMENT

Three sets of coveralls, gloves and helmets will be provided, with users expected to provide their own respirator. Users will be expected to bring their respirator to the induction session, to prove that they have bought one.

WORKING ON VEHICLES

During the risk assessment, it was determined that welding vehicles in the hackspace presents too great a fire risk. Therefore, this will be explicitly banned in the induction, and a bollard installed to prevent vehicles being driven in to the space.

² Welding outside is beyond the scope of the current risk assessment. Therefore, a separate one will be completed before welding can take place in the loading bay

RISK ASSESSMENT

A risk assessment has been conducted by Sam S, and amended by Matt G (Director, Health and Safety). This can be found below:



Welding RA