Laser Safety Resource List

Contents:

Note that there will be other suppliers – if you have any useful contact details to add to this list (or if any of the links don't work), please contact the University Radiation Protection Officer.

1. Laser safety standards

The University currently has access to many safety standards via IHS: http://www.ihsti.com/ihsti/index.aspx
Log-in name: unicambridge
password: health

Please contact the Safety Office if you can't find the document you need.

Latest versions of relevant safety standards are also available to borrow from the Safety Office (please contact the Radiation Protection Officer).

Safety of Laser Products – Part 1: Equipment Classification and requirements BS EN 60825-1 (2014), containing product requirements for manufacturers of laser equipment.
The practical "user's guide" is available separately as Safety of Laser Products – Part 14: A User's Guide PD IEC TR 60825-14:2004
www.iec.ch

APPLY ENGINEERING AND DESIGN CONTROLS AS A PRIORITY

2. Commonly used shielding materials

If your department has a workshop, you can ask them to make bespoke shielding, but always ensure shielding is appropriate for the application and securely fixed in place. Contact the Radiation Protection Officer for more information. Purpose-built shielding is also available.

Examples of various types of shielding can be found on any of the websites below, but Thorlabs www.thorlabs.com have some good examples (search for “blackout materials” on the Thorlabs website)

Typical shielding materials:

- Anodised aluminium screens
- Hardboard and posterboard – easily workable but heavy duty construction board – useful if your department does not have a workshop!
- Blackout material
- Black Masking tape to seal joints
- Acrylic (Perspex) or polycarbonate
    - Various types filter out different wavelengths – check with the manufacturer/supplier that the material filters out the wavelength you are using

And ALWAYS Ensure the material will stand up to the power densities that it will be subjected to!

3. Suppliers of laser safety related equipment

Note that there will be other suppliers – if you have any useful contact details to add to this list (or if any of the links don't work), please contact the University Radiation Protection Officer.

Equipment	General comments	Supplier	Contact	Comments and additional information
Eyewear	N.B. Ensure that eyewear conforms to EN 207 or EN 208 & is CE marked	**Laser 2000**	http://www.laser2000.co.uk/safety.htm	Offer a "free laser safety calculation" if you don't know which eyewear to buy
		Lasermet	www.lasersafety.co.uk	Will provide you with appropriate eyewear if you give them the details of your application
Filter material and other shielding materials		**Kentek**	www.kenteklaserstore.com	
		Thorlabs	www.thorlabs.com	Hardboard/posterboard, masking tape and other shielding materials
		Laser Components (UK) Ltd	http://www.lasercomponents.com/uk/	UK distributor for Kentek
		Laser Physics	www.laserphysics.co.uk	
		Laser Optical Engineering	www.laseroptical.co.uk	Can provide purpose built enclosures for laser systems.
Optical equipment, power meters, optics, apertures, etc		**Coherent**	www.cohr.com	
UV/IR viewers, viewing cards, thermo	White card coloured with marker pen may be	**FJW Optical systems inc**	www.fjwopticalsystems.com	Their IR viewers are "good and relatively inexpensive"
		Kentek	www.kentek-laser.com	

sensitive paper for alignment	sufficient	**Thorlabs**	www.thorlabs.com	
		Edmund Optics	www.EdmundOptics.com	Non-laminated detection cards (less reflection) at low cost “Laser-Gard” PVC film and blackout material
Simple beam profiling		**Kodak**		Burn paper for beam profiling. Or any black Polaroid paper, i.e. any overexposed photo will do, insert into a plastic bag to keep the burnt-off bits off clean optics. Beware of reflections from the plastic bag.
		Photonic Solutions Plc	(www.psplc.com)	Linagraph "laser burn" paper in rolls 30mx92mm for £155. Can send a sample, and were knowledgeable and helpful on the phone.
Cameras for remote viewing	May need a 1% or less neutral density filter in front of the camera.	**Maplins**	www.maplin.co.uk 46-48 St Andrews Street, Cambridge	Low cost black and white cameras available (without lens)
				A cheap web cam is often sufficient for viewing visible and near IR lasers
		Electrophysics Corporation	www.electrophysicscorp.com	IR cameras
				Low cost CCTV cameras for security will work for near IR beams
Dust and fume extraction		**Purex**	www.purexltd.co.uk http://www.laserfume.com/	For laser processes which create significant amounts of fume and particulates

Laser pointers	N.B. Only Class 1 or Class 2 laser pointers should be used in the University	**Laserex**	www.Laserex.net	Provide laser pointers, which are labelled to UK standards if requested.
Interlocks	N.B. Must be fail-safe, & satisfy relevant standards	**Lasermet**	www.lasersafety.co.uk	Various types – control systems available
		RS catalogue	http://rswww.com	Components such as micro switches and relays must be fail-safe under single fault conditions
Water detectors	In case of flooding or leaks from water cooling systems, etc	**Aquentis**	www.aquentis.com	A liquid leak detector with visible and audible alarm when in direct contact with liquid
		Zircon (Possibly also available from RS catalogue)	www.zircon.com	"Leak alert" – a water detector that sounds an alarm when in direct contact with water
Flow detectors	In case of loss of pressure in cooling system	**RS catalogue**	rswww.com	Available for monitoring gas or water flow
Gas detectors/ Oxygen depletion monitors		**BW technologies**	www.gasmonitors.com	Oxygen monitors available which detect oxygen concentration and have an oxygen enrichment alarm setting. NB check that the capillary sensor is not affected by Helium.