Photonics and Laser Safety Area Checklist

Bui	ilding Department	Room(s)	C	ont	act F	Person	
Ins	pection Performed by	Date:					
			Y	N	N/A	References	Page 1 of 6
	Administrative and Procedural Contr	ols	-				
1	Laser sign posted on laboratory door (entrance).					OSHA Technical Manual, Section III	
2	Proper warning signs are posted around laser operation.					OSHA Technical Manual, Section III	
3	Access restricted to lab personnel/lab door kept locked.					OSHA Technical Manual, Section III	
4	New lasers have been registered with the Environmental I	Health & Safety Office.				Organizational policy/procedure	
5	Laser made or modified on campus registered with the Er	vironmental Health & Safety Office.				Organizational policy/procedure	
6	Written Standard Operating Procedures (SOP) available (Photonics/laser usage).				OSHA Technical Manual, Section III	
7	Written operating, maintenance and alignment procedures	s kept with laser equipment.				OSHA Technical Manual, Section III	
	Personal Protective Equipment (PPE						
1	Goggles appropriate for the laser used are available and u	used.				29CFR1910.133(a)(2)(i); 21CFR1040	
2	Appropriate goggles are available for visitors.					29CFR1910.133(a)(2)(i); 21CFR1040	
3	Viewing cards for non-visible beam available.					SOP	
4	Class 3 and 4 lasers signage posted to indicate that the u	se of					
	eyewear is required to operate the device.					OSHA Technical Manual, Section III; 21CF	R1040
5	Other appropriate PPE is available for intended use.					29CFR1910.1030(d)(3)(i)	
	Beam Hazard Controls						
1	Protective housing intact and interlocks tested, or alternative co	ntrols reviewed by PI and stated in SOP.				OSHA Technical Manual, Section III	
2	Access to laser is controlled to prevent accidental exposure to the	ne laser beams by posting or controlling					
	the entrance.					OSHA Technical Manual, Section III	
3	Laser controlled areas posted and equipment labeled with	approved signs and labels.				OSHA Technical Manual, Section III; 21CF	R1040
4	Are windows and ports, which could allow a laser beam to stu	ray into uncontrolled areas covered or					
	protected during laser.					OSHA Technical Manual, Section III	
5	Beam stops present at end of all beam paths.					OSHA Technical Manual, Section III; 21CF	R1040
6	Barriers/screens (if present) are designed to withstand eit beams.	her direct or diffusely scattered				OSHA Technical Manual, Section III; 21CF	R1040
7	No exposed wiring or electrical circuits; device proper dee	nergized.				29CFR1910.147	

Building	Department	Room(s)	Contact Person
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		Y	Ν	N/A	References	Page 2 of 6
	Pre-check operations					
1	Protective eyewear is appropriate for laser operation and is clean/ free of damage					
2	All beams traced and dumped					
3	Optical bench free of unnecessary reflective items					
4	Beam path enclosed where possible					
5	If beam crosses walkway, are barriers posted, i.e., is a rope or chain placed across path during operation					
6	Written Standard Operating Procedures (SOP) available					
7	Written operating, maintenance and alignment procedures kept with laser equipment					
	Operational usage - controlled non-beam hazards					
1	Metallic fumes					
2	Chemical Vapors					
3	Biological Plume					
4	Fire Hazard					
5	Explosive Hazard					
6	Compressed Gases in use					
7	Laser dyes in use					
8	Noise					
9	UV					
10	Ionizing radiation(x-rays)					
11	Electrical					
	Thermal					
13	Exhaust ventilation adequacy					

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		Y	Ν	N/A	References	Page 3 of 6
Ch	emical Storage & Safety					
1	Chemical containers properly labeled or tagged.				29CFR1910.1200(f)(6) & 19	10.1450(h)(1)(ii)
2	Chemicals segregated and stored by compatibility.				NFPA 45:8.2.4.2	
3	Peroxide formers dated at purchase and again upon opening.				NFPA 45:13.4.2	
4	Peroxide formers disposed of within proper time frames.				NFPA 45:13.4.2	
5	Secondary containment used where appropriate.				40CFR261.175	
6	Vacuum equipment trapped and/or filtered.				OSHA General Duty Clause	, Section 5(a)(1)
7	Chemical storage areas free of ignition sources.				29CFR1926.152(i)(2)(viii)(E)
8	Refrigerators/Freezers properly labeled.				NFPA 45	
9	Refrigerators/Freezers properly rated if flammable liquids are stored within.				NFPA 45:11.3.2.1	
10	Fume hoods and/or biosafety cabinets not used for general storage.				NFPA 45:8.2.4.7	
11	Cryogenic materials stored properly and proper PPE available.				29CFR1910.138 (Hand Prot	t.)
12	Flammable liquids in containers over 4 L are in approved safety cans.				29CFR1910.106(d)(2)(i)	
13	Corrosive storage cabinet used if more than 10 gal of corrosives present.				29CFR1910.106(d)(3)(i)	
14	Chemicals purchased in amounts that can be used within a reasonable time.				NFPA 45:12.3.1.1	
15	Chemical stocks purged of old, outdated, and unusable chemicals.				NFPA 45:13.4.2	
16	Chemical inventory up to date.				40CFR704(Reporting & Rec	cord Keeping)
Со	mpressed Air and Compressed Gases					
1	Air compressors equipped with pressure gauges and pressure relief valves.				29CFR1910.101(c)	
2	Compressed hoses (piping, fittings, etc.) shall be removed from service if				29CFR1926.350(f)(3)	
	defective.					
3	Compressed air 30 psi or less for machine/parts cleaning.				29CFR1926.302(b)(4)	
4	Compressed air cleaning nozzles with chip/particle deflection device.				29CFR1926.302(b)(4)	
	Gas cylinders w/30 lb. or more water capacity have valve protection capability.				29CFR1910.253(a)(4)(b)(iv)	
6	Gas cylinders legibly marked as to their contents.				29CFR1910.253(a)(4)(b)(ii)	
7	Gas cylinders stored away from high heat, flames, etc.				29CFR1910.253(b)(2)	
8	Gas cylinders stored in secure area and secured from tipping or falling.				NFPA 45:10.1.5.1 & 29CFR	1926.350(a)(7)
9	Gas cylinders transported on special carts/regulators removed/ and protected.				29CFR1926.350(a)(6)	
	When in use, gas cylinders kept away from elevators, stairs, and ramps.				29CFR1926.350(a)(11)	
	Valve protectors used when cylinders not in use or when being transported.				29CFR1926.350(a)(1)	
12	Liquefied gas cylinders (acetylene) always shipped and stored valve-end up.				29CFR1926.350(b)(3)	

Buil	ding Department Room(s)C	Contact Person		erson		
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13	Proper type of regulator used for type of gas cylinder in use.				29CFR1910.101(c)		
14	Gas cylinders, valves, couplings, regulators kept free of oil and g	grease.			29CFR1926.350(i) & 29CFR1910.2	53(b)(5)	
15	Gas cylinders lacking obvious defects, leaks, damage, etc.				29CFR1926.350(c)(3)		
16	Gas cylinders hydrotested at appropriate intervals.				49CFR173.40(d)(2)		
17	Empty gas cylinders labeled "Empty," valves closed, and caps o	n and stored.			29CFR1926.350(a)(8)		
18	Oxygen and Acetylene in storage are separated by 5' noncombu	stible barrier.			29CFR1926.350(a)(10)		
Haza	ardous Waste & Materials Disposal and Recycling						
1	Waste storage areas (bins, totes) designated.				40CFR261.172		
2	Waste containers properly labeled (chemical components, amou	ints, etc.).			NFPA 45:13.4		
3	Waste containers compatible with waste to be stored.				NFPA 45:9.1.1		
4	Only compatible chemical wastes stored in the same container.				NFPA 45:8.2.4.2		
5	Waste containers kept closed except when adding waste.				40CFR265.173(a)		
6	Waste containers stored compatibly.				NFPA 45:8.2.4.2		
7	Fluorescent, HID, Mercury vapor lamps proper waste managem	ent used.			40CFR273.13(d)		
8	Used oil collected and recycled properly.				40CFR279.22 & 40CFR279.24		
9	Non-alkaline batteries (lead acid, Ni-cad, silver, etc.) managed p	roperly.			40CFR273.13(a)		
10	Mercury containing devices (thermostats, barometers, etc.) man	aged properly.			40CFR273.13(c)		
11	Electronic devices, (monitors, TVs, circuit boards, etc.) managed	d properly.			40CFR273.13(c)		
12	Biohazardous materials & animal carcasses managed & dispose	ed properly.			HHS Publication (CDC)21-1112 (12	/2009)	
Man	uals, Training, SOPs, SDSs, Occ. Health						
1	Appropriate safety manual(s) available.				29CFR1910.1450(e)(2)		
2	Standard Operating Procedures & Safety Data Sheets readily av	vailable.			29CFR1910.1450(e)(3)(i) & 1910.12	200(g)(11)	
3	Applicable initial/refresher training completed.				29CFR1910.1450(f)(1)		
4	Personnel in occ. health program, if required.				29CFR1910.1450(e)(3)(iii)		
Safe	ety Equipment and Emergency Preparedness						
1	Eyewash & safety shower shall be available.				29CFR1910.151(c)		
	Eyewash & safety shower unobstructed and inspected as requir				ANSI/ISEA Z358.1 - 2014 {7.5.5. &	4.6.5.}	
3	Fume hoods, biosafety cabinets, glove boxes, properly located a	and certified.			29CFR1910.1450(e)(3)(iii)		
4	Appropriate spill control kit available and stocked (Chem, Rad, E	Bio).			29CFR1910.151(b)		
5	Spill & accident reporting procedures understood by lab personr	el.			29CFR1910.120		
6	Appropriate first aid kit available and stocked.				29CFR1910.151(b)		
7	Emergency contact information posted by entrance (and by pho	ne if present).			29CFR1910.1450 App A. <i>D</i> . (Signs)		
8	Laboratory under negative pressure in relation to other areas.				HHS Publication (CDC)21-1112 (12	2/2009)	

Bui	lding Department	Room(s)	C	ontact F	erson		
Ins	Inspection Performed by Date:						
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Ele	ctrical Safety		Y	N N/A	Keler	rences	Page 5 of 6
	Extension cords are not used as permaner	nt wiring.	TT	- T	NFPA 70		
	Extension cords and power strips not daisy					3(b)(2), 1926.403	3(b)(2)
	Electrical cords not under carpets/rugs, thr				NFPA 70		
	Multi-outlet power strips are UL listed and I				UL1283		
5	Power cords are in good condition with no	splices or broken insulation.			29CFR1926.40	5(a)(2)(ii)(I)	
6	Grounding prongs not removed from 3-way	/ plugs.			29CFR1926.40		
7	Outlet, switch and junction box covers are	in place and in good repair.			NFPA 70E: 215	.1	
8	Circuit breaker panels and emergency shu	t offs unobstructed and labeled.			NFPA 70E: 205	.8, 205.10 & 205	5.11
9	Electrical outlets not overloaded with applia	ances, i.e. splitters used.			29CFR1910.304	4(b)(4)	
10	Ground Fault Interrupters installed, labeled	and operating correctly.			29CFR1910.304(g)(6)(vi)(c)(5);NFF	A 70,210.8(A)&(B)
11 Energized parts, circuits, and equipment guarded against accidental contact.					NFPA 70E: 205	.6	
Fire	Prevention and Protection						
1	Fire extinguishers properly mounted, locate	ed, and identified.			29CFR1910.15	7(a)(1)	
2	Fire extinguishers adequate in number and	l type.			29CFR1910.15	7(a)(4)	
3	Fire extinguishers inspected, recharged, ar	nd maintained as required.			29CFR1910.15	7(a)(1)	
4	Fire aisles, exit ways, stairways, and fire ed	quipment kept unobstructed.			29CFR1910.36	(b)(1) & 36(b)(4)	
5	Exit lights properly illuminated and emerge	ncy lighting operable.			29CFR1910.36	(b)(2)	
	Fire doors not blocked open or are on mag				NFPA 105: 5.5		
7	Flammable liquids stored in approved safe	ty cans.			29CFR1910.106	6(d)(2)(i)	
	Flammable liquid containers kept closed w				29CFR1910.106	6(e)(2)(ii)	
9	Flammable liquids of 25 gallons or more st	ored in flammable storage cabinet.			29CFR1926.15	2(b)(2)	
	Flammable storage cabinets labeled "Flam				29CFR1926.152		
11	Connections on drums and combustible liq	uid piping leak free.			29CFR1910.10		
12	Flammable liquid drums grounded and bon	ded to containers when dispensing.					R1926.152(e)(2)
	Proper storage of flammable/combustible n				29CFR1910.10	6,152; NFPA 30,	45
	Fire extinguishers undergone annual maint				29CFR1910.157		
	No penetrations through walls or ceilings a				101	·	10.37(a)(4); NFPA
16	Sprinkler heads clean and no storage withi sprinklered)	n 18 inches (24 inches non-			NFPA13: 8.6.6.	1	
17	Sprinkler heads protected by metal guards	when exposed to physical damage.			NFPA13: 6.2.8		

Bui	Iding Department	Room(s)	Contact Person		erson		
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Ger	neral & Miscellaneous Safety						
1	Hand washing sink, soap and towels available.				29CFR19	010.141(d)(2)(iii) & ((iv)
2	Sink faucets with backflow device or attached hoses a	above sink rim.			HHS Pub	lication (CDC)21-11	12 (12/2009)
3	Heavy objects stored below 5 ft. unless secured and	stepladder provided.			OSHA 22	36	
4	Stepladder or stepstool available & in good condition	for high storage access.			29CFR19	26.1053(a)(1)(i)	
5	Appropriate signs posted (First aid kit, safety shower,	fire extinguisher, etc.).			29CFR19	10.145	
6	Proper handling & disposal of broken glass & sharps.				HHS Pub	lication (CDC)21-11	12 (12/2009)
7	Batteries charged in properly ventilated area away fro	m sparks and flames.				26.441(a)(1)	
8	Work practices observed during inspection done safe	ty.			University	/ Safety Policy & Pr	ocedures
9	No food or beverages unless adequately separated fr	om hazard areas.				lication (CDC)21-1 [,] 10.141(g)(2)	112 (12/2009);
10	Benchtops impervious to water and resistant to chem	icals.			OSHA 34	.04	
	Lab furniture is appropriate for loading and use.				OSHA Ge	eneral Duty Clause,	Section 5 (a)(1)
Ger	neral Work Environment & Indoor Air Quality						
1	All areas properly illuminated. Glare and reflections a	voided.			29CFR19	26.56	
2	Noise levels are within acceptable limits or engineering	g controls established.			29CFR19	10.95(c)	
3	Areas with high noise levels posted and hearing prote	ection required to be used.			29CFR19	10.145	
4	Work areas clean, sanitary, and orderly. (garbage dis	posed properly, etc.)			29CFR19	10.141(a)(3)(ii)	
5	Work area properly ventilated for type of equipment o	r chemicals in use.			29CFR19	10 Subpart G	
6	Vacuum systems used when possible instead of blow	ing or sweeping dusts.			NFPA 65	4,61,484,664 & 655	5
7	Temperature and humidity seem to be within accepta	ble ranges.			OSHA 34	30-04 (2011)	
8	Areas free of visible fungal/mold growth and associate	ed odors.			OSHA 33	04-04N (2006)	
9	Walls ceilings, floors free of signs of mold or moisture	damage.			OSHA 33	04-04N (2006)	
10	Air intake areas free of odor causing materials or haz	ardous chemicals.			OSHA Te	chnical Manual, Se	ection III: Ch. 2
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