LCLS Room Data Sheet #	1.9-1026	Near Experimental Hall (NEH) - Machine Shop	Revision 2

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REVISION INFORMATION

Rev 2. Added layout, deleted emergency power, added demand diversity

Added requirements for sink

ROOM DATA SHEETS

System Manager: Stefan Moeller/John Arthur

FACILITY COMPONENT	MACHINE SHOP (NEH) - ROOM DATA SHEET			
	Name of Building	Machine Shop (NEH)		
	Organization or Department	SLAC, Stanford University		
	Net area	97.4	sq. meters	1,048 sf
	Critical dimensions	**H:**	3.66 m	12'-0"
		W:	Irregular shape (42'x23' and 8'x 10.6')	24'-7"
		L:		32'-9"
	Hours of operation	Operate during normal business hours		
	Users/Occupancy	Machinists using machine shop tools and equipment used for the maintenance of existing equipment and for the construction of custom-designed equipment used in the Laser Labs and Bay.		
	Building orientation	Machine Shop is located directly adjacent to the exterior Service Dock on the NEH basement level.		
FUNCTIONAL OBJECTIVE	To provide a machine shop equipped with the appropriate shop tools necessary to support the maintenance and construction needs of the facility.			
PLANNING CONSIDERATIONS & CRITICAL FACTORS				
FINISHES	Wall	Painted reinforced concrete, framed gypsum board assembly		
	Ceiling	Reinforced concrete, painted surface		
	Floor	Epoxy floor coating		
	Base	Rubber base .		
	Doors	Pair of 3ft wide by 7ft high insulated exterior narrow light hollow metal door.		
	Fenestrations	None		
	Acoustical	Perimeter walls are to be constructed with sound attenuation batts to prevent the shop noise from disturbing the adjacent labs.		
APPLICABLE STANDARDS	29 CFR Part 1910 Occupational Safety and Health Standards Dept of Labor, 29 CFR Part 1926 Safety and Health Regulations for Constructions Dept of Labor, Uniform Building Code (UBC) 1997 including appendixes, National Electric Code (NEC) 2002, Uniform Mechanical Code (UMC) 2003 including appendixes, Uniform Plumbing Code (UPC) 2003 including appendixes, Uniform Fire Code (UFC) 1997 including appendixes, California Code of Regulations Title 8 Industrial Safety, Title 19 Public Safety, NFPA 70 National Fire Codes, National electrical Safety Code ANSI C2, Occupational Safety and Health Act (OSHA), General Services Administration 41 CFR part 101-19, Environmental Protection Agency 40 CFR Parts 264 and 265, SLAC Environmental Safety & Health Manual, General Industrial Activities Storm Water Permit (SLAC Permit), NFPA 101 life Safety Code, Title 24, DOE standard 10 CFR Part 435, ASHRAE/IES Standards 90.1, NFPA Standard 13 and SLAC Fire Marshal requirements, LCLS Cabling Standard, SLAC LOTO			

VIEWS & SCHEMATICS (N. T. S.)	See Figure

9.11 LIST OF SHOP EQUIPMENT		Equipment			Watts/Voltage	Nos.
University Provided Equipment-FOR REFERENCE ONLY		1	over head crane capac. 1000-2000lbs			
		3	Bridgeport milling machine (2 axes CNC Controls)			
		1	4 axes CNC milling machine (compl parts)			
		2	lathes (Hardinge toolroom lathe) small high prec.			
		1	16-20in. Swing lathe formlarger parts			
		1	bandsaw			
		1	cutoff saw			
		1	beltsander			
		1	pdestal 6-8 in. wheel grinder			
		1	diamond wheel grinder			
		1	drill press			
		1	shear for sheet metal			
		1	break for sheet metal			
		1	Tig welder station			
		1	Wire EDM			
		1	punch			
			cabinets for storage			

	Other	Equipment		Watts/Voltage	Nos.

MECHANICAL REQUIREMENTS	HVAC					
		☒	Heating system	Temp:	☐	Mechanical humidification
		☒	Air conditioning	Temp: 72 degrees F+- 3 degree F	☒	Direct exhaust system
		☐	Direct supply		☐	Positive pressure system
		☐	Indirect supply		☐	Negative pressure system
		☐	Smoke control system		☐	Standard registers
		☒	Temperature sensors to connect to SLAC's DDC system		☐	Requirement for gases
		Centralized Mechanical Utilities: a - Compressed air line installed at perimeter of the room for future machinery (20 SCFM/each location, 100 psig) at 10 ft apart.			Make provisions for openings for an independent exhaust system for machinery. (see figure for location)-Locate at 12 Ft AFF	
	Communications	☒	Telephone- 2 phone lines/location-see diagram		☐	PA speakers
		☒	Telephone- 2 phone lines/location-see diagram		☐	PA station
		☐	Payphone		☐	CCTV camera
		☒	Fire alarm station		☐	CCTV monitor
		☐	Intercom			
		Comments:				
	Plumbing/Fire Protection	☒	Hot water system		☐	Electric watercooler
		☒	Cold water system		☐	Drinking fountain
		☐	Tempered water		☒	Smoke detection system
		☐	Waste drain		☒	Standard sprinkler heads
		☒	Floor drain		☒	Eye wash
		☐	Trench drain			
		Comments: Provide a floor mounted utility sink with combined eyewash				

ELECTRICAL REQUIREMENTS	**Power supply**	☐	208volts 1ph , 3 ph outlets	☐	Uninterrupted power supply	
		☒	110Volts 1ph outlets	☐	Special electric	Type:
		☐	Emergency power			
		Comments: a) Double duplex receptacles spaced 10 ft apart along perimeter of the room 110V (light, CNC) at least 10 outlets b) One 480 Volts, 3 phase, 100 amps, for welder/utility outlet. c) Provide one panel, 208-120 volts, 3 ph, (one "dirty" power). Panel shall have a main breaker. Provide panel with 42 circuits and breakers Capacity of panel: 225 amps- Demand diversity: 80%				
	Lighting	☒	Light fixtures - pendant suspended florescent shop lighting with protective cage.	☐	Remote lighting control	
		☐	Fixture type I: Downlight	☒	Light switches	
		☐	Fixture type II: Bollard (exterior)	☒	Lighting level	FC: 75
		☒	Emergency lighting			
		Comments: 1- All conduits are surface mounted.				
RADIATION/SEISMIC/VIBRATIONS ISSUES	**Comments:** 1- All equipment (HVAC, panels, etc) and systems are to be seismically braced and restrained per SLAC's seismic Standards and Code.					
SPECIAL REQUIREMENTS FOR EQUIPMENT	**Comments:**					

CHEMICALS / GASES	CHEMICALS			SPECIALTY GASES		
	#	Chemical Type	Quantity	#	Gas Type	Quantity
ENVIRONMENTAL NEEDS						

Figure No. 1

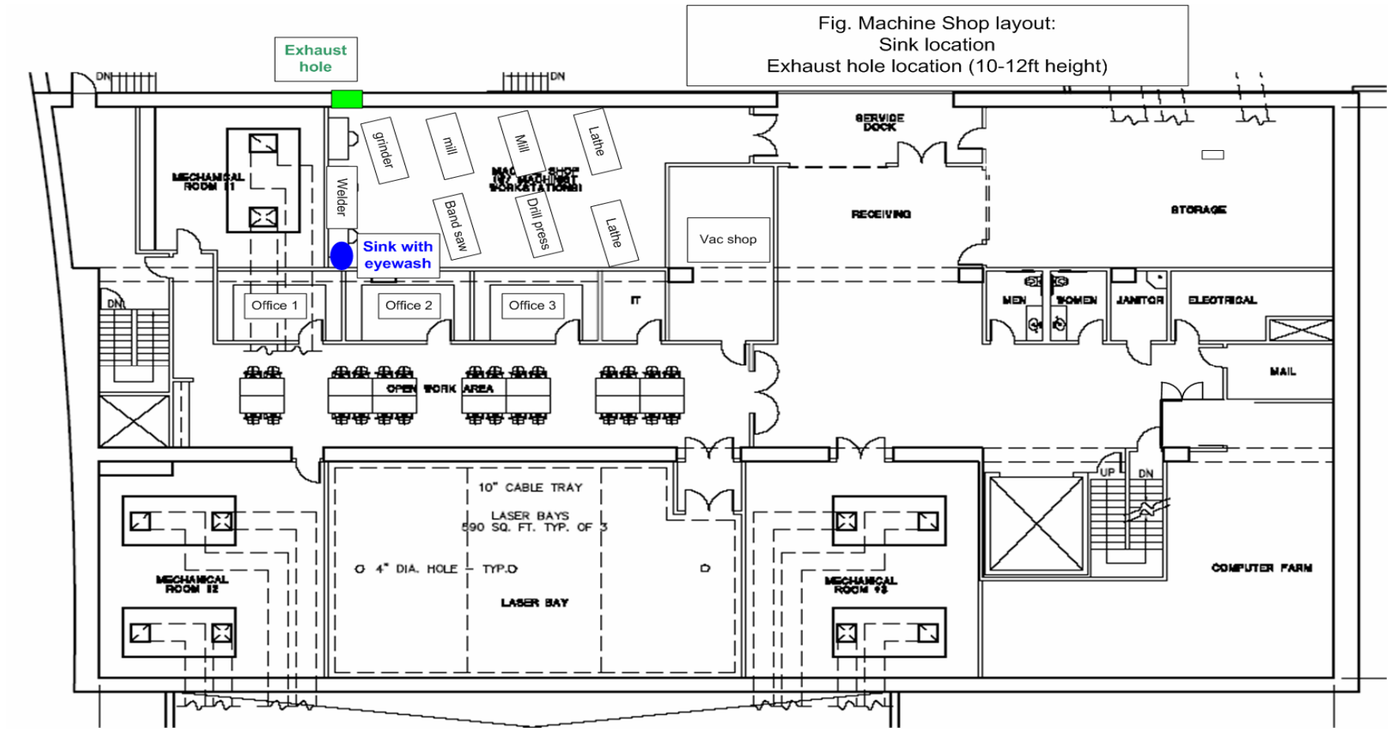
Fig. Machine Shop layout:
Sink location
Exhaust hole location (10-12ft height)
Exhaust hole
DN
DN
grinder
mill
Mill
Lathe
Welder
Band saw
Drill press
Lathe
Sink with eyewash
Vac shop
SERVICE DOOR
RECEIVING
STORAGE
MECHANICAL ROOM #1
Office 1
Office 2
Office 3
IT
MEN
WOMEN
JANITOR
ELECTRICAL
MAIL
OPEN WORK AREA
10" CABLE TRAY
LASER BAYS
590 SQ. FT. TYP. OF 3
4" DIA. HOLE - TYP.
LASER BAY
MECHANICAL ROOM #2
MECHANICAL ROOM #3
UP
DN
COMPUTER FARM