LCLS Room Data Sheet #	1.9-1030	Near Experimental Hall - Computer Farm	Revision 2

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REVISION INFORMATION

Rev 2. Added figure with room layout, location of HVAC unit, extended/modified room entry,
Added wet sprinkler system, updated Standards and Codes- Changed room temperature set point

ROOM DATA SHEETS **System Manager: Stefan Moeller/John Arthur**

FACILITY COMPONENT	COMPUTER FARM - ROOM DATA SHEET				
	Name of Building	Computer Farm- NEH			
	Organization or Department	SLAC, Stanford University			
	Net area	89.8	sq. meters		966 sf
	Critical dimensions	**H:**	3.66 m		12'
		W:	(irregular shape 14'x43' and 21'x17')		43'
		L:			21'
	Hours of operation	24/7/365			
	Users/Occupancy	One occupant during service and maintenance periods			
	Building orientation	The Computer Farm is located directly adjacent to the Freight elevator and exit stair on the southeast corner of the NEH basement level.			
FUNCTIONAL OBJECTIVE	To provide a room dedicated for the placement of the large numbers of servers and racks required to store the active data needed for the operation of this facility.				
PLANNING CONSIDERATIONS & CRITICAL	Computer Farm shall be provided with 100% dedicated HVAC system to remove the heat dissipated from servers. Reliability of the HVAC system shall be at least 0.999. Computer farm shall have a raised floor assembly to provide the cold air to the room.				
FINISHES	Wall	Painted reinforced concrete, framed and painted gypsum board assemblies			
	Ceiling	Acoustical drop ceiling (for ducted return)			
	Floor	ESD (electrostatic discharge) - conductive or dissipative - flooring Tie into building grounding system. Epoxy painted concrete			
	Base	ESD floor covering turned vertically providing an integral base / floor.			
	Doors	Pair of 3ft wide by 7ft high insulated hollow metal door with 1/2 windows. Provide card key reader for access			
	Fenestration	NA			
	Acoustical	Perimeter walls are to be constructed with thermal insulation batts.			
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-Energy Code, 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.)	

MECHANICAL REQUIREMENTS	HVAC						
		☒	Heating system	Temp:	☒	Mechanical humidification	
		☒	Air conditioning	Temp: 68 degrees F+/- 2 degree F	☐	Direct exhaust system -	
		☐	Direct supply		☒	Positive pressure system-slightly+0.02"	
		☐	Indirect supply		☐	Negative pressure system	
		☒	Smoke control system		☐	Standard registers	
		☒	Temperature Control connected to DDC system		☐	Requirement for gases	
	Estimated average equipment heat load to the room is: **100 watt/sq. ft**	a. Dedicated HVAC system (Preferably located in adjacent mechanical room, if not possible see figure) to maintain 68F, ± 2F, 50% RH ± 5%. Provide 100% redundant HVAC system (back-up) b. Raised floor supply air to distribute cold air in front of the servers c. HVAC system to be connected and monitored to SLAC's Energy Management System (EMS) d. Filtered air min 45% per ASHRAE Std.52			1- ASHRAE Thermal Guideline for Data and Other Data Processing Environment		
	Communications	☒	Telephone- 2 phone/location-see diagram		☐	PA speakers	
		☒	Data port- 2 outlet/location-see diagram		☐	PA station	
		☐	Payphone		☐	CCTV camera	
		☒	Fire alarm station		☐	CCTV monitor	
		☐	Intercom		☐		
		Comments:					
	Plumbing/Fire Protection	☐	Hot water system		☐	Electric water cooler	
		☐	Cold water system		☐	Drinking fountain	
		☐	Tempered water		☒	Smoke detection system	
		☐	Waste drain		☒	Wet Sprinkler system	
		☐	Floor drain		☐	Eye wash / Safety shower	
		☐	Trench drain				
		Comments: Provide a clean"dry-agent" fire suppression system for this room in addition to sprinkler heads.					

ELECTRICAL REQUIREMENTS	**Power supply**	☐	208-230 V 1 ph	☐	Uninterrupted power supply	
		☒	110V- 1 ph outlets, 20 amps-	☒	Special electric-See below	Type:
		☐	Emergency power	☐		
		Comments: a) Two (2) dedicated electrical panels 225 amps/each,120-208 volts Y-3 phase, minimum 42 circuits each-Provide 20% spare space-Clean power- 100% diversity b) Provide one quad outlet (double duplex) every 10ft along the walls, 120 volts, 1 phase, 20 amps				
	Lighting	☒	Light fixtures - 2'x4' suspended fixtures	☐	Remote lighting control	
		☐	Fixture type I: Down light	☒	Light switches	
		☐	Fixture type II: Bollard (exterior)	☒	Lighting level	FC: 50
		☒	Emergency lighting			
		Comments: 1- All conduits are surface mounted.				
RADIATION/SEISMIC/VIBRATIONS ISSUES	**Comments:** 1- All equipment, racks and systems are to be seismically braced and restrained per Code.					
SPECIAL REQUIREMENTS FOR EQUIPMENT	**Comments:** Provide a clean"dry-agent" fire suppression system for this room					

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

ENVIRONMENTAL NEEDS							
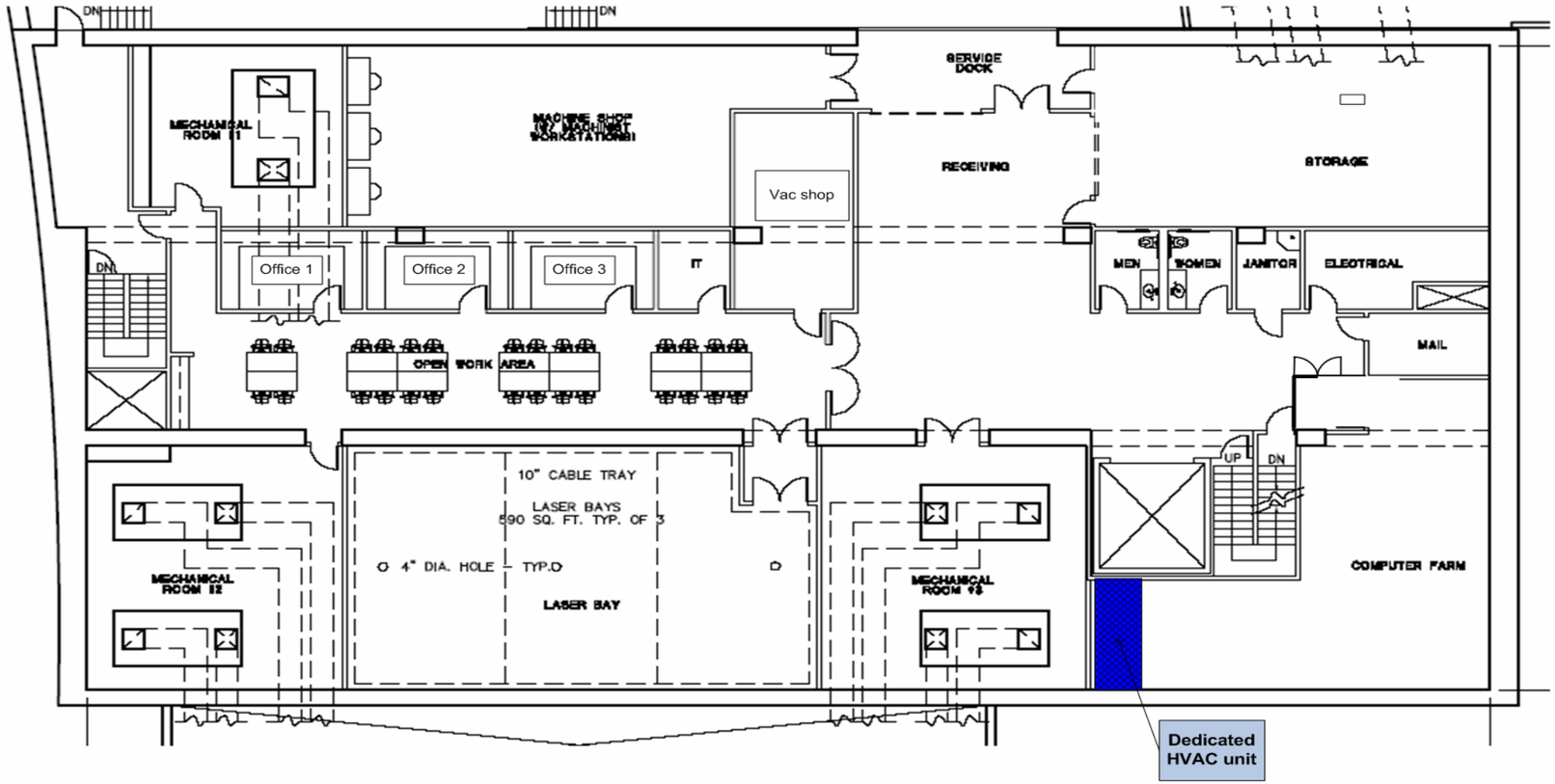
Fig. Computer Farm: NEH Basement