LCLS Room Data Sheet #	1.9-1012	Undulator Hall (UH) - Service Building #2	Revision 2

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REVISION INFORMATION

Rev 2. Updated distance for first cable penetrations and distance between penetrations. Added diversity factor for power.

Added figure for power plan. General delitions. Changed lighting level

Added requirements for electrical panel for utility outlets in UH Hall

ROOM DATA SHEETS **WBS and System Manager: Steve Milton/Dave Schultz**

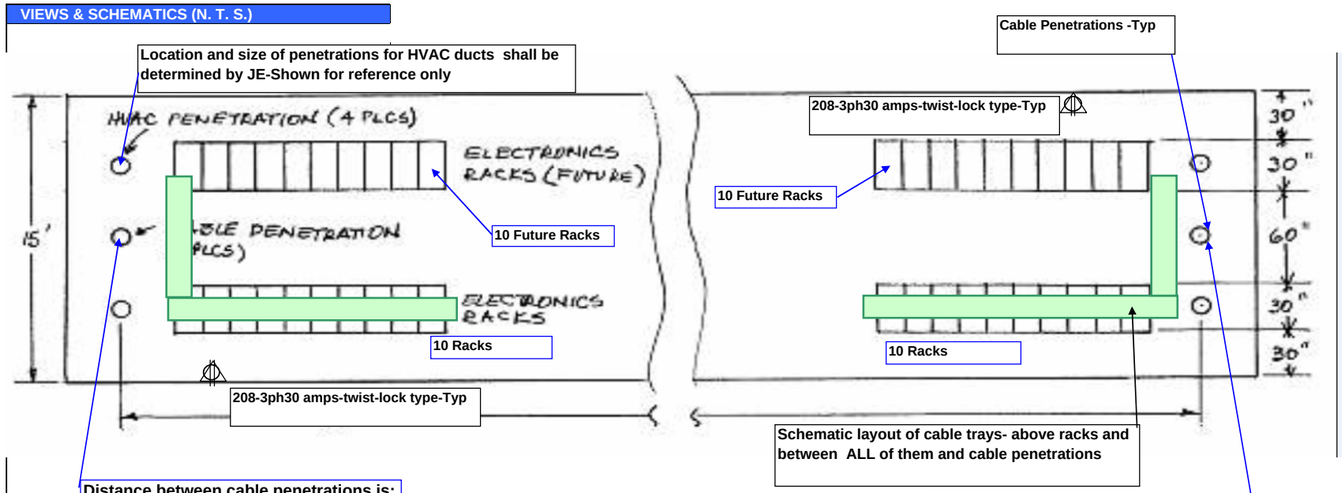
FACILITY COMPONENT	SERVICE BUILDING "2" UNDULATOR HALL		
	Name of Building	Service Building "#2"-Undulator Hall	
	Organization or Department	SLAC, Stanford University	
	Net area	123 sq. meters	1323 sq. ft
	Critical dimensions	**H:** 3.66 m	12'
		W: 4.57 m	15 ft min
		L: ~27 m	~88 ft
	Hours of operation	Facility is locked 24/7/365 (periodic maintenance only)	
	Users/Occupancy	Only during service and maintenance periods	
	Building orientation	West to east above the Undulator hall-tunnel	

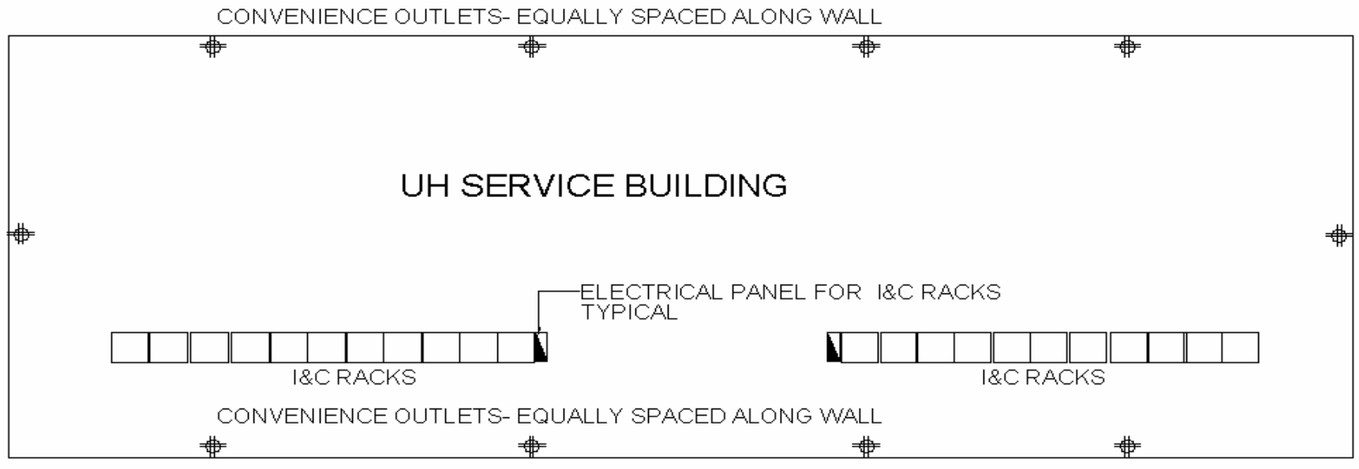
FUNCTIONAL OBJECTIVE	Service Building # 2 is to house the equipment use to power and control the undulator components. Including, rack mounted diagnostic equipment and free standing power supplies to run/monitor magnets and other equipment.
PLANNING CONSIDERATIONS & CRITICAL FACTORS	a) Placement of building and penetrations must minimize the maximum cable run lengths (including within said building) in housing of 150' in both upstream and downstream directions. The HVAC and cable penetrations shall comply with all radiation physics requirements. b) Provide floor space for tempered water chillers which provide cooling to electromagnets. QTY: TBD, Dimensions: TBD. SLAC furnished chillers

FINISHES		
		Corrugated steel, insulated, painted surface (SLACHome Spun brown exterior)
	Ceiling	Corrugated steel, insulated
	Floor	Epoxy sealed concrete
	Base	Rubber
	Doors	Two pair of personnel doors 3' x 7' with small window (locate at each end of building), 1 roll-up door (12' W x10'' H) centered for equipment access.
	Fenestrations	None
	Acoustical/Thermal	None

APPLICABLE STANDARDS
29 CFR Part 1910 Occupational Safety Health Standard Dept of Labor, 29 CFR Part 1926 Safety and Heath regulations for Construction Dept of Labor
Uniform Building Code (UBC) 1997 including appendixes, National Electrical Code (NEC) 2002,
2003 Uniform Mechanical Code (UMC) including appendixes, 2003 Uniform Plumbing Code (UPC) including appendixes,
Uniform Fire Code (UFC) 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 Health Act (OSHA), General Services Administration 41 CFR part 101-19,
Environmental Protection Agency 40 CFR Parts 264 and 265
Fire Marshall requirements, LCLS Cabling Standard, SLAC LOTO
SLAC Environmental safety and Health Manual, General Industrial Activities Storm Water Permit (SLAC Permit), NFPA 101
Life Safety Code, Title 24 Regulations for Energy Code (Part 6), DOE Standard 10 CFR Part 435, ASHRAE/IES Standard 90.1, NFPA Standard 13 and SLAC LOTO

VIEWS & SCHEMATICS (N. T. S.)





SCHEMATIC POWER PLAN LAYOUT-
NOT TO SCALE

MECHANICAL REQUIREMENTS	**HVAC**	☒	Heating system	Temp:	☐	Mechanical humidification	
		☒	Air conditioning	74 F	☐	Direct exhaust system	
		☐	Direct supply		☒	Positive pressure system-slightly 0.01"	
		☐	Indirect supply		☐	Negative pressure system	
		☐	Smoke control system		☐	Standard registers	
		☒	Temperature sensors connected to SLAC's DDC system		☐	Requirement for gases	
		List of Gases - NONE			**Comments:** a) HVAC - Space Temperature shall be designed for +/-5 degree F control. No relative humidity control is required b) HVAC penetrations, diameter and size-TDB by JE. Shelter for HVAC equipment per JE design criteria. c) Locate HVAC equipment closer to penetrations and ducting to be run from equipment room through building d) Average Heat rejected load per single rack: 2 kw		
	Communications	☒	Telephone- One phone line at two location		☐	PA speakers	
		☒	Data port- 2 outlets-two location per building		☐	PA station	
			Payphone			CCTV camera	
		☒	Fire alarm station		☐	CCTV monitor	
		☐	Intercom				
		Comments: a) Telephone stations are for maintenance & emergency use only. Locate one data and phone outlet at each end of the building. b) Two cable penetrations (24" diameter) located centerline of the building and at either side. Refer to Figure c) Two (24" wide) cable trays above the I&C racks to be installed with at least 20" vertical clearance. Cable trays shall be 6" deep for I&C cables and control cables for DC racks, and 4" deep for cables for DC racks.					
	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	
		☐	Trench drain				
		Comments: If needed locate sprinkler riser in the mechanical room (or outside the building) but not in the area where the I&C racks will be installed					

ELECTRICAL REQUIREMENTS	**Power supply**	☒	208 Volts, 3 phase-outlets-See comments below	☐	Uninterrupted power supply	
		☒	110V outlets -See comments below	☒	Special electric	Type:
			Emergency power	☒	Clean Power	
		Comments: a) Provide dedicated 30A outlets, 208 volts, 3 phase for equipment and tools. b) Provide convenience receptacles (20 amps, 120 volts 1 phase) along the perimeter walls. c) Provide two (2) panels, 120-208 volts, 3 ph "clean" power, 42 circuits/each. Provide (10) ten 30 amps circuits as minimum. Capacity of each panel 150 amps. Each panel shall have a main breaker with a minimum capacity of 150 amps. All panels should have 20% spare capacity for additional breaker space. Diversity factor: 50 %. d) Provide one panel with 24 circuits, 20 amps/each for Undulator Hall utility outlets. Diversity factor: 50%.				
	Lighting	☒	Light fixtures	☐	Remote lighting control	
			Fixture type I: Down light	☒	Light switches	
		☒	Fixture type II: Bollard (exterior)	☒	Lighting level	FC: 75
		☒	Emergency lighting			
		Comments: **a)** Fixtures are pendant fluorescent, low profile. Location on centerline of building as well as on either side to supply adequate illumination for work in front and behind the racks.				
RADIATION/SEISMIC/VIBRATIONS ISSUES	**Comments:** a) Keep clear of 1 foot for cable penetrations for radiation protection.					
SPECIAL REQUIREMENTS FOR EQUIPMENT	**Comments:** a) Dimensions of each "single bay" electronic rack are: 22" Wide x 30" D x 88" H.					
ENVIRONMENTAL NEEDS						