

Stanford Linear Accelerator Center Stanford Synchrotron Radiation Laboratory

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LCLS Room Data Sheet #	1.9-1006	Beam Transport H	all (BTH) -	Revision 2
Javier A. Sevilla Owner / Editor Jim Welch Conventional Facilities System Physicist	Signa	ture E	B 15/05 Date 16105 Date	
David Saenz Conventional Facilities System Manager	MAIM < Signa	ture	Date	
Eric Bong Injector-Linac WBS Manager	Signa	B 8	<u>15 /05</u> Date	
David Schultz E-Beams System Manager	Bog for 5 Signal	ture Schultz	SIB/05 Date	-
Darren Marsh _ Quality Assurance Manager	Signat	<u></u> ture	g 15 0 5 Date	

Rev 2. Updated graphics, Changes to floor specs, general deletions, added electrical requirements, deleted graphics and electrical

table that were not applicable for the BTH

Added references to LCLS ESD 1.9-102, 1.9-103 and 1.9-104

ROOM DATA SHEETS	System & WBS Manager: Dave Schultz/Eric Bong							
FACILITY COMPONENT	BEAM TRANSPORT HALL (BTH) - ROOM DATA SHEET							
	Name of Building LCLS Beam Transport Hall Organization of Department SLAC Straterid University							
	Net area		1021 5	sa meters	11000 SE			
	Critical dimensions		H:	3.05m (finish floor to ceiling)	10'-0"			
			W:	4.5m (interior wall to interior wall)	14'-9"			
			L:	227m	745'-9"			
	Hours of operation		Facility is I	ocked 24/7/365 (periodic maintenance	only)			
	Users/Occupancy No occupancy during normal operation of the facility. Du access: 30 persons							
			To be located in the existing Research Yard. This is the first building in the upstream end of the LCLS facility running West to East. This facility bisects the existing Research Yard.					
FUNCTIONAL OBJECTIVE	The BTH extends from the Beam Switch Yard wall, to the beginning of the Undulator Hall. Its purpose is to carry the high-energy electron beam into the Undulator Hall. Walls, ceiling and floor act as barrier for radiation entering into the RSY.							
PLANNING CONSIDERATIONS & CRITICAL FACTORS	Floor level is to remain constant throughout the entire length of the BTH at 1.4m below the beam axis. Y = - 0.895305m in LCLS coordinate system (Refer to LCLS-TN-03-8). This facility commences at the existing Research Yard vertical concrete wall. From the RSY wall, the BTH shape will accomodate anticipated future beam lines (± 2 and ±4 degree). This accomodatation will provide a wedge shape facility (headhouse) for the initial 61 meters (in the direction of the beam) only. The BTH will continue in a linear shape from the end of the wedge to the existing berm. The thickness of walls shall be minimum 70", using normal weight concrete. The thickness of the ceiling shall be 48" at locations where no occupancy is designated above. In areas where occupancy is allowed, the depth of the ceiling shall be increased to minimum of 70". Since the BTH is a high-radiation zone, all walls and ceiling shall comply with the SLAC Radiation Physics Criteria.							
FINISHES	Wall	Reinforced concrete, white						
	Ceiling	Reinforced concrete, white						
	Floor	Refer to LCLS General Concrete Guideline- ESD 1.9-103.						
	Base	None Egress shall include a steel pair of 3' wide doors. Thermal barrier wall shall have a pair of 3' wid doors. 7' height.						
	Doors							
	Fenestrations	None						
	Acoustical/Thermal	Thermal barrier at downstream	end of BTH -	- 4" metal stud wall-insulated				
APPLICABLE STANDARDS	29 CFR Part 1910 Occupational Safe Constructions Dept of Labor, Uniform Mechanical Code (UMC) 1997 includ 1997 including appendixes, California National electrical Safety Code ANSI 264 and 265, SLAC Environmental S Safety Code, Title 24 Standards-Ene SLAC Fire Marshal requirements, LC	ty and Health Standards Dept of I Building Code (UBC) 1997 incluc ing appendixes, Uniform Plumbing a Code of Regulations Title 8 Indu C2, Occupational Safety and Hea afety & Health Manual, General Ir rgy Code, DOE standard 10 CFR LS Cabling Standard and SLAC L	Labor, 29 CFF ding appendix g Code (UPC) strial Safety, alth Act (OSH/ ndustrial Activi Part 435, AS OTO	R Part 1926 Safety and Health Regulat es, National Electric Code (NEC) 2002 1997 including appendixes, Uniform F Title 19 Public Safety, NFPA 70 Nation A), Environmental Protection Agency 4 ities Storm Water Permit (SLAC Permi HRAE/IES Standards 90.1, NFPA Star	ions for , Uniform ^{Ti} re Code (UFC) al Fire Codes, 10 CFR Parts 1), NFPA 101 life adard 13 and			



SCHEMATIC PLAN VIEW OF BTH-NOT TO SCALE



Continued								
Continuou								
MECHANICAL REQUIREMENTS	HVAC		Heating system	Temp:		Mechanical humidification		
			Air conditioning	Temp:	Χ	Direct exhaust system		
		X	Direct supply			Positive pressure system		
			Indirect supply			Negative pressure system		
			Smoke control system			Standard registers		
			Thermostat			Requirement for gases		
		List o	of Gases -		Con	nments:		
		a) Co	a) Compressed air- See requirements below in			a) Ventilation shall be required in hall while occupied.		
		Plum	bing section.					
		Clear	n dry oil-free compressed air 20 Cl	FM, 100 psig.				
		b) Pro	ovide locations with shut off valve	and pressure				
		gaug	е.	-				
	Communications	X	Telephone			PA speakers		
		5						
		\boxtimes	Dataport			PA station		
			Payphone			CCTV camera		
		X	Fire alarm station			CCTV monitor		
		Comments: Telephone are for maintenance & emergevery 100' intervals. Provide connections for datapoint						
				rgency use only. Spacing of phones shall be located orts (2 min) at every 100 feet intervals.				
		_						
	Plumbing/Fire Protection		Hot water system			Electric water cooler		
			Cold water system			Drinking fountain		
			Tempered water			Smoke detection system		
			Waste drain		N	Wet Sprinkler System		
			Floor drain			Eye wash		
		X	Trench drain		X	Low Conductivity Water (LCW)-Refer to Utility		
						Table		
		Comments:						
		1) BTH requires roof drainage. Tunnel interior trench drainage system shall flow toward the Undula						
		for further routing to a holding tank located in RSY.						
		2) Compressed air piping system (85 psi min, 100 psi) Refer to LCLS Compressed Air technical						
		speci	fications. Provide 1/2" outlets with	shut-off valve	and	gauge every 50' on center. Locate each outlet		
		on the wall at 4 ft AFF.						

End in the first of the second seco	ELECTRICAL REQUIREMENTS	Power supply		208 V 3 phase		Uninterrupted power supply			
Comments: a) Requirements are limited to convenience receptacles. b) Provide four (4) 100 amps, 480V, 3 phase welding receptacles equally spaced along the length of the BTH. c) Provide four (4) 100 amps, 480V, 3 phase welding receptacles equally spaced along the length of the BTH. c) Provide double duplex convenience outlets (120 volts, 1 phase, 20 amps) at every 50 feet/ alternate side of the BTH (north and south walls) Lighting Light fixtures Remote lighting control Fixture type I: Downight Lighting level Fc: 30 Comments: a) Lighting [Fixtures are set variable mounted fluorescent, low profile. b) No electronic balasts are allowed inside radiation areas. a) Lighting [Fixtures are set variable mounted fluorescent, low profile. b) No electronic balasts are allowed inside radiation areas. error balasts Refer to LCLS Emergency Lighting Specifications, ESD- 1.9-105. Refer to AE Design Guidelines for Radiation and Seistmic requirements. a) Horma barrier is required to isolate the interior of BTH from the adjacent Undulator Hall downstream. o: Service building schalable batached to the roof of the BTH for rack equipment. Refer to RDS for service buildings. A Access shall provide at each end of the facility through chicaes to meet Rad physics requirements. East chicane shall be designed to accomodate at 4(w) x132(0) (0) biect. West access shall provide at each end of the facility through chicaes to reduce to RDS for service buildings. A Access shall be provid		1.2	X	120V outlets - 20 amp	X	Special electric Type: 480v			
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Image: Second		Lighting	X	Light fixtures		Remote lighting control			
Image: Second				Fixture type I: Downright	Χ	Light switches			
Image: Second				Fixture type II: Bollard (exterior)	Χ	Lighting level FC: 30			
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ENVIRONMENTAL NEEDS 1.0	ENVIRONMENTAL NEEDS	1.0	+						
		2.0							