LCLS Room Data Sheet #	1.9-1060	Beam Transport Hall West	Revision 0

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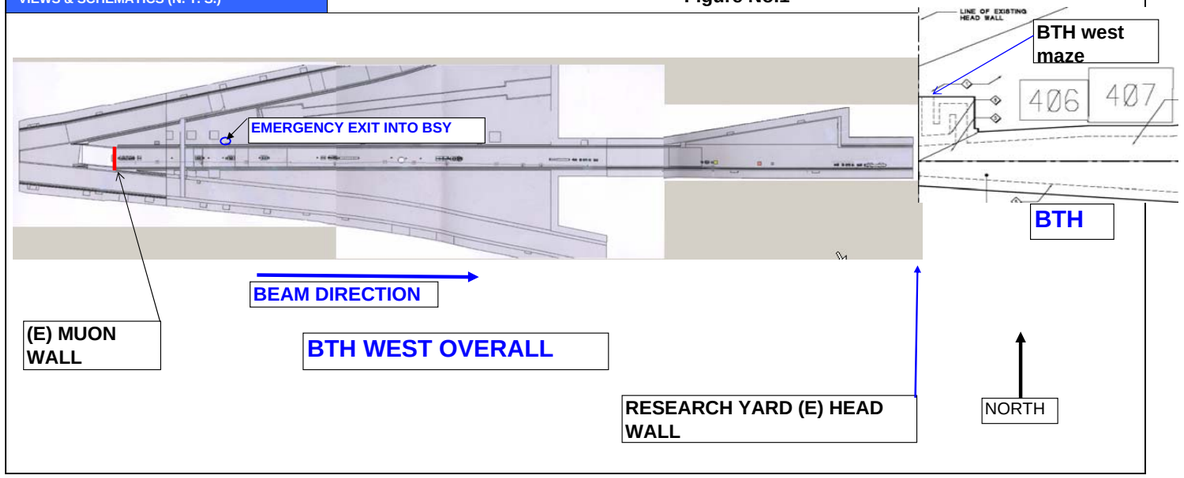
Revisions

ROOM DATA SHEETS **System & WBS Manager: Dave Schultz/Jose Chan**

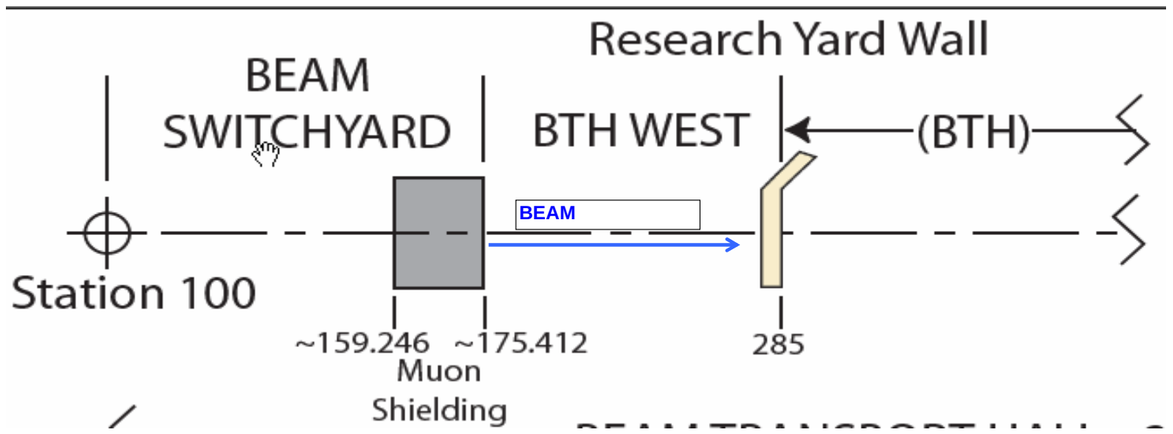
FACILITY COMPONENT	BEAM TRANSPORT HALL WEST - ROOM DATA SHEET			
	Name of Building	LCLS Beam Transport Hall West (BTH west)		
	Organization or Department	SLAC, Stanford University		
	Net area	555.0	sq. meters	5,978 SF
	Critical dimensions	H:	3.05m (finish floor to ceiling)	10'-0"
		W:	4.5m (interior wall to interior wall)	14'-9"
		L:	123.75 m	412'-6"
	Hours of operation	Facility is locked 24/7/365 (periodic maintenance only)		
	Users/Occupancy	No occupancy during normal operation of the facility. During access: up to 20 persons-Restricted access beginning at 150 ft west of maze exit. FHA requires a safety watch-Refer to FHA, LCLS PMD1.1-027		
		Located in the existing Beam Switch Yard (BSY)		
FUNCTIONAL OBJECTIVE	The BTH West extends from the Muon Wall to the Headwall of the Research Yard. Its purpose is to carry the high-energy electron beam into the BTH. Walls, ceiling and floor act as barrier for radiation entering into the BSY			
PLANNING CONSIDERATIONS & CRITICAL FACTORS	Floor level is existing to remain. This facility commences at the Muon Wall vertical wall. Existing BTH West facility meets criteria to house future beam lines and shielding criteria, except: a) South hole to research yard-to be filled with appropriate steel rod length 12 ft (Specified by Radiation Physics). b) North hole to research yard- 6-1/4 inch 15 foot long pipe to be filled with concrete per radiation physics' requirements. c) West sump to be partially filled with concrete and tied into surrounding structure for vibration suppression, as specified below in "Finishes"			
FINISHES	Walls	Reinforced concrete- Existing to remain-		
	Ceiling	Existing reinforced removable concrete blocks to remain		
	Floor	Existing concrete floor to remain. 1) Construct a concrete base in the existing pit in the form of a peninsula (Approximate dimensions 3'-0" x 6-0"L) 2) Provide metal grating over the open areas around the concrete base. 3) Delete ramp and railing between BTH and BTH west as shown on drawing S2208 and drawing S9205. 4) Install removable steel ramp- 10,000 lb capacity		
	Base	None		
	Doors	Exit through BTH west maze and existing emergency door into BSY area. See section 6.5 FHA		
	Fenestrations	None		
	Acoustical/Thermal	None		
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) including appendixes, 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 and Health Act (OSHA), 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 Standards-Energy Code, DOE standard 10 CFR Part 435, ASHRAE/IES Standards 90.1, NFPA Standard 13 and SLAC Fire Marshal requirements, LCLS Cabling Standard and SLAC LOTO			

VIEWS & SCHEMATICS (N. T. S.)

Figure No.1



SCHEMATIC PLAN VIEW OF BTH WEST-NOT TO SCALE



BTH SCHEMATIC LAYOUT- NTS

Continued

MECHANICAL REQUIREMENTS

HVAC

☐	Heating system	Temp:	☐	Mechanical humidification
☐	Air conditioning	Temp:	☒	Direct exhaust system
☒	Direct supply		☐	Positive pressure system
☐	Indirect supply		☐	Negative pressure system
☐	Smoke control system		☐	Standard registers
☐	Thermostat		☐	Requirement for gases

List of Gases -
a) Compressed air- See requirements below in Plumbing section.
Clean dry oil-free compressed air, 90 psig minimum.
b) Provide locations with shut off valve and pressure gauge as indicated in ESD 1.3-137 but not less than one drop every 50 feet along south wall.

Comments:
a) Ventilation shall be required in BTH west while occupied. Existing ventilation system to remain without changes.

Communications

☒	Telephone- existing to remain	☐	PA speakers
☒	Data ports	☐	PA station
☐	Payphone	☐	CCTV camera
☒	Fire alarm station- Linear Beam Detector	☐	CCTV monitor
☒	Radio per FHA		

Comments:
a) Telephones are for maintenance & emergency use only. Existing three phones are operational.

b) Will have 3 Tunnel walkup locations in BTH West tunnel
c) Four Cat 6 cables connect back to patch panel or switches in network rack
Each tunnel walkup will have 2 ports:
d) Visitor net for Wireless Access Point – carry WAP and laptop into/out of tunnel when accelerator is off.
Accelerator Network for Instrument – activate port if needed for diagnostic equipment
At least one WAP will be needed on each side.
Drop from B105 down to BTH West is 150 feet. Provide connections for data ports (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 per LCLS Fire Hazard Analysis (FHA)
☐	Waste drain	☒	Wet Sprinkler System per FHA
☐	Floor drain	☐	Eye wash
☒	Trench drain- Existing to remain	☒	Low Conductivity Water (LCW)-Refer to ESD #1.3-137 for technical specifications

Comments:
1) BTH West requires drainage to existing trough, which is located on the west end of BTHW.
2) Compressed air piping system (90 psi min) Refer to ESD #1.3-137 for technical specifications. Provide 1 dia minimum distribution pipe with 1/2" shut-off valve 50 ft on center. Locate each outlet on the wall at +/- 4 ft AFF.

ELECTRICAL REQUIREMENTS

Power supply

☐	208 V 3 phase	☐	Uninterrupted power supply
☒	120V outlets - 20 amp, 1 phase	☒	Special electric — Type: 480 v
			See comments below

Comments:

a) Requirements are limited to convenience receptacles.
b) Replace two (2) existing 100 amps, 480V, 3 phase welding receptacles with local disconnect (SLAC standard) at the quarter points along the length of the BTH West. Verify they are working properly.
c) Re-use/upgrade existing double duplex convenience outlets (120 volts, 1 phase, 20 amps), alternate sides of the BTH West (north and south walls).
Provide at least three independent circuits. Activate and upgrade or repair as necessary all existing 120V, 1 ph outlets to be 20 Amp circuits.
d) Provide offset for cables trays and pipes at transition between BTH West and BTH.
e) Provide circuit capacity to power existing crane. Re-use existing disconnect.

Lighting

☒	Light fixtures		Remote lighting control
	Fixture type I: Downright	☒	Light switches
☐	Fixture type II: Bollard (exterior)	☒	Lighting level — **FC: 30**
☒	Emergency lighting		

Comments:

a) Lighting: Fixtures are pendant, fluorescent, low profile. Replace all fixtures.
b) No electronic ballasts are allowed inside radiation areas.
c) Refer to LCLS Emergency Lighting Specifications, ESD- 1.9-105 and FHA.
d) Provide an NEMA 1, enclosure (box) for installation of PPS relays (by PPS group). Bring all power wiring for control of lighting fixtures through this enclosure.

RADIATION/SEISMIC/VIBRATION ISSUES

Comments:

a) Floor tolerance: none
b) For wall and ceiling tolerances: None- These are existing

SPECIAL REQUIREMENTS FOR EQUIPMENT

Comments:

a) Assumption for cable trays: Cable trays to run full-length of BTH West. Re-use existing cable trays where feasible and relocate where needed. Cable trays shall be made of galvanized steel. Provide 1# 4/0 bare copper cable for grounding for each cable tray. Leave existing cable trays. From the existing cable trays east toward the headwall (143 1/2 feet of new trays), provide 3 trays: one 6" wide over (2) 9" wide cable trays stacked vertically attached to the south wall. They should be as low as possible given that they will be over water pipes.

b) For Maximum anticipated floor load, refer to LCLS ESD specification 1.9-103. Floor is existing.
c) Install all new piping for utilities (LCW and CA) on south wall.

ENVIRONMENTAL NEEDS

1.0	
2.0	
3.0	