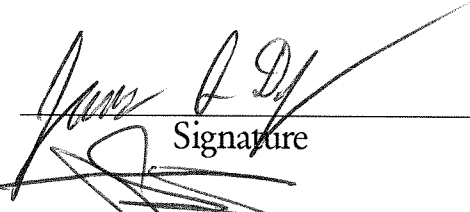





LCLS Engineering Specifications Document	1.6-123	NEH Hutch 3	Revision 0
Engineering Specifications for Utilities Support For NEH Hutch 3			
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Brief Summary:

This document includes the mechanical and electrical fill-out requirements for NEH Hutch 3 to support LCLS science instruments in that hutch.

Change History Log

Rev Number	Revision Date	Sections Affected	Description of Change
000	23JUL2009	All	Initial Version

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1. Overview

NEH Hutch 3 has been turned over to LCLS project for beneficial occupancy. Plans for science instrument installation are being finalized. To support the science instruments, additional mechanical and electrical support utilities are needed in the hutch. Mechanical systems include: Vacuum pump exhaust lines, process chilled water distribution manifold, compressed air accumulator and distribution manifold, and additional support for the laser safety system including AC power at specific points. Electrical systems include cable tray installation, instrumentation rack installation, electrical power distribution to instrumentation racks, convenience outlets along instrument beam lines, and support to the laser control system and Hutch Protection System.

2. Hutch 3 Requirements

2.1. Electrical

2.1.1. Instrumentation Racks

Full Racks B950S-30, B950S-31, B950S-32, B950S-33, B950S-34, B950S-35 (Rack B950S-30 already installed under a different contract). Mount each rack on its 8-inch plinth and bolt to floor.

Half Rack B950S-36. Mounts directly on raised floor, without plinth.

For each full rack (including previously installed rack), run two 3-phase 208VAC 20A service from Power Panels on north-east wall, terminate in Furman power distribution centers in each rack. For half rack, run one 3 phase 208VAC 20A service. Update panel schedule.

2.1.2. Hutch Convenience Outlets

Install 120VAC 20A service in quad boxes at locations shown in SLAC document GP-391-300-17.

Install 120VAC service to work bench power strips in northeast corner of hutch.

2.1.3. Hutch Protection System

Install one 120VAC 20A circuit with Hubbell receptacle at Hutch entry panel. Panel for service must be approved by PPS group.

2.2. Mechanical

2.2.1. Process Cooling Water (PCW)

Install PCW supply and return pipes as shown in SLAC document GP-391-300-18. Install ball-valve mechanical valves for controlling water flow to individual devices below raised floor level. Install supply and return manifolds with drain valves inside full racks. Half rack does not require cooling water.

Device (Full Rack)	Predicted Heat Load (KW)	Predicted PCW Needed (gpm)	Max PCW Needed (gpm)
B950S-30 XPP	0.5	0.34	5
B950S-31 XPP	0.5	0.34	5
B950S-32 XPP	1	0.68	5
B950S-33 XPP	1	0.68	5
B950S-34 XPP	0.5	0.34	5
B950S-35 XPP	0.5	0.34	5
	Total gpm:	2.72	30

2.2.2. Compressed Air

Install 5-gallon compressed air accumulator. Install complete piping and service as shown in SLAC document GP-391-300-18. Route pneumatic lines below raised floor wherever possible. Each pipe to terminate in a regulator and gauge capable of accommodating an operating range of 5-100 psi (regulated down from 135 psi).

2.2.3. Exhaust Ducting

Install exhaust ducting, nominal 6 inch diameter, from exhaust pump location in south east corner to exhaust port locations as shown in SLAC document GP-391-300-18.

2.2.4. Laser Safety Door

Install rolling laser safety door on inside of Hutch 3 Access door. Use Chase Doors Saino Service model 1110T or equivalent.

2.2.5. Overhead Crane

Install overhead crane in hutch 3 with the following specifications:

- Coverage area approximately 23 ft x 14 ft (see SLAC drawing GP-391-300-20)
- Lift capacity 1000 lb
- Hook height approximately 10 ft

2.2.6. Jib Crane

Install jib crane in hutch 3 with the following specifications:

- Coverage area approximately 10 ft radius (see SLAC drawing GP-391-300-20)
- Lift capacity 1000 lb
- Hook height approximately 69 in to 79 in