Brief Summary:

This document includes the mechanical and electrical fill-out requirements for NEH Hutch 1 and NEH Hutch 2 to support LCLS science instruments in that hutch.

Change History Log

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<td>000</td>
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<td>All</td>
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<tr>
<td>001</td>
<td>11/24/08</td>
<td>Section 3, new Section 5</td>
<td>Updated PPS power needs, added separate laser room document as section 5</td>
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1. Overview

A number of instrumentation racks have been installed in NEH to support Beam and Experiment activities. These racks need to be connected to AC power. This document specifies the Phase 5 racks that require connection to AC power.
2. **NEH Basement Level Server Room**

Four racks have been installed in the NEH Server Room located in the south east corner of the Basement Level of the NEH Building. These are racks B950B-40, -41, -42, and -43. An electrical panel, 2DBP12-950 has already been installed at the east end of the racks.

Provide service to panel 2DBP12-950 from transformer 4DPB03-950-8 (if not already installed), or alternate suitable source if needed.

For each of the four racks, run two separate 3-phase 208VAC 20A services from panel 2DBP12-950. Terminate in Furman Power Distribution center in each rack. Update panel schedule. Electrical conduits to be routed along the top of the racks.

Figure 2.1: NEH Basement Level Server Room showing racks in blue, electrical panel in light blue. Transformer in Mechanical Room is shown as a red box with “T” in it. Taken from drawing ID-380-201-77-C4.
3. NEH Sub-Basement Level Hall MPS/PPS Racks

An MPS rack has been installed in NEH Sub-Basement Level Hall along north wall. In the future a PPS double rack and PPS battery station will be installed next to the MPS rack. The MPS rack is B950-04.

Provide two separate 3-phase 208VAC 20A services to the MPS rack, terminating in the Furman Power Distribution center in the rack.

Install SLAC supplied PPS double rack B950S-01/02 next to existing MPS rack B950-04. Provide two 120VAC 20 A services to the PPS double rack (B950S-01 and -02), terminate in each circuit in quad-boxes in the double rack (location in rack to be field determined). Install SLAC supplied battery and charger system on the side of B950S-01/-02 and wire to 120VAC 30A service.

Install SLAC supplied Lighting Contactor Panel for control of the FEE lights at the lighting panel for these lights. Modify lighting circuit wiring as necessary for appropriate control of FEE lights.
Figure 3.1: NEH Sub-Basement Level Hall showing location of PPS battery station, PPS and MPS racks. From drawing ID-380-201-76-C4
4. NEH Sub-Basement Level Hutch 1 XTOD Rack

One rack, B950S-10, has been installed just off the west wall in the NEH Sub-Basement Level Hutch 1 to support XTOD. 3 additional racks will be installed adjacent to this rack running north in the near future.

From panel 2CBP02-950, located near the north-east corner of Hutch 1, run 8 separate 3-phase 208VAC 20A services to the XTOD rack location. Connect two of these services to the Furman Power Distribution system in the rack. The remained 6 services to be left in junction box on wall near rack B950S-10. These will be later extended to the additional three racks to be installed in this location.

Figure 4.1: NEH Sub-Basement Level Hutch 1 showing location of the XTOD rack near west wall and electrical panel in north-east corner (in blue ovals). From drawing ID-380-201-76-C4.
5. NEH Basement Level Laser Hall

Laser room on Basement Level of B950.

Rack Power:
Rack B950B-50 will be installed by a separate contract. For this rack, run two 208VAC 20 Amp circuits and connected to Furman power distribution system in rack. Power source is panel 2CBP06-950 on east wall of room.

Racks B950B-51, B950B-52, and B950B-53 will be installed by a separate contract. For each rack, run two 208VAC 20 Amp circuits to panels at each rack and equip with remotely tripable (e.g. shunt trip) breakers. Provide contact point for remove trip signal – 120VAC signal from Laser Safety System. From these rack mounted breaker panels, route power to power distribution systems in racks. (All rack shunt trips receive the same signal)

Laser Table Power:
Provide 120VAC 20 Amp service along laser tables, 2 circuits per table in wiremode with at least 6 outlets per circuit. 10 circuits total, from panel 2CBP-06-950.

Laser Safety Signs:
Route 120VAC 20 Amp circuit from panel 2CBP06-950 to Laser Safety Control panel location and laser safety sign locations as shown in laser safety drawings.