Engineering Specifications for Utilities Support for NEH Hutch 2

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Brief Summary:

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

Change History Log

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1. Overview
NEH Hutch 2 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 beyond what was previously specified in an earlier
hutch 1&2 fill-out ESD. (ESD 1.6-121).

2. Hutch 2 Specific Additional Requirements

2.1. Electrical
- Installation of additional power for CAMP is covered in ESD 1.6-131.
- Relocate/modify 2 flex conduits on floor at area of SXR KB system to allow clearance
  for that system.
- Install 2 additional fluorescent lights over the SXR endstation close to the proximity of
  the East wall. Location should not interfere with the crane specified below. Lights are to
  be of same style and at same elevation as existing lights.
- Connect crane power to existing crane disconnect switch on East wall.

2.2. Mechanical
- Modify 1 unistrut cable tray support assembly along south wall to allow for crane bridge
  clearance. (For increasing southern boundary of crane to HVAC vent over XTOD
  beamline.)
- Exhaust Ducting
  - Modify/relocate exhaust duct port location near west wall if larger crane
    coverage can be obtained.
  - Modify/relocate exhaust ducts and ports near East wall from under existing
    cable tray along that wall, to the edge of that cable tray at approximate location
    of tray. Relocate vertical duct feeding these two existing ports if it interferes with
    crane.
- Procure and install Bridge Crane:
  - 2,000 lb capacity.
  - Hook height approximately 10 ft.
  - Include strain relief on pendant
- Crane must have 2” horizontal and 3” vertical clearance to obstacles. Goal is to have largest crane coverage area as possible. Overall area for crane is approx 27’ x 16’, however the actual crane size shall be set according to obstacles in the hutch. The obstacles that define this area are:
  - South boundary: HVAC vent and cable trays.
  - West boundary: HVAC vent.
  - North boundary: cable tray support above laser table.
  - East boundary: cable tray support hangers.
- Include festoon stack for power cable to hoist with appropriately designed extension rails and hardstops for crane travel and hutch obstacles.
- Hoist shall be powered and have variable speed control equivalent to, or finer than hoist in Hutch 1.
- Add directional sticker on carriage (N,S,E,W)
- Bridge must be as close to ceiling as possible while maintaining appropriate gap below sprinklers for fire safety.
- Provide proper anchoring to ceiling for rated loads and seismic safety committee.
- Paint NORTH, SOUTH, EAST, & WEST on hutch walls.
- Compressed Air
  - Add 4 quick connect drops along East wall above XTOD beamline.