

LCLS Room Data Sheet #	1.9-1017	Near Experimental Hall (NEH) Overall	Revision 2
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Darren Marsh Quality Assurance Manager		8/15/05
	Signature	Date

REVISION INFORMATION

Rev 2, updated all Figures 2, 3, added N2 boil off station near NEH, added Fig 9,10, swapped the location of the electrical room with the telephone room.
deleted spare conduit for future hutches from el. Rm., added 2 figures for overall layout changes. Added cable trays specifications

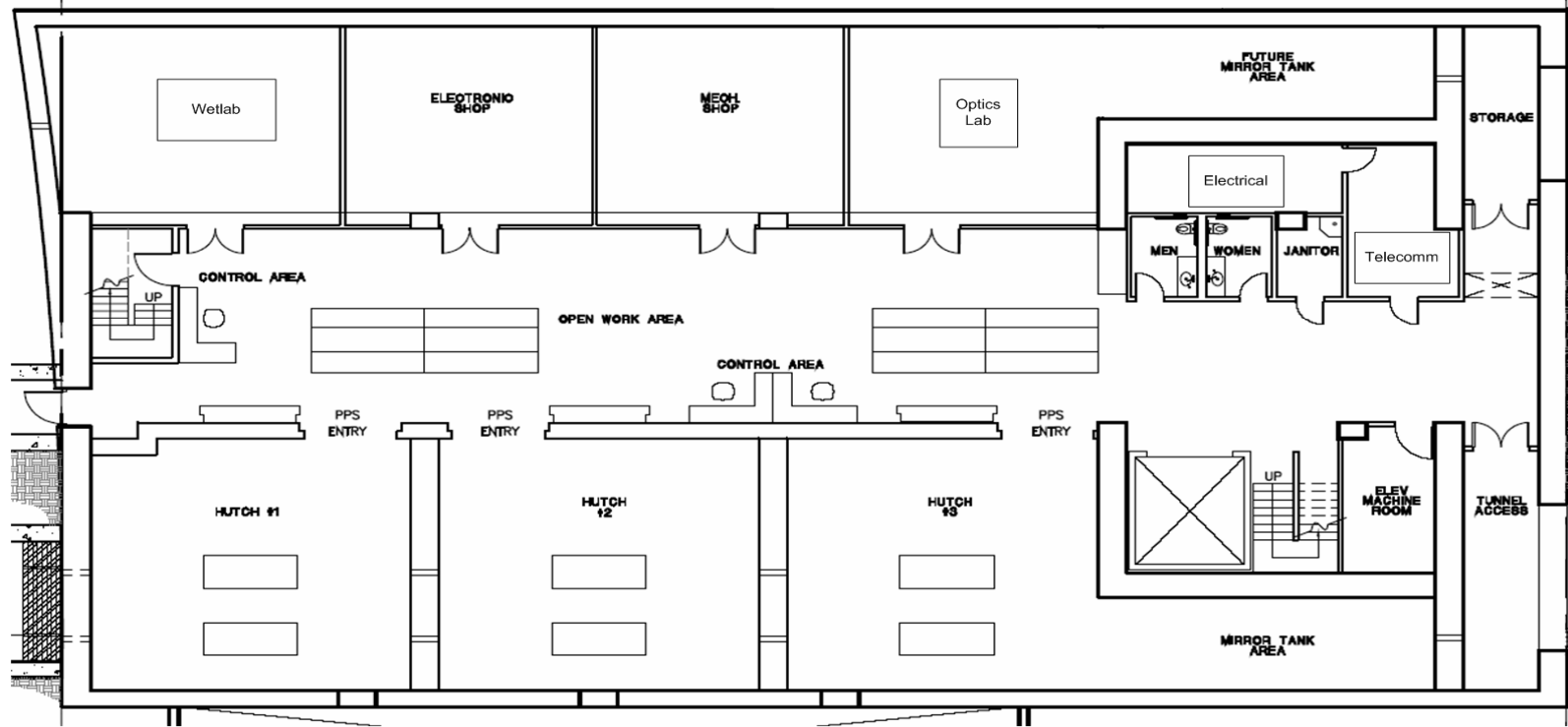
ROOM DATA SHEETS

System Manager: Stefan Moeller/John Arthur

Rev 2

FACILITY COMPONENT	5.6 NEAR EXPERIMENTAL HALL (NEH) - ROOM DATA SHEET																										
	<table border="1"> <tr> <td>Name of Building</td> <td colspan="2">Near Experimental Hall</td> </tr> <tr> <td>Organization or Department</td> <td colspan="2">SLAC, Stanford University</td> </tr> <tr> <td>Net area</td> <td>#VALUE!</td> <td>12614 /floor</td> </tr> <tr> <td rowspan="3">Critical dimensions</td> <td>H:</td> <td>3.66/4.5m</td> </tr> <tr> <td>W:</td> <td>25.0m</td> </tr> <tr> <td>L:</td> <td>47.0m</td> </tr> <tr> <td>Hours of operation</td> <td colspan="2">24h/7/365</td> </tr> <tr> <td>Users/Occupancy</td> <td colspan="2">50</td> </tr> <tr> <td>Building orientation</td> <td colspan="2">The NEH is located downstream to the FEE & the Beam Dump. The Hutch level is below grade and considered the sub-basement (tunnel level).</td> </tr> </table>		Name of Building	Near Experimental Hall		Organization or Department	SLAC, Stanford University		Net area	#VALUE!	12614 /floor	Critical dimensions	H:	3.66/4.5m	W:	25.0m	L:	47.0m	Hours of operation	24h/7/365		Users/Occupancy	50		Building orientation	The NEH is located downstream to the FEE & the Beam Dump. The Hutch level is below grade and considered the sub-basement (tunnel level).	
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Building orientation	The NEH is located downstream to the FEE & the Beam Dump. The Hutch level is below grade and considered the sub-basement (tunnel level).																										
FUNCTIONAL OBJECTIVE	<p>The NEH is built around the structure that comes out of the FEE & Beam Dump. Its main function is to house three experimental hutches on the sub-basement level and to provide space for support functions for the experiments. The hutches are 9.5 m x 10 m each. The third hutch will house a flipper mirror tank to divert the 0 degree beam into 3 beam lines. On the sub basement level the NEH also houses the control areas adjacent to these hutches. Consideration in the footprint has included 3 additional hutches for a future beam line at a +2 degree angle. This space is adjacent to the control area and consists at this stage of four rooms used for preparation for experiments (Electronics, optics lab. a wet lab, mechanical shop). The basement level (upper level) houses the laser room, mechanical and electrical rooms, metrology lab and an vaccum lab, a computer room (farm), machine shop and storage area, sample prep room, service dock, receiving area, gas bottle station, an janitor and mail room.</p>																										
PLANNING CONSIDERATIONS & CRITICAL FACTORS	<p>Floor level is to remain constant throughout the entire length of the NEH at 1.4m below the beam axis. Y = - 0.895305m in LCLS coordinate system (refer to LCLS-TN-03-8). This is a two-story structure that is below grade. Ground floor of NEH to house the hutches described above. Each hutch to have independent PPS entry. There needs to be controls & preparation area adjacent to the hutches. One of the hutches will house vibration sensitive optical equipments for splitting the x-ray beam. There is also a need for a unisex restroom. Provision for a freight elevator of 5 ton capacity. The second floor of the NEH houses Laser Bays. The layout of the hutches are to be such that the longer side (10 m) is parallel to the direction of the X-ray beam travel. 5' wide direct access into hutches required. Daylighting needed in upper floor. Also, access portals need to be provided into the tunnel. 'Unistrut' provision also needed. Card key access shall be implemented to access sub-basement level. See the first 2 figures describing changes to the layout of the NEH in the sub and basment. In accordance with safety standards the electrical room cannot be used as a pathway for the telecommunication room. Swap basement location of these two rooms in the present layout!</p>																										
FINISHES	<table border="1"> <tr> <td>Wall</td> <td>Reinforced concrete, painted surface</td> </tr> <tr> <td>Ceiling</td> <td>Reinforced concrete, painted surface</td> </tr> <tr> <td>Floor</td> <td>see RDS</td> </tr> <tr> <td>Base</td> <td>see RDS</td> </tr> <tr> <td>Doors</td> <td>see RDS</td> </tr> <tr> <td>Fenestrations</td> <td>see RDS</td> </tr> <tr> <td>Acoustical</td> <td>see RDS</td> </tr> </table>		Wall	Reinforced concrete, painted surface	Ceiling	Reinforced concrete, painted surface	Floor	see RDS	Base	see RDS	Doors	see RDS	Fenestrations	see RDS	Acoustical	see RDS											
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APPLICABLE STANDARDS	<p>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) 2003 including appendixes, Uniform Plumbing Code (UPC) 2003 including appendixes, Uniform Fire Code (UFC) 2003 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), General Services Administration 41 CFR part 101-19, 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 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</p>																										

Changes to the Layout of the NEH Sub basement:
Wetlab (former vacuum shop)
Optics lab (former Model shop)
Delete wall/door between Future mirror Tank area a Optics lab
Switch Electrical and Telecomm room



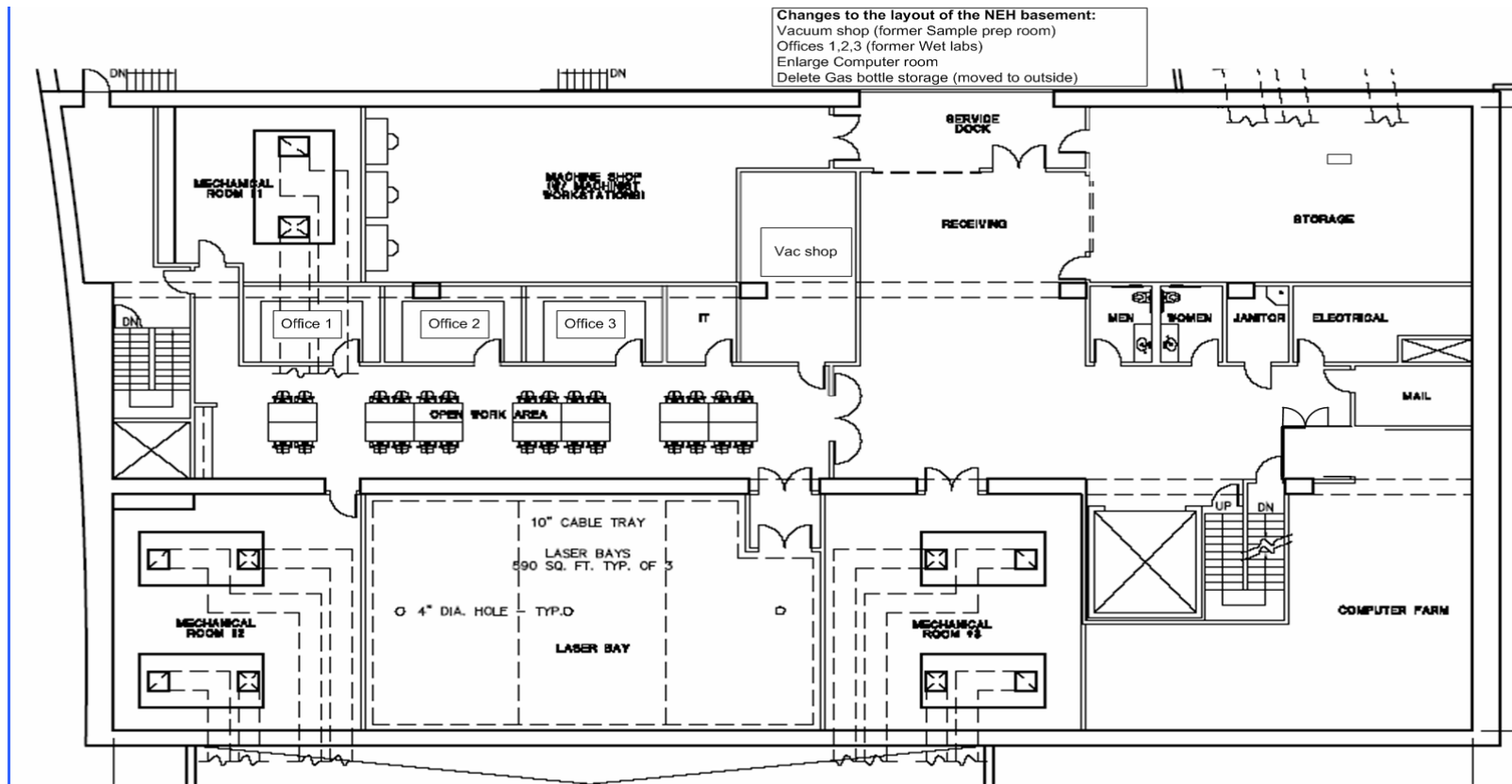


Fig. 1: NEH Sub basement: Phone and Data Outlets

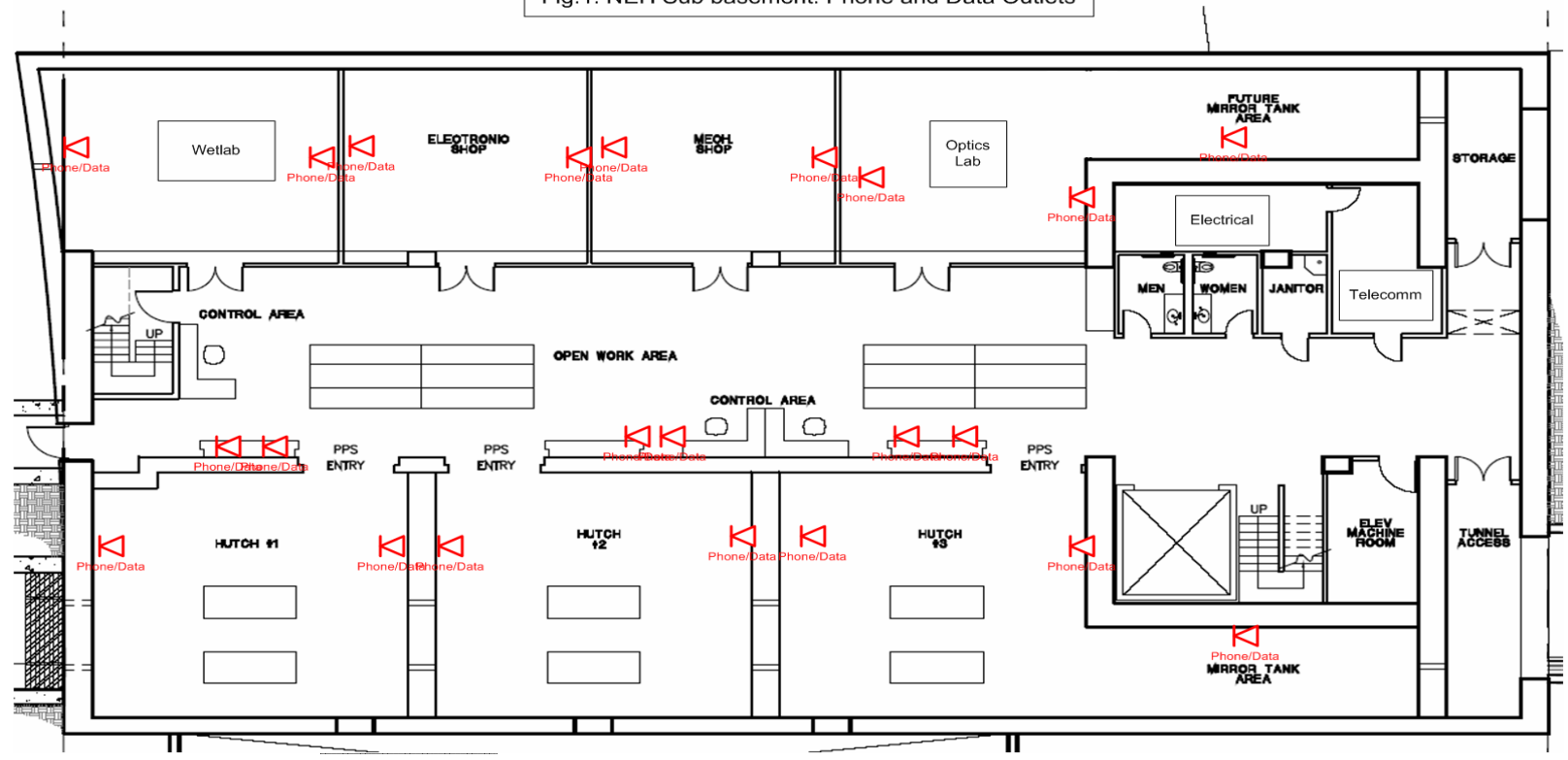


Fig. 2: NEH Basement: Phone and Data Outlets

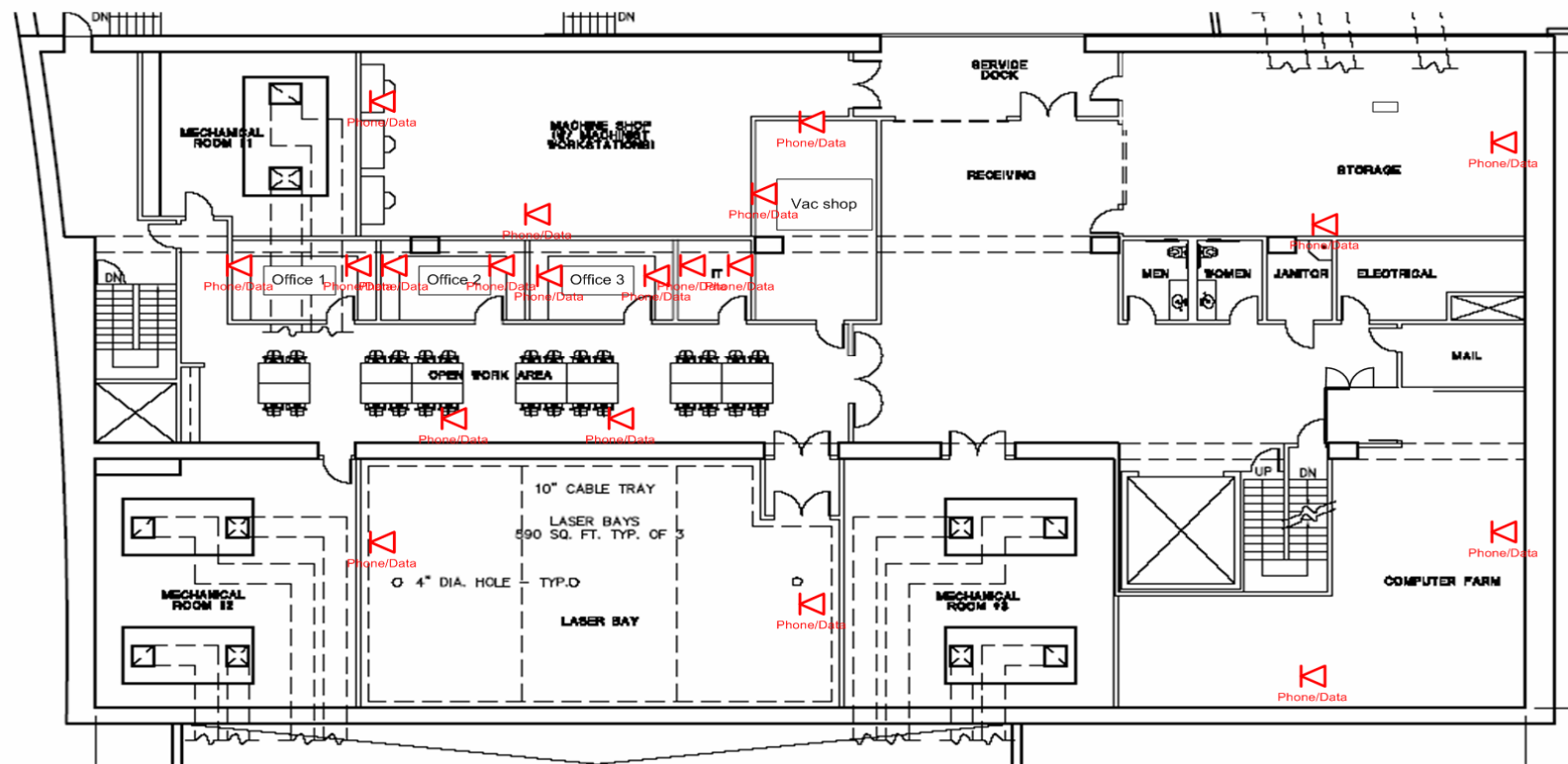


Fig. 3: NEH Sub basement: Panel locations

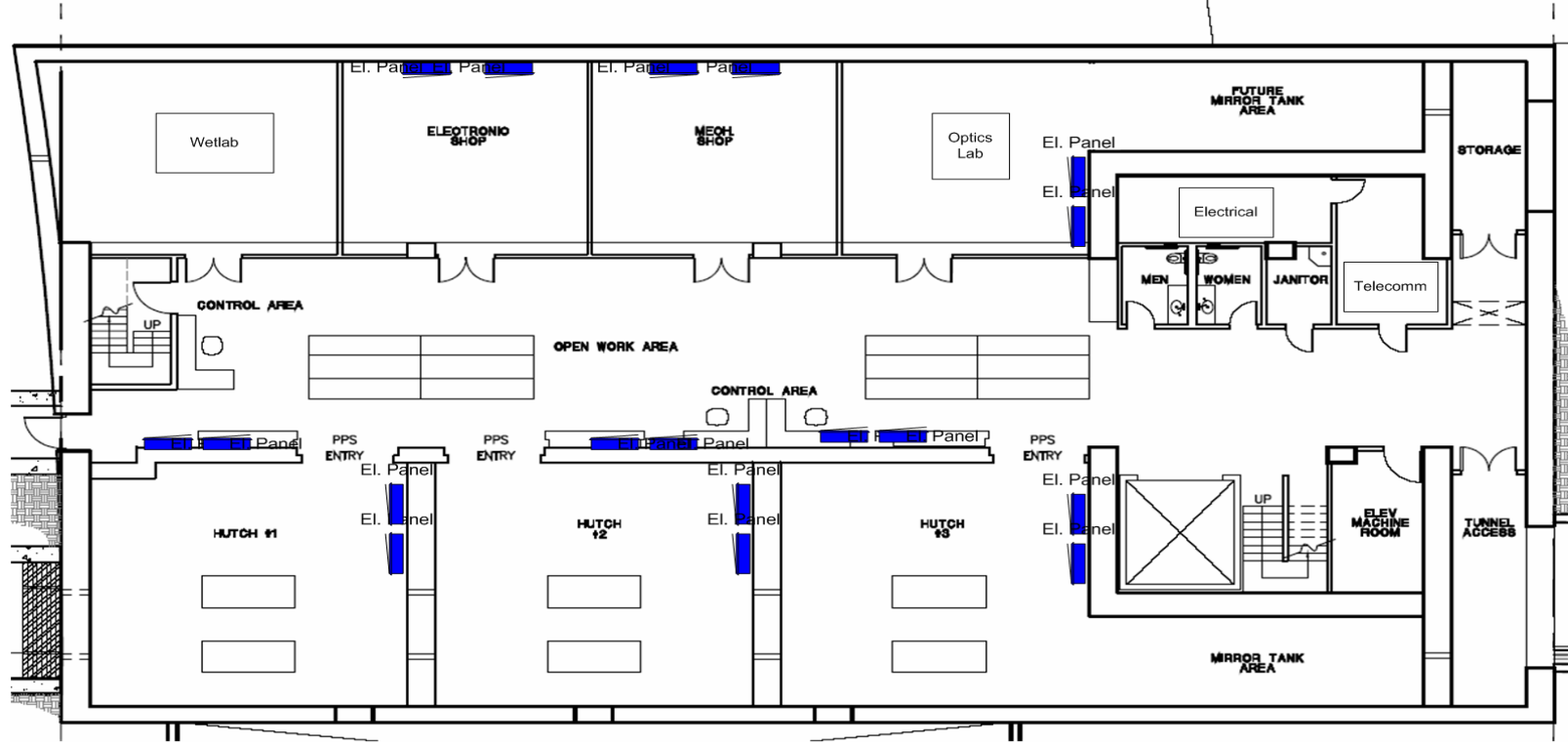
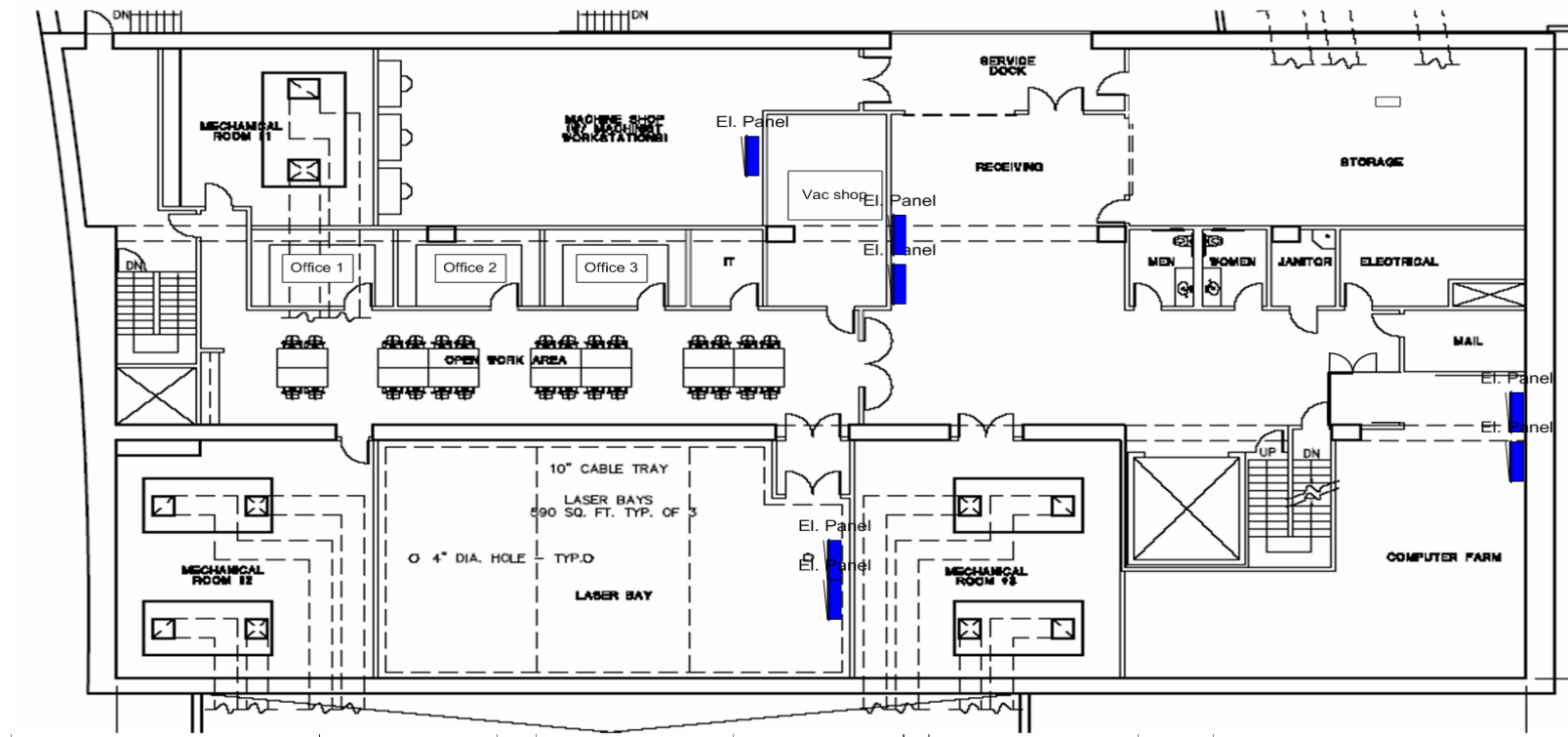
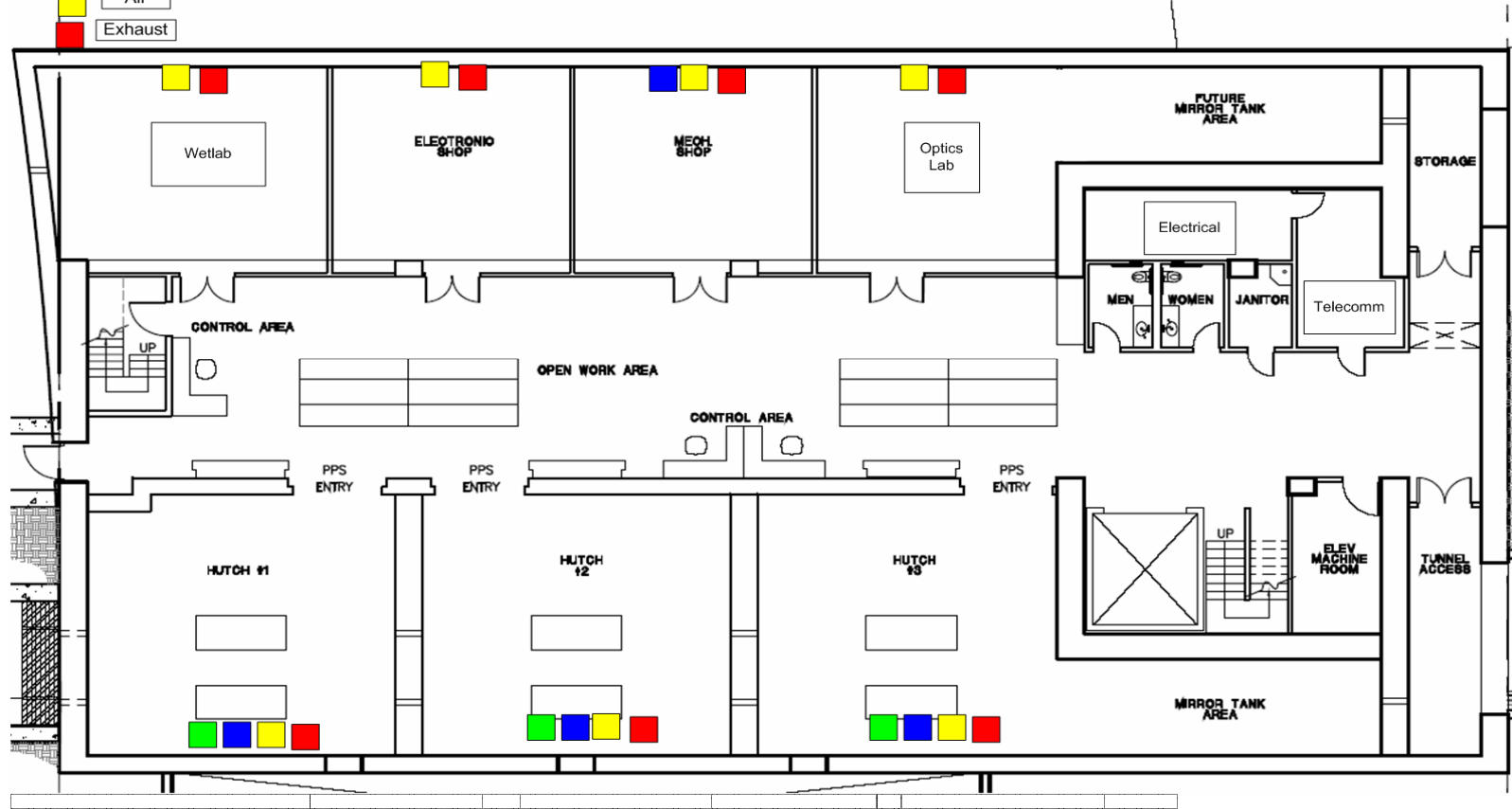


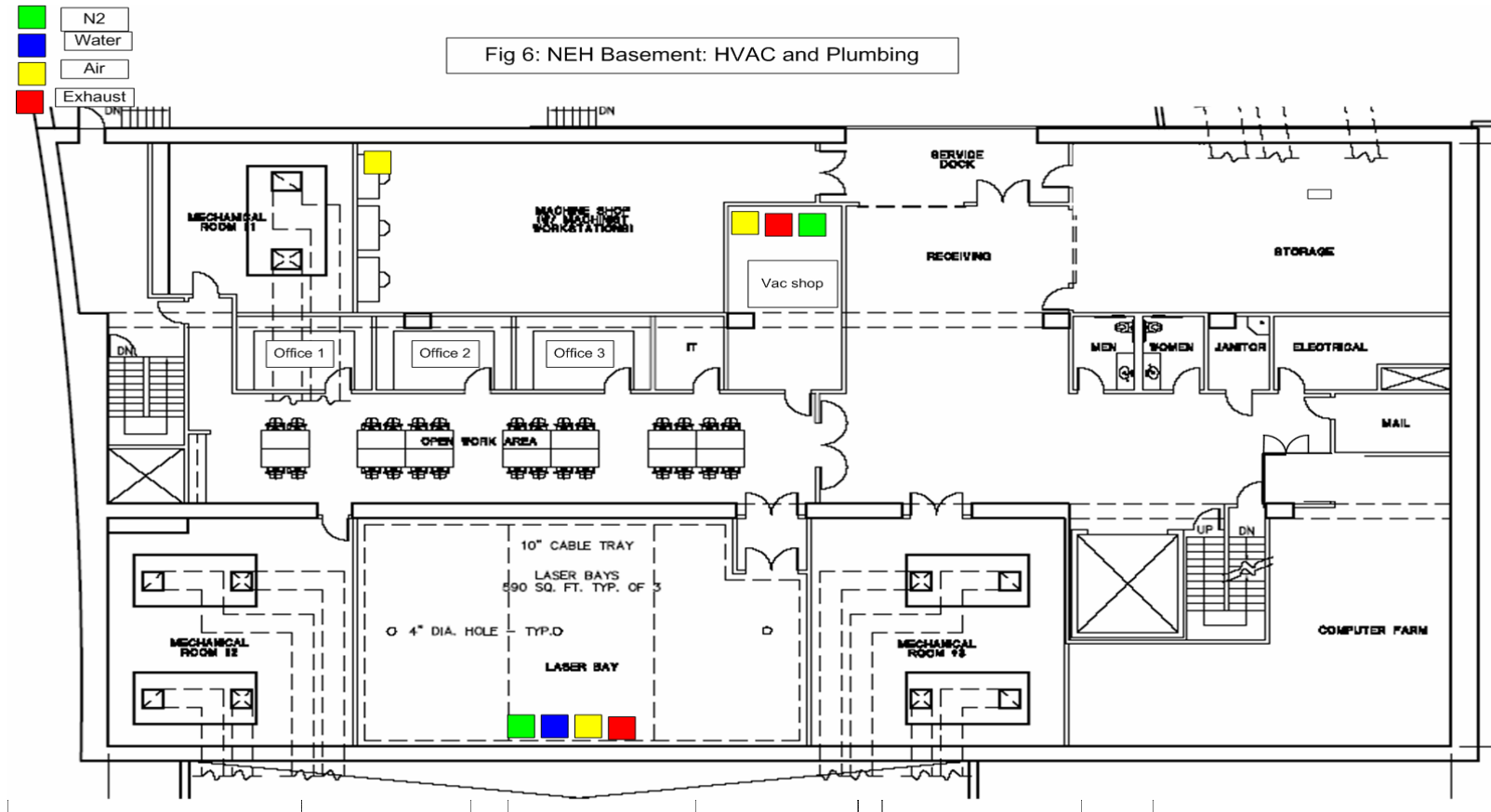
Fig. 4: NEH Basement: Panel Locations

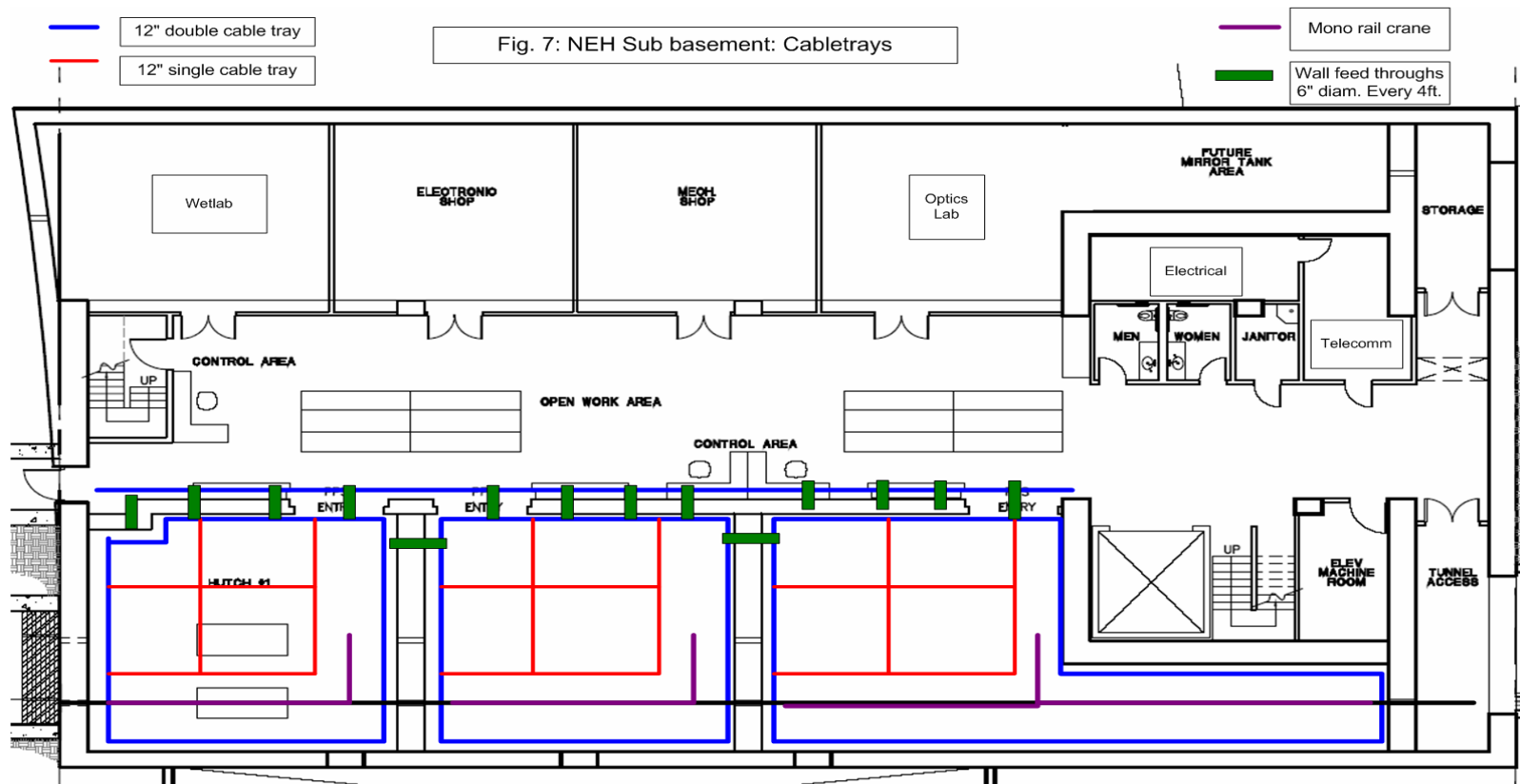


- N2
- Water
- Air
- Exhaust

Fig. 5: NEH Sub Basement: HVAC and Plumbing







- 12" double cable tray
- 12" single cable tray

Fig. 8: NEH Basement: Cabletrays

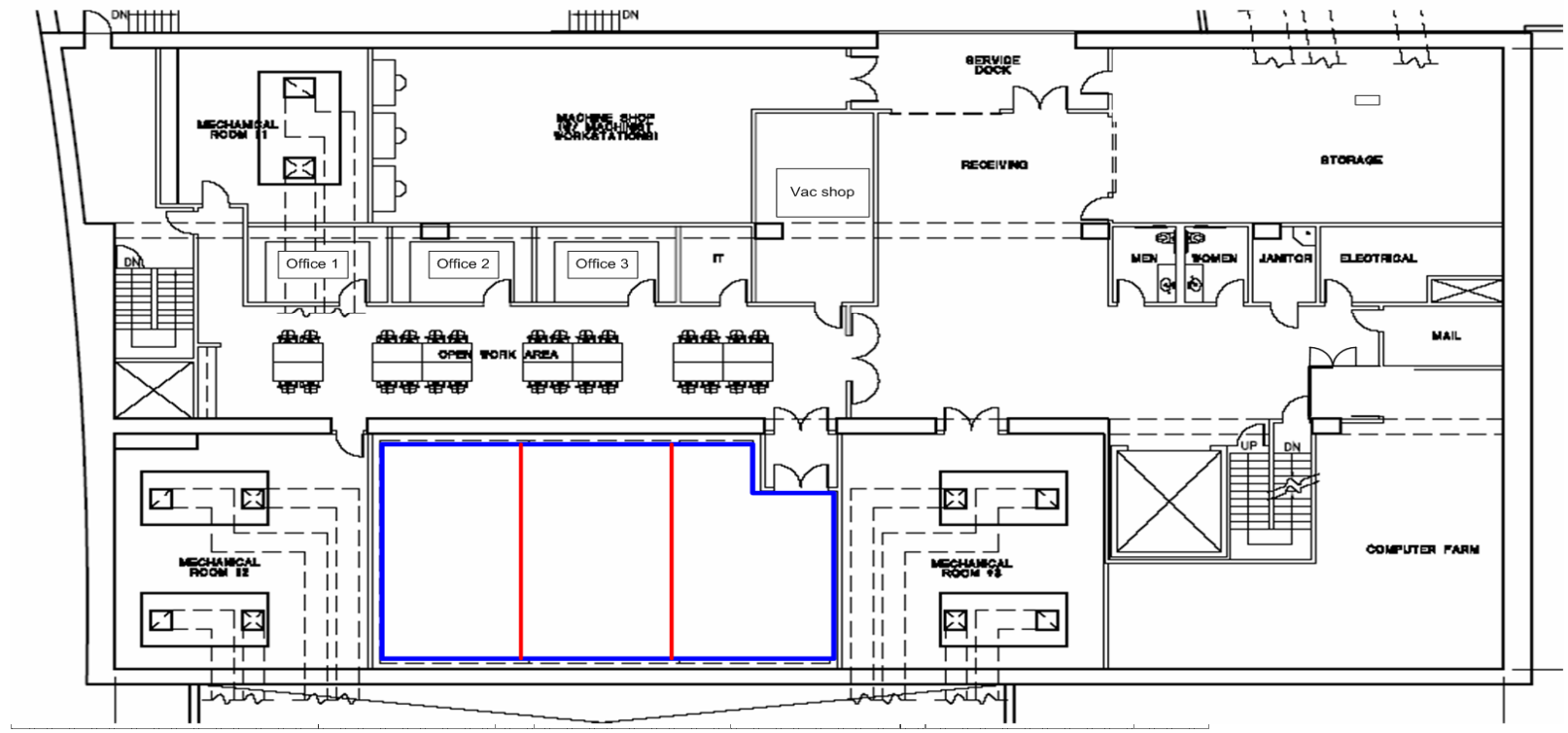


Fig.: 9 NEH Sub basement:
Eyewash and
safety shower locations

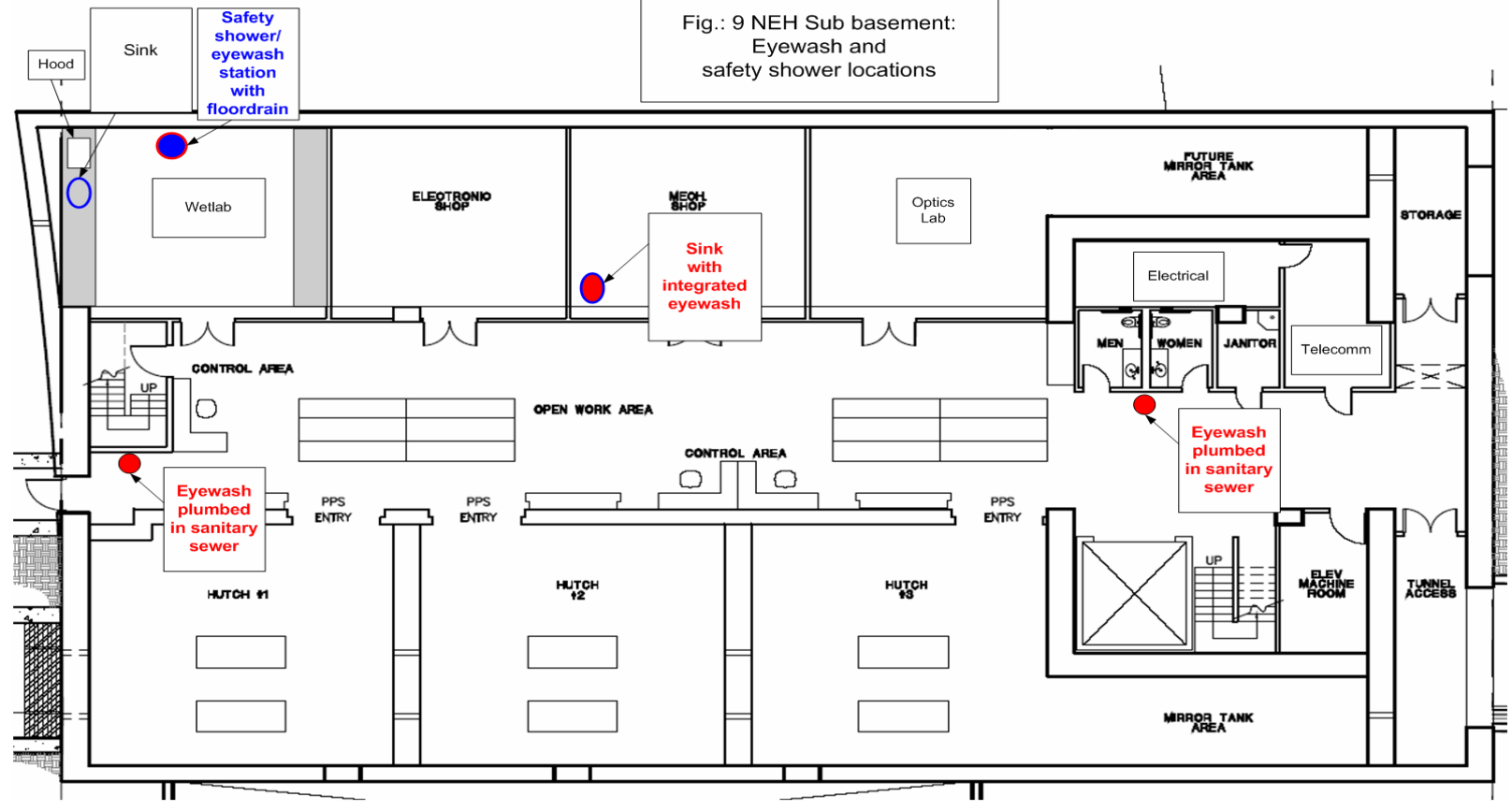
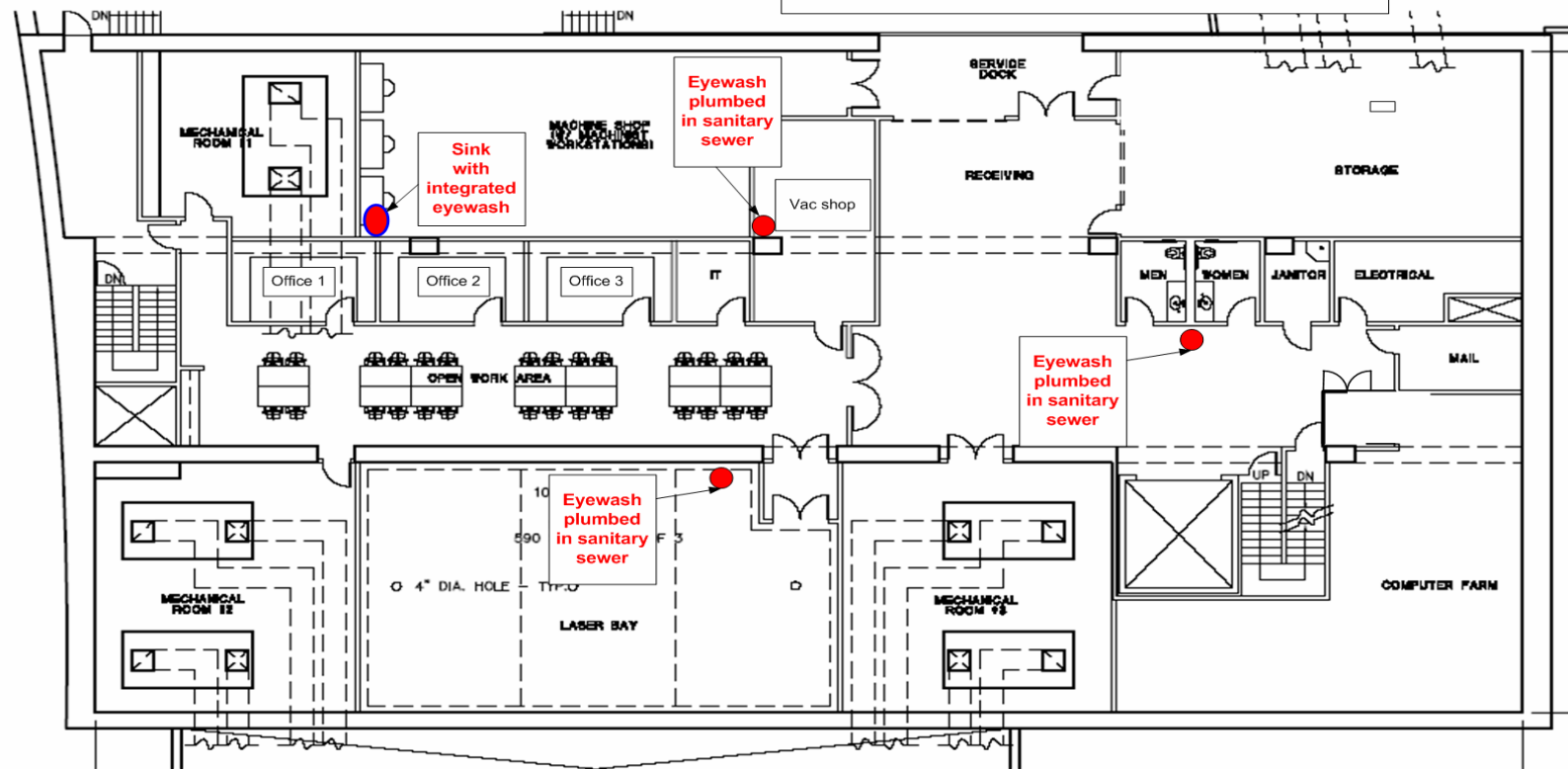


Fig.:10 NEH Basement: Eyewash stations, sink location



Continued			
MECHANICAL REQUIREMENTS	HVAC		
		<input checked="" type="checkbox"/> Heating system Temp: 72F	<input checked="" type="checkbox"/> Mechanical humidification
		<input checked="" type="checkbox"/> Air conditioning Temp: 72F	<input checked="" type="checkbox"/> Direct exhaust system
		<input type="checkbox"/> Direct supply	<input type="checkbox"/> Positive pressure system
		<input type="checkbox"/> Indirect supply	<input type="checkbox"/> Negative pressure system
		<input checked="" type="checkbox"/> Smoke control system	<input type="checkbox"/> Standard registers
		<input checked="" type="checkbox"/> Temperature sensors for DDC system	<input checked="" type="checkbox"/> Requirement for gases
		List of Gases - Dry Air; high purity nitrogen Provide nitrogen boil off station outside of NEH in parking lot area which provides Nitrogen supply for gas attenuator in FEE (see FEE RDS) and nitrogen for centralized system in NEH.	1 - Temperature fluctuation to be +/- 1 deg F in the hutches and radiation areas for stability. In non radiation areas +/- 2 deg F. 2 - Mechanical Pump exhaust line in hutches.
	Communications	<input checked="" type="checkbox"/> Telephone	<input type="checkbox"/> PA speakers
		<input checked="" type="checkbox"/> Dataport	<input type="checkbox"/> PA station
		Payphone	<input type="checkbox"/> CCTV camera
		<input checked="" type="checkbox"/> Fire alarm station	<input type="checkbox"/> CCTV monitor
		<input type="checkbox"/> Intercom	
		Comments:	
	Plumbing/Fire Protection	<input checked="" type="checkbox"/> Hot water system	<input type="checkbox"/> Electric watercooler
		<input checked="" type="checkbox"/> Cold water system	<input checked="" type="checkbox"/> Drinking fountain
		<input checked="" type="checkbox"/> Process Cooling Water	<input checked="" type="checkbox"/> Smoke detection system
		<input checked="" type="checkbox"/> Waste drain	<input checked="" type="checkbox"/> Wet sprinkler System
		<input checked="" type="checkbox"/> Floor drain	<input checked="" type="checkbox"/> Eye wash
		<input type="checkbox"/> Trench drain	Comment: Eye wash and shower location according to code (see figures 9, 10 for reference).

ELECTRICAL REQUIREMENTS	Power supply	<input checked="" type="checkbox"/> 208 V outlets	<input type="checkbox"/> Uninterrupted power supply
		<input checked="" type="checkbox"/> 110V outlets	<input checked="" type="checkbox"/> Special electric Type:
		<input type="checkbox"/> Emergency power	
		Comments: 1. Diversity factor for electrical load 60% unless otherwise specified. 2. See separate RD sheets for specific electrical requirements.	
	Lighting	<input checked="" type="checkbox"/> Light fixtures	<input type="checkbox"/> Remote lighting control
		<input checked="" type="checkbox"/> Fixture type I: Downlight	<input checked="" type="checkbox"/> Light switches
		<input type="checkbox"/> Fixture type II: Bollard (exterior)	<input type="checkbox"/> Lighting level FC: 50-75
		<input checked="" type="checkbox"/> Emergency lighting	
		Comments: 1. All conduits and light fixtures are surface mounted. Low profile fixtures preferred. Lighting level dependent on usage (details on RDS). 2. Provide occupancy motion sensors in offices only.	
RADIATION/SEISMIC/VIBRATIONS ISSUES	Comments: see special requirements in the RD sheets.		
SPECIAL REQUIREMENTS FOR EQUIPMENT	Comments: see special requirements in the RD sheets.		
ENVIRONMENTAL NEEDS	Radiation protection is a must for surrounding facilities.		