LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

LIGO Laboratory / LIGO Scientific Collaboration

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Restricted Work Alone Policy
(SURF, Interns, & Undergraduate Students)

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1 Purpose

To ensure the safety of all SURF, Intern, and Undergraduate Students who will be working at any of the LIGO Laboratories, the LIGO Directorate establishes this Policy to restrict the above-mentioned individuals from working alone during potentially hazardous activities. This document describes the policy and protocols that govern the following restrictions.

2 Policy Scope

NOTE: This Policy shall apply to any SURF, Intern, or Undergraduate who is working at any LIGO Laboratory, or is performing hazardous task. These terms are defined below.

The Policy is intended to apply consistently across all sites of the LIGO Laboratory. Where necessary and appropriate, site-specific modifications may be developed. These will be provided as configuration- controlled stand-alone documents which will reference this Policy. In the event of any conflict, this policy gives precedence to regulatory laws or guidelines, as well as requirements, which may be established by Caltech and /or MIT.

3 Restricted Work Alone Policy

1. Any person or student under the age of 18-years is NEVER permitted to work alone at any time.
2. SURFs, Interns and Undergraduate Students may never work alone. They must always have a qualified mentor or mentor backup supervising whenever engaged in a hazardous task *(as later defined in this document).* A mentor may leave the person alone for whom he/she is responsible for brief periods if a hazard or risk can be reduced (mitigated) by having sufficient controls in place and adequate safety training has been provided by the mentor, (with the approval in writing by the Safety Officer). However, the mentors must remain on-site.

   Example: An Intern working with a laser that is enclosed and the on-going task involves taking power measurements over a long period. The Intern may perform the specific measurement task but is not permitted to manipulate the beam or alter the test set-up.
3. Undergraduate students may never serve as mentors.

   NOTE: Additional requirements for various categories of work at LIGO Observatories, for various categories of personnel may be viewed at LIGO-M1100264 Guidelines for work at LIGO Observatory.

4 Definitions

1. **Work Alone:**
   Working alone refers to working by oneself under hazardous conditions or performing hazardous task *(see below)*. Whenever there is the lack of available personnel who can respond in the event of a problem or incident. Specifically, when there is a lack of a second qualified or experienced authorized person in the immediate vicinity. Immediate vicinity here shall mean within the same building and within either sight or earshot of the working person, if an emergency situation arises.

2. **Hazardous Work Activities and Equipment Operation:**
   Hazardous work activities and equipment operation refers to any work involving the operation of Class 3 or Class 4 lasers, the use of forklifts, aerial lifts, scissors lifts, cranes, electrical panels, high voltage, machine and wood working equipment, ladders, or confined spaces. This also includes working in electronic shops or laboratories where exposed high voltage may be present (areas containing unguarded, uninsulated energized lines or parts of equipment operating at 50 V or greater).

   Hazardous work activities also include Driving to out buildings or facilities during adverse weather conditions or performing work in close proximity to the vacuum system and beam tube are also in this category. This includes outreach and Science Education Center areas.

3. **Mentor or Mentor Backup Personnel:**
   A mentor refers to any person involved with the mentoring or supervision of SURF students, or overseeing interns, students (high-school, undergraduate or graduate) or inexperienced staff member. A mentor backup is a colleague of the mentor, approved by the site management, to serve as a mentor in the event that the mentor is absent. Mentors and mentor backups must have the appropriate safety training and be knowledgeable of the activity/work that the student is performing.

4. **Responsible Operator:**
   A responsible operator is any authorized and qualified person operating hazardous equipment or responsible for a hazardous activity. In most cases specific annual/bi-annual training is required for a person to maintain their responsible operator status.

5. **Work Permit:**
   A work permit is a written document that is distributed electronically for site wide review. Work permit notification via email shall be automatically forwarded to site management, safety officers, and subsystem cognizant engineers or scientists for review and approval prior to the start of the work activities. The work permit list the pertinent safety documents, the start dates and completion dates, the details of the job task to be performed, the task leader, whether a "Buddy" is required and if so the name of the second person and affected work areas. The work permit list whether the task is hazardous or not, allowing for added safety protocols to be put in place (Ref. LIGO M050194).

6. **Safety Management:**
   Safety management refers to specific LIGO supervising personnel that ensures the safe actions and work activities of the LIGO Laboratory staff and visitors. The Operations Manager/Site Safety Officer, LIGO Safety Officer, Laser Safety Officer, Site System Lead Engineer, and Line Supervisor have the responsibility for the implementation of all safety rules and regulations, including ensuring that the Work Alone Policy is done safely.

7. **SURF, Interns, and Undergraduate Students:**
   These are individuals who may be new to LIGO Laboratory and who are provided with learning/training and work experience provided by mentors, sponsors or experienced staff. Special attention is required to ensure adequate safety training in conjunction with their working and learning experience.