

## Code of Ethics

### I PRO 337: Zero Energy Lab

Spring 2008

#### I. Overarching Standard

- a) To continue the transformation of the top floor of Machinery Hall into a “Zero Energy Lab.” Essentially, the lab will be a space to research renewable energy and sustainability technologies, constructed using green materials and techniques. The lab space itself will operate on renewable energy sources and will not rely on the power grid for electrical power. The Zero Energy Lab (ZEL) team shall do so in an ethical manner that holds the surrounding community, advancement of green technology, and safety of lab users in the highest regard.

#### II. Canons

##### a) Law

- i. Each member of the ZEL team shall adhere to all local and state laws and regulations in all testing methods, design practices and business transactions.

##### 1. Pressure

- a. Meet important project deadlines.

##### 2. Risks

- a. Falsifying results in order to introduce a new technology on time. Publishing misleading information may lead to charges of criminal fraud or false advertising.
- b. Unlawfully using unlicensed or pirated software for simulation and testing.

##### b) Contracts

- i. The ZEL team shall uphold all contracts including, but not limited to: renting test equipment, purchasing materials, and partnerships with green technology firms.
- ii. The ZEL team shall abstain from any and all contracts in conflict with this Code of Ethics.

##### 1. Pressure

- a. Purchase cost-effective materials to furnish the lab.

## 2. Risks

- a. Knowingly entering a contract to purchase stolen or otherwise unlawful goods or materials in order to reduce cost.
- b. Reneging on a contract that has been previously agreed upon purchase goods from a different supplier that offers similar goods a lower price.

## c) Professional Codes

- i. ZEL team members shall adhere to the codes of ethics established by the governing bodies of the Institute of Electrical and Electronics Engineers<sup>1</sup> (IEEE) and National Society of Professional Engineers<sup>2</sup> (NSPE).

### 1. Pressures

- a. Formulate an energy-efficient lighting strategy using green technology for the lab space.
- b. Provide incentives to team members to improve morale.

### 2. Risk

- a. Exaggerate the efficacy of green lighting techniques used in the Zero Energy Lab, thus simultaneously breaching the IEEE's instruction for "full disclosure of pertinent limitations"<sup>1</sup> and the NSPE's canon to "avoid deceptive acts."<sup>2</sup>
- b. Purchasing lighting equipment from a company that has close ties to ZEL team members, when the same goods could be obtained at lower cost and superior quality from an unaffiliated source. This violates the IEEE's code to "to avoid real or perceived conflicts of interest whenever possible."<sup>1</sup>
- c. Use technologies developed in the Zero Energy Lab for the personal benefit of team members, without regard for contracts made with investors concerning return on their investment. This behavior would be in violation of the NSPE's direction to "act for each employer or client as faithful agents or trustees."

## d) Industry Standards

- i. The ZEL team shall strive for full documentation and disclosure of nonproprietary technologies for the benefit of green technology and sustainability industries, as well as the planet as a whole.

- ii. In development and construction of the Zero Energy Lab, applicable safety standards shall be held in high regard. For example, the ZEL team shall closely consider the U.S. Occupational Safety & Health Administration's code for fire protection and prevention<sup>3</sup> when building the Zero Energy Lab.
  - 1. Pressures
    - a. To finish design of the lab in a timely manner.
    - b. To use green construction materials that are comparable in cost to conventional construction materials in order to prove the practicality of using green materials.
  - 2. Risks
    - a. Ignoring safety and health standards as defined by the U.S. Occupational Safety & Health Administration's code for fire protection and prevention<sup>3</sup> in order to meet design deadlines. This may cause future injury or death in the lab.
    - b. Using low-cost materials that are considered green, but have not been proven safe for use as construction materials. As an example, using a new type of ceiling tiles that are good for the environment but haven't gone through comprehensive structural testing is a risk. If the tiles were to fall on a user of the lab it may cause injury or death.

e) Community

- i. As citizens of planet earth, the ZEL team has a vested interest in preserving its way of life by developing environmentally friendly technologies in the lab. Accordingly, the ZEL team shall strive to develop technologies for the benefit of mankind.
- ii. The ZEL team shall act as ambassadors of the research and development community in green technology and sustainability; and accordingly, shall not act in any manner that could tarnish the credibility of this community.
  - 1. Pressure
    - a. Make significant progress towards energy sustainability in the lab space as a proof-of-concept (showing by example that it is possible to achieve sustainability in an indoor space); thus, laying the groundwork for extension of Zero Energy Lab technologies to the surrounding community.

## 2. Risk

- a. In an effort to show progress and please investors, prematurely declaring a technology to be useful for energy sustainability without finding conclusive evidence indicating so. This may result in regression of green technology in the case that inferior technologies are represented as superior. Such misrepresentation can also hinder the progress of green technology if the public comes to mistrust those in the green technology sector. In any case, the longer the maturity and fruition of sustainability and green technology is delayed, the more the community is subject to the harm that conventional technologies have on the environment.
- b. In order to demonstrate progress, falsely claiming another group's technology as having been originally developed by the ZEL team. This may result in legal charges of plagiarism against the team, as well as violation of professional codes, as previously discussed in this document. Doing so would be a risk in tarnishing the good name of the green technology community as a whole.

## f) Personal Relations

- i. Each member of the ZEL team shall be courteous, sincere, respectful, and just in all interactions and exchanges amongst each other as well as contractors, investors, and other parties.

### 1. Pressures

- a. To be proficient in all areas of the project and maximize productivity.

### 2. Risks

- a. A team leader becoming frustrated and criticizing a member of the team in an unconstructive manner. This may have irreversible effect on morale.
- b. Assigning too many tasks to individuals, thus overloading them. This may cause team members' concentration to be spread too thinly and resultantly, their overall productivity decreased.

## g) Moral (and Spiritual) Values

- i. The ZEL team shall respect moral, spiritual, and religious values amongst each other as well as the surrounding community.
  1. Pressure
    - a. Use the best available and most practical goods to construct the Zero Energy Lab.
    - b. Find a weekly meeting time to gather as a team in order to work together more efficiently.
  2. Risks
    - a. The team deciding to rely on certain goods that are produced from animals; yet one or more of the team members is morally opposed to the unfair treatment of animals that the production process entails. Even though the goods are proven to be the best technology, using them may alienate members of the team.
    - b. The ZEL team scheduling the weekly meeting time for Saturday afternoon, which happens to be during the Jewish Sabbath. If there are any practicing Jewish members of the group, meeting during the Sabbath may infringe on their religious values.

### III. Works Cited

- a) <sup>1</sup> IEEE Code of Ethics. [http://www.ieee.org/web/membership/ethics/code\\_ethics.html](http://www.ieee.org/web/membership/ethics/code_ethics.html)
- b) <sup>2</sup> NSPE Code of Ethics for Engineers. <http://www.nspe.org/ethics/eh1-code.asp>
- c) <sup>3</sup> Occupational Safety & Health Administration – U.S. Department of Labor: Safety and Health Regulations for Construction.  
[http://www.osha.gov/pls/oshaweb/owastand.display\\_standard\\_group?p\\_part\\_number=1926&p\\_toc\\_level=1](http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_part_number=1926&p_toc_level=1)