

Excerpts from the National Society of Professional Engineers (NSPE) Code of Ethics for Engineers

<http://www.onlineethics.org/CMS/profpractice/ethcodes/13411/9972.aspx>

Fundamental Canons

Engineers, in the fulfillment of their professional duties, shall:

1. Hold paramount the safety, health, and welfare of the public.
2. Perform services only in areas of their competence.
3. Issue public statements only in an objective and truthful manner.
4. Act for each employer or client as faithful agents or trustees.
5. Avoid deceptive acts.
6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

Guidelines for Engineers Dissenting on Ethical Grounds

IEEE Ethics Committee 11/11/96

1. Establish a clear technical foundation

One should check out the alleged facts and technical arguments as thoroughly as possible. If feasible, get the advice of colleagues that you respect. Carefully consider counter-arguments made by others. A good way to ensure that you understand someone else's position, is to restate it to the satisfaction of that person. At any stage, if convinced that the other person's arguments are valid, do not hesitate to change your position accordingly.

This does NOT mean that you must be able to validate your position with near mathematical certainty. This is seldom possible in the real world. In most engineering work, we must operate with incomplete information and make reasonable engineering judgments. For example, the engineers in the Challenger case could not PROVE that a launch would lead to a disaster. But, in such a situation it was sufficient to show that the likelihood of failure of the O-ring joints was clearly too great with respect to established safety standards. The burden was on the other side to justify the launch--a burden that was not met.

2. Keep your arguments on a high professional plane, as impersonal and

objective as possible, avoiding extraneous issues and emotional outbursts

For example, do not mix personal grievances into an argument about whether further testing is necessary for some critical subsystem. Keep calm and avoid impugning the motives of an opponent. (Of course, there might be a situation in which the central issue is that an incompetent person has been given critical responsibilities. In that case, it may be necessary to attack that person's qualifications. But this should be done without malice.) Try to structure the situation so that accepting your position will involve as little embarrassment as possible to those being asked to change a decision. For example, you might be able to allow a manager to take credit for realizing that a course reversal was called for. Avoid overstating your case. Your credibility can be seriously undermined by exaggerated, invalid figures--even on matters not central to the main issue.

If the matter turns into a serious conflict, efforts will be made to portray you as some sort of crackpot. Avoid behavior that could be used to support such an attack. In both written and oral arguments be cool, clear, concise and accurate. At all times behave as a competent, ethical professional.

3. Try to catch problems early, and keep the argument at the lowest managerial level possible

Calling attention to a problem at an early stage makes a satisfactory solution much more likely. As time goes on, personal commitments to a particular course of action become deeper, and making changes becomes increasingly expensive. It is always less costly to resolve the dispute at the lowest organizational level possible. Move up the chain of command only when it is clear that this is necessary.

4. Before going out on a limb, make sure that the issue is sufficiently important

If a situation reaches the point where further protest may be costly, consider whether the stakes are sufficiently high. For example, if the issue involves only financial risks for the employer, then, if managers are acting unreasonably, it is probably not worth risking your career.

5. Use organizational dispute resolution mechanisms

Good organizations have procedures, not always

formal, for resolving disputes. After having exhausted informal efforts to persuade your manager, then you must consider using these mechanisms. Since this will almost certainly damage relations with your manager, this step should be taken only after a careful review along the lines discussed in guidelines 1 and 2. If you have an ally higher up in the management chain, you might appeal to that person for advice and possibly to intervene as a mediator.

If your organization lacks such a dispute resolution procedure, consider championing the creation of one. This could be invaluable in minimizing future problems

6. Keep records and collect paper

As soon as you realize that you are getting into a situation that may become serious, you should initiate a log, recording, with times and dates, the various steps that you take (e.g., conversations, email messages, etc.) Keep copies of pertinent documents or computer files at home, or in the office of a trusted friend--to guard against the possibility of a sudden discharge and sealing off of your office. But be careful not to violate any laws!

7. Resigning

If efforts to resolve the conflict within your organization fail, then a decision must be made as to whether to go further. It should be realized that there will almost certainly be a significant personal cost involved if you proceed. It is very unlikely that you would be able to remain with the organization, unless your job is governmental in nature, protected by civil service regulations or the like. One obvious choice is to resign. The advantages are: (1) This adds credibility to your position--makes it obvious you are a serious person. (2) Arguments that you are being disloyal to your employer are disarmed. (3) Since you are likely to be fired, resigning may look better on your record.

The drawbacks are: (1) Once you are gone, it may be easier for the organization to ignore the issues you raised, as others in the organization may be unwilling to carry on the fight. (2) The right to dissent from within the organization may be one of the points you wish to make. (3) You might thereby lose pension rights, unemployment compensation, and the right to sue for improper discharge.

It would be wise to consult an attorney before making this decision.

8. Anonymity

In some situations, engineers may see serious harm

being done within their organizations, but recognize that publicly calling attention to it may cause personal repercussions beyond what they are willing to accept. It might be possible to report the problem anonymously to others who may be able to take action, e.g. a regulatory agency, a senator, or a reporter. One problem is that an anonymous report may not be taken seriously. Providing enough information to make the report more credible may make it easy for the organization to identify its source. Being exposed as a purveyor of an anonymous report may be even more damaging to the engineer than the effect of openly making the report would have been. A reporter might distort the facts to make the case more "newsworthy". Nevertheless, this route is sometimes taken in preference to doing nothing at all. In such a case, one should be particularly careful not to malign any individuals and one should convey in the message means for verifying the claims made.

9. Outside Resources

If, after the failure of internal conflict resolution measures, you decide to take the matter outside the organization, whether or not you decide to resign, care must be taken in choosing where to go. In many cases, an obvious place is a cognizant regulatory or law enforcement agency. Other possibilities include Members of Congress (from one's own district or state, or the head of a relevant committee), state or local government officials or legislators, or public interest organizations. Of course some combination of these might be chosen. Although it is usually not a good idea to take one's case directly to the news media, they generally become involved eventually, usually in reporting actions taken by whatever entity the engineer has contacted. One must take special pains to be accurate and clear when dealing with journalists so as to minimize sensationalism and distortion. When given a choice among media organizations, choose those with reputations for fairness and accuracy.

Guidance and support from one's professional society is potentially a powerful aid to engineers in the kinds of situations considered here. Efforts are under way within the IEEE to improve the machinery for providing such support. Regardless of whether one obtains professional society support, it would be useful to engage an attorney to advise on the many legal aspects of the situation. But in considering their advice, one must take into account the tendency of attorneys to discourage any acts accompanied by legal risks.