



Engineers and Ethical Obligations

February 2007

The Institution of Professional Engineers New Zealand Incorporated (IPENZ) is the non-aligned professional body for engineering and technology professionals in New Zealand.

Practice Notes offer guidance to practising engineers by exploring issues of importance to the profession and setting out good-practice methodologies. They are written by practitioners and subject to peer review by IPENZ Members. While every care is taken in their preparation, these documents are not offered as formal advice. Any liability arising from their use rests with the practitioner.

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Introduction

Members of IPENZ are subject to the IPENZ *Code of Ethics* and Chartered Professional Engineers (CPEng) are subject to the CPEng Rules *Code of Ethical Conduct*. The IPENZ *Code of Ethics* has the force of regulations as set out in the Rules of the Institution. CPEng Rules are governed by national legislation and can be enforced through the courts. This *Practice Note* should be read alongside both the IPENZ *Code of Ethics* and the CPEng Rules *Code of Ethical Conduct*. Most complaints received by IPENZ involve a claimed breach of the codes of ethics.

Engineers and Society

Obligations placed on engineers are not principally limitations, but enablers of their practice. Engineers are highly valuable to society. Ethical obligations are necessary in order for engineers to carry out their profession. For example, without the obligation of confidentiality clients could not trust engineers with commercially-sensitive information. Without this information, engineers could not do their job. The moral obligations of our profession can be understood as duties which are necessary given the role of engineers in society.

Engineers and their Clients

Clients typically rely on relative strangers for significant services in circumstances under which they cannot assess the expertise or diligence of the service. This amounts to a significant risk for the client and for that reason IPENZ Members are required to avoid conflicts of interest and display expertise and trustworthiness.

Clients and end-users alike are often in positions of considerable vulnerability in their relationships with professional engineers. This generates a further set of obligations.

Members of the engineering profession are engaged in a practice that has ethics at its core. Ethical practice is not an optional extra.

IPENZ Code of Ethics and CPEng Rules Code of Ethical Conduct

Codes of ethics raise the standard of ethical consciousness. Further, the adoption and publication of a distinct professional morality, by way of a code of ethics, is a mechanism for publicising the ethical stance of the profession. A code of ethics can also provide independent support when a practitioner is faced with a situation requiring moral courage.

The IPENZ *Code of Ethics* and CPEng Rules *Code of Ethical Conduct* are framed around five values, each backed by guidelines and minimum standards. The five fundamental values are:

1. Protection of life and safeguarding people

Members shall recognise the need to protect life and to safeguard people, and in their engineering activities shall act to address this need.

2. Professionalism, integrity and competence

Members shall undertake their engineering activities with professionalism and integrity and shall work within their levels of competence.

3. Commitment to community well-being

Members shall recognise the responsibility of the profession to actively contribute to the well-being of society and, when involved in any engineering activity, shall endeavour to identify, inform and consult affected parties.

4. Sustainable management and care for the environment

Members shall recognise and respect the need for sustainable management of the planet's resources and endeavour to minimise adverse environmental impacts of their engineering activities for both present and future generations.

5. Sustaining engineering knowledge

Members shall seek to contribute to the development of their own and the engineering profession's knowledge, skill and expertise for the benefit of society.

Engineering Practice and the Codes

The application of ethical principles requires judgement. No code can cover all situations. In difficult cases, the test used by the Complaints Research Officer is to ask what would have been done by the "reasonable engineer", working competently and diligently.

Competence

Competence is the overarching obligation of the professional with respect to the client. This includes:

- Possessing sound knowledge applied with skill, diligence and care.
- Working within your level of competence and specialisation. The engineer who undertakes work for which he or she is not qualified or sufficiently experienced deceives the client and risks harm to others and to their own reputation.
- Accepting personal responsibility for work done. This includes work done by you or those under your supervision and requires taking steps to ensure that anyone working under your authority is both competent to carry out the assigned tasks and accepts a like personal responsibility.
- Ensuring that you do not misrepresent your areas or levels of experience or competence.

Public and workplace safety

The codes emphasise the engineer's role in designing and implementing safe technologies for the public and creating safe workplaces for staff. This includes:

- Public safety – giving priority to the safety and well-being of the community and having regard to this principle in assessing obligations to clients, employers and colleagues. This requires you to advocate to clients and employers, and devote adequate resources to ensure safety in use.

- Risk management – ensuring that reasonable steps are taken to minimise the risk of loss of life, injury or suffering which may result from your engineering activities, either directly or indirectly.
- Workplace and construction site – minimising potential dangers involved in the construction and manufacture of engineered products and processes. It is the engineer's responsibility to draw the attention of those affected to the level and significance of risk associated with the work. For further guidance refer to *IPENZ Practice Note 04 "Safety and Engineers"*.

Community well-being

The engineer should endeavour to be fully informed about relevant public policies, community needs and perceptions which affect their work. This may require an engineer, as a citizen who is also a specialist, to use his or her engineering knowledge and experience to contribute helpfully to public debate and to community activities.

The codes' guidelines also exhort the engineer to treat clients, peers, employers, staff and the public with humanity, respect, and sensitivity. Anticipating possible conflicts and attending to conflict resolution is a professional skill and duty.

Communication

Communication is important to an engineer's overall competence as a professional. Many complaints could have been avoided with careful attention to communication.

Important skills include:

- listening
- giving clear and concise advice
- being assertive with respect to clarification or interpretation of instructions

Good communication procedures include:

- recording all important conversations with clients
- having documentation procedures and internal audit systems for staff
- maintaining up-to-date files
- confirming verbal agreements in writing
- clarifying fees
- following a recognised professional practice (such as the IPENZ model conditions of engagement)

Conflict of interest

Conflicts of interest arise when the interests of a professional conflict with those of a client or when the interests of one client clash with those of another. It is important that an engineer has no motive for compromising the performance of his or her duty to the client.

The codes restrict the conditions under which a professional may act where a conflict exists. They require an engineer to disclose any financial or other interest that may, or may be seen to, impair their professional judgement on any engineering activities they are to carry out for that employer or client.

Good practice in any case of conflict requires an engineer to first identify and then assess any actual or potential conflict.

Suggested guidelines include:

- in a dispute between two clients, where possible decide which party you are acting for and notify the other
- do not act for either if doing so will harm the other
- assess whether it is better to withdraw
- suggest alternative professionals who can supply independent advice

Financial inducements are a source of such conflicts. The codes require that you do not promise to give to or accept from any third party anything of substantial value by way of inducement.

Confidentiality

An engineer's pursuit of their professional role is likely to be frustrated if clients are reluctant to be forthcoming with important, yet sensitive, information. The obligation to maintain confidence creates the conditions for the required level of openness.

An engineer must take care not to disclose confidential information relating to the work or knowledge of their employer or client (or former employer or client) without their agreement. An engineer must also refrain from using that information for another purpose that is to his or her personal benefit. An engineer may, however, disclose confidential information after gaining permission from the client as indicated by the codes. It is recommended that this permission be obtained in writing.

There are two important exceptions. The confidentiality clause does not apply if withholding the confidential information will put the public at risk, or if the information is asked for in a court of law.

Sustainable management and environmental stewardship

Sustainable management is often defined as management of resources, production and emissions to meet the needs of the present without compromising the ability of future generations to meet their own reasonably foreseeable needs. The overriding purpose of the Resource Management Act 1991 is "to promote the sustainable management of natural and physical resources".

Members are required to recognise and respect the need for sustainable management of the planet's resources and endeavour to minimise adverse environmental impacts of their engineering activities. This includes:

- using resources efficiently
- minimising the generation of waste and encouraging environmentally sound re-use, recycling and disposal
- recognising the adverse impacts of your engineering activities on the environment and seeking to avoid or mitigate them

For further guidance refer to *IPENZ Practice Note 05 "Sustainability and Engineers"*.

Obligations to Members and IPENZ

Peer reviewing

Before peer reviewing another Member's work, it is important to inform the Member concerned. This provides the opportunity for your review to include all relevant information, some of which you may not be aware of but may be known to the Member. Investigate the matters concerned thoroughly, and refrain from criticising the work of other professionals without due cause. For further information on conducting a peer review refer to *IPENZ Practice Note 02 "Peer Review"*.

Engineering in society

Members are asked to play their part in upholding the reputation of the Institution and its Members and supporting other Members as they seek to comply with the *Code of Ethics*. This includes:

- sharing public domain engineering knowledge with other engineers
- seeking and encouraging excellence in their own and others' practice
- improving and updating their understanding of engineering and encouraging the exchange of knowledge with their professional colleagues

Ethical Decision-making

The surest path to enduring success in business and in the profession is developing a good reputation. An ethical approach to work is consistent with this as it encompasses competence, integrity and the personal and professional values that support it. These values contribute to an engineer's ongoing standing within the engineering community and with existing and potential clients.

Good decision-making is central to ethical practice. The test of ethical competence is seen as the way in which engineers make decisions and resolve the conflicts those decisions often involve. A good decision is one made by a person of good judgement with access to all relevant information, who pays heed to all relevant rules and values, weighs them appropriately and implements them effectively. Good ethical decisions are characterised by:

- Richness – how many factors have been considered?
- Openness – how open has the engineer been to these factors?
- Coherence – does this decision make sense within other decisions that have been made by the engineer?



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