



International Federation of Consulting Engineers
The Global Voice of Consulting Engineers

Guidelines to Reviewing the Work of other Professional Consulting Engineer

FIDIC Briefing Note

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Background

The international engineering federation FIDIC (the International Federation of Consulting Engineers) believes that its member associations and their members should strive to achieve the highest degree of quality and standards.

FIDIC has always had policy statements that it expects its members to follow to ensure high standards of service in the infrastructure industry. These standards are reflected in FIDICs contracts, policy work, events and committees.

Guidelines to Reviewing the Work of other Professional Consulting Engineer

1. General guidance

The task of reviewing the work or services of a consulting engineer is a frequent one for FIDIC members, especially where risk management, quality management and business integrity management are increasingly applied to the sustainability management principles sought in projects.

The professional, ethical, contractual and legal responsibility of the consulting engineer undertaking the review cannot be over-emphasized and the reviewer should approach this task in the knowledge that:

- properly conducted, a review is a positive contribution to high standards of engineering and in so doing enhances the image of the profession
- for this reason, the name of the reviewer should appear in any review report or document as a technical advisor or similar
- for the review to be constructive and helpful to the designer and the client, it must be conducted sensitively and in an atmosphere of trust with full disclosure of facts and opinions
- the reviewer should uphold the code of ethics of the industry, which include specific obligations relating to the criticism of the work of another consulting engineer including the responsibility (whenever possible) to advise the original consultant that the review is being done.
- a person being reviewed, even in an internal review within a consultant's office, may react defensively
- in a review, a position of trust is very difficult to maintain if there is risk of accusation or blame for some loss resulting from the execution of the work by the designer being reviewed
- the reviewer must at all times remain objective and at no time should use the process to usurp the original engineer/consultant
- an improperly conducted review is one of the most common causes of complaints by member against member

1.1 Types of Review

A review can generally be considered in four categories:

- An in-house review or overview by a colleague or superior
- A review as part of a statutory or regulatory process
- An independent review of a project at the request of a client or their consultant
- A review as a result of a failure or disaster. This may be in anticipation of litigation and has special requirements

1.2 General responsibilities

A professional review is a process that is instituted to ensure that the end result of a design or investigation meets particular standards, is comprehensive, and has not over-looked potentially critical issues.

A review may cover part or all of a consulting engineer's services and will generally be checking that recognized or specified processes of investigation, design, reporting construction monitoring or project administration have been performed satisfactorily and correctly.

It is vital that the scope and depth of the review is well defined. It may include some or all of the following:

- Review of concepts, inputs and assumptions
- Review of load paths or processes
- Review of computer/analysis inputs
- Detailed analysis/design (including numerical checking) check of primary elements
- Random analysis/design check of selected elements
- Detailed analysis/design check of primary elements
- Review of drawings/documentation to confirm interpretation of design/analysis
- Duplicate/parallel independent analysis

The review may involve the checking and verification of detailed calculations or more simply require the reviewer to follow through the design process to verify that appropriate assumptions and standards have been used and the conclusions reached are sound in general engineering terms, and are consistent with the design process followed.

A review is not an opportunity to displace a designer or consultant from his commission, prove that the reviewer is a more competent consulting engineer, or redesign a project to standards or on a basis that the reviewer may consider more appropriate. Such practice is highly unethical.

The terms of engagement of the reviewer must be in writing and quite explicit as to the extent or the level of review required. The terms of engagement should also define the level of liability that the reviewer will assume. The brief, and the work of the reviewer, should not extend to assume the designer's responsibility, an action which is contrary to the code of ethics and could also incur unintended liability. In the event that the review recommends modifications to a design then the amendment should be implemented and documented by the original designer.

Where a review is arranged or required by a third party, it is recommended that party ensures that the original designer knows of the review and accepts, and has confidence in, the reviewer. Where it is the client who engages the reviewer, the client must also notify the original consulting engineer similarly.

If the original consulting engineer states that he/she does not have confidence in the reviewer; he/she should provide acceptable and accountable reasons. This communication should be done in writing and should be disclosed to all parties; i.e., the client or the third party, the original consulting engineer and the reviewer.

When a review is anticipated from the beginning of the project the client (or its consultant) should inform the original consulting engineer of the proposed review process before the original consulting engineer commences the engineering services.

The person whose work is being reviewed should understand that the process is a positive one rather than a threatening one.

Whenever possible the reviewer should discuss their draft findings with the original designer before issuing a final report. This can eliminate misunderstandings and unnecessary resentment.

It is recommended that the scope of work/services of the reviewer which should be written into the consultant agreement, include the following:

- the purpose of the review
- the scope and depth of the review

- who is entitled to view and to rely on the report and under what circumstances
- confirmation that a courtesy copy of the report will be provided to the original designer
- - qualifying statements as to the extent of work done and not done, the reliance on information provided by others, matters requiring further investigation, and a clear statement of any assumptions made
- any disclaimers
- liability carried by the reviewer

A reviewer should not sign or be responsible for any compliance certification. That is the responsibility of the original designer. Note that when the review is required as part of a regulatory/statutory process, the reviewer will be required to submit some form of producer statement (design review certificate). This will normally attract some liability.

The reviewer has a responsibility to understand fully, all the circumstances surrounding the original design brief, particularly where there appears to be a difference between the reviewer and the original designer. A discussion at this stage between the reviewer and the designer often brings out issues that may not have been made clear in the brief for the review.

An engagement to examine the work of another consulting engineer as part of a litigation already in process, or contemplated, is a commitment to act as an expert witness. That role should not be allowed to develop from a review engagement, but the reviewer should be aware of the possibility of being subpoenaed to become, in effect, an adviser to a court, where statements in the review report will be difficult to retract.

2. Responsibilities of the reviewer

For each of the categories listed above there are some specific aspects to be noted:

2.1 In-house review

The in-house review often forms part of an organization's quality control or quality assurance programme. The designer should be offered constructive advice which will be respected and acted upon from an early stage of the process, before a commitment or inappropriate course of action is taken.

Differences may occur in interpretation of codes or standards, or the level of conservatism that is appropriate. Such matters can be debated and any agreement or difference of opinion should be recorded as part of the review notes. Remember the reviewer is not automatically correct.

2.2 Review as part of a statutory process

The following guidelines refer to routine reviews as part of a statutory process such as applications for building consents, compliance certificates or resource consents. The code of ethics and rules of the association should be taken into account in any review as with undertaking any commission.

A consulting engineer, independent of the designer's firm, is engaged to review the work of the designer. This can vary from an in-depth design review to an expression of an opinion on design principles.

It is most important to define the brief closely. A good brief will set out the task clearly, including the level of checking and review which the commissioning organization requires.

The reviewer should be able fulfill the brief without unnecessary criticism of the design being reviewed. The reviewer should neither offer remedies or solutions to deficiencies in the design, nor offer alternative solutions when the original design is sufficient.

- If a consultant accepts an engagement to review another consulting engineer's work it should be on the understanding that they are permitted full rights of discussion with the designer;
- The reviewer should notify the designer (in writing) of such involvement. Both parties should be prepared to discuss the review frankly, and professionally;
- A reviewer should exercise discretion, tact and restraint in the role of a reviewer, and ensure that the review is carried out in a climate of mutual confidence and understanding;
- A reviewer should not comment on the choice of the design or suggest alternative designs, but comment only on the validity and satisfactory compliance with the relevant codes/standards, statutory requirements and the law.
- A reviewer should consider the consequences of any issues raised in a review report such as it may affect risks and costs incurred to the owner or to the public, the reputation and livelihood of the designer and, the good standing of the industry itself. If the reviewer considers that the designer's work is seriously at fault, the matter should be discussed in the first instance with the designer to make every endeavor to resolve the matter. If necessary another, independent, opinion can be sought;
- The reviewer should be aware that unnecessary delays could mean loss of revenue to the owner and may lead to a complaint being laid. Professional reviews should always be done promptly, and any issues resolved as a matter of urgency.

2.3 Independent review of a major project

Independent appraisals or reviews are at the invitation of a public or local authority, private client or another consulting engineer. They may include engagements as an expert witness in a court of law or other tribunal.

The purpose of such a review is to provide an objective view of the project to assist the designer who is bound to be much involved with detail, and may find it difficult to view the work objectively. Best results are obtained when the reviewer is involved from the start and acts as part of the overall project team. To this end the designer should be involved in the selection of the reviewer(s).

- The reviewer should advise the client that they wish to advise the original consulting engineer of their appointment as reviewer, and wish to be free to approach the other consulting engineer to discuss the design and design philosophy, if the other consulting engineer is amenable to such discussion
- Formal lines of communication throughout the review process should be stated in writing, along with careful definition of the scope, limitations of the review and liabilities of the reviewer
- The reviewer should then notify the other consulting engineer in writing of the appointment to review. (It may be more appropriate that the client or their consultant do this, instead of the reviewer. Only after that, the reviewer should contact the original consulting engineer to start working together.) Before expressing an opinion, the reviewer should make every endeavor to obtain full knowledge of the facts, either by discussion of all aspects of the design philosophy and terms of commission with the designer, or by other means
- The review should be made bearing in mind the facts of the commission. The reviewer should therefore avoid as far as practicable, intrusion of personal concepts and direct the review to the adequacy of the design; as would be expected in meeting normally accepted standards

- To this end, the designer must remain responsible for the design and the reviewer must be satisfied with design principles and assumptions and adequacy of the functional and safety objectives of the project
- Although a reviewer should not attempt to take over or usurp the design or impose their own solutions, they may, if involved from the start in a review of this type, be involved in review of the selection of the option chosen for the solution of the problem. Likewise the reviewer should not, unless the client insists, undertake numerical checking but should be satisfied by the designer that design quality assurance is being applied by the designer
- Where construction involves important field confirmations or decisions, these should be identified and be reviewed in the field. Similarly, where operational performance and surveillance are embodied in final proof of design, these aspects should also be reviewed
- If the reviewer and the designer differ about the relative merits of two effective solutions (usually of different degrees of conservatism and cost), then the client should be briefed so that the client can make the ultimate choice
- Members should avoid being placed in the position of giving an opinion or decision as to negligence which is the province of the courts alone
- If an engagement is not made for the purpose of appearing as an expert witness, the engagement should be accepted only on the understanding that the reviewer will not later accept engagement as expert witness by any party to a claim against the consulting engineer whose work was reviewed and in relation to the project reviewed
- A member is engaged to review the work of another consulting engineer shall not accept a commission to design or supervise remedial works except in circumstances where the further engagement does not compromise the code of ethics of the national Member Association or of FIDIC.

2.4 Review of a disaster or failure

Even if the reviewer's brief is restricted to an opinion on the causes of the failure, the question of blame or liability is bound to arise. The reviewer must above all be fair and objective and not be swayed by the benefit of hindsight. It requires a conscious effort on the part of the reviewer to judge the matter from the standards of reasonable care and skill, current at the time that the consulting engineer's work was executed, which could be many years before the failure.

- The reviewer, after completing their report should discuss all the items of the report with the original consulting engineer, provide changes on the report where appropriate and only after that should submit the report to the client.
- The reviewer should be careful to limit observations and conclusions to those which can be supported by the factual evidence when carrying out such a review. Where the reviewer expresses an opinion it must be made clear that the opinion is the opinion of the reviewer only and that there may be circumstances that could change that opinion.
- The reviewer should not make judgment about the possible negligence of another consulting engineer. That is a legal matter for a court to decide, even though identification of the cause of the failure may well imply negligence. The job of a reviewer is to assist the court in its understanding of the technical issues.

Recommendations for corrective or remedial work do not form part of a review. Any such work is a separate engagement entered into only when the original designer's engagement has been formally terminated or modified appropriately. (It is important that the reviewer understand the role and scope of the original consulting engineer and can only comment on what another competent consulting engineer might have done - this is the test of negligence - often, the reviewer of a

disaster is an "expert", whose skills may exceed those of a reasonably competent consulting engineer, and the expert would possibly have done something completely differently - this does not mean the original consulting engineer has been negligent or is incompetent).



FIDIC recommends:

- Members and member associations engage constructively with all parties if engaged in a review process
- Members undertake reviews in line with the spirit of this code of conduct
- Where issues do occur members should use their best endeavours to resolve issues in a manner which does not bring the consultancy and engineering sector into disrepute

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Endnotes