



Guideline for
Relying on Work
Prepared by Others
v1.1

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The Association of Professional
Engineers and Geoscientists of Alberta

FOREWORD

APEGA publishes practice standards and guidelines for the purpose of educating its members and the public about matters of professional practice. Practice standards and guidelines are not intended to be short courses in engineering or geoscience. In general, these documents are produced to meet the following objectives:

- To assist APEGA members in performing their professional role in accordance with the *Engineering and Geoscience Professions Act* and the *Engineering and Geoscience Professions Regulation* under the act.
- To help the public understand the role of APEGA members and the responsibilities members have when performing their professional services.

This practice standard is a revision of the previous document published in June 2003. This latest revision of the guideline reflects changes to the name of the Association and the governing legislation that became effective in 2012.

Participants

APEGA's Practice Standards Committee (PSC) publishes practice standards and guidelines to promote high levels of professional service. A PSC subcommittee with the following membership prepared this guideline:

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1. OVERVIEW

In the practice of their professions, professional members of APEGA rely on various kinds of information that they themselves have not prepared. The questions that arise in that regard are: to what extent can they rely on such information and what should they do to properly accept professional responsibility for their work?

It may be that cost and schedule constraints do not permit the members to complete their tasks solely from their own experience or knowledge of basic principles. Perhaps reliable, valid information is readily available for a specified design. Or the member may not personally perform a field review or construction/post-construction inspection and is willing to take responsibility for another person performing the field review or inspection. However, this does not exempt the professional member from verifying the reliability, validity, and applicability of information obtained from outside sources.

The process of assessing the quality and suitability of work by others is subject to the Code of Ethics. The Code requires that professional members only undertake work that they are competent to perform by virtue of their training and experience. This allows the member using the work of others to distinguish facts, assumptions, and opinions, or, when using expertise outside of their field, to rely upon another's professional qualifications. The stamping, signing and dating (authenticating) of a final deliverable indicates that the professional member has taken responsibility for the work.

1.1 Scope

This guideline covers appropriate levels of examination for professional members intending to rely on information that might come from a range of sources. The sources include, but are not limited to, software, standards, published works, manufacturers' literature, published and proprietary information, as well as the work of other professional members.

1.2 Purpose

The primary purpose of this guideline is to assist professional members in understanding their responsibilities and obligations when using work prepared by others. This guideline is intended to help professional members identify work by others and evaluate the quality and applicability of that work to the assignments with which they are involved.

This guideline is also intended to assist APEGA's regulatory committees and boards in assessing whether APEGA members have acted properly in accepting professional responsibility when relying on work by others.

1.3 Definitions

For the purposes of this guideline, the following terms and definitions apply.

Act

The Engineering and Geoscience Professions Act.

Association

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The Association of Professional Engineers and Geoscientists of Alberta (APEGA).

Authentication

Application of the professional member's stamp, signature and date.

Code of Ethics

APEGA's Code of Ethics established pursuant to section 19(1)(j) of the *Engineering and Geoscience Professions Act*.

Due diligence

The care that a reasonable person exercises under the circumstances to avoid harm to other persons or their property.¹

Industry standards

Prescribed methods as established by law or custom to be followed routinely for the performance of designated operations.

Integrity (of professional documents)

The ability to verify that the information contained in the document has not been changed since the document was authenticated, and that the medium used provides stability and the required longevity to the information.

Intellectual property

Property of an intellectual nature that may be protected under law, including works subject to copyright, ideas, discoveries, and inventions.

Manufacturers' literature

Supplementary written material produced by the manufacturer to accompany or support a product, which may include specifications, installation procedures, operating standards, or other detailed, precise information about the product.

Outside sources (or work by others)

A firsthand document or primary reference work that has not been produced from the member's own experience or knowledge of first principles. This includes all forms of information used directly by APEGA members in preparing documents or designs, making professional judgments, or engaging in any professional activity. It may be published and unpublished data, work by individuals, agencies, and corporations, as well as computer output.

Permit

The right to practice granted to a partnership, corporation or other entity that practices engineering or geoscience in its own name pursuant to the *Engineering and Geoscience Professions Act*.

Permit number

The number issued to a permit holder (a professional corporation, company, association, firm, partnership, society, organization, or other entity that practices engineering or

1 Merriam-Webster Dictionary. Merriam-Webster, 1903.

geoscience in its own name, pursuant to the *Engineering and Geoscience Professions Act*.

Professional member

A professional engineer, professional geoscientist, licensee, professional licensee (engineering) or professional licensee (geoscience) entitled to engage in the practice of engineering or geoscience under the *Engineering and Geoscience Professions Act*.

Qualified person

A professional member of APEGA or of another professional association (such as another provincial engineering and geoscience association, professional agrologists, professional biologists, etc.) entitled to practice in a specified field.

Regulations

Engineering and Geoscience Professions Regulation

Reliability (of data)

The extent to which the results may be reproduced during repeated trials.

Stamp

The stamp or seal issued to a professional member by the Association.

Validity (of data)

The extent to which the accuracy of results may be corroborated by another method.

2. RESPONSIBILITIES

Further to APEGA's Code of Ethics, the professional has regulatory and statutory responsibilities when relying upon the work of others.

2.1 APEGA Regulations and Statutes

Professional engineers and geoscientists are required to stamp all final plans, specifications, reports or documents before issuing them for use. This is to provide a clear identification for the public of all documents that have been prepared by or under the supervision and control of a professional member.

A professional member of APEGA shall stamp only such documents of a professional nature that were prepared by the member or under the member's direct supervision and control, or in the case of work prepared by others, were thoroughly reviewed and professional responsibility accepted by the member².

2.2 Standards of Disclosure for Mineral Projects

The Canadian Securities Administrators, in their Standards of Disclosure for Mineral Projects, requires that engineers and geoscientists who are submitting reports on mining

² Section 49(a) of The Engineering and Geoscience Professions Regulation

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properties to Canadian Provincial Securities Administrators, to ensure that all written disclosures of a scientific or technical nature state the following:

- whether a qualified person has verified the data,
- any limitations on the verification of the data, and
- an explanation of any failure to verify the data.

If the author of all or a portion of the technical report has relied on a report, opinion or statement of legal and other experts who are not qualified persons for information concerning legal, environmental, political and other issues and factors relevant to the technical report, the author may include a disclaimer of responsibility.³ The author would identify the extent of reliance on this information and the portions of the technical report to which the disclaimer applies.

3. PROCESS FOR EVALUATING THE WORK OF OTHERS

Although there are risks in professional members using work by others in their work assignments, cost and schedule constraints often do not permit the members to complete their tasks from strictly their own experience or knowledge of basic principles. Members should not “reinvent the wheel” if there is reliable and accurate information available from outside sources that they may use.

In all professional activities, members should apply reasonable care in determining the quality of work by others before applying it. The due diligence required to verify the validity and reliability of work by others will vary depending on the type of information, how it is applied, the member’s professional experience, and the impact of poor quality work on the final product. This guideline provides a basis for members to determine what reasonable effort they need to apply where they rely on work by others. However, the specific steps taken to satisfy the requirements of due diligence ultimately will rest on the member’s professional judgment, the commitment and scope of responsibility, and any qualifications or caveats given with the authentication of professional documents.

Since the evaluation of the reliability of information or data is typically done very early in the assignment, even before the work is accepted, all assumptions made in the evaluation should be documented. It is particularly important for new graduates to skillfully evaluate work by others and document their assumptions so they may exercise due diligence in all future assignments. Upon reviewing the work done by others, the professional member may decide to decline the job or determine that extensive new information should be created that may increase the scope of the job.

In general, members should apply the following due diligence process in evaluating the work by others and the suitability for the desired application. This process is described in detail in the following sections and also outlined in Figure 1:

3.1 Determine Necessity

³ Information extracted from Form 43-101F1 - Technical Report, Standards of Disclosure for Mineral Projects

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- 3.2 Consider Purpose and Application
- 3.3 Complete Detailed Assessment
 - 3.3.1 Assess Reliability and Validity
 - 3.3.2 Assess Applicability of Information as Intended
 - 3.3.3 Clarify and Demonstrate Professional Responsibility
- 3.4 Determine Acceptability of Work by Others
- 3.5 Exercise and Document Due Diligence

3.1 Determine Necessity

Initially, professional members should determine if it is appropriate and necessary to use the work by others instead of fully developing the work themselves. Many professional members, for example, need to use existing information due to time and schedule constraints since it may not be practical or economical to recreate existing information.

3.2 Consider Purpose and Application

Once professional members have confirmed the need to use work by others, they should ensure that they understand the purpose, specific application, and any constraints or limitations that may have a bearing on the suitability of using the information. Professional members should explore facets of the situation such as: the novelty of the technology or method, the consequences of failure, industry standard practices, relevant contractual terms, or any specific considerations that may rule out reliance on existing information. Professional members should again question the validity of using the work by others, and then if satisfied, proceed with the detailed assessment.

3.3 Complete Detailed Assessment

With a better understanding of the application, professional members may then focus on assessing the reliability and validity, fitness for intended use, and clarify their professional responsibility. By using Section 4 of this guideline, the professional member may categorize the work by others to assist their evaluation. Types of work by others not included in the categories of Section 4 should still be subject to due diligence.

3.3.1 Assess Reliability and Validity

The reliability of work by others may be gauged by posing the question: “Can the information be trusted for the use to which it is being applied?” Reliability is demonstrated by the extent to which an experiment, test or procedure yields the same results on repeated trials. Validity is demonstrated by the extent to which the accuracy of results from one source may corroborate results obtained from another source (e.g. hand calculations vs. computer analyses). The reliability and validity of information may also be evaluated by considering the reputation of its source. For instance, industry standards likely will be quite valid and reliable while recently published work may contain uncorrected errors.

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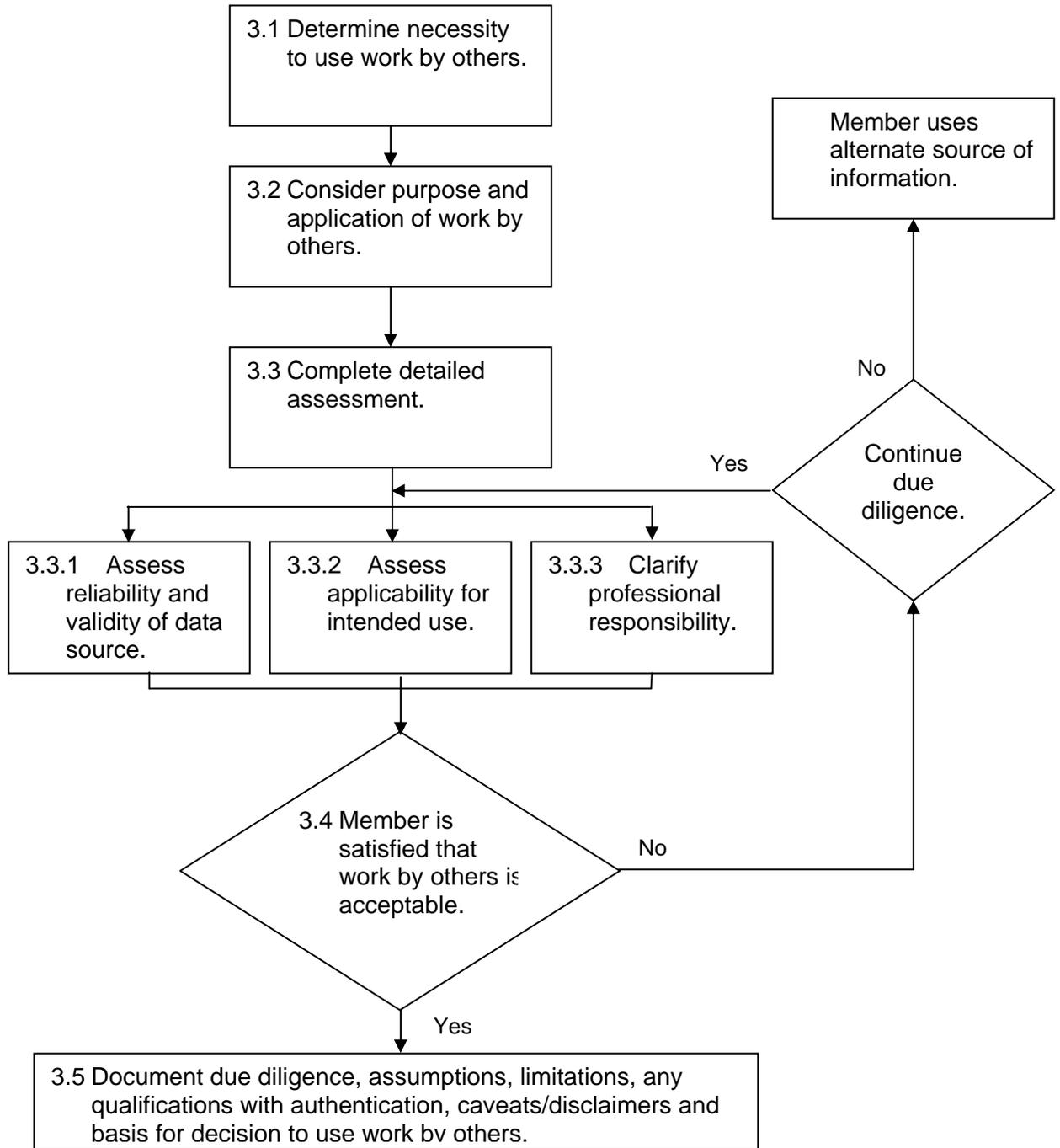


Figure 1 - Process of evaluating the work by others and the suitability for the desired application.

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The following criteria should be used to assess the reliability and validity of work by others.

Criteria	Details
1. Integrity of professional documents	<ul style="list-style-type: none"> • Demonstrable that the information contained in the document has not been changed since the document was authenticated, and that the medium used provides stability and the required longevity to the information.
2. Credibility of the originating institution or source.	<ul style="list-style-type: none"> • Demonstrates professional responsibility, enables skilled practice and implements quality control procedures. • The professional organization has an active permit to practice, if required. • Is known in the industry to be credible and reputable.
3. Credibility of the author(s).	<ul style="list-style-type: none"> • Qualifications, experience, and reputation of developer(s), authors, or designers.
4. Documentation.	<ul style="list-style-type: none"> • An established methodology has been used. • Results are supported by data/calculations and, in the case of standards, supported by test data. • Documentation is available for review (e.g. record of calculations). <ul style="list-style-type: none"> ▪ Commentary on results includes distinction between data, facts, interpretations, assumptions, opinions and anecdotes. • In the case of work by other professionals, final documents are stamped, signed and dated. Permit number, where required, is included on final documents. • Interpretations are supported by data.
5. Corroborating evidence.	<ul style="list-style-type: none"> • Repeatability of results from duplicate tests - similar interpretations from other types of data or evidence. • In the case of computer software, validity of results compared to other software packages and/or hand calculations. • Limited validations may be required for using standards, published work or work from other professionals.

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6. Declared reliability and validity (limitations, caveats and statistical properties).	<ul style="list-style-type: none"> • Description of assumptions, limitations, and expressed caveats. • Work by other professionals or standard designs is used as intended, interpolation or extrapolation is not necessary (e.g. for local conditions). • Statistical treatment of data populations for test data • Limitations on validity of interpolation or extrapolation.
7. Vintage of work	<ul style="list-style-type: none"> • Meets requirements of current codes or industry standards. • Uses currently accepted assumptions, understandings, and methods of the issues/problems. • Or uses innovative concepts or methods.

3.3.2 Assess Applicability of Information as Intended

Another criteria for evaluating work by others is whether the information is going to be used as it was initially intended. This applies to all forms of work by others, whether it entails published papers, computer output or manufacturers' specifications. Even, if the information is reliable, when used for an application for which it is not intended, it could lead to incorrect conclusions. If members have doubts about the intended use of the information, they should contact the original author or organization for written clarification. Where members regularly use information from others in applications outside of the original intent, such as using stratigraphic studies for oil and gas exploration, members still should ensure that the application of the information will not lead to an incorrect conclusion.

3.3.3 Clarify and Demonstrate Professional Responsibility

When reviewing work by others, it is important for members to be aware that they are professionally responsible for the application of that information in their work. Members should be completely satisfied that they have taken all reasonable steps to ensure the quality of the work by others and be able to produce adequate documentation to verify their due diligence.

When information is not based on the professional member's own observations and investigations, the source of the information shall be clearly stated and cited. This should include exact reference to reports or records, the author and the degree of reliance placed on them. If possible, when the information is derived from unpublished reports or records, an authenticated copy of the source and certificate of the author's professional qualification should be appended.

3.4 Determine Acceptability of Work by Others

While assessing the work of others, it may not be clear how rigorously a member needs to validate the information. There is no clear rule as to the level of rigor required.

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However, professional members should feel confident that they might accept responsibility for the overall project.

- Are there any remaining doubts or concerns about the validity and reliability of the work by others?
- Are there still questions surrounding the applicability of others' work to the current project?
- Were enough independent sources consulted to verify reliability and validity of the source?

If there is a strong argument supporting the use of the work by others, professional members should fully document the basis for the argument in their work log or design notes. If there are still lingering doubts or questions, then the members should continue with their due diligence research or consider not using the work by others. They might also seek guidance from other recognized experts in this situation.

Prior to completing the due diligence exercise, professional members should document the results of their assessment. One possible format would be to structure the results under the headings: reliability and validity, intended use, and professional responsibility.

3.5 Exercise and Document Due Diligence

Due diligence relates to the application of reasonable care. The meaning of "reasonable care" may be subject to interpretation on a case-by-case basis, depending on the potential for problems to arise. Reasonable care may be assessed by comparing what was done to what could have been done, and determining if there were any practical alternatives that could have been used to avoid or to minimize problems.

As the potential for a problem increases, greater care is required. In cases where there are applicable industry standards, additional measures beyond normal industry practices may be required if a higher level of care is warranted. In order to demonstrate due diligence, the professional member should be able to provide evidence of the following:

- Knowledge of duties under the current acts, regulations and codes.
- Adequate training to demonstrate skill.
- Use of existing procedures to mitigate problems where practicable.
- Identification of potential problem areas based on available information and data.
- Professional work practices not compromised by schedule or budget constraints.
- Qualifications to authentication and necessary caveats or disclaimers.
- Sufficient documentation.

4. SELECTED CATEGORIES OF WORK BY OTHERS

Following is a summary of selected categories of work by others. Examples of each category are given. The quality of the sources and the professional member's approach and due diligence in applying the information is discussed.

4.1 Computer Programs and Software

When using the following types of software, for example, professional members may find themselves employing the work of others:

- Slope stability analysis
- Thermal models
- Air dispersion models
- Geographic Information Systems (GIS) models
- Petroleum resource appraisal systems
- Ore reserves estimation and grade control systems
- Design software – structural analysis, pipe stress analysis, etc.

Members are responsible for verifying that any results obtained from computers programs are reliable and valid. Professional members should:

- examine and understand the methodologies and input parameters, as well as the limitations of the results obtained; and
- verify, where appropriate, new software releases against a standard certified for general use.

4.2 Design, Testing, and Materials Standards

Standards establish a requirement for quality and/or performance based on proven and accepted industry principles. Organizations that develop standards generally have processes in place to maintain the standards and incorporate improvements that result from new products, equipment, the introduction of new technology, etc. Provided that the standards are being used within their intended scope, the standards may be applied routinely without the user having to validate the information that is contained within the standard.

Characteristics of an organization that would be regarded as an accepted developer of standards include the following:

- It has repeatedly demonstrated the ability to develop standards.
- Its standards are supported by documentation of record calculations, theoretical analyses, etc. that verify their suitability. Assumptions associated with the standards are documented.
- Its standards are updated on a regular basis to incorporate improvements.
- It can demonstrate technical support for application of its standards.

Professional members commonly use three categories of standards: industry standards, private company guidelines, and unsupported standards.

4.2.1 Industry standards

Examples of industry standards are:

- National, regional and local codes
- Results from testing performed in accordance with nationally and/or internationally recognized methods and procedures such as those prescribed by the Canadian Standards Association (CSA) International - Boiler, Pressure Vessel and Pressure

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Piping Code; Natural Gas and Propane Installation Code; American Society for Testing and Materials (ASTM); American National Standards Institute (ANSI); etc.

- Standards from American Society for Testing and Materials
- Standards from American Institute of Steel Construction

Industry standards typically are:

- proven and accepted by industry and have been developed through research and testing;
- developed by an approved testing laboratory;
- applicable without having to validate the information that is contained within the standard; and
- aligned with the prevailing codes, acts and regulations.

4.2.2 Private Company Guidelines

Private company guidelines and standard designs usually are:

- used in the repeatable design, construction, operation, maintenance and retirement of company facilities;
- intended for internal use within the company that has developed the standard;
- in compliance with applicable codes, acts and regulations;
- inclusive of documentation such as calculations, analysis, etc. that verify the standard; and
- stamped, signed and dated by a professional member who is taking responsibility for the standard.

4.2.3 Unsupported standards

Unsupported standards entail research, testing, papers that are not supported by record calculations, analyses, etc. They require validation prior to applying the information.

4.3 Work Prepared by Other Professional Members

This category refers to work that is prepared and authenticated by members of any other professional association. When using work that is prepared and authenticated by other professional members, consider:

- the reputation, qualification, experience, etc. of the professional member and/or the permit holder that prepared the work;
- quality control and quality assurance programs in place while the work was being prepared;
- the age of the work and subsequent changes to applicable codes, material standards, technological developments, etc.;
- that work involving the practice of the professions must be authenticated according to the applicable Standard⁴;

It is recommended that work prepared by others should not be used in situations where the author is unavailable to take responsibility for the work and/or the permit to practice

4 EGP Act - Regulations (Section 49(a)(ii))

is no longer active. In these instances, another professional member should be engaged to accept responsibility for the work, if that work is still being utilized. The member may identify the portion of his technical report reliant upon the work of others in a disclaimer of responsibility.

4.4 Standard Designs

In some cases, organizations (owner/operators, consultants, manufacturers, etc.) may benefit from developing their own engineering or geoscience standard designs, reports, cross-sections, specifications, etc.. Design standards are the guidelines, procedures, rules, principles, philosophies, codes, regulations, etc. that steer the creation of a standard or repeatable design, construction, operation, maintenance, and retirement of facilities.

Prior to the application of a standard design, professional members should:

- determine if that the organization has appropriate processes to develop and maintain the standard design;
- establish the intended use of the standard design and whether there are any limitations; and
- take measures to address the uncertainty before using the standard design.

4.5 Published Work, Test Data and Work by Qualified People

This section refers to the use of published work, test data and work by qualified persons, including:

- test data from analytical laboratories, materials testing facilities, and on site or in-situ measurements;
- published works from textbooks, technical and scientific reports, and World Wide Web documents; and
- works by qualified people, such as reports by academics, foreign authorities, and government agencies.

In accepting responsibility for the use of information from the above sources, a professional should assure validity and reliability of the work. The documentation of due diligence should include: the basis for assuring validity and reliability, proper referencing of the source, and the degree of reliance placed on such information.

4.6 Manufacturers' Literature

Manufacturers' literature refers to information created at any point in the life-cycle of a product that may be referred to during the course of professional work. The professional member may be working as an external user or as an internal user.

4.6.1 Professional Member as an External User

A professional member may need to refer to manufacturers' literature during a project that involves the use of a product. The manufacturer makes a claim regarding the product performance, limitations, methods of use, intended use, product certifications, recommended maintenance procedures, and safety precautions. The information is generally in the form of technical manuals, specifications, installation drawings, interface control documents, or dimensional drawings.

Product design data, engineering calculations, manufacturing drawings, certification or regulatory compliance data and test data are all generally considered intellectual property and are rarely provided to external users unless specifically requested and protected by a non-disclosure agreement between the manufacturer and the external user. The commercial terms may also be a factor in the access to information and may vary from a simple item purchase to a subcontracted development effort. The professional member should be aware of the final project requirements and ensure that appropriate and sufficient information is reviewed before relying upon it.

4.6.2 Professional Member as an Internal User

When the professional member is employed within the manufacturer's organization or is subcontracted to perform professional services for the manufacturer, he or she presumably would have access to the full scope of product information. The member is likely supporting some aspect of the product life-cycle development covering product specification, design, development, certification, production, use, or disposal. The cost of product development demands incremental advances in most industries, as the cost to develop a totally new product is generally prohibitive. This trend has resulted in design modularization and reuse of proven design modules and accompanying engineering information.

The professional member as an internal user might regularly use the work prepared by others in the course of successive product development. Depending on the number of years since a product introduction, the manufacturer's information could be outdated or the individual who prepared the information may no longer be with the company.

This results in due diligence issues for the professional member who becomes involved with the product development. In accepting responsibility for the use of information from the above sources, a professional should assure validity and reliability of the work. The documentation of due diligence should include: the basis for assuring validity and reliability, proper referencing of the source, and the degree of reliance placed on such information.

4.7 Proprietary Information

In addition to the considerations given to other published work, the following special considerations should be applied to proprietary information:

- obtaining the owner's permission to use the information;
- properly acknowledging and referencing the source;
- protecting the propriety of this information if shared with third parties;
- advising the owner of the information if it becomes apparent that possible risks to the public or environment may emerge.