ENGINEERS & GEOSCIENTISTS BRITISH COLUMBIA

PRACTICE ADVISORY

RELYING ON THE WORK OF A SPECIALIST

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BACKGROUND

Engineers and Geoscientists BC professional practice guidelines often refer to what is considered acceptable collaboration between professional registrants of Engineers and Geoscientists BC ("engineering/geoscience professionals") and non-registered specialists, as part of engineering or geoscience practice. Non-registered specialists ("specialists") are individuals with specialized technical skills who are not registered with a professional regulatory body in British Columbia (BC).

Working with specialists to inform or contribute to engineering or geoscience activities is appropriate in some circumstances. Typically, a specialist is engaged because an engineering/geoscience professional does not have competency or direct experience in certain speciality subjects, so the skills and knowledge of a specialist are required, either to provide direct input into the engineering/geoscience professional's own work or to provide complementary technical services. However, this process of collaborating with specialists raises questions about how engineering/geoscience professionals should appropriately manage such working relationships, and how they should control the resulting engineering or geoscience work associated with their professional practice.

The intent of this practice advisory is to clarify the conditions under which engineering/geoscience professionals may rely on a specialist to inform or contribute to engineering or geoscience work. The involvement of specialists should be coordinated and overseen by an engineering/geoscience professional to the level noted in this practice advisory.

Involvement of a specialist to inform or contribute to practice in an area of engineering or geoscience should in no way be construed as implying that it is acceptable for specialists to independently engage in the practice of engineering and geoscience.

Engineering/geoscience professionals are required to meet certain obligations regarding their interactions with specialists when relying upon their work. As such, engineering/geoscience professionals should:

- perform due diligence to establish a reasonable level of confidence that the specialist is competent in the specialty area of work;
- ensure that the work expected of the specialist is adequately defined, so it will meet the needs of the engineering/geoscience professional;

- notify the specialist of any relevant standards and guidelines that might inform the specialist's work, including those that are issued by Engineers and Geoscientists BC or by others; and
- monitor the specialist's work, to ensure that the work outputs received from the specialist are of the quality and completeness expected by the engineering/geoscience professional and can be relied on.

CONCEPTS PERTAINING TO RELYING ON A SPECIALIST

As noted in the Background section, specialists are typically engaged because the engineering/geoscience professional does not have competency or direct experience in certain specialty subjects, so the skills of a specialist are required, either to provide direct input to the engineering/geoscience professional's own work or to provide complementary technical services.

For example, a geoscience professional performing a landslide assessment may rely on a specialist who provides remote sensing products, in order to inform the geoscience professional's assessment activities. This may be necessary because a geoscience professional's usual scope of practice does not necessarily include maintaining competency in generating remote sensing products.

Specialists engaged to work with engineering/geoscience professionals typically work in one or more areas that inform or relate to the practice of engineering or geoscience, such as the following:

- Non-technical topics that are ancillary to the practice of engineering or geoscience, but where the work strongly informs the nature of or inputs to the required practice of engineering or geoscience (e.g., human factors, occupational hygiene)
- Technical topics that relate to the practice of engineering or geoscience, but are not exclusively reserved areas of practice of engineering or geoscience (e.g., building energy modelling)
- Technical topics that are new or emerging, to the extent that it is not established whether the topic falls under the practice of engineering or geoscience (e.g., installation of electrical vehicle support equipment)
- Technical topics for which there is no established regulatory body directly related to the nature of the specialty work being provided (e.g., remote sensing)
- Specialty areas within an established area of engineering or geoscience practice, where experts cannot be found in BC (e.g., world-leading experts in narrow technical fields)
- Areas of research that are focused on providing factual or evidence-based information that facilitates innovation of existing engineering or geoscience techniques and solutions (e.g., advanced materials research)

Indicators that a project involves a specialty topic where a specialist might be engaged to support the practice of engineering or geoscience include the following:

- The specialty area is not considered part of a standard engineering or geoscience undergraduate curriculum
- The specialty area requires practitioners to obtain advanced degrees, certain professional credentials, and/or extensive practical experience to develop the requisite knowledge required to practice in the specialty

- The specialty area is an active area of research that requires practitioners to read specialized academic journals and to regularly attend conferences to maintain competency
- The specialty area involves unique domain-specific or application-specific knowledge that limits the available resource pool

EXPECTATIONS OF PRACTICE

The expectations of practice described in this section represent the minimum requirements for engineering/geoscience professionals when relying upon the work of a specialist, so engineering/geoscience professionals do not breach the standards set out in the *Quality Management Guides – Guide to the Standard for Direct Supervision* (Engineers and Geoscientists BC 2021a).

Engineering/geoscience professionals should only rely on specialists with an appropriate combination of skills, education, and experience. A specialist may then deliver a distinct aspect of the engineering or geoscience work, or provide material inputs necessary to inform or support the engineering work, as specified by the engineering/geoscience professional.

The engineering/geoscience professional should clearly document the rationale for relying on the work of a specialist, while being mindful of the concepts described in the section above.

An engineering/geoscience professional may rely on the work of a specialist only when there is clear mutual understanding of the scope and nature of the work being requested and the required quality of the work, and after the engineering/geoscience professional has performed reasonable due diligence to determine the specialist is competent to do the work. The engineering/geoscience professional is responsible for ensuring the specialist clearly understands the expectations of the work, before the specialist is engaged to provide work that will be relied on later.

Engineering/geoscience professionals must collect documentation that demonstrates that the specialist is suitable to provide the specified specialty services. Competency may be demonstrated by credentials and work history that the engineering/geoscience professional deems acceptable and appropriate. This could include items such as:

- academic qualifications;
- registration or designations in other jurisdictions;
- training or industrial qualification certifications;
- examples of past projects; and
- publications or conference presentations.

It is acceptable for a specialist to contribute to a project with a limited level of autonomy from the engineering/geoscience professional, and for the engineering/geoscience professional to rely upon the work of the specialist, provided the following criteria are satisfied:

- The engineering/geoscience professional ensures that there is defined a clear scope and expectations for the work to be conducted by the specialist, including how the specialist should adhere to related quality management requirements, guidelines, and standards, including those that are issued by Engineers and Geoscientists BC or by others. Ideally, this means allocating explicit requirements to the specialist, and itemizing deliverables that will result from the specialist's work.

  - The engineering/geoscience professional should consider that supporting documentation is included with items received from the specialist that informs understanding of the specialist's work, such as relevant codes and standards, essential reference documents, calculation details, descriptions of important work processes, assumptions for the work, and limitations of the work.
- The specialist's work remains within the defined scope, and the extent to which the work impacts aspects of the overall project is clearly defined and understood by the engineering/geoscience professional. Any work performed to coordinate the specialty activities with the engineering or geoscience activities of the overall project must be performed by the engineering/geoscience professional, or under the engineering/geoscience professional's direct supervision.
- The specialist follows all enactments, standards, and codes that apply to the specialty work.
- The findings and conclusions of the specialist's work are expressed using language and deliverables that can be understood by an individual with a level of knowledge expected of an engineering/geoscience professional who would supervise such work.
- Where relevant, the specialist provides documented confirmation that the work meets the allocated functional, performance, or interface requirements.
- The engineering/geoscience professional reviews the work of the specialist, based on a level of knowledge expected of an engineering/geoscience professional, and ensures compliance with applicable certifications, enactments, codes, quality management requirements, and professional practice guidelines that apply to the work.
- Where required by the engineering/geoscience professional or applicable professional practice guidelines, the specialist provides an assurance statement that confirms that the specialist has completed the work to the extent required by the engineering/geoscience professional.

It is not acceptable for specialists to work on engineering/geoscience tasks with unbounded or vague definitions for the scope of their intended contributions to a project. Likewise, it is inappropriate for a specialist to be assigned to a position that has ongoing engineering or geoscience tasks as part of the specialist's duties without the direct supervision of an engineering/geoscience professional.

Engineering/geoscience professionals should not authenticate the work of a specialist and should avoid directly taking responsibility for such work, unless that work was produced under the direct supervision of the engineering/geoscience professional, per the *Quality Management Guides – Guide to the Standard for Direct Supervision* (Engineers and Geoscientists BC 2021a).

Engineering/geoscience professionals authenticating their own work that relies on or includes contributions of a specialist should retain records that detail the contributions made by the specialist and the resulting dependencies that are introduced into the engineering/geoscience professional's work. The engineering/geoscience professional should properly and appropriately credit the contributions of the specialist in their work. The engineering/geoscience professional must fully comprehend, accept, and take responsibility for all engineering or geoscience analyses, decisions, or recommendations that are made based on contributions from a specialist.

Documentation regarding the engagement of a specialist is primarily for the benefit of the engineering/geoscience professional, in order to demonstrate adherence with the principles and expectations outlined in this practice advisory. In most cases, such documentation can be informal, but should be retained for a minimum of 10 years, according to the requirements described in the *Quality Management Guides – Guide to the Standard for Retention of Project Documentation* (Engineers and Geoscientists BC 2021b).

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RELATED DOCUMENTS

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VERSION HISTORY

VERSION NUMBER	PUBLISHED DATE	DESCRIPTION OF CHANGES
1.0	July 22, 2021	Initial version.