

▲ JANUARY 2022 ▲

Authenticating Professional Work Products



The Association of Professional
Engineers and Geoscientists of Alberta

Document History

Date	Version	Revision Description
January 2013	3.1	Initial issue for membership use. Original title was <i>Practice Standard for Authenticating Professional Documents</i>
May 2018	7.1	Updated current practices Draft published for member feedback
July 2019	8.3	Issued for membership use
May 2021	8.4	Administrative changes including adding APEGA ID to professional stamps, updating content to reflect stamp requirements, adding clarifications, updating definitions, removing reference to good standing, updating appendices. No changes to essence of requirements from previous revision.
January 2022	8.5	Substantive changes to Sections 4.6 and 4.7.

© Association of Professional Engineers and Geoscientists of Alberta, 2013, 2022
All rights reserved.

CONTENTS

1.0	Overview	6
1.1	PURPOSE	6
1.2	SCOPE	7
1.3	DEFINITIONS	7
2.0	Professional Responsibilities	12
2.1	AUTHENTICATION OBLIGATIONS FOR LICENSED PROFESSIONALS	12
2.1.1	Ethical Obligations	12
2.1.2	Authentication Obligations for Licensed Professionals	12
2.1.3	Obligation to Safeguard Stamps	12
2.1.4	Obligation to Safeguard Digital Certificates	13
2.2	RESPONSIBLE MEMBER VALIDATION OF PROFESSIONAL WORK PRODUCTS	13
2.3	ABSENCE OF, OR IMPROPER AUTHENTICATION	13
2.4	AUTHENTICATION AND VALIDATION: LIABILITY IN CIVIL PROCEEDINGS	13
3.0	What to Authenticate	14
3.1	AUTHENTICATION TEST	14
3.2	PROFESSIONAL WORK PRODUCTS IMPORTED INTO ALBERTA	15
3.3	PROFESSIONAL WORK PRODUCTS EXPORTED FROM ALBERTA	15
3.4	AUTHENTICATING PROFESSIONAL WORK PRODUCTS FOR ENGINEERED GOODS	15
3.4.1	Professional Work Products for Commercially Engineered Goods (or Commercial Off-the-Shelf Engineered Goods)	15
3.4.2	Customized Engineered Goods	16
3.5	AUTHENTICATION NOT REQUIRED	16
4.0	Authentication and Validation Processes	16
4.1	AUTHENTICATION AND VALIDATION REQUIREMENTS	16
4.2	ACCEPTABLE METHODS OF AUTHENTICATION AND VALIDATION	16
4.3	UNACCEPTABLE METHODS OF AUTHENTICATION AND VALIDATION	16
4.4	AUTHENTICATION AND VALIDATION PROCEDURES	17
4.4.1	Authentication	17
4.4.2	Validation	18

- 4.5 AUTHENTICATION AND VALIDATION PLACEMENT 18
- 4.6 SINGLE-DISCIPLINE PROFESSIONAL WORK PRODUCTS 19
- 4.7 MULTI-DISCIPLINE PROFESSIONAL WORK PRODUCTS 19
- 4.8 WORK PRODUCTS FROM NON-APEGA PROFESSIONALS 19
- 4.9 MULTIPLE PERMIT HOLDERS 20
- 4.10 PHYSICAL PROFESSIONAL WORK PRODUCTS 20
- 4.11 ELECTRONIC OR DIGITAL PROFESSIONAL WORK PRODUCTS 20
 - 4.11.1 Electronic Professional Work Products 20
 - 4.11.2 Digital Professional Work Products (e.g., Code, Software, and Modelling and Simulation) 20
- 4.12 REVISIONS OF PROFESSIONAL WORK PRODUCTS 21
- 4.13 AUTHENTICATION AND VALIDATION FOR CONTINUOUS OPERATIONS AND FIELD REVISIONS OF PROFESSIONAL WORK PRODUCTS 21
- 4.14 PROVIDING COPIES OF PROFESSIONAL WORK PRODUCTS 22
- 4.15 RETAINING PROFESSIONAL WORK PRODUCTS 22
 - 4.15.1 Period of Retention 22
 - 4.15.2 Storage of Professional Work Products 23
 - 4.15.3 Providing Copies to Employee and Contract Licensed Professionals 23

Appendix 1: Examples of Permissible Stamps 24

Appendix 2: Examples of Permissible Authentication for a Professional Work Product by an APEGA Licensed Professional 28

Appendix 3: Examples of Permissible Validation for a Professional Work Product by a Responsible Member 29

Appendix 4: APEGA Requirements for an Acceptable Certificate Authority 30

Preface

An APEGA professional practice standard describes the level of performance required of *licensed professionals*. Part 8 of the *General Regulation* under Section 59 allows APEGA to publish standards that define the expectations and professional obligations of APEGA *permit holders* and *licensed professionals*.

The differences between a professional practice standard, a practice guideline, and a practice bulletin are as follows:

A professional practice standard sets the minimum standard of practice *permit holders* and *licensed professionals* must comply with in their professional practice. APEGA's statutory boards will assess a *permit holder's* or *licensed professional's* practice and conduct against practice standards.

A professional practice guideline advises *permit holders* and *licensed professionals* in their professional practice and recommends best practices. APEGA statutory boards may assess a *permit holder's* or *licensed professional's* practice and conduct against practice guidelines.

A professional practice bulletin addresses a subject related to professional practice and remains in force until a practice standard or a practice guideline on the subject is developed or until the practice bulletin is rescinded by APEGA.

Practice standards, guidelines, and bulletins should be read in conjunction with the *Engineering and Geoscience Professions Act*, the *General Regulation*, APEGA's bylaws, and any other applicable legislation, codes, or standards.

Contributors

APEGA thanks the members who contributed to this practice standard for their time and commitment. At the time this standard was completed, the contributors were as follows:

Predrag (Peter) Bozic, P.Eng.
Wan (Randy) Chan, P.Eng.
Haisheng Fan, P.Eng.
Hartley Harris, P.Eng.
John Hogg, P.Geo.
Warren Korol, P.Eng.

Erick Liebl, P.Eng.
Pal Mann, P.Eng.
Keith Millis, P.Geoph.
Dale Ozdoba, P.Eng.
Kenneth Rafa, P.Eng.
Tom Sneddon, P.Geol.

Questions or suggestions concerning this document can be addressed to:

Director, Professional Practice, APEGA
1500 Scotia One, 10060 Jasper Avenue
Edmonton, Alberta T5J 4A2

1.0 Overview

This practice standard replaces the *Practice Standard for Authenticating Professional Documents* version 3.1 from January 2013. It provides detailed direction for *licensed professionals* and *permit holders* on how to authenticate *professional work products (PWP)* as directed in the following sections of the *Engineering and Geoscience Professions (EGP) Act*:

- Section 3(2): Exclusive use of name engineer
- Section 6(2): Exclusive use of name geoscientist
- Section 78(1): Use of *stamps, seal, permit numbers*

Authentication serves the public interest by providing a clear and unique indicator that an APEGA *licensed professional* has completed or reviewed the work.

This version includes several new considerations and practices, including:

- defining *PWPs* and clarifying how *licensed professionals* can assess which products need *authentication*
- defining *Responsible Members' validation* of *PWPs*
- standardizing the *authentication* and *validation* formats to enable *licensed professionals, permit holders, and the public* to easily identify the authenticator, the *date of authentication*, the validator, and the *date of validation*
- addressing the use of digital technology to authenticate and validate *PWPs*
- setting the requirements for authenticating *PWPs* imported into, or exported from, Alberta

1.1 PURPOSE

This professional practice standard helps APEGA *licensed professionals* and *permit holders* comply with the statutory requirements of authenticating *PWPs*. It also helps the public understand the obligations of APEGA *licensed professionals* in *authentication* and the use of the APEGA *stamp*.

Given the diversity and complexity of the practices of engineering and geoscience in Alberta, it is impossible for this standard to address all *authentication* questions that may arise. *Licensed professionals* must use *due diligence* and professional judgement to ensure their professional practice conforms with the intent of this standard. *Permit holders* and their *Responsible Members* are expected to adequately document their *authentication* and *validation* processes and protocols in their *Professional Practice Management Plans*. They must clearly define the *permit holder's* expectations regarding which *outputs* of engineering and geoscience require *authentication* and *validation*, and they must describe the internal controls for the *authentication* and *validation* processes.

1.2 SCOPE

This practice standard details the requirements for authenticating and validating *PWPs*.

The procedures outlined apply to:

- all *PWPs* used in Alberta, regardless of where they were produced
- all *PWPs* produced by, or for, *permit holders*, even if for internal use only. The *EGP Act* does not differentiate between *PWPs* prepared by an engineering or geoscience consultant for an external client or those prepared by *licensed professionals* for their employer's internal use
- all *PWPs* produced by licensed *sole proprietors* or any entities practising engineering or geoscience but are not mandated by legislation to have an *APEGA Permit to Practice*

1.3 DEFINITIONS

For the purposes of this standard, the below terms and definitions apply. These terms are *italicized* throughout the text.

APEGA Licensed Professional (Licensed Professional)

A professional engineer, professional geoscientist, professional licensee (engineering), professional licensee (geoscience), licensee (engineering), or licensee (geoscience) entitled by the *Engineering and Geoscience Professions Act* to practise engineering or geoscience in Alberta.

Authentication (Physical and Digital)

Authenticating a *professional work product* means an *APEGA licensed professional* has completed, performed a thorough review of, or directly supervised and controlled the engineering or geoscience work and accepts professional responsibility for the engineering or geoscience involved. *Authentication* must be performed in accordance with Section 4.0 of this practice standard.

Certificate Authority

A trusted organization that provides *digital certificates* used to create a *digital signature*. The *certificate authority* (CA) must have a relationship with APEGA to access member identities and continued professional status. See Appendix 4 – APEGA Requirements for an Acceptable Certificate Authority.

Date

The *date* format must be unambiguous with no confusion between the recorded month, day, or year.

Digital Certificate

An encrypted, digital attachment that allows a sender to send, or a recipient to read, a *digital signature* for *digital authentication*. A *digital certificate* must be provided by a *certificate authority* (see *Certificate Authority*).

Digital Signature (see Signature)

Direct Supervision and Control

The high degree of guidance a *licensed professional* provides to one or more individuals. The *licensed professional* accepts professional responsibility for engineering or geoscience tasks performed under the *licensed professional's* guidance. *Direct supervision and control* includes directing, monitoring, and controlling the engineering and geoscience work performed, including making all decisions related to the practices of engineering and geoscience.

Discipline

A specific field of practice within a profession (e.g., electrical engineering, mechanical engineering, geophysics, geochemistry).

Due Diligence

The level of judgement, care, forethought, and determination a person reasonably uses to avoid harming oneself, other people, property, or the environment.

Electronic Image

A visual representation of a scanned image or an image produced electronically.

Engineered Goods

Any goods designed, used, or produced using engineering services. They are usually packaged with complete user manual, specifications, and assembly and safety instructions. *Engineered goods* fall into one of two categories:

- 1. Commercially engineered goods or commercial off-the-shelf engineered goods**

These are *commercially engineered goods* for which there is public confidence in their safe use and design. They are manufactured in compliance with recognized Canadian or international regulations, codes, or standards. They are certified by a recognized technical, regulatory, or legal body. If a *commercially engineered good* is used in a way that deviates from its published specifications, it becomes a *customized engineered good*.

- 2. Customized engineered goods**

These are *engineered goods*, designed for a specific application, for which no applicable Canadian or international regulations, codes, or standards govern the entire design or manufacture of the product.

Integrity (of a Professional Work Product)

The ability to verify that a *professional work product's* (PWP's) information has not changed since *authentication* and that the way it is stored provides the stability and longevity to protect, keep, and retrieve the PWP and its *authentication* information.

Issued

The initial provision of an original, *authenticated professional work product* (PWP) to the intended user by a *licensed professional* or *permit holder*. For the purposes of this practice standard, providing a copy of an *authenticated PWP* is different than issuing the original PWP.

Operating Name

A name a *permit holder* uses (e.g., a trade name) that is different from its legal name but is listed in the same *Permit to Practice* and uses the same *permit number*.

Permit Holder

A partnership, association, or corporation that holds a permit under the *Engineering and Geoscience Professions (EGP) Act*. The Association of Science and Engineering Technology Professionals of Alberta (ASET) permit holders, as defined in Section 86(4) of the *EGP Act*, are not included.

Permit Holder Name (Name of Permit Holder)

The *permit holder's* legal company name as registered with the Alberta Corporate Registry, or with the appropriate authority where the company is registered as a legal entity.

Permit to Practice

An APEGA licence given to *permit holders* to practise engineering or geoscience in Alberta.

Permit to Practice Number (or Permit Number)

The unique registration number provided to a *permit holder* licensed by APEGA to practise engineering, geoscience, or both.

Professional Practice Management Plan

A *Professional Practice Management Plan (PPMP)* is a *permit holder's* written corporate policies, procedures, and systems describing the quality control and assurance measures in place to ensure appropriate standards of professional practice are maintained as described in Section 48(1)(d) of the *General Regulation*.

Professional Service

For APEGA's purposes, *professional services* are the services that involve the practice of engineering as defined in Section 1(q) of the *Engineering and Geoscience Professions (EGP) Act* or the practice of geoscience as defined in Section 1(r) of the *EGP Act*. The products of *professional services* are called *outputs*.

Professional Services Output (or Output)

A *professional services output* is any product resulting from a *professional service*. For the purpose for this practice standard, *outputs* can be physical, electronic, or digital and can be delivered through traditional methods, such as by mail, or electronically through computers, tablets, personal digital assistants, cell phones, voicemails, emails, teleconferencing, videoconferencing, or SMS (text). Not all *outputs* require *authentication* and *validation*.

Professional Work Product

A *professional work product (PWP)* is an *output* of a *professional service* that requires *authentication* and *validation* as described in this practice standard. Defined in the *General Regulation* as "...plans, specifications, reports, or documents of a professional nature," a *PWP* is any *output* of *professional services* with *technical information* relied upon by others, internally or externally, to make a decision or to take action. A *PWP* can be physical (e.g., paper, plastic film), electronic (e.g., electronic document, image), or digital (e.g., software, modelling, simulation, or any other computer application that cannot be reproduced in a physical or electronic format). See the authentication test in Section 3.1 when assessing whether an output is a *PWP*.

Responsible Member

A *Responsible Member* is an APEGA licensed professional who is responsible to oversee the practice of engineering or geoscience for the *permit holder* and meets the specification in Part 7, Section 48(1)(c) of the *General Regulation*. A *Responsible Member* must be qualified by education and experience in the profession of engineering or geoscience in which the partnership, corporation, or other entity intends to engage, designated in writing by the *permit holder*, and registered with APEGA as a *Responsible Member*.

The *Responsible Member* must have a sufficiently close relationship with the *permit holder* to undertake the roles and responsibilities associated with acting as a *Responsible Member*. The role of *Responsible Member* may not be delegated to other licensed professionals who are not *Responsible Members*.

A *Responsible Member* can be:

- a full-time, permanent employee of the *permit holder*
- a member of the *permit holder*
- a *sole practitioner*
- an individual providing *professional services* to the *permit holder* through a contractual arrangement or as a part-time employee

The *permit holder's Responsible Members* direct, supervise, and control all or part of a *permit holder's* professional practice in accordance with the *permit holder's Professional Practice Management Plan* and all relevant legislation, regulations, and codes.

Signature

Signatures are traceable and individualized permanent marks attached to stable information.

All manuscript *signatures*, or *electronic images* of handwritten or manuscript *signatures*, must be in full. Initials are not acceptable.

This standard refers to two types of *signatures*.

1. *Physical Signature*: An ink or "wet" *signature*, also referred to as a handwritten or manuscript *signature*.
2. *Digital Signature*: A valid *digital signature* guarantees the authenticity of the *signature* on an electronic document and verifies the document has not been modified since being digitally signed. A *digital signature* can only be used by the holder of a *digital certificate*. It cannot be reproduced by anyone who does not have access to the protected *digital certificate*. A *digital signature* is issued and may be revoked by APEGA.

Sole Practitioner

Within Alberta, a *sole practitioner* is an individual who practises as an incorporated entity. A *sole practitioner* must hold an APEGA *Permit to Practice*.

Sole Proprietor

Within Alberta, a sole proprietorship exists when an individual is the sole owner of a business and makes no legal distinction between the individual and the business (i.e., the business does not exist as a separate entity).

A *licensed professional* practising as a *sole proprietor* does not need a *Permit to Practice* since the *sole proprietor* is not practising engineering or geoscience through a corporation, partnership, or association.

Stamp (or Professional Stamp or Permit to Practice Stamp)

A *professional stamp* is a unique, personalized, rubber block or electronic file (e.g., JPEG or TIFF) that APEGA, or its approved vendors, provides upon request to *licensed professionals* for imprinting the recognizable APEGA *licensed professional* insignia as part of the *authentication* process. Stamps must not be scaled or resized and must use black ink or be printed in black.

The *Permit to Practice stamp* is a rubber block or electronic file (e.g., JPEG or TIFF) that APEGA or its approved vendors supply upon request to *Responsible Members* an acceptable way to validate a *professional work product*.

See Appendix 1 – Examples of Permissible Stamps for examples of permissible stamps.

Technical Information

Technical information differentiates a *professional work product* from an *output*. *Technical information* is an all-encompassing term for any content or data derived from the practice of engineering or geoscience as defined by the *Engineering and Geoscience Professions Act*. *Technical information* includes advice, analyses, assessments, calculations, designs, evaluations, inputs (e.g., to planning or to modelling and simulation), interpretations, notes, opinions, recommendations, and process descriptions.

Validation (Physical and Digital)

Professional work product (PWP) validation means a *permit holder's Responsible Member* has reviewed the PWP to ensure it meets the quality control and assurance measures described in the *permit holder's Professional Practice Management Plan*. *Validation* must be performed in accordance with Section 4.4.2.

2.0 Professional Responsibilities

2.1 AUTHENTICATION OBLIGATIONS FOR LICENSED PROFESSIONALS

Section 54 of the *General Regulation* requires *licensed professionals* to stamp professional work products (PWP) they have prepared or reviewed, showing their professional responsibility for that PWP. The legislative obligation to stamp (authenticate) exists independently of any contractual agreements between a *permit holder* or *licensed professional* and a client or employer.

2.1.1 Ethical Obligations

By authenticating a PWP, the *licensed professional* accepts professional responsibility for it. Authentication also implies the PWP was completed according to APEGA's Code of Ethics and Rules of Conduct.

APEGA's Code of Ethics and Rules of Conduct are in the *General Regulation* and identify the key principles for professional conduct:

- protecting the health, safety, and welfare of the public
- displaying a regard for the environment
- displaying competence and knowledge demonstrating integrity, honesty, fairness, and objectivity
- complying with statutes, regulations, and bylaws
- upholding the honour, dignity, and reputation of the professions

2.1.2 Authentication Obligations for Licensed Professionals

Licensed professionals are responsible to:

- authenticate a PWP only if they are a practising *licensed professional* registered with APEGA
- authenticate only PWPs that they have prepared directly, that were prepared under their *direct supervision and control*, or that were prepared by others, but they have thoroughly reviewed
- authenticate all PWPs for which they are legally obligated to accept professional responsibility as required by the *Engineering and Geoscience Professions (EGP) Act* and the *General Regulation*
- forward authenticated PWPs to their *Responsible Member* for validation if working for a *permit holder*

2.1.3 Obligation to Safeguard Stamps

Licensed professionals and *permit holders* can order a physical or electronic stamp on the APEGA website and must:

- get the physical or electronic stamp from APEGA or its approved providers only and not modify it in any way without APEGA's express written approval
- secure and store the physical or electronic stamp to prevent loss or unauthorized use

- return the physical *stamp* to APEGA or confirm the electronic *stamp*'s permanent deletion upon removal from the register, suspension, or registration cancellation. The *stamp* is the property of APEGA and not of the individual

2.1.4 Obligation to Safeguard Digital Certificates

Licensed professionals must:

- obtain a *digital certificate* from an APEGA-approved provider. APEGA selects providers that meet APEGA's requirements for an acceptable *digital certificate authority* (see Appendix 4 – APEGA Requirements for an Acceptable Certificate Authority)
- secure the sign-in credentials for a *digital certificate* to prevent theft or use by anyone other than the individual to whom the *digital certificate* was provided

2.2 RESPONSIBLE MEMBER VALIDATION OF PROFESSIONAL WORK PRODUCTS

The *permit holder's Professional Practice Management Plan (PPMP)* describes the policies and processes *licensed professionals* and *Responsible Members* follow to ensure the quality of the *permit holder's* professional practice of engineering and geoscience, including internal controls on *authentication*.

The *Responsible Member's validation* does not mean the *Responsible Member* has taken professional responsibility for the technical details in an authenticated *PWP*. The *validation* only means the *Responsible Member* has reviewed the authenticated *PWP*, and in the *Responsible Member's* professional judgement:

- the authenticated *PWP* is within the authenticator's scope of practice
- the quality control and assurance procedures outlined in the *permit holder's PPMP* were followed to review the technical content of the *PWP* before *authentication*
- the *PWP* was developed according to APEGA's Code of Ethics and Rules of Conduct

2.3 ABSENCE OF, OR IMPROPER AUTHENTICATION

Authentication is mandatory. A *licensed professional's* failure to authenticate a *PWP* is a violation of the *EGP Act* and may be investigated by APEGA. Not authenticating a *PWP* will be treated as unprofessional conduct or unskilled practice.

2.4 AUTHENTICATION AND VALIDATION: LIABILITY IN CIVIL PROCEEDINGS

Although *authentication* and *validation* are identifiable signs that the practice of engineering or geoscience has occurred, they are not the only indicators. A court can find a *licensed professional*, a *permit holder*, or both to be legally liable for an issued *PWP* even if it is not authenticated or validated.

3.0 What to Authenticate

3.1 AUTHENTICATION TEST

The *Engineering and Geoscience Professions (EGP) Act* requires APEGA licensed professionals to accept professional responsibility by authenticating professional work products (PWP) they have prepared or reviewed.

Answer the three questions in Figure 1 to determine whether an output is a PWP that requires authentication. If there is still doubt after applying the authentication test, APEGA’s director of professional practice can answer any questions.

Note: If authentication is required, validation is also required for those who hold a *Permit to Practice*.

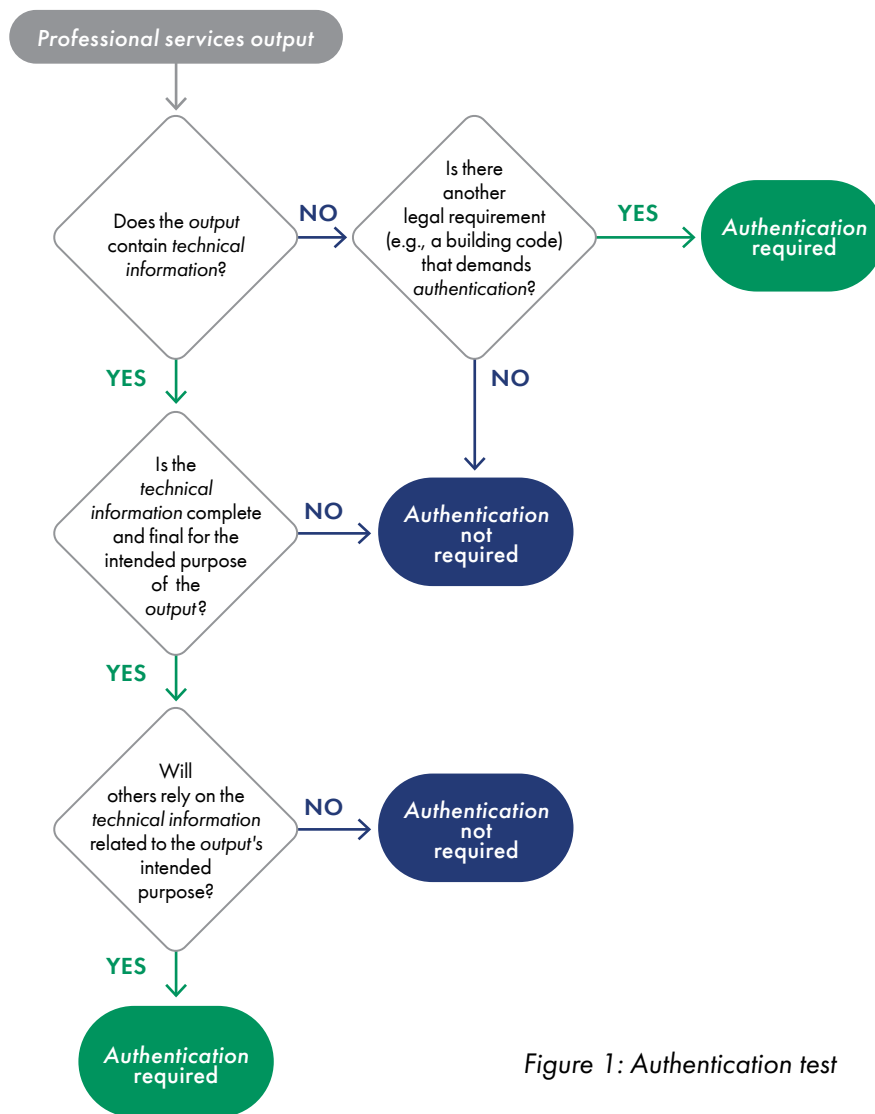


Figure 1: Authentication test

3.2 PROFESSIONAL WORK PRODUCTS IMPORTED INTO ALBERTA

With the increase in interprovincial, national, and international trade, *PWP* development is often contracted to individuals or companies outside Alberta that may not employ APEGA *licensed professionals* or have APEGA *Permits to Practice*. Regardless of their place of origin, all *PWPs* imported for use in Alberta must be authenticated by an APEGA *licensed professional*. If applicable, they must also be *validated* by a *Responsible Member* from an APEGA *permit holder*.

3.3 PROFESSIONAL WORK PRODUCTS EXPORTED FROM ALBERTA

Licensed professionals and *permit holders* in Alberta often prepare *PWPs* for use outside Alberta.

If the destination jurisdiction does not have requirements or regulations covering the practices of engineering and geoscience, the exported *PWPs* must be authenticated and validated in accordance with this standard.

If the destination jurisdiction has requirements or regulations covering the practices of engineering and geoscience, including an equivalent process in place for *authentication*, *licensed professionals* and *permit holders* must still ensure exported *PWPs* are authenticated and validated in accordance with this standard unless the *licensed professional* is also licensed to practice engineering or geoscience in the destination jurisdiction.

In all cases, it is the responsibility of *licensed professionals* and *permit holders* to know and meet the requirements of the destination jurisdiction in which the *PWP* will be used.

3.4 AUTHENTICATING PROFESSIONAL WORK PRODUCTS FOR ENGINEERED GOODS

For the purposes of this standard, *engineered goods* fall into two categories: *commercially engineered goods* and *customized engineered goods*.

3.4.1 Professional Work Products for Commercially Engineered Goods (or Commercial Off-the-Shelf Engineered Goods)

An APEGA *licensed professional* does not need to authenticate, and an APEGA *permit holder* does not need to validate, a *PWP* for a *commercially engineered good* unless:

- the *commercially engineered good* is part of a larger engineered system (e.g., a turbine in a mechanical system, a pump in a fire-suppression system, a prefabricated beam or truss in a structure, or a commercial software application for a building control system). The *licensed professional* responsible for the design of the larger system must authenticate the *PWP*, confirming the *commercially engineered good* is integrated adequately into the overall engineered system and can achieve the intended purpose. *Permit holders* must then validate the *PWP*
- the user of a *commercially engineered good* plans to use the good in a way that deviates from the designer's or manufacturer's published specifications. In such cases, the *engineered good* is considered a *customized engineered good*, and a *licensed professional* must assess if the intended use is safe, and if so, must provide an authenticated *PWP* that documents this. *Permit holders* must then validate the *PWP*

3.4.2 Customized Engineered Goods

All PWP's related to *customized engineered goods* designed, constructed, manufactured, erected in, or imported into Alberta must be authenticated by an APEGA licensed professional. Permit holders must then validate the PWP.

3.5 AUTHENTICATION NOT REQUIRED

The following items do not require *authentication*:

- *outputs* of professional services provided for review or comment only (e.g., drafts). Such *outputs* are considered incomplete, and they should be clearly marked as such
- *outputs* that do not contain *technical information* (e.g., contracts, checklists, cost estimates, construction schedules, progress claims, payment verifications, correspondence, and brochures) except if required by legislation (e.g., schedules required by safety codes officers under the *Alberta Building Code*)

Licensed professional and Permit to Practice stamps are only valid for engineering or geoscience PWP's.

4.0 Authentication and Validation Process

4.1 AUTHENTICATION AND VALIDATION REQUIREMENTS

Professional work products (PWP's) must be authenticated by a licensed professional. If the PWP is produced by an APEGA permit holder, it must also be validated by a Responsible Member.

4.2 ACCEPTABLE METHODS OF AUTHENTICATION AND VALIDATION

There are two types of *authentication* and *validation*:

1. physical
2. digital

These methods are not normally combined. If a *permit holder* combines these methods of *authentication* and *validation* in a single PWP, the *permit holder's Professional Practice Management Plan (PPMP)* must define the procedure that protects the *integrity* of the *authentication* and *validation*.

4.3 UNACCEPTABLE METHODS OF AUTHENTICATION AND VALIDATION

The following *authentication* and *validation* methods are unacceptable:

- stick-on (e.g., labels) or photocopied *authentications* or *validations*, scanned images of a stamp applied on original PWP's or blank pieces of paper, or any other methods not described in Section 4.2
- PWP's signed by another person on behalf of the *licensed professional* identified on the stamp as part of *authentication*

- PWP's signed by an individual who is not granted authority by APEGA to act as the *permit holder's Responsible Member* as part of *validation*
- faxed or scanned *stamps* or *electronic images* without *digital signatures*

4.4 AUTHENTICATION AND VALIDATION PROCEDURES

4.4.1 Authentication

Authentication is performed by a *licensed professional* and includes the following criteria depending on the *authentication method*.

Physical authentication consists of:

- an ink impression or printed *electronic image* of the *licensed professional's stamp*
- the *licensed professional's full, handwritten signature*
- the *authentication date*
- the *licensed professional's APEGA ID number*

Digital authentication consists of:

- an *electronic image* of the *licensed professional's stamp*
- the *licensed professional's digital signature (supplied by an APEGA-approved provider)* and an *electronic image* of the *licensed professional's full, handwritten signature*
- the *authentication date* included with the *digital signature* and inserted as an *electronic image*
- the *licensed professional's APEGA ID number*, inserted as an *electronic image*

When appropriate, each *authentication* must include a note near the *authentication* describing any boundaries or limitations of the *authentication*.

For **physical authentication**, *licensed professionals* must apply their *stamp*, *handwrite their signature*, and insert their *APEGA ID number* and the *date*. They may allow a person under their *direct supervision and control*—and who is authorized in writing to do so—to apply the *stamp* and insert their *APEGA ID number*, but *licensed professionals* must always personally sign and insert the *date* as the final step in *authentication*. Refer to Appendix 2 – Examples of Permissible Authentication for a Professional Work Product by an APEGA Licensed Professional for examples of permissible *physical authentication*.

For **digital authentication**, *licensed professionals* must apply the *digital signature* themselves, including the *date*. The *digital signature* cannot be delegated, even to those under the *licensed professional's direct supervision and control*. They may allow a person under their *direct supervision and control*—and who is authorized in writing to do so—to insert images of the *stamp*, *APEGA ID number*, and the *date*, but *licensed professionals* must always apply their own *digital signature* as the final step in *authentication*.

4.4.2 Validation

Validation is performed by a *permit holder's Responsible Member*, who has been granted authority by APEGA to act as the *permit holder's Responsible Member*. Validation occurs **after** the PWP has been authenticated by a *licensed professional* and includes the following criteria depending on the *validation method*.

Physical validation consists of:

- an ink impression or printed *electronic image* of the *Permit to Practice stamp*, which includes the *permit holder's name or operating name*, and the *permit number* (alternatively, this information may be inserted without the use of a *stamp*)
- the *Responsible Member's* full, handwritten *signature*
- the *validation date*, which may be different than the *authentication date*
- the *Responsible Member's* APEGA ID number

Digital validation consists of:

- an *electronic image* of the *Permit to Practice stamp*, which includes the *permit holder's name or operating name*, and the *permit number* (alternatively, this information may be inserted without the use of a *stamp*)
- the *Responsible Member's digital signature* (supplied by an APEGA-approved provider) and an *electronic image* of the *Responsible Member's* handwritten *signature*
- the *validation date*, which may be different than the *authentication date*, included with the *digital signature* and inserted as an *electronic image*
- the *Responsible Member's* APEGA ID number

When appropriate, each *validation* must include a note near the *validation* describing any boundaries or limitations of the *validation*.

For **physical validation**, *Responsible Members* must apply the *stamp* (or insert its information), *handwrite* their *signature*, and insert their APEGA ID number and the *date*. They may allow a person under their *direct supervision and control*—and who is authorized in writing to do so—to apply the *stamp* (or insert its information) and insert their APEGA ID number, but *Responsible Members* must always personally sign and insert the *date* as the final step in *validation*. Refer to Appendix 2 – Examples of Permissible Authentication for a Professional Work Product by an APEGA Licensed Professional for examples of permissible *physical validation*.

For **digital validation**, *Responsible Members* must apply their *digital signature* themselves, which includes the *date*. The *digital signature* cannot be delegated, even to those under the *Responsible Member's direct supervision and control*. They may allow a person under their *direct supervision and control*—and who is authorized in writing to do so—to insert images of the *stamp* (or insert its information), APEGA ID number, and the *date*, but *Responsible Members* must always apply their own *digital signature* as a final step in *validation*.

4.5 AUTHENTICATION AND VALIDATION PLACEMENT

Given the wide variety of PWPs, exact placement of the *authentication* or the *validation* is at the *licensed professional's* or *Responsible Member's* discretion.

The *stamp* impression, *signature*, APEGA ID number, and *date* must be clear, legible, and placed in a prominent, easily visible location on each *PWP*. For example, original reports and letters can be authenticated next to the authenticator's name on the *signature* block. Attachments that can be distributed separately must be authenticated separately. Each original drawing must be authenticated (e.g., in a designated *stamp* box on the drawing).

Validation must include the *Permit to Practice* number and the *permit holder's name* (or *operating name*) as part of the letterhead or title block of a *PWP*. The *validation* must be close to the *authentication* for increased visibility.

4.6 SINGLE-DISCIPLINE PROFESSIONAL WORK PRODUCTS

If a *PWP* is completed within one *licensed professional's discipline*, only that *licensed professional's authentication* is required.

If multiple *licensed professionals* in the same *discipline* work together on a *PWP*, it is acceptable for only one *authentication* to be applied. The *authentication* must be provided by the *licensed professional* taking responsibility for the entire *PWP* in that *discipline*.

If multiple *licensed professionals* within the same single *discipline* share responsibility for and authenticate their portions of the *PWP* individually, the boundaries and limitations of each *authentication* must clearly show which *licensed professional* is taking responsibility for which part of the *PWP*.

The *Responsible Member* must validate that the *PWPs* have been reviewed, authenticated, and coordinated in accordance with this practice standard and documented in the *permit holder's* quality control and assurance procedures outlined in its *PPMP*.

A *PWP* that involves engineering must be validated by *Responsible Member* licensed to practise engineering, and a *PWP* that involves geoscience must be validated by a *Responsible Member* licensed to practise geoscience. However, some areas of professional practice involve work practised by both engineering and geoscience *licensed professionals*, such as environmental work. In such areas of practice, a *Responsible Member* with a professional designation in engineering **or** geoscience may provide oversight, as per the definition of *Responsible Member*, and validate the *PWP* according to Section 2.2 of the standard.

4.7 MULTI-DISCIPLINE PROFESSIONAL WORK PRODUCTS

Multi-*discipline PWPs* must be authenticated by the *licensed professionals* taking responsibility for each *discipline*.

The *Responsible Member* must validate that all multi-*discipline PWPs* have been reviewed, authenticated, and coordinated in accordance with this practice standard and documented in the *permit holder's* quality control and assurance procedures outlined in its *PPMP*.

A *PWP* that involves both engineering and geoscience must be validated by a *Responsible Member* licensed to practise engineering **and** a *Responsible Member* licensed to practise geoscience. However, some areas of professional practice involve work practised by both engineering and geoscience *licensed professionals*, such as environmental work. In such areas of practice, a *Responsible Member* with a professional designation in engineering **or** geoscience may provide oversight, as per the definition of *Responsible Member*, and validate the *PWP* according to Section 2.2 of the standard.

4.8 WORK PRODUCTS FROM NON-APEGA PROFESSIONALS

On occasion, APEGA licensed professionals rely on work produced by non-engineering or non-geoscience professionals who are certified with other professional associations (e.g. agronomists, biologists, and chemists). In such cases, an APEGA licensed professional must request that these professionals certify their work according to their regulatory standards.

4.9 MULTIPLE PERMIT HOLDERS

If licensed professionals working under different Permits to Practice collaboratively produce a PWP, a Responsible Member from each contributing permit holder must validate the authenticated PWP, clearly defining which licensed professionals worked under which permit holder. The contract between the multiple permit holders must define which permit holder is the coordinator to ensure there are no gaps in the professional responsibilities.

4.10 PHYSICAL PROFESSIONAL WORK PRODUCTS

Physical PWP include hard-copy documents and reproducible physical media (e.g., paper, plastic film). Physical authentication and validation must be applied to all original, physical PWP.

4.11 ELECTRONIC OR DIGITAL PROFESSIONAL WORK PRODUCTS

Licensed professionals and permit holders are responsible for ensuring their use of any technology to improve their practice of engineering or geoscience conforms to the *Engineering and Geoscience Professions (EGP) Act* and the *General Regulation*.

Licensed professionals and permit holders must develop appropriate strategies to ensure proper authentication and validation when using existing and emerging technologies.

Electronic and digital PWP must be authenticated and validated, and the permit holder must describe the policies and procedures for doing so in its PPMP.

4.11.1 Electronic Professional Work Products

Electronic PWP must be digitally authenticated and validated, regardless of their intended medium, so the licensed professional's stamp, signature, APEGA ID number, and date appear when the PWP is viewed or printed. However, it is the digital signature that confirms the integrity, security, and authenticity of the electronic PWP, not the electronic image of the stamp with the signature, APEGA ID number, and date.

4.11.2 Digital Professional Work Products (e.g., Code, Software, and Modelling and Simulation)

The *licensed professional* and *permit holder* are responsible for authenticating and validating any digital PWP's resulting from the practice of engineering or geoscience. Digital PWP's may include code, software, modelling, simulation, or other applications that cannot be reproduced in a physical or electronic format (such as control philosophy, trip or logic diagrams, logic functional descriptions, cause-and-effect diagrams, Scientific Apparatus Makers Association diagrams, control narratives, commissioning plans).

The *permit holder's PPMP* must describe how the *permit holder* will determine whether the PWP is digital and how digital PWP's will be authenticated and validated. *Licensed professionals* and *Responsible Members* must ensure *authentication* and *validation* occur when the PWP is complete.

4.12 REVISIONS OF PROFESSIONAL WORK PRODUCTS

A revised, authenticated PWP must clearly indicate the revising *licensed professional's* acceptance of responsibility for the revisions and the effects of those revisions. The revisions must clearly identify the boundary of professional responsibility between the original and revised PWP if the revisions are made by a different *licensed professional*.

Licensed professionals making and authenticating revisions to an original PWP must distinguish them from the original authenticated PWP and must identify who is assuming professional responsibility. Unless all revisions are captured on a new, authenticated PWP at project completion, all revised and authenticated PWP's must be kept.

After *authentication*, the revisions must also be *validated* in accordance with this standard.

The *permit holder's PPMP* must describe how revisions to authenticated PWP's will be carried out and controlled.

4.13 AUTHENTICATION AND VALIDATION FOR CONTINUOUS OPERATIONS AND FIELD REVISIONS OF PROFESSIONAL WORK PRODUCTS

Some *permit holders* may need to continue production while urgent engineering or geoscience solutions are carried out, preserving continuous operations as best as possible. Any design revisions, change orders, field or operational instructions, or field reviews that meet the requirements of the *authentication* test (see Section 3.1) and affect a previously authenticated PWP must also be authenticated and validated as revisions.

The *permit holder* must evaluate if *authentication* and *validation* will cause an impractical delay considering the situation's urgency or potential risk to people, the environment, infrastructure, or operational reliability. If the *Responsible Member* or *licensed professional* decides action must be taken before *authentication*, they must ensure, at minimum, the following information is documented before acting:

- the names of the *licensed professionals* and those involved
- the circumstances surrounding the need for the change or revision
- the details of the required change or revision
- a summary of the key factors in the professional evaluation or assessment used to determine that an immediate change or revision needed to happen before *authentication*

The change or revision must be formalized, authenticated, and validated as soon as possible after implementation, and the timeline must be defined, justified, and documented by the *licensed professional* and *permit holder* in the context of the *professional services* provided. The *permit holder* must be able to justify its actions and prove that its *licensed professionals* and *Responsible Members* exercised *due diligence*.

The *permit holder's PPMP* must include *authentication* and *validation* policies describing how the *permit holder* controls *authentication* and *validation* for continuous operations using design revisions, change orders, field or operational instructions, or field reviews.

4.14 PROVIDING COPIES OF PROFESSIONAL WORK PRODUCTS

Clients are entitled to receive original *authentication* and *validation* on original *PWPs* or copies of them.

When setting the requirements for *professional services*, the *licensed professional*, the *permit holder*, and the client must clearly define the expectations involving original authenticated and validated *PWPs*, including whether copies are provided physically, electronically, or digitally, and if any copies are to include *authentication* and *validation*.

Copies of *PWPs* must be clearly marked as such.

The *permit holder's PPMP* must include policies describing how *PWP* copies will be controlled.

4.15 RETAINING PROFESSIONAL WORK PRODUCTS

4.15.1 Period of Retention

There are no requirements in the *EGP Act* for retaining *PWPs*. As a minimum, authenticated and validated originals or their copies must be kept for reference or for defence against legal claims or complaints. *Licensed professionals* and *permit holders* are encouraged to consult insurers and legal counsel for other retention requirements.

A *PWP* must be kept at least until the limitation period for claims of wrongdoing expire, as outlined in the *Alberta Limitations Act*. The period of limitation is just short of 12 years, including possible extensions that may be legally authorized.

Depending on the nature of the *PWP*, the likelihood of litigation might suggest that the retention period be longer than stated in the *Limitations Act*. *Licensed professionals* and *Responsible Members* must comply with the retention obligations of other applicable legislation, such as the *Occupational Health and Safety Act*, the *Oil and Gas Conservation Act*, and the *Pipeline Act*.

Licensed professionals and *permit holders* must consider the life span of a *PWP* when determining the retention period (e.g., bridges, buildings, dams, and operating facilities). Infrastructure-related *PWPs* might need to be retained past the limitation period stated in the *Limitations Act*. The *permit holder's PPMP* must include policies and procedures describing how long a *permit holder* stores *PWPs*, who has access to them, and how they are disposed.

A *PPMP* must include the *permit holder's* internal controls addressing *PWP* retention. If *PWPs* are stored as electronic documents or images, the internal controls must detail how the *permit holder* defines which version is the original *PWP*.

4.15.2 Storage of Professional Work Products

The *permit holder's PPMP* must include policies describing how a *permit holder* stores authenticated and validated *PWPs*.

PWPs must be stored in a way that maintains their *integrity* and prevents their unauthorized use or distribution. *Licensed professional* and *Permit to Practice stamps* and *signatures* must be similarly maintained. Archived copies must be labelled as such (e.g., "This copy or document is for record purposes and must not be revised.").

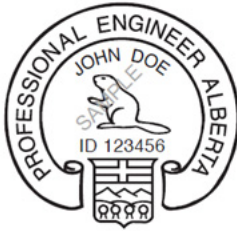
4.15.3 Providing Copies to Employee and Contract Licensed Professionals

Licensed professionals might ask if they can keep copies of *PWPs* they have prepared, authenticated, or validated in the case of a claim or complaint against them. This topic must be discussed between the employer and employee, or client and contractor or consultant, when setting the conditions of employment or contract for *professional services*. The *permit holder's* retention policy and *PPMP* must include information on whether *PWP* copies will be provided to employees and contractors if a claim or complaint should be made against them.

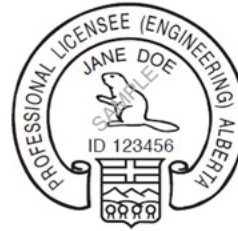
Appendix 1

Examples of Permissible Stamps

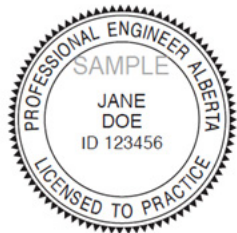
PROFESSIONAL ENGINEER (CURRENT)



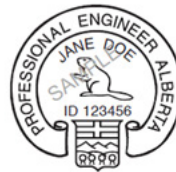
EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm



EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm



EVO R50
& R/S
impression size
43 mm W
43 mm H
+/- 0.5 mm

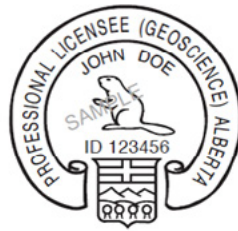


EVO R40
& R/S
impression size
32.5 mm W
30.5 mm H
+/- 0.5 mm

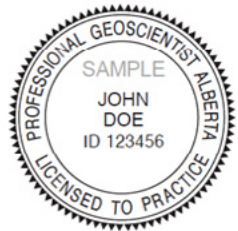
PROFESSIONAL GEOSCIENTIST (CURRENT)



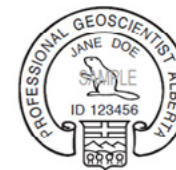
EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm



EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm

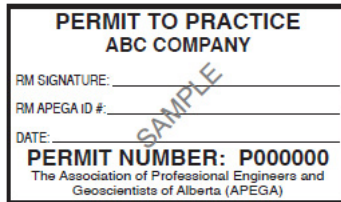


EVO R50
& R/S
impression size
43 mm W
43 mm H
+/- 0.5 mm



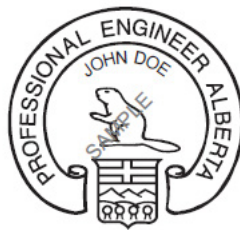
EVO R40
& R/S
impression size
32.5 mm W
30.5 mm H
+/- 0.5 mm

PERMIT TO PRACTICE (CURRENT)



4926
& R/S
impression size
63 mm W
36.5 mm H
+/- 0.5 mm

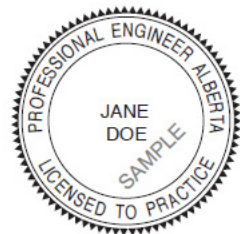
PROFESSIONAL ENGINEER (LEGACY)



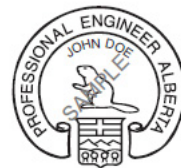
EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm



EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm



EVO R50
& R/S
impression size
43 mm W
43 mm H
+/- 0.5 mm



EVO R40
& R/S
impression size
32.5 mm W
30.5 mm H
+/- 0.5 mm

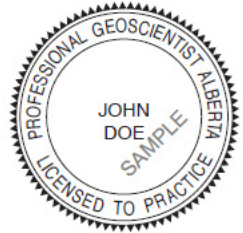
PROFESSIONAL GEOSCIENTIST (LEGACY)



EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm



EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm

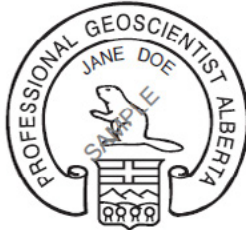


EVO R50
& R/S
impression size
43 mm W
43 mm H
+/- 0.5 mm



EVO R40
& R/S
impression size
32.5 mm W
30.5 mm H
+/- 0.5 mm

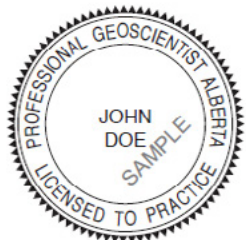
PROFESSIONAL GEOLOGIST (LEGACY)



EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm



EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm

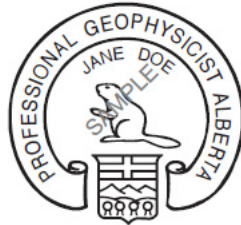


EVO R50
& R/S
impression size
43 mm W
43 mm H
+/- 0.5 mm



EVO R40
& R/S
impression size
32.5 mm W
30.5 mm H
+/- 0.5 mm

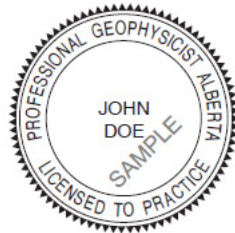
PROFESSIONAL GEOPHYSICIST (LEGACY)



EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm



EVO R50
& R/S
impression size
44 mm W
41.5 mm H
+/- 0.5 mm



EVO R50
& R/S
impression size
43 mm W
43 mm H
+/- 0.5 mm



EVO R40
& R/S
impression size
32.5 mm W
30.5 mm H
+/- 0.5 mm

PERMIT TO PRACTICE (LEGACY)

PERMIT TO PRACTICE (NAME OF PERMIT HOLDER)	
Signature _____	PERMIT NUMBER: P 1234 The Association of Professional Engineers and Geoscientists of Alberta
Date _____	

4926
& R/S
impression size
63 mm W
36.5 mm H
+/- 0.5 mm

Appendix 2

Examples of Permissible Authentication for a Professional Work Product by an APEGA Licensed Professional

PROFESSIONAL ENGINEER AND GEOSCIENTIST (CURRENT)



2020-JAN-01



01 Jan 2020



Jan 1, 2020



Jan 1, 2020



Jan 1, 2020



Jan 1, 2020

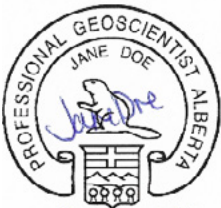


2020-JAN-01

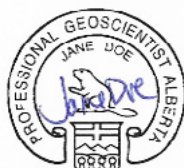


Jan 1, 2020

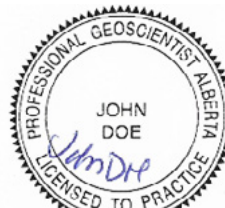
PROFESSIONAL ENGINEER AND GEOSCIENTIST (LEGACY)



4 May 2020
ID# 000000



May 5, 2020
ID# 000000



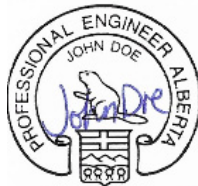
May 5, 2020
ID# 000000



5 May 2020
ID# 000000



4 May 2020
ID# 000000



May 5, 2020
ID# 000000



May 4, 2020
ID# 000000



2020 May 5
ID# 000000

Appendix 3

Examples of Permissible Validation for a Professional Work Product by a Responsible Member

(CURRENT)

PERMIT TO PRACTICE ABC COMPANY	
RM SIGNATURE:	<u>Jane Doe</u>
RM APEGA ID #:	<u>123456</u>
DATE:	<u>Jan 1, 2020</u>
PERMIT NUMBER: P000000	
<small>The Association of Professional Engineers and Geoscientists of Alberta (APEGA)</small>	

(LEGACY)

PERMIT TO PRACTICE (NAME OF PERMIT HOLDER)	
Signature	<u>Jane Doe</u>
Date	<u>19 July 2017</u>
PERMIT NUMBER: P 1234	
<small>The Association of Professional Engineers and Geoscientists of Alberta</small>	
<u>APEGA ID# 123456</u>	

(NAME OF PERMIT HOLDER)
APEGA PERMIT NUMBER P1234

John Doe
19 Jul 2017
APEGA ID# 123456

Appendix 4

APEGA Requirements for an Acceptable Certificate Authority

For APEGA to confirm the *integrity*, *security*, and *authenticity* of documents authenticated digitally, the following must occur.

1. APEGA professionals must apply a *digital signature* supplied by a *digital signature* provider **independently** verified by a third party as meeting APEGA's best practices. APEGA must confirm the verification documents.
2. To meet APEGA best practices, the *certificate authority* must:
 - be experienced in providing this *authentication* technology to members and licensees of other professional associations
 - have the resources, technical support, and systems in place to provide continued service for the foreseeable future
 - have protocols ensuring only APEGA *licensed professionals* are granted the authority to own and use an *electronic image* of their *stamp* with their personalized *digital certificate*
 - have protocols allowing APEGA to withdraw or suspend an APEGA *licensed professional's* ability to use the *digital certificate*
 - have a platform that offers flexibility and ease of use for a wide range of purposes and applications (e.g., compatibility with different file formats)
 - use a public-key infrastructure, which is a combination of hardware, software, people, policies, and procedures needed to create, manage, distribute, use, store, and withdraw *digital signatures*
 - have a *digital certificate* compliant with the International Telecommunication Union X.509 V3 standard
 - maintain the *digital certificate* under the sole control and possession of an APEGA *licensed professional*
 - allow the *digital certificate* to be stored on the medium of the APEGA professional's choice (e.g., hard drive or memory stick)
 - provide interfaces between the technology and the software used by APEGA *licensed professionals* so the image of the APEGA *stamp* with *signature* and *date* appears when printing or viewing the *professional work product*