



Engineers Yukon

Practice Guideline for Authenticating Professional Documents

Version 1.0

Updated: May 2022

This Guideline is subject to periodic amendments and modifications. Use of this Guideline is at the sole discretion of the user. It is the user's responsibility to ensure that any referenced documents are current.

FOREWORD

Engineers Yukon 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. In general, these documents are produced to meet the following objectives:

- To assist Engineers Yukon members in performing their professional role in accordance with the *Engineering Profession Act* and the *Engineering Profession Act Regulation* under the *Act*.
- To help the public understand the role of Engineers Yukon members and the responsibilities members have when performing their professional services.

Questions or suggestions concerning this document should be addressed to:

Professional Practice Committee

EngineersYukon

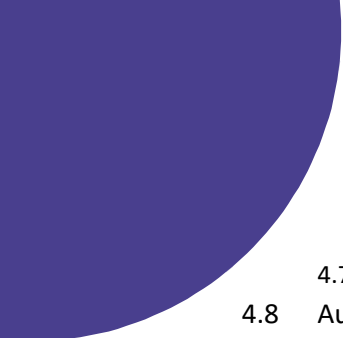
Suite 205 – 104 Elliott Street Whitehorse, YT Y1A-0M2

Email: staff@engineersyukon.ca



TABLE OF CONTENTS

Foreword	ii
1. Overview	1
1.1 Definitions	1
1.2 Scope	5
1.3 Purpose	5
2 Professional Responsibilities and Liability	6
2.1 Licensed Professional’s Responsibility	6
2.2 Authentication Obligations for Licensed Professionals	6
2.3 Obligation to Safeguard the Stamp	7
2.4 Obligation to Safeguard the Digital Certificate	7
2.5 Absence of, or Improper Authentication	7
2.6 Responsible Member Validation of Work Products	7
2.7 Permit Holder’s Responsibility	8
2.8 Liability	8
3 What to Authenticate	8
3.1 The Authenticating Test	8
3.2 Work Products Imported into The Yukon	10
3.3 Work Products Exported from The Yukon	10
3.4 Work Products Related to Engineered Goods	10
3.4.1 Work Products Related to Commercially Engineered Goods (or “Commercial Off the Shelf” Engineered Goods)	10
3.4.2 Work Products Related to Customized Engineered Goods	10
3.5 Authentication Not Required	10
4 Authentication & Validation Processes	11
4.1 Authentication Requirements	11
4.2 Authentication and Validation Procedures	11
4.2.1 Acceptable Methods of Authentication and Validation	11
4.2.2 Authentication	11
4.2.3 Validation	12
4.3 Authentication and Validation Placement	13
4.4 Collaborative Work Products	13
4.5 Multiple Permit Holders	13
4.6 Authenticating Electronic or Digital Work Products	14
4.6.1 Electronic Work Products	14
4.6.2 Digital Work Products (e.g., Code, Software, and Modelling and Simulation)	14
4.7 Revisions of Work Products	14
4.7.1 As-Built Drawings	15



4.7.2	Record Drawings.....	15
4.8	Authentication of Continuous Operations and Field Revisions of Work Products.....	15
4.9	Providing Copies of Authenticated Work Products.....	16
4.10	Retention of Work Products.....	16
4.11	Storing Electronic Work Products.....	16
Appendices		17
APPENDIX A: EXCERPTS FROM THE ACT AND REGULATION		18
APPENDIX B: REQUIREMENTS FOR AN ACCEPTABLE CERTIFICATE AUTHORITY.....		20
APPENDIX C: FREQUENTLY ASKED QUESTIONS		21

1. OVERVIEW

The *Engineering Profession Act* and the Engineering Profession Regulation under the *Act* govern the practice of engineering in the Yukon Territory. Engineers Yukon is the authority that administers that legislation.

In the Yukon, engineering work products must be authenticated and validated before being issued. This involves the stamping or sealing, signing, and dating of work products by the engineers who prepared or reviewed the work products. The requirement applies equally to an employee working for an employer or to a consultant working for a client.

The stamp or seal and signature signify that a Licensed Professional has accepted responsibility for the engineering work represented in the authenticated document. However, the stamp is not a warranty or a guarantee, instead it should be considered a "mark of reliance", an indication that others can rely on the fact that the opinions, judgments, or designs in the authenticated document were provided by a Licensed Professional who is held to high standards of knowledge, skill, and ethical conduct.

In addition to the requirements included in the *Engineering Profession Act*, the requirement that work products be authenticated may exist in other laws or regulatory codes. Client and contractual requirements for authentication of documents must be consistent with all regulatory requirements for authentication.

1.1 DEFINITIONS

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

Act

The *Engineering Profession Act*.

As-built Drawings/Documents

A document that is prepared from measurements taken on site to depict accurately the actual characteristics (size, shape, depth, trade name, location, type, etc.) of elements of the construction.

Authentication

Proof that a work product was completed or reviewed by a Licensed Professional in accordance with the *Engineering Profession Act*.

Certificate Authority (CA)

A trusted, third-party organization that provides digital certificates used to create a digital signature. The CA must be approved by Engineers Yukon to have access to information that allows it to confirm an individual's identity and status as a Licensed Professional.

Code of Ethics

Schedule A of the *Engineering Profession Regulation*.

Digital Certificate

An encrypted, digital attachment to a work product 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**

Includes, but is not limited to:

- providing basic and general guidance on engineering tasks.
- assessing subordinates' experience levels, qualifications, and competencies when delegating engineering tasks.
- overseeing subordinates' engineering tasks.
- reviewing subordinates' outputs.
- taking responsibility for engineering decisions involving subordinates' work.

The *Act* restricts the practice of engineering to Licensed Professionals or to persons who are under their direct supervision and control.

Discipline

A specific field of practice within a profession, e.g., electrical engineering, mechanical engineering, etc.

Due Diligence

The level of judgement, care, prudence, and determination that a reasonable person exercises to avoid harm to themselves, to other persons, to property, or to the environment.

Engineered Goods

Any goods that are designed, utilized, or produced using engineering services, falling into two categories:

Commercially Engineered Goods (or "Commercial Off the Shelf" Engineered Goods)

These are goods, purchased commercially, that are designed and manufactured by third parties in compliance with an existing set of Canadian or international regulations, codes or specifications that have been developed, tested, publicized, and enforced by a recognized technical, regulatory, or legal body (e.g., The CSA Group standards). The *Commercially Engineered Good* is usually packaged with a complete user manual including specifications, and assembly and safety instructions. If the user of a *Commercially Engineered Good* intends to use

the good in a manner that deviates from the designer's or manufacturer's published specifications for the *Commercially Engineered Good*, it will be considered as a *Customized Engineered Good*.

Customized Engineered Goods

These are goods that fall outside the definition of a *Commercially Engineered Good*, i.e., they are products designed by licensed engineers, for which there are no applicable Canadian or international regulations, codes or specifications that govern the entire design or manufacture of the product. The designer usually provides a user manual including specifications, safety, and assembly instructions to the customer.

Engineers Yukon or Regulator

The Association of Professional Engineers of Yukon (Engineers Yukon).

Integrity (of work products)

The ability to verify that the information contained in the work product has not been changed since the work product was authenticated, and that the medium used provides the stability and the required longevity to protect, store and retrieve the authenticated work product now and into the future.

Issued (or issuing)

Issuing a work product means providing a work product that a Licensed Professional has authenticated directly. For the purposes of interpreting this practice guideline providing someone with a copy of an authenticated work product is not considered to be the same as issuing the work product.

Licensed Professional

A professional engineer or licensee (holder of a limited licence) entitled to engage in the practice of engineering under the *Act*. Someone registered and in good standing with Engineers Yukon.

Permit Holder

A Sole Practitioner, partnership or other association of persons or a corporation that holds a permit under the *Engineering Profession Act*.

Permit to Practice

A permit to engage in the practice of engineering in Yukon as a Permit Holder, issued by Engineers Yukon. A permit to practice is required to practice engineering in Yukon.

Permit to Practice Number (or Permit Number)

The number issued by Engineers Yukon to a Permit Holder.

Professional Services Output (or Output)

A professional services output is any product created by a Licensed Professional or anyone under the Licensed Professional's direct supervision and control. Outputs can be physical, electronic, or digital and can be delivered through traditional methods, such as by mail, or electronically through computers, tablets, cell phones, voicemails, emails, teleconferencing, videoconferencing, or SMS (text). Not all outputs require authentication and validation.

Record drawing/document

Drawings that represent the final drawings issued and that normally incorporate such items as addenda, change orders, and significant modifications made during construction. Site measurements need not be incorporated onto these drawings unless significant differences from the specified dimensions occur.

Regulation

Engineering Profession Regulation O.I.C. 1996/056.

Responsible Member

A Licensed Professional who is responsible for direct personal supervision of the practice of engineering by the Permit Holder.

A Responsible Member must be qualified by education and experience in the field of engineering in which the Permit Holder intends to engage, must be designated in writing by the Permit Holder, must sign a Responsible Member declaration form and must be in good standing as a Licensed Professional with Engineers Yukon in order to assume responsibility for the Professional Practice.

Signature

Permanent marks attached to stable information that are traceable and personal to a specific individual. All signatures or electronic images of signatures must be in full.

This guideline refers to two types of signatures:

- Physical signature – an ink or “wet” signature, also referred to as a handwritten or manuscript signature
- Digital signature – the application of a valid digital signing certificate using secure encryption technology that identifies the document owner and indicates if an electronic document has been changed or altered from the original.

Sole Practitioner

An individual who is a Licensed Professional of Engineers Yukon who engages in the practice of engineering in their own name or through a company.

Professional Seal

The professional seal issued by Engineers Yukon to a Licensed Professional, in the form of a rubber stamp or in an electronic form.

Permit to Practice Seal

The stamp or seal issued by Engineers Yukon to a Permit Holder, in the form of a rubber stamp or in an electronic form.

Validation (Physical and Digital)

Proof that a Permit Holder's Responsible Member has reviewed the work product to ensure it meets the quality control procedures in place to preclude errors and omissions in the technical content so that the result is a complete and accurate document.

Validation includes physical validation (for original, physical work products) and digital validation (for electronic or digital work products).

Work Product

Any output of professional services that contains technical information that will be relied upon by others, internally or externally, to make a decision or to take action.

A work product such as plans, specifications, reports, or documents of a professional nature can be physical (e.g., paper, or plastic film), electronic (an electronic document or image), or digital (e.g., software, modelling, simulation, or any other computer application that cannot be reproduced in a physical or electronic format). See Section 3.1 for how to assess whether an output is a work product.

1.2 SCOPE

This practice guideline details the requirements for authenticating work products as required under the *Engineering Profession Act*.

The procedures outlined apply to:

- all work products used in Yukon, regardless of where they were produced; and
- all work products produced by or for Permit Holders, even if for internal use only.

The *Engineering Profession Act* does not differentiate between work products prepared by an engineering consultant for an external client or those prepared by Licensed Professionals for their employer's internal use.

1.3 PURPOSE

This practice guideline is meant to assist Licensed Professionals and Permit Holders in complying with the statutory requirements for authenticating work products. It is also to help the public understand the

obligations of Licensed Professionals to authenticate work products and how that authentication should be performed.

Note: It is not intended for this guideline to address all authentication questions that may arise given the diversity and complexity of the practices of engineering in the Yukon. Therefore, it is the responsibility of Licensed Professionals to use due diligence and professional judgement to ensure their professional practice conforms with the intent of this guideline and the requirements of the *Act* and all applicable laws. Permit Holders and their Responsible Members are expected to adequately document their authentication processes and protocols.

2 PROFESSIONAL RESPONSIBILITIES AND LIABILITY

2.1 LICENSED PROFESSIONAL'S RESPONSIBILITY

A Licensed Professional is responsible for practicing in accordance with the *Act*, the Regulation, and the Code of Ethics.

A Licensed Professional should only authenticate work products they have prepared or to work products that were prepared under their supervision and control. In the case of work products prepared by someone else, a Licensed Professional should only authenticate the work products after thoroughly reviewing the work products and accepting professional responsibility for them.

A Licensed Professional is responsible for maintaining custody and control of their professional seal at all times. The Licensed Professional should apply the seal personally. For physical authentication, the Licensed Professional may allow the seal to be applied by a person acting under their direct control.

A Licensed Professional shall personally sign the work product to which their seal has been applied.

Someone who fails to authenticate a final work product that they prepare and issue or someone who authenticates and issues a work product prepared by another person without performing a thorough review, is in violation of the *Act*, the Regulation, and the Code of Ethics.

A Licensed Professional shall only use the seal while registered with Engineers Yukon and while having the right to practice. A Licensed Professional shall return the seal to Engineers Yukon when required under the *Act*.

2.2 AUTHENTICATION OBLIGATIONS FOR LICENSED PROFESSIONALS

Licensed Professionals must:

- only seal a work product if they are in good standing with Engineers Yukon
- only seal a work product that they have prepared directly, that was prepared under their direct supervision and control, or that was prepared by others and thoroughly reviewed by the Licensed Professional; and
- seal all work products for which they accept professional responsibility as required by the *Engineering Profession Act*.

2.3 OBLIGATION TO SAFEGUARD THE STAMP

A Licensed Professional can procure a physical or electronic seal through the procedures established by Engineers Yukon. The Licensed Professionals' obligations with respect to the physical or electronic seal are to:

- obtain the physical or electronic seal from Engineers Yukon only and refrain from modifying the seal in any way whatsoever without express written approval from Engineers Yukon
- secure and store the physical or electronic seal to ensure that the seal is safeguarded appropriately to prevent loss, or use by anyone other than the individual to whom the seal was issued; and
- return the physical seal to Engineers Yukon (or destroy it) or provide confirmation to Engineers Yukon as to the permanent deletion of the electronic seal. This is required upon removal from the Register or upon suspension or cancellation of registration. The Professional Seal is the property of Engineers Yukon and not of the individual.

2.4 OBLIGATION TO SAFEGUARD THE DIGITAL CERTIFICATE

A Licensed Professional's obligations with respect to a digital certificate are:

- obtain the digital certificate from a provider that meets Engineers Yukon's requirements for an acceptable digital certificate authority (see Appendix B); and
- secure the sign-in credentials for the digital certificate to ensure that the digital certificate is safeguarded appropriately to prevent theft or use by anyone other than the individual to whom the digital certificate was issued. The Licensed Professional shall not share or allow their sign-in credentials to be used by others, even others working under the direct supervision and control of the Licensed Professional.

2.5 ABSENCE OF, OR IMPROPER AUTHENTICATION

Failure by a Licensed Professional to authenticate a work product is a violation of the *Act* and may be investigated by Engineers Yukon. The absence of proper authentication and/or validation does not relieve the Licensed Professional of their professional responsibility for the issued work product.

2.6 RESPONSIBLE MEMBER VALIDATION OF WORK PRODUCTS

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

- the authenticated work product is within the authenticator's scope of practice
- adequate quality control and assurance procedures were followed to review the technical content of the work product before authentication; and

- the work product was developed in accordance with the *Act*, the Regulation, and the Code of Ethics.

2.7 PERMIT HOLDER'S RESPONSIBILITY

A Permit Holder is responsible for its work products. A Permit Holder is responsible for putting in place a system that ensures that the engineering work conducted under its permit is conducted only by professionals with the training and experience in the disciplines of the profession contained in the work product. The organization is responsible for establishing sufficient quality control procedures to preclude errors or omissions in the technical content of a work product so that the result is a complete and accurate work product. A Permit Holder is responsible for carrying out its business in accordance with the *Act*, the Regulation, and the Code of Ethics.

2.8 LIABILITY

Liability is a legal responsibility for harm or loss sustained by another person. Engineers Yukon has no authority to determine legal liability. Failing to authenticate an issued Work Product does not relieve a Licensed Professional from any legal liability that might arise as a result of the work contained in a work product that the Licensed Professional prepared and issued. Authentication merely serves as a means to identify the Licensed Professional who accepted responsibility for the Work Product, and the Work Product as complete and issued for use by an end-user.

3 WHAT TO AUTHENTICATE

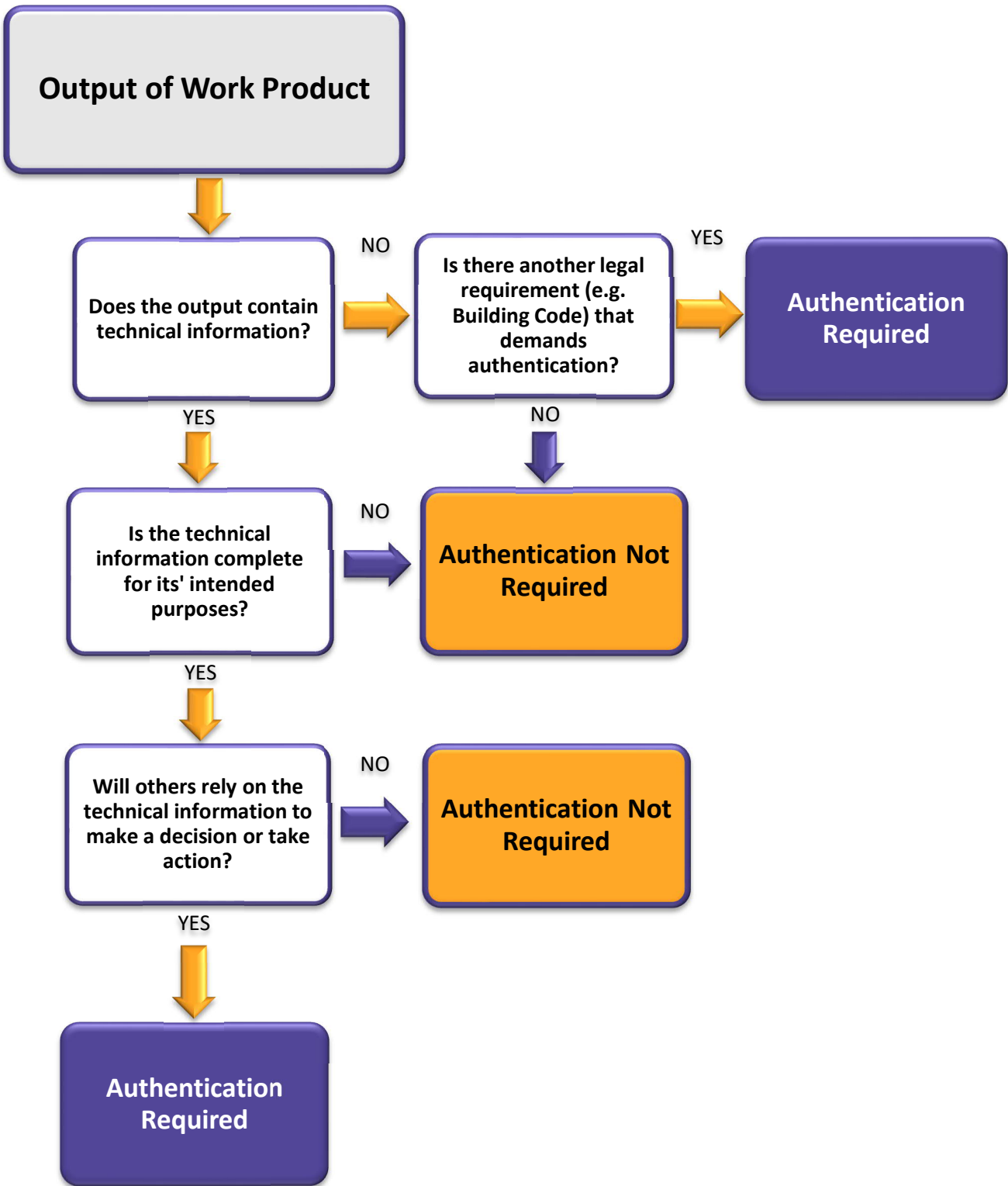
Affixing a seal to an output does not turn it into something that is “within the practice of engineering”. The content of the output determines whether it is an engineering work product.

3.1 THE AUTHENTICATING TEST

The *Act* requires Licensed Professionals to accept professional responsibility by authenticating work products they have prepared or reviewed.

To help engineers identify what must be authenticated, engineers should consult the flow-chart on the next page. By answering the three questions listed in the chart, an engineer should be able to assess whether an output requires authentication.

If after considering the three questions there is still doubt as to whether an output should be authenticated, the Engineers Yukon Registrar can provide guidance.



3.2 WORK PRODUCTS IMPORTED INTO THE YUKON

Regardless of the place of origin, all work products that are imported for use in Yukon shall be authenticated by a Licensed Professional currently registered with Engineers Yukon.

3.3 WORK PRODUCTS EXPORTED FROM THE YUKON

Licensed Professionals registered in Yukon often prepare work products for use outside of Yukon. Work Products prepared for use outside of Yukon must be prepared and/or authenticated by qualified professionals in accordance with requirements of the jurisdiction where the Work Product will be used, if applicable. If no such requirements apply in the jurisdiction where the work product will be used (i.e., if engineering is not a regulated profession in the jurisdiction), Work Products should be prepared, authenticated, and validated in accordance with the *Yukon Act*, the Regulation, and the Code of Ethics.

3.4 WORK PRODUCTS RELATED TO ENGINEERED GOODS

For the purposes of this guideline, Engineered Goods fall into two categories: *Commercially Engineered Goods* and *Customized Engineered Goods*.

3.4.1 Work Products Related to Commercially Engineered Goods (or “Commercial Off the Shelf” Engineered Goods)

A Licensed Professional does not need to authenticate work products for a *commercially engineered good* unless:

- it is part of a larger engineered system (e.g., a turbine in a mechanical system). The Licensed Professional responsible for the design of the larger system must authenticate the work product, confirming the commercially engineered good is integrated adequately into the overall engineered system and can achieve the intended purpose.
- the user of the commercially engineered good plans to use the good in a way that deviates from the designer’s or manufacturer’s published specifications. If so, the engineered good is then considered a customized engineered good, and a Licensed Professional must determine if the intended use is safe, and if so, must provide an authenticated work product which documents this.

3.4.2 Work Products Related to Customized Engineered Goods

All work products related to *customized engineered goods* designed, constructed, manufactured, erected in, or imported to Yukon must be authenticated by an Engineers Yukon Licensed Professional.

3.5 AUTHENTICATION NOT REQUIRED

The following items do not require authentication:

- outputs of professional services that are provided to someone for review or comment only (e.g., drafts). Such outputs are not considered to be complete for their intended purpose and should be marked accordingly.

- outputs that do not contain technical information (e.g., contracts, checklists, cost estimates, construction schedules, progress claims, payment verifications, correspondence, brochures, etc.) except if required by legislation (e.g., information required under the National Building Code).

4 AUTHENTICATION & VALIDATION PROCESSES

4.1 AUTHENTICATION REQUIREMENTS

Work products must be authenticated by a Licensed Professional and validated by a Responsible Member on behalf of a Permit Holder.

4.2 AUTHENTICATION AND VALIDATION PROCEDURES

4.2.1 Acceptable Methods of Authentication and Validation

There are two types of authentication and validation: physical and digital. If a Permit Holder combines these methods of authentication in a single work product, the Permit Holder must define the procedure that protects the integrity of the authentication.

4.2.2 Authentication

Authentication includes the following components depending on the authentication method.

Physical authentication:

- an ink impression or printed electronic image of the Professional Seal
- Licensed Professional's full handwritten signature; and
- authentication date.

Digital Authentication:

- the Licensed Professional's digital signature, supplied by a provider independently verified by a third party as meeting Engineers Yukon best practices
- an electronic image of the Licensed Professional's seal
- an electronic image of the Licensed Professional's handwritten signature; and
- the authentication date included with the digital signature and inserted as an electronic image.

Authentication Date:

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

The Licensed Professional must not combine methods in an individual authentication (i.e., picking and choosing which elements of the authentication will be physical and which will be digital).

When appropriate, authentication must include a note near the authentication describing any boundaries or limitations of the authentication (e.g., for multi-disciplinary Work Products with multiple authors, where each author assumes professional responsibility for specific portions of the Work Product – refer to Section 4.4.).

For **physical authentication**, Licensed Professionals must apply their seal, handwrite their signature, and insert 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 seal and insert the date, but Licensed Professionals must always personally sign it.

For **digital authentication**, Licensed Professionals must apply the digital signature themselves. The application of the digital signature cannot be delegated, even to those under the Licensed Professional’s direct supervision and control.

4.2.3 Validation

Validation is performed by a Permit Holder’s Responsible Member. Validation occurs **after** the work product has been authenticated by a Licensed Professional and includes the following components depending on the validation method.

Physical validation:

- an ink impression or printed electronic image of the Permit Holder’s stamp bearing the name of the Permit Holder and the Permit to Practice number
- the Responsible Member’s full handwritten signature; and
- date the Responsible Member signed the work product, which may be different than the date it was authenticated.

Digital Validation:

- a digital signature supplied by a provider independently verified by a third party as meeting Engineers Yukon best practices
- an electronic image of the Permit to Practice stamp bearing the name of the Permit Holder and the Permit to Practice number
- the Responsible Member’s digital signature and an electronic image of the Responsible Member’s handwritten signature; and
- the date the Responsible Member signed the work product included with the digital signature and inserted as an electronic image, which may be different than the date it was authenticated.

Validation Date:

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

The Responsible Member must not combine methods in an individual validation (i.e., picking and choosing which elements of the validation will be physical and which will be digital).

If using **physical validation**, Responsible Members must apply the Permit to Practice stamp, handwrite their signature, and insert the date.

If using **digital validation**, Responsible Members must apply their digital signature, including the validation date, and insert electronic images of their handwritten signature and the Permit to Practice stamp.

4.3 AUTHENTICATION AND VALIDATION PLACEMENT

Given the wide variety of engineering work products used in the Yukon, exact placement of the authentication or the validation will be at the Licensed Professional's or Responsible Member's discretion. As a guiding principle, the Professional Seal, signature, and date must be clear and legible, and placed in a prominent, easily visible location on each work product. For example, original reports and letters should be authenticated immediately adjacent to the Licensed Professional's name on the signature block of a letter or report. Attachments to letters and reports that might be distributed separately from the letter or report must be authenticated separately. Original drawings must be individually authenticated (e.g., in a designated field in the title box on the drawing).

A validated work product includes the Permit to Practice stamp, the Responsible Member's signature, and the validation date. The validation must be close to the authentication for increased visibility.

4.4 COLLABORATIVE WORK PRODUCTS

If multiple Licensed Professionals work together on a work product, it is acceptable for only one Licensed Professional to authenticate the work product. The authentication must be provided by the Licensed Professional taking responsibility for the entire work product.

If multiple Licensed Professionals share responsibility for and authenticate their portions of the work product individually, the boundaries and limitations of each authentication should be clearly indicated on the work product.

4.5 MULTIPLE PERMIT HOLDERS

If Licensed Professionals working under different Permits to Practice collaboratively produce a work product, a Responsible Member from each contributing Permit Holder must use one of the methods described in Section 4.2.3 to validate the authenticated work products, clearly defining which Licensed Professionals worked under which Responsible Member's Permit number. 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.

4.6 AUTHENTICATING ELECTRONIC OR DIGITAL WORK PRODUCTS

Engineers use technology to improve their practice of engineering. The responsibility lies with the engineer to ensure their use of technology conforms to the *Engineering Profession Act*.

How Licensed Professionals and Permit Holders use existing and emerging technologies to transmit or revise work products will require appropriate strategies to ensure proper authentication and validation.

Electronic and digital work products must be authenticated and validated, and Permit Holders must have policies and procedures for ensuring that the requirements outlined in this guideline are met.

4.6.1 Electronic Work Products

Electronic work products must be digitally authenticated, regardless of whether the work product is intended to be used in an electronic form or as a printed output. An electronic image of the Licensed Professionals' seal with signature and date must appear on a digitally authenticated electronic work product when it is viewed or printed. However, it is the digital certificate that enables all stakeholders to view the digital signature and confirm the integrity, security, and authenticity of the electronic work product, not the electronic image of the seal with signature and date.

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

The Licensed Professional and Permit Holder are responsible for authenticating and validating any digital work products resulting from the practice of engineering. The Permit Holder must have procedures describing how the Permit Holder will determine whether any code, software, or modelling and simulation is a digital work product.

If classified as digital work products, the original version or modifications of the program or code (either physical, electronic, or digital) and any control philosophy, trip/logic diagrams, logic functional descriptions, cause and effect diagrams, Scientific Apparatus Makers Association (SAMA) diagrams, control narratives, commissioning plans, and commissioning results must be authenticated. The Licensed Professional and the Responsible Member must ensure that authentication and validation occur when the work product is complete.

4.7 REVISIONS OF WORK PRODUCTS

A work product that has been revised must be authenticated in a manner that clearly indicates 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 work products in the event the revisions are made by a different Licensed Professional.

When revisions are required the Licensed Professional revising the original authenticated work product must authenticate any revisions, clearly marking the revisions so they are easily distinguishable from the original authenticated work product and clearly identifying who is assuming professional responsibility for the changes to the original authenticated work product. Unless all revisions are captured on a new authenticated work product at project completion, all revised and authenticated work products must be retained.

The Permit Holder must document how revisions to authenticated work products were carried out and controlled.

Each drawing is a work product that must be authenticated and validated. However, there may be special considerations related to drawings because once they are completed, authenticated, and validated, other authenticated and validated work products may make changes to work that is depicted on the drawings. The drawings are not necessarily updated with each change of this type.

In some cases, changes are captured at the end of a project through either As-Built or Record Drawings.

These two situations are discussed in the subsequent sections.

4.7.1 As-Built Drawings

As-built drawings are drawings that may have been prepared or marked up by someone other than the Licensed Professional, e.g., a contractor or other persons not under the direct supervision and control of the engineer. As-built drawings are intended to represent the on-site conditions that are not shown on the original drawings. Changes to the Licensed Professional's original design may have been initiated by someone else to accommodate site conditions. If a Licensed Professional is not in a position to accept responsibility for the content of as-built drawings, they should not authenticate them.

4.7.2 Record Drawings

Record drawings are drawings prepared by the Licensed Professional to record design changes for which they have accepted responsibility. The changes may have been made by the Licensed Professional previously through authenticated change orders, directives, etc., and those changes have subsequently been incorporated into one representative drawing along with the original design elements, representing the final design for the project. Since the Licensed Professional is responsible for the content of record drawings, they are required to authenticate them.

If the record drawings are being used to verify that construction has been done in accordance with the design, the Licensed Professional will need to have spent a sufficient amount of time on site (frequent visits or continuous presence) before being able to provide such an assurance. The Licensed Professional should determine in advance whether the client requires such verification.

4.8 AUTHENTICATION OF CONTINUOUS OPERATIONS AND FIELD REVISIONS OF WORK PRODUCTS

Any design revisions, change orders, field instructions, operational instructions, or field reviews that affect the design intent of a previously authenticated work product must also be authenticated as revisions. In the event that a change or revision is implemented without observing the proper authentication process because of, for example, urgent safety risks to people or the environment, the change or revision must be formalized and authenticated as soon as reasonably 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 have authentication policies describing how the Permit Holder controls authentication for continuous operations using design revisions, change orders, field or operational instructions, or field reviews. The Responsible Member must ensure, at a minimum, that all the following information is documented:

- the circumstances surrounding the need for the change or revision
- the details of the change or revision required; and
- a summary of the key factors in the professional evaluation or assessment used to determine that an urgent or immediate change or revision needed to be actioned prior to authentication.

4.9 PROVIDING COPIES OF AUTHENTICATED WORK PRODUCTS

Clients are entitled to receive original authentication on work products or on copies of work products. When setting the requirements for professional services, the Licensed Professional or Permit Holder and the client should clearly define the expectations involving original, authenticated work products, including whether copies are provided physically, electronically, or digitally, and if any copies are to include authentication. Copies of work products must be clearly marked as such to ensure any physical changes are properly captured in revisions that can be authenticated.

4.10 RETENTION OF WORK PRODUCTS

There are no requirements in the *Act*, the Regulation or By-laws for retaining work products. However, copies or originals of authenticated work products are usually kept for reference purposes or for defense against legal claims. A work product kept in case of possible legal action should be retained at least until the period of professional liability expires. Refer to the Yukon *Limitations of Actions Act* for the limitation period that applies to starting specific legal actions. Members who have professional liability insurance should consult their insurers about requirements for work product retention. Engineers Yukon recommends that all Permit Holders obtain independent legal advice regarding the retention of work products.

Work products that are retained should be stored in a manner that maintains their integrity and prevents unauthorized use of the work products or the Professional Seal and signatures that appear on them. Copies of work products that have been issued to clients should be identified as archival work products to the effect: "This copy is for record purposes and should not be revised."

4.11 STORING ELECTRONIC WORK PRODUCTS

Authenticated electronic work products that are retained for reference or liability purposes should be stored in a manner that maintains their integrity. If that is not possible, the electronic work products should be stored without seals and signatures and hardcopy versions retained instead.



APPENDICES



APPENDIX A: EXCERPTS FROM THE ACT AND REGULATION

A-1 Who may use a seal and permit number?

The *Engineering Profession Act* spells out who is allowed to apply the professional seal or the permit seal and under what circumstances it may be applied.

Part 6

GENERAL

Use of stamp or seal

59(1) A professional engineer, holder of a limited licence, or Permit Holder should sign and stamp or seal documents or records in accordance with the regulation.

(2) No person other than a professional engineer, holder of a limited licence, or permit holder should use a stamp or seal issued by the registrar under this Act. S.Y. 1995, c.9, s.59.

A-2 How the seal and permit number are to be used

The *Regulation* addresses how the seal and the permit number are to be used.

Professional Members

13.(1) The seal issued to professional members should at all times remain under their direct control and should be applied by them to all plans, specifications, reports or documents of a professional nature which they have authored, or which have been prepared under their supervision and for which they assume professional responsibility.

(2) A seal should be accompanied by the signature of the professional member to whom it was issued and the date on which it is applied.

(3) A seal may be applied to the cover page or final page of reports, specifications or documents in a manner which clearly indicates acceptance of professional responsibility for them without being applied to each page.

Permit Holders

16. When the practice of engineering is carried on by a Permit Holder all final plans, specifications, reports, or documents produced should:

(a) be signed by, dated, and sealed by the professional member or licensee of the Association who is responsible for them and who supervised their preparation; and

(b) be dated and stamped with the seal issued to the Permit Holder pursuant to these Regulations.

Licensees

21.(1) The seal issued to licensees should at all times remain under their direct control and should be applied by them to all plans, specifications, reports or documents of a professional nature which they have authored, or which have been prepared under their supervision and for which they assume professional responsibility.

(2) A seal should be accompanied by the signature of the licensee to whom it was issued and the date on which it is applied.

(3) A seal may be applied to the cover page or final page of reports, specifications or documents in a manner which clearly indicates acceptance of professional responsibility for them without being applied to each page.

A-3 Surrender of the Seal

The Regulation also outlines the circumstances requiring return of the seal to the Association.

27.(1) When the Association accepts any person in any class of membership it should provide the member with a seal engraved in a manner acceptable to Council and which remains the property of the Association and should be surrendered to it on demand.

APPENDIX B: REQUIREMENTS FOR AN ACCEPTABLE CERTIFICATE AUTHORITY

To meet Engineers Yukon best practices the Certificate Authority must:

- be experienced in providing this technology to members and licensees of other professional associations
- have the resources, technical support, and systems in place to provide continuity of service for the foreseeable future
- have protocols ensuring only Engineers Yukon Licensed Professionals are granted the authority to own and use an electronic image of their seal with their personalized digital certificate
- have protocols allowing Engineers Yukon to withdraw or suspend an Engineers Yukon 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., compatible with different file formats, ability to seal, sign and date multiple sets of engineering documents in a single operation)
- use a public key infrastructure, which is a combination of hardware, software, people, policies, and procedures needed to create, manage, distribute, use, store, and revoke digital signatures
- have a digital certificate that is compliant with the International Telecommunications Union X509v3 standard
- maintain the digital certificate under the sole control and possession of an Engineers Yukon Licensed Professional
- allow the digital certificate to be stored on the medium of the Engineers Yukon professional members' choice (i.e., hard drive, memory stick); and
- provide interfaces between the technology and the software used by Engineers Yukon Licensed Professionals so the image of the Engineers Yukon seal with signature and date appears when printing or viewing the work product.

APPENDIX C: FREQUENTLY ASKED QUESTIONS

Q. What are some examples of “Unacceptable Methods of Authentication and Validation”

A. The following methods are unacceptable for authentication and validation:

- labels or photocopied authentications, scanned images of a seal applied on original work products or blank pieces of paper, or any other methods not described in Section 4.2
- work products signed by another person on behalf of the Licensed Professional identified on the seal; and
- faxed seals or electronic images without digital signatures.

Q. Who should authenticate and validate multi-disciplinary work products?

A.

- multi-disciplinary work products must be authenticated by the Licensed Professionals taking responsibility for each discipline using one of the methods described in Section 4.2.2; and
- The Responsible Member must validate that all multi-discipline work products have been coordinated, reviewed, and authenticated in accordance with the Permit Holder’s quality control and quality assurance procedures using one of the methods described in Section 4.2.3.

Q. Do drawings need to be individually validated?

A.

- Generally, yes. Drawings that individually pass the authentication test are engineering work products. These drawings require individual authentication and validation (Section 4.3).

