



STATE OF WASHINGTON
BOARD OF REGISTRATION FOR
PROFESSIONAL ENGINEERS AND LAND SURVEYORS
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ELECTRONIC DOCUMENTS
A Board Interpretative Guideline

To help establish improved understanding of digital media in the engineering and surveying professions the Board has developed the following *Interpretive Guideline* for licensees and public officials to refer to for development of their own processes and practices.

It is accepted practice for engineering, land surveying and on-site wastewater design documents to be prepared, stored and transmitted in electronic format. These electronic documents must still meet the applicable requirements of chapter 18.43 RCW, chapter 18.210 RCW, chapter 196-23 WAC and chapter 196-33 WAC. This guideline seeks to clarify what is allowed and what is not allowed in the sealing and reproduction of electronic documents. This is provided as guidance for electronic documents. However, the above statutory and administrative rule provisions take precedence whenever this guideline appears to be in conflict.

Definitions

For the purposes of this Board Policy, the following definitions will apply:

Electronic: (RCW 19.34.020 (12)) Means electrical, digital, magnetic, optical, electromagnetic, or any other form of technology that entails capabilities similar to these technologies.

Electronic Record: (RCW 19.34.020 (13)) means a record generated, communicated, received, or stored by electronic means for use in an information system or for transmission from one information system to another. A Digital Signature can be used to sign these records.

Electronic Document: An electronic document is any document that is generated or stored on a computer showing an image of a plan, drawing, plat, map, report, specification, letter, contract or photograph.

Electronic Documents can be combined or transformed to become all or part of an Electronic Record. A Digital Signature can be used to sign these documents.

Electronic Signature: A signature in electronic form attached to, or logically associated with, an Electronic Record or Electronic Document. An Electronic Signature DOES NOT incorporate encryption or security measures. An Electronic Signature, by itself, DOES NOT meet the requirements of WAC 196-23-070 (2). An Electronic Signature can be a sound, image, icon or graphic that has been adopted by the signer. Common examples of Electronic Signatures include:

- A. Digitized images of a “wet” signature,
- B. Graphical representations of a handwritten signature (constructed using graphics software or special fonts), and
- C. Other icons or representations adopted by the person with the intent to sign the document.

Digital Signature: Means a secure signature in electronic form that can be attached to an Electronic Record. The Digital Signature must have the following properties:

- A. It must be unique to the licensee;
- B. It must be capable of independent verification;
- C. It must be under the exclusive control of the licensee;
- D. It must transform the Electronic Record such that a recipient can determine that the record was signed by the licensee,
- E. It must transform the Electronic Record such that a recipient can determine if the initial record was altered since the transformation was made.

Images of Stamps and Seals

Engineering, land surveying and on-site wastewater design stamps and seals may be digitized, scanned, or electronically reproduced. The electronic seals/stamps can be placed on or in plans, plats or documents in either electronic or hard copy form. The electronic seals/stamps must conform to the design specified in WAC 196-23-010 or WAC 196-33-400. While the size is not specified, it is critical that the image be fully legible.

Electronic Seals/Stamps Usage

Seal/Stamp Usage must be as described in WAC 196-23-020 or WAC 196-33-500.

Usage guidelines include:

- A. An electronic seal/stamp may be embedded in an electronic document as part of a template, drawing border, or cover sheet.
- B. The licensee may authorize another individual (such as a drafter, designer, technician, etc.) to place his seal/stamp on or in an electronic document.
- C. The licensee is responsible for assuring that the seal/stamp is only applied to documents prepared by or under his or her direct supervision per RCW 18.43.070.
- D. If the seal/stamp is combined with an Electronic Signature into a single graphic entity, then it may only be applied;
 - a. by the licensee,
 - b. to final documents per WAC 196-23-020 or 196-33-500, and
 - c. in conjunction with the licensee also applying his Digital Signature to the document.

Signature

A signature must be, as described in WAC 196-23-070 or WAC 196-33-500, either:

- A. An original “wet” signature, written by hand, and applied by the identified registrant;
- B. A Digital Signature; or
- C. An Electronic Signature as applied under the next section titled “Electronic Signature Usage”.

Electronic Signature Usage

Applying Electronic Signatures to sealed/stamped documents is allowed as follows:

- A. An Electronic Signature, such as a scanned image of a “wet” signature, may be applied to a final Electronic Record as long as a Digital Signature is also applied to that record.
- B. An Electronic Signature can be embedded into a Digital Signature.
- C. Applying an Electronic Signature, without an accompanying Digital Signature, does not meet the requirements of WAC 196-23-070 (2) or WAC 196-33-500 and will put the licensee in violation of Washington State Rules and Law.

Digital Signature

A Digital Signature has the following properties:

- A. It has a hardware or software cryptographic protection (such as a public/private key pair) that is unique to the licensee.
- B. It can be independently verified by a third-party certification authority.
- C. The Electronic Record to which it is attached is encrypted such that the recipient can verify that the document was uniquely signed by the licensee.
- D. The Electronic Record to which it is attached is encrypted such that the recipient can verify if the document has been altered since the licensee signed it.

Digital Signature Usage

Applying a Digital Signature to a sealed/stamped document or record must be as described in WAC 196-23-070 (2) or WAC 196-33-500. Usage guidelines include:

- A. Only a Digital Signature is acceptable as meeting the requirements of chapter 196-23 WAC or chapter 196-33 WAC for final documents that are distributed as an Electronic Document or Electronic Record.
- B. The Digital Signature applied to the document, must be applied by the licensee.
- C. The licensee must maintain exclusive control of the passwords, private key, and/or security device that allows access to their Digital Signature.

Preliminary Documents (as defined in WAC 196-23-020 (2) or 196-33-500)

Preliminary electronic documents must be clearly identified as “PRELIMINARY” and shall be stamped/sealed with either an electronic or physical stamped seal. Preliminary documents do not need to be signed by the licensee.

Unsigned preliminary electronic documents may be stored or transmitted in any electronic format, with no restrictions.

It is recommended that the licensee not transmit electronic documents that contain their seal/stamp in an image format that can be easily copied or extracted. (An example of this would be a MS Word document where the seal/stamp is an embedded graphic image that can be easily copied by the recipient.) The licensee will maintain better control over their seal/stamp by only transmitting it in preliminary documents that are flattened PDF's or image files.

Signed preliminary electronic documents must conform to the same requirements as Final Documents, as described below.

Final Documents (as defined in WAC 196-23-020 (1) or 196-33-500)

Final Electronic Documents or Electronic Records must be signed and sealed as described in WAC 196-23 and as described above under “Stamping and Seals” and “Signature”. Final sealed and signed electronic documents/records may be stored, transmitted, or reproduced in electronic format as follows:

- A. A printed copy of the final document that has been sealed, signed with a handwritten “wet” signature, and dated by the licensee that meets the requirements of WAC 196-23-070 or WAC 196-33-500. The printed document is then

scanned into an electronic format that either cannot be easily modified, or can be protected by the licensee to prevent any modification or editing of the document.

- a. Examples of formats that cannot be easily modified are: TIFF, JPEG, BMP or other “picture” formats where the entire document, including the seal and signature, are a single graphic entity.
 - b. Examples of formats that can be protected are: PDF, DWF or other formats where the licensee enables protection and where modification of the document is under his *exclusive* control.
 - c. If a PDF, DWF or other similar document format has been “flattened”, such that all layers of text, graphics and content are merged into a single graphic entity, then protection is not required.
- B. An electronic copy of the final document or record is sealed with an electronic copy of the licensee’s seal, dated and signed by the licensee with a Digital Signature that meets the requirements of WAC 196-23-070 or WAC 196-33-500
- a. In its native format this type of electronic document can be stored, transmitted, or reproduced only with the Digital Signature intact.
 - b. Copies of this type of electronic document can be stored, transmitted, or reproduced as long as the native format is converted into a TIFF, JPEG, BMP, flattened PDF, or other formats where the entire document, including the seal and signature, are a single graphic entity.
- C. The electronic final documents or records can be combined into a plan, plat or document set as a single file. For plan/plat sets each page should have an electronic copy of the responsible licensee’s seal, the date, and an Electronic Signature. This plan set can then be signed by the overall responsible licensee with a single Digital Signature.
- a. As long as the documents are combined into a single file prior to application of the Digital Signature, a Digital Signature only needs to be applied one time to the set. Separate application of the Digital Signature to every page in the set is not required. Separate application of a Digital Signature to the set by every responsible licensee is also not required. Only the licensee taking responsible charge of the entire set needs to apply his digital signature.
 - b. In its native format this type of electronic document can be stored, transmitted, or reproduced only with the Digital Signature intact.
 - c. Copies of this type of electronic document can be stored, transmitted, or reproduced as long as the native format is converted into a TIFF, JPEG, BMP, flattened PDF, or other formats where the entire document, including the seal and signature, are a single graphic entity.

The format of the final documents will depend on the requirements of the recipient. The licensee will need to meet the requirements of the law, while still trying to match the requirements of the recipient.
