DIGITAL SIGNATURES AND SEALS – An introduction

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These slides are presented as a courtesy to ACEC/MA Members
- Why Digital Signatures?
- What is the difference between Electronic and Digital?
- MA Regulations
- How to choose digital signature solutions
WHY DIGITAL SIGNATURES?
With regard to the regulatory environment or standard business practices in your industry, how important are authorization signatures within your organization?
For which of the following needs are authorization signatures considered essential in your organization?

- Internal compliance
- Required by regulations
- Authorization for action
- Contracts w/ 3rd party
- Required by law
- Consent/Agreement
- Professional authority
- Health & safety
What percentage of the main business processes/documents in your organizational unit would you say require authorization signatures?

- 10% or less: 14%
- 10-20%: 12%
- 20-30%: 14%
- 30-50%: 14%
- 50-70%: 16%
- 70-80%: 8%
- 80% or more: 0%

As part of your main business workflows, who of the following are required to sign and return documents or approve your process steps?

- Local managers and employees
- Senior executives who travel
- Remote employees
- Field-based staff
- Partners, suppliers, subs
- Customers or clients
- External authorizing professionals

Considering the documents that are printed out as part of your formal approval processes, what proportion would you say are printed for the sole purpose of adding one or more signatures?

- 10% or less: 16%
- 10-20%: 14%
- 20-30%: 14%
- 30-50%: 14%
- 50-70%: 14%
- 70-80%: 16%
- 80-90%: 16%
- 90% or more: 16%

What proportion of your key processes would you say are interrupted, slowed down or prematurely completed by the need to collect physical signatures on paper?
How much time would you say is generally added to a typical formal approval process as a result of this physical sign-off?
GOVERNMENT DRIVERS

COUNTIES, MUNICIPALITIES, AGENCIES
Uniform Electronic Transactions Act (UETA) – 1999
Electronic Signatures in Global and National Commerce Act (E-Sign) – 2000
Over 80% of Professional Engineering licensing boards allow electronic signatures.
IS ELECTRONIC DIGITAL?
An “Electronic signature” is a pictorial representation of a wet signature within an electronic document.

A Digital Signature is “a digital guarantee that information has not been modified, as if it were protected by a tamper-proof seal that is broken if the contents were altered.”

ELECTRONIC SIGNATURES ARE NOT NECESSARILY DIGITAL

- A digital signature includes extra data which identifies and authenticates the sender and message data using public-key encryption.
- A digital signature meets a standard established by NIST and International standards organizations.
Dear Mr. Digital:

This is a letter that represents the most vulnerable of documents – it is being transmitted electronically to you as a Microsoft Word document, which means that you can modify it as you see fit. Since it has only a picture of my signature on it, it can be modified and printed out to look as if it is an original document signed by me. Oh, and it also has a picture of my seal, so feel free to use that, too, on any document you like.

Sincerely,

James J. Purcell, PE
Dear Mr. Digital:

This is a letter that represents a protected document — it is being transmitted electronically to you as a PDF document, created by Adobe, but also signed using Adobe EchoSign, which is fully compliant with both UETA and ESIGN. This means that if you attempt to modify it, the document will display a message stating that it has been signed and cannot be edited.

Furthermore, the document includes an electronic representation of my seal as part of my digital signature, which is protected to keep you from copying it.

Sincerely,

James J. Purcell, PE
- Self-generated certificates
- 3rd party certificates
- Encrypted signature (minimum level)
- Encrypted document
- Public / Private
Security:

- Assume a computer can decipher a 56 bit key in one second
- That same computer would take 150 trillion years to decipher a 128 bit key
- Digital signature key lengths can be up to 1024 bits
MA REGULATIONS
HOW TO CHOOSE DIGITAL SIGNATURE SOLUTIONS
Software solutions depend on various factors:
- Platform (on-site, online, mobile)
- Size of business
- Number / frequency of need
- Level of encryption
- Cost
Compare Digital Signature Software

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Pricing Details</th>
<th>Business Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>eSignLive by VASCO</td>
<td>Starting From $20</td>
<td>Any Size Business</td>
</tr>
<tr>
<td>RightSignature</td>
<td>Starting From $11</td>
<td>Any Size Business</td>
</tr>
<tr>
<td>DocuSign</td>
<td>Starting From $10</td>
<td>Any Size Business</td>
</tr>
<tr>
<td>Adobe EchoSign</td>
<td>Starting From $14.99</td>
<td>Any Size Business</td>
</tr>
</tbody>
</table>
FINAL THOUGHTS
A contract, record, or signature may not be denied legal effect or enforceability solely because it is in electronic form.

Digital signatures make business sense and many clients require electronic submission of documents.

Digital signatures are not required; they are optional – wet signatures and impression seals are still acceptable.

IN SUMMARY
- Digital signatures are more secure than other methods.
- There are many software solutions that can meet the needs of the engineering profession regardless of size of firm or frequency of use.

**IN SUMMARY**
For software comparison, visit http://digital-signature.softwareinsider.com/#main

For further information, visit the Association for Information and Image Management at http://www.aiim.org/