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Navigating Engineering Fraud: Real Cases in Canada

Engineering fraud, though often whispered about in hushed tones, is more prevalent in Canada than many prefer to acknowledge. In particular, fraud related to authenticating professional engineering documents significantly impacts not only engineers, but also many regular Canadians.

When authenticating and accepting professional engineering documents, all parties involved have a responsibility to consider the wide variety of professional seal and signature-related fraud types, follow best practices, and use tools to prevent such occurrences.

Ensuring the proper handling and authentication of professional engineering documents and thus preventing fraud is a team effort.

It not only requires the participation of engineers and firms, who must ensure that the documents are properly authenticated, but also that of every city, municipality, and organization that accepts the documents, each of which must establish requirements and workflows that do not let bad actors slip through the cracks.

Last but not least, professional associations play a pivotal role in preventing fraud by acting as regulators and ensuring the protection of the public.

The following cases represent only a fraction of fraudulent activities related to professional seals and signatures that have occurred in Canada in the past decade. They illustrate the failures of poor electronic authentication and traditional paper-based engineering practices.

So how can engineers protect themselves and their title or designation, ensuring that they avoid the types of nightmare scenarios described below?

As is common in many cases of engineering fraud, simple safeguards could have prevented most of the cases described below.

For example, requiring professional engineering documents to be submitted electronically and following the approved standards for the authentication of electronic documents significantly decrease the risk of fraud and ensure that wrongdoers are swiftly detected.

Fraud Type: Professional Signature Forgery

Case 1: Cross-Jurisdiction Shortcuts

In 2023, Professional Engineers of Ontario (PEO) adjudicated a case involving the fraudulent use of a PEO member's seal and signature by a Nova Scotia corporation.

Sanctions and consequences:

The corporation pled guilty to two counts of breaching the Professional Engineers Act at the Ontario Court of Justice at Kingston, where the case was adjudicated.[1] They were fined $17,500.

Furthermore, a civil case was later brought against the owner of the corporation, who was ordered to pay back the money the corporation received for the job as well as pay another $300,000 in damages and costs.[2]

1. https://peo.on.ca/latest-news/nova-scotia-company-fined-17500-use-professional-engineers-seal
2. https://www.cbc.ca/news/canada/nova-scotia/shane-ross-nova-scotia-contractor-ontario-standard-paving-1.6283845

In addition to the sanctions levied against the corporation and its owner, significant costs were incurred by PEO, who defended the member whose seal and signature were fraudulently used.

What happened?

At the end of the summer of 2019, a Nova Scotia corporation was completing a residential construction project in Clarendon Station, Ontario. During the course of operations, they were required to submit engineering drawings to the Township of Central Frontenac in order to obtain the required building permit.

Rather than enlisting the help of an engineer with the right to practice in the province, the corporation forged the seal and signature of a registered PEO member in good standing without the member's knowledge or consent.

The forgery was discovered after the drawings were submitted and the engineer whose seal and signature appeared on the document confirmed that they had neither reviewed nor authenticated them.

What went wrong?

- The corporation forged an engineer's signature without their knowledge or consent.
- The corporation led the city to believe that the submitted drawings had been authenticated by the engineer in question.
- The standing of the signer was not immediately verified by the organization that accepted the documents, allowing the fraudster to continue their unlawful actions.

Case 2: Fabricating Seals and Signatures

In 2021, the Ontario Court of Justice at Kitchener adjudicated a case involving a man impersonating an engineer.

Sanctions and consequences:

The fraudster pled guilty to seven counts of impersonating a professional engineer (one for each professional engineering drawing and one for the letter) and was fined $20,000 for his fraudulent activities.[3]

Although this man was caught and, fortunately, no one was injured as a result of his wrongdoing, it is important to consider the risk to the public posed by non-engineers misappropriating professional seals and signatures.

By requiring that professional documents be submitted electronically and bear a digital signature, this type of situation can easily be avoided. In fact, although seal images can be fabricated, digital signatures cannot.

What happened?

The Kitchener resident, who was not an engineer or a PEO member, designed professional engineering drawings for a residential construction project. He then affixed a facsimile of a PEO seal and professional signature to pass off his work as engineering work completed by a PEO member in good standing.

He subsequently forged a letter using the name of the engineer in question, as well as the engineer's seal.

Important Fact:

Although the man used the name of a PEO member, the engineer was not made aware of his actions and did not endorse the design drawings or letter.

The fraud was discovered when the professional engineering drawings were submitted to the cities of Kitchener and Waterloo. When he was unable to provide proof that the engineer whose name was on the documents had been the one to sign them, he was brought before the court on charges of impersonating a professional engineer.

What went wrong?

- A man, who was not an engineer, impersonated a PEO member.
- The man forged a professional PEO seal and signature.
- Widespread requirements for the use of CertifiO professional digital signatures on professional engineering documents would have prevented the fraudster's actions.

Fraud Type: Stolen Seal and Signature

Case 3: Caving to Client Pressure

Twin cases adjudicated in 2019 by Engineers and Geoscientists British Columbia (EGBC) paint a concerning picture of how easily authentication fraud can be perpetrated on paper, even when the parties involved are acting on what they consider the best of intentions.

Sanctions:

After completing its disciplinary investigation, the committee ordered that several disciplinary actions be taken against the mechanical engineer, including:[4]

1. A two-month suspension of his association membership;
2. A $1,500 fine to be paid to the association by the mechanical engineer;
3. A Practice Review conducted by the association and paid for by the mechanical engineer; and
4. That the mechanical engineer pay over $16,000 to cover the investigation and legal fees incurred by the association due to his actions.

The electrical engineer was not party to the initial fraud but also received sanctions. These included:[5]

1. A General Practice Review conducted by the association and paid for by the electrical engineer;
2. That the electrical engineer complete and pay for additional professional training courses within 9 months of the order; and
3. Payment of the investigation and legal fees incurred by the association due to his actions in the amount of $3,500.

What happened?

This case involved two EGBC members. The first, an electrical engineer, and the second, a mechanical engineer, were both

3. https://www.digitalityworks.com/Viewers/ViewIssue.aspx?IssueID=249&PageNo=18
4. https://www.egbc.ca/getmedia/a8b6068f-4277-47b6-9d2e-f820e16757b3/2019-04-16-Determination-of-the-Discipline-Committee-Avinder-Singh-redacted-for-publishing.pdf.aspx
5. https://www.egbc.ca/getmedia/87e40228-37c1-422c-acb6-5a1be777d3b7/2019-02-11-Consent-Order-Karamjeet-Gary-Jatana-for-publishing.pdf.aspx

practicing engineers in good standing in British Columbia working together at a firm that they cofounded.

While finalizing a project for a large client, said client came to their offices and requested that the mechanical engineer provide them with the project documents (plans, drawings, etc.) so that they could complete their building permit application.

However, when verifying the documents, the mechanical engineer noticed that the electrical engineer had not signed. He applied his own seal to one of the documents but could not sign the document for the electrical engineer since he was not trained and accredited as such.

After informing the client that he would not be able to provide them with the project documents at that time, the mechanical engineer said he was pressured by the client to find an immediate solution. The mechanical engineer tried to reach the electrical engineer to request that he come in and properly authenticate the document in question but was unable to get a hold of his partner.

Knowing that the documents had been prepared by engineers in training working for the firm and that the electrical engineer had reviewed the document in question, the mechanical engineer fraudulently applied the electrical engineer's professional engineer seal and signature to the document.

Important Fact:

The electrical engineer was not made aware of the mechanical engineer's use of his seal and signature at the time of signing and had not given his consent for the action to take place. However, even with the electrical engineer's consent, the actions undertaken by the mechanical engineer would not have been compliant.

Having a fully digital workflow in place would have prevented this situation from occurring, as the mechanical engineer would not have been able to apply the electrical engineer's digital signature.

When the electrical engineer later found out about the mechanical engineer's actions, he chose not to report the fraudulent use of his seal and signature to his professional association. His failure to report became the basis for the disciplinary investigation against the electrical engineer that would be undertaken alongside the investigation of the mechanical engineer.

What went wrong?

- The mechanical engineer fraudulently used another engineer's seal and signature to authenticate a professional document.
- The electrical engineer's seal was improperly stored and therefore accessible to the mechanical engineer.
- The electrical engineer failed to inform his professional association when he discovered the fraud.

Case 4: Engineer Identity Theft

In January 2022, a resident of Cambridge, Ontario, was brought before the Ontario Court of Justice at Kitchener for charges of having illegally altered an engineering document after it had been authenticated by an engineer.[6] The document in question was part of an application for a building permit he submitted to the City of Cambridge as part of a project to build a new structure on his property.

Sanctions and consequences:

The man pled guilty to one count of breaching the Professional Engineers Act and was fined $3,500 as a penalty for his actions. But these sanctions represent only the tip of the iceberg when it comes to the effects of this type of fraud.

In fact, this case and Case 2 (discussed above) are only two of the many examples of the misappropriation of professional engineering seals and signatures by non-engineers. When considering the impact of this type of fraud, the time and money expended by professional associations, cities, and engineers on investigations and court defenses cannot be discounted.

What happened?

Instead of contracting with an engineer to obtain the required engineering drawings, the man used a drawing that had been created and professionally authenticated for an unrelated project.

In order to make the document seem as though it had been drawn up for the new project, the man altered the document to show the address at which he wanted to build the new construction instead of the address of the original project. These actions were undertaken without the knowledge or consent of the PEO member whose name and seal appeared on the document.

What went wrong?

- A non-engineer altered an engineering document.
- A non-engineer submitted an engineering document bearing an engineer's seal and signature that had been modified after authentication.
- If the original documents had been submitted electronically, this could have been avoided since the documents would have been digitally signed with a PEO digital signature that confirmed the identity and authenticity of the signer, all under the sole control of the professional.

Case 5: Unauthorized Document "Repurposing"

Early in 2013, three sets of Winnipeg, Manitoba, residents found out that the city had concerns about potential fraud relating to the blueprints that had been used during the construction of their homes.[7]

Consequences:

The legal and professional investigations related to these blueprints confirmed that the engineer whose seal and signature appeared on the forged blueprints was not the only one to have experienced such an occurrence.

Following the event and related investigations, the Association of Professional Engineers and Geoscientists of Manitoba (APEGM) began pushing for more widespread use digital professional seals. In fact, APEGM now strongly encourages all its members to adopt professional digital signatures to better protect the public against fraudsters stealing engineers' identities.

What happened?

The saga started when some of the documents related to the building permit application were found to have been deliberately altered and the professional signatures and seals fraudulently applied.[8] In fact, the engineer whose name appeared on the documents confirmed

6. https://www.digitalityworks.com/Viewers/ViewIssue.aspx?IssueID=249&PageNo=18
7. https://www.cbc.ca/news/canada/manitoba/winnipeg-homeowners-worry-houses-could-be-demolished-1.1353872
8. https://www.cbc.ca/news/canada/manitoba/engineers-push-digital-seal-to-stop-bogus-blueprints-1.1359641

that while he had signed the documents prior to their alteration, he had not signed the documents just prior to submission.

Furthermore, the documents he had signed had been for unrelated projects and he had signed them on a different date than the one they currently displayed. He said that the documents had been modified and re-used without his knowledge or consent.

What went wrong?

- Someone used an engineer's professional seal and signature without their knowledge or consent.
- Someone modified an engineering document after it was authenticated.

Fraud Type: Misuse of a Professional Seal and Signature

Case 6: Misrepresentation of Professional Status

Although many of the cases discussed above involve the theft or misuse of a professional seal and signature belonging to another person, that is not the only situation in which signature and seal fraud can occur. In fact, this 2021 PEO disciplinary case illustrates how misuse of one's own signature can be equally harmful.

Sanctions:

The PEO member in question received an official reprimand and was ordered to pay the cost of the investigation, which amounted to $2,000.[9]

What happened?

The PEO member at the center of this case was associated with a firm which failed to pay the required fees to maintain its Certificate of Authorization. Following this change in status, PEO informed him that the firm could no longer advertise itself as being authorized by PEO and use "Engineering Ltd." in its name.

Important Fact:

When authenticating a professional engineering document, engineers must ensure that all the information contained in the document is correct and compliant. Knowingly authenticating a document that contains falsehoods or authenticating a document on behalf of a firm lacking proper practice authorization is not acceptable.

However, even after repeated notices issued by PEO, the engineer continued to professionally sign and stamp documents on behalf of the firm. Furthermore, the firm continued to list itself as "PEO authorized" on its website.

What went wrong?

- The firm continued to misrepresent its status and continued to claim that it was PEO-authorized even after it was informed that it no longer retained that status.
- The PEO member continued to sign and stamp engineering documents that misrepresented the firm's status.
- The PEO member continued to misuse his seal and signature after multiple notices from PEO.

Looking forward: Action must be taken

As shown by the cases discussed above, fraudulent activities related to engineering documents are far from theoretical. As such, it is of paramount importance for each engineer to safeguard their professional seal and signature as well as that of their engineer's title and designation from engineering fraud.

Using CertifiO professional digital signatures is the best way for engineers and regulated professionals to ensure document security and integrity. It allows them to protect themselves from professional identity theft and unauthorized, fraudulent use of their seal and signature. In fact, professional digital signatures can only be used by the professional to whom they are issued and who chooses and safeguards the appropriate password.

Furthermore, widespread use of professional digital signatures issued by professional associations greatly contributes to preventing the misuse of engineering seals and signatures. For example, associations can immediately revoke a members' use of their professional digital seal and signature if they are no longer allowed to practice.

However, the need for best practices doesn't stop with engineers, firms, and associations. Organizations that accept professional engineering documents must also diligently implement and enforce verification and validation processes that follow recommended best practices.

Ultimately, using a professional digital signature ensures better protection of the engineering field and the public.

Find out more about professional digital signatures here: https://www.notarius.com/en/solutions/digital-signature-and-signing-tools.

9. https://www.digitalityworks.com/Viewers/ViewIssue.aspx?IssueID=249&PageNo=18