Water Management Standards to support Climate Change Adaptation and Resiliency

National Water and Wastewater Conference 2025

November 3, 2025

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Standards Council of Canada

We oversee and fund the development of standards

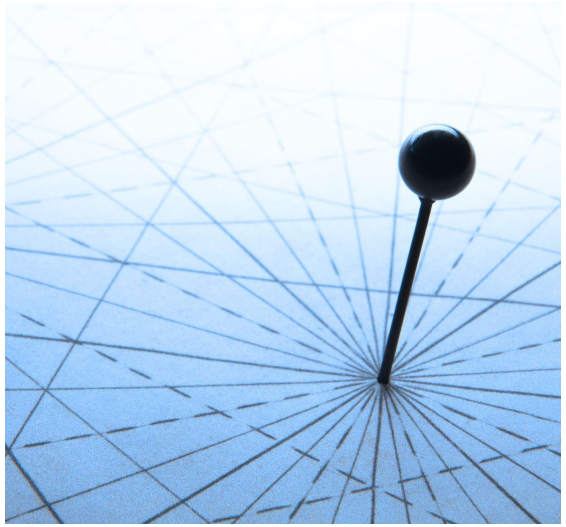
We are Canada's leading accreditation organization

We represent Canada on the world standards and accreditation stage

We drive collaboration through standards development

What are standards?

- A standard is any kind of measurement, description, method or design aimed at producing the same quality or results within a specific activity or area of work
- By default, standards are voluntary but can be made mandatory
- Anyone can write a standard, but the development of a **National Standard of Canada** or **International Standard** occurs within a tightly controlled process
- If standards are used correctly and checked by a third party, they can help ensure that
  - A product is safe to use
  - A person has the right skills to do a specific job, or
  - **Infrastructure is solidly built**



What makes a National Standard of Canada (NSC)?

- Only SCC-accredited **Standards Development Organizations (SDOs)** can develop a National Standard of Canada.
- NSCs are developed according to a rigorous, SCC-accredited process underpinned by:
    - Balance of interests (regulators, industry, civil society, academics, etc.)
    - Geographic representation
    - Consensus-based decision-making
    - Transparency and inclusivity
    - Availability in both official languages

Benefits of NSCs

Vetted by a nationally-representative group of experts, representing a balance of interests

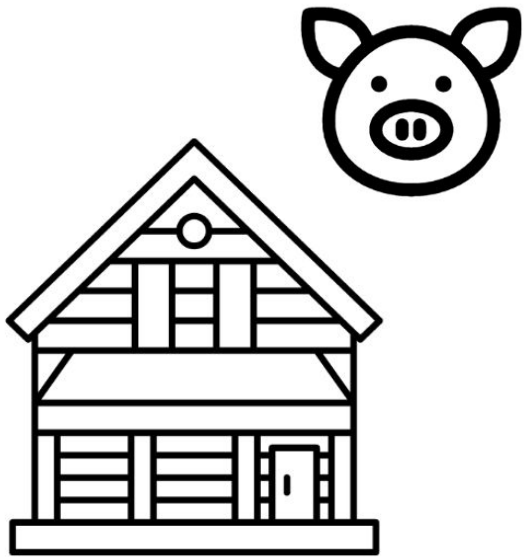
Reduce effort: can be incorporated into requirements and programs (no need to write from scratch)

Leverage state-of-the-art knowledge and expertise

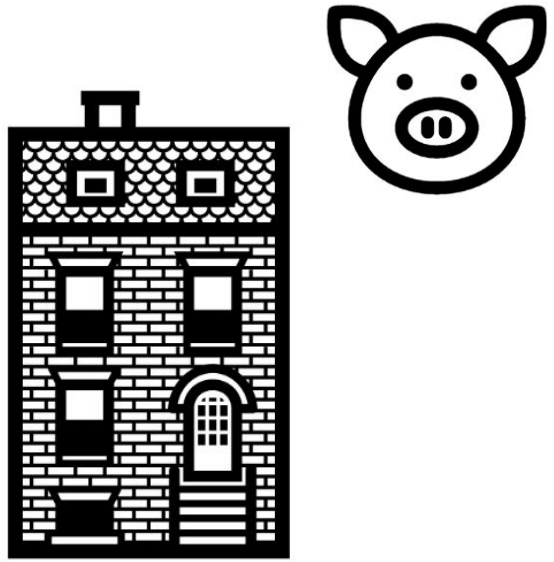
Demonstrate the meeting of duty of care

Key takeaway

= DIY using YouTube tutorials, etc



= National Building Code of Canada (NBCC)



= NBCC + voluntary standards

Standards to Support Resilience in Infrastructure Program (SSRIP)

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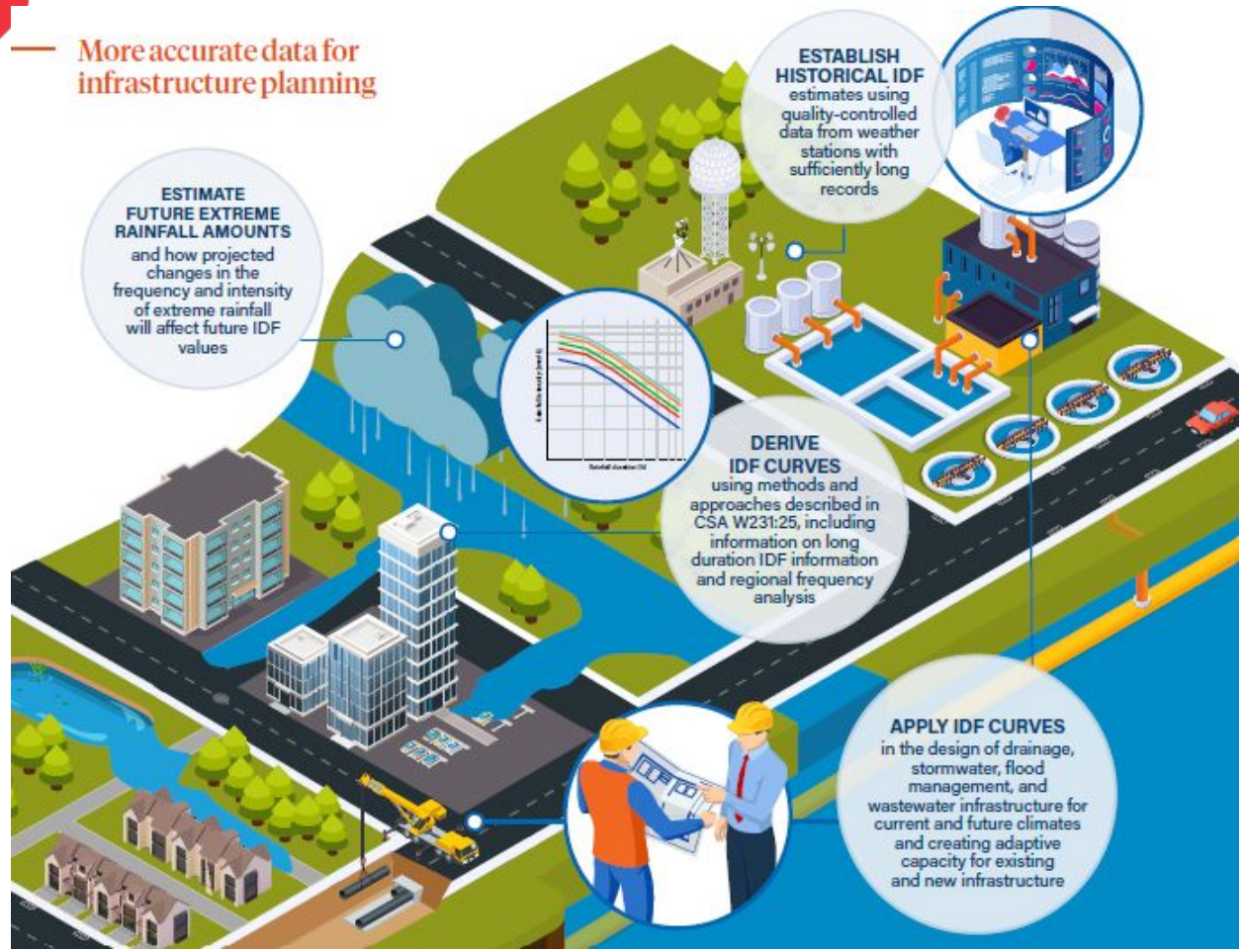
Standards to Support Resilience in Infrastructure Program (SSRIP)

Six workstreams:

Flooding

- Flooding is a climate change impact caused by excessive water
- Flooding has been identified as the most common and costly natural disaster in Canada (Public Safety Canada, 2024)
- Infrastructure resilience in the face of flooding requires adequate knowledge of what to expect and what areas are most vulnerable

IDF Curves



CSA W231:25 – Developing and interpreting intensity-duration-frequency (IDF) information under a changing climate

Free training on CSA W231:25 – available on CSA Group website

Flood mapping

CSA W229.1:25

Airborne lidar data acquisition – Airborne lidar sensors collect high-precision land elevation data that can support flood mitigation, infrastructure planning and others

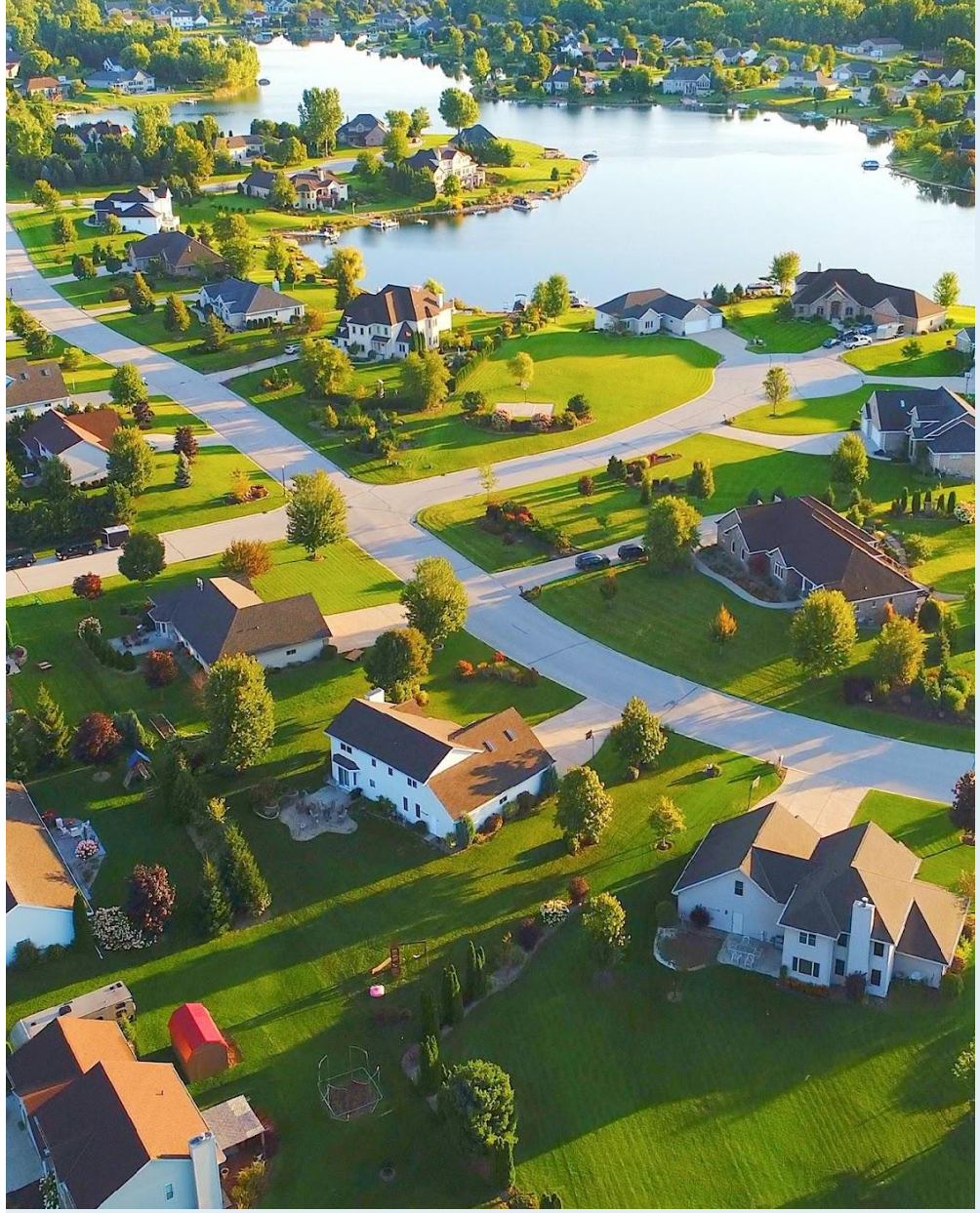
CSA W229.2:25

Geomatics for flood mapping – ensures consistency in flood mapping and associated geospatial data using accessible and accurate flood maps

Flood Risk Reduction

- (Being updated) CSA Z800 Basement flooding guideline and NSC – 2027
  - Provides guidance on making homes more resilient to flood-related events

- (In development) Emergency flood barriers – Winter 2026
  - A guidance for Canadian municipalities to select and deploy emergency flood protection barriers



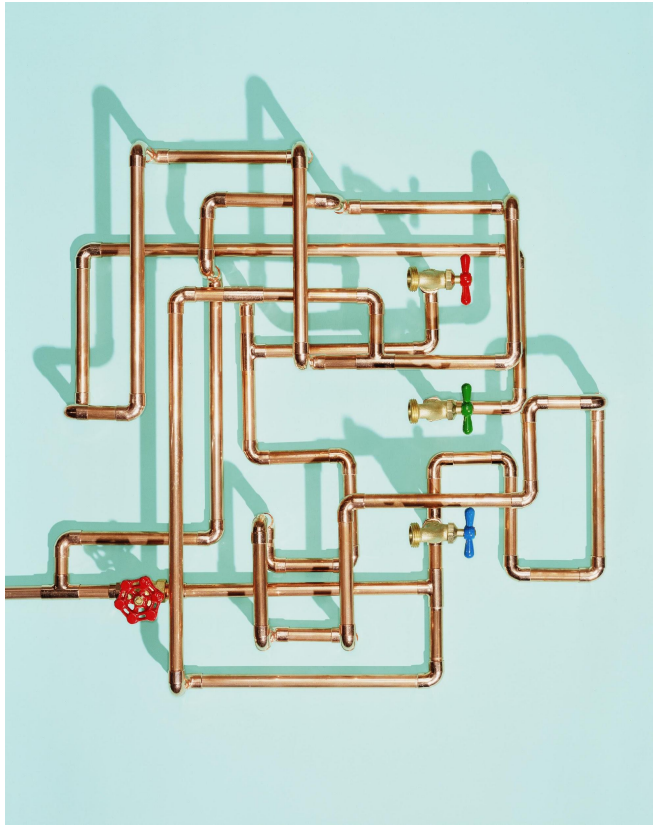
Water management

- Aside from extreme events, water needs to be managed to reduce water loss and improve water quality

- Water can be managed with improving current infrastructure but there is an additional advantage in using nature-based solutions

Inflow and Infiltration

- Inflow and infiltration (I&I) is when stormwater flows into the sanitary sewer system or when groundwater gets into the sanitary system through cracks or faulty connections, causing overflow
- This can cause tremendous strains on water infrastructure and probable damage to the systems



Inflow/Infiltration

CAN/BNQ 3682-320
Mitigation of the Risks of Inflow/Infiltration in New Sanitary Sewer Systems

CAN/BNQ 3682-420
Existing Sanitary Sewer Systems - Inflow and Infiltration Reduction Program - Guidelines

Nature-based solutions for water management

- (In development) Watershed-based flood and erosion management using natural and nature-based solution – Fall 2026
- (In development) Management of coastal flooding and/or erosion using natural and nature-based solutions – Winter 2027
- (In development) Drainage, erosion, and water quality control strategies for agriculture using nature-based solutions – Summer 2026
- Nature-based solutions (NbS) for water management workshop agreement (March 2025) – this agreement identified implementation challenges and opportunities with practical guidance for adoption and the mitigation of risks

ISO Environmental Management Water Policy Roundtable (Oct. 29 & 30)

- This workshop had over 40 participants addressing impact chains, adaptive capacity, systems vulnerabilities and the need for standardization within the water infrastructure sector.
- Some insights from this workshop:
  - There is a need for a national-level guidance within water infrastructure design
  - Performance-based standards are needed to accommodate climate risks
  - Good data, when collected and recorded properly, from water utilities are needed to inform more accurate models

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What next?

- We are in the process of collating insights from the workshop and other sources in developing a climate-resilient water standardization roadmap

- We continue to identify standardization gaps and welcome the collaboration of other organization as we build out the roadmap

Thank you!

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