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Use and Benefits of Standards in Sustainable Stormwater Management

CSA Group

TRIECA CONFERENCE 2016

Jeff Walker
Program Manager, Natural Resources

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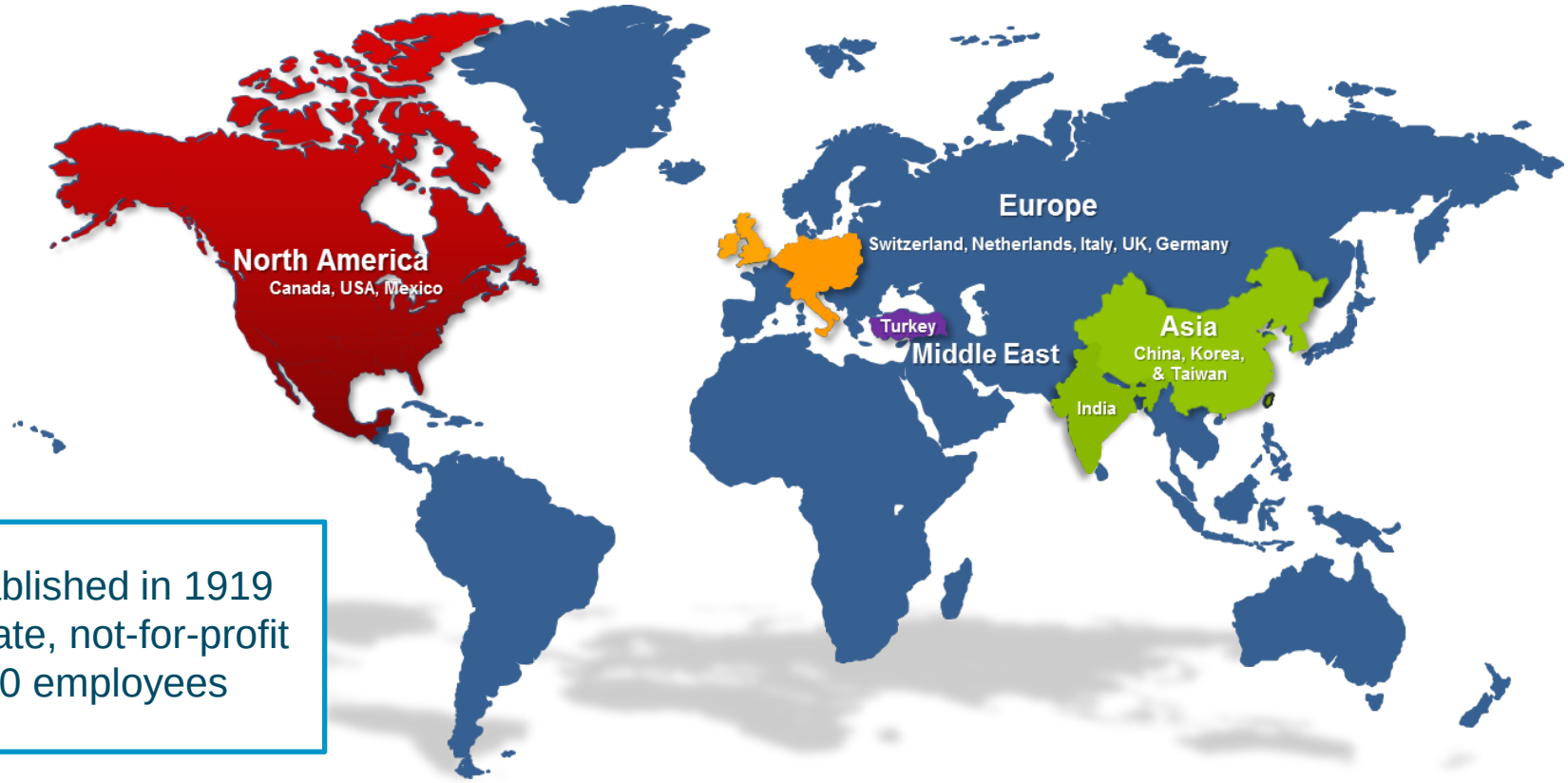
Outline

- ✓ Overview of CSA Group
- ✓ What Is A Standard?
- ✓ Value of Accredited Standards for LID
- ✓ CSA Standards related to LID
- ✓ Questions

Overview of CSA Group



- Established in 1919
- Private, not-for-profit
- 1,800 employees

Consumer Product Evaluation

Standards

Product Certification & Testing

A Trusted Advisor

- ✓ 35 offices in 14 countries
- ✓ CSA mark appears on billions of products worldwide
- ✓ 8,500 engaged and committed Members
- ✓ 1,300 standards development Technical Committees
- ✓ 3,000+ standards in 54 program areas and services
- ✓ 40% referenced in legislation and regulation

CSA Standards

Energy

Electrical Distribution

Health & Safety

Sustainability

- ✓ Accredited in Canada and U.S.
- ✓ Partner with industry, regulators, government, academia and consumers
- ✓ Subject Matter Expert members volunteer their time and develop standards
- ✓ Reputation as honest broker (e.g. accredited process, consensus approach)
- ✓ Experience with sensitive topics (e.g. Privacy, Nuclear Safety, Psychological Health)
- ✓ Major role in emerging technologies (e.g. Electric Vehicles, Nanotechnology)
- ✓ Offer training, education and certification to over 6,000 people per year

What is a standard?

What is a consensus standard?

A document designed to be used as a rule, guideline or definition. It is a consensus-built, repeatable way of doing something.

Standards must fit the need

- Prescriptive based
- Objectives based
- Performance based
- Principles based
- Hybrids

Fully Accredited Standards Process

- Developed by experts on a consensus basis (experts control content)
- Balanced Matrix: Representatives from industry, regulators, NGOs, academics and consultants
- Automatic 5-year review
- Compliance (e.g. regulator; independent 3rd party)

CSA Value Proposition:

- ***Public Acceptance*** by way of inclusive input and transparency
- Stakeholder engagement and ***compliance***
- Process, regulatory, and financial ***efficiency***
- ***Harmonization***

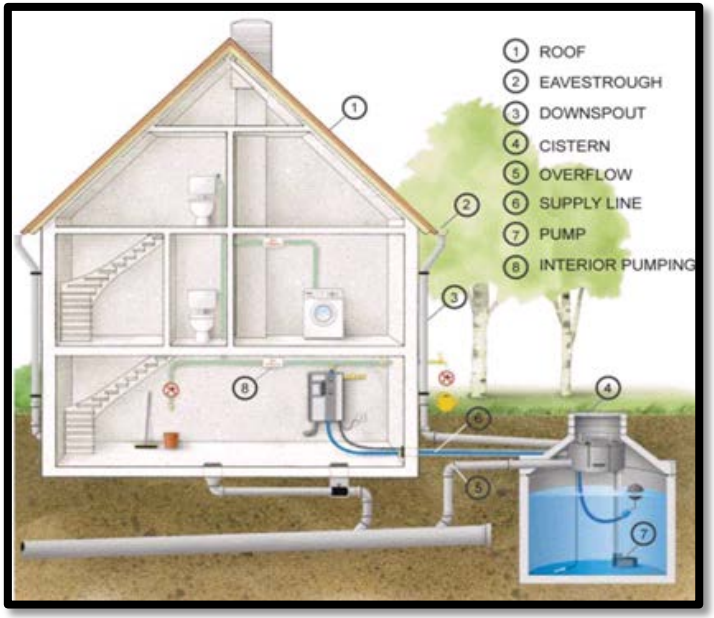
The Potential Value of Accredited Standards for LID

- Provide credibility to approved practices through trust in CSA's brand and neutral process.
- Leverage resources through collective experience and shared effort.
- Provide tools for compliance with policies and regulations.
- Reduce risk for early adopters from expert third party stamp of approval.
- Harmonize accepted practices across jurisdictions.
- Help advance new technologies and practices through comparable and consistent results.

CSA Standards Related to LID

CSA/ICC B805 Rainwater Harvesting Systems

- This Standard will cover the design, materials, installation, and operation of rainwater harvesting systems for potable and non-potable applications.



CSA Standards Related to LID

CSA/ICC B805 Rainwater Harvesting Systems

- Need for a standard identified to meet needs in regulatory arena.
- To be a harmonized bi-national standard, Canada (CSA) & USA (ICC).
- In development, publishing in late 2016.
- Intent to be submitted for referencing in NBCC.

CSA Standards Related to LID

CSA/ICC B805 Rainwater Harvesting Systems

- Residential and commercial
- Applicable for potable and non-potable uses
- Rooftop and ground-level sources
- Exceptions
  - water quality for process water systems for industrial or manufacturing purposes;
  - water quality for water systems for commercial agricultural processes; and
  - rain barrels
- Maintenance and operations to be addressed in an informative appendix (non-normative)

CSA Standards Related to LID

CSA/ICC B805 Rainwater Harvesting Systems

- Choice of prescriptive or performance based approach
  - Flexibility on source quality, but must meet prescribed water quality at point of use.
  - Encompass wide range of technologies, techniques.
- Coordination with building systems
  - Permit consideration of rainwater harvesting as a stormwater management, fire suppression strategies.
- Meet wide-ranging needs.
  - Inclusion of provisions where possible (all-in one book) wherever possible instead of references

CSA Standards Related to LID

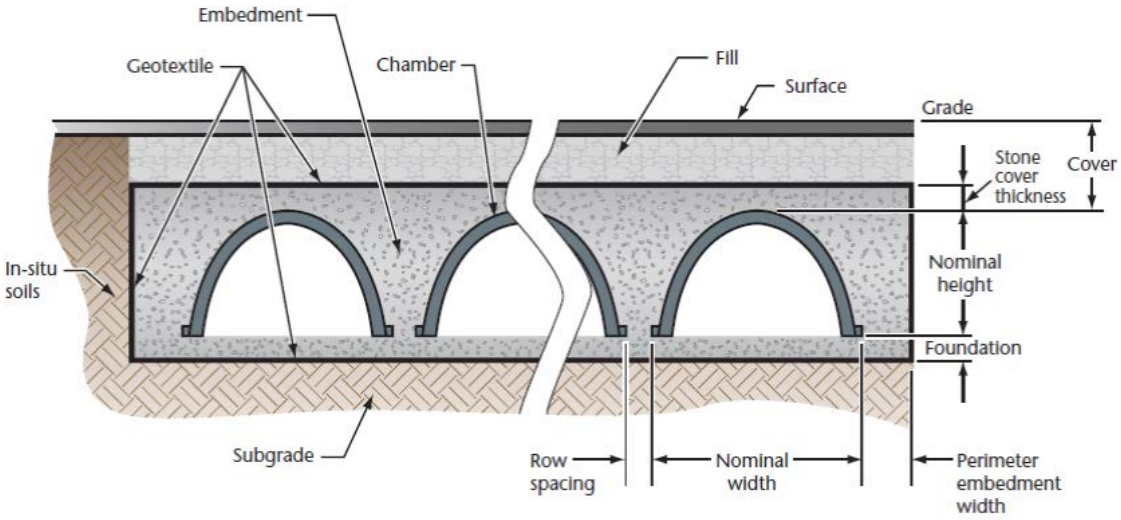
CSA/ICC B805 Rainwater Harvesting Systems

- Tiered water quality thresholds
  - Non-human contact
  - Limited human contact
  - Human contact
  - Potable
- Tank sizing methods incorporating storm water retention, firefighting reserve
- Recognizes different requirements depending on collection surfaces
- Stored water quality
- Role of roof washers

CSA Standards Related to LID

CSA B184 SERIES-11 – Subsurface stormwater management structures

This Standard covers subsurface stormwater management structures and accessories used in the collection, detention, retention, and infiltration of stormwater runoff.



CSA Standards Related to LID

CSA B184 Subsurface stormwater structures

- Specifies performance-based design requirements for
  - materials and manufacture,
  - design and structural integrity,
  - installation and maintenance,
  - durability and longevity,
  - storage capacities and tolerances.
- Demonstrate chambers are suitable for their intended purposes.
- Imposes rigorous testing requirements on the raw materials and verification testing of the finished products.
- Testing allows for product certification.

CSA Standards Related to LID

CSA B184 Subsurface stormwater structures

- Polymeric chambers (polyethylene, polypropylene to date)
- Structural design based on AASHTO LRFD Bridge Design Specifications for buried structures,
- Designed for
  - Earth loads sustained for at least a 50-year design life,
  - impact,
  - multiple presence,
  - vehicle positions that produce the maximum structural response.

CSA Standards Related to LID

CSA PLUS 4013 (2nd ed. pub. 2012) – IDF Guidelines

This Standard is a Technical guide for the development, interpretation and use of rainfall intensity-duration-frequency (IDF) information: Guideline for Canadian water resources practitioners

CSA Standards Related to LID

Sustainable Stormwater Practices: Designing road and parking lot infiltration systems

- For practitioners associated or impacted by the design process

✓ This "how to" course provides participants with the background necessary to design or oversee the design of new and retrofit sustainable stormwater techniques for roads and parking lots.

✓ Analysis methods, design considerations, performance expectations, advantages, limitations, social and economic considerations, and available tools are all be included.

Summary

- Accredited consensus standards are flexible and can be used for emerging areas and site specific applications.
- Credibility for LID practices could be improved through the availability of credible standards.
- CSA has developed consensus standards in certain areas to address LID obstacles.
- There are other LID topic areas that could be standardized.

Thank You

jeff.walker@csagroup.org
416-747-2720