

Specifying Certification is a Critical Part of The National Building Code

**Which is Even More Important Now
in an Age of Climate Change**





(CPCQA) CANADIAN
PRECAST CONCRETE
QUALITY ASSURANCE
CERTIFICATION PROGRAM

Managing Director

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- 20 years of technical, sales management, and operations leadership in cement & concrete
- 9 published technical papers
- Past board member ACI, Conc ON
- Coach to Women-in-Construction and the Men-who-Champion them





Canadian
Concrete Pipe
& Precast
Association
Build on our strength



CANADIAN PRECAST/PRESTRESSED CONCRETE INSTITUTE



Jan 2018 ...



(CPCQA) CANADIAN
PRECAST CONCRETE
QUALITY ASSURANCE
CERTIFICATION PROGRAM

Independent
Enhanced
Efficient



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FOR THE
WORLD

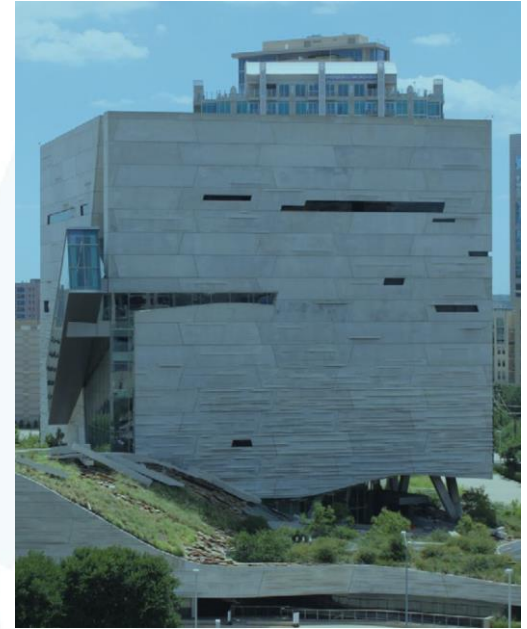




**in
PLANT**



**in
SERVICE**





Zero Waste Hierarchy



Zero Waste Hierarchy



IN PLANT



RETHINK =

Generate data for
product innovations /
greener products

REDESIGN =

Production in control
allows for optimization of
process & material use

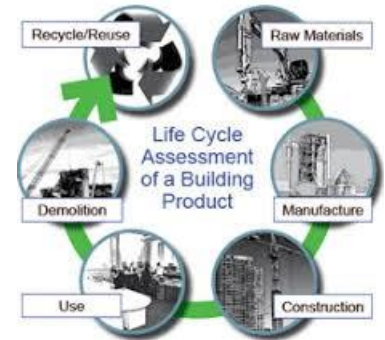
REDUCE =

Fewer rejections & less
waste off the lines

RECYCLE =

Root cause of rejections
/ waste understood,
increased safe & quality
option of recycling

IN SERVICE



Life Cycle Assessment



To assess global environmental impacts



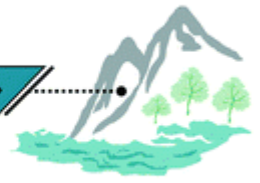
Public Health

Economic and Social



Water Quantity

Water Infrastructure



To protect local environment and public health

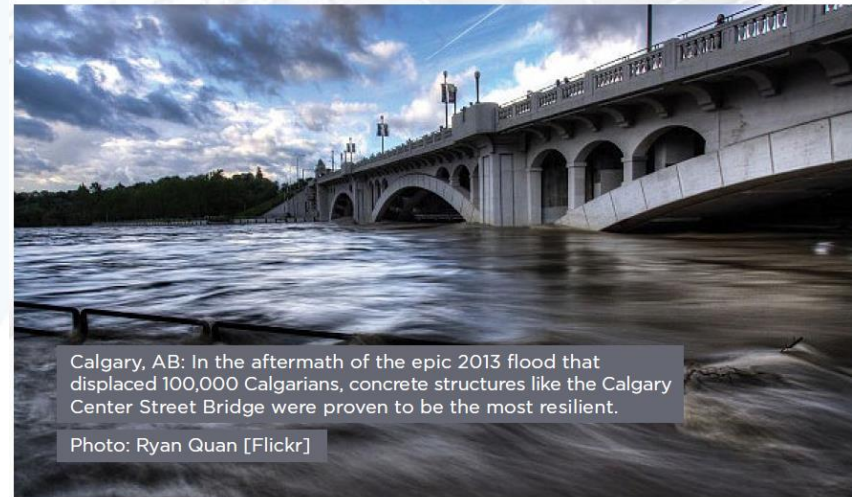
RESILIENCE



DURABILITY



Columbus, Ohio Airport – polypropylene pipe floating out of ground

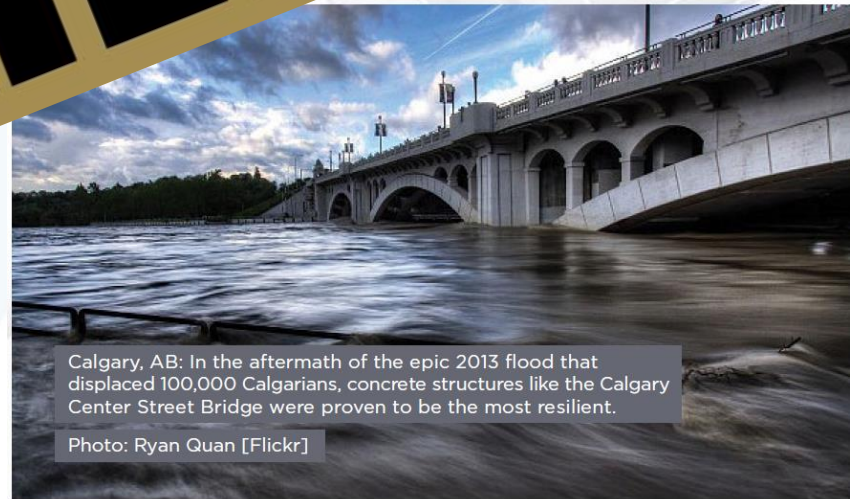


Calgary, AB: In the aftermath of the epic 2013 flood that displaced 100,000 Calgarians, concrete structures like the Calgary Center Street Bridge were proven to be the most resilient.

Photo: Ryan Quan [Flickr]



Columbus, Ohio Airport – polypropylene floating out of ground



Calgary, AB: In the aftermath of the epic 2013 flood that displaced 100,000 Calgarians, concrete structures like the Calgary Center Street Bridge were proven to be the most resilient.

Photo: Ryan Quan [Flickr]



- Response to threats to infrastructure from extreme weather events
- Integrating Climate Resiliency into building and infrastructure design, guides, certification, and codes
- Develop capacity in construction industry to adapt to increasing demands on built infrastructure
- Drive Innovation, Knowledge & tools, support sound decision-making
- GOAL: Keep Canadians safer from extreme weather and the effects of climate change

Specifying Certification is a Critical Part of The National Building Code





Specifying products that meet a certification program built on superior quality assurance processes and results, above and beyond the minimum building code standards, is a wise and value-adding step to protect your investment, manage risk, and provide safety assurance to your end users, tax payers, and/or service community.

Best.

PROGRAM.

Ever.

Audits

- Quality Audits are **the heart of the program**
- **Ensure** manufacturers have a quality system in place and are capable of producing to necessary standards
- **Evaluate and identify** areas requiring **upgrading or corrective action**
- Continual improvement - along with reinforcing appropriate follow-through



CPCQA = National Standards + Industry Best Practices + Superior Quality Assurance Processes

CPCQA certification program audits check, at an instance in time, that a precast plant is capable of:

- Meeting the minimum requirements of the noted standards,
- Meeting additional industry best practice requirements relevant to that type of precast,
- Operating with superior quality assurance practices integrated through the production process.

Governance - Who Runs The Program?

Quality Assurance Council (QAC)

A multi-disciplinary independent body with representation by:

- *Independent **architects**,*
- *Consulting **engineers**,*
- ***Municipal** or building officials,*
- ***Ministry** representatives, and,*
- ***General Interest** representatives*
- *Precast **manufacturers***

Meets 2-3 times per year



Multi-stakeholder

**Designed for
impartiality**

**Industry
cross-section**

True precast expertise



COMPANY	CATEGORY	PROV
Lafarge Precast	Producer	MB
Andrea Boddy Consulting	CPCQA	ON
ProChk Engineering	ACO	ON
Municipal Engineers Assoc	Municipal	ON
Dean Frank Associates LLC	Vice Chair	US
Strescon	Producer	NS
Saskatchewan Ministry of Highways	Government	SK
M.E. Hachborn Engineering	Engineer	ON
HGS Consulting	Engineer	ON
Kassian Dyck Associates	ACO	AB
Forterra Pipe and Precast	Producer	ON
Alberta Ministry of Transportation	Government	AB
Québec Ministère des Transports	Government	QC
Lafarge Holcim	Chair	ON
City of Oakville	Municipal	ON
Ministry of Transportation Ontario	Government	ON
Con Cast Pipe	Producer	ON
Bridge Check Canada	Engineer	ON
Manitoba Infrastructure	Government	MB
New Brunswick Transportation and Infrastructure	Government	NB
Royal Architectural Institute of Canada	Architect	ON
Knelsen - Precast Div	Producer	AB
The Prestressed Group	Producer	ON

Multi-Stakeholder Advisory Council



The CPCQA Quality Assurance Council's role includes:

1. Establishing auditing criteria and grading standards for the Program;
2. Providing administrative review to ensure that Program requirements are administered uniformly and are followed by all manufacturers;
3. Developing, reviewing and approving all literature related to the Program;
4. Initiating and overseeing ACO policies and manuals;

The By-Laws of the organization also have specific seats assigned to categories of QAC members such that the representation remains balanced to represent the various areas of expertise that will contribute to an ongoing superior certification program founded on excellence and integrity.

Multi-Stakeholder Advisory Council



5. Making recommendations to the Board on the qualification standards and requirements for plant pre-qualification and certification applications;
6. Making recommendations to the Board on the qualification standards and requirements for accreditation of Accredited Certification Organizations

The By-Laws of the organization also have specific seats assigned to categories of QAC members such that the representation remains balanced to represent the various areas of expertise that will contribute to an ongoing superior certification program founded on excellence and integrity.

CPCQA Product Range... more than just Structural / Architectural... Drainage Products as well!

- Concrete Pipe CSA A257, ASTM C14, ASTM C507, ASTM C76, AWWA C302;
- Manholes CSA A257, ASTM C478, OPSS 1351;
- Box Sections CSA A23.4, OPSS 1821, ASTM C1433,
- Headwalls OPSD 804.030, 804.040
- Septic Tanks CSA B66
- CSA A23.4 - Precast concrete - Materials and construction, all categories (Architectural, Bridge, and Commercial)
- PCI MNL 116 (US) - Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.
- PCI MNL 117 (US) - Manual for Quality Control for Plants and Productions of Architectural Precast Concrete Products.
- PCI MNL 135 (US) - Tolerance Manual for Precast and Prestressed Concrete Construction.



specified by municipalities fit within the breadth of our program, including but not limited to curbs, planter boxes, retaining walls, stairs/steps, reinforced Earth Wall Precast panels, utility boxes/vaults, and water valve chambers.

**CPCQA.
Certifies.
Widest.
Product.
Range.
In N.A.**



**CPCQA.
Certifies**

■

**Widest.
Product.
Range.
In N.A.**

Curbs, planter boxes, retaining walls,
stairs/steps – C1 or C1A (architectural
finish?)

Reinforced earth wall panels -
subcategory B1, B1A, C1 or C1A
(application; architectural finish?)

Utility boxes/vaults, water valve
chambers - subcategory C1, D1 or S
(application?)

HERE TO HELP! >>>>





Helpful Specification Guide

Available for free download at:

https://www.precastcertification.ca/en/certification_specification/

Certification Validation and Online Certified Plant Lists

All certified plants are issued annual detailed certificates. For further validation value to owners / agencies, detailed information about certified plants is actively updated and securely maintained online by CPCQA in the certified plant listings, as follows:

https://www.precastcertification.ca/en/certified_plants/architectural-structural/

https://www.precastcertification.ca/en/certified_plants/pipe-manhole-drainage/



CSA + OPSS / OPSD ... NEXT LEVEL

The only certification program that audits to both these standards:

Box Culverts

Maintenance Holes

Headwalls

Concrete Pipe

Catch Basins





COMING SOON

**Ultra-High
Performance
Concrete**

**From CPCQA
Q1 - 2020**

Excellence in Auditing and Technical Advice

Understand what you are auditing. Coach for continuous improvement.

- The auditor has in-depth industry experience and is capable of visually identifying program requirements in action in a facility without auditee-guidance, and
- The auditor knows what best industry practices look like in reality in a precast concrete facility and can coach / teach a facility team how to reach them.

Excellence in Auditing

Post Audit Surveys: 36 responses in 2018



- **Professional/Knowledgeable?** 100% Yes.
- **Organized/Thorough?** 100% Yes.
- **Helpful in explaining corrective actions?** 100% Yes.
- **Rating out of 10 on consistency?** 9.2
- “High Standard of Excellence”
- “Very professional and knowledgeable.
- “Very knowledgeable with what seemed real world experience”



Leading Audit Frequency



For structural and architectural precast concrete facilities

- Minimum of **two regular audits** in **each full calendar year**
- Audits are **two days in duration** unless otherwise designated by the ACO

For precast concrete drainage products

- Facilities are **inspected at least once a year** by the ACO, considered an **intermediate inspection**
- **6 months after** each plant must submit an **Interim Report to the ACO** to provide details of any quality control testing and verify that all record keeping has been maintained during this period.
- **Every third year**, the ACO undertakes a **detailed inspection and testing** of each plant

Excellence in Auditing and Technical Advice

Audit & Auditor Impartiality

The audit-pre-payment policy of the program ensures that neither auditee nor auditor are influenced financially.

The 'unannounced' audit practice provides assurance that an auditor is getting a snap shot of typical of operations while auditing.

Additional in-plant audit time required before any product category or product standard addition.

New Product Category?

**CPCQA audits for ALL
product category / size
additions.**

**All certified capabilities
are validated.**

Remembers – it starts with **QUALITY PEOPLE**



For Precast Concrete Drainage Product Manufacturers:

QC Personnel are required to have ACI Concrete Field Testing Technician Grade 1.

DRAINAGE: one person from QC and one person from Production must pass the **PPP Exam**

- **PASS = 90% mark; Valid for 5 years**

STRUCTURAL/ARCHIECTURAL:
PCI Level I and II Certification



Remembers – it starts with **QUALITY PEOPLE**



- **For Manufacturers of CSA A23.4 products -** must employ or engage the **services of a registered professional** engineer to be responsible for technical adherence to product design, transportation and erection
- Engineer approves or rejects variances that occur
- Change in Quality Management triggers AUDIT!
- **Plant certification may be cancelled at any time.**

And **STARTS** with a **GREAT PLAN!**

For all Precast Manufacturers:

Quality System Manual

Manufacturers are required to develop, maintain and submit a **plant-specific Quality System Manual** for approval, by the Accredited Certification Organization.



Continuous Feedback and Addressing Client Concerns

If you are an owner or specifier and have a concern on the quality of the precast concrete from a CPCQA certified plant, the CPCQA website offers a **Quality Concern Reporting Form** that can be completed and submitted to the Managing Director of CPCQA at **QACAdministrator@precastcertification.ca**. All concerns are kept confidential within the Quality Assurance Council (QAC). They are discussed and addressed directly with the involved parties. CPCQA also appreciates receiving any suggestions / questions / concerns directly from the owner / specific community.



What are important benefits to the MEA Community

- **Easy identification** of plants committed to fulfill the highest level of certification available in North America
- **Assurance** that bidders have demonstrated their ability to manufacture quality products
- Certified manufacturers with a **confirmed capability** to produce superior products and systems
- **Minimize risk** - the job will be **done right the first time** saving time, money and headaches.



As-designed becomes as-built.

What are important benefits to the MEA Community

- **Quality products** help speed erection / installation, **reduce construction time**
- Deal with **established producers** who have earned a reputation for superior, **reliable** workmanship
- **No additional cost** to you – CPCQA Certified manufacturers pay all certification fees
- **Increased assurance** to owners and designers that CPCQA Certified manufacturers will furnish **products suited for each project**



What are important benefits to the MEA Community



RESILIENCE



Best.
PROGRAM.
Ever.

CPCQA CERTIFICATION... SUPERIOR QUALITY ASSURANCE!

A Quality Assurance Certification Program...

“...developed, accomplished and maintained with the participation of **two well-established Canadian precast concrete industry technical institutes**, with access to a North American **expert technical knowledge**, offers the **greatest probability of meeting or exceeding project specifications**, applicable codes, and industry standards, **while minimizing risk.**”

For more Information on precast concrete certification:
www.precastcertification.ca

The members of the CPCQA Quality Assurance Council (QAC) are pleased to extend a sincere thank you to

Mr. Nick Colarusso, York Region

for his significant contributions to the CPCQA Program as representative from

Municipal Engineers Association



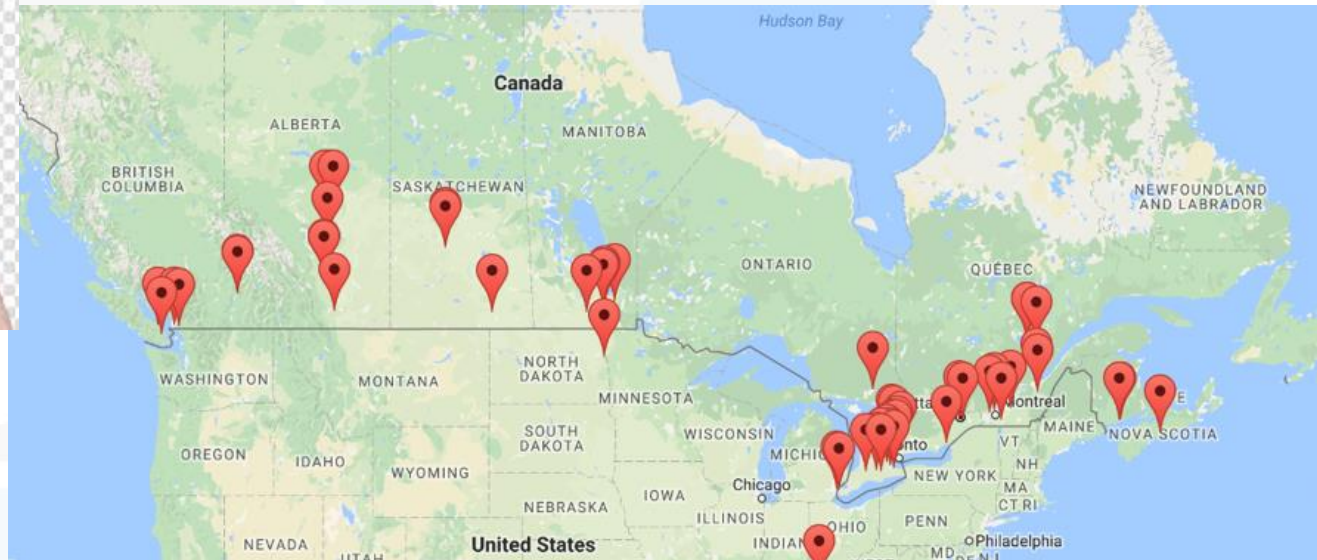
Thank
you!



CPCQA Certification Plant Status

www.precastcertification.ca

For a complete precast concrete guide specification, follow this link: <http://www.cpci.ca/en/resources/specifications/>



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