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## Proposed Change 1729

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<b>Code Reference(s):</b>	<b>NPC20 Div.B 2.2.10.4. (first printing)</b>
Subject:	Piping
Title:	Mechanical Couplings
Description:	This proposed change adds requirements for plain-end-type mechanical couplings for pressure applications by referencing ANSI/AWWA&nbsp;C227-17, "Bolted, Split-Sleeve Couplings."
Related Code Change Request(s):	CCR 1449

This change could potentially affect the following topic areas:

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| <input type="checkbox"/> Division A                                | <input checked="" type="checkbox"/> Division B             |
| <input type="checkbox"/> Division C                                | <input type="checkbox"/> Design and Construction           |
| <input type="checkbox"/> Building operations                       | <input checked="" type="checkbox"/> Housing                |
| <input checked="" type="checkbox"/> Small Buildings                | <input checked="" type="checkbox"/> Large Buildings        |
| <input type="checkbox"/> Fire Protection                           | <input type="checkbox"/> Occupant safety in use            |
| <input type="checkbox"/> Accessibility                             | <input type="checkbox"/> Structural Requirements           |
| <input type="checkbox"/> Building Envelope                         | <input type="checkbox"/> Energy Efficiency                 |
| <input type="checkbox"/> Heating, Ventilating and Air Conditioning | <input checked="" type="checkbox"/> Plumbing               |
|  | <input type="checkbox"/> Construction and Demolition Sites |

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### Problem

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Currently, there is no provision in the National Plumbing Code of Canada (NPC) defining the minimum level of performance for mechanical couplings used to join plain-end pipe in pressure applications. As such, there is a need to introduce requirements for these couplings into the NPC.

In the absence of such minimum requirements, there is a risk that mechanical couplings of inferior quality could be installed, which could result in leaks and damage to property, which could lead to unnecessary costs related to repair and disruption of operations.

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## Justification

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Adding ANSI/AWWA C227-17, "Bolted, Split-Sleeve Couplings," to the NPC would establish minimum performance requirements for plain-end-type mechanical couplings used in pressure applications to ensure such couplings are properly selected and installed. Plain-end pipe is commonly used and accepted in municipal and industrial process piping systems that have significant system pressures.

This proposed change would ensure these couplings meet a minimum level of quality and would facilitate consistent product application, which would help to mitigate the risk of leaks, damage to property and unnecessary repair costs.

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## PROPOSED CHANGE

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### **[2.2.10.4.] 2.2.10.4. Mechanical Couplings**

- [1] 1)** Groove- and shoulder-type mechanical couplings for pressure applications shall conform to CSA B242, "Groove- and Shoulder-Type Mechanical Pipe Couplings".
- [2] --)** Plain-end-type mechanical couplings for pressure applications shall conform to ANSI/AWWA C227-17, "Bolted, Split-Sleeve Couplings."
- [3] 2)** Mechanical couplings for non-pressure applications shall conform to CSA B602, "Mechanical couplings for drain, waste, and vent pipe and sewer pipe".

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## Impact analysis

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This proposed change is expected to have a positive impact, as it would align the NPC with current industry practice by ensuring that plain-end-type mechanical couplings meet a minimum level of performance and safety when used in pressure applications. Adding a reference to a standard would decrease the risk of confusion for building officials, designers, specification writers, contractors and manufacturers, as there would be explicit minimum performance requirements within the Code.

Plain-end-type mechanical couplings are already commonly installed in pressure piping systems. Adding a reference to a standard would decrease the risk of confusion for Code users and lighten the workloads of building officials, designers, specification writers, contractors and manufacturers, as there would be explicit minimum performance requirements referenced within the Code similar to those in CSA B242, "Groove- and Shoulder-Type Mechanical Pipe Couplings" and CSA B602, "Mechanical couplings for drain, waste, and vent pipe and sewer pipe."

Installers and building officials would need to verify that the materials have been tested according to the standard.

There are costs to manufacturers associated with the introduction of a new material or product standard into the Code. These costs, which include initial testing to acquire certification and ongoing testing to maintain it, vary greatly, ranging from few hundred dollars (e.g., to measure dimensions to the specifications) to a few hundred thousand dollars (e.g., for complete hydrostatic stress testing with chlorine resistance), depending on the complexity of test, the availability of certified testing labs, etc.

These associated costs may be considered a required initial investment to acquire market share for the product, but they may also be a barrier to entry for smaller companies. If manufacturers of the product intend to enter the market with proof of its Code compliance, it is up to them to decide whether it is financially viable to bear the cost. Otherwise, no additional costs are expected to be incurred by Code users.

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## Enforcement implications

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Provincial or territorial authorities, municipal inspectors and authorities having jurisdiction, and other provincial, territorial or municipal service providers would need to ensure that a certified product complying with manufacturing and potable water standards is installed.

This can be accomplished through communication with the certifying agency or through confirmation online or with the manufacturer's published literature.

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## Who is affected

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Designers, specifiers, contractors, manufacturers, building owners and building officials (i.e., authorities having jurisdiction).

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## OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

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**[2.2.10.4.]** 2.2.10.4. **([1] 1)** [F80-OP5]

**[2.2.10.4.] -- ([2] --)** [F80-OP5]

**[2.2.10.4.]** 2.2.10.4. **([3] 2)** [F80-OH2.1,OH2.3]