



FIRE MARSHAL BULLETIN

2025-003

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Acceptable Thread Standard for Fire Hose Couplings, Fittings, Hydrants, Fire Department Connections and Hose Connections on Standpipes

Purpose

This document clarifies the position of the Calgary Fire Department (CFD) with respect to acceptable threads on 38 mm and 65 mm couplings and fittings for use with firefighting hose and hydrants, fire department connections and hose connections on standpipes. "Fittings" may include but are not limited to hose valves with integrated threads, adapters, reducers, and appliances. In coordination with provincial regulations, CFD's standard for 65 mm couplings and fittings is "Alberta Mutual Aid Thread" (AMA).

Background

CFD has become aware of the sale, purchase and install of couplings, fittings, hydrants, fire department connections and hose connections on standpipes that do not comply with longstanding provincially mandated thread specifications.

Alberta established the Alberta Mutual Aid Thread Regulation in 1958, covering 65mm (2 ½ inch) fire hose couplings and fittings. The regulation remained in force, with minor modifications, to accommodate metric measurement and new lightweight materials, until 1986 when the regulation was rescinded, and the specifications were codified in the Alberta Fire Code. Alberta Mutual Aid Thread" is the only approved specification for 65mm couplings and connections. Furthermore, the National Fire Code Alberta Edition (NFC(AE)) directly addresses the specifications under 2.2.6.1. in Division C.

Couplings, fittings and/or adapters that are advertised as being "compatible with" or "equivalent to" this standard, but do not comply with the requirements are *not acceptable*. It has become apparent that over the years components with British Columbia Standard Threads (BCST) have been used in place of components machined to Alberta Mutual Aid thread specification, impacting hose couplings, appliances, Fire Department Connections and standpipe connections.

One of the primary challenges in connecting threads of different diameters lies in ensuring proper engagement; as the difference in diameters increases, the contact face and the thickness of the engaged material decrease exponentially, which is supported by a review of the tolerances for both the AMA and BCST threads. If the AMA threaded component and the BCST

threaded component is at the lower end of the tolerances there is a high probability of failure under pressure, potentially affecting performance and safety.

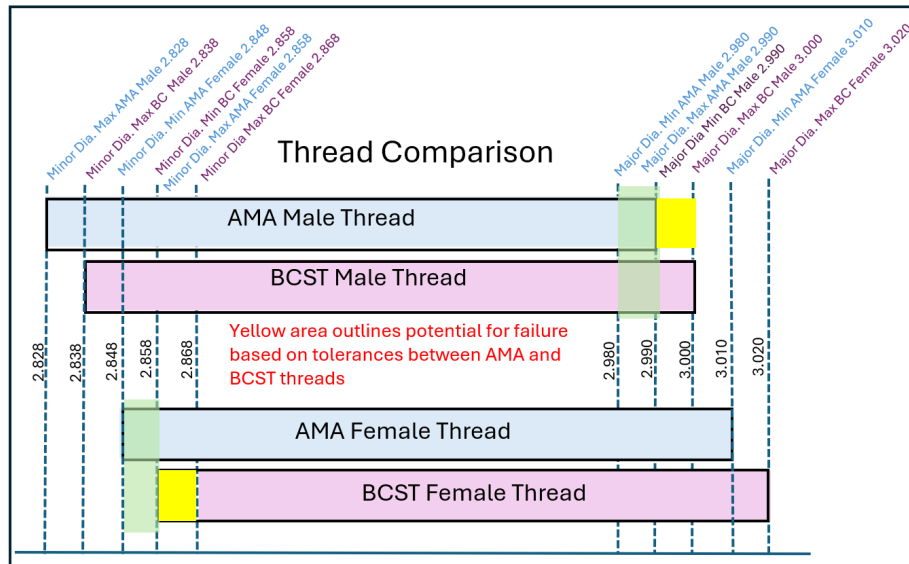


Figure 1 AMA/BCST Thread Comparison

In order to address the concerns of the Calgary Fire Department 65mm hose couplings must comply with the National Fire Code (AE) 2.2.6.1.(2).(b) and all specifications must meet those outlined for the Alberta Mutual Aid Thread specifications.

- Buildings that are currently under construction must replace all BCST with AMA threaded components prior to, or during the early, stages of construction.
- Owners of buildings constructed within the last Five (5) years may wish to reach out to the responsible engineer to determine best course of action to comply with the National Fire Code (AE).
- Owners for buildings greater than Five (5) years must provide a strategy to the fire department on how they plan to ensure all threaded firefighting components will be brought into compliance with the Albert Mutual Aid Thread specifications.

One option may be to use threaded adapters that are firmly secured or lockable (set screw or similar) to convert BCST or other non-AMA threads to AMA threaded components or Female swivel replacement. The BAT coupling was introduced 10–12 years ago and was presented as a way of integrating BCST threaded components with AMA threaded couplings. BAT is not a designed or engineered thread combination and is a combination of two separate thread specifications.

Current Code and Legislative References

Article 2.2.6.1, Division C, National Fire Code – 2023 Alberta Edition
From Section 2.2.6.1: General Requirements for “Hose for Firefighting”

2.2.6.1. Hose for Firefighting

- 1) No person shall use, sell, offer for sale, purchase, lease or otherwise distribute 65 mm or 38 mm hose couplings or fittings intended for use on firefighting hose or fire hydrants by a municipal fire department or fire crew, unless the couplings and fittings comply with this Subsection. (See Note A-2.2.6.1.(1).)
- 2) Threaded firefighting hose couplings and fittings shall have threads that are
 - a) 38 mm straight iron pipe thread, also known as iron pipe thread (IPT) or National Pipe Straight Hose (NPSH), on 38 mm couplings, or
 - b) Alberta Mutual Aid (AMA) thread, which has 3.15 threads per cm, with a major thread diameter between 75.95 mm and 75.69 mm for male threads and 76.45 mm for female threads, on 65 mm hose couplings and hydrant connections.
- 3) All firefighting hose couplings shall meet the requirements of CAN/ULC-S513, “Standard for Threaded Couplings for 38 mm and 65 mm Fire Hose,” including Appendix A.
- 4) All firefighting hose with internal lug quick-connect couplings, commonly referred to as Storz couplings, shall be in conformance with CAN/ULC-S543, “Standard for Internal Lug Quick-connect Couplings for Fire Hose.”
- 5) All firefighting hose shall be listed.
- 6) All firefighting hose shall be inspected, tested and maintained in accordance with NFPA 1962, “Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances.”

Application to Pre-code Buildings

Article 2.1.1.1 of Division C of the National Fire Code – 2023 Alberta Edition speaks to the issue of buildings or fire protection measures that do not conform to an applicable code (i.e., built prior to the introduction of the first Alberta Building Code in April 1, 1974). In these cases, where no *approved* guideline has been issued by the Provincial Fire Administrator, the *building* or fire protection measure must be constructed or installed in a manner that provides a level of life safety which is acceptable to the *authority having jurisdiction*.

As per Article 1.4.1.2 of Division A of the National Fire Code – 2023 Alberta Edition, the *authority having jurisdiction* means a safety codes officer in the fire discipline exercising authority pursuant to designation of powers and terms of employment in accordance with the Safety Codes Act. Pre-code buildings that do not comply with the fire code currently in-force, and with specific reference to the requirements discussed in this bulletin, **will be dealt with on a case-by-case basis by the AHJ.**

Conclusion

To ensure the safety, compatibility, and regulatory compliance of firefighting infrastructure in Calgary, it is essential that all 65mm hose couplings and related components adhere strictly to the Alberta Mutual Aid (AMA) thread specifications, as mandated by the National Fire Code – Alberta Edition. The continued use of British Columbia Standard Thread (BCST) components in place of Alberta Mutual Aid (AMA) fittings pose a significant risk of equipment failure due to mismatched thread profiles and tolerances. As such, immediate corrective action is required for buildings under construction, and existing buildings must assess and implement strategies for compliance. While a BCST/AMA adapter may serve as a transitional solution, they must be clearly marked and verified as meeting AMA specifications.

Failure to adhere to this legislatively mandated standard may adversely impact the timeliness of fire department operations, the safety of firefighters, and increases the probability that standpipe and/or sprinkler systems will not be available for use by emergency responders in a fire situation which could lead to:

- The fire not being suppressed or controlled, which could lead to
- The spread of fire, which could lead to
- Harm to persons, and/or
- Damage to the building(s) or facility.

Additionally, persons who fail to adhere to this standard may be subject to actions pursuant to the *Safety Codes Act*, RSA 2000.

Fire Safety Codes Officers may require that owners of properties equipped with non-conforming fittings on private hydrants, fire department connections or hose connections on standpipe systems replace the fitting(s).

Subject to Change

This bulletin is subject to any additional STANDATAs released by Alberta Municipal Affairs.

Questions regarding this document may be forwarded to FireLegal@calgary.ca



Glenn Baxter
Fire Marshal
Fire Inspections & Investigations
Calgary Fire Department