

TECHNICAL BULLETIN TB252

Installation in Plenum Space (Canada)



Product: RAUPEX® pipe and EVERLOC+® compression-sleeve fittings

Date: 24 August 2023 (supersedes 30 June 2018)

A plenum is defined as an enclosed portion of the building structure that is designed to allow air movement, thereby serving as part of an air distribution system. Plenums can serve as supply, return, exhaust and ventilation portions of the air distribution system.

The National Building Code of Canada 2015 (NBCC-2015) requires that combustible materials installed within air plenums have a flame spread (FS) rating of not more than 25, and a smoke developed (SD) classification of not more than 50. These numbers do not contain units and are used as index (comparative) ratings of how quickly building materials burn and how much smoke is developed when they burn. Pipes that meet these requirements are sometimes said to have a “plenum rating.”

The flame spread rating and the smoke developed classification are measured in a standardized laboratory test that burns the combustible material and measures the speed of flame spread and the volume of smoke developed. The NBCC-2015 specifies that the flame spread rating and the smoke developed classification of a material is to be determined based on the following standard:

- **CAN/ULC S102.2-2010: Standard for Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies (Canada)**
- **Local code requirements may vary for each location. The engineer / installer is responsible for verifying all local codes are met prior to installation.**

RAUPEX pipes and EVERLOC+ polymer fittings (3/8 to 2 in.) have been tested to the latest version of CAN/ULC S102.2-2010. Based on this testing, the following sizes and types of RAUPEX pipes and polymer fittings have obtained a listing according to CAN/ULC S102.2010- with no minimum pipe spacing requirements.

1. CAN/ULC S102.2-2010

1a. RAUPEX Pipe

The following sizes and types of RAUPEX pipes are listed with a flame spread rating of not more than 25 and a smoke developed classification of not more than 50 with no minimum spacing requirements.

Table 1: Flame Spread / Smoke Developed ≤ 25/50 RAUPEX Pipe

Pipe Description	CAN/ULC 102.2-2010 No spacing requirements FS/SD
3/8 to 1/2 in. RAUPEX UV Shield	FS≤25
3/8 to 1/2 in. RAUPEX O ₂ Barrier	SD≤50



1b. RAUPEX pipe and EVERLOC+ polymer fittings wrapped with fiberglass Insulation

RAUPEX pipes and EVERLOC+ polymer fittings have been evaluated while wrapped in 1/2 in. thick fiberglass insulation. The following sizes and types of RAUPEX pipe and EVERLOC+ polymer fittings are listed with a flame spread rating of not more than 25 and a smoke developed classification of not more than 50 when installed with an approved 1/2 in. thick fiberglass pipe insulation (also with a flame spread rating not more than 25 and a smoke developed classification not more than 50) with no minimum spacing requirements.

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Table 2: Flame Spread / Smoke Developed \leq 25/50 RAUPEX Pipe with 1/2 in. Thick Fiberglass Insulation

Pipe Description	CAN/ULC S102.2-2010 / Pipe wrapped in 1/2 in. thick fiberglass insulation / No spacing requirements FS/SD
\leq 2 in. RAUPEX UV Shield	FS \leq 25 SD \leq 50
\leq 2 in. RAUPEX O ₂ Barrier	
\leq 2 in. EVERLOC+ Polymer Fittings	



1c. RAUPEX pipe wrapped with Armaflex Insulation

RAUPEX pipes have been evaluated while wrapped in 1/2 in. thick Armaflex insulation. The following sizes and types of RAUPEX pipe are listed with a flame spread rating of not more than 25 and a smoke developed classification of not more than 50 when installed with an approved 1/2 in. thick Armaflex insulation (also with a flame spread rating not more than 25 and a smoke developed classification not more than 50) with no minimum spacing requirements.

Table 3: Flame Spread / Smoke Developed \leq 25/50 RAUPEX Pipe with 1/2 in. Thick Armaflex Insulation

Pipe Description	CAN/ULC S102.2-2010 / Pipe wrapped in 1/2 in. thick Armaflex insulation / No spacing requirements FS/SD
\leq 2 in. RAUPEX UV Shield	FS \leq 25 SD \leq 50
\leq 2 in. RAUPEX O ₂ Barrier	



The current edition of the National Building Code of Canada permits the use of RAUPEX pipe in plenums per the following sections:

- 2015 National Building Code of Canada, Section 3.6.4.3(1) Plenum Requirements
- 2015 National Building Code of Canada, Section 3.1.5.19(2) Combustible Piping Materials

2. CAN/ULC S102.2-2007

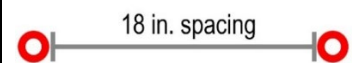
In some areas, local provincial codes have not been updated to the 2015 edition of the National Building Code of Canada. Where these local codes prevail, use the following information:

2a. RAUPEX pipe

The following sizes and types of RAUPEX pipe are proven to have a flame spread rating of not more than 25 and a smoke developed classification of not more than 50 when installed with minimum pipe spacing of 18 in.

Table 4: Flame Spread / Smoke Developed \leq 25/50 RAUPEX Pipe

Pipe Description	CAN/ULC S102.2-2007 / 18 in. spacing FS/SD
3/8 to 3/4 in. RAUPEX UV Shield	FS \leq 25 SD \leq 50
3/8 to 3/4 in. RAUPEX O ₂ Barrier	



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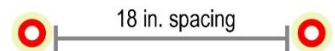


2b. RAUPEX pipe wrapped with fiberglass insulation

RAUPEX pipes have also been evaluated to the S102.2 standard using a 1/2 in. thick fiberglass pipe insulation with a proper flame spread rating and smoke developed classification. Based on this testing, the following sizes and types of RAUPEX pipe are proven to have a flame spread rating of not more than 25 and a smoke developed classification of not more than 50 when installed with an approved 1/2 in. thick fiberglass pipe insulation also with a flame spread rating of not more than 25 and a smoke developed classification of not more than 50 with a minimum pipe spacing of 18 in. on center.

Table 5: Flame Spread / Smoke-Developed ≤ 25/50 RAUPEX Pipe Fiberglass Insulation

Pipe Description	CAN/ULC S102.2-2007 / pipe wrapped in 1/2 in. thick fiberglass insulation / 18 in. spacing FS/SD
1 to 2 in. RAUPEX UV Shield	FS≤25
1 to 2 in. RAUPEX O ₂ Barrier	SD≤50



3. CAN/ULC S102.2-2010 (Water-filled, uninsulated)

Water-filled, uninsulated RAUPEX pipes installed with brass and polymer fittings with PEX sleeves have also been tested to the S102.2 standard. Based on this testing, the following sizes and types of RAUPEX pipes and fittings have a have a flame spread rating of not more than 25 and a smoke developed classification of not more than 50 with no minimum spacing requirements.

Table 6: Flame Spread / Smoke Developed ≤ 25/50 RAUPEX Pipe Water-filled, uninsulated

Pipe Description	CAN/ULC 102.2-2010 / No spacing requirements FS/SD
≤ 2 in. RAUPEX UV Shield with fittings	FS≤25
≤ 2 in. RAUPEX O ₂ Barrier with fittings	SD≤50



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