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### Comments on A.S.A. Z21.6 - 1955: approval requirements for domestic gas-fired incinerators

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#### **Publisher's version / Version de l'éditeur:**

<https://doi.org/10.4224/20359211>

*Technical Note (National Research Council of Canada. Division of Building Research); no. TN-245, 1958-01-01*

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NATIONAL RESEARCH COUNCIL OF CANADA

DIVISION OF BUILDING RESEARCH

No. 245

TECHNICAL NOTE

*Ryf*

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PREPARED BY A.D. Kent and N.B. Hutcheon

CHECKED BY

APPROVED BY NBH

PREPARED FOR

DATE January 1958

C.S.A. Committee on Gas Burning Appliances and Equipment

SUBJECT

Comments on A.S.A. Z21.6 - 1955:

Approval Requirements for Domestic Gas-fired Incinerators.

The above A.S.A. specification has been reviewed as a basis for the preparation of a corresponding CSA specification. All references to American Standards are listed below, with information on existing Canadian Standards where these exist. Reference is made also to items which are potentially in conflict with existing Canadian codes such as the National Building Code, 1953. All specified temperatures are listed as a convenience in further consideration of this specification.

Standards

<u>Page</u>	<u>Paragraph</u>	<u>American Standard</u>	<u>Canadian Standard</u>
4	1.11.1	A.S.A. B36.10 - 1950	( C.S.A. B62 - 1949 ( C.S.A. B63 - 1949

American Standard Listing and Installation Requirements

<u>Page</u>	<u>Paragraph</u>	<u>Code Number</u>	<u>Title</u>
1	1.1.2	Z21.30 - 1954	Gas piping and gas appliances in buildings
3 10	1.8.1 ) 2.7.1 )	Z21.20 - 1951	Automatic pilots

American Standard Listing and Installation Requirements (contd.)

<u>Page</u>	<u>Paragraph</u>	<u>Code Number</u>	<u>Title</u>
3	1.9.1	Z21.35 - 1945	Gum protective devices
4 11	1.10.1 ) 2.9 )	Z21.15 - 1954	Gas valves
4 11 19	1.12.1 ) 2.10 ) 4.10 )	Z21.18 - 1955	Domestic gas appliance pressure regulators

These references will presumably be changed to the corresponding C.S.A. Standards when they are completed.

Miscellaneous

1. Sheet metal gauges

In the above standard sheet metal thicknesses are given in gauges. There is no Canadian Standard on sheet metal gauges, although at present C.G.S.B is working on gauging. The National Building Code, 1953 refers to U.S. Standard gauge.

2. Pipe sizes

Nominal pipe sizes are presumably in accordance with A.S.A. B36.10 - 1950 (C.S.A. B62 - 1949 and B63 - 1949)

Pipe threads are presumably in accordance with A.S.A. B2.1 - 1945 (no C.S.A. Standard)

3. Test gases

Are Canadian test gases the same?

4. Definitions

Draft hood - differs from N.B.C.

Flue - differs from N.B.C.

Heating value (total) - higher calorific value. Others refer to lower calorific value.

## 5. Temperatures

<u>Page</u>	<u>Paragraph</u>	
3	1.6.4	Minimum melting point of materials 1200°F
4	1.11.7	Maximum temperature on aluminum tubing 700°F
4	1.12.3	Maximum temperature at pressure regulator 150°F
6	1.22	Maximum flue gas temperatures 1000°F and 1400°F
13	2.13	Maximum temperature on walls 120°F above 70° room temp. (i.e. 190°F) and maximum temperature on floor 90°F above 70° room temp. (i.e. 160°F) (N.B.C. requires maximum temp. on all adjacent combustible material 160°F)

## 6. Floor Mounting

The N.B.C. (item 6.3.1(a) and item 6.2.3.3.2(b)) requires mounting on the ground, or masonry, or non-combustible material of not less than 2-hour fire resistance, or alternatively a floor protection of hollow masonry not less than 4 inches in thickness, covered with a sheet metal of thickness not less than 24 U.S. gauge. Where open spaces exist under the base of the appliance there are less stringent requirements (see 6.2.3.3.2(b) (iv) and (v)). The A.S.A. Standard (paragraph 1.15, p. 5) requires only that when an open space is provided underneath an incinerator, there shall be a clearance of at least 3 inches between the incinerator and the floor.

## 7. Clearances

The N.B.C. (item 6.3.1(a)) requires the same clearances for incinerators as for solid fuel fired space heaters of the radiating type, i.e. 36 inches at top, sides and rear and 48 inches at front (Table 6.4) unless protection is used (Table 6.5). The A.S.A. Standard uses a clearance of 12 inches from the test enclosure (paragraph 2.13) and specifies the maximum allowable temperatures on walls and floor.

## 8. Location of manual shut-off valve

N.B.C. (item 6.2.3.8.5) requires this to be "near the entrance to the room where the gas burner is located". A.S.A. Standard Z21.6 - 1955 (paragraph 1.10.6, p.4) requires "burner and pilot valves shall be readily accessible..."

9. Shut-off valve for low pressure safety

N.B.C. (item 6.2.3.8.5) requires appliances using liquefied petroleum gases to be equipped with positive shut-off at gas pressures below 1/2 lb/sq.in. A.S.A. has no such requirement.

A.S.A. Z21.6 - 1955

Agreement with National Building Code, 1953

There appears to be general agreement between the above two works, with the following exceptions:

The N.B.C. requirements for floor mounting and clearances may be stricter than in the American Standard.

Allowable temperatures on adjacent combustible wall surfaces are not the same in both documents, although the allowable floor temperatures agree.

The N.B.C. requirements for controls for gas firing, item 6.2.3.8.5 may be stricter than in the American Standard. Note, for example, the last paragraph of this section requiring shut-off upon drop in pressure with liquefied petroleum gases.