Office of the Technical Regulator

Flueing for commercial use

Gas Bulletin #51

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It has been brought to the OTR's attention that there are commercial appliances with twin walled ("twin skin") flues, that have had the flue temperatures recorded up to 5400C.

The use of certified approved twin walled flue products may not be suitable for the use with commercial appliances. Installers have the responsibility as required by **AS/NZS5601.1:2022 Gas Installations** to select the appropriate materials for the complete appliance installation.

These approved flues are rated for a maximum temperature of 3000C, thus flue temperatures must not exceed this value, if it does, a suitable alternative must be selected. These alternatives must comply with Tables 4.7.4 and 6.8.11. of Part 1.

See extracts on the following pages.

6.8.10 Application of twin wall flues

Twin wall flue shall only be used as follows:

(a) Where a *twin wall flue* is used within a cavity wall in a domestic location, the *appliance gas consumption* shall not exceed 50 MJ/h (14 kW).

(b) For *appliances* having a *flue gas* temperature of not more than 300°C.

NOTE: *Certified appliances* with a *draught diverter* will meet the maximum *flue gas* temperature requirement.

(c) The clearance between a *twin wall flue* and a *combustible surface* shall be at least 10 mm.

NOTE: The clearance is measured from the outer surface of the *flue*, (i.e., not measured from any spacers, which may touch the *combustible surface*).

Table 4.7.4 — Flue materials

<table>
<tr><th>Materials and limitations</th><th>Protective finish</th><th colspan="2">Application and limitations (see Note)</th></tr>
<tr><td colspan="4">Low temperature applications (not exceeding 300°C)</td></tr>
<tr><td>Aluminium alloy 1100, 3003
0.7 mm thickness
AS/NZS 1734</td><td>None</td><td colspan="2">Only where accessible for inspection and renewal
Internal flues not to exceed 12 m in length, external flues shall not exceed 7 m</td></tr>
<tr><td>Aluminium alloy 1100, 3003
2 ply and 0.26mm thickness
(flexible liner)</td><td>None</td><td colspan="2">Only suitable for use as a chimney liner (also referred to as a flexible flue liner).
Not to be used where mechanical damage could occur</td></tr>
<tr><td>Aluminium alloy 1100, 3003
0.31mm thickness
(flexible flue connector)</td><td>None</td><td colspan="2">Only suitable for use as a single wall flexible connector, (where changes of direction are required, e.g. as an alternative to flue elbows).
Not to be used where mechanical damage could occur.</td></tr>
<tr><td>Bricks (clay building)
Cement or lime mortar joints</td><td>None</td><td colspan="2">Only slight condensation allowable, minimum wall thickness of flue 50 mm</td></tr>
<tr><td>Bricks</td><td>Inside face lined with acid-resisting tiles embedded in acid-resisting jointing material</td><td colspan="2">Flues lined with non-absorbent tiles shall have provision made for condensate drainage</td></tr>
<tr><td>Bricks</td><td>Faced with water and acid-proof cement mix</td><td colspan="2">Only slight condensation allowable</td></tr>
<tr><td>Copper not less than 0.5 mm thickness</td><td>None</td><td colspan="2">Only slight condensation allowable</td></tr>
<tr><td>Fibre cement, light grade (asbestos free)</td><td>Autoclaved</td><td colspan="2">Only slight condensation allowable</td></tr>
<tr><td>Flue bricks</td><td>None or glazed internally</td><td colspan="2">If condensation is heavy, internally glazed flue bricks shall be used
Joints shall be acid-resisting
Bricks glazed internally shall have provision made for condensate drainage.
Non-glazed, only slight condensation is allowable
Provision of an air gap between the flue brick and the finished wall may be necessary to minimize heat transfer</td></tr>
<tr><td rowspan="5">Mild steel
0.6 mm thickness
0.8 mm thickness
1.0 mm thickness</td><td rowspan="5">Aluminized 122 g/m^2, or A275 zinc to AS 1397, or aluminium zinc conforming to AS 1397</td><td colspan="2">Only where accessible for inspection and renewal</td></tr>
<tr><td colspan="2">Internal flues shall not exceed 12 m in length, external flues shall not exceed 7 m</td></tr>
<tr><td>Wall thickness, mm</td><td>Maximum flue diameter, mm</td></tr>
<tr><td>0.6</td><td>100</td></tr>
<tr><td>0.8</td><td>200</td></tr>
<tr><td>1.0</td><td>300</td></tr>
</table>

Table 6.8.11 — Required clearance between a single wall flue and a combustible surface

Application	Clearance minimum, mm	
	Unprotected *combustible surface*	Protected *combustible surface*
Water heater, space heater or inbuilt oven with:		
(a) *Flues* not exceeding 150 mm ID	25	25
(b) *Flues* exceeding 150 mm ID	75	50
(c) *Flues* 250 mm × 50 mm installed on an outside wall	25	25
Other rectangular *flues*	75	50
Incinerator — Not sanitary	450	300
Incinerator — Sanitary	75	50
Pottery kiln	600	450
Any other application	The clearance shall ensure the temperature limitation of 50°C above ambient is not exceeded	

6.8.12 Protection of combustible surfaces

Where a *combustible surface* requires protection to satisfy the requirement of Clause 6.8.11 the method used shall provide protection in accordance with AS/NZS 2918 or at least equivalent to one of the following methods:

(a) Protection of *combustible surfaces* in accordance with Appendix C Clause C.3 attached to the *combustible surface* and covered with sheet metal with a minimum thickness of 0.4 mm as per Figure 6.8.12 (a).

(b) Sheet metal having a minimum thickness of 0.4 mm spaced out at least 25 mm from the *combustible surface* using non-combustible spacers as per Figure 6.8.12 (b).

(c) Sleeving the *flue* with a duct of 0.4 mm sheet metal that has an air space around the *flue* of at least 25 mm as per Figure 6.8.12 (c).

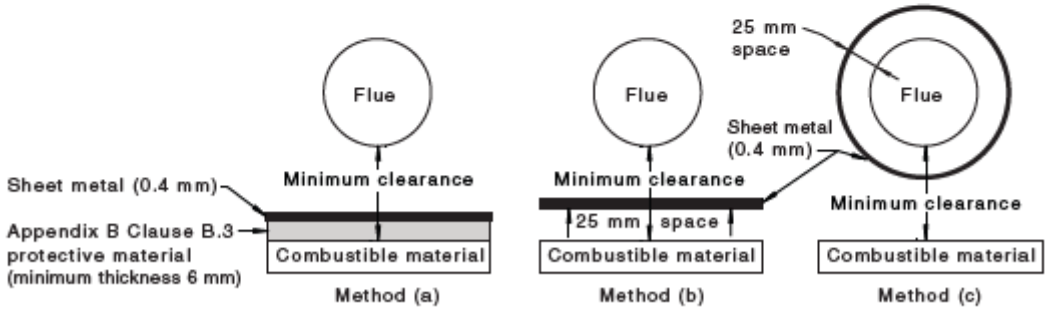

Figure 6.8.12 — Methods of protecting a combustible surface