Materials Selection Guide

Information Sheet for Builders and Architects

FIRE BY escea.

KEY CONSIDERATIONS FOR MATERIAL SELECTION

Material selection is critical for ensuring durability and safety in fireplace installations. Chosen materials must withstand thermal stress, expansion, and prolonged heat exposure. In some cases, materials may be subjected to higher-than-anticipated temperatures, even if they comply with the surface temperature combustibility requirements of the relevant Standard. Exceeding a material's thermal tolerance can lead to degradation or failure.
Specifiers and installers must not only consider combustibility requirements but also ensure that selected materials can endure the maximum service temperatures they will be exposed to. Additionally, fire-rated materials are not always suitable for some locations. These products are designed as part of fire-rated systems to contain fire and allow safe evacuation, but they are not necessarily intended for continuous heat exposure.

CRITICAL DESIGN CONSIDERATIONS

Some designs expose materials to high temperatures (< 120°C), requiring extra precautions:

Low & Sealed Chimney Cavities – Use heat-resistant insulation.

Under-Bench Installations – Protect with non-combustible boards.

Recessed Fires & Overhangs – Ensure adequate airflow and thermal barriers.

Calcium-mineral boards (such as Skmaotec 25mm) are recommended for these applications due to their heat resistance, non-combustibility, and insulation properties.

MATERIAL CLASSIFICATIONS

- Combustible: Flammable; unsuitable near fireplaces (e.g., wood, polystyrene).
- Non-Combustible: Won't ignite but may still be heat-sensitive (e.g., stone, fibre cement).
- Heat-Sensitive: Prone to warping or damage (e.g., veneers, laminate panels).
- Heat-Resistant: Ideal for direct heat exposure (e.g., porcelain, calcium-mineral board).

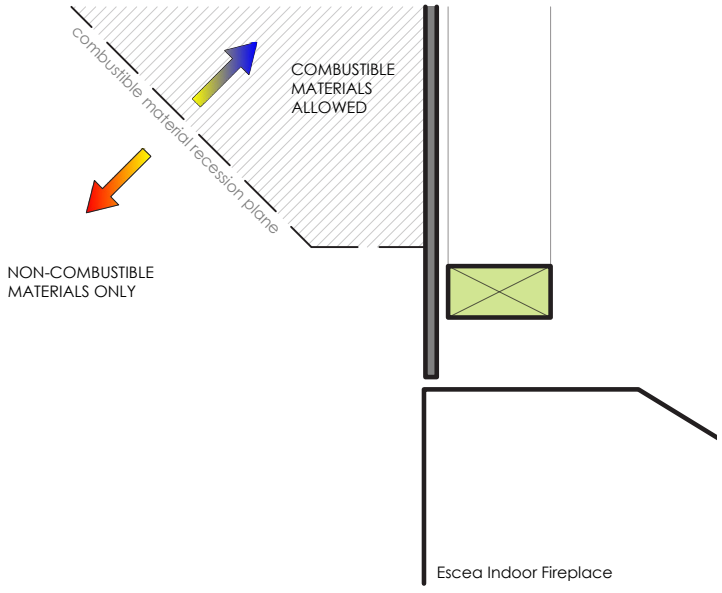
MATERIAL PERFORMANCE GUIDE

Material	Impact From Heat	Recommendations
Timber/Wood	Charring, shrinkage	Insulate, use solid wood
Metals	Deformation, heat transfer	Increase thickness, provide air gaps
Glass	Fracture, heat transfer	Insulate, avoid direct heat
Plasterboard	Cracking, deterioration	Expansion joints, avoid direct heat
Fibre Cement	Heat transfer, cracking	Not an insulator, protect finishing layers
Natural Stone	Fracture, thermal stress	Segmentation, expansion gaps
Manufactured Stone	Heat damage, deformation	Insulation, segmentation
Ceramics	High heat tolerance	Allow movement joints

COMPLIANCE AND CLEARANCE

The Combustible Material Recession Plane defines a safe zone for materials near the fire, ensuring compliance with *AS/NZS 5601.1-2013 (Sec. 6.2.5)* for Gas Fireplaces. Wood fireplace clearances must conform to the specific product installation instructions.

The Combustible Material Recession Plane does not define an area of hot and cold. Moving away from this line towards the wall above the fire and into the combustible material zone, the surface temperature decreases. While moving into the non-combustible material zone would show an increase in the surface temperature.



For Installation methods not covered in this document please contact:
Email: aa@escea.com PH (NZ): **0800 17 3000** PH (AU): **1800 460 832**

Install Manual and CAD files are available via the QR Code or link:
www.escea.com/technical

Disclaimer:
Dimensions provided may not consider all site-specific variations or installation needs. Verify dimensions on-site before manufacturing or construction.