

Performance Comparison and Selection Guide for Exterior Wall Panels

In exterior wall decoration, different panels have unique features in terms of fire resistance, weight, strength, flatness, processing performance, and price. Below is a comprehensive comparison of ACP (LDPE, B1, A2), 3D CORE Panel, Honeycomb Panel, and Solid Panel, with a particular emphasis on the balanced performance of 3D CORE Panel.

1. Fire Resistance

LDPE ACP: Does not provide fire resistance and is only suitable for lowrise buildings, such as car showrooms or temporary structures.

B1 ACP: Offers good fire resistance, suitable for relatively lowrise buildings, such as those under 5 stories.

3D CORE Panel and A2 ACP: Both achieve A2 fire resistance, making them suitable for any height of building, meeting high fire safety requirements.

Honeycomb Panel: Fire resistance is similar to B1 ACP and suitable for lowrise or general fire safety requirements.

Solid Panel: Offers the highest fire resistance, achieving A1 grade, making it the best choice for projects with the most stringent fire safety demands.

2. Weight

3D CORE Panel: The lightest option, minimizing building load and facilitating easy handling and installation for workers.

LDPE ACP: Lightweight, making it ideal for budgetsensitive projects and easy handling during installation.

B1 ACP: Slightly heavier than LDPE ACP but still easy to handle.

3D CORE Panel and A2 ACP: Heavier than LDPE and B1 ACP, adding to the building load and increasing the risk of scratches during handling and processing.

Honeycomb Panel: Moderate weight, balanced between 3D CORE Panel and Solid Panel.

Solid Panel: The heaviest option, significantly impacting building load and handling difficulty.

3. Strength

Solid Panel: The strongest option, typically 3mm thick. It is ideal for high wind pressure conditions

and extreme strength requirements. After bending, edges are welded to ensure durability.

Honeycomb Panel: Excellent structural stability due to its unique honeycomb core design, performing exceptionally well in largespan applications.

3D CORE Panel: With a 0.7mm (or 0.5mm) aluminum surface, it exhibits excellent strength, particularly in grooved and bent sections, making it comparable to Honeycomb Panel and A2 ACP in building applications, and far superior to LDPE and B1 ACP.

B1 ACP: Moderate strength, sufficient for general building decoration.

LDPE ACP: The weakest option, suitable only for applications with low strength requirements.

4. Flatness

Honeycomb Panel: The best performance in largespan applications (e.g., factory doors, furniture), thanks to its unique selfsupporting structure.

3D CORE Panel and A2 ACP: Excellent surface flatness, fully comparable to Honeycomb Panel in architectural applications.

B1 and LDPE ACP: Good flatness, suitable for smallscale decorative projects.

Solid Panel: Relatively lower flatness, especially in largescale applications, where slight deformation may occur.

5. Processing Performance

3D CORE Panel, LDPE/B1 ACP, and Honeycomb Panel: Easy to process with standard woodworking tools, allowing cutting, grooving, bending, and folding.

Solid Panel: Good processing performance, but its heavy weight makes it prone to surface scratches during handling and installation.

3D CORE Panel and A2 ACP: Processing is more challenging for A2 ACP due to its loose core structure with 90% natural minerals, which leads to significant tool wear, especially during grooving, making maintenance costs higher.

6. Price

LDPE ACP: The most affordable option, suitable for lowbudget projects on lowrise buildings.

B1 ACP: Slightly more expensive than LDPE ACP but still economical.

3D CORE Panel:

0.7mm 3D CORE Panel: Similar in price to 0.5mm A2 ACP but with betterbalanced performance and higher costeffectiveness.

0.5mm 3D CORE Panel: Similar in price to 0.5mm B1 ACP but with superior strength and fire resistance.

Honeycomb Panel and Solid Panel: The most expensive options, suitable for highend projects with ample budgets.

Why Choose 3D CORE Panel?

1. Outstanding Fire Resistance: Achieves A2grade fire resistance, making it suitable for any height of building and meeting modern safety requirements.

2. Lightweight and High Strength: Combines lightness with excellent strength, reducing building load while ensuring ease of handling and installation.

3. CostEffective: The 0.7mm 3D CORE Panel is priced similarly to 0.5mm A2 ACP but offers better overall performance. The 0.5mm 3D CORE Panel is priced similarly to 0.5mm B1 ACP but provides superior fire resistance and strength.

4. Wide Applications: In architectural decoration, it matches the performance of Honeycomb Panel and ACP while surpassing them in flatness and ease of processing. It is far superior to Solid Panel in these aspects.

5. Balanced Performance: Offers an exceptional combination of flatness, strength, and processing convenience, making it an ideal choice for midtohighend projects.

Recommended Scenarios

If your budget is limited but you require a product with excellent quality and balanced performance, the 3D CORE Panel is the best choice. It offers outstanding fire resistance, lightweight construction, and high strength, making it a superior solution in the exterior wall decoration field.