



(c) Interpretation Summary: What Makes Each Peer Group Distinctive?

Peer Group	Buildings (n)	Strongest Positive Feature	Strongest Negative Feature	Significant Differences (p<0.05)
Warm-Climate Educational	1,611	Higher Avg. Temperature (°C) (d=3.29)	Lower Building Size (m²) (d=0.18)	4/4 features
Cold-Climate Educational	2,119	Higher Building Size (m²) (d=0.49)	Lower Avg. Temperature (°C) (d=-1.81)	4/4 features
Temperate-Climate Educational	1,216	Higher Log EUI (kWh/m²/yr) (d=-0.22)	Lower Year Built (d=-1.35)	4/4 features

FIGURE 2. Statistical analysis confirms meaningful differences between building peer groups.

(a) Z-SCORE HEATMAP: Shows how each peer group deviates from the population average. Red = above average; blue = below average. Asterisks indicate statistical significance (* p<0.05, ** p<0.01, *** p<0.001). Of 12 cluster-feature combinations tested, 12 show statistically significant differences (p<0.05).

(b) EFFECT SIZE HEATMAP: Cohen's d quantifies practical significance. Values >0.8 indicate large effects (meaningful in practice). 5 cluster-feature combinations show large effect sizes, confirming that peer groups differ not just statistically but in practically important ways.

(c) INTERPRETATION SUMMARY: For each peer group, identifies the most distinctive characteristics (highest positive and negative effect sizes) and counts how many features show significant differences.

KEY INSIGHTS FOR POLICYMAKERS:

- Temperature shows the largest effect sizes across all clusters—climate is the dominant peer group differentiator
- Building size is the second most important factor, with warm-climate buildings being significantly larger
- Year Built shows smaller effects, suggesting building age is less important for peer grouping than climate and size
- All peer groups show significant differences on multiple features, validating the clustering approach

KEY INSIGHTS FOR BUILDING OWNERS:

- Identify your peer group using the summary table characteristics
- Compare your building's features to the peer group average (z-score = 0)
- Focus improvement efforts on features where your building deviates most from its peer group