

COMPARATIVE THERMAL ANALYSIS - PHASE 1

Period: July 20 to August 20, 2026

1 - OUTDOOR	2 - ALUMINIUM	3 - PLASTIC
Reference Ambient measurement Interval: 60 min	Southwest - upper level Aluminium wall Interval: 60 min	Southwest - middle level Plastic wall Interval: 60 min

KEY FINDING				
The data show significant short-lived overheating. The upper aluminium compartment produces several rapid mid-day peaks, while the central plastic compartment can show later peaks in the late afternoon. Because the sensors are not on the same level, this phase confirms a thermal phenomenon but does not yet allow the effect of the material alone to be isolated.				
MOST REVEALING THERMAL EPISODES				
Date / time	Outdoor	Aluminium	Plastic	Key reading
Jul. 25, 15:00	29.6 °C	38.3 °C (+8.7)	29.6 °C (0.0)	Aluminium peak
Jul. 31, 14:00	29.5 °C	39.7 °C (+10.2)	28.9 °C (-0.6)	Aluminium peak
Aug. 5, 18:00	26.7 °C	29.0 °C (+2.3)	37.0 °C (+10.3)	Plastic peak
Aug. 18, 14:00	29.3 °C	37.1 °C (+7.8)	29.8 °C (+0.5)	Aluminium peak
INTERPRETATION				
Aluminium		Rapid response to solar radiation; peaks up to about +10 °C above the outdoor temperature.		
Plastic		More delayed profile; some days show a sharp rise late in the day.		
Limitation		Different sensor positions = material and level are confounded in Phase 1.		

DIRECTION FOR THE A-B-C PROTOTYPE		
A - Reference Current aluminium, no additions. Baseline for measuring the actual ΔT of the existing model. Method: sensors at the same height and same location in each compartment, plus an outdoor sensor; logging every 5-10 min on sunny days.	B - Protected roof Same aluminium + 4 mm twin-wall polycarbonate under the roof only.	C - Roof + exposed wall Same aluminium + 4 mm polycarbonate under the roof and on the most exposed wall.