

Better Ideas in Action

GuruKool – Reflective heat management Solution f

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Innovative & cost effective heat management solution - Temperature management Solution for various applications

**Self
adhesive
GuruKool**

**Release
paper**



Features :



**Heat reduction
& Cooling effect**



**Water
proof**



**Easy installation
—due to self-adhes**



**Light Weight
as compared
to other options**



UV protection



**Good abrasion
and tear
restance**

Benchmarking against existing passive heat management solutions in market

PARAMETER	Rockwool/Mineral wool / GLasswool insulation sheets (roll form)	Polyurethane Insulating Foam (PUF) Panels	Lumix Solar reflective paint or Excel Cool Coat	White Galvalume Corrugated metal ROOFING SHEET (JSW Coloron / Tata Durashine)	Jindal - Insulated roofing panels (PUF)	Gurukool 2.0 Reflective heat management
Product Image						
Application	Underroof	actual roof/under roof	Over roof	Actual Roof	Actual Roof	Over roof
Typical Operational life (months)	120	240	60	240	240	60
Warranty period (months)	60	20	na	240	240	36
K (Thermal Conductivity)	0.04	0.021	na	0.03	0.03	0.0393
R (Thermal Resistance)	25.0	47.6	na	33	33	25.45
IR Reflectance	0%	-	90%	90%	-	90%
Segment with preferred usage	Food warehouses (Non EC) . Industrial sheds	Cold storage roof Factory floors. High value Storage units.	Cold storage roof Factory floors. High value Storage units.	Cold storage roof, Factory floors. High value Storage units.	Cold storage roof. Factory floors. High value Storage units.	Food warehouses, Refrigerated medical supplies, Cold storage roof, Pagoda, Defence tents, Agriculture

Applications



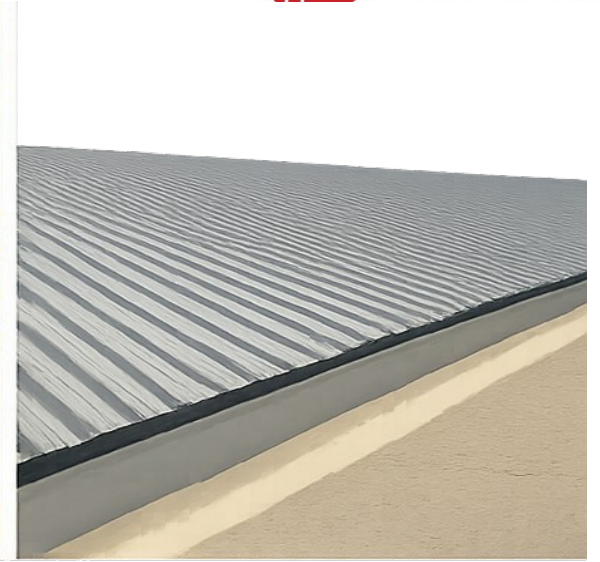
INDUSTRIAL SHED



POULTRY



SERICULTURE



FOOD WAREHOUSES



PAGODA TENTS



**REFRIGERATED MEDICAL
SUPPLIES**



**REFRIGERATED
CONTAINERS**



CARGO PACKAGING

Importance of Roof Insulation in Poultry Houses



Key Points:

- The environment in which poultry is maintained is the **single most important factor** affecting productivity.
- **Heat stress** caused by solar heat gain through the roof can severely impact bird health and performance.
- **Roof insulation is essential** in both open-sided and fan-ventilated poultry houses, especially in warmer climates.
- Without insulation:
 - Even the best ventilation system cannot prevent poor performance.
 - Higher mortality rates are likely.
- Insulation is commonly valued in cold climates for **heat retention**, but:
 - In summer, its role is **heat protection**.
 - Prevents solar heat gain through the roof.
 - Critical in **moderate to hot climates**.

Poultry Productivity



The ultimate goal of poultry farming

Bird Health and Performance



Directly affected by environmental conditions

Roof Insulation



Essential for temperature control

Heat Stress



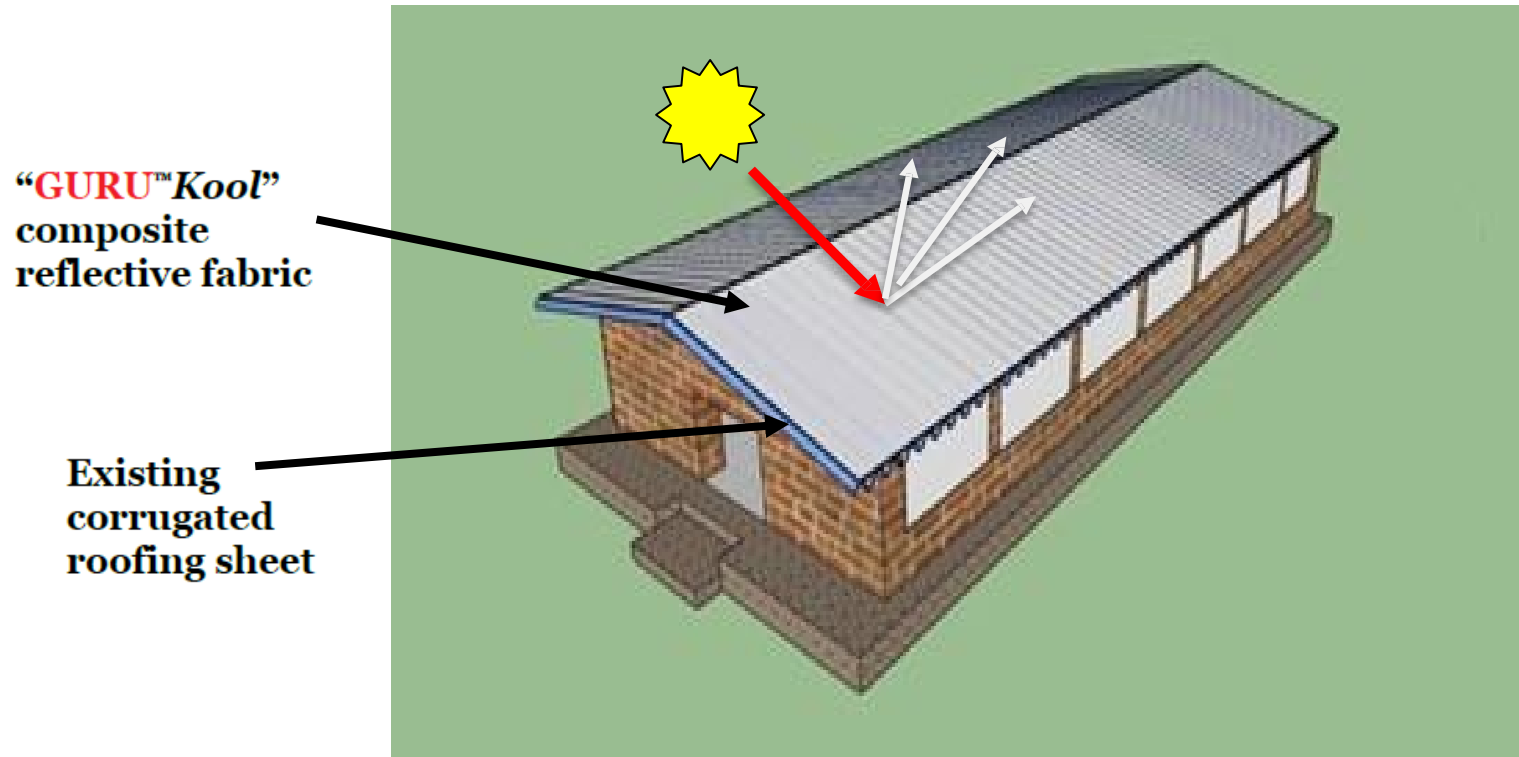
Negative impact of solar heat gain

Environmental Conditions



The foundation for poultry well-being

Innovative & cost effective heat management solution !



Poultry shed challenges

Productivity Reduction
Decreased egg quality and hatching rates

Mortality Increase
Higher death rates among birds

Disease Outbreaks
Spread of illnesses due to unhygienic conditions

Energy Costs
Rising expenses for ventilation

Temperature Increase
Elevated heat levels inside the shed


Heat reduction
& Cooling effect


Water proof


Easy installation
– due to self-adhes


Light Weight
as compared to
other options


UV protection

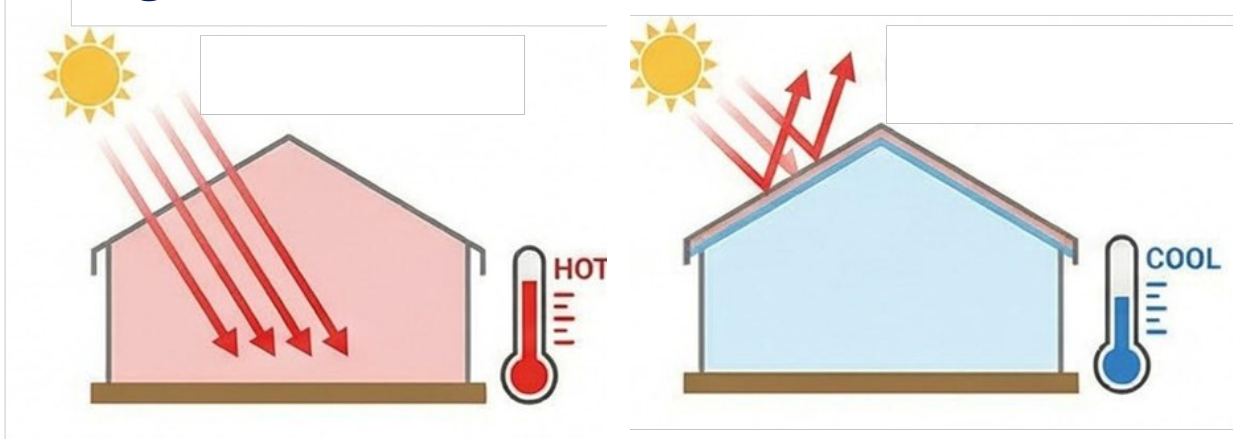

Good abrasion
and tear resistance

Pay back considering only power consumption



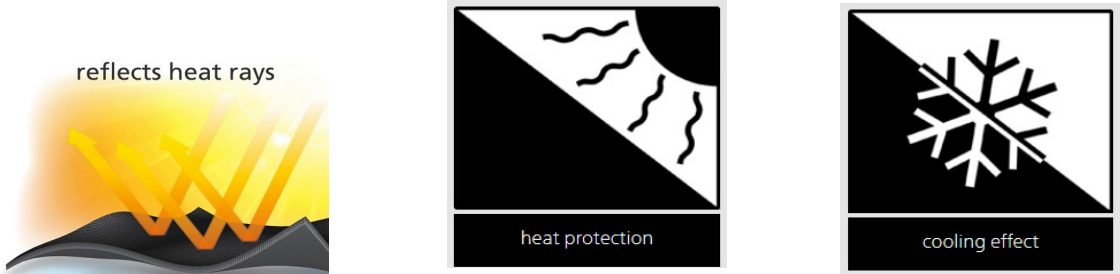
INPUTS		
Length (feet)	100	
Width (feet)	100	
Roof area (sq.ft)	10000	
Ambient temperature (°C)	37	
Metal roof peak temperature (°C)	48	
GuruKool ΔT reduction (°C)	6.8	
U-value bare metal (W/m²·K)	6	
Electricity rate (₹/kWh)	11	
AC operating hours per day	10	
CO ₂ emission factor (kg/kWh)	0.82	
Installation cost (₹/sq.ft)	30	
Roof area (sq.m)	929.03	m²
ΔT (bare roof)	11.00	°C
Heat gain (bare)	61315.98	W
ΔT with GuruKool	4.20	°C
Heat gain (with GuruKool)	23411.56	W
Energy saving	37904.42	W
Energy saving	37.90	kW
Daily energy saved	379.04	kWh/day
Daily cost saving	4169.49	₹/day
Monthly cost saving (30d)	125084.60	₹/month
Annual cost saving (365d)	152103.00	₹/year

During summer

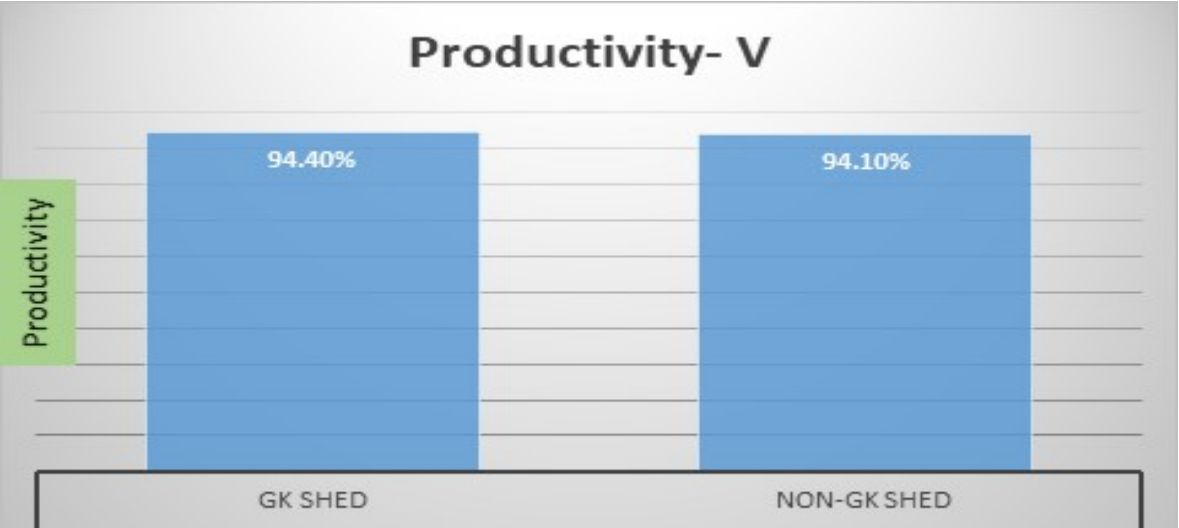


Temperature difference between shed and outside temperature up to 4-6 °C

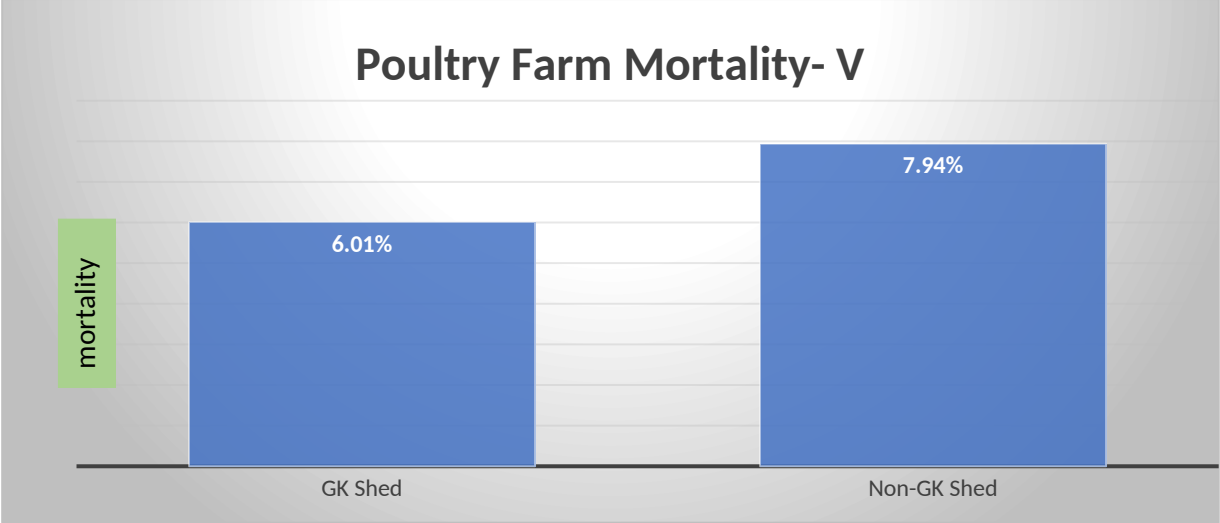
Benefits



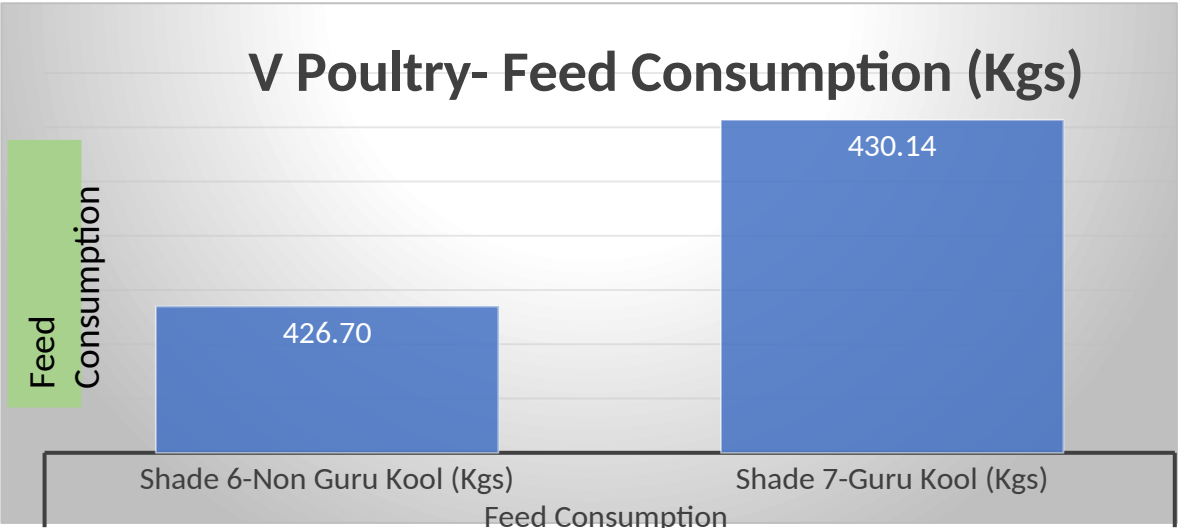
Evaluation- V Poultry Farm (in %)



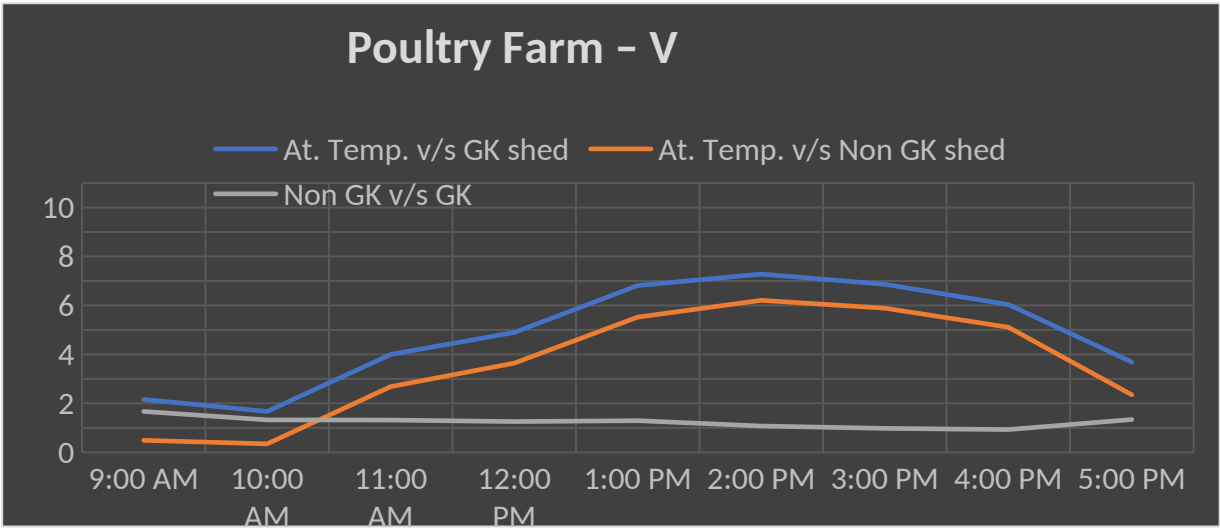
No change in productivity of GuruKool



The **mortality reduction** of GuruKool is up to **1.93%**.



The **Feed Consumption of birds** in GuruKool **increases** by up to **4kg**.

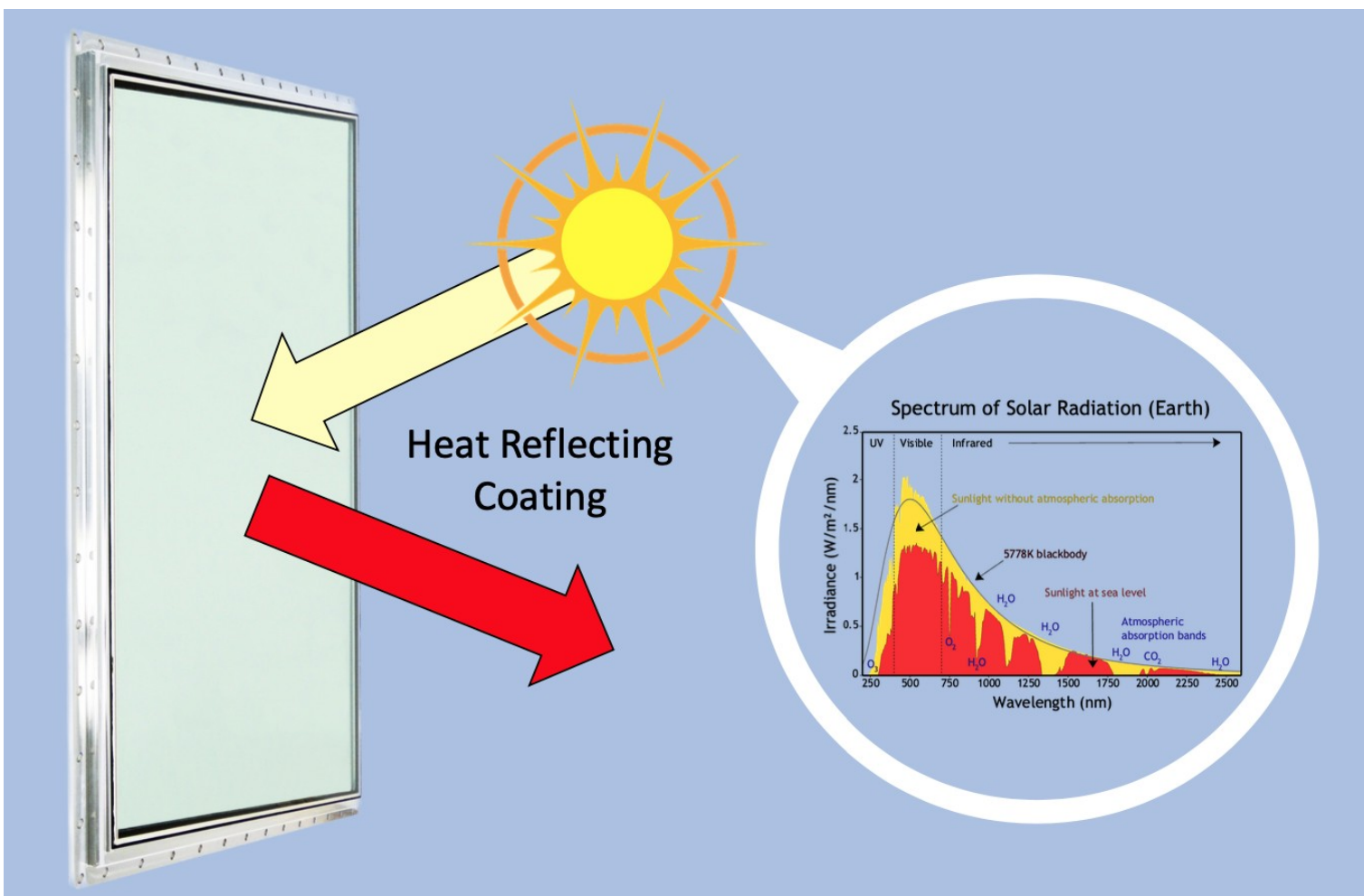


The average **temperature difference** between Atmospheric Temperature and GuruKool shed varies between **-3°F to 6°F**



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IR Reflectance more than 90%



Surface temperature difference between GuruKool Vs Outside Temperature = 9- 10 °C