



ZENOVA IP THERMAL IMPROVEMENTS REPORT

Trial report

ABSTRACT

Zenova IP Trial with Together Housing Group for installation of Zenova IP in thermally inefficient Apartment monitored by LoRa sensors..

Barry Ayling

Zenova IP Insulation Paint

1.0 Introduction

Zenova group and Together Housing collaborated to test Zenova IP (*Insulation Paint*) internally on their worst performing property. The property was unable to be let out due to its poor insulation level. The property was too expensive to heat for typical tenants and was cold with no thermal comfort, increasing the risk of damp and mould issues.

2.0 The test parameters

Using LoRa wireless remote sensors (*from Syntica*) Zenova deployed ambient air and surface probe sensors in the apartment. The heating system was set to operate from 6am to 6pm by Together Housing. The remote sensors then monitored the apartments thermal temperatures and stored them on Synticas online portal.

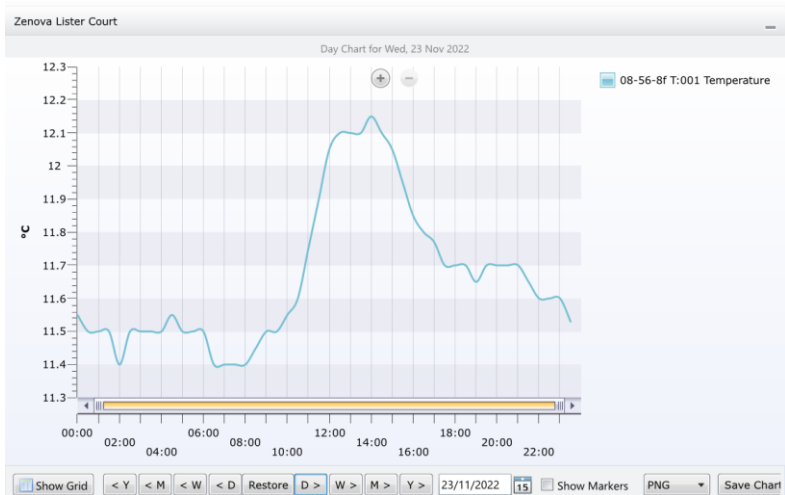
After a few weeks Zenova IP was then applied (*800 microns / 0.8mm*) to the internal walls and ceilings of the apartment and the temperature sensors recorded the thermal readings to the Syntica platform.

The external weather temperature are recorded and used to ensure the complete environmental conditions for the benchmark.

3.0 Results

3.1 Before IP

The results for the apartment showed that the heating system took over 7 hours to reach maximum temperature. The maximum temperature was only improved from 11.4°C to 12.15°C. The temperature was not able to be maintained and declined back to 11.7°C before the heating turned off at 6pm:



Historical weather measurements

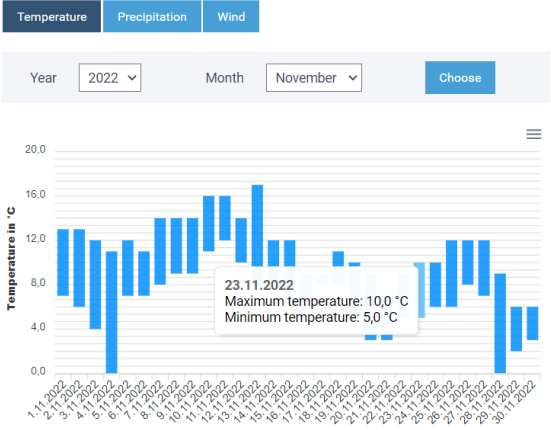


Fig 1 – Before IP ambient air temperatures.

The Synetica surface temperature probes recorded that the walls and ceilings also had modest thermal improvements of 0.1°C for the floor and 0.2°C for the walls.

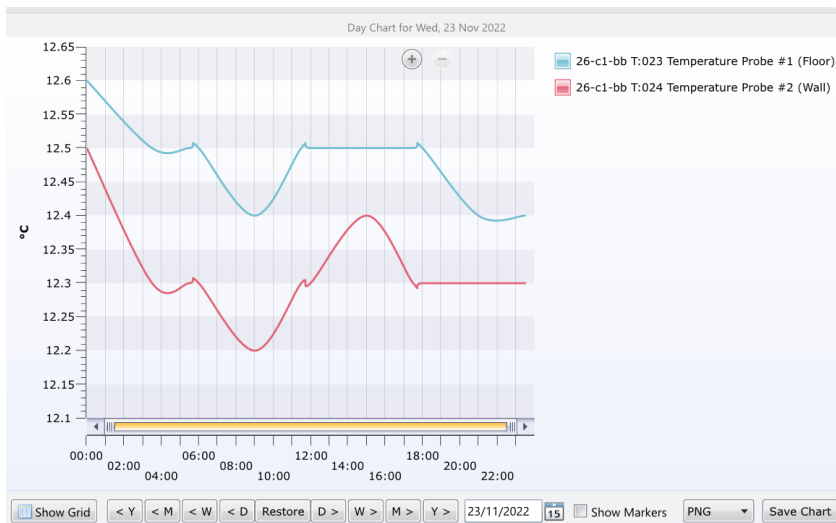


Fig 2 – Before IP floor and wall temperatures

3.2 After IP Installed:

After a coating of only 800microns the temperature of the Apartment had much improved thermal readings:

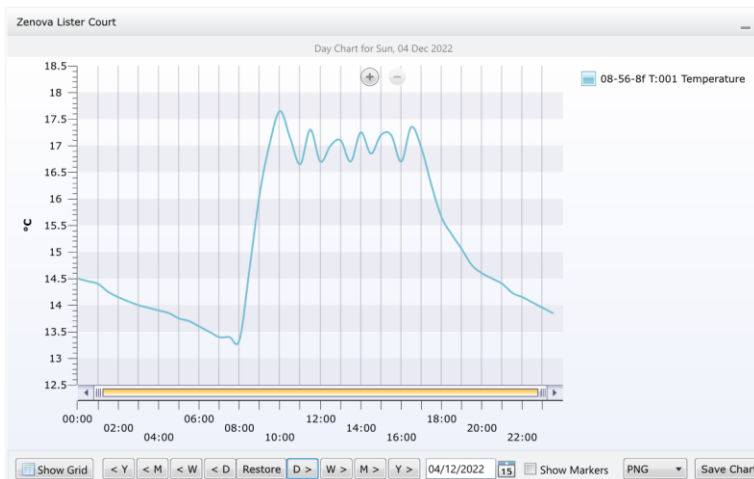


Fig 3 – After IP ambient air temperatures.

Historical weather measurements



The Apartment only took 2 hours to reach maximum temperature. The maximum temperature improved from 13.4°C to 17.6°C and the higher temperature was able to be maintained and declined back to 15.6°C at 6pm.

A huge improvement in the fabric of the apartment was also recorded. The Floor temperature increased by 3.75°C and the Wall increased by 2.85°C.

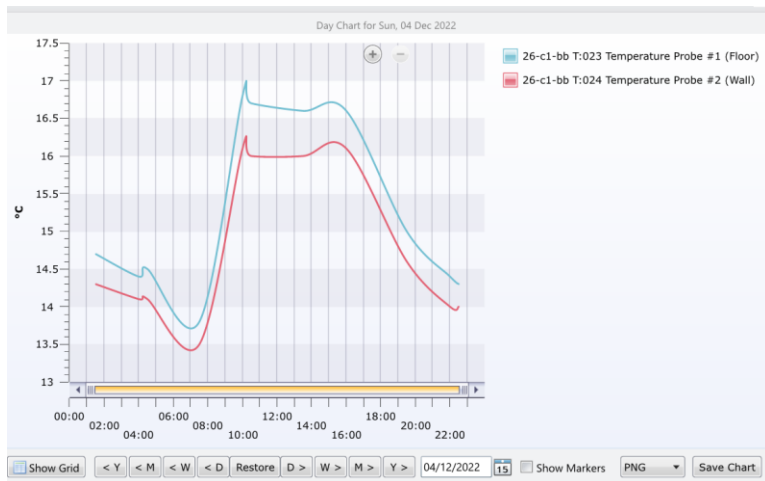


Fig 4 - After IP Wall and Floor temperatures

4.0 Summary Results

The application of IP improved all of the temperatures for the Apartment. The results have been put in to graphs for comparison and ease of viewing:

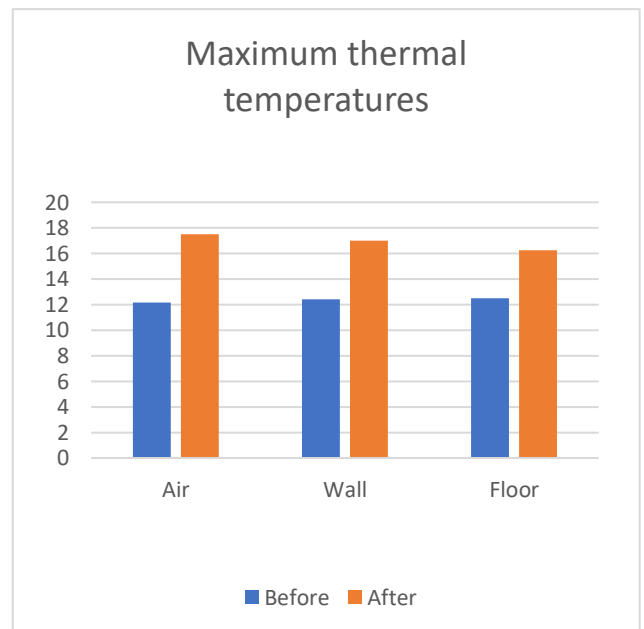
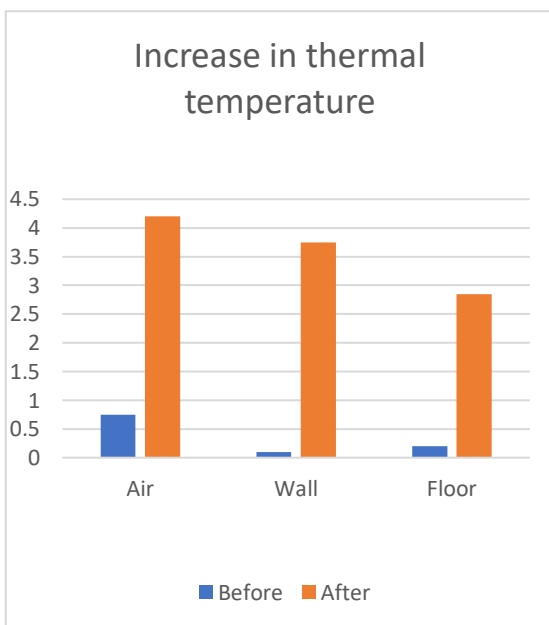


Fig 5 – Thermal temperature results and comparison

5.0 Conclusion

The overall results from the trial demonstrated that the internal application of Zenova IP massively improves the thermal conditions of the Apartment. The increase in thermal temperatures will lead to huge energy savings and heating cost reduction for future tenants.

The installation gave a great decorative finish to the apartment, improved the thermal insulation and comfort for the tenants and also improved fire safety standards.

It is important to note that the improved (*Zenova IP*) thermal temperatures were recorded on a day that was *colder (+6°C compared to +10°C outside)* . If the same external temperature was recorded then higher temperatures and improvement would have been recorded.

The final chart below gives the percentage thermal improvements at the apartment:

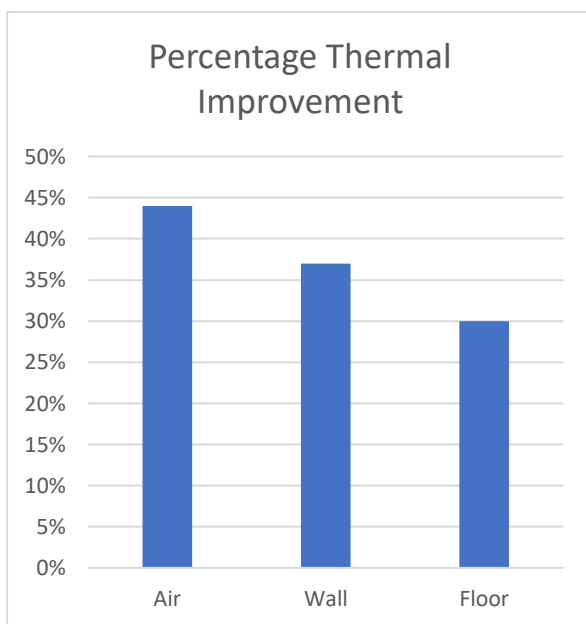


Fig 6 – Percentage thermal improvements