Interreg CENTRAL EUROPE
European Union European Regional Development Fund

BOOSTEE-CE

DELIVERABLE T1.3.3

D.T1.3.3 – Estimation of heating losses from thermal data / PA2

03/2020

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A.T1.3 Estimation of PV potential and heating losses

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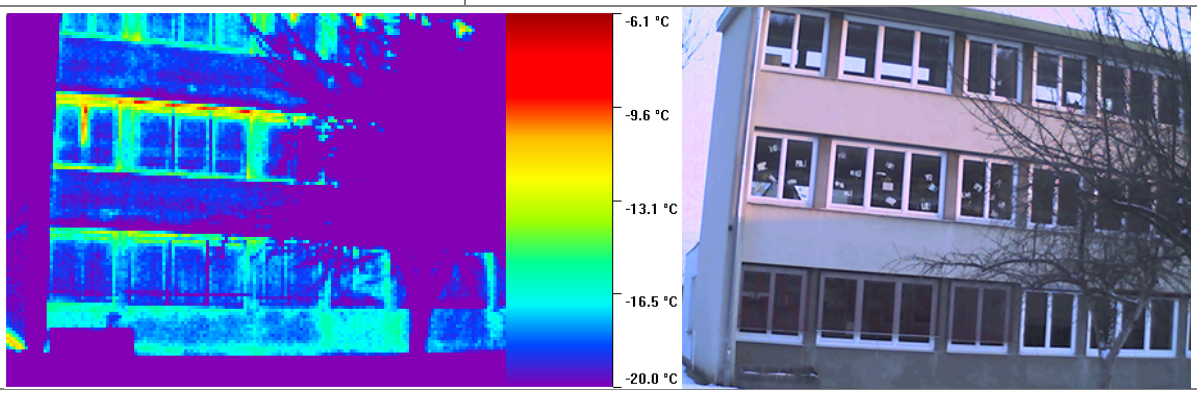
1. Introduction and aims

The deliverable T1.3.3 belongs to the activities related to estimation of PV potential and heating losses (A.T1.3). In particular for each Pilot Action, a report has been created reporting some information gathered from onsite thermal acquisitions or data owned by local energy agencies. The overall idea is to report the heating loss situation in the pilot buildings and, if possible, the improvement after the investment activities. According to Application Form, the quantification of D.T1.3.3 is 7 but we created 8 documents corresponding to the 8 locations of the Pilot Actions (one cross-border). The various deliverables reports information and graphical results of thermal analyses in all PAs with (public or internal) and without investments. In this latter case, despite the lack of investment, thermal and energetic analyses were performed in any case to provide useful material to the local municipalities and inform them of possible energy efficiency actions they could undertake to improve the energy performance of buildings.
In the following section the activities related to PA2 in Judenburg, Austria (JUD) are reported.

2. Thermal acquisitions in the BOOSTEE-CE pilot action #2

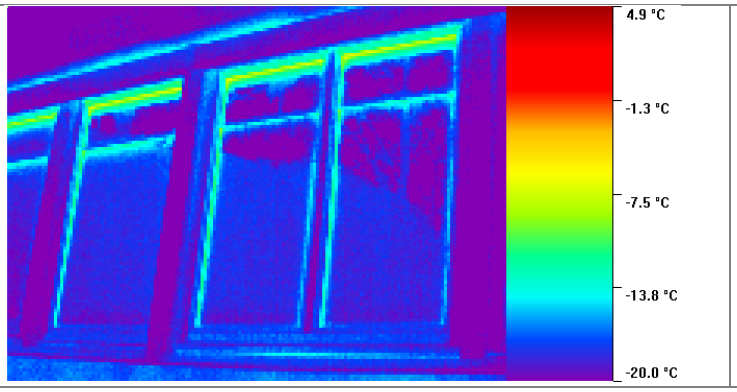
In the following tables, we report the acquired thermal data with some metadata and comments, to facilitate comprehension and understanding of the situation of the PA2 in Judenburg Lindfeld (school complex).

Acquisition date	28.2.2018
Time and ext. temperature	7:00 Outside temp. -20 °C Room temp. ca. 22°C
Type of building	Primary and Secondary School
Owner	Municipality of Judenburg
Materials of the facades	Concrete and bricks

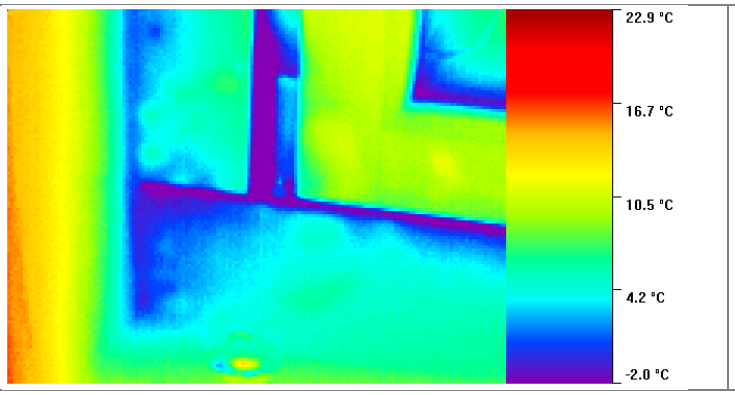


1. South side NMS:

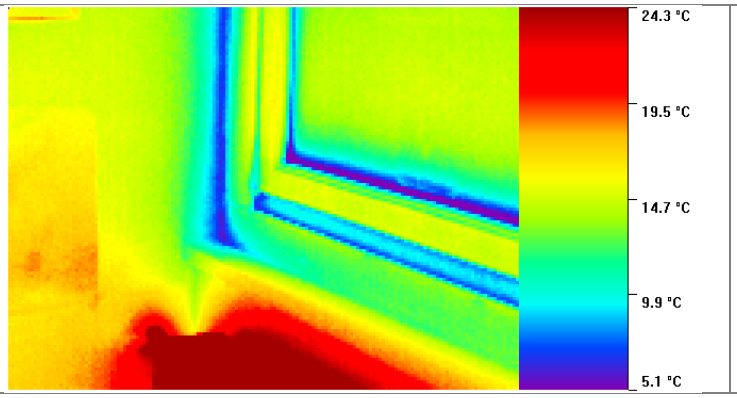
New windows wee installed in the last years. You can see a lot heat-bridges above the windows, and in the ground floor below the windows.



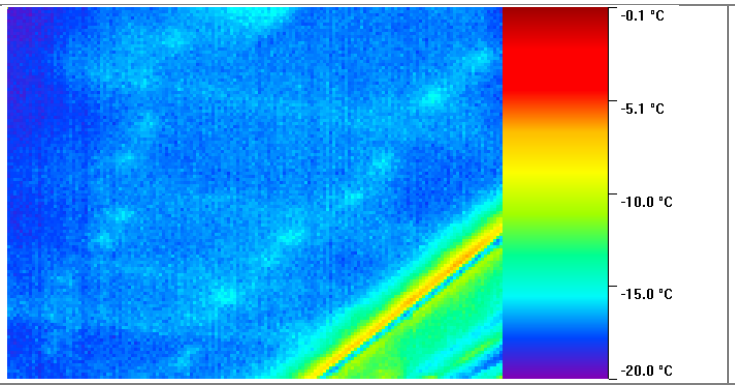
2. Window details:
The windows are basically in good condition, here you can clearly see the reflection over the stainless steel spacer.



3. Window detail inside – wardrobe
The window connections in the elementary school were covered with frames on the inside. There are clear leaks here, in some cases the temperature drops to -2°. By removing the frames and applying special window sealing tapes, a significant improvement could be achieved.

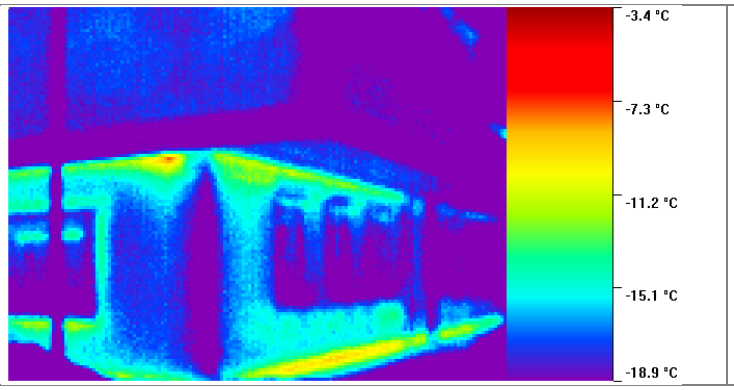


4. Window detail – class room NW
Here, too, the clear leakage in the area of the window connection can be seen. In spite of the radiator mounted under the window, a very large drop in temperature is visible.



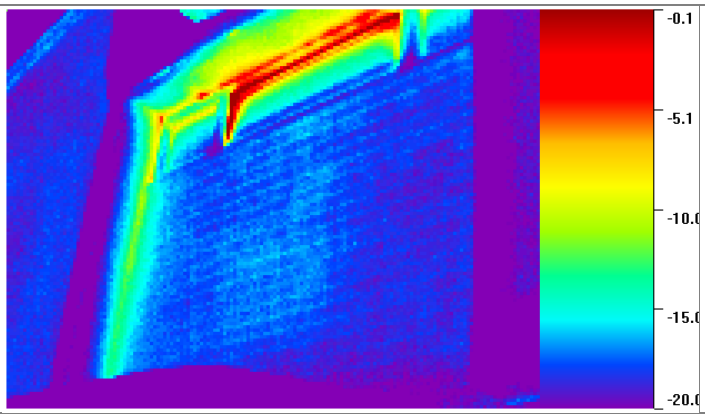
5. Underside cantilever NW, VS

Here you can see the underside of the cantilevered ceiling, this is insulated with EPS insulation boards. The boards and the fixing dowels are clearly visible. A narrow thermal bridge is visible when connected to the brickwork.



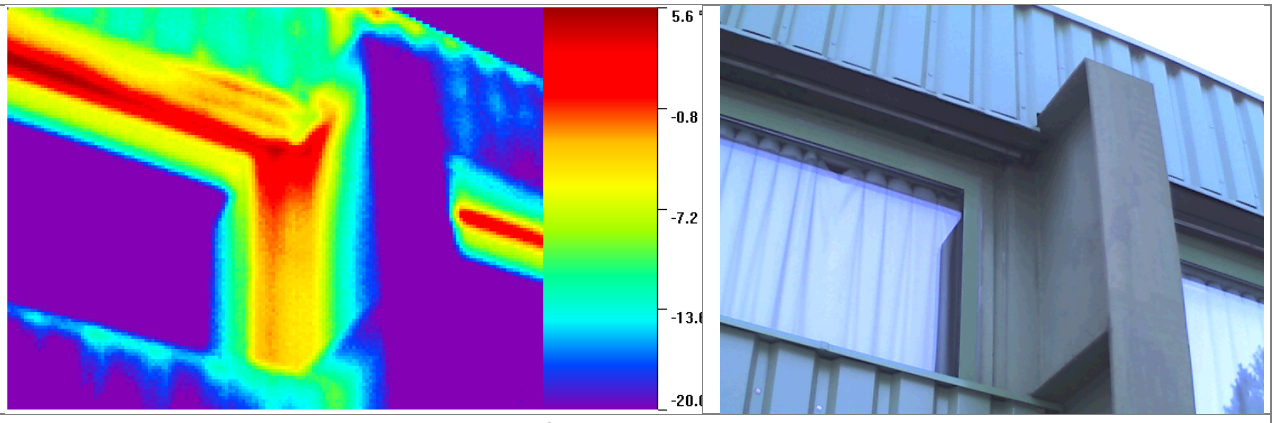
6. View NW, VS

Here you can see the area of the cantilevered ground floor. At the connection joints of the ceiling to the brickwork, slight thermal bridges can be seen, also at the base area a thermal bridge is visible.



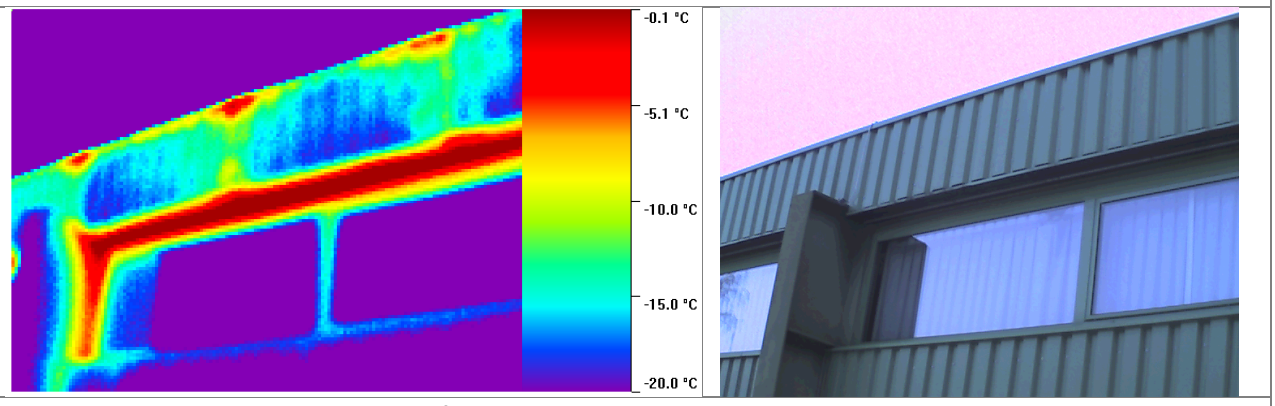
7. Window north, WC OG VS

Here you can see the outer wall of the WC on the upper floor behind it. The facade is covered with tiles, the joints are clearly visible. The middle window is obviously not completely closed, so that a large heat flow is visible here. The closing mechanism and the seals of the window should be checked.



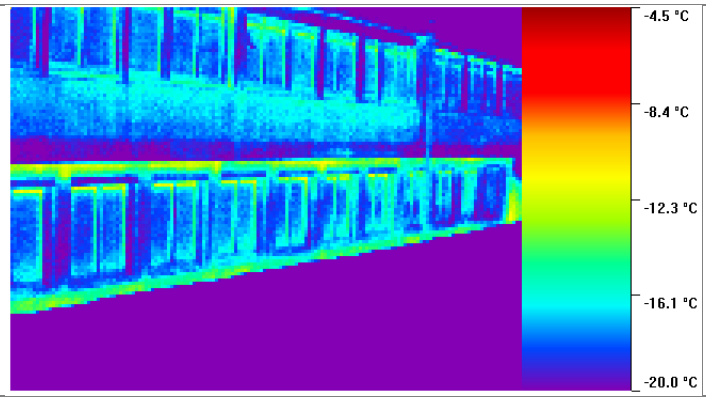
8. Window connection steel girder, Lindfeld gym-hall

The supporting structure of the gymnasium consists of solid steel girders, which are not insulated on the outside. One can clearly see the thermal bridges at the window connection to the girder and the roof construction. The girder should be insulated in the course of a facade renovation.



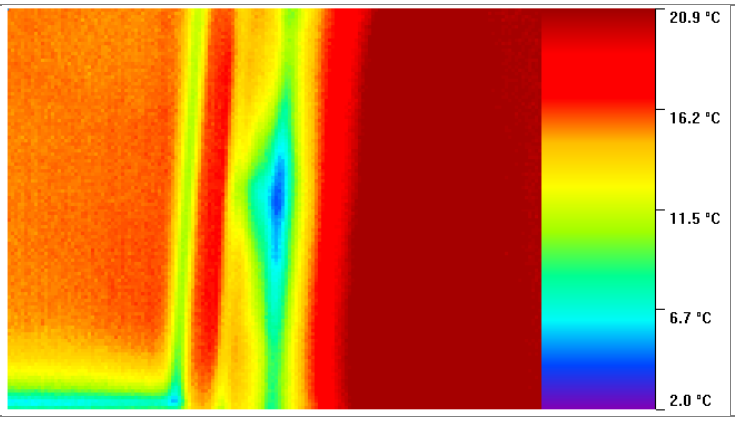
9. Window West, gym-hall Lindfeld

Here you can see the facade of the gym again. The thermal bridge to the steel beam is clearly visible. Also under the upper facade cladding an enormous heat accumulation can be seen.



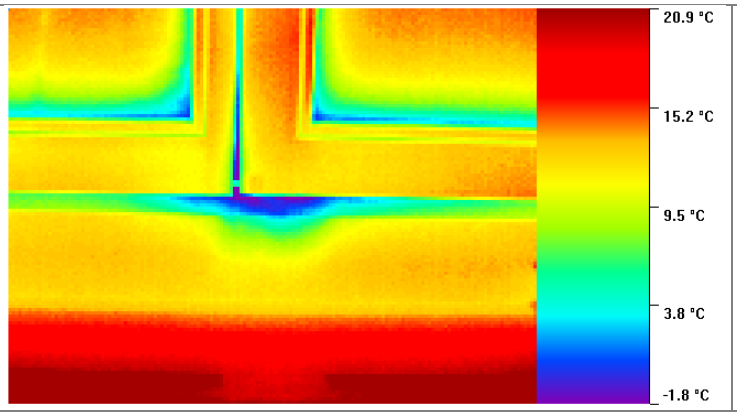
10. View East, VS

Here you can see the eastern facade of the elementary school. There are slightly increased surface temperatures above the window front on the ground floor.



11. Window connection inside, classrooms EG SO, NMS

The picture shows the lateral window connection to the inner wall in a classroom on the ground floor of the NMS. You can clearly see a leak in the area of the connection joint



12. Window detail, classroom EG SO, NMS

This picture shows the lower middle part of a double sash window in the same classroom. Here, too, you can see clear leaks in the sealing plane. There is a radiator under the window sill. The window seal and the closing mechanism should be checked.