

Thermographic analyses of wood-fired systems

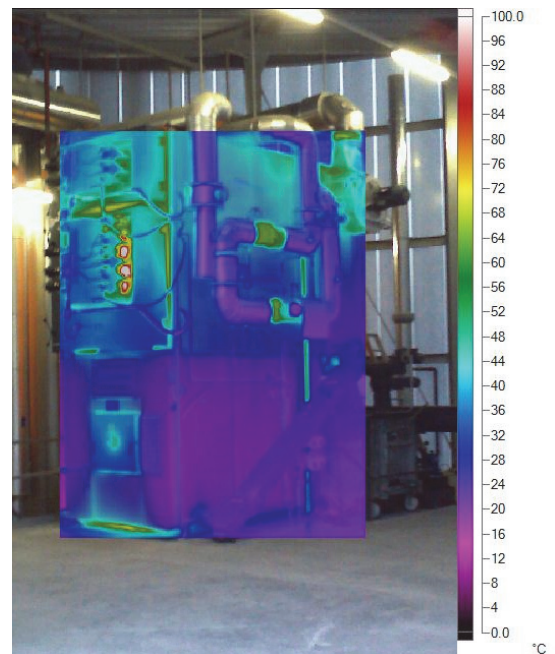
Initial conditions

In the context of a collaborative KTI project, IEFE examined four wood-fired systems with Schmid AG. The goal of the examination was to increase the overall efficiency by lowering the amount of heat loss due to free surfaces in the cladding. For this purpose, the thermal radiation, free convection, and heat conduction into the floor was determined. To determine the surface temperatures, thermal images were taken of all facilities and then validated using surface temperature measurements.

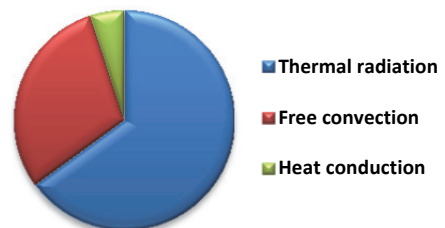
Results of the analysis

The results indicate that the loss in the examined facilities is lower than previously assumed. The average Total loss is 1.02 % of the nominal thermal capacity. Of this loss, 65 % constitutes of heat radiation, whereas 30 % constitutes heat loss due to free convection. The remaining 5 % constitute heat transfer into the floor.

Suggestions for enhancement were developed based on the collected data and submitted to Schmid AG. The company will decide which of the suggested measures will actually be implemented.



Thermal images of a plant
with a heat output of 900
kW



Distribution of total heat loss

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