

COMPARISON OF HEAT FLOW INTO A BUILDING WITH DIFFERENT ROOF INSULATION TREATMENTS¹

	Steel sheet roof without any insulation ²	Steel sheet roof with THERMACOAT coating ³	Steel Sheet roof with 25 mm insulation ⁴	Steel sheet roof with a <u>minimum</u> 100 mm Styrofoam (extruded) ⁵	Steel sheet roof with THERMACOAT coating and 25 mm insulation ⁶
Solar radiation	1000	1000	1000	1000	1000
Solar absorptivity as	0.4	0.19	0.4	0.4	0.19
Absorbed solar radiation W/sm	400	190	400	400	190
Roof outer temp. C	64.7	37	80.2	86	48.4
Roof inner temp. C	64.7	37	41.3	30	33
Natural convection heat loss W/sm	140	65	250.7	280.8	59.7
Radiation heat loss W/sm	56.8	107	90.2	101.2	107.3
Heat flow into building W/sm	193.6	18	59.1	18	16

¹ Data extracted from a technical report (with full text available on request) with format modified without changing or deleting any data

² A steel sheet roof with no insulation will allow a heat flow into the building of 193.6 W/sm.

³ A steel sheet roof with an application of THERMACOAT and no other insulation will reduce the heat flow into the building from 193.6 W/sm to 18 W/sm.

⁴ A steel sheet roof with a 25 mm layer of insulation will only reduce the heat flow into the building from 193.6 W/sm down to 59.1 W/sm.

⁵ A steel sheet roof will require a minimum of 100 mm of Styrofoam to reduce the heat flow from the building from 193.6 to 18 W/sm as achieved with application of THERMACOAT.

⁶ A further marginal reduction in heat flow from 18 W/sm to 16 W/sm from the building with a steel sheet roof can be achieved by also using 25mm insulation as well as application of THERMACOAT