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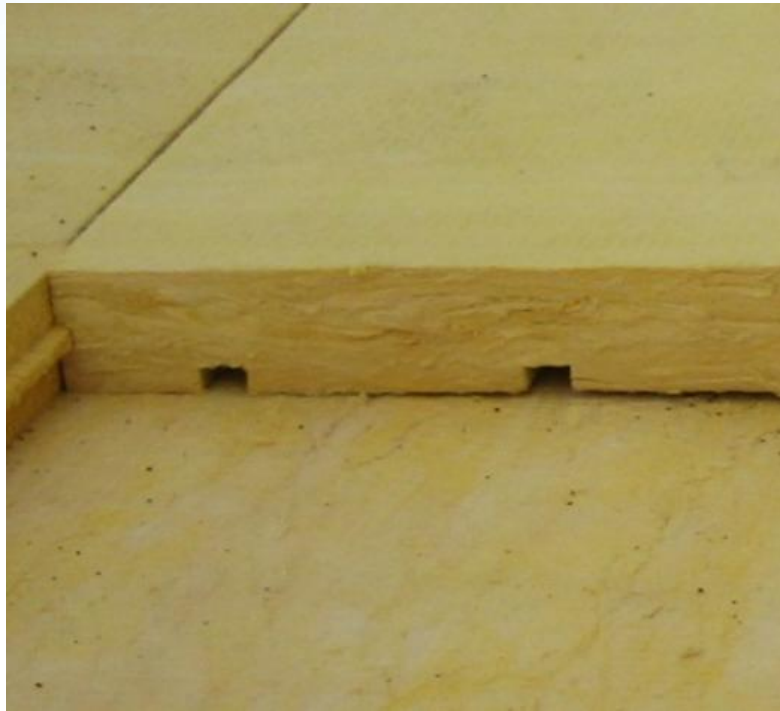
Technical analysis of moisture transfer qualities of mildly sloping roofs

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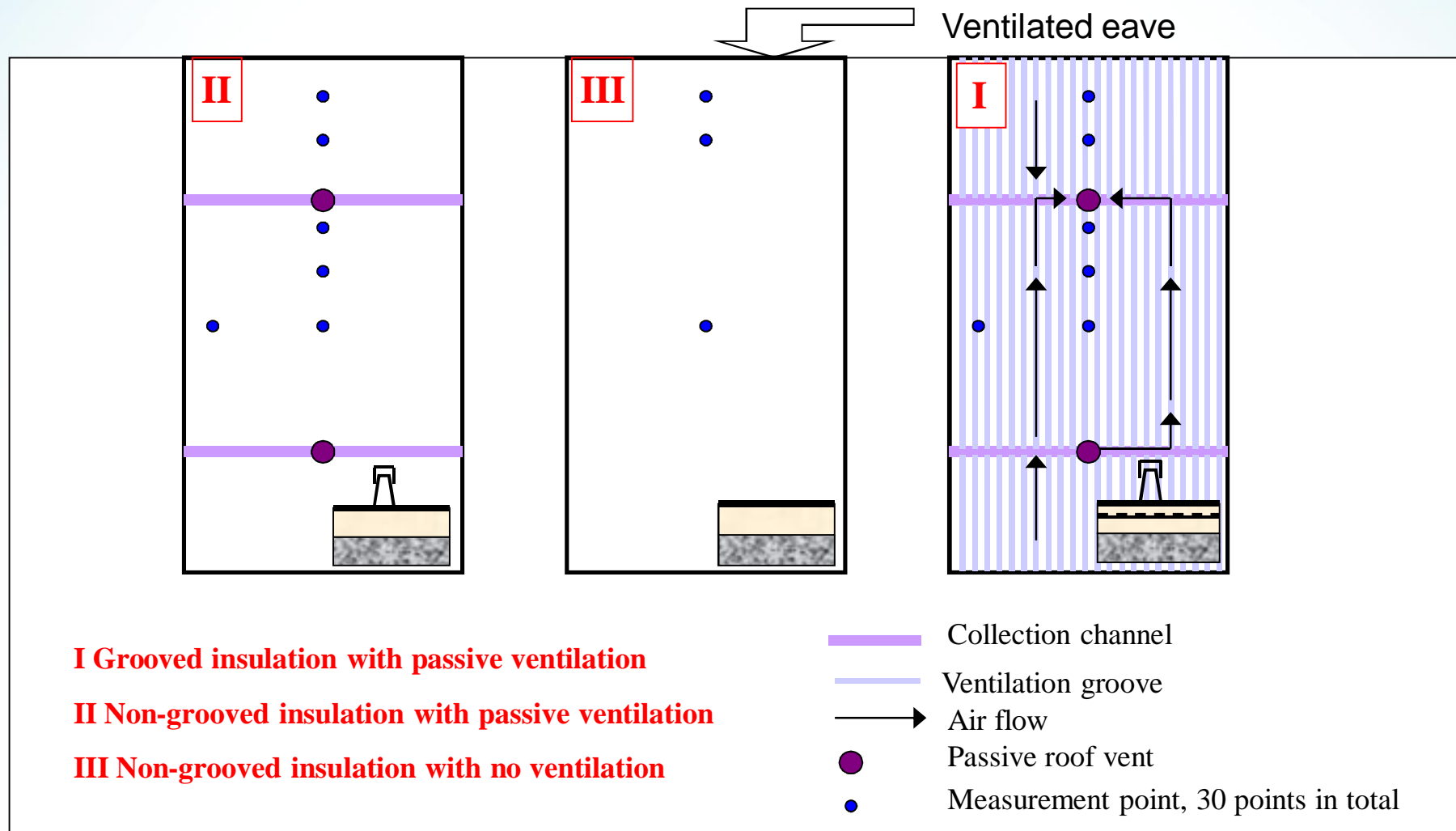
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- The research was funded by SAINT GOBAIN ISOVER LTD, FACTORY in HYVINKÄÄ, FINLAND
- The research target was the factory building's roof structure at the packing department expansion area.
- During the renovation construction, a heat insulation Isover OL-TOP-60/U (glasswool 60 mm) + OL-P-170 (glasswool 170 mm) and rubberized bitumen cover was placed on the old TT-tile.

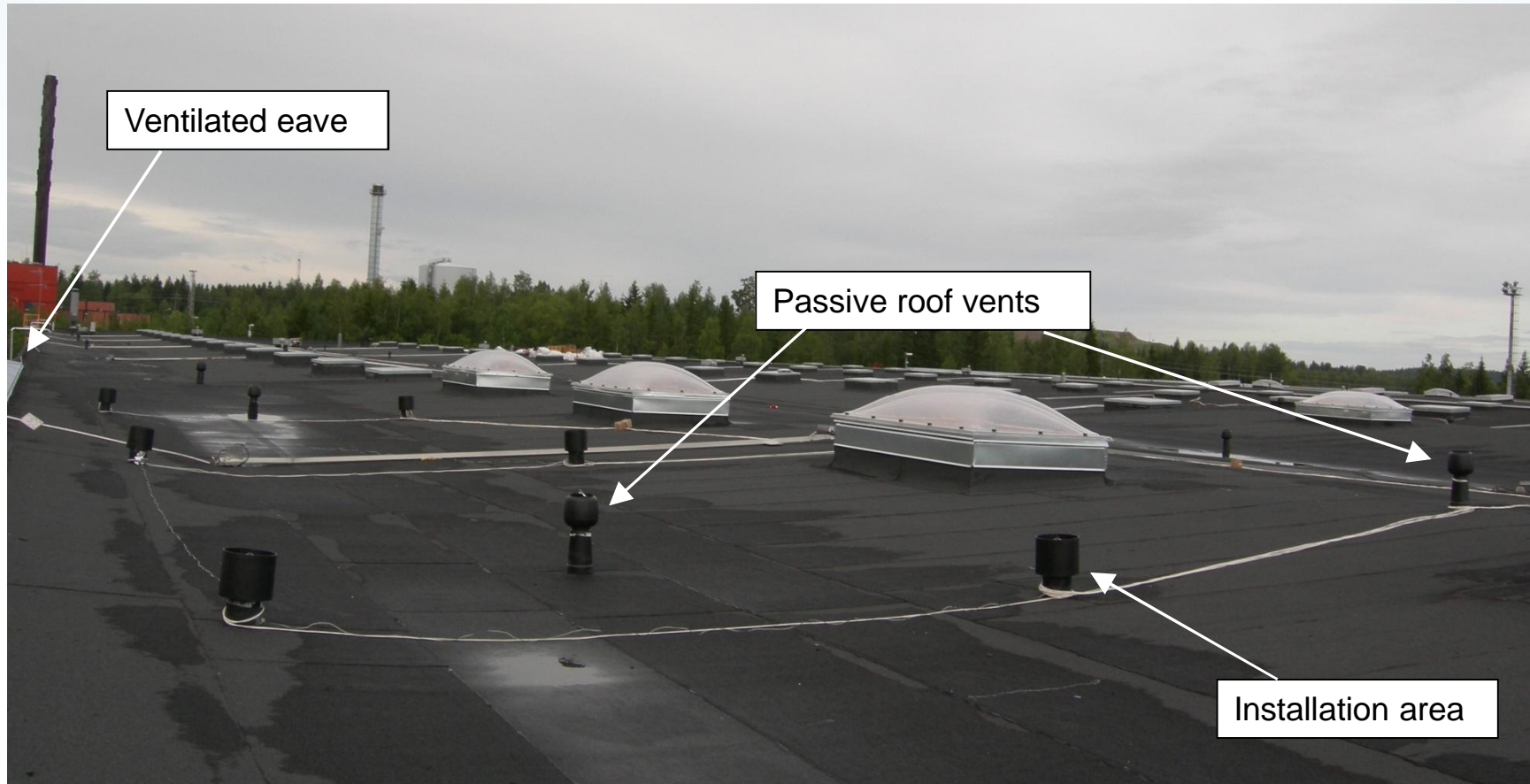
- The ventilated eaves on roof, three of size 4800 * 14000 survey areas, were closed off. The surveys cases were:
- I) Also in other places on the roof, the upper insulation board with ventilation grooves have been used: depth 12 mm, width 15 mm, Additionally the area has collector channels and two passive roof vents, the collector is 25*100 mm².
- II) Both insulation boards are without grooves. The survey area has two passive roof vents.
- III) No ventilation grooves or passive roof vents.



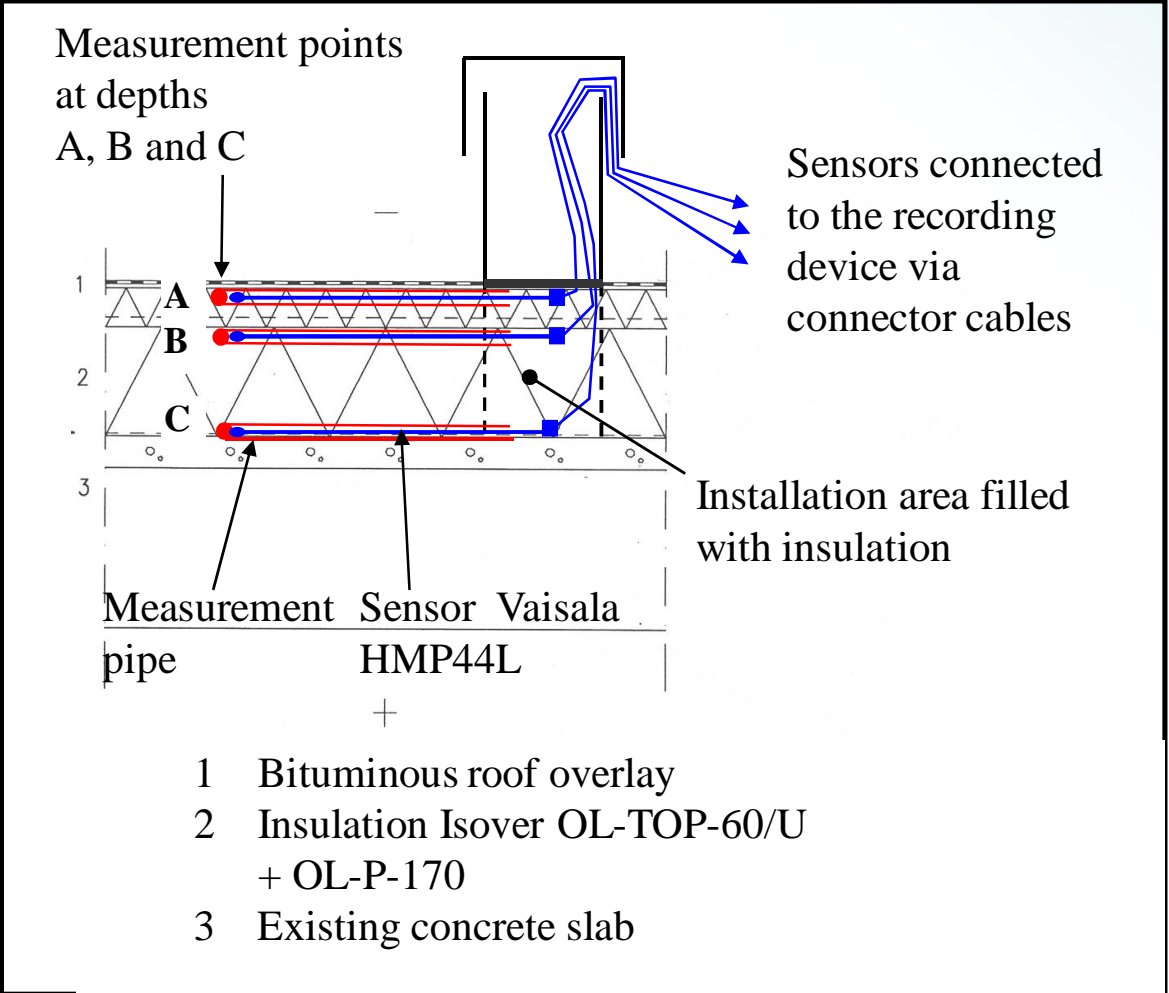
MEASUREMENT ARRANGEMENTS



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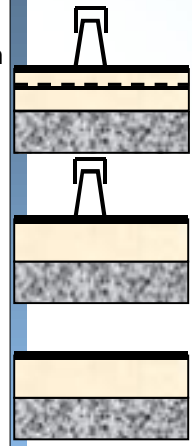
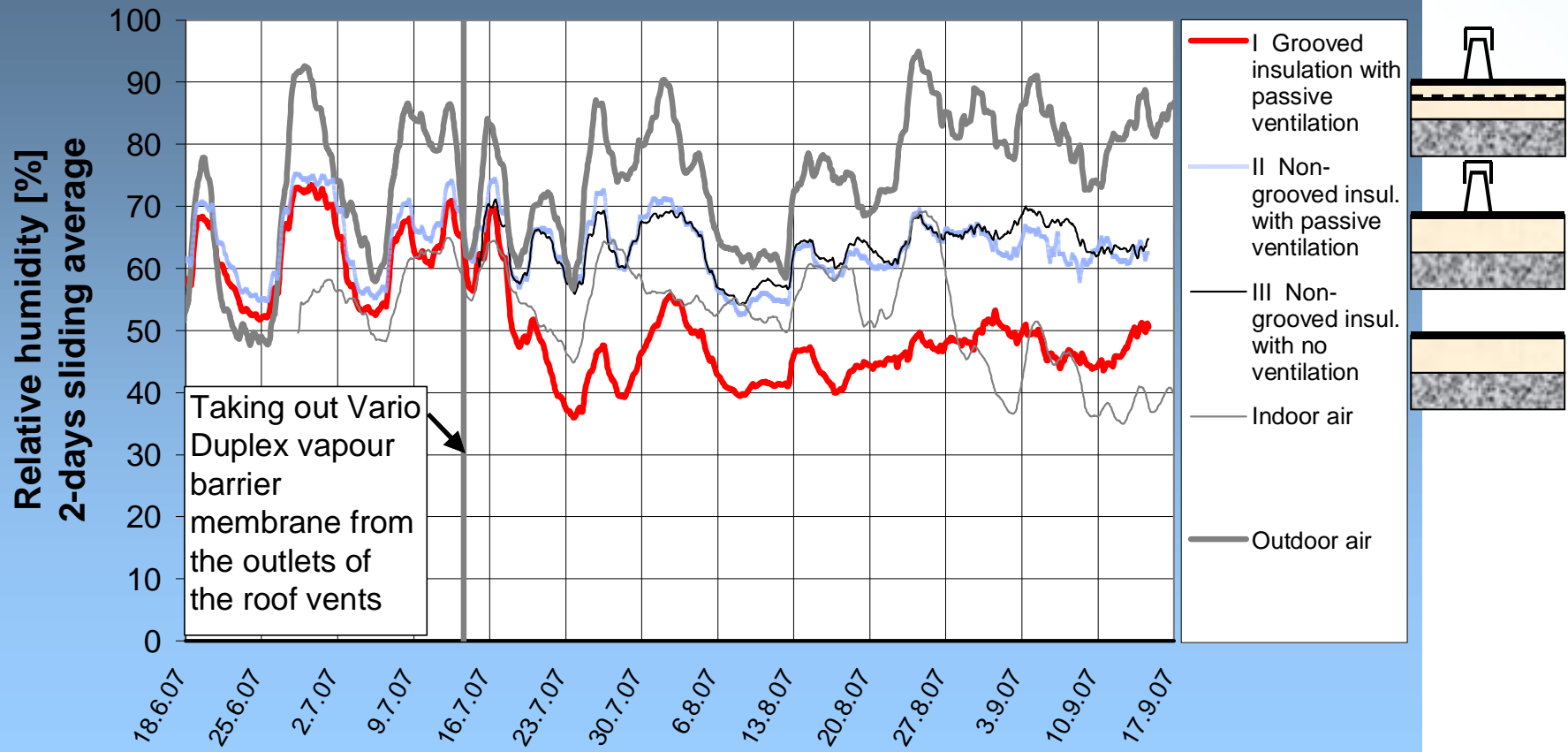
MEASUREMENT ARRANGEMENTS



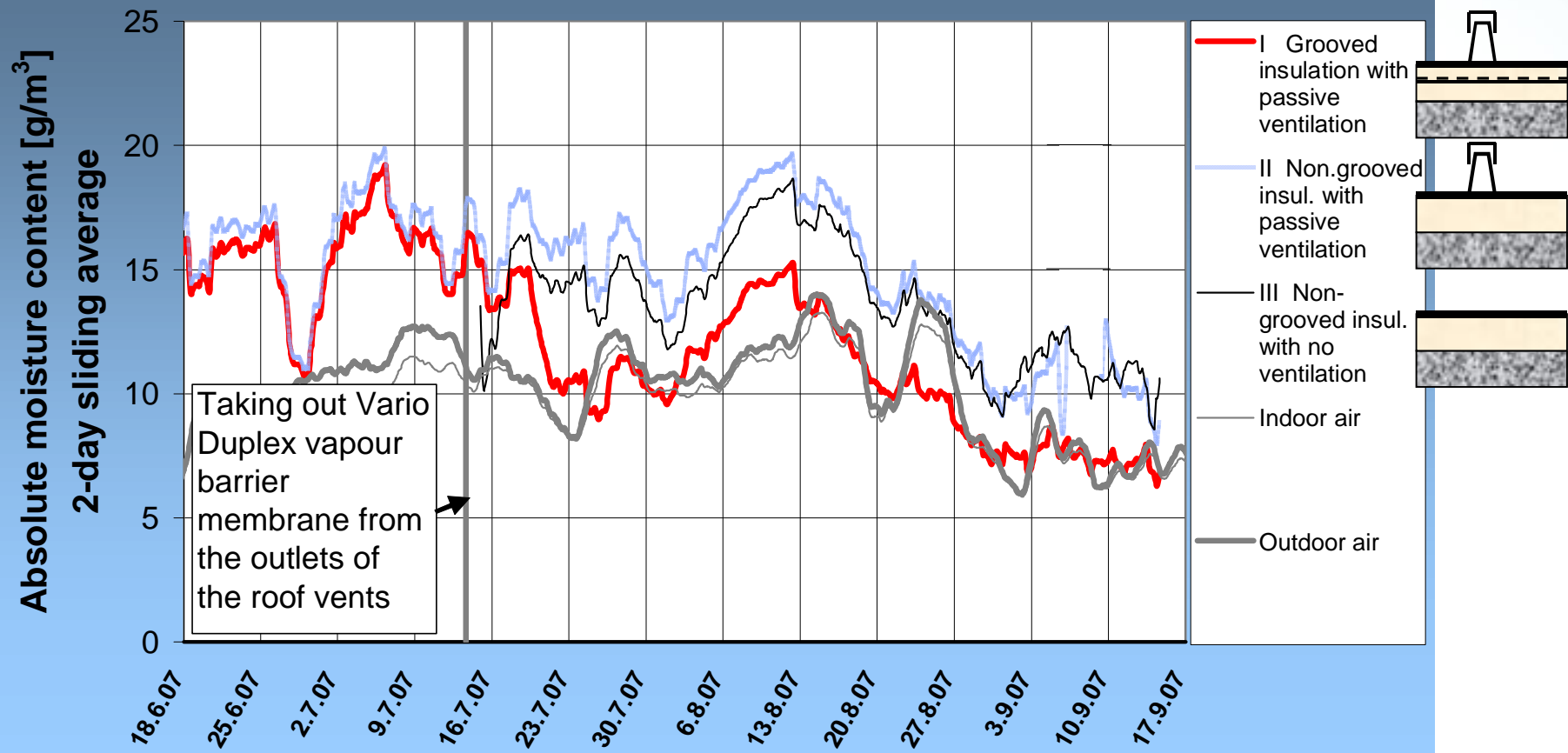
RELATIVE HUMIDITY IN THE VARIOUS ROOF STRUCTURES



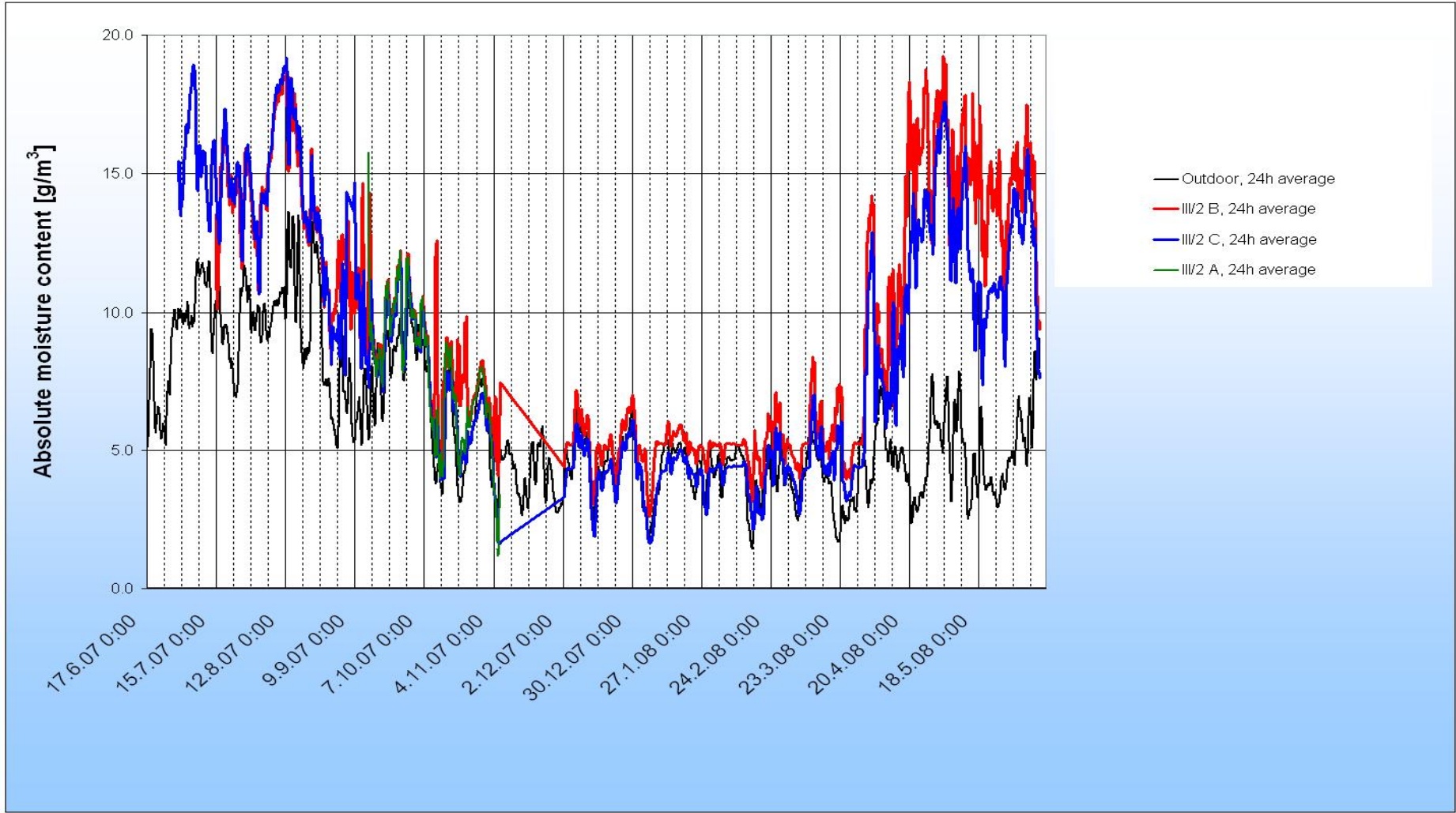
RELATIVE HUMIDITY OF AIR AT MEASUREMENT POINT 2B, HALF-WAY BETWEEN ROOF VENTS AT THE GROOVE DEPTH



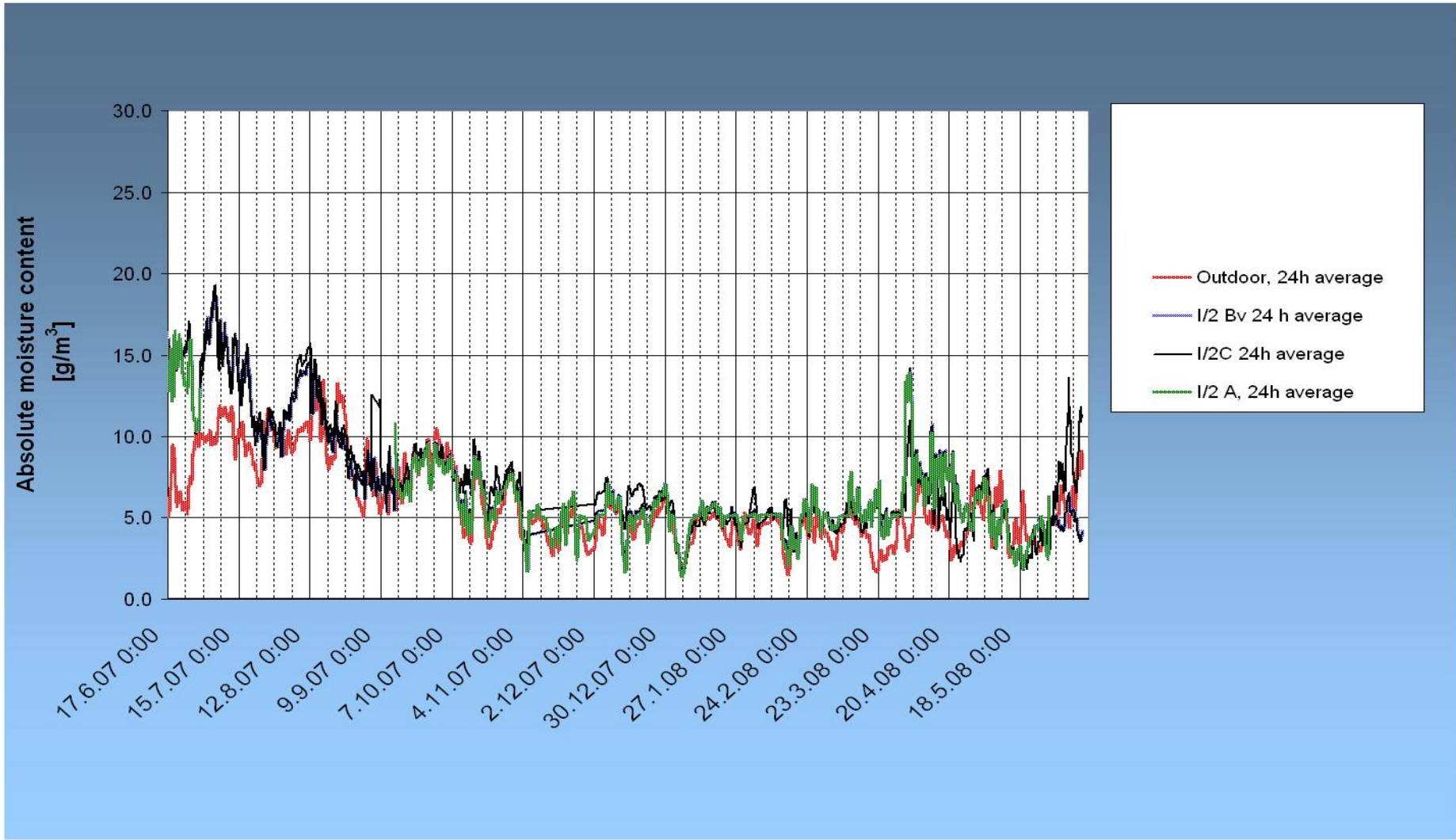
WATER VAPOUR CONTENT OF AIR AT MEASUREMENT POINT 2B, HALF-WAY BETWEEN ROOF VENTS AT THE GROOVE DEPTH



The absolute moisture content values between 17 June 2007... 11 June 2008 taken from the non-ventilated solid glasswool structure from points 2A, 2 B and 2 C.



Absolute moisture content values between 17 June 2007 ... 11 June 2008 taken from the ventilated grooved glasswool structure from points 2A, 2 Bv (between the grooves) and 2 C. Roof vents opened 14.07.2007.



Conclusions

- The moisture content of roof structure with insulation board with ventilation grows reached the outdoor moisture level in few weeks, but in the non-ventilated structure the small amount of moisture left in the structure during construction was still in the structure after a year from starting the measurements.
- In such non-ventilated structure, where we don't have very much moisture capacity, it requires very careful rain protection during the construction period compared to the ventilated structure because of its poor humidity removal ability.
- Non-ventilated structure is also very sensitive to the smallest water leaks as the humidity removal from the structure is very slow.