

repair, and operation; (3) corrosion and rotteness resistance; (4) satisfactory operating efficiency when frost present.

The prototype was designed using a basic numerical tool. Drainages tubing were retained as they readily permitted one to meet the design requirements. One of the goals was to convince producers that such a simple design could spare them a substantial part of their yearly heating costs. The unit was assembled and calibrated in a greenhouse used for the experimental cultivation of hydroponic tomatoes and cucumbers during winter. The first series of tests, carried out between March to May, demonstrated that average efficiencies of $\eta=84\%$ and $\eta=78\%$ were obtainable with air volumetric exchanges rates of 0.5 and 0.9 change per hour, respectively, in a 576m³ greenhouse. Latent heat was found to play a major role in the overall heat transfer, contributing about 40% of the total energy exchanged in some situations.

In conclusion, with sufficient exchange area, simple heat exchangers can be economically used as dehumidifiers in several applications. The encouraging results presented and mentioned here demonstrate that yet other applications could be found for heat exchangers in sustainable development strategies.

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