

## **Experimental evaluation of an unglazed solar air collector for building space heating in Iraq**

The benefits of using an unglazed solar air collector (UTC) with a perforated absorber plate (PAP) are experimentally and theoretically investigated to evaluate this kind of collector under western Iraq climate conditions. The collector is inclined to 90° on the horizontal so that it can be easily placed on the wall of a building and to minimise its cost and weight. The thermal performance and economic characteristics of the collector are compared with other heating systems. The major results show that this type of collector offers advantages in economy and thermal performance under western Iraq climate conditions during both clear and cloudy winter days. In addition, the perforated flat plate absorber was effective and the UTC is effective in lowering both life cycle cost and energy used.