IMPLEMENTATION

Air leakages can be in several places of a building. Some of the common air leakage paths are: gaps in and around floors, leaky doors, pathways through floor/ceiling voids and then to the outside, gaps around windows, gaps at the ceiling to wall joint at the eaves, service penetrations through ceilings, vents penetrating the ceiling or floor, bathroom wall vents or extract fans, gaps around bathroom waste pipes, kitchen wall vents or extractor fan, gaps around kitchen waste pipes, gaps around floor to wall joints and gaps in/around electrical fittings.

The use of high quality materials and construction techniques will reduce air leakages. Preventive measures should be taken while construction to avoid air leakages. During construction, care should be taken to make sure there are no gaps in exterior building envelope or between conditioned and unconditioned spaces.

All air barrier components in the building envelope assembly should be clearly identified in construction documents. Design of joints, interconnections and penetrations should be simplified. Construction details should be easy to follow. Where penetration is inevitable, proper sealing should be provided to ensure air leakage is minimised. All external doors and openable windows must be sealed or caulked or gasketed in line with *Regulation 401.08: Sealing of doors and windows*.

Assessment of building envelope air leakage involves establishing a pressure differential across the envelope and measuring the air flow required to achieve that differential. This is normally achieved by utilising variable air flow portable fans which are temporarily installed in doorway or at suitable external opening (as shown in fig. 501.05(1)).

Fig. 501.05(1): Air Leakage Testing

Primary components for a air leakage test are : calibrated variable speed fan, a pressure measurement instrument called a manometer and a mounting system. The variable speed fan should be capable of inducing a range of airflows sufficient to pressurise and depressurise a variety of building sizes. The manometer should simultaneously measure the pressure differential induced across the face of the fan and across the building envelope as a result of fan airflow.