elements penetrate through the fabric (around glazing) or where structure penetrates through the envelope (balconies). Poor design or poor workmanship can be responsible for thermal bridges.

Thermal bridges must be eliminated to reduce the amount of heat transfer. Thermal bridges may be avoided with a suitable structural composition and through adequate insulation. The most effective way to minimise the thermal bridges occurring where structural components penetrating the insulation layer is to thermally separate the exterior structure from the interior structure. Thermal insulation reduces the conductive heat flow through the building envelope and reduce the energy consumption associated with cooling.

Design elements of the insulation are critical for its performance. This include its location within walls and roofs, its sequencing with respect to other layers in assembly, its interface with surrounding or penetrating materials and the continuity within and between insulating components. Providing a continuous layer of thermal insulation covering the entire external wall (fig. 501.02(1)) is an efficient way to avoid thermal bridges.

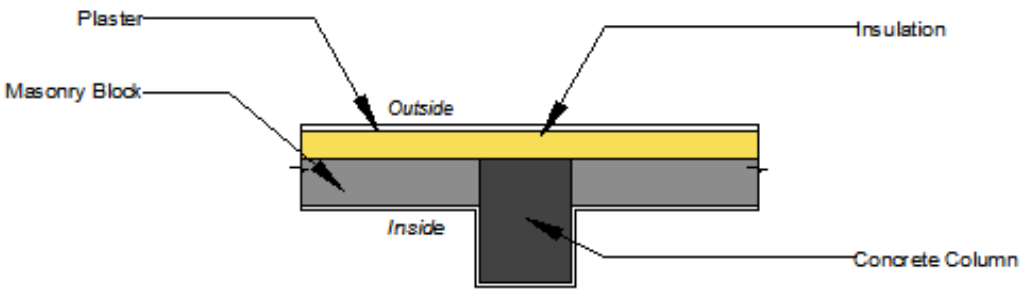

Fig. 501.02(1): Layout of Continuous Insulation

If continuous insulation cannot be provided, then all the areas where thermal bridges occur should be insulated individually (fig. 501.02(2)).

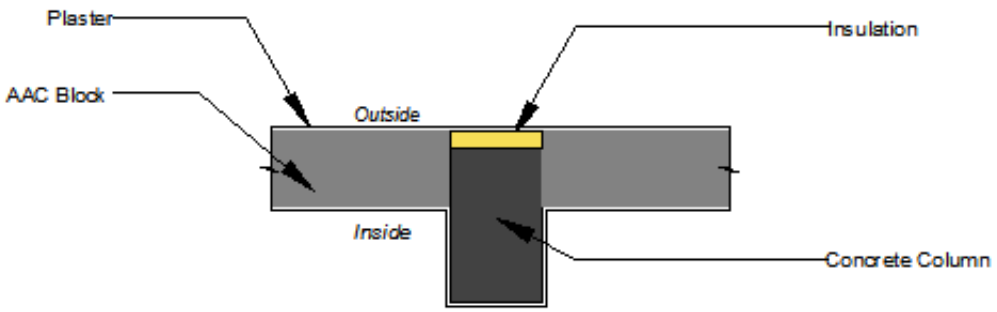

Fig. 501.02(2): Thermal Bridges with Local Thermal Insulation