

## PALESTINE

### Case Study: The Church of the Nativity in Bethlehem

Among the early Christian basilicas, the Church of the Nativity in Bethlehem is one of the oldest in the world. It was built at the beginning of the 6th century at the place of an earlier church, slightly different in plan, again with a five-fold nave, incorporating parts of the old structure. Its basic substance has remained unchanged until today.

In the 15<sup>th</sup> century, timber for the repair and probably lead for covering the roof structure were shipped from Venice to the Holy Land. In the course of time the lead plates were covered with bituminous felt and recently with a white plastic coating.

Today the Church of the Nativity still suffers from penetrating rainwater and from condensation caused by the interior humidity. The timber construction is partially rotten; some of the structural members are about to collapse. The rainwater flows down from the roof, washes out the walls, disfigures their mosaics and loosens the tesserae. It also detaches large areas of the wall plaster. Rain puddles on the floor damage remains of mosaics even here.

In February 1997 we carried out extensive examinations of both the roof and the walls. We used a moveable scaffolding and temporarily inserted wooden planks into the timber construction of the roof, which is open downwards. In this way we were able to map the damage systematically and to gain an almost complete overview of the state of the roof and its covering. For laboratory analysis we took samples of the joint mortar, wall plaster, roof covering and construction wood. We also drew up a report on the physical and climatic conditions of the building's interior.

Our recommendations follow the principle to repair as much as necessary, but as little as possible. We worked out plans for a careful and cautious improvement and repair of the timber roof. We provided an adequate number of ventilation holes in the roof sheeting.

We recommended removing and cleaning the old lead plates, after which they be melted and, in a sand bed, new ones be re-cast out of the melted lead. We found out that parts of the loosened plaster can be fixed back to the walls and other parts are to be replaced. Further recommendations concern a roof and ground drainage system, lightning protection and the repair of the windows.

It is high time but not too late for the repair of the Church of the Nativity in Bethlehem. Unfortunately, not only the present political situation impedes further activities. The fear of the owners, three Christian Churches, that the repair measures will infringe on their particular rights and undermine their finely balanced control of the church, is the greatest obstacle to the necessary repair work.

Fritz Wenzel

Lead plates covered with bituminous felt



Bethlehem, The Church of the Nativity, interior

Wall plaster damaged by penetrating rainwater and condensation

