

RISK ESTIMATE AND PROPOSAL OF MITIGATION METHOD ON EFFLORESCENCE CAUSED ON HISTORICAL BRICK MASONRY BUILDINGS REINFORCED WITH CONCRETE

Seismic reinforcement of historical brick masonry buildings in Japan is commonly achieved through the application of concrete components. However, the use of concrete has been related to the accumulation of alkali salts on external brickwork, resulting in accelerated decay of original masonry. In this study, to design the mitigation method for efflorescence of historical brick masonry buildings reinforced with concrete, the flowchart for mitigating efflorescence was proposed and the efflorescence risk of actual brick masonry building was estimated by using it.

Concretely, features on the brickwork, weather conditions, and environmental conditions around the site were grasped, and numerical simulation of water movement in the brickwork was performed. As a result, heavy efflorescence is actually observed on the parts that efflorescence risk was estimated to be high.

In addition, mitigation method of efflorescence was proposed and the effect was verified by accelerated test using model wall specimen and numerical simulation of water movement. It was considered that efflorescence could be mitigated by constructing reliable insulation layer of moisture between brick masonry wall and reinforced concrete.