

Contribution of the stone department of laboratoire de recherche des monuments historiques to the restoration project of the cathedral Notre-Dame in Paris, France

Véronique Vergès-Belmin, Lise Leroux, Jérémy Hénin

Laboratoire de recherche des monuments historiques, Champs-sur-Marne, France

On April 15, 2019, a fire destroyed the roof and part of the vaults of Notre-Dame cathedral. A huge recovering, sorting and referencing task of stones originating from the collapsed vaults immediately began after the fire. On the basis of field observations, 80 blocks were selected and taken to the laboratory for various purposes: (i) petrographic, petrophysical and mechanical characterization for substitution or reuse, (ii) identification of the types and adhesion of the mortars still attached to their faces, (iii) cleaning tests and assessment of fire damage. Since lead pollution is a major problem at Notre-Dame, any cleaning carried out either on isolated objects or on stone structures must be associated with a reduction in lead quantities. Tests were performed to that aim in two chapels at 2019 fall. The results of the cleaning tests were fairly easy to evaluate, but the reduction of lead levels was not easy to quantify, due to the presence of lead as a constituent element in some of the works of art in the cathedral.