

Safeguarding Glasgow's stone built heritage skills and materials requirements : facade surveys and building stone analysis

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Abstract/Summary

This report presents the results of a study commissioned by the Scottish Stone Liaison Group on behalf of Scottish Enterprise Glasgow (SEG). The work was undertaken in order to provide data on the quantities of replacement building stone and the amount of time and skills levels required for stone masons, for the repair and maintenance of the stone built heritage of the City of Glasgow over the next twenty years (2006 to 2026). The study was undertaken by the British Geological Survey, overseen by an external project director and guided by a project Steering Group appointed by the Scottish Stone Liaison Group. This study is Project B: 'Buildings Health Check', forming part of the project 'Safeguarding Glasgow's Stone Built Heritage: Skills and Materials Requirements'. The project is funded by Scottish Enterprise Glasgow, with contributions by Glasgow City Council. The work has involved the survey of the facades of over 230 traditional stone buildings and monuments in Glasgow in order to assess the amount, type and severity of stone decay. In order to do this, a methodology was developed which involved the use of rectified digital images overlaid with measured areas of different stone decay categories. Calculation of stone quantities and stonemason requirements was undertaken by an external consultant appointed by the Steering Group. A range of buildings of different type, facade orientation, stone type and from different parts of the city were included in order to ensure that the sample of surveyed buildings is representative of Glasgow's stone heritage.

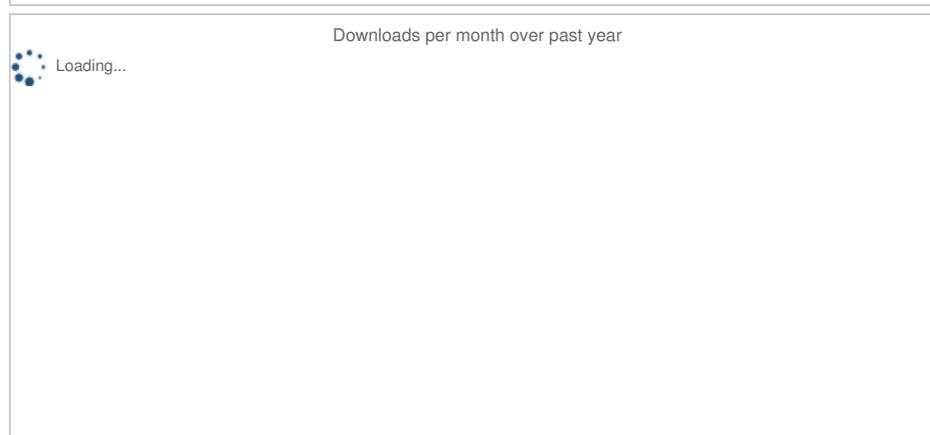
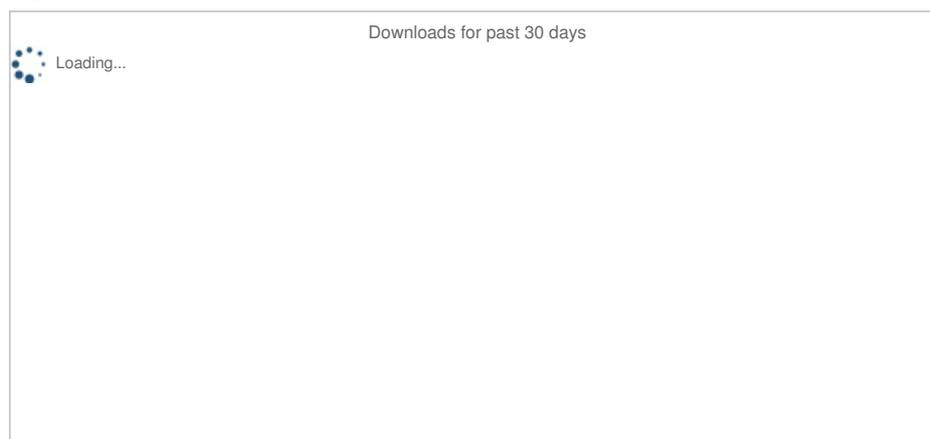
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1. National Stone Centre Wirksworth UK. 2. School of Natural and Built Environments Barbara Hardy Institute, University of South Australia Adelaide Australia. About this paper. Cite this paper as: Thomas I.A., Cooper B.J. (2015) Hierarchical Approaches Toward Safeguarding Heritage Building Stone Resources in England and Wales. In: Lollino G., Manconi A., Guzzetti F., Culshaw M., Bobrowsky P., Luino F. (eds) Engineering Geology for Society and Territory - Volume 5. Springer, Cham. The influence of design requirements on the durability of porous building stones used in façades. A case study A. Bernabeu, M.A. García del Cura. Pg 34. Santa Engrácia National Pantheon (Portugal): the Stones and Pathologies C. Figueiredo, L. Aires-Barros, A. Dionísio, F. Correia, C. M. Soares, M.J. Neto, L.V. Mendonça, J.S. Rodolfo. Pg 36. Urban particulate pollution that results from the use of fossil fuels has a long history of affecting stone buildings and monuments in the UK. Where the nature of the particulate itself has evolved from being coal derived industrial and domestic sources to being dominated from those resulting from vehicular sources, primarily diesel, they both have negative effects. Building stones should be capable to resist the adverse effects of natural forces like wind, rain and heat. It must be durable and should not deteriorate due to the adverse effects of the above natural forces. 3. Hardness. Building stones should be tough enough to sustain stresses developed due to vibrations. The vibrations may be due to the machinery mounted over them or due to the loads moving over them. The stone aggregates used in the road constructions should be tough. 5. Specific Gravity. The more the specific gravity of stone, the more heavier and stronger the stone is. Cost is an important consideration in selecting a building material. Proximity of the quarry to building site brings down the cost of transportation and hence the cost of stones comes down. 12. Fire Resistance.