Bauinstandsetzen Restoration Und Baudenkmalpflege Of

Diese Ausgabe des Mauerwerk-Kalenders widmet sich schwerpunktmäßig dem Bauen im Bestand. Von Untersuchung und Bewertung bis hin zu Sanierung und Verstärkung werden alle wesentlichen Aspekte abgehandelt. Außerdem wird ausführlich auf bauphysikalische Belange wie Feuchteschutz und Brandschutz im Rahmen von Sanierungen eingegangen. Als Ergänzung zum Mauerwerk-Kalender 2012, der den Schwerpunkt Eurocode 6 hatte, werden umfangreiche Erläuterungen und Anwendungshilfen zum Teil 1 – 2 des EC 6 inkl. NA (Heißbemessung) gegeben. Des Weiteren werden wie gewohnt auch im 38. Jahrgang sämtliche zulassungsbedürftige Neuentwicklungen und die Baustoffeigenschaften aller Mauerwerksarten, Mauersteine und Mauermörtel mit der Aktualität eines Jahrbuches vorgestellt.

The Mogao Grottoes, a World Heritage Site in northwestern China, are located along the ancient caravan routes—collectively known as the Silk Road—that once linked China with the West. Founded by a Buddhist monk in the late fourth century, Mogao flourished over the following millennium, as monks, local rulers, and travelers commissioned hundreds of cave temples cut into a mile-long rock cliff and adorned them with vibrant murals. More than 490 decorated grottoes remain, containing thousands of sculptures and some 45,000 square meters of wall paintings, making Mogao one of the world’s most significant sites of Buddhist art. In 1997 the Getty Conservation Institute, which had been working with the Dunhuang Academy since 1989, began a case study using the Late–Tang dynasty Cave 85 to develop a methodology that would stabilize the deteriorating wall paintings. This abundantly illustrated volume is the definitive report on the project, which was completed in 2010.

Long-Term Performance and Durability of Masonry Structures: Degradation Mechanisms, Health Monitoring and Service Life Design focuses on the long-term performance of masonry and historical structures. The book covers a wide range of related topics, including degradation mechanisms in different masonry types, structural health monitoring techniques, and long-term performance and service life design approaches. Each chapter reflects recent findings and the state-of-the-art, providing practical guidelines. Key topics covered include the theoretical background, transport properties, testing and modeling, protective measures and standards and codes. The book's focus is on individual construction materials, the composite system and structural performance. Covers all issues related to durability, including degradation mechanisms, testing and design, monitoring and service life design Focuses on different masonry construction types Presents a ‘one-stop’ reference for advanced postgraduate courses that focuses on the durability of masonry and historical constructions

It has become obvious that public policy will play a critical role in determining what portion of our architectural heritage will be passed on to future generations and what portion will be lost to deterioration, development, and natural hazards. In developed nations, as much as 10% of the built environment is deemed of sufficient cultural and historic importance to be given local or national listing. At the international level, UNESCO maintains a World Heritage List that includes many stone monuments. While the past two decades have witnessed a growing body of research devoted to understanding the fundamental mechanisms of damage to stone and to developing strategies for the conservation of stone, virtually no research has been conducted on the quantification of the economic role of stone buildings and structures as well as the valuation of cultural property. In order to introduce the tools and methods of economic analysis to the public policy debate on the preservation of cultural property, a multidisciplinary team of physical scientists worked with social scientists to explore how societal, economic, and ethical considerations might be integrated with technological options to lead to informed policy decisions. Recognizing that economic analyses must rest on firm technical data and sound conservation options, the state of our knowledge of mechanisms and rates of damage, the diagnosis of condition, and the evaluation of treatment options were subjected to critical review; special attention was given to the identification of promising, innovative areas of research. This volume represents an important first step in rationalizing the decision-making process for the setting of public policy in the preservation of our architectural heritage. It will be of interest not only to those actively engaged in research and conservation on stone structures, but also to those concerned with urban planning, public policy, economic analysis, and environmental standards setting. Goal of this Dahlem Workshop: to identify critical gaps in our knowledge of the deterioration mechanisms for treated and untreated historically important stone; to suggest innovative approaches to the study of deterioration mechanisms and novel remedial measures for treated and untreated historically important stone; and to address the socioeconomic factors that determine preservation actions for our architectural heritage.

Coping with Biological Growth on Stone Heritage Objects: Methods, Products, Applications, and Perspectives offers hands-on guidance for addressing the specific challenges involved in conserving historical monuments, sculptures, archaeological sites, and caves that have been attacked and colonized by micro- and macroorganisms. The volume provides many case studies of removal of biological growth with practical advice for making the right choices. It presents detailed and updated information related to biocides and to alternative substances, features that will be valuable to dealing with these challenges. The author’s goal is to provide access to information and offer the conceptual framework needed to understand complex issues, so that the reader can comprehend the nature of conservation problems and formulate her/his own views. From bacteria to plants, biological agents pose serious risks to the preservation of cultural heritage. In an effort to save heritage objects, buildings, and sites, conservators’ activities aim to arrest, mitigate, and prevent the damages caused by bacteria, algae, fungi, lichens, plants, and birds. Although much has been learned about these problems, information is scattered across meeting proceedings and assorted journals that often are not available to restorers and conservators. This book fills the gap by providing a comprehensive selection and examination of international papers published in the last fifteen years, focusing on the appropriate methods, techniques, and products that are useful for the prevention and removal of micro- and macroorganisms that grow on artificial and natural stone works of art, including wall paintings. Results on new substances with antimicrobic properties and alternative methods for the control of biological growth are presented as well. The book also emphasize issues on bioreceptivity of stones and the factors influencing biological growth and includes an outline of the various organisms able to develop on stones, a discussion on the bioprotection of stones by biofilms and lichens, a review of the main analytical techniques, and a section on bioremediation. This volume will be a valuable reference for cultural heritage conservators and restorers, scientists, and heritage-site staff involved in conservation and maintenance of buildings, archaeological sites, parks, and caves.

This book presents advanced methods to analyse and clean pollutants, such as nanotechnology to treat water, techniques to remediate building materials, and bioindicators. It is very important that the understanding of these methods are brought to the attention of scientists, as cities and ecosystems are still polluted by toxic compounds despite efforts to clean the planet.

First published in 1996, this volume has been substantially updated to reflect new research in the conservation of stone

monuments, sculpture, and archaeological sites.
Der Totentanz in der Berliner Marienkirche ist einer der letzten umfangreich am ursprünglichen Ort erhaltenen mittelalterlichen Totentänze nördlich der Alpen. Schon deshalb ist er als Quelle für diese Bildgattung unschätzbar. Aber auch im Vergleich mit anderen europäischen Totentänzen von Frankreich bis zur Adria besitzt das Berliner Werk einen weit über die Mark Brandenburg hinausreichenden künstlerischen Rang. Der reich bebilderte Band spiegelt das Panorama bisheriger Erfolge und Rückschläge bei der Restaurierung des Totentanzgemäldes von der Freilegung 1860 bis heute. Jüngst erfolgte Untersuchungen von Bauforschern, Kunsthistorikern und Restauratoren ermöglichen es, das mit einigen Verzerrungen überlieferte Bild von ihm zu korrigieren und noch im heutigen Bestand seine große künstlerische Qualität und ursprüngliche liturgische Bedeutung zu entdecken. Dabei wird erstmals deutlich, dass das Wandbild nur in der Beziehung zum Kirchenraum und seinem Anbringungsort in der Turmhalle zu entschlüsseln und zu würdigen ist. Nicht zuletzt enthält das Buch eine komplette Neuedition des spätmittelalterlichen Originaltextes – des ältesten Zeugnisses Berliner Literaturgeschichte. Die hier vorgestellten Beiträge bilden in ihrer Summe eine unverzichtbare Grundlage für die zukünftige Restaurierung und Präsentation des Berliner Totentanzes im Kirchenraum.
Raffaella De Luca, Miguel Angel Cau Ontiveros, Domenico Miriello, Alessandra Pecci, Emilia Le Pera, Andrea Bloise and Gino Mirocle Crisci, Archaeometric study of mortars and plasters from the Roman City of Pollentia (Mallorca - Balearic Islands) Fabio Fratini, Andrea Cagnini, Simone Porcinai, Paola Lorenzi and Stefano Pasolini, An unusual mortar with a magnesium binder in the Perseus of Giovan Battista Pieratti in Boboli Gardens (Florence) Alessandra Pecci, Almost ten years of plasters residue analysis in Italy: activity areas and the function of structures Cristiana Nunes, Zuzana Slížková and Dana K?ivánková, Lime-based mortars with linseed oil: sodium chloride resistance assessment and characterization of the degraded material Maria Elena Moschella, Walter Canavesio, Mariano Cristellotti and Emanuele Costa, Investigation about ancient mortars and plasters in the Mondovì cathedral (Cuneo, Italy) Vincenzina La Spina, Fabio Fratini, Emma Cantisani, Camilla Mileto and Fernando Vegas López-Manzanares, The ancient gypsum mortars of the historical façades in the city center of Valencia (Spain) Alessandra Bonazza, Chiara Ciantelli, Alessandro Sardella, Elena Pecchioni, Orlando Favoni, Irene Natali and Cristina Sabbioni, Characterization of hydraulic mortars from archaeological complexes in Petra Letizia Bonizzoni, Valentina Brunello and Simone Caglio, Scientific analyses beyond the excavation: studies for a non invasive preliminary approach Rossella Agostino, Germana Barone, Paolo Mazzoleni, Simona Raneri, Giuseppe Sabatino and Maria Maddalena Sica, Mortars and plasters from the Bruttii - Roman city of Taureana (Palmi, RC, Italy) - preliminary data Deodato Tapete, Fabio Fratini, Barbara Mazzei, Emma Cantisani and Elena Pecchioni, Petrographic study of lime-based mortars and carbonate incrustation processes of mural paintings in Roman catacombs Nadia Bianco, Angela Calia, Giampiero Denotarpietro and Pietro Negro, Hydraulic mortar and problems related to the suitability for restoration Sergio Sfrecola, Stefano Vassallo and Paola Parodi, Genoese “intonachino” plasters between the 12th and the 18th century: archaeometric analyses Claudia Pelosi, Ulderico Santamaria, Giorgia Agresti, Giulia De Vivo and Davide Bandera, Analysis and laboratory tests to evaluate the composition and the behaviour of some dehumidifying mortars used in the restoration field
This book covers a range of topics that are of increasingimportance in engineering practice: natural hazards, pollution, andenvironmental protection through good practice. The first half of the book deals with natural risk factors, ofboth natural and human origin, that should be considered:subsidence, accidental infiltration, soil instability, rockslidesand mudslides, debris flow, and degradation of buildings andmonuments due to pollution and climactic effects, for example.These problems are highlighted and it is shown that a combinationof sophisticated numerical techniques and extensive experimentalinvestigations are necessary in order to effectively tackle theseproblems. The second half of the book is devoted to the use of pollutedsites and associated problems, a topic of growing significancegiven the increasing reclamation of land from abandoned industrialsites for urban development over the last 20 years. Different typesof oil pollution and decontamination methods are described,followed by a discussion of waste management and detailed coverageof confinement liners used in surface waste disposal.
Despite the perception that artworks are timeless and unchanging, they are actually subject to biological attack from a variety of sources--from bacteria to fungi to insects. This groundbreaking volume, which publishes the proceedings of a conference held at The Metropolitan Museum of Art in 2002, explores how the development of these organisms can be arrested while preserving both the work of art and the health of the conservator.The richly illustrated text, containing the writings of over 40 scientists and conservators, is divided into sections on stone and mural paintings, paper, textiles, wood and archaeological materials, treatment and prevention, and special topics. The artworks and cultural properties discussed include, among many others, Paleolithic cave paintings, Tiffany drawings, huts built by early Antarctic explorers, and a collection of toothbrushes taken from Auschwitz victims. Neville Agnew, senior principal project specialist at the GCI, is the author of numerous publications in research chemistry and conservation, including (with two coauthors) the book Cave Temples of Mogao: Art and History on the Silk Road. --Book Jacket.
In this volume scientists from different disciplines present their experience and their scientific work in progress. These concern the properties of a series of stones that have been used for the erection of some of the most important stone monuments of international cultural heritage and are also used today for substitution of missing parts or completion of damaged ones. It deals with the subject globally and contains unpublished research results.
Structural Analysis of Historical Constructions. Anamnesis, diagnosis, therapy, controls contains the papers presented at the 10th International Conference on Structural Analysis of Historical Constructions (SAHC2016, Leuven, Belgium, 13-15 September 2016). The main theme of the book is “Anamnesis, Diagnosis, Therapy, Controls”, which emphasizes the importance of all steps of a restoration process in order to obtain a thorough understanding of the structural behaviour of built cultural heritage. The contributions cover every aspect of the structural analysis of historical constructions, such as material characterization, structural modelling, static and dynamic monitoring, non-destructive techniques for on-site investigation, seismic behaviour, rehabilitation, traditional and innovative repair techniques, and case studies. A special focus has been put on six specific themes: - Innovation and heritage - Preventive conservation - Computational strategies for heritage structures - Sustainable strengthening of masonry with composites - Values and sustainability, and - Subsoil interaction The knowledge, insights and ideas in Structural Analysis of Historical Constructions. Anamnesis, diagnosis, therapy, controls make this book of abstracts and the corresponding, digital full-colour conference proceedings containing the full papers must-have literature for researchers and practitioners involved in the structural analysis of historical

constructions.
Studies in Archaeological Conservation features a range of case studies that explore the techniques and approaches used in current conservation practice around the world and, taken together, provide a picture of present practice in some of the world-leading museums and heritage organisations. Archaeological excavations produce thousands of corroded and degraded fragments of metal, ceramic, and organic material that are transformed by archaeological conservators into the beautiful and informative objects that fill the cases of museums. The knowledge and expertise required to undertake this transformation is demonstrated within this book in a series of 26 fascinating case studies in archaeological conservation and artefact investigation, undertaken in laboratories around the world. These case studies are contextualised by a detailed introductory chapter, which explores the challenges presented by researching and conserving archaeological artefacts and details how the case studies illustrate the current state of the subject. Studies in Archaeological Conservation is the first book for over a quarter of a century to show the range and diversity of archaeological conservation, in this case through a series of case studies. As a result, the book will be of great interest to practising conservators, conservation students, and archaeologists around the world.
Die im November 2004 vom Fachverband Feuchte und Altbausanierung initiierten 15. Hanseatischen Sanierungstage befassten sich mit dem komplexen Bereich der Fassadeninstandsetzung. Das Buch versammelt dazu zahlreiche Aufsätze fachkundiger Autoren, die mit anschaulichem Bildmaterial und umfangreichen Grafiken Stellung nehmen. Aktuelle Forschungsergebnisse zu Planungen, Ausführungen, diagnostischen Arbeiten im Fassadenbereich und ausgewählte Fragen des Wärme- und Feuchteschutzes werden ebenso wie Rechtsprobleme und neueste Entwicklungen zur Mediation im Bauwesen sachverständig besprochen.
This book presents a state of the art in mortar characterisation, experimentation with and applications of new mortars for conservation and repair of historic buildings. This volume includes the following topics: characterisation of historic mortars (methods, interpretation, application of results), development of new materials for conservation (compatibility, durability, mix designs), the history of mortar technology and fundamental experimental studies of material properties. The papers have been selected from those presented at the 3rd Historic Mortars Conference, held in Glasgow, Scotland, September 11-14th 2013. All the papers here underwent a two stage peer review process, for the conference and again for this volume. In some cases this has resulted in a revision and updating of content.
Die meisten der Fachkollegen betreten bei der Altbauinstandsetzung ein unsiche res Terrain, auf dem sie sich heute freilich ungleich häufiger bewegen müssen als in früherer Zeit. Das Baugeschehen hat sich bekanntlich immer mehr vom Neu bau weg hin zur Instandsetzung von Altbauten entwickelt. Gleichwohl wurden und werden, damals wie heute, alle am Bau Beteiligten ausschließlich zur Errich tung neuer Gebäude ausgebildet. Das Reparieren und Wiederherstellen alter Bauten dagegen kümmert an den meisten Ausbildungsstätten, in einer Art Schat tendasein vor sich hin. Wie Feigenblätter verdecken einige Nebenfächer aus dem Bereich der Denkmalpflege diese durchaus peinlichen Lücken in den Lehrplä nen. In den letzten zwanzig Jahren ist dieser Mangel an Kenntnissen derart schmerzlich spürbar geworden, dass eine Vielzahl von Unternehmungen der Wei terbildung gegründet wurden. So wurde in den 1980er Jahren der Maurermeister zum Restaurator im Maurerhandwerk fortgebildet, die Architektenkammern haben ihren Mitgliedern immer wieder Seminare zum Thema Instandsetzung von Mauerwerk angeboten und mehrere private Vereinigungen haben sich der Besei tigung dieses Notstands verschrieben. Auch die Werkstätten der Denkmalämter haben sich dem Thema Fortbildung durchaus erfolgreich angenommen, außer dem führten die Universitäten Autbaustudiengänge Denkmalpflege ein. Ein besonderes Gewicht wurde in der Forschung auf die Erkenntnis von Ur sachen des Stein- und Mauerwerkzerfalls gelegt und daraus ein vielfältiges In strumentarium des Stein-und Mauerwerkerhalts abgeleitet. Die schier unüber schaubare Fülle dieses Instandhaltungsszenarios hat die Praktiker jedoch oftmals vor unüberbrückbaren Verständnishürden stehen lassen. Es fehlte zumeist die Transformierung schwieriger wissenschaftlicher Zusammenhänge in die Erkennt niswelt der Praktiker.
One distinct feature of human society since the dawn of civilization is the systematic use of inorganic building materials, such as natural stone, unburnt and burnt soil, adobe and brick, inorganic binders like lime and cement, and reinforced concrete. Our heritage has cultural, architectural and technological value and preserving such structures is a key issue today. Planners and conservation scientists need detailed site surveys and analyses to create a database that will serve to guide subsequent actions. One factor in this knowledge base is an understanding of how historic materials were prepared and the crucial properties that influence their long-term behaviour. Any assessment of the way such materials perform must crucially be based on an understanding of the methods used for their analysis. The editors here add to the knowledge base treating the materials used in historic structures, their properties, technology of use and conservation, and their performance in a changing environment. The book draws together 18 chapters dealing with the inorganic materials used in historic structures, such as adobe, brick, stone, mortars, concrete and plasters. The approach is complex, covering material characterisation as well as several case studies of historic structures from Europe, including Germany, Ireland, Italy, Poland, Portugal, Scotland, Slovenia and Spain, and the My Sõn Temples in Vietnam. An equally important component of the book covers the analysis of materials, together with a treatment of sustainable development, such as the protection of monuments from earthquakes and climate change. The authors are all leading international experts, drawn from a variety of backgrounds: architecture, civil engineering, conservation science, geology and material science, with close links to professional organisations such as ICOMOS or universities and research centres throughout Europe. Audience: This book will be of interest to geologists, engineers, restorers, consulting engineers, designers and other professionals dealing with cultural heritage and sustainable development. Also graduate students in applied geo-science (mineralogy, geochemistry, petrology), architecture and civil engineering will find interesting information in this book.

Structural Analysis of Historical Constructions contains about 160 papers that were presented at the IV International Seminar on Structural Analysis of Historical Constructions that was held from 10 to 13 November, 2004 in Padova Italy. Following publications of previous seminars that were organized in Barcelona, Spain (1995 and 1998) and Guimarães, Portugal (2001), state-of-the-art information is presented in these two volumes on the preservation, protection, and restoration of historical constructions, both comprising monumental structures and complete city centers. These two proceedings volumes are devoted to the possibilities of numerical and experimental techniques in the maintenance of historical structures. In this respect, the papers, originating from over 30 countries, are subdivided in the following areas: Historical aspects and general methodology, Materials and laboratory testing, Non-destructive testing and inspection techniques, Dynamic behavior and structural monitoring, Analytical and numerical approaches, Consolidation and strengthening techniques, Historical timber and metal structures, Seismic analysis and vulnerability assessment, Seismic strengthening and innovative systems, Case studies. Structural Analysis of Historical Constructions is a valuable source of information for scientists and practitioners working on structure-related issues of historical constructions
Containing the proceedings of the 14th Conference on Studies, Repairs and Maintenance of Heritage Architecture (STREMAH 2015), this book provides the necessary scientific knowledge required to formulate regulatory policies and to ensure effective ways of preserving the architectural heritage. First held in 1989, the STREMAH conference attracts an extensive range of quality contributions from scientists, architects, engineers and restoration experts from all over the world dealing with various aspects of heritage buildings. The conference proceedings cover a wide range of topics related to the historical aspects and the reuse of heritage buildings, as well as technical issues on the structural integrity of different types of buildings, such as those constructed with materials as varied as iron and steel, concrete, masonry, wood or earth. Material characterisation techniques are also addressed, including non-destructive tests via computer simulation. Other topics include: Surveying and monitoring; Performance and maintenance; Modern (19th/20th century) heritage; Maritime heritage; Simulation and modelling; Material characterisation; New technologies or materials; Corrosion and material decay; Seismic vulnerability; Assessment and re-use of heritage buildings; Heritage and tourism; Social and economic aspects in heritage; Guidelines, codes and regulations for heritage; Heritage management; Defence heritage; Industrial heritage; Transportation heritage.
This book presents the proceedings of the 14th International Probabilistic Workshop that was held in Ghent, Belgium in December 2016. Probabilistic methods are currently of crucial importance for research and developments in the field of engineering, which face challenges presented by new materials and technologies and rapidly changing societal needs and values. Contemporary needs related to, for example, performance-based design, service-life design, life-cycle analysis, product optimization, assessment of existing structures and structural robustness give rise to new developments as well as accurate and practically applicable probabilistic and statistical engineering methods to support these developments. These proceedings are a valuable resource for anyone interested in contemporary developments in the field of probabilistic engineering applications.
Cement-Based Composites takes a different approach from most other books in the field by viewing concrete as an advanced composite material, and by considering the properties and behaviour of cement-based materials from this stance. It deals particularly, but not exclusively, with newer forms of cement-based materials. This new edition takes a critical approach to the subject as well as presenting up-to-date knowledge. Emphasis is given to non-conventional reinforcement and design methods, problems at the materials' interfaces and to the durability of structures. High strength composites and novel forms of cement-based composites are described in detail. After a basic introduction the book explores the various components of these materials and their properties. It then deals with mechanical properties and considers characteristics under various loading and environmental conditions, and concludes by examining design, optimization and economics with particular emphasis on high-performance concretes. Researchers, graduate students and practising engineers will find this book valuable.
Proven and new material: for 33 years, this has been the practical compendium for masonry construction: basics, examples, commentaries on standards, up-to-date and first hand. Main themes for 2009: building of masonry, load-bearing capacity of existing buildings.
Prevention is an attempt to look into the future and have a positive influence on it – therefore it is one of the most important aspects in the area of collection care, the central, current field of applied research in conservation and restoration. With sustainability damage and loss are avoided, dangers averted and research conducted. Collection care is only successful, if the theory is appropriately implemented in museum practice.
Die 43. Aachener Bausachverständigentage befassen sich mit den Neuerungen in den Normen für Bauwerksabdichtungen. Sind damit alle Details bei den Dach- und Innenabdichtungen sowie die der erdberührten Bauteile praxisgerecht geregelt? Die Tagung behandelt nicht nur die Neuerungen nach den Einspruchssitzungen, sondern auch die weiterhin kontrovers diskutierten Punkte. So stellt sich bei Dachabdichtungen die Frage, ob nun die neue Flachdachrichtlinie 2016 gilt oder die neue DIN18531, die sich z.T. widersprechen. Bei den erdberührten Bauteilen ist zu klären, welche Wassereinwirkung auf der Unterseite von Bodenplatten in gering durchlässigem Baugrund tatsächlich zu erwarten ist und ob Dränanlagen nach DIN 4095 noch zeitgemäß oder sogar riskant sind. Neben den Abdichtungen werden auch neue Bauweisen von WU-Betonbauteilen mit außenliegenden Frischbetonverbundbahnen und die Schwächen von Abdichtungen mit Schutzestrich in Parkhäusern und Tiefgaragen im Vergleich zu Oberflächenschutzsystemen behandelt. Im Rahmen von Pro und Kontra wird diskutiert, ob Regelwerke, die für die Planung und Ausführung verfasst werden, auch für die anschließende Bewertung geeignet sind. Dazu werden die Änderungen der neuen WU-Richtlinie sowie zwei Beiträge zur Bewertung und Instandhaltung von Betonbauteilen vorgestellt. Der juristische Beitrag befasst sich mit den Haftungsfallen bei der Verwendung von geschützten

Darstellungen und Regelwerken in Gutachten. Ebenso wird über Neuerungen in Regelwerken informiert.