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- Technology & Conservation • Boston Society of Architects' Historic Resources Committee
- Prof. Goulthorpe, MIT Dept. of Architecture

“Architectural Plastics & Polymer Composites in the 21st Century”

Conference Proceedings . . .
Plus package

A comprehensive compendium on polymeric materials and their use, conservation/preservation, and care in contemporary and historic architecture & artistic works

Included in the CONFERENCE PROCEEDINGS PLUS package:
- the Proceedings book with papers and posters from the conference previously scheduled for 2020
- a digital file containing the full content of over 40 historic and modern books & articles
- other relevant supplemental material relating to properties; performance features including energy savings and fire behavior; and applications of plastics and polymer composites

NOTE: The Conference Proceedings Plus Package is not an in-person event or a virtual/Zoom meeting.
For centuries natural polymeric materials have been utilized, albeit on a somewhat limited basis, in the construction of structures and cultural properties. However, in the last few decades advances in compounding and fabrication techniques have led to the development of synthetic polymeric materials which can be more fully and successfully used as building materials. These synthetic materials – plastics – are now being utilized in the construction of structures of all types – commercial, cultural, residential, government, religious, health care, and industrial buildings; monuments; bridges; building and decorative components; sculpture and other works of art. And with the introduction of new formulations to existing classes of polymeric materials, even greater flexibility in application, along with improvements in the treatment and care of existing plastic and polymer composite configurations, is achievable.

The Proceedings papers examine the basic material properties of plastics and polymer composites used in the construction of buildings and in the fabrication of sculpture and other works of art; the role of their mechanical, structural, and other properties on performance/durability; and the effects of environmental conditions on traditional and modern structures that incorporate these materials in their framework, facade/building envelope, and/or ornamentation.

How these materials’ characteristics and interactions need to be considered in specifying the materials for new designs and for restoration/preservation projects, particularly as these relate to the sustainability and lifespan of the structures and to the protection/care of buildings that utilize polymeric materials, are explored.

New developments in fabrication operations and finishes will highlight how modern, innovative manufacturing and installation processes can expand design freedom, adding visual impact and improving sustainability in new construction and artistic projects, as well as can facilitate preservation undertakings. Economic and other factors affecting fabrication, construction, and care also are covered.

Strategies for determining/evaluating deterioration, steps to prevent and/or minimize degradation, and procedures for replicating historic appearance are explored. In addition, methods for maintaining visual characteristics of existing and new plastic and polymer composite structures, along with energy conservation aspects and protective coatings are discussed.

Case histories look at various building types and examine the lessons learned, vis-a-vis viable approaches to preservation/maintenance planning, facilities management, and repair/replacement programs, for both old and new structures. In addition, discussions of new types of polymeric materials and structural design advances offer a preview of how the built environment’s appearance may change . . . and the conservation challenges that may be presented.

All of the papers and posters in the Conference book and in the supplemental material are designed to offer readers valuable insights into the performance and sustainability of plastics and polymer composites in specific environments . . . and the appropriate selection, specification, use, and maintenance of these materials for existing and new buildings and artistic works.
Presenters/Authors
(Partial Listing)

Dr. Svetlana Boriskina, Research Scientist, MIT Mechanical Engineering Dept.

Glenn R. Bell, PE, SE, Senior Principal (ret.), Simpson Gumpertz & Heger

Billie Faircloth, AIA, Partner, Kieran Timberlake

Justin DeMarco, CSI, CDT, Business Development-Neopor, BASF

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Mark Hobbs, Head of Structural Engineering, Premier Composites Technology

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Andrew Whalley, Chairman, Grimshaw Architect

Dr. Christopher C. White, Research Chemist-Polymeric Materials Group, Materials & Structural Systems Div., National Inst. of Standards & Technology


Among the topics discussed in the Proceedings book are:

• historic perspectives – looking at plastics then and now
• properties of plastics and carbon-polymer composites used in the construction of buildings, building components, windows, and other structures, and in the creation of works of art and architectural decorations
• performance characteristics of these polymeric materials including fire behavior, energy considerations, durability, and weathering
• material selection
• research on testing and conserving plastic works of art and the challenges of reproducing historic plastic works
• the role of 3D printing
• numerous case studies – the case studies detailed involve polymeric materials used in the design and construction of museums, entertainment and athletic facilities, factories, commercial buildings, religious facilities, educational complexes, parking garages, residential structures, health care operations, and research facilities
ARCHITECTURAL PLASTICS & POLYMER COMPOSITES
IN THE 21st CENTURY
“CONFERENCE PROCEEDINGS . . . PLUS” PACKAGE

The publication/shipping date for the “Architectural Plastics & Polymer Composites in the 21st Century” Conference Proceedings Plus Package is March 26, 2021. The special pre-publication rate of $275 U.S. is extended until February 15, 2021. This rate includes mailing to U.S. or Canadian addresses.

Questions? Contact Susan E. Schur, Hon. AIA, FAPT, Program Chair, at ses_tec_con@msn.com or tel: 617-623-4488.

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