



# MATERIAL TRANSFORMATIONS

## TECHNOLOGY AND CHANGE IN THE BUILT ENVIRONMENT

### Course Summary

ARCH 4204/5204 Material Transformations: Technology and Change in the Built Environment surveys the development of significant architectural material technologies and their relationships to society and the natural world.

The ever-present built environment comprises innumerable choices about material technologies. Architects and other designers of the material world (from furniture designers to infrastructure engineers) make design decisions every day about what, where, how and why to use any particular material. Design decisions about material technologies have enormous implications for the shared human community and the natural environment, with consequences local and global, political and ethical, economic and cultural, and practical and aspirational.

The goal of this course is to help students understand the evolving nature of material technologies throughout history, how different material applications can change the meaning of architecture, and how materials and material transformations relate to society and the natural environment.

### Instructor

Blaine Brownell, FAIA LEED AP  
Professor and Director, UNC Charlotte School of Architecture

### Primary Focus

The built environment is a continuously changing terrain. This course will address two types of transformations that are critical to an understanding of the role of materials in architecture:

- The evolving nature of material technologies and their relationships to society and the natural environment
- The ways in which different material applications can change the sociocultural meaning of architecture

Students will engage this subject matter by modeling two primary architectural practices: praxis (design as scholarship) and critique (scholarship of design).

### Student Learning Outcomes

Students taking this course will develop skills of:

- locating and critically evaluating information as it relates to material technologies in the designed environment; and
- understanding and addressing the role of creativity, innovation, discovery and expression as it relates to material technologies in architecture

The lectures, films, readings and course assignments—including an ongoing writing journal, term research paper and two design projects—collectively address these student learning objectives. The design projects provide a framework for locating relevant material information, and evaluating material technologies for a specific application. Each project further requires students to evaluate when, where, how, and why to use material technologies in normative and/or novel ways. The term research paper and weekly writing journal apply critical thinking, research and evaluation skills to issues of material technology raised in the context of this course. With these assignments, students engage directly the question of how material technologies play a creative, innovative and expressive role in architectural design.

### Additional Learning Outcomes

By the end of this course, students will also:

- Understand major technological changes that have shaped the history of architecture
- Be able to identify primary technological, social, and environmental influences in architecture and related disciplines
- Be able to recognize and evaluate innovative building methods in comparison with standard techniques
- Model basic design research practices employed by architects when assessing material technologies
- Model basic critical writing practices employed by architects when constructing design arguments