ART & DESIGN WITH PARSONS CERTIFICATE PROGRAM

Healthy and Sustainable Affordable Housing

CRN 2072 - PCID 0606 X1

Course Meeting:
Online

Faculty:
cmurphy@newschool.edu

Program Description:
The course provides architects and designers involved in the development, design or management of affordable housing with a range of tools and methods to make healthier product choices. Designers are introduced to the relationship between the built environment and materials and their impact on human health and why the chemicals in common building products can be harmful to human health. Strategies and roadmaps are introduced that help participants navigate industry resources and certifications, find and evaluate alternate product options, and apply resources for maximum impact. Generalized strategies are explored that can be applied in affordable housing to highlight potential benefits, describe the consequences of employing different approaches and share strategies for making the material health case to clients. A range of methods are also explored to target specific issues for specific projects and lead to an improvement in the overall environmental and human health profile of residents in affordable housing. Better healthier, affordable materials choices will have both beneficial environmental sustainability and human health impacts.

This course describes the critical relationships between building materials, chemical toxicity, and environmental exposures that directly impact human health.

Learning Outcomes:

1. Understand building materials used in affordable housing and the implications of their use in a wider environmental and human health context
2. Identify and understand the critical relationships between building materials, chemical toxicity, and environmental exposures that directly impact human health. Use this information to set human health design goals early in the design process and through the life of the project to occupation
3. Identify building products that are likely to be healthier options and evaluate them against your own established criteria by identifying the human health and environmental impacts that products can have through the entire life cycle of materials. Compare products, assess variables and constraints, and specify materials based on this information.
4. Develop design strategies to address the issues that impact materials selection in Affordable Housing to reduce the negative health impacts of materials on human health. Prioritize human health, utilizing existing tools and resources to integrate critical relationships within the context of the building material ecosystem and larger environmental issues.

Course Requirements:

This program and the courses within, are self-paced and can be completed at any time that works with your schedule. All course work must be completed by the end of the semester.

Course Completion and CEU Credits:

Certification of Completion, 6 AIA CEU (HSW) Credits

Course Outline:

1. **Environmental Health and Vulnerable Populations**

   We begin with your clients the residents of affordable housing many of whom are some of the most vulnerable populations in our communities. They face numerous health that may be caused or exacerbated by their geography, the economy, their race, or age. The following experts address the impacts that building materials have on human and environmental health while also offering solutions on how to best promote healthier spaces immediately, and plan for the future..

   a. Working *with* Communities - **Ogonnaya Dotson-Newman**, The JPB Foundation
   b. Vulnerable Populations and Systematic Injustice - **Ogonnaya Dotson-Newman**, The JPB Foundation
   c. Product Composition and Exposure - **Ken Geiser**, UMass Lowell
   d. What We Make Affects People's Health - **Ken Geiser**, UMass Lowell
   e. How do Chemicals Get Into Our Bodies? - **Dr. Maida Galvez**, Mount Sinai
   f. What Happens When Chemicals Get Into Our Bodies? - **Dr. Maida Galvez**, Mount Sinai

g. Putting Risk Into Context - **Dr. Maida Galvez**, Mount Sinai
h. Introduction to Hazard Identification and a Retrospective on Asbestos - **Jim Vallette**, HBN

2. Chemistry: Unlocking the Science

To understand how particular outcomes and health impacts are achieved, we must understand the chemistry behind the materials and products we use. Experts give an introduction to healthier alternatives that are being formulated by Green Chemists and the chemicals of concern that currently exist. This content builds the foundation for the following sections when we ask "How can project health goals be outlined and informed decisions be made?"

a. We Are Not Fine: Toxic Chemicals in our Bodies - **Laura Vandenberg**, UMass, Amherst
b. Case Studies Relevant to Hazards and Building Materials: Lessons Learned? - **Laura Vandenberg**, UMass, Amherst
c. Current state of regulation - **David Andrews**, EWG
d. Introduction: Green chemistry - **John Warner,** WBI
e. How does Green Chemistry Fit into the *Big Picture*? - **John Warner,** WBI

3. Life Cycle of Materials

Materials impact human and environmental health at all stages of the life cycle, not just the use phase. In this section we look at the social and environmental systems that are impacted throughout the materials life cycle, and the populations that are most affected along the way. Our experts will share examples of the stories behind materials, what hazards exist and how to reduce them, and discuss prioritizing materials to meet health goals.

a. The Backstory of Materials and Health - **Mikhail Davis**, Interface
b. Equity and Material Healthy - **Ana Baptista**, Chair of Environmental Policy and Sustainability Management Program, The New School
c. Make Better Products - **Amanda Kaminsky**, Building Product Ecosystems

4. Indoor Air Quality

We are the first generation to spend 90% of our time indoors; how can we best avoid or eliminate the risks associated with indoor air pollutants? This section takes a closer look at material health and the indoor environment, making distinctions between products and the materials that contain them, sources versus exposures, and the specifics of exposures in the indoor environment, including air quality

a. Toxicity Indoors - **Jeffrey Siegel**, University of Toronto
b. Mitigating Indoor Air Pollutants - **Jeffrey Siegel**, University of Toronto

5. Health in Practice

What are the standards and regulations around the chemicals in building products, how are products assessed and reported, and how do we access and use this information? All of these questions will be examined in this section.

a. Reporting and Disclosure of Product Content - **Wendy Vittori**, HPDC
b. Certifications and Rating Systems - **Russ Perry**, Smithgroup JJR

6. Integrated Design Process

Building on the ideas and issues earlier discussed, in this section we strategize on how best to set yourself up for success. What are the first steps in establishing frameworks and engaging your team?

a. A Case Study of Affordable Housing and Financing - **Bea de la Torre**, NYC HPD
b. Identifying Health Goals and Opportunities for Impact - **Marty Keller**, First Community Housing
c. Communicating Decisions and Articulating Product Criteria - **Rhys MacPherson**, MSR Design
d. Integrated Project Planning: Involving Critical Stakeholders - **Martha Lewis**, Henning Larsen & **David Lewis**, LTL Architects
e. Reconciling Material Health and Energy Efficiency - **James Connelly**, ILFI

7. Practice Makes Perfect

This section helps define the methods and frameworks that will be most appropriate to achieving your goals with the project. There are many ways of approaching healthier design, so we will look at different standards, metrics for evaluation, and certification programs, and discuss what can work best based on budget, timing, replicability, etc.

a. Codes, Regulations, and Incentive Programs - **Breeze Glazer**, Lightstep
b. Commonalities Among Major Building Standards - **Jack Dinning**, HML
c. Customizing Your Own Framework - **Aaron Dorf** & **Dennis Rijkhoff**, Snøhetta

8. **Team Players**

   Delving deeper into the specific roles of each part of the team, in this section experts look at the major challenges through the processes of design, construction, and ongoing maintenance and operation. This is not meant to be a comprehensive manual of best practice protocols, but rather a discussion of the lessons learned from experienced professionals who have been through the process.

   a. Communication Strategies for Engaging the Team - **Martha Lewis**, Henning Larsen & **David Lewis**, LTL Architects

9. **Design Team Considerations**

   The goal for the design team will be to optimize their research, design choices, and communications strategies in order to have the greatest impact on health, while still being efficient, resourceful, and managing risk and liability.

   a. Writing and Implementing Specifications - **Melissa Balestri**, ZGF Architects
   b. Material Categories: Where to Keep an Eye Peeled - **Martha Lewis**, Henning Larsen
   c. Engineering Controls: Expect the Best, Prepare for the Works - **Shanta Tucker**, Atelier Ten

10. **Construction Team**

    Understanding that contractor's goals are to show measurable impact, maintain budget, coordinate trades and subcontractors, and deliver the project on schedule. We will look at how health initiatives can be presented in a way that resonates with contractors.

    a. The Significance of Material Health to Contractors - **Emily Naud** & **Hank Burr**, GCI Contractors
    b. Defining Practices and Coordinating Subcontractors - **Geoff Brock**, Structure Tone
    c. Materials Procurement and Handling - **Geoff Brock**, Structure Tone
    d. Protective Measures Through Installation - **Geoff Brock**, Structure Tone
    e. Commissioning and Preparing for Occupancy - **Geoff Brock**, Structure Tone
    f. Preparing for Renovation or Demolition - **Alexandra Arce Gomez**, Madrone Construction Resources

11. **Maintenance Team**

    The Maintenance & Operations team maintains the healthier conditions in the finished building, and helps prevent chemical contamination that could occur throughout use and upkeep of the building.

a. Project Turnover and the Role of Occupants - **Monica Nañez**, First Community Housing
b. Furnishings and Supplies - **Judy Levin**, Center for Environmental Health
c. Operations and Cleaning Protocols - **Jason Marshall**, TURI
d. Post Occupancy Monitoring and Engagement - **Monica Nañez**, First Community Housing