Healthy Materials Lab
# CONTENTS

## INTRODUCTION

| 1 | THE DONGHIA HEALTHIER PHYSICAL MATERIALS LIBRARY |
| 2 | LIBRARY COLLABORATION WITH HARVARD & RISD |
| 3 | LUNCH AND LEARNS |
| 4 | LAUNCH OF SEMESTER EVENT |
| 5 | HEALTHY MATERIALS METHOD CARDS (IN PROGRESS) |
| 6 | RED TO GREEN PARTNERSHIP |

## EDUCATION

| 7 | E-LEARNING CLASSES |
| 8 | ACADEMIC NETWORK |
| 9 | CLAUDY JONGSTRA LECTURE |
| 10 | TIMBER IN THE CITY CONFERENCE |
| 11 | REACTION TO TIMBER IN THE CITY |
| 12 | ELISAVA SCHOOL OF DESIGN & ENGINEERING |
| 13 | GRADUATE PROSPECTIVE STUDENT DAY |
| 14 | VISIT TO AALTO UNIVERSITY |
| 15 | PRESENTATIONS TO YALE UNIVERSITY |
| 16 | WORKSHOPS FOR HEALTHIER DESIGN STRATEGIES AT PARSONS |
| 17 | HML X PARSONS COMMUNICATION DESIGN |

## COMMUNICATION & DISSEMINATION

| 18 | COMMUNICATION STRATEGY |
| 19 | HEALTHY MATERIALS LAB WEBSITE |
| 20 | MATERIAL COLLECTIONS |
| 21 | E-LEARNING MARKETING |
| 22 | INSTAGRAM |
| 23 | MEME CAMPAIGN |
DEMONSTRATION & INNOVATION

24 HEMP + LIME: A GUIDE
25 HML OFFICE RE-DESIGN
26 WASTE-NO-MORE EXHIBITION
27 ROLE MODELS STUDENT COMPETITION
28 LESSONS FROM WEST HARLEM GROUP

INDUSTRY & PROFESSIONALS

29 LIVING PRODUCT EXPO
30 HML & HPDC DISCUSSION SERIES
31 FXCOLLABORATIVE ARCHITECTS PRESENTATION
32 DISRUPTIVE INNOVATION FESTIVAL
33 PRESENTING AT GREENBUILD
34 RYERSON MATERIALS LIBRARY
35 NBBJ LUNCH + LEARN
36 TISHMAN PRESENTATION
37 HEALTHIER FUTURES: THE ECONOMY OF BIODESIGN
38 HATCH COLLECTION: PANEL DISCUSSION
39 HEALTHIER FUTURES: COCKTAILS AND CONVERSATIONS
40 CHANGEMAKERS CONFERENCE H&M
41 THE NEW FRONTIER OF MATERIALS: HUMAN HEALTH AND DESIGN

PARTNERSHIPS

ACADEMIC PARTNERSHIPS

PRESS
Our Team

The Healthy Materials Lab
Parsons School of Design
The New School
New York, NY

Director, Alison Mears AIA LEED AP
Director of Design, Jonsara Ruth
Assistant Director, Abby Calhoun
Senior Design Researcher, Catherine Murphy
Senior Design Researcher, Leila Behjat
Administrator, Ava Robinson
Material Library Director, Jack Dinning
Engagement Coordinator, Burgess Brown
Communications Strategist, Eve DeAngelis

Healthy Materials Lab Advisory Committee
Ana Baptista
Kate Daly
Joanna Frank
Dr. Maida Galvez
Rolf Halden, Ph.D., P.E.
Seandra Pope
Susan Szenasy
Joel Towers

Faculty Researchers
Andy Bernheimer
Hee Chan Kim
David Leven
Helen Quinn
Lucille Tenazas

Student Researchers
Addie Kramer
Alie Kits
Blair Czarecki
Claudia Newell
Irshaad Malloy
Maanasa Sivashankar
Mariana Gonzalez

Healthy Materials Lab is part of the Healthy Affordable Materials Project funded by a grant from The JPB Foundation

July 2019
Healthy Materials Lab at Parsons School of Design is an interdisciplinary, international, and professionally diverse collective of graduate students, alumni, and research faculty with backgrounds in education, architecture, design, community capacity building, media and business.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Backgrounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alison Mears</td>
<td>Director</td>
<td>AIA, LEED AP</td>
</tr>
<tr>
<td>Jonsara Ruth</td>
<td>Director of Design</td>
<td>ASID, ASFD</td>
</tr>
<tr>
<td>Abby Calhoun</td>
<td>Assistant Director</td>
<td></td>
</tr>
<tr>
<td>Ava Robinson</td>
<td>Office Administrator</td>
<td></td>
</tr>
<tr>
<td>Jack Dinning</td>
<td>Director, Donghia healthier Materials Library</td>
<td>LEED AP BD+C, WELL AP, Assoc. AIA</td>
</tr>
<tr>
<td>Catherine Murphy</td>
<td>Senior Researcher</td>
<td></td>
</tr>
<tr>
<td>Leila Behjat</td>
<td>Senior Design Researcher</td>
<td></td>
</tr>
<tr>
<td>Burgess Brown</td>
<td>Engagement Coordinator</td>
<td></td>
</tr>
<tr>
<td>Eve DeAngelis</td>
<td>Strategic Communications</td>
<td></td>
</tr>
<tr>
<td>Addie Kramer</td>
<td>Post Graduate Researcher</td>
<td></td>
</tr>
<tr>
<td>Alie Kilts</td>
<td>Post Graduate Researcher</td>
<td></td>
</tr>
<tr>
<td>Claudia Newell</td>
<td>Student Research Assistant</td>
<td></td>
</tr>
<tr>
<td>Irshaad Malloy</td>
<td>Student Research Assistant</td>
<td></td>
</tr>
<tr>
<td>Maanasa Sivashankar</td>
<td>Student Research Assistant</td>
<td></td>
</tr>
<tr>
<td>Mariana Gonzalez</td>
<td>Post Graduate Researcher</td>
<td></td>
</tr>
</tbody>
</table>
We are Healthy Materials Lab, a design research lab at Parsons School of Design. We are dedicated to a world in which people’s health is placed at the center of all design decisions.

Parsons School of Design’s Research Labs

Social justice is a core mission at Parsons School of Design, The New School. Parsons’ research labs adopt a theory of change that draws from a comprehensive, interdisciplinary approach and a range of expertise in strategic design, positioning the research within the context of social justice. Working on a range of projects that address systemic change, Parsons brings an extensive expertise in the built environment, an understanding of the importance of communication design to drive change, a historic ability to develop and implement innovation in a range of design scenarios.

The Healthy Material Lab (hereafter “HML”) was launched as one of the first Parsons Design Led Research Labs with the receipt of a grant to support the Healthy Affordable Material Project in 2015. HML is one of four partner organizations of the Healthy Affordable Materials Project. The Healthy Affordable Materials Project, is a collaboration of the Healthy Building Network (HBN), HML, Health Product Declaration Collaborative (HPDC), and Green Science Policy Institute (GSPI). Funded by a grant from The JPB Foundation, the Healthy Affordable Materials Project seeks to improve the lives and health of residents living in affordable housing across the United States by reducing the use of toxics in the building product supply chain.

Under the Healthy Affordable Material Project grant HML is focused on research areas in support of the project for the Affordable Housing (hereafter “AH”) sector. HML is undertaking fundamental research into AH to record best practices in effect nationwide. To do so, HML is using a case study methodology to understand and document the better building products currently being specified. We are creating a new resource for transparency and awareness in both the Donghia healthier Materials Library at Parsons and online on HML website. The goal of the materials libraries is to create simple resources and tools to support healthier specification practices for the next generation of designers, and the AH sector at large. To increase awareness of the issues surrounding
building product selection and drive change in product selection in the AH sector. HML leverages communications expertise to translate complex concepts and data into accessible forms. We are working with a range of partners in the AH and health sectors to test product performance in real-world conditions in order to demonstrate better building product selection and installation practices. HML is also committed to sharing knowledge with the wider design community and fellow design academics, repositioning design education and practice to situate human health at the center of our work.

The Context of HAMP

Low-income families across the United States suffer disproportionately from exposure to toxic substances used in building products. These exposures result from chemicals that are released into the air and dust of homes and schools during routine occupancy and as part of maintenance and renovation projects. Low-income communities are also impacted by greater exposure as a result of the geographical proximity of affordable housing to product manufacturing factories that emit toxic chemicals, dumps, incinerators, and recycling facilities that process discarded materials. Factory and construction workers and children are particularly physiologically vulnerable and likely to be impacted by these toxics. Many chemicals commonly used in building products also pose hazards to the natural environment. Because these highly toxic chemicals are long-lived and pervasive in the marketplace, they are difficult to control.

It is well established that toxic exposures can be lessened through the intentional reduction of toxic materials in building products. A deliberate campaign to change the chemical formulations of commonly used building products (e.g., paint, pressure-treated wood, and engineered wood), has led to the reduction of lead, arsenic, and formaldehyde use in the last twenty years. Today there are continuing efforts in reducing toxic exposure to widely recognized chemical hazards in building products through decreased percentages of VOCs, phthalates, and flame retardants. Despite these successes, there are still many toxics in the built environment that require attention.

Further, successful toxic reduction has primarily occurred in high-end products and often takes decades for this market impact to trickle down to more affordable products.

Affordable housing providers seeking to use less toxic building products face many obstacles. A fundamental obstacle is the lack of transparency of the chemical content of building products, making it difficult to make informed decisions about reducing potential toxic exposures. This lack of information is compounded by an array of “green certifications,” many of which rely upon incomplete and unverified information. Commercial developers are often able to navigate this web of certifications with support from additional sustainability staff or consultants; however, affordable housing project budgets are not able to support this extra support. Similarly, less toxic products are often introduced with a premium price which are beyond the budgets of affordable housing developments, including new and retrofit
construction. As less toxic building products are introduced in the high-end residential and commercial building stream, older, less healthy building products are passed downstream to lower wealth communities.

An unintended consequence of green building standards and government incentives that encourage recycling and reuse of older products containing toxic chemicals. Recycling is viewed as desirable for its financial or social benefits, but the passing on of hazards is not always a consideration. These examples illustrate the complex problems presented to low wealth communities by the life cycle of exposures to toxic chemicals. They also demonstrate the need for both a comprehensive, integrated research program and the development of strategies to systematically reduce toxics in all building products as the most effective means of reducing these hazards in affordable housing communities.

**Project Goal**

The best way to prevent exposure to toxics is the reduction or elimination of their use at the source. The Healthy Affordable Materials Project will reduce toxics for families living in low income and affordable housing by scaling the use of new transparency and disclosure tools making it easier for decision makers (designers, architects, developers) to avoid the most toxic chemicals present in the building materials commonly used in affordable housing. Increased transparency and disclosure will drive market change by incentivizing building product manufacturers to reduce the use of toxics in their products, as an alternative to disclosing negative information. This will result in an increased availability of healthier products to the affordable housing market.

HML’s work on the activities and goals of the HAMP project is focused on scaling positive impact to replicate, adapt, broadly inform and transform current building practices in the AH sector initially within the first three-year time frame of the grant and now within the second round of funding received in 2018.

In addition to the HAMP project, HML has expanded its practice based research to include a wide range of populations including early childhood, seniors, rural populations and residents in post-industrial cities. We have formed new partnerships to support new projects including both nonprofit and for profit organizations and adopt strategies acquired in our HAMP work and consistent with our Parsons’ mission driven agenda. And we continue to evolve and adapt our work within the core context of social justice. This year end report from HML is a summary of our activities over the last 12 months.

HML has expanded its practice based research to include a wide range of populations including early childhood, seniors, rural populations and residents in post-industrial cities. HML is also committed to sharing knowledge with the wider design community and fellow design academics, repositioning design education and practice to situate human health at the center of our work. This year end report from HML is a summary of our activities over the last 12 months.
OUR GOALS

In the broadest sense, our goals are for healthier spaces and healthier lives. To achieve this, we strive to:

1. Improve today’s commonly used materials to reduce exposure to toxics and improve health.

2. Build knowledge and awareness of today’s healthier material alternatives —make them more marketable, accessible, and popular.

3. Work to implement tomorrow’s healthy materials.

4. Partner with manufacturers to promote transparency and drive innovation.

5. Create healthier homes for all people.
Ladder of Engagement. By measuring the ladder of engagement is a framework that asks users to take steps towards achieving a larger goal. Developing the ladder of engagement helps us to predict how we can cultivate and move participants into the active role of being material health advocates and practitioners. At HML we measure our impact and evaluate the outcomes of our ecosystem of initiatives, using three main metrics.

Quantify the Number of Participants. We are measuring participation from affordable housing providers such as designers, architects, specifiers, developers, owners, and the community. We are also measuring our reach across faculty and students, governing entities in New York City, and our influence across manufacturers and trade associations.

Quantify Financial Investment. By measuring our impact and comparing the results of the Lab’s multi-pronged initiatives with our financial investments, we can better strategize around which approaches are most effective in moving participants up the ladder of engagement.

Gauge Level of Engagement. Through our use of analytics tools to measure website traffic, new social media follows, click through rates, resource downloads, page visitation statistics, content referrals and more, we aim to track the movement of participants from being unaware of issues to eventually becoming advocates.
Introduction

THEORY OF CHANGE

We are using a combination of approaches to inform our theory of change.

Some of HML is situated within The Healthy Affordable Materials Project (HAMP), a systems-based approach to reducing toxic chemical exposures from building materials and furnishings through the creation of actionable alternative design products. HML’s work integrates healthy building protocols, healthy products and green science with design research for affordable housing construction and retrofit in order to achieve scale and broad implementation across socio-economic communities within the US. Our broader goal is to align healthy materials with design research on innovative construction methodologies, durability, forward looking policy, behavior change, market forces, and aesthetics; and in so doing, influence the entire housing sector while reducing toxic chemical exposure throughout the supply chain.

Unaware
(Most people)

GOAL: BUILD AWARENESS THOUGH PHYSICAL AND ONLINE ENGAGEMENT

What do we do to build awareness?

- EDUCATE
- CREATE ACCESSIBLE MESSAGING
- SOCIAL MEDIA: Bringing awareness
- PHYSICAL EVENTS: Leading to a desire to know more

WE ARE WORKING WITHIN THIS CONTEXT:

- CONSUMER PRODUCTS
  - EWG.org - personal products
- HBN
- HPDC

COLLABORATION WITH DONGHIA HEALTHIER MATERIALS LIBRARY

HML WEBPAGE
- Why healthy materials? page

INSTAGRAM

LINKEDIN
HAMP Vision and Outcomes

Through the use of healthier building products and furnishings, the built environment contributes to the improved health of all people, especially lowest income communities.

Our goal is to increase the adoption of healthier building protocols and practices within the affordable housing sector, leading to measurable increase in building product specifications that reflect healthier choices. This change will result in reduced exposure throughout the system by decreasing or eliminating known harmful chemicals from building products widely used in the affordable housing industry.

GOAL: DEVELOP RESOURCES THAT ENABLE PEOPLE TO ACT (ONGOING)

What resources are available?

- **SIX CLASSES APPROACH (GSPF / HML)**
  Understand chemicals to avoid

- **E-LEARNING COURSES**
  Obtain Material Health Certificates for courses 1-4

- **COLLABORATION WITH 60+ EXPERTS IN THEIR FIELDS**

- **UNDERSTAND ALTERNATIVES TO TYPICAL BUILDING PRODUCTS**

How can we introduce issues through resources?

- **PHYSICAL SAMPLES & RAW MATERIAL WALL**
  Donghia Healthier Materials Library

- **EXISTING CURRICULUM CHANGES**
  Architecture, design, and school policies

- **CREATE INITIATIVE IN MANUFACTURING INDUSTRY**

- **LUNCH & LEARNS**

**LEGEND**

- FINISHED HML INITIATIVE
- IN PROGRESS HML INITIATIVE
- ONGOING HML INITIATIVE
- COLLABORATION WITH HML
- POTENTIAL COLLABORATION
- WEBSITES
- E-LEARNING
- ADVISORS
- COMMUNITY ENGAGEMENT

**Observers**
(Aware of the issue but needs to know more)
**Introduction**

**WE ARE WORKING WITHIN THIS CONTEXT:**

- **CASE STUDIES**
  - ILFI
  - Well Enterprise GCC

- **RED LIST**
  - Transparency List

- **MANUFACTURERS**
  - Invest in research & development

**Supporters**

*Act on the issue and want to change the way they do things*

**How do we change the market?**

- Work with retailers
- Build consumer demand
- Clarify a compelling message for different audiences

**How do we advocate for transparency?**

- HPD
  - Health Product Declaration

**How can we introduce issues through resources?**

- PHYSICAL SAMPLES & RAW MATERIAL WALL
  - Donghia Healthier Materials Library

- EXISTING CURRICULUM CHANGES
  - Architecture, design, and school policies

**How are healthier buildings being made?**

- COLLECT SPECIFICATIONS

**Who is building with healthier materials?**

- Case Studies: HML
- Demonstration Projects
- Architect/designer friends of HML
- HML
- HBN

**How: New product development**

- IDENTIFY GAPS IN THE MARKET
  - And opportunities to develop new products

- FOCUSED WORK ON VULNERABLE POPULATIONS
  - Early childhood development spaces
  - Affordable housing
  - Seniors

**GOAL: CREATE NEW PATHWAYS THAT ENABLE PEOPLE TO CHANGE PRACTICES**

**How do we evaluate ingredients for health criteria?**

- TRANSLATORS
  - Pharos
  - Quartz
  - HML Website

- COLLECT HEALTHIER BUILDING PRODUCTS
  - The Donghia Healthier Materials Library

**MANUFACTURER PARTNERSHIPS**

- Ecovative
- Rienablo
- Carpetcycle
- Woolmark
- Thermacork
- Advanced NanoWoven

**LEGEND**

- FINISHED HML INITIATIVE
- IN PROGRESS HML INITIATIVE
- ONGOING HML INITIATIVE
- COLLABORATION WITH HML
- POTENTIAL COLLABORATION

- WEBSITE
- E-LEARNING
- ADVISORS
- COMMUNITY ENGAGEMENT
We identified a lack of awareness of the issue of toxics in the built environment as a fundamental barrier to change. This is a general problem and we launched our communications strategy to address this issue. Through the roll-out of this strategy we discovered that the ladder of engagement could be adapted more generally to make systemic change.

We have established a research foundation for our work. Through the documentation and evaluation of current best practices in the affordable housing sector – from funding and policy, to design and construction and finally in occupation. This work was and is documented in our five case studies. Current best practices in the material health field impact the work of "supporters" and advocates. To address other participants on the ladder and cultivate a greater understanding of the issues, we needed to expand our methodology to include:

1. Library and Resources
2. Education
3. Communication & Advocacy
4. Product Evaluation Tools
HML WEBSITE

Version 2 of the HML website launched in January 2018 and has been updated in January 2019 with expanded resources and tools.

HAMP WEBSITE

The HAMP website proves a hub that describes the HAMP project.
HML’s theory of change relies upon the adoption of full transparency and the comprehensive and complete disclosure of building product contents in order to drive behavior change. It also depends on access to educational programs that share new knowledge to accurately document the contents of typical building products. A fully informed decision-maker will select alternatives to toxic materials when the information about product toxic contents is disclosed, when feasible alternative choices are presented, and when the information is reliable and accessible. How do decision makers access accurate information?

HML is using our broad and effective design expertise to demonstrate to key audiences how a reduction in toxic materials in building materials will improve the health of affordable housing residents, communities, and individuals who come into contact with materials at all stages of a product’s life cycle. We translate information into effectively designed and executed communications materials to empower decision makers to make informed choices. We are also developing new healthier product specification tools to support more accurate specification, and are providing healthier product samples to aid decision makers in selecting healthier affordable products.
1  THE DONGHIA HEALTHIER PHYSICAL MATERIALS LIBRARY

2  LIBRARY COLLABORATION WITH HARVARD & RISD

3  LUNCH AND LEARNS

4  LAUNCH OF SEMESTER EVENT

5  HEALTHY MATERIALS METHOD CARDS (IN PROGRESS)

6  RED TO GREEN PARTNERSHIP
Our Samples

From flooring to paint to insulation, Donghia Materials Library offers a wide variety of innovative material samples. Some highlights include:

- Biomason
- Wheatboard
- Denim Insulation
- Ecor Board
- Wool Insulation
- Linoleum-Marmoleum
- Hempcrete
- Wall
- Milk Paint

Interested in more material collections?
We curate product collections featuring healthier materials both on display at Donghia Materials Library and beyond.

SEE OUR MATERIAL COLLECTIONS
1. THE DONGHIA HEALTHIER MATERIALS LIBRARY

Parsons has historically maintained a Materials Library supporting Architecture, Interior Design, and Product Design studios. The library has provided materials programs and a connection to manufacturers. As a result of the grant from The JPB Foundation, HML has reconfigured the library with an enhanced mission to create a range of new physical and digital material resources for all students and faculty at The New School, the AH community, and the NYC design community. The library is a critical resource for both the university as we educate future designers and for the design community at large which looks to Parsons as an innovator in the field of design.

In order to position The Library at the forefront of the industry, we continue to research precedents of national and international libraries and resource centers. We continue to collect and build lists of healthier products currently specified and installed in AH developments across the country.

As part of our work with The Materials Library, we are collecting and exhibiting physical samples of the healthiest materials currently available on the market. This materials collection involves outreach to product manufacturers. In this process, we advocate for increased transparency and manufacturer engagement via the Health Product Declaration tool as a recommendation for inclusion in our library.

Based upon data shared by manufacturers, we aim to ease the process of identification, prioritization, and action on toxic chemical hazards, and we work with manufacturers to drive innovation through market demand. Another important aspect of The Library work is the documentation of best practices and product databases extracted from our ongoing case studies research.

Library orientations are crucial in moving visitors from unaware to advocate. Orientations serve as an opportunity to introduce students and professionals to the issue of material health. Orientation leaders encourage visitors to explore the space and touch materials allowing them to get familiar with healthier materials.
2. COLLABORATION WITH HARVARD AND RISD MATERIALS COLLECTIONS

During year three, The DhML Library began a collaboration with materials libraries at Harvard Graduate School of Design and the Rhode Island School of Design. This collaboration, “Material Order”, provides a platform for the three schools to formalize a new system of material classifications and for Parsons to advocate for the inclusion of material health into the evaluation criteria at other design schools.

During year four, DhML developed several schemes for potential integration of material-health information into the Material Order database. DhML is pursuing material-health database integration independent of the consortium as a “pilot” while concurrently using Material Order for cataloging more traditional material properties.

HML firmly believes that through collaboration we can enable transformative actions and ultimately change. Integrating material-health information into the collaborative Database is a key strategy in creating a larger population of material health advocates.
LUNCH + LEARN WITH FIRECLAY TILE

DONGHIA GALLERY
25 E 13TH STREET 3RD FLOOR
WEDNESDAY MARCH 6TH
12:00 PM - 1:00 PM

FireClay produces handmade ceramic tiles in California. They’re a certified B-Corp that’s committed to sourcing materials and using recycled content in their products. Join us to learn more from them!

Hand-picked manufacturers, discussions about transparency & sustainability, and stories from the field. Did we mention they’ll bring lunch?

bit.ly/2V5wM3F

Excited to have @fireclaytile here for Lunch + Learn
3. LUNCH + LEARNS

In Fall 2016, the Donghia healthier Materials Library and the Healthy Materials Lab launched a series of Lunch + Learns with a focus of introducing the healthiest materials and products available to designers throughout Parsons and The New School. The criteria for manufactures were that their products have complete transparency and that the companies be open to discourse around material health. The ultimate goal of this partnership is to create a more robust material library. In year four, five manufactures and other guests presented at Lunch + Learns:

- Industrial Louvers, Inc. is a customer-focused, woman-owned and operated manufacturer of custom architectural metal products. They lead their industry creating more sustainable metal finishes, increased awareness about environmental issues.
- Fireclay Tile is made in the USA, and 66% of their products are made from recycled materials. They are a certified B-Corp committed to sustainability and use recycled content in their products.
- Eco Supply is a company whose mission is to build solutions for a better tomorrow, not only by helping customers find the right green product but by providing the expertise and guidance to help them complete their project.
- Aronson’s Floor Covering collaborates with architects, interior designers, visual merchandisers, general contractors and homeowners to provide innovative flooring solutions. Aronson’s has developed collections featuring natural fibers and other sustainable materials.
- Humanscale is a New York-based company that designs and manufactures ergonomic products that improve health and comfort at work. They are passionate about designing projects with minimal environmental impact. Jane Abernathy is the Sustainability Officer at Humanscale. She discussed transparency and supply chain reporting, health and ergonomics, take-back programs, and circular economies.

COLLABORATORS
- Industrial Louvers
- Fireclay Tile
- Eco Supply
- Aronson’s Floor Covering
- Humanscale

We opened these events and conversations around products and materials to a broad Parsons audience, as we believe all disciplines can learn from the vision of the companies and their approach to health advocacy and the built environment.
Kick off the semester

KICK OFF THE SEMESTER! LEARN MORE ABOUT HEALTHY MATERIALS LAB.

SNACKS WILL BE SERVED

TUESDAY, AUGUST 28, 2018
6:00 PM - 7:30 PM

DONGHIA LIBRARY AND GALLERY
25 E 13th Street 3rd floor

PARSONS HEALTHY MATERIALS LAB

Our special thanks to "Romabio" for supplying the lime-based paint used for screen printing.

healthymaterialslab.org
On August 28th the Healthy Materials Lab hosted an event at the Donghia Gallery to kick off a healthy semester. Students were offered snacks and recycled, hand printed tote bags. Romabio supplied the lime-based paint used for screen printing. Roma Bio is a viable and less toxic alternative to typical screen printing inks. The event also provided The Library and Lab an opportunity to introduce material health to Parsons design faculty and students. It was also an opportunity to share our progress in standardizing and formalizing best practices for future dissemination.

This event is a strategic opportunity to introduce student who are unaware about the issue of material health to the world of HML. We hope to move them toward observers, supporters, and eventually advocates as they begin to make their own design decisions during their time at Parsons and beyond.
5. HEALTHY MATERIALS METHOD CARDS (IN PROGRESS)

Healthy Materials Method Cards is a toolkit aimed at empowering architects and designers to ask questions that help them navigate through the different steps of a healthier material plan within design practice.

It engages users in a conversation about a project and helps them identify what measures should be taken to ensure the use of healthier materials. They were designed for a visually operating audience, and therefore a significant amount of attention went to the appearance and usability of the cards.

We established a design framework based on a review of current best practice guidelines including: the Prescription for Healthier Buildings from Arup & AIA, ILFI, Building Green, Upcycle by the authors of Cradle to Cradle, as well as our own learnings from case studies and from the contributors of our eLearning course, we established a framework. This pathway to establishing “your” healthier material plan evolved along core design phases: Pre-Design, Schematic Design, Design Development, Construction Documents, Bidding, Construction Administration, and Sign Off and Certificate of Occupancy.

The sequence of design phases is presented in a pack of method cards that can be used digitally or in print. They’re equally as informative for a user working with them on their own, or as a communication tool while working with clients, contractors or team members. A simple and accessible “how to” video will accompany this work to show how the cards can be used.

We often witness that offices or individuals embark on this journey of a healthier material plan but feel quite overwhelmed by all the information and “calls to action”. It is not so much the lack of information but rather the fact that it is scattered and not harmonized that leads to confusion and frustration. Healthier Materials Method Cards presents the essence of these concepts and helps users go through the process step by step - or card by card - highlighting existing experience from the field.

These Method Cards will provide material health advocates and professionals with a tool to structure their work, keep on track, communicate with those who are unaware, and have successful experiences. A good experience will lead to a more empowered and courageous next initiative in using healthier materials.
Which materials should I choose?
6. RED2GREEN DATABASE

Materially Better (established as Integrated Eco Strategy, LLC) answers the question "Which materials should I use?" for architects, designers, engineers, building owners, and consultants who want to build great, healthy buildings. They provide education, software tools, including the Red2Green database, and project consulting (Integrated Eco Strategy) that guide clients to select healthier building materials. They have nearly ten years of experience working with major corporations and universities across the United States.

Founded in 2010, Materially Better have actively participated in many industry-leading green building projects, including the Class of 1966 Environmental Center at Williams College, Williamstown; R.W. Kern Center at Hampshire College, and Hitchcock Center for the Environment, both in Amherst; and Yale Divinity School Campus, New Haven CT. The team of 20 includes dedicated sustainability analysts, healthy materials specialists, researchers, and others dedicated to environmental leadership.

Healthy Materials Lab has been invited to review the Red2Green materials evaluation tool as both a User of the information to evaluate materials and as a trusted research partner to evaluate the platform. We are also reviewing the possible incorporation of Red2Green as a resource and tool to Tools & Guides on our website. Red2Green is also being considered as a tool that could be incorporated into the Donghia healthier Materials Library for students across the design disciplines who are evaluating product choices for their design proposals. Red 2 Green uses Living Building Criteria as its framework. LBC, from the International Living Future Institute (ILFI), is often described as the "world’s most rigorous" green building standard, exceeding even the more well-known LEED standards.

Whether or not a project seeks Living Building Challenge certification, all projects can benefit from the work done by ILFI to identify the 817 chemicals of concern listed on the LBC "Red List." Materially Better recommends avoiding or minimizing the use of these chemicals, such as PVC, Phthalates, BPA, polycarbonate, and Teflon. It doesn’t have to be difficult to find alternatives for them or to use them. Many times, the alternatives cost the same as potentially harmful products.
Parsons is a hub for national and international design research and has extensive experience and capacity to work between theory and practice, through collaborations with a broad range of industry partners. As a trusted university partner, we provide neutral territory to enable a wide representation of stakeholders to convene and address all of the complex issues associated with the building materials system. Our research is informing our colleagues in professional practice and our fellow faculty through public lectures and presentations and through our social media presence.

Parsons is the largest art and design school in North America and is ranked #1 in the U.S. and #3 in the world. We are transforming the education of designers, and in so doing educating a new generation of design professionals who will carry their educational experience into their careers and transform industry. We are offering new studio classes, creating modules that can be incorporated into existing courses, and working with HAMP partners, such as HPDC, to develop curricular modules. With education as our platform, we are creating a greater understanding and awareness of the intersection of design and health.
7  E-LEARNING CLASSES

8  ACADEMIC NETWORK

9  CLAUDY JONGSTRA LECTURE

10 TIMBER IN THE CITY CONFERENCE

11 REACTION TO TIMBER IN THE CITY

12 ELISAVA SCHOOL OF DESIGN & ENGINEERING

13 GRADUATE PROSPECTIVE STUDENT DAY

14 VISIT TO AALTO UNIVERSITY

15 PRESENTATIONS TO YALE UNIVERSITY

16 WORKSHOPS FOR HEALTHIER DESIGN STRATEGIES AT PARSONS

17 HML X PARSONS COMMUNICATION DESIGN
This series of four courses brings a consideration of human health to all aspects of design and building practices. The goal is to introduce students and practitioners to the necessary background information on basic construction materials, their chemical makeup and the relationship to human health, and focus on how designers and architects can specify better building materials.

The eLearning program is made up of four courses, courses 1 and 2 will provide an introduction to the topics to a general audience at an introductory level, with courses 3 and 4 catering to a more expanded audience specifically practitioners and those concerned with making a positive impact in product specification, installation and maintenance in the built environment. The program is intended to complement existing degree programs. The four courses will cover the components required to design healthier interiors as outlined in the learning outcomes.

Learning outcomes:
- Understand why material health is important and its relationship to the human body
- Understand the impact of life-cycle of materials
- Acquire knowledge and evaluate materials for specific health issues
- Understand pathways for exposure, during the use phase in interiors
- Analyze the various tools, certifications, standards, etc.
- Develop a methodology for material analysis
- Develop a system that could be adopted by other professionals to evaluate and specify materials

Each of the courses has 3.5-5 content hours with an expected additional 1 hour of homework. The homework includes reviewing quizzes, non-graded activities, discussion forums and recommended readings.

These courses build in complexity. Course 1 was designed to accommodate unaware audience members. After completing all 4 courses, even the most unaware course participant will be equipped with the knowledge to make them an advocate.
OUTLINE OF COURSES 1-4

The content of courses 1 through 4 are cumulative and were designed to build on one another; effectively allowing students of the course to move up the ladder of engagement. Course one is an entry point into the issue of material health and is appropriate for unaware audience members. By the end of course four, audience members will have the knowledge to become advocates of material health in practice.

**Course 1**
**Materials and Human Health**

This course communicates the impact that building materials can have on human health, demonstrating the systemic intricacies that will challenge users to keep asking questions, while offering suggestions for how they can begin addressing these issues in their work.

**Course 2**
**Building Products and Chemistry**

This course introduces the student to the fundamentals of chemistry to create the foundation of why particular outcomes and health impacts are achieved. Introduces students to chemicals of concern and healthier alternatives that are being formulated by Green Chemists. Based on these findings, how can project health goals be outlined and informed decisions be made?

**Course 3**
**Healthier Materials Design & Specification**

This course helps designers navigate industry resources and certifications, finding and evaluating product options, and prioritizing resources for maximum impact. We look at methods for targeting specific issues in a project, and generalized strategies that can apply more universally, highlighting potential benefits and consequences of different approaches.

**Course 4**
**Executing a Healthier Project**

This course deals with the full process of creating healthier buildings, covering challenges encountered throughout design, construction, maintenance, and operation. Framed as a collection of lessons learned through professional experience to help professionals be more informed and make decisions with an overall awareness of the protocols for healthier design.
EXPERT INPUT

This innovative program is the first of its kind and brings together a group of interdisciplinary experts at the top of their fields to cover every aspect of healthier materials and sustainable buildings.
Healthy Materials Lab is excited to announce a newly established academic network that we invite you and your faculty to join! This new network of architecture and design educators was established to exchange information about material health in the built environment. To create this exchange, we have created an online portal where you will have access to model syllabi and other educational materials about material health that you can incorporate into your coursework. This content will be updated regularly, so please check back.

By becoming a part of this network, you will be joining colleagues from:

Boston Architectural College  
Auburn University  
University of Pennsylvania  
University of Michigan  
Syracuse University  
Cornell University  
University of Arizona  
Parsons School of Design  
and more!

Join Network
The Healthy Materials Lab launched an Academic Network in March 2019. The Lab established a new network of architecture and design educators to support the open exchange of information about Material Health in the Built Environment. Faculty colleagues from Art and Design Colleges and Universities were invited to join.

Parsons Healthy Materials Lab in New York City has been conducting design research on this critical new topic for design and architecture and we are creating a host of new information and resources. All of our information and resources are available to members of our academic network to use in their course materials and in their existing architecture and design programs. The network is free to join.

In exchange, the Lab asked that members, in turn, provide and share anything that they may be working on in this field in their own schools and communities. Not all members of the network have in-depth experience in the field of material health in the built environment. This topic is new to many. The Lab welcomed all experience and interest levels to join in the sharing of this information. All that is required of members is to participate in a conversation surrounding this topic.

As part of the launch, the Lab has curated specific content on the website, and is hosting a conference in the Fall of 2019.

The goal of this initiative is to create a platform on which healthy materials advocates can connect and share information with other advocates. The members of this network will ultimately impart their knowledge to unaware students.
### COMPARISON OF MATERIAL HEALTH PRODUCT CERTIFICATIONS AND DISCLOSURES

Certifications and disclosures can provide useful information on assessing product health. Certifications give assurance, using or an official endorsement that a product meets certain standards, but do not ensure complete screenings of all hazards. They may look at a single attribute or multiple attributes. Disclosures do not include a rating score, and instead provide information on product contents and associated hazards. Both certifications and disclosures can be self-declared by a manufacturer or verified by an independent third party. Below, you can find a comparison of some of the major certifications and disclosures.

<table>
<thead>
<tr>
<th>Type</th>
<th>Verification</th>
<th>Levels</th>
<th>Health Criteria</th>
<th>Public Data Availability</th>
<th>Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPD v2</td>
<td>Disclosure</td>
<td>Third-party optional</td>
<td>None</td>
<td>Two ingredient lists, with up to two permitted exemptions</td>
<td></td>
</tr>
<tr>
<td>Declare</td>
<td>Disclosure</td>
<td>Third-party optional</td>
<td>None</td>
<td>Full ingredient list with notes, warnings, and hazards</td>
<td></td>
</tr>
<tr>
<td>Cradle to Cradle</td>
<td>Multi-attribute certification</td>
<td>Second-party*</td>
<td>Basic</td>
<td>Scorecard not disclosed</td>
<td></td>
</tr>
<tr>
<td>Blue Angel</td>
<td>Multi-attribute certification</td>
<td>Third-party verified</td>
<td>None</td>
<td>Scorecard not disclosed</td>
<td></td>
</tr>
<tr>
<td>Nordic Swan</td>
<td>Multi-attribute certification</td>
<td>Third-party verified</td>
<td>None</td>
<td>Scorecard not disclosed</td>
<td></td>
</tr>
<tr>
<td>BIFMA level</td>
<td>Multi-attribute commercial furniture certification</td>
<td>Third-party verified</td>
<td>Level 1</td>
<td>Scorecard not disclosed</td>
<td></td>
</tr>
<tr>
<td>CDPH Section 01350</td>
<td>Emissions certification</td>
<td>Third-party verified</td>
<td>None</td>
<td>Scorecard not disclosed</td>
<td></td>
</tr>
</tbody>
</table>

### Notes
- *Scorecard disclosure (comparative evaluation)
- HPD is a disclosure-based product certification. For more information refer to Blue Angel and Nordic Swan available (throughout below).
- GreenBuilding.com is a database tool to assess sustainable building products and materials' credits.

**Healthy Materials Lab, 2018**
ACADEMIC NETWORK MEMBERS

The following data represents the professions of 68 members of the academic network.

- Architecture
- Interior Design
- Design Research
- Arch. and Environmental History
- Environmental Design
- Arch., Interior and Landscape
- Fine Arts Materials Library
- Research
- Packing
- Real Estate Development
- Textiles
- Material Collection Curator
- Materials Library
- Fine Arts
- Fiber Science & Apparel Design
- K-12 Design Outreach
- Anthropology
- Real Estate
On November 15th, 2018 Healthy Materials Lab hosted Dutch Textile artist Claudy Jongstra for a lecture on her work, which has demonstrated transparency of both material source and process.

Ms. Jongstra’s commissions include clients in the educational, corporate, governmental and private spheres. Her handmade fiber works intersect with the worlds of art, architecture, and fashion and include collaborations with Tod Williams Billie Tsien Architects, Hella Jongerius, Maharam and Maison Margiela with John Galliano. Across these diverse disciplines, her creative practice is integrated with environmental sustainability, cultural heritage, and the education of future artists and designers.

Ms. Jongstra’s farmstead atelier is located in Friesland, a province in the northern Netherlands roughly 100 km from Amsterdam. The most sparsely populated province in the Netherlands, Friesland has its own culture and language (Fries) and borders the UNESCO Wadden Sea world heritage site. The singular area fuels the deep locality of Jongstra’s craft; in her own words, “working in it and harvesting makes it so you’re really connected to the material.” A living example of this ethos is the herd of 250 Drenthe sheep that provide wool at her farm. This endangered heritage breed requires the natural heathlands of Northern Europe to thrive. She elaborated on the practices of the shepherds who tend them as a form of traditional land management and cultural knowledge transmission: “in fact what he does is knowledge in him, coming from his father and grandfather, passing by and working with these sheep on that land makes that the land has an incredible quality and balance of biotope that immediately reflects to the quality of the wool.”

The flora of The Netherlands also play an important role in Ms. Jongstra’s practice. After working for a decade in the wool’s natural colors, she began to experiment with natural pigments like weld, madder and indigo, connecting again both to the local biosphere and to cultural heritage. Traditionally the pigments were used by the Dutch Master painters. In Jongstra’s bold designs, the vivid hues take on a contemporary environmental urgency: “very often we will hear that people never saw these colors because they’re not in our environment any more”, she explained.

Ms. Jongstra also likened her work with natural dyes to a “bridge between legacy and future generations.” Collaborating with universities has allowed her atelier access to historical dye recipes and allowed her to create new, healthier alternatives. For example, working with the University of Utrecht has given Jongstra access to 15th-century dye recipes - she was able to replace the toxic iron used for black with walnuts, innovating an intense new warm black.

Ms. Jongstra’s interest in growing her own dye crops also extends to an environmentally-minded social enterprise within her own rural region. “We harvest, we grow, and then we work together with …a corporation of 8 to 10 farmers in the north. And we do that because first it’s very important to not only to connect directly to the material, to the sources, but also, where we live and work. There is a lot of mono-culture, and by working with these farmers and motivating them to
One of the most radical aspects of Ms. Jongstra’s practice is its relationship to time. Jongstra’s works both reveal the variations of natural cycles and embrace time-intensive practices of growing and making. She estimated that her pieces are 90% handmade with 10% created through a mechanical felting process. Describing the wool she sources for large commissions, “you can see in the quality how [the sheep] have lived that year, if there was stress ...you see it immediately. It reflects back on the quality of the wool... The shearing is the most stressful moment in the year. Our shepherds keep the sheep in quarantine after shearing...because they need to have the time to adjust to this new, circumstance and atmosphere. Taking care of that process of shearing... not feeling stressed by time, and time-consuming processes, that’s something which is really important in what we do.” An audience member wondered about the effect of climate change on the dye plants; Ms. Jongstra compared the seasonal variation in dye colors to wines of varying vintages. “When we have a wine from a certain year, people accept that it has a certain quality...some flowers that are very sensitive to light....So I think it’s all about ... gaining an insight into these processes that we cannot control.”

Ms. Jongstra first visited Parsons at the Aftertaste symposium on Interior Design in 2010. The symposium was a series of lectures and roundtable conversations dedicated to the critical review of interior design and was intended as an expansive meditation on the concept of the interior environment and its constituent elements. Ms Jongstra continues to connect her practice to the education of young designers. Claudia Jongstra Studio welcomes international students to work with her who very often return to their own country and start small ateliers. Queried by the audience about the scalability and wider impact of her practice, she stressed the importance of developing an awareness of ethically sourced natural materials within educational settings. “By using the materials you can have a big influence.” Ms. Jongstra’s sensibility deeply resonates with the work of the Healthy Materials Lab, where the selection of healthier materials is central to our mission, supporting human health, environmental health, and transforming ideas of what is possible.

Claudy Jongstra’s work aligns perfectly with HML's values of radical transparency of both source and process. Her lecture was accessible and inspiring for anyone on the ladder of engagement.
Education

Urban Habitat Competition

Timber in the City

The competition challenges participants to imagine a sustainable waterfront station with a focus on healthy, biophilic design for the future of the city.

Sponsors:
- Parson’s School of Design
- ACSA
- National Softwood Lumber Council

More info at timberintheCity.
10. TIMBER IN THE CITY CONFERENCE

Timber has the potential to play a vital role in the design and creation of healthy and vibrant urban space on a large scale. This conference looked critically at the current use of mass timber and speculated on the opportunities that the material brings to architecture and urbanism. With voices from multiple disciplines, the goal of this conference was to build upon the present discourse around mass timber with an inquiry about the implications for architecture and design; health and material research; and global urbanization and climate change. The conference ran in parallel with the third Timber in the City Student Design Competition, managed by the Association of Collegiate Schools of Architecture.

HML Director, Alison Mears, was one of the speakers in part two of Timber in the City. This second session looked carefully at the health benefits and concerns of architecture realized with mass timber.

In Alison’s session she took a deep dive into the toxic implications of chemicals in the adhesives in mass timber; as well as some of the more benign mechanical alternatives to glue.

213 ATTENDEES
113 YOUTUBE VIEWERS

Timber was the entry point into thinking critically about materiality in this conference. This was an opportunity to reach audience members from across disciplines who were mostly observers to the issue of material health.
A recent seminar in New York City talks up the use of mass timber for taller buildings

The products’ future, though, could hinge on approval of proposed code changes.
The Timber in the City seminar was incredibly successful. As one of the panelists, Healthy Materials Lab and Director Alison Mears was featured in an article from Building Design, and Construction written by John Caulfield. The quote Caulfield pulled from the panel is a clear representation of the work of Healthy Materials Lab, as Mears spoke about healthier materials being at the forefront of design, and mass-timber design being about more than the aesthetic:

"Bill Browning, a Partner with Terrapin Bright Green, a consulting firm that advocates for sustainable design, spoke of how wood connects the built environment to the natural environment. He went on to discuss biophilic design and how different amounts of wood in a building can alter occupants' perceptions..."

But "it takes more than design to have a positive impact" on the environment and indoor air quality, cautioned Alison Mears, AIA, LEED AP, an Associate Professor and Director of Parsons’ Healthy Materials Lab. Mears noted that some manufacturers still bond mass timber products like cross-laminated timber (CLT) using polymers and monomers that include formaldehyde and melamine. Consequently, Mears advocated for healthy design principles that “design out” common hazards, simplify their materials palette, and gauge the life-cycle impact of materials used. "When considering timber, make sure it’s healthier for everyone."

This reaction to Timber in the City is representative of the design communitites initial interest in the idea of material health. The article illustrates levels of engagement; starting with the idea of the built environment’s connection with nature and drilling down into its impact on human health.
CONFERENCIA

Jonsara Ruth

05.10.2018 — 16.00H

Photos from Master Class at ELISAVA School of Design & Engineering
Materials not only influence our physical and neurological health but also our way of being. Our understanding and perception of things and places (socially, politically, economically and qualitatively) influence our everyday life.

For designers, materials assist the translation of an idea into an experience. Materials are the medium by which interior designers manifest and communicate their ideas. And, as designers, our material choices influence other people's experiences.

Jonsara Ruth, Design Director at Healthy Materials Lab conducted a lecture on the above topics at the Elisava School of Design and Engineering in Barcelona to a group of faculty and graduate students. Jonsara additionally conducted a materials focused master class with graduate students.

This master class asked students to track a material back to its origins. They conducted research to answer questions such as: How many ingredients are in this material? What are they? Where did they originate? How were they extracted or mined? How was the material manufactured or fabricated? And perhaps most importantly, who came into contact with the material through each of these stages?

This master class allowed a group of observers to take a deep dive in materiality. By asking questions such as “Who came into contact with the material?”, Ruth introduced the concept of human health to the students; spurring them on a journey to become supporters & advocates.
Our living spaces are filled with toxic chemicals that are proven to have dangerous health effects on our families.

The effects are so widespread that many doctors and scientists refer to this as a silent epidemic.
13. GRADUATE PROSPECTIVE STUDENT DAY

For Parsons Graduate Programs Open House 2018 Healthy Materials Lab Director Alison Mears was invited to join Erin Stine, Assistant Vice President Parsons and Joel Towers, Executive Dean of Parsons to speak to Prospective Graduate Students about Parsons and the research work available at the University. Mears focused on the work that Healthy Materials Lab does and why it’s important.

Alison Mears discussed the founding of the Lab, and urged prospective students, even if they didn’t choose Parsons, to put people and their health at the center of design decisions. She discussed how Research Assistants that work at the Lab come from all disciplines, and everyone is welcomed into this work.

Parsons is one of the few design programs that incorporate a study of material health into their curriculum.

This was a major opportunity to convert a largely unaware audience to observers. Exposing prospective students to the idea of health centered design has the potential to alter their trajectory as graduate students and ultimately practicing designers.
The New School and Aalto University have a multi-year academic relationship that looks to support collaboration between the Universities.

The Purpose of a visit in March of Year 4 was to meet colleagues working in materials innovation and production and learn from the experience of what it takes to move the idea of a material to production. One of the largest national materials resources in Finland is wood from the Finnish forests. Aalto University is researching opportunities to convert wood into a range of cellulose-based products.

This visit included a visit to the CHEMARTS Lab. CHEMARTS is a long-term strategic collaboration between two Aalto University schools, The School of Chemical Engineering [CHEM] and The School of Arts, Design and Architecture [ARTS]. The schools collaborate to invent new ways to harness wood and cellulose. The idea is to research the performance and design of advanced cellulotic materials for innovative uses.

The main objective of the collaboration is to inspire students and researchers to explore biomaterials together and to create new concepts for the future use of cellulose and other biomaterials. CHEMARTS consists of various actions, such as multidisciplinary study courses, summer projects for Masters’ students and externally funded research projects.

This visit to Aalto University was an opportunity to meet and collaborate with fellow material health advocates.
Education

Slides and Youtube video from presentations to Yale University
In February and April of Year 4, Healthy Materials Lab Director Alison Mears presented to the Yale School of Forestry - Built Environment and the Yale Office of Sustainability, respectively.

Expanding on Yale’s healthy furniture initiative, the presentation explored the impact that building materials can have on human health, the people that are most vulnerable, and strategies for making healthier material choices, and asked the question: How can the built environment contribute to better health of our working, teaching, and living spaces?

The members of the Environment Student Interest group came away with the understanding of the relationship between human health and building materials throughout the life cycle, what Chemicals of Concern are and where they may be present in building materials, and the range of design strategies that have been adopted by other designers to address this issue. At the end of the presentation, students were asked to assess the benefits of different systems and develop their own evaluation criteria.

The presentation to the Yale Office of Sustainability focused on sustainable planning, design, and construction. It looked at a range of typical building products and materials in the built environment to consider how Yale can lower toxicity exposure to building occupants by reducing Chemicals of Concern in University buildings.

Partnering with Yale’s healthy furniture initiative was an opportunity to use strategically designed presentation to turn observers into advocates.
Photos from presentation to Sustainable Systems class in Donghia Healthier Materials Library
16. WORKSHOPS FOR HEALTHIER DESIGN STRATEGIES AT PARSONS

HML offers an ongoing series of workshops for faculty and students in a range of design programs at Parsons over the academic year. These workshops provide designers of all kinds with healthier strategies for assisting vulnerable populations.

The intended audiences include all designers who can impact the health quality of their environments. With this project we have looked to reach designers at all levels, from the seasoned veterans who can act as role models, to the ambitious newcomers eager to make a change. Students can begin integrating these principles early in their careers, and can research design strategies in the freedom of academic settings. Faculty can disseminate this knowledge to the student body, and pursue extended research with the support of academic institutions. Professionals can directly apply these strategies in practice, influencing markets and industry standards, and advocating for the populations at risk.

Year 4 Workshops:
- Presentation of Healthy Materials Lab, Healthier Materials Library, and the issue of material health to MFA Textiles Congress
- Series of two Presentations about material health to Lucille Tzenasa’s Communication Design class
- Presentation of the Healthier Materials Library to a first year Sustainable Systems Class

Presentations to the Parsons community is an integral strategy in fostering a culture of advocacy among both faculty and students.
Education

Nataly Klajner

All of these materials are available at the Donghia Materials Lab
25 E 13th Street

courtesy of

Healthy Materials Lab

Rebecca Gill Clark

Vinyl Flooring.


Discover the truth beneath the surface.
Donghia Healthier Materials Library
25 E 13th St, E303

Projects from Communication Design Class at Parsons for HML
In year four, HML collaborated with Parsons Communication design students for a project entitled “Awareness, Public Service Announcements & Wayfinding”.

The advanced design studio included independent and collaborative university projects, and served as a laboratory for experimental design applications and client-designer relationships.

Design students from the studio explored wayfinding designs to introduce material health to The New School faculty and students through a variety of different communication designs. Proposals addressed both directional/wayfinding as well as informational strategies to highlight the goals and projects of HML. They also identified key physical locations at Parsons including the location of Healthy Materials Lab and Donghoi healthier Materials Library and created designs that “sign posted” these spaces.

The goal of this collaboration between HML and Parsons Communication Design students was to create a system that allows unaware audience members to become observers and supporters. This would ideally be achieved through compelling, visually stunning on-campus installations.
HML brings a range of expertise to the field of material health through the impactful use of a range of communications tools, including communications design and data visualization that support the translation of technical and scientific data into tools that influence decision makers. Drawing from industry consultants and in-house expertise, we are able to develop tactics and strategies to advance the mission of the Lab and accelerate change.

We have developed a communications plan to drive awareness, create demand, and drive change via new tools and resources. The plan identifies key HML platforms and their characteristics. Our planning enables us to connect all of our digital activities and funnel users through specific actions. The pathways enable us to convert participants to higher levels of engagement and expand our network – increasing our potential influence.
MATERIAL COLLECTIONS

E-LEARNING MARKETING

HEALTHY MATERIALS LAB WEBSITE

COMMUNICATION STRATEGY

INSTAGRAM

MATERIAL COLLECTIONS

MEME CAMPAIGN
COMMUNICATION STRATEGY DIAGRAM
Online Traffic Flow (in progress)

Communication & Dissemination

HML Research

New School Website

E-Learning Courses

Linkedin

Facebook

Events

Instagram

HML Website

HML Email

Links to HAMP partners through Resources

Communication Strategy Diagram, HML, 2019
18. COMMUNICATION STRATEGY

We have continued to develop, modify, and optimize our multi-pronged communication plan to drive awareness, create demand, and drive change via new tools and resources. Strategies with the goal of increasing our audience and transforming practice at multiple scales. Our strategic communications plan includes the marketing of our online certificate program, promotion of our public events, and awareness around innovative designers and materials on the forefront of the healthy materials field.

Through surveys, in-person networking, and other research tools, we have gained deeper understanding insight into our various audiences and honed our messaging accordingly. We have refined how, where, and when we message our various audience segments, which include undergraduate and graduate design students, practicing architects and designers, faculty, and community-based organizations, in order to optimize our engagement with them.
Healthy Materials Lab’s website promotes transparency and advocates for an industry wide change in the material specification process. The goal of the website is to situate human health considerations as central to material specification. The new website collects and curates a library of resources, including new content generated by HML, and is the virtual counterpart to the Parsons Donghia Materials Library physical collection of materials. By consolidating these resources into a simple online interface, the site increases accessibility and facilitates the practical implementation of healthier building practices.

We forefront easy navigation and search functions to enable users to access concise information and navigate to their specific needs. The simple text is complemented by intuitive graphics, first person narratives and stories, and suggestions for related content throughout. The interconnections created between subjects emphasize the systemic nature of complex topics and allow users to easily access information.

As the site grows and evolves, we will develop additional tools and add more useful information. The next spread details our website development strategy.

Consistent feedback and anecdotes from a wide range of users identifies HML’s website as being one of the most useful materials platforms available.
Material Collections

Looking for healthier building products? Through extensive research, we’ve compiled these collections of materials that avoid the most impactful product categories.

Featured Collections

- ReFabricated Materials
  - Consider products that can be designed and grown harvesting biological organisms. This emerging design paradigm is centered on repurposing materials with living cells. Organisms such as yeast, bacteria, etc.

- Resilient Flooring
  - Why is it important to consider traditional resilient flooring? For durable, environmentally-friendly, and less toxic chemical-free solutions in the manufacturing, hard-surfing, and finish.

Healthy Materials Library

A resource for students, faculty, practitioners, and researchers from around the world to find material samples, evaluation tools, and in-person support.

Tools & Guides

Browse through our digital collection of tools and guides to help designers, architects, homeowners, and developers make more informed choices about building materials and health.

Material Health Research

Want to learn more about the impact of building materials on health? These resources provide information on the chemicals that are most toxic, common sources where they’re found, pathways of exposure, existing health hazards, and the populations that are most vulnerable.

Better Building Materials: Understanding Human Health and Environmental Attributes

This guide offers the core information that building project teams need to know to make the consideration of human health and environmental issues a systematic part of building materials specification, purchasing, and use.

Healthy Buildings Network: Research 

Material Health and Environmental Attributes

The Healthy Buildings Network is designed to reduce the use of hazardous chemicals in building products as a means of improving human health and the environment.

Six Clusters: A Workshop Series on Chemicals of Concern

A series of workshops and workshops to reduce the use of hazardous chemicals found in everyday products. Instead of warning about tons of chemicals known or suspected, scientists describe the "safe clusters" which contain the chemicals that pose the least risk to human health.

Material Design Approaches

Rather than waiting on healthy alternatives, consider design strategies that can avoid the hazards all together. Through looking to historical precedents, fabrication methods, material innovation, and design strategies, we can take agency as designers to find creative solutions to making healthier spaces.

Color + Health: Affordable Housing with Healthy Spaces

Healthy materials and reduced exposure to toxins can result in healthier, more affordable living spaces. This guide will outline how to balance the relationship between color and health.
HML WEBSITE ORGANIZATION

The website is organized in order to address the needs of audience members ranging from Unaware to Advocate by providing information that introduces the issue and a host of different resources.

**WHY HEALTHY MATERIALS MATTER?**
Emphasize the importance of the issue.

**DONGHIA HEALTHIER MATERIALS LIBRARY**
The hub of our physical presence at Parsons.

**DESIGN RESEARCH & PROTOTYPING**
Feature developments in materials market.

**BUILDING AN AMBIANCE**
Contextualizing healthy materials to understand their qualities and applications.

**MATERIAL COLLECTIONS**
A resource that combines product categories with guidance, tips and resources for more info.

**EDUCATION**
A link to our new online learning course.

**TOOLS & GUIDES**
An interface of hundreds of resources created by research partners and internally.
25+ NEW MATERIALS
We have added new materials to all material categories.

60+ NEW PRODUCTS BEING VETTED
We are continually vetting new products to see if they meet our criteria.

30+ MANUFACTURERS WE’RE CONTACTING
Active correspondence regarding documentation and certification.

MATERIAL COLLECTIONS

Natural and Healthy
Natural materials offer an exciting source of healthier alternatives to commonly used synthetic products. These collections of bio-based products include natural insulations, structural materials, packaging, foams, and fibers. Using bio-based alternatives such as these benefits human health, as many natural materials are free from toxic additives like flame retardants. Because they biodegrade at the end of their life, these materials benefit the health of the environment as well. Some of the products in these collections are available to view in person at the Dongbia healthier Materials Library at Parsons.

Interior Paints
While VOCs get the most attention when it comes to healthier paints, there can be a variety of other toxicity concerns in their binders, pigments, and additions. Look for paints that not only meet the best standards for emissions, but have also been screened for toxic substances through certifications like GreenGuard Gold (GC-17).

<table>
<thead>
<tr>
<th>Interior Paints</th>
<th>Products</th>
<th>Manufacturer</th>
<th>Product Brand</th>
<th>Ingredients Disclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant</td>
<td>ACVC</td>
<td>Benjamin Moore</td>
<td>Ultra Spec 60</td>
<td>GRS, Detox, E1, E2, S5</td>
</tr>
<tr>
<td>Plant</td>
<td>ACVC</td>
<td>Benjamin Moore</td>
<td>Ultra Spec 60</td>
<td>GRS, Detox, E1, E2, S5</td>
</tr>
<tr>
<td>Plant</td>
<td>ACVC</td>
<td>Imperial Paints LLC</td>
<td>EcoPlace</td>
<td>GRS, Detox, E1, E2, S5</td>
</tr>
<tr>
<td>Plant</td>
<td>Lutto</td>
<td>Shimer Williams</td>
<td>Protek (USC Zero VOC)</td>
<td>GRS, Detox, E1, E2, S5</td>
</tr>
<tr>
<td>Plant</td>
<td>Milk</td>
<td>The Real Milk Paint</td>
<td>Milk Paint</td>
<td>GRS, Detox, E1, E2, S5</td>
</tr>
<tr>
<td>Plant</td>
<td>Mineral</td>
<td>Romebo</td>
<td>BioDense Superfast</td>
<td>GRS, Detox, E1, E2, S5</td>
</tr>
<tr>
<td>Plant</td>
<td>Mineral</td>
<td>Romebo</td>
<td>BioDense Never</td>
<td>GRS, Detox, E1, E2, S5</td>
</tr>
<tr>
<td>Plant</td>
<td>Mineral</td>
<td>Romebo</td>
<td>Enovia</td>
<td>GRS, Detox, E1, E2, S5</td>
</tr>
</tbody>
</table>

Material Collections page from HML website
In Year Four, Healthy Materials Lab continued to develop the Material Collections. A complete overhaul of the Material Collections was made from March to July of Year Four. Each material was checked to see if the information was still accurate and if the data was still correct. 25 new materials were added, bringing the total number of materials in the collections to 68.

The work on Healthy Materials Lab’s Material Collections was enhanced by looking into similar databases, and deepened by a summer research project conducted by summer research intern, Maya Halden into paint. Paint can be a “first entry point” into renovation for many people, and a way for them to begin thinking about healthier building materials.

The Lab is doing continuous work on adding more materials to the Material Collections. There are 50 more products currently being vetted and on their way into the Collections.

The Lab also created a new group, Healthier Model Making, which will help students and designers make healthier choices when making models. This is an additional resource for educators.

The Lab is always working on developing protocols to support correspondence with manufacturers of products and materials. In Year Four over 30 new manufacturers were contacted and responded with information on certification and documentation. Healthy Materials Lab’s Material Collections developed as a resource for anyone involved in building materials in Year Four.

Material collection increase engagement by building awareness of material health. HML researchers have organized these highly curated collections using strict criteria. By communicating this criteria to our users, we are helping to turn supporters into advocates.
4 COURSES
22 HOURS OF VIDEO
134 INTERVIEWS
24 ORGANIZATIONS
11 EDUCATIONAL INSTITUTIONS
5 CONTINENTS
11 COUNTRIES
18 ARCHITECTS
7 DESIGNERS

HEALTHIER
MATERIALS &
SUSTAINABLE
BUILDINGS

7 SCIENTISTS
18 PROFESSORS
3 ENTREPRENEURS
3 STRATEGIC CONSULTANTS
1 PEDIATRICIAN
1 LAWYER
1 INDUSTRIAL HYGIENIST
1 MARKETING CONSULTANT
Within this grant year, we deployed a digital marketing campaign to raise awareness of and increase enrollment in our online certificate program. The first phase of this marketing campaign included a series of emails targeted at architects and designers. The emails were designed to appeal to our audience members who need to complete Continuing Education Units to maintain their professional licenses. We conducted a test of different imagery styles to learn which resonated with that audience segment, and used the findings to optimize the latter half of the email campaign using the favored style.

Much of our communications efforts are focused targeting observers and enrolling them in the eLearning program. The 4 courses are designed to turn participants into advocates.
The first phase of our Year Four digital marketing campaign for e-Learning was via email. A series of GIF’s were designed to head emails that promoted the Online Learning Courses. The emails were designed to call upon themes like “back to school”, “complete your CEU’s” and to encourage our audience members to “enroll, evolve and innovate”. The industry standard open rate for emails from Educational Institutions is 15.6%, and the standard click through rate is 1.8%. The four emails that were part of this campaign had an average open rate of 27.7% and an average click through rate of 3.13%, exceeding the industry standard in both metrics.
HML CAMPAGIN | INDUSTRY STANDARD

27.7% OPEN RATE | 15.6%

3.13% CLICK THROUGH RATE | 1.8%

---

Elevate your career and stand out from the crowd with a certificate in Healthy Materials and Sustainable Buildings.

Healthy Materials Lab’s four courses will equip you with the right tools to make informed decisions and supply the necessary background information on basic construction materials, their chemical makeups and their relationship to human health.

Completing the entire certificate satisfies 18 CEUs - a full year of AIA Continuing Education Credits.

Register now!
In the Spring of year four, the communications team made the strategic decisions to design a campaign specifically for LinkedIn. We saw the LinkedIn community as one interested in professional development opportunities.
**Healthy Materials Lab at Parsons School of Design**

Did you know that many common building materials may be hazardous to our health? Start the new year by taking your design practice to the next level with an online certificate in Healthy Materials & Sustainable Buildings.

#buildingmaterials #continuingeducation #sustainability

“As a designer understanding your area of influence is important. You want to be as informed as you can about these choices.”

- John Amatruda
RA, LEED Fellow, BREEAM International Assessor Principal, Vidaros

**Healthier Materials & Sustainable Buildings Online Course**

healthymaterialslab.org

“Working to create processes and being very conscious about moving forward and not just doing things but with people can create beautiful things.”

- Ogonnaya Dotson-Newman
Program Officer, The JPB Foundation

---

eLearning campaign, Spring 2019
You’ve caught our eye.
We love your material choices.

Consider taking @healthymaterialslab’s Online Learning Program.
The physical counterpart for our digital marketing materials are a brochure and a set of cards. The brochure outlines the structure of the course providing all of the information someone considering the course might need. The set of cards were designed for instances when an HML researcher attends an event or exhibition in which it’s appropriate to leave behind a card reading “You’ve caught our eye. We love your material choices. Consider taking @healthymaterialslab’s Online Learning Program”. The goal of this tactic is to identify individuals from the design community who would be great fits for our program, and to pique their interest in learning more.
Communication & Dissemination

- **Followers:** 4,532 (+32%)
  (As of June 2019)
- **Following:** 1,794 (-25%*)
  (As of June 2019)
- **Number of Posts:** 595 (+119)
  (As of June 2019)
- **Avg. Number of Impressions on Top 3 Posts:** 6,658 (+189%)

*HML Instagram profile

- **595 posts**
- **4,532 followers**
- **1,794 following**

**Education**

Making design healthier. Advocating for material ingredient transparency. @parsonsschoolofdesign @thenewschool linkinprofile.com/healthymaterialslab
22. INSTAGRAM

Instagram is a large part of our communications strategy to strengthen industry partnerships, cross-promote content and reach a wider audience. Through initiatives such as Material Mondays, and Featured Designer Friday’s we use our imagery and visual language to share information about healthier material alternatives in a way that is engaging for designers and millennials alike.

Our initiatives and strategic approach, detailed in the following spread, resulted in a 32% increase in followers. *As our follower base has grown, we have intentionally shrunk the number of accounts we follow (by roughly 25%). It is our goal to only follow accounts who share our vision for a healthier future. Any one of our followers should be able to use the list of accounts we follow as a resource.

We plan to continue using Instagram as an effective tool to develop HML’s communication strategy, broaden our reach and support our theory of change. As one of our key learnings, we found that Instagram is a great platform for building a network of independent designers who are pushing the boundaries on using healthier materials in new ways.

Instagram helps to increase **supporters** and broaden awareness of healthier materials among a design audience. Our account disseminates resources and knowledge of healthier materials in a visually engaging way that is both friendly and authoritative.
Communication & Dissemination

**Material Monday**

- **#materialmondayhml**
- 156 posts
- Top posts
- Recent posts

**Featured Designer Friday**

- **#featureddesignerfridayhml**
- 42 posts
- Top posts
- Recent posts

**Top Posts**

An impression is when a post reaches a user's feed. One person can have multiple impressions from the same content.

**Top 3 Posts with the Most Impressions** are on avg. 189% higher than last year's

- **Plastic Bags to Be Banned in New York; Second Statewide Ban, After California**
  - 11,043
  - 4,802
  - 4,130
AUDIENCE INSIGHTS

OFFICE EXPOSE CAMPAIGN (IN PROGRESS)

In our new Instagram series, HML #officeexposé, we began introducing the designers, researchers and advocates who are exploring the new frontier of healthier materials. By introducing our team, we hope to acquaint our online audience with the actual personalities behind all of the resources we provide.
In April of 2019, HML Communications Strategist added Link In Profile capabilities to the Instagram Account. This service creates a single link, from which all other prior links can be accessed.

Previous to implementing this service, only one live link was accessible from HML’s Instagram profile. This made it so that with each new post and its associated link, the last post + link could no longer be accessed. It also made analyzing data difficult, as it was impossible to see how many link clicks each post + link received.

With Link In Profile, we can now analyze which links yield the most actions or website visits. We noticed that a high number of likes does not necessarily mean a high number of website visits and vice versa.
ARE YOU USING TOXIC MATERIALS?

Janice, what is it?

They’re all polystyrene, just different colors...

Avoid petroleum based foams.

healthymaterialslab.org  @healthymaterialslab
23. MEME CAMPAIGN

Memes are used to comment on an element of a culture or system of behavior and are easily shared from one individual to another. In year four, we began adapting memes to comment on the issue of material health. The goal of these memes is to connect to an unaware audience by appealing to their sense of humor, and by using a familiar medium.

After posting memes on our Instagram account and receiving positive engagements, we decided to adapt them into posters for an on-campus campaign.

The intention of the posters was to prompt Parsons designers to rethink the use of materials and products that contain toxic chemicals. This includes Styrofoam used by product designers in prototyping or in art boards like foam core used across many disciplines.
ARE YOU USING TOXIC MATERIALS?

evaluating the entire lifecycle of a product to develop a sustainable cradle to cradle design

making a Bluetooth speaker out of melted plastic bags

design students

Recycled content doesn’t necessarily mean healthier.

healthymaterialslab.org  @healthymaterialslab

Me trying to figure out what’s worse for my lungs: my cigarette habit or the foam dust I inhale at design school?

Avoid petroleum based foams.

healthymaterialslab.org  @healthymaterialslab
MEME CAMPAIGN INSIGHTS

Sharing meme content has been met with relative success. This success is measured using Instagram analytics tools. The central and most popular meme received 417 likes and 19 comments. It was sent around via direct messaging a total of 77 times. This is important because when HML’s followers send our posts to friends, brand new people are viewing our profile and content. Finally, this post was saved 55 times; which means 55 individuals would like to return to this meme at a later date.
DEMONSTRATION & INNOVATION

HML uses demonstration projects as a tool to test material properties and installation in a variety of high-use areas. We are prototyping new materials use at The New School (TNS) to demonstrate how the institution can adopt healthier affordable material practices while also allowing us an opportunity to explore potential future uses of those products in the affordable housing sector. Taking this local knowledge we are also proposing to test installation and performance of new affordable products at the New York City Housing Construction Agency (NYCA) and other affordable housing locations in NYC as well as in Warren, Ohio. Specification and installation of healthier, affordable interior products situates human health as a core criteria influencing decisions from the persons in charge of specifying. In addition, we are also conducting more experimental demonstrations in an exhibition format to highlight healthier materials currently used in affordable housing. In this context we look to surprise and inspire existing design students and provoke current designers to rethink their practices.
24 HEMP + LIME: A GUIDE
25 HML OFFICE RE-DESIGN
26 WASTE-NO-MORE EXHIBITION
27 ROLE MODELS STUDENT COMPETITION
28 LESSONS FROM WEST HARLEM GROUP
Visuals from HML Hempcrete research book
This guide examines the feasibility of hempcrete block production through hempcrete demonstration projects. Included are introductions to industrial hemp cultivation, hemp and lime use, the potential of manufacturing, and creation of hemp-based products to create a complete cycle of block production to construct affordable and healthier housing. The project explores the potential creation of job training and new jobs in agriculture and in the construction industry in small, under-served rural communities. For this project, the Healthy Materials Lab, in partnership with local farmers, producers, and developers aim to design and demonstrate how healthier building materials can be incorporated to create affordable housing in rural communities across the United States.

The design, construction, and production of buildings impacts both human and environmental health. Products produced in the current construction system affect human health at all stages of the life cycle not only during their use, but also through their processing, manufacturing, and disposal. Cumulatively, the materials and processes that make our built environments contribute to a significant proportion of local and global economic activity. However, these activities have the potential to both positively and negatively affect the health of people and the environment. From a planetary perspective, building materials consume large amounts of energy and add significant amounts of CO2 into the environment during the production and construction phases. For example, cement is a critical component of concrete and a ubiquitous construction product. Cement is the second most consumed commodity in the world after water, and is a major producer of CO2 emissions. While we consider the entire building ecosystem in our research, we prioritize the materials in their use phase where products and materials emit unnecessary and hazardous toxics into both exterior and interior environments.

Faced with a climate change crisis, there is an increasing demand from the construction industry for renewable, environmentally sustainable and benign construction materials. One of these alternative materials is a product sometimes called hempcrete. Hempcrete combines industrial hemp, lime and water to create a building product with a range of valuable physical and natural chemical characteristics including fire resistance, lightness, thermal performance and a low environmental impact, all of which make it a compelling choice in construction. Interest in hempcrete has gained steady momentum within the fields of architecture and design as a viable construction material.

The ingredients which make up hempcrete, industrial hemp and lime, are of interest in their own right. As a crop, industrial hemp can be reintroduced into rural communities and locally cultivated, minimizing transportation to a factory or site for subsequent production. Therefore, products utilizing industrial hemp have a reduced carbon footprint. Additionally, hemp is an incredibly versatile crop and up to 97% of the hemp plant can be used to create a range of valuable products: from the fibers for textiles, the cellulose of the

24. HEMP AND LIME: A GUIDE

COLLABORATORS
Alison Mears
Jonsara Ruth
Irshaad Malloy
Mariana Gonzalez
Blair Czarecki
Erich McEnroe
Rolf Halden
Tina Lê
Hemp Cultivation

Lime

Hempcrete

Building Industry

Visuals from HML Hempcrete research book
stalk which has been used in the production of non petroleum based plastics like cellophane and rayon and the seeds and oil of the flowers for food and oil. Hemp has been compared to other agricultural crops that have received attention for their diverse end uses. Corn, for example, which is grown for its edible kernels and ethanol production also contributes, post-consumption, to the building industry. However, despite its abundance, covering over 97 million acres of land in the US, corn production consumes considerable amounts of natural freshwater resources via irrigation, requires pesticides and is responsible for emitting over 5.6 million tons of nitrogen into the air from chemical fertilizers. Additionally, the methods required to make corn a viable resource for building materials would result in additional harmful emissions being released. The cultivation of industrial hemp does not require irrigation, added fertilizer or pesticides, making it a more sustainable agricultural material choice.

Until 2018, industrial hemp cultivation and use was regulated by the federal government, as hemp was a species classified as a controlled substance. Academic and other organizations could apply for licenses to grow and harvest industrial hemp. These restrictions have been gradually lifted, opening up agricultural and industrial opportunities. New York State recently passed legislation promoting a new carbon farming initiative in Columbia and Dutchess counties. This legislation promotes sustainable farming practices such as industrial hemp cultivation that would use the crop to sequester carbon in the soil and improve soil productivity. And in December 2018, the Agriculture Improvement Act, otherwise known as the 2018 Farm Bill reclassified hemp from the Schedule I category to an agricultural commodity.

In addition to a reliable source of locally grown industrial hemp, hempcrete products also require lime. There are a range of US companies producing lime mixes designed as additives to produce hempcrete. Lime is made from limestone a carbonate sedimentary rock found across the US. Locally sourced limestone, that could be processed locally is an ideal option as it would also reduce transportation costs and carbon emissions. The viability of local limestone and its processing into lime for use in hempcrete will be explored in this project.

To make hempcrete, hemp’s woody core is combined with water and a lime mix which acts as a mineral binder to coat the hemp hurd. The hempcrete produced in this process creates a naturally antimicrobial and antifungal mixture, a simulated “concrete-like” material and a product that has a range of construction uses. Today very little hempcrete product development is being undertaken for use in any sector of the construction industry in the United States, primarily because of the recent restrictions on hemp cultivation. However, we maintain that hempcrete is an innovative product with many useful construction properties and maintain its use as an alternate affordable healthier building product will produce a multitude of beneficial outcomes.

Families, especially children, living in affordable housing are often subjected to poor living conditions. Creating alternate products and building systems made from locally grown and sourced hemp and lime materials will contribute to improved health outcomes for children and families living in affordable housing. Families living in affordable housing are often excluded from important conversations about their
futures as it relates to their health, housing, and other critical issues. In all of our work and in this project we focus on amplifying and embodying the voices of local community members. By making it a priority to work with local community members, we gain valuable insight into how to make the most of the strengths and resources of rural community members so that those critical local voices will also guide and inform the process.

Construction and finish materials currently used in affordable housing are often the cheapest and least healthy on the market. We have conducted case study research in five different geographic locations in the US where affordable housing developers, their teams and architects are working to push the boundaries of current construction practices and consider healthier material alternatives. But alternate products that are healthier and affordable and appropriate for use in affordable housing are limited. Discovering a viable, sustainable, insulating hempcrete wall system as an alternative to current walls is intriguing and worth exploring.

It is difficult to innovate in affordable housing in the US. Land costs are high, and funding for Affordable Housing is complicated as owners and developers must draw from multiple sources of both private and government funds to construct their projects. Each fund has its own restrictions and constraints. Managing the funding process requires intensive oversight adding to the “soft” costs of projects that can be equivalent to the hard costs of construction. Yet the supply of better construction materials is limited and often expensive. How can we contribute to change in affordable housing by creating a new system of viable materials production? A new agriculturally based system, with new models of production, will create new opportunities in agriculture for farmers, as well as provide new training opportunities for workers, setting into motion the production of new materials, and new jobs in construction. Not only will we be able to design and construct better affordable houses, we will also create new value chains for rural communities.

Year 4 marked HML’s renewed efforts to research Hempcrete as a viable alternative building material. The resulting booklet is designed to address audience members anywhere from unaware to advocates.
Communication & Dissemination

Table top surfaced with Forbo
Materials are the core of any renovation project, and material transparency is key to ensuring a healthier project. At Healthy Materials Lab (HML) at Parsons School of Design, we encourage designers to choose a framework using material health to guide their product selection and design decisions. This, in turn, can lead to a simplified material palette, where attention to the details of product installation can lead to a healthier outcome. Recently, we had the opportunity to test out these strategies as we renovated our own office in New York City; our approaches ranged from manufacturer-made products to custom-designed furniture.

The framework for the office renovation was to use only Red-List Free products, avoiding often toxic, bioaccumulative substances that can harm humans and the environment at all stages of the product lifecycle. Eliminating products containing these substances can be thought of as a strategy, “pre-search” - our design phase search for materials is made easier by eliminating all the ones that contain substances of concern. The Lab also sought to eliminate off-gassing substances by designing without adhesives (aside for the product-specific adhesive necessary to install the floor), and other volatile materials.

Although HML was already familiar with some of the product choices, Senior Material Researcher Leila Behjat explained the process of confirming the product contents. “The material search was based on products our team had worked with and experienced on other jobs. Nevertheless, for each product, we contacted the manufacturer to ensure that the performance and product ingredient composition was still valid as a healthier material and to receive any available certification if not at hand. Finishes were a matter of testing different ones based on what our team had worked with and selecting from those options. Unforeseen materials that were introduced were always vetted and the information added to the project spreadsheet. Keeping track of information and correspondence in a Google sheet helps us “remember” why and where we used products.”

HML specified Forbo MCT Tile in Black for the floor. HML had used Forbo Marmoleum product in the office previously, but the previous install over 2 layers of existing VCT tile and glue resulted in poor adhesion and edge curl, calling for a fresh installation. Forbo MCT consists of USDA certified 100% bio-based content including Tall and Linseed Oils, Cellulose, Linseed, Gum Rosin, and Limestone, and adheres to the Lab’s Red-List Free Framework. CMP AS-100 Water-Based Primer and Grey Patch were used to prep the subfloor. The MCT Tile adhered with Forbo’s water-based, 100% solvent-free 885m adhesive.

For the install, HML worked with a certified Forbo flooring technician. Because the floor already had two layers of VCT tile and glue, this installer laid down ½” Weyerhauser SFI plywood as a subfloor. As this had not been previously discussed, it made for a new material that had to be researched and vetted as complying with the project framework. According to the International Living Future Institute’s Red List, “formaldehyde is classified by the International Agency for Research on Cancer and the State of California as a known human carcinogen. Common health effects at low levels of exposure to this volatile organic compound include irritation and sensitization, and the compound also acts as an asthma trigger.”

The Lab’s contact with the manufacturer confirmed that these panels have no
Purebond Plywood with a beeswax and linseed oil finish
added formaldehyde, and testing by the APA Engineered wood association has shown off-gassing from the naturally-occurring formaldehyde in the wood is below 0.1 ppm, considered safe by the American Cancer Society.

Because an extensive demolition of a floor in a 1913 building might have uncovered unknown hazards, including the possibility of asbestos-containing products, the Lab elected to stay with the added plywood subfloor. Also, encapsulating a problematic material rather than disturbing it helps protect workers and users from exposure to unknown and potentially hazardous dust and debris. Our experience with this unexpected material reminded us how important communication is when working with health goals; the whole project team, including subcontractors, need to know the why behind the project specifications. Any substitutions should be carefully reviewed to ensure compliance with health goals.

Painting the office was another opportunity to avoid off-gassing. As HML Director Alison Mears recently stated, paint is an “entry product”; something anyone can easily change to create an improved indoor environment. For the walls and entry door, the Team specified another HML-familiar product: Romabio mineral-based paints and primer, products with zero VOC emissions.

The Lab specified Poppin powder-coated filing cabinets for the office. This factory-finished product eliminated the need for painting within the indoor space of the office or a Parsons making space - applying finishes in controlled settings is, whenever possible, preferable for worker and occupant safety. Custom shelving and storage for the area was designed, fabricated and finished by Parsons faculty member Hee Chan Kim in collaboration with HML. As in the rest of the project, HML specified that these furnishings should use no adhesives and substitute with mechanical fasteners as another way of reducing emissions. In terms of materials, Purebond No-Added Formaldehyde plywood was the principal material in use by volume; once again, avoiding formaldehyde was key to staying on track with Red List compliant materials. By using the PureBond rather than conventional plywood, we were able to reduce these risks and improve our own indoor air quality while contributing to a healthier product life-cycle, considering all who work with the product through its manufacture and installation. Another contributing factor in the strategy of minimizing emissions was that this was a renovation where users were returning to the space within a few days, rather than new construction where a longer flush-out period is possible.

Office work tables were surfaced with Forbo Desktop running against a raised maple table edge; this surface is composed of biomaterials similar to the Forbo Floor tile. An unfinished marble slab serves as a kitchen counter top. Both of these were placed without adhesives, in alignment with the Lab’s criteria of eliminating off-gassing substances. Avoiding adhesives also represents a strategy of design for disassembly, meaning these materials can be more easily removed and reused in the future. The Lab thoroughly researched the metal hardware used to avoid hexavalent chromium. According to the National Toxicology Program of the National Institutes of Health, the adverse health effects from exposures to hexavalent chromium “include nasal and sinus cancers, kidney and liver damage, nasal and skin irritation and ulceration, and eye irritation and damage”.

HeeChan Kim fabricated the table support structure from mild steel and coated it with JAX Iron, Steel and Nickel Blackener, finishing it with a surface coat of Beeswax and Linseed Oil.

Through careful research and selection of materials, the Lab has created a more functional, healthier workspace with a potentially far-reaching impact. The experience gained and documentation gathered represents an important pilot project that can serve as an example to other renovation projects.
MATERIALS LIST

FLOORING:
- Forbo MCT Tile
- CMP A5-100 Primer
- CMP Grey Patch
- Weyerhauser ½ Plywood SFI

WALLS:
- RomaBio EcoDomus Matte White WO-107
- RomaBio EcoDomus Matte, to Match Benjamin Moore 2125 Black Panther
- Entrance Door
- RomaBio EcoComus Satin, to Match Benjamin Moore 2022-30 Bright Yellow
- Primer: BioGrip Micro

FILING CABINETS:
- Poppin Powder Coated steel cabinets with nylon casters. BIFMA tested

TABLES:
- Tops of Purebond Plywood from LeNoble Lumber
- Surface covered by Forbo Desktop
- No adhesive, held by maple hardwood edge strips
- Table structure/legs is welded hot rolled pickled and oiled mildsteel, an iron and carbon alloy.
- Table legs are colored with JAX Iron Steel and Nickel Blackener and coated in a 1:4 mix of Beeswax and Linseed Oil

BOOKSHELF:
- Purebond Plywood from LeNoble Lumber
- Brass threaded fasteners, nails
- Rubio Monocoat Oil Plus 2C White finish

KITCHEN:
- Purebond Plywood from LeNoble Lumber
- Finish: RomaBio EcoDomus Satin, Benjamin Moore Match 2022-30 [Bright Yellow] 2 coats, sanded in between coats to get a finer finish
- Brass Pin and Sleeve for Adjustable Shelves
- Surface Finish - Beeswax and Linseed Oil in a 1:4 Mix

HAZARDS AVOIDED:
- No off-gassing/VOCs from adhesives or conventional paints and varnishes
- No formaldehyde by selecting Purebond plywood
- No health risks from hexavalent chromium
- No health risks from carbon black in Metal
- No chemicals of concern - materials selected are Red List free
Communication & Dissemination

Photos from Waste No More exhibition, Spring 2019
From December 19th, 2018 to January 27th, 2019, Parsons Healthy Material Lab partnered with Eileen Fisher on their traveling exhibit, Waste No More. The exhibit was on display in the Sheils C Johnson Design Center at 2 W 13th Street.

The exhibition was organized by Parsons Healthy Materials Lab in partnership with DesignWork at Eileen Fisher and in celebration of the 2018 launch of the MFA Textiles program at Parsons. It posed the questions: What if we designed for all people’s health? What if we considered the health of everyone involved in making something? From the extraction of a fiber to processing, to weaving, to packaging, to selling, to wearing, to disposal, and everyone who lives near the factories and landfills and drinks the local water?

DesignWork’s project “Waste No More” demonstrates a process with circular economy philosophy at its core: "DesignWork is embodying the art and design of conscious consumption. DesignWork creates at the intersection of creativity, ecology, and architecture, and is concerned with the beauty of the discarded and the potential of the re-purposed... A truly circular venture, DesignWork is about more than the reuse of old into new. It’s an upending to the conventional cycle of consumerism: from manufacture, to use, to disposal. It’s opening up the apparel industry into multiple industries; rethinking the traditional roles of materials; rerouting familiar supply chains into surprising new systems. DesignWork is an effort to bring together art and invention, artists and businesses towards a zero-waste, high-design future."

Wallworks are large-scale, one-of-a-kind hangings composed of felted scraps of used EILEEN FISHER clothing. The variability in materials, colors, and techniques renders each piece wholly unique. The color wave that was in the window of 2 W 13th Street was built out of garments collected from the Eileen Fisher take-back program. It represented the volume of materials used in the cycle of production of consumer products.

As we confront the pervasive problem of waste and consumption that contributes to dramatic changes to the earth’s climate, collaborations like this one between Parsons Healthy Materials Lab and Eileen Fisher call attention to these dire problems and compels designers and consumers to confront our practice and personal consumption today.

This exhibition was Visible to pedestrians on West 13th street; a high-traffic area of NYC and was an opportunity expose the general public to the idea of material health through all stages of production, and confront our rapid consumption
In Year 4, Healthy Materials Lab sponsored the third annual Role Models Contest. The annual contest offers a chance to be a role model to the rest of the design world by sharing with an innovative approach to design and demonstrating how creative practices have a positive impact on personal health, the health of our neighbors, and the world at large. This year, we extended the contest beyond Parsons to students currently enrolled in an undergraduate or graduate program in the U.S. We received submissions from eight universities in six states. Submissions were judged based on: Material Source, Documented Benefits or Health Impact, Innovation + Creativity, Carbon Intensity and General Aesthetics. This year we award prizes to one winner and three runners-up:

Grand Prize Winner: Garrett Benisch, Masters in Industrial Design Program at Pratt Institute. Garret reinvented the generic pen for his project Sum Waste. His pens are made of biosolids derived from sewage and could move society toward entirely rethinking the concept of waste and its potential uses.

Honorable Mention for Material Exploration: Yi Hsuan Sung, MFA in Textiles at Parsons School of Design. Yi worked with agar-based bioplastics for her project Modular Textiles. She used food waste for dyes and created different shapes of agar loops, showing the possibility of diverse applications.

Honorable Mention for a Viable Solution Using Healthier Materials: Zijin Gao, School of the Art Institute of Chicago. Zijin created a viable solution to the water crisis with their project Water to Water. The design uses only glass and cork to create an evaporation based water filtration system.

Honorable Mention for a Possible Viable Alternative to Petrochemical Based Traditional Geo-Textiles: Phia Sennett, Masters in Landscape Architecture Program at Harvard Graduate School of Design. Phia aimed to eliminate plastic from landscape materials with, Terracloth: Living Landscape Fabric. She experimented with a bacteria-grown biofilm that will prevents weeds and nurtures the soil.

Notable Entry: Jennifer Yaing created an entirely compostable sneaker with her project, Local Lawn Regen One’s, in an attempt to tackle the rabid consumerism in sneaker culture.

Notable Entry: Baohua Sheng created a terracotta air cooler, Analog Cooler, that would eliminate the use of electricity and HCFCs. Baohua’s product employs extruded clay technology and an ancient technique that uses porous terracotta material for evaporative cooling effect.

WINNERS:
Garrett Benisch
Yi Hsuan Sung
Zijin Gao
Phia Sennett
Jennifer Yaing
Baohua Sheng

This contest is an opportunity to celebrate and promote student innovation in the design community. An important part is publicizing the application of healthier materials in addressing systemic change.
Third annual Role Models winners
Research demonstrates that substantial human health risks can result from exposure to toxic chemicals present in building products in constructed environments. These health risks can include an increase in cases of asthma, cancer, obesity, and issues related to developmental and reproductive health. The health risks are particularly high for children, pregnant women and people living in poverty. By making simple changes to building products used in renovation we can create better places for all people.

In the 2015 Community Health Profiles, Dr. Mary Bassett, Commissioner for the New York City Department of Health and Mental Hygiene, made the following statement regarding New York City’s built environment:

"New York City is a city of neighborhoods. Poor health outcomes tend to cluster in places that people of color call home and where many residents live in poverty...This is unfair and avoidable. A person’s health should not be determined by his or her ZIP code. Reducing health inequities requires policymakers, health professionals, researchers and community groups to advocate and work together for systemic change. Poorly maintained housing is associated with negative health outcomes, including asthma and other respiratory illnesses, injuries and poor mental health."

Healthy Materials Lab (HML) is a group of design researchers at Parsons School of Design working to bring a consideration of human health to all aspects of design and building practices and is changing how the next generation of designers build—particularly for populations that have been historically excluded. We work to demonstrate and accelerate the many ways in which better materials can improve the health and lives of all people.

Specifically, we work towards creating better practices in the affordable housing sector to accelerate the creation of healthier homes nationwide. We aim to reduce exposure to toxics for families living in low-income and affordable housing by making it easier for designers, architects, and housing developers to avoid the most toxic chemicals present in the building materials commonly used in affordable housing. We create a range of tools and resources that will enable these decision makers to inform and change their construction practices throughout the design, building, and occupation by bringing all stakeholders together to be part of the building process. This ensures that human health decisions become incorporated into the final building.

Parsons’ design programs often work in New York City communities to support the work of local nonprofit organizations. One such organization is the West Harlem Group Assistance (WHGA), which was founded in 1971 to address the lack of decent affordable housing and social services in Harlem, New York. WHGA has developed over 1,600 units of housing for low and moderate income families, low income seniors, homeless families with children and adults coping with substance abuse and mental health challenges. They work to renovate existing and construct new buildings in West Harlem to provide affordable housing for families. HML began collaborating with WHGA in 2015 to update and improve the building products used in their renovation projects. Our recommendations to use better, healthier products were adopted by the group as part of their typical building protocols, enabling WHGA to build better, healthier buildings for their residents. In 2017 the Parsons Master of Fine Arts Interior Design program’s “Color Lab” class partnered with...
HML, NYCHA and Mt. Sinai Hospital on the renovation of a community space in East Harlem at Carver Houses.

This year, the design students and their two faculty members worked with HML to establish a new project with WHGA and identified possible sites that would act as the physical focus for their studio. This recent collaboration with WHGA was at the Convent Avenue Family Living Center (CAFLC) in West Harlem. The CAFLC is a transitional housing facility for homeless families sponsored by the New York City Department of Housing Preservation and Development (HPD) and managed by WHGA. CAFLC provides emergency housing for families displaced by fires, natural disasters or city-based vacate orders. The center offers self-contained apartments as well as an on-site Housing Readiness Program while displaced families search for permanent housing.

Working with the Director of Center, Nadene Gordon, researchers from HML identified spaces that would be the focus for the renovation. HML specified two critical interior product alternatives that would be used in the renovation that are both affordable and healthier[1], within the categories of paint and flooring. Since paint and flooring cover the majority of the surfaces in the interior, focusing on these products and specifying better alternatives can dramatically improve the health profile of the space.

For the flooring, HML specified Forbo Marmoleum tiles as an alternative to the vinyl composite tiles that are ubiquitous in affordable housing and are a potential source of harmful chemicals[2]. Forbo Marmoleum tiles have better performance and maintenance profiles compared to vinyl tiles, have a much longer life, and they do not contain the harmful phthalates that are contained in the vinyl product.

For the paint, HML specified Romabio lime-based mineral paint as a healthier alternative to acrylic paints. Romabio is VOC-free, odorless, does not contain asthmagens, and is naturally mold-resistant. As the community spaces are in continuous use during the week by families who have been the victims of traumatic events, the spaces were painted over two weekends and back in use on a Monday. The paint used was low in volatile chemicals that off-gas a strong chemical odor, reducing the potential for the headaches and nausea that typically result from those fumes.

As part of their studio class, the faculty and students from the Color Lab visited CAFLC multiple times to plan the renovations of the public areas of the center, which included the mail room on the first floor and the reception room on the second. The mail room and the reception area were both in need of renovations to make the spaces more inviting for families and staff. The spaces did not offer comfortable waiting areas for families to sit, and in the reception space there was nothing to keep children occupied while their parents filled out paperwork. Because the center dedicates their resources to helping families, there are few resources left over for making the space more inviting and comfortable.

The Color Lab students created a design process that proposed a color philosophy to highlight the relationship between color and memory. In addition to the renovation protocols HML also added in a small budget for the specification and purchase of new furniture to accommodate the needs of the families, with a focus on the children.

There is a limited amount of natural light in both spaces, but one benefit of the specified lime-based paint is its ability to reflect daylight, creating a small but significant increase in luminosity.
Volunteers from HML repainted the reception room walls and ceilings with a bright white lime-based Romabio paint. The Color Lab students then installed brightly colored, painted paper strips to enliven one corner of the room. In the mailroom, HML painted three of the walls with the same white paint and added a slate, blue-grey accent wall, and the Color Lab came in to change the lighting to brighten the space and accentuate the new colors in the room. On the mailroom’s accent wall there are fourteen wooden panels, each painted with two Romabio limewash colors. Paired with the slate wall behind them and the lighting, the room is welcoming and bright.

Ruben Rankin, who oversees the buildings and maintenance at Convent Avenue worked closely with HML throughout the project. He made sure that the walls were patched and sanded, he helped with the painting, and he kindly assembled the furniture we ordered for the space. He was so enthusiastic and moved by the process he’s planning to do a similar project in his family home.

Nadene Gordon expressed her deep appreciation for the changes to the administrative spaces. Nadene reports: “The space in both areas is now inviting, bright and allows for an environment that says we understand how the fire and vacate orders affect the families, and if only for a few minutes, we want them to enjoy a space that is environmentally friendly, clean and aesthetically calming. Both areas are child friendly, and I appreciate that the students are able to understand why the families are at the shelter.” She even joked that “Families won’t ever want to leave the reception room!”

The role of health design has been long overlooked in affordable housing. It is time to recognize the importance of design specifications for health issues such as asthma and cancer, as well as for tenants’ mental well-being.

Our work with WHGA ensures that health is prioritized for those who may suffer from more exposure to toxic materials. WHGA takes sustainability seriously and their readiness to change their renovation practices is an example of the kind of forward thinking that can transform housing and improve human health. Simple steps like changing the paint used in renovation can make a significant difference.

[1] Very few building products are made with ingredients that have no human health hazards even for products that are considered better options. When we compare hazards between products, we prefer the product that contains fewer and lower hazards.

[2] Vinyl tiles contain hazardous phthalate plasticizers, and stabilizers based on organotins which are PBTs, all of which present hazards to occupants when they leach out of the floors and into the living space.

This article was adapted from West Harlem Group’s blog WeAct and is a conclusion to our partnership and highlights one of HML’s major advocacy efforts.
HML is working with government agencies and other organizations to change their specification processes and establish industry guidelines for material health. By working on both large-scale policy shifts and applied demonstrations, HML aims to create systemic, long-term changes in practices that will affect the entire building materials chain.
<table>
<thead>
<tr>
<th>Page</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>LIVING PRODUCT EXPO</td>
</tr>
<tr>
<td>30</td>
<td>HML &amp; HPDC DISCUSSION SERIES</td>
</tr>
<tr>
<td>31</td>
<td>FXCOLLABORATIVE ARCHITECTS PRESENTATION</td>
</tr>
<tr>
<td>32</td>
<td>DISRUPTIVE INNOVATION FESTIVAL</td>
</tr>
<tr>
<td>33</td>
<td>PRESENTING AT GREEN-BUILD</td>
</tr>
<tr>
<td>34</td>
<td>RYERSON MATERIALS LIBRARY</td>
</tr>
<tr>
<td>35</td>
<td>NBBJ LUNCH + LEARN</td>
</tr>
<tr>
<td>36</td>
<td>TISHMAN PRESENTATION</td>
</tr>
<tr>
<td>37</td>
<td>HEALTHIER FUTURES: THE ECONOMY OF BIODESIGN</td>
</tr>
<tr>
<td>38</td>
<td>HATCH COLLECTION: PANEL DISCUSSION</td>
</tr>
<tr>
<td>39</td>
<td>HEALTHIER FUTURES: COCKTAILS AND CONVERSATIONS</td>
</tr>
<tr>
<td>40</td>
<td>CHANGEMAKERS CONFERENCE H&amp;M</td>
</tr>
<tr>
<td>41</td>
<td>THE NEW FRONTIER OF MATERIALS: HUMAN HEALTH AND DESIGN</td>
</tr>
</tbody>
</table>
Healthy Products for Everyone

David L. Lawrence Convention Center
Pittsburgh, PA
Sept 11-13, 2018
The International Living Future Institute hosted the fourth Living Product Expo in September in Pittsburgh, the birthplace of American manufacturing. At the Expo, attendees connect with 700+ leaders in sustainable design, healthy materials, biophilic design, and health & wellness.

The Expo brings together leading minds in the design and manufacturing industries to lead the revolution toward healthy and beautiful spaces for everyone. You’ll experience three game-changing days of engaging education sessions, inspiring keynotes, and an exclusive trade show brimming with leading-edge products.

This year the focus was on achieving healthy products and spaces. LP18 keynotes include leaders from Mohawk Group, Phylagen, Humanscale, American Society of Interior Designers (ASID), LightArt, and more!

Director Alison Mears gave a presentation alongside Wendy Vittori, Rachel Berman, Catherine Bobenhause, Susan Kaplan and Brian Kaplan entitled “Healthy Materials and Wellbeing: The Interior Designer’s Leadership Role in Sustainability”.

Learning Objectives:
• Discover how critical the interior designer’s role is in cultivating the direct connection between people and materials that surround them.
• Recognize specific ways that interior designers can benefit from and contribute to multidisciplinary collaboration.
• Apply current tools to evaluate specific material selection in the search for safer products.
• Learn how academic training is key to critical thinking in discerning what material characteristics are important with respect to human health.

The Living Product Expo is effectively an event that brings together a community of design advocates. The presentation HML Director participated in was framed to address advocates as it spoke to the designer’s leadership role in sustainability & health.
DISCUSSION #1

35
IN PERSON ATTENDEES

28
LIVE YOUTUBE VIEWERS

DISCUSSION #2

33
IN PERSON ATTENDEES

16
LIVE YOUTUBE VIEWERS
30. HML X HPDC DISCUSSION SERIES

Parsons Healthy Materials Lab and Health Product Declaration Collaborative (HPDC) collaborated on a discussion series on Transparency and Material Health. This 4-Part, live Discussion Series was designed to provide practical answers to questions that architectural and design practitioners are likely to encounter as they take the next steps to integrate healthy materials practices into product selection and specification in projects.

The format for each session was a 90 minute, live discussion with a panel of experienced practitioners, who have themselves implemented healthy materials practices at their firms. Our panelists spoke – from their own experience - to some of the common issues that arise in introducing these practices in architecture, design and building owner firms and shared their lessons learned and solutions implemented. The sessions provided case studies and actionable information that could be put to use right away on a given project. Participants also learned about other tools and resources that are available and affordable, that can help designers and their colleagues quickly and effectively introduce the use of transparency and material health practices into a design projects.

Discussion #1 "Managing Transparency and Material Health in Practice - Introduction to Firm-Level Issues”:

In this first session panelists shared how they have addressed the firm-level administrative and management issues which may arise with the decision to include transparency and material health information in projects. Topics included: risk and liability management, specifications, interfacing with contractors, and presenting to clients/ROI for building owners.

Discussion #2 "Transparency and Material Health 'In Practice' - Accessing and Using Transparency and Material Health information”

This discussion provided an overview of transparency reports and material health databases and libraries available for use by architecture and design practices. Panelists shared their practical approaches to integrating these tools and information with their existing firm libraries. They also addressed the techniques they have used to prepare design professionals, through education and practice, to use these tools in project documentation, specifications, and to obtain LEED/WELL and other

PANELISTS DISCUSSION 1:
John Amatruda, Vidaris, Inc.
Robin Guenther, Perkins+Will
Amanda Kaminsky, Perkins+Will
Alison Mears, Parsons Healthy Materials Lab at Parsons
Wendy Vittori, HPD Collaborative

PANELISTS DISCUSSION 2:
Mary Dickinson, Perkins+Will
Susan Kaplan, HLW International
Jack Dinning, Donghia
Alison Mears, Parsons Healthy Materials Lab at Parsons
Wendy Vittori, HPD Collaborative
**DISCUSSION #3**

23
IN PERSON ATTENDEES

5
LIVE YOUTUBE VIEWERS

**DISCUSSION #4**

75
IN PERSON ATTENDEES
Discussion #3: “Beyond Transparency: Improving Product Decisions with Transparency and Material Health Information”

Building firm commitment and practitioner knowledge of transparency are fundamental steps that any architecture and design firm can take. For those who have taken these steps, this third session in our Discussion Series provided insight into the next level of integrating material health information with other decision parameters. Panelists addressed the question: “How can project teams tackle the question of selecting healthier products?” Decision-making frameworks that integrate consideration of material health attributes with cost, performance and other product characteristics were also explored. Speakers drew on experience in related fields such as industrial hygiene, and explored the tools that are feasible in today’s situation, to support these next steps in selecting and specifying healthier building products, and healthier buildings.

Discussion #4: “Affordable Housing and Beyond: Addressing the needs of All Populations”

This fourth discussion explored how architecture and design are being transformed and informed by these new material health practices. Panelists discussed how the particular needs of vulnerable populations are being acknowledged and how this is impacting the work of architects and designers. Our panelists spoke - from their own experience - to some of the common issues that arise in introducing material health into design practice and will describe the funding challenges, changes in design practice and the environmental and social benefits for occupants. The discussion provided case studies that can inform designers’ projects.

PANELISTS
DISCUSSION 3:
John Amatruda, Vidaris, Inc.
Catherine Bobenhausen, Colden Corporation
Heather Henriksen, Harvard University Office for Sustainability
Jonsara Ruth, Parsons Healthy Materials Lab
Alison Mears, Parsons Healthy Materials Lab
Wendy Vittori, HPD Collaborative

PANELISTS
DISCUSSION 4:
Andrew Bernheimer, Bernheimer Architecture PLLC
Martha Lewis, Henning Larsen
David Leven, LEVENBETTS
David Lewis, LTL Architects
Alison Mears, Parsons Healthy Materials Lab

ATTENDEES
221

YOUTUBE VIEWS
77

This series was all about helping supporters become advocates. The focus of each discussion was to provide anecdotes from the field and actionable advice for practitioners.
31. FXCOLLABORATIVE ARCHITECTS PRESENTATION

Healthy Materials Lab Design Director Jonsara Ruth, and Jack Dinning Director, Donghia healthier Materials Library met with the head of sustainability and several committed staff members from FXCollaborative Architects. FXCollaborative is a leading architecture firm with over 150 employees working in the field. After the introductory meeting with the HML team to introduce the subject of material health, the FXCollaborative staff members toured the Donghia healthier Materials Library. They invited HML to do additional presentations at their offices for larger numbers of staff and said they would try to incorporate material health into their future design decisions.

This presentation was an opportunity to introduce decision makers (and future potential advocates), to the idea of material health.
Healthy Materials Lab was thrilled to be a part of this year’s Disruptive Innovation Festival (DIF), a fully online experience which aims to shift mindsets and inspire action towards a circular economy. Curated by the Ellen MacArthur Foundation, DIF invites people to share disruptive ideas and stories on a number of topics and attracts a worldwide audience, sparking critical conversations and participation through a combination of live interviews, films, and podcasts.

HML’s Alison Mears and Catherine Murphy participated by discussing the new frontier of healthier materials, how to change the future of building and, by design, improving the quality of all lives.

Participation in DIF was an opportunity to access a wide new audience, as DIF has a reputation for inspiring a shift toward a circular economy.
MATERIALIZE: Do Materials Matter at Your Firm?

Mary Dickinson
Perkins+Will
Sustainable Design Leader
Co-Director, Material Performance Lab

Alison Mears
Parsons School Design
Healthy Materials Lab Director

Rachelle Schoessler-Lynn
MSR Design
Sustainability Health and Well-Being leader

Frances Yang
Arup
Americas Sustainable Materials Practice Leader
AIA, Arup, Healthy Materials Lab, Perkins+Will and MSR presented their solutions for enabling design teams to incorporate human health outcomes into the process of materials selection at Green Build in Year 4.

More and more research is connecting toxic ingredients in building materials with medical conditions such as cancer, asthma, reproductive development issues, and endocrine disruption. Yet the array of rating systems, tools, and product documents has ballooned to a dizzying height. This conversation was an opportunity to provide insight from the field and actionable advice toward changing design practice.

Similar material was presented as a subsequent AIA webinar.

The audience of this discussion were supporters, who are designers and decision makers and therefore in the ideal position to become advocates. Lessons from the field were focused on creating this shift in engagement.

### PRESENTATION SPEAKERS
- Mary Dickinson
  Perkins + Will
- Alison Mears
  Parsons Healthy Materials Lab
- Rachelle Schoessler-Lynn
  MSR Design
- Frances Yang
  Arup

### WEBINAR SPEAKERS
- Alison Mears, Healthy Materials Lab
- Heather Henriksen, Harvard University Office for Sustainability
- Mary Dickinson, Perkins+Will
- Sara Tepfer, Arup
These fabrics have other applications aside from upholstery, drapery and soft good may be here, up to 30,000 D.R.

These are mainly COMMERCIAL fabrics. They are pursued for commercial occupancy spaces, 60,000-150,000 D.R.
Healthy Materials Lab’s Design Director Jonsara Ruth visited Ryerson University in Toronto, Canada. During her visit, she met with Monica Poli, the Design Centre Resource Specialist at Ryerson. Monica Poli has a large influence on the Ryerson campus as she advises, faculty and students, architects and contractors building on Ryerson’s extended urban campus, and Ryerson University at large, on the issue of sustainability on campus.

This visit sparked the potential for future collaboration between Reyerson and Healthy Materials Library.

Ryerson University is aware of the issue of material health and is interested in a collaboration with HML that will help make the shift toward advocates.
NBBJ GLOBAL SUSTAINABILITY SERIES
THE NEW FRONTIER OF MATERIALS: HUMAN HEALTH & DESIGN

DATE & TIME
TUESDAY, NOVEMBER 27
9:00am (PDT) | 12:00 (EDT)

According to the EPA, Americans spend more than 90% of our time indoors. Our working, healing, commercial, and living spaces are filled with toxic chemicals found in the building materials that make up our built environment. These chemicals may be released into our interior spaces where they can be inhaled, absorbed, and ingested. Scientific studies show that exposures to these chemicals can adversely impact human health and have dangerous health effects on our families. The effects are so widespread that pediatricians and environmental health professionals refer to this as a “silent epidemic.” In this presentation, we look more closely at this problem and share design strategies we have developed, to change practice. Learn about how to set health criteria and create frameworks that can be implemented so that the process of specification and design innovation produces the best and healthiest built work.

LEARNING OBJECTIVES - 1.0 HSW

01 Understand the relationships between human health, building materials, chemical toxicity, and environmental exposures.

02 Identify the health and environmental impacts that building products can have throughout their life cycle.

03 Identify products that are likely to be healthier options and evaluate them against your own criteria.

04 Understand materials in a wider environmental and human health context, compare products, assess variables and constraints, and make more informed decisions.

SPEAKERS
Alison Maars, AIA LEED AP
Director - Healthy Materials Lab
Parsons School of Design, New York
Alison is a Principal Investigator of the Healthy Affordable Materials Project. The HAMP project is a three-year, $7.5 million grant to densify the interior environments of Affordable Housing (the grant was renewed April 2018). Current research is focused on developing and launching a range of strategies that disrupt the building supply chain in Affordable Housing to incorporate human health as criteria for evaluating building products. Other design research has explored design as a tool to create community-based change in buildings in Haiti and Ethiopia.

Catherine Murphy, Interior Designer
Sr. Researcher - Healthy Materials Lab
Parsons School of Design, New York
Catherine is a designer whose practice is dedicated to craft, artistic thinking, and the inherent potential of materials. Healthier materials are an essential part of her work. She leads the development and launch of a 4-course eLearning program “Healthier Materials and Sustainable Building” which is available through The New School. She holds a BFA in Fine Craft Design specializing in Embroidery from the University of Ulster, Belfast and an MFA Interior Design from Parsons The New School for Design.

HEALTHIER MATERIALS & SUSTAINABLE BUILDINGS

Marketing material from NBBJ lunch and learn
NBBJ hosted Healthy Materials Lab’s Director Alison Mears and Senior Research Associate, Catherine Murphy for a digital Lunch and Learn on November 27th, 2018. NBBJ is a architecture and design firm. They have offices around the globe including in New York, Boston, Columbus, Hong Kong, London, Los Angeles, Pune, San Francisco, Seattle, and Shanghai, and over 700 employees in the US and 600 worldwide.

Over 60 of NBBJ’s employees attended the Lunch and Learn, which served as an introduction to Healthy Materials Lab, the work the lab does, and the relationship between building materials and human health. After the Lunch and Learn, the employees had the knowledge to use all of Healthy Materials Lab’s resources and the ability to better center human health in their design decisions.

Presentations to firms are an important part of HML’s engagement strategy. Although many designers may be unaware, they are decision makers who are in the perfect position to become advocates.
This was the 2nd annual Tishman Legacy Luncheon with Dan and Sheryl Tishman and was attended by New School President Van Zandt + Provost Tim Marshall as well as many members of The New School Board of Trustees and leadership at Parsons and The New School.

The Tishmans are interested in sustainability and this Luncheon was an opportunity for the Tishmans to once again meet the key faculty and staff who work at the Tishman Environmental Center and in program areas in sustainability across The New School.

The presentation was to showcase the collective strength of programs across The New School and focus on Design, Environmental Sustainability, Urban Ecology, Architecture, Interior Design, Social Justice, and Liberal; and also highlighted the diverse population of gifted faculty, deans, administrators and

Presenting at the Tishman Lunch was an opportunity to share our work with existing and potential supporters and advocates of the issue of material health.
HEALTHIER FUTURES: THE ECONOMY OF BIODESIGN
A PANEL DISCUSSION

Photos from Healthier Futures: The Economy of Biodesign
In February 2019, Parsons Healthy Materials Lab welcomed four designers who presented their research and their process of using bio-based materials to design alternatives to petrochemical based products. They also discussed the challenges of implementing radical change in the market place.

Dan Grushkin of the Biodesign Challenge framed the Biodesign conversation and discussed why there is a growing interest in the field. HML also hosted speaker Aleksandra Gosiewski of AlgiKnit, who is advocating for change in the textile industry through the creation of alternative textiles. Jack Dinning of Grow Squares and Donghia healthier Materials Library is exploring alternatives to packaging and containers, and Chelsea Briganti of Loliware is tackling plastic waste with bio-based straws. Panelists addressed questions such as: How are designers and manufacturers confronting the complex and inter-sectional crises of our time, such as global warming and climate change?

All of the participants discussed the importance of innovation and the industry challenges they face.

**PANELISTS**
- Dan Grushkin, Biodesign Challenge
- Aleksandra Gosiewski, AlgiKnit
- Jack Dinning, Grow Squares & Donghia
- Chelsea Briganti, Loliware
- Mediated by Alison Mears, Healthy Materials Lab

**ATTENDEES**
This panel discussion addressed challenges of implementing radical change in the market place; a topic not often addressed in HML events. Thus, this event approached the idea of advocacy from a entrepreneurial perspective.
We’re all about the mamas of the world.
Hatch Collection, a pregnancy clothing line for women, hosted a panel discussion in the Spring of 2019. The goal of the panel discussion was to educate the Hatch community about the toxic nature of many of the cleaning products that we use daily. Healthy Materials Lab Researcher, Catherine Murphy, was invited to help provide solutions for non-toxic cleaning. Carolyn Brown moderated the panel and Shannon Kenny and Abby Cannon answered questions alongside Murphy.

Because pregnant mothers and babies are extremely vulnerable to toxics in the built environment, HML saw this panel as an opportunity to impart information about material health. Through original non-toxic cleaning product recipe videos (created by HML in Year 3), the panel left attendees feeling empowered and able to make their own products that are better for their health and the environment!

Topics for discussion included:

1. Where are toxics lurking in popular and common home cleaning supplies?
2. What chemicals should we avoid?
3. What products are those chemicals in?
4. What are products that we think are “non-toxic” that actually contain harmful chemicals? Can we trust the label “natural”?
5. What are the basic ingredients for cleaning products?
6. How can you make cleaning products?
7. What laundry detergents should we be using and why?
8. What dish detergents should we be using and why?

PANELISTS
Catherine Murphy, Healthy Materials Lab
Carolyn Brown, Integrative Nutritionist
Shannon Kenny, Mama Eco
Abby Cannon, Hatch Collection

20 ATTENDEES
Participating in this Hatch Collection panel was an opportunity to access a very specific audience demographic: new mothers. Often, motherhood causes women to consider material health for the first time,
HEALTHIER FUTURES: COCKTAILS & CONVERSATIONS

Cocktails & conversation begin @ 6:15, Program @ 6:45
63 5th Ave Room UL 104, NY, NY 10003

Photos from Healthier Futures: Cocktails and Conversations
HML hosted an evening in which professionals were joined by colleagues with a similar interest in healthier buildings and interiors over a cocktail and casual conversation. Healthy Materials Lab looked more closely at the issue of material health and shared design strategies. Presenters Catherine Murphy and Leila Behjat discussed how to set health criteria and create frameworks that can be implemented so that the process of specification and design innovation produces the best and healthiest built work. They addressed the following questions:

- Are you developing a healthier materials strategy in your design practice?
- Are you looking to achieve certification as a means of reaching your health goals?
- Are you working to create healthier affordable housing units?

By gathering professionals in an informal setting, speakers were able to present the issue of material health and impart actionable advice on how to change their practice. This event was perfect for supporters who would like to become advocates.
H&M

CHANGE MAKERS
LAB H&M GROUP 2019

Are we creating more waste?

Photographer Edward Burtynsky
40. CHANGE MAKERS LAB: H&M

This full day event was hosted by the H&M Sustainability Group and was attended by a wide range of H&M employees and professionals from across the fashion industry. The focus of this event was circularity and zero-waste. Design Director, Jonsara Ruth, was invited to speak in the session about sustainable packaging.

Presentation topics included:
1. The overall high-level view of the circular economy.
2. The problematic challenges we are facing.
3. Why industry collaboration is essential & even cross industry knowledge sharing.
4. A creative approach to handling change design/systems thinking.
5. Healthy material and healthy design.
6. IDEO’s work within the CE – Co: work with the Lab at H&M Group. The H&M Group Laboratory involvement with the Colab in 2018 [together with many H&M depts]
7. What’s next, what’s coming, what inspirational doses can we share to get the room into gear.

SPEAKERS:
- Healthy Materials Lab
- Ellen MacArthur Foundation
- IDEO
- H&M Sustainability Group

50 PARTICIPANTS

This event is representative of the opportunity available to create advocates in the retail space. Changing practice in this industry would create demand for better products across industries.
We are the first generation to spend 90% of our time indoors.*

*US Environmental Protection Agency
In April 2019 two of Healthy Materials Lab’s Senior Research Associates visited the offices of Dattner Architects to give a presentation to the staff. The lecture focused on the relationship between human health and design. Healthy Materials Lab was invited by Dattner’s sustainability committee.

Dattner Architects has over 50 employees and 37 attended the presentation, including principal level architects. All of the attendees learned how to use Healthy Materials Lab resources. One attendee also enrolled in e-learning courses to further their knowledge of healthier building practices.

Presentations to firms are an important part of HML’s engagement strategy. Although many designers may be unaware, they are decision makers who are in the perfect position to become advocates.

37 ATTENDEES

41. LUNCH & LEARN
THE NEW FRONTIER OF MATERIALS:
HUMAN HEALTH AND DESIGN

SPEAKERS
Catherine Murphy, Healthy Materials Lab
Leila Behjat, Healthy Materials Lab
PARTNERSHIPS

MANUFACTURER

FORBO*  Resilient flooring

ARMSTRONG  Resilient flooring

BENJAMIN MOORE*  Paint

SHERWIN-WILLIAMS*  Paint

ROMA PAINTS*  Paint

FIRECLAY TILE  Tile

ECO SUPPLY*  Green Building Materials

ECOVATIVE*  Biomaterials

INDUSTRIAL LOUVERS  Architectural Metal Products

CARPETCYCLE*  Material recycling

ARONSON’S FLOORING  Flooring Solutions

ECOsupply*  Green Building Materials

* Thank you to these companies for their generous donations.
ACADEMIC PARTNERSHIPS

RHODE ISLAND SCHOOL OF DESIGN
DREXEL UNIVERSITY
UNIVERSITY OF NOTRE DAME
HARVARD GRADUATE SCHOOL OF DESIGN
SYRACUSE UNIVERSITY
RENSSELAER POLYTECHNIC INSTITUTE
ELISAVA SCHOOL OF DESIGN & ENGINEERING
VIRGINIA TECH
UNIVERSITY OF ARIZONA
NEW YORK SCHOOL OF INTERIOR DESIGN
FASHION INSTITUTE OF TECHNOLOGY
CENTRAL SAINT MARTINS
PRESS

GRIGORIOU INTERIORS
"Takeaways - New York Wellbeing Workshop” February 2018

THE NEW SCHOOL BLOG
“Parsons Uses Design to Address Human Health Needs” August 2018

URBAN DESIGN FORUM
“Introducing the 2018 class fellows” March 2018

BUILDING DESIGN + CONSTRUCTION
“A recent seminar in New York City talks up the use of mass timber for taller buildings” October 2018

WEACT
“Transforming Community Spaces: Lessons from WHGA” January 2019

HOUSETOPIA
“How to avoid hidden dangers in home and office furniture” April 2019

MY SAN ANTONIO
“How to avoid hidden dangers in home and office furniture” April 2019

THE STAR FLORIDA
“How to avoid hidden dangers in home and office furniture” April 2019
AKRON BEACON JOURNAL
“How to avoid hidden dangers in home and office furniture” April 2019

INTERIOR DESIGN
“Preview the Manhattan and Brooklyn Editions of WantedDesign 2019” May 2019

CORE 77
“Sum Waste: A Compostable Pen and Ink System Derived from MATERIALS FOUND IN SEWAGE” June 2019

ARKANSAS DEMOCRAT-GAZETTE
“Children’s center in Bentonville gets new $16.4M home” June 2019

DEZEEN
“Garrett Benisch designs Sum Waste pen derived from human sewage” July 2019

BUSINESS OF HOME
“Is your project unhealthy? Two university labs are working on it” July 2019