Healthy Materials Lab
CONTENTS

INTRODUCTION

LIBRARY & RESOURCES

1. EXPANDING THE DONGHIA HEALTHIER MATERIALS LIBRARY
2. LUNCH AND LEARNS
3. LEARNING HUB

EDUCATION

4. FALL 2019 KICKOFF: PLASTICS EXHIBITION
5. UNDERGRADUATE OPEN-HOUSE
6. WORKSHOPS & PRESENTATIONS: INTEGRATING MATERIAL-HEALTH INTO YOUR CURRICULUM
7. INTRODUCTION TO HEALTHY MATERIALS
8. RETHINKING SURFACES: LIME PLASTERING FOR HEMPLIME BUILDINGS
9. HEMP + LIME WORKSHOP
10. MASTER OF ARCHITECTURE: INTEGRATED STUDIO
11. BFA ARCHITECTURAL DESIGN: NEW URBAN PARADIGMS STUDIO
12. MATERIALS & PERFORMANCE COURSE
13. ACADEMIC NETWORK

COMMUNICATION & DISSEMINATION

14. COMMUNICATION STRATEGY
15. HEALTHY MATERIALS LAB WEBSITE
16. MATERIAL COLLECTIONS
17. E-LEARNING MARKETING
18. INSTAGRAM
19. PLASTIC FREE JULY CAMPAIGN
20. SYMPOSIUM CAMPAIGN
21. TRACE MATERIAL PODCAST CAMPAIGN
22. ROLE MODELS CONTEST MARKETING

INDUSTRY & PROFESSIONALS

23. HELEN R. WALTON CHILDREN'S ENRICHMENT CENTER OPENING
24. H&M GLOBAL CHANGE AWARDS
25. HEALTHY MATERIALS AND WELL BEING: CELEBRATING THE ROLE OF OCCUPANT HEALTH AND COMFORT
26. BUILDING HEALTH: THE NEXT FRONTIER
27. US HEMP BUILDING SUMMIT, KETCHUM, IDAHO
28. HEALTHIER FUTURE: COCKTAILS AND CONVERSATION
29. MATERIAL HEALTH: DESIGN FRONTIERS
30. LEARNING SESSION: NATURAL DYE
31. FINNISH CULTURAL INSTITUTE: WORKSHOP & BRUNCH

CONT. INDUSTRY & PROFESSIONALS

32. "A FIELD GUIDE TO SAFE AND CIRCULAR BUILDING MATERIALS" AT GREENBUILD ATLANTA
33. MAINSTREAMING OF CIRCULAR BUSINESS MODELS: DENMARK MEETS NEW YORK
34. INTRO TO HEALTHY MATERIALS STRATEGIES

DEMONSTRATION & INNOVATION

35. EXPANSION AND GROWTH THROUGH RESEARCH INITIATIVES
36. HEMP + LIME PUBLICATION
37. AFFORDABLE HOUSING WITH HEMPLIME
38. MOUNT SINAI: TOOTH BIOMONITORING
39. MOUNT SINAI: LITTLE SISTERS
40. UV-C LIGHTING INITIATIVE

RESEARCH

32. "A FIELD GUIDE TO SAFE AND CIRCULAR BUILDING MATERIALS" AT GREENBUILD ATLANTA
33. MAINSTREAMING OF CIRCULAR BUSINESS MODELS: DENMARK MEETS NEW YORK
34. INTRO TO HEALTHY MATERIALS STRATEGIES

PRESS

PARTNERS
### CONTENTS

<table>
<thead>
<tr>
<th>INTRODUCTION</th>
<th>EDUCATION</th>
<th>COMMUNICATION &amp; DISSEMINATION</th>
<th>INDUSTRY &amp; PROFESSIONALS</th>
<th>CONT. INDUSTRY &amp; PROFESSIONALS</th>
<th>DEMONSTRATION &amp; INNOVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 EXPANDING THE DONGHIA</td>
<td>4 FALL 2019 KICKOFF: PLASTICS</td>
<td>14 COMMUNICATION STRATEGY</td>
<td>23 HELEN R. WALTON CHILDREN’S</td>
<td>32 “A FIELD GUIDE TO SAFE AND</td>
<td>41 PARSONS BIODESIGN</td>
</tr>
<tr>
<td>2 HEALTHIER MATERIALS</td>
<td>EXHIBITION</td>
<td>15 HEALTHY MATERIALS LAB</td>
<td>ENRICHMENT CENTER OPENING</td>
<td>CIRCULAR BUILDING MATERIALS”</td>
<td>CHALLENGE</td>
</tr>
<tr>
<td>LIBRARY &amp; RESOURCES</td>
<td>5 UNDERGRADUATE OPEN-HOUSE</td>
<td>16 MATERIAL COLLECTIONS</td>
<td>24 H&amp;M GLOBAL CHANGE</td>
<td>AT GREEN-BUILD ATLANTA</td>
<td>25 ENVIRONMENTAL JUSTICE :</td>
</tr>
<tr>
<td>2 LUNCH AND LEARNS</td>
<td>6 WORKSHOPS &amp; PRESENTATIONS:</td>
<td>17 E-LEARNING MARKETING</td>
<td>AWARDS</td>
<td>BUSINESS MODELS : DENMARK</td>
<td>TEAM RETREAT</td>
</tr>
<tr>
<td>3 LEARNING HUB</td>
<td>INTEGRATING MATERIAL-HEALTH</td>
<td>18 INSTAGRAM</td>
<td>25 HEALTHY MATERIALS AND WELL</td>
<td>MEETS NEW YORK</td>
<td>43 THE NEW SCHOOL :</td>
</tr>
<tr>
<td></td>
<td>INTO YOUR CURRICULUM</td>
<td>19 PLASTIC FREE JULY CAMPAIGN</td>
<td>BEING: CELEBRATING THE ROLE</td>
<td>COLLABORATORY EVENT</td>
<td>44 PA HEMP HOME WITH DON</td>
</tr>
<tr>
<td></td>
<td>7 INTRODUCTION TO HEALTHY</td>
<td>20 SYMPOSIUM CAMPAIGN</td>
<td>OF OCCUPANT HEALTH AND</td>
<td>45 ROLE MODELS CONTEST</td>
<td>SERVICES AND AMERICAN</td>
</tr>
<tr>
<td></td>
<td>MATERIALS</td>
<td>21 TRACE MATERIAL PODCAST</td>
<td>COMFORT</td>
<td></td>
<td>AVRE</td>
</tr>
<tr>
<td></td>
<td>8 RETHINKING SURFACES: LIME</td>
<td>CAMPAIGN</td>
<td>26 BUILDING HEALTH: THE NEXT</td>
<td>35 EXPANSION AND GROWTH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PLASTERING FOR HEMPLIME</td>
<td></td>
<td>FRONTIER</td>
<td>THROUGH RESEARCH INITIATIVES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BUILDINGS</td>
<td>22 ROLE MODELS CONTEST</td>
<td>27 US HEMP BUILDING SUMMIT,</td>
<td>36 HEMP + LIME PUBLICATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 HEMP + LIME WORKSHOP</td>
<td>MARKETING</td>
<td>KETCHUM, IDAHO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 MASTER OF ARCHITECTURE :</td>
<td></td>
<td>28 HEALTHIER FUTURE: COCKTAILS</td>
<td>37 AFFORDABLE HOUSING</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTEGRATED STUDIO</td>
<td></td>
<td>AND CONVERSATION</td>
<td>WITH HEMPLIME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11 BFA ARCHITECTURAL DESIGN :</td>
<td></td>
<td>29 MATERIAL HEALTH : DESIGN</td>
<td>38 MOUNT SINAI : TOOTH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW URBAN PARADIGMS STUDIO</td>
<td></td>
<td>FRONTIERS</td>
<td>BIOMONITORING</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 MATERIALS &amp; PERFORMANCE</td>
<td></td>
<td>30 LEARNING SESSION : NATURAL</td>
<td>39 MOUNT SINAI : LITTLE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COURSE</td>
<td></td>
<td>DYE</td>
<td>SISTERS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13 ACADEMIC NETWORK</td>
<td></td>
<td>31 FINNISH CULTURAL INSTITUTE :</td>
<td>40 UV-C LIGHTING INITIATIVE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WORKSHOP &amp; BRUNCH</td>
<td></td>
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<td></td>
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The Healthy Materials Lab
Parsons School of Design
The New School
New York, NY

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Director of Design, Jonsara Ruth
Assistant Director, Abby Calhoun (May 2019-November 2019)
Assistant Director, Ahalia Persaud (November 2019-April 2020)
Senior Design Researcher, Catherine Murphy
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Healthy Materials Lab is part of the Healthy Affordable Materials Project funded by a grant from The JPB Foundation

July 2020
OUR TEAM

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July 2020
 INTRODUCTION

We are Healthy Materials Lab, a design research lab at Parsons School of Design. Today’s affordable housing is not healthy housing—and this needs to change.

This year has been a time of major progress in our team’s efforts to make every affordable home a healthy home. We continue to bring our research, design thinking, and education capacity to scale in order to persuade materials manufacturers, architects, and developers to act on what we now know about decreasing toxics in affordable housing.

The arrival of the global COVID-19 pandemic at the end of Year 5 created significant challenges. The team moved off site in NY and in some cases out of the city. Adjustment was needed to an all virtual format, which shifted our day-to-day work and brought into focus the urgency of our efforts. A report, authored by The New School’s James A. Parrott and Lina Moe, revealed that COVID-19 is “disproportionately affecting already-vulnerable workers and communities. This public health crisis has produced a new appreciation for the stark disparities of inequality that have been coagulating in the city’s economic arteries.”

This disparate impact points to serious societal fractures which, though widely known, have not been addressed by government or civil society with solutions equal to the problem.

We are optimistic that despite the difficulties we face as a country, and the serious global implications of the virus, we will continue to keep healthier housing top-of-mind for the key stakeholders who are helping us make healthy building materials standard in affordable housing in the United States. We are confident that our systems approach to making change in affordable housing will enable us to effectively confront the new challenges ahead.

It is no secret that the construction of affordable housing has been historically underfunded and a lack of routine maintenance has led to the widespread use of low-cost substandard and toxic materials in the construction and renovation of housing for low income families. To make matters worse, a long history of racist housing policies that discriminate against BIPOC communities and forefront construction cost-savings, rather than occupancy health, has resulted in the use of poor quality, frequently toxic building materials that can be directly linked to negative health effects for residents. Local communities have been largely excluded from any involvement in the process of planning and building affordable housing.

We are committed to raising awareness about toxics in building products and to creating resources for the next generation of designers and architects to make change today. We are an interdisciplinary, international, and professionally diverse collective of graduate students, alumni, and faculty.

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.
We are Healthy Materials Lab, a design research lab at Parsons School of Design. Today’s affordable housing is not healthy housing—and this needs to change. This year has been a time of major progress in our team’s efforts to make every affordable home a healthy home. We continue to bring our research, design thinking, and education capacity to scale in order to persuade materials manufacturers, architects, and developers to act on what we now know about decreasing toxics in affordable housing.

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situate human health at the center of our work. repositioning design education and practice to design community and fellow design academics, selection and installation practices. HML is also in order to demonstrate better building product performance in real world conditions of partners in the AH and health sectors to test accessible forms. We are working with a range translate complex concepts and data into leverages communications expertise to in product selection in the AH sector HML building product selection and drive change surrounding generation of designers, and the AH sector to create simple resources and tools to support and awareness in both the Donghia healthier creating a new resource for transparency understand and document the better building so, HML is using a case study methodology to in support of the project for the Affordable grant, HML is focused on research areas Under the Healthy Affordable Material Project toxics in the building product supply chain. The JPB Foundation, the Healthy Affordable Policy Institute (GSPI). Funded by a grant from Collaborative (HPDC), and Green Science 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 face the high costs of 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 facilities 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 are the 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.

The Context of HAMP

Low income families across the United States from the disproportionate 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 facilities 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.
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 Materials 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 Donghae 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.

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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 are the 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.

The 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.

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COMMUNICATION STRATEGY: PROMOTE CHANGE

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.

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.

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.

Observer: new participant who becomes aware of the issue
Supporter: interested in the issue and eager to learn more
Advocate: adopts healthier building protocols and implements in practice
COMMUNICATION STRATEGY: PROMOTE CHANGE

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.

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Introduction

Annual Report Year 5

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.

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?

GOAL: BUILD AWARENESS THROUGH PHYSICAL AND ONLINE ENGAGEMENT

What do we do to build awareness?

Unaware (most people)

Observers (aware but needs to know more)

LEGEND

Previews HML Initiative
In progress HML Initiative
Ending HML Initiative
Collaboration with HML
Potential Collaborative

PREVIEWS HML INITIATIVE

IN PROGRESS HML INITIATIVE

ENDING HML INITIATIVE

COLLABORATION WITH HML

POTENTIAL COLLABORATIVE

Unaware

Observers

Observers

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Observing

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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

How do we change the market?

GOAL: CREATE NEW PATHWAYS THAT ENABLE PEOPLE TO CHANGE PRACTICES

How do we advocate for transparency?

How do we evaluate ingredients for health criteria?

How can we introduce issues through resources?

PHYSICAL SAMPLES & RAW MATERIALS: Donghia Healthier Materials Library

EXISTING CURRICULUM CHANGES: Architecture, design, and occupational health

CREATE IN ITIATIVE IN MANUFACTURING INDUSTRY

How are healthier buildings being made?

COLLECT SPECIFICATIONS

WORK WITH PARSONS HOUSING LAB TO ESTABLISH MANUFACTURER-FAVORABLE SPECIFICATIONS

DEVELOP PROCUREMENT PROCESS THAT INTEGRATES HEALTH CRITERIA

ADVOCATE FOR INTEGRATED DESIGN TEAM THAT INCLUDES HEALTH AS PART OF THE DESIGN PROCESS

COLLECT SPECIFICATIONS

How. New product development

IDENTIFY BAKS IN THE MARKET (And opportunities to develop new products)

MANUFACTURER PARTNERSHIPS:
• Faber
• Porelon
• Kompap
• Marmolux
• Marvic
• Tometex
• Advanced Necessities

Process work on vulnerable populations:
• Early childhood development spaces
• Affordable housing
• Seniors

How do we change the market?

• Work with retailers
• Build consumer demand
• Craft a compelling message for different audiences

How do we advocate for transparency?

IFD Health Product Declaration

How do we evaluate ingredients for health criteria?

COLLECT HEALTHIER BUILDING PRODUCTS:
The Donghia Healthier Materials Library

COLLECT SPECIFICATIONS

TRANSLATORS
• Pharos
• Quartz
• HML Website

COLLECT HEALTHIER BUILDING PRODUCTS

MANUFACTURER PARTNERSHIPS
• Ecovative
• Romabio
• Carpetcycle
• Woolmark
• Humanscale
• Thermacork
• Advanced Necessities

RESOURCES:

CHANGE PROCUREMENT POLICY
Advocate for change; city & state

DATA BASE

• “Material Collections” page
• “Tools and Guides” page

BEYOND DESIGN PRACTICE OFFERED:
• Specific case studies
• Informational aesthetics

PRODUCT EVALUATION TOOLS
Resilience, robust, affordable, accurate, accessible and fast

ADDITIONAL FUNDING SOURCES
• LIHTC
• QAP

PERSUASIVE ARGUMENTS TO CHANGE MINDS OF DEVELOPERS

THEORY OF CHANGE CONTINUED...

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How does the message change for specific audiences?

• Retailers
• Manufacturers
• Architects & designers

Supporters (act on the issue and wants to change the way they do things)

Advocates

BUILDING NEW NETWORKS TO SUPPORT ADVOCACY EFFORTS FOR THE LONG TERM

MCHBA: New York City Housing Authority

BAIL-BALTIMORE: DoHA

TRUMBOLE: Neighborhood Partnership

PROUD: State of New York Department of Health

MATERIALS LIBRARY: Self-Initiated

RENEWED: New York

ROYAL DANISH ACADEMY OF FINE ARTS: Architecture

ACADEMIC NETWORK

COMMUNITY ENGAGEMENT

CASE STUDIES

• Habitat Corporation
• New York City Housing Authority
• Nonprofit organizations

IN-CLASS: Teaching, learning, and transformation

MANUFACTURERS

Focused research & development

CONSUMERS DEMAND

Pressure on the marketplace

INSTITUTIONS IDENTIFY MARKET OPPORTUNITIES

THEORY OF CHANGE

CONTINUED...
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**THAT ENABLE PEOPLE TO CHANGE PRACTICES**

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**PHYSICAL SAMPLES & RAW MATERIAL WALL**

Donghia Healthier Materials Library

**EXISTING CURRICULUM CHANGES**

Architect, design, and educational sites

**CREATE INITIATIVE IN MANUFACTURING INDUSTRY**

How are healthier buildings being made?

**COLLECT SPECIFICATIONS**

WORK WITH PARSONS HOUSING LAB FOCUSED ON AFFORDABLE PUBLIC HOUSING

DEVELOP PROCUREMENT PROCESS THAT MEETS HEALTH CRITERIA

ADVOCATE FOR INTEGRATED DESIGN TEAM THAT INCLUDES HEALTH AS PART OF THE DESIGN PROCESS

COLLECT SPECIFICATIONS

How is building with healthier materials?

**CASE STUDIES**

- ILF II
- Well Enterprise GC

MANUFACTURERS

- Competition in the marketplace

COMMUNICATIONS ADVISORS

- Big Duck & Susan Szenasy

CONSUMERS DEMAND

- Pressure on manufacturers

INSTALLERS IDENTIFY MARKET OPPORTUNITIES

Who is building with healthier materials?

**COLLECT HEALTHIER BUILDING PRODUCTS**

The Donghia Healthier Materials Library

HPD

Health Product Declaration

**COLLECT SPECIFICATIONS**

TRANSLATORS

- Pharos
- Quartz
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- Humanscale
- Thermacork
- Advanced Nonwoven

How: New product development

**IDENTIFY BARTS IN THE MARKET**

- Early childhood development spaces
- Affordable housing
- Seniors

**MANUFACTURER PARTNERSHIPS**

- duration
- particle
- carpet
-制裁
- product
- ThermoTech
- Advanced Nonwoven

**DATA BASE**

HML WEBSITE
- “Material Collections” page
- “Tools and Guides” page

**PRODUCT EVALUATION TOOLS**

- Reliable, robust, affordable, accurate, accessible and fast

**ADDITIONAL FUNDING SOURCES**

- LIHTC
- QAP

**PERSUASIVE ARGUMENTS TO CHANGE MINDS OF DEVELOPERS**

How does the message change for specific audiences?

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LIBRARY & RESOURCES

The theory of change described in the original grant application 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.
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1. EXPANDING THE DONGHIA HEALTHIER MATERIALS LIBRARY

Parsons has historically maintained a Materials Library adjacent to Architecture, Interior Design, and Product Design studios. The library has provided materials samples 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 will become a critical resource for both the university as we educate future designers and for the industry 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 are researching precedents of national and international libraries and resource centers. Over the remainder of the grant, we will 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 necessarily 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 VISITORS

526

CLASS ORIENTATIONS

21

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.
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526 LIBRARY VISITORS
21 CLASS ORIENTATIONS
In Year 5, the Donghia healthier Materials Library and the Healthy Materials Lab hosted a series of Lunch + Learns with the goal of introducing the healthiest materials and products available to designers throughout Parsons and The New School. Despite disruptions to the schedule, the Lab continued the Lunch + Learn programming with distinguished manufacturers and professionals within the material health field.

The criteria for evaluating manufacturers were that their products were chlorinated-polymer free, have complete transparency and that the companies be open to a convivial discourse around material health. The ultimate goal of this partnership is to create a more robust material library and to bridge the gap between manufacturers and new potential users.

Four manufacturers and other distinguished guests presented at Lunch + Learns in year five.

COLLABORATORS
Hee Chan Kim, Hemp + Lime
Natalie Yon-Eriksson, Earth + Flax Linseed Oil
Forbo Marmoleum Flooring
Sackett Wood, Moore & Giles

2. LUNCH + LEARN EVENTS

4 PRESENTATIONS
155 + ATTENDEES

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.
In Year 5, the Donghia healthier Materials Library and the Healthy Materials Lab hosted a series of Lunch + Learns with the goal of introducing the healthiest materials and products available to designers throughout Parsons and The New School. Despite disruptions to the schedule, the Lab continued the Lunch + Learn programming with distinguished manufacturers and professionals within the material health field.

The criteria for evaluating manufacturers were that their products were chlorinated-polymer free, have complete transparency and that the companies be open to a convivial discourse around material health. The ultimate goal of this partnership is to create a more robust material library and to bridge the gap between manufacturers and new potential users.

Four manufacturers and other distinguished guests presented at Lunch + Learns in year five.

**COLLABORATORS**

- Hee Chan Kim, Hemp + Lime
- Natalie Yon-Eriksson, Earth + Flax Linseed Oil
- Forbo Marmoleum Flooring
- Sackett Wood, Moore & Giles

**2. LUNCH + LEARN EVENTS**

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.

**4 PRESENTATIONS**

**155 + ATTENDEES**
HEMP + LIME

LUNCH + LEARN WITH HEE CHAN KIM

On September 25th, the Lab welcomed Hee Chan Kim for the first Lunch & Learn session of the academic calendar. Kim is a former Parsons faculty member and current artist in residency at Museum of Arts and Design. He explores materialities and traditional making processes in contemporary context. He challenges the boundaries of functional objects and non-functional objects. Researching object-making in history, he is finding new meanings and possibilities in making. Currently, Hee Chan is developing applications for hemp and lime, exploring its object-making potential. Hemplime is also a new sustainable building material that is waterproof, fireproof, lightweight, and absorbs carbon in the air. In researching possible applications of hemp and lime, Hee Chan will explore broader questions of sustainable design.

Learn more about Hee Chan Kim at www.heechankim.com

63

NUMBER OF PARTICIPANTS

EARTH + FLAX

LUNCH + LEARN

ARTISTS, DESIGNERS + ARCHITECTS: THIS IS FOR YOU!

LUNCH + LEARN

Parsons School of Design
25 E 13th St 3rd Floor
Donghia Gallery
Wednesday Oct. 16th
12-1 PM

Flax to Flooring: Forbo Marmoleum

On October 16th, Natalie Yon-Erikkson, founder of Earth+Flax, presented her material philosophy and range of finished products. Natalie has deep expertise in understanding the properties and performance of linseed oil and oil paints that are made from this material. Earth+Flax sells and educates new audiences about the environmentally friendly, solvent-free, all-natural purified linseed oil products. They are building a community of craftsmen, artists, homeowners, and designers to spread the knowledge and implication of older materials such as linseed oil and they can be reimagined using modern technology. During the session, the audience learned more about the history and science of linseed oils and paints, manufacturing processes, and application methods in different fields.

Learn more at www.earthandflax.com/about-us

36

NUMBER OF PARTICIPANTS

FLAX TO FLOORING:
FORBO MARMOLEUM

From Flax to Flooring Lunch + Learn

On November 6th, the work of Forbo Marmoleum floors was highlighted during the Lab’s third Lunch & Learn session. Forbo Marmoleum floors are sustainable linoleum floors made from natural ingredients such as linseed oil, wood flour and limestone. We are interested in how linoleum floors can be used as a viable alternative to vinyl flooring that contain problematic phthalates. Linoleum flooring can be cleaned with simple soap and water. Vinyl requires harsh and harmful cleaners that are harmful for both medical staff and patients. The Lab invited the audience to examine the impact that design and material selection can have on the healing environment in settings such as hospitals, for example. Flooring is one of the first building products that visitors encounter when entering health facilities. Whether seeking treatment, visiting family and friends, or within a working environment, everyone comes into contact with the floor. Health care facilities should be built with benign, healthier materials to support the health and wellbeing of patients. With Forbo Marmoleum floors, we collectively explored what can be done to achieve healthy and safe environments by making a change in one product group alone.

Learn more at www.forbo.com/flooring/en-us

20

NUMBER OF PARTICIPANTS

MODERN LEATHER TANNING

Leather Tanning Lunch + Learn

Moore & Giles offered an engaging Lunch & Learn session about their vast collection of handcrafted natural leather goods. Sackett Wood, President of Moore and Giles, presented on their new leather tanning method, discussing both sustainability and scalability. They also introduced the audience to everything they should know before specifying leather products.

The company has a deep passion and knowledge of this ancient material and introduced the audience to their new more sustainable leather tanning process. They use a 100% organic tanning agent made of purely aqueous olive leaf extract and is Oekotex® certified. This is the first truly sustainable tanning process and the leather articles are the first Declare, Red List free leather options available in the world.

Learn more at www.mooreandgiles.com

35

NUMBER OF PARTICIPANTS
Lunch + Learn with Hee Chan Kim

We’re talking hemp + lime

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

On September 25th, the Lab welcomed Hee Chan Kim for the first Lunch & Learn session of the academic calendar. Kim is a former Parsons faculty member and current artist in residency at Museum of Arts and Design. His work explores materialities and traditional making processes in contemporary context. He challenges the boundaries of functional objects and non-functional objects. Researching object-making in history, he is finding new meanings and possibilities in making. Currently, Hee Chan is developing applications for hemp and lime, exploring its object-making potential. Hemplime is also a new sustainable building material that is waterproof, fireproof, lightweight, and absorbs carbon in the air. In researching possible applications of hemp and lime, Hee Chan will explore broader questions of sustainable design.

Learn more about Hee Chan Kim at www.heechankim.com

63 NUMBER OF PARTICIPANTS

Earth + Flax

Flax to Flooring: Forbo Marmoleum

ARTISTS, DESIGNERS + ARCHITECTS: THIS IS FOR YOU!

Parsons School of Design

Donghia Gallery

12-1 PM

NOV. 6TH

WEDNESDAY

Join HML + Forbo for discussions about transparency, and designing for healthcare. Did we mention they bring lunch?

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Modern Leather Tanning Lunch + Learn

Flax to Flooring: Forbo Marmoleum

Moore & Giles Leather Tanning

From Flax to Flooring Lunch + Learn

ARTISTS, DESIGNERS + ARCHITECTS: THIS IS FOR YOU!

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Donghia Gallery

12-1 PM

WEDNESDAY FEB. 25

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In response to the COVID crisis, Healthy Materials Lab revamped the education section of the website and launched the brand new Learning Hub. The site is divided into two sections: one directed at practicing professionals, and the other targeted at architecture and design faculty via the Academic Network. A wide range of new educational and professional resources can be found on the website - all of which are built for online learning. Whether one might be looking for short videos to share with students, virtual events to enrich general material health knowledge, or two certificate programs - full access is available by joining the Academic Network for free. Part of the launch of the Learning Hub included new short courses that focus on different themes. The unique aspect of these short online courses is that they combine the wealth of resources compiled in the Donghia healthier Materials Library, design strategies, product highlights, as well as “Words of Inspiration” from professionals in the field.

In addition to “Materials, their Chemistry, and Human Health”, a 90-minute comprehensive overview, the Hub features the following open access short courses:

**Carbon:** Acknowledging that climate change is now the single biggest threat to global health, this course specifically seeks to address the issue within the building industry by focusing on operational and embodied carbon.

**Social Equity:** This course touches upon how the economy of goods makes its mark on the physical landscape through devastated environments, polluted waterways, and toxic air - often exposing lower income communities at much higher rates. The course brings forward ideas of an equitable workforce and community development through models that prioritize transparent policies and practices.

**Circularity:** With economic systems that produce our materials, products, and buildings functions in a wasteful linear pathway, this course explores circular systems as alternatives to currently ecologically and socially unsustainable and detrimental methods.

**Health:** Acknowledging that a vast majority of buildings contain chemicals that can be toxic to human health, this course focuses on the ways in which progress is being made via industry-led initiatives, state-level regulations, product transparency, and collaborative efforts.

By launching the short courses, the Lab is highlighting the vast amount of resources available in the Library and connecting them with professionals already working in the fields of design and construction, or potential new advocates. The online format reflects adaptation of educational tools that are sensitive to the circumstances of the moment.
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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.

FALL 2019 KICKOFF: PLASTICS EXHIBITION
UNDERGRADUATE OPEN-HOUSE
MASTER OF ARCHITECTURE: INTEGRATED STUDIO
INTEGRATING MATERIAL-HEALTH INTO YOUR CURRICULUM
BFA ARCHITECTURAL DESIGN: NEW URBAN PARADIGMS STUDIO
INTRODUCTION TO HEALTHY MATERIALS
MATERIALS & PERFORMANCE COURSE
RETHINKING SURFACES: LIME PLASTERING FOR HEMPLIME BUILDINGS
ACADEMIC NETWORK
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4. FALL 2019 KICKOFF : PLASTICS EXHIBITION

In the Fall of Year 5, the Healthy Materials Lab transformed a Parsons School of Design lobby into a pop-up exhibition space for a semester kick-off event. The Lab invited both new and returning students to participate in discovering game-changing sustainability tips, tricks, and some free takeaways. The immersive exhibition provided important information about plastics, with printed material featuring recycling and sustainability tips available to take home. The available information about plastics was fully researched, developed and designed by the Lab. The Lab’s hand printed tote bags were distributed as a way of encouraging re-use and jumpstart conversations around material health. The aim of the event was to provide an exciting introduction to the work of the Healthy Materials Lab, and to share helpful information to ease sustainability journeys for all students both on- and off-campus.
ATTENDEES

We organized this event to encourage conversations and habits around recycling, sustainability and our relationship with plastics.

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Healthy Materials Lab hosted a hands-on event for undergraduate students as part of an Open House in the Fall of Year 5. Students were offered recycled, hand printed tote bags, with tools and supplies for personalizing each one with thread and buttons. Romabio supplied the lime-based paint used for screen printing. Romabio is a viable and less toxic alternative to typical screen printing inks. With informational material available and Lab team members present, the event also provided the Lab an opportunity to introduce material health to Parsons design faculty and potential new students.

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HML + Donghia Healthier Materials Library offered a series of workshops for faculty in a range of design programs at Parsons to integrate material health in the curriculum over the academic year.

These workshops focused on increasing the knowledge of material health for the faculty members to promote the implementation of material health among the students within the classroom setting.

Faculty can disseminate this knowledge to the student body, and pursue extended research with the support of academic institutions. Students can then begin integrating these principles early in their careers, and can research design strategies in the freedom of academic settings.

6. WORKSHOPS & PRESENTATIONS: INTEGRATING MATERIAL HEALTH INTO YOUR CURRICULUM

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

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FACULTY PARTICIPANTS

1,200
STUDENTS REACHED
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<td>WHAT'S INSIDE?</td>
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<td>WHAT'S IN THE FURNISHINGS?</td>
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Introduction to Healthy Materials Presentation

At HML we explore the relationships between human health and building materials. We make presentations to a range of different groups. These presentations enable groups of designers and architects to become familiar with materials.

COVID has revealed the profound and compounded inequities shouldered by poor communities. The 21st century is marked by rapid and potentially catastrophic global climate change. We face the depletion of natural resources and the imminent degradation of the earth’s unique and varied ecosystems. Our actions as architects and designers have impacts on everyone—the most immediate and profound impacts we can have as designers are on the most vulnerable people in our communities—let’s look at why that is so.

Our indoor spaces are filled with invisible chemical hazards – making indoor air 3-5x more toxic than polluted outdoor air. How did we get here? Most of the chemicals that are commonly used in construction in the US are not regulated. Only 250 of the over 85,000 chemicals currently in use are tested and only five have been partially restricted by law. Many of these chemicals are toxic and are becoming part of everyone’s biology. There is also a direct connection between carbon emitted in the production of petrochemicals and the specification of petrochemical based building products. Reducing the use of these building products reduces carbon emissions and reduces the unregulated harmful chemicals that are the product of these processes. Plastics and petrochemical derived chemicals are an important part of the construction supply chain. Not only are the products derived from petrochemicals bad for the environment but they are harmful for us. Many of the products that are typically used in current construction, contain the chemicals that are linked to human disease. Polystyrene, phthalates, BPA PVC and flame retardants are all linked to human diseases. These materials shed and release those chemicals into our built environments which are then absorbed and become part of our biological systems.

It is critical that we build healthier and more resilient communities. Dramatically reducing people’s exposure to harmful chemicals is an issue of equity and a public health priority to protect those who have suffered generations of institutionalized racism. In our work we look to remove these chemicals and propose viable, affordable and benign alternatives particularly in affordable housing.
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our entire ecosystem is impacted
PARTICIPANTS

32  M ARCH AT PARSONS

80  BFA INTERIOR DESIGN AT PARSONS

50  MICHAEL GRAVES COLLEGE/KEAN UNIVERSITY

81  GSAPP COLUMBIA UNIVERSITY

13  RHODE ISLAND SCHOOL OF DESIGN

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8. RETHINKING SURFACES: LIME PLASTERING FOR HEMPLIME BUILDINGS

In Spring 2020, Healthy Materials Lab collaborated with the Masters of Architecture program at Parsons. The course experimented with using HempLime as a new building material.

The students and faculty were introduced to HempLime as a viable building material during a hands-on workshop at the beginning of the semester. Working with a new material to propose designs was a challenge that both the faculty and the graduate students took on. To aid their design process and spark their curiosity about this new building material, Jonsara Ruth, co-director of the Lab, gave a presentation on plaster and what the possibilities are for finishing surfaces. In this presentation, the look, feel, health benefits, as well as environmental impacts were covered.

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PARTICIPANTS

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In Year 5, Healthy Materials Lab proposed a collaboration with the Master of Architecture program at Parsons to experiment with designs for affordable housing using HempLime as the primary insulation material. As a way to introduce both graduating and undergraduate students and faculty to HempLime, and to explore its future possibilities, a day-long workshop was held in Industry City, Brooklyn where students and faculty gathered to build HempLime blocks. Students prepared the HempLime mixture and used molds to create blocks. It is a delicate balance to make a HempLime block which acts as a naturally fire-resistant insulator and a vapor-permeable surface for a wall because air pockets must be retained for the block to be an effective insulation material.

At the end of a long day, over 50+ Parsons students and faculty (David Lewis, Emily Moss, Alison Mears, Mark Gardner, Marcus Carter, Eirini Tsachrelia, and Jonsara Ruth) with COEXIST had created almost 100 new HempLime blocks and half of a freestanding 12” thick wall. Students, experts, and faculty alike had messy work clothes. While the students’ work gloves were specially coated, they had gained tactile knowledge about a new-found building material made essentially from a plant and a rock. This day-long experience fueled the design process for the spring semester as students returned to their desks to tackle the challenges of this semester—to design affordable housing using HempLime building products.

Hemp + Lime Workshop at Industry City
In Year 5, Healthy Materials Lab proposed a collaboration with the Master of Architecture program at Parsons to experiment with designs for affordable housing using HempLime as the primary insulation material. As a way to introduce both graduate and undergraduate students and faculty to HempLime, and to explore its future possibilities, a day-long workshop was held in Industry City, Brooklyn where students and faculty gathered to build HempLime blocks. Students prepared the HempLime mixture and used molds to create blocks. It is a delicate balance to make a HempLime block which acts as a naturally fire-resistant insulator and a vapor-permeable surface for a wall because air pockets must be retained for the block to be an effective insulation material.

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This workshop allowed a group of observers to take a deep dive in materiality, spurring them on a journey to become supporters & advocates.
Education

Hemp + Lime Workshop at Industry City

Annual Report Year 5

Hemp + Lime Workshop at Industry City
In Spring 2020, Healthy Materials Lab collaborated with the Masters of Architecture program at Parsons. The course experimented with using HempLime as a new building material. The collaboration connected students and faculty with a community partner from New Castle, PA, Don Services, to investigate future possibilities with HempLime in affordable housing. Students developed their design proposals for affordable single-family homes through two congruent courses, Comprehensive Design Studio IV taught by professor David Lewis, and Construction Technology 2 led by professor Marcus Carter and Eirini Tsachrelia. Their insights and design proposals produced at the end of the most unprecedented semester were remarkable. Graduate students presented their architecture thesis projects through a virtual day-long session linking the students with representatives from DON Services and designers and architecture professors located in the U.S. and Europe.

Design Studio IV
Design Studio IV was an integrated studio where the students were asked to integrate design, technology, materials and performance in their work. Issues of material, energy, site, mechanical systems, thermal performance, human health and research on hemp-lime as building material were the center of projects for this studio.

Construction Technology 2
Building on the fundamental concepts, elements, assemblies and processes introduced in Construction Technology 1, this advanced level course focused on more complex problems of building design. The class studied construction of buildings as inseparable from the complex interconnected web of material, involved in architecture’s production.

Students spent the first four weeks of the spring semester researching New Castle, Pennsylvania. In order to begin to challenge the norms, it was crucial to study different aspects of the typical American Home with the objective of collectively understanding its framework and history. They studied the typical form, plan, materials, energy, construction, financing, and zoning to see how those aspects inform them of the past, present and future of the American Home. Students then made informed choices to develop architectural plans and design solutions to accommodate multi-generational housing and the reality of contemporary life, including one parent or split-parents households, grandparent pods or suites, subleasing arrangements with an emphasis on accessibility and aging in place.

10. MASTER OF ARCHITECTURE INTEGRATED STUDIO: AFFORDABLE HOUSING WITH HEMPLIME

PARTICIPANTS
This graduate level studio allowed a group of observers to take a deep dive in materiality, spurring them on a journey to become supporters & advocates.
In Spring 2020, Healthy Materials Lab collaborated with the Masters of Architecture program at Parsons. The course experimented with using HempLime as a new building material. The collaboration connected students and faculty with a community partner from New Castle, PA, Don Services, to investigate future possibilities with HempLime in affordable housing. Students developed their design proposals for affordable single-family homes through two congruent courses, Comprehensive Design Studio IV taught by professor David Lewis, and Construction Technology 2 led by professor Marcus Carter and Eirini Tsachrelia. Their insights and design proposals produced at the end of the most unprecedented semester were remarkable. Graduate students presented their architecture thesis projects through a virtual day-long session linking the students with representatives from DON Services and designers and architecture professors located in the U.S. and Europe.

Design Studio IV was an integrated studio where the students were asked to integrate design, technology, materials and performance in their work. Issues of material, energy, site, mechanical systems, thermal performance, human health and research on hemp-lime as building material were the center of projects for this studio.

Construction Technology 2
Building on the fundamental concepts, elements, assemblies and processes introduced in Construction Technology 1, this advanced level course focused on more complex problems of building design. The class studied construction of buildings as inseparable from the complex interconnected web of material, involved in architecture’s production.

Students spent the first four weeks of the spring semester researching New Castle, Pennsylvania. In order to begin to challenge the norms, it was crucial to study different aspects of the typical American Home with the objective of collectively understanding its framework and history. They studied the typical form, plan, materials, energy, construction, financing, and zoning to see how those aspects inform them of the past, present and future of the American Home. Students then made informed choices to develop architectural plans and design solutions to accommodate multi-generational housing and the reality of contemporary life, including one parent or split-parents households, grandparent pods or suites, subleasing arrangements with an emphasis on accessibility and aging in place.

18 PARTICIPANTS

This graduate level studio allowed a group of observers to take a deep dive in materiality, spurring them on a journey to become supporters & advocates.
Thanks to the generosity of DON Services and members of the community in New Castle, students visited the site at the beginning of March 2020 in hopes of better understanding the opportunities and challenges of the project. Students traveled from New York City where they spent a full day exploring the city and learning about its rich history with various members from DON Services, Arts & Education at the Hoyt Art Center, Eckles Architecture and the Lawrence County Historical Society. Transportation, accommodations at Villa Maria and meals were generously provided for the students. The trip provided a wonderful opportunity to learn and engage with the community in order to more thoughtfully consider the city’s history and design dwellings aligned with DON’s mission.
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11. BFA ARCHITECTURAL DESIGN STUDIO: NEW URBAN PARADIGMS

The students were charged to design proposals for a large wharf site on the Lower East Side of Manhattan, with the East River to the east, the elevated FDR Drive highway and low-rise, low-income and NYCHA housing to the west, and bridges to the north and south. Working in small groups and individually, students imagined new urban models as systems in themselves, and as part of the larger ecosystem of NYC. Community-based spaces were programmed through a detailed assessment of local need, new models of affordable housing were designed to accommodate different requirements and a grocery was specified to address the local food desert. Proposals had to incorporate responses to climate change including potential East River flooding.

Students were asked to re-think, through critical lenses, with the UN Sustainable Development Goals as prompts, how urban design proposals come to be. They endeavored to optimize the health of a city and its occupants through the creation of a ‘living’ precinct that becomes a positive contributor to the larger body of urban flows while establishing degrees of self-sufficiency. With a particular focus on materials, the studio explored cross-laminated timber and conducted workshops using new hemp and lime mixes. We reinforced the investigation of material lifecycles to promote conscious material choices. Students considered the landscape as part of their material palette, to mitigate an overwhelmed NYC stormwater system, to encourage physical activity, to create vehicular access and connections to urban arteries beyond the highway and, potentially, through to the river.

Research revealed both the important social and cultural legacy of this part of New York City, with its historic immigrant populations, and the recent encroachment of ultra-tall, high-end residential towers. Students were challenged to consider new concepts of family and cohabitation; this concept became especially poignant during the Covid 19 pandemic, when people living alone felt a magnified sense of isolation. Students seized upon the notable absence of fresh food, a perceived need for safety, inadequate public space, and the dearth of basic services, to help shape their program decisions. For many, the potential for public access to the waterfront drove basic site strategies. For some, the existing industrial steel warehouse buildings inspired unique adaptive reuse proposals.
NEW URBAN PARADIGMS
HEALTHIER FUTURES
INNOVATION, TRADITION & NETWORKS

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With its adjacencies to bridge and water, considerations of ‘edge conditions’ affect the parti; typical edge developments in New York City tend to be cut off, both physically and phenomenally. For wealthier neighborhoods, this becomes a device of exclusion; for poorer neighborhoods, it becomes one of marginalization, observable in many areas of NYC.

Reconnecting to the city beyond the site manifests in different ways across the studio. Several students activate the waterfront for transit and recreation, establishing ferry docks as well as inlets and piers. Several proposals recognize the artificial nature of the wharf that comprises the site, and propose to remove portions of the deck to define discrete areas, permit and control water flows, and create new urban spaces to support gathering at different scales and different levels of privacy or openness. In what might be seen as a direct response to the pandemic and their own sense of isolation, students provided interstitial indoor and outdoor places, to provide respite through community, even if at a distance.
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12. MATERIALS & PERFORMANCE COURSE, FOR MFA INTERIOR DESIGN

The atmosphere of interior space is largely dependent upon its materiality. Materials make up our physical environments and influence how we experience the world, how we navigate the world, and how we design the world. Material literacy is fundamental for every designer to bring their imaginations and concepts to life. This course, taught by Jonsara Ruth, aims to provide students not only a comprehension of the large variety of materials most commonly used in design and the performance of them, but also to establish design literacy with materials – how to use them in sensitive, innovative and appropriate ways, and how to evaluate them for their impact on human and environmental health.

This course is an intensive research seminar into materials in design, from the structural to the decorative, as viewed through the critical lens of sustainability. Part lecture, part research lab, and part field work, this course gives an overview of the role of materials in the formation and execution of spatial concepts. Throughout the semester, relationships between material, performance and use are established and evaluated within a practice of committed sustainability. Traditional, composite, and interactive materials are introduced and discussed. Accompanying this course are field trips to product and material manufacturers and research laboratories as well as a variety of materials libraries. Use of fabrication shops are incorporated into course assignments. The course focuses on issues of materials and sustainability with the goal of developing a sensibility about the way material decisions affect the environment and the performance of interior spaces.

17 PARTICIPANTS

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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 are 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.

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 architecture and design students—the new designers of a better future.
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The goal of this initiative is to share trusted resources, 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 architecture and design students—the new designers of a better future.
RESOURCES FOR ACADEMIC MEMBERS AND FACULTY

Syllabus Support and Examples

- BFA Architectural Design Studio: Schools and Place: The Transformational Power of Education in Lagos, Nigeria
- MFA Interior Design Studio 3: Fostering Healthier Futures
- MFA Interior Design Studio 3: NYC Dept of Health: Empowering Healthy Futures
- MFA Interior Design Studio 3: Healthy Living with Grocery

Teaching Tools

- Materials, their Chemistry, and Human Health
- Material Health Overview
- Certifications and Disclosures
- Material Health Chemistry
- Chemicals of Concern
- Design Strategies
- Building Materials
- Construction and Post-Occupancy

Videos

- Navigation Guide to Healthy Materials Lab’s Website
- Affordable Housing and Beyond: Addressing the Needs of All Populations
- Beyond Transparency: Improving Product Decisions with Transparency and Material Health Information
- Transparency and Material Health “In Practice” - Accessing and Using Transparency and Material Health Information
- Managing Transparency and Materials Health in Practice: Introduction to Firm-Level Issues
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RHODE ISLAND SCHOOL OF DESIGN
DREXEL UNIVERSITY
UNIVERSITY OF NOTRE DAME
RENSSELAER POLYTECHNIC INSTITUTE
PRATT INSTITUTE
ILLINOIS INSTITUTE OF TECHNOLOGY
WOODBURY UNIVERSITY

Harvard University Graduate School of Design
Syracuse University
Rensselaer Polytechnic Institute
University of Texas at Austin
The Pennsylvania State University
Bostom Architectural College

Elisava School of Design & Engineering
Virginia Tech
University of Arizona
Monash University
Penn State

New York School of Interior Design
Fashion Institute of Technology
Central Saint Martins
The New School

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THE UNIVERSITY OF TEXAS AT AUSTIN
UNIVERSITY OF KANSAS, SCHOOL OF ARCHITECTURE AND DESIGN

ELISAVA
Design and Engineering
ELISAVA SCHOOL OF DESIGN & ENGINEERING
VIRGINIA TECH
THE UNIVERSITY OF ARIZONA
MONASH UNIVERSITY
THE PENNSYLVANIA STATE UNIVERSITY

CENTRAL SAINT MARTINS
THE NEW SCHOOL
FASHION INSTITUTE OF TECHNOLOGY
NEW YORK SCHOOL OF INTERIOR DESIGN

BOSTON ARCHITECTURAL COLLEGE

PRATT INSTITUTE
ILLINOIS INSTITUTE OF TECHNOLOGY
THE UNIVERSITY OF ARKANSAS, FAY JONES
BOSTON ARCHITECTURAL COLLEGE

THE NEW SCHOOL
COMMUNICATION & DISSEMINATION

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.
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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.

14. COMMUNICATION STRATEGY
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YEAR 5
25,081
USERS
108,125
PAGE VIEWS
46,640
SESSIONS
02:41
AVG. SESSION DURATION (MIN)

YEAR 4
13,742
USERS
59,258
PAGE VIEWS
24,880
SESSIONS
02:56
AVG. SESSION DURATION (MIN)

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 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 have developed additional tools and added more useful information. The HML website represents one of the most comprehensive efforts to guide audience members up the ladder of engagement from unaware all the way to advocate. 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.
15. HEALTHY MATERIALS LAB WEBSITE

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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.
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In Year Five, Healthy Materials Lab continued to develop the Material Collections. Three new collections of materials were added this year, along with new materials to existing collections. New collections require a lot of energy and time in researching the aspects of health and the respective product categories.

The work on Healthy Materials Lab’s Material Collections was enhanced by adding a highly requested Textile Collection. Healthier and more sustainable textiles can address footprints of fiber cultivation and production and toxicity of any applied treatments. The production of both natural and synthetic textiles can require massive amounts of energy, water, and toxic chemicals.

Alternative Finishes was added as a collection. Often products need a finish, which mediates between user and material. Irrespective of what it covers, the last coat itself can potentially off-gas. A finish sheds particles simply through use and wear, making it particularly impactful on human health.

A collection on HempLime was added. Hemp and Lime offer healthier alternatives in the categories of insulation, wall systems, textiles, and more in large part because they do not contain harmful petrochemicals. They absorb carbon dioxide from the atmosphere, hemp plants sequester carbon while regenerating depleted soils, and HempLime products are naturally fire-resistant. Hemp and lime products can be fully recycled and reused to support a zero-waste economy.

The Lab is always working on developing protocols to support correspondence with manufacturers of products and materials. In Year Five, over 40 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 Five.

Material collections 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.
27 NEW MATERIALS
We have added new materials to all material categories.

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

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

16. MATERIAL COLLECTIONS

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Within this grant year, we continued to develop our marketing strategy for Online education. A brand new Affordable Housing Course was launched during the summer. This course brings together 36 experts in the fields of design, construction, science, medicine, and public and environmental policy to discuss how housing needs can be addressed through healthier design strategies.

Additionally, materials were created to speak to the shift to working from home due to the COVID-19 pandemic.

17. E-LEARNING MARKETING

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.
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### E-Learning Marketing

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<table>
<thead>
<tr>
<th>Healthier Materials &amp; Sustainable Buildings</th>
<th>Courses Offered from HML</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Courses</td>
<td>17 SCIENTISTS</td>
</tr>
<tr>
<td>22 Hours of Video</td>
<td>18 PROFESSORS</td>
</tr>
<tr>
<td>134 Interviews</td>
<td>3 ENTREPRENEURS</td>
</tr>
<tr>
<td>24 Organizations</td>
<td>3 STRATEGIC CONSULTANTS</td>
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<tr>
<td>11 Educational Institutions</td>
<td>1 PEDIATRICIAN</td>
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<tr>
<td>5 Continents</td>
<td>1 LAWYER</td>
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<tr>
<td>11 Countries</td>
<td>1 INDUSTRIAL HYGIENIST</td>
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<tr>
<td>18 Architects</td>
<td>1 MARKETING CONSULTANT</td>
</tr>
<tr>
<td>7 Designers</td>
<td></td>
</tr>
</tbody>
</table>

*Materials & Sustainable Buildings 4 courses 22 hours of video 134 interviews 24 organizations 11 educational institutions 5 continents 11 countries 18 architects 7 designers*
Here at the Lab, we’re working to gain a greater understanding of what it means to improve the quality of all lives during this unprecedented time. At the beginning of the COVID-19 pandemic, we offered continued access to our Online learning program: Healthier Materials and Sustainable Building and we hope you can use it as a stepping stone to a brighter and healthier future.

In a time where we’re indoors more than ever, understanding designs impact on human health is paramount—these experts can help guide the way. We offered to those that are facing job or financial insecurity, Materials and Human Health (course 1 of 4) at no cost.
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Communication & Dissemination

18. INSTAGRAM

Instagram is a large part of our communications strategy to strengthen industry partnerships, cross-promote content and reach a wider audience. In Year 5, we continued initiatives such as Material Mondays, and Featured Designer Friday’s 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 76% increase in followers. 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.
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TOP POSTS

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

AUDIENCE INSIGHTS

<table>
<thead>
<tr>
<th>Location</th>
<th>Audience</th>
<th>Gender</th>
</tr>
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<tr>
<td>London</td>
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<tr>
<td>Los Angeles</td>
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<tr>
<td>Montreal</td>
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<td></td>
</tr>
<tr>
<td>Mexico City</td>
<td>1.2%</td>
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</table>

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Male</th>
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<tr>
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<td>45-54</td>
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</tr>
<tr>
<td>55-64</td>
<td>3.2%</td>
<td>1.9%</td>
</tr>
<tr>
<td>65+</td>
<td>1.9%</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

BLACK LIVES MATTER MOVEMENT

In order to sustain and support momentum and bring about real change, we recognize that anti-racism is an ever-evolving process in which we will continue to reflect, research, listen and act. We developed a series of posts to show our support and stand with BIPOC colleagues and designers.
**TOP POSTS**

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

<table>
<thead>
<tr>
<th>Location</th>
<th>Impressions</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>6,930</td>
</tr>
<tr>
<td>London</td>
<td>6,045</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>5,380</td>
</tr>
<tr>
<td>Montana</td>
<td>1,230</td>
</tr>
<tr>
<td>Mexico City</td>
<td>1,230</td>
</tr>
</tbody>
</table>

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*We stand in solidarity with those condemning the systemic racism and violence toward Black people in our country, and recognize the ways we must do better in our own work.*

- Cassandra Sea

*“The very same thing that brought prosperity to the family that raised hemp was the same thing that whipped the slaves that broke the hemp.”*

- Cassandra Sea

*“And hemp, by the way, is the reason slavery is entrenched in Kentucky. It’s the only crop that requires that kind of labor force that’s grown in the bluegrass.”*

- Kathy Nichols

*“They shouldn’t do anything with hemp without us being in the forefront. The reason why hemp was such a big deal was because of the back of our ancestors.”*

- Cassandra Sea
19. PLASTIC FREE JULY CAMPAIGN

At the beginning of Year 5, we launched a campaign to celebrate Plastic Free July which included the roll out of a guide called “Plastic Types: Moving Toward a Plastic Free Future.”

We’re tempted to hit you with hard facts and scary photos about plastic devastation... but chances are you already know plastics are a ~major~ issue and like us, you’re stressed. To help refocus that anxiety into advocacy, we’ve created this simple cheat sheet: “Plastic Types: Moving Toward a Plastic Free Future.”

We hope this guide will help you identify common plastic types in your day-to-day and inspire you to prioritize healthier alternatives.

While most plastics are not great, others are downright poisonous and should be avoided at all costs (ahem, we’re looking at you PVC).

Hang this handy guide somewhere you can easily refer to it, like your refrigerator or near your recycling bin, so you can be sure your plastics are ending up in the right bin. We recommend avoiding plastics altogether but realize this is easier said than done.

Start small and whenever possible, opt for glass, stainless steel & porcelain containers, reusable bottles, straws & cutlery, and fabric or paper alternatives whenever possible.

The handy plastics guide was shared by the Museum of Modern Arts in a newsletter.
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The success of each post related to Plastic Free July is measured using Instagram analytics tools. This is important because when HML’s followers send our posts to friends, brand new people are viewing our profile and content. The most popular post, which included the link to the plastics guide, was saved 39 times; which means 39 individuals would like to return to this post at a later date.
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20. SYMPOSIUM CAMPAIGN

During Year 5, the lab hosted “Material Health: Design Frontiers”, a symposium that provided a platform to examine issues of material health and celebrate material innovation, grapple with new and long-sustained challenges in socially engaged research and practice, as well as critically reflect on necessary changes to academic architectural and interior design programs.

Who designs the future? Who shapes it? Who teaches it? How does an understanding of the fundamental issues threatening our planet and human species change the way we teach and launch the next generation of architects and interior designers for this new era? What are the problems we will face if we don’t consider the complex environmental implications of design decisions? What does the future look like if radical change happens now? These are the fundamental questions we posed to our followers, supports and fellow material advocates to create excitement around the symposium.

To promote this event, we developed graphics for marketing on multiple platforms such as the HML website, Newsletters, Instagram, LinkedIn as well as short postings on other websites.

Couldn’t make it to the conference? Don’t worry. We posted the recorded videos to Youtube and all are available on the HML website.

Much of our communications efforts around Material Health: Design Frontiers were multi-platform to reach a wider range of healthy material supporters and advocates.
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On Instagram specifically, we highlighted various speakers and guests of the symposium. To create excitement around the event, we posted images of our guest speakers or of their work. We posted on Instagram throughout the event to keep users engaged with our content and to encourage those who did not attend, to watch the recorded videos.
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21. TRACE MATERIAL PODCAST CAMPAIGN

On April 8th 2020, the lab launched an innovative new podcast called Trace Material that explores the convergence of our lives and the lives of the materials that surround us. Today, more than ever, we are reflecting on our homes and families. The hope for the podcast is that it will inspire new, healthier opportunities for designing and building the places where we live.

Each season we will examine a material that you might find in your interior environment to discover what it can tell us about our history, our culture, and our bodies. The first season will focus on hemp—one of the two main ingredients found in the superstar healthy material, HempLime, often called Hempcrete, through six 20-minute episodes.

Trace Material is hosted by faculty, researchers and staff from Parsons Healthy Materials Lab (HML)—a design-led research lab at Parsons School of Design at The New School. HML is dedicated to placing people’s health at the center of all design decisions and committed to raising awareness about toxics in building products and creating healthier places for all people to live.

All episodes of Trace Material Season 1 are now available on Apple Podcasts, Spotify, and Stitcher.

Trace Material was first announced at the Material Health: Design Frontiers symposium. We developed an intriguing graphic language for announcement posts as well as continued marketing material for the podcast to be displayed on our Instagram, Website and Newsletters to engage our follows and encourage them to listen.

12,517
DOWNLOADS

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Podcast Instagram Post Insights

We used Instagram not only to help announce and create excitement around the podcast, but to post about each forthcoming episode. In each post we included an intriguing image and a caption about what is to come. Using Instagram insights to analyze the success of each post helped guide what types of imagery to use. The posts leading up to the release of Episode received high likes, views and profile visits.
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22. ROLE MODELS CONTEST CAMPAIGN

For the first year, we extended the contest to students outside of the United States. To be eligible to enter, students had to be enrolled in an undergraduate or graduate degree-seeking design program.

Many of our fellow advocates are facing academic and personal hardships. In Year 5, we made it so participants can still enter your work to our student design competition for a chance to win $1,000. In lieu of finalized 3D models, we accepted in-process and digital models and/or any evidence to support your final concept.

This contest is a chance to be a role model to the rest of the design world by sharing how your innovative approach to design positively impacts our health, and the health of the planet. Now more than ever, we need designers who put people and the planet at the forefront of all design decisions!

For this year’s contest, we developed a series of graphics for Instagram, Newsletters and social media platforms alike to encourage students to participate even throughout the pandemic and surrounding hardships.

Much of our communications efforts around the Role Models Contest were multi-platform to reach a wider range of design students.
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CONTEST WINNERS INSIGHTS

On Instagram specifically, we highlighted the winners of Year 5’s Role Model Contest. By utilizing insights, we were able to see how many people viewed, liked, shared, or saved these posts. The post announcing the first prize winner, resulted in 103 profile visits and was saved 80 times. Which means that 80 Instagram users want to revisit this post at a later date.
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**CONTEST WINNERS INSIGHTS**

<table>
<thead>
<tr>
<th>Post</th>
<th>Likes</th>
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<th>Views</th>
<th>Shares</th>
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<tr>
<td>C</td>
<td>24</td>
<td>1,292</td>
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<td>1,292</td>
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</tbody>
</table>

Role Models Contest, HML Website, Summer 2020
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**INDUSTRY & PROFESSIONALS**

H & M Global Change Awards

Healthy Materials and Wellbeing

Building Health: The Next Frontier

Presentations from Industry Leaders

Confronting New Futures at US Hemp Building Summit

Cocktails and Conversation

“Field Guide to Safe and Circular Building Materials”

Mainstreaming of Circular Business Models

Intro to Healthy Materials Strategies
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.
The opening of the Helen Walton Center for Early Childhood Education was an event for the entire community of Bentonville, Arkansas. The mayor, donors, and families attended, and it was a celebration of the building being named the "healthiest Early Childhood Education Center built in America." Jonsara Ruth attended as a representative from Healthy Materials Lab with LTL Architects. The contractors, engineers, teachers, and maintenance staff were there to tour the building before it opened for children. There was a sense of pride by everyone involved.

Dr. Philip Landrigan, had visited the building a few weeks before and remarked how impressed he was with the materials and objects selected for the building. This was a huge compliment for our team at HML, given Dr Landrigan's decades of research and advocacy for children's environmental health.

Also at the opening, that the buyer for Walmart's children's products came to the center for a tour. The buyer came to see what products were selected and to determine if Walmart could carry some of these healthier products.

Description of the Center:
Helen R. Walton Children's Enrichment Center (HWCEC-ECIC) is a model early childhood center and professional training facility dedicated to healthier learning and development during the first few years of children's lives.

Shortly after LTL Architects was awarded the project to design this new building in 2016 in Bentonville Arkansas, Parsons Healthy Materials Lab began working with LTL Architects to identify strategies to ensure the installation of the healthiest materials possible and to educate all members of the design, construction, and operations teams on strategies specific to improving children's health.

This new home for the Helen R. Walton Children's Enrichment Center and HighQ embodies an ambitious vision for nurturing and raising children. As one of the healthiest early childhood education centers in the United States, the project sets a national model for what an early childhood center can and should be.
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24. H&M GLOBAL CHANGE AWARDS

The Global Change Award is one of the world’s leading challenges for early stage innovation, and the largest initiative of its kind in the fashion industry. It was initiated to accelerate the shift from a linear to a circular fashion industry, to protect the planet and our living conditions. NOC has been partnering with the fantastic team at H&M Foundation to create the look and feel, design and execution of the experience four times, since day one. In Year 5, Healthy Materials Lab team members attended this event with the goal to explore how H&M and the Fashion industry can evolve to make zero-waste, and healthy products and packaging.

Attending this event allowed HML to grow their audience and meet like-minded individuals to gain supporters and advocates.
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25. HEALTHY MATERIALS AND WELL BEING: CELEBRATING THE ROLE OF OCCUPANT HEALTH AND COMFORT

Most architects and other designers are unaware of the relationship between the building materials they choose and the impact of those building materials on human health. However, there is growing evidence that health risks can arise from unintended exposure to the chemicals that are used to create building products. Understanding high priority hazards that can be avoided through informed choice is critical to creating healthier buildings for occupants and to promoting environmental justice in communities. This panel shared lessons-learned and instructive take-aways to help participants succeed in selecting and specifying safer materials for their clients. We explored the highly collaborative nature of this type of work, and how each discipline contributes unique and helpful resources.

PARTICIPANTS
- Rachel Berman, Sustainability Program Manager, MechoSystems
- Catherine Bobenhausen, Senior Consultant, Colden Corporation
- Susan Kaplan, Director of Specifications and Sustainability, HLW
- Brian Kaplan, Associate Director, Skidmore Owings & Merrill LLP
- Alison Mears, Director, Healthy Materials Lab at Parsons School of Design
- Tim Conway, Vice President Sustainability, Shaw Contract

ATTENDEES
The event at Shaw Contract effectively brought 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.
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ATTENDEES
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26. BUILDING HEALTH: THE NEXT FRONTIER

Current construction practices lead to buildings with short lifespans made from products that contain a range of toxic chemicals, whose toxic afterlives can span millennia, that pollute our homes and create a host of health conditions. All people are at risk of unwanted exposures in daily habitats, but those most vulnerable are the young and the poor—traditionally and continuously marginalized.

Healthy Materials Lab at the Parsons School of Design is dedicated to the creation of better buildings for all. In this AVANY presentation for the Committee on the Environment (COTE), Healthy Materials Lab co-founders Alison Mears and Jonsara Ruth will join a conversation with David J. Lewis about LTL Architects’ recent project that establishes new paradigms for better, healthier building practices.

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- David J. Lewis, LTL Architects
- Alison Mears, Healthy Materials Lab
- Jonsara Ruth, Healthy Materials Lab

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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. Interest in hempcrete has gained steady momentum within the fields of architecture and design as a viable construction material.

The Hemp Building Summit launched the US Hemp Building Association to share knowledge, change building codes and enable hemp lime construction to become a part of the US construction industry.

How can we contribute to change in construction 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.

PARTICIPANTS
- Steve Allin, Director, International Hemp Building Association
- Alison Mears, Healthy Materials Lab
- Jonsara Ruth, Healthy Materials Lab
- Alex Sparrow, Director, UK Hempcrete
- Chris Magwood, Founder, The Endeavour Centre
- Liam Donohue, Dublin Institute of Technology
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 Hemp Building Summit launched the US Hemp Building Association to share knowledge, change building codes and enable hemp-lime construction to become a part of the US construction industry.

How can we contribute to change in construction 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.

PARTICIPANTS
- Steve Allin, Director, International Hemp Building Association
- Alison Mears, Healthy Materials Lab
- Jonsara Ruth, Healthy Materials Lab
- Alex Sparrow, Director, UK Hempcrete
- Chris Magwood, Founder, The Endeavour Centre
- Liam Donohue, Dublin Institute of Technology

The Hemp Building Summit effectively brought together a community of design and construction advocates. The event was framed to address advocates as it spoke to the innovation and urgency of the use of alternative materials.
ANALYSING
WALL CONSTRUCTION

100% natural & recyclable

Healthy interiors for humans

Fire retardant. CE certified

No slip, non-insulation in walls

100 years certified

Confronting New Futures, Presentation Content
HEALTHIER FUTURES: COCKTAILS & CONVERSATIONS

October 30th, 2019

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.

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 environments. These chemicals may be released into our interior spaces where they can be inhaled, absorbed and ingested. Scientific studies show that exposure 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”.

Kick off an evening surrounded by colleagues with a similar interest in healthier buildings and interiors over a cocktail and casual conversation at Parsons School of Design, NY. Parsons’ Healthy Materials Lab will look more closely at this issue and share design strategies we have developed, to change practice. We’ll discuss 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. Please bring your questions, talk about the success and challenges you face and we can all work together to find ways to create positive outcomes and transform practice.
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Material Health was a two-day symposium held in New York City in November 2019 that convened a multidisciplinary panel of pioneers to discuss and bring definition to the burgeoning, new, interdisciplinary field of "Material Health. Speakers included activists, educators, designers, scientists, doctors, architects, curators, contractors, artists and material innovators who discussed critical topics of material health in this era of climate crisis. Material Health is recognized as a new field of study in Architecture and Interior Design disciplines, yet we see expertise from a wide range of disciplines. The symposium featured the keynote by environmentalist, economist, writer and industrial hemp grower Winona LaDuke. This was followed by Maya Halden, a teenage climate activist, whose words inspired and reminded all of the urgency of the young generation that was inheriting the climate crisis. The symposium organized six unique panels with presentations followed by moderated Q&As. The panels were: Air and Toxicity, Carbon, Equity, Waste and Circular Economies, Ecosystems: From Fossil Fuels to Renewables via Transparency, and Futuring Materials. The symposium also hosted the Material Health Exhibition and the Gleaners Buffet Design Installation in collaboration with Parsons MFA Textile Design.

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bioMason Blocks

Danish Cleantech Hub: Ege Carpets, Small Planet, Danish Affaldsminimering

Sustainable Systems, Parsons School of Design: by Derek Haffar & Oliver Kellhammer

Donghia healthier Materials Library’s Transparency Corner in collaboration with Brightworks Sustainability and featuring the Health Product Declaration Collaborative (HPDC), ILFI’s Declare and Living Product Challenge, mindful Materials, Red 2 Green and GIGA’s newly launched Matter platform.

Featured manufacturers in the scoring showcase include: Humanscale, Shaw, Superior Essex, Crossville, Mecho, Owens Corning, and USG.
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SUPPORTING PARTNERS

Aalto University

Danish Cleantech Hub

Cooper Hewitt, Smithsonian Design Museum

Finnish Cultural Institute in New York

Widower Estates

MEDIA PARTNERS

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THE ARCHITECTS NEWSPAPER
30. LEARNING SESSION : NATURAL DYE

The bedding company Buffy had reached out to Parsons HML in order to have their naturally dyed sheets from Buffy listed on the HML Material Collection list.

In the course of learning more about the composition and treatment of these sheets, Buffy kindly gave us the name of the two experts who worked with the company on the development of the natural dyes line (eucalyptus fiber sheets from Austria dyed naturally). Maria Elena Pombo Reyes is one of the two experts. At the time, she was part-time faculty at Parsons and with her Studio, Fragmentario is doing tremendous work in experimenting with natural dyes and specifically with avocado pits which she collects from local (Brooklyn) restaurants.

Jonsara Ruth and Leila Behjat met with her in the Donghia Healthier Materials Library to:

a) understand more about her insights on the natural dyes in the Buffy line (what ingredients used, whether there are further treatments, how it is scaled)

b) learn more about her impressive work on experimenting with natural dyes and observing how different water sources impact the color outcome.

Mrs. Pombo Reyes’ keen reflection on resource awareness, social justice and circularity are extremely precious and her thought contribution was very helpful.

The Lab is connected to Mrs Pombo Reyes and featured her work on the social media platform Instagram.

Conducting a learning session in the lab allowed healthy material advocates to come together and promote transparency of products.
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31. FINNISH CULTURAL INSTITUTE: WORKSHOP & BRUNCH

This event was a multi-sensory workshop and brunch led by Pirjo Kääriäinen on October 16, 2019 at The Finnish Cultural Institute in New York.

In this intimate Saturday morning gathering, participants were invited to engage with and learn about new bio-based materials in playful and multi-sensory ways. The workshop was organized by the Finnish Cultural Institute in New York and the Healthy Materials Lab, in conjunction with Material Health: Design Frontiers symposium at The New School.

Pirjo Kääriäinen works as a professor between two Aalto University Schools: the School of Arts, Design and Architecture (ARTS) and the School of Chemical Engineering (CHEM). Since 2011 she has been facilitating interdisciplinary CHEMARTS collaboration together with professor Tapani Vuorinen. CHEMARTS is aiming to inspire students and researchers to explore bio-based materials together, and to create new material concepts for the future. Kääriäinen is FCINY’s designer-in-residence in Nov-Dec 2019.

Creating a space to engage with new bio-based materials promotes excitments and allows observers to become supporters and advocates.
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Greenbuild was an international conference and expo held in Atlanta in November 2019. Alison Mears was one of the speakers in the workshop titled “A Field Guide to Safe and Circular Building Materials”.

Green and healthy buildings require selecting products that are safe for humans and the environment. This session provided practical guidance and tools from industry experts for making responsible purchasing decisions based on core principles of material health, transparency and circularity to ensure project goals—including achieving the latest LEED and WELL requirements—are met.

Leading industry experts and practitioners explored proven approaches and strategies for prioritizing material health, transparency and circularity in building products selection and purchasing. This workshop was designed to equip architects, designers, specifiers, project managers, contractors and manufacturers to embrace opportunities and overcome barriers to making responsible material choices. Through first-hand experiences and real world examples shared by experts from the field, attendees will learn tools and frameworks that will enable smart decision making to realize material health and circularity goals at the building level. Among these resources, attendees got a preview of the new Cradle to Cradle Certified Product Standard v4 to see how material health and circularity criteria evolved to drive greater adoption and impact. They also heard how HPDC and C2CPII are working together to ensure verified data can fulfill needs for both product transparency and optimization.

In this session, attendees examined the implications of materials choices, brainstormed the potential for optimizations, and explore how best practices can be scaled from the project to portfolio level. They were challenged to identify potential interventions to advance material health and circularity in their own work including opportunities to source and integrate safe and circular materials into building projects. The session helped clarify roles and equipped attendees to initiate necessary collaboration with other stakeholders throughout the supply chain to achieve positive outcomes.

Presenting at an international conference increased our audience. A large group of sustainability supporters were introduced to strategies around material health, encouraging advocacy amongst the audience.
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Greenbuild Conference in Atlanta, GA
A new decade just started, and it is already predicted that the circular economy will accelerate to a new level in 2020. Winning strategies for businesses have been proposed and circular business models have been optimized in the recent years. The next step is to mainstream circular business models and unlock the massive economic potential.

At its core, a successful circular business model starts with product design and with the aim to design out waste. What are the key drivers we need to attack in 2020 to reach the next level of mainstreaming circular business models in New York versus Denmark?

Denmark is among the most efficient countries in the world when it comes to waste and resource management. The Danish waste management and resource sectors are experts at collecting and treating waste to minimize environmental impact and efficient reuse of materials.
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35. THE NEW SCHOOL & FXCOLLABORATIVE: INTRO TO HEALTHY MATERIALS STRATEGIES

In Year 5, FX Collaborative, a New York based architecture, interior and planning firm, was hired by The New School to design the renovation of multiple floors of an existing dormitory building at 118 E 13th Street, NY for a new faculty and student resource center. Healthy Materials Lab joined the project as material collaborators and consultants for FXC. As part of the early stages of the project, HML conducted training sessions and presentations to the key constituents of the project—including the owner and owner’s representative, the architects, and the project manager. Initially and throughout the project, HML provided the team with design methods and processes to achieve healthier interior renovation, and optimal healthier interior air/environmental qualities. The HML team then conducted an all day workshop session to work through the material health process and implementation.

Attending: TNS Design & Construction, Construction Manager, Building Staff, FXC Team

Cleaning products increase risk of respiratory problems.

In this study, typical cleaning products used to clean VCT floors in hospitals were found to increase the risk by 20%-30% of respiratory problems in nurses.
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The introduction of a new “Research” section in the Year 5 report is certainly reflective of exciting developments in the Lab’s partnerships and body of work. The inclusion of a chapter dedicated to research-related initiatives highlights a diversification in the Lab’s projects and methods for addressing overall goals of building knowledge and awareness, and creating healthier homes for all. As shown in the Theory of Change, research initiatives are crucial to building pathways that enable people to change practices, and supporting advocacy efforts long term.

In conjunction with ongoing projects and initiatives that focus on Demonstration & Innovation, the Healthy Materials Lab is dedicated to conducting rigorous design-based research with aims of contributing to the ever-changing and expanding field of material health. The Lab understands that expertise comes in many forms, from varied sources and experiences. The research initiatives of the Lab are deeply collaborative and engaged with partners in the fields of design, advocacy, public health, and more. Through engagement in diverse research initiatives, the Lab simultaneously gains from invaluable knowledge exchanges with researchers, practitioners, and advocates, while growing its network through meaningful, fulfilling partnerships. The variety of research endeavors jointly launched and continued this year add to the ever-shifting definition and application of measures for environmental health.
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The work of the Healthy Materials Lab expands as we work with new and existing collaborations. Both new and ongoing partnerships bring a wide variety of experiences and knowledge to the Healthy Materials Lab network, especially through collaborative research.

Whether it is the individuals involved in the Hemp & Lime cultivation and production process, or public health experts and scientists involved with research on environmental exposures and their effects, the ways in which the Lab has expanded its collaborative research initiatives is reflective of the expansive and generative nature of the Lab’s work and mission.

Through ongoing research, the Lab has been involved in a collective knowledge-making and sharing process with designers, scientists, pediatricians, contractors, farmers, for example.

The research with which Healthy Materials Lab team members are engaged reveals and proves that space is plentiful and entry points varied when it comes to conversations about health and the built environment.

Research initiatives across the disciplines of design, science, agriculture, lighting, and beyond, increases our audience and changes largely unaware or observing groups to supporters and advocates.
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The completion of the Hemp+Lime publication marks a significant milestone in the Lab’s ongoing research journey centered on identifying plant and mineral based alternatives to petrochemically based products.

The publication examines the feasibility of hempcrete block production through a hempcrete demonstration project in Upstate New York and elsewhere. Included are introductions to industrial hemp cultivation, lime 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 our habitable spaces impacts both human and environmental health alike. Products produced in the current 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 possible 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. While we consider the entire building ecosystem in our research, we prioritize the use phases where products and materials can emit unnecessary and hazardous toxins into both exterior and interior environments.

As a response to the 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 hempcrete. Hempcrete combines industrial hemp, lime and water to create a 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. In hempcrete has gained steady momentum within the fields of architecture and design as a viable construction material.

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
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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. The cultivation of industrial hemp does not require irrigation, added fertilizer or pesticides making it a more sustainable agricultural material choice.

Currently, industrial hemp cultivation and use is limited by the federal government, as hemp as a species is classified as a controlled substance. Academic and other organizations can apply for licenses to grow and harvest industrial hemp. These restrictions are gradually being 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.

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 anti-fungal mixture, a simulated “concrete” 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 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 pertains 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 these critical local voices will also guide and inform the process.

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Year 5 marked HML’s ongoing commitment to the research and application of Hemplime as a viable alternative building material. The resulting publication is designed to address audience members anywhere from unaware to advocates.

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. (footnote studies). 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.

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.
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In Spring 2020, second year Master of Architecture Students at Parsons School of Design were given the challenge by Parsons Healthy Materials Lab to rethink the American Home by changing the material of construction to use healthier materials. “Since WWII, home construction has been the result of a concerted effort by the petroleum and chemical industries, timber barons, real-estate developers, automobile manufactures, the US government and military to shape the form and organization of post-war America. Based on platform wood construction, the typical American home is an accumulation of standardized parts, systems, products and construction techniques that have sought to maximize short-term profit, leveraging global distribution chains, and low skilled labor.” (Lewis, David J, Design Studio IV, Course Syllabus, 2020). Students developed their design proposals for affordable single family homes in New Castle, PA.

Year 5 marked HML’s ongoing commitment to the research and application of Hemp lime as a viable alternative building material. The resulting publication is designed to address audience members anywhere from unaware to advocates.

In Year 5, HML compiled all of the research, insights and innovations developed by students and published “Affordable Housing with Hemp lime” on ISSUU. This publication combines specific findings and projects which illustrate the possibilities of Hemp lime as an affordable housing building material to provide a resource for our collaborators and designers alike.
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Through a partnership with the Icahn School of Medicine at Mount Sinai Hospital, the Healthy Materials Lab has embarked on a research journey that encompasses aspects of environmental justice, accessible language, data visualization, and collaborative knowledge production through the Tooth Biomonitoring Project, launched during Year 5.

The impact that systemically unjust policies and design practices are especially highlighted through disproportionate exposure to toxins in both natural and built environments. Historically, marginalized and frontline communities have taken on the brunt of environmental injustices, and this particular project focuses on both the impacts of and treatment for lead exposure. Through an iterative design process informed by the Lab’s partners at Mount Sinai, and through the co-creation of knowledge via virtual interviews, the goal of the project is to create design assets and data visualizations that both share information about lead exposure, and empower individuals and groups to implement actions for healthier homes and neighborhoods. A secondary goal is that the production of these design assets considers customization for utilization and dissemination for cohorts across the world.

Since the project’s inception, both the HML and Mount Sinai teams have been adamant on approaching the issue of lead exposure from an equity lens, acknowledging that rather than place blame on impacted communities, the focus should be on building shared understanding of the root causes of disparities in environmental health damage. By recognizing that many contemporary environmental injustices point to intentional harm inflicted by institutions and government entities through certain policy choices, the project moves towards environmental health as an ongoing endeavor to be adopted by all of us. This kind of framework greatly influenced the visual and written language for design assets. Thorough initial research helped form these crucial guidelines principles for the project.

The particularly unique aspect of this initiative is the extremely novel nature of the research. While traditional methods of measuring lead levels are through blood tests, the research team at Mount Sinai has been utilizing baby teeth as biomarkers for understanding exposure over lengthy periods of time. Measuring utilizing teeth touches upon the fact that lead is absorbed by our bones, and may remain in our bodies much longer after initial exposure. Not only do these assets aim to empower individuals and groups with knowledge about lead, it specifically intends to present steps to navigating processes for addressing lead concerns, which are typically made incredibly obfusco and difficult to understand. The goal is that being empowered with this information will lead to individual and collective mobilization.

Overview of Project Goals:

Since the initiation of the project, further goals for the project have expanded beyond the development of informational design assets.

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Parsons Healthy Materials Lab Researchers and Research Assistants: Burgess Brown, Chonella Castillia and Nada Salem
Transdisciplinary Center on Early Environmental Exposures, Icahn School of Medicine, Mount Sinai Hospital:
Dr. Sarah Evans, PhD
Dr. Maida Galvez, MD
Community Engagement Coordinator, Luz Duett
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38. PARTNERSHIP WITH MOUNT SINAI: TOOTH BIOMONITORING

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Parsons Healthy Materials Lab Researchers and Research Assistants: Burgess Brown, Daniela Castillo and Nada Salem
Transdisciplinary Center on Early Environmental Exposures, Icahn School of Medicine, Mount Sinai Hospital:
Dr. Sarah Evans, PhD
Dr. Maida Galvez, MD
Community Engagement Coordinator, Luz Duell.
Journey Mapping process from HML presentation with Mount Sinai team; visualization of the Design Research Process

As compiled and presented, they include:

1) Designing report back process that explains tooth lead levels through visuals and accessible language,
2) Designing report back process that provides information about lead exposure and prevention via thorough, caring, and empowering methods,
3) Challenging traditional processes of knowledge-production within the field of medical sciences by prioritizing collaborative processes,
4) Creating useful assets that are conducive to translation and customization by research cohorts and environmental health advocates across the globe.

I. Design Research Process

A crucial first step to beginning the project consisted of HML members engaging in a thorough introduction and thoughtful familiarization with both the Mount Sinai team members and their work within the field of environmental exposure (more formally, exposomic research). This entailed an orientation day of presentations and a lab tour at The Institute for Exposomic Research at the Icahn School of Medicine at Mount Sinai in Harlem in late January. Through this visit, the Lab team members were introduced to the various individuals involved in research around environmental exposures, which combines the skills and knowledge of pediatricians, clinicians, scientists, and community organizers. The Healthy Materials Lab team received a thorough walk-through of the Institute’s labs, and more specifically, the unique and cutting-edge processes developed for extracting data on environmental exposures from baby teeth. The presentations covered the following themes: Introduction to Lead and Children’s Health, Tooth Biomonitoring Methodologies, Reporting Back Data, and Conducting Focus Groups.

This initial launch set the tone for the highly collaborative and synergistic nature of this partnership, which has consisted of fruitful, continuous dialogue between both teams and rich information sharing regarding design processes and best practices - continuing even within the virtual context presented by the pandemic. Building on top of the information shared that day, the researchers on the HML team consulted additional resources and reference documents to inform the design research process. This included reviewing existing relevant case studies, analyzing existing report back materials, compiling visualization examples, conducting direct researcher participation and observation, and scheduling interviews with individuals involved in similar projects. The research team collectively compiled their understandings gleaned from this research, and presented their analysis as major insights from the various resources. These main findings were translated into Guiding Principles to inform the development of Report Back processes and accompanying materials.

II. Development of Design Assets

As presented in the visual, the analyses presented by the researchers were utilized in determining guidelines that would frame and inform the next phases of the project. The guiding principles were largely influenced by the research done around admirable aspects of existing Report Backs which were seen as worth replicating, versus detrimental or inefficient qualities...
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Research

Annual Report Year 5

Development of Lead Level Meter; Visualization of suite of design materials

worth avoiding in this project. Additionally, gaining further context into recent developments within epidemiological studies that gravitate towards uplifting collaboration and regarding "subjects" as "co-creators" of knowledge.

Before embarking on the design process, the research team turned to certain strategies often utilized in human-centered research methods for products or services: 1) journey mapping, and 2) development of personas. Within this process, the team aimed to map out the various potential experiences of a hypothetical parent who would be receiving their child’s tooth lead levels. By attempting to forecast the wide range of responses that a parent might have (including highs, lows, points of confusion, etc.), the team gained insights into potential touch points throughout the report back process, which allowed for envisioning assets that would be helpful in addressing anticipated parent/caretaker responses. By engaging in this exercise and exchanging thoughts, both the HML and Mount Sinai teams determined early on that a suite of diverse materials would be both helpful and necessary in addressing potential additional questions, concerns, or provocations brought up during the report back process.

With this in mind, major objectives of the suite of design assets were to...

1) Describe potential sources of lead exposure,

2) Explain the impacts of exposure,

3) Present everyday steps to treat and prevent exposure, and

4) Offer compilation of services to address lead concerns and steps to follow.

In regards to developing design assets, the HML team decided to begin by translating an informational sheet about lead that had previously been developed by Mount Sinai; this provided an opportunity to experiment with and decide upon the visual language of the materials after consulting numerous examples. By referring to the aforementioned guiding principles and experience of the Mount Sinai team members, the language of the design assets was collectively developed with aims of being friendly, approachable, and accessible to anyone outside of the medical sciences. By focusing on the production of this informational lead sheet as one of the main resources that a parent would receive, ideas for the supplemental materials required to further divulge certain details or provide additional information began to reveal themselves during review sessions with Mount Sinai. For example, simply prescribing families healthy diets that are rich in vitamin C, iron, and calcium seemed insufficient, as understanding of the specific food items that fall under each category will be varied. Thus, the team developed a shopping list to guide parents and/or caretakers while making trips to their local grocery store.

This partnership highlights an environmental justice framing in the work of the Lab. By engaging in this research initiative that focuses on collective knowledge-production processes for developing information-sharing tools, HML is doubly working towards directly addressing direct environmental harm and empowering new advocates.
Development of Lead Level Meter; Visualization of suite of design materials

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Children in the US are exposed to multiple chemical and non-chemical threats to health, including lead, mercury, pesticides, mold, second-hand smoke, contaminants in drinking water, and toxic chemicals in consumer and building products. Children in low-income, minority communities suffer disproportionately from hazardous environmental exposures and diseases caused by untenable living conditions in their homes.

In the fight against hazardous exposures in the home, community health workers are on the front lines. Community health workers (CHWs) serve as a liaison between the healthcare system and communities often disconnected from that system. Critically, CHWs are from the community they represent and have an understanding of how best to navigate among and communicate with residents. CHWs perform much of their work in homes and have proven to be vital in mitigating diseases like diabetes, hypertension and other cardiovascular diseases, and, more recently, childhood asthma. CHWs across the country have integrated asthma treatment programs into their work, focusing on the remediation of household triggers. However, there is mounting evidence that more is needed than caregiver education programs to effectively reduce and prevent asthma in children. There is growing precedent that renovations are needed in the home environment.

At Healthy Materials Lab we have convened a team of interdisciplinary design researchers that are at the forefront of the movement towards healthier building practices. Our expertise in design, architecture, communication, and education have uniquely qualified us to partner with CHWs to introduce an increased focus on toxic chemicals and material health to existing practices. While CHWs have a track record of successfully addressing asthma triggers in the home, more can be done to eliminate toxins that trigger diseases and conditions like obesity, cancer, infertility, and autism. We at HML are working with leaders in the field to create both print and video training materials that outline the links between toxics found in households and disease as well as introduce renovation protocols to safely eliminate triggers that are the root causes of many diseases.
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Gain a better understanding of how ultraviolet germicidal irradiation can mitigate the spread of airborne bacterial and viruses including SARS-CoV-2 and how to best implement lighting design for human health and material health in the built environment.

**GOAL:**

**QUESTIONS:**

1. How can designers implement germicidal UVC to eradicate pathogens, especially SARS-CoV-2, safely and effectively?

2. How can spaces be designed to most effectively implement UVC to inactivate viruses? What are the main variables? How should designs adapt for each variable?

3. What are the effects and effectiveness of far-UVC on viruses, humans, materials? How can that best be measured and tested? Is upper air disinfection a better option?

4. How can germicidal UVC be retrofit into existing architectural lighting or easily integrate into existing spaces? What safety precautions should be taken and upkeep to maintain high eradication efficiency?

**TESTING**

**IMPLEMENTATION**

**40. PARSONS UVC LIGHTING INITIATIVE**

Ultraviolet light can be used to reduce the spread of airborne viruses and bacteria in indoor environments. We have been researching how this technology can utilize existing light fixtures in schools and other public spaces like the hallways of public housing developments.

Many commonly used disinfectants include antimicrobials which are chemicals that are associated with developmental, hormonal, and reproductive problems. Germicidal UV could be a healthier option. Since the summer of 2020 HML, in collaboration with Parsons MFA Lighting Design Program, have been researching and testing how germicidal ultraviolet light might be implemented to create healthier indoor spaces by reducing the spread of bacteria and viruses.

Germicidal UV uses specific wavelengths of nonvisible ultraviolet light to inactivate viruses and bacteria. Healthcare facilities often use germicidal UV to sanitize both air and surfaces. At the onset of the pandemic, we began wondering how this technology could be used in a wider variety of spaces, including our own school. After months of extensive, cross-disciplinary research, MFA Lighting Design faculty member, Craig Bernecker is sourcing lights that will be used in testing. Accidental exposure to specific wavelengths of ultraviolet light can cause eye and skin irritations. By orienting the fixtures towards the ceiling and carefully designing the controls, germicidal UV can safely reduce viral transmission. As people occupy the room, the air they exhale will rise, be treated, and then can safely circulate through the room.

We here at HML are especially interested in what this could mean beyond our own institution’s walls. Could this be a safer and easier way to keep the air clean in community spaces? Could it be a feasible option for affordable housing?

**COLLABORATORS**

Craig Bernecker, Director, MFA Lighting Design
Alison Mears, Director, Parsons Healthy Materials Lab
Jonsara Ruth, Design Director, Parsons Healthy Materials Lab
Research Fellows: Katrina Matejcik, MFA Lighting and Interior Design
Meryl Smith, M. Arch

**INDUSTRY PARTNERS**

Acuity Brands
The Lighting Quotient

Collaborating with Parsons’ School of Design MFA Lighting Design Program expands our audience in hopes to create more advocates through thinking about how light can improve occupant health in the age of COVID-19.
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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.
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41. PARSONS BIODESIGN CHALLENGE

Members of the Healthy Materials Lab were recognized and invited to be part of the jury for the well-known, respected and highly attended Biodesign Challenge, whose 2019 Summit was held at Parsons School of Design.

As presented by the BioDesign Challenge: “Biotechnology is spreading into every aspect of our lives—from our materials to our everyday products.” The goal of the challenge is to “bridge art, design, and biotech to develop the first generation of professionals who cross disciplines, anticipate promises and pitfalls, and engage the public in dialogue about the broader implications of emerging biotech.”

Showcasing students’ work during the summit provides an opportunity for sharing knowledge and fostering public dialogue around biotech.

Each summit brings together an exciting and prestigious group of speakers, panelists, judges, and student-designers.

As the challenge was being hosted by Parsons School of Design, the Healthy Materials Lab team took part in fostering “a community of collaboration among artists, designers, and biologists”, and in sharing the Lab’s knowledge by engaging in conversation with a new generation of designers.

This event is representative of the opportunity available to engage with existing and emerging designers, and share knowledge so that students of varying backgrounds (and from different institutions) become supporters.
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On November 16th, 2019, The New School Collaboratory hosted its second symposium to celebrate and critically reflect on the university’s 100-year commitment to scholarly activism and public engagement. Collaboratory symposia are designed through a participatory process to nurture interdisciplinary partnerships, grapple with new and long-sustained challenges, and create an inclusive setting for generative discussions with peers on best practices for ensuring equity and impact in academic-community collaborations. Through a partnership with Imagining America, the event brought together experienced faculty and community partners from universities and colleges in the region to jointly envision a more just and resilient future.

The Symposium included a panel, roundtable sessions, and creative interactions to examine new approaches to creating a more just, resilient and equitable society through public scholarship and project-based, engaged learning. The roundtable discussions were structured around diverse themes, and the Healthy Materials Lab was honored to be in conversation with symposium attendants about initiatives involving community engagement.

Since the Lab was a featured presenter during the breakout roundtable session, this offered an opportunity to discuss the work of the Lab with participants in a more intimate, personable setting. Lab team members discussed ongoing work through a roundtable discussion entitled "Healthy Materials Lab: Health-centered Design through Reciprocal Capacity Building in East Harlem & Beyond". This was a welcomed opportunity to share about the Lab’s ongoing work with Little Sisters of Assumption and to engage in dialogue about fostering healthy partnerships with participants generally interested in equity and collaborative learning projects.
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This event is representative of the opportunity available to connect with a variety of students and members of The New School, as well as community partners, by engaging in ongoing conversations around the topic of Scholar-Activism. The participants present were a range of newcomers, observers, and supporters of the Lab.

**SPEAKERS:**
Burgess Brown, Parsons Healthy Materials Lab
Alison Mears, Director, Parsons Healthy Materials Lab

**PARTICIPANTS:**
50
In May 2019 the core HMl team traveled outside NYC to Troutbeck. Guiding quote:

“No feudal continuity of blood, but a democratic continuity of spirit binds together the families that have occupied Troutbeck.”—L. Mumford

The intention of the retreat was to explore the next 2 years at HML. In particular we wanted to focus on our outreach and communications to new audiences in projects where we engage with the community. The team all read Ta-Nehisi Coates’ “Between the World and Me” to help frame our conversation. We also watched “Expanding the Table…” for Racial Equity #3: White Privilege presented by Dr. Robin DiAngelo. We reviewed a number of questions including “Coates is careful to avoid assuming that whiteness is a given. Rather, he calls attention to the constructedness of race when he describes families and individuals who “believe themselves to be white” or children who are “raised to be white” (10). At the same time, whiteness is a powerful social force, a descriptor for a community of those who have “maximum power and minimum responsibility,” those who have the power to take the lives of others without punishment (80). What role does race play in your self-understanding? How does your understanding of yourself and your identities connect to Coates’ discussion on historical and social constructions which have defined race in the United States?”

The retreat was an important opportunity for our team to come together to discuss often difficult “race” related issues in a place that was beautiful and separate from our work place. The team made a commitment to listen, to learn, to understand and confront our privileged position, and to intentionally make our work with and for others meaningful and useful.
The retreat began an ongoing journey for the Lab to be more intentional and explicit in our understanding of our place in the discussions centered on environmental justice.

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In Year 5, we are proud to be working on a HempLime home designed as healthy, affordable, and accessible housing. The project is called “PA Hemp Home” and is supported by the Pennsylvania Department of Agriculture. We are partnered with an expert HempLime builder, Cameron McIntosh from Americhamvre, and DON Services—a consumer-controlled, nonprofit organization in Western Pennsylvania that empowers people with disabilities to live as independently as they choose. DON Services acquired an 800-square foot, two-story house in the Lower East Side of New Castle, Pennsylvania, and recently began demolition work.

With Masters of Architecture student Meryl Smith, HML co-directors Alison Mears and Jonsara Ruth have developed architectural and construction plans that will be used to renovate the home using hemplime for the exterior and interior walls. The ground floor will be fully accessible, and human health will be considered and prioritized at every stage. HML also plans to use the home to conduct interior air quality monitoring. When the renovation is complete, DON Services will sell the house at an affordable price.

From researching Hemp and Lime, to introducing graduate students to this innovation and partnering with DON Services, the start of this project is creating excitement, advocacy and support around affordable housing with a healthy material.
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In Spring 2020, Parsons Healthy Materials Lab hosted the fifth annual Role Models Contest. This annual design contest offers a chance for students to be a “Role Model” to the design world by proposing an innovative approach to design combined with a demonstration of how creative practice can have a positive impact on personal health, the health of our neighbors, and the world at large. The semester was marked by the onset of the COVID-19 pandemic, causing worldwide disruptions to everyone. We acknowledge the challenges confronting students and celebrate their ability to continue to design in the midst of immense hardship.

For the first time, we were excited to be able to extend the contest to enrolled students internationally. This year we received submissions from twenty-two universities in seven countries including China, Saudi Arabia, and Zimbabwe. Because of the large number of excellent submissions, we awarded three winners and three honorable mentions – all of whom exemplified the innovative use of healthy materials to provide design innovations for social and environmental issues.

45. ROLE MODELS COMPETITION

WINNERS:
Eldy Stephanie Lazaro Vasquez, UC Davis
Jacob Olmedo, Parsons The New School
Nihaarika Arora, Parsons The New School
Zhao Xiang Zhi, Beijing Normal University
Uyen Tran, Parsons The New School
Maryangela Sanchez Rocca, Parsons The New School

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.
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22 UNIVERSITIES PARTICIPATED GLOBALLY
Press

Hemp building advocates in USA see a "perfect storm" August 2019

WASHINGTON POST
"Houses are filled with chemical additives. Here's how to find healthier materials" August 2019

THE TELEGRAM
"Houses are filled with chemical additives. Here's how to find healthier materials" August 2019

ONE GREEN PLANET
"Is Your Furniture Doing More Harm than Good?" August 2019

HEMPSTONE
"Learning about Hemp + Lime from The New School" April 2020

NEW SCHOOL PRESS ROOM
"PARSONS-LED INITIATIVE TO IMPROVE HEALTH AND TRANSPARENCY OF BUILDING MATERIALS" May 2020

AIA NY
"Building Health: The Next Frontier" October 2019

BRONX TIMES
"Design firms and communities of color collaborate on reopening strategies in the wake of COVID-19" June 2020

OFFICE INSIGHT
"Parsons Healthy Materials Lab Offers Online Courses for a New Generation of Architects and Designers" November 2019

NEW SCHOOL NEWS
"Parsons Healthy Materials Lab Offers Online Courses for a New Generation of Architects and Designers" December 2019

INTERIOR DESIGN
"5 Unexpected Resources for Sustainable Design Inspiration" September 2019
Hemp building advocates in USA see a "perfect storm" August 2019

WASHINGTON POST
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ARCHITECTURAL RECORD
"Continuing Education: Materials & Toxicity" January 2020

HEMPTODAY
"Hemp building advocates in USA see a ‘perfect storm’ August 2019

WIDE WORDS
"New technologies and materials advance green building" October 2019

OFFICE INSIGHT
"Parsons Healthy Materials Lab Offers Online Courses for a New Generation of Architects and Designers" November 2019

NEW SCHOOL NEWS
"Parsons Healthy Materials Lab Offers Online Courses for a New Generation of Architects and Designers" December 2019

NORTHWEST ARKANSAS DEMOCRAT GAZETTE
"Children’s Enrichment Center settling into new building” June 2019

THE TELEGRAM
"Houses are filled with chemical additives. Here’s how to find healthier materials” August 2019

ONE GREEN PLANET
"Is Your Furniture Doing More Harm than Good?” August 2019

HEMPTODAY
"Houses are filled with chemical additives. Here’s how to find healthier materials” August 2019

ARCHITECT
"Architecture and design competitions call for self-reflection and design intention” April 2020

MCKNIGHT’S LONG-TERM CARE NEWS
"Sustainable strategies for healthcare facilities” August 2019

THE TELEGRAM
"Houses are filled with chemical additives. Here’s how to find healthier materials” August 2019

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BRONX TIMES
"Design firms and communities of color collaborate on reopening strategies in the wake of COVID-19” June 2020

METROPOLIS
"Role Models Award Winners Lead the Way in Healthy Materials” July 2020

NOWATTHENEWSCHOOL
"Our Faculty Ground Breakers” 2020
PARTNERSHIPS

MANUFACTURER

- FORBO
  Resilient flooring
- ARMSTRONG
  Resilient flooring
- NORA
  Resilient flooring
- SHAW CONTRACT GROUP
  Commercial flooring
- HOUSE OF TAI PING
  Carpet flooring
- THERMACORK
  Insulation

NATIONAL

- ROMA PAINTS
  Paint
- SHERWIN-WILLIAMS
  Paint
- FIRECLAY TILE
  Tile
- ECO SUPPLY
  Green Building Materials
- INDUSTRIAL LOUVERS
  Architectural Metal Products
- ARONSON’S
  Flooring Solutions

INTERNATIONAL

- HENNING LARSEN ARCHITECTS
  Copenhagen, Denmark
- ROYAL DANISH ACADEMY
  OF FINE ARTS
- MONADNOCK
  CONSTRUCTION INC.

LOCAL, NY

- MOUNT SINAI
- NYCHA
- WEST HARLEM GROUP

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

MANUFACTURER

FORBO* Resilient flooring
ARMSTRONG Resilient flooring
NORA Resilient flooring
SHAW CONTRACT GROUP Carpet flooring
HOUSE OF TAI PING Carpet flooring
ThermaCork Insulation

BENJAMIN MOORE* Paint
SHERWIN-WILLIAMS* Paint
SHERWIN-WILLIAMS* Paint
SHERWIN-WILLIAMS* Paint
SHERRY-SILICONES Ceramic tile

ROMA PAINTS* Paint
ROMA PAINTS* Paint
ROMA PAINTS* Paint
ROMA PAINTS* Paint
ROMA PAINTS* Paint

FIRECLAY TILE Tile
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ECO SUPPLY * Green building materials
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BIOMAT Green building materials
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CARPETCYCLE* Material recycling
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COCO-MAT* Bedding products
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ARONSON’S FLOOR COVERING Flooring solutions
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AROMA* Aromatic products
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NATIONAL

FOUNDATION COMMUNITIES
Mount Sinai

LOCAL, NY

NYCHA

INTERNATIONAL

HENNING LARSEN ARCHITECTS
Royal Danish Academy of Fine Arts

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