# Healthy Materials Lab

We respectfully acknowledge that we live, study and work on unceded, traditional and ancestral Lenapehoking territories of the Lenape peoples.

# Healthy Materials Lab

YEAR SIX 2020-2021 REPORT

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### PARTNERS



# **OUR TEAM**

#### The Healthy Materials Lab

Parsons School of Design The New School New York, NY

Director, Alison Mears AIA LEED AP Director of Design, Jonsara Ruth Assistant Director, Ahalia Persaud Senior Design Researcher, Catherine Murphy Senior Design Researcher, Leila Behjat Administrator, Ava Robinson Senior Researcher, DhML, Luam Melake Podcast Producer, Burgess Brown Communications Team, Cristina Handal Communications Team, shirin anlen Communications Team, Ijeoma Nwatu Researcher, Samantha Bennett

#### Healthy Materials Lab Advisory Committee

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

#### **Faculty Researchers**

Andy Bernheimer Hee Chan Kim David Leven Helen Quinn Lucille Tenazas

#### Student Researchers

Weronika Banas Dani Castillo Pavithra Chandrasekhar Perri Eppie Carey Gallagher Olivia Hamilton Eric Hu Logan Magee Nada Salem Meryl Smith Jordan Taylor Hana Wilson

#### **Donghia Healthy Materials Library Student Researchers** August Rust

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

June 2021



# INTRODUCTION



Alison Mears Director and Co-Founder, Healthy Materials Lab AIA, LEED AP FULL BIO +



**Ava Robinson** Podcast Producer and Office Administrator FULL BIO +



Luam Melake Senior Researcher, Donghia healthier Materials Library FULL BIO +



**Elinor Salomon Communications** Team



FULL BIO +



**Carey Gallagher** Post Graduate Researcher



Hana Wilson Student Research Assistant FULL BIO +



Perri Eppie Student Research Assistant FULL BIO +



**Jonsara Ruth** Co-Founder & Design Director, Healthy Materials Lab ASID, IIDA FULL BIO +



Senior Researcher

FULL BIO +





FULL BIO +

Samantha Bennett Researcher

FULL BIO +



**Jordan Taylor** Post Graduate Researcher

FULL BIO +

Logan Magee Student Research Assistant

Weronika (Vera) Banas Student Research Assistant

FULL BIO +

FULL BIO +



**Ahalia Persaud** Assistant Director

FULL BIO +



Leila Behjat Senior Design Researcher

FULL BIO +



**Cristina Handal** Communications Team

FULL BIO +



**Meryl Smith** Post Graduate Researcher

FULL BIO +



Eric Hu Post Graduate Researcher

FULL BIO +



**Olivia Hamilton** Student Research Assistant FULL BIO +



**August Rust** Donghia healthier Materials Library Post Graduate Researcher FULL BIO +



### COLLABORATION, TRANSFORMATION, CHANGE.

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 continuation of the global COVID-19 pandemic throughout Year 6 created significant challenges. The team had been 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."1 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

1 The New Strain of Inequality: The Economic Impact of COVID-19 in New York City A report by James A. Parrott and Lina Moe April 15, 2020 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.

#### Introduction



The Healthy Affordable Materials Project, is a collaboration of the Healthy Building Network (HBN), HML, Health Product Declaration Collaborative (HPDC), and Green Science Policy Institute (GSPI). Funded by a grant from The JPB Foundation, the Healthy Affordable Materials Project seeks to improve the lives and health of residents living in affordable housing across the United States by reducing the use of toxics in the building product supply chain.

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

#### The Context of HAMP

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

#### Annual Report Year 6



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. 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. Introduction

# **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.

# COMMUNICATION STRATEGY: PROMOTE CHANGE



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

#### Quantify the Number of Participants.

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

#### Quantify Financial Investment. By measuring

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

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

# **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.

#### WE ARE WORKING WITHIN THIS CONTEXT:

CONSUMER PROE EWG.org - perso	UCTS nal products
HBN	
HPDC	

# GOAL: BUILD AWARENESS THOUGH





# Unaware (most people)

Annual Report Year 6

# **Observers** (aware but needs to know more)

AIA MATERIAL MATTERS

FITWEL

ML Ad

#### **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)





ILFI

Living Building Challenge

CRADLE TO CRADLE

Introduction

### WE ARE WORKING WITHIN THIS CONTEXT:

)

CASE STUDIES ILFI Well Enterprise GCC	MANUFACTURERS Competition in the marketplace	COMMUNICATIONS ADVISORS Big Duck & Susan Szenasy	
RED LIST Transparency List	CENTER FOR CIRCULAR ECONOMY	CONSUMER DEMAND Pressures the marketplace	
MANUFACTURERS		RETAILERS IDENTIFY MARKET	•
Invest in research & development		OPPORTUNITIES	• •
	•	·	• •
		• • •	•
•	Supporters	••••	
••••	(act on the issue and		
• • •	wants to change the		
• • •	way they do things)	GOAL: CREATE N	EW PATHWAYS
	· · · · ·	THAT ENABLE PE	OPLE TO
		CHANGE PRACING	25
			2
	How can we introduce issues through resources?	Work with retailers     Build consumer demand     Clarify a compelling message for     different audiences	
	PHYSICAL SAMPLES & RAW MATERIAL WALL Donghia Healthier Materials Library		
	EXISTING CURRICULUM CHANGES Architecture, design, and school policies	How do we advocate for transparency?	How do we evaulate ingredients for health criteri
	CREATE INITIATIVE IN MANUFACTURING	HPD Health Product Declaration	<ul> <li>TRANSLATORS</li> <li>Tools are needed to translate information into actionable results.</li> <li>Pharos</li> <li>Quartz</li> </ul>
	How are boolthior buildings	Who is building with	- HML Website
	being made?	healthier materials?	
	COLLECT SPECIFICATIONS	<ul> <li>Case Studies: HML</li> <li>Demonstration Projects</li> <li>Architect/designer friends of HML</li> </ul>	PRODUCTS The Donghia Healthier Materials
		- HML - HBN	Library
	FOCUSED ON AFFORDABLE PUBLIC HOUSING		
	DEVELOP PROCUREMENT PROCESSE THAT INCLUDE HEALTH CRITERIA	How: New product	
	ADVOCATE FOR INTEGRATED DESIGN TEAMS THAT INCLUDE HEALTH AS PART OF THE DESIGN PROCESS	How: New product development	

#### Annual Report Year 6



Introduction



Why Healthy Materials? Donghia healthier Materials Library About Us Blog & Events DONATE  $\mathbb{Q}$ 



# Receive updates about healthier affordable housing, healthy materials, and more.

 $\rightarrow$ 

email address + enter

The construction of affordable housing has been chronically underfunded and regulated by racist housing policies. After years of widespread use, low-cost, substandard, and toxic building materials are now directly linked to more serious health risks for low income families.





Harmful chemicals coat our food. Poisonous lead contaminates our water. Carcinogenic flame retardant-filled insulation fills our walls. Indoor air pollution has resulted in an alarming rise in childhood asthma. In the face of this health crisis, even minor renovations can drastically improve the health of communities.

### HML WEBSITE

The HML website was launched in January 2018 and continues to be updated with additional resources and tools. This year we reviewed this site to add new data and SEO analytics and capacity and plan for future change.



### HAMP WEBSITE

The HAMP website provides a hub that describes the HAMP project.



# LIBRARY & RESOURCES

The theory of change described in the original grant application relies upon the adoption of full transparency and the 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 a products 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 toxics 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. 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. Annual Report Year 6





2 HEMP FIBER + TEXTILES LUNCH AND LEARN



Library & Resources



#### **Our Samples**

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







Ecor Board



Hempcrete







Milk Paint

Denim Insulation

Linoleum-Marmoleum

#### Interested in more material collections?

We curate product collections featuring healthier materials both on display at Donghia Materials Library and beyond.

SEE OUR MATERIAL COLLECTIONS

#### **Related Tools & Guides**



mindful

Material Order Donghia healthier Materials Library



**Mindful Materials** Mindful Materials Collaborative



# 1. 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 material 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 have researched 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 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.

With the closure of The New School from March 2020 to August 2021 due to COVID, the Donghia library as a physical library was also closed. Research continued off site and the library reopened with a new Senior Researcher and a new program in August 2021.

Engagement with the library moves visitors from **unaware** to **advocate**. More so, orientations serve as an opportunity to introduce students and professionals to the issue of material health.





# 2. HEMP FIBER + TEXTILES LUNCH AND LEARN

Textiles! We sit on them, we sleep in them, and we wrap ourselves in them. Hemp makes a superstar healthier textile - contributing to healthier interiors, healthier apparel, and a healthier future for our planet.

Healthy Materials Lab was joined by the founder of Hemp Traders, Lawrence Serbin. HempTraders was founded in the 1990's when it was still illegal to grow Hemp in the US, so they got a head start on the American market by importing quality hemp textiles and products from China. Lawrence, a full-on Hemp Pioneer, shared a deep understanding of hemp fiber and textiles from decades of experience. Hemp Traders is the largest supplier of hemp fiber products in the USA.

This lunch and learn was held virtually, which allowed the presentation and following conversation to be recorded. It is available on YouTube for all to access.

To learn more visit: www.hemptraders.com

112 virtual attendees 165 youtube views 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.



#### Library & Resources

# **28** NEW MATERIALS

We have added new materials to all material categories.

#### **YU+** NEW PRODUCTS BEING VETTED

We are continually vetting new products to see if they meet our criteria.

### 23+ MANUFACTURERS WE'RE CONTACTING

Active correspondence regarding documentation and certification.

## **20** PRODUCTS BEING VETTED

For new low embodied carbon criteria.

#### Healthy Materials Lab

Donghia healthier Materials Library About Us Blog & Events DONATE Q WHY HEALTHY MATERIALS? LEARNING HUB MATERIAL COLLECTIONS TOOLS & GUIDES PROJECTS

## MATERIAL COLLECTION Textiles

Healthier and more sustainable textiles can address: 1. footprints of fiber cultivation and production and 2. toxicity of any applied treatments.

The production of both natural and synthetic textiles can require massive amounts of energy, water, and toxic chemicals. Added surface treatments often involve harmful chemicals. Selecting products from manufacturers that are committed to minimizing their environmental impact and to providing ingredient transparency can help to ensure healthier and safer interior environments.

Textiles 13 products			How to Use This List 😨	
	SUB-CATEGORY	MANUFACTURER		
Textile	Biobased	Carnegie	Biobased Xorel	
Textile	Cotton	Kvadrat	Harald 3	
Textile	Hemp	NYTextileLab	2/10's 80/20 wool and hemp blend, Ivory	
Textile	Leather	Moore and Giles	Terra Olive Green 😫	
Textile	Natural Fiber	OceanSafe	OceanSafe	

# **3. MATERIAL COLLECTIONS**

In Year Six, Healthy Materials Lab continued to develop the Material Collections. Two new collections of materials were added this year, along with the continuous addition of 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 HML's Material Collections was enhanced by adding a highly requested Textile Collection. Healthier and more sustainable textiles can address footprints of fiber cultivation, 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.

Research around materials with Low Embodied Carbon began during Year 6, as well as the initiative to add embodied carbon information for existing products in our collections.

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**.

J

# **EDUCATION**

Parsons is a hub for national and international design research with 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<sup>1</sup>. 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.

<sup>1</sup> https://www.qschina.cn/en/university-rankings/university-subject-rankings/2021/ art-design

#### Annual Report Year 6



- 6 ANCIENT WISDOM/ MODERN PRACTICE
- 9 BFA ARCHITECTURAL DESIGN: CAPSTONE STUDIO



**10** ACADEMIC NETWORK





# 4. RETHINKING MATERIALS FOR DESIGN: INTRODUCTION TO HEALTHY MATERIALS LECTURE

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 materiality. In the last year we made presentations at universities in the US, Germany and Australia.

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.

261+ PARTICIPANTS FROM SCHOOLS ON NEXT PAGE These lectures allowed design students to get familiar with materiality and the concept of human health and chemicals in materials, spurring them on a journey to become **supporters** & **advocates.** 



Education













## PARTICIPANTS

52 RHODE ISLAND SCHOOL OF DESIGN

17 CORNELL

**50** HOCHSCHULE RHEINMAIN, GERMANY

**67** Monash University, Australia

75 VIRGINIA TECH

**637** COLUMBIA TECH TALKS YOUTUBE VIEWS

#### Annual Report Year 6





# 5. OUR GLOBAL CHEMICAL EXPERIMENT: A LECTURE BY ANNA YOUNG

It's estimated that Americans now spend approximately 90% of their time indoors, and studies show that the spaces in which we spend that time directly affect human health and performance.

On Tuesday, September 15th Parsons Healthy Materials Lab hosted Dr. Anna Young from the Harvard T.H. Chan School of Public Health for a lecture titled Our Global Chemical Experiment: How Healthy Building Strategies Can Reduce Exposures to Chemicals.

Have you ever wondered where Healthy Materials Lab gets its information? For years, the Harvard T.H. Chan School of Public Health has been leading the charge in groundbreaking research about public health. In the upcoming lecture, Dr. Anna Young discussed her ongoing research and why it matters.

Anna Young is a postdoctoral research fellow in the Department of Environmental Health at the Harvard T.H. Chan School of Public Health. Her research focuses on healthier materials and products in buildings as a strategy to reduce our exposures to toxic chemicals. She recently earned her PhD in the department, where she conducted dissertation research about global exposures to chemicals in office buildings, the hormonal activities of building dust in cell assays due to chemicals, and the benefits of healthier materials interventions to reduce toxic chemical loads in buildings. Anna also holds an MS in Environmental Health from the Harvard Chan School and a BA in Computer Science and Environmental Studies from Yale University.

## **187** Attendees

This lecture allowed its attendees to gain an inside look at the research of healthy materials and toxins that can exist in regular buildings, making them more **aware** of their surroundings and more likely to become **advocates**.




#### 6. PARSONS SCE PUBLIC PROGRAM: ANCIENT WISDOM / MODERN PRACTICE

Ancient Wisdom / Modern Practice engaged in a dialogue about the relevance and benefit of indigenous, vernacular, and often ancient knowledge, to further the discussion and practice towards resilience and healthier environments in a warming world. This lecture looked at case studies on tectonics, materiality, and ecological adaptation in embracing greater environmental equilibrium. The lecture and panel discussion were part of the Archtober 2020 Festival.

#### PANEL:

Emily Moss, Parsons School of Constructed Environments

Martina Kohler, Parsons School of Constructed Environments

Allyson McDavid, Parsons School of Art and Design History and Theory

#### SPEAKERS:

Leonardo Figueroa Helland, Milano School of Policy, Management and Environment

Jonsara Ruth, Parsons Healthy Materials Lab

Julia Watson, A Future Studio

176 ATTENDEES 43 VIMEO VIEWS

Ancient building practices often exemplify healthier material choices; by presenting this knowledge, an audience of **observers** were given precedent in which their journey to **advocacy** can begin.





## **GROWING THE FUTURE**

### with Dr. Amy Congdon

Biofabrication: Growing the Future Event Flyer

#### 7. BIOFABRICATION: GROWING THE FUTURE

BioFabricate was an all-day free event on December 7th, which launched the first comprehensive fashion industry report on biomaterials. This event featured the report's co-authors, Biofabricate and Fashion for Good, along with guests, they shared vital learnings from leading biomaterial innovators and consumer brands.

Parsons Healthy Materials Lab hosted Amy Congdon from BIOFABRICATE for a talk introducing the field of biofabrication and how scientists, designers and engineers are growing the materials and products of the future. The lecture gave examples of companies at the forefront of the field today and their revolutionary technologies. Congdon also covered realistic timelines and what it takes to scale innovations that can have real world impact.

Amy is a designer by training who has been working and researching in the field of biofabrication for over 10 years. She holds an MA in Material Futures and a PhD from the celebrated design school Central Saint Martins in London. Her PhD research 'Tissue Engineered Textiles' was conducted in collaboration with Kings College London (in the Tissue Engineering & Biophotonics department based at Guys Hospital). Amy received her introductory training in tissue engineering at the world renowned SymbioticA based at the University of Western Australia. Her work has been featured globally in leading publications and books, and in exhibitions held at venues including the Cooper Hewitt Smithsonian Museum (New York, USA) Centre Pompidou (Paris, France), and Science Gallery (London, UK). In her professional career Amy has worked both in industry and in house at biotech start-up Modern Meadow as Associate Director of Materials Design. Amy is currently Head of Design Intelligence at BIOFABRICATE, a global network serving the needs of biomaterial innovators, investors and consumer brands. Biofabricate's vision is 'A sustainable material world. Built with biology, not oil'.

#### SPEAKERS:

Dr. Amy Congdon, BIOFABRICATE

#### 238 ATTENDEES

This lecture allowed **observers** to gain an inside look at the research of biomaterials, making them **aware** of materials for the future that can be grown, turning them to **supporters.** 



Education

## DECEMBER 9 12 PM

VIRTUAL OPEN HOUSE With

Healthy Materials Lab's Director Alison Mears Senior Researcher Catherine Murphy Lab Alumni Alison Smith and Sheridan Johnston







CATHERINE MURPHY, Senior Researcher, Healthy Materials Lab



SHEFALI SANGHVI Associate, DATTNER Architects



ALLISON SMITH Sustainability Leader, HKS Architects



SHERIDAN JOHNSTON Interior Designer, HKS Architects



#### 8. ONLINE LEARNING OPEN HOUSE AND SNEAK PEEK

Finding healthier materials to specify for your building projects isn't easy. It can be timeconsuming and resource intensive. Sometimes it's hard to know where to start because there's just too much information to sift through, or the information is too technical.

With this in mind, Healthy Materials Lab has created a four-course online certificate program. The Healthier Materials and Sustainable Buildings program will equip you with the right tools to make informed decisions and supply the necessary background information on basic construction materials, their chemical makeups and their relationship to human health. Each online course is completely self-paced so you can take it on your own time.

In Year 6, to promote the four-course program, HML held a virtual Open House and Sneak Peak on two different evenings for those interested in our online learning programs. During these events, graduates of the program will also be there to share why the 4-course Healthier Materials and Sustainable Building program was instrumental in transforming their practice. A quote from the event: "We don't consider these courses to be limited to designers. It's really important that the whole team, that everybody throughout the whole process of the design work understands these issues and are able to communicate this to our clients, to the teams and to our collaborators. We support everyone to take it, at every level." Alison Smith, HKS

#### SPEAKERS:

Alison Mears, Co-Director, Parsons Healthy Materials Lab

Catherine Murphy, Senior Researcher, Parsons Healthy Materials Lab

#### GUESTS:

Allison Smith, Sustainability Leader, HKS Architects

Sheridan Johnston, Junior Interior Designer, HKS Architects

Shefali Sanghvi, Associate, Dattner Architects

51 ATTENDEES 630+ VIEWS ON YOUTUBE AND VIMEO This event allowed an audience of **observers and supporters** to learn more about the courses HML offers and hear from alumni of the program who are now healthy materials **advocates.** 



Education



Student Work by Anthony Vesprini, Eric Hu, Nalin Chahal



Student Work by Kanatanat (Nicky) Sooncharernying

#### 9. BFA ARCHITECTURAL DESIGN : CAPSTONE STUDIO SPRING 2021

Healthy Materials Lab co-director Alison Mears and researcher Cristina Handel co-taught a senior capstone studio for Parsons Bachelor of Fine Arts in Architectural Design.

Students in this capstone studio developed a final studio project that synthesized prior learning from their Architectural Design program with a specific focus on the relationship between architecture as environmental and material construction and the well-being of the human and global 'body'. The work combines capabilities in studio, theory, history, and technology within situated historical, cultural, political and social frameworks. As the culmination of their undergraduate educational work at Parsons, students engage in an architectural project with a focus on comprehensive structural, material and environmental resolution. Students worked towards demonstrating and enacting their projects as a form of social engagement through material, environmental and spatial exploration.

#### FACULTY:

Alison Mears, Co-Director, Parsons Healthy Materials Lab

Cristina Handal, Parsons Healthy Materials Lab

14 STUDENTS This undergraduate level studio allowed a group of **observers** to take a deep dive in materiality, spurring them on a journey to become **supporters and advocates.** 



#### Education



#### Welcome

#### Logout

Browse our carefully researched and curated academic resources, including model syllabi and webinars.

Syllabus Support & Examples  $\downarrow$ 

Teaching Tools  $\downarrow$  Videos  $\downarrow$ 

#### Syllabus Support & Examples



#### Syllabus Support

Here we've created a resource to help you build your syllabus. We have extracted key videos and support material from our comprehensive 4-course program, to introduce your students to human health in all aspects of design and practice.



#### BFA Architectural Design Studio: "Schools and Place: The Transformational Power of Education in Lagos, Nigeria" (Spring 2018)

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#### MFA Interior Design Studio 3: Fostering Healthier Futures (Fall 2017)

Inspired by the work of the Administration for Children's Services, which protects and promotes the safety and well-being of New York City's children, young people, families, and communities. Students adopted the focus of HML which is dedicated to a world where people's health is placed at the center of all design decisions.



#### MFA Interior Design Studio 3 with NYC Dept of Health: Empowering Healthy Futures (Fall 2016)

This studio designs in the knowledge that healthy buildings lead to healthy futures, empowering the community that resides within.



#### MFA Interior Design Studio 3: Healthy Living with Grocery (Fall 2015)

Designing affordable housing driven by healthy materials research. Students are asked to redefine health from the scale of the individual to the greater community and from the food we eat to the materials that surround us.

#### **10. ACADEMIC NETWORK**

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 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.

In Year 6, with the help of ModLab, HML worked to improve the interface of the Academic Network page by enhancing user experience for members.

231+ MEMBERS 84+ DIFFERENT SCHOOLS

The goal of this initiative is to create a platform on which healthy materials **advocates** can connect and share information with other **advocates**. The members of this network will ultimately impart their knowledge to **unaware** students.



#### **RESOURCES FOR ACADEMIC** MEMBERS AND FACULTY

#### Syllabus Support and Examples

Syllabus support

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



Healthy Materials Lab, 2018 MATERIALSLAE



#### **CERTIFICATIONS & DISCLOSURES**

COMPARISON OF MATERIAL HEALTH PRODUCT CERTIFICATIONS AND DISCLOSURES

		Verification	Levels	Health Criteria			ia	Public Data	Adoption		
	Туре			ingradient Disclosury	Harard I Rockity	Appendent	-	Availability	illin Vi	WELL VI	100
HPD v2	Disclosure	Third-party optional	None	•	0	0	0	Full ingredient list, with two permitted exemptions	•	•	0
Declare	Disclosure	Third-party optional	None	•	•	0	•	Full ingredient list with roles, amounts, and hazards	•	•	•
Cradle to Cradle	Multi-attribute certification	Second-party*	Basic Bronze Silver Gold Platinum	•	•	•	•	Scorecard not disclosed	•	•	C
Blue Angel	Multi-attribute certification	Third-party verified	None	•	•	•	•"	Scorecard not disclosed	•	•	C
Nordic Swan	Multi-attribute certification	Third-party verified	None	•	•	•	•	Scorecard not disclosed	•	•	0
BIFMA level	Multi-attribute commercial furniture certification	Third-party verified	Level 1 Level 2 Level 3	•	•	•	•	Scorecard not disclosed	•	•	•
CDPH Section 01350	Emissions certification	Third-party verified	None	0	0	0	•	Scorecard not disclosed	•	•	•
Notes	"Cradie to Cradie uses. "Health criterio an bar "" Can be only used to	é proprietary standard, ed on product type: Roi more in ward "Green cleaning - purchas	formation rater to	s Gue Argel Sourieg prod	and Nords facts and r	c Swat we	calls luk	which below			
tabine investile and Tastan Roberts fore Angel, "Ecolosis Index, Acce Ban Robert Tender, Sterner Ecologie and Robert Tender (TBHA), Acce ASID: Chemis, New Contents, Sterner AsiD: Chemis, New Contents, Sterner Sterner, Martha, and David Levice, " Special Chemistry Reporting," Fasti Special Chemistry Sterner, "Forsite Poduce Internet Reporting," Fasti HELL," Insertigational WELL Build HELL," Insertigational WELL Build	"Tehning the Logos Under seet August 6, 2018, 2022, "Blue Angel, Accessed Aug and August 5, 3018, 2020, USACK, Accessed August Why tablenia Headth Caree of Index, Accessed August Whitenia Lisk, Accessed August of Whitenia Lisk, Accessed Aug scription for Headthire Build	restancing Green Product Centre from analytic term of the source bound of a 3-001 k time. // neuros blance in the source bound of the source bound of the blance // the source of a result term // the source of the an Advition of the blance // the source of the source bound of the source bound of the bounder of the source of the source of the date of the source of t	ations," Russing et/Julius-angol emptil. Joint antonski on tor Healthy M In Joint Novielans Instrumentations, Instrumentations, Inst Joint	Gamp 2008. Internetival Interne	titan.Um official half-com half-com	ny Jawillers Ger (pres) V Rift Sociality Ann ann An	udramu lid urk, W 202 Nie zach		PAR	SOP	NS

Academic Network download-able resources via HML Website

#### Annual Report Year 6



#### 4. Flame Retardants

Flame Retardants are chemicals designed to slow ignition and prevent fires. They are used to meet flammability regulations, but they also pose health threats to human bodies. Flame retardants of concern, including polybrominated diphenyl ethers (PBDEs) and chlorinated tris (TDCPP), are found in furniture, insulation and other materials in the home.



Academic Network download-able presentation available to members via HML Website

Education

## **ACADEMIC NETWORK MEMBERS**



RHODE ISLAND SCHOOL OF DESIGN



HARVARD GRADUATE SCHOOL OF DESIGN

ELISAVA Barcelona School of Design and Engineering ELISAVA SCHOOL OF DESIGN & ENGINEERING



NEW YORK SCHOOL OF INTERIOR DESIGN



TULANE





UNIVERSITY OF HOUSTON



APPALACHIAN STATE UNIVERSITY









FASHION INSTITUTE OF TECHNOLOGY



ARIZONA STATE UNIVERSITY





DREW UNIVERSITY

UNIVERSITY AT ALBANY State University of New York SUNY ALBANY





RENSSELAER POLYTECHNIC INSTITUTE



UNIVERSITY OF ARIZONA



**CENTRAL SAINT MARTINS** 



UNIVERSITY OF CAPE TOWN



THE COOPER UNION



UNIVERSITY OF THE ARTS LONDON



Annual Report Year 6













COPENHAGEN SCHOOL OF DESIGN & TECHNOLOGY



AUCKLAND UNIVERSITY OF TECHNOLOGY ILLINOIS INSTITUTE OF TECHNOLOGY ILLINOIS INSTITUTE OF TECHNOLOGY



UNIVERSITY OF ARKANSAS, FAY JONES



THE PENNSYLVANIA STATE UNIVERSITY



HOCHSHULE RHEINMAIN



SAVANNAH COLLEGE OF ART AND DESIGN



FLORIDA STATE UNIVERSITY

WOODBURY UNIVERSITY FOUNDED IN 1884 WOODBURY UNIVERSITY

KU LINIVERSITY OF A

UNIVERSITY OF KANSAS, SCHOOL OF ARCHITECTURE AND DESIGN



BOSTON ARCHITECTURAL COLLEGE

GSAPP

COLUMBIA UNIVERSITY



CARNEGIE MELLON UNIVERSITY

NULT New Jersey Institute of Technology

NEW JERSEY INSTITUTE OF TECHNOLOGY



**UNIVERSITY OF OREGON** 

ADDITIONAL MEMBERS OF OUR ACADEMIC NETWORK: California College of the Arts • Lesley University • U of MN College of Design • College of Dupage • College for Creative Studies • California College of the Arts • Smith College • The Art Institute of Tampa • Plymouth College of Art • Kingston School of Art • CUNY City Tech • Fashion Institute of Design and Merchandising • Art Academy of Cincinnati • La Roche University • Middlebury College • North Branch Area High School • The School of the Art Institute Chicago • Massachusetts College of Art and Design • San Francisco Art Institute • Pennsylvania College of Art and Design • Villa Maria College • Kansas City Art Institute • Editora de la revista La Tadeo Dearte • Köln International School of Design • SUNY Buffalo State • Indiana University • SWPS University of Humanities and Social Sciences • Politechnical University of Catalonia • Ravensbourne University • Virginia Commonwealth University • Moore College of Art & Design • University of Tennessee

## **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.





16 TRACE MATERIAL PODCAST



12 HEALTHY MATERIALS LAB WEBSITE



17 ROLE MODELS CAMPAIGN



**13** INSTAGRAM



**18** E-LEARNING MARKETING













20 AMERICA BY DESIGN

#### COMMUNICATION STRATEGY DIAGRAM ONLINE TRAFFIC FLOW



#### **11. COMMUNICATION STRATEGY**

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

Through surveys, networking, and other research tools, we have gained deeper understanding and 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.

#### YEAR 6

USERS

YEAR 5 44,519 25,081

147,664 108,125 **PAGE VIEWS** 

2.08 **PAGES PER** SESSION

2.32

70,922 46,640 SESSIONS

03:15 02:41 **AVG. SESSION DURATION (MIN)** 



#### **12. HEALTHY MATERIALS LAB WEBSITE**

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. We are constantly working to improve user experience and clarity. In Year 6, we added the Learning Hub to our website. This addition to the website gathers all education resources, links, videos and relevant content in one place.

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**.

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Winona LaDuke Keynote Address | Material Health: Design Frontiers Healthy Materials Lab



Affordable Housing and Beyond: Addressing the Needs of All Populations Healthy Materials Lab, Health Product Declaration® Collaborative (HPDC)



Claudy Jongstra: "Working towards a better world and a circular, inclusive economy through art" Healthy Materials Lab



Housing: Left, Right & Center Healthy Materials Lab

#### 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?	Donghia Healthier Materials Library About Us	Blog & Events

#### Healthy Affordable Housing

How We Make Affordable Housing Healthier Resources for Affordable Housing Providers

#### **Material Collections**

Healthier Building Products Healthier Design Alternatives Natural and Healthy Databases of Certified Products Design Forward Product Libraries

#### Projects

Podcast Case Studies Demonstrations Annual Reports

#### Learning Hub

Education Resources Online Courses Events on Demand Short Courses Resources Education Events

#### **Tools & Guides**

HML Resources HML Textile Guides Material Health Research Best Practices Materials Guidance

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

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

#### **ABOUT US**

Our mission, team bios, partners and goals.

BLOG & EVENTS

Stay up to date with the latest news and events.

#### HEALTHY AFFORDABLE HOUSING

Create urgency, housing needs to change. How and why we do what we do.

#### **MATERIAL COLLECTIONS**

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

#### PROJECTS

A place to highlight ongoing projects and collaborations.

#### **LEARNING HUB**

A link to all educational content and resources.

#### **TOOLS & GUIDES**

An interface of hundreds of resources created by research partners and internally.



HML Instagram profile

#### **13. INSTAGRAM**

Instagram is a large part of our communications strategy to strengthen industry partnerships, cross-promote content and reach a wider audience. In Year 6, we continued initiatives such as Material Mondays, and Featured Designer Fridays to share information about healthier material alternatives in a way that is engaging for designers and millennials alike.

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.

Our instagram profile is also connected to our Facebook page, where we are able to share the same posts and make sure to reach a similar audience that prefers this platform instead.

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.



#### INSTAGRAM CAMPAIGNS

At HML, we use instagram to not only promote ongoing projects, research, and workings of the lab, but to also post digestible pieces of information. Campaigns such as Material Monday, Did you know? and Vote increased engagement and disseminates knowledge to a wide audience.

#### MATERIAL MONDAY

Material Monday highlights various healthy materials that we love. An example caption on a post for this ongoing campaign is: "Plywood has been one of the most trusted wood building products for decades. Regular glues used to bind veneers together to make plywood board present health concerns to our health. Formaldehyde (a known human carcinogen) is often used in composite wood products to make dry glue faster."



#### FEATURE DESIGNER FRIDAY

Feature Designer Friday allows us to put a spotlight on individual designers and design firms who are doing exemplary work in the fields of affordable and equitable housing, sustainability or material health. An example caption on a post for this ongoing campaign is: "Her work has focused on the oil and gas industry and how its adverse impacts affect the environment, the water and people. She centers feminist indigenous perspectives, particularly around water management and the decolonization of water policy."















#### **DID YOU KNOW?**

A series of posts called "Did You Know?" allowed us to shared information about PFAs in a clear and understandable way. A caption for these post, for example, is "PFAS enter drinking water through firefighting foam used at military bases and commercial airports, industrial sites, and run-off or leaching from contaminated solids from wastewater treatment plants."





#### Communication & Dissemination



#### Overview

We are Healthy Materials Lab at Parsons School of Design, dedicated to a world in which people's health is placed at the center of all design decisions. We are committed to raising awareness about toxics in building products and to creating resources for all designers and architects to change practice and make healthier places for all people to live.

Website	http://www.healthymaterialslab.org
Industry	Design
Company size	11-50 employees 23 on LinkedIn 👔
Headquarters	New York, NY
Туре	Educational Institution
Founded	2015
Specialties	sustainability, research, materials, material innovation, material science, affordable housing, health, building materials, building products, healthy materials, parsons school of design, design, vulnerable populations, toxics, manufacturers, education, industry development, innovation, e-Learning, human health, and the new school

#### **14. LINKEDIN**

We have been using a LinkedIn company page to connect with individual professionals or companies that are neither on instagram or facebook or that prefer using this platform for their professional connections and interactions. Our followers on LinkedIn are mostly from the following industries: architecture & planning, design, higher education, construction, building materials, real estate, environmental services, civil engineering, research and nonprofit organization management. We leaned on this channel to communicate to professionals about our eLearning programs, invite followers to our events and share news or calls to action from the HAMP partners and other organizations that align with our mission.

#### LinkedIn Followers Breakdown: Architecture & Planning 26% Design 12% Higher Ed 8% Construction 5% Building Materials 4% Real Estate 4% Environmental Services 2%, Civil Engineering 2%, Research 2%,

Nonprofit Organization Management 2%

1,162 FOLLOWERS LinkedIn helps to increase **supporters** and broaden awareness of healthier materials among professionals. Our account disseminates resources and knowledge of healthier materials in a visually engaging way and allows us to easily connect with other professionals working in related fields and keep track of developments in the industry.



# WHAT'S IT MADE OF?

As a business leader I am concerned about the health of our world - my employees, customers, communities, and the global environment. I am committed to reducing the use of chemicals that pose harm to human health and the environment.

I commit to ask my suppliers about the presence of the following chemicals of concern in the products that we produce, specify or purchase:

- +Antimicrobials
- + PVC often known as vinyl
- + Flame retardant chemicals
- + Fluorinated stain treatments
- + VOCs including formaldehyde

sustainablefurnishings.org



-- shout the presence

#### 15. WHAT'S IT MADE OF?

Parsons Healthy Materials Lab with the Center for Environmental Health, and the American Sustainable Business Council join forces with Sustainable Furnishings Council to encourage inquiry and improvement in the residential furniture manufacturing industry.

Together, we launched an environmental health initiative called "What's it Made Of?" which encourages the elimination of dangerous substances commonly included in furniture production. This comes at a time when businesses are becoming increasingly aware that consumers desire healthier interiors. The initiative consists of a simple pledge for manufacturers to ask their suppliers about the substances in the materials they use and in the products that they make. The pledge reads:

"As a business leader, I am concerned about the health of our world - my employees, customers, communities, and the global environment. I am committed to reducing the use of chemicals that pose harm to human health and the environment. As a first step, I commit to ask my suppliers about the presence of chemicals of concern like flame retardants, fluorinated stain treatments, antimicrobials, vinyl, and VOC's including formaldehyde, that may be present in the products that we produce/specify/purchase."

Signatures gathered at the launch numbered near 300 and continue to increase through the Sustainable Furnishings Council membership efforts. Sustainable Furnishings Education Fund is committed to supporting businesses in improving their supply chains, and in being useful to consumers, who prefer environmentally safe furnishings.

Coming together for this Initiative announced 2016, the Sustainable Furnishings Council, American Sustainable Business Council, Center for Environmental Health, Parsons Healthy Materials Lab and others are building upon efforts they have been making individually. Jonsara Ruth, Co-Director of HML, has been serving as a member of the board for Sustainable Furnishings Council the last two years and became Vice President of the board in January 2021.

Material transparency is key to improving the health quality of furniture. The furniture industry recognizes that ultimately, this requires a better understanding of their supply chains.

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#### **16. TRACE MATERIAL PODCAST**

Trace Material explores the intersection of our lives and the lives of the materials that surround us. one material at a time. This year, for Trace Material's second season, the podcast team at HML is investigating plastic. A little over a century ago, plastic was born out of a test tube in a chemist's garage. In just a few generations, this material has grown to define our world. Our homes, our environment, and even our bodies have become plasticized. Join us as we uncover the human stories behind this synthetic material--we'll be venturing into the fourth kingdom, visiting Tupperware parties held on Facebook Live and learning about the power of local communities to combat pollution.

Trace Material is honored to join organizations like PBS and NPR as a recipient of the National Endowment of the Humanities's Media Production Grants. NEH has a long history of funding deep historical research that has been transformational in the way the American public views its own history, and we hope our listeners will change the way they look at a material that is currently covering our world. Katharine Owens, a plastics researcher and University of Hartford professor, wrote a review about season 2 of Trace Material that said:

"So Engaging! I research plastic pollution and have been so thrilled to find this amazing podcast. It's full of information but it's not just that they share such accurate scientific material, it's that they do an excellent job of revealing how plastics fit into our culture. I could not recommend it more!"

6,830+

In this season of Trace Material, we dig into a material found in homes of a potentially **unaware or observing** audience.



## TRACE MATERIAL



Listen on: <u>Apple</u> <u>Spotify</u> <u>Stitcher</u> or anywhere you listen to podcasts.

Trace Material is a podcast from Parsons Healthy Materials Lab at The New School that explores the intersection of our lives with the lives of the materials that surround us. Each season we dig into a material you might find in your home to discover what it can tell us about our shared history and culture.



Produced with support from The National Endowment for the Humanities.

#### TRACE MATERIAL

Season 2

#### STORIES FROM THE PLASTICS AGE

No single material has had a greater impact on the modern world than plastic. This season, we will bring together diverse perspectives to tell the complex and nuanced story of plastics in the US. Through materials like PVC and products like Tupperware, we'll explore how plastics have transformed our bodies, our homes and our environment.

Coming June 2021.

#### Reviews for Season 1

Trace Material currently has 4.9 out of 5 stars on <u>Apple Podcasts</u>.



#### Here's what listeners have been saying:

"Time well spent!! Great content and storytelling! I wasn't sure it would be for me but super interesting to hear the backstories on materials – who knew?!? – the guests are fascinating and I love the hosts, they kept me engaged the whole way through! #hooked. Thank you!!" "This podcast is hitting the pulse of time – learning about this phenomenal material as an alternative to 'how we have done things' and from that becoming so hopeful for the future ... it would have been amazing in 'normal' times – EVEN more so during our covid 19 global experience. thank you for bringing your podcast into the world right now!"

#### Annual Report Year 6





## Season details & Highlights

More about our upcoming season

In the post–War years, the United States has become a global military leader, a factory of cultural exports, and has launched a culture of global disposability. Plastics made it possible. In our second season, we'll be exploring topics ranging from American consumerism to environmental racism by telling the stories of iconic plastic objects.

#### Were Tupperware parties part of the feminist movement?

What does it mean to be living in the Plastics Age? Are plastics here to stay? Bringing together diverse perspectives from activists to historians, we'll tell the complex and nuanced story of plastics in America. We'll ask questions like: How did Bakelite change our perception of nature? Are Tupperware parties part of the feminist movement? We'll investigate what is happening now with plantbased plastics, along the way considering how plastics have long been part of what America imagines as "the future."

How did Bakelite change our perception of nature?

#### Are there hidden costs to using vinyl?

#### Want to dive into Trace Material now?



#### Check out our first season on hemp:

In the first season of Trace Material, we investigate hemp's storied past and contested future. In the first episode, we visit the fields of Farmington Historic Plantation in Louisville, Kentucky, where hemp was farmed by enslaved African Americans, and feature interviews with the Executive Director Kathy Nichols and docent Cassandra Sea, whose family are descendants of people who were enslaved at Farmington. In later episodes, Trace Material interviews cannabis historian Emily Dufton, New York State Assemblywoman Donna Lupardo, and environmental activist and two-time Vice Presidential nominee Winona LaDuke. **Communication & Dissemination** 



## \$ 1000 GRAND PRIZE

#### 2021 | 6TH ANNUAL

## ROLE MODELS CONTEST







Role Model Contest Graphic, Spring 2020
# **17. ROLE MODELS CONTEST CAMPAIGN**

In Spring 2021, Parsons Healthy Materials Lab hosted the sixth annual Role Models Contest. We initiated this contest to challenge students to combine design innovation with advocacy for healthier futures. The choices we make as designers can have profound and lasting impacts on our bodies, our communities, and our planet.

The past year has been challenging to say the least, yet it is clearer than ever that students have the ability to design a better world, especially when living through these difficult circumstances. This year we received a record-breaking number of submissions from over 35 universities in eleven countries including India, South Africa, and Colombia. Anonymous submissions were judged based on the following criteria:

• Clear argument for positive health impact and environmental benefit

• Clear Motivation for Material Choice

• Demonstration of Innovation and Future Thinking

- Demonstration of Carbon Impact
- Compelling Aesthetics
- Materials Transparency

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. The contest resulted in diverse and innovative entries.



### JUDGES

In Year 6, we were thrilled to bring together a jury of professionals and sustainability leaders that use design to positively impact the environment and human health. They reviewed the submissions and found the most innovative and healthy projects to award the 2021 Role Model.



Amy Congdon Head of Design Intelligence, Biofabricate



Andrea Lipps Associate Curator of Contemporary Design, Cooper Hewitt, Smithsonian Design Museum



Andrew Bernheimer FAIA, Assistant Professor of Architecture and Principal, Bernheimer Architecture



Chay Costello Associate Director of Merchandising, MOMA Design Store



J. Yolande Daniels Associate Professor, University of Southern California



Jacob Olmedo Artist, former Role Models Winner, 2017



Susan Yelavich Professor Emeritus, Design Studies, Parsons School of Design



Alison Mears Director and Co-Founder, Healthy Materials Lab, Associate Professor



Jonsara Ruth Co-Founder & Design Director, Healthy Materials Lab, Associate Professor

### **WINNERS**

Because of the large number of excellent submissions, we awarded two winners and four honorable mentions – all of whom exemplified the innovative use of healthy materials to provide design innovations for social and environmental issues.















4 COURSES 22 HOURS OF VIDEO 134 INTERVIEWS 24 ORGANIZATIONS 11 EDUCATIONAL INSTITUTIONS 5 CONTINENTS 11 COUNTRIES 18 ARCHITECTS 7 DESIGNERS

HEALTHIER MATERIALS & SUSTAINABLE BUILDINGS

HEALTHIER SUSTAINABLE AFFORDABLE HOUSING

7 SCIENTISTS

- 18 PROFESSORS
- **3 ENTREPRENEURS**
- **3 STRATEGIC CONSULTANTS**
- **1 PEDIATRICIAN**
- **1 LAWYE**R
- **1 INDUSTRIAL HYGIENIST**
- **1 MARKETING CONSULTANT**

## **18. E-LEARNING MARKETING**

We have continued developing our marketing strategy for the online education programs. One of the goals in this year's campaigns was to ensure we were speaking to the different professionals that the programs are geared for, including architects and designers, but also contractors and manufacturers. This led us to vary the choice of words between design, develop, build, craft and innovate.

We conducted two live virtual open houses for interested participants to ask questions and hear from the program alumni. Detailed accounts of these events can be found in the Education section of this report.

Much of our communications efforts are focused targeting **observers** and enrolling them in the eLearning program. The courses are designed to turn participants into **advocates**.



# SPRING 2021 E-LEARNING CAMPAIGN

The visuals for the campaign this year were symbolic of looking through an x-ray to understand more in depth what's behind our buildings, our designs and our materials. The Spring campaign featured different spaces, such as office interiors, building facades, and spaces in the home such as desks and dining tables.

864 STUDENTS ENROLLED

### Annual Report Year 6





Affordable Housing Course Announcements, Spring 2020

# SUMMER 2021 E-LEARNING CAMPAIGN

The visuals for the campaign this year were symbolic of looking through an x-ray to understand more in depth what's behind our buildings, our designs and our materials. The Summer campaign focused exclusively on highlighting affordable housing interiors and exteriors, including facades, courtyards, bedrooms and living rooms.

1,180 STUDENTS ENROLLED

### Annual Report Year 6





### Upcoming Events, Updates, and More! Inbox x

Parsons Healthy Materials Lab healthymaterialslab@newschool.edu via mailchimpapp.... Mar 10, 2021, 8:29 AM

View this email in your browser

### March 2021

# HEALTHY MATERIALS LAB

### **Engaging Residents for Healthy Affordable Housing**



Can affordable housing prioritize robust community engagement and achieve a net-zero distinction? The Benefield Building, designed by <u>Citizen HKS</u> (an impact initiative of <u>HKS</u> <u>Architects</u>) in Richmond, Virginia, aims to find out. We are working with the architects to create new material palettes, especially for the project. The materials are healthier, more sustainable, and since they draw from local historic buildings and respond to current community initiatives, more representative of the local community.

The building is programmed to be an innovative live/work model that incubates local businesses on the first floor and provides affordable/mixed-income housing above. As explained by Citizen HKS "the project's intent is to create opportunity for the Highland Park community, providing local youth with access to strategic synergies and innovative resources. It's a place to incubate dreams while reconnecting with the wisdom and support of older generations, becoming an example of social, economic, and environmental resilience in a caring, connected hub that is rooted in the strength of the community's rich Black history."

We support the mission of Citizen HKS, who are "guided by the belief that all people

# **19. NEWSLETTERS**

Within this grant year, we continued to send out newsletters to our **10,000** subscribers. In the previous years, newsletters were sent out periodically, but we made an effort to increase the frequency to every month. We have begun to track how many of our subscribers open the newsletters we send. In one instance, a project update on PA Hemp Home shared in a monthly newsletter resulted in a friend of the lab, Aronsons' Floor Covering, reaching out and offering to partner with us on the project. It is safe to say that the decision to send these out monthly resulted in further engagement of our followers and subscribers.

### YEAR 6 NEWSLETTER OPENS:

August: 2,434 September: 2,311 October: 2,387 December: 2,380 February: 2,556 March: 2,724 April: 3,127 May: 2,759

20,000+ NEWSLETTERS OPENED Our monthly newsletters have increased engagement and interest in our on-going projects which results in observers becoming **supporters & advocates.** 



# **Featured Innovations**



### 30E & PDT: SAVING LIVES WITH Engineered water

30e Scientific partnered with PDT, an Astronics Company, to design and manufacture the Iggy™ hand rinsing device.

SEE MORE →

SEE MORE →

SEE MORE -



### A HEALTHY HOME: PA HEMP House

In New Castle, DON Enterprises renovates blighted homes, builds new homes and is revolutionizing how they build and renovate affordable housing.



### AIRGUARD™

Dr. James Orrington II, a practicing dentist from Chicago, IL, has invented and developed the AirGuard<sup>™</sup> designed to protect an extremely high-risk environment for the transfer of COVID-19: the dentist's office.

SEE MORE →



### AVID S1

Avid's powerful tools and innovative technology are essential in any media enterprise.



### BIOMEGA

Biomega is a Danish premium urban bicycle company and brand, peerless within its category.

SEE MORE  $\rightarrow$ 

SEE MORE →



### CRC SMARTWASHER® BENCHTOPPRO®

From the makers of industry-leading CRC SmartWasher® Parts Washing Systems, the BenchtopPRO® is a first-of-its-kind parts washer.

SEE MORE  $\rightarrow$ 



### **DESIGNING DESIGN EDUCATION**

Offsite, as it stands now, is a 12-week intensive pilot program centered on reframing what design education can be.



# DESIGNING NEW MODELS FOR HEALTH

The Design Institute for Health sees a new future for health and health care, one that turns complex systems inside out and puts people at the center.

SEE MORE -



### **DESIGNING A CULTURE**

In the summer of 2020, IBM designers came together to share thoughts about systemic racism and police brutality and to design a culture of racial equity.

SEE MORE -

# 20. AMERICA BY DESIGN: SEASON 1

At the end of Year 6, a new competition TV show has taken audiences around the country and shown them the best of American design. America by Design is a new television show about inspiration, disruption, and changing the world through the power of design.

America by Design has reviewed work across the nation, and featured everything from a smart sprinkler system, to a contraceptive counseling tool, to our very own PA Hemp Home.

Parsons School of Design was honored to be a partner this season, and HML's co-Directors Alison Mears and Jonsara Ruth were both featured among the esteemed panel of judges that also included Herman Miller's Chief Creative Officer, Ben Watson, Podcast host of "Design Matters", Debbie Millman PepsiCo's Chief Design Officer, Mauro Porcini, and Senior Vice President at Salesforce Nalini Kotamraju.

But the PA Hemp Home wasn't the only way Parsons School of Design was featured. As educational partners, Parsons nominated 4 Parsons students to audition for a position on the show. MFA Interior Design student Monica Perez Ku was selected as a presenter on the show and was given the opportunity to speak to the audience about the importance of design throughout several episodes. Product designer and Parsons alum Yuri Ha, currently at Salesforce, also makes an appearance on the show.

Twenty-nine innovations from around the country were chosen to be highlighted on the show and our **PA Hemp Home** collaboration in New Castle, PA made it to the top 10 innovations for the People's Choice Award! We were thrilled to see the enthusiasm around using locally produced, healthy building materials used for housing those who need it most, and having this be part of mainstream design conversations.

# 3.35 MILLION + VIEWERS FOR SEASON 1

HML and Parsons participated in the first season of America by Design in four different capacities. The show featured Judges from HML, an ongoing demonstration project of HML's, Parsons' students and alumni.





Top: HML's Meryl Smith and Jonsara Ruth filming with Will Hall for AbD, Middle: Yuri Ha (Parsons Alumni) with Will Hall, Bottom: Monica Ku (Parsons Student, Middle)

Annual Report Year 6







Top: America By Design Judges, Bottom: Alison and Jonsara of HML filming for AbD

# INDUSTRY & PROFESSIONALS

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.

In Year 6, members of HML participated in panels, gave presentations at virtual conferences and engaged professionals from different sectors of design, affordable housing, construction and even fashion. These events and conversations are critical for the work we do. Every opportunity to share our knowledge about materials and health within various industries increases our audience and creates more healthy material advocates.

### Annual Report Year 6



**HEMP BUILDING : MOVING** 

THE INDUSTRY FORWARD

WEBINAR

21 KPF REMOTE MONDAY LEARNING

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25 DESIGNING FOR EQUITY AND WELL-BEING IN THE COVID-19 ERA



26 BUILDING ENERGY NYC 2020 CONFERENCE



How can we envision a

centers health equity?

that

**30** SUSTAINABILITY, MATERIALITY AND ENVIRONMENTALISM

WHAT COULD BE?

WELCOME TO -

SPIRE

CIRCULAR ECOSYSTEMS FOR

**SPIRE: CIRCULAR** 

**ECOSYSTEMS FOR** 

SUSTAINABLE CITIES

SUSTAINABLE CITIES

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31 CARBON + CHEMICALS



**HEALTHY PEOPLE,** 

**HEALTHY PLANET** 

- 24 NEIGHBORHOODS NOW
- SUMMIT 2020

**POWER AFTER THE** 

PANDEMIC

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THE US HEMP BUILDING



**32 REFASHION WEEK** 



Industry & Professionals





# 21. KPF REMOTE MONDAY LEARNING: THE NEW FRONTIER OF MATERIALS: HUMAN HEALTH AND DESIGN

In Year 6, in order to increase engagement and outreach to industry professionals, HML took the opportunity to present to Kohn Pedersen Fox, a large architecture firm headquartered in New York City. In this presentation, HML team members spoke about how to engage your client, 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. For this presentation, the learning objectives were as follows:

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

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

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

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

#### PRESENTERS:

Catherine Murphy, Senior Researcher, Healthy Materials Lab

Leila Behjat, Senior Researcher, Healthy Materials Lab

53 PARTICIPANTS Bringing together designers from a large, local architecture firm, allowed for a group to go from **observers**, to **supporters** and **advocates** as well as learn how incorporate healthy materials into their projects.



Industry & Professionals



# 22. HEMP BUILDING : MOVING THE INDUSTRY FORWARD WEBINAR

In Year 6, the very first webinar presented by the US Hemp Building Association called Hemp Building: Moving the Industry Forward took place on May 6th, 2020. With the US Hemp Building Association's Board, our Regional Leaders and different committees attendees learned how you can get involved in your area.

Guest presenters Alison Mears and Jonsara Ruth of Healthy Materials Lab, shared their in-depth presentation, Hemp+Lime, examining the feasibility of building with hemp and lime.

### **PRESENTERS:**

Alison Mears, Co-Director, Healthy Materials Lab

Jonsara Ruth, Co-Director, Healthy Materials Lab



The Hemp Building Webinar 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.



Industry & Professionals



# 23. METROPOLIS FORUMS: HEALTHY PEOPLE, HEALTHY PLANET

In recent years, the need for sustainable manufacturing as well as the broader wellness movement have encouraged designers to pay closer attention to the materials and products that they design with, and the systems and spaces that they create. Now, thanks to the global pandemic, 2020 is a watershed moment for wellness and sustainability. How can designers navigate this challenge and create healthier, more sustainable spaces? This virtual conversation, hosted by Metropolis Magazine, was a deep dive into the intersection of health and sustainability.

### PANEL:

Avi Rajagopal, Editor in Chief, Metropolis

Rand Eckman, Chief Sustainability Officer, HKS

Lona Rerick, Associate Principal, ZGF

Jonsara Ruth, Co-Director, Healthy Materials Lab

450+ ATTENDEES This webinar brought together experts in the field of material health and sustainability which appealed to **supporters and advocates** of all facets of design from spec writing to embodied carbon buffs.





# 24. NEIGHBORHOODS NOW : PUBLIC PROGRAM KICK-OFF

In response to the COVID-19 pandemic and the unprecedented challenges of transitioning NYC out of lock down, the Urban Design Forum and Van Alen Institute are teaming up to mobilize their collective network of distinguished design firms and other experts in support of neighborhood-scale efforts to safely and effectively reopen.

In working collaboratively with three, hard hit communities across the city, the goal of this timely initiative - Neighborhoods Now - is to devise strategies that address the challenges of reopening at distinct scales: citywide access to each neighborhood, circulation within the neighborhood, and specific typologies.

The process commenced in late June with a kick-off public program, co-hosted with the key neighborhood partners, one of whom was Alison Mears. This virtual convening brought together working group participants, the expert advisors, and the wider public to learn about the considerations of re-opening, from different disciplinary perspectives. The event served as an orientation for the working group participants, after which they engaged directly with community partners on problem diagnosis, ideation, and refinements through the month of July-Aug. Recommendations were compiled by Van Alen and Urban Design

Forum for public dissemination and serve as the basis for a culminating public program, inviting working groups to share their work with a cross-section of communities, cityofficials, and interested practitioners.

#### PANEL:

Luisa Borrell, CUNY

Melissa Fleischut, New York State Restaurant Association

Alison Mears, Healthy Materials Lab

Andrea Batista Schlesinger, HR&A Advisors

Barika Williams, Association for Neighborhood & Housing Development

### **395** VIRTUAL ATTENDEES

The outcome of this kick-off event was design recommendations to empower communities' in responding to their immediate needs, while contributing to the broader, city-wide dialogue and strategy on pandemic-response.



Industry & Professionals







Top: KPF sketches of their work from home spaces during the COVID-10 pandemic, Center and Bottom: Interior of a NYCHA early child care center with healthier choices in paint and flooring

# 25. DESIGNING FOR EQUITY AND WELL-BEING IN THE COVID-19 ERA

Hana Kassem, principal at KPF, and Jonsara Ruth, co-founder of Parsons' Healthy Materials Lab, outline the effects of the built environment on our well-being in this article published in Metropolis Magazine.

#### From Article:

"Most materials found in affordable housing interiors date back to decades prior to awareness of certain materials' toxicity or are the lowest cost products due to budget constraints. High-VOC (Volatile Organic Compound) paint, vinyl tile, and particleboard cabinets are examples of low-cost products that contain many harmful chemicals including Endocrine-Disrupting Chemicals (EDCs), which can impair immune systems and can lead to serious chronic diseases. When a material off-gases or sheds harmful substances into our interiors, our bodies can absorb them through our skin, inhalation, or ingestion-damaging our endocrine and respiratory systems. Health practitioners and scientists have called this a silent epidemic.

A simple example is the ubiquitous plastic shower curtain which pollutes our interior spaces with phthalates. Phthalates, an EDC, are intended to make plastics soft and pliable, but when absorbed into our bodies they can wreak havoc on our hormonal systems. Young children are particularly vulnerable as early exposure to phthalates is linked with asthma and allergies as well as cognitive and behavioral problems. Not surprisingly, rates of asthma are elevated in residents of public housing developments and underlying chronic diseases (such as asthma) put people at higher risk of dying from COVID-19....

Wellness-driven design ought to be demanded, especially when the project affects a great number of people, whether it be in public housing or public space. It becomes a matter of equity, not privilege, that the places in which people are spending close to 100 percent of their time are supporting, not degrading, their well-being—especially for those populations which have for so long been underserved. The pursuit of health and happiness is an essential human right and design can play a role in attaining it for all."

6000+ READERS This article was published to a potentially **unaware** audience, it reached thousands of readers which changes the audience to **observers** and **supporters**.



Industry & Professionals



**ONLINE • WEDNESDAY-THURSDAY, SEPTEMBER 23–24, 2020 • NESEA.ORG/BENYC20** Conference + Trade Show of the Northeast Sustainable Energy Association (NESEA)

"A fantastic opportunity to **learn about NYC sustainability goals** and the many ways various industries (design, utilities, manufacturers) are working to develop solutions that can **help build a better world**."

-2019 BuildingEnergy NYC Attendee



BuildingEnergy NYC 2020 Conference

# 26. BUILDINGENERGY NYC 2020 CONFERENCE: IMPROVING YOUR PROJECTS' MATERIAL HEALTH

BuildingEnergy NYC is a conference designed by and for practitioners in the fields of highperformance building and design, energy efficiency, and renewable energy. Last year's event brought more than 400 professionals from across the industry together to learn from and network with one another. Every year, sessions are chosen by a committee of NESEA Members and highlight best practices and lessons learned.

The conference theme of BuildingEnergy NYC 2020 is Carbon. Given the urgency with which we must dramatically reduce carbon emissions, we are expanding the scope of BuildingEnergy NYC beyond operational performance to include the carbon impact of buildings throughout their entire life cycle. We've come a long way in figuring out how to make buildings operate at peak efficiency; let's now examine how these high-performing projects can operate effectively on a rapidly decarbonizing grid.

A project's construction materials can have significant and enduring health effects—not only on the building's occupants, but also on the community where the products are produced and disposed of, and on the people manufacturing and installing them. Our collective experience with COVID-19 has highlighted urgent social justice issues within our supply chains. But where does one start when trying to incorporate healthier materials into a project? And what about the overlap between healthier materials and embodied carbon in products? This comprehensive session emphasizes that with basic understanding, early coordination, and clear communication, every project team can deliver a healthier building.

### PANEL:

Alison Mears, Co-Director, HML

Daniel Piselli, Senior Associate, Director of Sustainability, FXCollaborative

Austin Sakong, Senior Associate, FXCollaborative,

Charley Stevenson, Principal, Integrated Eco Strategy

### **25** VIRTUAL ATTENDEES

This conference brought together **observers**, **supporters** and **advocates** who were looking for tools and effective ways to improve the material health of a project, therefore improving the health of occupants.



### Material Costs

To understand the affordability of constructing a new home, especially in regards to the use of HempLime, a breakdown of a construction budget is helpful to see how much money is budget is helpful to see how much money is rypically allocated for materials and different aspects of home construction. When looking at renovating an existing home, one can eliminate 43% of the construction budget by reusing the Foundation, Framing/Structure and Major Systems. Additionally, this shed light on the affordability of HempLine. An exterior wall system using this material eliminates a loc of the layers of a typical assembly, and it was discovered that 15% of the construction budget can be allocated for the use of HempLine.

Fig 2.5 New construction budget breakdown "See Appendices for extended chart Ford, Carmel, NAHB Economics and Housing Policy Group "Cost of Constructing a Home," 2020

Construction Costs	a of construction budget
Site Work	5.6%
Foundations	• 11.6%
Framing	• 18%
Exterior Finishes	9 15%
Major Systems Rough-in	ns 🔵 13.1%
Interior Finishes	29.6%
Final Steps	6.8%
Other	0.5%
Total	100%
Key Renovation Savings HempLime Allocation	

43% Minimum savings for a renovation vs. new construction 15% of construction cost

can be allocated for

the implementation of HempLime

PARSONS HEALTHY MATERIALS LAB

The US Hemp Building Summit October 24, 2020 · 🚱 B It's Happening! Buy your pass now: https://www hemp-building-sum...... See Mo

Renovating to Upgrade for Human Health, Energy Efficiency and Flame Resistance



Last chance to get access to the most comprehensive event focused on the #hemp building industry. mit.com/.../2020-











NSI AD

🖒 Like Comment

PARSONS

DIY block kit

experience

1 Comment 10 Shares

A Share

# 27. THE US HEMP BUILDING SUMMIT 2020, KEYNOTE PRESENTATION

The 2020 virtual Hemp Building Summit was an international event to accelerate action towards sustainable building practices.

Following a successful inaugural summit in 2019, the 2020 Hemp Building Summit featured hemp building projects and professionals from across the world in a virtual, collaborative platform.

The event covered the technical specifics of working with hemp building materials and served as the premier resource for anyone interested in learning about these materials or seeing a snapshot of the industry's latest.

238 VIRTUAL ATTENDEES The Hemp Building Summit effectively brought together a community of design and construction **advocates**. The event was framed to address **advocates** and **supporters** as it spoke to the innovation and urgency of the use of alternative materials.



11.19.2020

# **Power After the Pandemic: Healthy Housing**

Programs ⊳ Public Programs

# How can we envision a just housing recovery that centers health equity?



# 28. URBAN DESIGN FORUM POWER AFTER THE PANDEMIC: HEALTHY HOUSING

This discussion with Nikil Saval, Jonsara Ruth, and Diana Hernández was on ideas for a just housing recovery as seen through a health equity lens after COVID-19. During our discussion, Sandra Lobo and Eric Fang joined us as respondents.

The link between access to safe and quality housing and our health has never been more evident than during COVID-19. The crisis has laid bare how housing policy and the design of our cities have failed to protect vulnerable residents, often low-income Black and brown communities. With housing as a clear social determinant of health, cities must rethink ways to provide access to quality housing in order to build healthier, more equitable cities.

#### PANEL:

Nikil Saval, Pennsylvania State Senate Elect

Jonsara Ruth, Design Director at Healthy Materials Lab

Diana Hernández, Assistant Professor of Sociomedical Sciences at Columbia University

Eric Fang, Perkins Eastman

Sandra Lobo, Northwest Bronx Community and Clergy Coalition

**107** VIRTUAL ATTENDEES A potentially **unaware** or **observing** audience is now aware of the link between safe and quality housing and our health, creating more **advocates** and **supporters**.



Industry & Professionals





Circular Ecosystems for Sustainable Cities Presentation
## 29. SPIRE BAIA MARE WEBINAR SERIES: EPISODE 3 CIRCULAR ECOSYSTEMS FOR SUSTAINABLE CITIES

This event explored a range of possible applications of plant-based biomass. Presentations illustrated innovative experiences of biomass upcycling in the production of green energy and construction materials, as well as the potential environmental benefits of such techniques. Alison Mears from HML presented on Hemp-Based Materials for Housing Construction and Renovation

### SPEAKERS:

Pol Merino, HONEXT

Timothy Volk, SUNY Center for Sustainable and Renewable Energy

Alison Mears, Healthy Materials Lab

Dorin Miclaus, Municipality of Baia Mare

Sabina Leopa, URBASOFIA

Tihamer Sebestyen, GEA

Amaia Celaya-Alvarez, UIA Expert



The conversation around circularity in terms of industry and materials is an important one to have. At HML, looking at how these systems affect the people within them is where we want to spark interest and create **supporters.** 



Industry & Professionals

# WELCOME TO — WHAT COULD BE?



## coalesse



"What Could be?" A discussion about Sustainability, Materiality and Environmentalism Images

## 30. SUSTAINABILITY, MATERIALITY AND ENVIRONMENTALISM: A DISCUSSION ABOUT WHAT COULD BE... PRESENTED BY COALESSE

Coalesse recently hosted a panel of visionaries to address the question: "What Could Be?" on the topic of sustainability, materiality and environmentalism.

We believe the way forward is best approached by considering the entire ecosystem – materials, design, production, transportation, installation, use, end-of-life, etc... – and asking, "What Could Be?"

"We were hoping to inspire you, to give you some new ways to think about 'How could I re-frame the problem? How could I challenge the status quo? What could I do individually or collectively to make a difference and make the solution better for the world?" – Lew Epstein

#### PANEL:

Dr. Andrew Dent, Executive Vice President, Material Research, Material ConneXion

John Hamilton, Director of Global Design, Coalesse + Steelcase CMF, Steelcase Brands

Christine Vandover, Principal and Sr. Project Interior Designer, HOK

Katie Weeks, Managing Director of Communications and Development, Institute for Market Transformation

Alison Mears, AIA, LEED AP, Director and Co-Founder, Healthy Materials Lab

65 ATTENDEES This live panel discussion focused asked the important question, "What could be?" to encourage **observers and advocates** to think outside the box when it comes to sustainability and materials.



### Industry & Professionals



The Construction Material Pyramid Created by Pelle Much-Peterson

## 31. CARBON + CHEMICALS

Designers and architects are continually facing a quest to make healthier choices for their projects. One burning challenge is to understand how to reduce embodied carbon in our projects. A new interactive tool to visualize and calculate carbon in materials is gaining global attention. The Construction Material Pyramid came out of Pelle Munch-Petersen's Ph.D. He began to explore what material health issues really mean to the practice of architects and engineers. The Material Pyramid is an invitation to take ownership of the carbon emissions of products in construction.

Pelle Munch-Petersen, Ph.D., KADK - CINARK, and Martha Lewis, Head of Materials at Henning Larsen, joined us from Denmark on March 4th to discuss their advanced thinking on these complex issues.

#### SPEAKERS:

Pelle Munch-Petersen, Ph.D., KADK -CINARK

Martha Lewis, Head of Materials at Henning Larsen

Jonsara Ruth, Co-Founder/Design Director, HML

Leila Behjat, Senior Researcher, HML

426 VIRTUAL ATTENDEES This user-friendly materials pyramid brought a new level of accessibility to the conversation around embodied carbon. It was important that HML used its platform to bring this information to healthy material **supporters and advocates** alike.





"In the Design Studio" Conversation during Refashion Week

## 32. REFASHION WEEK : DRESSERS, DRESSES, AND DRESSING

In this "In the Design Studio" conversation, three changemakers explored what they and their respective sustainability movements can learn from each other. A chef/storyteller/ researcher, an artist/designer/educator and a social entrepreneur/advocate/businesswoman shared personal inspirations and compared lessons from sustainable food, fashion and furniture activism.

### SPEAKERS:

Malika Leiper, Former chef and manager, Buvette; Researcher/Stortyteller/Strategist

Ngozi Okaro, Founder/Executive Director, Custom Collaborative

Jonsara Ruth, Co-Founder/Design Director, Parsons Healthy Materials Lab; designer/artist/ founder, Salty Labs



Participating in ReFashion week, brought HML's insights and mission to a new, potentially **unaware** audience, and created **supporters and advocates** interested in fashion, food and sustainability.



NYMETRO CHAPTER

# 10 Rethinking Materials for Design





## 33. ASID WELLNESS WEDNESDAYS: RETHINKING MATERIALS FOR DESIGN

For Wellness Wednesday, presented by the ASID NY Metro Health, Wellness and Sustainability Committee, Jonsara Ruth from HML gave a presentation called "Rethinking Materials for Design" and discussed the following questions during the interactive webinar.

Why should we care about healthy materials for interiors?

How can Interior Designers dramatically impact people's long-term health and well-being?

What if designers placed people's health at the center of all design decisions?

More and more scientific studies show that the materials surrounding us have a profound impact on human health. What if manufacturers of building materials considered the effects of production on people and on our planet's ecologies?

75 ATTENDEES Brining a presentation on material health to a large organization such as ASID, creates more **supporters and advocates** in the interior design sector.



Industry and Professionals



## **34. PODCAST APPEARANCES**

In Year 6, members of HML appeared on various podcasts. Alison Mears and Jonsara Ruth, co-directors of the lab, joined Kevin O'Connor on **Clearstory**, a podcast produced by This Old House.

From the episode description: "As building technologies have improved and new building materials have found their way into construction sites, our homes have certainly become healthier than before... right? Host Kevin O'Connor speaks with professors Jonsara Ruth and Alison Mears, co-founders of the Healthy Materials Lab, a design research lab at Parsons School of Design, about the history of toxic building materials, what we use today that could be harmful to our health, and how we can create healthier built environments."

Alison Mears also joined Whitney Page on **Renovate Remodel Revolt!** to talk about HML's ongoing research and projects.

From Renovate Remodel Revolt!: "Co founder and director of Healthy Materials Lab and associate professor of architecture at Parsons school of design in NYC, Allison Mears calls herself a recovering architect. As a young woman in a traditionally man's world, Allison says she never learned about the chemicals present in the projects she oversaw. Like many of us she was shocked to find that the materials she was using could cause harm. "You are responsible as an architect for the health, safety and wellness of people that occupy your buildings." she says. How do we create benign systems so that at every point in the system they are not causing harm? How do we make waste into a resource? The health of the planet and the health of our buildings are inextricably linked. We breathe, they should breathe. Is it really all that radical?"

Jonsara Ruth had a conversation with Kevin Mullen on **Build a Healthier Life**, a podcast which explores how a health crisis changed Kevin's personal and work life as an owner in the kitchen and bath and home building industry.

The episode description is as follows, "Charged with provoking change in the design field, she shares her vision for the future of design. Jonsara describes how a trip to a factory inspired her to consider more than just the aesthetic of a material but to also consider if they are harmful to you and the environment. She also speaks about the history of lime and hemp and how these ancient natural materials are being reintroduced in modern building practices."

652+

Joining podcast hosts for conversations about material health and affordable housing is a great way to expand our audience and inspire **advocates** in unexpected places.



# RESEARCH

This 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.

Annual Report Year 6



### 35 IMPROVING OCCUPANT HEALTH WITH GERMICIDAL UV LIGHT



### 36 TOOTH BIOMONITORING WITH MT SINAI



**37** NIH STUDY ABCD : RE-TURN OF RESULTS TASK FORCE



Types of Viral Transmission

Sample	Overall Material Damage	
Polypropylene	Minor	
Polyethylene	Minor	
Polytetrafluoroethylene	Moderate	
Clear polymethyl methacrylate	Moderate	
Polyoxymethylene	Moderate	
Polyester	Moderate	
Polycarbonate	High	
Nylon	High	
Acrylonitrile butadiene styrene	High	
White polymethyl methacrylate	High	



Plastics and how they are affected by UV-C exposure

Potential Application of Indirect UV-C Light

## 35. IMPROVING OCCUPANT HEALTH WITH GERMICIDAL UV LIGHT

In June 2020, just months after the emergence of COVID-19, Parsons' Healthy Materials Lab and MFA Lighting Design program began collaborating on research and testing of lighting technology and practices that can reduce the spread of harmful viruses and bacteria.

Before the pandemic, indoor spaces were not typically seen as a threat to our health, but the necessity for clean air in shared public spaces is now more evident than ever. This research project explores the application of germicidal ultraviolet radiation, particularly for the treatment of upper-room air, in order to re-occupy shared spaces safely. The goal is to generate the most effective means of integrating this technology with architectural lighting in a sustainable, safe, non-intrusive, and affordable way. At HML, we aspire to make spaces healthier and safe for occupants, on our own campus, in affordable housing, and beyond.

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. We 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 non visible 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. The integration of UV-C technology with architectural lighting sparks interest 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.



# GUIDING DESIGN PRINCIPLES

+ Metaphors are helpful tools: "Tooth as... time machine, biological hard drive, tree rings ... "

Need for thorough communication plan

Avoid usage of "alarmist" language.

Avoid "us vs. them" language, as environmental health is a joint challenge we all face. Aim for avoidance of shame or quilt by prioritizing inclusive language.

Facilitate co-creation of knowledge by utilizing "collaborator" instead of "subject" throughout shared process.

# HIGH LEVEL

-)	Parents are not to blame for
	environmental exposure.

This kind of research is aimed at late prevention and changes to policy.

Goal is to empower parents by sharing results.

Unique quality to tooth biomonitoring: Significance of time of exposure and dose.

Report back examples... it is an ongoing process!

Even if there's uncertainty in findings, participants would like to know results!





# **LISTA DIARIA**

## Para mantenerse libre de plomo



### Lávese las manos a menudo ¡Lavarse las manos no solo protege de los gérmenes! También es una excelente manera de

prevenir la exposición al plomo.



## Reducir el polvo

Utilice un trapeador húmedo o una aspiradora con filtro



Reparación de pintura que se está despelando

La pintura vieja puede contener plomo y los niños pueden comerse los pedazos.



### Consuma alimentos que reducen la absorción de plomo

¡Estos alimentos son saludables y nutritivos!



Identificar y eliminar el plomo en el hogar Tenga cuidado con las especias, cerámicas, juguet-es, dulces y otros productos importados.



Haz una prueba de agua para el plomo Solicite un kit en línea - hay más información en el folleto.



### Solicite una inspección de casa para el plomo

Puedes llamar al 311 para más información.













## 36. PARTNERSHIP WITH MOUNT SINAI: TOOTH BIOMONITORING

In partnership with the Icahn School of Medicine at Mount Sinai Hospital, the Healthy Materials Lab has embarked on the Tooth Biomonitoring Project, launched during Year 5 and continued throughout Year 6.

Historically, marginalized and front line 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 cocreation 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.

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 obtuse and difficult to understand. The goal is that being empowered with this information will lead to individual and collective mobilization. Populations included in this study were participant cohorts in NYC and Mexico City.

#### COLLABORATORS

Parsons Healthy Materials Lab Director, Alison Mears

Parsons Healthy Materials Lab Researchers and Research Assistants, Burgess Brown, Nada Salem and Daniela Castillo

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 Guel

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 informationsharing tools, HML is working towards directly addressing direct environmental harm and empowering new **advocates.** 



Research



# POTENTIAL DESIGN ASSETS: VISUALS SHOWING TOOTH LEAD LEVELS

	1740.5004.51140.004	the study	
During pregnancy	.75	0,31	
At age one year	1.2	0.27	
<ul> <li>These measurement at one year of age v 200 participants in</li> </ul>	the study. Its also show that the amount of as around <b>4.5 times higher</b> to this study.	of lead in your child's tooth han the average of the other	



Steps for creating design assets

## 37. NIH STUDY ABCD : RETURN OF RESULTS TASK FORCE

The Adolescent Brain Cognitive Development (ABCD) Study® is the largest long-term study of brain development and child health in the United States. The National Institutes of Health (NIH) funded leading researchers in the fields of adolescent development and neuroscience to conduct this ambitious project. The ABCD Research Consortium consists of a Coordinating Center, a Data Analysis, Informatics & Resource Center, and 21 research sites across the country (see map), which have invited 11,878 children ages 9-10 to join the study. Researchers will track their biological and behavioral development through adolescence into young adulthood.

Using cutting-edge technology, scientists will determine how childhood experiences (such as sports, video games, social media, unhealthy sleep patterns, and smoking) interact with each other and with a child's changing biology to affect brain development and social, behavioral, academic, health, and other outcomes. The results of the ABCD Study will provide families; school superintendents, principals, and teachers; health professionals; and policymakers with practical information to promote the health, well-being, and success of children.

A HML Research Fellow and Dr. Sarah Evans, PhD from Mount Sinai discussed with the NIH research team the use of design practices and tools used to report back research information from lead and tooth biomonitoring studies. Best practices and tools were developed during the tooth biomonitoring studies in order to effectively disseminate information using clear visuals, non-alarmist language and other strategies. HML was able to offer precedent and insights for NIH to best share results.

This task force allowed HML to share its insights on how to effectively gather information to then create clear, compelling ways of illustrating it for an **unaware** audience.



# DEMONSTRATION & INNOVATION

HML uses demonstration projects as a tool to test the extensive research conducted as well as material properties and installation in a variety of project typologies and spaces.

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.

In Year 6, HML saw more demonstration projects than ever. This represents the efficacy of the teams research, learning, communication and dissemination of resources and information which allowed for fellow designers to look to us for collaborations in practice. The continued construction of the PA Hemp Home, multiple material specification collaborations and the beginning of three new hemp structures for elders in White Earth, MN show that the work over the years at HML is starting to take effect.









- **39** THE BENEFIELD BUILDING WITH CITIZEN HKS
- WITH HPDC



41 DETERMINED BY DESIGN AFFORDABLE HOUSING INTERIORS



42 ELDER HOUSING WITH HEMPLIME IN WHITE EARTH, MN



## **38. PA HEMP HOME**

We are proud to be working on a HempLime home renovation, designed as healthy, affordable, and visitable housing. DON Enterprise in New Castle, PA is leading the collaborative project, which is called "PA Hemp Home" and is supported by the Pennsylvania Department of Agriculture.

DON Enterprise is a consumer-controlled. nonprofit organization in Western Pennsylvania that empowers people with disabilities to live as independently as they choose. Partners on the project are two expert HempLime builders: Cameron McIntosh from Americhanvre in Pennsylvania, and Alex Sparrow from UK Hempcrete in England. The Pennsylvania Housing Research Center at Penn State University will conduct energy and performance testing which will be disseminated to Pennsylvania businesses and residents. Healthy Materials Lab at Parsons is designing the house renovation and will conduct indoor air quality monitoring and testing.

DON renovates blighted homes and builds new homes in New Castle, an Act 47-designated city. They administer several home repair grant programs that improve the accessibility and quality of homes across the city and surrounding counties. DON is testing the use of hemplime to renovate a blighted, wooden home as part of its revitalization program.

Pennsylvania Housing Research Center (PHRC) will analyze the thermal, insulation properties, and performance of hemplime as well as the resulting impact on utility costs in this residential renovation. A comparison will be made between properties of hemplime and residences using typical insulation and construction.

With Masters of Architecture student Meryl Smith, HML co-directors Alison Mears, and Jonsara Ruth developed architectural and construction plans used to renovate the home using hemplime for the exterior and interior walls. The ground floor is visitable, meaning that a person can visit without any accessibility issues, and human health is considered and prioritized at every stage. When the renovation is complete it will be a prototype for the renovation of similar houses in New Castle and other small cities nationwide.

#### COLLABORATORS:

Parsons Healthy Materials Lab Team: Alison Mears, Jonsara Ruth, Meryl Smith

**DON Enterprise** 

Americhanvre

UK Hempcrete

From researching Hemp and Lime, to introducing graduate students to this innovation and partnering with DON Services, the start of construction on this project is creating excitement, **advocacy** and **support** around affordable housing with a healthy material.



Demonstration & Innovation



## CONT.

After the pioneering renovation has been exhibited, DON Enterprise will sell the house at an affordable price to a member of the New Castle community.

HempLime is a sustainable, healthy material that can be used to retrofit or construct the walls of affordable housing. Here, the flame resistant properties of the mix protect the old wood frame from future fire. The hemp and lime mix also creates breathable, highly insulated walls, producing a house that is durable and offers increased comfort compared with currently available housing. The plant and mineral based material is naturally flame retardant and anti-microbial, eliminating the need for any added toxic chemicals. HempLime walls continuously absorb odors, toxics, and carbon dioxide from the air making the indoor air cleaner than the air in buildings made from typical petrochemical based building materials.

This new climate resilient, affordable house will serve as an innovative prototype for future local housing. It will also expand uses for locally farmed industrial hemp. It will act as a model for the future of healthy, affordable and accessible housing, and prove to other developers that the radical change this industry needs is possible. Annual Report Year 6



Construction Photos of PA Hemp Home



### CO-LIVING MATERIAL EVALUATION HML go-to choices for high touch, high volume areas Exterior Wall, typ. Insulation •Knauf Insulation: EcoBatt •KNAUF, JETSPRAY™ INSULATION SYSTEM •JM Johns Manvillel Spider Ptus Blown-In Fiberglass Living / Sleeping Foloring Solid Wood Tongue & Groove, Nailed Installation, Red or White Dak Uinseed Di Finish or Rubiomonocoat Architectural Woodwork •Columbia Forest Products, Purebond Classic Core Plywood ٢ Interior Partitions, typ. Walt Board •USG EcoSmart Paint •Romabio Lime Based Paint, Color TBD •Benjamin Moore Ultraspec 500, Color TBD Walt Base •Poplar Boards, Painted, Color TBD Kitchenettes Cabinets • Columbia Forest Products: Purebond Classic Core Plywood Counter tops • Caesarstone Engineered Stone, Quartz Classic Collection • Silestone, Natural Quartz Counters • Granite Counter Top, Finish TBD Floreine Flooring Solid Wood Tongue & Groove, Nailed Installation, Red or White Dak Bathrooms Counter Tops • Caesarstone Engineered Stone, Quartz Classic Collection • Silestone, Natural Quartz Counters Obtaile Donations Obtaile Donations Obtaile Donations Obtaile Donations Level 3 **Resident Circulation** Unit Type A + B Flooring •trefford Eco Backed Carpet Tile, Color TBD •ege Carpet Tiles, Color TBD

Top: Benefield Building Exterior, Image by HKS. Bottoms: Residence Materials by HML

## 39. THE BENEFIELD BUILDING WITH CITIZEN HKS

The Highland Park neighborhood is a majority Black community north of downtown Richmond, Virginia. Its 3,050 residents, together with community-based organizations and business, civic and local faith leaders, are working to reduce poverty, crime, and develop solutions to address the area's widening generational gap and bring resources to the commercial corridor

The 10,000 square-foot (929 square meters) Benefield Building currently has one tenant, the Six Points Innovation Center (6PIC) nonprofit, which occupies 4,000 square feet. It is one of many underutilized or vacant buildings lining the Highland Park innovation corridor. Our pro bono adaptive reuse project will empower the Highland Park community to create a purpose for Benefield in a neighborhood that is in the initial stages of revitalization.

The Richmond-based Citizen HKS project team, working with its non-profit partner Boaz & Ruth, organized an intensive community engagement process to create an inclusive design for the Benefield Building, reflective of their wants and needs: a place that anchors and supports the community's youth, serving as a catalyst for change and hope.

Healthy Materials Lab collaborated with the team at HKS in order to set material health goals for the project as well as establishing a vetting process for products to be donated or procured.

#### COLLABORATORS:

Parsons Healthy Materials Lab Team: Alison Mears, Leila Behjat, Meryl Smith, Catherine Murphy

HKS Architects, Richmond, VA

## 19,000

square feet of equitable space

**32** residences approx.

**100** residents approx. Large architecture firms, such as HKS, provide manufacturers with a lot of business. This collaboration was a good opportunity to encourage designers to ask manufacturers for disclosures and encourage transparency.



Demonstration & Innovation





Forbo Marmoleum Floors and Fireclay Tile, Affordable and Healthier Materials included in the palette

## 40. HEALTHY AFFORDABLE RENOVATION PALETTE WITH HPDC

During Year 6, HML began the Healthy Affordable Renovation Project, a collaboration between HML and HPDC (Health Product Declaration Collaborative). Each party's expertise is forming complementary teamwork. HML has been researching and vetting established healthier products to provide a comprehensive list of materials to be used in Affordable Housing Projects. The main source of this process has been the in-house case studies produced by HML over the years.

Additionally, HML is adding a few products that are excellent candidates for becoming an affordable option if pricing could match the possible ranges. The list highlights clearly if the products have a HPD (Health Product Declaration) and if not, the core resource used to vet this product and deem it to be a match for the Material Collection Database is provided.

The list spans over the healthier building categories: Flooring, Paint, Tile, Wallboard, Carpet and Insulation. Similar product groups for healthier affordable housing Kitchen and Bathroom applications are being established. Starting mid October 2020, HPDC began cross checking the list between the provided sources and their own data platform, with their current focus being Insulation.

A "chemicals of concern" database and overview of product breakdowns are being established by HPDC, which will rate chemicals on a scale of 1-4 according to their level of concern, 1 being the most concerning. Establishing a rating system for chemicals provides the ability to compare them side by side. These chemicals can be analyzed, compared with other sources and potentially relayed back to manufacturers to encourage them to establish an HPD. Therefore, creating more transparency about materials throughout the Affordable Housing sector.

#### **COLLABORATORS:**

Parsons Healthy Materials Lab Team: Alison Mears, Leila Behjat

HPDC - Healthy Product Declaration Collaborative

Arizona State University

34+ PRODUCTS OVER 6 CATEGORIES By creating a palette of healthy and affordable materials for renovation, **observers and supporters** can easily access this information and incorporate it into their projects.





Determined By Design, Interiors

## 41. DETERMINED BY DESIGN AFFORDABLE HOUSING INTERIORS

HML is working with Determined by Design (DbD) to identify healthier materials for products typically specified in an affordable residential unit.

Determined by Design is an interior design firm located in Washington DC. On their website, they very clearly state their goals and their missions to be: "At Determined by Design our design's are shaped by our core belief well-designed interior spaces are not a luxury for a few but a standard for all! Our why is to advocate for design equity so every person's value is uplifted by the spaces they inhabit. This is our guide post for every project, community and partner we work with. We design to change lives and represent a community's greatest strengths - history, culture, + diversity. To do the work our foundation has to be rooted strongly in advocacy for design equity for all."

DbD shared with HML a list of typical materials currently specified for their affordable housing developer clients and the criteria by which their clients evaluate materials (cost, performance, maintenance, etc). HML is working to review DbD's current material list, suggest healthier products where necessary and to highlight why certain materials should be substituted with healthier options.

This collaboration began with products being used in the residences in two current development projects, one in Washington, DC, and another in Boston, MA. The buildings range in size between 104-200 units each. These healthier products will be applicable to many other projects/clients currently engaged by DbD. HML has begun to evaluate materials from two specific product categories: Flooring and Cabinetry.

### COLLABORATORS:

Parsons Healthy Materials Lab Team: Jonsara Ruth, Leila Behjat, Samantha Bennett and Carey Gallagher

Kia Weatherspoon, Determined By Design, Partner

104-200 This collaboration allows HML to assist and educate an Interior Design firm working in the Affordable Housing sector on selecting healthier materials suitable for large residential projects.





Site Visit to White Earth in June 2021

## 42. ELDER HOUSING WITH HEMPLIME WHITE EARTH, MN

In Year 6, we have begun working with local women and Winona LaDuke's Honor the Earth organization to develop new housing on the White Earth Reservation in Northern Minnesota.

Together, we will propose designs for new homes that celebrate the long lives of the women, enhance their current work, build places of sanctuary for themselves, their grandchildren, and future generations on their own land. Instead of being beholden to others, the nation will chart its own future through innovative local construction. The first homes will be constructed of hemp combined with local lime to create new models of sustainable, healthy homes. We will test new construction systems and propose training programs that will create new jobs. Through this process we will create models of prototypical housing for the future: healthy homes for all people. "We were told that we would come to a point in our lives as Anishinaabe people, where we would be faced with a path with a fork in it...In the Time of the Seventh Fire, which is the time that we are in now, we are told that we would have a choice between two paths: one path they said would be well worn, but it would be scorched, and the other path would not be well-worn, and it would be green. It would be our choice upon which path to embark. I'm pretty sure that this moment in time is now, where we must take the initiative and have the courage to make that green path." Winona LaDuke, Material Health : Design Frontiers.

### COLLABORATORS:

Parsons Healthy Materials Lab Team: Alison Mears, Meryl Smith, Eric Hu

Winona LaDuke and the Eight Fire team at White Earth

### RESIDENTS (2 grandmothers and 10 grandchildren)

This demonstration project brings affordable and healthy housing to a community that has faced years of oppression and inequality. At HML, we believe that high-quality healthy housing is for everyone and we aim to provide designs and specifications for affordable homes.



# PRESS



### ARCHINECT

"New architecture and design competitions call for selfreflection and design intention" May 2020





INTERNATIONAL "U.S. hemp-based construction advances with fire-safety tests, new book'" May 2020



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



### METROPOLIS MAGAZINE "Designing for Equity and Well-Being in the COVID-19 Era" August 2020





NEW CASTLE NEWS "DON Enterprises awarded grant to promote hempcrete building material" August 2020



OFFICE INSIGHT "Parsons Healthy Materials Lab: One program, one new beginning" August 2020



METROPOLIS MAGAZINE "With Help from the Federal Government, Biobased Products are Proliferating" September 2020



officeinsight

OFFICE INSIGHT "Harvard Kicks Up the DUST in Our Workspaces // A Lecture for Parson's Healthy Materials Lab" September 2020

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ARCHITECTURAL DIGEST "6 Sustainability Trends That Will Emerge in the Design World in 2021" December 2020

### Annual Report Year 6



BUSINESS OF HOME "Clients don't know how toxic their homes are. Designers should" December 2020



3 podcasts for your first summer walks ----





Carbon + Chemicals: Health In Building Materials

THE NEW SCHOOL "Carbon + Chemicals: Health Impacts of Building Materials" March 2021

### NEW SCHOOL NEWS



THE NEW SCHOOL "4th Year in a Row, Parsons School of Design Named Best Art and Design School in the Country" March 2021



**BUSINESS WIRE** "Global Kombucha Leather Market (2020 to 2026) - Industry Analysis, Trends, Market Size, and Forecasts" March 2021



GRIST "The secret ingredient in Paris" green public housing" March 2021

**ROLE MODELS CONTEST** 

### DEXIGNER

"Parsons Healthy Materials Lab Launches 6th Annual Role Models Contest" March 2021



TUSCON "Rosie on the House: Go beyond the recycling bin for an ecofriendly home" April 2021



WORLD ARCHITECTURE "Role Models Contest By Parsons Healthy Materials Lab" April 2021



**DESIGNER TODAY** "Designing Better: How sustainable is the industry?" April 2021



**ARCH DAILY** "Role Models Contest" April 2021



**NEXT CITY** "The Secret Ingredient in Paris" Green Public Housing: Hemp" April 2021

# 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 Paints BENJAMIN MOORE\* Paint



SHERWIN-WILLIAMS\* Paint



ECOVATIVE\* Biomaterials



CARPETCYCLE\* Material recycling



COCO-MAT\* Bedding products



DESIGN WITHIN REACH Furniture





ROMA PAINTS\* Paint



FIRECLAY TILE Tile

## ecosupply

ECO SUPPLY \* Green Building Materials



INDUSTRIAL LOUVERS Architectural Metal Products

## ARONSON'S FLOOR COVERING

ARONSON'S FLOORING Flooing Solutions\*



\* Thank you to these companies for their generous donations.
## NATIONAL



FOUNDATION COMMUNITIES Austin, TX





Minneapolis, MN



DETERMINED BY DESIGN Washington DC



AMERICHANVRE PA



## LOCAL, NY





West Harlem Group ossistance. inc. WEST HARLEM GROUP





## INTERNATIONAL

HENNING **LARSEN**ARCHITECTS

HENNING LARSEN Copenhagen, Denmark



ROYAL DANISH ACADEMY OF FINE ARTS

