Healthy Materials Lab

YEAR EIGHT 2022-2023 REPORT We respectfully acknowledge that we live, study and work on unceded, traditional and ancestral Lenapehoking territories of the Lenape peoples.

Healthy Materials Lab

YEAR SEVEN 2021-2022 REPORT



OUR TEAM

The Healthy Materials Lab

Parsons School of Design The New School New York, NY

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

May 2022



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INTRODUCTION

We are...



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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.

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

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

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

Parsons School of Design's Research Labs

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

The Healthy Material Lab (hereafter "HML") was launched as one of the first Parsons Design Led Research Labs with the receipt of a grant to support the Healthy Affordable Material Project in 2015. HML is one of four partner organizations of the Healthy Affordable Materials Project.

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")

Introduction



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

The Context of HAMP

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

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

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

Annual Report Year 7



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.

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.

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 PROD EWG.org - persor	UCTS nal products	
HBN		
HPDC		

GOAL: BUILD AWARENESS THOUGH PHYSICAL AND ONLINE ENGAGEMENT



Unaware (most people)

Annual Report Year 7

Observers (aware but needs to know more)

ILFI

LEGEND

WEBSITE

ADVISORS

FINISHED HML INITIATIVE

IN PROGRESS HML INITIATIVE

COLLABORATIONWITH HML

POTENTIALCOLLABORATION

E-LEARNING

COMMUNITY ENGAGEMENT

Living Building Challenge

CRADLE TO CRADLE

AIA MATERIAL MATTERS

FITWEL

HML Adv

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)



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 Invest in research & development		RETAILERS IDENTIFY MARKET OPPORTUNITIES	• .•
	Supporters (act on the issue and wants to change the way they do things)	GOAL: CREATE NE THAT ENABLE PEO CHANGE PRACTIC	W PATHWAYS OPLE TO ES
	How can we introduce issues through resources?	- How do we change the market? • Work with retailers • Build consumer demand • Clarify a comparing ling more can for	
	PHYSICAL SAMPLES & RAW MATERIAL WALL Donghia Healthier Materials Library	different audiences	How do we evaulate
	CREATE INITIATIVE IN MANUFACTURING	transparency?	ingredients for health criteria?
			information into actionable results. - Pharos - Quartz - HMLWebsite
	How are healthier buildings being made?	Who is building with healthier materials?	0
	WORK WITH PARSONS HOUSING LAB	Case Studies: HML Demonstration Projects Architect/designer friends of HML HML HBN	COLLECT HEALTHIER BUILDING - PRODUCTS The Donghia Healthier Materials Library
	FOCUSED ON AFFORDABLE PUBLIC HOUSING DEVELOP PROCUREMENT PROCESSE		FRIENDS OF HEALTHIER MATERIALS • Aronson's Floor Covering • Mosaic House
	THAT INCLUDE HEALTH CRITERIA	How: New product development	• Snaw • Floyd • Duracryl • Mafi • Forbo
	COLLECT SPECIFICATIONS	IDENTIFY GAPS IN THE MARKET And opportunities to develop new products	MANUFACTURER PARTNERSHIPS • Ecovative • Romabio
		FOCUSED WORK ON VULNERABLE POPULATIONS • Early childhood development spaces – – • Affordable housing • Seniors	Carpetcycle Woolmark Humanscale Thermacork Advanced Nonwoven

Annual Report Year 7

	ACADEMIC NETWORK	HONOR THE EARTH
		WINONA LADUKE
HENNING LARSEN		
	MOUNT SINAI HML Advisor	THE NEW SCHOOL HML Advisor
NYCA New York City Housing Authority	BUILDING NEW NETWOR	KS
	TO SUPPORT ADVOCAC	Y
DETERMINED BY DESIGN	EFFORTS FOR THE LONG T	ERM
	•	

THEORY OF CHANGE CONTINUED...

We identified a lack of awareness of the issue of toxics in the built environment as a fundamental barrier to change. This is a general problem and we launched our communications strategy to address this issue. Through the roll-out of this strategy we discovered that the ladder of engagement could be adapted more generally to make systemic change. We have established a research foundation for our work. Through the documentation and evaluation of current best practices in the affordable housing sector - from funding and policy, to design and construction and finally in occupation. This work was and is documented in our five case studies. Current best practices in the material health field impact the work of "supporters" and advocates. To address other participants on the ladder and cultivate a greater understanding of the issues, we needed to expand our methodology to include:

1) Library and Resources

- 2) Education
- 3) Communication & Advocacy

4) Product Evaluation Tools



• •



PROOF OF CONCEPT / DEMONSTRATION

Courses 3 & 4

MAKING HEALTHY, AFFORDABLE,

BEAUTIFUL BUILDINGS

COMMUNITY

ENGAGEMENT

Advocates

Introduction



Why Healthy Materials? Dosphia healthier Materials Library About Us Blog & Events DONATE Q.
HEALTHY AFFORDABLE HOUSING LEARNING HUB MATERIAL COLLECTIONS TOOLS & GUIDES PROJECTS



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

Advancing healthier materials practices requires 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.



623 VISITORS

6 CLASS PRESENTATIONS

100+ STUDENTS

11 TOURS OF THE LIBRARY





1. THE DONGHIA HEALTHIER MATERIALS LIBRARY

The Donghia healthier Materials Library at Parsons School of Design is a resource center dedicated to helping designers make responsible materials decisions. With curated product collections and frameworks for evaluating materials, we offer guiding strategies and hands-on examples of products making positive impacts on human health, environmental justice, and social equity.

While there is no universal standard for what makes a 'healthier' material, we look to be holistic in considering the impacts materials can have through their extraction, processing, use, and disposal, and all those who may be affected along the way.

In order to make these many considerations more approachable to designers, the Donghia healthier Materials Library worked with BrightWorks Sustainability to develop the evaluation lens seen below, which organizes more than a hundred factors for assessing materials into six primary categories of impacts. This tool gives designers a framework for thinking expansively about the impacts of their choices, empowering us to make better material decisions. In Year 7, with the reopening of The New School Campus and the appointment of a new full time researcher to oversee the library, we were able to return, in-person, to the materials library. Open to students, faculty, and staff of The New School, the library is staffed with student researchers and research assistants during all open hours.

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.



An Introduction to Healthier Textiles

What makes a textile 'healthier' and how can we make design decisions that foster positive planetary impacts?









2. TEXTILE GUIDES

In Year 7, as a follow-up to the healthier textile collection launched in Year 6, HML developed Textile Guides. This guide includes six modules that look at textiles through the lenses of Health, Climate, Circularity, Water, Waste and Social Equity. The polluting practices of the textile industry are responsible for widespread impact on people and the environment. Learn about innovation in six major categories that can collectively transform the industry. These guides detail sourcing strategies, alternatives to current processes, and resources that exemplify the future of healthier textiles.

874 IMPRESSIONS ON ISSUU These guides showcase how current innovators and resources work in sync within each system's lens to change the course of the industry to sustain both people and the environment.



Library & Resources

222 MATERIALS These are the materials that were determined to be Low Embodied Carbon (LEC) **431** PRODUCTS VETTED IN TOTAL We are continually

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

25+ MANUFACTURERS WE'RE CONTACTING

Active correspondence regarding documentation and certification.

Healthy Materials Why Neskity Natorials? Daughta basilitier Natorials Library About To Blog & Events DONATE Q. HEALTHY AFFORDABLE HOUSING LEARNING HUB MATERIAL COLLECTIONS TOOLS & GUIDES PROJECTS

Low Embodied Carbon Materials

31% of global carbon emissions comes from the making of things – which means that manufacture of materials and products contributes significantly to the changing climate. This is a big issue. Therefore, products that contribute to globally decreasing carbon emissions need to be readily available. Common terminology is "upfront carbon emissions" or "embodied carbon". These emissions from production of materials have been released before a building is built.

Low Embodied C	arbon Materials	22 products			How to U	te This	Lier 🕖
	SUB-CATEGORY A		PRODUCT A	INCR	DIENT DIS	close	
Board Insulation	Cark	Amorim Isolamentos	Thermacork Standard Insulation 🖯 🛞	100	Declare	699	505
Dimensional Surface	Sintered Stone	Lapiteo	Sintered Stone Slabs	HPD	Decises	EPD	909
Drywall	Gypsum	USO Sheetrock	Sheetrock Sheathing Oypsum Panels	100	(inclure)	699	\$05
Fibrous, Cellulosic, & Granular Insulation	Fiberglass	Knauf Insulation	Ecolum (III)	100	Declare	EPO	505
Fibrous, Cellulosic, & Granular insulation	Fiberglass	Knauf Insulation	Jet Stream Ultra 🇧 🖯 🛞	189	Declare	EPD	SDS
Fibrous, Cellulosic, & Granular insulation	Mineral Fiber	Rosul	Roxul Safe'n'Sound 🧧 🛞	1410	Declare	EPD	SDS
Fibrous, Cellulosic, & Granular Insulation	Wood	GUTEX	Thermofilore (IR)	100	Declare	EPD	999
Fibrous, Cellulosic, & Granular Insulation	Wool	Havelock Wool	Wool Batt Insulation (38)	HPD	Declare	170	100
Masonry	Brick	Finaclay Tile	Glazed Thin Brick 🐵 💷	HPD	Deckre	100	600
Mineral Paint	Line	Graphenstone	Graphenatone (MK)	1170	Declare	EPO	600

3. MATERIAL COLLECTIONS : LOW EMBODIED CARBON MATERIALS

In Year 7, HML launched its long awaited Low Embodied Carbon Materials Collection. Research for this began at the very end of Year 5. 31% of global carbon emissions comes from the making of things - which means that manufacture of materials and products contributes significantly to the changing climate. This is a big issue. Therefore, products that contribute to globally decreasing carbon emissions need to be readily available. Common terminology is "upfront carbon emissions" or "embodied carbon". These emissions from production of materials have been released before a building is built.

Currently, there is no universal threshold for "low embodied carbon" in materials. With no mutually agreed upon baseline it is difficult to know which materials will decrease the carbon footprint of a building. Like Health Product Declarations (HPDs), Environmental Product Declarations (EPD) provide transparent information, they do not indicate what equates to "low" embodied carbon. Each product has been assessed for the environmental impact of its production phase, also referred to as cradle-togate (A1-A3) in Life Cycle Assessment. This does not include emissions from transporting products from factories to the site..

> 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**.

Products in this collection marked "LEC" (low-embodied carbon), meet the Lab's criteria for both material health and low embodied carbon. These products have a low embodied carbon footprint or they sequester carbon.

After discussing this research with experts, HML set a rigorous standard that can meet 2030 goals. For this collection, "LEC" labels products which embody below 2kgs of CO₂eq per kilogram of product weight.

Library & Resources

Healthier Cabinetry Guide



HML Healthier Cabinetry Guide

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4. HEALTHIER CABINETRY GUIDE

At face value, cabinetry may seem to be made of one type of wood, but its construction is much more complex. Many prefabricated cabinets are built using a combination of three or more wood composites and veneers, which typically use toxic glues containing formaldehyde, a known human carcinogen.

By comparing the material contents and construction in prefabricated cabinets, we created a spectrum that indicates the relationship between affordability and health. We typically consider the health effects during all phases of product development, but these diagrams are focused on the health effects during installation and inhabitation.

Currently, prefabricated cabinets are composed of 5%-30% healthier materials. Designers can increase this percentage by requesting manufacturers to build with NAF (no added formaldehyde) composite woods. This often comes with an increased price. Our Composite Wood Product and Spec Guidance gives a range of healthier substitutions.

Collaborators:

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Hana Wilson, Research Assistant, HML

1,129 IMPRESSIONS ON ISSUU

Within this guide, you will find spec guidance, material health and affordability spectrum, and in-depth information for six types of cabinetry in order to create more **awareness** and help **supporters** make responsible, healthier design decisions.



Materials For Cabinetry Health Spectrum

These diagrams explore the complexities of cabinetry construction. They analyze a range of typical cabinetry materials and how these materials come together through the lenses of human health and affordability.

This spectrum is organized based on each product's material contents and how it affects human health during the installation and inhabitation phase. The spectrum moves from more harmful materials on the left to healthier materials on the right. To understand how material health correlates with affordability in sabinetry construction, turn to page 6.

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Health Impacts

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Health Impacts

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Least Healthy

Cabinetry Affordability Spectrum

This spectrum is organized based on estimated expense of prefabricated cabinetry. The most affordable cabinetry in this comparison begins on the left and shifts towards more expensive on the right. Borne of the most affordable cabinets also have the shortest. Began, To understand how cabinetry construction and material composition affect Hesper, look at the individual cabinetry pages.



Thermofused Melamine Cabinetry



Thermofoil Laminate Cabinetry



Particle Board Cabinetry

Least Expensive



Annual Report Year 7



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Solid Wood

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Health Impacts

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Durable Cabinetry



Hardwood Cabinetry



Library & Resources



5. MATERIALS AND PERFORMANCE NEWSPAPER

We think material literacy should be part of every designer's education. Don't you?

Material Newspaper from the course, "Materials and Performance" in MFA Interior Design at Parsons School of Design provides an overview of the content developed and researched by faculty and students in the Materials and Performance course, using the lenses of human health and environmental health to study materials for design. It includes photo journals, material research provocations, and student experiments with materials.

Co-taught with Jonsara Ruth, co-director of HML, Yu Nong Khewand Sam Bennett (researcher at the Lab), the faculty team for this course offer the students a holistic understanding of materials how to think about them, evaluate their impact on people and environments, how to understand their applications, histories and cultural meanings. The students dive into material waste, question why make anything new and learn about the health effects from chemical exposures in materials.

Collaborators:

Jonsara Ruth, Design Director, Parsons Healthy Materials Lab, Associate Professor of Interior Design

Yu Nong Khew, Assistant Professor of Interior Design

Sam Bennett, Researcher, HML

Parsons MFA Interior Design Students (2017-2018)

Natalia Vlachopoulou, MFA Interior Design

Robyn Bohn, MFA Interior + Lighting Design

Hana Wilson, Research Assistant, HML

1,159 IMPRESSIONS ON ISSUU

75 MFA INTERIORS STUDENTS This publication uses the lenses of human health and environmental health to study materials for design which brings more **awareness** and encourages **supporters**.



IMPROVING OCCUPANT HEALTH WITH ULTRAVIOLET LIGHT

Healthy Materials Lab + MFA Lighting Design at Parsons School of Design



6. IMPROVING OCCUPANT HEALTH WITH GERMICIDAL UV LIGHT

In June 2020, just months after the emergence of COVID-19, Parsons' Healthy Materials Lab (HML) and the 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 now the necessity for clean air in shared public spaces is more evident than ever. This research project explores the application of germicidal ultraviolet radiation, particularly for the treatment of upper-room air, with the aim of occupying shared spaces safely again. 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 all occupants, including those on our own campus, in affordable housing, and beyond.

In this booklet published in February 2022, we collected key findings in regards to using UV-C light and Germicidal UV (GUV) technology to improve occupant health across different types of spaces and various applications. This technology can be utilized to disinfect air, water and surfaces and shows true potential in mitigating potential dangers to occupants.

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, Researcher, HML

Hana Wilson, Research Assistant, HML

Industry Partners

Acuity Brands

The Lighting Quotient

471 IMPRESSIONS ON ISSUU This publication gathers research and findings about how light can improve occupant health in the age of COVID-19 creating more **awareness** of the technology and the opportunities for healthier spaces.

2/ Viral Transmission

When researching the populations of 04-C, it is important to this understand how shares and thactania are trans-nitited in order to target whet type of application is best for each setting forg-ange whom types whet type forg-ange whom types whet type the downsineare setting of such also the downsineare setting of such also the setting to the types of the downsinear setting of the downsineare setting of such also the communication of the downsinear setting of the downsineare setting of such also the setting to the types of the downsinear setting of the downsinear setting of such also the setting of such also the setting to the types of the types of the downsinear setting of such also the setting of such also the types of the types of the type of the downsinear setting of such also the setting of the types of the type of types of types of the type of the type of type of type of types of type of type of types of t and the downsharm setting of such displats into anlaws. Average and an after fluids that are suggested in the all after fluids entitled are emportable all ansats, are responsible for althores transmission (invasion). Desplats that are larger will fail to the ground or surfaces before they evaporate and are responsible for local ansats. authons before they evaparties and are responsible for local spread (bucking an infected surface to being in contact with the source). According to the COC, the and of baccording Infected with CDVID-IB through contact, with contactivitied surfaces is possible, but is considered to be bas.

Viruses • Bacteria Beyond COVID-19

Looking beyond the era of COVID-18, UV-C light can be used to inacti-III. UV-C spit tain be used to inscri-vate various types of vilues, technica, mobb and spores that can be hamilia to human health. Different viruses and Insideria require alfferent drives of UV-C irradiation to inactivate them, Accord-

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3/ UVGI Technology

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History of UV-C

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The study of ultraviolets light effects on Since the 1870s ultraviolet

ments, applications and regulation of this section of the advance. Without harming our health or indoor environments?

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4/ Human Health + Safety

Care needs to be taken when installing and utilizing these wavefragits of atransidet light. Direct exposure to UV-C solution size result is a locating tensotion in the syste. that one can compare to antiburn and reddering of the skirt. Sensoor and tensors were not were to UV-C. In an accident seposare case, to UV-C. In direct deposition exposure to UV-C. In an accident seposare case, to minutes it denot deposition exposite the initiation symptions.

A study conducted from 1987 to 2004 Norm that construit application of uppersoons UVDI can be achieved intheaut an apparent increase in the incidence of the more common side effects of accidental UV overexposure." An additional study found that when the entire upper valume of the room (above 415 her) is finaded with, high interesting UV-C insidation, comparents will not be at risk for a high given of expresser.

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Therefore, ceiling and wall recurried UV-C lipper Air Treatment Betwee are two risk and safe. for accepants when installed correctly. These factores are mounted for above the head heights of occupants and the light ahree ag toward the ceiling so that occupants will not be allered exposed.

Accidental direct exposure to UV light can cause skin and eye imitations. Studies about long term effects on human health are limited. We are researching and testing how to best use this technology to make indoor spaces healthler while avoiding harm to human health and material health.



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Ultraviolet Dermicidal Invadiation (UVDI) Safe Mounting Reights



Material Health + Exposure

Materials found in speces also have reactions when exposed to UV-C. Motals and controls are unablected due to the effectivity of contain master reads to be consultant and an entrol of the scheduler of these thenged by UV-C exposure. UV-C context plantice are musice. The breaking of these thenge these the scheduler of these thenges the scheduler of the

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In conclusion, it is hard to say precisely how V/V-C radiation will affect offlecent materials. Hardness are utility of for insistance to UV-A and UV-B purdiamoge) picture UV-C does not percental the Earth's atmosphere. Generalby speaking, UV-C can only percentate through a strand portion of the surface, as any defect will be superfitted and not structure.

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Healthier Cleaning Protocols

Using UVDI is a residue free form of disinfection, it is important to rules the althest ence between distributing and theoring tharboching is the killing of genre, drs and important nerveal of genre, drs and interview to their nerves protect to their financies to their nerves protects the distribution to their nerves protects and of their finantities to their nerves protects and of their finantities to their nerves protects and their finantities nerves patients are mission hermitid subsets.

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Sales of aerosol disinfectant sprays have increased by 385% and hand sanitizer by 600% since the start of the COVID-19 pandemic (Nielsen, March 2020). 0

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UVGI disinfection can be a safer, healthler alternative to harmful solvents and aerosol disinfectants.

DESIGNING WITH HEMP+LIME

Open Source Detailing for Architects and Designers



7. DESIGNING WITH HEMP + LIME : OPEN SOURCE DETAILING FOR ARCHITECTS AND DESIGNERS

Acting as a sequel to the Hemp + Lime guide released in 2020, the goal for this publication is to create a catalog of precedents to encourage other architects to use hemplime in their future projects. Our ultimate goal is to encourage the scalability of hemplime so that all future construction can be carbon neutral, biodegradable, energy efficient, and healthy.

We began compiling content of exemplary realizations of contemporary hemplime construction after studying lessons learned and details from our collaborative renovation project, PA Hemp Home. We are looking to spread the word about masterful uses of this promising building material and provide an open source detailing guide for architects and designers alike. In this guide, we focused on the different application types such as spray-applied or blocks and wall assemblies using HempLime. This is an ongoing publication project and will be completed Summer 2022.

Collaborators:

Alison Mears, Director, Parsons Healthy Materials Lab

Jonsara Ruth, Design Director, Parsons Healthy Materials Lab

Meryl Smith, Researcher, HML

Eric Hu, Postgraduate Researcher, HML

By cataloging different application methods from recent, successful hemp+lime projects we are providing the opportunity for those who are **unaware** about the materials to become **advocates** of its use.



Library & Resources

Lamia Santolina

Project Location: Caroxigno, Italy Year Completed: 2021 Architect: VSS Architecture, Morieo Architecture, Angolo Helcarres Bulder(c): Issaft Ilysterne (structural), Messapia Style (herres)

Hessigns Style (Herric) Project Description (Herrich Schrichheiter, 1995) Innis Santonia, Isa Jong Subling made of herrig and time. Seatted in the country siste ansault building made of herrig and time. Seatted in the country siste ansault case roo. Terlics and his partner Dentine Mydais takens on the umit bysistoguted time and the partner Dentine mydais takens on the umit bysistoguted time and his partner Dentine and Alth Sales on the umit bysistoguted time and the partner Dentine and Alth Sales on the umit bysistoguted time and the partner Dentine and Alth Sales on the umit bysistoguted time and the second partner desire to tensor and holden material and taken to tensor and the tensor and the shutcher is metioned. But from the be meterial to address contempoting environmental concerns.

The building has a simplify shape, just like a traditional lamia, the rectangular base shrinks as it mas to form perforder wells with hopesnicid sections and rounded cometry, just like the handmarke constructions created by fermers in the past.

The construction technology and materials utilized in the project are also traditional yet modern; the perimeter walls and roof slab are both

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Pg-L1 Completed memory with alasteend walk mage Devil Comm Sector

made by Messapis Diple, an otheral construction company and pioneer of hemp and time construction in bally. This material constitution of antiof hemp hards, water, pure hydrated heme and a robust exception to helpthe drying process.

The light modular ison distucture, produced by sharth flystem, was adapted to accommodate the ancient. "Incomnucciato" come root schemas. Final host antitiana assembled the locally grown cares to create care mats that held agen the steel shurther?'s posts. Them a Scientifick therep and time mature layer to their laid on too, providing musimum themail incute too for the suot.

A photovotusic system will be placed on the roof, generating around 4.5kWp of electricity which also serves the nearby house on the same plot. The roof also forms part

24

 If the networker tecovery system, directing reinwater to an underground tare to be above the an underground and homework during the accession
phase was reused to provide a new layer of oil to the exciting ofer them. The underground took was reused to reinhung the regimeter dis store waits that release humidity accumulated during the regimeter dis store waits that release humidity accumulated during the regimeter dis store the ground to encourage cyclicity and minimized impact.



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Spreads from the "Designing with Hemp + Lime" Booklet

Annual Report Year 7





Woonhuis Balk

Project Location: Built, Nothoritands Year Completed: 2020 Architect: TWK Architecters Builder(1): Agricola Bouw, Warns

Builder(s): Agricolar Bouw, Warms Project Description: The clambs wanted a future groot home, built is green, as possible and early for the huture. The house meets the standard fly possies house? and is energy-resultal, and the house is also built beidused with hemp-and wood recognisme blocks made by boltering are a green insulator and molitare regulator. The house is all-relection, the energy for heating is obtained fram the adjacent water by homen of a head secharger (asputhermal). On the strends (PC). The house is located on the site of the forcer factory 'De Volkarding' in Balk on the water of De Luts.



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 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 to develop curricular modules. With education as our platform, we are creating a greater understanding and awareness of the intersection of design and health.

*Parsons School of Design #1 ranking as the best art and design school in the country and #3 worldwide for the 5th year in a row according to the QS World Rankings, the definitive global guide to the top universities and colleges.







Rethinking Materials for Design: Introduction to Healthy Materials Presentation

8. RETHINKING MATERIALS FOR DE-SIGN: INTRODUCTION TO HEALTHY MA-TERIALS 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.

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. 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.

190+ 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.**











Princeton University School of Architecture

COLUMBIA GSAPP



PARTICIPANTS

39 CAMBRIDGE UNIVERSITY

15 WOODBURY SCHOOL OF ARCHITECTURE

10 THE NEW SCHOOL FOR SOCIAL RESEARCH

25 PRINCETON SCHOOL OF ARCHITECTURE

45

COLUMBIA GRADUATE SCHOOL OF ARCHITECTURE, PLANNING AND PRESERVATION

56 PARSONS SCHOOL OF DESIGN

Annual Report Year 7



a workshop in mending

PARSONS

Join Parsons Healthy Materials Lab for a (virtual) hands-on workshop to explore the ancient art of BORO, A JAPANESE METHOD OF REPAIRING TEXTILES. We will go over the basics of sewing, patching, and theories of repair – no experience necessary!

September 10th 5pm EST

Get your free repair kit at Donghia *healthier* Materials Library at 25E 13th street, 3rd floor [starting 9/6].

9. REPAIR : A WORKSHOP IN MENDING

REPAIR is a means of extending the life of our favorite things. Historically, repair was a necessity when materials and good quality clothing were expensive. Repair can also be a means of artistic expression.

Repair is an actionable alternative to the chronic overconsumption, overproduction, and proliferation of carbon emissions that define our time.

To restart the academic year and welcome students, faculty and staff back to Parsons and The New School, we came together (virtually) to repair, together.

This was a hands-on workshop to explore the ancient art of "Boro", a Japanese method of repairing textiles by patching and stitching. We'll cover sewing, patching and theories of repair, with no experience necessary.

We put together "repair kits" for attendees to pick up the week prior to the workshop. The workshop was led by Catherine Murphy and assisted by Sam Bennett, Senior Researchers at the Lab. They share a passion for sewing, mending and a circular economy.

56 PARTICIPANTS

This interactive event allowed for a group of **unaware** or **observing** students to become involved and learn a simple technique to **support** the re-use of fabrics.







::

Repair Workshop, Images of stitching from students and staff







Duracryl, a Healthier Resilient Floor

Bring your Lunch and Learn about a good alternative to PVC-based Flooring

Presented by Duracryl, from their manufacturing facility in Rotterdam, Netherlands

November 10 (12:00 ET)

Trace Material Live! with Pete Myers

Unpeeling the Layers of Plastic Toxicity

A conversation with Founder and Chief Scientist of Environmental Health Sciences (live podcast taping)

November 17 (12:00 ET)

What's so luxurious about Luxury Vinyl Tile?

New findings on carbon, toxic chemicals, and other environmental concerns across PVC's lifecycle

Presented by Center for Environmental Health, Material Research L3C, and Autocase

The Fall of Plastics Series Flyer

10. THE FALL OF PLASTICS : A THREE PART SERIES

This autumn we hosted the Fall of Plastics, a 3-part lecture series centered around the need to radically reduce plastics in our lives. From their significant carbon emissions, to bringing toxics into our bodies, to creating waste that is accumulating exponentially each day, petroleum based plastic materials need to be questioned.

Lunch and Learn: Duracryl, A Healthier

Resilient Flooring We hosted a Lunch and Learn where Duracryl talked about a healthier and sustainable alternative to LVT (luxury vinyl tile) which has numerous negative health and environmental impacts. In the fall of Year 7, we continue our search for healthier alternatives to plastic flooring. Duracryl creates seamless, resilient flooring using plantbased biopolymers as a binder as well as aggregates made from recycled content. They offer bio-based alternatives to flexible resilient flooring, terrazzo, and concrete, as well as traditional linoleum.

Trace Material Live! With Pete Myers This event was the first live taping of Healthy Materials Lab's podcast, Trace Material with guest Pete Myers, Founder, CEO and Chief Scientist of Environmental Health Sciences. It was a behind the scenes look as hosts Ava Robinson and Burgess Brown talked with Pete about the defining chemicals of the plastics age: endocrine disruptors. We traced the social history of plastic during season 2 of Trace Material, and Pete helped us envision a healthier future. We know the 3 R's (reduce, reuse, recycle) that help minimize plastic consumption, but in this event he made the case for a fourth R: redesign. Pete shared stories of his own scientific discoveries relating to plastic and discussed the role he believes designers can play in protecting the health of our bodies and environment.

What's so Luxurious about LVT? Luxury Vinyl Tile is taking over the world of flooring: it mimics the look of wood or stone tile without the same installation or maintenance needs. It is cheap. waterproof, and durable. Manufacturers have been making sustainability claims arguing that they avoid chemicals or achieve a lower carbon footprint. Given that it is a synthetic plastic polymer, aka petrochemical product, one wonders how sustainable or healthy it can be? This event was a behind the scenes look of this popular material which is a material health dilemma! The Center for Environmental Health. Material Research L3C and Autocase shared their current research (hot off the press) into what we need to know about LVT and why alternatives for flooring are in urgent demand.

431 VIRTUAL ATTENDEES This 3-part lecture series addressed the need to radically reduce plastics in our lives. It touched on what plastics do to our bodies and our environment and how **supporters** and **advocates** can make changes to reduce their presence in our homes.





11. COLUMBIA DATA VISUALIZATION STUDIO PRESENTATION

The studio, hosted by Adriana Arcia, PhD, RN Associate Professor of Nursing at CUMC, explores health info graphics, information visualization, consumer health informatics, patient education, low health literacy as a health disparity. Students adopt iterative participatory design, user-centered design, and survey methodology. Alison Mears (HML, Sarah Evans (PhD, MPH, Assistant Professor in the Department of Environmental Medicine and Public Health, Institute for Exposomic Research at the Icahn School of Medicine at Mount Sinai) and Chad Milando (PhD Research Scientist, Department of Environmental Health, Boston University, School of Public Health) were guest lecturers for the studio. We presented a pilot project that created report back and educational materials for participants in tooth biomonitoring studies, in partnership with Mount Sinai. We piloted the materials in NYC and also translated and modified them for distribution to a cohort in Mexico. The studio class viewed the presentation and then critiqued the work.

The Precision in Symptom Self-Management (PriSSM) Center is an interdisciplinary collaboration at Columbia University School of Nursing that is supported by a five-year National Institute of Nursing Research (NINR) grant (P30 NR016587). Research at the PriSSM Center advances the science of symptom self-management for Latinos through a social ecological lens that takes into account variability in individual, interpersonal, organizational, and environmental factors across the life course.

The specific aims of the PriSSM Center are to: 1. Develop sustainable interdisciplinary, bio-behavioral research capacity for symptom selfmanagement research by establishing a socio-technical infrastructure including centralized research resources. 2. Enable symptom self-management feasibility research that will develop into new programs of research and independent investigator research applications by supporting six pilot projects. 3. Advance symptom self-management for Latinos through synergistic research activities informed by a social ecological lens and precision medicine approaches. 4. Assess the PriSSM Center activities, impact, and sustainability through formative and summative evaluation.

14 PARTICIPANTS

This presentation touched on techniques and strategies to best represent complex data in clear ways to encourage an **unaware** audience to become **supporters** and **advocates**.





12. SUCCESSFUL GRANT WRITING : A FACULTY PANEL

Co-sponsored by the Office of Research Support (ORS), this faculty panel offered the opportunity for faculty to hear from their peers about their strategies and processes for identifying and applying for grants. Leadership in ORS also provided information on how the office can support faculty in finding and applying for grants and fellowships.



At HML, grants are a large part of how we operate. Sharing our processes on how to apply to grants brings **awareness** to the work that we do within our own academic community.





13. DR SHANNA SWAN : HOW TO SLOW THE COUNTDOWN

Shanna Swan is the author of the award-winning book The Countdown: How Our Modern World Is Threatening Sperm Counts, Altering Male and Female Reproductive Development, and Imperiling the Future of the Human Race. In the tradition of Silent Spring, Dr. Swan breaks down how chemicals used in everyday building products are toxic to our reproductive systems. Shanna H. Swan, Ph.D., is one of the world's leading environmental and reproductive epidemiologists and a professor of environmental medicine and public health at the Icahn School of Medicine at Mount Sinai in New York City.

Dr. Swan has worked for over twentyfive years to understand the threats posed by chemicals to our environment and our health, and, when necessary, to develop new paradigms to assess their risks. Of most concern to Dr. Swan are the chemicals that our bodies can confuse with its own hormones (the "endocrine disrupting" chemicals). At the Icahn School of Medicine at Mount Sinai, Department of Environmental Medicine and Public Health, Dr. Swan is working with a wide range of collaborators, including epidemiologists, biostatisticians, toxicologists, geneticists and systems biologists, to conduct studies and develop methods to evaluate the risks from such chemicals – methods that are sensitive enough to tease out the often subtle health effects of complex mixtures.

195 PARTICIPANTS

This presentation allowed for a mixed audience of **unaware**, **observers** and **supporters** to learn about threats to reproductive health to become **advocates**.



March 23 (12:00 ET

Hilennil

Talks

Harvesting Housing with redhouse studio A Trace Material Live!

April 7 (12:00 ET) Fashioning the Future with Carole Collet and Mvlo[™]

14. MYCELIUM MILLENNIUM TALKS

Mycelium Millennium Talks, is a two-part which explored the potential of mycelium to shape the future of healthy materials. Mycelium is the network of fungal threads that can be harnessed to do everything from cleaning up toxic waste sites to constructing housing to forming patterns on textiles.

Harvesting Housing with redhouse studio

We're in an affordable housing crisis, and we've been stuck in the same loop of underfunded toxic building projects for years. It's high time we think outside the box. The answer might be where we least expect it...in the network of fungal threads that produce mushrooms. This event was a live taping of Healthy Materials Lab's podcast, Trace Material with guest Chris Mauer, principal architect at redhouse studio and member of the BioHAB team.

In the upcoming season of Trace Material, we'll be diving into the world of fungi to explore the myriad uses of this mysterious kingdom of organisms. BioHAB, a project based in Namibia, combines many of those uses. Chris and the rest of the BioHAB team are harvesting an invasive bush in Namibia and using it as biomass to grow gourmet mushrooms for food and building materials for affordable housing.

Fashioning the Future with Professor Carole Collet and Mylo ™

The fashion industry is one of the most wasteful industries on the planet and is rife with toxic materials. Experts agree that change is needed, but what kind of change? Could mycelium offer a possible solution?

This talk featured Material Futurist Carole Collet and brand representatives from Bolt Threads, makers of Mylo. Mylo is a pioneering mycelium-based leather alternative developed for mass production. They are working with like-minded and leading brands such as Stella McCartney, Adidas, and Lululemon. Carole Collet is a professor, researcher, material experimenter, and trailblazer for new fields of material studies. She discussed her own creative quest to discover a variety of patterning techniques for mycelium textiles, and contextualize Mylo's work in the broader context of biodesign.

343 PARTICIPANTS

Innovators, design researchers, and manufacturers who are manifesting mycelium's potential across the fields of design, textiles, and architecture shared their work and insights with a mixed audience, creating new **advocates** for the use of this material.





15. ANISHINAABE AGRICULTURE INSTITUTE: HEMP + BUILDING CONSTRUCTION

Hemp has a long, global history, and even though the United States Government has outlawed its growth and production since the 1950s, it has recently begun to make a comeback within the United States. Winona LaDuke has created a course about the potential of hemp, and how Indigenous farmers and nations are embracing this new economy.

We acknowledge the need to make profound changes in the way we design and make the products we use in all our buildings, especially in housing to move to healthy, breathable sustainable products that use minimal amounts of energy, are low to no emitters of carbon and sequester carbon over their long circular lives. At any scale- at residential or institutional, we spend most of our time within our buildings. Global civilization exists within the earth's biosphere and our fragile human bodies are permeable to environments in which we live. How do we compose and build the environments we inhabit and what are the profound consequences of our actions on ourselves and on our world?

Co-directors, Alison Mears and Jonsara Ruth, joined the class at the Anishinaabe Agricultural Institute to present on the uses of Hemp + Lime in design and construction.

35 PARTICIPANTS This lecture allowed a community to get familiar with materiality, the concept of human health and building with hemplime, spurring them on a journey to become **supporters & advocates.**





16. MATERIAL INTELLIGENCE : SPRING LECTURE SERIES AT WOODBURY SCHOOL OF ARCHITECTURE

For the Woodbury School of Architecture's Spring 2022 Lecture Series, it was in continuation of the Year of Intelligence. For the past several years, they have chosen an annual social justice-focused topic. Two years ago, the theme was Housing. Last year, they investigated the theme of Climate Justice. This year, the theme is Intelligence.

The theme of intelligence refers to the increased presence of Artificial Intelligence in the design industries and our daily lives, and more specifically, how we might leverage this new intelligence for social and environmental change. Jonsara Ruth, Co-director of HML, was a speaker for this virtual lecture series. She spoke about "Material Intelligence."

35 PARTICIPANTS

Our material choices have immense impacts. With our decisions about which materials or things we include in a design, we are making choices about the future health of people, communities, ecologies, and ultimately the future health of the planet we all depend upon.



Decolonized & Decarbonized Workshops + Dinner Party

3/1aGPI

Materiality + Food

The Future of Food

Making Food Make Place: Self-Orientia through Food in Manhattan's Chinatown

laterials and Experimentation with Food

Food Waste, Composting & Closing the Gap on Food Insecurity in NYC Grow NYC

3/8 @GPM

Materiality + Food

Rituals of Eating

Making for Eating

Biobinsed Material From Seafood Waste or Hush Waste is the New Luxury

Waste Materials and Food: Workshop and Demo

2 WEST 13 405L

Uyen Tran TOMTEX and Alumina Ross McBee, PHD

Sam Bennett Mi

MFA Interior Design PTE and Akimia

2 WEST 13 405L

Dage D'Amico BFA Product Design PTF

BEA Interior Design

Parsons Students

3/29 @GPM

3/22

agem

Bobbin Lace, Natural Dyes and Waste

Composting and Designing with Mycelium

Table Top, Future of Eating

Open Student Share

Layla Nathanael MFA Textiles PTF Klinger Noyvak and Alumna

2 WEST 13 405L

Flyer from the Decolonized and Decarbonized Workshops + Dinner Party Events at Parsons School of Constructed Environments

Tunin

ZOOM

Tong MEA Interior Design Th

Jonsara Ruth

IVC

17. DECOLONIZED AND DECARBONIZED WORKSHOPS + DINNER PARTY

A series of student-led workshops were hosted, with the support of Parsons faculty, outside guests, and organizations, to create the artifacts of a carbon free "Dinner Party" on April 22nd, Earth Day, bringing attention to the impact that global warming has on our NYC communities and socially just approaches to decarbonizing practices. Using food waste and circular design strategies, students created objects such as tables, plates, cutlery, candelabra, and linens that will be used in a performative event and exhibition. Jonsara Ruth, codirector of HML, and Sam Bennett, senior researcher at HML led two workshops titled "Materials and Experimentation with Food" and "Waste Materials and Food: Workshop and Demo."

30 PARTICIPANTS These workshops allowed for HML team members to participate in multiple capacities, to further inform **observers** and encourage **advocacy**.





Course Structure



18. FUTURE LEARN

In the spring of Year 7, we are working with the online education platform Future Learn to offer 5 new HML courses, 4 of the courses will be part of their Expert Track program to new audiences. These courses will be launched in the summer of 2022. Future Learn is a platform of millions of people from around the world learning together. Online learning is as easy and natural as chatting with a group of friends.

The four courses are called Healthier Materials and Sustainable Building Expert. Consider this for a moment; the US population is universally exposed to thousands of chemicals from routine exposures in our everyday lives from everyday goods and products, to chemicals in building materials. This needs to change. Our places and spaces should not be a source of toxic exposure.

We need to use building materials that are truly healthier and safer to construct healthy buildings and make healthy cities. If we make these changes, not only will they benefit all people, but will also benefit the planet. But to make these kinds of systemic changes, we need to create new design processes that include everyone in the decision making process.

In these courses, students will discover how the materials used for constructing buildings can impact human health outcomes. We are expecting to have anywhere between 5,000 - 10,000 enrolled students per year.

17 MILLION PEOPLE USE FUTURE LEARN AS A LEARNING PLATFORM 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.





Welcome

Logout

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

Syllabus Support & Examples 🧄

Teaching Tools 🧅 Videos 🧅

Syllabus Support & Examples

all a

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)



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.

19. 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.

With the help of ModLab, HML continues to work 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

MFA Interior Design Studio 3: Fostering Healthier Futures

MFA Interior Design Studio 3: NYC Dept of Health: Empowering Healthy Futures

MFA Interior Design Studio 3: Healthy Living with Grocery

Teaching Tools

Materials, their Chemistry, and Human Health

Material Health Overview

Certifications and Disclosures

Material Health Chemistry

Chemicals of Concern

Design Strategies

Building Materials

Construction and Post-Occupancy

Videos

Navigation Guide to Healthy Materials Lab's Website

Affordable Housing and Beyond: Addressing the Needs of All Populations

Beyond Transparency: Improving Product Decisions with Transparency and Material Health Information

Transparency and Material Health "In Practice" - Accessing and Using Transparency and Material Health Information

Managing Transparency and Materials Health in Practice: Introduction to Firm-Level Issues



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Annual Report Year 7



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.



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 CENTRAL SAINT MARTINS



ARIZONA STATE UNIVERSITY





DREW UNIVERSITY







RENSSELAER POLYTECHNIC INSTITUTE



UNIVERSITY OF ARIZONA





UNIVERSITY OF CAPE TOWN



THE COOPER UNION



UNIVERSITY OF THE ARTS LONDON



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COPENHAGEN SCHOOL OF DESIGN & TECHNOLOGY



AUCKLAND UNIVERSITY OF TECHNOLOGY







UNIVERSITY OF ARKANSAS, FAY JONES



THE PENNSYLVANIA STATE UNIVERSITY



HOCHSHULE RHEINMAIN





UNIVERSITY OF KANSAS, SCHOOL OF

BOSTON ARCHITECTURAL COLLEGE



COLUMBIA UNIVERSITY

SCAD

SAVANNAH COLLEGE OF ART AND DESIGN



NORTHEASTERN UNIVERSITY





CARNEGIE MELLON UNIVERSITY



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. Annual Report Year 7



STRATEGY



24 NEWSLETTERS



28 E-LEARNING MARKETING







25 TRACE MATERIAL SEASON 3



29 PARSONS RE:D "A HOME FOR GOOD"



22 INSTAGRAM



26 FIELD RESEARCH



30 PARSONS' MFA LIGHT-ING DESIGN + HML TEAM INNOVATE FOR COVID-SAFETY





27 ROLE MODELS CAM-PAIGN



31 FAST COMPANY INNOVATION BY DE-SIGN AWARDS





COMMUNICATION STRATEGY DIAGRAM ONLINE TRAFFIC FLOW



20. 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.

In Year 7, the HML communications team began deeply analyzing data and metrics of all of our communications efforts. This involved compiling information and meeting monthly to identify strengths and room for improvement in our communication strategy. These meetings help steer the direction of our communication strategy. It is ever evolving. The next spread includes examples of data and metrics collected each month.

Communication and Dissemination

WEBSITE ANALYTICS

For the website analytics, we look at Page Views, PDF Downloads, Total Visitors, how users find our website. We compare all of these items from month to month.

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FACEBOOK ANALYTICS

For Facebook analytics, we look at overall visitors, likes, post engagements and overall performance. We then adjust what and how we post accordingly.

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Annual Report Year 7

LINKEDIN ANALYTICS

Our LinkedIn page brings together a lot of our social media content. We look at post highlights, impressions, followers, visitors and shares.



INSTAGRAM ANALYTICS

Instagram is a great tool for communicating and sharing. We look at our best performing posts compared to our worst, followers, impression, reach, profile views and overall engagement.



YEAR 7

65,135 44,519 USERS

YEAR 6

PAGE VIEWS

1.89 **PAGES PER** SESSION

97,126 70,922 SESSIONS

3:38 **AVG. SESSION DURATION (MIN)**

183,743 147,664

2.08

03:15



21. 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.

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**.



Events on Demand See all 4 events on demand ->



Winona LaDuke Keynote Address | Material Health: **Design Frontiers** Innals info 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"



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.



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 The New School, Parsons School of Design

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.

YEAR 6 **11.1k** FOLLOWERS YEAR 6

8,868

870

1,782 1,714

1,041 NUMBER OF POSTS

32K AVG. NUMBER OF ACCOUNTS REACHED PER MONTH



22. INSTAGRAM

Instagram is a large part of our communications strategy to strengthen industry partnerships, cross-promote content and reach a wider audience. In Year 7, 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, and announcements for events and new resources 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: "Thermacork is 100% natural, renewable, recyclable, and biodegradable. Its a rigid-insulation material produced from natural cork grown in Portugal. The practice of harvesting cork has been around for thousands of years, including hand-based methodologies." HML has been creating posts for Material Monday for the past two years, in Year 7, the strategy changed to include only the most fascinating and intriguing photos of the materials.





EVENT ANNOUNCEMENTS

In Year 7, our communications team put forth more effort to announce all events, presentations, panels and discussions that our team had either organized or participated in. This created more traffic and more attendees to events, especially those that were virtual.





RESOURCES AND GUIDES ANNOUNCEMENTS

In Year 7, the HML team created numerous digital booklets, resources and guides. These guides are published to HML's website and ISSUU, but it is important to also highlight the work on Instagram. The communications team created interactive posts about the Healthy Cabinetry Guide, Textile Guides, UVC Guide and the Material Newspaper.



Communication and Dissemination



human health, and the new school

23. 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%

1,908 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.





Healthy Affordable Housing for All. Donate today.

APRIL 2022



If you've been following this season of the TV show America by Design, then you know that Healthy Materials Lab's latest HempLime project just won this year's Relationship Design Award!

What happens next? This award launched an initiative from Salesforce and America by Design to help us make the HempLime project a reality on White Earth Reservation. They're matching any donations made by their team...but you can help too!

What will it take? We need funds to build new housing out of HempLime on White Earth Reservation in Minnesota. We're eager to start building a HempLime home for a local elder and her grandchildren. This sustainable and healthy home will house multiple generations for years to come. Will you help us build this project and be part of the #HealthyHomesForAll movement? You can donate directly, and please spread the word

24. 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, Aronson's 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. In Year 7, we saw an increase of 5,000 newletters opens from the previous year. Our average open rate is 37.8% which is higher than our competitors (29.5%).

Year 7 Newsletter opens:

May: 2,772 July: 2,621

August: 2,500

September: 2,978

January: 4,712

February: 4,740

April: 4,555

24,878 NEWSLETTERS OPENED Our monthly newsletters have increased engagement and interest in our on-going projects which results in observers becoming supporters & advocates.





25. TRACE MATERIAL

As a design-led research lab, we've been reminded once again that centering human stories is a critical part of our work. That humanities focus helped us resonate with our audience. Here's what some of our general audience had to say in our Apple Podcast reviews:

"This podcast has me hooked. What I'm learning in each episode leaves me in shock, but also with a glimmer of hope from the awareness and opportunities we have to change for the better."

"I'm learning so much fascinating and terrifying information about plastic this season! I also love the hosts. They make the nitty gritty fun and approachable. Looking forward to the rest of the season!"

Ashley Lusk recommended Trace Material for Bello Collective:

"Don't let the publisher fool you: Trace Material may come from the Parsons School of Design's Healthy Materials Lab, but it's anything but academic ... if you want to say you're listening to a podcast about climate change without saying you're listening to a podcast about climate change, add Trace Material to your queue.

We also heard from fellow experts, scientists, and scholars in the plastics

field that had come across Trace Material. Pete Myers, who founded Environmental Health News, coined the term "endocrine disruptor," and lectures widely on plastics and toxicity reached out to commend our work. He said:

"I know the substance on which Trace Material focuses ... I've not heard a single slip-up. What I have heard is smart, accessible, engaging, and accurate communication of which even Alan Alda would be proud."

According to data from Buzzsprout, one of the largest podcast hosting platforms, episodes with more than 231 downloads in the first week rank in the top 10% of podcasts and those with more than 539 downloads are in the top 5% of podcasts. Trace Material episodes averaged 442 downloads in their first week, ranking the podcast in roughly the top 6-7% of podcasts worldwide. We are immensely proud of this success.

With minimal budget for marketing, our communications team has managed to grow our diverse audience through engaging campaigns across social media and through our existing networks. Word of mouth and press coverage has further expanded our reach as we continue to promote this season of the podcast.

30,616 DOWNLOADS In this season of Trace Material, we dig into an experimental material and its potential to a **unaware or observing** audience.



UPCOMING : SEASON 3

The world of fungi is a mysterious one. Plants and animals have been living symbiotically with fungi since the dawn of time, but we're just beginning to understand the complexity and depth of these relationships, and the potential they might hold. The molds, yeasts, and mushrooms that make up Kingdom Fungi elicit responses ranging from disgust and fear to fanaticism and reverence. In this season of Trace Material, we're going to unravel some of their mysteries with a particular focus on the material possibilities of mycelium: the underground root-like living body of mushrooms. We will head into the woods to forage mushrooms and talk to a cultivator who is growing food, medicine, and community. We'll hear from a mycoremediator rehabilitating toxic ecosystems after wildfires and a materials developer creating mycelium based alternatives to everything from Styrofoam to bacon. Finally we'll talk to an architect who is prototyping affordable housing built with mycelium bricks.

Does this mysterious kingdom hold the keys to a healthier future? Tune in this summer to find out and head to wherever you get your podcasts to subscribe today!

This season will be released in Summer 2022.





One of the first episodes of this season was conducted live during Spring 2022

Communication and Dissemination



26. FIELD RESEARCH

A new comms effort in Year 7 was the addition of "Field Notes" from some of HML's members as they attended various expos and exhibitions.

Alison Mears, co-director of HML, attended the 2021 Venice Biennale where she took videos, photos and notes about the various pavilions and exhibitions. We used those notes and research to create various posts for social media about the findings.

Alison Mears and Leila Behjat, Senior Researcher at HML, attended the Building Green conference that had presentations and a concurrent product expo. They discovered a range of exciting, new products. For example new rainscreen solar systems, oversized and reusable steel "screw" footings and a company that adapts and reuses existing light fixtures. We also saw products that draw from old techniques updated and re-imagined for new uses today. For example, Hemplime in different forms, and Søuld that takes eelgrass originally used for roof thatching and converts it into natural insulation, acoustic panels and upholstery fill. While these products may only currently be available in Europe we are looking to develop and support new partnerships to bring them to production in the US.

Through this field research, team members identified a number of the products that met HML's stringent criteria to eliminate harmful toxic chemicals through the entire supply chain of their products. Products also looked to confront some of the more problematic aspects of building to eliminate/reduce concrete use for example or to create innovative ways to generate solar energy by reinventing panels. Manufacturers showed authentic engagement by stating that their products were working to overcome toxic roadblocks in all aspects of production. This level of honest awareness and ongoing evolution is refreshing.

Creating content and posting about our team members field research adds a new type of dissemination. This creates new observers and supporters.



Annual Student Design Contest 2022

ROLE goot cash MODELS goot cash DOES YOUR PROJECT → Exemplify innovation Innovate with healthy materials Address

DOES YOUR PROJECT → Exemplify innovation Innovate with healthy materials • Address climate change • Elevate social equity • Prioritize human health

SUBMIT BY MAY 23



27. ROLE MODELS CONTEST CAMPAIGN

Many of the materials used in art and design are harmful to people and to the planet. Designers and artists can make enormous contributions to global health and culture through their decisions about materials, methods, and social engagement.

Are you thinking about the impact of climate change through your design actions? Are you considering how your work impacts the planet at large? Are you innovating with healthier materials? Are you passionate about making your designs inclusive? The impacts of your design decisions are far-reaching, indisputable, and can be transformative.

This contest looks for innovations in design and use of materials that have a positive impact on the global environment and society. This year is the 7th year of hosting this contest. 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.





Annual Report Year 7



This Year's Jury

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

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

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

Asad Syrkett Editor-in-Chief of ELLE Decor

Charlotte McCurdy Interdisciplinary Designer, Assistant Professor-in-Residence, RISD

David Lewis Dean, Parsons School of Constructed Environments, Principal; LTL Architects Jonsara Ruth Co-Founder & Design Director, Healthy Materials Lab, Associate Professor

Luam Melake Senior Researcher, Donghia healthier Materials Library, Artist

Malika Leiper Cultural Director, Stephen Burks Man Made

Mike Chapman Director MWC Media, co-director of MWC Productions US, founder of the By Design brand

Odile Hainaut Co-Founder of WantedDesign

Stephen Burks Founding Principal, Stephen Burks Man Made Healthier Design For All





Choosing the right color can be tough

finding a healthy paint doesn't have to be.



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

SCIENTISTS 8 PROFESSORS ENTREPRENEURS STRATEGIC CONSULTAN PEDIATRICIAN LAWYER INDUSTRIAL HYGIENIST

I MARKETING CONSULTANT

28. 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.



FALL 2021 E-LEARNING CAMPAIGN

The theme for visuals for the campaign in Fall 2021 was "Get Intimate with your Building Materials." This focused on micro and macro shots of commonly used building materials that are covered in the courses.

1,108 STUDENTS ENROLLED


Continuing Education programs:

Getintimate

Low BUIPIN

Healthy & Sustainable Affordable Housing

Healthier Materials & Sustainable Building

Soft underfoot but hard on your health.

What's in your carpet?

Continuing Education programs:

Intima

Ou Buipi

Healthy & Sustainable Affordable Housing

Healthler Materials & Sustainable Building

SPRING 2022 E-LEARNING CAMPAIGN

The theme for visuals for the campaign in Spring 2022 continued with "Get Intimate with your Building Materials." Included in the promotional posts for the spring semester were informational blurbs and facts, acting as a sneak preview for what is included in the courses. The HML comms team wanted each post to be engaging as well as informational to drive enrollment numbers up.

1,076 STUDENTS ENROLLED \rightarrow



"Even when we use natural materials, we have a tendency to put a harmful material on the surface to seal or gain a certain appearance."

John Amatruda

Course 3: Healthier Materials: Design and Specification

Learn how to avoid this. Register and begin your courses.

> "Everyone can get into the habit of asking, 'What's this thing made of?' and once you know that, you might ask, '<u>Where does it come</u> from and are there any particles or gases emitted? And at the end of its life, what happens to it?' Asking these questions builds a good habit."

Jonsara Ruth Course 4: Executing a Healthier Project

Learn from the experts. Get your certificate.

 \rightarrow



29. PARSONS RE:D "A HOME FOR GOOD"

From the Article: Passing by 506 Spruce Street in New Castle, Pennsylvania, you might think this early-20th-century house in the former manufacturing capital was simply getting a freshening up. The 800-square-foot dwelling is in fact the site of cutting-edge design and construction research led by Parsons' Healthy Materials Lab in collaboration with local community partners. But to witness the home's radical innovations firsthand, you would need to take a chainsaw to a side of the building.

In a typical freestanding American home, an exterior wall has as many layers as the functions it performs. Wood framing is placed between panels and sheets dedicated to waterproofing, blocking drafts, insulating interiors, and finishing surfaces. While the assembly encloses a space effectively, the many individual components add cost and often harm occupants: The building products typically contain known asthmagens, endocrine disruptors, and other compounds that damage human health. Even lumber usually contains endocrinedisrupting flame retardants.

The mission of Parsons' Healthy Materials Lab (HML) is to reduce human exposure to such chemicals, especially in affordable housing. Jonsara Ruth, who co-founded HML with Alison Mears, says this work reached a turning point in 2017, two years after the collective's launch. Observing that healthful materials advocacy focused on products that contain toxic substances, Ruth recalls realizing that "removing one harmful ingredient at a time is an important but slow process. So we convened a group of student researchers to identify available building products that best safeguard health."

This shift in HML's perspective-from mitigating the effects of toxic substances in mass-market materials to promoting healthful alternative products-soon led the team to HempLime, a material made from hemp's woody fibers; lime, a silica material from limestone; and water. The biodegradable mixture can be cast or blown into wall cavities to perform the functions of several layers of a typical wall section. It is naturally mold resistant, flame retardant, antimicrobial, vapor regulating, and insulating. Instead of off-gassing, HempLime continuously absorbs airborne toxics, even sequestering carbon dioxide. HML's Trace Material podcast refers to HempLime as a "superstar" of the healthful materials toolbox.

This article brings HML's work to an audience of alumni from The New School. The New School is a interdisciplinary university, therefore this audience may be widely **unaware** and now have the opportunity to becoming **observers** or **supporters**.







30. PARSONS' MFA LIGHTING DESIGN + HML TEAM INNOVATE FOR COVID-SAFETY

Faculty and students in the lighting design, architecture, and interior design programs at Parsons School of Design recently joined forces to explore new approaches to making spaces COVIDsafe through the use of several types of UV technologies. Professor Craig Bernecker, director of Parsons' MFA Lighting Design program, explains how they invented fixtures whose germicidal light deactivates the corona virus safely and are evaluating the fixtures' effectiveness as well as developing application guidelines (e.g., number, mounting height, optimal period of use). Students discuss the discoveries they made while working in Parsons' Lighting Lab facilities-the only of their kind in NYC-and with interdisciplinary research undertaken by Parsons' Healthy Materials Lab (HML). HML, which advocates for health-fostering building systems that reflect social and environmental justice perspectives, worked with students to broaden their integrative design methods. Learn more about Parsons' groundbreaking work to make the world better through design.

The video segment was featured on The New School's research page and also intersects our work with Lighting Design, a new audience to become **supporters** and **advocates** in their design practice.





PA Hemp Home recieved an honorable mention in the Materials Category

31. FAST COMPANY INNOVATION BY DESIGN AWARDS

Our collaborative project, PA Hemp Home, received an honorable mention in the materials category of Fast Co's 2021 Innovation by Design Awards. We are thrilled to be honored alongside designers and businesses who are solving the problems of today and tomorrow.

Entries were judged on the following innovation criteria: functionality, originality, beauty, sustainability, user insight, cultural impact and business impact. The Materials category looked for material innovations that lead to greener, better products. Can't get any greener, healthier or better than HempLime insulation! We are honored to have this highly collaborative project recognized. Congratulations to all of our partners and collaborators: DON Enterprises, Americhanvre and Pennsylvania Housing Research Center. This is a huge win for affordable, accessible and healthy housing.

PA Hemp Home was honored not only because HempLime is a healthier product, but because it shows that HempLime can transform affordable housing. It will also revitalize local agriculture and create jobs for plantbased industries. With new incentives to grow hemp in the US, there is a potential to create an agriculturally based system for producing healthy building materials. This will create new opportunities for farmers, as well as provide training opportunities for both industrial and construction workers. Not only will we be able to design and construct healthier affordable houses, but we will also create jobs and new value chains for rural and small urban communities.

Fast company has total circulation of more than 725,000 and a readership of more than 3 million, making it the fastestgrowing business magazine ever.

Being honored in the Fast Company Innovation By Design awards creates more **supporters** and **advocates** in an audience of innovators alike.



Communication and Dissemination

Featured Innovations



32. AMERICA BY DESIGN: SEASON 2

During Year 7, members from Healthy Materials Lab and Parson's School of Design participated in filming and production of America By Design for it's second season.

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. Jonsara Ruth was not only a judge, but appeared in an episode as a "presenter," walking the audience through a featured innovation.

Last season, PA Hemp Home was featured as an innovation. This season, they featured "HempLime" as an innovation on it's own. Alison Mears and Jonsara Ruth, Co-directors of the Lab traveled to Northern Minnesota with host Mike Chapman to see Winona LaDuke, her hemp home and talk about a home HML is designing using healthier materials for a family on White Earth.

Twenty-nine innovations from around the country were chosen to be highlighted on the show and our HempLime collaboration in White Earth, MN made it to the top 10 innovations for the People's Choice Award! We also received the "Relationship Award" presented by Salesforce. 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.

1 MILLION+ VIEWERS FOR SEASON 2 HML and Parsons participated in the second season of America by Design in four different capacities. The show featured Judges and presenters from HML and an ongoing demonstration project of HML's.







Stills from the episodes in which HML members appeared as judges or presenters and Hemplime was a featured innovation

Annual Report Year 7



Stills from the episodes in which HML members appeared as judges or presenters and Hemplime was a featured innovation

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 7, 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.



HOME ACCENTS 33 TODAY WEBINAR



NYC X DESIGN : 34 **DESIGN DAYS**



40 AIA NY : A BETTER CHOICE





GREENBUILD DESIGN 41 **CONNECT + LEARN**



SUSTAINABLE DESIGN : 47 A MATERIALS WAKE UP CALL

4.22 EARTH DAY

TUNE IN: HDCDESIGNU.COM

DESIGN U: EARTH DAY 48 PANEL



AIA DC KELLEY LEAD-35 **ERSHIP DEVELOPMENT**



DESIGNER EXPERIENCE 36

> Alison Mears Looking to the Future anel 7: Health and the Bloeconomy

37





METROPOLIS MAG-43 **AZINE : DESIGNING A** HEALTHIER HOME



WORLD BIOECONOMY 44 FORUM







PODCAST

APPEARANCES

51

52









- 45 **US GREEN BUILDING** COUNCIL TEXAS



46 MOMA MATERIAL WORLDS: WASTE



AIA LA 1.5 DEGREES **4**9 **CELSIUS**



UNITED NATIONS 50 GLOBAL ABC

Good Form

URBAN DESIGN FORUM



33. HOME ACCENTS TODAY WEBINAR : MAKING THE CASE FOR HEALTHIER FURNISHINGS

The uncomfortable truth is that some home products can adversely impact the air we breathe in our homes. But this is fixable. Executive Editor Allison Zisko sat down with Jonsara Ruth from Healthy Materials Lab and Kathryn Richardson of the International Textile Alliance to weigh the pros and cons of the latest industry regulations and third-party certifications, the importance of manufacturing transparency, and some of the most exciting alternative material options. Mushroom leather, anyone?

Presenters:

Kathryn Richardson, International textile Alliance

Jonsara Ruth, Co-Director, Healthy Materials Lab

Allison Zisko, Executive Editor, Home Accents Today

21,565 VIMEO VIEWS By speaking about manufacturing transparency and potential healthier alternatives to materials allows for **observers** and **supporters** to become healthier material **advocates** in their own practice.







NYC X DESIGN Design Days, Top: Design Fuels Recovery Graphic. Bottom: Design Leaders Conversation Series screenshot

34. NYC X DESIGN : DESIGN DAYS

Design Fuels Recovery Webinar : Furniture in a More Sustainable, Equitable and Healthier NYC

As NYC begins to re-emerge, what is the role of design in a new future? How do we fully incorporate sustainability, health and equity? Highlighting furniture design, this session will explore initiatives that are reimagining how we approach material and human resources.

Bringing together a designer/educator, a nonprofit change-maker, an artist/ furniture maker, and a reclaimed/ circular furniture campaign, we'll explore sustainable solutions right in our NYC backyard. These initiatives -- from creative reuse of materials to combining craft with rethinking criminal justice -seek to reinvent the way we design and produce.

Speakers:

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

Tommy Safian, Refoundry

Sabrina Merayo Nunez, Lunfarda Studio

Mona Chun, mebl | Transforming Furniture Design Leaders Conversation Series : Product Design & the NYC Ecosystem

A live virtual conversation exploring product design and the NYC ecosystem hosted by NYCxDESIGN's Executive Director, Elissa Black.

Speakers:

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

Satish Rao, Chief Product Officer, New Lab

130+ VIEWS NYC x Design Days allowed for HML to participate in multiple events and capacities, to reach a wider audience and create even more **supporters** and **advocates**.





CHRISTERHER LEADERSHIP DEVELOPMENT PROGRAM

35. 2021 AIA DC KELLEY LEADERSHIP DEVELOPMENT

This program explored the future of marketing & business development through the lens of storytelling, technology, and sustainability. Marketing, branding, and RFP strategies were introduced to provide an understanding of our promotion capabilities and how to harness this energy into the essentials of a winning project proposal. Speakers explored game-changing technologies to communicate design intent and the impact of leading with knowledge in healthy building design.

LEARNING OBJECTIVES:

1. Identify marketing, branding, and business development components and learn how to apply them in practice to successfully promote yourself, your firm, and to develop a winning RFP Submission.

2. Explore how the next generation of technology tools will disrupt marketing & business Development.

3. Examine the factors that drive value propositions as architects in a competitive industry and think about how to successfully convey those advances to your audience.

4. Explore how fostering a firm's expertise

in healthy buildings can be a critical differentiator for clients.

Alison Mears, Co-Director and Leila Behjat, Senior Design Researcher shared the exciting research that we are doing at HML. The discussion identified how an expertise in healthy buildings is critical for architects and designers in a competitive industry.

Presenters:

Alison Mears, Co-Director, HML

Leila Behjat, Senior Design Researcher, HML

24 PARTICIPANTS A large part of creating change comes from encouraging our **supporters** to become **advocates** for the material health of their own projects. This presentation allowed for HML to reach an audience of designers who are looking to do so.



designer EXPERIENCE

Sep 9th, 12:30 EST

Jonsara Ruth

Keynote Address

Materials+Health: The Designers' Choice Introduction by Laurence Carr

36. DESIGNER EXPERIENCE: A SERIES OF COMPELLING ACTS

How much do we know about the materials used to create homes? How often is something chosen based solely on its aesthetics, color, or cost – without considering possible toxics it may introduce? Jonsara Ruth, Co-Director of the Lab spoke about all of these points at the September 2021 Designer Experience: A Series of Compelling Acts.

This event featured your fellow design pros, educators, business experts and more for a full afternoon of enlightening and educational discussions, heartfelt sharing, creative ideas to energize your brand and make marketing your business a joy, advice on how to enhance the designer/rep relationship to deliver a better product to clients and consumers and tips on how to get coverage from local media outlets.

Presenters:

Jonsara Ruth, Co-Director, HML

Laurence Carr, CEO and Creative Director, Laurence Carr Inc.

103+ YOUTUBE VIEWS Armed with the right questions and knowledge, designers can become **advocates** and change the trajectory to ensure that all homes promote healthy living.



Sal L

WORLD

FORUM

bioeconomy

Alison Mears

Looking to the Future Panel 7: Health and the Bioeconomy

Oct 19th, 16:10



37. WORLD BIOECONOMY FORUM IN BELEM, BRAZIL

The World BioEconomy Forum is a global platform for circular bioeconomy stakeholders to share ideas and promote bio-based solutions. They are fully committed to sustainability across the board and believe that climate change is real. As there is no one-size-fits-all bioeconomy, they have created a new tool to evaluate the status of the circular bioeconomy – the Four-Pillar Structure.

The World BioEconomy Forum 2021 was held in Belém, Brazil, the capital of the state of Pará. The location is at the mouth of the Amazon River – again at the heart of a particularly important ecosystem. The World BioEconomy Forum presented Belém and the state of Pará as a real hot spot of the circular bioeconomy in 2021, and shared its narrative with the global circular bioeconomy society.

Presenters:

Alison Mears, Co-Director, HML

Dr. Vivian Camacho

Zulu's Poggi

Dr. Yu Yuan

Dr. Lian Thomas



Speaking for a global audience of potentially **unaware** designers and professionals creates a significant new number of **supporters** and **advocates**.





38. HEALTHIER MATERIALS IN PRACTICE WORKSHOP

This workshop brought together professionals in the design and construction industry to discuss the implementation of healthier materials, the roadblocks and opportunities. The goals of this workshop were to: share successes and strategies when implementing healthier materials, identify common roadblocks preventing healthier material implementation, identify future opportunities within the industry, exchange experiences with like-minded healthier material advocates and identify where HML can improve its offerings. Over Zoom and using Mural, 18 participants, including our own Jonsara Ruth, Catherine Murphy, Leila Behjat and Sam Bennett, this workshop allowed for conversations and learning amongst designers and advocates alike.

18 PARTICIPANTS Gathering a group of known supporters for an intimate workshop allows them to share experiences, opportunities and shortcomings to ultimately become stronger advocates.





CONCRETE L O VE

Lisbon & Online Program

As of Nov 10, never final

Concrete Love Event Program Cover

39. CONCRETE LOVE : THE MAKING OF BEAUTIFUL BUSINESS "TIPPING POINTS" DISCUSSION

Progress is born in bold abstractions but experienced in the day-to-day. Concrete Love is the response to the innovations, forces, and burning questions that will define 2022 and everything thereafter. Across five main-stage and breakout sessions in Lisbon and online, participants experienced the disruptions and inspirations that matter now and going forward.

Jonsara Ruth, Co-Director of HML, joined for Act IV: Agency, during a conversation titled "Tipping Points" where she and other panelists discussed climate emergency, social justice, mental exhaustion, failing leadership, political polarization, rampant tech.

Presenters:

Jonsara Ruth, HempLime

Steve Evans, Industrial Sustainability

Chow & Lin, The Fault Lines

Bruno Giussani, Positive Narratives

Matthew Shribman, Climate Education

Masahiro Sugiyama, Solar Geoengineering

Ocean Mercier, Maōri Science and Antarctica



Speaking for a global audience of potentially **unaware** designers and professionals creates a significant new number of **supporters** and **advocates**.



AIA New York Center for Architecture

Catherine Murphy

Senior Researcher Parsons Healthy Materials Lab

A Better Choice: Healthy Materials for Affordable Housing

Thurs Nov 11, 2021, 12:30pm ET

40. A BETTER CHOICE: HEALTHY MATE-RIALS FOR AFFORDABLE HOUSING

Why should we care about material choices when designing affordable housing? During this presentation, Catherine Murphy, Senior Researcher at Healthy Materials Lab, and Shelby O'Neil, Senior Program Officer at Enterprise Green Community Partners, discussed the toxins most commonly found in the indoor environment and how architects, designers, and builders can reduce exposure for vulnerable communities.

These experts reviewed some of the challenges of addressing indoor air quality, as well as what resources to utilize when specifying healthy materials for affordable housing. The session also provided an overview of the Materials section within the 2020 Enterprise Green Communities Criteria Checklist and explained the NYC Overlay for new construction and renovation projects.

Presenters:

Catherine Murphy, Senior Research Associate, Healthy Materials Lab, Parsons School of Design

Shelby O'Neil, Assoc. AIA, Senior Program Officer at Enterprise Green Community Partners

Moderator:

Jackie Stinson, AIA, LEED AP BD+C Project Architect, Magnusson Architecture and Planning

64 PARTICIPANTS

Sharing why it's important to carefully select materials for affordable housing helps to not only to create more **supporters** and **advocates** within the design community, it also allows the typically **unaware** end-user to benefit from healthier material choices.





Design Connect+Learn

Leila Behjat Catherine Murphy Senior Researchers at HML

Choosing (and Installing) *Healthier* Building Materials

Thurs Dec 9, 2021, 11am EST

41. GREENBUILD DESIGN CONNECT + LEARN : CHOOSING HEALTHIER BUILDING MATERIALS

HML presented a session for Greenbuild international about the work of the lab to raise awareness about toxins in building products and how we are delivering resources to designers and architects to make informed product decisions so that they can make healthier spaces for everyone. Specifically, this presentation looks at factors that can contribute to informed and determined design decisions with material health and sustainability in mind. Exploring the value chain including all stakeholders, we will highlight tools for a successful and healthy design and installation process.

The main learning objective for this session was how to best make informed healthier product decisions. Through this lens, the conversation explored the factors of an integrated design team, transparency and vetting of materials, making human health a priority, the life cycle of a product and lastly, installation and maintenance.

Presenters:

Catherine Murphy, Senior Design Researcher, HML

Leila Behjat, Senior Design Researcher, HML

Raising **awareness** about toxins in building products through sessions like this with designers and architects help **supporters** make informed product decisions and allows for **advocates** to create healthier spaces for everyone.





42. DATTNER ARCHITECTS GREEN SALON: PA HEMP HOME

Dattner Architects is committed to excellence in civic architecture– improving and sustaining communities and the urban environment. Our work aims at the realization of our clients' highest aspirations, respecting our shared social and environmental responsibilities, built within available resources. Projects for a wide range of communities, clients and users demonstrate our respect for context and the needs of the people these projects serve.

Within Dattner Architects is the Sustainable Practice Group, a committee which the firm initiated upon adopting the AIA 2030 commitment. The SPG's focus is to develop and support the sustainable practices, initiatives and goals of the firm. Educational programs, such as the Green Salon series encourage staff members to learn more about sustainable design, to gain continuing education credits and achieve LEED credentials. The SPG is developing a database of greenest projects, set up to be easily searchable. This office-wide resource will include information on systems studied as well as implemented in our projects.

Jonsara Ruth, co-director, and Meryl Smith, researcher, met with this committee during a Green Salon to discuss HML's collaborative project, PA Hemp Home. Dattner Architects and SPG are interested in Hemp as a building material. This conversation included a description of the project and a Q+A portion about hemp for construction in general.

Presenters:

Jonsara Ruth, Co-director, Healthy Materials Lab

Meryl Smith, Researcher, Healthy Materials Lab

40 PARTICIPANTS

Sharing our knowledge and experiences with architecture firms allows for designers and architects to become healthy materials **advocates** and incorporate it into their practice.



Designing

Parsons School of Design's Healthy Materials Lab is redefining what it means to design with sustainable materials.

By Liz Stinson Photography by Nicholas Calcott

Healthier

Home

"We have to move toward these bold, new materials for our own health and for the long-term health of all people who live on this planet," Mears says. "We don't really have a choice anymore." "Materials used in the interiors of affordable housing are often the least expensive of building materials, which typically contain the most harmful ingredients"

METROPOLIS

Ruth says one trick is to think of building products like you might food: The shorter the ingredient list, the better. "If you see an ingredient and you can't pronounce it, you probably don't want to live with it either."

Jonsana Roth, designer and on-Noroder at Parsons Healthy Materials Lab

"Your living room is full of unwanted visitors. On the couch you might find perfluorinated compounds, often called PFCs, a carcinogenic set of chemicals used to create the stain resistant barrier you thank when you spill your drink. Your coffee table? It's likely made of compressed wood, bound together with an adhesive that contains the known carcinogen formaldehyde..". and that new paint smell may potentially exacerbate respiratory problems....
43. METROPOLIS MAGAZINE : DESIGNING A HEALTHIER HOME

HML co-directors Alison Mears and Jonsara Ruth are featured in a profile about Parsons Healthy Materials Lab in Metropolis Magazine. Metropolis is one of the leading voices in architecture and design with over 50,000 print subscribers and over 85,000 digital visitors each month.

HML is grateful to be a part of this issue, which focuses on sustainability and justice within design. The article, "The Healthy Materials Lab is Redefining Sustainable Design" is featured alongside important stories such as "A New Concept for Good Architecture: Embodied Justice," and "In Three Buildings Around the World, Old Methods Find New Purpose."

"The Healthy Materials Lab is Redefining Sustainable Design" tells the story of HML's founding in 2015, and the complex world of healthier materials Alison Mears and Jonsara Ruth face as we fight for healthier housing for all.

In addition to quick tips about choosing materials such as, "If you see an ingredient and you can't pronounce it, you probably don't want to live with it either." The article also featured Shefali Sanghvi who works at Dattner Architects and is an alumni of HML's online certificate program, Healthier Materials and Sustainable Building. She spoke about how the program has changed the way they source and consider materials to focus on sustainability and health as well as aesthetics, cost and convenience.

Metropolis is an architecture and designfocused magazine published ten times per year. It has over 50,000 print subscribers and its website receives approximately 85,000 unique visitors every month. Read the full article at Metropolis.com.

50,000 SUBSCRIBERS

Metropolis is one of the leading voices in architecture and design. This allows our work to reach a large audience of **observers** and create more **supporters**.



Education



Photos of the printed copy of Metropolis Magazine

Annual Report Year 7



A set of the second sec

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I want a burneling that you had cont.

"The easiest way to tell this story is to think of our interior environments as enclosing us in a plastic wrap of products," says Alison Mears.



"We don't have anything to sell. We're just interested in changing the world," Mears says.

ALL MERICAN



"The desyl have straining to sold," and over, "We're just interested in charging the world,"

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Photos of the printed copy of Metropolis Magazine

Education

INCREASED RISK OF EXPOSURE









Unpackaging

Manipulating

Cutting

Applying

MORE ATTENTION TO LONGER TERM IMPACTS



May Not Be Initially Recognized



Ventilation Not at Full Capacit (a)

44. SUSTAINABLE CONSTRUCTION LEADERS : NYC COHORT

In Year 7, Jonsara Ruth, Co-director, and Catherine Murphy, Senior Researcher met with the NYC Cohort of Sustainable Construction Leaders (SCL). During this time, they gave a presentation introducing the cohort to the practices of selecting and installing healthier materials.

The SCL mission statement is as follows:

We will rely on the combined efforts of the NYC network of general contractors and construction managers to generate action on net-zero impact construction practices and support environmental stewardship. Our efforts will focus on limiting pollution through carbon emissions reduction strategies, decreased waste sent to landfill, upholding water conservation standards, promoting sustainable material choices while ensuring job site welfare and worker wellbeing. We aim to encourage our local industry to build a sustainable future that addresses the needs of the surrounding community impacted by construction activity and limits disturbance when possible.

Presenters:

Jonsara Ruth, Co-Director, HML

Catherine Murphy, Senior Design Researcher, HML

16 PARTICIPANTS

Introducing practices of selecting and installing healthier materials to a potentially **unaware** audience from the construction industry diversifies our **supporters** and **advocates.**





45. USGBC TEXAS : CHOOSING AND INSTALLING HEALTHIER MATERIALS

According to the EPA, prior to the current health crisis, Americans spend more than 90% of our time indoors. Our working, healing, commercial, and living spaces are filled with toxic chemicals found in the building materials that make up our environments. These chemicals may be released into our interior spaces where they can be inhaled, absorbed and ingested. Scientific studies show that exposures to these chemicals can adversely impact human health and have dangerous health effects on our families. In this presentation, we look more closely at this problem and share design strategies we have developed, to change practice and ensure that healthier materials are installed on your projects.

This presentation for Texas' US Green Building Council was an opportunity to learn about how to engage all stakeholders, 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.

Presenters:

Leila Behjat, Senior Design Researcher, HML

Catherine Murphy, Senior Design Researcher, HML

38 PARTICIPANTS

Speaking about engaging all stakeholders and setting health criteria that can be implemented helps our **supporters** and **advocates** create the best and healthiest built work.



MoMA

Alison Mears

Architect and co-founder at Parsons Healthy Materials Lab

Material Worlds: Waste

Thurs Feb 10, 4:30-6:00pm Online

46. MOMA MATERIAL WORLDS : WASTE

You may have heard the idiom "one man's trash is another man's treasure." The difference between trash and treasure is dissolving quickly as we hurtle toward a mass extinction event. Now, more than ever before, it is our professional obligation to value all matter as much as possible.

The volume of construction and demolition debris headed for landfills continues to increase. Waste is not only polluting our planet in general, it also continues to risk the health of marginalized communities that suffer exponentially greater amounts of exposure.

Both creativity and vision are needed to move away from wasteful and exploitative production practices that don't emphasize reuse. How can waste be valued as a resource for both design and production? Designing with circularity in mind involves new ways of sourcing materials, generating architectural narratives, and embracing new aesthetics. Leading designers have been on the quest to beautify waste as part of material circularity, and this requires re-examining systems of production, starting with the design process. From sourcing agricultural byproducts to urban mining or designing for deconstruction, what kinds of

cultural and economic shifts in the built environment might normalize waste as a primary material?

Material Worlds: Waste was an online discussion as part of a new series that gathers experts and scholars to present fresh viewpoints on the sourcing of building materials, not only to envision the future but also to better understand the past and present of humanity's impact on the nonhuman world.

Panelists:

Tara Gbolade, co-founder, Gbolade Design

Alison Mears, co-director of the Healthy Materials Lab

Laurens Bekemans, co-founder of Brussels-based BC architects & studies

Moderator:

Lindsey Wikstrom, co-founding principal of Mattaforma

144 PARTICIPANTS 143+ YOUTUBE VIEWS Waste continues to risk the health of communities that suffer from greater amounts of exposure and we strive to make affordable housing healthier for these at risk communities. This conversation brought this issue to MoMA's wide audience, thus creating more **supporters**.



A VIRTUAL EVENT Sustainable by Design: A Materials Wake-up Call

Tuesday, March 29 5-6pm PST

with panelists Dan Harden Jonsara Ruth Rico Ruffino

47. SUSTAINABLE BY DESIGN: A MATERIALS WAKE-UP CALL

Can industrial designers actually make a difference when it comes to climate change and the overall health of our planet? Dan Harden, Whipsaw CEO and Principal Designer will lead a crucial debate on the current state of sustainability in design and how we can do better. The panel included Jonsara Ruth, Design Director at the Healthy Materials Lab and Associate Professor of Interior Design at Parsons School of Design, and Rico Ruffino, Assistant Professor of the Practice of Industrial and Product Design at North Carolina State University. The three examined how we can incorporate greener practices into each phase of the design process by uncovering the top sustainable practices to ensure a cradle to cradle product life cycle and, in effect, curb climate change, including:

1. Strategies to streamline the ideation process

2. Tips on being more selective in partnerships with clients and manufacturers

3. How to use healthy and sustainable materials during the development and packaging phases

4. Whether a circular economy is possible and how we can get there

Presenters:

Dan Harden, Whipsaw CEO and Principal Designer

Jonsara Ruth, Co-director, Healthy Materials Lab

Rico Ruffino, Assistant Professor of the Practice of Industrial and Product Design at North Carolina State University

85 PARTICIPANTS This panel allowed for a potentially **unaware** or **observing** audience to become active participants in selecting healthier materials and beginning their journey as **advocates**.



Education



4.22 EARTH DAY

TUNE IN: HDCDESIGNU.COM

EDECOR HOUSE BEAUTIFUL VERANIDA

Design U: The Future of Eco-Conscious Living Event Flyer

48. DESIGN U. THE FUTURE OF ECO-CONSCIOUS LIVING : EARTH DAY PANEL

Every design lover's comprehensive resource for education, inspiration, community, exclusive content, and more from the world's leading editors and experts.

Hearst's mission this earth day is to create equity within design through education, empowerment, and opportunity for future generations and working designers. This event included a number of virtual sessions, covering a variety of topics. This year, the theme is the Future of Eco-Conscious Living, and it will bring together some of the country's most respected design minds for a day of cutting-edge ideas and in-depth conversations. The conference is open to students and design professionals, or simply design enthusiasts.

With Elle Decor, Luam Melake, Senior Researcher at the Lab and the Donghia Healthier Materials Library, joined others to participate in the "Material World: How We'll Build Our Sustainable Future"

Presenters:

Asad Syrkett, Editor-in-Chief, ELLE DECOR

Luam Melake, Senior Researcher of Healthy Materials Lab and Donghia Healthier Materials Library at Parsons School of Design

Beatrice Galilee, Co-Founder and Executive Director of The World Around

Jane Abernethy, Chief Sustainability Officer of Humanscale

This event reached a potentially new audience of **unaware** members of the fashion and decor community, increasing our audience of **supporters** and **advocates.**



Education



A Symposium on Climate Change Friday, 22 April 2022 8:30am - 4:00pm Zipper Hall, Colburn School

49. AIA LA 1.5 DEGREES CELSIUS

The American Institute of Architects Los Angeles' Committee on the Environment (AIA LA COTE) presented the 4th annual 1.5°C Symposium on Climate Change. Renamed "1.5 Degrees Celsius" from 2 Degrees Celsius, the Symposium underscored the urgency for the design and construction industries to provide carbon-mitigating solutions, which will prevent the global temperatures from rising more than 1.5 degrees above preindustrial levels.

As in previous years, AIA LA COTE provided a conference that reflected the most relevant dialogues in society and incorporated this thinking into a two-day split virtual symposium around Climate Action and Climate Justice. A diverse set of presenters focused on a wide range of topics, inclusive of Carbon Neutrality, Healthy Building Environments, Resiliency, and Equity.

Leila Behjat, Senior Design Researcher at HML, participated in a panel discussion focused around Healthy Materials. The framework this year was built upon 'Soft Skills' that are the soul and will inspire as well as 'Hard Skills' which is the mind and will provide a toolkit and deliver a message that folks can take back to their practice.

428+

This panel discussion brought to light the connection between material health and climate change, introducing the concept of healthier materials to a potentially **unaware** audience, creating more **supporters.**





UN GlobalABC Materials Working Group Consultation Workshop slides

50. UNITED NATIONS GLOBAL ALLIANCE FOR BUILDING AND CONSTRUCTION : BUILDING MATERIALS WORKSHOP

The Global Alliance for Buildings and Construction (GlobalABC) works towards a zero-emission, efficient, and resilient buildings and construction sector through:

Raising ambitions to meet the Paris Agreement goals. While the sector is a major emitter, it also holds huge potential for improvement. We work to raise the level of ambition in retrofitting existing buildings and future-proofing the investments that we will see going into new buildings over the next 15 years.

Mobilizing all actors along the value chain. Faced with a fragmented value chain, all stakeholders – from design to construction, operations and demolition in the private and public sectors – need to play their part. We encourage policy frameworks that promote both uptake of existing, cost-effective solutions and private sector innovation – using sustainable public procurement as a lever to create markets and investor security.

In Year 7, Co-founder and director of HML, Alison Mears was a member of GlobalABC's Materials Working Group and participated in it's Building Materials Workshop on March 7-9. In this workshop, they focused on the 2022 activities of GlobalABC: 2022 Global Status Report for Buildings and Construction, which will include a topical focus on materials (from the "Building Materials Embodied and Operational Carbon: Status and Solutions" study)

UNEP's project "Transforming the Built Environment through Sustainable Materials" in Senegal, Ghana, India and Bangladesh (funded by BMZ) with links to the GlobalABC and its products.

A Building Materials Information Hub as part of UNEP's project and in the form of a digital platform targeted at policymakers, with links to relevant existing platforms and databases (funded by BMZ).

A study on "Building Materials Embodied and Operational Carbon: Status and Solutions,", funded by BMWK and conducted by the Yale Center for Ecosystems + Architecture.

A building material working group to support the development of the different activities.

46 PARTICIPANTS

HML's participation in the Building Materials Workshop brings our theory of change of philosophies to a global scale, increasing our **supporters** and **advocates**.



Education

U R B A N DESIGN F O R U M

Good Form

Call for Action

Released March 1, 2022

Due April 11, 2022

Urban Design Forum "Good Form" Call For Action Flyer

51. URBAN DESIGN FORUM : GOOD FORM AND HEALTH INITIATIVE

Health Initiative: Urban Design Forum will lead a Health Initiative, a yearlong inquiry advocating the design and development community to center physical and mental health equity. Through events, working groups, and other collaborations, we hope to generate longer-term partnerships between architects, planners, and public health professionals.

From Spring to Fall 2022, we will convene 3-4 distinct working groups dedicated to research analysis, exploring international case studies, and developing new visions on a topic area related to physical or mental health. We will curate an interdisciplinary group of Fellows in the fields of architecture, landscape architecture, public policy, real estate, and community development for each group. For each topic, we would like to partner with a leading research organization on the specific topic over the course of 4-6 months. The working groups will go from the exploratory phase in the Spring/Summer, meeting with numerous public health professionals and advocates to generate a crossdisciplinary dialogue, into a proposal phase into the Fall, using key learnings to develop new urban typologies, design guidelines, and public policy proposals.

Good Form: Good Form hopes to develop cross-disciplinary dialogues between the design, development and public health professions. We plan to collect visions, ideas, and research on how New York City can shape broader health strategies that inform the way we design and plan our neighborhoods.

How can architecture, urban design, and planning of neighborhoods be proactive rather than reactive to public health challenges or crises?

How can we build expertise in the design and development professions to address physical and mental health challenges?

How can new design approaches, neighborhood investments, or creative planning policies ensure that every resident is in close proximity to quality and accessible healthcare?

How can designers center health equity in their practices to combat historic racial and economic inequalities in neighborhoods?

41 PARTICIPANTS

Good Form allows the connection between public health and healthier materials for affordable housing to increase our audience of **observers** and **supporters.**



Education



Build A Healthier Life

**** 5.0

Perkins&Will

042

Parsons Healthy Materials Lab

Green & Healthy Places



design is a public health intervention

***** 5.0

1.0 4 1 2 2 3 3

★★★★★ 5.0

Podcast Covers with Ratings

52. PODCAST APPEARANCES

Fail Hard with Will Hall Presented by

ByDesign: Over the past 50 years, plastic has quickly become one of the most ubiquitous building materials in the world. It's in nearly everything and is creating countless health and environmental problems. In this episode, host Will Hall sat down with Architect Alison Mears, codirector of HML, to discuss new processes and materials that are having a profound impact in Pittsburgh.

Buildings As Healers: "Buildings As Healers" by Kevin Mullen is a podcast about how a health crisis changed his personal and work life as an owner in the kitchen and bath and home building industry. In his, he shares information he has learned on his Health Journey about building healthier homes. Jonsara Ruth, co-director of the lab, joins Kevin to talk about 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.

Green and Healthy Places: The 'Green & Healthy Places' podcast series takes a deep-dive into the role of sustainability,

wellbeing and community in office real estate, residential property, hotels and educational facilities today. Jonsara Ruth, co-director of the lab, talks about how building products that we primarily build with now contain chemicals that are often very toxic to human bodies. They can now be found in almost every building product in a conventionally built building.

Perkins + Will Inhabit: A team of designers, researchers, and creatives at global architecture and design firm Perkins&Will has released a podcast about the power of design to enhance the human experience. With insights from an array of health and design experts, "Inhabit" addresses large, complex issues at the intersection of design, policy, and research. Hosts Monica Kumar and Dr. Erika Eitland explore big questions about how our "built environment" affects us in ways we might not see. They get into the science, the history, the personal stories, and the decision making that help us understand the spaces we inhabit and how they need to change. They also spotlight what you can do to take the power of design into your own hands. Jonsara Ruth and Alison Mears, co-directors of the lab, joined the hosts to talk about who holds the power to make our built environment healthier.

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.



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 7, 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 construction completion of the PA Hemp Home, multiple material specification collaborations and the design of a newly construction home using hemp and other healthy materials for a family in White Earth, MN show that the work over the years at HML is starting to take effect.



53 PA HEMP HOME



55 DEANS OFFICE RENO-VATION



54 DETERMINED BY DE-SIGN



56 ELDER HOUSING IN WHITE EARTH, MN



57 COMMUNITY MUSIC WORKS



PA Hemp Home Ribbon Cutting Photos

53. 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.

This project was an honoree of the 2021 Fast Co. Innovation by Design Awards for the Materials Category. It was also voted as one of the Top 10 Design Innovations in the United States in the television series America By Design from ByDesignTV. We are thrilled to be honored alongside designers and businesses who are solving the problems of today and tomorrow, and to see the enthusiasm for the use of locally produced, healthy materials for housing those who need it most.

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.

April 22 was the official home opening when the house became ready for its new home owner. A ribbon cutting ceremony was held where members from the community could come and tour the house.

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 and Innovation



PA Hemp Home before construction and after the spray-applied hemplime was fully installed

Annual Report Year 7



PA Hemp Home during siding installation and after full completion



Annual Report Year 7



PA Hemp Home interior finishes included Daltile Keystones, Linseed Oil Painted wood trim and Lime Plaster



54. DETERMINED BY DESIGN

HML is working with Determined by Design (DbD), an interior design firm founded by Kia Weatherspoon and whose work is shaped by their belief that "well-designed interior spaces are not a luxury for a few but a standard for all." They advocate for "design equity" so every person's value is uplifted by the spaces they inhabit. DbD focuses their design business entirely on Affordable Housing.

HML's role in the partnership is to identify healthier materials for products typically specified in an affordable residential unit. They are doing this by looking closely at a schedule of typical materials (Unit Finish Matrix) that DbD currently uses for their affordable housing developer clients and the criteria by which their clients evaluate materials (cost, performance, maintenance, etc). HML will review the specs, suggest healthier products, and make notations on why current products should be substituted with healthier options. The material evaluation will begin with Flooring and Cabinetry.

The collaboration begins with two current development projects, one in Washington, DC, and another in Boston, MA. The buildings range in size between 104-200 units each. The goal is that healthy material selection continues into the common areas and corridors and that these healthier specs will be applicable to many other projects/clients currently engaged by DbD.

Amongst the larger goals of Healthy Materials Lab is to transform affordable housing to be healthier by building the capacity of interior designers at DbD to specify healthier materials and track installation without substitutions.

COLLABORATORS:

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

Kia Weatherspoon, Determined By Design, Partner

104 -200 UNITS 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.





55. DEANS OFFICE RENOVATION

Healthy design can provoke new ideas which spark innovation. When it was time for the Parsons Deans office to be renovated, the natural objective was to combine Healthier Materials with excellent design. Healthy Materials Lab was invited to work with recent Master of Architecture / Lighting Design graduate, Jordana Maise Goot, to propose a renovation that would stand for the sustainable standards and values of Parsons School of Design.

The renovation had to meet a modest budget, minimize waste, while using healthier sustainable materials, and achieve innovative design and aesthetics. Working closely with Jordana Maisie Design Studio, Parsons Healthy Materials Lab chose a palette of healthier materials made by some of the most sustainableminded manufacturers. We engaged manufacturers in the design process and they generously offered deep discounts and donations to bring this project to reality.

Reducing or eliminating adhesives was a strategy that HML proposed to Jordana in an effort to radically reduce toxic emissions in the office. Jordana used this strategy as the basis for the design of the furniture in the space. Working closely with a team of dedicated craftspeople, Jordana showed how mechanical fasteners could be used instead of glue. The end result is a delightful, intriguing, multi-functional office space.

COLLABORATORS:

Jordana Maisie Design Studio (JMDS)

Columbia Forest Products

Eco Supply

RomaBio

Timbur LLC (CNC)

K&S Construction Renovations (GC)

Aronson's Floor Covering

A high-profile renovation using healthier materials shows a successful design using materials we recommend. This allows for **observers** and **supporters** to follow by example and create healthier renovations of their own.



Demonstration and Innovation



Annual Report Year 7



Parsons Deans office renovation using healthier materials



Designing a new home on White Earth using healthier materials
56. ELDER HOUSING IN WHITE EARTH, MN

Drawing from our community-based collaborative projects, 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.

Since June 2021, HML's co-directors, Alison Mears and Jonsara Ruth, have visited White Earth, in Northern Minnesota, to speak with Winona LaDuke about hemp production, visit a local lumber mill, meet the women who are in need of housing and learn more about the specific needs of families and the general needs of the community. During their visits we learned that there are multiple opportunities to invigorate local industries, from the manufacturing of industrial hemp for various uses to the production of wall hung solar panels that are made locally. In the summer and early fall we created a range of architectural designs that were reviewed by the future residents. October 2021, we returned to White Earth to meet with the new homeowner, and with her input finalize the designs for the houses and begin construction documentation. Along with the drawings for construction, we will specify and source healthier materials for use in construction. The construction will provide on-site training for builders to learn novel construction techniques that can be used on future projects.

Postgraduate Researchers, Meryl Smith and Eric Hu, and Co-Director Alison Mears, are designing healthy affordable homes for local elder-grandmothers and their arandchildren. This ongoing project is beginning with a newly constructed home for Terri and her four grandchildren, designed to provide security and respite for the family for generations to come. The home will be situated on forested land, purchased from the reservation, with views out to a pond beyond. Drawing on traditional indigenous architecture, a central, two-story drum forms the heart of the house. This accessible and healthy home will have walls constructed of locally sourced wood framing and hemp bale insulation, with a wooden rainscreen on the exterior and a plaster finish inside. The interior is designed with healthier finish materials: a kitchen made of formaldehyde free plywood, mineral paints and healthy floor finishes. The interior also provides space for the family to come together at meals and around the fireplace, a kitchen that can be used to cook meals as a family, and a balcony where children can retreat to play or produce artwork with their grandmother. Once completed, the house will provide an example of a new form of sustainable residential construction

This project will bring an affordable, healthy home to a family in need in White Earth, MN. Once completed, the design and outcome will set a a precedent for more healthier homes to come for other under-served populations.



Demonstration and Innovation

PARSONS





Map of neighborhoods served by CMW with indicators showing existing toxics, brownfields, and cleanup sites. Courtesy of EPA's Environmental Justice Screening and Mapping Tool 2020.

Air Pollution Monitoring Sites
☐Brownfield/Cleanup Sites
☐Loations of Toxic Releases
④Building Site

Analysis: What are the exisiting enviromental toxics?

Main industries in the neighborhoods around the CMW location are fabricated metals and jewelry factories. The EPA monitores a list of these affected properties tracking the historic or current clean up work being done. Pollution such as brownfields, contaminated areas/properties, leaks, and spills has been addressed over the last few decades (1990-2018) in this area.

These existing toxics are:

Asbestos - carcinogen; Ammonia - potential endocrine disruptor; Heavy Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury) - potential carcinogen, endocrine disruptor, skin irritation; Petroleum waste compounds - carcinogen & potential endocrine disruptor; VOCs - respiratory irritations.

Pathways for Chemicals into the Body





Conclusion: Criteria for healthier product selection in CMW

Avoid environmental toxics found in the region

- Avoid chemicals particularly harming children and teens (Asthmagens & Endocrine Disruptors)
- □ Select products with ingredient disclosure above 75%(current HML threshold)

□ Focus on high-touch/high-occupied areas (daily interactions)

Focus on interior materials that make up the highest percentage of construction

Involving all stakeholders and transparent conversations empower the health results of the project

and material health concerns **sens**, Healthy Materials Lab will **prioritize**:

2) Endocrine Disrupters:

Endocrine disruptors interfere with our body's hormone system. BPA and phthalates, for example, mimic our bodies' hormones and cause adverse reproductive, developmental, neurological, and immune effects. An adolescent body is particularly vulnerable to these health effects.

Materials/Substances Associated with

Endocrine Disruptors: - Dioxin and Dioxin-Like Compounds

- Phthalates
- Bisphenol A (BPA)
- Polychlorinated Biphenyls
- Antimicrobials
- Urea-Formaldehyde - Phthalates
- Bisphenol A (BPA)
- Polyvinyl Chloride (PVC)

57. COMMUNITY MUSIC WORKS

Community Music Works, in Providence, Rhode Island, goals are to create a cohesive urban community through music education and performance that transforms the lives of children, families, and musicians. Their model is centered around the teaching, mentoring, program design, and performance activities of our musicians-in-residence, the MusicWorks Collective.

Healthy Materials Lab collaborated with a local architecture firm, 3six0, to create a guiding framework on how to make a healthier community building.

HML's participation set a framework and criteria for the other collaborators on the project. This created new **supporters** and **advocates** in practice.



PRESS



HOME ACCENTS TODAY "Making the Case for Healthier Home Furnishings" May 2021



METROPOLIS MAGAZINE "Role Models 2021 Winners" July 2021



NEW SCHOOL NEWS "Healthy Materials Lab Launches Season 2 of Podcast Focused on Plastic" July 2021



CORE77 "Looking Back to Save the Future" August 2021



THE NEW SCHOOL "A Home For Good: A Healthier Future for Affordable Housing" October 2021



DESIGNERS TODAY "Healthy Materials Lab co-founder Jonsara Ruth encourages interior designers to drive change" October 2021



FURNITURELIGHTINGDECOR "Seminar Lineup at ICFF and WantedDesign" October 2021



ENVIRONMENTAL HEALTH NEWS "Pete Myers on "The Fall of Plastics:" November 2021



COP26: Big names urge world leaders to decarbonise built environment

ARCHITECT'S JOURNAL "COP26: Big names urge world leaders to decarbonise built environment" November 2021



ARCHITECTURAL DIGEST "How Did the Cloud Couch Become the Celebrity Favorite?" November 2021



NEW CASTLE NEWS "Project PA Hemp Home featured at national conference" November 2021



ENVIRONMENTAL HEALTH NEWS "Pete Myers podcast: The Plastics Inferno" November 2021

New cabinetry resource offers green guidance

Heading Materials (2015 Inselfiner Calmenty Science Rights) the beach importe, zone Missairs and there as propolar calments materials



DESIGNERS TODAY "New cabinetry resource offers green guidance" January 2022



METROPOLIS MAGAZINE "The Healthy Materials Lab is Redefining Sustainable Design" January 2022



METROPOLIS MAGAZINE "Metropolis's November/ December 2021 issue gathers new critical frameworks" January 2022



BUSINESS OF HOME "A designer's guide to green product certifications" March 2022





DESIGNERS TODAY "Metropolis's November/ December 2021 issue gathers new critical frameworks" January 2022



DESIGNERS TODAY "Q&A with Jonsara Ruth" August 2021



SUSTAINABLE BRANDS "Shaw Industry's Tim Conway recently spoke with the Lab's director, Alison Mears" January 2022



ARCHINECT "Get Lectured: Woodbury University, Spring '22" February 2022



STYLEPARK "Three questions to Jonsara Ruth" March 2022



ARCHITECTURAL DIGEST "Is Compostable Furniture the Future of Sustainable Design?" March 2022



NEW CASTLE NEWS "Hemp home completion celebrated for its impact" April 2022

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NORA Resilient flooring

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HEALTHY AFFORDABLE MATERIALS PROJECT





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