Welcome to the webinar! 💖
Today’s Speakers

Carolyn Sarno Goldthwaite

Samantha Caputo

Ellen Tohn

Craig Foley
Agenda

- HELIX
- House is a Vital Sign and Vaccine
- Connecting the dots
- Short Takes
HELIX
Samantha Caputo, NEEP
Northeast Energy Efficiency Partnerships

“Assist the Northeast and Mid-Atlantic region to reduce building sector energy consumption 3% per year and carbon emissions 40% by 2030 (relative to 2001)”

Mission
We seek to accelerate regional collaboration to promote advanced energy efficiency and related solutions in homes, buildings, industry, and communities.

Vision
We envision the region's homes, buildings, and communities transformed into efficient, affordable, low-carbon, resilient places to live, work, and play.

Approach
Drive market transformation regionally by fostering collaboration and innovation, developing tools, and disseminating knowledge.
Thank you to our Allies for their support!
Thank you to our State Partners for their support!

**CONNECTICUT**

**State Partners:** CT DEEP, CT Energy Efficiency Board, Eversource Energy, United Illuminating Company, Southern Connecticut Gas and Connecticut Natural Gas

Partners in 2017 / 2018

**NEW HAMPSHIRE**

**State Partners:** NH Office of Energy Policy and Planning, NH Public Utilities Commission, Eversource Energy, NH Electric Coop, Unitil and Liberty Utilities

Partners in 2017 / 2018

**NEW YORK**

**State Partners:** NYSERDA

Partners in 2017 / 2018

**RHODE ISLAND**

**State Partners:** RI Office of Energy Resources, National Grid RI, RI Department of Education and RI Energy Efficiency & Resource Management Council

Partners in 2017 / 2018

**VERMONT**

**State Partners:** Efficiency Vermont

Partners in 2017 / 2018
What Is HELIX?

HELIX facilitates consolidation of energy data in a single portal

Data Intake

- Range of data sources (solar, efficiency, code...), data types and file formats

Flexible Data Management Solution

- Track & Report
  States; Cities; Program Managers

- Compare & Export
  Assessors; Realtors

Data Export

- MLS
Who Is Using HELX?

HELIX has 7 States in efficiency pilot; 20 solar States
Housing is a Vital Sign and Vaccine

Ellen Tohn
Founder, Tohn Environmental Services
Housing is a Vital Sign and Vaccine *

ELLEN TOHN, TOHN ENVIRONMENTAL STRATEGIES
ETOHN@TOHNENVIRONMENTAL.COM

*SPECIAL THANKS TO DR. MEGAN SANDEL, THE NATIONAL CENTER FOR HEALTHY HOUSING
Homes Can Provide Healthy Conditions

Avoid harmful chemicals
- Paint
- Flooring
- Cabinets

Building systems & equipment promote clean air and water
- HVAC
- Filters
- Ventilation
- Hot water heaters

Construction avoids ‘conditions’ linked to poor health (asthma)
- Radon
- Moisture
- Pests
- Cold or heat
- Carbon monoxide

Conditions promote healthier living
- Lighting
- Acoustics
- Encourage active living
- Minimize trip/falls
Avoid Harmful Materials

- Paint
- Adhesives
- Flooring
- Wood products, like cabinets

Readily available, does not add significant cost.
Poor Ventilation Can Increase Health Risks

• Higher rates of respiratory irritation and illness in housing with poor ventilation
  – Common colds
  – Influenza
  – Pneumonia
  – Bronchitis

• VOCs 2-5 times greater inside than outside
Home systems promote clean air

*Does the bath fan work?*

*Exhaust outside?*

*New fans are quiet, and can run automatically*
Ventilate kitchens

- Remove moisture, odors, grease
- Gas oven/range, remove combustion products: moisture, CO, NO2
- Vent to outside
- Make it quiet. If not, fans may not be used
• Installation of HRV/ERVs associated with fewer asthma respiratory symptoms
• 3 studies – all controlled trials with at-risk children or children with asthma
• Studies also observed improvements in CO₂, VOCs, and airborne mold
20-40% of asthma attacks linked to home conditions

Pest: mice & cockroaches
Moisture/Mold
Dust Mites
Tobacco Smoke
Changes in Temperature
Chemicals – VOCs

Wall Drainage System

CONTINUOUS DRAINAGE PLANE (HOUSE WRAP WITH DRAINAGE WRINKLES SHOWN HERE)

FLASHING COLLECTS LIQUID FROM DRAINAGE PLANE; DIRECTS IT AWAY FROM FOUNDATION

CAULK

SILL SEAL MATERIAL

SIDING WITH DRAINAGE PLANE AND FLASHING

Courtesy DOE Building America Solution Center
High Quality Insulated Windows
Fresh Filtered Air Ventilation System
Altilight Wall Construction
Low-VOC Paints
Marmoleum Flooring
HEPA Filter Vacuum
Walk-Off Doormats
Low-Pile Carpeting on Staircases
Insulated Foundation

Moisture-Removing Fans
Low-VOC Cabinetry

HIGH POINT BREATHE EASY HOMES
Poll Time!
EPA Indoor Air Plus Certification
Indoor airPlus Partners; 17,000 certified homes
Energy efficiency can reduce health risks

- Insulation Air Sealing
  - Warmer drier air, improved indoor temperatures & relative humidity
  - Fewer heat or cold related deaths
  - Less hypertension, heart disease

- Heating System Upgrades
  - Less moisture, mold, particulates, pollutants, combustion by-products, allergens
  - Fewer asthma symptoms, respiratory risks, COPD
  - Fewer heart disease risks
  - Fewer cancer risks due to radon, formaldehyde, other sources
  - Less stress, better mental health

- Ventilation Vent Dryers
  - Lower bills, better comfort

- Efficient Cooking Appliances

Source: E4TheFuture “Occupant Health Benefits of Residential Energy Efficiency”
80% think energy efficient homes are healthier homes.
Connecting the dots!

Craig Foley

Real Estate Consulting & Sales with LAER Realty Partners, Chief Sustainability Officer LAER Realty Partners
Three HPH Projects
346 Highland, Weston MA

Anticipated HERS Score
Low 20s
27 Madison Ave. Cambridge, MA

HERS Score 34 with 8 kWPV added above garage/artist studio
-1 HERS score
152-158 Highland St. Roxbury, MA

HERS Scores -14 to -22

E+ Green Building Program
One other driver worth mentioning – increased cognitive performance.
One other driver worth mentioning – increased cognitive performance

Green office environments linked with higher cognitive function scores”

- crisis response (97% higher scores in green conditions and 131% higher in green+)
- strategy (183% and 288% higher)
- information usage (172% and 299% higher)
- when researchers looked at the effect of CO₂—not normally thought of as a direct indoor pollutant—they found that, for seven of the nine cognitive functions tested, average scores decreased as CO₂ levels increased to levels commonly observed in many indoor environments
Monetized Health Benefits of EE

“Monetized benefits for observed occupant health improvements and reduced healthcare use exist at the national level, and are being considered in some state energy program cost-effectiveness decisions, with values over $1000 per household unit per year.”

Table 1. Health Benefits of Residential Energy Efficiency
Summary: 25 recent studies

<table>
<thead>
<tr>
<th>Reduced Respiratory Symptoms</th>
<th>Reduced Other Health Risks (examples)</th>
<th>Reduced Emergency Dept. Visits or Hospitalizations</th>
<th>Improved Indoor Air Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>Colds, Rhinitis</td>
<td>Asthma Other respiratory</td>
<td>Moisture Condensation</td>
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<tr>
<td>COPD</td>
<td>Headaches</td>
<td></td>
<td>VOCs</td>
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<td>Bronchitis</td>
<td>Heart disease</td>
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<td>Moisture/Mold</td>
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<td>Throat irritation</td>
<td>Hypertension</td>
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<td>Dust allergens</td>
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<td>Nasal allergies</td>
<td>Sinusitis</td>
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<td>Particulates</td>
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<td>Fatigue</td>
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<td>Formaldehyde</td>
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<td></td>
<td>Mental health</td>
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<td>Radon</td>
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<td>Lung cancer*</td>
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<td>*estimated based on exposure reductions</td>
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</table>

*italics: negative outcomes
COPD: Chronic Obstructive Pulmonary Disease; VOCs: Volatile Organic Compounds
Shameless plugs -

April 4-5 GBAR, Reading, MA
April 9-10 NHAR, Concord, NH

346 Highland Street, Weston, MA Grand Opening Sunday, April 14th from 1-4 PM
Save the Date

You & HELIX  ❤️  April 24  @ 1:00PM  ❤️  Invite to follow
Resources

**US DOE Better Buildings**
[https://betterbuildingssolutioncenter.energy.gov/home-energy-score/home-energy-score-real-estate](https://betterbuildingssolutioncenter.energy.gov/home-energy-score/home-energy-score-real-estate)

**NEEP**
[http://neep.org/initiatives/energy-efficient-buildings/green-real-estate-resources](http://neep.org/initiatives/energy-efficient-buildings/green-real-estate-resources)

**NASEO**
[https://empress.naseo.org/](https://empress.naseo.org/)
HELIX
Home Energy Labeling Information eXchange