What is NYPH?

Formed in 2010, NY Passive House (NYPH) is working to promote a healthy, comfortable and energy-efficient built environment through the promotion of the Passive House building standard. NYPH is an independent not-for-profit organization that facilitates the exchange of information and experiences, among local, national and international practitioners of the Passive House building standard.

Join us for the 11th International Passive House Days and get a first hand experience of the many advantages Passive Houses offer in the New York region!
PASSIVE HOUSE CONCEPT

To reduce our buildings’ operational energy demand to an optimized extent through passive measures and components.

- airtightness
- continuous insulation
- heat recovery ventilation
- solar heat gains
- solar shading
- incidental internal heat gains.

photo credit: sgbuild.com
GADGETS ARE SECONDARY
PASSIVE HOUSE COMFORT
BIG ENERGY REDUCTION

Heating & Cooling 90% (from average existing building stock)
INTEGRATED COMFORT

• Thermally: no drafts
• Quiet: outside noises vanish
• Healthy: best indoor air quality
• Resilient: shelter-in-place
• Affordable: cash positive, security
• Predictable: for optimal integration
occupants influence: the average is important

old buildings

low energy buildings

passive houses

63 row houses in Heidelberg (Bj. 1962)
41 low energy houses Niedernhausen 1991
27 low energy houses, Hessia
22 houses, PH settlement Wiesbaden 1997
32 passive houses Kronsberg 1998

annual heat consumption

[kWh/(m²a)]
POLAR VORTEX EXAMPLE

Living Room Temperature & Humidity
During January 2014 "Arctic Vortex"

Heat turned on here, only

Cramer Silkworth, Baukraft Engineering     Brooklyn, NY
CLEAR ABSOLUTE TARGETS

- Airtightness: 0.6 ACH50 (never too airtight)
- Heating/Cooling Energy: 4.75 kBTU/sf*yr
- Primary Energy: 38.0 kBTU/sf*yr
WE CAN DO BETTER, TODAY

CLIMATE BLOWTORCH
Addresses Climate Crisis

Credit: Urban Green Council, 90 by 50

Credit: NYC Mayor Bill de Blasio
A PARADIGM SHIFT

INEFFICIENT & UNCOMFORTABLE TO VERY EFFICIENT & HIGH COMFORT
FIRST PASSIVE HOUSE: 1990
QUALITY ASSURANCE

Energy Model Methodology

Trained Professionals

Certified Components

Quality Assured Certified Passive House

(www.passivehouse.com)
A METHODOLOGY

1. Luftdichtheit
   Airtightness

2. Wärmedämmung
   Thermal insulation

3. Wärmebrückenfreiheit
   Thermal-bridge-free

4. Passivhausfenster
   Passive House windows

5. Comfort ventilation with highly heat recovery
IT’S GLOBAL

from AUSTRIA to CHINA

OVER 50 PASSIVE HOUSES COMPLETE OR UNDERWAY IN NYC REGION
AND EVERYTHING IS POSSIBLE

Apartment Buildings, Swimming Pools, Offices, Healthcare Centers, Schools, Homes, Courts, Prisons, Factories, Hospitals, Sport Halls, Stores, Laboratories, New Construction, Historic Retrofits
A Passive House Case Study
PasivXperimental

• **History**
  – 20+ condo projects
  – Industrial & commercial projects too
  – Design/build firm

• **Passive House**
  – 2008 got interested
  – 2010 training for team
  – 2010 Dresden conference
  – 2011 Innsbruck conference

• **Why Passive House?**
  – Simplified solutions
  – Energy independence
  – Product differentiation
  – Clear metrics
  – Fun & interesting
Case Study: 138 Sackett Street
The Basic Numbers

- 9,897sf Gross Area
- 8 condo units
- Costs incl. Passive House
  - Hard costs = $232/SF
  - Soft costs = $50/SF
  - Land = $151/SF
  - Total costs = $434/SF
  - Gross sales = $1,000/SF
Envelope/Structure (+$95K)

- Airtightness (+$15K)
  - Double layer airtightness
  - Liquid membranes
- Insulation (+$30K)
  - 6” added insulation to walls
  - Added insulation at cellar and roof
- Thermal Breaks (+$20K)
  - Stainless steel connections
- Windows & Doors (+$30K)
  - Triple-glazed & airtight
Plumbing (-$10K)

- No gas service or piping (-$20K)
- Dedicated electric heat pump hot water heaters (+10K)
Mechanical (+$30K)

- Heating and Cooling from dedicated split air-cooled heat pumps using smaller compressors (-$15K)
- Substitute heat recovery ventilation for exhaust only ventilation (+$45K)
Overhead/Contingency (+$40K)

- Greater supervision & quality control (+$40K)
- Contingency (No Add)
Arch/Eng/Consultants (+$30K)

• Greater supervision & quality control (+$30K)
Cost Difference

Base Case
- **Hard Costs**
  - Total $2,141,104
- **Soft Costs**
  - Total $464,850

Passive House Case
- **New Hard Costs (+7%)**
  - Total $2,296,104
- **New Soft Costs (+6%)**
  - Total $494,850
Going to Market

• Negatives
  – Brokers & Public largely ignorant of PH.
Going to Market

• Positives
  – Quality is evident and appreciated
  – Healthy living
  – Exceeds expectations
  – Value is less risky
  – Positive legacy
Projected Operating Costs

• Conservative Metrics for Offering
  – Approx $280/mo for all utilities. (Calc Actual <$100/mo)
  – Buying comfort & efficiency. Economic benefit a bonus.
FIND OUT MORE

www.nypassivehouse.org

www.naphnetwork.org

www.passivehouse-international.org

www.passivehouse.com