BIOMIMICRY
LEVERAGING NATURE’S GENIUS IN DESIGN

WHAT IS BIOMIMICRY?
The Conscious Emulation of Nature’s Genius

Conscious emulation of nature’s genius
New way of viewing and valuing nature

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Lecture, 2014
New way of viewing and valuing nature

What can be learned rather than extracted

Form  Process  Ecosystem

Polar Bear

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Lecture, 2014
Biomimicry.net | AskNature.org

Polar Bear Fur

Singapore Art Center | Atelier 1

Temperate Deciduous Forest Floor

Entropy | Interface Carpet

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Lotus Leaf

Lotus Leaf Surface Nanostructure

Lotusan Exterior Paint

Bee Hive
Geometric Properties of Hexagons

WineHive

Otter

Oil Layer + Capillary Action of Otter Fur

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Analogy Fabric | Nikwax

Water, CO2, Sulfur, & Nitrogen Cycles

Wildwood Brewery (before)

Wildwood Brewery (after)

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Where do biomimicry ideas come from?

8 HALLMARKS OF BIOMIMETIC DESIGN
WHAT IT MEANS TO DESIGN FROM NATURE'S GENIUS

Getting outside is part of the job

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Seeking the right question before the right answer

BIOMIMETIC DESIGN HALLMARK 02

What do you want to design?

What do you want to design?
What do you want your design to DO?
The solution space gets broadened with biological research

BIOMIMETIC DESIGN HALLMARK 03

When comparing the human patent database with nature’s solutions, there is found only a 12% overlap in common solutions.

Biomimetics: its practice and theory, Julian F. V. Vincent*, Olga A. Bogatyreva, Nikolaj R. Bogatyrev, Adrian Bowyer and Anja-Karina Pahl

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“Each species is a masterpiece…”
E.O. Wilson

Biomimicry.net | AskNature.org

Biologists are key design team member
BIOMIMETIC DESIGN HALLMARK 04

How would nature collaborate?

How would nature regulate resources?
How would nature manage forces?

How would nature manufacture?

How would nature create color?

How would nature synthesize systems?
How would nature package and dispense?

How would nature create habitat?

Quieting our cleverness
Nature as Mentor
Design lessons from nature

Well-Adapted vs. Mal-Adapted Design
(instead of Sustainable vs. Unsustainable)

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we are nature

Gravity, sunlight, water

Limits and Boundaries

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How well do our designs “fit in” to Earth’s operating conditions?

“Dynamic non-equilibrium” is embraced

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The planet is not moving towards an ordered state. Conditions on Earth are constantly changing. They are dynamic.

Dayna Baumeister, Biomimicry 3.8

Creating conditions conducive to life is the ultimate goal
BIOMIMETIC DESIGN HALLMARK

“When the forest and the city are functionally indistinguishable, then we know we’ve reached sustainability.”

Janine Benyus
American natural scientist, writer, author of Biomimicry: Innovation Inspired by Nature, co-founder Biomimicry 3.8

Dynamic non-equilibrium

Building a vision to design towards
WHAT WE’RE EXCITED ABOUT RIGHT NOW
UNTAPPED DESIGN POTENTIAL WITHIN BIOLOGICAL INTELLIGENCE

Swarm Behavior

Networks

Resilience Practices

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30 million soft spoken species

THANK YOU
for your interest in biomimicry!

To learn more:
Free Download – Biomimicry DesignLens