14 Patterns of Biophilic Design

Interface®

Introduction 3

Nature In the Space

Natural Analogues

Nature of the Space

At Interface, we've been fascinated by nature for a long time. Since our first commitment to sustainability, being good to our surroundings has been our top priority.

Later, we took cues from nature when it came to product design and production. Carpet tiles with a 'random design' are quicker to install and generate less waste during installation and maintenance.

In recent years, we have focused on the influence nature can have on the users of the spaces we contribute to. The 'biophilic design' trend is aimed at improving (interior) design to create surroundings that let people thrive. Office workers report improved creativity, productivity and wellbeing in spaces that feature natural elements or a connection to nature.

In 2014, Terrapin Bright Green published The 14 Patterns of Biophilic Design – Improving Health and Well-Being in the Built Environment. This white paper categorises the different relationships between natural elements and humans in the built environment. The patterns can be categorised into three types: nature in the space, natural analogues and nature of the space.

This booklet expands on the work of Terrapin Bright Green with examples and practical tips to incorporate the patterns into your designs. We hope this book can be an inspiration.

Nature in the Space

Nature in the Space describes the direct, physical and transient presence of nature in a space or place.
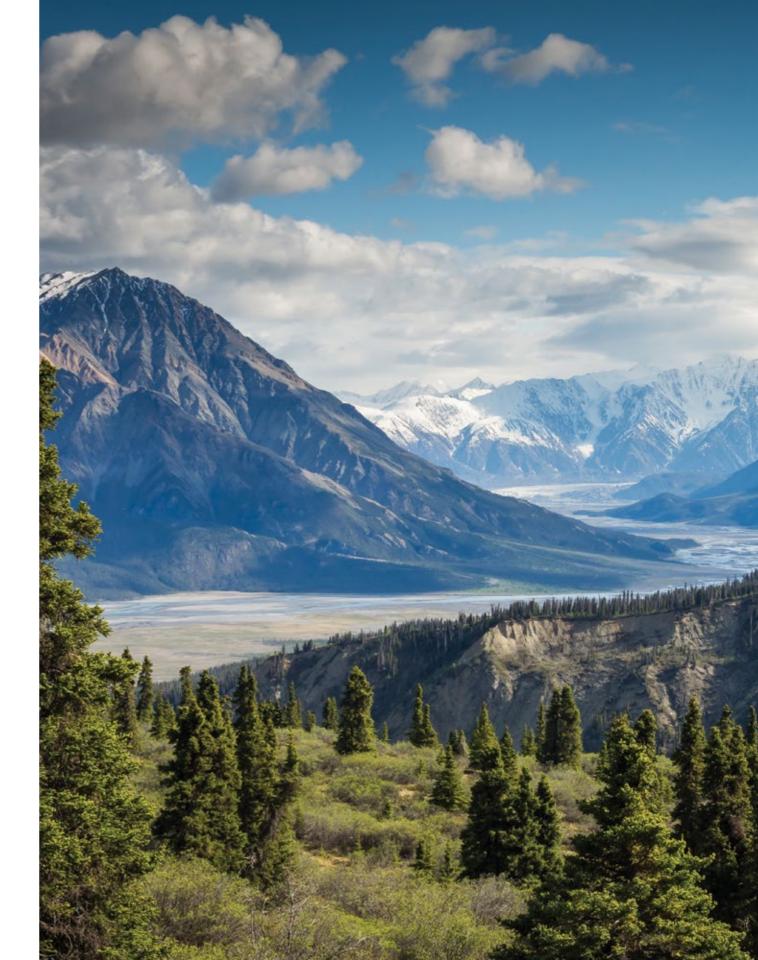
1.

Visual connection with Nature

Pattern

A view to elements of nature, living systems & natural processes.

Experience

- Feels whole
- Grabs one's attention
- Stimulating or calming
- Conveys a sense of time, weather and other living things

1. Visual connection with Nature

Practical Examples

- Work areas next to windows with a view to natural elements (trees, mountains, water, sky)
- Plants, flowers & green walls in the office space
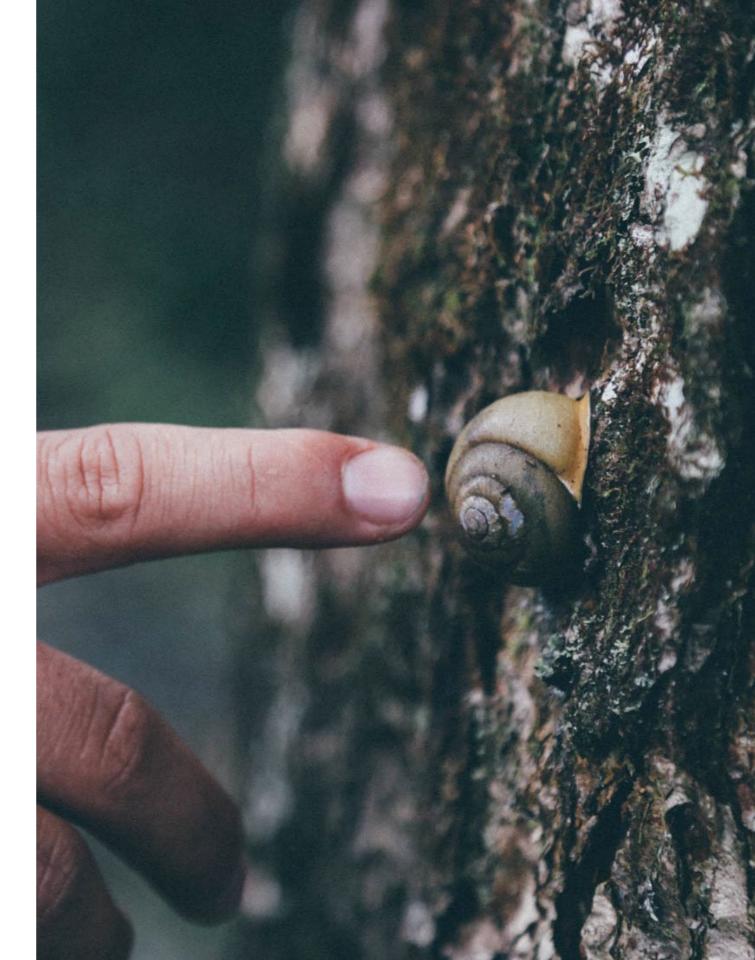

Image © art aqua

Interface, Net Effect

2. Non-Visual Connection with Nature

Pattern

Other senses than seeing - hearing, feeling, smelling, tasting that cause an intended and positive reference to nature, living systems or processes.
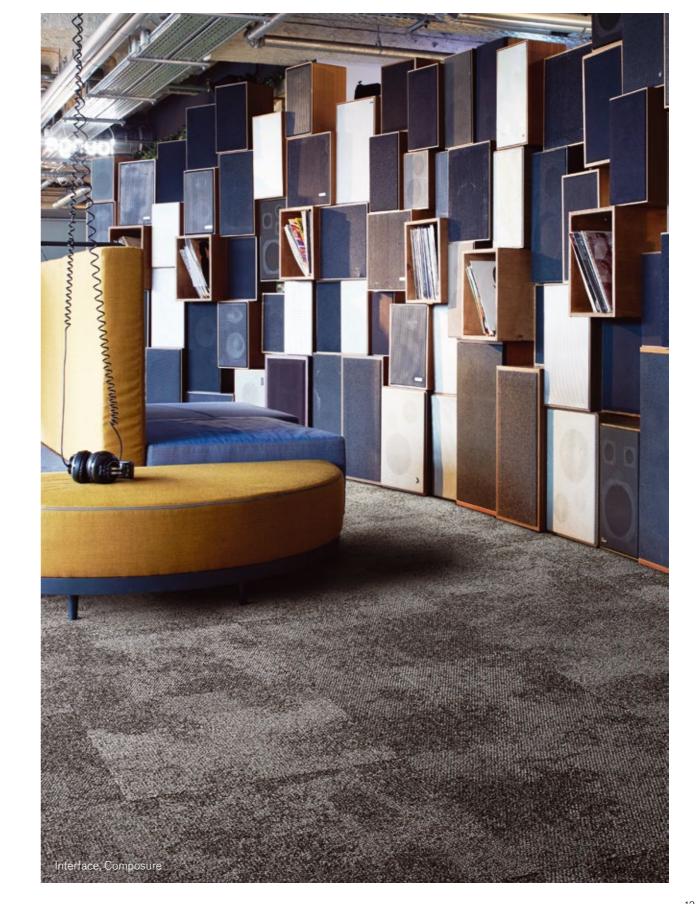
Experience

- Feels fresh & well-balanced
- Ambient conditions are perceived as complex & variable but also familiar & comfortable
- Sounds, aromas, and textures are reminiscent of being outdoors in nature

2. Non-Visual Connection with Nature

Practical Examples

- Sound (animals, conversation, music, water)
- Smells (perfume, fragrant plants)
- Touch (hand rails, water for cooling the space)

Interface, Composure

3. Non-Rhythmic Sensory Stimuli

Pattern

Random & temporary connections with nature that may be analysed but not predicted precisely.

Experience

- Feels as if you are suddenly exposed to something special, something fresh. Interesting, stimulating and energising
- A brief but welcome distraction

3. Non-Rhythmic Sensory Stimuli

Practical Examples

- Indoor: kinetic facades (facades with moving elements that can be seen from corner of the eye), interactive design displays
- Outdoor: swaying grasses, falling water and the buzz of passing insects

Ulemiste Shopping Centre © Oleg Harchenko
Interface, Net Effect

4. Thermal / Airflow Variability

Pattern

Subtle changes in air temperature, relative humidity, airflow across the skin, and surface temperatures that mimic natural environments.

Experience

- Feels refreshing, active, alive, invigorating and comfortable.
- Feeling of both flexibility and a sense of control

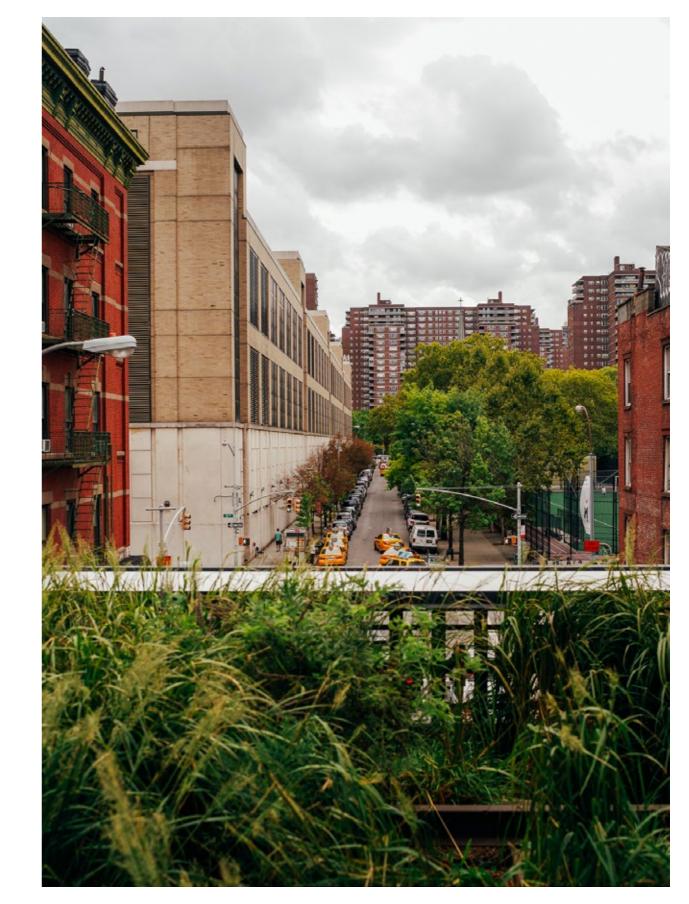# 4. Thermal / Airflow Variability

Practical Examples

- Windows that can be opened manually & controlled individually
- Workspaces with outdoor balconies
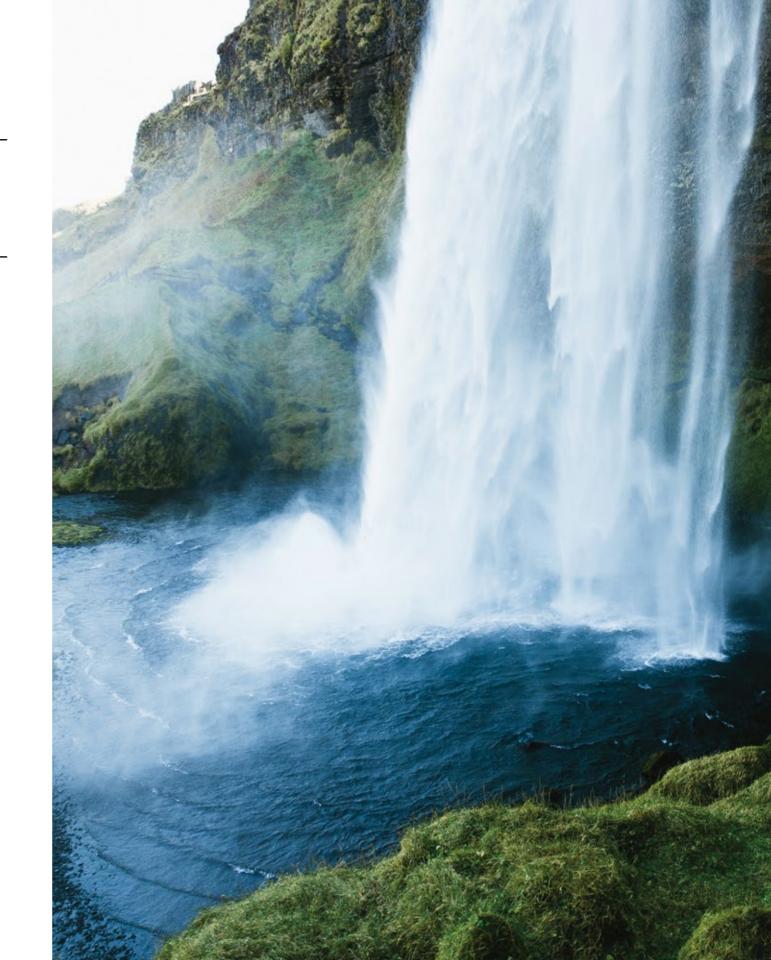- Visible mechanical ventilation

5. Presence of Water

Pattern

A condition that enhances the experience of a place through the seeing, hearing or touching of water.

Experience

- Feels powerful, fascinating and attractive
- Fluidity, sound, lighting, closeness, and accessibility each contribute to whether a space is calming, stimulating or both
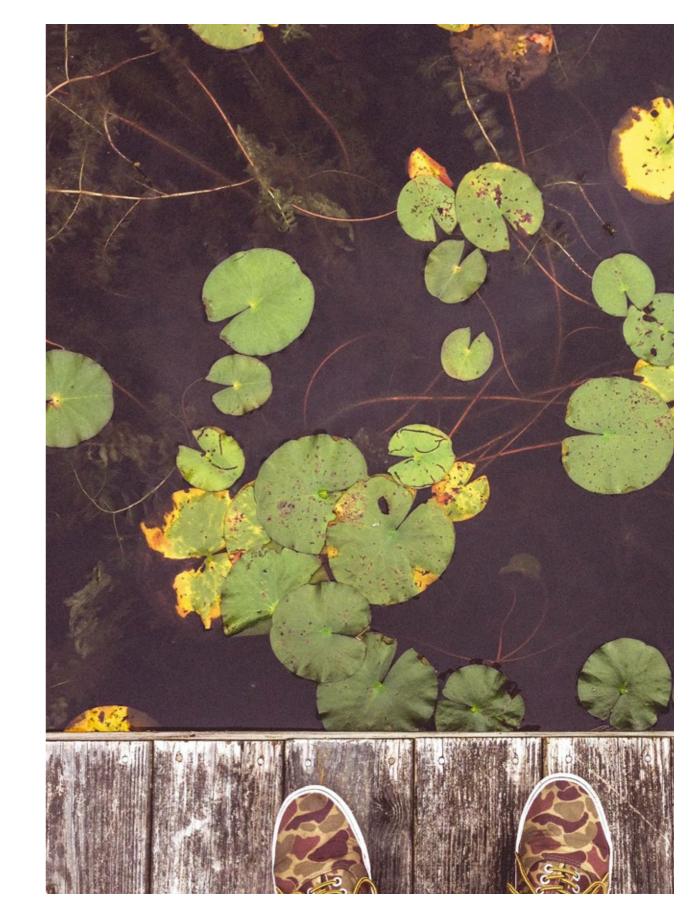
5. Presence of Water

Practical Examples

- Water base in lobby
- Water walls
- Fountains
- Aquarium
- Paintings of Ocean life
- The colour blue

Image © art aqua

6. Dynamic and Diffused Light

Pattern

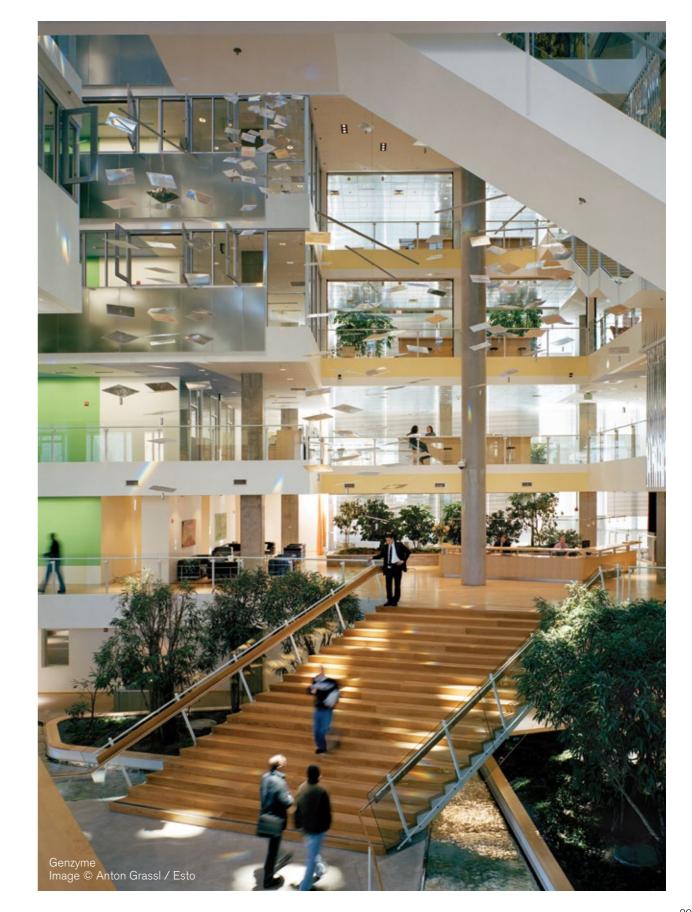Provide varying intensities of light & shadow that change over time to create conditions that appear in nature.

Experience

- Shows signs of time and movement
- Causes feelings of drama and intrigue
- Buffered with a sense of time

6. Dynamic and Diffused Light

Practical Examples

- Daylight from multiple angles (glass ceilings, windows)
- Firelight
- Light distribution
- Ambient diffuse lighting on walls and ceilings
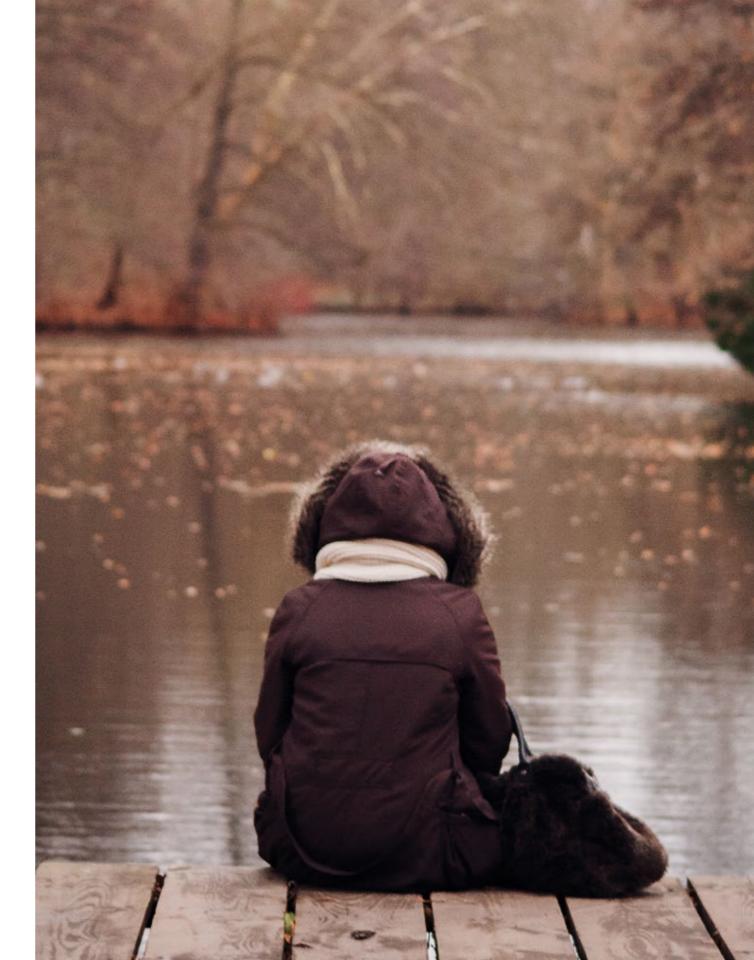- Personal user dimmer controls

Interface Monochrome

Genzyme
Image © Anton Grassl / Esto

7. Connection to Natural Systems

Pattern

Awareness of natural processes, especially seasonal and temporal changes characteristics of a healthy ecosystem.
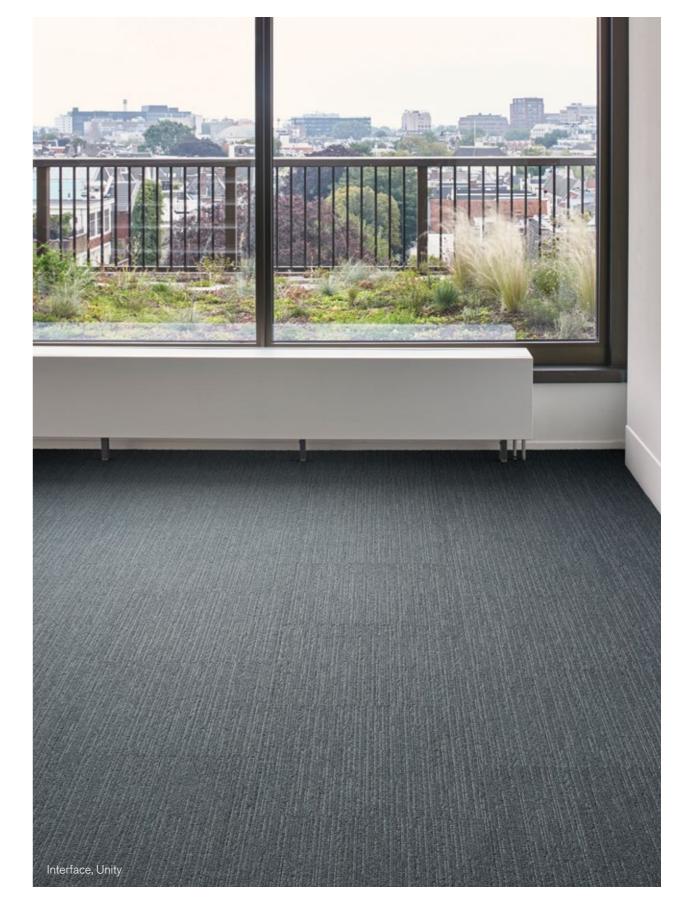
Experience

- Evokes a relationship to a greater whole
- Makes one aware of seasonality and cycles of life
- Relaxing, nostalgic, profound or enlightening, and frequently anticipated

7.

Connection to Natural Systems

Practical Examples

- Offices with patios or roof top gardens
- Native plantings that grow & die with the seasons

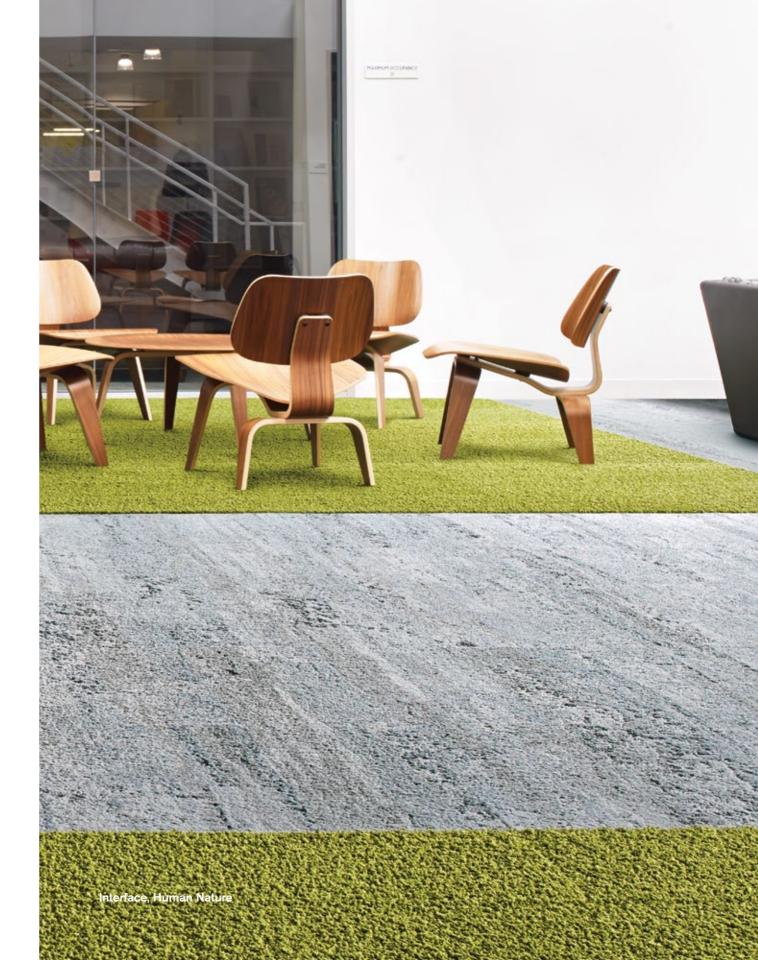Interface, Heuga 580

Interface, Unity

Natural Analogues

Natural Analogues are organic, non-living and indirect evocations of nature.

Objects, materials, colours, shapes, sequences and patterns found in nature, are present in artwork, ornamentation, furniture, décor, and textiles in the built environment.
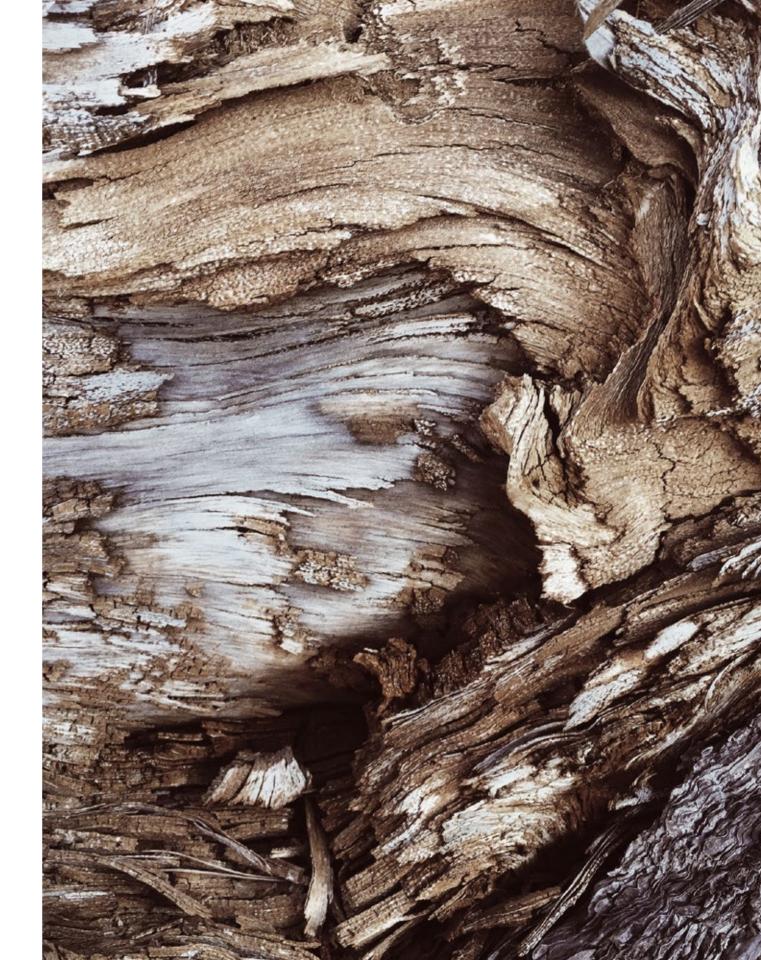
Interface, Human Nature

8. Biomorphic Forms and Patterns

Pattern

Symbolic references to contours, patterns, textures or numerical arrangements that exist in nature.

Experience
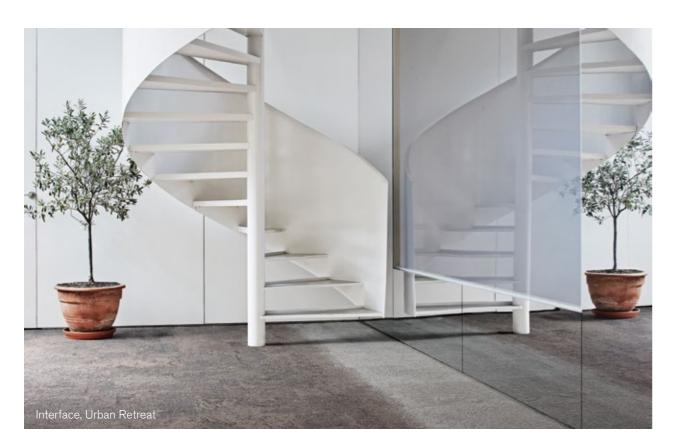
- Feels interesting and comfortable
- Possibly feels fascinating, attractive, thoughtful or even absorptive

8. Biomorphic Forms and Patterns

Practical Examples

- Organic shapes
- Natural colours
- Spirals
- Fractals
- Curves
- And, other geometrical forms

Interface, Urban Retreat

Image © Bergbahnen Ellmau-Going GmbH & Co. KG
Panoramarestaurant Bergkaiser. Interface, Composure

9. Material Connection to Nature

Pattern

Material and elements from nature that, through minimal processing, reflect the local ecology or geology to create a distinct sense of place.

Experience

- Feels rich, warm and authentic
- Sometimes stimulating to the touch

9. Material Connection to Nature

Practical Examples

- Materials that reflect the native ecology, such as specific types of wood, clay, leather, stones, wool and other fabrics.

Interface, Urban Retreat

10. Complexity and Order

Pattern

Rich sensory information that adheres to a spatial hierarchy similar to those encountered in nature.

Experience

- Feels engaging and information rich
- Intriguing balance between boring and overwhelming

10. Complexity and Order

Practical Examples

- Repetitive & symmetrical shapes
- Pattern order in wallpaper, carpet design
- Exposed structure & mechanical systems facades,
- Spandrel & window hierarchy
- Floor plan

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Interface, Equal Measure

Nature of
the Space

The strongest experiences are achieved
through the creation of obscured views and
revelatory moments; co-mingled with patterns
of Nature in the Space and Natural Analogues.

Interface, Touch & Tones 101, 102 & 103

11. Prospect

Pattern

An unblocked view over a distance for surveillance & planning.

Experience

- Feels open and freeing
- Gives a sense of safety and control, particularly alone or when in unfamiliar environments

11. Prospect

Practical Examples

- Views (longer than 6m)
- Partition heights
- Transparent materials
- Staircase landings
- Elevated planes
- Open floorplans

Buhl Data Service GmbH. Image © BOS Buro- und Objekteinrichtungen GmbH
Interface, Human Nature

Th. Geyer GmbH & Co. KG © Snezana Tasic Fotografie, Stuttgart
Interface, Urban Retreat

12. Refuge

Pattern

A place for withdrawal, from environmental conditions or the main flow of activity, in which the individual is protected from behind and overhead.

Experience

- Feels safe & provides a sense of retreat & withdrawal – for work, protection, rest or healing
- Feels separate or unique from surroundings
- Spatial characteristics can be thoughtful, embracing & protective but not necessarily disconnected

12. Refuge

Practical Examples

- Modular refuge (small protection like high-back chairs)
- Partial refuge (several sides covered) reading nooks, booth seating etc…
- Bay window seats
- Canopy beds
- Gazebos
- Canopy trees
- Arcades & covered walkways or porches
- Extensive refuge (sleeping pods, tree houses)

Interface, Touch & Tones 101, 102 & 103

OffX CoWorking © If5, Andreas Rudolph
Interface, Urban Retreat

13. Mystery

Pattern

The promise of more information achieved through partially hidden views or other sensory devices that stimulate the individual to travel deeper into the environment.

Experience

- Tangible sense of anticipation, or of being teased
- Offers the senses a kind of denial and reward that make one want to investigate further
- Makes one want to understand and / or explore

13. Mystery

Practical Examples

- Labyrinths
- Winding paths
- Peek-a-boo windows
- Auditory stimulation from an imperceptible source
- Hidden views from the focal object

SCA, Urban Retreat

RIE Credit Agricole Saint Quentin

14. Risk/ Peril

Pattern

An identifiable threat coupled with a reliable safeguard.

Experience

- Feels exciting, and with a suggested threat, maybe even a little harmful or negative
- Feeling of danger, but intriguing all the same, worth exploring and possibly even irresistible

14. Risk/ Peril

Practical Examples

- Heights
- Gravity
- Water
- Double-height atrium with balcony or catwalk
- Transparent railing or floor pane
- Passing under, over or through water
- Life-sized photography of spiders or snakes

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Gebruder Weiss. Interface, Biosfera Boucle

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our promise to eliminate any
negative impact our company
may have on the environment
by the year 2020.