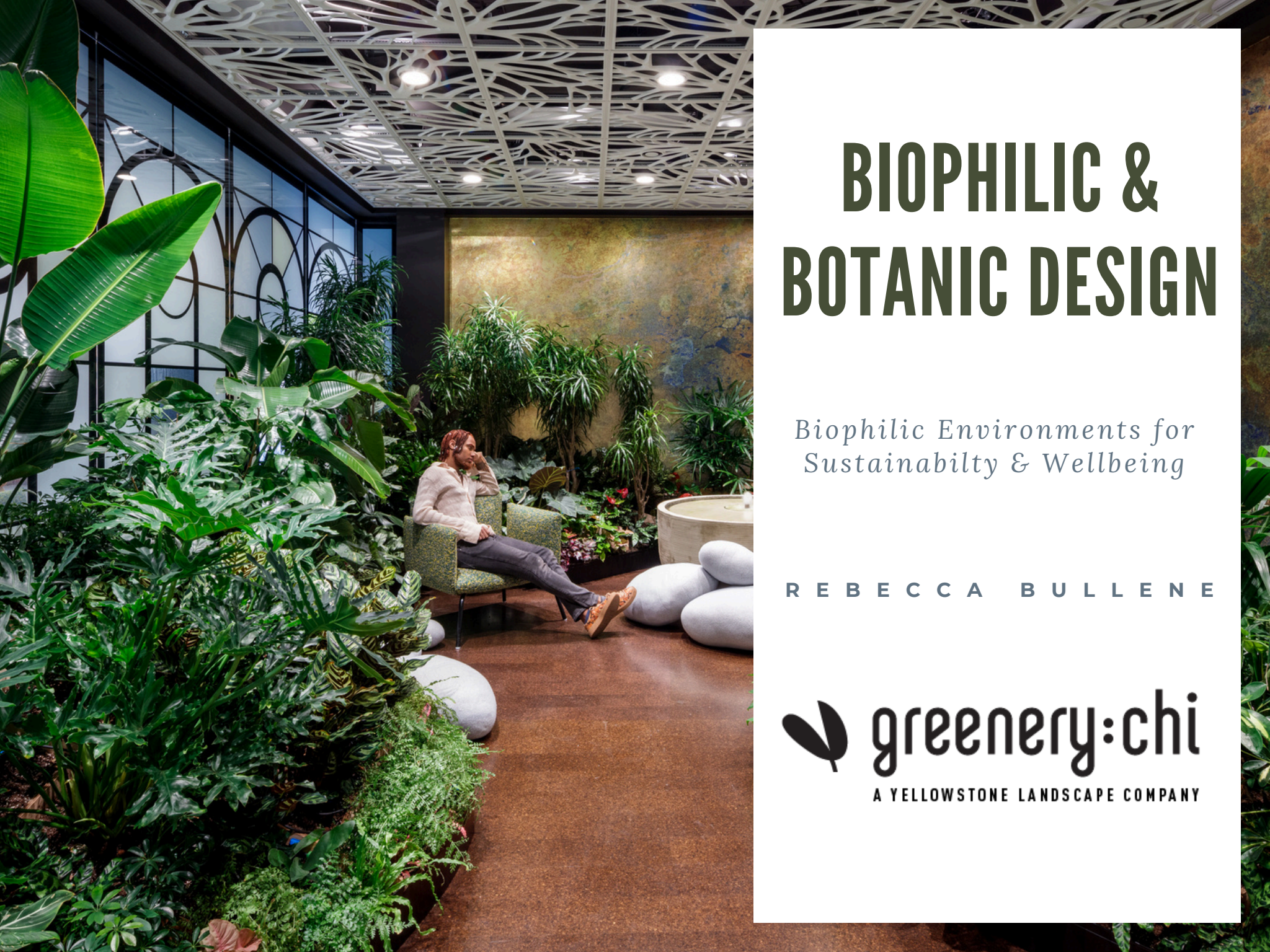


BIOPHILIC & BOTANIC DESIGN

Biophilic Environments for Sustainabilty & Wellbeing

REBECCA BULLENE

greenery:chi

A YELLOWSTONE LANDSCAPE COMPANY



WHAT IS BIOPHILIA?

The biophilia hypothesis suggests that humans possess an innate tendency to seek connections with nature and other forms of life.



Biophilia fosters a repeated and sustained engagement with nature.

-Stephen Keller



What is

BIOPHILIC DESIGN?

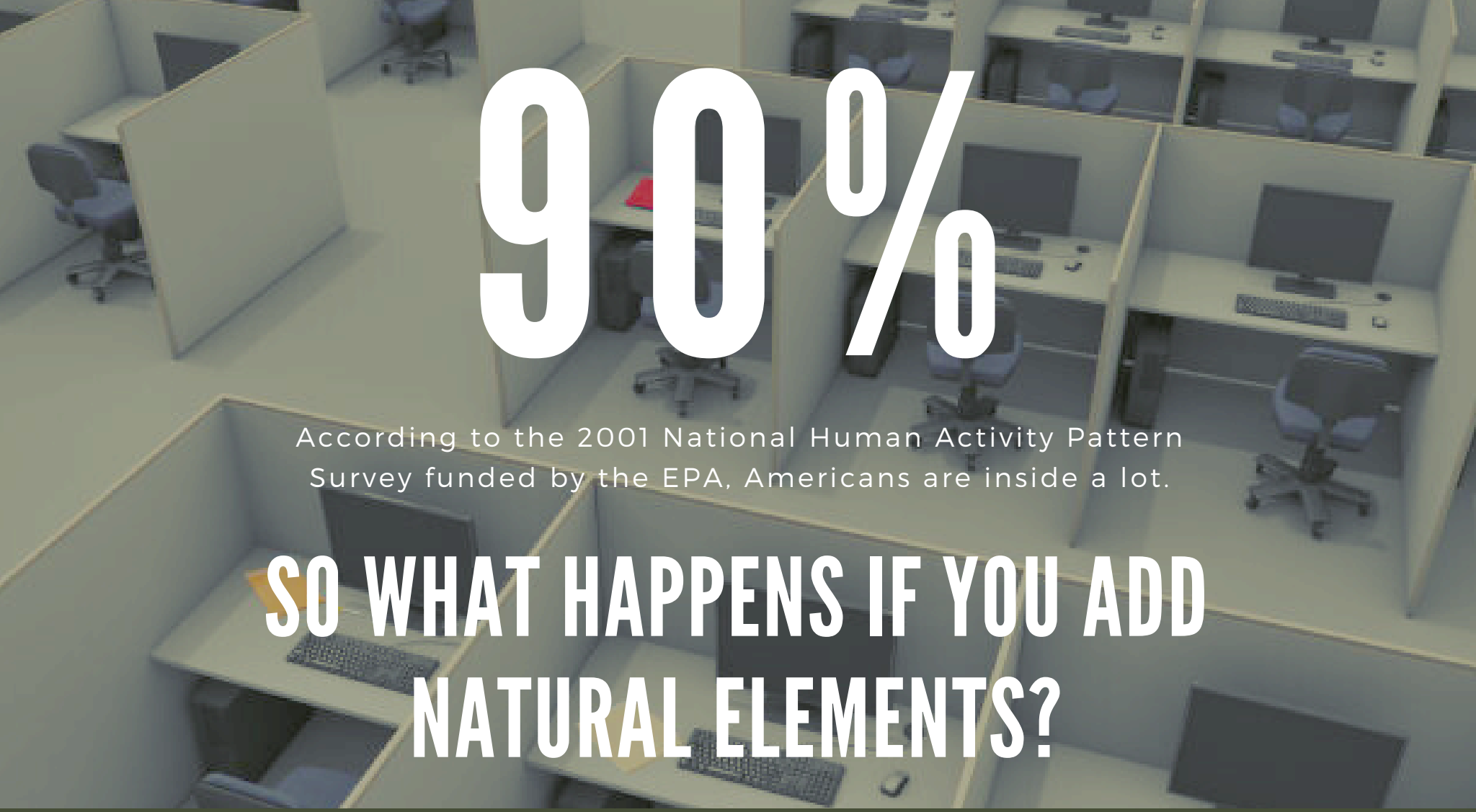
Maintain, enhance and restore the beneficial experience of nature in the built environment.



WHY IS BIOPHILIC DESIGN IMPORTANT?

#1: Our bond with nature is vital to human wellness

#2: How people feel about their space is a crucial factor in how they perform and connect with others



90%

According to the 2001 National Human Activity Pattern Survey funded by the EPA, Americans are inside a lot.

SO WHAT HAPPENS IF YOU ADD NATURAL ELEMENTS?

15% +	6% +	15% +	DECREASE
Well-being	Productivity	Creativity	Absenteeism

*Human Spaces report into the Global Impact of Biophilic Design in the Workplace Report

CATEGORIES OF BIOPHILIC DESIGN

1

Nature in the Space

2

Natural Analogues

3

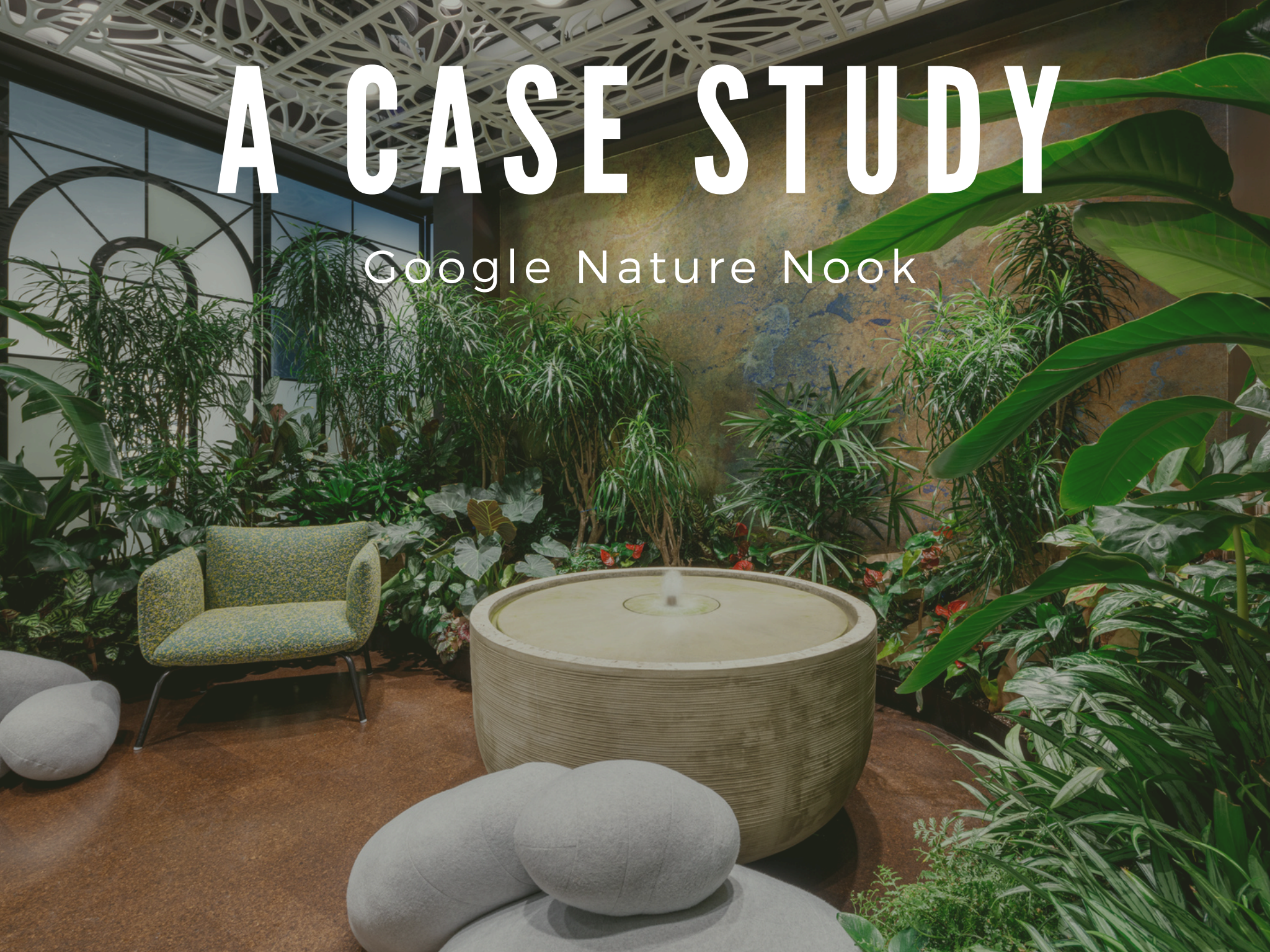
Nature of the Space



NATURE IN THE SPACE

The biggest impact and the hardest to do well




A CASE STUDY
Google Nature Nook

STATS

- Completed October 2022

-Retro fit of underutilized meeting room

- Completely automated watering and lighting

-Highest rated amenity space in Google within 4 weeks of opening











A CASE STUDY

Turner Construction HQ



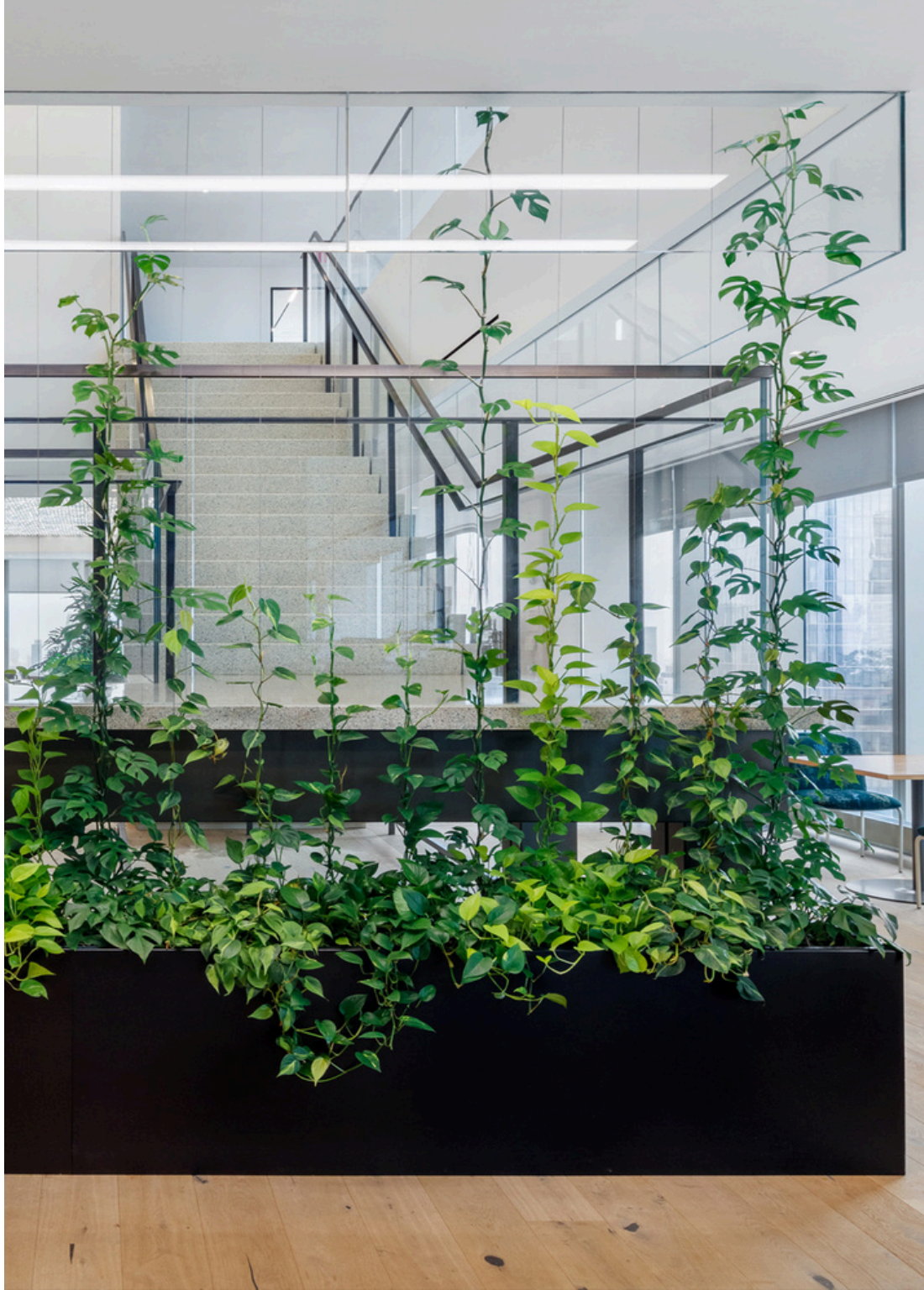
STATS

- Completion date June 2023

Natural analogues throughout the space

- Completely automated watering and lighting

-Minimal footprint, maximum impact











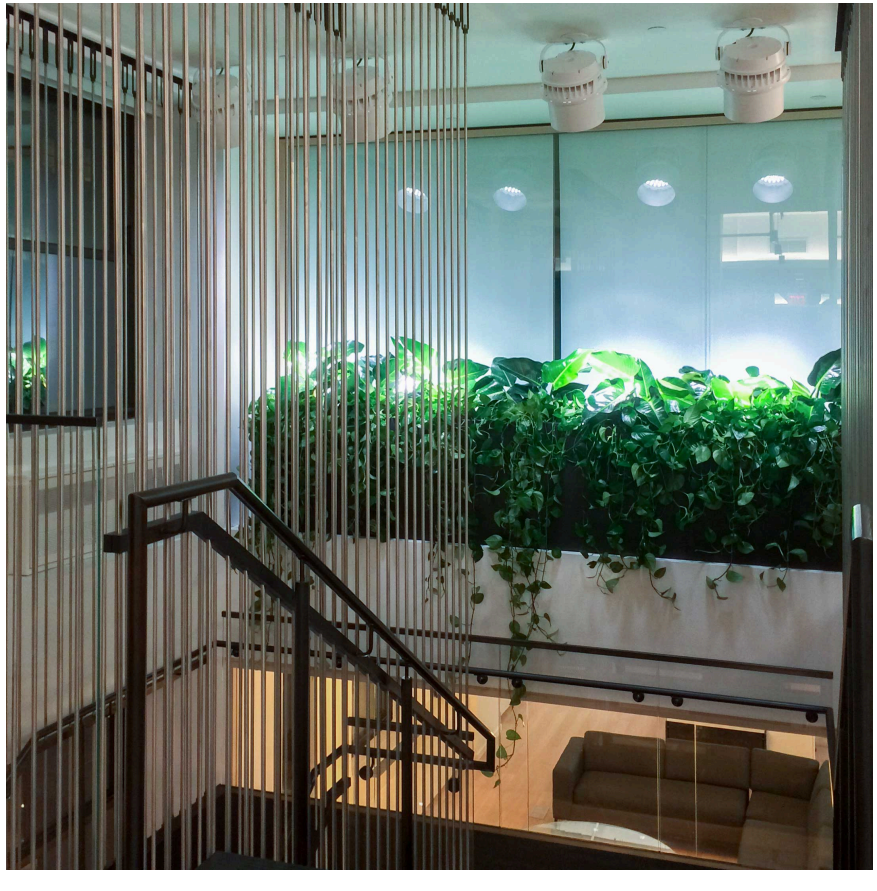
SO HOW DO WE SUCCESSFULLY INCORPORATE MORE LIVE NATURE INTO HUMAN ENVIRONMENTS?

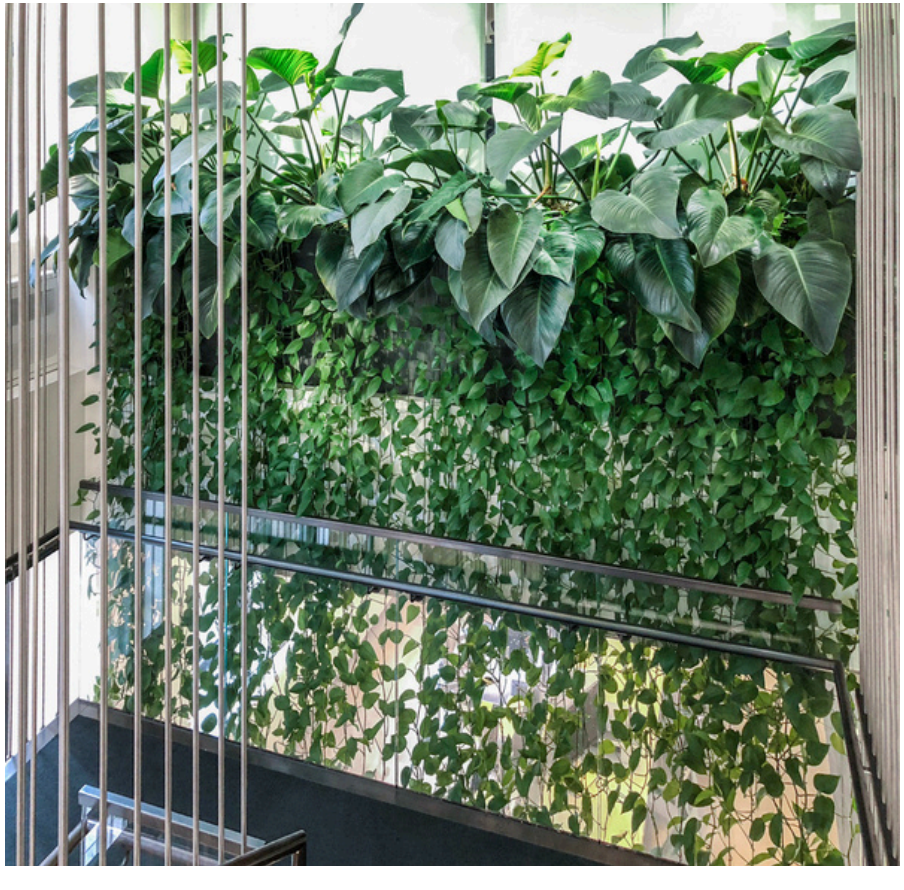


Change the design work flow

DESIGN WITH PLANTS IN MIND

- Consider Lighting
- Access to Water
- Consistency in Care





Consistency is the key

AUTOMATED WATERING & FERTILIZATION





Consistency is the key

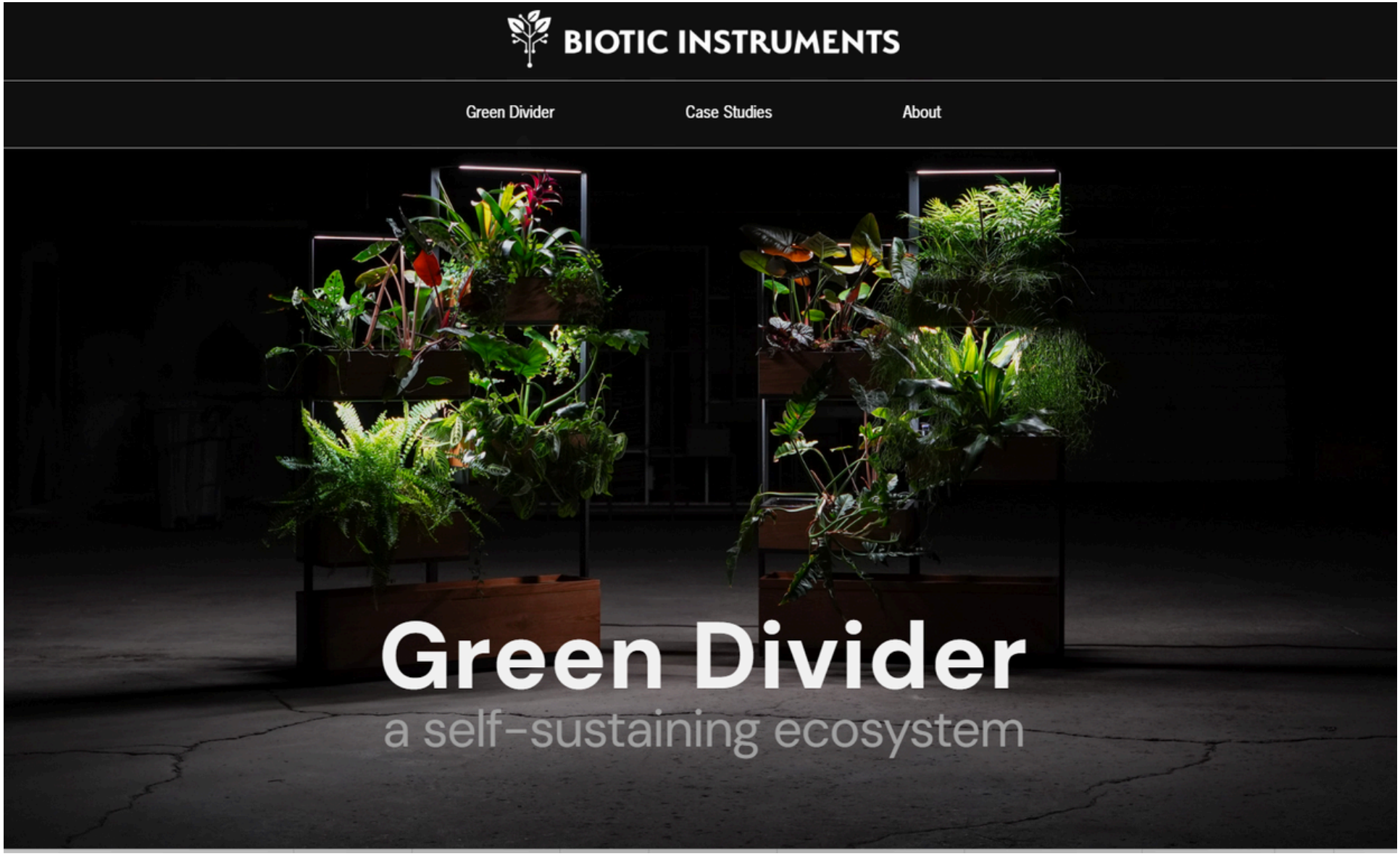
AUTOMATED WATERING & FERTILIZATION





One Plug Solution

GREEN DIVIDER

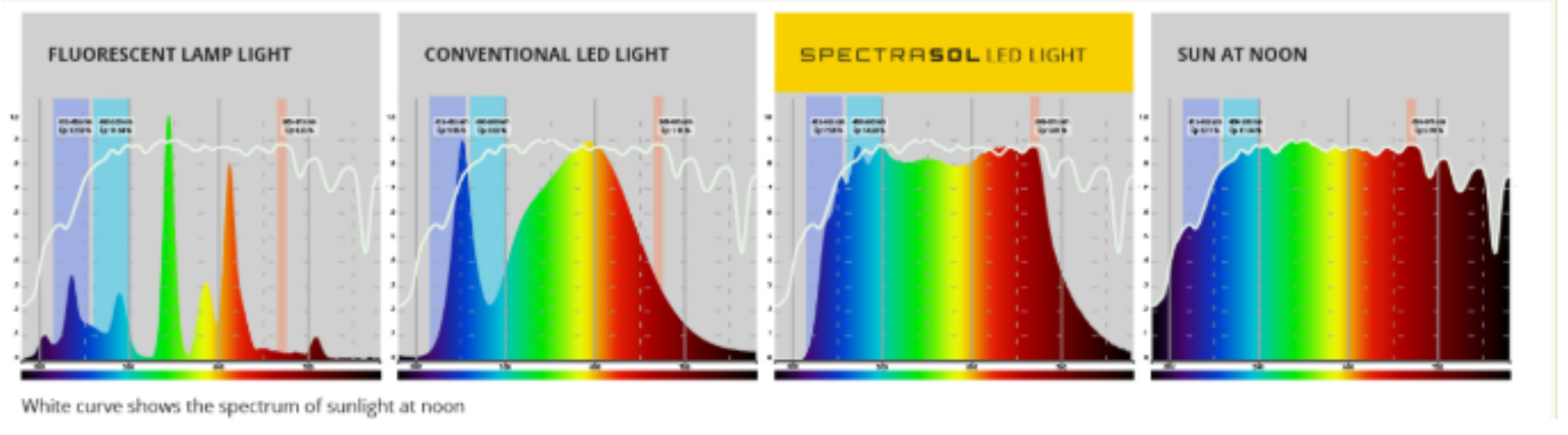


GROW LIGHT REQUIREMENTS:

Intensity and Duration are Key

- Full Spectrum
- 90+ CRI
- 3000K - 5500K
- ~10 Hours per day





LEASED VS. OWNED

	LEASED	OWNED
PROS	- Plants get removed at end of lease term - Cost of plants & maintenance in monthly fee - Good for hospitality where seasonal replacements, design changes are desired	- Can grow with the space - Increased value and growth over time - Allows for specific design to client aesthetics
CONS	- More costly for leases over 1 year - Often leads to plant decline and more time between replacements - Generally only common plants used in design	- May have higher upfront cost (but lower long term cost) - Must find a solution to dispose of plants at lease term end



Retail (Leased)



Custom Installation (Owned)

LEASED

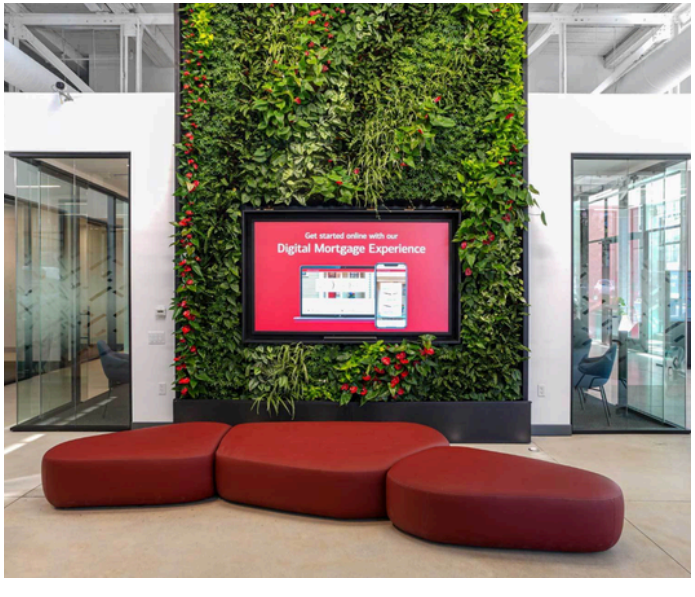


OWNED



STAGED VS. DIRECTLY PLANTED

	STAGED	DIRECTLY PLANTED
PROS	- Easily swap struggling plants - Easy to make seasonal changes	- Can be integrated into architecture - Horticulturally better for plant health - Interesting to watch the plants grow over time (benefits biophilia in full effect)
CONS	- Not optimal for long-term plant health - Higher replacement rate due to plant decline	- Higher cost for high quality soil/drainage - Waterproof planters required - More difficult to replace plants - Heavier planters

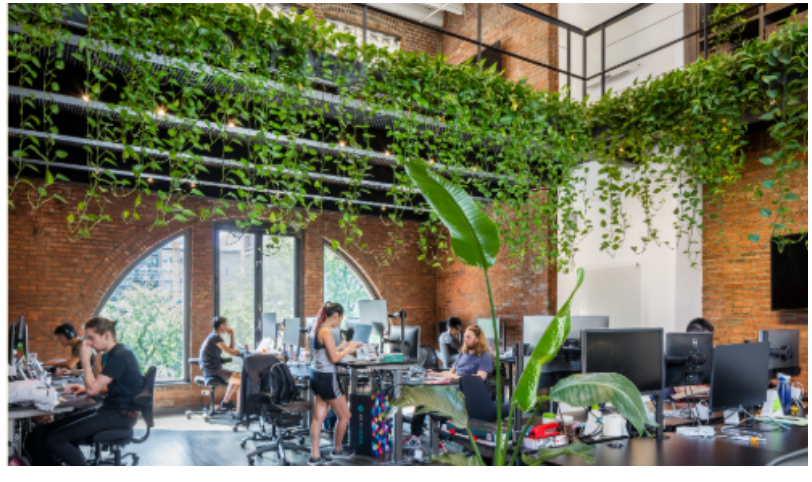




PRESERVED/FAUX VS. LIVING

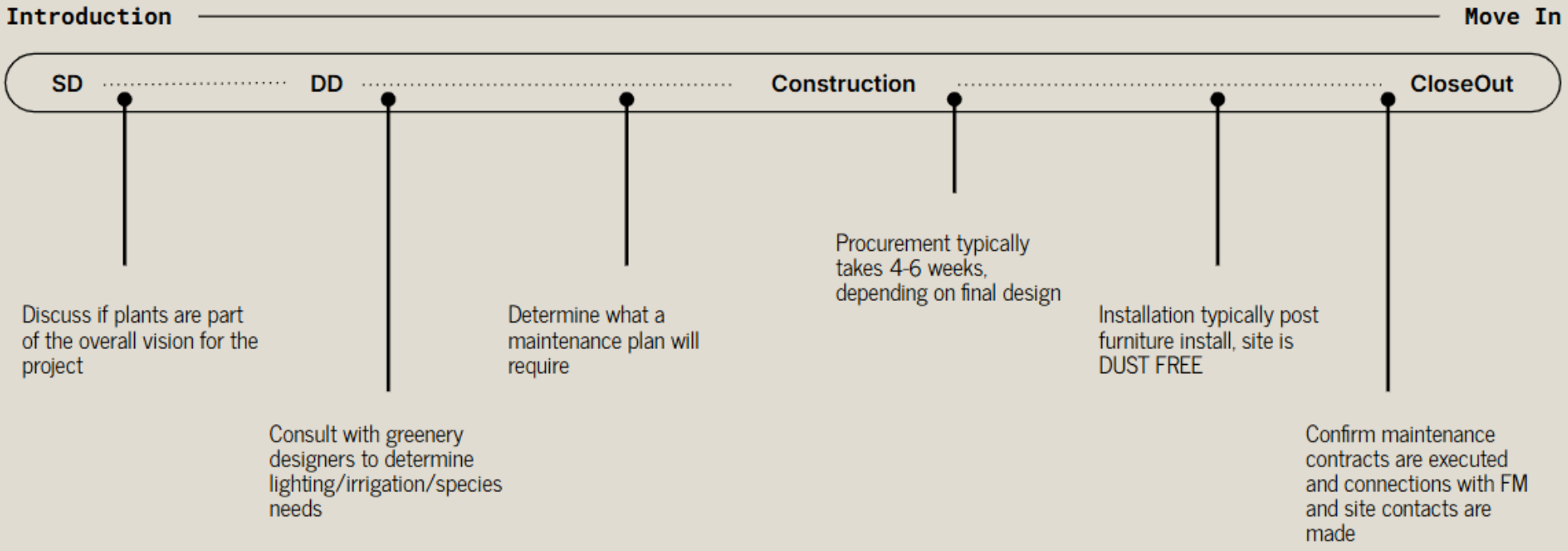
	PRESERVED/FAUX	LIVING
PROS	- Low maintenance (still need to be cleaned)	- Numerous health benefits of live plants (air quality, mental health, sense of wellness, increased productivity) - Creates a sense of “luxury”, quality, and attention to detail
CONS	- Not sustainable (often virgin plastic and unknown off gassing) - Higher upfront cost - Can devalue perceived quality of a space	- Maintenance/Operation costs - Opportunity for pests like fungus gnats - If not cared for properly can degrade the sense of quality of a space





TIMELINE

WHEN SHOULD PLANTS COME TO SITE?





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THANKS FOR LISTENING

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