

Senses Through Time:

interventions for the betterment of the 9-5 worker

Raquel Quintana

An Honors Thesis submitted to the Gerald D. Hines
College of Architecture and Design
in partial fulfillment of the requirements for the degree
of

Bachelor of Architecture

First Reader: Andrew Kudless
Second Reader : Joshua Smith
Third Reader: Hayan Charara, PhD
Thesis Coordinator: Matthew Johnson

University of Houston
May 2022

SENSES

THROUGH TIME

Interventions for the betterment of the 9-5 worker



Honors Thesis 2022

Raquel Quintana

Andrew Kudless

Joshua Smith

CONTENT

Acknowledgments	01
Abstract	03
History of work life	05
The skyscraper	23
Site Information	29
Senses	31
Interventions	35
Daily Curation	
Scheduled Curation	37
User Curation	45
Circadian	
Human in motion	51
Happenings	61
The break	69
Seasonal	
Vegetation	73
Element Interaction	79
Seasons changing	89
Appendix	95
Bibliography	109

ACKNOWLEDGMENTS

I would like to thank a few people that this project would not be the same without. Firstly, Professors Andrew Kudless and Joshua Smith for donating countless hours throughout the semester assisting in the design, teaching me software, and encouraging me to experiment with new materials. In addition, Professor Matthew Johnson for bringing to the surface my love for the senses and emotion in Architecture and Professor Jack Murphy for dealing with us unruly thesis students while editing our work. I am also grateful for the time that Professors Ross Wienert and Roya Plache donated assisting in molding the core ideas of the project.

The models would not be how they are today if it were not for Aaron donating his time, tools, and materials to help make the functioning door knob display, Mariel and Kevin introducing me to felting and donating the doorknobs, and JT at Techland Houston teaching me everything I know about silicone.

Lastly, My loving and supporting Family and Friends that did everything they could to help me build the models and keep my mental health in check. My Mom, Grandma, Ash, Ana, Patrick, Jake, Stefan, Lalo, Alexa, and Gabby for knowingly or unknowingly giving me the things that can't be quantified but

ABSTRACT

The thesis project is a critical reflection on the relationships between architecture and productivity using the senses, phenomenology, and cognition into the work day to benefit the 9-5 worker long term.

The prioritization of efficiency has left workers stagnate, indifferent, ignorant, and doomed to normalcy. By utilizing an outdated skyscraper, the project becomes an opportunity to reimagine the trash produced by architecture in our fast-evolving world.



1960s

The sea of desks



Equipped with large heavy office furniture, offices sounded like factories because of the constant loud typing. Workers were seen as machines to complete a task with little to no attention to the ergonomic needs of the human.³

1960s

The obsession with the corner office

Workers were convinced that the ultimate goal in their career was to get to the corner office. This often came with more privacy, a window, and intentional isolation. Office culture fostered a lack of communication and hierarchy between coworkers by separating the “hard workers” from the rest.³



1964

The action office

Concept of workers getting more done when they have to move around. The stool, standing desk, phone booth, and coffee table were used along with an intentional amount of clutter. This failed because of expensive materials such as hardwood and aluminum and the required space per occupant.³



1968

The action office 2

Expensive materials were replaced with plastics and laminates. Lightweight, easy-to-install fabric covered panels were meant to be used in a half hexagon shape to muffle sound and create a sense of privacy, but never to be used at right angles. This began the prototype of the cubicle when owners figured out they could use the panels to fit as many employees in a space as possible for maximum efficiency.³



1990s

The cubicle

A tool of isolation used to allow for the maximum amount of workers in a space. The constant dampened visual and auditory components of the office created a prison-like atmosphere. This led to miserable workers with a dull gray view and minimal access to their coworkers.³



2000s

The open office

Long rows of connected desks that integrated the boss with workers. Intended to foster communication and inclusion, but instead created an overwhelmingly quiet and awkward environment as headphones became the new walls. Soundproof pods became the only form of privacy.³



2000s
The corporate campus



Everything is provided for the worker under one roof to ensure maximum productivity. A gym, rock wall, or slide is used to temporarily bring joy to employees and keep them at work longer. This environment isolates the worker from the rest of the world and blurs the lines of the 9-5 work day.³



2020
Working from home

The pandemic brought pros and cons to work life. Working from home allowed parents and spouses to be with family and took away the commute to the office. However, work times began to slip past 9-5, the furniture available at home was not ergonomic for everyday use leading to physical problems, and those living alone suffered through extended isolation with little to no social outlet.³



2022

The abandoned
skyscraper

The once-revolutionary tower has become mainly abandoned and left as junk, only to house the most miserable workers that were forced to return. The idea of privacy, communication, and movement had been experimented with for years, with the benefit of the worker overshadowed by corporate America's need for cost efficiency and productivity, leaving the worker to be exploited time and time again.³



The skyscraper

Skyscrapers have been used in large cities to maximize space, provide views, and remove the environment.





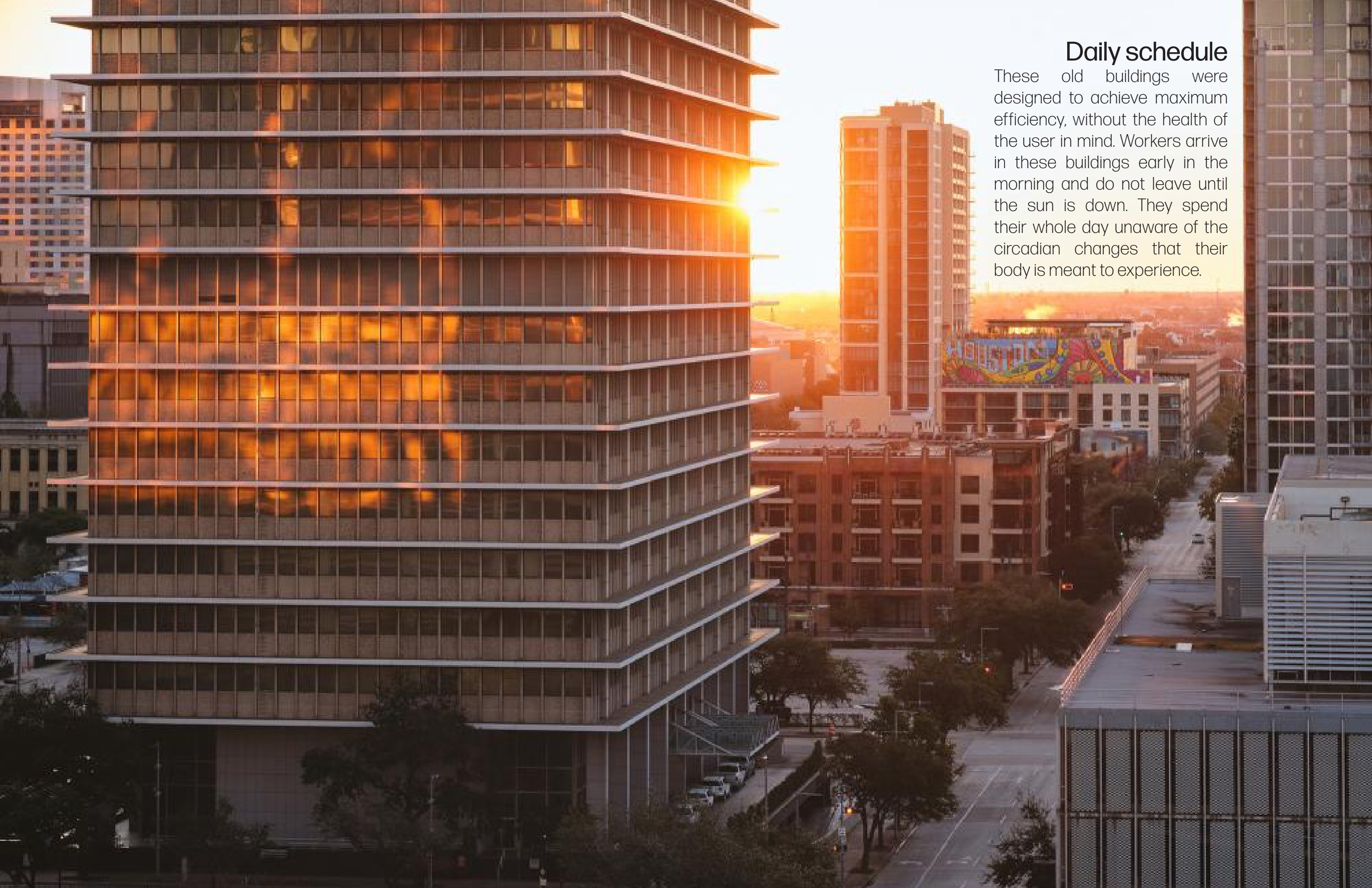
Empty buildings

After the covid-19 pandemic, skyscrapers are left mostly empty and viewed as unattractive to those that worked from their comfortable homes.

The environment

These buildings extract everything from humidity to unruly temperatures, making tenants complacent in their perfect sealed worlds. This constant environment has trained humans to reject the natural world and stay indoors.





Daily schedule

These old buildings were designed to achieve maximum efficiency, without the health of the user in mind. Workers arrive in these buildings early in the morning and do not leave until the sun is down. They spend their whole day unaware of the circadian changes that their body is meant to experience.

SITE

Houston, TX

The drivable mega-city supports an obsession with commuting from home to work without interacting with the environment along the way. Houston's fast changing, extreme weather makes it uniquely suitable for an experimental workplace.

Downtown

Downtown Houston, the city's central business district, is mostly empty at night. It is populated with parking lots and skyscrapers with little public land available to the city. Business professionals currently have no reason to stay downtown after the work day is over. COVID has left downtown skyscrapers mainly empty leaving almost no reason for people to travel there.

800 Bell St Houston, TX

The currently outdated and in need of renovation building was formerly the tallest tower in Texas. It was known for its attempt to mitigate the environment through opaque panels and the seven-foot-deep cantilevered shades screening the hot Texas sun.



800 Bell photos by Leonid Furmanskyy¹



SENSES

Cognition

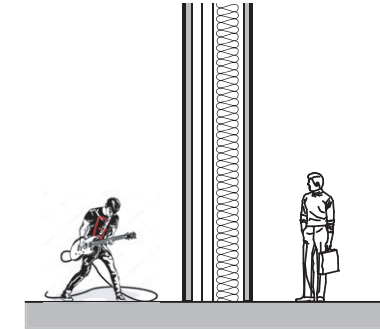
In order to fight against the consistency that work environments cultivate, a shift from pure action to awareness and feeling must be sparked.

Perception

The buildings we spend our lives in have done a lot to extract the senses in forms of air, humidity, smells, and noise. By changing materials from stone and wood to more malleable materials, Architecture became less inviting to touch or interact with.

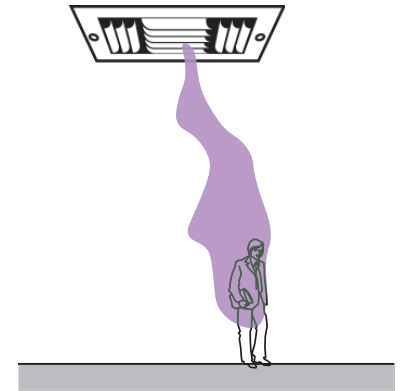
If we can remind people of what their senses can bring to them by seeking versus looking, listening versus hearing, and feeling versus touching, their quality of life will significantly improve over time. So often we let information flow through us with no pause, depth, or meaning. Architecture can begin to shift from corporate profit centered design to bringing humans back to themselves.

HEARING



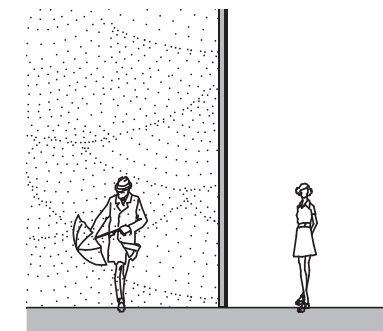
Insulation

SMELL



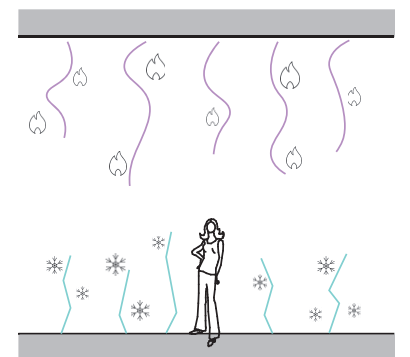
Ventilation

TOUCH



Humidity

TASTE



Internal Temperature

Surprise

Unexpected environments create fear, worry, or curiosity. They remind people of what they have forgotten and, in that reaction, result in a lasting memory.

Joy

Seldom is excitement felt in day to day experiences. Spaces that evoke joy and happiness encourage the return of the occupant. Interjecting moments of happiness into the work day will help the day go by and eventually make employees excited to come to work.

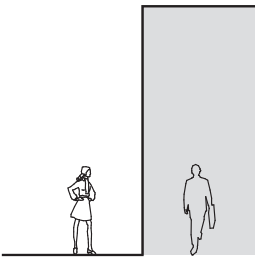
Abundance

An abundance of sensory experiences are felt through a neurodivergent persons' perception in their daily life. While a neurotypical persons' mind may tune out most of the worlds distractions, an overload of information can provide a reset to disassociate from the 'norm' and rethink what is pleasant.

Deprivation

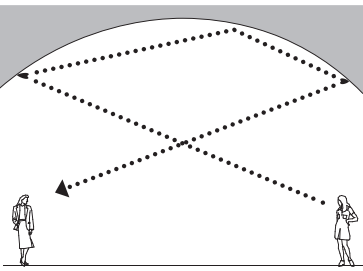
When met with the loss of one or more senses, the other senses are heightened. With this, neurotypical people can experience what it is like to be blind or deaf and gain a new appreciation for their senses.

SIGHT



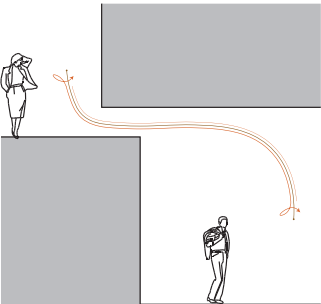
Peripheral

HEARING



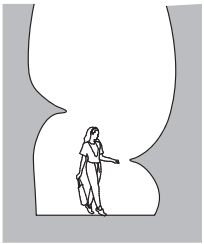
Echo

SMELL



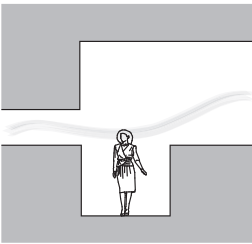
Unexpected

TOUCH



Mutation

TASTE



Temperature change



Gifts



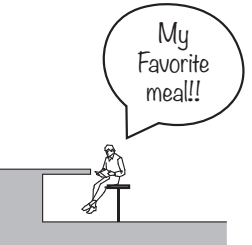
Social



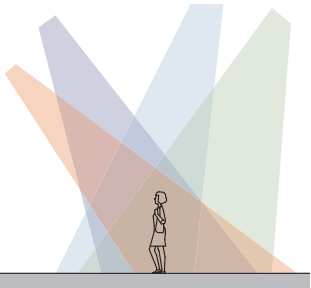
Sweet | Fresh



Soft



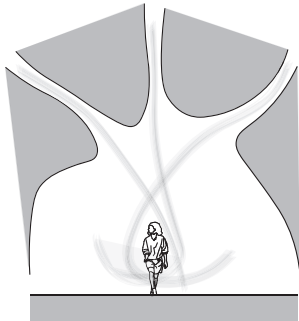
Familiarity



Strobe Lights



Binaural Beats



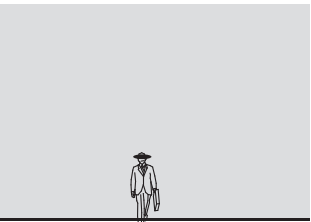
Multi - Odour



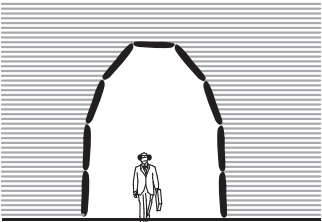
Vibration



Spicy



Blind



Deaf - No Noise

Deaf



Clean



Floating



Bland

INTERVENTIONS

The design experiment explores the topic of work and what it means to exist within a building that changes over time. The work explores the possibilities of contemporary labor and calls attention to what the possibilities are for people downtown after the pandemic.

The largest scale intervention cuts through multiple floors to allow an abundance of sensory mixing in a collective working environment. The medium scale interventions focus on the individual needs of the worker, either providing spaces to engage with the environment or specific sensory needs such as visual or auditory deprivation. Lastly, the smallest scale intervention calls for an architectural curator to change details of the building daily to elicit emotion and cognitively reset workers over time

What happens when these extracted senses and actions are placed back into the workplace? What does a person feel over time when faced with surprising or unexpected interventions throughout the day? In what way will this actually effect productivity and efficiency?

The design is not meant to answer these questions, but to bring them to the surface and start conversations on the topic. Through multiple scales and measures of time, the interventions affect the human over time leaving a lasting impression.





“The door handle is the Handshake of the Building”

-Juhani Pallasmaa

The door handle is the one part of the building that a visitor must touch. The extraction of the senses did not seem to apply to the transition between spaces such as a door knob, elevator button, and handle. In recent years even that function was beginning to be phased out. With the standardization of door knobs in modern corporate buildings, users forget that they perform the action itself.

The handle to the left is meant to cater to humans of different sizes and needs. Someone might have a small hand and need a different hold than another who is tall with a large hand. A child might use the bottom of the handle and feel competent that they have achieved a function. Users may grab the same part of the handle each day or choose a unique grab, bringing to the surface a new emotion.

To the right, the handle pushes and pulls at separate points on the handle, making the user aware of the different functions needed to transition between spaces. It is larger at the top and smaller at the bottom to accommodate the different sizes of users who enter.

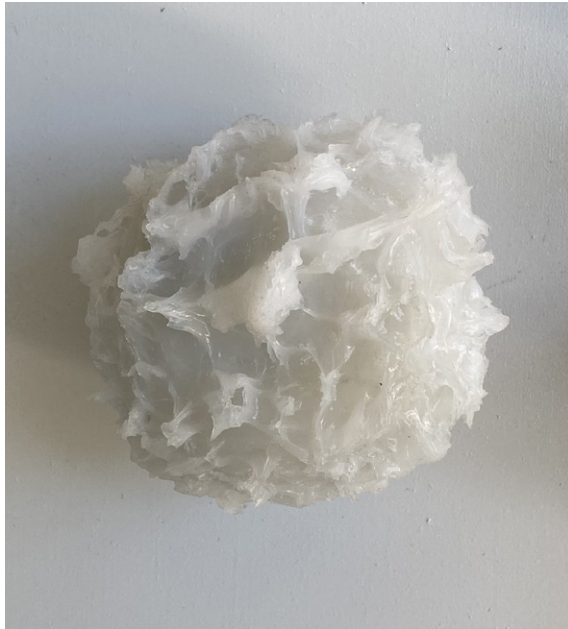
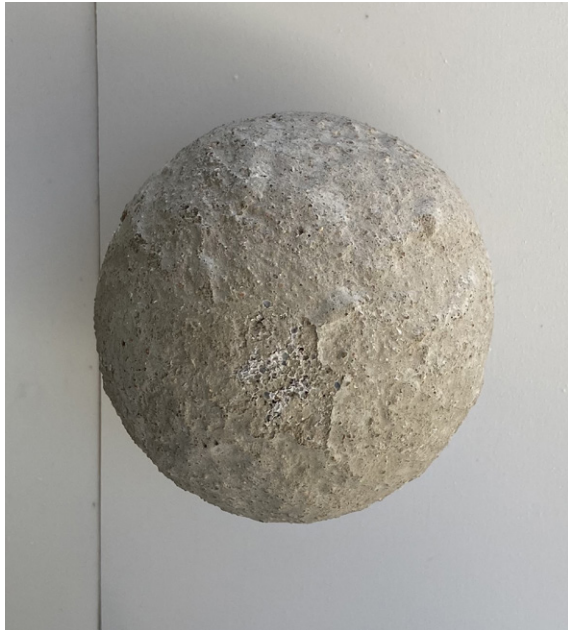
What else must we TOUCH?

Repeating the consistent action of grabbing and twisting a door knob is often overlooked in the mind, and has become a tedious act in itself.

At the smallest scale, the design calls for an architectural curator to switch each door knob before the day to surprise users and elicit an emotion throughout the day. A worker may have to squish, poke, twiddle, spread, or bump to transition between spaces resetting their brain each day to the function. Over time, as the workers encounter knobs of different, functions, materials, and orientation, they begin to be cognitively aware of their body in relation to the built environment.

The knobs may vary in material from hard and chalky concrete to squishy silicone to soft and fluffy felt. Change in material will bring attention to the action even if the user has grown accustomed to the function needed to operate it.





The unexpected awakens Curiosity

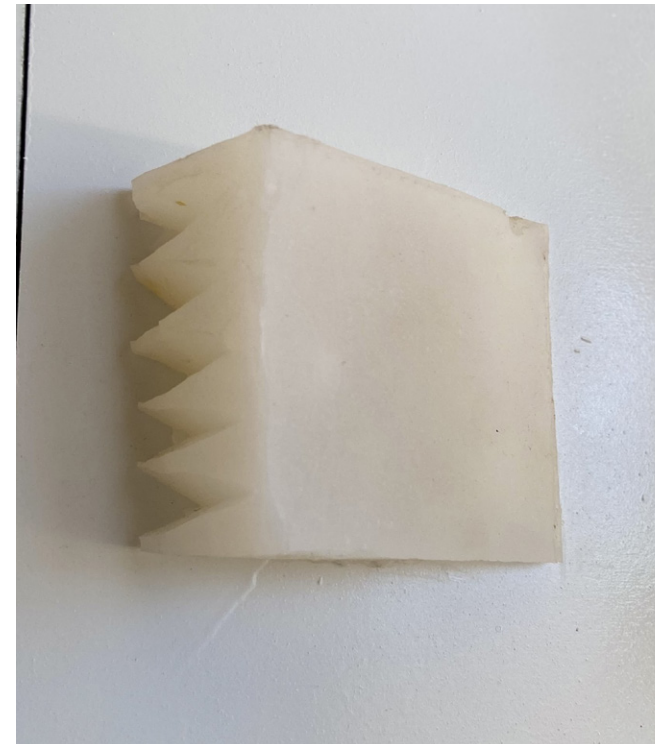
The varying actions are not meant to be pleasant. The interventions may excite or annoy workers throughout the day. This is because the emotion of joy can quickly fade; constant joy over time will also lead to complacency. The mutation of the door knob will be unexpected and cause confusion, but will leave a lasting impression over time.

A regular knob can be bumpy, chalky, or prickly. The changing textures will call the attention of those who ignore the knob's differences in the beginning. Users may hesitate before touching a prickly surface and remember the last time they had to interact with it.

As the months pass by, users will subconsciously choose their favorite and most hated door knob encouraging them to explore the building to find a new one.

This design strategy arrives with its own issues. If a worker has a meeting in a certain room and cannot figure out how to open the door, then the building becomes a burden over an exercise of the mind. Users may avoid certain areas of the building as often as they seek out pleasant ones.

The owner of the building may choose to forego the curator position for financial purposes, and leave unpleasant door knobs in place. If left unchanged, the knobs will again become forgotten and abandoned in the mind.



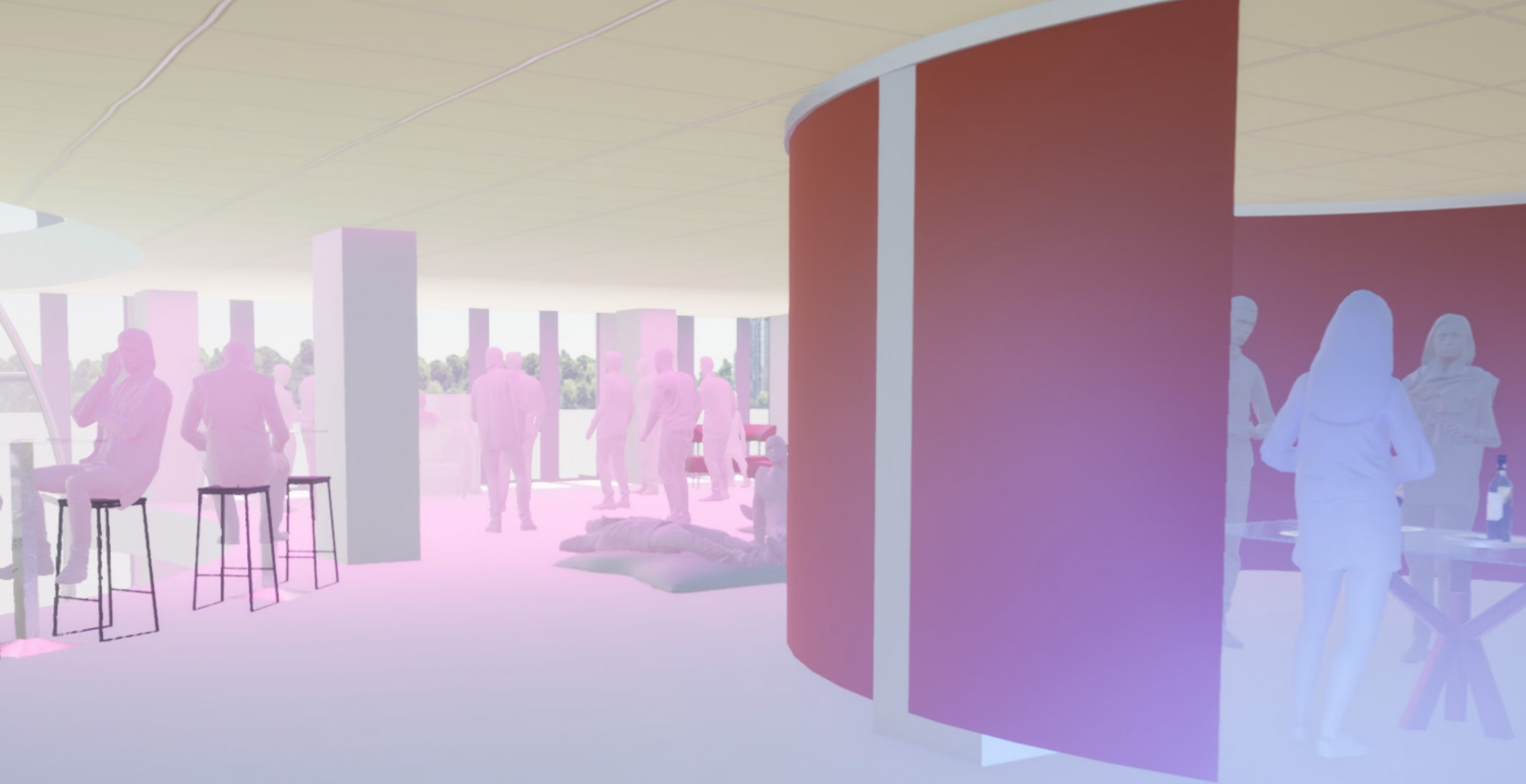
User Curation

Areas in the social spaces can be used for parties, games, or social working. The neighboring sounds and smells make working in these conditions more inviting than the open office once attempted to do.



Movable track systems are provided in the social spaces for private meetings or those who do not wish to interact with the smells and sounds flooding in.

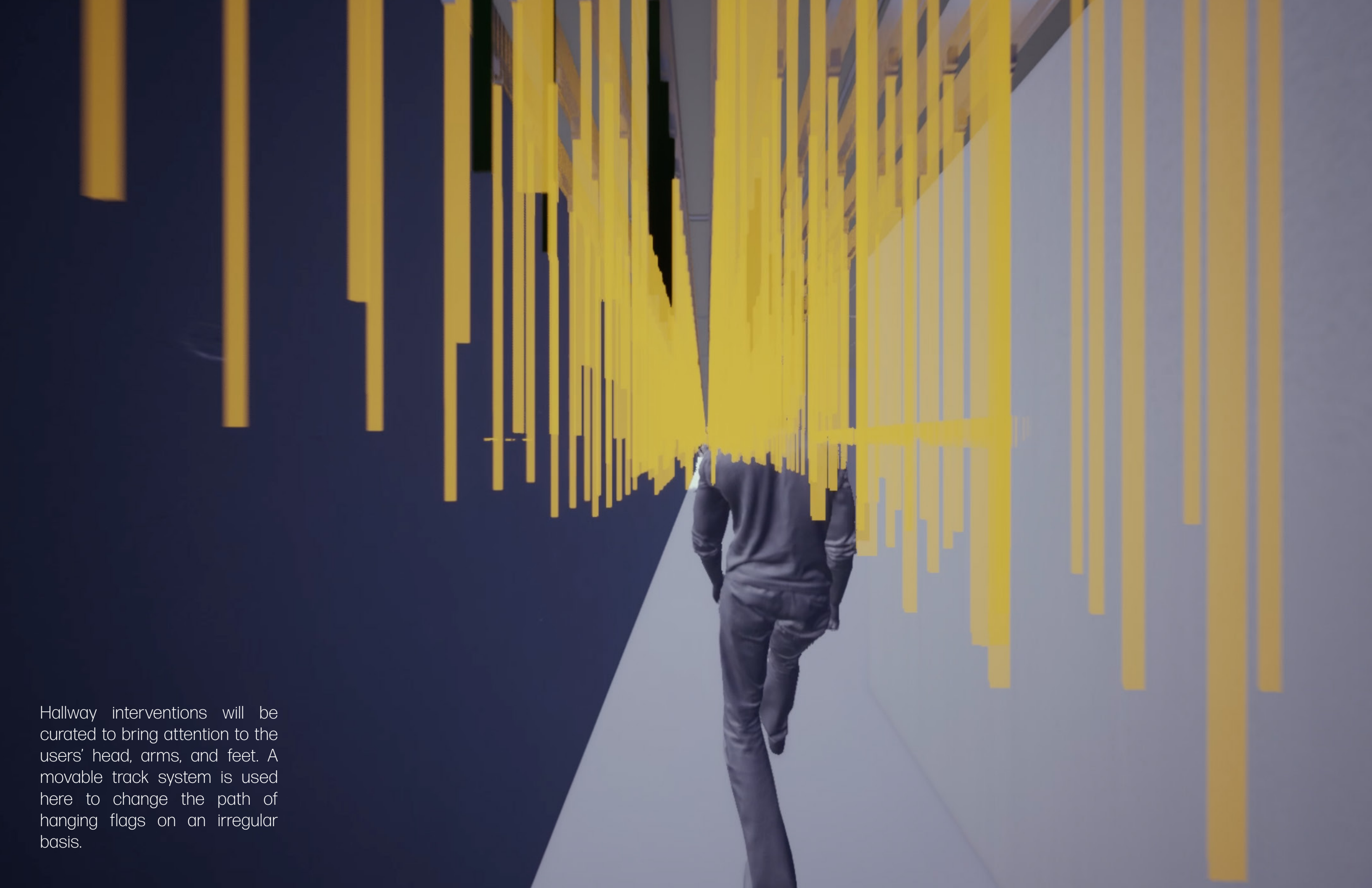




These tracks make it possible for multiple activities to occur in a small space. This evolution of the workspace throughout the day allows for different companies to work together.

CIRCADIAN

When entering the building, visitors will pass by the smell of blossoming vegetation, the sound of gently flowing water, and discover a unique door handle suited to their needs.

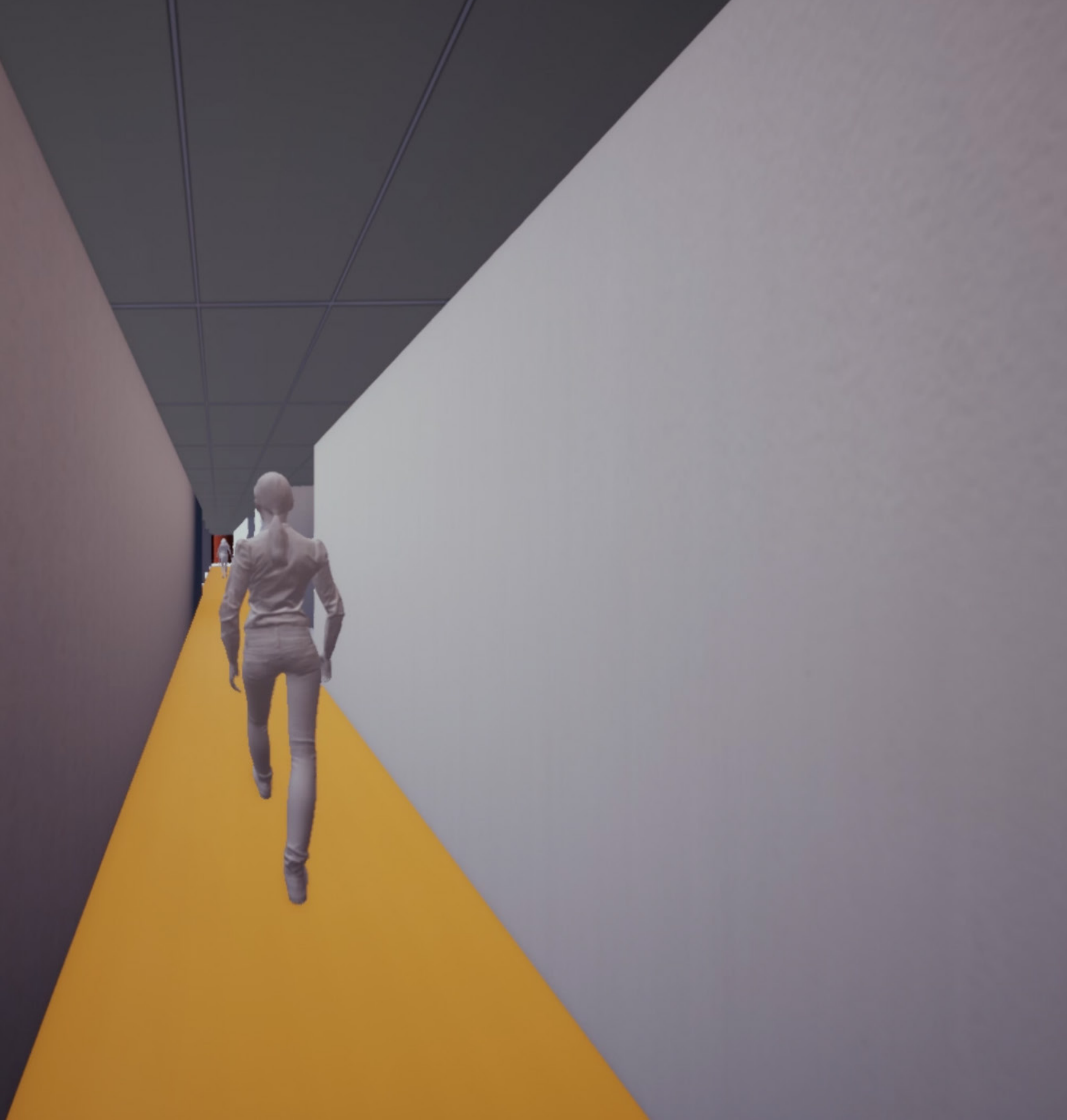


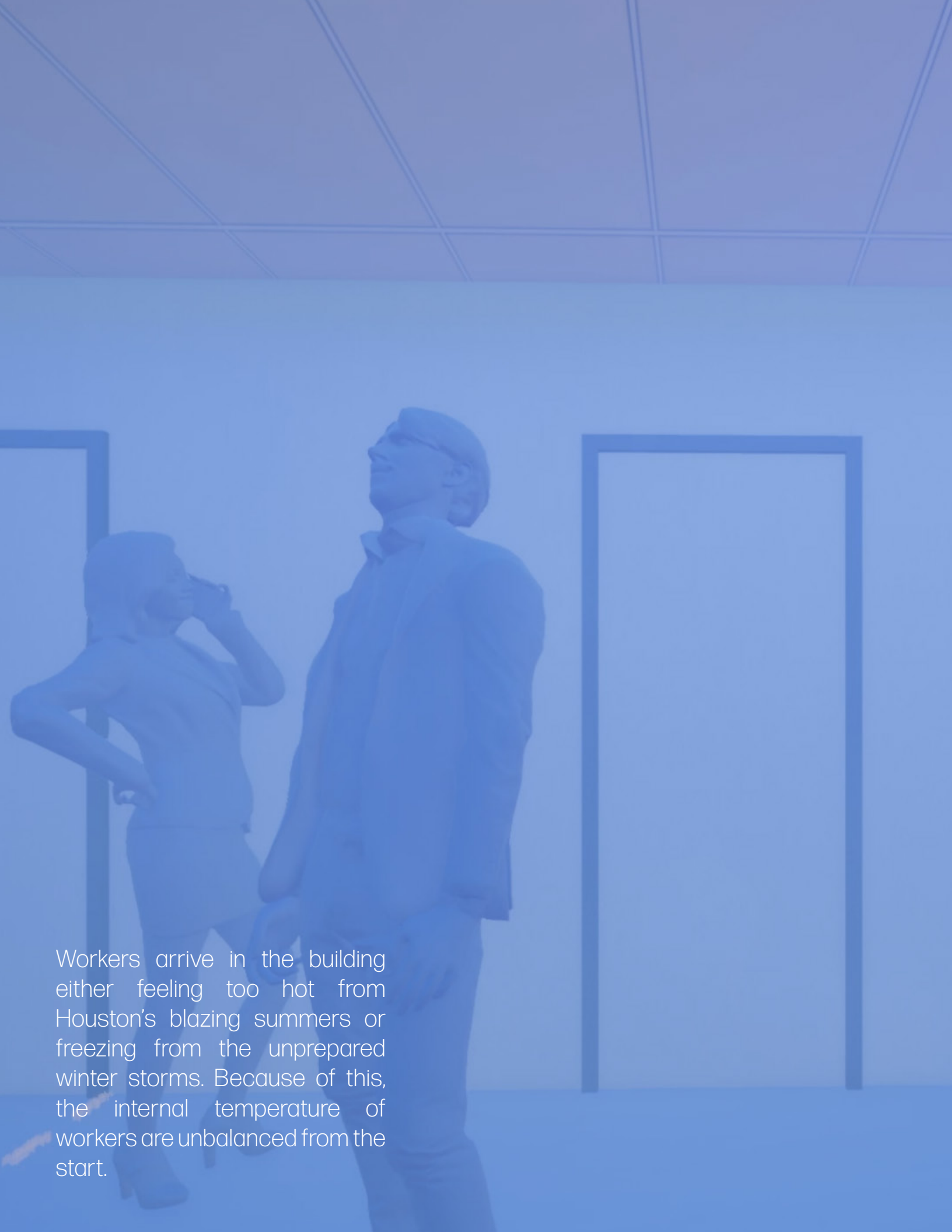
Hallway interventions will be curated to bring attention to the users' head, arms, and feet. A movable track system is used here to change the path of hanging flags on an irregular basis.

The walls may change from a
woody smelling cedar one
day to a reflective mirror or cold
plaster another day, leading the
eye to one side and slowing the
user as they notice the effects of
the altered corridor.




So often workers are too preoccupied with the next part of their day to look anywhere but forward. A memory foam floor is installed to slow the user and lead their eye downward.

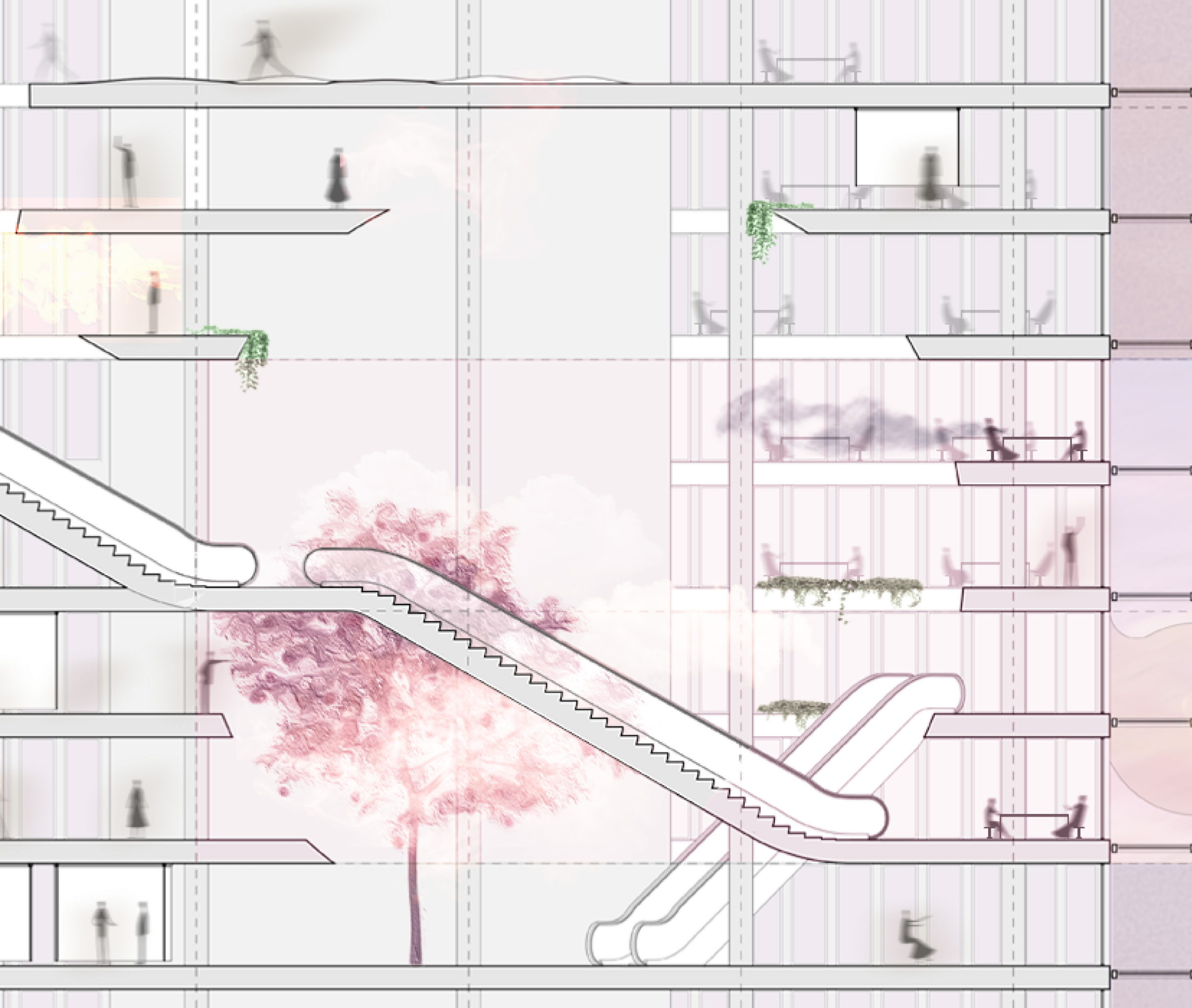




Workers arrive in the building either feeling too hot from Houston's blazing summers or freezing from the unprepared winter storms. Because of this, the internal temperature of workers are unbalanced from the start.



A temperature adjusting elevator will slowly reset the users' internal temperature, properly preparing them for the workday.



Social activity is encouraged in this maximized stimulating environment. It mimics a coffee shop to the extreme, letting workers people watch and interact with the ephemeral happenings that flood the space.

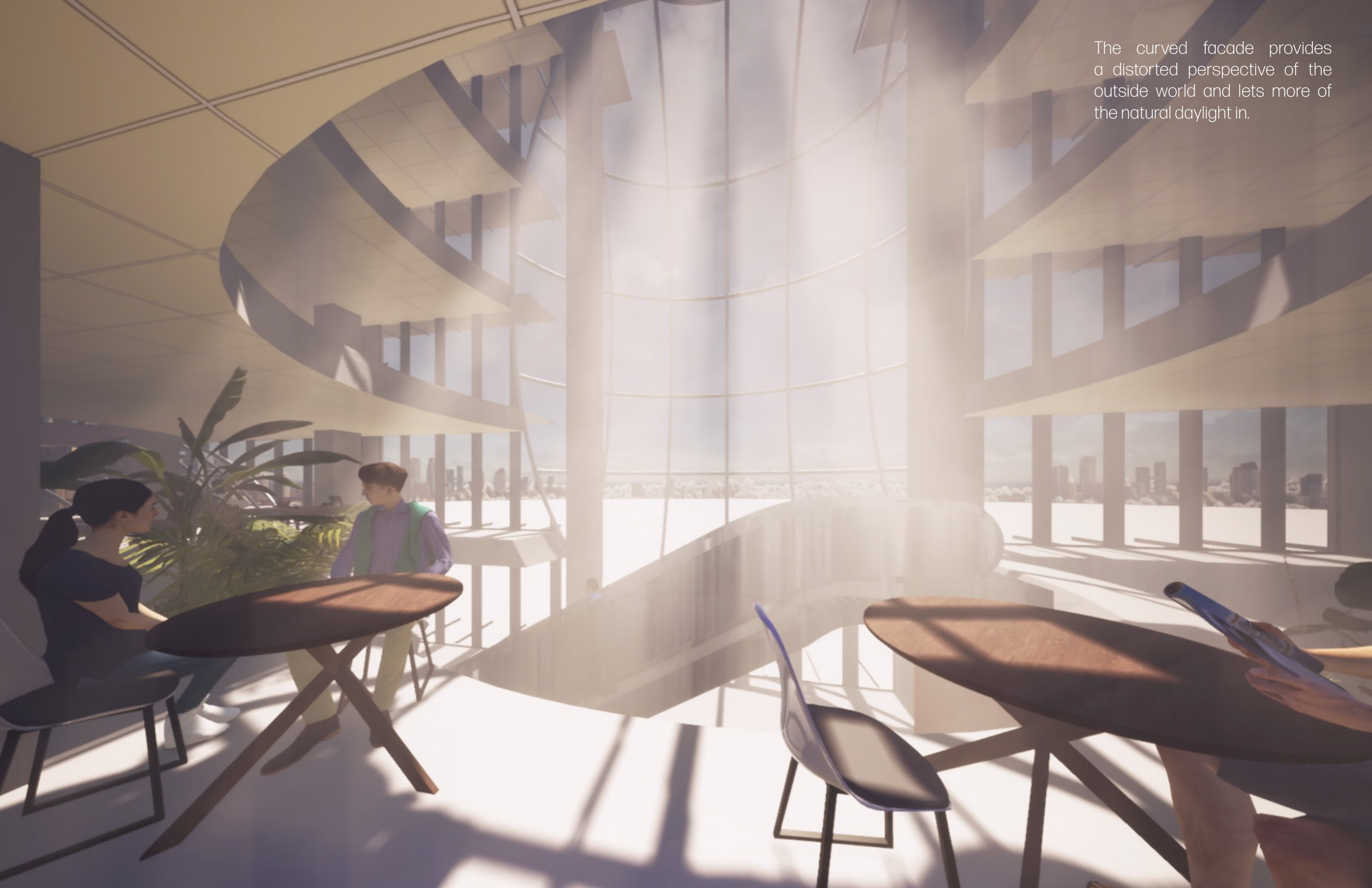
The cut out floors allow for the abundance of sensory interaction. Smells, sounds, and tactile activities are placed in the peripheral of people choosing to work in this space. These mixing senses create an aura around the multi-floor intervention, fading as people move farther away.



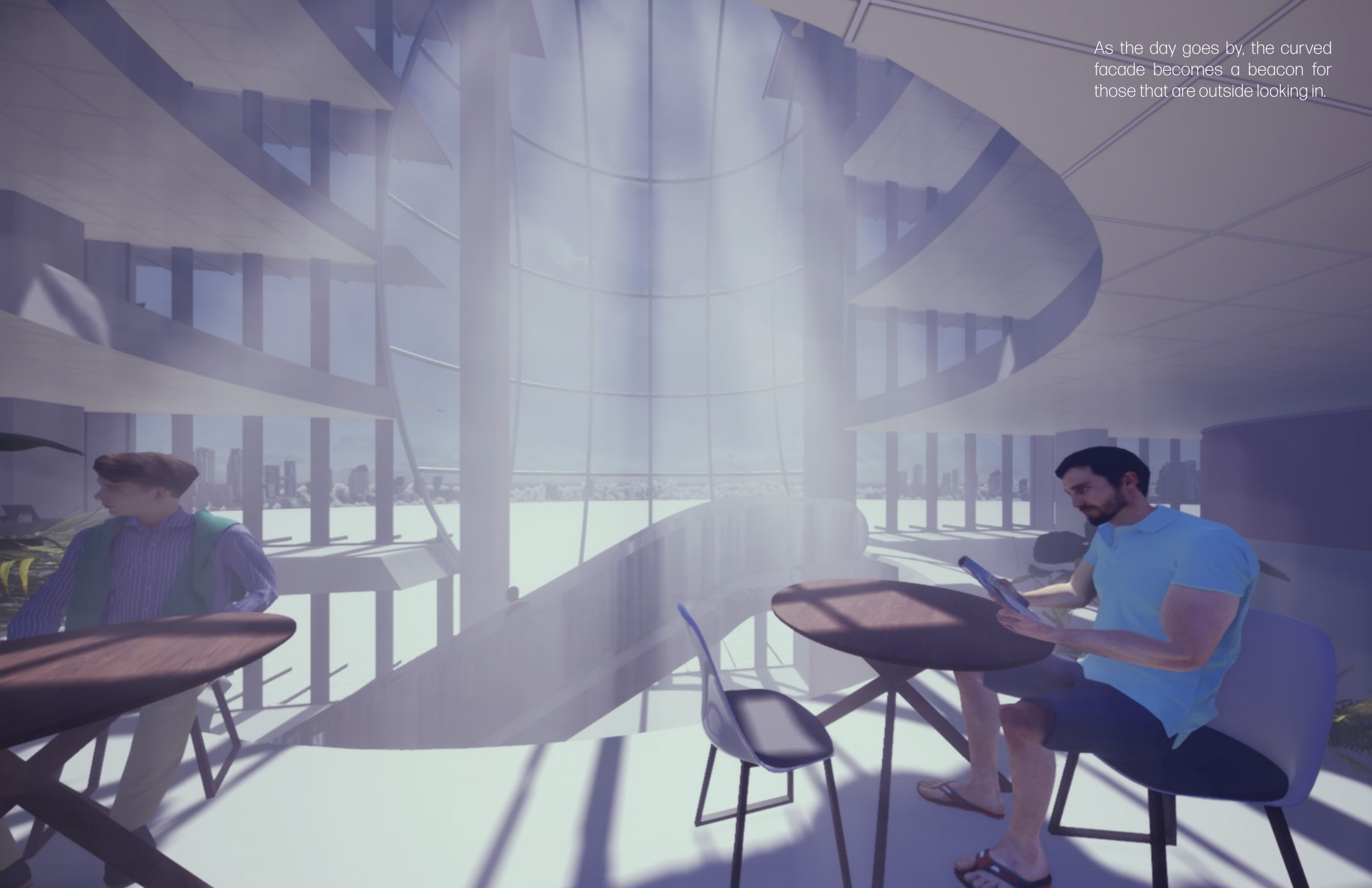
Workers can experience levels of sensory mixing after discovering where they will work for the day. Whether they are looking to hide from their boss or just have a different amount of stimulation, this social space accommodates any need or activity.



The curved facade provides a distorted perspective of the outside world and lets more of the natural daylight in.

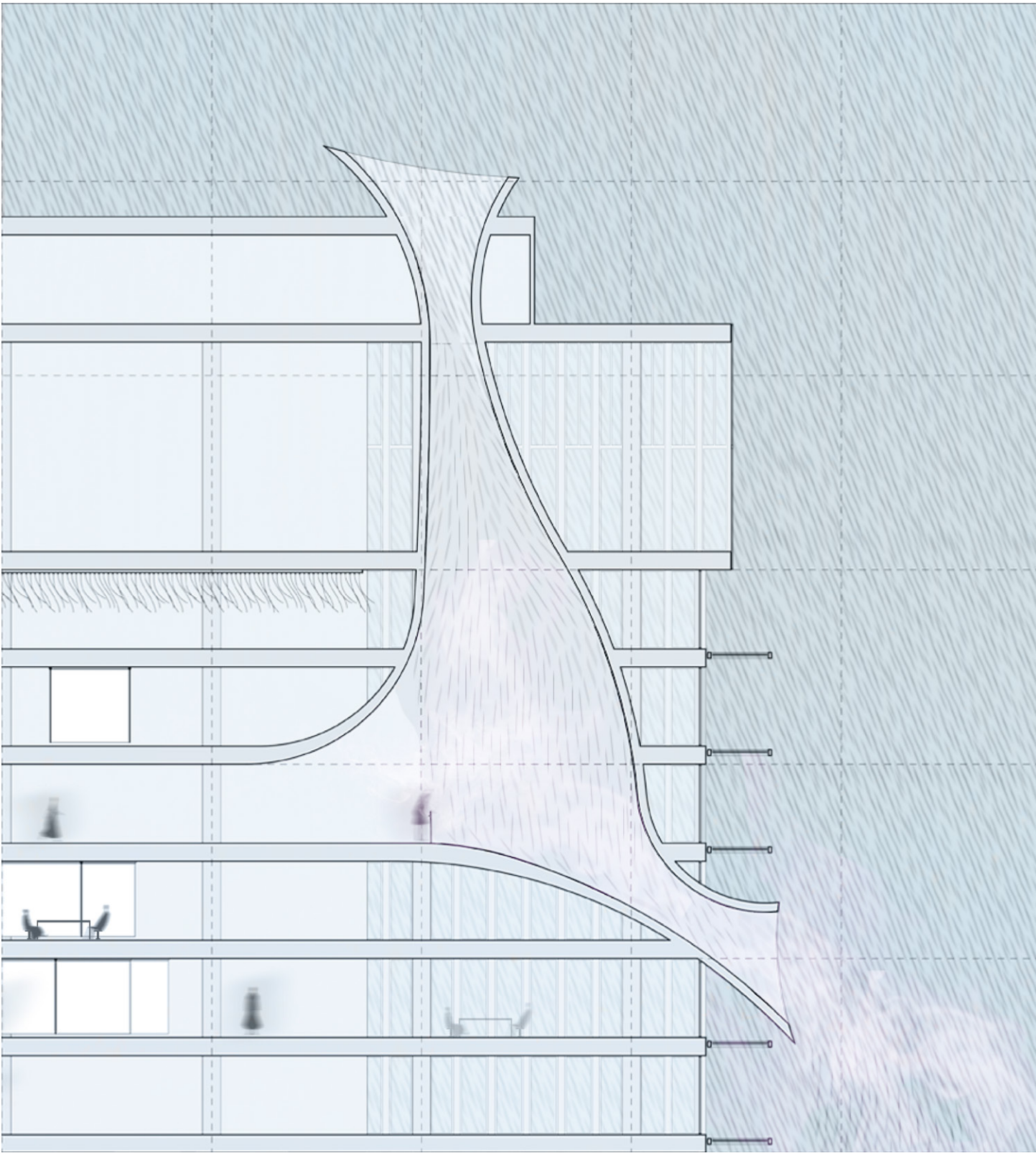


As the day goes by, the curved facade becomes a beacon for those that are outside looking in.

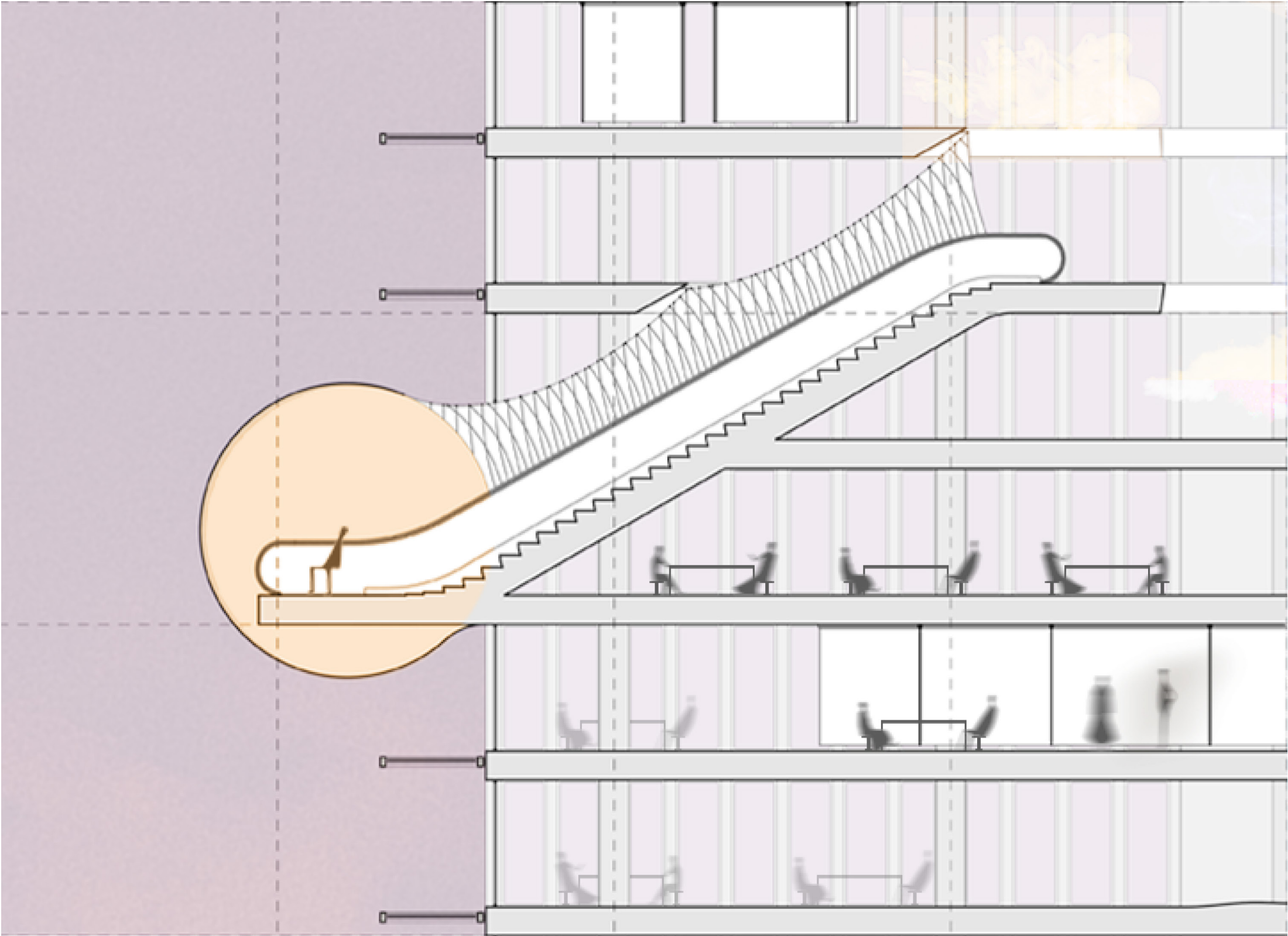


Breaks

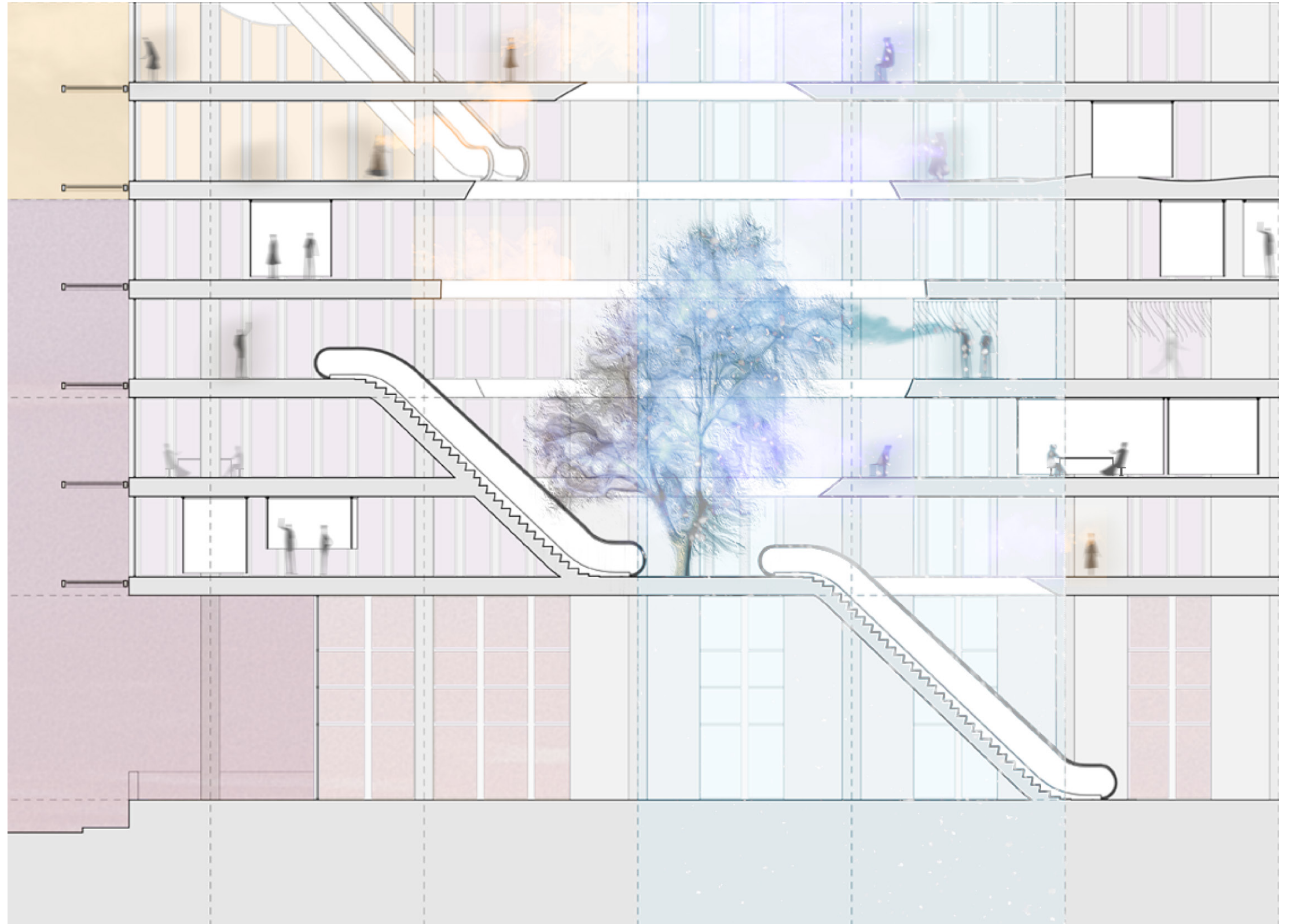
A rain room lets the changing environment in while putting it to use. Houston has many rainy, misty, and hurricane-filled days. Putting the human at the center of it will bring a new appreciation to the natural world. Spaces like these will be used as the re-imagined “break room”, taking the focus off of phones and screens, and back on to productive means for a mental reset.



Temporary installations for the individual are cycled through the building in monthly periods. Colorful Inflatable structures protrude out of the facade, washing the exterior environment in another perspective while providing the silent solitude needed to reset the human. The multiple interventions for the individual seem to allude to a customized destination for each worker.

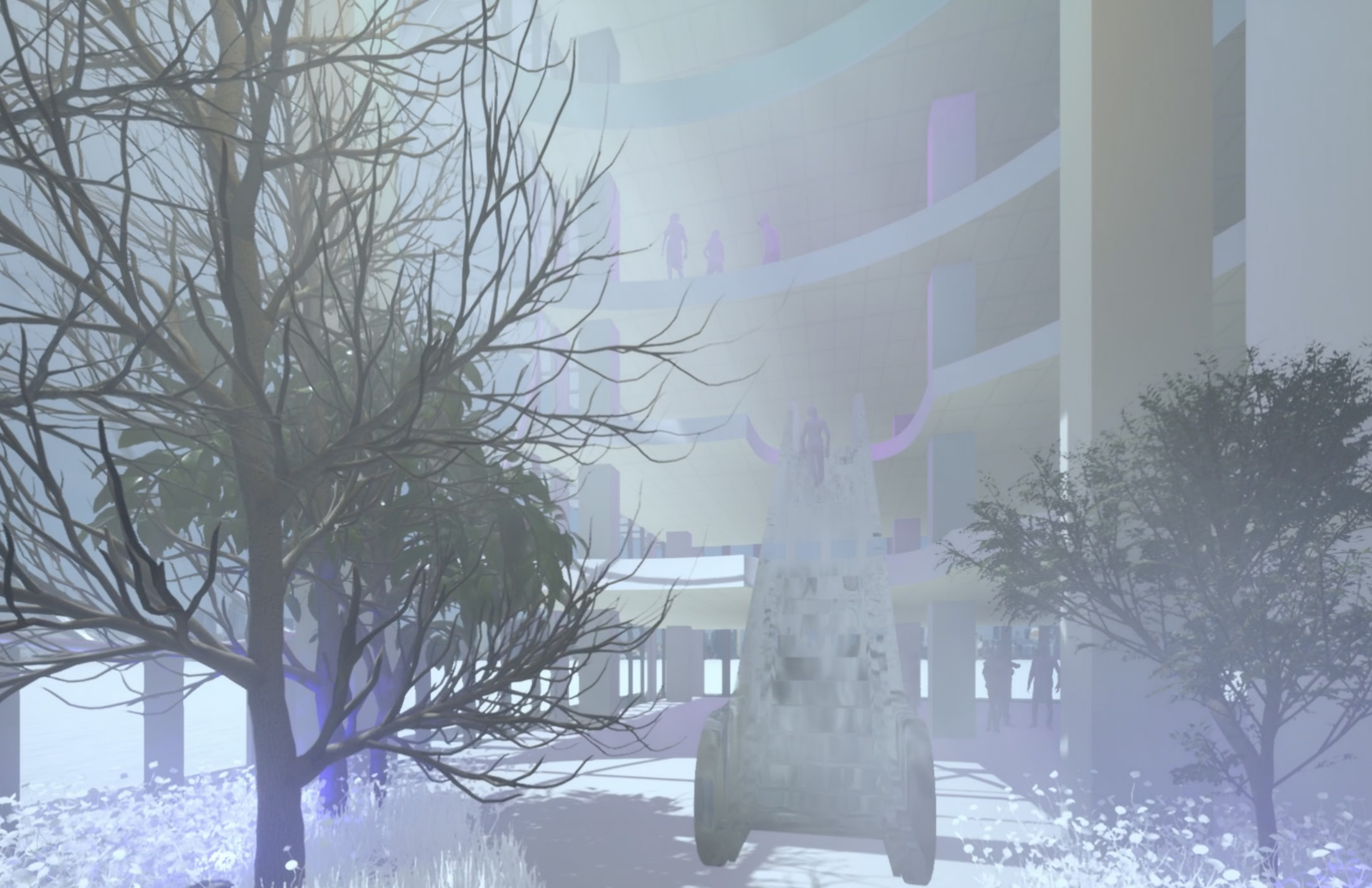


SEASONAL

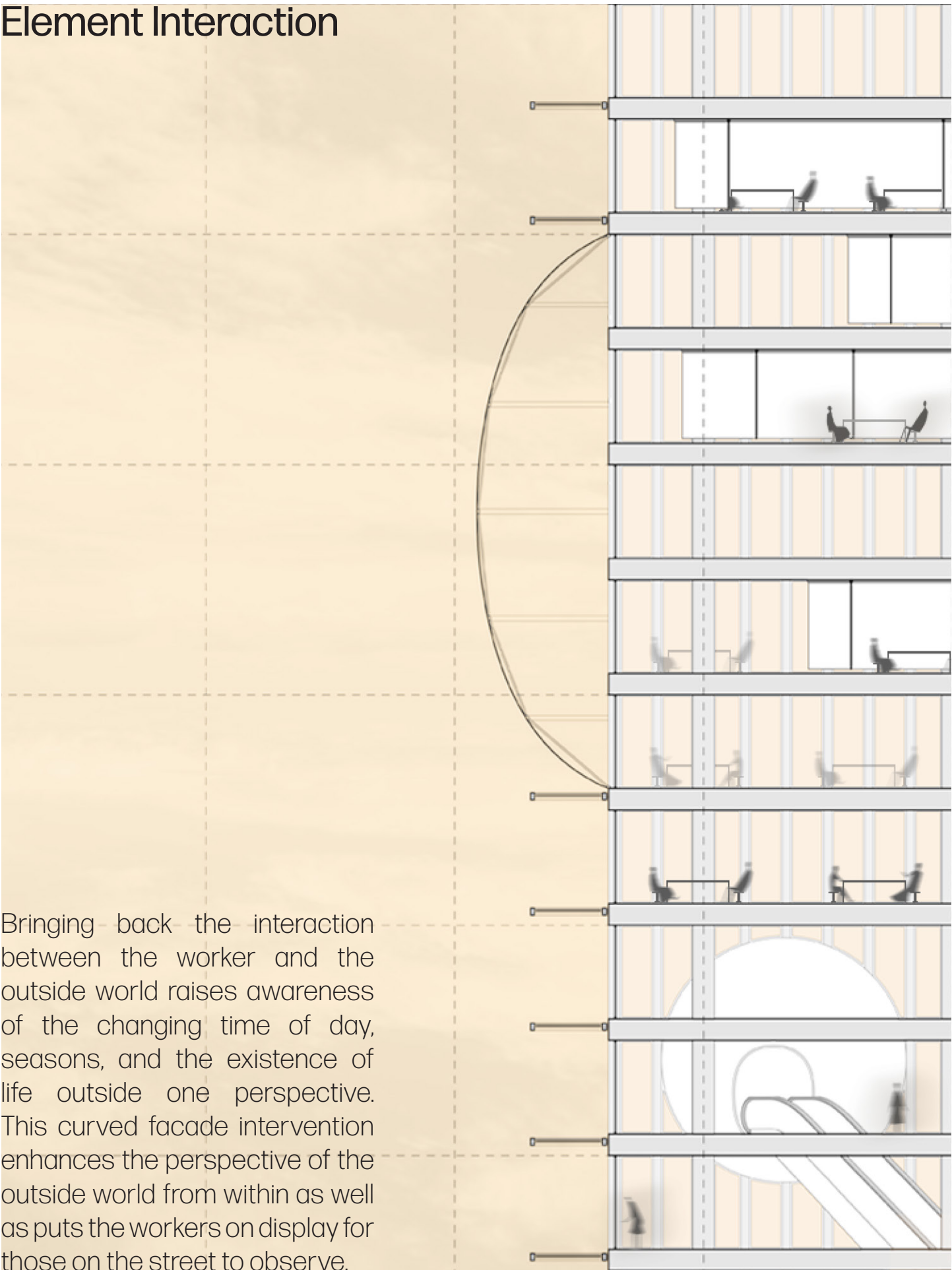


The escalator is used as an activator to the social spaces, leading the human through the multiple gardens that change with the seasons. Visitors can experience fall and winter while they work or just pass by as they make their way to their preferred environment.

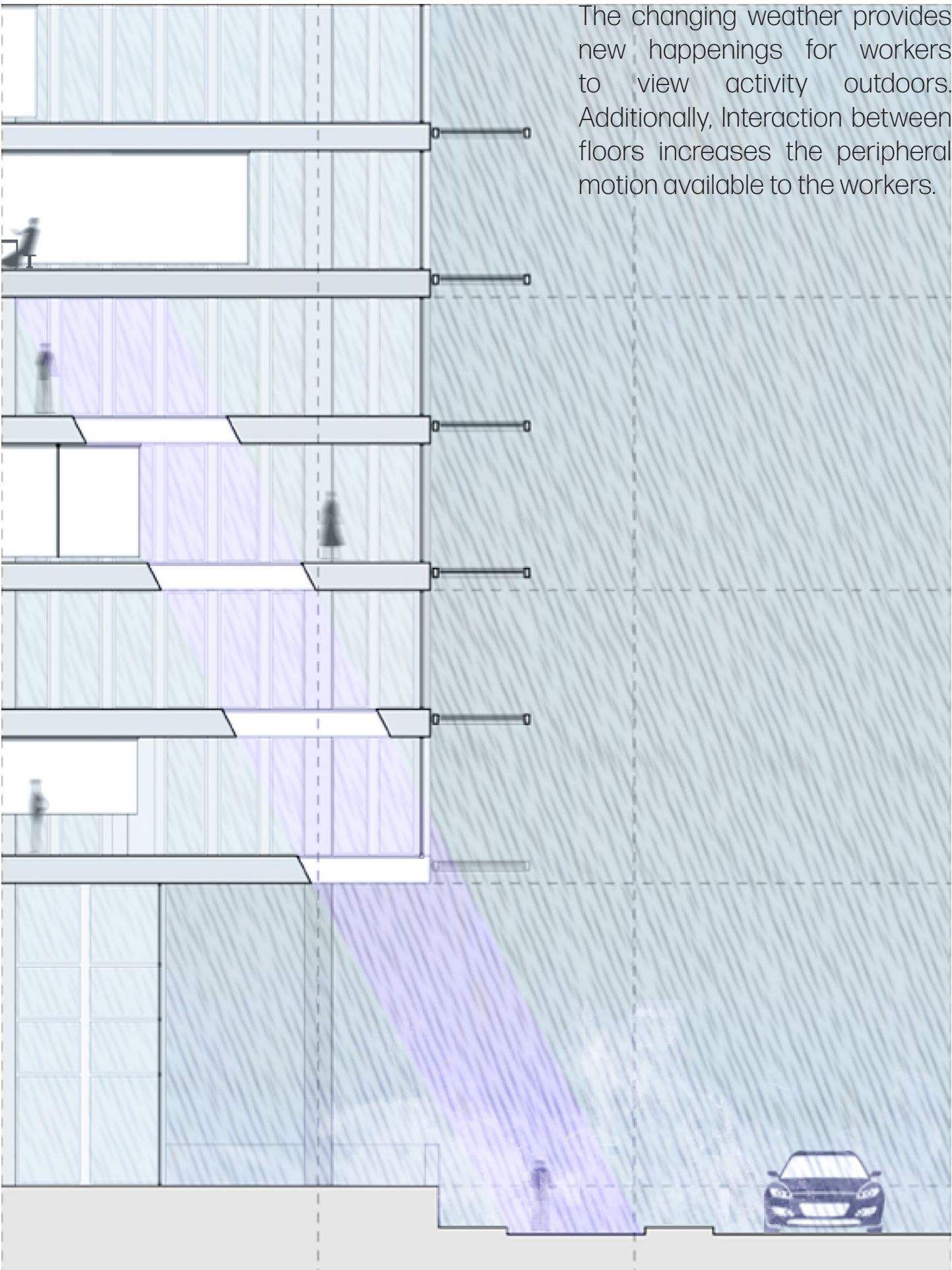




Element Interaction

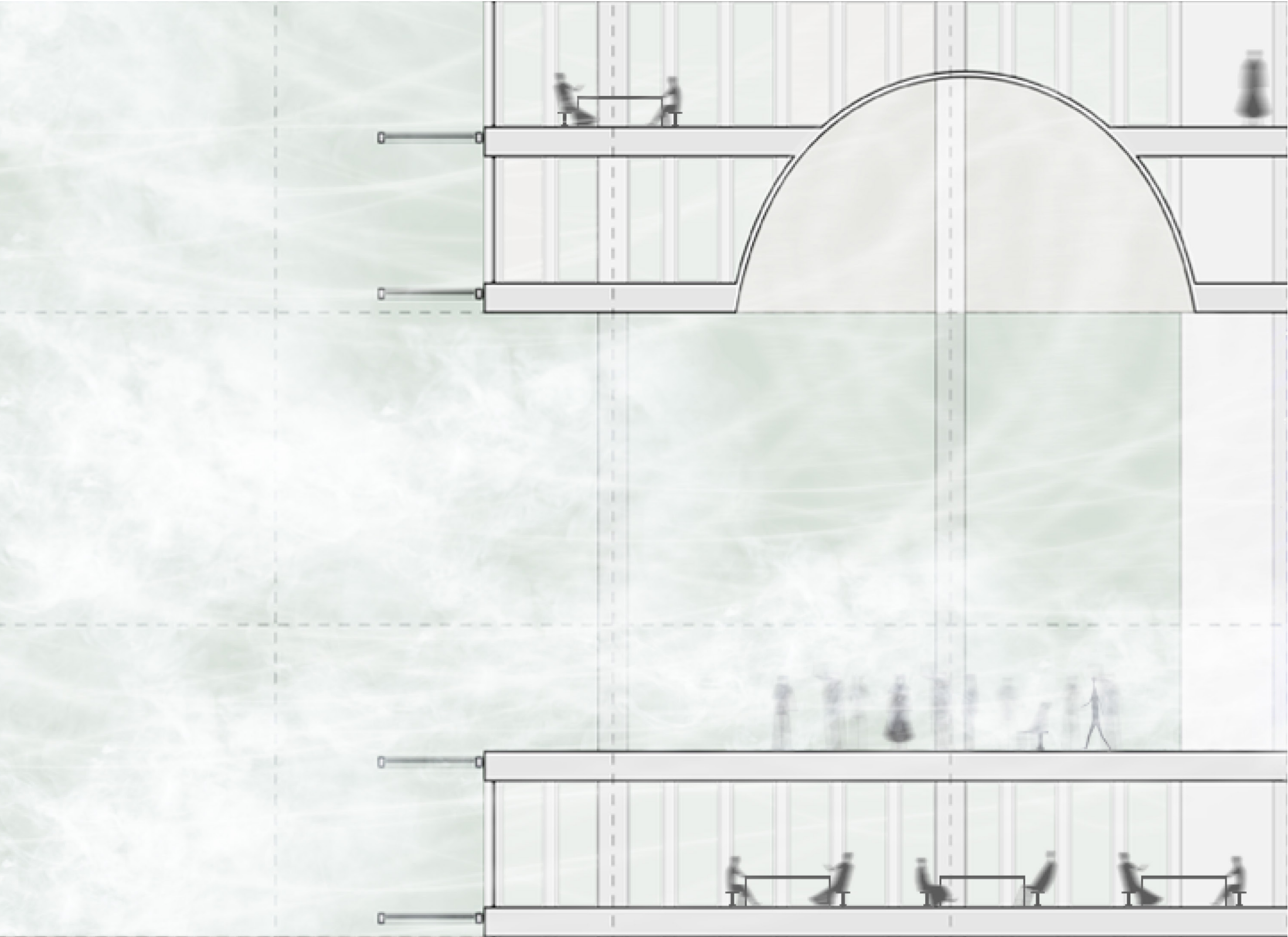


Bringing back the interaction between the worker and the outside world raises awareness of the changing time of day, seasons, and the existence of life outside one perspective. This curved facade intervention enhances the perspective of the outside world from within as well as puts the workers on display for those on the street to observe.



The changing weather provides new happenings for workers to view activity outdoors. Additionally, Interaction between floors increases the peripheral motion available to the workers.

Two full floors are removed from the building to further bring the environment in and show a unique perspective from the high points of the skyscraper. Visitors can interact with the echo dome that repeats distorted sounds and funnels in the Houston mist. The space's function differs throughout the day, taking advantage of...



The morning light...



The traveling mist...



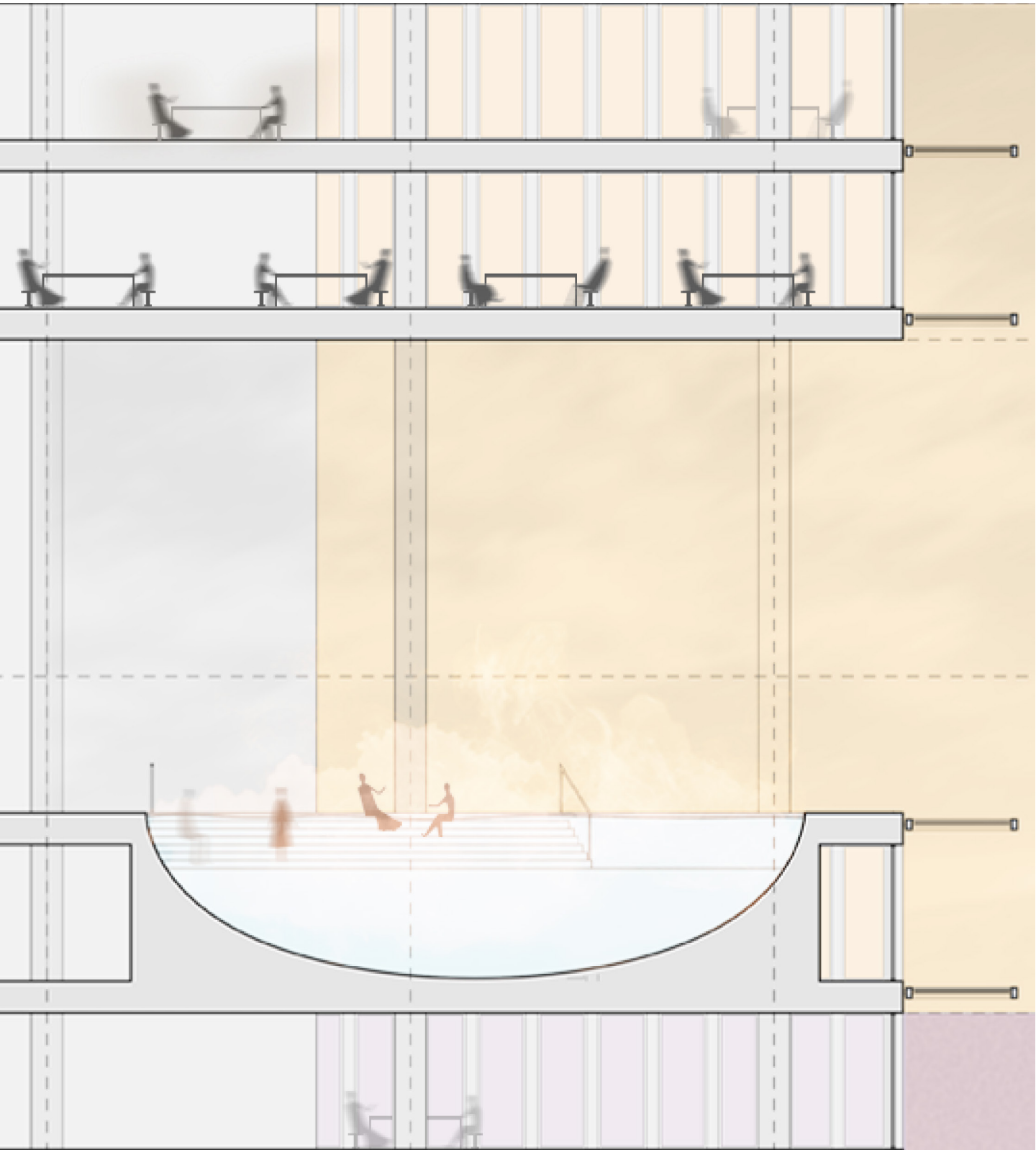
and the fading sunset.

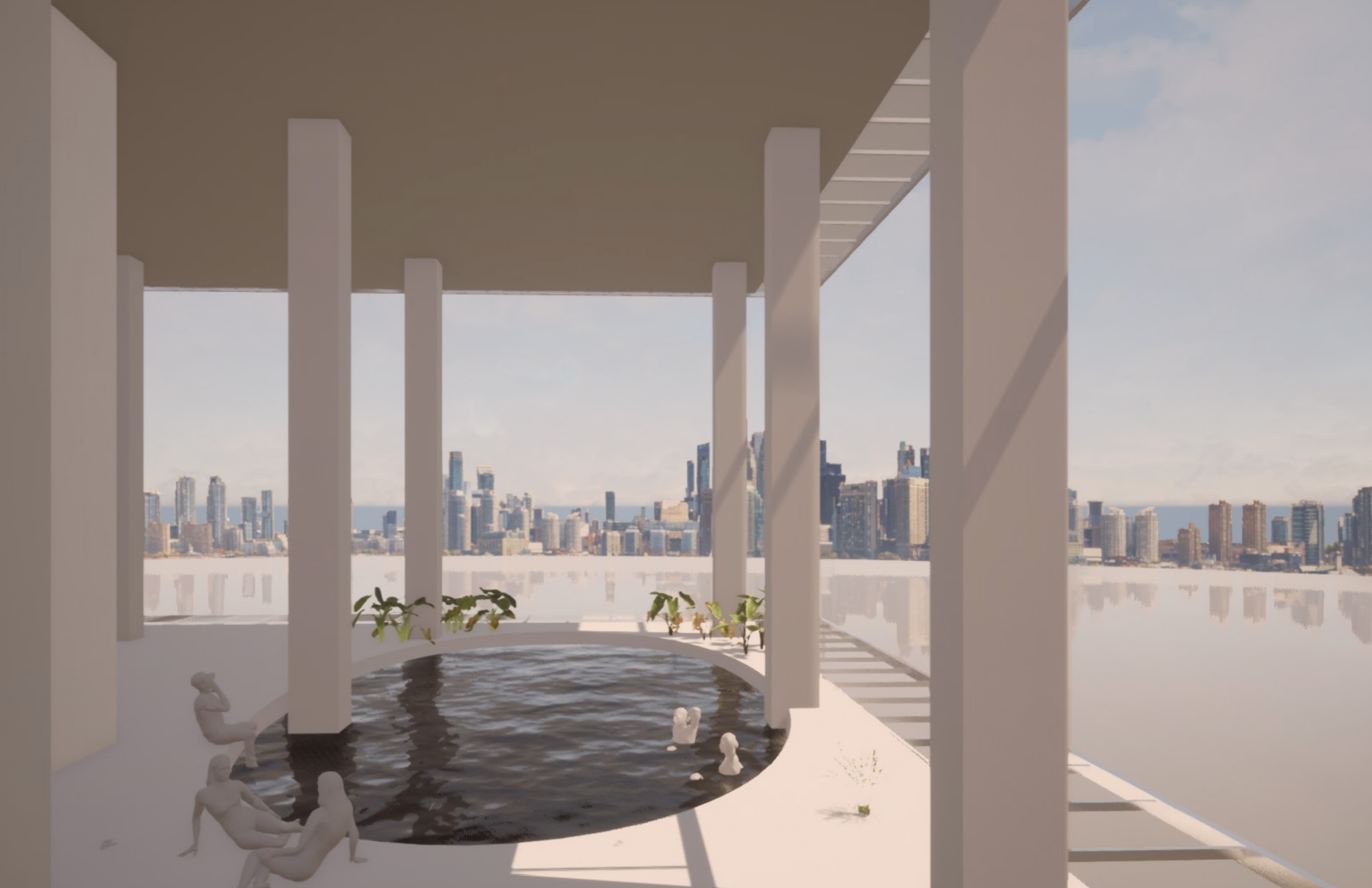


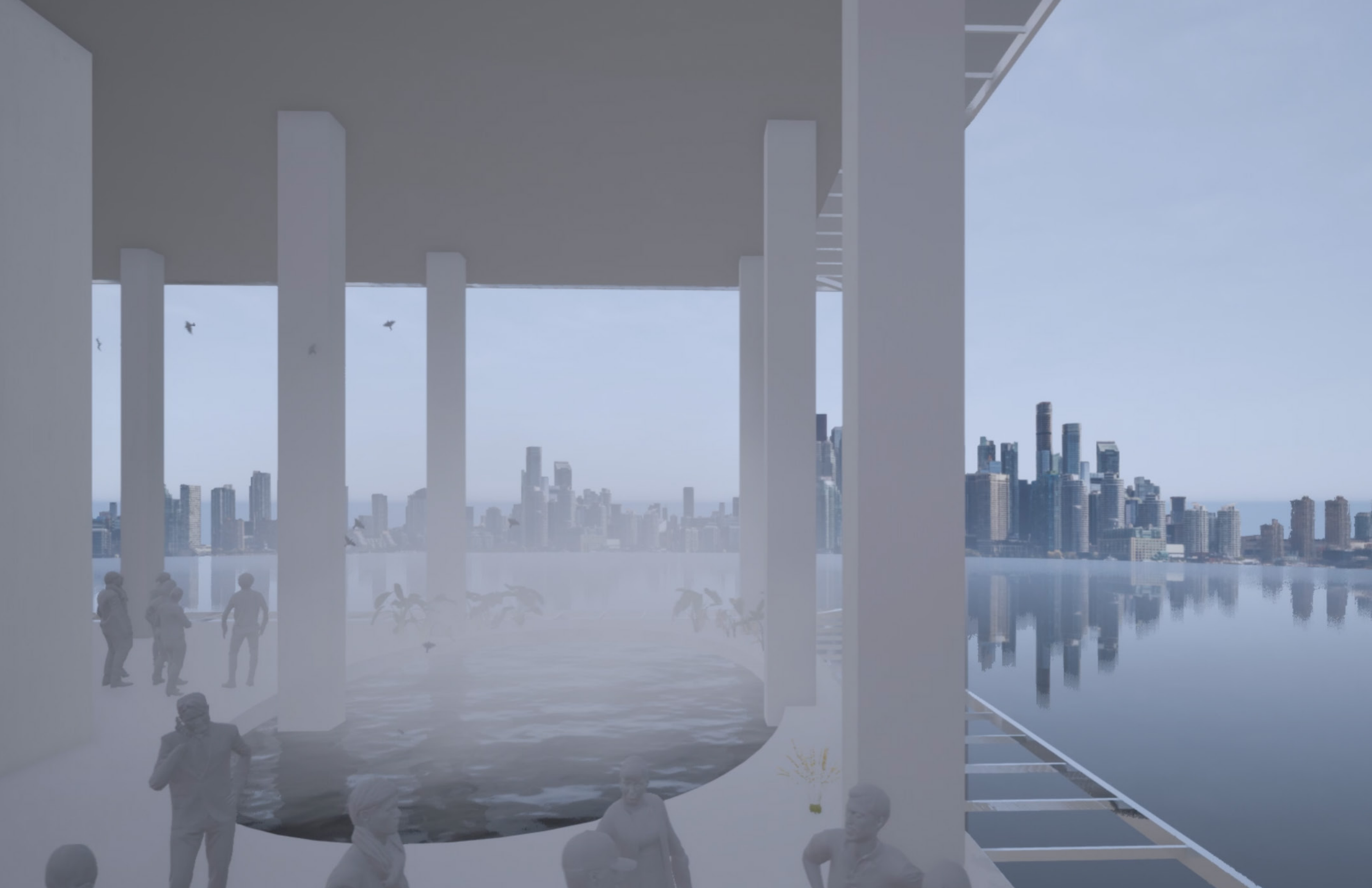
Seasonal Change

A pool is used on this floor as a means of full tactile deprivation. Salt is added to cause this effect, mimicking natural lakes. It is heated in the winters and surrounded by vegetation to increase the other senses such as smell and sound.

Issues with this floor design will arise as workers are tempted to stay in the building past their regular 9-5 workday.







Appendix

Precedents

The following work was used to inspire the design of the project. I either pulled from the materials, methods of intervention, or philosophy behind the work.

Oase No. 7

Haus-Rucker-Co

Date: 1972

Location: Kassel, Germany

Their work explored the performative potential of architecture through installations and happenings using pneumatic structures or prosthetic devices that altered perceptions of space.

Taking their cue from the Situationist's ideas of play as a means of engaging citizens, Haus-Rucker-Co created performances where viewers became participants and could influence their own environments, becoming more than just passive onlookers. An inflatable structure emerged from the façade of an existing building creating a space for relaxation and play.



Jeu de Paume

Gordon Matta Clark

Date: 1975

Location: Paris, France

Using an acetylene torch to cut into the floors, walls, and roof, Matta-Clark brought new life to existing buildings.

Arcs of light animated the building as the sun moved through the day. Multi-floor interaction was possible in unique and surprising ways. The new experiences had in these old buildings called attention to the opportunity of reimagining unwanted spaces.

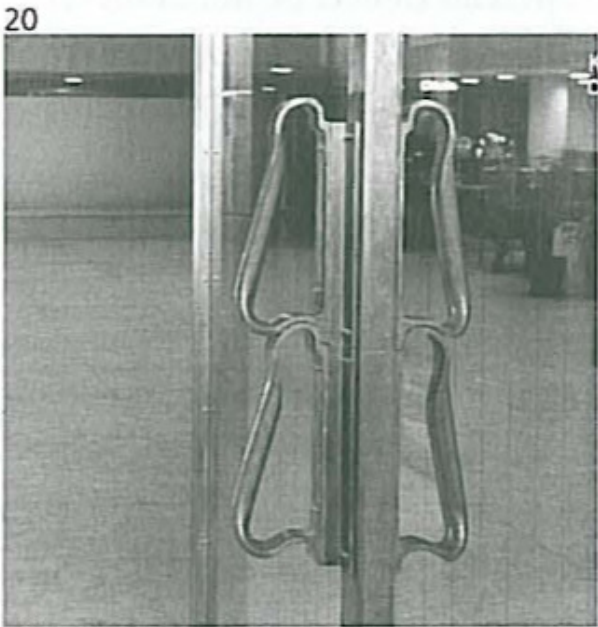
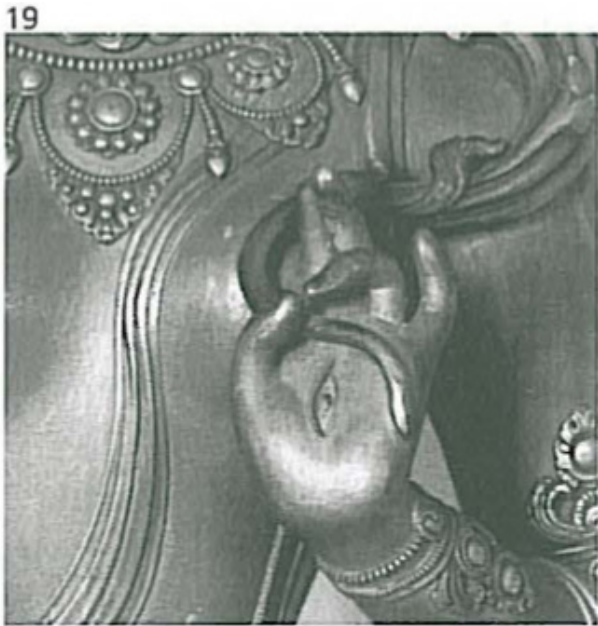


The Eyes of The Skin

Juhani Pallasmaa
Date Published: 1996

Juhani Pallasmaa describes the door pull as the handshake of the building. This is one of the only aspects of a building that humans have to touch in order to progress into a space.

“Neurological investigations suggest that our process of perception and cognition advance from instantaneous grasp of entities towards the identification of details.”



VISION AND HAPTICITY

19
A tactile ingredient is concealed in vision.

The Buddhist goddess Tara possesses five additional eyes, on the forehead and in her hands and feet. These are considered as signs of enlightenment. Bronze figure from Mongolia, 15th century.

State Public Library, Ulan Bator, Mongolia

20
The door pull is the handshake of a building, which can be inviting and courteous, or forbidding and aggressive.

Alvar Aalto, The Iron House, Helsinki, 1954. Doorpulls.

Museum of Finnish Architecture/Photo Heikki Havas

The Weather Project

Olafur Eliasson

Date: 2003

Location: London , England

Emotion | Excitement | Reaction

The team uses light intensity, spacial potential, destabilization, darkness, and colour saturation to mimic natural occurrences in the world. A semi-circular screen, a ceiling of mirrors, and artificial mist create an illusion of the sun. The screen, back lit by 200 mono-frequency lights, and the mirrored ceiling, visually doubling the spaces' volume, creates a soothing and enlightening feeling. This sensation stems from an amazement and lack of understanding of the complexity that is nature.



Super Galaxy

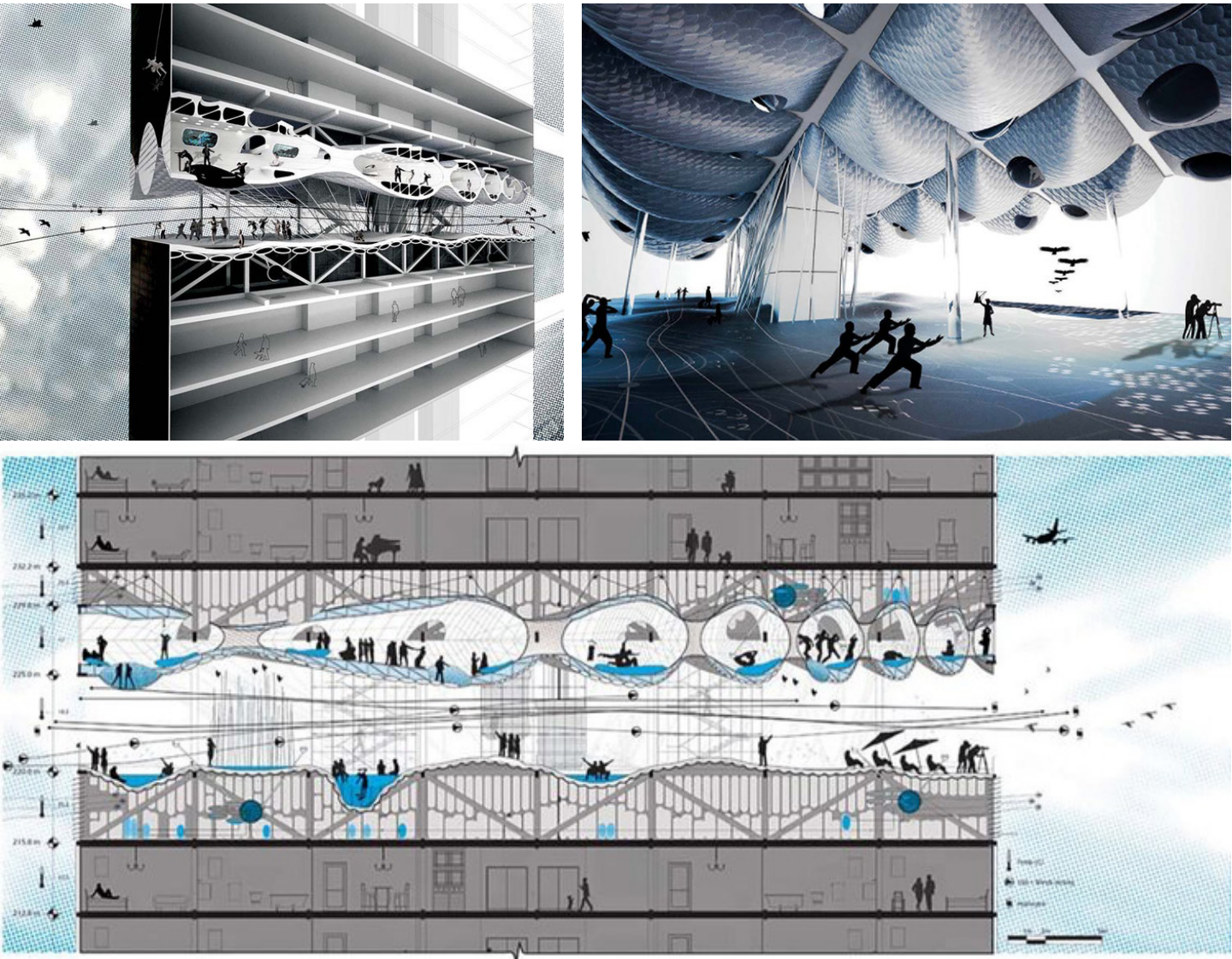
Futureforms Lab

Date: 2005

Location: San Francisco, CA

The intervention into an existing skyscraper hollowed out three stories creating ventilated space in-between the building. The space allows for flexible interactions with the elements not often seen in skyscrapers.

It is a responsive system capable of dynamically interacting with its surroundings on many levels. It is in a constant state of motion as it calibrates and re-calibrates relative to both real-time global datasets (weather, pollution, warfare, etc.) and local datasets (desired micro-climates, heat exchange, light and sound).



Digestible Gulf Stream

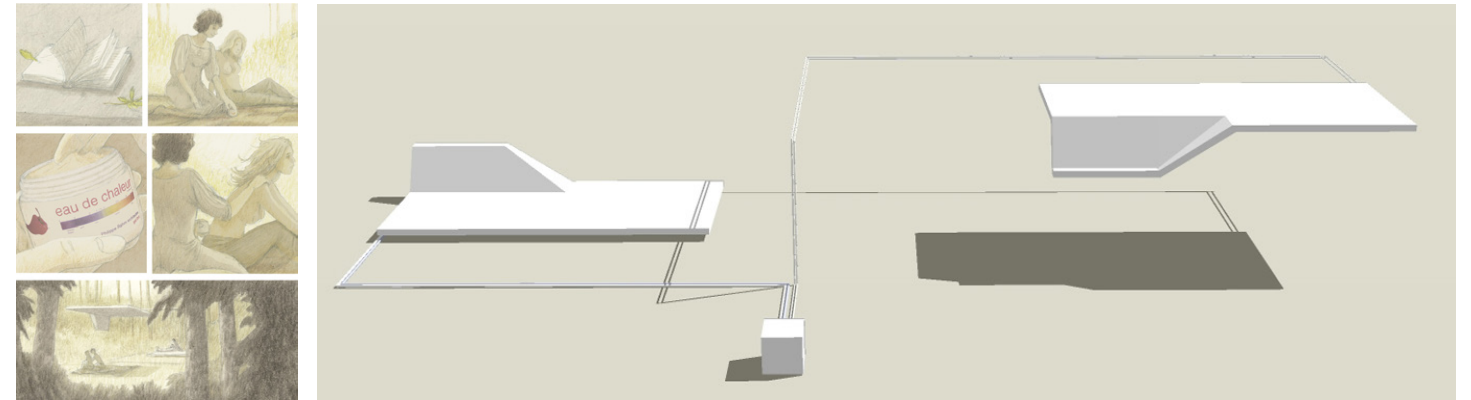
Philippe Rahm

Date: 2008

Location: Venice

A site specific instillation designed for the eleventh Architectural Biennale in Venice. Its main components include two 20-foot-long white metal planes built at different heights. The lower plane is heated and the higher one is cooled. The lower plane allows visitors to lay on the heated surface while the higher plane lets visitors stand under it to sense the coolness it emits.

The goal of the project was to create a “invisible landscape,” shaped by bodily sensations of hot and cold. Visitors choose an optimal place of comfort according to personal preferences, dietary habits or clothing.



The Fabric Workshop

Ernesto Neto
Date: 2004
Location: Philadelphia, Pennsylvania

Leviathon

Anish Kapoor
Date: 2011
Location: Paris, France

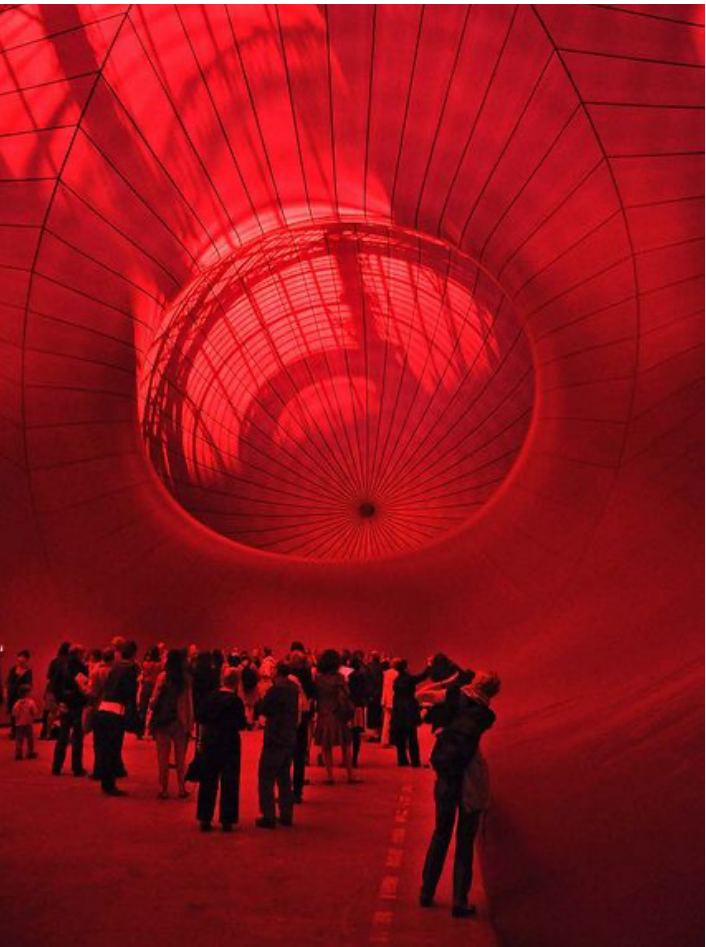
Sensorium Exhibition

Céline Merhand and Anaïs Morel
Date: 2012

Penetrable

Jesus Rafael Soto
Date: 2014

Materials that interact with the human, change over time, and evoke emotion. Touching the head or feet in new ways lead attention away from the mundane.



Bibliography

1 “800 Bell.” 800 Bell | Rice Design Alliance, <https://www.ricedesignalliance.org/800bell-hf>.

2 Backman, Chantal, et al. “Impact of Sensory Interventions on the Quality of Life of Long-Term Care Residents: A Scoping Review.” *BMJ Open, British Medical Journal Publishing Group*, 1 Mar. 2021, <https://bmjopen.bmj.com/content/11/3/e042466>.

3 Berube, Chris . Reaction Offices and the Future of Work. 99% Invisible, 7 Feb. 2022. <https://99percentinvisible.org/episode/reaction-offices-and-the-future-of-work/>.

4 “Breaking Free from a ‘9 to 5’ Culture.” *Harvard Business Review*, 27 July 2021, <https://hbr.org/2021/07/breaking-free-from-a-9-to-5-culture>.

5 Bucknell, Alice. “Touch It, Smell It, Feel It: Architecture for the Senses.” *ArchDaily*, ArchDaily, 15 Oct. 2018, <https://www.archdaily.com/903925/touch-it-smell-it-feel-it-architecture-for-the-senses>.

6 Henshaw, Victoria. “Scents of Place: The Power of the Olfactory.” *Architectural Review*, 21 July 2020, <https://www.architectural-review.com/essays/scents-of-place-the-power-of-the-olfactory>.

7 “How Sensory Design Can Help Responsive Architecture Be More Effective.” *How Sensory Design Can Help Responsive Architecture Be More Effective*, <https://www.marialorendalehman.com/blog/how-sensory-design-can-help-responsive-architecture-be-more-effective/>.

8 Pallasmaa, Juhani. *The Eyes of the Skin*. United Kingdom: *John Wiley & Sons Ltd*, 2012.

9 Popomaronis, Tom. “Science Says You Shouldn’t Work More than This Number of Hours a Day.” *Inc.com, Inc.*, 9 May 2016, <https://www.inc.com/tom-popomaronis/science-says-you-shouldnt-work-more-than-this-number-of-hours-a-day.html>.

10 Schwartz, Tony. “Relax! You’ll Be More Productive.” *The New York Times*, 9 Feb. 2013, <https://www.nytimes.com/2013/02/10/opinion/sunday/relax-youll-be-more-productive.html>.

11 Spence, Charles. “Senses of Place: Architectural Design for the Multisensory Mind.” *Cognitive Research: Principles and Implications, Springer International Publishing*, 18 Sept. 2020, <https://cognitiveresearchjournal.springeropen.com/articles/10.1186/s41235-020-00243-4>.

12 “The Art of Scent: 1889-2012.” *DS+R*, <https://dsrny.com/project/art-of-scent>.

13 Zardini, Mirko, and Wolfgang Schivelbusch. *Sense of the City: An Alternate Approach to Urbanism*. *Lars Müller Publishers*, 2006.