



2021 NBBJ Applied Research Fellowship

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# Creativity and Space

Data-driven design recommendations  
for creative workplaces

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## The Shifting Workplace

The Covid-19 pandemic altered where we work. As cities shut down and offices closed, kitchen tables became makeshift workspaces and stable WiFi became more important than ever.

This shift to home also altered how we work, from collaboration modes to connection with colleagues.

In a partnership between the University of Washington Applied Research Consortium Fellowship and NBBJ, **this research explores the relationship between the spatial elements in these home workspaces and work-from-home behaviors in an effort to design future workspaces that boost creativity, productivity and problem solving abilities.**

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# Why design for creativity?

How do we encourage our clients to see the value in providing environments that boost creativity?

Creativity can be defined as the association of diverse ideas towards a solution. The more remote the association, the more creative a solution is deemed.



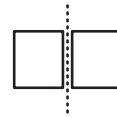
## Drive Innovation

Creativity enhances problem solving abilities and is useful beyond traditionally creative roles. Creative problem solving can mean more efficient processes or clever solutions to challenges — something all employers can benefit from.



## Increase Employee Engagement

Creative employees are not only more effective workers — they're happier people. In fact, employees with creative agency report higher productivity, fulfillment, and have higher retention rates.



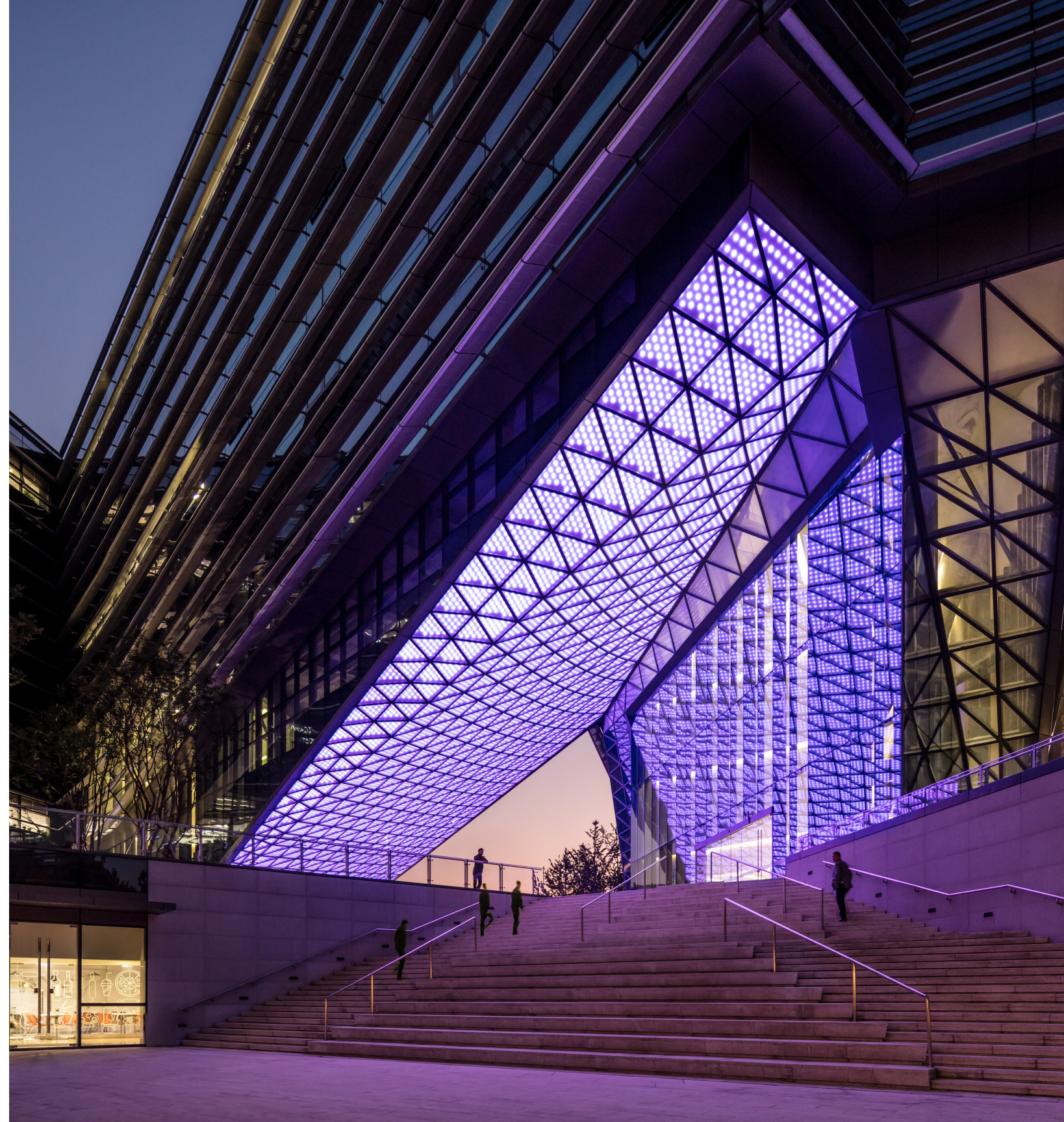
## Stand Out from the Crowd

Creativity can help employers differentiate their work from their competitors. Distinguishing themselves from others can increase sales, improve customer loyalty, and encourage further growth.



## Enhance Community Connections

Creativity is an innately human trait shared by cultures around the world. It helps foster collaboration and an inclusive mindset — one that is open to new and different perspectives.





# Research Parameters

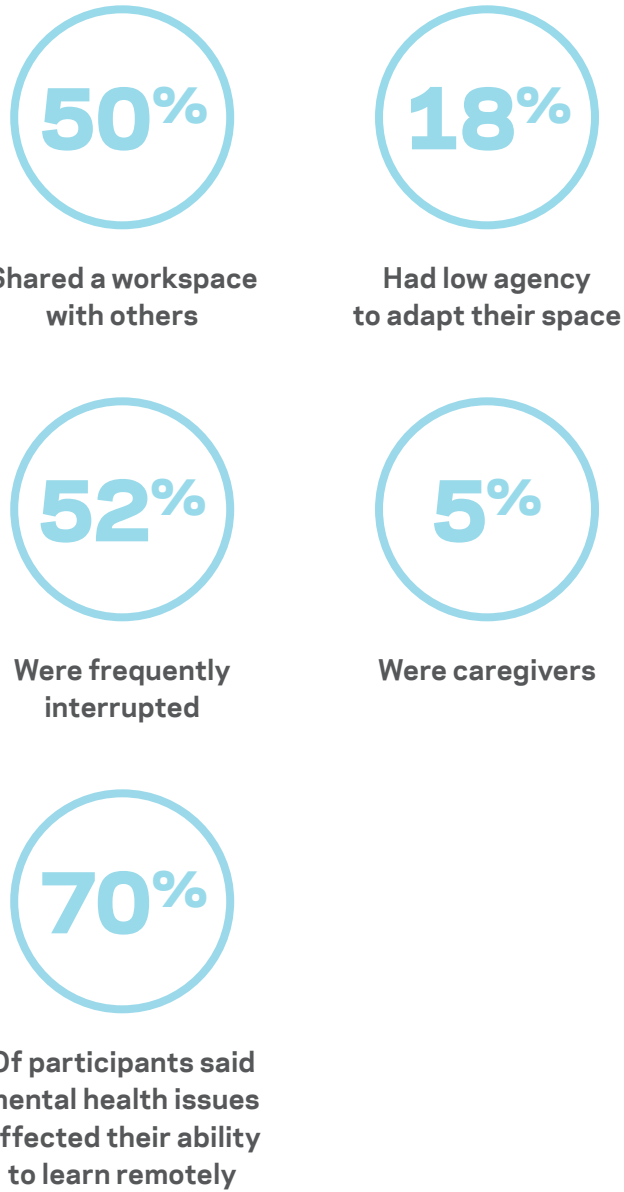
This study conducted an online survey of 378 participants — adult college students in remote learning — across 36 different social and spatial factors in their workspaces. It also asked about behavioral outcomes compared to before work-from-home. Following this quantitative evaluation, a smaller group of 11 participants were interviewed for qualitative insights.

This participant pool can also give us insight to the future, post-pandemic workforce.

|  |   |   |
|--|---|---|
| <b>Social Factors</b><br>Who are you living with?<br>Do you have pets?<br>How often are you interrupted? | <b>Spatial Factors</b><br>Is there greenery present in your workspace?<br>How organized do you like your workspace to be?<br>Which room do you work from? | <b>Behavioral Outcomes</b><br>Compared to before work-from-home, how effective are you at open-ended work?<br>How creative do you feel you are compared to before work-from-home? |
|--|---|---|

# Social Factors

Social elements present in participant homes



## Participants were living with:

|                         |     |
|-------------------------|-----|
| Older family members    | 42% |
| Roommates or housemates | 37% |
| Younger family members  | 18% |
| Significant other       | 14% |
| No others               | 10% |



# Spatial Factors

Design elements present in participants' home workspaces



**Open Views**  
e.g., Windows looking outside



**Auditory stimuli**  
e.g., Music, hearing the dishwasher, etc.



**Making space**  
e.g., Table space to spread out with materials



**Tactile Stimuli**  
e.g., Fidget toys, blankets, etc.



**Visual Stimuli**  
e.g., Posters, artwork, etc.



**Olfactory Stimuli**  
e.g., Cooking smells, candles etc.



**Greenery**  
e.g., Houseplants, views of trees outside, etc.



**Furniture that allows for movement**  
e.g., Standing desks, bouncy ball chairs, etc.



**Platforms for ideas**  
e.g., Whiteboards, cork boards, pin up space, etc.



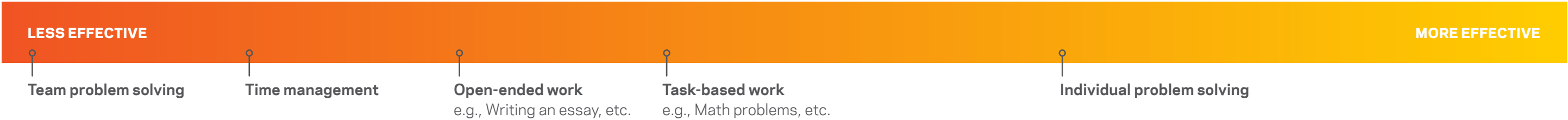
# Behavioral Outcomes

Which tasks were participants more effective at when working from home?

## Creativity and Productivity



## Problem Solving Abilities



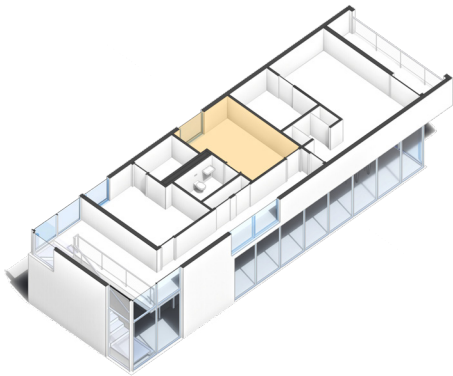
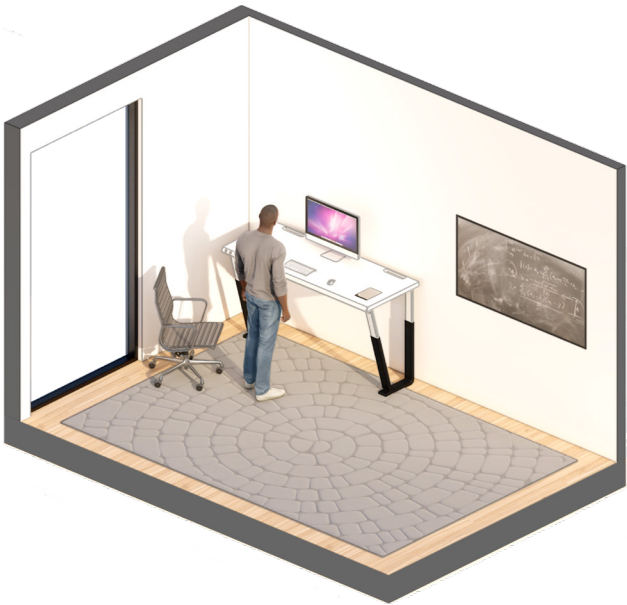
**Poor performance in work-from-home settings**  
In terms of work-from-home abilities, most people reported struggling to match their former performance. The only behavior that was slightly higher than before was individual problem solving, implying that isolation from others was helpful for this type of thinking.

**\*The Caveats of Creativity Research**  
Creativity is a tricky thing to measure and evaluate. We were aware that many people would adamantly argue that they aren't "creative types" or felt their technical work utilizes no creativity. To get around this, we asked about tasks related to creativity in addition to direct evaluation, like open-ended problem solving abilities. We also utilized a mixed-methods study to make sure our quantitative and qualitative data supported each other.



# Analysis Highlights

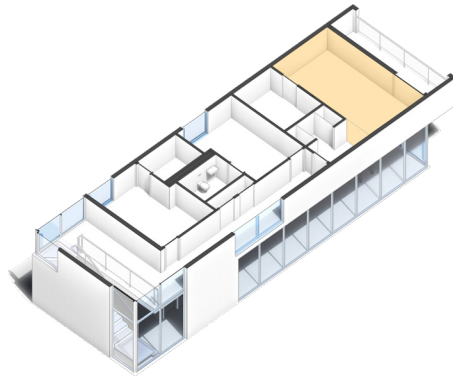
Comparing across all social and spatial factors, our research found:



**Most effective work from home location**

The best place to work is a separate office room, with furniture that allows for movement and platforms for ideas. It’s worth noting that these were the least common spatial features in participant workspaces.

Socially, caregivers who live with their families and have a high agency to adapt their space are the highest performers in work-from-home.



**Least effective work from home location**

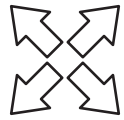
On the other hand, the worst place to work is in the kitchen without windows or space for creative tasks available. While having these features didn’t contribute to better performance, lacking them significantly affected participants.

Socially, those that lived alone, are frequently interrupted and have low agency to adapt their space have fared the worst.



## Interview Insights

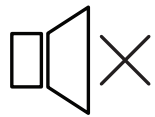
In qualitative discussions, participants recognized the importance of the following, whether or not it was present in their personal workspace:



**The Need for More Space**



**The Need to Have a Separate Space**



**The Need to Minimize Distractions**





## Creativity-Enhancing Designs

The following pages outline ways to bring these research results into data-driven design and decision-making processes, so creativity, innovation and collaboration can flourish. Here are ways employees, teams and organizations can maximize their creativity in and outside the workplace, drawing on lessons learned during the pandemic.

### DESIGNING FOR CREATIVITY

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**Movement**

**Displaying Ideas**

**"More" Space**

**Separate Space**

**Agency and Adaptability**

**Behavioral Considerations**



## Designing for Creativity: Movement

Numerous studies show movement enhances creativity, by boosting cognition, learning, memory and decision-making. To enhance these critical benefits, workplaces should encourage people to get up and move through diverse design strategies.\*

### Standing Desks and Bouncy Ball Chairs

Study participants with with standing desks and bouncy ball chairs responded with the highest creativity and problem solving abilities. Enable motion by providing furniture that allows for movement in place — especially if movement within the office space is limited.

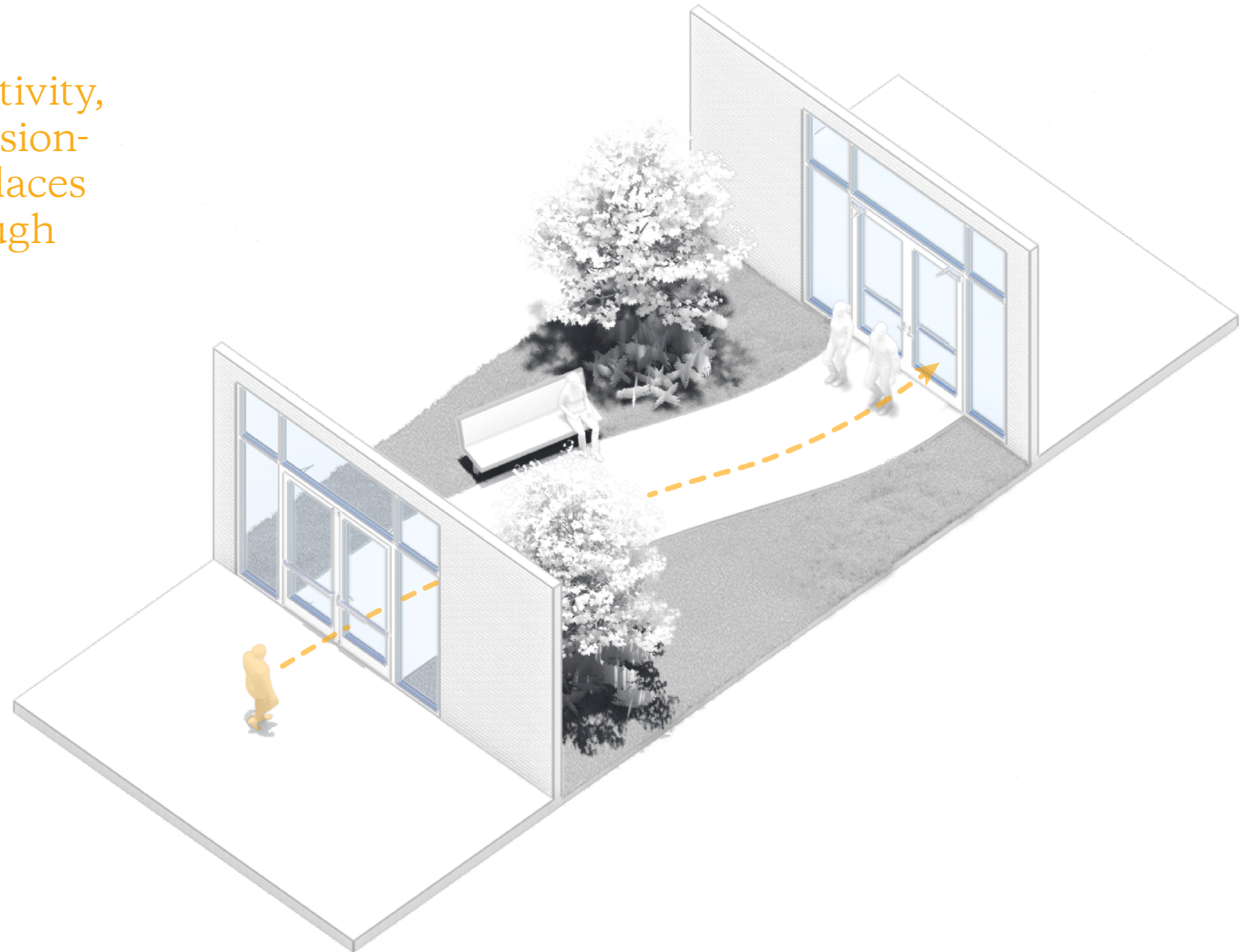
### Fidget-Worthy Flooring

Quiet flooring, such as squeak-free carpet, will allow occupants to tap their feet or fidget around their desk without disturbing their neighbors.

### Inviting Transition Space

If encouraging movement by separating work spaces from eating and relaxation spaces, give some attention to the design of the transition space. Consider elements like courtyards to invite people to travel through.

Be mindful of the difference between a prompt and an inconvenience — if the spaces are too troublesome to travel through regularly, occupants will find a work-around or skip movement altogether.



\*Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5919946/>



## Designing for Creativity: Displaying Ideas

Opportunities to visually display creative ideas can help inspire, boost collaboration, clarify a vision and enhance innovation. That's why it's essential to create the right space to support them.

### Platforms for Visual Communication

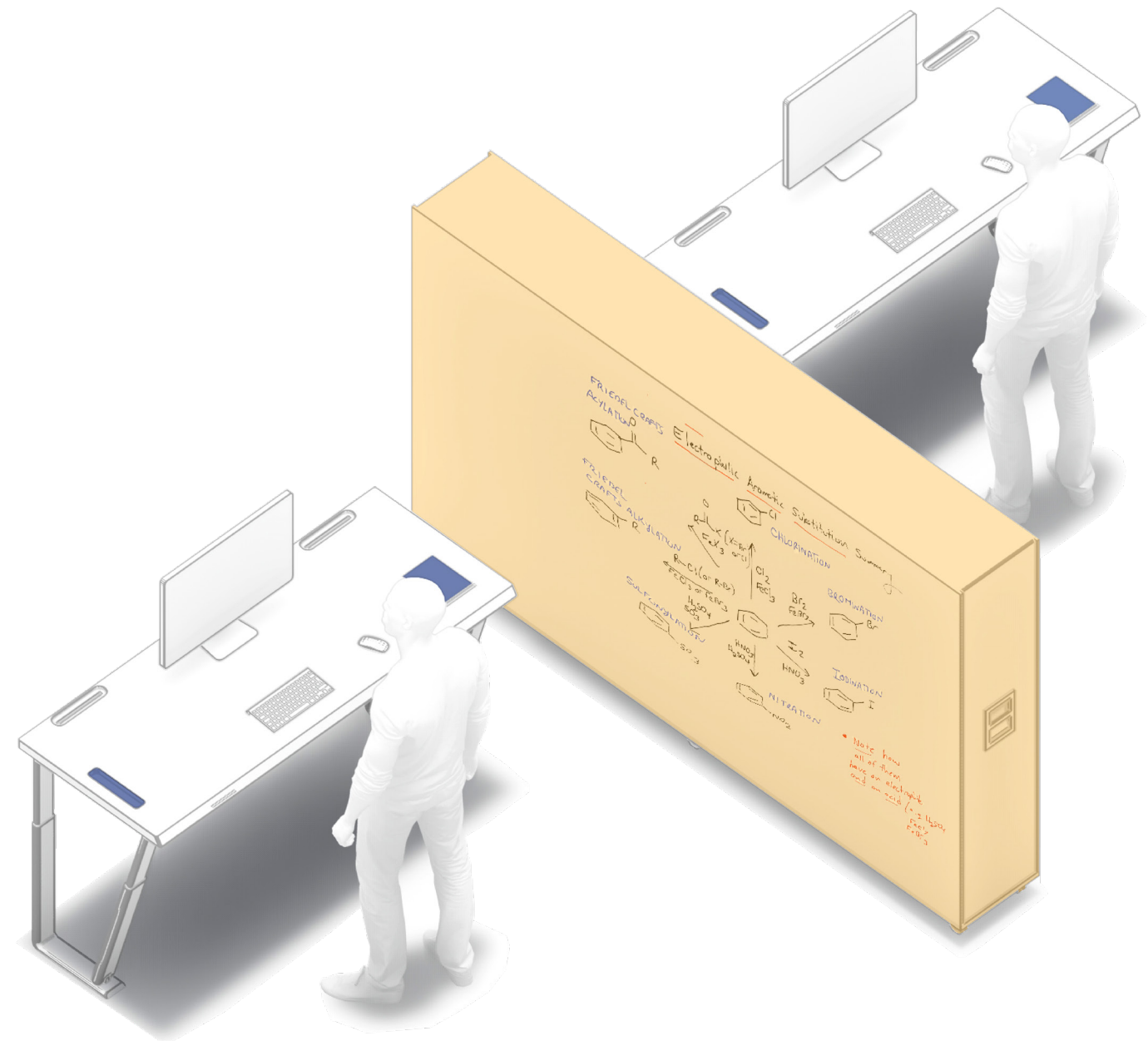
Research found that study participants with whiteboards, corkboards, or other means of displaying their ideas on the wall reported better time management, productivity, and problem solving abilities.

### Pin-Up Walls

Displaying ideas and references on cork or magnetic walls can spark creativity among employees. Allow clients to decide how organized they want their layout to be. Spreading ideas out also allows for movement along the wall itself.

### Moveable Whiteboard Partitions

Put the platform on wheels by incorporating moveable whiteboard partitions. These partitions can be pushed from meeting-to-meeting or used to create impromptu discussion nooks.





## Designing for Creativity: "More" Space

Expansive spaces can boost creativity. For example, research demonstrates higher ceilings foster creative thinking, while lower ceilings enhance hands-on tasks.\*

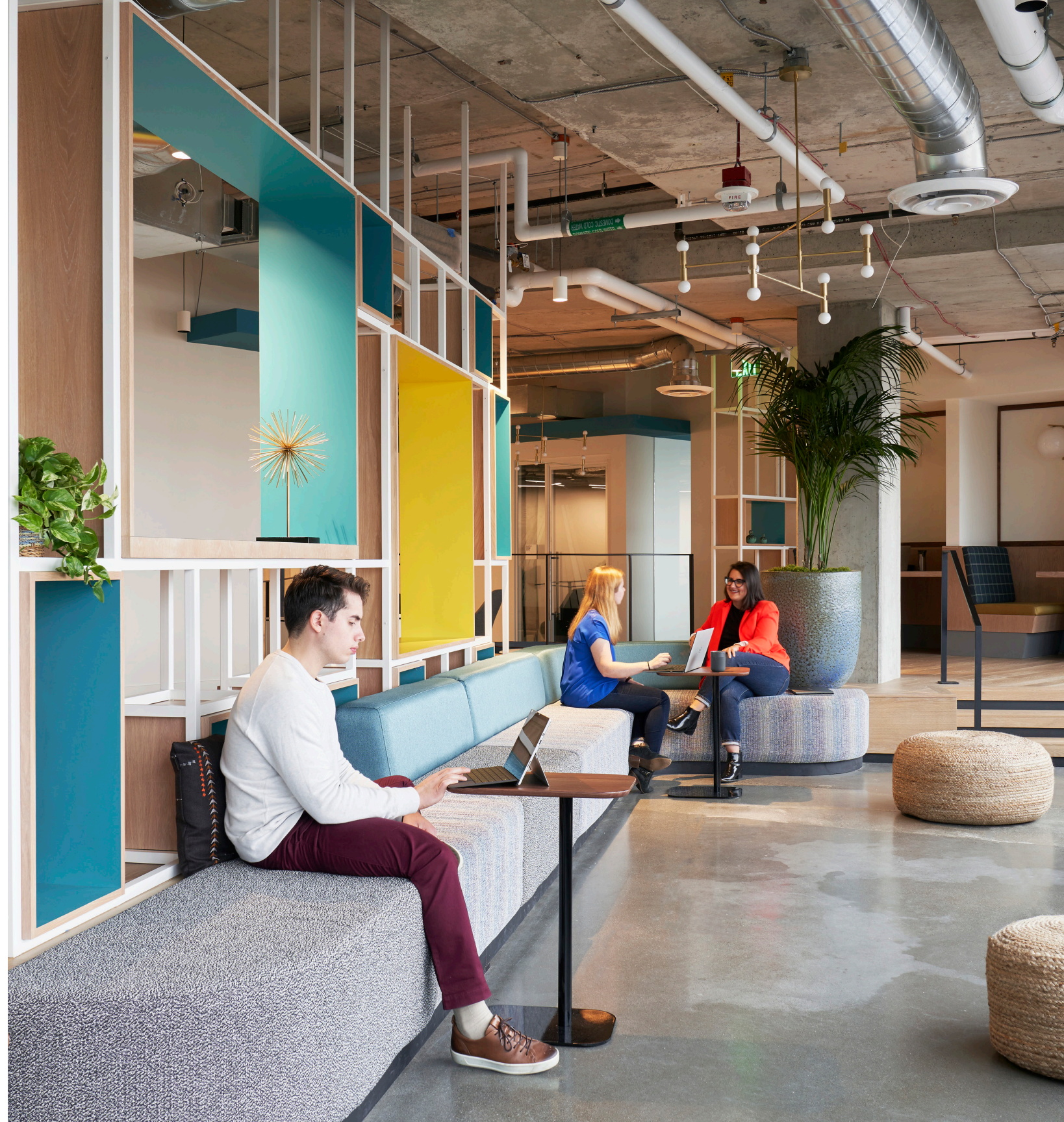
### Increase Perceived Dimensions

Design elements like mirrors, natural lighting, or high ceilings can make spaces feel larger than the floor plan actually allows.

### Create Comfort Through Contrast

While designed at different scales, both cozy nooks and tall atriums can both make the occupant feel smaller, and in turn, make the space feel bigger.

\*Source: <https://www.bbc.com/worklife/article/20170629-the-subtle-design-tricks-that-help-and-harm-creativity#:~:text=A%20study%20from%202007%20looked,complete%20more%20hands%20Don%20tasks>





## Designing for Creativity: Separate Space

Neuroscience highlights the innate need for refuge space, or areas to retreat, which derives from a prehistoric need to find safety from prey. These respite spaces are most effective when balanced with more open areas to prospect or survey the surroundings.\*

### Spatial Contrast

Spaces with different themes or feelings can increase the sense of separation between rooms. While office-wide themes are common, incorporate elements within individual spaces to make them more unique.

### Recharge Spaces

Quiet spaces that allow occupants to disconnect can also increase the sense of separation. Research results suggest that breaks taken in a person's direct workspace rather than outside of it are not as restful or beneficial to creativity.

\*Source: [https://medium.com/@social\\_archi/prospect-refuge-theory-ca5d80379e51](https://medium.com/@social_archi/prospect-refuge-theory-ca5d80379e51)





## Designing for Creativity: Agency and Adaptability

Building more choice into the workplace can foster greater autonomy and motivation, which in turn can increase wellbeing and job satisfaction.\*

### Modular Furniture

Study participants with low design agency in their space were poor performers across all behavioral outcomes. Wheeled, modular furniture can allow for a variety of configurations and give greater agency of space to occupants.

### Accessible Controls

Make temperature and lighting controls easily accessible in each space. Agency over room conditions is both convenient and creativity-enhancing.

### Future Remote Work

While remote work has been difficult for many, study participants also noted that it has allowed for more flexible schedules. Individual problem solving was also increased in remote work.

Consider incorporating remote work into future work plans to increase employee agency and adaptability.

\*Source: <http://www.sciencedaily.com/releases/2017/04/170424215501.htm>





## Designing for Creativity: Behavioral Considerations

In the workplace, organizations should support diverse work modes, preferences and schedules to create the most creative spaces possible for employees, teams and organizations.

### The Role of the Caregiver

Surprisingly, caregivers reported the highest creativity among all participant demographics. Beyond spatial adaptations, consider how to accommodate caregivers in the workplace, whether it be through flexible schedules or in-house daycare.

### Re-Establish Collaboration

Research showed that team-based problem solving suffered the most in remote work. Focus on re-establishing the collaboration that may have been difficult in work-from-home. This may mean changing what is considered “typical” for a client’s office.

### Incentivize Movement

Fitness stipends for activity tracking watches and walking meetings are some examples of encouraging movement in the workplace. In addition to design elements, social behaviors also shape how much employees move throughout the workday.





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# For More Information

NBBJ helps clients drive innovation by creating highly productive, sustainable spaces that free people to live, learn, work, play and discover.

Please contact us to begin a conversation about how our research, consulting and design services and performance-based tools can support you now and into the future.

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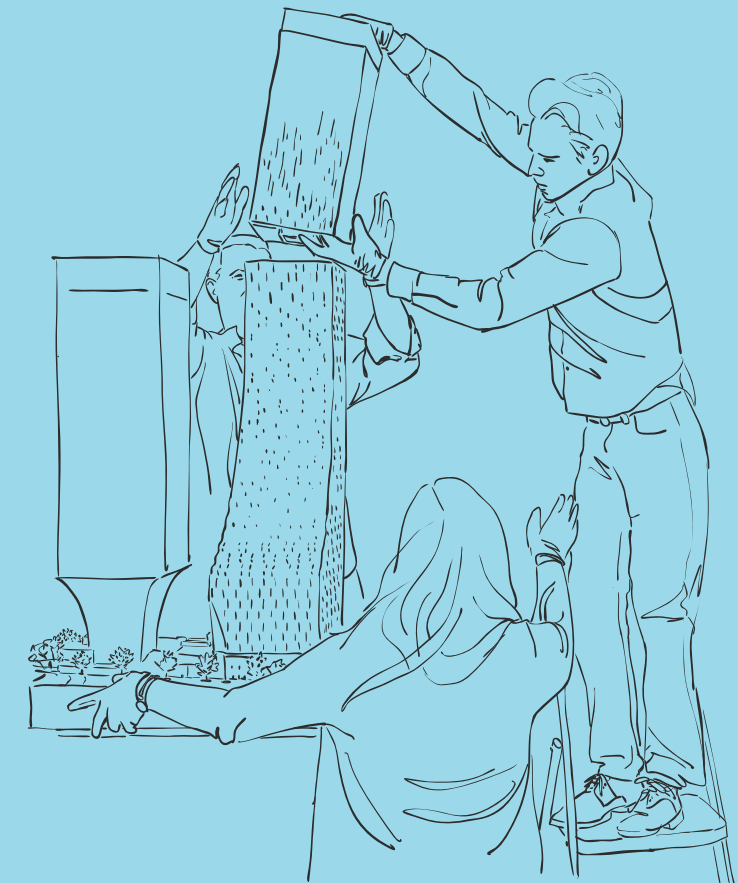
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