

Federal Judicial Center
In Session: Leading the Judiciary
Episode 38: How Office Design Can Improve Wellbeing,
Productivity & Resilience
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Esther Sternberg: If we begin to design our office spaces and operate them intentionally, we will have a better, healthier, happier, committed workforce and the bottom line will be better.

Craig Bowden: Today on *In Session: Leading the Judiciary* Dr. Esther Sternberg, author of *Well at Work: Creating Wellbeing in any Workspace*, shares research on how our work environments impact our health and productivity. Dr. Sternberg provides guidance to leaders on how to integrate the seven domains of health into workspace design, fostering healthier employees who are more focused, productive, and happier to be at the office.

Dr. Esther Sternberg is internationally recognized for her pioneering discoveries on mind, body, stress interactions in illness and healing and the impact of built environments on health and wellbeing. Dr. Sternberg is a professor of medicine, psychology, planning and landscape architecture, and nutritional sciences and wellness at the University of Arizona. She has served as an adviser to the World Health Organization and the Vatican.

In the U.S. she has advised the National Academy of Sciences, Department of Defense, and Congress. She is also the author of two previous books, *The Balance Within* and *Healing Spaces*.

Special thanks to today's host, Lori Murphy, assistant division director for Executive Education at the Federal Judicial Center. Lori, take it away.

Lori Murphy: Dr. Esther Sternberg, we're so happy to have you here today.

Esther Sternberg: I am thrilled to be here as well.

Lori Murphy: Esther, as a physician, you've spent many years partnering with professionals in other disciplines to research how we can all, as you say, be well and thrive at work. How does where we work impact how well we work?

Esther Sternberg: Where we work and the surroundings of where we work impact every aspect of our work. It impacts movement, stress and relaxation responses, sleep quality, productivity, relationships, cognitive performance. All of that contributes to our resilience.

Lori Murphy: You describe an ideal work environment in Arizona. What were some of the elements that made it so wonderful?

Esther Sternberg: I'm a research director at the Andrew Weil Center for Integrative Medicine. We use the seven domains

of integrative health as defined by the center to design our new building complex.

Lori Murphy: Can you define integrative health for us so we understand it a little bit more? Then we can go into each of these domains separately.

Esther Sternberg: Integrative health is a term that Dr. Andrew Weil coined. It's integrating all the different aspects of what you experience in your environment together with the state of the art medical treatments with ancient wisdoms which includes mind-body medicine, massage therapy, traditional Chinese medicine.

What I'm adding is the built environment. It goes beyond the biomedical model of health. Health is not just the absence of disease. It includes social interaction, so your emotional responses, and it includes the environment. We created these three buildings - we call them the mind building, the body building, and the spirit building - to embed all seven domains of integrative health.

Then in the middle of our design process, COVID happened. So we've adapted to change, for what we now know and through many researchers have learned, our essential elements to protect against viral infection and viral spread.

Lori Murphy: Compared to what you've created there in Arizona, what do you typically see in office spaces especially in government offices?

Esther Sternberg: Well, I started this work when I was a senior scientist at the National Institutes of Health. Back in 2000 the then director of research of the U.S. General Services Administration, Kevin Kampschroer, asked me how can we measure the impacts of the built environments.

We started back then using wearable devices, health tracking devices to measure the stress response and movement and eventually sleep quality, and linked all of those findings to 11 different environmental attributes - light, sound, temperature, humidity, air flow, carbon dioxide, and even office layout. We ended up with a prescription for a healthy wellbeing building.

In the first study, we studied a federal building in Denver that was being retrofitted. The old space had six-foot high wall cubicles. It was dark. It didn't have any circadian light, sunlight in the morning or throughout the day. It was musty. It had poor air flow and it had high mechanical noise.

The new spaces were open office design and had airy good ventilation, low mechanical noise, beautiful views to the outside, lots of sunlight. The people in the new space were significantly less stressed than the people in the old space as measured by two different measures of the stress response. Even

at night, when the people went home and while they were sleeping, the people were significantly less stressed.

Interestingly, when we asked them were you stressed in the old space, they were not aware that they had been stressed and their stress response was high enough that it was medically relevant.

Americans are estimated to spend over 90 percent of their time indoors. Much of it is at work whether you're working at home or you're working in the office. It's wherever you work, and live, and learn, and play. And to the extent that we can have control over that environment, it gives you the ability to manage your health, your stress response.

The judiciary, it's a highly stressful job. You can't control a lot of that but you can control your immediate environment. To the extent that you can reduce some stress that occurs from the environment, you will be lightening that load of stress. It's the chronic load of stress that makes you sick.

Lori Murphy: So let's dive into these seven domains each of which on their own will help us reduce that load. But all together, the more we do, the more we'll be able to decrease that stress load.

Esther Sternberg: What I like to say when we talk about these seven domains - sleep, resilience, movement, relationships, the environment, spirituality and nutrition -

pick one that you can work on to help you engage in those seven domains of integrative health. It's not so daunting.

Lori Murphy: I'd love to start with movement. How does movement both reveal how we're feeling but also impact how we're feeling at work and then what do you suggest we do to encourage more movement?

Esther Sternberg: You can tell when somebody is dragging, somebody's walking slowly, when they're bent over that there's a problem there. That they're either not feeling well or they're sad or depressed. You can tell that also by keyboard movements how quickly you're thinking, how quickly you're putting words together. That can inform a lot about how a person is feeling.

But let's talk about how the built environment and the office environment can help you move more. So in our studies with the GSA, we measured about 270-some office workers in four federal buildings in D.C. and other places in the country. We found that office layout really made a difference. People who were in open office design moved more during the day. They were 32 percent more active than people in private offices and 20 percent more active than people in cubicles. That amounted to about a thousand steps more a day. So your office could be your new gym.

Now, open office design is not just a field of desks. It should be called active office design, how Robert Propst

designed it in the mid 20th century. You can go to different places in the work environment depending upon your personality, the kind of work you're doing, whether you need heads down work or whether you need to be engaging with other people.

Really the ideal office space should have acoustic zones where you can have library quiet, where you can have sort of office quiet, where you can have noisier spaces which are more engaging and stimulating. If you've been to the headquarters on 1800 F Street, Northwest, in D.C., you can see these open office designs that have bench seating or quiet rooms or spaces for smaller gatherings or larger gatherings. And that gives people choices.

The other thing that can help enhance movement is attractive well-lit staircases. I describe in the book a lot of different examples of organizations that have these kinds of beautiful staircases where people actually congregate. They sit on them. So it enhances movement and enhances relationships as well.

The other thing to enhance movement is access to the outdoors, access to nature. Because when you think about your workspace, it's not only the indoor workspace, it's what is around the building. Do you have the ability to easily go outdoors, be in nature, take a quick walk during the day to get you moving to get your blood flowing and energize you?

Lori Murphy: What elements should we consider to maximize our wellbeing in the environment domain?

Esther Sternberg: The easiest way to think about it is your five senses. What you see, and hear, and smell, and touch and even taste, and what you do in the space.

So what you see, there's many ways that a window can enhance your wellbeing. First of all, it's the light. The light coming in from the window is very important for healthy sleep. Exposure to bright morning sunlight enhances your sleep quality. You fall asleep faster and you have better mood the next morning when you wake up. Then you're less fatigued the following day. If you don't have access to a window, then certainly full-spectrum sunlight boxes that mimic full-spectrum sunlight. Smart bulbs that mimic the waxing and waning of light during the day. So you need that bright light in the morning and redder dimmer light in the evening to have healthy sleep.

The other thing about a window is the view. We all thrive with views of nature, being in nature. If you can't walk outside, if you can't take a break outside, looking out the window at a view of nature gives you a chance to just sort of reset. You can bring plants into the office.

Then in the book I also talk about virtual reality. In the book I tell the story about Mirelle Phillips who was in the video game industry and then was in a serious accident and had

neurotrauma, was in and out of hospital, and was desperate to be in nature but couldn't be in nature. After she recovered, she decided to turn her skills to creating what she called recharge rooms. Then 2020 happened and COVID happened.

She realized that New York was ground zero for burnout, suicidality, exhaustion, depression amongst all healthcare providers at every level. She quickly ramped up to create 60 of these rooms in hospitals across the country and now has over a million users and data showing that even 15 minutes a day sitting in this immersive reality nature experience where the whole wall becomes a view of nature - a quiet mountain lake for example, you hear the sounds of birds and the water lapping. Fifteen minutes a day will reduce anxiety, stress, reduce depression, and improve sleep quality and even reduce burnout in people who are using these.

Lori Murphy: I know you mentioned air quality in your book as well.

Esther Sternberg: Air quality is *the* foundation. You have to have clean air. You have to have excellent ventilation, fresh air turnover, excellent filtration. During COVID, we all learned about MERV 13 filters. Right? And you saw these scary animations on the Internet of how the ventilation can spew the virus all around. This has been known for decades and decades related to Legionnaires' disease, for example, or molds or sick

building syndrome. So you've got to have clean air. That's a start.

The other reason that it's important to have fresh air turnover is that, as we breathe, we all exhale carbon dioxide. The more people there are in a room with poor ventilation and the longer they're there, the carbon dioxide levels increase in that room to a point that your cognitive performance can be 50 percent of what it should be. You feel sleepy. You feel fatigued. Your perception of how you're performing is poor because your cognitive performance is low. So you don't realize you're making mistakes. Your mood is bad. Your judgment is poor.

How important is that for people in the legal profession in a courtroom? I will tell you about being called to be a juror. I remember one time that there were so many people. It was getting hot. It was musty. I had brought work to do with me while I was waiting. I was falling asleep. I didn't realize that the problem was probably the ventilation.

Now you really don't want to start a jury off with 50 percent cognitive performance. So it's absolutely essential in every aspect of the legal profession that they have excellent ventilation. Certainly, now with COVID, you don't want a high viral infection rate. You have to have great ventilation.

But it's through the seven domains of integrative health that you control and enhance your resilience so that when you're exposed to an infectious agent you will have the resources in your body, in your immune system to fight that infection so that you will not get as sick and you won't be sick as often.

Lori Murphy: I was fascinated to know that the level of humidity makes a difference.

Esther Sternberg: We found that when it was too dry or too wet, so less than 30 percent relative humidity or greater than 60 percent relative humidity, people's stress response was 25 percent higher.

In other studies, Stephanie Taylor has shown that when it's too dry, the rate of viral infections in hospitals goes up. It costs money to dehumidify if you're in a humid state or to humidify if you're in a dry place, but you can fix that by local humidifiers. I have a desktop humidifier here in my office.

Lori Murphy: So I want to get to relationships which is yet another domain. I wonder if you could tell us how the office space we're in can foster or hinder a sense of community.

Esther Sternberg: What does a relationship need? It needs different kinds of spaces. Think about restaurants. The entertainment industry and the hospitality industry knows how to do this really, really well. You have the large banquettes where everybody can sit. The chef's table, right? Then you have the

quieter bench seating. You know, the little tables in the corner. So the space really does encourage different kinds of interactions between people in the workplace.

We worked with the Walter Reed National Military Medical Center when I was at the NIH. There is a forestland that goes along a branch of the Rock Creek Park. We retrofitted it to be ADA accessible and to have different spaces where the wounded warriors could gather. There's a music circle. There's a picnic area. There's a quiet contemplation space. That encourages people to be together with different sized groups, with smaller or larger groups, one or two people or more, and that helps engage people.

You also need the intentionality of programming. Just having people doesn't mean that they're going to get up and use these spaces. Those silos need to be broken down.

Lori Murphy: There's two more domains and neither of these were intuitive to me as being related to the office space. The first being nutrition and the second being spirituality.

Esther Sternberg: Nutrition is really important because a healthy diet enhances your health and wellbeing. You need access to healthy meals. I can tell briefly my own story where I had been eating hamburgers and French fries every day for lunch. Here I was, I was a rheumatologist and arthritis doc who, when I was at NIH, discovered that the brain stress center

is important in susceptibility to inflammatory arthritis. I went through a period of extreme stress and I developed inflammatory arthritis.

I had moved into a new house in Washington, D.C., and my new neighbors knocked on the door and they asked if I'm a writer. I said I don't know. Why do you ask? They said we've always wanted a writer to stay at our cottage in Crete. So I said I'm a writer and I went with them to Crete and I knew --

Lori Murphy: I'm a writer now.

Esther Sternberg: That's right. Well, it became my first book - *The Balance Within*. In two weeks I got so much better because I was eating a healthy Mediterranean diet every day. Fresh fish caught from the ocean. I was swimming in the ocean every day. I was climbing to the hill above the village sitting on the top of the ruins of a temple. I was meditating. I was surrounded by friends and neighbors who fed me this wonderful Greek food. That's what helped me heal.

So, all of that is to say that a healthy diet, an anti-inflammatory diet, that's very important for healthy energized work. If you're eating a high fat, high sugar lunch, you're going to be logy afterwards. You're going to want to fall asleep. You're not going to be able to perform at peak.

The other thing with nutrition and what you eat is a little bit of caffeine is fine - coffee, chocolate, tea. So that's where nutrition comes in.

Spirituality. Spirituality was the hardest chapter for me to write, but I don't mean spirituality in a religious sense. There's meditation. Meditation in many ways is similar to flow. What is flow? It's being in the zone. You feel effortless in your productivity in the task at hand. It turns out that it's not effortless. In fact, your stress response is turned on because you need your stress response for focused attention, for the energy to complete the task at hand. But parts of the brain that monitor how your body is feeling when you're stressed, those are turned off so it feels effortless.

So how do you get into a state of flow? Well, think about Olympic athletes or, I like watching figure skating, the figure skaters. You'll often see them before they go on doing yoga, sitting quietly, lying on the floor, apparently doing nothing. But they're probably meditating. That moves their stress response to the middle of what I call the rainbow of your stress response and productivity. You don't want it too high because your performance will fail, and you don't want it too low because you'll be sleeping. But, if you start a task where you move that stress response to the middle of performance and stress response optimum, then you'll be able to perform at peak.

So having spaces to go offline even for a few moments, like the recharge rooms, like quiet meditation rooms just before you get into a major stressful task will help you perform at peak.

Now if your problem is not that you're too anxious or too stressed and you need to calm yourself down, if you're kind of lousy and tired, then you need to energize yourself a little bit. So that's why you need spaces to move around, to be able to go out and take a walk, be in the fresh air. That will help move the needle to the middle of that rainbow.

There are other elements of spirituality that I talk about in the book. Gratitude. Gratitude is really important. It also helps you with your relationships with teaming. I interviewed one of my colleagues who's of Choctaw origin. He said that he starts the day with a gratitude practice where he looks to each of the directions - north, south, east, west - and feels gratitude for everything that he has and that the earth has. You can extend that to gratitude for the positive relationships that you have at work, and that helps with teaming as well.

Lori Murphy: So all of these things build to what you call resilience. How do you define resilience?

Esther Sternberg: Think about a new rubber band. You pull the rubber band and you let go. It snaps back right away. Think about a played rubber band that's just been overused. You

pull it and it doesn't snap back. That's resilience. It's how quickly you bounce back from any kind of stressor. Whether it's physical, emotional, social or infectious or any sort of illness.

Lori Murphy: So all of these other domains, when attended to properly, can help us bounce back more quickly, be more resilient, more often be more productive, just be more well.

Esther Sternberg: Yes, I couldn't have said it better.

Lori Murphy: So a lot of our audience are leaders in the judiciary. You mentioned earlier the financial cost to creating spaces that are optimized for employee wellness. What advice do you have for them?

Esther Sternberg: So one of the big challenges to creating wellbeing workspaces is it costs a lot of money. It costs a lot of money upfront from the building developers, the building designers, and so on. What's really important is the return on investment of healthy workers well outweighs the extra money spent upfront because it's estimated that well over 90 percent of the cost of a building over its 30-year lifespan comes from the cost of the workers.

So it's been estimated that people with poor sleep for various reasons cost the organization between \$1,500 and \$3,000 a year per employee. If you have a lot of employees, that amounts to a lot of money. Ask your employees what they need.

The GSA has a lot of occupancy surveys, post-occupancy surveys. You can go on [sftool.gov](https://www.sftool.gov) for these kinds of surveys.

There's also a lot of organizations that are now getting into the business of certifying buildings as healthy or well. This is a billion dollar industry, to survey people as to what it is that they need in their space, because it's going to be different. In an open office design, you might need to add acoustic measures for acoustical zones.

So really the leadership needs to work with the employees who are in those spaces to see what it is that they need most. It will depend on personality. It also depends on the type of work you're doing no matter what your personality. You're going to be doing different kinds of work at different times during the day. You may be meeting with your team. You may be speaking, you know, presenting. You may need time for heads down work.

So that's why you need many choices of places to go depending on your personality and the kind of work that you're doing. But it really is important for the leadership to work with their employees to understand what's needed. I have to say that, if you don't do that, you're in trouble.

Post-COVID, there's what we call the downtown apocalypse where people are voting with their feet. They are leaving organizations that don't give them these choices - the choices

to work remotely, the wellbeing buildings. It's not good enough to just fix the ventilation. You're not going to attract people back to a 6-foot high wall cubicle space that is noisy, and has no sunlight, and no places to go to get offline just by fixing the ventilation.

I live about 10 or 20 minutes drive from five world-class spas. Those spas are designed and operated to attract people to them. Somewhere over 158 million people a year go to the Disney theme parks. Nobody is mandating people to go to those theme parks. The Disney imagineers mid-century created those parks to take people from a place of fear and anxiety to a place of hope and happiness. And they did it intentionally.

So if we begin to design our office spaces and operate them intentionally, we will have a better, healthier, happier, committed workforce and the bottom line will be better.

Lori Murphy: So where can we learn more about you, and your work, and this topic in general?

Esther Sternberg: You can certainly find my book, *Well at Work: Creating Wellbeing in any Workspace*. You can go to my website, www.estersternberg.com, and you'll see my speaking engagements and you'll find my other books. *The Balance Within: The Science Connecting Health and Emotions* and *Healing Spaces: The Science of Place and Well-being*.

Lori Murphy: We really appreciate your time. You've given us a lot to think about. How where we work and spend our time really has an impact on how well we act, and perform, and relate. I've been really inspired by what I read and by our conversation today, so thank you.

Esther Sternberg: Well, thank you very much. I really enjoyed it.

Craig Bowden: Thanks, Lori, and thanks to our listeners. To hear more episodes of this podcast, visit the Executive Education page on fjc.dcn and click or tap podcast. You can also search for and subscribe to this podcast on your mobile device via Apple, Spotify, or YouTube. All episodes are also available on fjc.gov.

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