Episode Book

EPISODE #5751

Designing Rooms for ADHD Brains

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SYNOPSIS

What happens when you design a home for an ADHD brain? A UK standards body wrote the first national guidance on neurodiversity and the built environment, and EEG research suggests the needs are genuinely distinct — not just good design with a label. This episode digs into PAS 6463, the University of Amsterdam study on sensory defense responses, and the practical tension between calm-minimalist design and the ADHD need for novelty and engagement.

TRANSCRIPT



Corn

Hannah sent us something this week, and I want to start by saying I have a personal stake in how this goes, because I live with Daniel and Hannah, and I have opinions about their hallway.



Herman

The hallway with the shoes.



Corn

The hallway with the shoes, the bags, the stroller, the thing that beeps. Anyway. Hannah's an architect, and she's been circling this for a while. More or less, she asked us this: if you're building a house or renovating an apartment and you want the space to make daily life easier for an ADHD brain, where do you even start? What principles guide the architecture, the storage, the circulation, the organization, the visibility, the lighting, the acoustics, the furniture, all the little systems that help somebody use the space instead of fighting it.



Herman

And she's not asking for a mood board.



Corn

Right. She also pushed on the thing Daniel asked about a while back, which is the supposed tension between a designer's aesthetic priorities and the functional needs of someone with ADHD. And she wanted to flag, as an architect, that function is already baked into what architects do. Beauty is part of wellbeing, not the enemy of it. So that whole aesthetics versus function boxing match, she's saying, is a false one, and I think she's right about that.



Herman

She is.



Corn

Then the deeper questions. Are these ADHD strategies just good human-centered design that would help almost anybody? Or are there places where an ADHD need conflicts with what works for a neurotypical person? And should we be designing every space with neurodivergence in mind from the start, the way physical accessibility is now a baseline requirement instead of an add-on?



Herman

That last one already has an answer, and I want to get to it.



Corn

So do I. So let's start with the one document that actually tries to answer this at a national scale.



Herman

PAS 6463.



Corn

Say what that is, because I had to look it up and I'm still not sure I pronounce it right.



Herman

Publicly Available Specification. It came out of BSI, the UK National Standards Body, published on the thirty-first of October, twenty twenty-two. Title is "Design for the Mind: Neurodiversity and the Built Environment." And it's the first national guidance standard anywhere for designing the built environment for neurodiverse populations.



Corn

First national one. Not a paper, not a manifesto. A standards body.



Herman

A standards body, developed with Transport for London, BBC Workplace, Forbo Flooring, and Buro Happold. So it's not academics writing in a vacuum. There are people who own buildings on that list.



Corn

What does it actually say?



Herman

The framing matters more than any single clause. It defines neurodiversity as variation in neurocognitive profiles across the whole population. Its own language is that it's about us all. It's not an autism document the way people assume.



Corn

It covers ADHD too.



Herman

ADHD, autism, dyslexia, neurodegenerative conditions, sensory processing differences broadly. And the structure reads like Hannah's list. Developing the brief. Site and building layout. Wayfinding. External spaces and access to nature. Internal layouts. Mechanical, electrical, plumbing. Acoustics and noise management, with a table of recommended acoustic values. Light, lighting and reflection. Surface finishes. Fixtures, fittings and furniture. And safety, recovery and quiet spaces.



Corn

So somebody has already written down the checklist.



Herman

Somebody has. And here's the line from BSI's own press release that I think answers Hannah's last question directly. They say designers have long ensured accessibility for physical disabilities, but the needs of neurodivergent people have not received the same



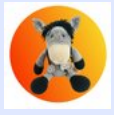
Herman (continued)

level of attention.



Corn

That's the accessibility parallel, stated by a national standards body.



Herman

It is. Though I should be precise. This is a PAS, not a full British Standard. It's guidance, not mandate. Nobody fines you for ignoring it.



Corn

But it exists, and it's the closest thing anywhere on earth, because there is no ADHD-specific building standard. Not in the UK, not here, not in the States. Nothing.



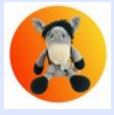
Herman

Nothing. That's the honest summary.



Corn

Which means the standard is guidance and the guidance is not evidence. So what does the actual research say about whether ADHD needs are distinct, or whether we're all just describing good design and putting a label on it?



Herman

This is where it gets good, because there's a study that answers exactly that question and it's not a survey. It's EEG.



Corn

Go.



Herman

Twenty twenty-four, out of the University of Amsterdam. Bagheri, Good and Alavi, published in Building and Environment. Fourteen people with ADHD, thirteen without, ages eighteen to thirty-four, mean about twenty-six. Thirty-two channel EEG. Six conditions, alternating lighting and sound.



Corn

What were the conditions?



Herman

The comfortable one was warm light at thirty-five hundred Kelvin, three hundred and fifty lux, in silence. The uncomfortable ones were cool light at sixty-five hundred Kelvin and eight hundred and thirty lux, and separately classroom noise at seventy-five decibels.



Corn

So they're not asking people how they feel. They're reading the brain.



Herman

Right. And the finding is the reason I wanted to do this episode. The participants without ADHD showed a measurable defense system response to the discomfort. A physiological reaction. The brain registers the bad lighting, the noise, and it mounts a response. In the ADHD participants, that response was lacking, or slow, or weak.



Corn

Say that again, because I want to make sure I have it.



Herman

The discomfort still registers. What's missing is the alarm. The thing that tells a neurotypical brain this environment is bad, get out, is not firing the same way.



Corn

So the ADHD brain isn't more sensitive in the sense of complaining louder. It's less defended.



Herman

That's the finding. And the authors' own conclusion is that it underscores the necessity to design adaptive spaces that cater to a broad spectrum of sensory experiences.



Corn

That's the answer to Hannah's question, then. It is not just good design.



Herman

It's the strongest evidence we have that it isn't. Because if ADHD were simply a preference for calmer rooms, you'd expect the same defense response, just triggered at a lower threshold. You don't get that. You get a muted or absent response. And the practical consequence is uncomfortable, which is that an ADHD person may not realize an environment is hurting them until the cumulative effect lands.



Corn

Weeks later. You're not worn out because of the room, you're worn out and the room is why.



Herman

Exactly that.



Corn

What else came out of the same study?



Herman

A list of ADHD-specific sensory traits. Heightened sensitivity to blue light, to bright and flickering light. A correlation with photophobia. Impaired visual crowding filtering, which means a cluttered visual field is harder to parse. Both hyper and hypo sensitivity to sound. Difficulty understanding speech in noise. And one that surprised me, which is that ADHD individuals do not benefit from visual cues to the same extent when they're trying to understand speech in a noisy room.



Corn

So the lip-reading trick that gets everybody else through a loud restaurant doesn't work as well.



Herman

Doesn't work as well. And there's a well-known clinical observation that goes back further, which is that exposed fluorescent lights, with the flicker and the hum, intensify hyperactivity in ADHD children. That one predates this study, but it fits.



Corn

The flicker and the hum. That's a light fixture doing something to a child that no one can see.



Herman

And there's a second study that's worth putting on the table, though I want to flag up front that it's a pilot with six people in it.



Corn

Go ahead.



Herman

Park and colleagues, published in Architecture in March of this year. Six adults with ADHD. They looked at desk orientation in offices, open-plan versus enclosed. Using EEG and heart rate variability.



Corn

And?



Herman

In open-plan offices, a desk with both outward visibility and visual backing was associated with lower beta and gamma power. Less cognitive demand. The back-to-back exposed desk was worse. But in the enclosed private offices, desk orientation didn't matter at all. Enclosure itself buffered the effect.



Corn

The room did the work the desk couldn't.



Herman

The room did the work. And then the part that I think is the most interesting thing in the whole literature. Participants rated the back-to-back exposed desk highly on perceived performance. They thought they were doing well. Meanwhile their EEG showed higher cognitive load and their heart rate variability was lower.



Corn

They felt fine and they were straining.



Herman

Felt experience diverged from measured experience. Which is a real problem if you're designing from user self-report.



Corn

Which is how most design gets done. You ask the client what they want.



Herman

You ask the client what they want, and the client tells you the exposed desk is great, and the client's physiology says otherwise.



Corn

Six people, though.



Herman

Six people. Only two in the open-plan condition. The effect sizes look enormous, above point nine nine on partial eta squared, but the authors themselves say the results are unstable and should be interpreted cautiously. That's their language, not mine.



Corn

And the UvA one is twenty-seven people in a lab.



Herman

Twenty-seven, lab-based. So what we have is early evidence pointing hard in one direction, not settled science. I'd put both of these in the same bucket. Strong signal, thin sample.



Corn

Fine. So the research says the needs are distinct. Which brings us to the practical question, and the one I actually care about, which is what does this look like in a house? And where's the line between good design for ADHD and good design for everybody?



Herman

There's a genuine disagreement in the sources on that, and it's the part I find most interesting. Mainstream design advice leans calm. Low contrast, reduced stimulus, soft everything.



Corn

Which matches the defense-system finding. Less to defend against.



Herman

It does. But Clare Kumar, who's autistic and ADHD, runs a practice called Happy Space, and she says ADHD brains need novelty as well as structure. She names three things for what she calls neurological safety. Sensory support, which is the ability to adjust the stimulus rather than just eliminate it. Cognitive kindness, which means single-purpose, well-defined spaces that reduce decision paralysis. And emotional engagement and refuge, which is seeing yourself reflected in the room.



Corn

So not just subtraction. There's an additive element.



Herman

And then there's a paper taking the opposite direction hard. Yomna Abdallah, published in Architecture in September twenty twenty-five. She proposes what she calls anti-ADHD architectural design criteria. Minimal architecture. Reduced forms, reduced patterns, reduced color, no ornamentation. Her phrase is no emotion criteria, to cut sensory stressors.



Corn

A building with no affect.



Herman

Combined with what she calls metaphysical architecture for cognitive engagement. Plus optional VR and AR add-ons. And I want to be clear, this is a theoretical proposal. There's no clinical testing. She calls for clinical studies herself.



Corn

So the two camps are, effectively, strip the room down, or strip the room down and then add something back.



Herman

And Kumar's position is that if you only do the first half, you're asking people to spend their energy getting through the space. Her line is that's when autistic shutdown happens, or a meltdown.



Corn

What's the concrete version? What do you actually put in the room?



Herman

Storage is the biggest one and it's counterintuitive. The practitioner advice is open shelving, open bins, open baskets, open wardrobes, color-coded labels, a lazy Susan in the corner cabinet, a trash can in every room, a laundry basket in every room, hangers in every room.



Corn

That's the opposite of what a design magazine tells you.



Herman

It is. The principle is what's out of sight is out of mind. A closed cabinet is a place things go to stop existing. So you trade visual tidiness for visibility and you cut the friction of putting things away. If the bin is in the room, the rubbish goes in the bin. If the bin is down the hall, the rubbish goes on the counter.



Corn

That one I can verify from lived experience in this apartment.



Herman

Then zoning. Separate the high stimulus zones, kitchens, playrooms, from the low stimulus recharge zones, bedrooms, quiet nooks. Acoustically and visually. The prospect-refuge finding is basically the empirical version of this. Enclosure buffers cognitive load.



Corn

What about light?



Herman

Layered, dimmable, indirect. Avoid harsh overheads and exposed bulbs and glare. Warmer light for winding down, cooler and brighter for work. Full spectrum bulbs to support circadian rhythm.



Corn

Acoustics?



Herman

Soft materials. Rugs, curtains, upholstery, acoustic panels. Double or triple glazing in noise sensitive areas.



Corn

Furniture?



Herman

Swivel chairs on casters. Rocking chairs, hanging chairs, because movement helps regulate. Rounded corners, because of the tripping and bruising risk. Modular, adaptable furniture, because the novelty-seeking brain will re-arrange it.



Corn

And color.



Herman

Low contrast, grounding, dusty tones on the big surfaces. Richer color only in small intentional accents. Which is a way of having the novelty without it being everywhere at once.



Corn

Now the conflict question, because that's the one Hannah really pushed on. Are there places where an ADHD or otherwise neurodivergent person's needs conflict with what a neurotypical household would want?



Herman

The clearest case I've seen is Cherie Clonan's house in Melbourne, written up in the Guardian in December. She has a room in total darkness, lined with sound blocking panels. Her own description is, it's all black in there, you wouldn't believe it's the same home. It's a sanctuary for her autistic son.



Corn

A blacked-out, soundproofed room in the middle of a family house.



Herman

Which most neurotypical households would never build and might find alarming if they walked into it.



Corn

That's the limit case. It's not a softer version of a normal room, it's a different category of room.



Herman

And it's the honest answer to the question. Some of this is just good design that helps everyone. Soft light, less noise, things you can see. Some of it is not. A total darkness room is not good design for a neurotypical family. It's good design for one person in one house.



Corn

There's a texture angle too, isn't there?



Herman

Dr. Rachel Melvald, who works on what she calls psychitecture, makes the point that texture which reduces sharpness and pointiness feels physically comforting. Her line is that in our brain it signals, this is safe to land.



Corn

Safe to land. That's a good phrase for a sofa you can actually sit on.



Herman

And Dr. Jan Golembiewski, who's an architect and a design psychology researcher, says it can ease symptoms, even heal, and that for someone with ADHD it's about building in positive affordances.



Corn

Positive affordances. Things in the room that invite the right action instead of requiring willpower.



Herman

Which is the thread through all of this. None of it works by making the person try harder.



Corn

Kumar's line about what happens without it is the one I keep thinking about.



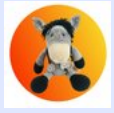
Herman

That if you don't have all three, sensory support, cognitive kindness, emotional engagement, you're asking people to give you their energy to get through. And then her harder line. That designing people out shuts off their ability to give. She calls it a crime. She says we're squandering human potential.



Corn

That's the stakes version of a hallway with shoes in it.



Herman

Then the numbers, which are the argument for doing this at the design stage rather than retrofitting. Buro Happold's figure, in the context of PAS 6463, is that at least fifteen to twenty percent of the population experiences some level of sensory processing difference.



Corn

One in six, roughly. And we build every building for the other five.



Herman

And the Royal National Institute of Blind People's King's Cross building was aiming to be the first UK building to adopt PAS 6463. So adoption is starting. Slowly, and in one country, and as guidance.



Corn

So Hannah's last question. Should we design all spaces with neurodivergence in mind from the beginning, the way accessibility is now treated as a baseline requirement?



Herman

A national standards body has already said yes, in writing, in the UK, in twenty twenty-two. The question is whether guidance becomes mandate, and how long that takes.



Corn

And whether the evidence base behind the guidance is strong enough to carry that weight yet.



Herman

It isn't yet. Not on its own. But the direction of the evidence is consistent, and the direction of the standard is set.



Corn

There's a practical dimension here that doesn't show up in any of the papers.



Hilbert

It's the hardware that does it.



Herman

Sorry?



Hilbert

Everybody's talking about the room. It's the hardware. Drawer slides.



Corn

Go on.



Hilbert

I did a job, must have been eighty-five, putting in wardrobes for a family, and the mother had me fit soft-close slides on every drawer in the boy's room. He was about eleven. And I thought it was a gimmick, because we didn't have them, you just pushed the drawer and it went bang, and that was normal. But she'd read about it somewhere and she wanted them.



Herman

Did they make a difference?



Hilbert

The sliding wasn't the point. What it did was the drawer could not be slammed shut. You push it and it takes itself the last inch. So the whole room was quieter, and more than that, he stopped getting in trouble for slamming it. The thing he was being told off for four times a day, the drawer just quietly took it away from him. Cost about four pounds a drawer more.



Corn

Four pounds to remove a daily argument.



Hilbert

That's the whole trick. Nobody writes it down because it isn't interesting. But you can get a lot of a house fixed for the price of a nice faucet, if you know which four things to change.



Herman

It's the same logic as the desk study, though. The environment takes the load off the person.



Hilbert

The environment takes the load. That's it. And the other one I'd say, since you asked, is hooks by the door at the right height for whoever lives there. Not a standard height. Measured.



Corn

What happened to the wardrobe job?



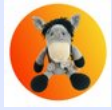
Hilbert

They sold the flat in ninety-one. I never saw inside it again.



Corn

I want to go back to something in the desk study, because I think there's a warning buried in it that we skipped past.



Herman

The self-report divergence.



Corn

If you're designing for someone and you ask them how it feels, you are going to get an answer, and the answer might be wrong. Not because they're lying, because the instrument that would tell them something's wrong isn't firing.



Herman

Which makes the designer's job different from a normal brief. Normally the client's satisfaction is the metric.



Corn

And here the client may report satisfaction while their physiology is telling a different story. That's a awkward thing to hand an architect.



Herman

It's why the objective measures matter. And it's also why I'd be careful about over-reading any of this. You can't EEG every client. What you can do is design for adjustability, because if the person can't reliably tell you what's wrong with the room, the room should let them change it anyway.



Corn

Control as the design principle, rather than a specific configuration.



Herman

Adjustability covers the missing defense response, because the person may not know to ask for the change. The dimmer, the blind, the door that closes. All of that is a way of building in the alarm that the brain isn't supplying.



Corn

Which loops back to the PAS categories, actually. Light, lighting and reflection. Acoustics and noise management. Safety, recovery and quiet spaces. A quiet space is a room you can remove yourself to when you can't tell you need to.



Herman

A quiet space is a manual override for a missing reflex.



Corn

That's the sentence I'd put on the cover of the standard.



Herman

Somebody should tell BSI.



Corn

Somebody should. So where does this leave us. The research is early. The samples are small. The Abdallah paper is a proposal nobody has built. The prospect-refuge pilot is six people. But the UvA finding is a real mechanism and it isn't a preference study. The defense response is missing or muted, and that changes what the room is doing to the person.



Herman

And the standard exists, which is further than most fields get. PAS 6463 has been sitting there since twenty twenty-two, developed with Transport for London and the BBC, and it's still guidance. Which raises the question of what it would take to move it to mandate.



Corn

The accessibility path took legislation and decades of advocacy. Ramps, lifts, bathroom dimensions. It moved from add-on to requirement because people fought for it, in law, building code by building code.



Herman

And the difference here is that physical accessibility is visible to a building inspector. Cognitive load isn't. You can't walk into a room and see that the defense response isn't firing.



Corn

Which is exactly why the measures matter. If it isn't visible, it has to be measured, or it stays a preference in everyone's mind. And fifteen to twenty percent of people is not a preference.



Herman

No. And the total darkness room is the reminder that we're not going to get this right by making rooms generically softer. Some of it is going to look strange to everybody else. That's the point of it.



Corn

A room you can't tell is helping, in a building you can't tell is designed, for a thing the person inside can't feel until it's too late.



Herman

It's an argument for designing it in from the beginning, because you can't retrofit the alarm afterwards.



Corn

One more thing. Daniel and Hannah will have heard all of this, and I'd like the record to show that the hallway remains a hallway.



Herman

That's your review pitch?



Corn

That's my position. If you enjoy the show, leave us a review, it helps other people find it. And our producer is Hilbert Flumingtop, who fitted soft-close slides in eighty-five and still holds the moral high ground on drawers.



Herman

He does.



Corn

This has been My Weird Prompts.



Herman

Email us at show at my weird prompts dot com. We'll be back soon.