

Edited Transcript

Universal Design Conference

Sydney Town Hall (Lower)

Wednesday, 20 August 2014 at 9am

Day 1

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HOUSE AND HOME

Session Chair: Prof Bruce Judd

Chris Nicholls: The house that Chris built: a user's perspective

Synopsis: *Chris discusses the design and construction of his family home from the perspective of a wheelchair user. He outlines some of the problems with applying standards such as AS1428 in homes and explains why some design features, which are often referred to as disability features, are not necessarily needed by every wheelchair user or person with a disability. He also explains which features were important and why.*

I have my finger in a number of pies, but the most important thing is the fact I have a disability, I'm a T6 paraplegic. That means I have no feeling more or less from my bottom rib down, but, more importantly - the fact I don't have balance. If I put my arms forward I'll fall forward and the only way I can get back up is to push up with my hands, and if I lean to the side - the reason it's important when it comes to kitchen design I have to take consideration getting under a bench to be able to do things.

So this is basically about the house that I built, but my wife certainly had a lot of input as well. I have to apologise right from the beginning, there are some old and new pictures, I would like to have taken more, this is when it was built, I would have liked more up to date pictures, but I have four kids under 6 and the idea of getting a tidy picture now is pretty remote.

We set a personal brief initially about the things important to us. We wanted to make all the rooms accessible. I couldn't stand the idea of not being able to get to certain places. Having said that, there's just one place we can't now we've retrofitted a non-accessible attic storage space. But the pool was to be wheelchair accessible as well as the house. My wife wanted me to be able to do as many of the boy jobs as she called it as possible. I take the wheelie bins out, manage all the pool pumps, and what have you. To make it as low-maintenance as possible, the upkeep - that was something I particularly wanted - and the indoor and outdoor living experience, so we wanted - you can probably hear, I'm a Pom and the idea of not being able to get outside rather defeated the object of being over here, as far as I was concerned.

So we also wanted to meet the needs of the whole family. So it wasn't just a case of what would suit me. There's not a lot of point of designing a kitchen to suit me if I barely go into the kitchen. If we lowered every bench and made it more accessible, my wife would end up with a sore back bending over all the time to use the services.

We wanted carpets in areas I didn't go as often, the kids' bedrooms, guest bedrooms and the like, because we didn't want it all to be totally just for me. It had to suit everyone. That was the important thing.

We also had to have a balance about whether I would be able to reach absolutely everything, storage and the like. We have high shelves in the garage. It would be silly not to have such a thing and waste storage space just because I couldn't reach them.

So the overview of the whole building - it's a two-storey building. This was because we did a knockdown and rebuild. We bought a property about 800 square metres and to be able to get the size of the property

we wanted, we had no choice but to go up. Basically the ideal would have been single storey, but in the eastern suburbs trying to find a block that big is out of our price range, frankly. We obviously didn't want any steps and anywhere in the building, and that included lips, which was something quite difficult for builders to grasp, that even a slight lip is still classed as a step when you're in a wheelchair, particularly if you're getting in a wet commode chair, for instance, getting in and out of a shower, and also just in case of major lift malfunction, I mean for a number of days, the downstairs has a fully accessible bathroom with a shower as well so that I could use what is now the play room as a bedroom and it could be almost a self-contained area.

I should have also said, another thing we took into consideration is the fact that obviously our age and even before then, if I have shoulder injuries, there may be a case I need a power wheelchair and obviously it has to account for that as well, particularly with door widths, et cetera.

So throughout the whole place we have a multi-zoned air conditioning unit. Another thing a lot of people don't know about spinal cord injury is our internal thermostats don't work well. It's difficult for us to heat up once we've got cold and vice versa, that causes a number of issues as well. That's pretty important the idea of having this air conditioning. It has to be multi-zoned, so just because I need it super hot, I don't want the kids frazzling in their room.

We put ceiling fans in bedrooms and the play room and rear patio, so even if I sit outside, I can still have a draft on me or a breeze on me. Again, that's a lot more cost effective than running the air con throughout the night, and plus in theory you shouldn't be running it after 11pm in the evening anyway.

Timber flooring through most of the high-traffic areas. We did use carpets in a number of areas, as I mentioned before, and particularly down the stairs as well. So if I ever have to bump down the stairs in my wheelchair, I won't cause damage, and equally if I have to do the bum shuffle up the stairs, I can do that reducing pressure on myself and pressure skin problems.

Light switches, intercoms, alarm systems - all of that was at a level that would suit both of us. There's no point having a video intercom down my level, when my wife bends over all time, equally up here. Finding that happy medium was quite important.

Also, we didn't want all the power sockets all put at high levels when for the ones that you barely use, the ones that you have a lamp in the corner of the room plugged into, you're probably never going to unplug and you don't need a power point up high, once it's plugged in it probably will stay there for several years. It's making sure it's accessible for ones we regularly plug things in and out of and not so much for those that aren't.

Smart wiring - one of the big things nowadays building a house is wiring for everything, particularly RJ 45, the ether net cable, it can be used for just about anything - phones through it, data through it, video through it, just about anything these days. It's cheaper and effective to put it in now ready. Particularly with all the new innovations with iPads, being able to control all sorts of environmental systems, it's quite a handy thing to have.

Going through the actual areas and the important bits, they're not every single room, you'll be pleased to hear. I have concentrated on bathrooms and kitchens because they're the big-ticket items and obviously

they're the ones that are more tricky not only for builders to get their head around but plumbers and things and their interpretation of what is possibly required.

So right from the beginning it was surprising how difficult it was to get the builders to accept that we don't want any kind of lip at all at the door, and saying oh, but leaves will come in. I can cope with leaves, I can brush them out if it comes to that, or rain or what have you. It's quite simple if you have a slight gradient away from the door, you have it undercover the porch area, you won't get a lot of rain. You have to have really horizontal rain, so far even with horizontal rain, we haven't had rain coming in. So that was quite important and a very easy fix.

Again, this was quite tricky, getting the bi-fold doors at the back with no lip or sill. You can't have that externally, you can only have that in internal situation where you have flush mountain seals. So we had to sign a disclaimer to say that we would accept if any water came in. Again, we've never had that problem. We made sure it was undercover, there's a 3 metre roof covering it, and it gave us that indoor/outdoor experience I wanted, we can open the whole of the back of the house up, which is fantastic.

Again, that's how we did the weather proofing if you like. It doesn't look as if we were particularly trying to just weather proof the situation, but it made it very easy, very flexible for me.

Internally, hallways we made very wide and we put double doors in. All the doors in the house are 820, so even the double doors are 820 leafs each. That was to allow power chairs to come through if need be, I have friends in power chairs. That's often forgotten people in wheelchairs often have friends in wheelchairs, we had to cope for others who might visit or even stay, not just myself.

Some of the carpeted areas we got commercially laid, I think I mentioned in one of the other slides that they basically glue the carpet to the underlay and glue the underlay to the floor which stops wrinkling up from heavy power chairs.

Bathrooms - our world is pretty much run by bathrooms, anyone in a wheelchair will tell you, everything is designed around bathrooms. It's important for us to have wall mounted pans for men particularly, the reason men tend to pee by going head on, putting legs either side and you have to allow for the foot plate of your wheelchair to get under the pan there. Girls tend not to go that way, and will transfer on to the toilet. So obviously we had to put space around the toilet. That meets standards and allows for chairs to go over. Our toilet pan heights are 410, quite important, I'll come on to that later. There are other things on the market, but we used a mains flush system which allows, if you can see there, the flush button is side mounted, that's the little gizmo above the toilet roll there. Even an accessible toilets you'll see around the city, wonderful toilet and the flush button is the back of the toilet, you have to try to reach right forward, which is near impossible. At the time, this was one of the few electronic ones that allowed you to have the side-mounted flush button. Now you can get pneumatic ones that are side mounted as well. The one good thing about the mains flush, there are no cisterns, it flushes off the mains, which means you wait only 5 seconds and you can flush any toilet in the house again, which is kind of handy.

That's not my bathroom, but an example that's what will happen if you don't have a wall-mounted toilet. You get black marks, after a while they'll start chipping and before long something gives.

This is an important bit. The standards say that the toilet pan height should be 430 to 440. Now, standard

wheelchair - I don't know how clear that is - if you go up to 440, a side-opening chair won't go – Royal Rehab Hospital has redeveloped their site and had that problem where they had it beautifully done to standards and none of the patients can use the toilets, so they've had to reassess. It is important. It doesn't suit everyone. Australian Standards don't suit everyone.

Another thing in the bathrooms is we put recessed shelving, which is great, both in the showers and beside the toilet. There are all sorts of paraphernalia people in chairs use in the toilet. It's good to have shelves to keep them out of the way. We went into so much detail that in the shower cubicle you can see the lower shelf was based on the height my wife puts her foot when she shaves her leg. That's how much detail we put into it. It is great. I use the lower, my wife uses the higher shelves. That's the guest bathroom, actually, with the glass shower screen. On the whole, we tried to go with no shower screen at all.

All the showers have both overheads and shower hoses. That's again because of our personal thermostat not working very well, you don't want to sit in the freezing cold whilst showering yourself and the rest of your body is freezing. Overhead is great, you can run them independently or altogether.

All the shower hoses are mounted low down. Now, at the time of building, that didn't exist in standards, but the standards now show that the shower hose, the wall outlet can be lower down, which is great. Before trying to get a builder to put a shower hose outlet lower from the wall, not from the top, you waste a metre of hose coming down to your level, was quite challenge. Again, builders who don't know will just build what they're used to do, or plumbers particularly what they think is the norm.

Shower strip drains are brilliant for wheelchairs, far better than normal drains because of the fall. Also, if you're putting in curtains which aren't the prettiest thing in the world, but I understand the practicality, you can have the curtain directly above the strip drain so water runs straight in there, it's much better. If you have to have other drains, the important thing is where you put them. If you put them under the basins, that's great. If they're behind the basin, nothing worse than trying to have a shave or brush your teeth, you're rolling away from the thing and trying to get back to the basin, whichever way the fall is will be the way your wheelchair is going to go. All bathrooms we make sure you get under all the sinks very easily. You can get under all the sinks, hob mounted taps, all on the side. All the mirrors go below the spouts, so that if you have them above the spouts I only see that much of me, below the spouts I can see more of me. I don't know if you want to see that much of me, but anyway. The powder room, you can see there are no shower screens there. We went for frameless showers in just one bathroom, but that was a particularly wide door. The en suite is the important one, and the most important thing about that is the extended toilet pan. You see there is no cistern, but it was much wider and also we have the shower hose that acts on the shower on the end of the bath but also can be used to clean out the toilet if need be.

Heated towel rails that swing so I can put towels over the bath as well. On to the kitchen. So I don't cook much. In fact, my wife told me food doesn't magically appear, we need a kitchen when we built the house. We did minimal changes for me and basically it was the appliances that were the important thing. There are a few changes, though.

We had one low area, which is basically at table-top height and you can pull up just an Ottoman or normal seat and eat breakfast if you like, there is one power point in between the two, you possibly see in the lower picture there. Drawers pretty much everywhere, they're more useful, you can't bend over to get to cupboards easily in a chair. We raised the kickboards to stop sharp parts of the chair damaging it. We

didn't have corner units. Where the corner is, we put another cupboard door on the back instead.

Pullout shelf under the microwave, pretty simple, with no balance, I can do everything one handed that way. It's a very simple thing and doesn't look like it's very hospitalised. A lot of products out on the market now that have telescopic shelves, which are great, you can have a big casserole pot on that, you don't have to hold with one hand whilst trying to stir with another. We tried a lot of different dish washers, the dish drawers didn't suit me, a normal dishwasher was best, providing the circulation space for me to get both sides. Pull-on hoses, fill up a kettle by having the kettle on the side and bringing the tap to the kettle and flush-mounted stove tops mean you can see a lot more - if you have a high gas stove top, it's difficult to see into pans and woks. Power points and controls for the range hood we had moved to the front or the side of the bench. But we left some of the items that were going to be regularly or permanently plugged in, like coffee machines and things, at the back. Basically easy viewing in the walk-in pantry. One thing particularly good there is recycle bins, you put the rubbish through the chutes, I can then wheel those out, no more arguments about who takes the rubbish out, which is great.

We do have a lift. I know we were talking about this earlier. It wasn't the cheapest of lifts, particularly as I wanted sliding doors, because that's faster, there is nothing worse than sitting in a slow lift. Also it means you don't have to worry about the lift door opening into someone walking past. And you're allowed to have it slightly larger as well, that way. The internal dimensions are larger. I wanted a lift that I could turn my chair around inside. I didn't have to shuffle out backwards, particularly if I have kids on my lap and things like that, that was important.

Master bedroom, nothing too special apart from making it big. On the right-hand side of the bed, I need to be able to swap my normal chair around. That's important for me and where you have the door to the ensuite is directly opposite that.

Walk-in robes, just make sure it's accessible. You don't have to go mad with all sorts of built-in collapsible pulling down shelves, it's pretty easy. You get this stick from IKEA. A lot of colleagues of mine have had the whole clothes rails that pull down. The first time apparently you're having an argument with your wife and do it fast, all your shirts end up on the floor. They say you have to be careful with that. It's easier to have just a stick, basically.

This was important for me again, part of the boy jobs, my wife hated having to explain AV or component cabling or things like this. We built the media cabinet into the wall so I can get to the back and all the cables whether it's Foxtel or what have you, I can muck about with all that stuff. I'm a bit of a geek when it comes to that kind of equipment that drove Jen a bit mad, she's happy we've got that.

We talked earlier about sealed flooring, we did that epoxy resin floor, but mainly to cover slopes. We were a quite annoyed the builders told us we had to have a step down into the garage in case we wanted to wash it out. I don't know why, why we wouldn't hose the opposite direction anyway. We were told no, you had to have a step down, that's legislation. We watched the slab laid and the guys when they finished laying it and said oh, you're in a wheelchair, we don't normally put steps down into the garage for people in wheelchairs. Anyway, we managed to get a slope built underneath it and we got the epoxy resin floor over the top.

Final thing is the pool, we wanted the glass - I've been in a property before that had the normal pool

fencing and it's like being in a jail, permanently looking through bars, so that was an important thing I didn't want. In fact, it's so clean there - rarely that clean, it's so clean it doesn't look like we've got it, the point is the fence is great, you can get the view. We have shelves built in particularly designed and beach area so I can be on the one side, the beach area is in the forefront of the area, I can protect one area with kids in, I could go to one side with the young kids playing and also shelves, we plagiarised ideas from other friends who had pools, other wheelchair friends, and that was exactly the level to sit and rest and more importantly rest with a beer.

We've got a ramp down the outside, which is 1 in 14 ramp, allowing me to come down the back where that raised area, if you like, or the normal level is the same height as my chair, so I can just transfer on to the wall and then over easily the best way of doing it for me, I didn't want a pool hoist or anything like that though I haven't tried them.

Finally we built the pool box around all the pumps so we could have all the pumps at the front and I could access and control all that and we sunk the filter. That's pretty much it. We've done some landscaping since and it looks a bit better, but that's more or less it.

One quick thing I'd like to say slightly as an aside of this, at Spinal Cord Injuries Australia (SCIA), we've just bought a property that we are going to knock down and rebuild. We were hoping to have a bit of a competition or present it here, but we're waiting for the institute of architects. If anyone is interested, there will be some information on our website and I have loads of business cards if you want them. We are looking at people - we need to build a universally designed home, particularly aimed at those with spinal cord injury that will be staying there. We're going to be very interested in people's input from an architectural point of view and we'll probably put it out to tender as well. If anyone is interested, speak to me afterwards please and I can give you some information. Thank you.

PROF. BRUCE JUDD: Are there any questions or comments you'd like to make on Chris's presentation?

DELEGATE: was there anything that you forgot or overlooked or anything that you would do differently?

CHRIS NICHOLLS: Yes. I think the only thing actually I didn't mention on here was the laundry. We wanted bench space, so we obviously had front-mounted - front-loaded washing machines and tumble dryer, with a bench top over the top. In retrospect we could have made that a bit larger, at least the bench top, but raised up the washing machine and tumble dryer. Now you can get cabinets fitting underneath. That way the access to the washing machine would be at my arm level, also beneficial to an able-bodied person rather than bending over so much.

We talked about it. That's probably the main thing I would have changed, if anything. The odd thing is the way we have the play room separate, we're quite happy with that, that was a good view, but we probably could have - knowing what children are like now, we could have put more acoustic sound-proofing in, I guess, in the play room. Otherwise, no, we're pretty happy, I think. We toyed with that a lot. The laundry was the main thing, which of all things was quite successful. The only thing my wife and I argued about the whole build, believe it or not, was the washing line. She wanted a spiny round one and I wanted one that came out, so in the scheme of things that wasn't a bad compromise.

DELEGATE: Great to see such individualised design. In this age of certifiers and a very strong push for

codification of design guidelines, do you have views considering the arguments that you had with builders and tradesmen - do you have any views about the codification of design requirements?

CHRIS NICHOLLS: It's a tricky one, obviously. The thing about residential housing obviously it doesn't have to meet standards and the one thing I found actually with the property we previously had at SCIA is how vastly different my needs are from a quadriplegic, for instance, and that just highlighted how you can't really have a standard that will suit all. The demographic that was used to create the standards in the first place is quite narrow, it doesn't really include the really elderly or the very young, which is a really large group of people anyway with a disability or just the ageing process.

I'm not really answering your question, I know. I do think it's a very difficult one and I do think educating the builders is one of the first steps. One thing I'm very pleased to see is that I believe the building code is now being made free, which is excellent. I think the next thing would be if the Australian Standards were made free. How do you want people to do it if they can't afford to buy it - make it available if you want people to adhere to them.

DELEGATE: I just wanted to share an anecdote that proves that unfortunately Chris isn't on his own when it comes to the difficulties you had. I recently had an apartment built to my specifications as a wheelchair user and there are a few hiccups, but the major one is that there is now a step out to my balcony that I was planning to kind of use, but can't really at the moment, and when I pointed out they shouldn't use a step, the architect looked at me like I was mad and said it is the minimum standard, it is like the maximum step we can get away with to comply for you people. If there's anything I could say, it's please listen to the person because trust me, they're the expert in their own lives.

PROF. BRUCE JUDD: Good message, thank you.

CHRIS NICHOLLS: I'd like to add to that. My bathroom, they put a lip in the bathroom, I said I don't want a lip. You'll have to take up the floor. They said you didn't say you didn't want a lip. Well, I'm in a wheelchair, I wanted it level. They said you didn't specify. I specified I didn't want a missile in the front room.

DELEGATE: one of the things I really liked was your solution for getting into the pool and not having a hoist and just having that ramp that then enabled you to get to a level where you could transfer across. I really like that. It would be nice to see in public pools where you have a hoist, have a walk-in beach access as well, but also have that opportunity too. So one of the universal principles is around flexibility, so there is a variety of different choices. That's one choice I'd love to see in public pools as an option for people. So, yes, great, thanks for your presentation, I really enjoyed it.

CHRIS NICHOLLS: That's one of the most vulnerable bits from body image point of view, everybody staring you, getting into a hoist and all that, public pools - I avoid them, I'll hop on the floor and get in, because people don't notice as much. So, yes, I agree.

DELEGATE: I know you said you don't cook, but what about a barbecue, did you have an accessible barbecue you could find.

CHRIS NICHOLLS: We do have a barbecue and we have it plugged in outside. One of the tricky things they

don't seem to do anymore, which I wanted at the time, was the ones with the glass in the hood. That was great because most of the time obviously the height they are, they spit and fly. So I would have loved to have had a glass-fronted one, which you used to be able to get. I was looking for this again for an apartment a barbecue more the Webber style type one and the whole idea is how can you reach to put the lid down reaching across it. It's a shame they don't do it anymore. There was one very good called Lifestyle, but it cost the same price as a small car.

DELEGATE: I'm from Brisbane. Your house without stairs, how will you address an emergency situation such as fire when always advised not to use the lift during a fire?

CHRIS NICHOLLS: Okay. The main reason people are told not to use a lift in fire is not because of flames flying up the fire shaft, it's purely for the Fire Brigade getting their equipment up. So it's more for high-storey buildings, that's what they say. Having said that, this is why I put carpet on the stairs. I can bounce backwards down the stairs holding on to the bannister on one side. It was a consideration certainly, particularly getting children out and what have you, but, yes, it is something I can do. In fact, the only thing that makes it difficult for me now is having a child gate on the top of the stairs, which, yes, I'll work out if it happens.

DELEGATE: But right now you don't have stairs?

CHRIS NICHOLLS: Yes, I have stairs at the moment, because I've got two storey with a lift, but I have stairs as well as a lift. So I could certainly bounce down those, yes.

DELEGATE: I'm very interested in the possibility of the lift. You put the lift into a new home. Do you have any idea whether the council would have allowed a retrofit lift in your two-storey residential home?

CHRIS NICHOLLS: Yes, the council certainly will allow it, yes. They'll allow it. There are quite a few retrofit lifts available that come with the whole shaft and the car as one drop and they literally crane it straight in. They're usually smaller than that one, but they certainly exist. Yes, you can retrofit. In fact, even home modifications department will look at the idea of fitting that on level 3 modifications, but only if you already had the home, you can't buy a home and expect the government to put a lift in, understandably.

DELEGATE: That would be a tremendous advantage for people currently living in a two-storey house who want to stay living in the house but can't negotiate the stairs at the moment. I tried to talk to the council and they argued because of the occupational health and safety requirements, they were not keen to do it. So I'm encouraged to perhaps press on. Thank you.

CHRIS NICHOLLS: They'll do it. A lot is just cost. This one was was about \$50,000, now they're about \$60,000. That's one of the main things about it, even the cheaper lifts being brought out are about \$30,000 really.

GER CRADDOCK: Just from my talk this morning about the lifts, the Danish Design Centre said they had the first fire-proof accessible lift - the first accessible fire exit for people with disabilities. They created a lift that was accessible for people by creating kind of a zone, what we'd call today an engineered solution, but they came up with that problem. They didn't want to have people in that building carried down stairs or bumped down stairs. They worked out how they could make the lift fire proof and so it was just another

way of their thinking process to go through that.

PROF. BRUCE JUDD: What's the price tag?

DR GERALD CRADDOCK: Well, again, what's not the price tag? You could look at it in two ways. The point was it was meant to be a showcase. As I said before in my talk, the cost of that building was less than the cost of the average, if you weren't here, less than the cost of an average office building in Denmark and it was only 2.5% more in floor space than a normal office building.

CHRIS NICHOLLS: That would be really good. During the 9/11 disaster those in wheelchairs who got out were the ones where their colleagues had literally thrown them over their shoulders and carried them down rather than strapping them to the proper device to get the slides and toboggans down the stairs, by the time they worked out, it was too late.

GER CRADDOCK: Quickly to reinforce that comment, the building in Copenhagen, they were very, very clear that building was no more expensive to design and build than any other building. I think that just cuts through this whole issue around cost, I think.