T R A N S C R I P T

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into Climate Resilience

Macedon – Tuesday 3 December 2024

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WITNESS

Brett Franke, Registered Building Designer, Better Building Design.

The CHAIR: Welcome back to the proceedings of the Legislative Council Environment and Planning Committee's Inquiry into Climate Resilience in Victoria. Welcome to Brett Franke from Better Building Design, who is going to give us some evidence shortly.

All the evidence that we take is protected by parliamentary privilege as provided in the *Constitution Act 1975* and the provisions of the Legislative Council standing orders, therefore the information that you provide during this hearing is protected by law. You are protected against any action for what you say during the hearing, but if you go elsewhere and repeat those same things, those comments may not be protected by the privilege. Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament.

All evidence is being recorded and you will be provided with a proof version of the transcript following today's hearings, and those transcripts will ultimately be made public and posted on the committee's website.

Welcome. My name is Ryan Batchelor. I am the Chair of the committee and a Member for the Southern Metropolitan Region in the Legislative Council, and I will ask our committee members to introduce themselves.

David ETTERSHANK: Thank you, Chair. Hi. I am David Ettershank, Western Metropolitan Region.

Sarah MANSFIELD: Sarah Mansfield, Member for Western Victoria.

Wendy LOVELL: Wendy Lovell, Member for Northern Victoria.

Melina BATH: Melina, Eastern Victoria Region. Hello.

Gaelle BROAD: Hi. I am Gaelle Broad, Member for Northern Victoria.

Rikkie-Lee TYRRELL: Hello. I am Rikkie-Lee Tyrrell, Member for Northern Victoria Region.

John BERGER: John Berger, Member for Southern Metro.

The CHAIR: And online –

Jacinta ERMACORA: Jacinta Ermacora, Member for Western Victoria Region, coming to you from Warrnambool today.

The CHAIR: Before we start, for the Hansard record, if you could state your name and the organisation you are appearing on behalf of, I will then invite you, if you would like, to make some opening remarks.

Brett FRANKE: My name is Brett Franke. I am representing Better Building Design. I am a Building Designer, a sole practitioner, and I operate out of Woodend and service the Macedon Ranges and beyond. Thank you for inviting me here today for an opportunity to discuss what is at hand.

I guess we can all sit and talk forever about climate changes and the causes. I am not sure we can safely say what the causes are, but the effects are visible and more so in the last couple of years, where the environment we live in is changing, weather patterns we notice are changing and we can see that. We can also see how it affects everybody in our lives, and we need to rethink and change the way we go about doing things.

From my experience in my field, I can see the benefits of the built environment – in particular, residential construction. We really need to rethink how we are doing things. Houses are coming up in the Macedon Ranges. Everybody needs a place to live, but I think we can do it a bit cleverer, a bit smarter. We seem to have just been building the same way for the last 50 years. Growing up in Melbourne and seeing development and urban sprawl, nothing has really changed in 50 years. We need to probably rethink how we do that and where we do that, where we decide the development is going to go.

We need to get smarter in the way we build houses – using the materials. Siting, orientation of the house, makes a big difference. We are talking about solar passive design and lower energy houses – efficient, sustainable and not just square boxes placed in a built environment that do nothing but consume energy. We all know this; it is nothing new. You can drive past any development today and see the houses all orientated towards the street, the same way they have been for the last 50 to 100 years. There is no consideration on siting, no consideration on the environment around them. Most developments are stripped of trees to develop the land, and then plantings come back in, but it is never the same, and you end up with a barren landscape and little infrastructure to service the properties.

When I talk about infrastructure I am talking about: if we are going to build new estates and developments, we need to make sure that they are not only serviced by roads, but they are also serviced by public transport, whether that be light rail, buses or anything like that. I have noticed the difference in the last five to six years driving to Melbourne, just the traffic on the road coming from the Macedon Ranges heading to Melbourne. With new estates coming up everywhere all over the place you can just see the traffic coming onto the main structure of the freeways. I would like to think that if we spent more money on sufficient transport then people would not rely on vehicles. I caught the train for years, but once I went back to driving, a car is more comfortable ride. We have got to change that; we have got to make the train a viable option and get cars off the road. It is all these little things – you know, built environment and infrastructure.

We also need to look at the way we build cities, and we need to have more satellite cities where people can work and they do not have travel vast distances to work – things like that. But I guess the main topic is energy-efficient homes. Global warming – we cannot stop it, we can only try to live with it. The way to do that would be to build a comfortable home that is energy efficient, that does not need a lot of heating and does not need a lot of cooling. And it does not stop at the home, it also goes outside the home, the way we landscape the areas, because it has equal effect on providing comfort to the home by way of natural cooling. This building here is probably a great example of where it sits within its built environment and the landscaping around it. We need just to be a bit cleverer in the way that we do development and think not about just subdividing blocks of land, getting the money, putting the roads and putting the bare infrastructure in. We need to make it really livable and really energy efficient, inside and out.

The CHAIR: Wonderful. Thanks so much. We will just go to questions; we will basically take it in turns. As a building designer, when you are engaging with clients how much do you think that they are focused on the issues about energy efficiency, thermal envelope, siting, thinking about the climate they are living in? How much do clients raise with you those considerations in the task of designing their homes?

Brett FRANKE: It depends on the client, but if I broke it down to a percentage, there are probably less than 30 per cent that would really consider those things. The other 70 per cent are sort of more interested in – they have obviously bought a block of land; they want to put a house on it. All they are interested in is putting a house on it and how much it is going to cost. So everything is driven by cost.

The CHAIR: And we have heard evidence at a prior hearing in Melbourne about this tension, I suppose, between cost and energy efficiency in design. We heard some evidence from the housing industry about the costs that energy efficiency and energy efficiency standards place on home construction. What advice do you give your clients about the up-front costs of construction versus ongoing operating costs when they are trying to weigh up these issues? And we are making recommendations to government; how do you think you could recommend to the government that they better assist or better inform or improve people's understanding of those issues?

Brett FRANKE: I will answer the first part first. I do try and steer clients straightaway into orientation, a solar passive house, energy-efficient design. Most of them will sort of – you can see the light bulb go on either during the first conversation or conversations afterwards, and they will sort of start to lean towards what I have got to say, especially when you say there might be a bit more start-up cost involved in it but in the long term their energy bills are going to be lower. So it is more of a sustainable practice. It is not going to bite the wallet too hard. If you can convince someone they can bring a $3000 a year spend on energy down to $500 or $600 a year, suddenly their ears will prick up. And it can be done on the cheap as well; it can be done smartly. And it all depends on the block of land as well. I think developers can subdivide land better –

The CHAIR: Talk to me about that. How would you better subdivide?

Brett FRANKE: Most developers have design guidelines when they develop an estate. Part of the design guidelines state you must use these materials, you must be set back so far from the road and all this sort of stuff –

The CHAIR: This is to ensure consistency of the estate development?

Brett FRANKE: Yes, to ensure consistency and, you know, get a better outcome. But they can also structure it in a way where they – I know some estates in the past, instead of just going in a typical grid pattern with streets and everything, have done it in curves, so you can get more north, west, east orientation on one side of the block. And then the houses on the southern side, for instance, typically have their glass for winter heat gain facing the other way. But by not going direct north–south and by being a bit more clever in the way you shape the streets and everything, you can get better results. There are always going to be those houses that can be difficult in orientation, but there is no site that you cannot put a house on, that cannot be orientated the right way. It just means developers need to change their thinking. We need to stop this thing with a front door at the front of the house and the driveway having to be at the front; the garage does not have to sit at the front of the house. I think we need to make land sizes a bit bigger. I think when we condense everything up, we run into trouble because that narrows the scope for correct orientation on that particular side where you have got a small rectangle block. It just means you have a small rectangle house. It is very hard to design something like that. If you have got a larger property, you can sort of orientate the house around a bit, shift it 20, 30 degrees, whatever you need it to be. Once you start mentioning things about orientation, the materials inside the house, thermal mass, solar heat gain and all these things, people have heard about it before but they really do not know what it is about. They are simple principles, and people can be educated pretty quickly on them.

I think the government can act on that – they really need to educate the developers. The architects make the design guidelines. The architects know all this sort of stuff. We need to make it law that new developments must meet these minimum requirements. In some estates we have large blocks of land, 800 square metres, then we go down to 500, and there has to be a percentage of small lots in a lot of developments now so people on low incomes can afford these homes. Why can't we make it more that all homes must meet – I mean, we have got an energy rating, but even that is a bit of a furphy. You produce a home, you give it to a bloke, he runs it through a computer and changes figures until he gets a tick of approval for a 7-star energy-rated house. It is really not 7-star energy rated; it is a furphy.

The CHAIR: All right. Mr Ettershank.

David ETTERSHANK: Thanks for coming today. Brett, in terms of the planning system, if we want to see more ESD-related properties being built, what would you like to see changed in the existing planning system and planning schemes to make environmental initiatives less subject to value management?

Brett FRANKE: That is a very good question. I do not think there is a lot I would change about the planning system, because generally the planning system has the best interests of whatever area it governs in mind. I would like to make the process simpler when applying for a planning permit. There should be a simpler process, but I think the rules in place that govern planning overlays and all that sort of thing are a good thing. It stops people from just going in and ripping down trees and doing whatever. The overlays and the properties are all good, but I know people get very frustrated with the planning system and the length of time it takes to get a planning permit. I would like to see that changed, more so where we maybe take responsibility away from local council to issue a planning permit and give it to a private planning practitioner or planning consultant.

David ETTERSHANK: I mean, that is convenient terms of potentially speeding up processing, although it is a double-edged sword obviously in terms of what you end up with at the end of it, as we have seen from use of private surveyors. I guess I am thinking about in terms of your practice, where you are trying to get more people signing on for ESD-based design. Are there particular elements to the planning framework, whether that is the state planning framework or how that is then applied through local planning schemes, that would provide some competitive advantage to doing more environmentally sound construction?

Brett FRANKE: Yes, maybe it just gets back to what we touched on before when we were talking about education. I would like to see it by law that – maybe the planners can add another requirement, an overlay that says, 'This is a sustainable area and therefore houses must meet this sort of construction.' Maybe we aim

higher. Maybe we raise the bar from 7 stars to 10 stars. That would shake up the whole industry and sort of force our hands to design better homes.

David ETTERSHANK: All right. Thank you.

Brett FRANKE: I am not sure if I answered your question properly, but –

David ETTERSHANK: No, that is all right. You gave it a good shot. Thanks, Chair.

The CHAIR: Ms Bath.

Melina BATH: Thank you very much, Brett. Thanks for coming in; it has been most interesting. I am interested in cost versus design. We have got a housing crisis; there are people who are struggling to get into the housing market, there are people who are needing to rent, which is a whole other ball game. Your company would do more single houses – is that correct?

Brett FRANKE: Not necessarily. I think if you are living in the suburbs of Melbourne, that is not viable. But in areas like this, yes – single homes.

Melina BATH: Sure. First of all, cost versus design – embodied carbon. What are some good materials to build a house, in your opinion?

Brett FRANKE: We would be looking at sustainable materials, so plantation pine is a good start. I think they do a great job from what I have seen. There are a lot of pine forests around here, and from my travels through them I have seen the way they manage the plantations, and I think they do a fantastic job.

Melina BATH: Good. Steel? Concrete? How do we –

Brett FRANKE: Well, with steel and concrete there is a lot of embodied energy, but it is a bit of a double-edged sword, because if you ask me, a concrete floor is a fantastic start, because it gives a lot of thermal mass and it can be heated.

Melina BATH: Do you recommend heating the subfloor?

Brett FRANKE: Yes. That is the cheapest form of heating we have got to date. The best way to heat a home is through the floor – through the concrete. But if the house is orientated properly and it has the correct glass, we can also heat the home –

Melina BATH: With a heat sink from the orientation.

Brett FRANKE: Yes, as a heat sink from the winter solar gain.

Melina BATH: Perfect. You mentioned that 7-star ratings are a bit of a furphy.

Brett FRANKE: Yes.

Melina BATH: Since 1 May this year you have to have a 7-star rating when building a house. Why are they a furphy, and what does government need to know to not make it a furphy? How do you provide greater efficiencies and greater outcomes for the people who are going to live in those homes?

Brett FRANKE: I think the programs that do these calculations probably need to be better.

Melina BATH: Better oversight and better regulation on them? I am just to understand.

Brett FRANKE: Maybe better regulation. At the moment, the way we get a 7-star is we design a house to the best of our ability, it goes for an energy rating, the energy rater will tell us that it does not meet the energy rating and the first thing we say is, 'Oh, how can we meet it?', and rather than looking at redesigning or moving the house a little bit, we just say, 'Oh, just put some more bulk insulation in the wall or the ceiling,' and so we try that. We just look at the figures, and once we get the figures we go, 'Bang, yes, out.' We do not look at heat loss – well, we do, but we do not look at sealing the home up properly and doing draft tests and things like that.

Melina BATH: What additional costs, if we are looking at better insulation, better cost savings going forward for the home owner – I have lost my train of thought. What cost impost would that make?

Brett FRANKE: It is hard to put a figure on it, but at a guess it would probably be 7 to 15 per cent additional cost.

Melina BATH: Okay. And then what could government do to facilitate this? Government cannot pay for everything, we know that, but what could be done to facilitate this? What could stimulate the –

Brett FRANKE: I think incentives. If you are out there and you going to build a house, you can say, 'Right, I'm going to build this style of house that's going to cost me X amount of money,' or 'I'm going to build this house that's going to cost me more money, but it's going to be better for me long term because it's going to cost less to run.' The government should subsidise that and reward that person.

Melina BATH: Rather than tax it, do something else in terms of an incentive.

Brett FRANKE: Yes. There are a lot of incentives, and I am sure government could be clever on how to do that.

Melina BATH: Thank you. I have got many, because it is a fascinating topic. We used to sit in front of Better Homes and everything for decades. Around the world, where are countries doing this well? Where do we need to look to?

Brett FRANKE: Around the world?

Melina BATH: As an exemplar, where do you see this is happening well?

Brett FRANKE: I think we did it well in Melbourne in the 70s. There was a movement in the outer suburbs in Eltham, a hippie movement, when they built mudbricks, solar passive – they were right on it. I was lucky enough in the mid-90s to work for an architect, Trevor Scott, who was based in Castlemaine. He was a leader in Victoria on solar passive design, and I learned a lot off him. We did a lot of projects in Mount Alexander shire, Macedon Ranges and Hepburn. There are people out there doing it, but because they are not mainstream, because they are not developers and they have not got their finger in the government pie, they do not get a look-in.

There was a company years ago called the Solar Sisters that used to do straw bale homes in Hepburn. Have you heard of them?

Melina BATH: No. It is a great name.

Brett FRANKE: It was incredible what they were doing, and they just could not get any gravity. I do not know why it did not take off. I mean, we should be building more straw bale. Straw bale is a fantastic product. The farmers chop straw, and if it is the right kind of straw, they can bale it and you can build a house out of it. If you walk into a straw bale house on a day like today when it is quite warm outside, it will be 16 degrees, 18°degrees with no cooling. It is the same in winter; you walk into a home and the whole home can be heated from a small stovetop, like an oven that you cook on. They are just incredible; they function incredibly. How do you market a straw bale home? How do you convince people that they need to build straw bale homes?

Melina BATH: Do they take longer? I know my time is up, so I do not want to take anybody else's.

Brett FRANKE: They do not take longer. They go up quicker. They are a little bit more expensive because there is a lot of labour involved in the render that is applied to the outside and the inside.

Wendy LOVELL: And the big bad wolf can blow them over.

Brett FRANKE: Sorry?

Wendy LOVELL: The big bad wolf can blow them over.

Brett FRANKE: Yes, the big bad wolf.

The CHAIR: Indeed. Mr Berger.

Brett FRANKE: But no developer is going to subdivide a new estate in New Gisborne and say, 'Right, we're building a thousand straw bale homes.' I cannot see it happening, but it should be happening. That is what I mean: we need to get away from plasterboard and things like that. We need to look at other alternatives – you know, mudbrick. There are some beautiful government buildings built with mudbrick – rammed earth.

Wendy LOVELL: Have you seen the hemp construction?

Members interjecting.

The CHAIR: I have given the call to Mr Berger, if you lot can calm down.

Brett FRANKE: Hemp construction, yes. Hemp is great because it can be produced very cheaply and harvested very cheaply.

John BERGER: Thank you, Chair. Thanks, Brett, for your appearance today. I just want to pick up on your earlier remark about doing the same sort of stuff for the past 50 years. What can we change that you see as being the same sort of stuff but in the context of volume builders?

Brett FRANKE: Yes, that is the big question: how can we do it? But I know that we can. There are tons of people smarter than me that can put it together. Someone needs to develop an estate that works so well that everyone can look at it and say, 'This is fantastic. How do we achieve this? What things were done to achieve this, and how can we take this and use it everywhere else?' I still believe it has got to do with bigger parcels of land that give you more freedom to design better homes and solar passive homes. We need to reinvent building materials. The old brick – it costs a lot of money to produce a brick, and now it costs a lot of money to lay a brick. And nobody wants to lay bricks anymore. Kids do not want to lay bricks. They want to jump on computers. We need to find something that is easy to construct and sustainable, like hemp, straw, pine. We need to orientate our homes the right way, and the infrastructure around them.

The biggest things with climate change that I see are fire and flood. I mean, with all the flood damage we face now and these severe weather events, storms and fire, how do we protect our homes and our cities from them? Straightaway you can say, 'Right, we've got to build better stormwater systems,' and we do.

I see new developments. There is a development in Woodend that went up a couple of years ago, and when I first moved to Woodend I was horrified because it was built on a creek bed. I thought, 'All those houses are going to wash away,' and they did for about a year and a bit. Sandpits went missing; gardens got pushed down the road. But then the council came in and put in a great big retarding basin and great big stormwater pipes. It looks fantastic; it does the job. Clever – we need to do more things like that.

John BERGER: Removing the furphy, the energy star rating system, where people just sit in front of a computer and knock in an algorithm that sounds good – how do we tighten that up to actually achieve what it is they are setting out to achieve?

Brett FRANKE: Yes. I am not sure, not being an energy rater, but I think we need to make the program more realistic so it is not about punching in figures. But also we need to do, as I mentioned before, draught tests. How do we seal the homes up better? You can heat a home – you are heating it and it is just going straight out. Even in my place, there are draughts. You can feel them. Where are they coming from? I do not know.

John BERGER: Would you have a view on how many, say, volume builders would do a draught test?

Brett FRANKE: Yes, probably less than 1 per cent. It is only the person that is really tuned into this sort of topic that will say, 'I'm going to spend a thousand bucks and get a draught test and seal the home up.' I think more people should be doing it now, because energy costs have just gone up. This is why we should be looking at all this – because it is causing a lot of anxiety out there. I have watched my energy costs go up. We do not use a lot of electricity. Heating is the biggest problem for me. We live in a cold environment in Woodend, and we rely on a wood heater. I mean, the wood heaters are not great for the environment, but what is the alternative – go on gas ducted or electric ducted? They are not great either.

John BERGER: I suppose not many houses are going to pass a draught test if you have got a roller door attached to the house.

Brett FRANKE: That is right. Yes. We have got a roller door, but we have got about two or three doors between it and the house. We have put draught stoppers down there. We built our house seven years ago, but if I had my time again – I think I started watching *Grand Designs*, Kevin McCloud, a year after we built, and I saw that in Britain, where it is very cold, they do all these draught tests where they make the house absolutely airtight. I thought, 'Wow, I wish we had done that.'

John BERGER: Thanks, Chair.

The CHAIR: Ms Lovell.

Wendy LOVELL: Yes. We talked a lot about the design of homes, and you have mentioned briefly about the setting out of estates. If you come out of the city now, you look at all these new estates. They are very small blocks and houses are built on every square inch of the block – no eaves on the houses, no shade trees, no green open spaces and no passive cooling et cetera. How would you better design the layout of housing in housing estates?

Brett FRANKE: Start with bigger block sizes and also start with landscaping requirements. As I said before, most estates do have developer guidelines attached. Those developer guidelines address the materials of the house and the way the house presents from the front of the street. It also details requirements for landscaping, but in my opinion it does not go far enough. Bigger block sizes would mean more opportunity for landscaping and more opportunity for a correct orientation. I cannot believe that we live in Australia, where we have got vast amounts of land, but we still treat it like we are developing on a small island. We pack our houses really close together. I know it is all about, 'Farmer Joe sold his property, and we want to get the maximum return to develop it.' But there has got to be a point where – okay, the developer walks away with maximum return but all the people living there are just forking out money for the rest of their lives trying to heat these things and cool these things.

Wendy LOVELL: With the new housing targets that have been set by the government, obviously there are some big targets there: in the City of Greater Bendigo an extra 37,500 homes, which is a 68 per cent increase; and here in the Macedon Ranges an extra 12,700 homes, which is a 60 per cent increase. To achieve that and maintain good standards for the size of blocks and the orientation of homes et cetera, it is going to take an enormous amount of land. So what is the answer?

Brett FRANKE: That is the conundrum. You know, you want to retain the native flora and fauna but also you want to do developments on bigger blocks of land, so we have got to be very selective about where we develop. There is a strong argument for questioning why we have to develop just for the sake of developing; why can't we hinge onto the back of places that have already been developed and make them better? Or do we have one development here that has been done and dusted and we decide that we are going to do a better development – do we sort of create green corridors and plant them with trees? How do we do it? This is the great question. But we need to do it smarter than we are doing it at the moment.

Wendy LOVELL: Do you see those housing targets as being achievable here locally?

Brett FRANKE: I think they are, but I am scared that how they are going to be achieved is just by going in and knocking down native bushland and just plonking in lots, like we have been doing. That is how I think they are going to achieve it, because that is economical. Everything is driven by cost, and if it was not, things would be different. How do you make it viable for developers so you can say 'Right, no, you can't subdivide in those blocks of land. You've got to make them bigger. You've got to provide better'? We have got to do better. The developer is going to jump up and down and say they need a return. How do we do this? It is all about showing the developer a bag of cash or something, or subsidising it. I do not know the answer to that.

Wendy LOVELL: Thank you.

The CHAIR: Dr Mansfield.

Sarah MANSFIELD: Thank you. Just further to that, apart from cost, do you think there are other barriers in the building industry to implementing, I guess, more sustainable design?

Brett FRANKE: Yes. Resources are a big problem, and workforce. That is why our housing market is the way it is at the moment, because it costs so much to build a house, materials are so expensive and also we do not have the labour force to do it. If we had a good labour force that could build a lot of homes, supply and demand would bring costs down. I do not know how it got to this. I am 55 years old now, but when I was leaving school and in my early 20s part of our curriculum was trade school. We not only learned how do draw plans and design homes, but we had to go to trade school one day a week and learn how to wire a house and run plumbing and how it functions and how it all goes together. I have seen a real drop-off in trades in the last probably 10 to 15 years, and I have seen a lot of trades that are not up to scratch.

I think education for the trades is a really big problem at the moment. People do not seem to be getting taught the way they used to be taught. I have had a lot of trades through what I do, and their work is really bad. It is a really hot topic amongst my peers. We are just thinking, 'What are they teaching these kids now?' I am not sure if everyone thinks like that when they get older – you know, how look at the next generation and go, 'Oh, what do they know?' I try not to be like that, but I have seen some really bad, shonky work, as I am sure you have too.

Sarah MANSFIELD: Do you feel that they are being trained in more sustainable design, you know, through the industry?

Brett FRANKE: I do not think so, no. No, they are trained to do a job. They are trained to dig a trench, put a pipe in. They are trained to erect a wall, fix it off, put a roof on, go to the next job and get their pay cheque at the end of the week. That is all they are worried about. I think sustainable design comes from leaders: you know, the government and tiers down, and teachers and trades and people who can actually make a difference.

Sarah MANSFIELD: We have heard from a number of witnesses through this inquiry about the need to I guess elevate environmentally sustainable design standards. If that was something that was done and it was a higher standard that became mandatory, what effect do you think that would have on the building industry?

Brett FRANKE: What effect would it have on our building industry? It would really shake it up, wouldn't it? Because everyone would be standing around for the first five years scratching their heads, saying, 'How do we deal with this? What do we do?' But we are pretty resilient, humans. because you can throw anything at us and say, 'Look, from now on this is what –' I mean, look at COVID. Look at what we all had to go through. We did not like it. We kicked and screamed, but we all bit the bullet and did it. And when the energy ratings came in years ago, everyone jumped up and down and said, 'Why do we have to do this?' But it is something we had to do and we do do.

Electric cars are changing the landscape. You know, if we are serious about electric cars, we need to get serious about that as well. Like, why would you have an electric car today? There is nowhere to charge them. We have not got the infrastructure. If you build the infrastructure, people will look at it and go, 'I'm not using that,' but when they see other people using it, they are going to start using it. If the infrastructure is there, they will do it, 100 per cent. Show people a better way and they will take it.

Sarah MANSFIELD: Thank you, Chair.

The CHAIR: Ms Broad.

Gaelle BROAD: Thank you, Brett. I am just interested in finding a better way. I represent Northern Victoria, and the floods had a huge impact on the region. We have seen a lot of development in some areas in flood plains where they are bringing a lot more soil in and raising the level of the house but still building a lot of concrete and using roads as drainage too, whereas in Queensland you see houses built on stilts on quite a different design. Have you built or designed for flood zones, and do you have any feedback on those developments that you are seeing in those areas?

Brett FRANKE: I have designed for a flood zone, and that is how they mitigate it, don't they? They ramp up the soil, they put a big slab on it until they reach the flood level and 300 mil above it, and they say, 'Everything's good.'

Queensland is a little bit different. It is a different story, but I know that if I was going to build in Queensland, I would be very scared because there seems to be a lot of flooding up there, with extreme weather events. You know, build on a hill – not everyone can build on a hill.

How do we build a flood-proof home? I do not think you can. I think it is up to government to, once again, select carefully where they do development. There are all sorts of computer modelling programs now that the government does use to model where things will flood and everything like that. I mean, how do we negate that? How do we move bodies of water away from estates? It is a lot of hard work, and it is a lot of money. We have just got to be better about where we develop our homes. In flood areas like that, in Queensland, it makes sense to have houses on stilts, doesn't it? You can get away with that because you probably do not need to have the thermal mass on the ground in the slab because of the different climate, and actually building a house up higher can invite breeze underneath and can cool the home.

Gaelle BROAD: Different purposes. I am just interested in bushfire overlays. I have heard different feedback about that whole process. What are you hearing? What has been your experience of how that is working with more sort of standardised approaches?

Brett FRANKE: With just about every job I do, probably 60 or 70 per cent of the work I do, the property is affected by bushfire. It is usually a low rating or a very high rating, and more so a very high rating. I had one job recently where the client had a large parcel of 20 acres of land. He wanted to do a large extension, but his BAL rating was BAL 40, and parts of it were flame zone as well. It was a good exercise for me because it was a challenge to meet all these requirements, but I felt sorry for the client because it meant an extra $200,000 on the cost of the build. How do we get around that? The main cost of that was just through the requirements for fire shutters on his windows. The window behind us here, a large bit of glass – he had probably three or four of them in a room not much smaller than this. He wanted that because it looked out onto a nice dam, and he had a balcony running around it. So we had to be careful about how we constructed and clad the home and the balcony and everything like that, but the big killer was the fire shutter requirement. With those windows, we had two choices. We could get a bushfire window made that would withstand a flame zone, and the cost came in at $150,000 just for four windows – four large windows. Sliding doors, they were. And then we opted with costs and went with fire shutters that came in at about $84,000 for four big fire shutters. How do we build houses in flame zones and how do we get around that? How do we bring the costs down? I do not know. But that is the biggest impact, I think. It is one thing to say to clients, 'Hey, you can build an energy efficient home and your home will be cheaper to run.' They go, 'Oh, cheaper to run?' and they will bite at that. But it is a very hard pill to swallow when you say, 'Unfortunately, you are in a BAL 40 zone or a flame zone.' 'Okay, what does that mean?' 'That means the cost of your build has probably gone up 40 per cent.' And that is a big pill to swallow, but it has to be done.

The CHAIR: Mrs Tyrrell.

Rikkie-Lee TYRRELL: Thank you. This is really interesting. Thank you very much. How do you make a bale of straw fire-retardant?

Brett FRANKE: Good question. Straw homes are excellent fire repellents.

Rikkie-Lee TYRRELL: Okay. How does that work? Because I know, as a farmer, say, when we are baling hay –

Brett FRANKE: They can go up.

Rikkie-Lee TYRRELL: They can go 'boom'. Yes, so I am really curious –

Brett FRANKE: So the idea with straw bale is that they use pea straw. Farmers do not like pea straw. It is a low-grade straw. Their cattle do not like it. Farmers – I do not know what they do with it. They probably burn it. We can grab the pea straw bale, and it gets compressed. When it is stacked it gets compressed. They put vertical rods through it and they use big boards and they use bolts and it just presses it down like a sandwich. Once that is compressed they do a compression test, so it is airtight. Then they render the wall on both sides. There are different methods – some use a lime render; some use a concrete render – but the render is fired into the straw, so it goes into the straw. In fire tests, they have actually got an oxy torch, a flame, and put it on the outside of a straw bale wall that has been rendered, and the render is probably about 25 millimetres thick. Do

not quote me on this, but it takes nearly an hour to burn through the render. Once it burns through the render, it starts burning the straw, but the straw does not ignite, because there is no oxygen in there, so it just burns like a cigarette. If you stub a cigarette out and you do not put it out properly, it is just smouldering. That is what happens.

Rikkie-Lee TYRRELL: Okay. Thanks –

Brett FRANKE: So when the fire front passes the straw bale home – the walls of the straw bale are 450 mil thick – there might be some cracks in the straw bale or something and the fire has got to it, and it will just smoulder the straw. It will not go up in flames.

It is the same as electrical faults in straw bale walls. They run the electrical cables through the straw in conduit pipes, but it has been known that some faulty work has been done and there has been a fire ignited in a straw bale. The clients have actually punched into the wall and seen this great big burnt-out section, but it has not ignited the whole house because there is no air in there. There is zero oxygen, so the fire cannot ignite and it cannot feed. You can just cut out that wall, replace the straw and replace the render. So they are actually really good for fire zones, straw bales.

Rikkie-Lee TYRRELL: That is really good. I was glad that I asked that question. You have also answered my second question, which was what type of crop makes the best straw.

Brett FRANKE: Yes. Pea straw.

Rikkie-Lee TYRRELL: And peas are actually really good because they are one of the few plants that we can grow as farmers that actually add nitrogen to the soil because they have nodules on the root systems, so that is actually really good.

Brett FRANKE: That is a win-win.

Rikkie-Lee TYRRELL: If we feed them to the cows, we have to mix the straw in with a lot of other different types of feed to get them to eat it.

Brett FRANKE: There you go.

Rikkie-Lee TYRRELL: Yes. We have tackled that one. Where would be a good place to start in changing the way we build? What do you think would be the smoothest area of change for people to adapt to and afford? Where do you think we should focus, because you mentioned transport or the size of the blocks – where do you think would be the best place to start?

Brett FRANKE: The best place to start is in the planning. If we are talking estates, we are talking about developers. The government could educate the developers, and the architects that make the estate guidelines could just say, 'Right. This is a common rule. This is how we're going to do things better.' There was a company years ago in Bendigo, and I think they still exist. They make straw bale panels –

Wendy LOVELL: Stramit – Stramit roofing.

Brett FRANKE: Yes, and Stramit roofing as well.

Wendy LOVELL: They do not call themselves Stramit anymore; it is a new name.

Brett FRANKE: Oh, okay. They make precast panels, and you stand them up. They are not as thick as a straw bale; they are so thick. I mean, if government could get behind companies like that and someone that is showing initiative saying, 'Hey, I've got a product and it solves a lot of problems. It's energy efficient, it's quick to produce with not a lot of embodied energy', government should say, 'Look, we want to speak to you. How do we develop this? How do we put this in place so we can get a manufacturing plant going and how do we make this viable?' All of a sudden, all the builders building out of brick and stick would look over there and go, 'What are they doing?' It is the same as I said before – start doing it and people will start looking and start adopting.

Rikkie-Lee TYRRELL: Start the trend. Great. Thank you very much.

Wendy LOVELL: The rammed earth wall with the hemp looks very much like the Stramit, because you get that texture of the straw and hemp through it.

Brett FRANKE: Yes.

The CHAIR: Brett, thanks so much for coming in today.

Brett FRANKE: My pleasure.

The CHAIR: I have certainly learned a lot about many things, including straw bale construction, but more broadly there were some really interesting perspectives on making the places we live in more resilient to climate change. You will be provided with a copy of transcript to review shortly.

With that we will just reset for the next witnesses.

Witness withdrew.