T R A N S C R I P T

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into Climate Resilience

Melbourne – Wednesday 6 November 2024

MEMBERS

Ryan Batchelor – Chair
David Ettershank – Deputy Chair
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WITNESSES

David Wagner, President, Victorian Chapter, Australian Institute of Architects;

James Legge, Founding Director, Six Degrees Architects; and

Xavier Cadorel, Lecturer, Melbourne School of Design,

Dr Chris Jensen, Lecturer, Construction Management and Environmental Design, and

Katie Skillington, Lecturer, Architectural Design, University of Melbourne.

The CHAIR: Welcome back to the Legislative Council Environment and Planning Committee's Inquiry into Climate Resilience here in Victoria for our session with an array of architects, if that is the appropriate collective noun.

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

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

Welcome, one and all. My name is Ryan Batchelor. I am the Chair of this committee and a Member for the Southern Metropolitan Region. I will just get the committee members to introduce themselves.

David ETTERSHANK: David Ettershank, Deputy Chair, and Member for Western Metropolitan Region.

Sarah MANSFIELD: Sarah Mansfield, Member for Western Victoria.

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

The CHAIR: And online we have –

John BERGER: John Berger, Member for Southern Metro.

Jacinta ERMACORA: And Jacinta Ermacora, Member for Western Victoria Region.

The CHAIR: If I could ask each of you to individually state your name and any organisation you are appearing on behalf of, and then we will move to an opening statement.

David WAGNER: Sure, if I start. I am David Wagner. I am the Victorian President of the Australian Institute of Architects. I am also a partner of Atelier Wagner Architects, so a practising architect working in medium-scale work.

James LEGGE: I am James Legge, a fellow at the institute of architects, and I am a practising architect and the Founding Director of Six Degrees Architects.

Katie SKILLINGTON: Katie Skillington. I am a Lecturer in Architectural Design at the University of Melbourne and a practising architect and a member of the Australian Institute of Architects.

Chris JENSEN: Chris Jensen, University of Melbourne Lecturer in Construction Management and Environmental Design.

Xavier CADOREL: And Xavier Cadorel, Lecturer at Melbourne Uni as well in architecture.

The CHAIR: Wonderful. David, are you making an opening statement?

David WAGNER: I have some introductory comments.

The CHAIR: Wonderful. Thank you.

David WAGNER: Fantastic. Thank you. Thank you for the opportunity to contribute to the Environment and Planning Committee's Inquiry into Climate Resilience. The topic is of foundational interest to architects and how we go about designing buildings, the environmental impacts of construction, carbon expenditure and environmental design, the life of the building and end-of-life legacy. We also have other members beyond us who have researched into this topic, so we can actually expand upon this topic further with other research papers should that be helpful.

A little bit about our organisation: the Australian Institute of Architects has about 4000 members in Victoria and over 14,500 across Australia who are working in the built environment industry, responding to and grappling with ever changing parameters such as climate change. Architects do not work on all projects, but we do work in the more difficult, the more complex, the larger and the more innovative projects, which means we are well placed to assist government in policy development and regulatory reform for the benefit of our community, conscious that this assistance must be undertaken in a transparent and prudent manner. Our interest and focus is to improve the built environment and therefore people's lives, which is the theme of architectural projects. Buildings need to be long term, durable and climate-conscious and contribute to community.

This Inquiry into Climate Resilience is an opportunity to consider the primary climate risks to our built environment. Self-evident risks of flooding, drought, rainstorms, strong winds, earthquakes, bushfires, heatwaves and cold all pose a risk to our built environment, whether buildings or the amenity between our buildings. We do not have to look far into history for communities currently dealing with extensive rainstorms and flooding in Valencia and hurricanes and winds in Louisiana, and we know of the relocation of cities such as Jakarta and, I understand, Lismore's CBD, so it is a very contemporary topic.

As a broad summary, it would seem that we need to deal with the following basic parameters. We need to reduce carbon expenditure to reduce the impact of climate change; anticipate increased frequency and intensity of natural catastrophic events as well as anticipated new-normal meteorological parameters; upgrade planning schemes to contain future development to areas and topography less likely to be impacted by climactic events and manage water run-off; renew and revise the building code and relevant Australian standards as mechanisms to set minimum standards of construction quality to be able to address some of these climactic risks; require adequate construction management, superintendency and inspection processes to ensure and assure that the building codes are being followed; encourage retention and adaptation of existing building fabric and consider how these might be modified to become more resilient; and encourage connectedness with environment, landscape ecology and green space; and finally, also consider how post-disaster recovery processes might happen in our built environment.

However, in the pursuit of climate-resilient buildings the government and its regulatory agencies must also be aware of the impact that codes have on the cost and availability of building. In the midst of a housing affordability crisis please be aware that raising of construction code standards will also raise the cost of construction, and so revisions to standards must be undertaken intelligently and with an awareness of the impact they have on construction costs and also program duration.

With that brief introduction I will pass over to you to ask some questions, which we are happy to respond to.

The CHAIR: Wonderful. We will absolutely do that. We will have just over 5 minutes each, I think. The homes that people live in – we spend most of our time in and around our homes. What are the biggest challenges that our residential sector and our homes are facing as a result of climate change, and how well do you think that we are adapting as a community to it?

David WAGNER: Are you talking about existing infrastructure? Existing or new?

The CHAIR: Both.

David WAGNER: Both. Well, I think there is a broad range. In the first instance we want to actually respect a lot of the built fabric that exists and work to improve installation, improve shading, improve cross-ventilation, all of those sorts of attributes, as a starting point. But it is important to recognise that the buildings we have are an asset, and if we can look after them properly, that is going to reduce our carbon in itself as a starting point.

In terms of construction, there is a process of actually calculating carbon that is involved in developing buildings, and also there are some codes that address issues such as shading and such as glazing insulation, but they do not necessarily all work together to come to the outcome we would like. For instance, in looking at simple ESD models for calculating energy efficiency, shading I think has a fairly mired sort of contribution, whereas in reality it actually provides quite a significant contribution. With those introductory comments, perhaps did you want to add to that, James?

James LEGGE: Sure. I think one of the key things for people living in their homes is just how comfortable their homes are. We all probably grew up in homes that were not particularly well insulated, but we also did not have air conditioning – or not when I was growing up, anyhow; we had fans. Where we have got to now is people will tend to throw heating and cooling solutions at buildings and at homes in order to make them comfortable, with a colossal amount of energy being utilised through that process. So what we should be aiming for, I think, in answer to this question, is homes that are affordable to run. So they need to be well considered, well insulated, well shaded. The shading will come down to shading the windows in the correct way and the openings in the correct way and insulating the building the right way. But it will also come down to tree coverage, so that becomes more of an urban planning issue instead. It is not just about the buildings themselves, it is the environment in which you are actually building these buildings. So I would say comfort probably is the key thing and then how you go about that in the simplest way rather than necessarily the most expensive way.

The CHAIR: What do you think the barriers are to achieving some of those goals for people living in their homes now, as our summers are getting hotter or as our springs are getting windier?

James LEGGE: I think government have in place some levers they can pull. Homes require NatHERS ratings, and the industry will tend to tell you that it is more expensive if you raise those requirements for those homes to build. I doubt that that is the case. The payback period for them is quite rapid in terms of the ongoing cost to heat and cool those homes.

The CHAIR: So homes with higher NatHERS ratings end up being –

James LEGGE: Better insulated.

The CHAIR: Better insulated, but also cheaper to live in over the –

James LEGGE: Way cheaper to live in, yes. The classic example is if you look at some of our existing stock for social housing, it has a NatHERS rating of 2, 2½. They are freezing.

The CHAIR: Two?

James LEGGE: Yes, they are very low. They are concrete boxes without heating – well, they have heating, but they do not perform well, so they lose heat when you put it in or they lose coolth, if there is such a thing, when you are trying to cool them down. So they are not well built from that point of view, whereas these days the NatHERS rating, the minimum now I think is 7. It was 6.5, but I think it is now 7, and it could be 7.5. We often achieve something closer to 8 or 9. That is not hard to do. It is more difficult, and you will –

The CHAIR: What is the difference living in a 2 or 2½ NatHERS home to a 7 NatHERS home?

James LEGGE: The oscillation of temperature will be huge. It will heat up very quickly or it will cool down very quickly and you will have to put the heater on.

The CHAIR: You have to use more heating and use more cooling.

James LEGGE: If you have a well-insulated home, then the temperature oscillation looks a bit like that, basically. It will be flattened out, and ideally you do not need to put anything on. I mean, the prime example is you can use a ceiling fan in a well-insulated home if you have some hot weather outside at least for a few days. A ceiling fan will cope with the shoulder seasons and times of increased temperature before anyone is putting the air conditioner on.

The CHAIR: Okay. Mr Ettershank.

David ETTERSHANK: Thank you, Chair. Thinking about sort of medium and higher density projects – and I have been involved in a few of them in residential and aged care – I guess the question in my mind is: how do we stop important environmental initiatives and building components being value-managed out? That seems to have been much of my history.

Katie SKILLINGTON: That is a difficult question to answer.

David ETTERSHANK: That is why we have the experts here.

David WAGNER: I mean, it is a really good question. I think in the first place make sure the initiatives are not necessarily super expensive, and it is possible to actually design buildings so they have a more innate integral design, which means they are orientated the right way and that shading is part of the design, rather than trying to then push a whole lot of other things – as James mentioned, air conditioning and so forth. If these are designed properly in the first place, and solar panels are integral to it so we are dealing with power and all of those sorts of issues, I think it is harder to actually value-manage them out. But at the end of the day I suppose the resources that are applied to a project are an important consideration.

Katie SKILLINGTON: I think inherently if the design is responding to context and it is responding to what the occupants need – so something that is quite specific, because multiresidential dwellings are different to aged care. They are two different settings. You have got to really interrogate what the occupant needs inside their dwelling. There might be a smaller band in comfort temperatures in an aged care setting as opposed to multiresidential. But I think up to this point in time a lot of conversation has been driven by: how can we make technology more efficient? But you should not be using appliances or fixtures or technological solutions to offset inherently bad design or poor-performing fabric. So I think going back to basics is a good way of avoiding the value management issue that a lot of people encounter in the industry, and then as a last resort working out what technologies can improve the performance just by a small amount. We should really be looking at design first.

David ETTERSHANK: So if we take that point, the government flagged what I will call cookie-cutter designs for fast-tracking through planning. I was always taught that what you capture passively by orientation and such is three-quarters of the work. I do not know whether that is still the case. Does that work, to have these sorts of cookie-cutter designs – and some of them are three- and four-storey – and to say, 'We're going to just fast-track these through multiple different sites with different orientations and expect them to achieve the results'?

David WAGNER: You are referring to the Future Homes project –

James LEGGE: And the innovation programs – pathway through planning – announced last week or the week before. I mean, I think that yes, it is possible, subject to consideration about orientation and how you might treat those openings. If it is a well-designed building, it is a well-insulated building and the orientation changes then you may – we are talking about freestanding buildings, clearly, not buildings that are wedged between two others on Sydney Road. That is going to be a very different case. But freestanding buildings, if they are well designed, I think yes, you could put on different sites in all sorts of places, I would say, subject to planning consideration of particularly the ground plane or what happens on the ground, how they land within its precincts, so they are not spaceships landing in the middle of wherever they land. So I think consideration of materiality, but I think in concept, yes, you could use similar projects elsewhere.

David WAGNER: On the proviso that it is intelligently done.

James LEGGE: On the VM question – we bump up against that quite a lot, and as architects it is distressing when things get pulled out of a project, because they can be pulled out of a project by the contractor – I would say where we have the greatest success in keeping them in is where there is a requirement for them to be in there, and that comes down to standards or codes or even government requirements. As an example, working on social and affordable housing projects for the government, they have a design code. The builder or whoever has won the project has to deliver 7½-star NatHERS and green star. They have to do it. Yes, they can change some stuff around that, but they accept that they have to do it – that is part of the rules – and they cannot value-manage to lose that, because we will say, 'Well, you can't get rid of that, because all of a sudden you have got too much sun coming in or too little sun coming in, or whatever, and you're not going to meet the standards you have got in your contract to me.' So there are ways of doing it, but they seem to be the safest.

David ETTERSHANK: Are they clearly enough defined in government contracting and the current regulatory codes?

James LEGGE: In government contracts, yes, I would say they are. In the procurement of social housing, the work that is happening under the big build, I would say they probably are.

David ETTERSHANK: And in terms of the code?

James LEGGE: In terms of the code, things conflict in the code.

David WAGNER: The code also has deemed-to-comply clauses and performance-based solutions or requirements. They are two completely different worlds. I would say the codes are much less deemed to comply than they used to be. Many years ago, when I started out, we had a building code that was only 10 mil thick or so. Now it is multiple folders thick and keeps changing. Part of that, though, is: is there a performance-based solution? Performance-based solutions are great in the sense that they give the designer the opportunity to design according to the situation. The other aspect of that is it actually introduces costs and time into the program. So if you are just building a single residential, it can actually push that out significantly, trying to respond to all the performance-based solutions. It is a matter of these things being managed intelligently. That is so critical, because getting the right balance is important.

David ETTERSHANK: Thank you.

The CHAIR: Ms Broad.

Gaelle BROAD: Thank you very much. I really appreciate you coming here today. I am just interested in state government assets particularly. You talked about considering any building that we have as an asset at the outset. I know in Bendigo, where I am based, the GovHub has been a huge development, a really big building but with floors that are vacant because people are working from home now. The law courts are another significant investment, which is very elaborate, similar to the High Court in Canberra. But then the old law courts sit empty; they have not been utilised. It is a very old building in a very central part of Bendigo. What are your thoughts on maintaining state government assets? Is there a space for refurbishment or renovation, and what are you seeing in other states?

David WAGNER: There is definitely a space for refurbishment of all significant buildings. I mean, if it is a timber weatherboard single residential that is falling down, that is a separate problem. But if it is a well-maintained three-storey building, we need to look after those buildings, and we need to then apply the logic that these guys can introduce with their research into adaptability and modification of the buildings to actually hit that point. I do not know whether you guys want to expand on that.

Chris JENSEN: Yes, I think the principle of a circular economy relies heavily on retrofitted buildings. In that sense there is a major advantage in retaining existing buildings, acknowledging that the cost and effort to bring them up to a current standard or to new use is high, but over a life cycle there is a lot of value in keeping that existing asset. It can be changed and modified, but there is a lot of carbon invested already. So yes, it is worthwhile keeping, definitely. And they can be upgraded. Retrofit is very common.

Xavier CADOREL: There was a case a few years where Queenscliffe was looking for a new city council building, and the architect was Alvyn Williams from Softloud Architects. He said, 'Before I design any building, show me your stock of buildings.' They had beautiful buildings that they did not put any value on, and by retrofitting they were able to not build but actually retrofit and bring back some value in some of these assets the city had.

Gaelle BROAD: I know we have seen that a lot in community assets with local councils too. I mean, they have talked about it being very tempting for new buildings to be done because you get to cut the ribbon, but then a lot of these older premises –

Xavier CADOREL: You could put on a ribbon.

Gaelle BROAD: Yes, you could still put a ribbon on. That is a good recommendation there. I guess I am interested too in residential homes because I have spoken with a number of people in the industry, because we do have a rental crisis at the moment and a lot of new standards have been introduced, with landlords having to

increase that, but then they are not able to pass on those increased costs to the people renting, which is a bit of an issue. One person I spoke to was recommending a program that would enable landlords to do some upgrades or help with that to get a house up to standard. I had a lady recently that was in tears because she does not want to evict anyone living in the properties but she cannot afford to do some of the upgrades. Can you speak to that challenge? Do you think that there is room for a program like that?

David WAGNER: I mean, I think so, but equally this is something that in heritage we have actually argued for and spoken to the minister about. There was a Heritage Victoria program where it was possible to get funding to actually enhance the heritage value of a building, and the same could apply on a broader scale, I suppose, in terms of environmental aspects.

Katie SKILLINGTON: I think in terms of perhaps a longer term program, just thinking more laterally. Instead of necessarily a program that is providing financial incentives to private landlords, it would be really great to see the government perhaps invest in the skills shortage we have in trades in terms of working with existing buildings, because that I think would generate jobs across the entire state if we had specialised trades that could actually go into buildings that were existing and know how to retrofit them to the standards of today. That could perhaps lower the cost for landlords out there in terms of wanting to upgrade their assets.

James LEGGE: I wonder too whether or not all rental properties should actually have a NatHERS rating, even if it is an old building. So if someone declares it and it is a two, it goes onto the real estate brochure that this is low, so therefore it affects the cost of how much they can get for that rental property. And then presumably if they improve it – it is tax-deductible in some way because they are improving their property, they are spending money on it – they will get to push that rating up. Then it is transparent to whoever is moving into it and they know whether or not that house is actually performing, not performing or going to perform or what their costs are likely to be, rather than moving into it in spring and finding out in the middle of winter that they have to have all the heaters on all the time.

Xavier CADOREL: This kind of scheme has been very successful in Europe with a rating of A to G. It has been able to bring back the old stock up to the standards of the current status to save energy and also improve comfort and the health of the occupants.

The CHAIR: Thanks. Mr Berger.

John BERGER: Thank you, Chair. Thank you all for your appearance this afternoon. Chris, I was interested in what you were talking about, the retrofitting of buildings. I suppose the question for me is: where do you draw the line on some of these places, when you think theoretically it sounds good to do it but physically and also cost-wise retrofitting is just out of the question?

Chris JENSEN: Yes, look, it is obviously a massive challenge, making that decision, and there are a couple of points. One is heritage, which David has referred to, and the second I would say is the existing carbon that is invested in the structure. I mean, 90 per cent of buildings are considered existing buildings, so if we look at improvements to buildings and also what is available, we are talking about upgrading buildings as the vast majority of our work moving forward in terms of environmental outcomes and amenity for occupants. There are a few ways that that decision is made, and we tend to focus on the existing carbon that is in the structure particularly. Acknowledging things like floor-to-floor ceiling heights is very difficult. Existing riser shafts, lift sizes and things like that create a lot of problems.

I think it is honestly a case-by-case basis, and there are some excellent examples in the retrofit lab at the University of Melbourne. RMIT in the city is a really good case of where they have retrofitted a number of existing buildings successfully, and there are others in reverse where we acknowledge that they are not worth keeping for a range of reasons. Interestingly, floor-to-ceiling heights come up a lot. So, yes, it really is case by case. I think the architects would agree with that generally.

David WAGNER: It is very much assessing each case, but I think also it is intellectually more challenging to retrofit a building than it is to just simply knock it over and build a new building. I think for some development models it is a simpler process to build new but it may not be the best because of that carbon investment and the investment in actually the cost of the building in the first place, and also culturally and historically these buildings do contribute to how we understand our environment.

John BERGER: Chair, just one more, if I could.

The CHAIR: Yes.

John BERGER: Chris, you in your submission talked about cool roof coatings. Can you expand a little bit more on what that all means and practically how it works, also in the context of solar installations?

Chris JENSEN: Sure. Yes, we can get quite scientific if you like. Electromagnetic radiation heats surfaces, it is absorbed and it is reflected, and roofs are predominantly dark and highly absorbent materials. So in climates where we are predominantly cooling, we are trying to resist any additional heat and in this case particularly through dark roofs. So a cool roof coating is usually a secondary application to the roof that increases the reflectivity and reduces the absorptivity of that material. It is fairly contentious for planning because it is a white roof and the market demands a black roof, so there are a lot of interesting cultural challenges with that. But particularly to existing buildings, it is a very effective approach to improving dark-roofed buildings in a cooling climate.

David WAGNER: It is like having a white car or a black car and leaving it in the sun.

Chris JENSEN: Yes, that is right.

John BERGER: So in the context of solar and things of that nature, how would you overcome it if you are trying to have a roof that is predominantly white and then have a solar application to offset another issue? How might it work?

Chris JENSEN: That is a great one. It has been well studied that PV panels will perform better when they are cooler. So a white roof means the panels are cooler and they are more efficient. It is a 1 per cent improvement for every 2-degree temperature rise of the panel over 25°degrees.

David WAGNER: There is actually some complexity to that too in terms of how much heat is absorbed into the roof and then how much is simply reflected. So I think that is worthy of a longer conversation with Chris, I suspect.

The CHAIR: Good call. Dr Mansfield.

Sarah MANSFIELD: Thank you. Just continuing on this idea of retrofit versus building new, obviously there have been a lot of new infrastructure projects announced by the state government, including the rebuilding of the 44 public housing towers. I am just wondering in that instance whether you had any thoughts on the ability to retrofit or retain some of those structures.

David WAGNER: I think the government is in a really strong position to actually understand this, because they have actually looked at the reports or they have created reports that looked at issues such as the structure, the amenity, the quality of the materials. There is a broad range of these towers in terms of when they were built and how they were built, and so the responses do actually vary. It has been quite an interesting topic in the architectural fraternity discussion about whether these should be retained or not. There is certainly a group that believes it is best to retain them and to retrofit them, and there is a group that refers to these reports – that we cannot see – that actually say that some of them cannot be refitted and refurbished adequately. So I suppose our view is we cannot properly advise on that unless we were to see these reports – that have been done, because some of our members have been involved in the process, but they cannot advise us what was actually the outcome of it, other than to say there is some complexity to it. I think that the key message is the buildings are different and so some of them are much better suited towards refurbishment than others, and I suppose, in essence, if we could see the reports, we would be in a much stronger position to actually answer your question.

Sarah MANSFIELD: Okay. Moving to the issue around planning schemes, you mentioned that we need to review our planning schemes to look at things like climate resilience, including the suitable locations for properties. Do you think the pace at which we are changing or adjusting these things is adequate, and what do you think needs to be done in that space?

David WAGNER: Well, it is important to make the right decisions, isn't it? So the climate is changing and regulations are being changed as we speak, almost. But at the same time, if we move the regulations too quickly and there is not sufficient review and response on that, then you can end up with regulations that are not

necessarily as helpful as they might have been. So I suppose it is a matter for government management how quickly these can be changed.

James LEGGE: I would add: clearly, particularly in regional areas, I think the easiest thing to do is just open up a new tract of land. I do not quite know the politics of this, but my understanding is that local governments often look after that. I think that that needs to be considered very carefully, whether or not that land is suitable for housing. It is probably less in Victoria, but you do hear reports in New South Wales and Queensland where various tracts of land have been opened up that just should never have been built on because they are in a flood plain. But it has happened; council has allowed it to happen. My understanding is planning in Victoria is moving towards trying to somehow mediate how that process works, but I do not have enough understanding of that. But we do think as a group that it is incredibly important that the right bits of land are established to be built on, and if you are going to open up new tracts of land, greenfield sites, that they need to be considered as to whether they will sell or not.

David WAGNER: There should also be an impost on those houses that are opened up in greenfield sites, because there is a huge cost in terms of developing town centres and transport and so forth that actually exists in our inner and middle suburbs, and I do not know that that cost is necessarily passed on to the home purchaser. So they believe they are getting a cheaper property to live in, but at the same time they may not get a town centre for some time after the house has been built.

James LEGGE: Or a school or a hospital.

David WAGNER: Or a school or hospital. Yes, exactly. All of that. So I think there has got to be a better equation that is actually applied to all those greenfield sites to appreciate the consequences of building so far away from services.

Sarah MANSFIELD: You also mentioned water run-off being an important consideration. I am just wondering if there is anything you could elaborate on with respect to water run-off and I guess that water-sensitive design – where we are at and what needs to change, particularly in terms of regulations.

Chris JENSEN: I think I will broadly just talk about flooding. It is obviously front of mind globally and locally, and in this case the planning and regulations are definitely not keeping up with what we are seeing in terms of extreme weather changes. We still refer to an ABCB – building codes board – document from 2012 related to construction in flood areas, and it is extremely basic. It is 19 pages. As an example, the insurance industry is so far ahead that the contrast is unbelievable. They released something in October 2024 that is very up to date, 450 pages; they are all over it. So regulations and planning are miles behind in flooding, yes.

David WAGNER: Also, with flooding we need to be conscious that there are multiple assessments of it. There is an insurance database, there is Melbourne Water's database and council databases, and they vary. I mean, we were working on a project where there was a metre difference between Melbourne Water's assessment of flooding and the council's assessment, and that affects the floor level. So we do need to have a consistent model that actually applies to all properties so we have a better understanding of that.

The CHAIR: Thank you, Dr Mansfield. Ms Ermacora.

Jacinta ERMACORA: Hello. That is me here. Thanks very much for coming. I am just interested in that structural refit, but before I ask that, there are already market drivers that encourage landlords to retrofit heating and cooling and swap gas heaters for reverse-cycle air conditioning and that sort of thing. Is it possible to fix a structural issue in an existing property?

David WAGNER: It depends what the structural issue is – how significant.

Jacinta ERMACORA: Sorry. You can tell my ignorance here, because it is such a broad – why is the sky blue?

James LEGGE: Yes. I would say yes, but it depends how big it is as to how extensive it is going to be.

Jacinta ERMACORA: Just say yes.

Katie SKILLINGTON: Generally, everything is fixable. It depends upon how deep your pockets are.

Jacinta ERMACORA: That is the thing, I suppose, isn't it, because when you think about health in buildings and health in homes as well as climate change, yes, there is a space there. There is almost an elephant in the room, isn't there, when you are talking about equality.

James LEGGE: I guess a question would be: are you talking about physically structural, if it is a something-falling-over-type structural issue, or are you saying structural issues, as in just bigger issues?

David WAGNER: Systemic.

Jacinta ERMACORA: Not the falling over, because I think a business case would deal with that question. We heard earlier in the day about the impact of extreme winds, not the average of wind per year but rather the impact of extreme wind incidents on high-rise or medium-rise buildings that were not engineered for that. Is it possible to retrofit for that?

Chris JENSEN: I might answer. In cases like that, particularly with extreme weather, there is the damage from the event but then there are the ongoing issues, the fact that if the roof, for example, was ripped off, then the entire building needs to be reassessed. So yes, the event damage can be repaired without too much issue usually, but it is more often the case that the whole building may need to be completely demolished or the issues are much deeper than just the impact of the event.

Jacinta ERMACORA: Okay, you have helped me. I am thinking the best parallel is: is the car a write-off? Sometimes with a small bingle you think, 'Oh, it's not much damage,' but then when it is assessed, financially it is a write-off. I guess that is what you are potentially saying with some buildings.

David WAGNER: Buildings are very different to cars. Buildings are much more elemental, and the parts are more easily found than in cars, where the parts may not be so easily located.

Jacinta ERMACORA: Yes. I was not making a direct comparison, just using language.

David WAGNER: Sure.

Jacinta ERMACORA: I was not suggesting that a building is a car.

David WAGNER: In summary, I suppose, yes, it is possible to refurb and repair buildings, but you do need to make assessment of the structural impact of the weather event and see whether it has actually damaged the core structure of the building.

James LEGGE: I think it is also probably worth keeping in mind that because we have been building buildings for the last 150 years, the codes have been increasing along the way. For example, we did not have seismic codes 20 years ago. We now have seismic codes. So most of the buildings that are less than 20 years old will not meet seismic codes, but they have not fallen over either. Codes have improved and got better. Likewise there will now be a requirement to identify the wind velocity of a particular location, and the codes do require you to have different hold-down fastenings for roofing structures et cetera in higher wind zones. So the codes are improving. Part of what you are talking about is probably also for historic buildings, not old buildings necessarily but just older buildings versus new buildings. So new buildings may well be to code and not lose their roofs in a high wind, but something that is 20 years old might.

Jacinta ERMACORA: Sorry, just one more question, almost a similar question. You can see when you watch a high-rise being built that there are these tubes that look like they are the structural things. The concrete goes in, a circular tube goes up the middle of the building and you can see the building kind of being built around them as each layer goes on. Can you put new tubes in an old building?

James LEGGE: No. That is the lift and stair core, and that is the main structure; that is it.

Jacinta ERMACORA: Thank you.

David WAGNER: I would say no. Unlikely.

The CHAIR: Unlikely. Thank you so much. Just one quick thing to follow up. We talked about this idea of a NatHERS ratings for residential properties. People are buying and selling their homes. Is there any equivalent in the sale transaction process to disclose energy efficiency interactions?

David WAGNER: No, not yet.

Katie SKILLINGTON: Not in Victoria, but there is in the ACT.

The CHAIR: How does that work in the ACT, and what has it led to?

Katie SKILLINGTON: When a property is up for sale or lease, then I think what is called an energy efficiency rating – but do not quote me on that – has to be declared. For rental properties, in the last research I read about it is voluntary. It is worth noting that at the federal level there is the residential energy efficiency disclosure initiative. That is currently underway to try and implement this nationwide, and there will be a pilot that is occurring in 2025. I think it is an excellent move, because then it starts to give buyers an understanding of what the performance of an existing asset is.

The CHAIR: It might be useful if you are able to provide on notice to us any background information you have got on those. It strikes me that putting more information into the market about the energy efficiency and the climate resilience of housing in whatever form it comes, whether it is standalone or rental, would shift the incentives for the owners of that capital to make them more energy-efficient and therefore climate-resilient. And you could quite likely see a scenario where there is in effect potential for future value capture in capital gain for –

James LEGGE: By improving it.

The CHAIR: improvement. And it would –

James LEGGE: But I would have thought you also might start getting calculators on the web where you can go, 'I'm looking at buying this. It's this many square metres and it's got a rating of 2.5. How much is it going to cost me to heat for the winter?' And if it comes up with $3500, you might go, 'Maybe I'll go for a smaller property.'

David WAGNER: We understand that governments or government agencies are in the process of actually enabling this and that it might be a year away or something of that sort of order. Is that your understanding?

Katie SKILLINGTON: My understanding is there is a pilot program rolling out in 2025.

Chris JENSEN: There is also the – is it DELWP? – department of environment, water, land and planning.

The CHAIR: It used to be. It is someone else now, but we understand.

Chris JENSEN: They have got their residential and energy efficiency scorecard, which is a more holistic approach to existing residential buildings and NatHERS, and they are looking at rolling that out nationally, but it is a Victorian program.

The CHAIR: All the best things come from Victoria. Mr Ettershank.

David ETTERSHANK: Dr Jensen, you made some comments before – take this as a question on notice if you would; we have sort of run out of time – about the code as it applies to I think flood-prone or water-sensitive being from 2012 and only 19 pages. Would you be able to provide us with some elaboration on what that is and why that is inadequate as a question on notice?

Chris JENSEN: Yes. The system for residential at the moment is the council will determine the flood zones and the appropriate level, which is referenced to the flood plain manager – so Melbourne Water, for example. The building code requires that the floor level is a minimum height above that level, and they have no further comment on construction for habitable spaces above the flood level. There are some minimum requirements for non-habitable spaces below the flood level. One of my personal areas of interest is to actually increase what is called wetproofing, which is allowing buildings to flood and not need to be knocked down. So that building

retention is a goal that should be included in the code as well as life safety and energy efficiency, which is what is currently addressed.

The CHAIR: All right. Thank you so much, all, for coming in. You will be provided with a copy of the transcript of today's evidence to review before it is made public on the website.

With that the committee will break for lunch.

Witnesses withdrew.