T R A N S C R I P T

LEGISLATIVE COUNCIL LEGAL AND SOCIAL ISSUES COMMITTEE

Inquiry into the Redevelopment of Melbourne's Public Housing Towers

Melbourne – Tuesday 5 August 2025

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WITNESSES

Associate Professor Rory Hyde, and

Professor Brendon McNiven, Retrofit Lab, University of Melbourne.

The CHAIR: Welcome back to the next session of Legal and Social Issues Committee Inquiry into the Redevelopment of Melbourne's Public Housing Towers. I am Joe McCracken, Chair, and we will go through and introduce the rest of our committee.

Anasina GRAY-BARBERIO: Good afternoon. Anasina Gray-Barberio, Northern Metro Region.

Aiv PUGLIELLI: Hi. I am Aiv Puglielli, North-Eastern Metro.

Rachel PAYNE: Hello. I am Rachel Payne from the South-Eastern Metropolitan Region.

Ryan BATCHELOR: Ryan Batchelor, Southern Metro.

John BERGER: John Berger, Southern Metro.

Michael GALEA: And I am Michael Galea from the South-Eastern Metropolitan Region.

The CHAIR: Perfect. Thanks very much.

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All the evidence is being recorded, and you will be provided with a proof version of the transcript at the end. Ultimately, they will be made public and put on the website.

Just for the Hansard record, can you please say your name and the organisation, if any, that you are appearing on behalf of, please?

Brendon McNIVEN: Brendon McNiven on behalf of University of Melbourne, Retrofit Lab.

The CHAIR: Thanks.

Rory HYDE: Rory Hyde, University of Melbourne, Retrofit Lab.

The CHAIR: Perfect. Thanks very much. Now, I understand there is opportunity to do an opening. Are both of you going to do an opening?

Brendon McNIVEN: I will speak for 5 minutes, and we will both answer questions.

The CHAIR: All right, perfect. Thanks so much. I will hand it over. Welcome, and thank you.

Brendon McNIVEN: Sure. Thank you for your time. Just as a bit of background on us so you can maybe direct your questions a bit better, Rory is an associate professor of architecture and practice at the University of Melbourne with over 20 years experience, including as the London housing design advocate for the mayor of London, focusing on housing in particular, and working in architecture practices for many years as well. I am the other side of the coin; I am actually an engineer. I am an enterprise professor of architectural engineering, which means I come from industry, with over 30 years experience in structural consulting engineering. I have been at the university for the past seven or eight years making a transition to academia. We both have extensive experience throughout Australia and overseas as well. The Retrofit Lab is a research lab at the university housed by the faculty of architecture, building and planning, and the remit is really to support research into transforming the existing built environment and cities into the future.

You have seen our submission, which we will take as read, obviously. We are here to advocate for the proper life cycle assessment of the buildings, of the towers, before making decisions on the way forward. What is life cycle assessment? It is the whole-of-project life right from cradle to grave of four different areas across a project, so built outcome; climate resilience; health, wellbeing and community; and economic impacts as well. They are typically over different development options. The options that you will have seen in that paper that we provided are broadly knock down and rebuild or retrofit, and then there are hybrids like retrofit and infill as options. Carrying out life cycle assessment maximises the likelihood of good outcomes for not only the project but all of the stakeholders in the project as well. It is not new, it is very well understood around the world and in Australia, and it is usual practice on any project. We could not see any publicly available evidence of life cycle assessment being carried out on the towers in arriving at the decisions; probably contrary to that, the decision seemed to be predicated on the current failings of the towers – noise, sustainability, waste and recycling – and there is a list that you will be aware of in the housing statement. It is important to say that that is not a life cycle assessment, that is identifying the issues in the current condition of a building, and every building will have issues. Identifying those issues is really meaningless without actually looking at the opportunities and solutions that are available to overcome those issues, how much they will cost and how easy or difficult they will be to implement.

There are a few case studies – one is in that briefing paper – which illustrate how possible it is to do this in Australia and around the world. The first is a very similar 60s residential building, Grand Parc in Bordeaux. That was a similar structure. It was 50 per cent of the cost of a new build, and it avoided any displacement of tenants. Two watershed projects more recently in Sydney and Melbourne, Quay Quarter in Sydney and 500 Bourke Street in Melbourne, had significant cost savings – hundreds of millions of dollars – and significantly better environmental outcomes. These were projects that were led by the market. They were commercial developers, so they had a strong focus on cost, risk and other things. They did not stack up as knock-down-and-rebuild projects. They only came to light because they were done as retrofit projects. The last two are really independent studies – and you heard from one this morning, so you would be well across that. They are studies that were done on the actual towers themselves, one by OFFICE and another by a team at NMBW, so both had architects and engineers providing technical input on the information they had available. Both had similar findings identifying cost savings potentially in the order of 25-plus per cent, significantly better environmental outcomes and reduced or no tenant displacement.

I think it is important to make the note that 'retrofit' does not mean 'second rate'. Architecturally, a lot of retrofit solutions are better than new-build solutions because they respect the heritage and history of a project, and they are more interesting. Good architecture and good experiences for tenants and occupiers in a project really grow from the constraints of a project, so it is about actually putting in the effort to do good design and bring projects up to code and liveability standards.

In summary, we are advocating not one way or the other, but we are advocating for the process. We want life cycle assessments to be carried out to maximise the opportunities for positive outcomes for the state, for whatever developers get involved and, importantly, for the tenants as well. Thank you very much.

The CHAIR: Thanks very much. I will start off, and then we will go through the committee members. I guess one of the questions that has been put to us is about the decision of whether you knock down, bulldoze and start again, whether you retrofit or whether you, as you said, do a hybrid in the middle. We will not have all the access to the information that we would like to to be able to make an assessment on those particular matters. From your professional perspective, what should a person or group be looking at to come to a view on that? What are the things that you would want to know?

Brendon McNIVEN: There are a wide range of things and not all of them will be available. As a structural engineer, I am obviously very interested in existing drawings. You can do a lot of non-destructive testing on concrete quality and other things. Existing condition is a really big factor, knowledge about the construction and, importantly, knowledge about the potential design solutions to overcome the deficiencies. As I said, that first step is really doing an audit on the existing building. That will give you a whole list of things that will not work and a whole lot of stuff that does work, and then there is an exercise to be carried out, not dissimilar to what OFFICE and NMBW have done, in saying 'These are the potential solutions.' Then you sit down, and you go through those to assess them on cost, on safety, on ease and on risk. There are a whole lot of factors in there. And then you make a considered and informed decision as to whether it is worthwhile putting those in place, or alternatively, you go back to the rebuild option.

The CHAIR: Okay. Did you want –

Rory HYDE: Only to add that one of the principles of design and in architecture and in engineering is the time and the energy and the effort that you spend at the very start of the project to work out the best pathway by, let us say, evaluating different development options and by producing those reports. It is the best time that you can spend on a project, rather than going down one particular pathway without proper feasibility studies at the very beginning. So that is really what we are here to advocate for.

The CHAIR: Do the work at the start, basically.

Rory HYDE: That is right. And whatever the work tells you is therefore –

The CHAIR: That informs you.

Rory HYDE: Yes, that is right. Exactly.

The CHAIR: Okay. Fair enough. I noticed in submissions that you put forward that one of your recommendations was a policy shift, and that was encouraging government agencies and housing authorities to prioritise the retrofit option as opposed to other options.

Rory HYDE: Yes.

The CHAIR: Why have you come to that view?

Rory HYDE: Look, we see this as a broader opportunity for leadership, particularly in climate and circular economy. We are seeing this internationally, particularly as was earlier mentioned by the RMIT folk. Europe, Scandinavia: they are about 10 years ahead, I would say, of where we are in Victoria in terms of what is best practice. The seriousness of carbon weighs much heavier in those contexts. We think that there is an opportunity for Victoria through that policy shift to skill up, to develop expertise and to show leadership in how to take care of our public housing assets and residents but also to develop an industry which has this expertise.

The CHAIR: Did you want –

Brendon McNIVEN: I agree with that. I come from industry as a structural engineer; my views are often quite black and white around cost and risk. But it is a much broader picture, and there are many more stakeholders. That is the really big advantage of retrofit: it avoids a lot of social harm and environmental harm.

The CHAIR: Okay. All right. Thanks for that. I think my time is up. I am going to pass over to Mr Galea, who is online.

Michael GALEA: Thank you, Chair. Thanks very much for joining us today. It has been very interesting already. I would like to touch on your submission. You have used a couple of international examples of where you believe retrofitting has been applied successfully but also where a full rebuild has not. I note you have used an example from the UK, from Southwark, about just over a decade ago, where that project delivered a net reduction in social housing once it was completed. Given that the projects that we are discussing in this inquiry will have a minimum uplift of at least 10 per cent – and in fact, by early reports, some of the initial projects should be well above that – is this a fair comparison?

Brendon McNIVEN: I think we are never going to get an exact like-for-like comparison. All of these examples, the three examples shown in that page, are really there to demonstrate the different aspects to sort of set the goalposts. So there is one there, which is very similar structurally, that shows a very positive outcome with no tenant displacement. That particular Elephant and Castle example shows what can potentially go wrong when you put things in the hands of a commercially driven developer, and the outcome in that case was, I think, that one in five residents were not back into those accommodation standards at the end of the project. Is it a fair comparison? It is not really the reason those are there. They are there really just to demonstrate where these things can go without adequate controls, thought and discussion on the way through.

Rory HYDE: If I can add to that briefly, it goes to this earlier question about policy. This was undertaken in a context where there were fewer checks and balances, let us say, in terms of the obligations of a private developer. That context has since changed in London, particularly under the mayor of London, where I used to

work, where feasibility statements are required from developers now to demonstrate that a particular percentage – and it is a very high bar; it is 40 to 50 per cent, even for private developers – of affordable and social housing will be delivered as part of their projects. So in a way it is kind of lessons learned. We do not have that policy context here yet, so it leaves it open to be exploited, I would argue.

Michael GALEA: But you are not disputing the government's commitment that it will be a minimum of 10 per cent, if not more?

Rory HYDE: No, not at all.

Michael GALEA: Thank you. I appreciate that, especially acknowledging your experience in the UK as well. An open question to you both – we have had a lot of discussion over retrofitting today, and at a lot of points when we have tried to go deeper with various witnesses into the ins and outs and the technical details of how it will actually work, we have been told, 'They're just initial reports. We don't actually know that sort of detail.' But it is these reports that are being used to justify the argument that the government should be halting this program altogether and changing tack. So how do you square that circle? Do we have any data that shows that these retrofit models are going to do what is claimed? This is not necessarily a question specifically for you, but it has come up quite a bit. I would like to know how we actually make this work. If you cannot actually say 'This will work', 'This won't work' or 'This will work in this way', how do we know it is viable?

Brendon McNIVEN: Look, that is standard practice in the industry. In the construction industry there is no certainty at any stage of the project until you are the last person on the site walking off it. Even in the knockdown rebuild option, there is cost uncertainty the whole way through. There are foundation and geotechnical conditions that we do not fully understand. Yes, there are lots of things that we will find out on the way through.

Michael GALEA: I completely agree with you that it is an uncertainty that applies everywhere. But with the knockdown rebuild model, you are not facing the prospect of people living on these sites with those uncertainties coming up. So do we have certainty that under a retrofit model, where residents are still living on complexes whilst they are being remodelled, that they will not have disruptions that will be very significant and that they would have to be moved anyway?

Brendon McNIVEN: Less in Australia than overseas. But I think, to go back to answer that first question and get over the uncertainty issue – because uncertainty is one of the things you need to deal with in the construction industry, and it is very difficult as a financier because it is a commercial outcome – what you can actually point to are examples overseas where these things happen. Again, as a structural engineer, one of the biggest issues, particularly in Victoria and Australia, is the seismic performance of these buildings, right? It is not usual in Australia in the last 30 years to regularly upgrade the seismic stuff, but it is becoming more usual. But overseas, in New Zealand, Japan – high seismic regions – these examples exist, and it is pretty much business as usual. So there are lots of projects that we can point to with end results that show successful retrofits of these buildings to bring things up to code. So that gives practitioners and developers more confidence at the front end of a project where there is uncertainty, saying, 'Well, you know, it is possible.' It is about trying to close the gap between that level of uncertainty and the final outcome, and that is why it is a complex and involved process.

The CHAIR: Your time is up unfortunately, Mr Galea. I am going to pass it over to Ms Gray-Barberio.

Michael GALEA: Thank you.

Anasina GRAY-BARBERIO: Thanks very much, Chair. I just want to pick up on the Bordeaux case study that you have presented in your submission. Now, that was an example of a successful retrofit. What are some features of that redevelopment that can be applied to the public housing towers here in Victoria?

Brendon McNIVEN: I think one of the biggest and one of the most successful strategies for existing buildings is the provision of an additional facade and, in this case, slightly additional space. So retrofit can be done in many different ways. It is not about keeping everything that is there. It is not about not demolishing everything that is there either. It is about making informed decisions on what you do. So that strategy of taking a building and putting a new facade on means you can actually increase the area of the apartments on the inside. It means that you can actually get better value for your money in terms of environmental performance, for

orientation from sun and solar gain, also better insulation, so the environmental performance is much, much better. So just through that one retrofit move for what was minimal cost or very good value economically, you get significant upgrades in environmental performance and in equity for the living space.

Rory HYDE: And just quickly to add to that: in that project, residents were moved out of their homes for 12 to 15 days. So that conversion of their units was done very quickly and very painlessly, and that is a large panel system tower – built at the same time, with the same broad design as the ones that we have here in Victoria.

Anasina GRAY-BARBERIO: Great. Thank you. I appreciate that. I want to come back to your submission. You stated that public housing renewal decisions should not be made in isolation from social, environmental and economic objectives. Do you believe this government has taken these objectives into account when developing the 44-tower demolition plan?

Brendon McNIVEN: I hope so, but we have not seen it. Like I said at the start – maybe I was talking a bit softly – all we have seen is that list of deficiencies in the towers, which is true and accurate, but again, it is meaningless. It is the first step in the process. It is what you then do about those deficiencies and how expensive it is to overcome them and actually build something that works. With 35 years as a structural engineer, the thing about technical problems like that is there is always a technical solution. It is just how expensive or inexpensive it is and how difficult it is to implement or how easy it is to implement. So really all we have seen based on publicly available information is that initial first step of identifying the issues.

Anasina GRAY-BARBERIO: Thank you. We heard in earlier testimony today that the government has chosen the model of a property developer. Would you agree, or perhaps could you comment on that?

Brendon McNIVEN: Probably outside of my area of expertise.

Rory HYDE: Yes. As I say, I think that is right. We are here to – well, our submission at least is advocating the due diligence at the front of the process and how that is delivered, whether it is through market levers or through a private developer. I am not sure we are necessarily advocating for one or the other as long as the outcome prioritises those aspects which we have listed, which are: built form, climate, community and the economy – well, the economic balance of that.

Anasina GRAY-BARBERIO: I have just run out of time.

Rory HYDE: Okay. Thank you.

The CHAIR: Mr Batchelor.

Ryan BATCHELOR: Thanks, Chair. Thanks, both. I am really grateful that we have got an engineer here, because one of the big things that strikes me is that the biggest ingredient to whether a retrofit will work is the structural capacity of the building to accommodate the retrofitting features. Would that be a fair summary of –

Brendon McNIVEN: I would not go that far, actually.

Ryan BATCHELOR: You would not?

Brendon McNIVEN: No, just because it depends on the building. It depends on when it was built, what the conditions are, how much overdesign is in it. We get involved in a lot of these assessments around Melbourne University. Some buildings are very good and structure is the least of your concerns. Other buildings, yes, it is a problem. It may be, but you cannot really say that without looking at it in detail. And really that is what we are –

Ryan BATCHELOR: But if we do not have the structural assessment, you cannot – like, if it is structurally not feasible – it is a necessary precondition, shall I say.

Brendon McNIVEN: Absolutely. Structure is important in that it needs to work structurally. But so is plumbing and, you know, access –

Ryan BATCHELOR: Sure, 100 per cent. We have heard a lot of evidence over the course of the inquiry about some issues with the plumbing in many of these buildings. One of the things that we heard this morning

from OFFICE was that their plan to fix the structural issues and the seismic issues was to fix – I call it a steel exoskeleton – a steel structure to the outside of the towers with multiple bolts going through each panel to give it more force, I suppose, if that is the right word.

Brendon McNIVEN: Yes. That is a parallel structural system.

Ryan BATCHELOR: Yes. One of the things that worries me is that we do not really know whether the towers, structurally, the existing concrete panels, can take the work. Would that be something you would want to know more of before you thought it was a viable solution?

Brendon McNIVEN: I am less worried about that. I think that concrete panels are very good structurally, because they are not like a stick-and-beam system where if you compromise one part of a stick-and-beam system, you need to do repairs around that. Having a panel means that the whole panel is taking structural load, so they are very easy to knock holes in and play around with in terms of connections.

Ryan BATCHELOR: Does the formation of the panel itself play an important part? Like, does the construction of each of the panels of concrete itself play an important role?

Rory HYDE: Yes, it will, but again, that will just determine what the end solution is. Again going back to that question on uncertainty, a structural engineer will look at that system and they may not be able to tell you on day one what the solution is, but they will be able to tell you with 90 per cent confidence, 'But we'll be able to come up with a solution because we have done it on these other buildings in other places.' I can point to those same steel exoskeletons on buildings in Melbourne University, which have been done for exactly that.

Ryan BATCHELOR: But that requires us to essentially go in without a – you basically said that we should start the process and then when we hit the structural limitations, try to figure out what the solution is. Would that be fair?

Brendon McNIVEN: No, you grow your level of confidence. You start off with a feasibility study and then you move into conceptual design, schematic design, design development. It is not until you actually produce detailed documentation that you are close to 100 per cent confident of the solution.

Ryan BATCHELOR: Which we do not have. Right? One of the things that we do have is the report that OFFICE presented to us. The assessment attached to it highlighted some concerns with the way the specifications from the panels as constructed in the 1960s compared to today, and that they were cast with a compressive strength of 20 mega –

Brendon McNIVEN: Megapascals.

Ryan BATCHELOR: pascals compared to the standard today, which is 40.

Brendon McNIVEN: Yes.

Ryan BATCHELOR: Is that an issue that you think would need to be thought about carefully in the process?

Brendon McNIVEN: No. I used to design buildings for 25 megapascals myself, because that was the concrete that was available at the time. What you end up with are bigger columns and bigger thickness of wall panels and that sort of thing. It is just actually taking the properties of the materials that are available in the day and sizing them for the forces that get applied to them. More of an issue is the fact that the forces have increased since then – not in a real point, but the codes ask you to design to larger earthquake forces now than we had to design to back in the 1970s and 80s. But again, that is why we end up with those solutions like exoskeletons, to actually supplement that existing system to bring them up to current code.

Ryan BATCHELOR: Sorry, just one last question on the technical detail: does the presence of things which may be corroding internal structural supports in the concrete –

Brendon McNIVEN: Sorry, did you say corrode?

Ryan BATCHELOR: Corrode, yes. The committee has seen evidence of steel reinforcement inside the concrete panels corroding in certain places.

Brendon McNIVEN: Absolutely.

Ryan BATCHELOR: Is that something you would be concerned about in terms of the structural viability for retrofit?

Brendon McNIVEN: Yes, it is. Probably the biggest threat to a building structurally is concrete cancer. Concrete cancer is where there were alkalis included into the concrete mix, so it did not give proper protection to the reinforcement. You get a depth of carbonation over time where eventually it is going to end up rusting.

Ryan BATCHELOR: And that happens over time?

Brendon McNIVEN: And that happens over time. But that is a very easy thing to test for, and it is not always the case in places. And there are things you can do to overcome that as well. It is just a matter of how expensive it is.

Ryan BATCHELOR: Right.

Brendon McNIVEN: Again, we do not want to be spending more money and more carbon saving a building than is warranted. It is not always the solution to keep it and try to retrofit it, but it is not always the solution to knock it down either. I have walked around those towers, and actually I was surprised at how good they appeared to be from a visual inspection at ground level. I could not get any access on the inside, but they looked like they have been maintained structurally. You could actually see where there was the odd little piece of corrosion and they have actually done the proper job of cutting out that concrete, protecting the reinforcement and putting it all back in place, which is exactly what you would do in a commercial environment.

Ryan BATCHELOR: We could talk for a lot longer about this, but my time is up.

Brendon McNIVEN: I am a structural engineer; I could talk all day. This is my favourite subject.

The CHAIR: I am going to hand over to Ms Payne. Over to you, Ms Payne.

Rachel PAYNE: Thank you, Chair, and thank you both for your submission and your time today. I wanted to go back to the estate renewal strategy that you refer to in your submission. Obviously, each strategy you propose comes with its own costs and benefits. I note in your opening statement you talked about how a case-by-case analysis of each of the estates might be a more appropriate measure here. Can you talk us through a little bit about what that might look like or other examples where that may have happened in other jurisdictions?

Brendon McNIVEN: Yes. Just to make sure I understand your question, you are asking about the approach to each of those three options: the knockdown and rebuild, retrofit, or retrofit and infill?

Rachel PAYNE: That is right.

Brendon McNIVEN: It is really starting out on the design process. You heard from OFFICE this morning that they have done that for the retrofit option. In fact, they did it for retrofit and retrofit and infill. So that same process then needs to happen for the rebuild, because there are risks in rebuilding as well. Really it is actually just a very simple cost-benefit analysis where you are looking at the time and money and the risk that you are putting into a project and seeing what you get out of it on the other side. The answer to that will be different for every building and every case of the 40-odd towers that we are talking about here. It is then balancing those benefits with the costs. How much weight do you put on the fact that you are not displacing people; you are hopefully getting better mental health outcomes and education outcomes in terms of disruption to children's education? What is that worth compared to the dollars you are putting in? Are you putting in more dollars? In cases like the two towers I mentioned in Sydney and Melbourne, actually you are putting in less dollars, right? So it is a complex thing with a spreadsheet with lots of inputs and outputs and it is that value equation at the end of the day.

At the end, having gone through that feasibility-level design and then maybe conceptual and even design-development-level design, you have a very good picture about which one of those models comes out as being the most likely to deliver benefits to all of the stakeholders. So that is the developers and their commercial returns, it is the general public, in what you do with the land, and it is, importantly, the tenants who might be displaced or not displaced.

Rachel PAYNE: Thank you.

Brendon McNIVEN: So you just need to go down all of those routes, unfortunately. There are –

Rory HYDE: No shortcuts.

Brendon McNIVEN: Yes, no shortcuts.

Rachel PAYNE: Yes. So, in your opinion, has Victoria made the right decision to demolish and redevelop, or would one of the other renewal strategies be more appropriate in your mind?

Brendon McNIVEN: My gut feel, when I look at those towers and I see how tall they are and I see the density in there, is it does not feel right to trash them unless there were significant technical problems that I am not seeing, but that is just experience and me sucking my thumb and taking a guesstimate. But we have got two independent teams of architects and engineers who have looked at these towers and come up with similar outcomes in cost savings and environmental savings and lessening the impact of displacement of tenants, so I would say that that would tend to back up and support that.

Rachel PAYNE: I appreciate that. Thank you. Would you like to add?

Rory HYDE: I have got – no, thank you.

Rachel PAYNE: In your submission you mentioned the importance of involving residents in the design of replacement housing, or redevelopment. How well do you think the government has involved public housing residents in this process?

Rory HYDE: I mean, we were here earlier when the law institute spoke to this committee; I would only point to their submission around human rights, around the consent of tenants, around meaningful consultation, and as has been said elsewhere, this is now standard in terms of dealing with and working with communities who are impacted in this way. To give another example – and we would love to point to more examples in Australia, but another example from the UK – the redevelopment of a council house estate in a suburb, where teams were working with residents on the design as a co-design process, they received, I think, 95 per cent support through a ballot for that regeneration process, which allowed them to stay onsite. There was significant uplift, including introduction of private sale in order to pay for it. But there are great examples out there where communities are not only consulted but they are engaged in a really meaningful way on that process, leading to positive outcomes for them as well as revenue opportunities for councils. I am not opposed to that; I understand these things cost money and we need to do the best we can.

Rachel PAYNE: Thank you.

The CHAIR: Your time is up there. I am going to hand over now to Mr Berger.

John BERGER: Thank you, Chair, and thank you both for your appearance today. I am just interested in your Bordeaux case study, and my interest is: what is the difference in their standards and their compliance issues as opposed to Australian standards?

Brendon McNIVEN: Good question. I could not comment on that. I do not know the detail. I am not sure if –

Rory HYDE: We might have to take that on notice.

John BERGER: That then leads to: were there any people with disabilities in this setting that required any upgrades to their rooms, because I am looking at just what is written here.

Rory HYDE: Sure.

John BERGER: It looks like window-dressing when you are talking about balconies and bathroom upgrades.

Rory HYDE: Sorry to jump in there – we are talking about France; this is a country with high standards of expectations for inclusivity and structural requirements and services. So I would not have thought, again without knowing the detail, that those standards would be very different from what we expect here.

Brendon McNIVEN: And I think that is one of the advantages of adding to a building – so that is the retrofit and infill type option – because with that new-build portion you have total flexibility in what you need to do. So if disabled access is an issue, you can provide that disabled access in the new bit that you are building, so it provides a lot of opportunities to bring it up to code. But yes, my understanding is it was probably on the lower side of interventions in terms of retrofit, that project.

John BERGER: Okay. I am also interested in your science solutions. When I hear people talk about science solutions I then try and put it in a practical sense, and if I try and line it up with a sewerage failure, how it is that you have a scientific approach to fixing or rectifying those.

Brendon McNIVEN: Technical, maybe. It is asking about a technical approach to fixing sewerage issues and things like that. As a structural engineer I am probably not the right person to ask. But what I would say as an engineer – the point I was trying to make – is what engineers do is they come up with technical solutions to overcome issues, quite often technical, in terms of this list of failures, technical failings. You can always come up with a technical solution, but that solution might be a lot more expensive and a lot more difficult to implement and even nonsensical, okay. But that is the whole point of doing a life cycle assessment, to actually have the idea of what those solutions are so that you can make an informed decision. And then, like we were saying, in cases that decision will be to knock down the building and start again, because those issues may be too expensive to overcome and it is a worse environmental outcome, but it may not be either.

The point is that we need to have an informed basis to make these decisions so that we are not missing out on the opportunities, because the downside, the worst case, is we do something that creates more social harm, more environmental harm, and we do that with a solution that could be even more expensive and take more time to implement than what is available otherwise. If we do not look at those, do our feasibility studies on those things to do the life cycle assessments, we will not ever know about that because we have never considered it. That is what we are saying today: we just need to consider those options – including the knockdown and rebuild, because that might be the right one, but we need to consider all of them – and make an informed, balanced decision.

John BERGER: Your report also mentions the health and wellbeing of residents in that setting. How do you see that happen where you have got a working construction site in play and people living amongst it?

Rory HYDE: Do you mind?

Brendon McNIVEN: Go on.

Rory HYDE: Look, that is a really interesting question, and we have heard it raised this morning. Again, we would support the really clear and meaningful consultation with those residents and to perhaps set out those different options. One would be – as was described this morning, for example – to move people out on four or five levels while they get repaired. And yes, you are going to have people living upstairs and downstairs hearing drilling in their building. We have seen an example here where residents have moved out for 12 to 15 days, so then they would be back in their unit – good outcome. The alternative, on average, looking at the research that we have seen for demolition and rebuild, is that people are moved out for between five and seven years, and a small proportion of them ultimately end up living back in their unit. So again, we would say, 'Could those options be put clearly to those tenants to let them make an informed decision about which type of regeneration they would want in their estate?'

Brendon McNIVEN: It is the right thing to ask that question, though, and it just needs looking into. But the other point I would make is that you see residential buildings these days with staged handovers. Australia 108 already had people living in the bottom of that tower while they were still constructing the top of the tower – all

of that structure-borne noise running through. And you can do things to minimise that noise. You can keep the structural connections separate until the very last moment so that you do not get transmission through. But it is just a matter of considering what it is and weighing up the pros and cons.

John BERGER: I think my time is up, Chair.

The CHAIR: Thanks very much. Mr Puglielli.

Aiv PUGLIELLI: Thank you, Chair. I understand we are quite tight for time, so I might just stick to two questions if that is all right. Good afternoon. Submissions to this inquiry have advocated for the retrofit of the 44 towers, also as a way to invest in creating an innovative retrofit industry for our state. Can you speak to the potential economic and productivity benefits for Victoria in maintaining a high quality of public housing stock, if were to take this as an opportunity to grow a local retrofit industry?

Brendon McNIVEN: I think that is very insightful, and Australia, as already said, is 10 years or more behind the rest of the world in terms of retrofit, because we do not have land space issues and we are, fortunately, a relatively young country with young cities. We need to build retrofit capability, and the more retrofit we can do across housing, commercial – across the whole of the built environment – the more quickly we will grow those capabilities and the more quickly we will start to, hopefully, show reduced carbon and other environmental impacts. There is definitely a case, and that is part of why the Retrofit Lab exists – because we want to support the research around that and encourage more of it, because overall it is a better environmental outcome, it is usually a better social outcome, and cost and program are to be decided. Does that answer your question? Sorry – I sort of forgot it halfway through explaining myself.

Aiv PUGLIELLI: Yes, absolutely, it does. Thank you.

Rory HYDE: Maybe to quickly add only that we would see this as a really exciting opportunity. This is very new within architecture and design, or at least within the last 10 years it has gained in popularity and urgency. I think to show leadership in that space and to develop expertise is a fantastic opportunity for the reasons you list – productivity, employment, meaningful trades, high skills and producing a quality built environment. That is our interest.

Brendon McNIVEN: I think that is exactly it. It is moving to an economy that relies on people being smart and clever and designing things rather than just –

Rory HYDE: Chucking it away.

Brendon McNIVEN: digging stuff out of the ground and building new stuff because it is easier somehow.

Aiv PUGLIELLI: Fair enough. My second and final question: just on some of the specific matters that were raised earlier, can I confirm, in your view, concrete issues – for example, concrete cancer – in relation to the towers that are the subject of this inquiry, should we expect that these issues can be overcome, particularly over time, if addressed appropriately, and how would we go about doing that?

Brendon McNIVEN: I think the answer to that is it is difficult to say that without actually a level of technical feasibility study being carried out on the towers.

Aiv PUGLIELLI: Site by site, like per tower, rather than a blanket statement for the 44?

Brendon McNIVEN: Well, you can do blanket statements, but the level of confidence is still very low. The more detailed work you do, the higher your level of confidence. But with these towers – in fact every building – it needs to be on a case-by-case basis at the end of the day, because every building is different.

Aiv PUGLIELLI: Okay. But as you said earlier, you have not seen, necessarily, any evidence to indicate that any of the towers currently fall foul of those standards?

Brendon McNIVEN: I have not seen it, not from the ones I have walked around. I have only walked around the ones at Atherton Gardens and Flemington; I have not done the 44-tower walk yet.

Aiv PUGLIELLI: Thank you.

Brendon McNIVEN: The other thing I just wanted to add to the previous point was this is an exciting opportunity for retrofit in growing the industry, but the worst thing we could do would be to retrofit something that was not suitable for retrofit, because that is just going to create more cost and leave a bad taste and bad outcomes in people's mouths. Again, we are not advocating one way or the other; we are advocating for informed study and informed decision-making.

Aiv PUGLIELLI: Thank you. That is my time.

The CHAIR: Thank you. That brings a close to this session. Thanks very much for your evidence today. It is much appreciated. We will give you a copy of the proof version of the transcript, and we will go from there. Thanks very much. We appreciate your time.

Witnesses withdrew.