

CHALCOTS WINDOW DESIGN EXPLAINED – VIRTUAL MEETING NOTES

12 August 2020

Attendees

Chalcots Estate residents: Paul Urquhart (PU), Nigel Rumble (NR), Matt Jenkins (MJ), Hasan Shah (HS), Mandy Ryan (MR), Marc Da’Silva (MDS) Stephen Lawson (SL)

Councillors: Cllr Steve Adams (SA), Cllr Tom Simon (TS), Cllr Meric Apak (MA)

Camden Council: Astrid Kjellberg-Obst (AKO), Gavin Haynes (GH), John Brett (JB)

Arup: Patricia Westerburg (PW), Russell Cole (RC)

Chair: Oonah Lacey (OL)

1. Overview

- 1.1 OL started the meeting with a brief overview. Stated likelihood that not everything will be covered and that there will be another session on 19 August. This meeting is ‘an opportunity to share information, ask questions, we have our experts so we are very interested to hear what they will tell us’.
- 1.2 OL reminded attendees that ‘we are not in court so let us all be friendly and treat each other with the respect that we want’.
- 1.3 All attendees introduced themselves and a brief description of their role.

2. Window designs explained – presentation

- 2.1 AKO presented window designs explained (fires, wellbeing and future proofing) slides.
- 2.2 AKO – The purpose of the session is a recap in terms of the project scope and window design. It is an opportunity to ask questions about the window design decision and I am very grateful for the many questions that were sent through which we themed and we will talk through the key themes during the session and hopefully provide you with detailed information and explanations.
- 2.3 AKO presented a slide from the previous week’s virtual meeting with TRA reps from all five tower blocks (broken down into two parts) as a reminder in setting the scene.

Firstly, the requirements of what the window design need to deliver as a combination between what the residents wanted and what we require:

- Resident safety
- Purge ventilation
- Address overheating – now and in the future.

Secondly, the process that we went through:

- Construction and design management regulations
- Design by Arup
- Building control advice
- Risk assessment by design team.

- 2.4 AKO provided context for this session. The reasons why the windows need replacing have already been previously discussed. The focus of this session is the ‘what’. What do we replace the windows with? Questions raised about how the windows will be replaced is more for the procurement process and when the new contractor is appointed, making sure we do this with minimal disruption to residents.

- 2.5 AKO explained how this process evolved from asking residents what they needed from the new windows, followed by the technical solutions and then assessing risks and consideration in terms of our duty of care and responsibility, which resulted in the decision in regards to the window design.
- 2.6 AKO reassured attendees key themes from all the questions put forward will be covered and summarised them into the following points:
- What are the regulatory requirements?
 - What are the key risks?
 - Why inward opening mechanism?
 - Why lowering the windowsill?
 - Why optimised purge ventilation?
 - Why not existing window type?

3. Overview and explanations from architects and technical advisors Arup

- 3.1 PW presented the living and bedrooms / Chalcots windows / safety risk mitigation slides.
- 3.2 PW explained the regulatory requirements are the minimum requirements (floor standard) and they are only one aspect of the design decision. Every building needs to meet the requirements but there are other factors that play into deciding what the best final design is such as regulations, safety, overheating, ventilation and future proofing.
- 3.3 PW – in regards to the Chalcots, Camden have strived for the betterment of all these categories. The key thing is we want to be better than these base standards.
- 3.4 The first diagram illustrated what the building regulations require in terms of the minimum height under a sill of an opening window, which is 800mm. For a balcony, the minimum height is 1100mm and any openings in the balustrade cannot be larger than 100mm to prevent children from potentially getting their head stuck.
- 3.5 There is also guidance in addition to building regulations in special cases for lower sills e.g. “Juliet balconies” where additional considerations can be made such as whether a sill is climbable or not. Sills under 600mm are considered climbable and above 600mm is not considered climbable. For sills that are considered climbable (under 600mm), there should be at least a guarding height of 700mm above the sill to the window opening. For Juliet balconies (window and balcony door combined), the minimum height for a balcony (1100mm) applies. If there is a sill, there should be a minimum height of 800mm above the sill to the handrail.
- 3.6 The second diagram illustrated the design process that we went through and mitigating risks. PW – the landlord and the design team have the responsibility to identify any risks that we see in the project and in the design and mitigate those as far as reasonably practical. Various risk assessments were carried out to mitigate risk to a level where Camden felt comfortable.
- 3.7 The original window design complies with all the safety regulations and goes beyond it as the opening height is 1300mm. However, the risk identified was that the sill was quite wide and if furniture was next to the sill, a child could climb onto the sill, lean out and potentially fall, PW stated this would be unlikely but possible. The other risk identified was overheating as many residents have experienced this particularly those facing south and west.

- 3.8 The key aim was to improve ventilation, reduce risk of overheating and increase the safety of the window. The first step was the proposal of tilt and turn inward opening windows because it provides the opportunity to open the window further to increase ventilation. It also reduces the risk of the window falling off the building because it opens inwards.
- 3.9 The tilt and turn inward opening window is fully compliant with safety regulations but it presents a similar risk to the original windows if someone was to climb onto the sill. To mitigate that risk, we looked at the guidance from the first diagram in order to make this safer. The guidance says if the sill is considered climbable then you should have a minimum height of 700mm above the sill. This meant lowering the windowsill so we have a sill at 600mm and a 700mm space above it.
- 3.10 Following the above changes there was still a residual risk identified as Camden wanted residents to have an opportunity to open the window fully as a means of alleviating concerns of overheating and future proofing. The last step was to lower the sill to 200mm with a 1100mm space above it, essentially having a guarding height equivalent to a balcony on top of the sill, which is the safest we can make it. Camden and the design team felt this was the best compromise in terms of all the criteria that we were looking at.
- 3.11 The third diagram illustrated the kitchen window design reiterating the building regulations as above. The initial proposed design was a tilt and turn inward opening design (same as living room). However, to mitigate the risk of someone climbing onto the sill / kitchen counter, a tilt only window was considered with a larger opening (50 degrees) so the ventilation criteria can be met. However, at this opening angle the height between the sill / kitchen counter to the window was still below 700mm. This led to a window tilt design at 40 degrees achieving the optimal desired height of 700mm where it complies with the guidance. This was felt as the ideal position in terms of finding a compromise between the various factors.
- 3.12 PW reiterated all the designs comply with safety regulations but regulations are only the minimum standard and any design has to consider additional factors.

4. Camden's safety considerations

- 4.1 JB provided overview of Construction Design and Management (CDM) regulations. The two key factors we have looked at regarding CDM:
- There is a duty on the client and designers when they prepare or modify any design that they have to try and reduce, possibly eliminate or control the foreseeable risks that may arise during the construction, maintenance and use of the building once it's built.
 - As a commercial client, we have to ensure that the designer is complying with those duties. We not only have to look at the regulatory standards, which are the minimum standard but beyond that where we can reasonably and practically do so.
- 4.2 JB – we also have a general duty under the Health and Safety at Work etc. Act 1974, which supersedes all of the regulations anyway as it is an act of parliament. This asks the duty holder (Camden) to safeguard and protect the health, safety and wellbeing of the persons both in their employ and not in their employ such as residents, other stakeholders and visitors to a building. We have a duty to protect them from anything that we either do or fail to do. That is one of the reasons we had to do the risk assessment process and then consider our obligations as a regulatory standard as a minimum and what we can do to go on above the regulatory standard to achieve some level of betterment. In particular, we looked at safety and ventilation because it is not just the

health and safety issues involved but we also look at the welfare and wellbeing issues as well. This is really important to bring into this when we are talking about people's homes.

5. Q & A

5.1 OL opened the Q & A session to the attendees.

5.2 HS asked who proposed the window design to Camden.
GH answered when you have a contract of this type and size, you have a design team. Arup set out Camden's requirements and the invitation to tender. The contractor then came back with their proposals and there was a joint working group, which went through the iterations that PW presented in the slides.

GH – Given where we are now in terms of going forward, this is a design the Council very much owns and is looking to take forward.

MA – As everybody had to be satisfied with the final outcome, this was a joint process. The design had to be owned by everybody. Everybody needed to be happy. It was a joint process coming up with the final design.

PW – Several options were put forward initially and residents were consulted with regards to those so there wasn't one design put on the table. There were several options and Camden decided to proceed with one of them.

5.3 HS asked do both living room and kitchen windows meet regulations?

PW confirmed that all of the options (presented in the slides) meet safety regulations.

5.4 HS stated the risk assessments were meant to be carried out with all parties involved but 'we weren't involved'. The question was asked where the risk assessments are, who carried them out and what they looked at. With HS following this up with 'because looking at the design process and the risk assessment process, it seems they were all carried out in the void flats... Assessments were not carried out where people live... We want to see the risk assessment of the Fire Brigade if they are involved... If Keith and Dominic's teams have carried out risk assessments, why haven't we been shown it? In the last meeting with Keith Scott, he stated that so many parts of the risk assessment had not been done and now you're telling us it has but it has not followed the correct process... We would like to know and see the risk assessments'.

JB answered – If we have a series of risk assessments, which we know we have, then I see no reason why they can't be shared with you.

JB – In terms of the risk assessment itself, we can share and take on board resident comments but it's not a consultation process where we can consult over items. It has to be completed by someone with the relevant levels of competency to complete them. Whatever (risk assessments) we have, we are happy to share them with you.

HS stated the risk assessments are only 'partial' as Camden haven't gone into all the flats and believes they are wrong. HS also would like to revisit Keith Scott's comments as GH was present at that particular meeting (AKO and JB were not present).

HS – I don't believe from what I have read and understand from the BRE report, which is quite damaging to Camden as well, that (the risk assessments) do not validate this project or windows at all. It shows the huge amounts of mistakes and the problem that

exists that have not been answered. [The approach to the BRE report is explained in item 5.26.]

- 5.5 HS commented on the issue of overcrowding and how it would be difficult to persuade residents on arranging their furniture when there is a lack of space. HS also commented that there have been three incidents with tilt and turn windows involving children since November 2019 and that this was not mentioned in the BRE Report.

AKO said that it would have been 'inappropriate' to add an incident in our report on something that happens elsewhere when the investigation into the incident has not been concluded. PW added that in the particular case HS was referring to, the sill was 800mm (which was compliant) but had furniture beside it and 'this is the reason why Camden want to make the situation better... This incident shows why complying with regulations isn't good enough sometimes and we have to go further and consider what could happen.

HS believes Camden are putting lives in danger with the tilt and turn designs as the examples provided of the incidents involved tilt and turn windows, despite AKO saying the case in Haringey involved furniture next to the window and there being an issue with the lock. HS would like Camden to investigate the tilt and turn window incidents that have taken place.

PW pointed out the tilt and turn windows provide better ventilation and without diminishing the incidents that have taken place, there are more deaths caused by overheating than people falling out of windows, citing an example of 900 deaths due to overheating in a two-month spell in the summer of 2019. PW also added there is always a need to find a balance when tackling a problem. HS argued that statistic is irrelevant as it doesn't say what type of window they had and believes the new windows will not reduce the problem of overheating as there will be larger windows.

- 5.6 PW presented a slide (3.1 Overheating 4 Towers – Historic Weather Data) showing overheating comparing different glass types with the first column showing the current glass type at the Chalcots, which were compliant at the time of installation but are not compliant now. The glass type with a shading factor of 0.33 is what was agreed for the new windows and calculations show that it is an improvement from the current windows even though there will be more glass.

- 5.7 MJ queried how the increased glazed area could be increased by 30% and not make the thermal properties of the window worse and raised concern about having extra glass especially on hot days.

PW proceeded to explain the G value / coating of the glass presented on the slides. The lower the value, the less heat it lets in. This is different from the U value / insulation value which is about letting heat escape. The current windows have a G value of 0.59. There was an option that was looked at which had a G value of 0.42 which meant the shading factor is increased. We settled on a 0.33 G value – a high performance glass. It has a coating on the glass that reduces the solar gains.

- 5.8 MJ asked PW to explain the technology that enables it to go from 0.59 to 0.33, what is different, what exists now in terms of technology for the current windows, what is being proposed for the new windows, that enables this improvement and what does it mean in real terms.

PW answered – it is a higher performance coating which is applied to the outside pane and reflects more of the heat, so the heat doesn't come into the flat in the first place. It works on the reflective factor.

- 5.9 MJ asked how the existing G value established for the current windows. PW answered that we had previous information from specifications when the refurbishment was carried out.
- 5.10 MJ asked for an explanation of what the U value means. PW explained this is the 'inverse'. This is the insulation value, a coating to keep the heat in and an argon filling in the gap between the 2 panes. It increases the insulation performance of a window. This has nothing to do with the shading.
- 5.11 MJ noticed there wasn't an existing U value on the slide and asked PW to elaborate on what will be changing to which PW explained that we did not have that information in the original specifications.

MJ then asked how could we be certain that there is any betterment if we don't know what we are comparing it against. PW explained that we are not necessarily looking for a betterment in the U value of the windows but a betterment for the solid walls, as they represent the majority of the external envelope.

MJ concerned with the calculations presented. MJ expressed that heat usually escapes out of the windows so if the glazed area is increased by 30% and 'that's where 90% of the heat comes in or goes out' then we would require detail and an explanation of how the conclusion was reached, that by increasing a glazed area of a room how 'we can possibly improve the absolutely disastrous overheating aspect we are suffering'.

RC in response to MJ – I'm not sure on your assertion that 90% of heat transmission comes from the windows. It depends on how well insulating and performing the pieces of glazing are. If this is a request, we can go through and tell you how much is coming through the wall and the glazing.

MJ – Has anyone been into a flat and done some measurements with a measuring device and a computer or has this been plugged into a computer program based on best estimates of thickness or type of concrete or thinness /thickness of glazed material? To what extent can you model something like this?

RC – The science on this is well understood...I can't say we have measured it but it can be done. I would be surprised if there was anything unusual about it. You asked about the U value of the existing glass and based on the G value of that glass, the U value would be around 1.8 to 1.6 maybe 1.5. So it's about like for like for what's being proposed... You talked about increasing the areas of some of the windows by 30%. When we are assessing these sorts of things, we will look at the window to wall ratio i.e. the entire perimeter of your unit and see what percentage change we have made... You will have more heat because you don't have insulation on the outside of the building at the moment so the insulation will help you.

MJ – What's important is the amount of heat transmitting through any wall or window is increased by the increased glazed area. If the glazed area is where most of the heat comes from and you increase the glazed area by 30%, then you are increasing the area through which the vast majority of heat is coming in or out. This is where I have a major problem because overheating is not just caused by the amount of heat entering or egressing through the windows. It depends on the air flow and for all the talk that tilt and turn windows increase ventilation, that's all moot when the weather is like it is now. There

is no wind right now. There is no breeze. You can take all the glass away and it will be just as hot. So the issue isn't that the tilt and turn windows will have a bigger space. The issue is whether or not we have extra glazing through which heat can be entering these rooms.

RC – It isn't a big calculation to inform you about the proportion of how the heat enters the units on a hot day...What comes through the wall and glazing with the current window size and the new window size. We haven't got that calculation here but it's a nice easy chart to create.

- 5.12 MJ asked whether calculations have been carried out for the seven types of flats that exist. PW demonstrated on the slide the calculations were made for every room in every flat (excluding Blashford which is on a separate table). It represents every room so you can see that some rooms are worse than others depending on their orientation.

PW – We are always talking about ventilation and overheating but they are two different things as you rightly say. We consider the G value and shading factor of the glass vents to reduce overheating and then ventilation comes in to increase airflow. These are different situations but can potentially be relevant at the same time. It depends on the weather conditions but they are two different things.

- 5.13 OL had to leave the webinar due to an emergency and AKO agreed to take over as Chair.

- 5.14 MDS posed a series of questions starting with (to PW) – You mentioned the building regulations have changed. Would any new development whether social housing or private, install the existing windows we currently have at Chalcots?

PW – Regulations have only changed in relation to overheating and ventilation and not in terms of these regulations (pointing to the 'Living and bedrooms / Chalcots windows / Safety risk mitigation Building regulations & Guidance / Guarding heights for window openings' diagrams.) Is your question relating to the safety aspect or the other aspects?

MDS – My question is would you install the existing windows we currently have in any new development whether social housing or private, given the regulations you have to work within?

PW – No, probably not, we'd recommend something else.

RC – To clarify, it wouldn't be due to regulation. It would be around the CDM risk of a component falling from the building.

MDS – So it is the safety aspect you are leaning towards, correct?

RC – This is where the industry is going.

MDS – As, things stand, there is no legal obligation to alter the window design, is that correct?

RC – Not legal but if I was a designer and I installed an outward turning window and that then fell, I might feel that as a professional I might be at risk of being prosecuted under the CDM because I haven't mitigated all the possible risks I could mitigate.

MDS – As the building regulations currently exist, your anticipation is that over the next 10-30 years the regulations will change to some extent that the windows we currently have in your expert opinion probably won't be valid in the short to medium term?

RC – I won't second-guess the way the regulations will change. It depends whether they go explicitly for prohibition or duties applied to the responsible people. At the moment, the direction of travel is more performance based rather than specifically introducing new regulations prohibiting outward opening windows. The body of practice at the moment in the industry is towards not specifying outward opening windows.

MDS – You're anticipating that it is moving towards a certain direction but don't want to second-guess the outcome of the direction it is moving in?

RC – I can't guess which way they are going to change regulations. There have been a lot of regulations that have come in around fire safety but I'm not hearing about any proposals to change the regulations or codes of practice around window operations.

MJ added – Are you expressing a concern that designers and architects could be prosecuted for installing windows that are compliant with building regulations? Is that my understanding?

RC – Yes. We can specify glass that is overly fragile on the outside of a building. Someone might break that glass causing shards to fall. That is perfectly within the regulations but may not be the appropriate assessment under the CDM approach.

MDS – In terms of the energy efficiency output, what impact will the new proposed windows have on the outlook?

RC – I don't think we have done an EPC model for this building yet. We can do and find out theoretically what it reaches.

MDS – Have you installed the new glass (glaze) that you are proposing to put in in any other building anywhere?

PW – Yes, it gets installed in many buildings, in new builds.

MDS – Are those new builds with or without air conditioning?

PW – Without.

MDS – What impact will the ventilation have on winter and the temperature?

PW – The U value is important for the winter. The U value will be a slight improvement. We don't know the exact U value of the current windows. U value also deteriorates over time because the argon filling slowly leaks out so it is difficult to assess what you currently have. It is likely that the new windows will have a better performance.

MDS thanked PW and RC.

5.15 MDS to JB and GH – JB, you mentioned the need to go above and beyond the minimum standards and GH, you said you had to take certain considerations into play as a landlord. You said the current windows we have do not provide enough ventilation? Is that in terms of the regulation or is that there is not enough ventilation because of the heat?

GH – if we go back to the performance of the current windows (3.1 Overheating 4 Towers); when we ran the modelling, for many rooms the windows didn't meet the overheating criteria set out by CIBSE [Chartered Institute of Building Services Engineers]. That's how we knew the current windows didn't perform well in terms of ventilation. Also, we know from the management of the estate that on any given day, the windows are opened past the restrictors. We see that a lot and that's purely people trying to get more ventilation into their properties. So, it is part analysis and part observation as well.

MDS – are there any other high-rise buildings with the same type of windows that we have at the Chalcots that you also now need to turn your attention to or considering changing?

GH – we have not had any windows that have fallen out as they have at the Chalcots... Whenever we do a refurbishment project we have to look at the current windows and what would be the best type of replacement window. We have to go through this process regardless of the type of window that is there at the moment.

MDS thanked GH.

- 5.16 SL – If the new window tilts in, it will restrict where my curtains end which is just in front of the wall. What is the maximum angle of opening I would get at that point?

AKO – It's at the level before the reveal ends.

PW – You will be able to tilt it at the first tilt position and for the turn windows, you would be able to turn it into the first turn position.

SL – How would that compare to the amount of ventilation that I get at the moment?

PW – The first position on your current window is equivalent to the first tilt position.

SL – How many positions are there?

PW – For the kitchen windows, there are two. For the living and bedrooms, there are three.

SL – So I can get to position number two?

PW – That depends on the depth of your sill but that will vary slightly around the buildings.

- 5.16 SL – The material that you use on the coating, over how many years does it degrade?

RC – The double glazed unit has a design life of 25 years. My expectation is that it will be more 30 / 40 years but it is of that order. It is the whole double glazed unit deteriorating and not the coating. The coatings are fairly stable.

- 5.17 SL referred to the 3.1 Overheating 4 Towers slide citing the existing 1.69 value of his property and the 0.76 value of the window option that was chosen and asked whether that is a deterioration value. PW clarified that a lower value represents less overheating.

- 5.18 PU to PW – You answered one of HS questions by saying both types of windows do meet the regulations, was that just from falls from height or did it include ventilation?

PW – That was for falls from height. Your current windows did meet the ventilation regulations when the building was built but they have since been changed. In terms of overheating and purge venting, they now wouldn't. That's where Camden would like to provide betterment so it meets current regulations and it provides better ventilation.

5.19 PU to PW – On your chart (Living & Bedrooms / Chalcots windows / Safety risk mitigation slides), all of your option 1 windows say they will open to a maximum of 300mm. Were you aware when you created your chart that the existing windows open to 370mm?

PW – At this level of detail, it would not make a difference. It depends on where you measure the 300mm and 370mm. Are you saying the 370mm is the clear opening?

PU – When I did this, it was the distance that the opening pane moved outwards.

PW – You would need to discount the frame width in that case.

PU – Can you open an outward opening window more than 300mm without breaching regulations?

PW – Absolutely, you can in this arrangement (Option 1 on Living & Bedrooms / Chalcot windows / Safety risk mitigation slides) but depending on how tall you are, you will encounter some limitation as to reaching the handle when it is out... There is no regulation to say you can't but if you open this window further, the more you risk the window being damaged by high winds and the windows falling off. That's one of the reasons windows have fallen as people have undone the restrictions and opened the window further.

PU – So ultimately, it will be about usability.

PW – It's about usability and risk.

PU – Could you mitigate the risk with stronger hinges?

PW – We could to a certain degree but it would still be a higher risk.

5.20 PU – You mentioned 900 deaths due to overheating. How is that compared to actual falls from height?

PW – The falls from height are from the BRE Report. It's minimal (although PW acknowledged she does not have the report in front of her).

HS raised concern again that there needs to be more information on the overheating deaths and expressed that there would be more deaths and items being thrown out with the tilt and turn option.

5.21 SA expressed a few points first before asking his question:

- This project was not initiated because of overheating.
- While terrible number of lives have been lost by overheating, the percentage of people who have died of overheating is relatively small. Those who fall out of windows almost all die.
- This discussion is being held because the original tender process was so flawed that we are now here two years later and we are debating about the design of windows when twelve months ago we were about to commence construction.

SA – Why is it that (as it clearly states in the BRE assessment appendix 4.24 item 2.3) the BRE stated they would not comment on the best window solution? Why is it that the sill drawn on the drawings is shown at 300mm deep and what depth is a sill considered climbable?

PW – Based on regulations on 800 height, the sill is not considered climbable

SA repeated question specifying depth.

PW – That is a matter of risk assessment. On 300mm sill, you can stand.

SA – How small does the sill have to be in depth terms at which point it becomes a non-climbable sill?

PW – That is a matter of a risk assessment.

5.22 SA – Given the current situation we've got with Covid, entry into flats and problems in physical and practical terms in carrying out works, one of the big problems we've always had with this project was access into flats which was exacerbated by the proposal to remove the radiators and put them in different positions. Can we not reconsider the relocation of the radiator to within the window reveal position, which will allow an awful lot of these works to be carried out from outside the building, restricting the disturbance of the properties inside, reducing the cost of works, simplifying the whole situation, not requiring shutdowns of radiators and heating systems and making it a manageable project? Where at the moment, we will have to wait until a long time for this project to even begin.

AKO – Excellent point and it is exactly what we need to think about. This is something that is generally defined and agreed only once the new contractor is appointed. However, we explore solutions as part of the procurement process and through the market engagement to inform the work methods. This is key to get us to the point to select the right contractor for this project in terms of minimising disruption to residents. It is about revisiting how we carry out the works. Quite bluntly and I shared this with you, if we had entered into contract with Wates, we would have had to wait because the first step would have been to get into people's homes and lower the window sills. This would have been impossible in the current circumstances so the pause is an opportunity to revisit and make sure we build into the process those eventualities as part of the project. This will absolutely be something that we will consider – how we access the area to replace the windows and how to deal with the new radiators. The time to do this in detail is when we have a selection of contractors and have a dialogue with. Once we have the appointed contractor, it's about absolutely finalising the best solution.

5.23 SA – Are we going back to design build?

AKO – We don't know yet. We are doing market engagement and talking to a number of contractors. We are clear about designs and specifications, but we are exploring solutions about the methods of works and approach to the works – that needs to be the key focus and we need to get our approach as smooth as possible for residents.

5.24 PU to AKO – On the assumption that we have a tilt and turn window, could we have a guarantee in the tender that if we do have that window type that we will have the maximum possible of ventilation i.e. fully opening turn windows.

MJ to PU – Why don't we not pre-judge the outcome of the discussions (with Chalcots residents) and let's see where the design takes us.

AKO – It's about optimising safely and the level of ventilation, absolutely. The specifications include for it [the window] to open in various positions, including as far as we can open it with the relevant safety features. As you know there are three different safety features to open it 90 degrees to give that control.

PU – So that will still be in there if we go for tilt and turn?

AKO – This is the whole point.

PW – That would be a requirement of the specifications. We wouldn't be doing this unless we can achieve that.

5.25 HS – Towards the latter part of the BRE report, it's not what you're saying because there seems to be a big debate between Camden, Arup and Frankhams and whoever about the opening of the window – will they allow residents to open it 200mm, 300mm or fully? That is confusing and you all don't seem to be agreeing and there seems to be something not right. The impression you're giving to residents is that the windows are going to be fully openable. It is not guaranteed yet to what level the window will open.

PU – That's the guarantee I'm asking for. If we have the tilt and turn window, that we have that guarantee.

AKO – It's about optimising safety and ventilation.

PU – That's not a guarantee, that's a principle.

5.26 MJ – Could we agree what the actions points are to take away from this meeting?

AKO – We will provide the risk assessment, the CDM, the chart about heating with an increased window glazing and the graphs of the two types of windows together with the written answers to your questions. Just to clarify the BRE report – the main part of the report is the review of our final position and the appendices reflect the discussions of various documents that were prepared and revisited over a timescale ranging from early 2018 to late 2019 to help us reach our position. The appendices refer to different points in this longer timeline. There were a number of moving and evolving elements e.g. the lower part of the window to open too, that was discussed at one point. And then we did the ventilation calculations – we ruled this out because it was not giving the improved ventilation we expected, so therefore we shared these different considerations with them [the BRE]. As this option was ruled out, it is not included in their main report. It is important to note, things happened over time and our collections of various discussions and assessments that have been done – all of which are in the appendices, happened at different times. We will also respond to anything we missed and queries and point you to the right documents. We have the second part of this meeting next week.

5.27 MJ – Are there schematics for the external designs for the windows?

PW – A planning application is being prepared at the moment.

MJ – Would it be possible to share it before the next meeting?

PW – No, I don't think it will be completely ready by then but it is only a matter of a couple of weeks. Next week might be a bit premature but it's not far off.

MJ – Are you in a position to share a draft?

PW – I would have to check but maybe yes for some elevations.

MJ – Would that show measurements of the surrounds, window frames?

PW – No, the planning application is not that detailed. It can't in fact because the contractor will propose a system and they all slightly vary.

MJ – Has the cladding system been finalised at this point?

PW – No, a design generally depends on the system that is chosen and that is what the contractor gets involved in.

MJ – The extent to which the façade of the building will extrude from the concrete – has that number been established yet?

PW – Do you mean how far it is offset from the concrete in the plan?

MJ – Yes.

PW – There is a design proposal but again that might be slightly modified once a contractor comes on board. The aim is it will sit in the same position as the current windows.

MJ thanked PW.

5.28 AKO concluded the meeting.