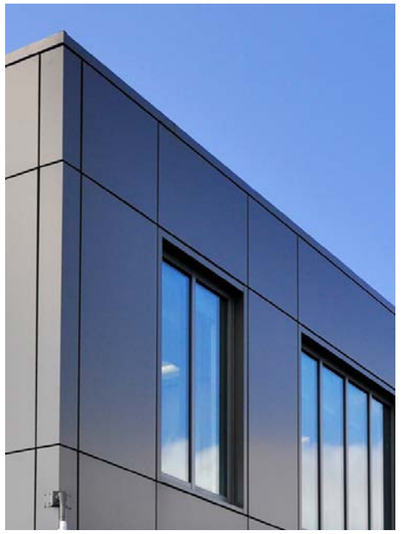
Option 1 - Replacement ACM Panels

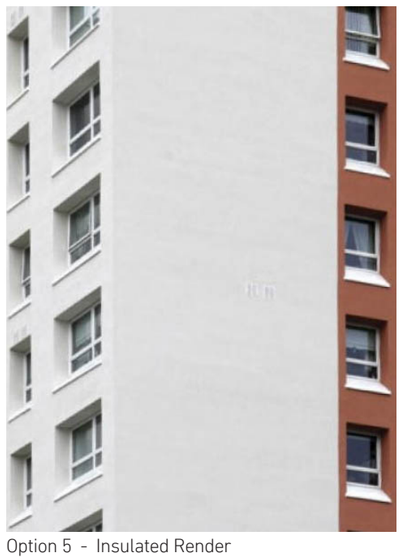


Option 2A - Solid Aluminium PPC Panels (secret-fix)

Option 2B - Solid Aluminium Panels (face-fix)

Option 3 - Glass-Reinforced Concrete Panels

Option 4 - Mineral Composite Panels



Option 5 - Insulated Render

DESIGN DEVELOPMENT

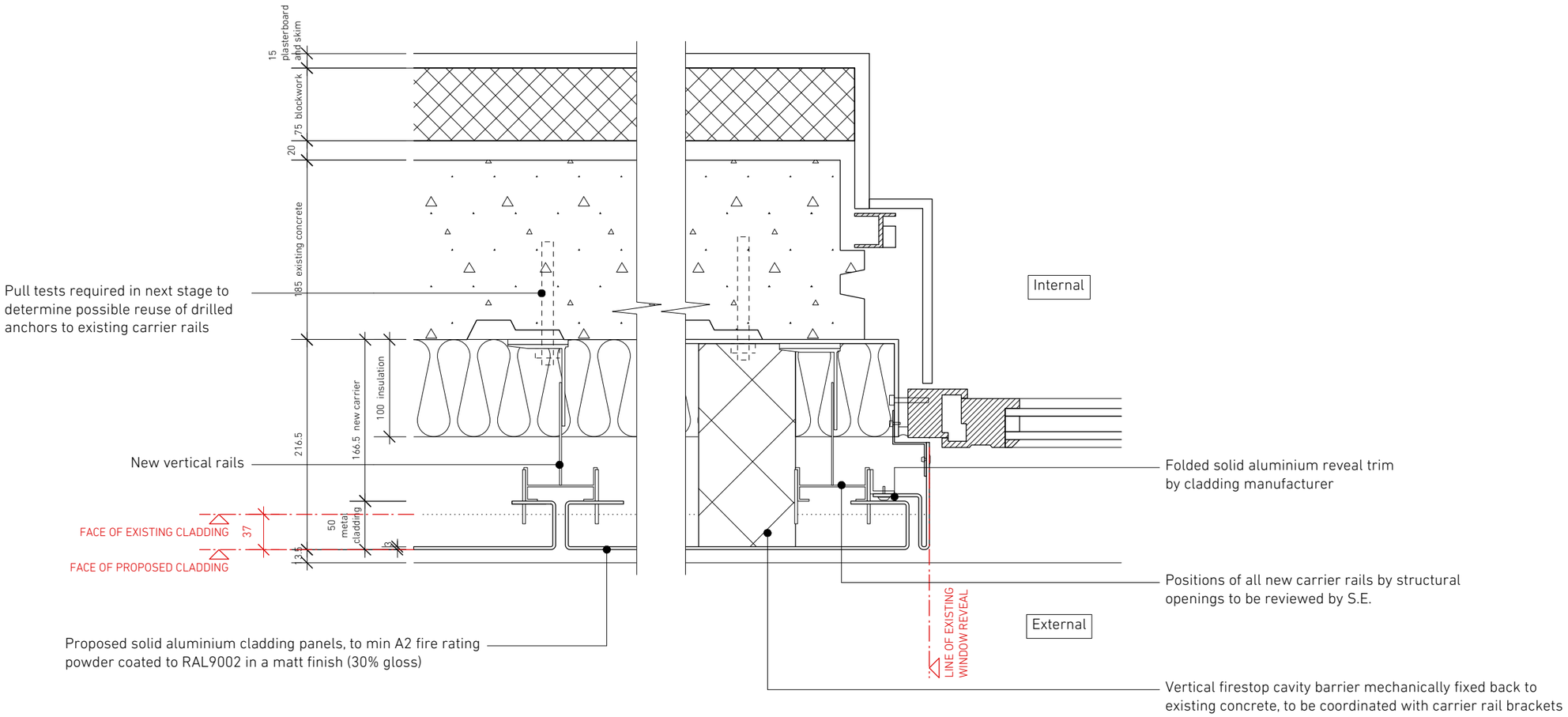
Following confirmation that the existing cladding was category 3, LBC approached NDA to prepare options for replacement cladding to the tower facades. Any proposals were required to achieve Class A2 fire rating*, work within the limitations of the existing glazing, not protrude beyond the existing brick plinth face, and would also preferably retain and reuse the existing cladding framework if possible.

As we began to research options and investigate the existing framework in collaboration with the structural engineers, it became apparent that the latter request was not possible, and a complete removal of the existing framework and insulation was required.

Five options were eventually decided on to work through for presentation to the council. These were:

1) Replacement ACM panels that could meet the min A2 fire rating
2) Solid aluminium PPC panel cassette system as a rainscreen (secret or face-fixed) onto an aluminium support framework
3) Glass-reinforced concrete (GRC) panels as a rainscreen (secret or face-fixed) onto an aluminium support framework
4) Mineral composite panels as a rainscreen (face-fixed) onto an aluminium support framework
5) An insulated render system, fixed back to the original 60's structural concrete facade

* or better to the European standard & thus considered of 'limited combustibility' as defined in Approved Document B 'Fire Safety' (a guidance document to ensure compliance with Building Reg)

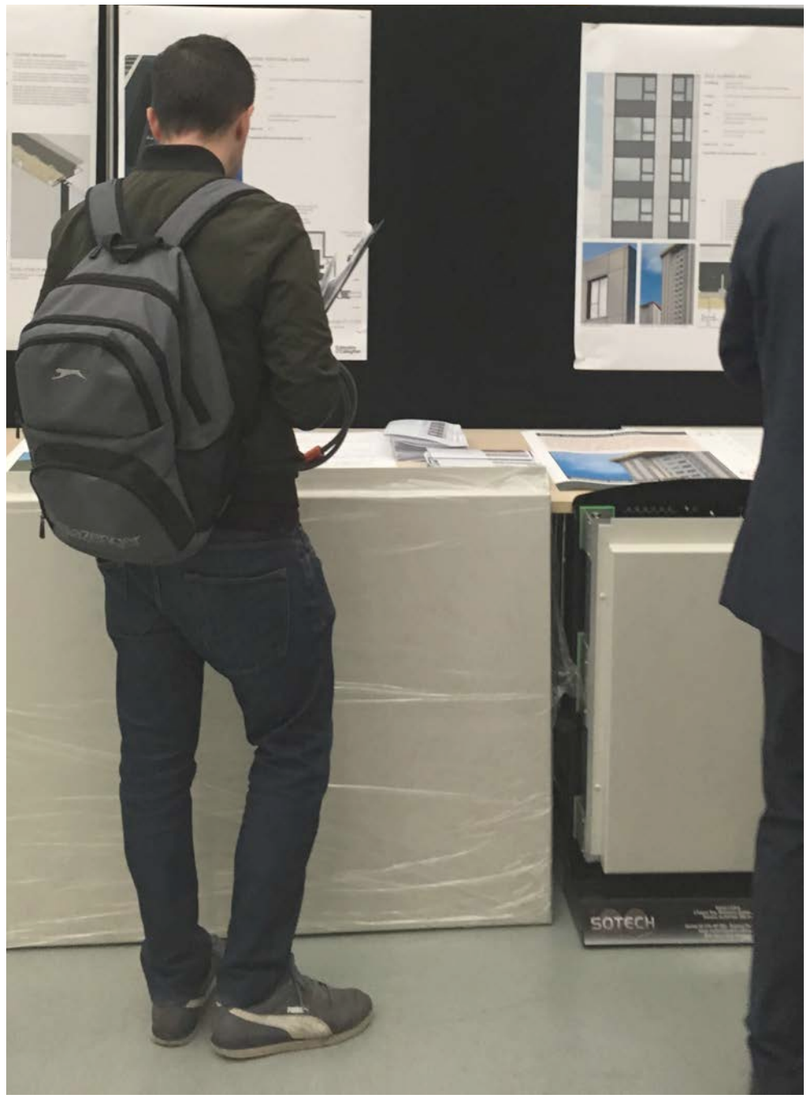


Proposed cladding jamb interface with existing glazing detail, worked up for each option

NDA met with suppliers to discuss technical requirements of each system and to secure samples, and thereafter we prepared jamb details for all five options, including secret-fix and face-fix variations of the solid aluminium PPC panels and mineral composite panels. All of the options required use of the original 60's structural concrete façade for support, and needed to allow for the removal of the replacement of the existing glazing system at a later date without compromising the cladding reveals. Through the detailing process it was found that solid aluminium PPC panels, GRC panels, and insulated render were best suited to allow for these later works.

At this point, due to enquires by residents, LBC requested for NDA to also investigate the possibility of stripping the facade back to original concrete facade, without adding any replacement cladding. However, this was quickly ruled out, as LBC's Building Control stated that they would assess the proposals as a material alteration, whereby the new cladding system had to provide the same thermal performance as the previous cladding.

All five research options did perform thermally at least as well as the existing cladding system, with the exception of the rendered insulation option, which performed better due to a thicker insulation in order to bring the cladding line out to align with the face of the exiting ACM panel.



Proposed typical bay elevation in solid aluminium panels (L), as prepared for all three options & presented to the council and residents at the public engagement events (R)

Following the presentation to LBC on 17th October 2017* , it was decided to take the solid aluminium PPC panel, GRC panel, and insulated render options forward for discussion with the planners and presentation to the residents.

In preparing the three remaining options for both these consultations, further research was carried out into each, existing precedents within the Camden borough were visited, and rendered elevations were prepared.

Both resident engagement events (on Tuesday 31st October 2017, and again the following Monday 6th November 2017*) had good turnouts and were useful for gaining invaluable resident feedback on existing problems within the towers. The residents expressed an equal preference for both the solid aluminium PPC panels and GRC panels over the rendered insulation option.

* as detailed in the Planning + Consultation section

Option Description	Differentiating Criteria					Result
	Achieve the same thermal performance as the previous cladding	Need to allow for removal and replacement of existing glazing system at a later date without compromising the cladding reveals.	Result of community engagement	Result of pre-application consultation with LB Camden planning department	Result of Camden cabinet meeting on the 24th Jan	Options 1 and 4 were not progressed as they would be less suitable for allowing the removal and replacement of the existing glazing system at a later date. Feedback from consultation confirmed an equal preference for options 2 and 3. [insert text here explaining what the other criteria were which led Cabinet to choosing either option 2 or 3] Option 2/3 was therefore taken forward.
1) Replacement ACM panels that could meet the min A2 fire rating	Yes	Less suitable for these later works.	Not taken forward for consultation.	Not presented	Not presented	
2) Solid aluminium PPC panel cassette system as a rainscreen (secret or face-fixed) onto an aluminium support framework	Yes	Best suited for these later works.	Preference for this option	Receptive feedback [NDA - are you able to complete this box?]		
3) Glass-reinforced concrete (GRC) panels as a rainscreen (secret or face-fixed) onto an aluminium support framework.	Yes	Best suited for these later works.	Preference for this option	Receptive feedback [NDA - are you able to complete this box?]		
4) Mineral composite panels as a rainscreen (face-fixed) onto an aluminium support framework	Yes	Less suitable for these later works	Not taken forward for consultation.	Not presented	Not presented	
5) An insulated render system, fixed back to the original 1960s structural concrete façade.	Better than existing cladding	Best suited for these later works.	Less preferred at consultation	Less preferable due to maintenance concerns.	Not presented	
6) Leaving buildings without cladding	Ruled out because LBC Building Control confirmed that the new cladding system had to provide the same thermal performance as the previous cladding. The same thermal performance of the building could not be achieved without any cladding.					

Design Development Chart

Finally, rendered comparative views of the towers in both the solid aluminium PPC panel and GRC panel options were prepared for a second informal pre-application meeting on Wednesday 15th of November 2017*. (Refer to pg.6 for image location)

Thereafter, following receptive feedback for the solid aluminium PPC panel option during all stages of the consultation process, it was decided to take this option forward for a full planning application to the council.

* as detailed in the Planning + Consultation section

Rendered comparative views of the towers in solid aluminium PPC panels. (Refer to pg.6 for image location)

V9 - Existing Blashford Tower, mid cladding removal (junction of Primrose Hill Rd & Adelaide Rd)

V9 - Proposed Blashford Tower (junction of Primrose Hill Rd & Adelaide Rd)

Rendered comparative views of the towers in solid aluminium PPC panels. (Refer to pg.6 for image location)

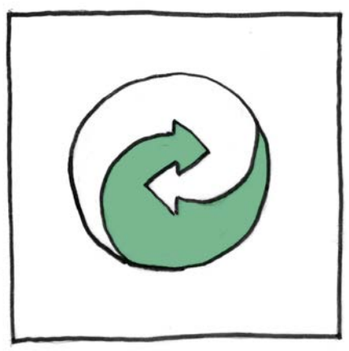
V10 - Existing Dorney Tower, mid cladding removal (from Fellows Rd)

V10 - Proposed Dorney Tower (from Fellows Rd)

V11 - Existing Taplow Tower (from Hawtrey Rd)

V11 - Proposed Taplow Tower (from Hawtrey Rd)

Rendered comparative views of the towers in solid aluminium PPC panels. (Refer to pg.6 for image location)



SUSTAINABILITY

The works proposed by the application will repair and retain the original fabric as much as possible, helping to extend the lifespan of the building. Consideration has been given in the interface detailing between the cladding and the windows to enable the replacement of the existing window system at a later date without affecting the newly installed cladding, whose usable design life will end before the replacement cladding does. The replacement insulation will perform thermally at least as well as the insulation that is currently installed to the towers. The U-value of the existing cladding build-up is 0.39W/m2K for Taplow, Burnham, Bray and Dorney, and 0.4W/m2K for Blashford. These values are already better than the threshold value set out in Approved Document L1B (p.18, table 3), which establishes if walls need to be upgraded thermally or not.

The new solid aluminium panels will be more sustainable than the previous ACM panels, given the ease with which the material can be reused or recycled in comparison. The aluminium is 99.5% recyclable and the solid aluminium of both the panels and substructure can be recycled straight away, using only 15% of the energy it originally took to manufacture them. Unlike the existing ACM panels, the solid aluminium also doesn't possess component parts, therefore it is more robust, will not delaminate over time, and will require less maintenance. The proposed cladding system is also easily demountable for maintenance access. We are also proposing the reintroduction of gantries to maintain and clean the façade, which will further prolong the life of the cladding.

Existing Taplow Tower

CONCLUSION

The planning application seeks consent for the recladding of four 23 storey towers and one 19 storey tower on the Chalcots Estate, Camden in solid aluminium PPC panels. The proposals would greatly improve the condition of the towers and ensure they achieve Class A2 fire rating*.

The proposals have been carefully developed in consultation with local residents and after considering all site-specific design criteria. In line with pre-application advice received from London Borough of Camden, the design emphasises the verticality of the facades, and the materials proposed are similar in colour and are consistent across the five towers.

The proposals have been designed to take into account the location of the towers adjacent to conservation areas and their proximity to the designated view from Parliament Hill to Central London. The mass, bulk and shape of each tower will not be materially affected by the proposed works. The cladding materials proposed will not have negative amenity impacts on residents of the Chalcot estate or local community, and a new clean cladding system with less joint lines will enhance the existing position in respect of privacy and outlook.

Sustainability has been a key consideration in the design development. The works proposed will repair and retain the original fabric as much as possible, helping to extend the lifespan of the buildings. The proposals include the reintroduction of gantries which would allow for enhanced maintenance and cleaning. Regular maintenance of the facades will likely increase their lifespan, therefore enhancing the medium to long term cost efficiency of the towers. The proposals would allow the removal and replacement of the existing glazing system at a later date thereby helping to future-proof the proposals. The cladding will perform thermally as well as the existing cladding system.

In conclusion, the proposals would result in the sustainable improvement of five towers at the Chalcot estate. The recladding would result in substantive benefits for the residents as well as aesthetic improvements for the wider community. As such, this proposal should be approved without delay.

* thus considered of 'limited combustibility' as defined in Approved Document B 'Fire Safety' (a guidance document to ensure compliance with Building Reg)