

CLEMENTS COURT, HOUNSLOW

De-Clad : 10 days

Re-Clad : 18 weeks



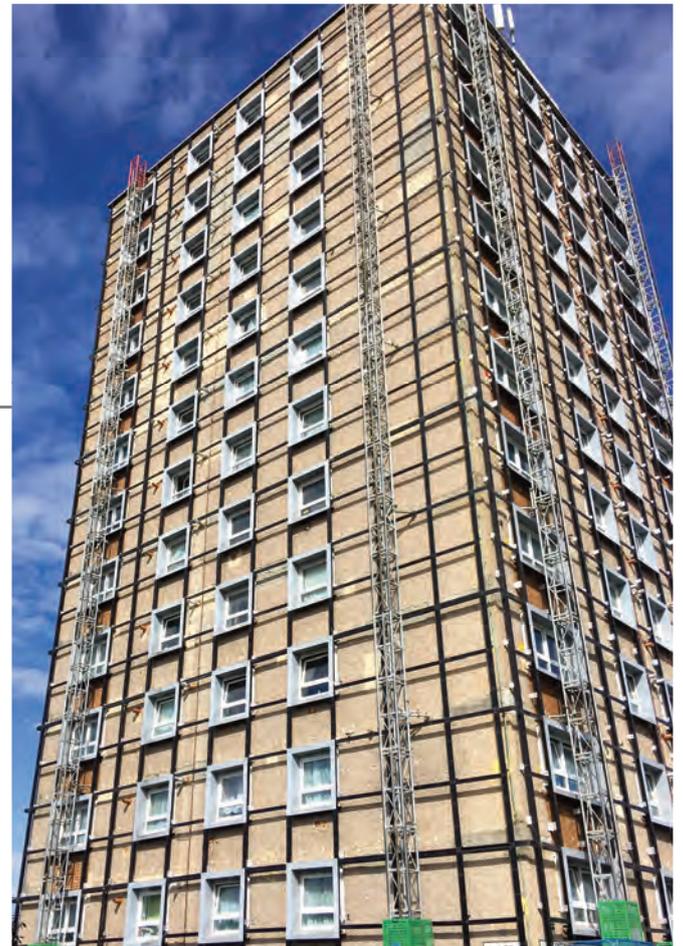
Clements Court 23rd June LBH become aware of fire hazard.

FIRE HAZARD IDENTIFIED

23
JUNE
2017

COMBUSTIBLE ACM CLADDING REMOVED

4
JULY
2017



Clements Court combustible ACM cladding removed within 10 days.



NOVEMBER 2017 – RECLAD COMPLETE TO MEET 2019 STANDARDS

27
OCT
2017

BUILDING RECLAD AND NORMAL LIFE RESUMES

With Building Safety Fund announced and the rapid growth in the amount of UK cladding it is absolutely imperative, now more than ever, that we get cladding right, and move forward in a positive and progressive manner.

The following case study is physical empirical evidence as would be a school laboratory test of how to deliver outstanding results, quickly, economically with a single stakeholder.

d+b facades
design + build overcladding specialist

Non combustible
cladding complete
to surpass current
standards.



Abstract

Immediately after the Grenfell Tragedy, *Clements Court Hounslow* was found to be clad in combustible ACM. It was re-clad to meet 2019 regulations by November 2017 using a 2 stage, non-prescriptive, design+build Form of Contract whereby the Contractor was and remains singularly responsible for the building's cladding being 'fit for purpose', delivering the *Hackitt golden thread* ahead of the report being published, at a time when the **Gov Expert Advisory Panel* were directing the industry to replace *Combustible ACM with Limited Combustible ACM* and ahead of the Governments subsequent intervention, ** banning Limited Combustible cladding*, avoiding the debacle that beset numerous recladding projects implementing *Gov Expert Advisory Panel advice in 2018*.

The procurement method used for Clements Court by the Client (London Borough of Hounslow) was invite Specialist Contractor(s) with proven expertise for price and proposals to urgently make the Tower fire safe and re-clad the building.

Agreement was reached with d+b facades to carry out the work in the following stages;-

Phase 1 ; on a cost plus basis, d+b facades stripped the building to make firesafe within 10 days

Phase 2 ; during phase for a fixed fee, d+b facades surveyed the 'opened-up' building and in full collaboration with the client team, set about designing new cladding, constructing an full size sample, obtaining statutory approvals, and submitting a full set of Contractors Proposals (CP's) to the client for them to interrogate in all respects, including most importantly cost. The CP's were subsequently approved. (Nb; Solid aluminum cladding was proposed because it was cheaper than Limited Combustible ACM, non-combustible, more readily available and had 3 times the life expectancy of ACM)

Phase 3 ; The Construction Phase followed immediately, under constant close scrutiny of the client team who inspected every stage of the delivery process, the works were completed by November 2017 for the total sum of £700K, the maintenance manuals and warranties were handed over and life returned to normal for the residents of Clements Court.

An otherwise complex process was made simple by good procurement, using a wholly non-prescriptive, specialist, Contractor led 'design+build' Form of Contrat that delivered the Hackit Stakeholder, removed a labyrinth of cost layers and expedited the works to all parties satisfaction.

Quote from Alan Cochrane "the whole process from start to finish was clear, concise and professional with an outcome to match, I would recommend this process be adopted for the UK's recladding."

Pockets of the industry have been getting cladding right for over 30 years with legacy buildings that meet todays enhanced standards and continue to look and perform as new providing empirical evidence of truly sustainable regeneration. 1st principles assessment of changes required is not needed. Past projects of what worked must be used to inform industry 'how to reform'.

<https://www.research.net/r/bsfregistration>

Introduction

The purpose of this report is to prove that, applied in real world situations, Hackitt's recommendations are crucial in rectifying the UK's failed cladding industry.

The parameters for the test are a selection of Hackitt's key observations and guidance:

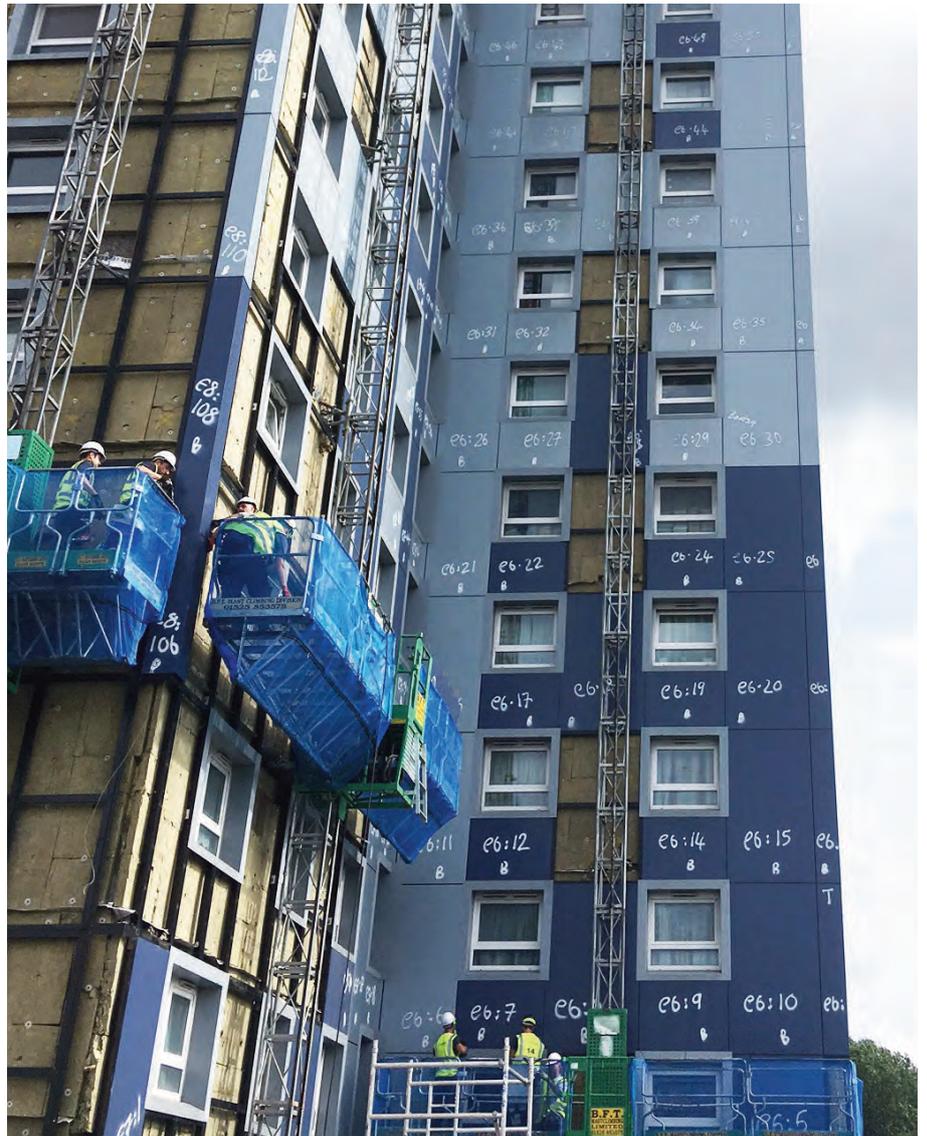
- **Timeline** - The need for rapid remediation of the UK's dangerous high-rise building stock
- **Dutyholders** - The need for clearly defined dutyholders with transparent roles and responsibilities
- **Best value** – Best value is only achieved by looking for solutions with long-term integrity, delivered by persons with proven competency and processes for quality assurance
- **Golden Thread** – The need for a clear audit trail of reasoned information throughout design and construction, from concept through to completion
- **Resident safety and well-being** – Must remain the central focus of any construction works

The Case Study used is Clements Court, Hounslow, which was the first UK Tower to be re-clad following the Grenfell Tragedy.

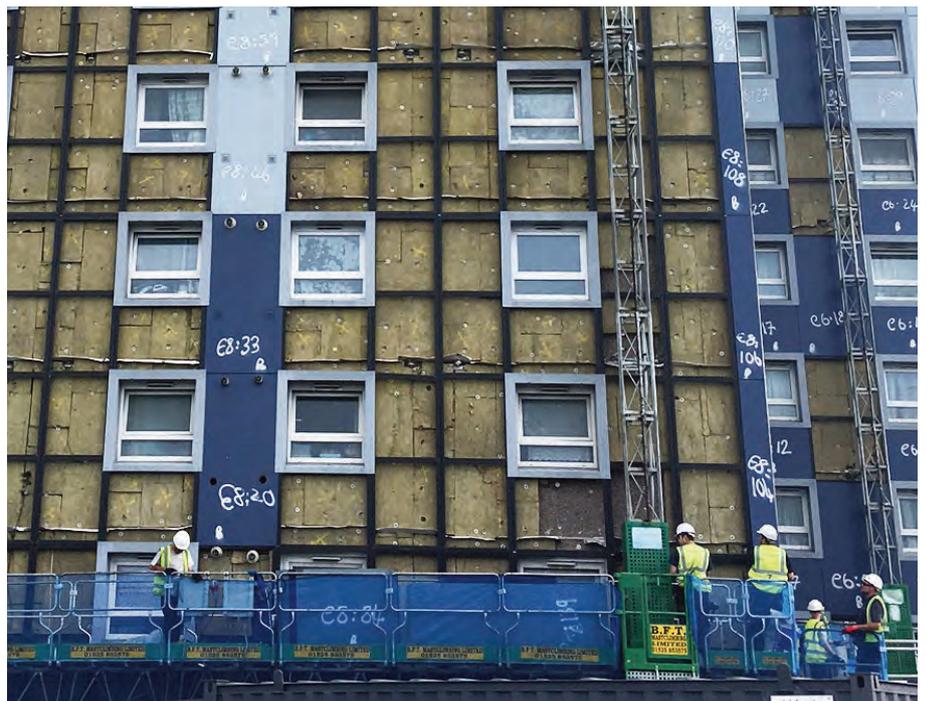
Clements Court is a 13-storey residential tower block containing 78 flats owned by London Borough of Hounslow (LBH). It is typical of many tower blocks built in the 1960's and was overclad by the original contractor in 2007 to improve its appearance and thermal performance.

Following the Grenfell Tower tragedy, building owners across the UK were directed by central Government to check and test the cladding on all buildings including residential towers, hospitals, schools, commercial buildings and those within the HE/FE estate. The London Borough of Hounslow identified Clements Court as being at risk, clad in combustible ACM similar to that used on Grenfell Tower. The Council made the decision to remove the cladding as a matter of urgency.

d+b facades, one of the UK's leading design build overcladding specialists, was approached by LBH. The need for action was urgent for the safety of the tenants. Following initial dialogue, and within 48 hours, the parties agreed to move forward to remove the combustible cladding.



Combustible panel removal.



Phase 1 – Making Fire-safe

It was agreed that costs for the works of making the façade fire-safe would be on an open-book, cost-plus basis, providing LBH with assurance that they were paying only for the works undertaken.

Critically, the works would be undertaken with d+b facades acting in a main contractor capacity and being singularly responsible for the works with LBH closely monitoring the works throughout. 13 storey building envelope was removed in just 10 days, leaving the façade fire-safe for a very competitive cost, a testament to collaborative working.

Phase 2 – Rectifying and forward thinking

As the combustible panels were removed the underlying construction revealed many defects. LBH, Curtins (structural engineers) and d+b facades undertook close inspection, testing and documenting of the original installation including primary anchors, cladding support structure, insulation and firebreaks. Defects included:

- Isolated support structure components and fixings were missing
- insulation was missing and/or insufficient and/or incorrectly fixed
- firebreaks were installed in the wrong positions and/or installed with gaps and/or insufficient lapping joints.

Curtins, d+b facades' structural engineering partners, directed site activities which included the removal of all insulation and firebreaks so that the underlying fabric and fixings could be clearly inspected and tested. These elements were deficient in any event and sent for recycling. Detailed surveys and in situ testing were then carried out of both the existing fabric and existing cladding support structure. Defects were recorded within a comprehensive QA file. Curtins then set about desk top re-design of the entire system from 1st principals to prove the design and specify remedial works including additional supports and fixings where necessary. LBH closely monitored this process and witnessed in situ testing. Once the support structure remedial works were complete a thorough QA inspection was carried out and the works allowed to progress to the next stage.



The combustible cladding was removed within 10 days.



Combustible panel removal uncovers the insulation and firebreaks.



Incorrectly installed firebreaks and gaps in insulation.



Insufficient fixings in insulation.



Incorrectly installed firebreaks.



Closeup of new firebreak & insulation.



Gaps in insulation and support structure missing.



Missing support structure fixings.



Non combustible Flue panel installed.



Support structure replaced where missing.



Phase 3 – Re-cladding

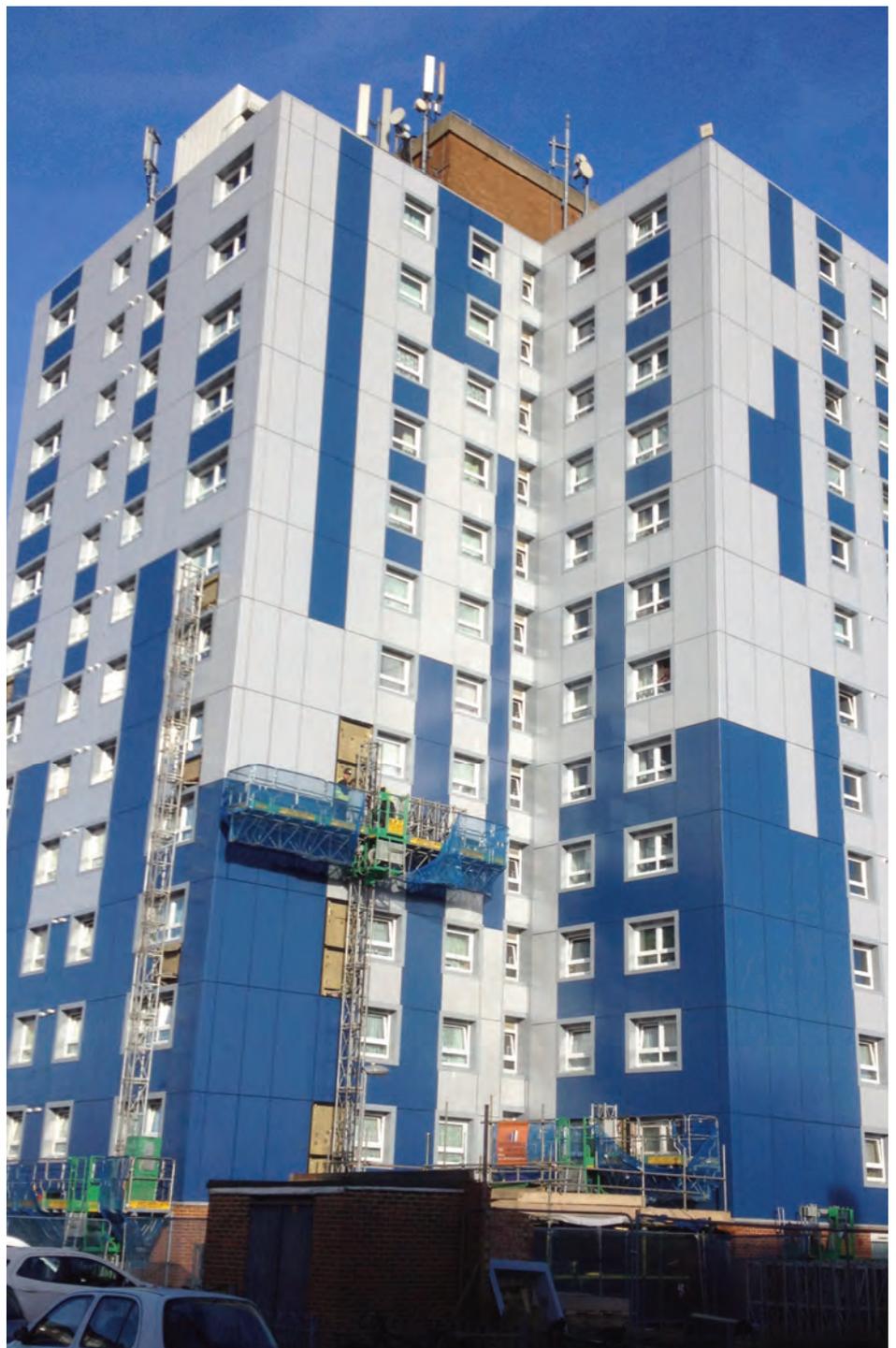
With the immediate danger to residents now removed, focus turned towards how best to achieve the economical and proper reinstatement of the cladding. All procurement and design options were considered by LBH, material specifications were carefully reviewed together with samples.

Despite the extreme nervousness of the entire industry LBH calmly set out their Employer's Requirements (ERs) for the making-good works. They required an experienced contractor and structural engineer to provide a Design Build service, to be singularly responsible for the making-good and the subsequent warranting of the whole of the works which were specified to surpass current fire regulations using A2 - s1, d0 non-combustible cladding. All of this was to be supplied for a fixed, lump-sum price including all prelims, access, fixings, support structure, firebreaks, insulation and cladding.

LBH invited tenders which were to comprise a full set of Contractor's Proposals (CPs), including a priced analyses bill, drawings, specifications, programme, warranties, method statements and risk assessments. Following careful and weighted assessment of the CPs, comparison with known market rates, construction indices and costs for the original works to ensure value for money, LBH appointed d+b facades who then set about the recladding.

The making-good requirements were considered from the outset, for example access was established which addressed both the requirements of the stripping works and those of the making-good works, thus preventing any need for adaptations and allowing an almost immediate site start following d+b facades appointment for the recladding.

The LBH Employer's Requirements (ER's) were onerous though not unreasonable given the exceptional circumstances. d+b facades relish a challenge and working for a client able and willing to make informed decisions quickly is rare and makes all things possible. d+b facades submitted



Access under removal.

Contractor's Proposals (CP's) by way of offer to the Council and then at each stage of the works provided prototype samples for inspection and approval by the client in time to meet the off-site manufacturing programme which would ensure the works on-site could be carried out quickly and efficiently.

The replacement cladding panels are solid, non-combustible aluminium. Because they are not composite there is

no possibility or risk of delamination, the panels will last indefinitely and can eventually be recoated in situ if necessary. Should the cladding no longer be required it will be recycled. The solution is faced-fixed, unlike d+b facades' cassette system and lacks the water management which prevents pattern staining, but it is entirely fit-for-purpose and represents good value, meeting sustainability aspirations.

LBH Building Control Department requested the fire breaks and compartmentalisation which prevent the spread of flame behind the cladding to be upgraded to a level in advance of present regulations thereby futureproofing the installation against the possibility of more stringent regulations being introduced in the future. New firebreaks were installed at maximum 3m centres and around the perimeter of each opening to surpass Approved Document B. These were then QA inspected and signed-off prior to commencing the next stage of infilling with insulation. Insulation QA inspected and signed-off, the recladding was allowed to commence. This controlled process allowed the end product to be covered by a Curtins new-build equivalent collateral design warranty.

As with any complex project there were problems to be overcome and constraints to be operated within, examples of this being the boiler flues and the fact that Clements Court is an occupied building. d+b facades had to devise safe methods of working to allow the safe removal of existing panels surrounding boiler flues and their subsequent replacement with new non-combustible panels whilst avoiding the need to enter residents' properties and isolate boilers. By working closely together with the Client team, all challenges were overcome and issues resolved with minimal impact. Each stage of the recladding process was subject to careful inspection at predetermined rigorous inspection hold points to ensure that everything was 100% perfect with every aspect of the new installation.

Results

Despite this project being completed prior to Hackitt's recommendations being published, the coherence with the guidance and positive outcomes are clear:

- **Timeline:**

The building was made fire-safe in just 10 days, and the whole process took just 18 weeks with the project being completed on time, on budget and with minimal disruption to residents without the need to decant.

- **Dutyholders:**

Appointing d+b facades under a design & build contract with high level only high Employer's Requirements of performance



Window and POD before clean and cladding replacement.

and appearance, LBH were able to have a clearly defined, singularly responsible party for the works, and a clear path of re-course in the unlikely event of further remediation being required. LBH's role became one of due diligence and oversight, acting as a Clerk of Works to ensure they were comfortable with d+b facades' prices and proposals and progress.

- **Best-value:**

Despite prevailing guidance at the time suggesting that limited combustibility was acceptable, LBH used diligence in selecting a competent, industry leading, contractor with a proven long-term solution. The result is that Clements Court now benefits from A2 - s1, d0 non-combustible cladding which surpasses even today's enhanced regulations. The cladding will provide safe, energy efficient accommodation for generations to come. Should the cladding ever reach the end of its useful life, it will be fully recyclable.

- **Golden thread:**

Thanks to the thorough QA processes enforced by d+b facades and overseen by LBH, there is a clear record of exactly what has been built and why. In future, relevant parties (such as building maintenance and emergency services) can make assured, informed decisions based on the fundamental safety principles of the cladding design.

- **Resident Safety and Wellbeing:**

By adopting a phased procurement and a design build approach the Council were able to rapidly mobilise to remove



Window and POD clean after new cladding installed.

the combustible cladding and provide Resident's with peace of mind, by:

- o Installing lightweight unobtrusive mast climbers around the building which posed no security risk to residents' and were operational within seven days of commencing works
- o No requirement to enter tenants' properties throughout the entire process
- o Minimal noise disturbance using diamond drilling techniques limited to restricted hours
- o No restrictions to the use of kitchens whilst flue extracts were replaced/renewed
- o Clear access/egress maintained via a fire protected tunnel whilst the works were underway.

Discussion

By acting in a calm manner and following core principles in line with Hackitt's recommendations, LBH achieved an exemplar project, with clear responsibilities, delivered on time and within budget. The cladding is sustainable and will meet the needs of many generations to come.

This is a clear example to the industry of how to get cladding right. The Building Safety Fund, while generous, is very much a finite resource which is at risk of being squandered if not used properly. The lessons of Clements Court, and the guidance of Hackitt, must be adopted in order for the UK to derive best-value from the Building Safety Fund and truly make good the errors of the past.

Completion Ceremony



L to R: Peter Matthew (LBH Director of Housing), Lourdes DeBarry (Deputy Director of Housing LBH), Fiona Twycross (GLA), Alan Cochrane (Project Manager) and Rob Potter (LBH Investment Manager).



Cllr Steve Curran (Council Leader) securing the last non-combustible panel.



L to R: Phillip Morton, Mark Malcherek, Mark Loach, Cllr Steve Curran (Council Leader), Fiona Twycross (GLA), Mary Harpley (Chief Exec LBH).



Fiona Twycross and Steven Curran thank the residents for their patience.



Non combustibile cladding complete to surpass current standards.



L to R: Mark Loach, Fiona Twycross, Phillip Morton, Cllr Steve Curran, Mark Malcherek.