

LISTED BUILDING CONSENT REF. NO. 2019/2790/L, CONDITION 5

**METHODOLOGY FOR
KEMBLE TOWER CONCRETE CORNICE REMOVAL, RETENTION AND REINSTATEMENT**

**SPACE HOUSE
1 KEMBLE STREET, HOLBORN
LONDON, WC2B 4AN**



DEMOLITION CONTRACTOR	ERITH CONTRACTORS LTD
REINSTATEMENT	BAM CONSTRUCTION

Rev	Detail	Prepared By	Date
0	First Issue	Peter Lilburn / David Packham	June 2021

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1. Introduction

This report has been prepared to discharge condition 5 attached to listed building consent ref: 2019/2790/L, dated 29 November 2019 at Space House [complete address]. Condition 5 states:

“Prior to commencement of the relevant works, a method statement including details of removal/dismantling, retention and reinstatement of the concrete cornice of 1 Kemble Street shall be submitted to and approved in writing by the local planning authority. The relevant works shall not be carried out other than in accordance with the details thus approved.”

2. Description of Works.

The following methodology illustrates how Erith Contractors Limited intends to execute the removal of the listed Precast Concrete Units around the concrete cornice of the 1 Kemble Street within the Space House redevelopment project and how BAM Construction propose to undertake the reinstatement.

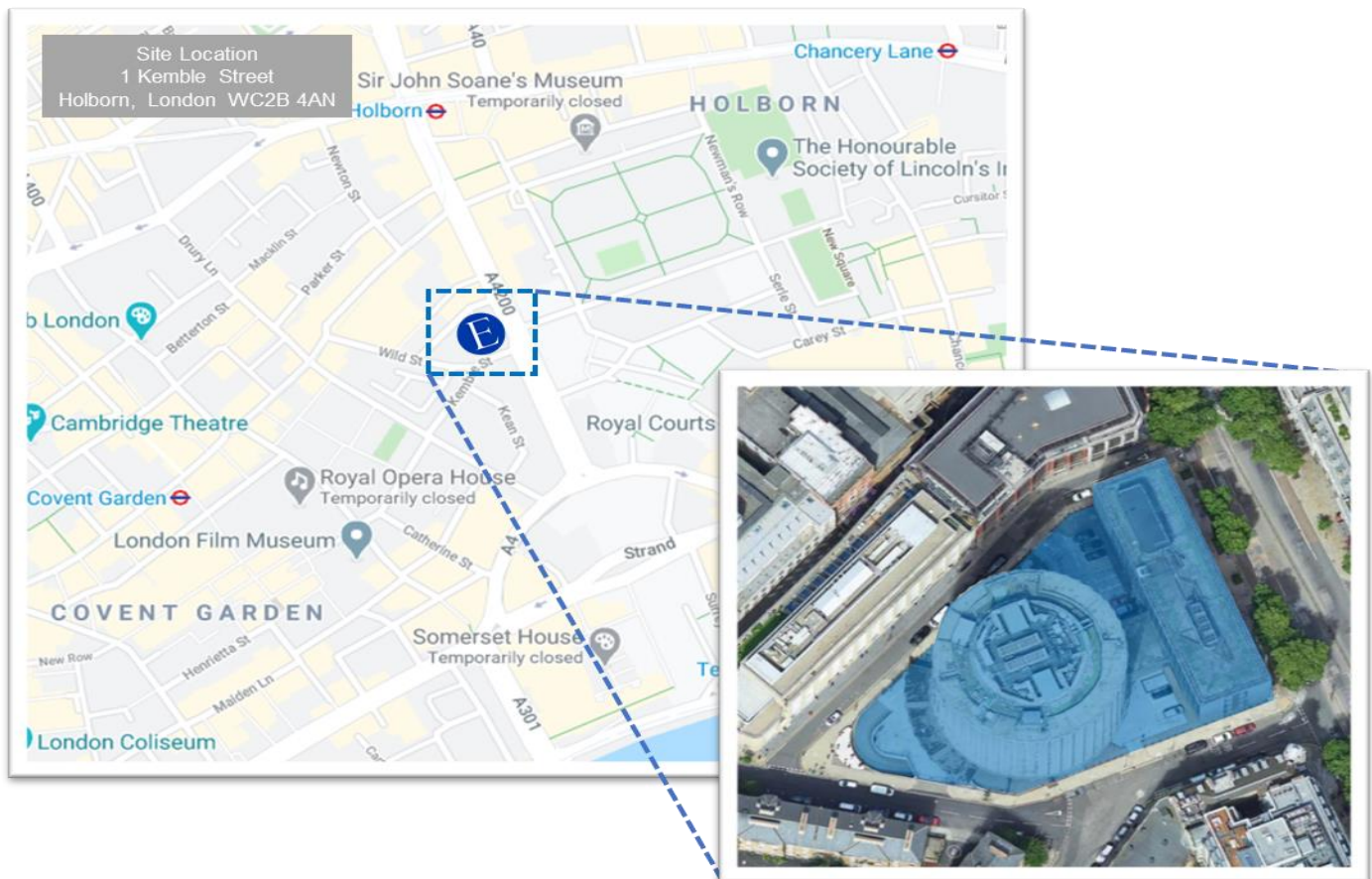


Figure 1: Site Location Plan

All works outlined in this document will conform to the following documents:

- Construction (Design and Management) Regulations 2015

- Management of Health and Safety at Work Regulations
- Lifting Operations and Lifting Equipment Regulations [LOLER]
- Provision and Use of Work Equipment Regulations
- BS6187:2011 Code of Practice for Full and Partial Demolition
- NFDC Demolition guidance notes
- ICE Demolition Protocol 2008
- Erith Standard Operating Procedures (SOP's) for temporary works.
- BAM Construction Standard Operating Procedures (SOP's) for temporary works.

3. Sequence of Works

Operations within methodology.

This methodology has been prepared to ensure that the listed fabric is protected and will not be damaged

- Installation of Temporary Works
- Structural demolition
- Removal of the PCUs
- Loading of PCUs
- Delivery of PCUs to Stone masons yard
- Delivery back to site
- Installation of the new Pre-Cast Units (PCU)
- Reinstatement onto the building of the retained PCU

4. Method of Works – Removal

Preparation Works

16th Floor Slab Demolition & PCU Removal

With the 16th floor buildings demolished attention will then divert to the demolition of the 16th floor slab and the removal of the PCUs/Ring beam the form the crown of the building.

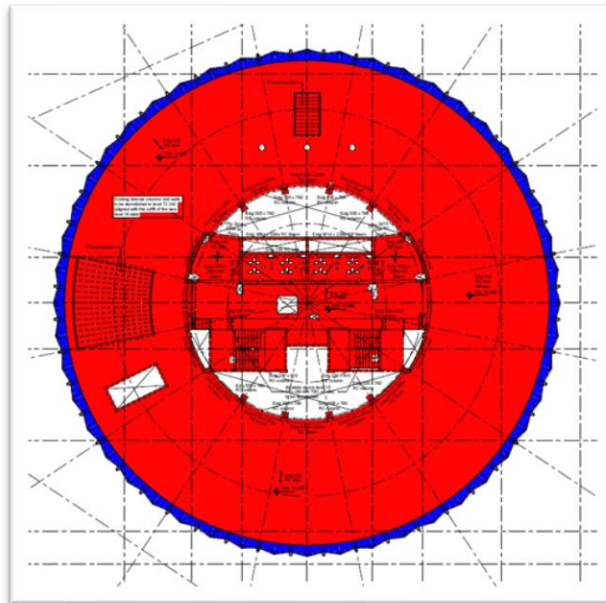


Figure 2: 16th Floor Demolition Plan



Figure 3: Existing T Sections Around 16th Floor Slab

To ensure the safe removal of the PCUs a design and sequences has been developed to carry out this operation. This will involve installation of temporary frames, demolition of the adjacent 16th floor slab, saw cutting the PCU units and lifting the units to the ground floor with the tower crane to a holding cradle that will enable the units to landed and re-slung for loading away from site

Stage 1: Enabling Work for Lifting Frame

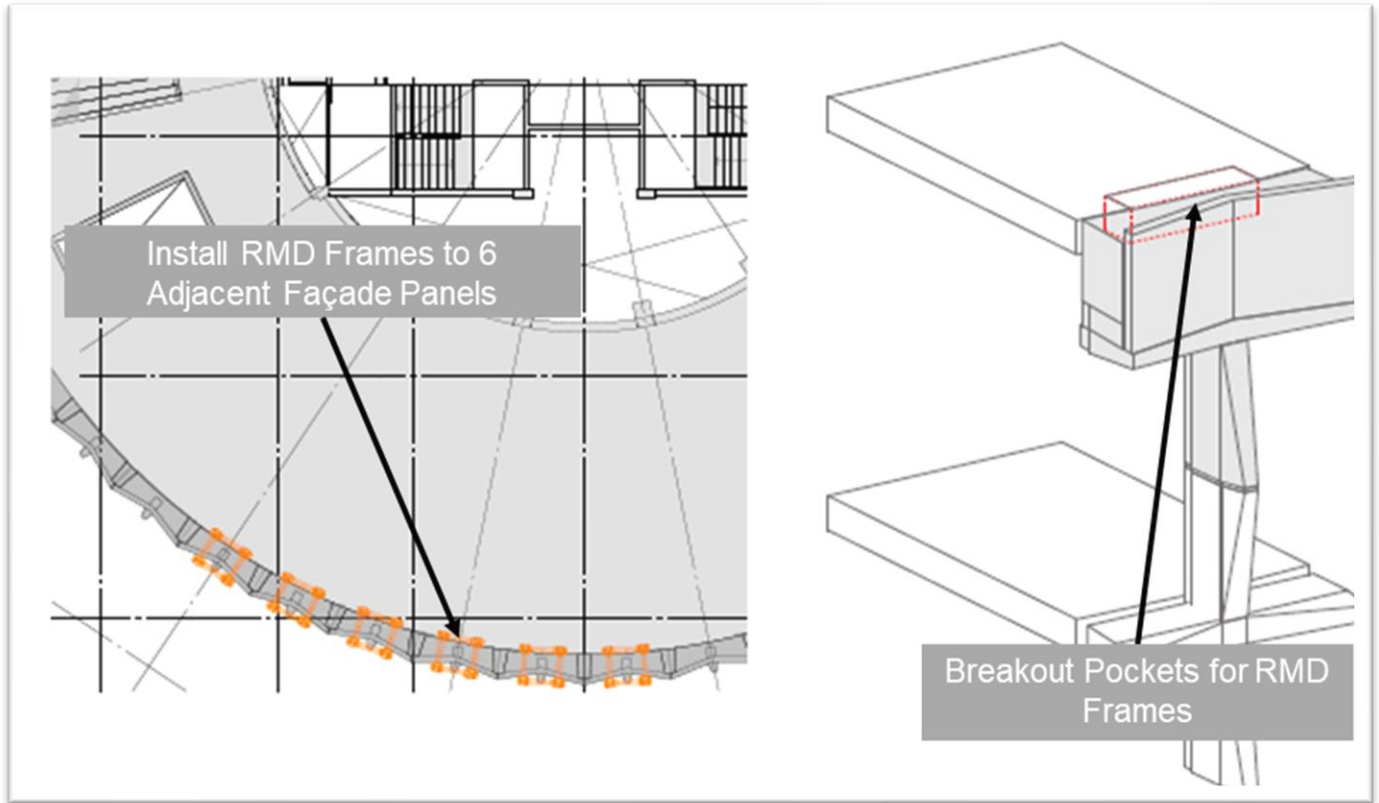


Figure 4: Enabling Work For Lifting Frame

Prior to any demolition/removal of the precast concrete units commencing, pockets will need to be broken out so that the RMD frame can be assembled around the unit to be lifted out. Openings will be broken out using the demolition plant on site.

Stage 2: Installation of Lifting Frame

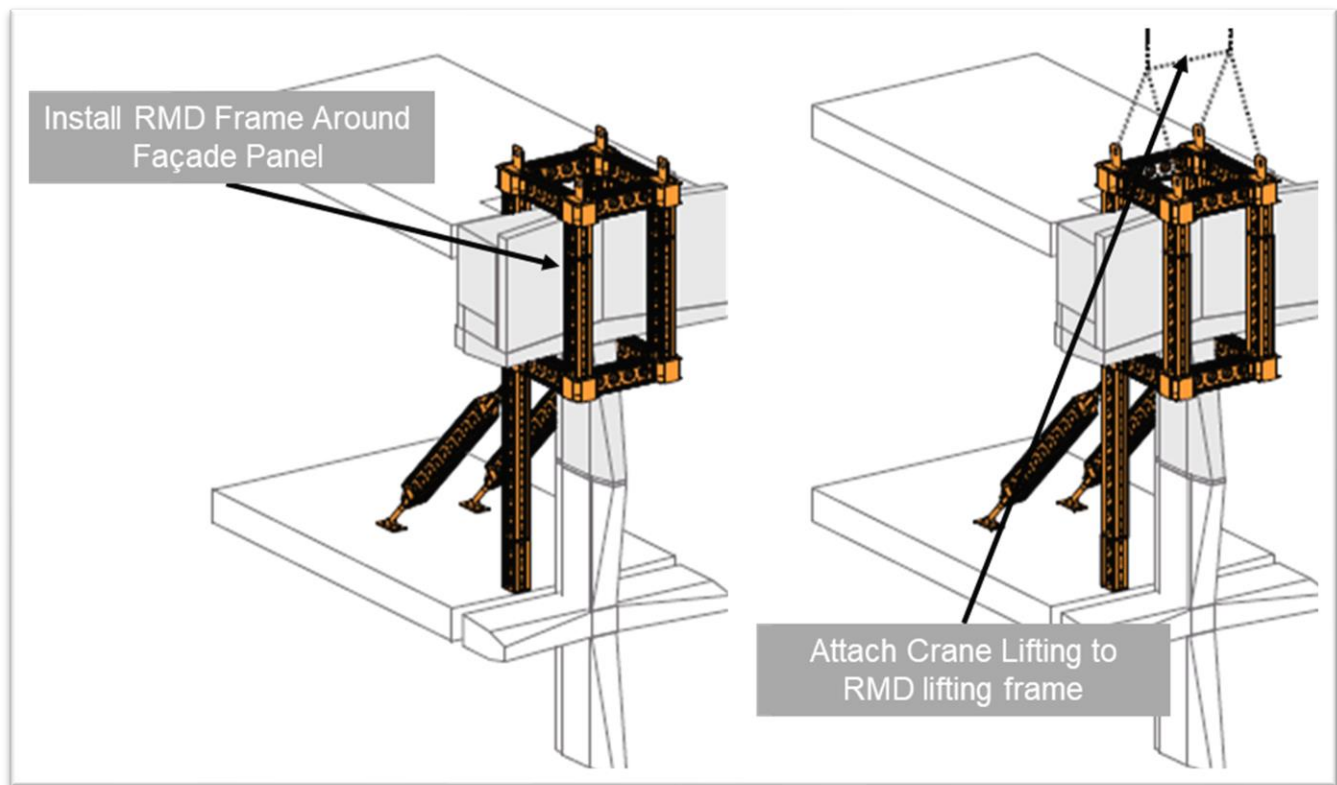


Figure 5: Installation of Lifting Frame

The lifting frame will be assembled in accordance with the temporary works design and drawings. The frame will be secured to the 15th floor slab using an RMD racker assembly. The foot plates will be mechanically secured to the floor plate

At this point the lifting assembly will be attached to the TC hook. Stage 4 cannot proceed unless the lifting frame is attached to the tower

Stage 3: Releasing the PCU

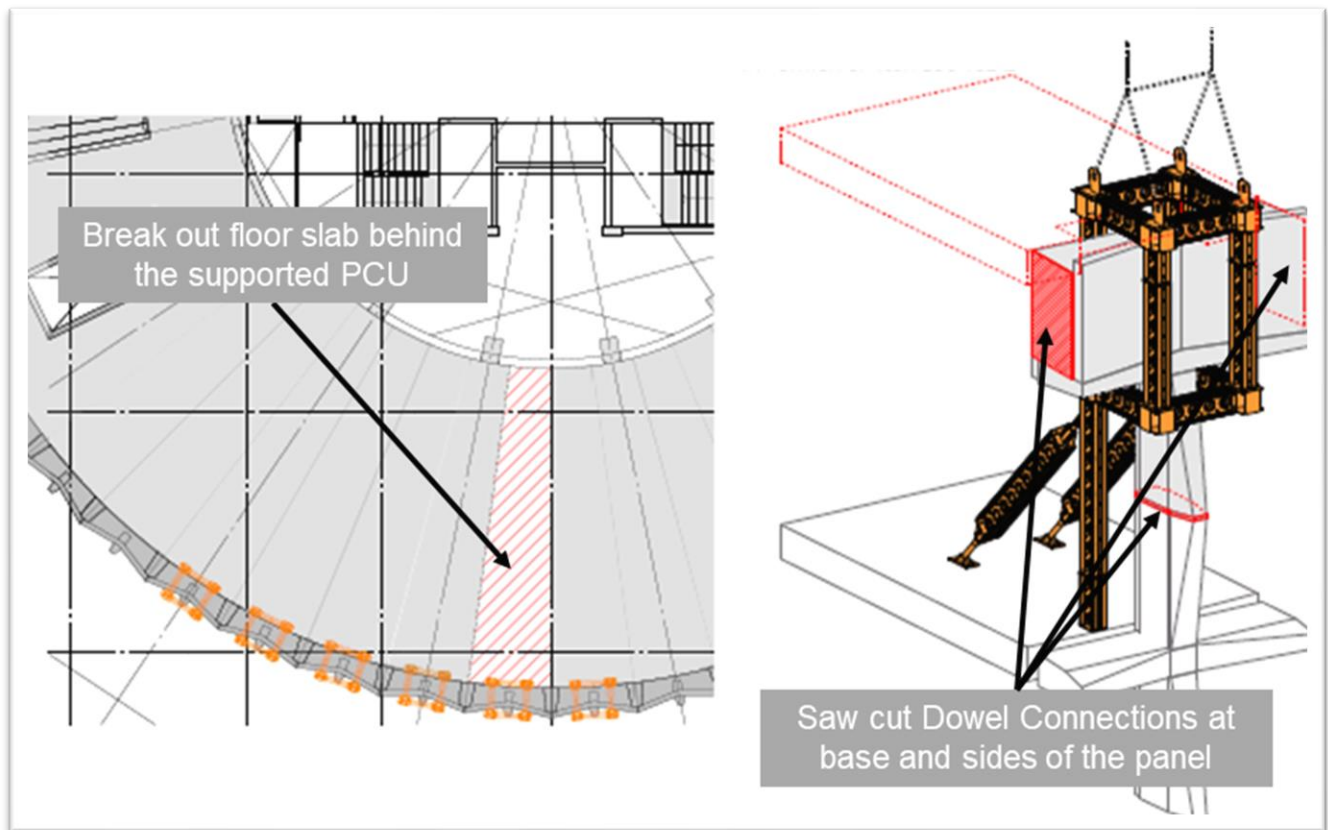


Figure 6: Releasing the PCU

Once the temporary works are in position, the wedge of slab behind the PCU can be broken out. This will be carried out using the demolition plant on site. **Slab will only be broken out as highlighted. Before releasing the slab the lifting assembly must be connected to the TC.**

All operations involving the tower crane will be carried out under the control of the lifting supervisor and slinger signaller

Scaffold Handrails will be positioned on each leading edge and can be relocated as the demolition progresses around the slab.

Saw cutting will be carried out in accordance with the Safe system of works for saw cutting. However the base sawcut must be carried out 1st, therefore there will not be any load on the blade as the top of the PCU will still be secured

Stage 4: Final Release & Removal

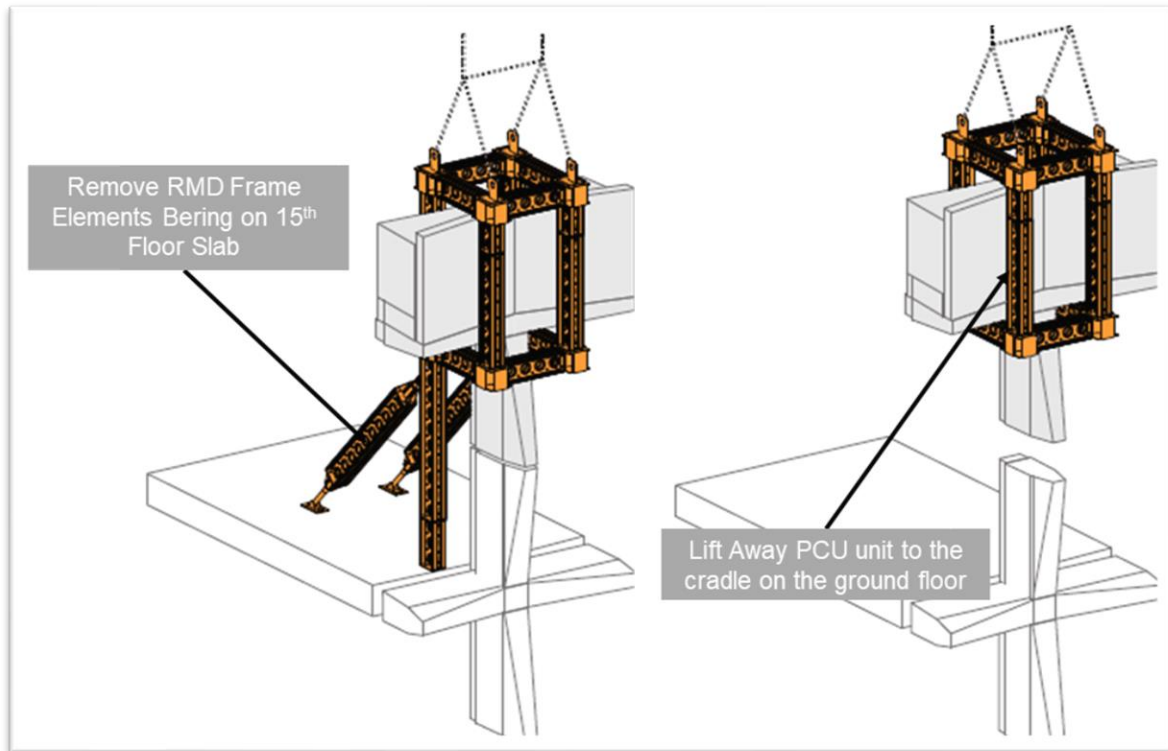


Figure 7: Final Release & Removal

Once all the cuts are complete, the PCU will be ready for removal. The racking shore element of the lifting cradle will be removed from the frame and the frame and PCU lifted to the landing cradle on the ground floor

Stage 6: Landing the PCUs for Re slinging & Loading

Once the PCU has been lowered to the ground floor, it will be landed on a landing cradle. This is required to enable the PCU to be re slung so it can be loaded onto the vehicles to remove them from site

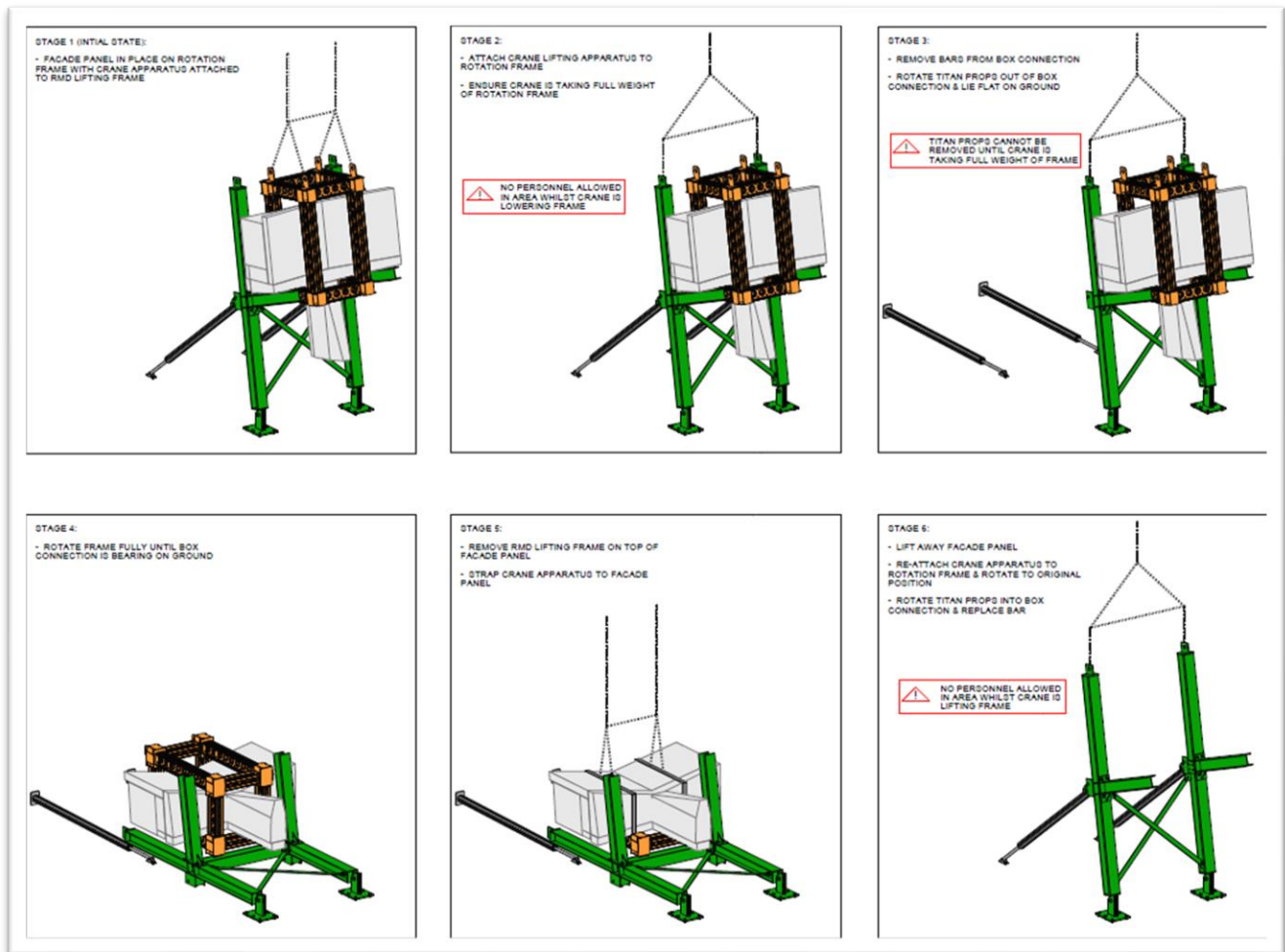


Figure 8: Landing the PCUs for Re slinging & Loading

- Façade panel will be landed in the cradle with the crane hock remaining attached to the frame
- The crane hook will then be attached to the cradle taking the weight of the load
- The titan props can be removed and laid flat on the ground. **Titan props cannot be removed until the TC has the full weight of the load**
- The slinger/signaller will then instruct the TC operator to rotate the frame until it is landed on the ground
- The RMD Lifting frame can then be removed from the PCU
- Now laying flat the PCU can be re slung so it can be lifted onto the waiting lorry to remove from site.
- Flat bed lorries will be used to transport the PCUs to the stone mason's yard. It is intended that 2 PCUs will be delivered at a time. The units will be timber chocked and stropped for the journey.

An exclusion zone will be established around the loading cradle. There will also be a strict exclusion zone below the cradle as show in the figure above.

This operation will be under strict control of the slinger/signaller

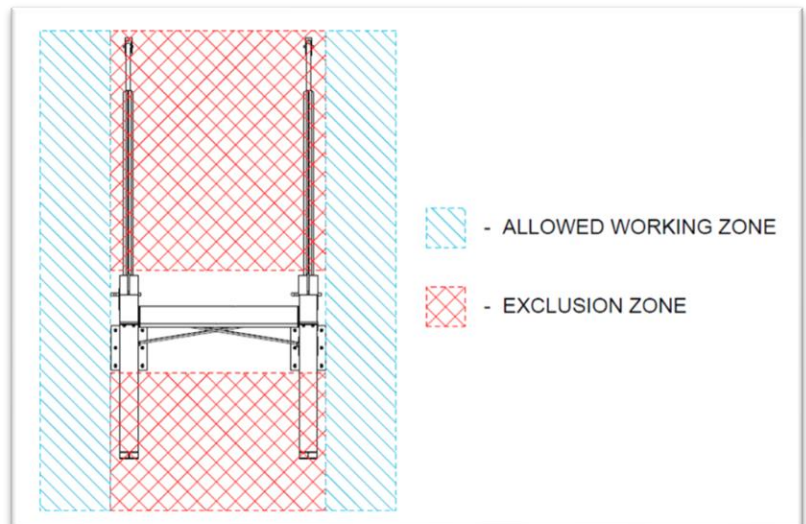


Figure 9: Cradle Exclusion Zones

This sequence will be repeated moving around the floor slab until all the PCUs have been removed.

As the frames are PCUs are removed, additional frames are to be installed ensuring that there are 5 frames ahead of the lifting frame

As temporary works are installed, all items will be inspected and signed off by the engineer and the temporary works co-ordinator.

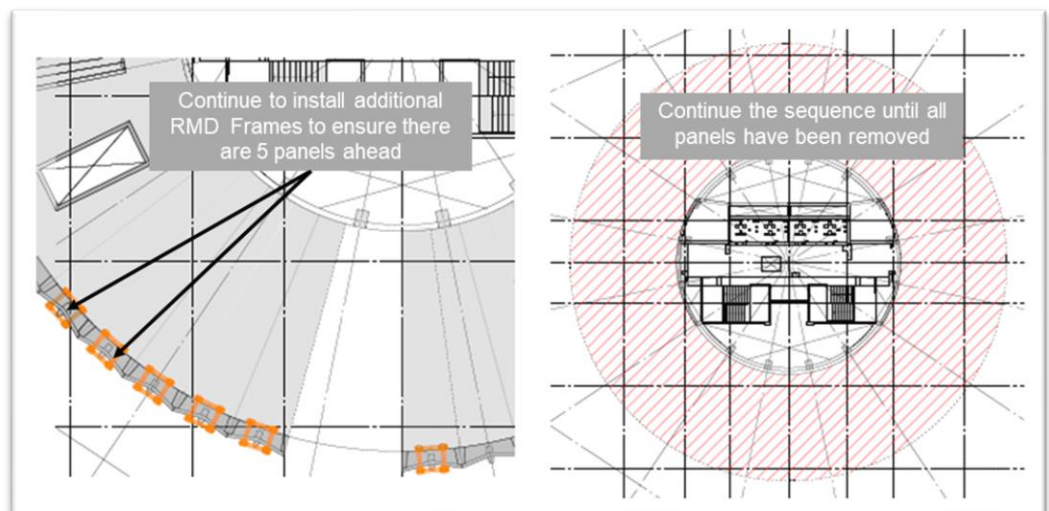


Figure 10: Repeated Sequence

As the panels are lifted out, the scaffold will be progressively struck always leaving at least 2 metres above the demolition floor. The scaffold will only be dismantled by a fully qualified scaffolding contractor. Again, will be under the guidance of a separate task specific method

Removing From site

The PCUs will be delivered to a stonemason's yard, (Location to be confirmed by Main Contractor). Where they will be unloaded and landed in a position that supports the back of the PCU, by the nominated Stone mason.

15th Floor Demolition

With the 16th floor demolition completed and the concrete cornice removed, demolition will continue on the 15th floor level, the figure above shows the extent of demolition required on this floor.

Prior to commencing any demolition works on this floor, the temporary works will have been installed in accordance with the temporary works.

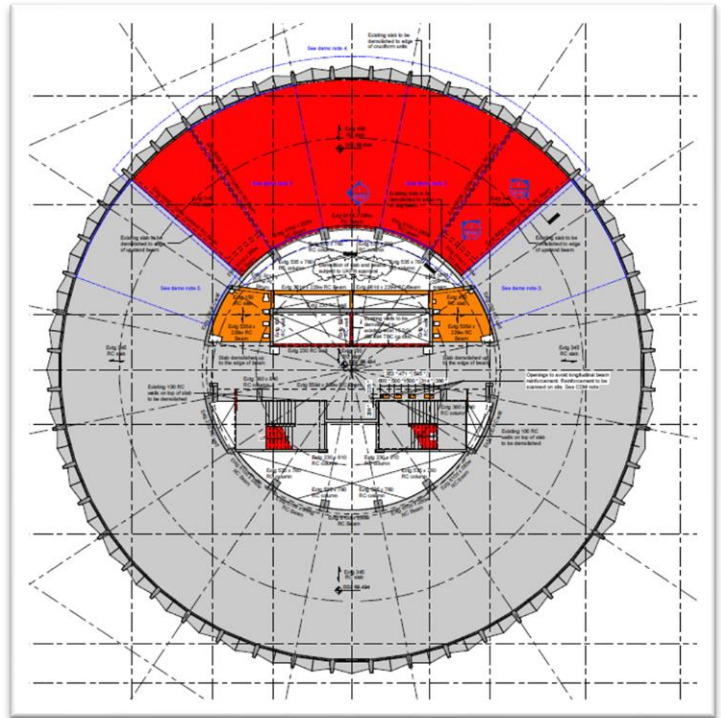


Figure 11: 15th Floor Demolition Plan

The temporary works on this level are twofold.

Above the slab a flying shore arrangement will be installed. This will be in the form of fabricated steelwork fitted into position as shown below. This frame will be mechanically fitted into position and is required to support the ring beam and upper section of the 15th floor slab cruciform that protrudes above.

The figure below highlights the extent of the temporary works

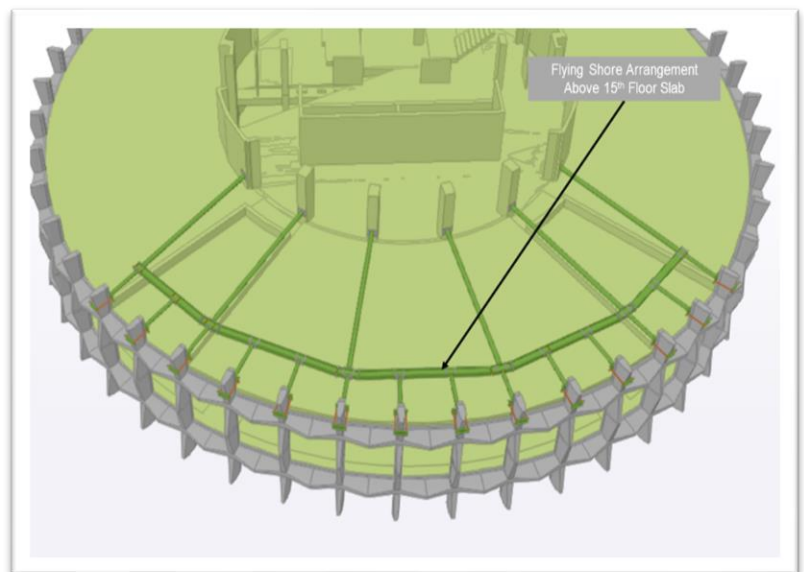


Figure 12: 15th Floor Demolition Plan

To support the cruciform that will remain protruding above the 15th floor slab, tensioned thread bars connecting front and back will be installed. For the vertical support of the steel frame self-weight we will provide localized props transferring the load down to 14th level.

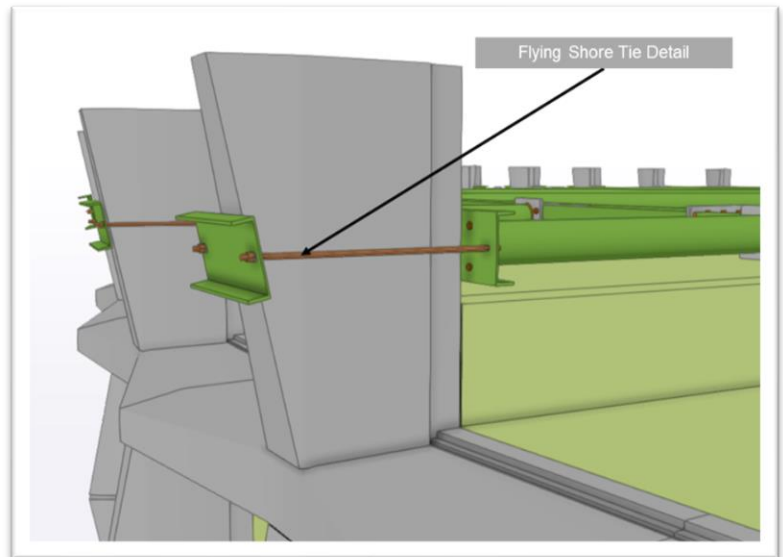


Figure 13: 15th Floor Demolition Plan

To support the slab and plant throughout the demolition, Temporary works will be installed in the form of Titan Props, which will be set out and installed ensuring sole boards and header plates are in place

Once installed a permit to load will be issued and then entered onto the temporary works register. At this point the temporary works can be loaded

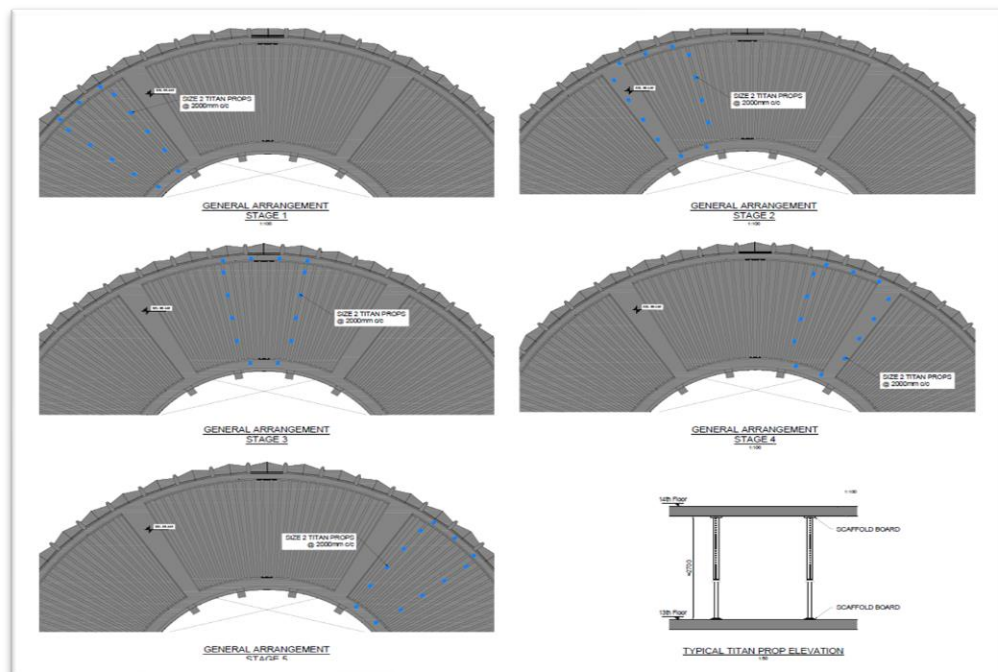


Figure 14: TWs For Underside of 14th Floor

Demolition of the 14th floor Frampell units can commence with the 8^T demolition excavators that are already lowered onto the 15th floor slab

Working west to east, demolition will be carried out in the fashion described earlier in this method statement the frampell units will be Broken down and the arisings removed, via boat skips and the tower crane.

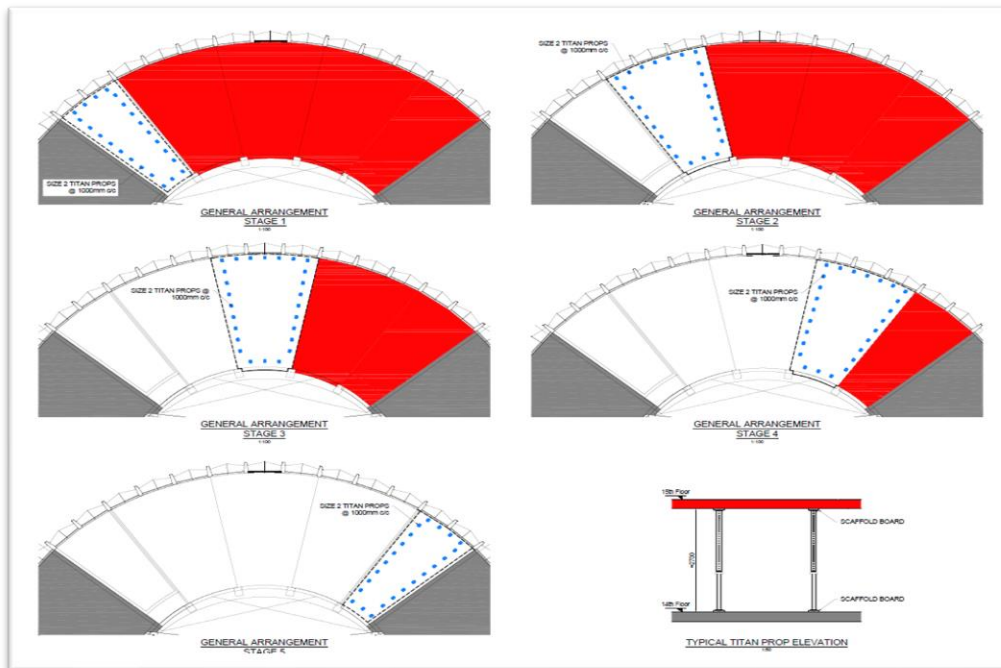
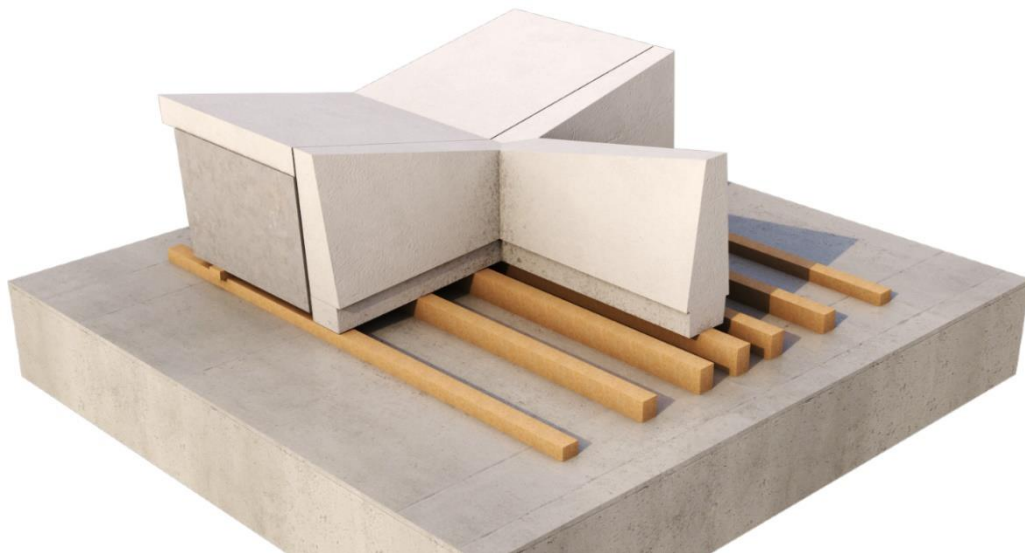


Figure 15: TWs For Underside of 15th Floor

5. Storage at Stonemasons Yard

The PCUs will be delivered to a stonemason's yard, (Location to be confirmed by BAM). Where they will be unloaded.

- The PCU will be re slung so it can be lifted from the lorry to its storage position.
- Initially the PCU will be stored on its back with timber chocks supporting the unit.
- The unit will be surveyed for any damage and repaired in accordance with the agreed method.

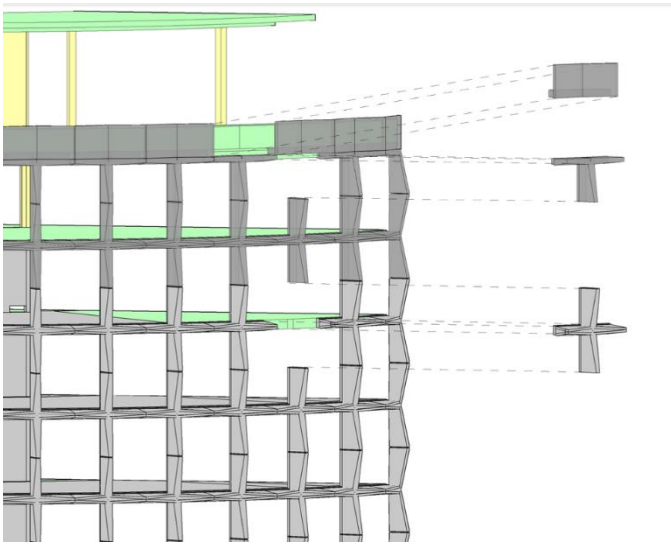


- Before returning to site each unit needs to be prepared for reinstatement.
- The ends of the 'T' will be drilled to receive a dowel for subsequent connection to the adjacent T.
- Prior to loading back onto the lorry, the back of the unit will also need to be prepared
- The unit will be re-slung, lifted by the crane and carefully turned on its face.
- Timbers will be placed under the unit to ensure it is fully supported in this orientation.



6. Method of Works – Reinstatement

The next operation is to insert the new PCU at level 15 and then to reinstate the retained T section at Level 1



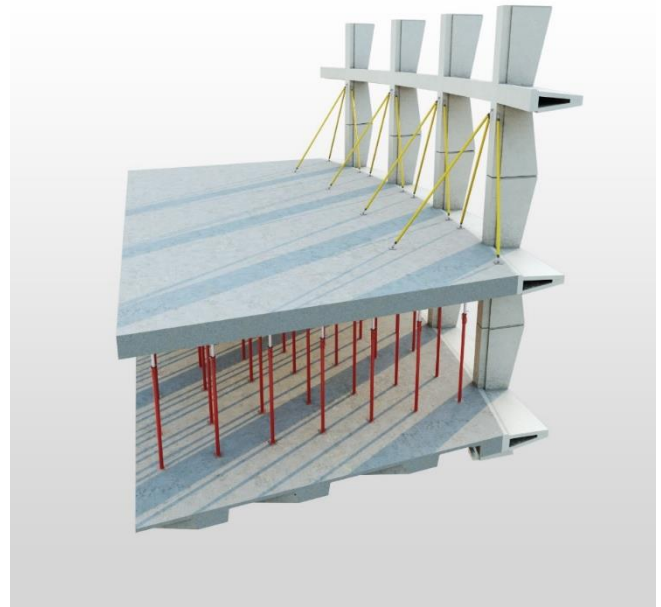
The image above left shows the exploded model view of the new Star PCU and the two sections of the original T PCU. When the original PCU was removed from the building the inner ring beam was cut and remains in position as part of the retained T. The original T, without the retained ring beam section can be seen above right.

The reinstatement process has been developed by PCE Ltd, the contractor who is fabricating and installing the new Star PCU at level 15. BAM in-house temporary works technical services engineers have assessed and agreed the methodology.

Reinstatement Stage 1

The new Star shaped PC units, will have been fabricated offsite, loaded onto a delivery lorry and brought to site, 2 units at a time.

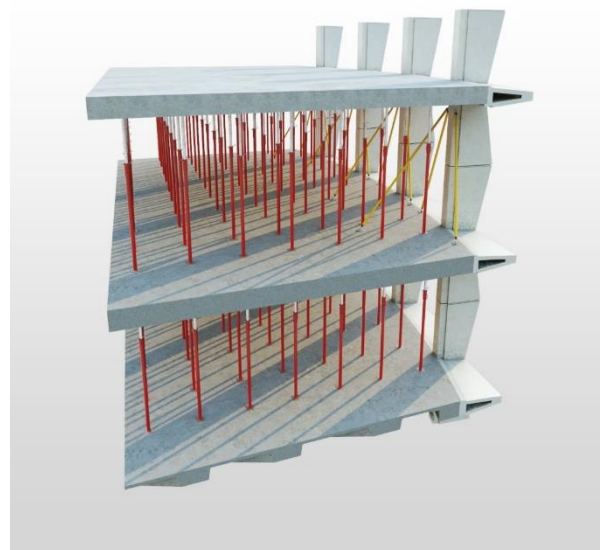
- The new Star PC units will be lifted from the delivery lorry and lowered into position by crane.
- Temporary props will be attached to the PCU to provide full support during the installation process.
- Connections between the PC units and crane must not be released until each unit has been fully secured to raking props and a connection made to the existing PC unit below.
- PC units to be restrained in all directions and (not shown here) the first unit will require additional propping until connection is made to the adjacent units.
- Each new unit to have inserts cast in to allow connection to the props.
- Backpropping will be installed to the 15th floor slab.



New cruciform installed with props and backprops

Reinstatement Stage 2

- When the new Star PCUs have been installed around the 15th level the new slab will be cast tying the new PC units to the structure and allowing for curing.

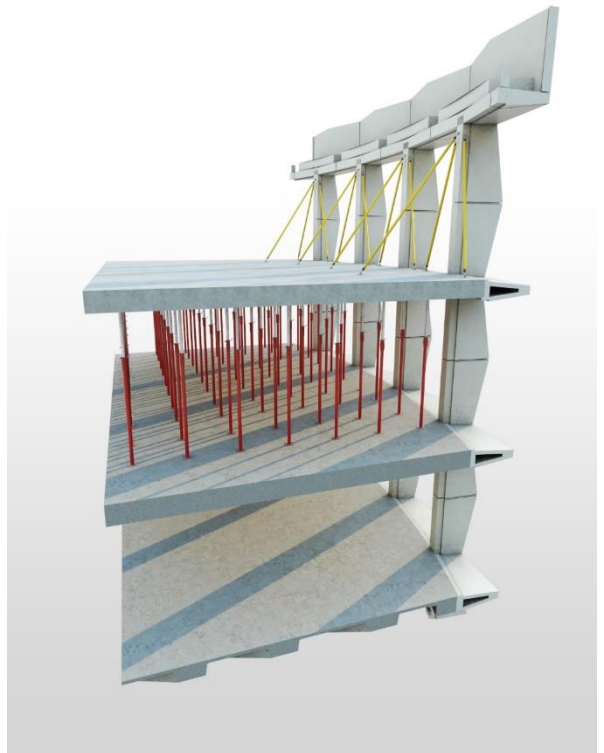


New 16th floor slab construction

Reinstatement Stage 3

The T shaped PC unit, having been cleaned, repaired, and prepared for reinstatement will be loaded back onto the lorry and in a reversal of the removal method will be brought back to site, 2 units at a time.

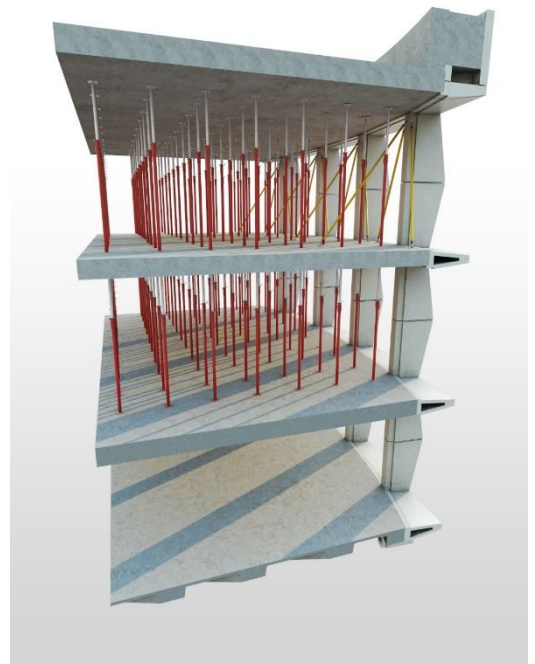
- Once 16th floor has reached concrete strength, falsework can be struck and replaced with backpropping
- The retained T shaped PC units can now be lifted into position by crane
- Connections between T shaped PC units and crane must not be released until each unit has been fully secured to raking props and a connection made to the existing PC unit below.
- PC units will be restrained in all directions and (not shown here) the first unit will require additional propping until connection is made to the adjacent units.



Reinstatement of existing T shaped PCU

Reinstatement Stage 4

- When the T shaped PCU are all reinstated the construction of the new 17th floor slab can commence.
- The casting of the new 17th floor slab, will complete the tying of the T shaped PC units to the structure.
- When the 17th floor RC has reached strength, falsework can be struck and replaced with backpropping.



At this point the reinstatement of the PCUs is complete.

Conclusion

Therefore this report has demonstrated how the 1 Kemble Street concrete cornice will be sensitively removed, retained and reinstated at the site to ensure that the listed fabric is not damaged.



Model image of reinstated façade

END