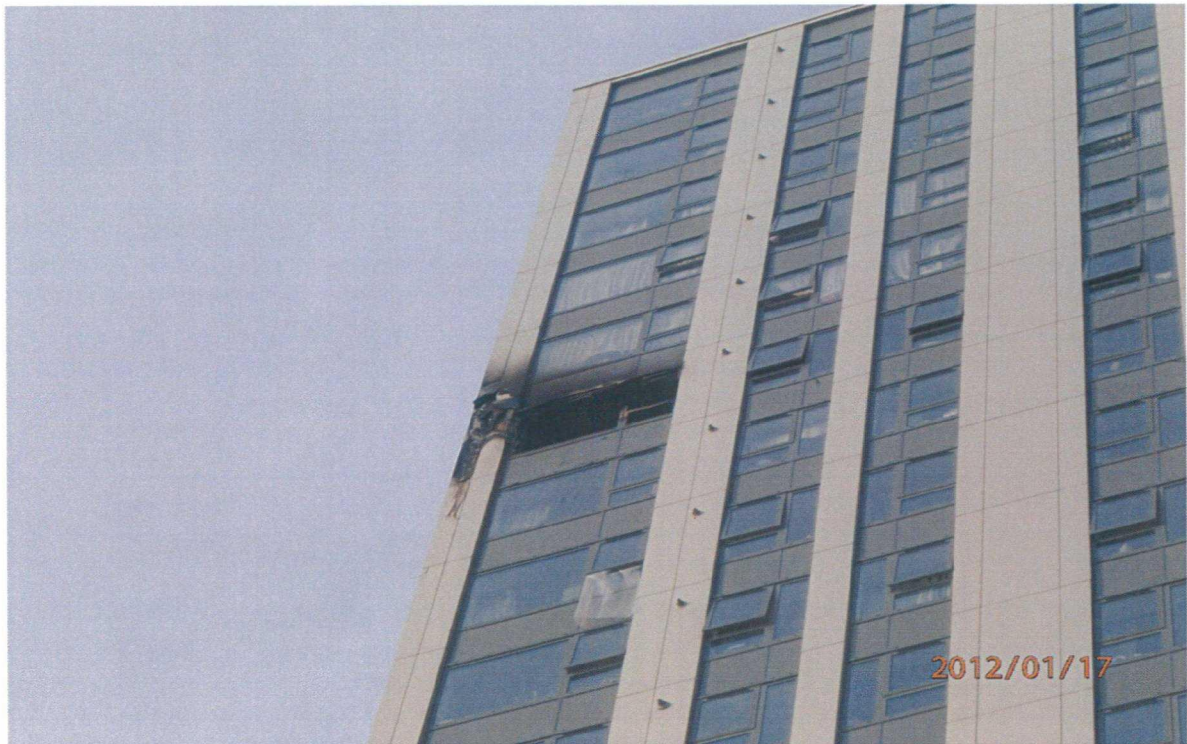




**123 TAPLOW HOUSE
CHALCOTS ESTATE**



**FIRE DAMAGE REPORT FROM
ABSIEL SURVEY**



HARLEY CURTAIN WALL INCIDENT REPORT FORM 1

CONTRACT NO: C1031 Chalcots Estate
LOCATION: 123 TAPLOW HOUSE
RE: FIRE DAMAGE REPORT FROM ABSIEL SURVEY
DATE OF INSPECTION: TUESDAY 18th January, 2012

DATE OF REPORT: 23RD January 2012

DISTRIBUTION:

Steve Blake	(SB)
Ray Bailey	(RB)
Julie Selhep	(JS)
Mark Stapley	(MS)
Graham Hackley	(GH)
Daniel Anketell – Jones	(DAJ)

WRITTEN BY: Tim Lovell

PURPOSE: To Record Extent of Findings of Damage to The External Façade From Abseil Survey.

INTRODUCTION

It was agreed with Steve Blake, Julie Selhep and the writer, that an abseiling team would inspect the external façade around the fire damaged to the flat on the 17th floor of Taplow House. The aim was also to ensure that the external cladding panels were safe as the fire caused extensive damage.

The Damage was clearly evident internally, with extensive damage to the fabric of the building structure, which included damage to the concrete frame which exposed rebar to the ceiling. The severity of the fire completely destroyed the living room window. However, the fire was contained from spreading to over floors by the extensive fire breaks located at the

head and cill of each window. Smoke damage caused further damage to the external cladding and cavity.

The replacement windows have been installed in front of the existing concrete structure with a continuous extruded aluminium rails which are chemically bolted to the structure. Fire breaks are located at each floor level and also to the window jambs. The rainscreen cladding system is held on a rail system with brackets bolted to the external concrete structure.

For reference the following drawings should be viewed when referring to the building construction.

C1031/Taplow/1002 – South Elevation
C1031/Taplow/1007 – West Elevation
C1031/Taplow/1001 – Mid Floor Plan
C1031/Taplow/W01L – Window Type 1
C1031/Taplow/W02L – Window Type 2
C1031/Taplow/2000 – Cladding Detail
C1031/ Taplow/2001 – Cladding Detail
C1031/Taplow/2002 – Cladding Detail
C1031/Taplow/2003 – Cladding Detail

Items that need to be jointly considered

- 1.) The Abseilers have only provided a visual Survey.
- 2.) The Abseilers will not be able to remove items to check the extent of the damage behind the external cladding and windows.
- 3.) They will only carry hand tools which are attached to their harness.
- 4.) They will not be able to check the concrete condition.
- 5.) They will not be able to inspect the damage to fixings.
- 6.) The concrete structure will need inspecting once the existing windows are removed.

The Survey

As mentioned in the initial report dated 17th January 2012, the fire has caused severe damage to the flat located on the 17th and visible damage to the flat on the 16th and 18th floor. This is above and below flat number 123 of Taplow House. It is also duly noted that the adjacent flat next to 123 Taplow House on the 17th floor also has viable damage caused by the heat and smoke. We also must note that the appears to be damage to the external active coating on the glass to the windows above and below going up and down the building.

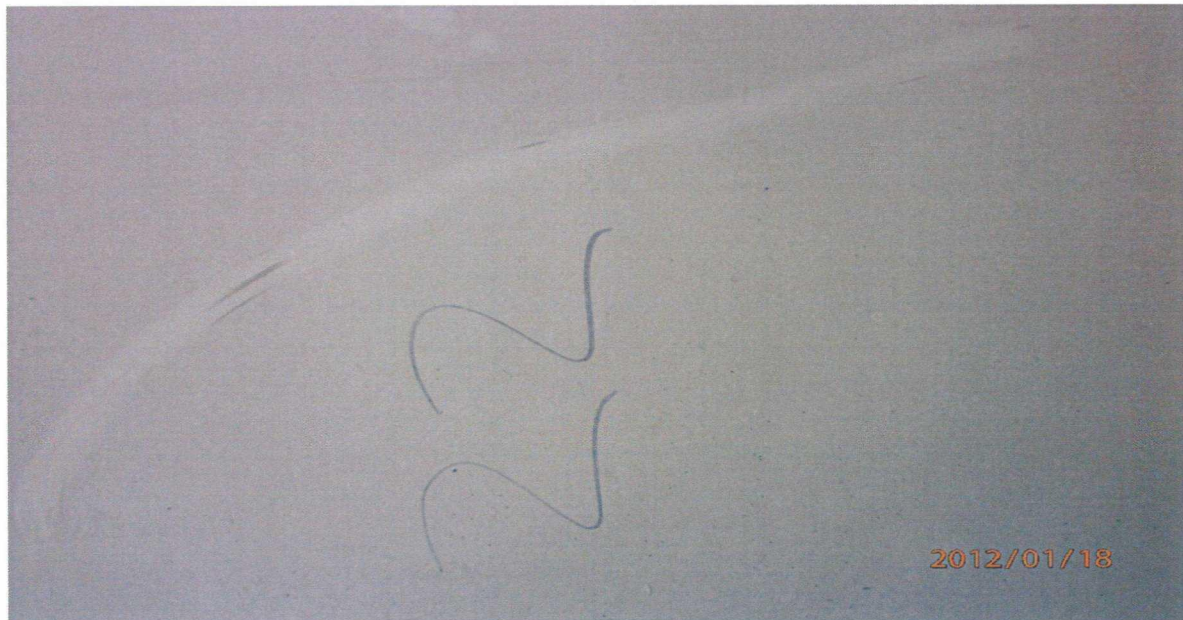
With respect to the AOV in the communal areas, we have noticed that there is visual smoke damage to the frame member following the fire. We would recommend that Colt inspect these windows to check the operation of these mechanically operated vents.



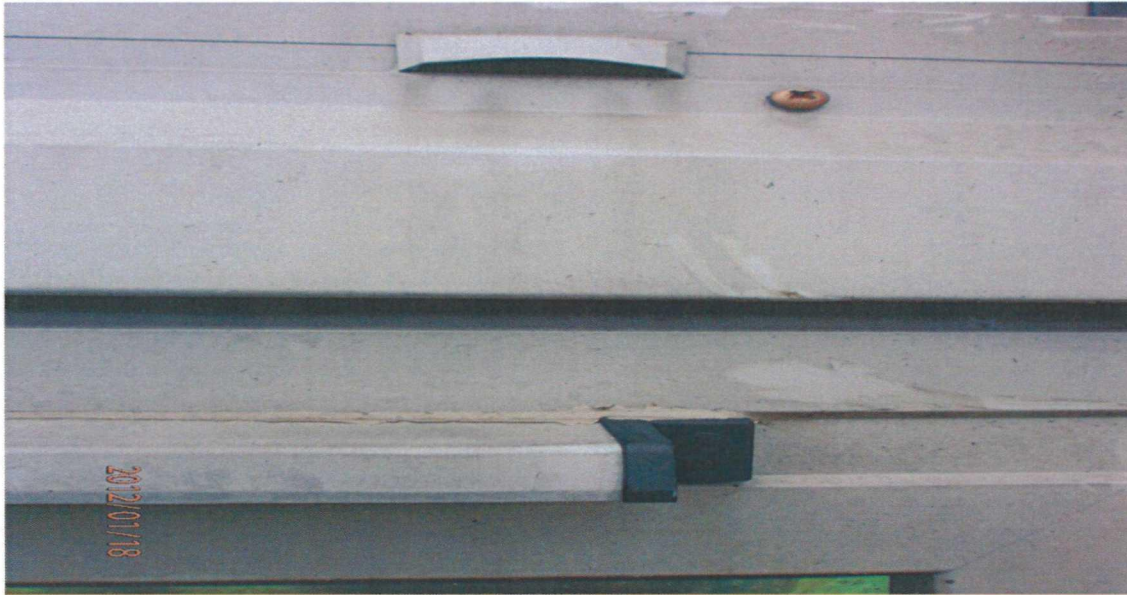
The South Elevation appears to have carried the brunt of the fire as shown on the photograph below. The extent of the fire also includes the flat above and below to the 16th and 18th floors. Temporary weather proofing will be required to prevent further damage by the weather as the design wind load for this project is said to be up to 2000pa.



The Abseilers positioned their ropes on the roof and started their survey to the west elevation. As illustrated on the photographs below, the survey revealed damage to the cladding panels had extended up to the roof level, which could have been caused by the wind acting as a fan, moving hot flames and smoke. This has caused alignment issues with the panels and potential damage to the fixings and rails.



Smoke damage was evident to the windows on the 19th floor which has damaged the Active coating to the glass units and potentially the window fixings.



Visible damage to the flat above 123 Taplow House on the 18th floor, which shows damage to both the window and rainscreen cladding. It was also noted that Rydon's Maintenance division have replace the glass unit with a temporary replacement.



The area around the living room has clearly taken the brunt of the fire leaving serve damage.



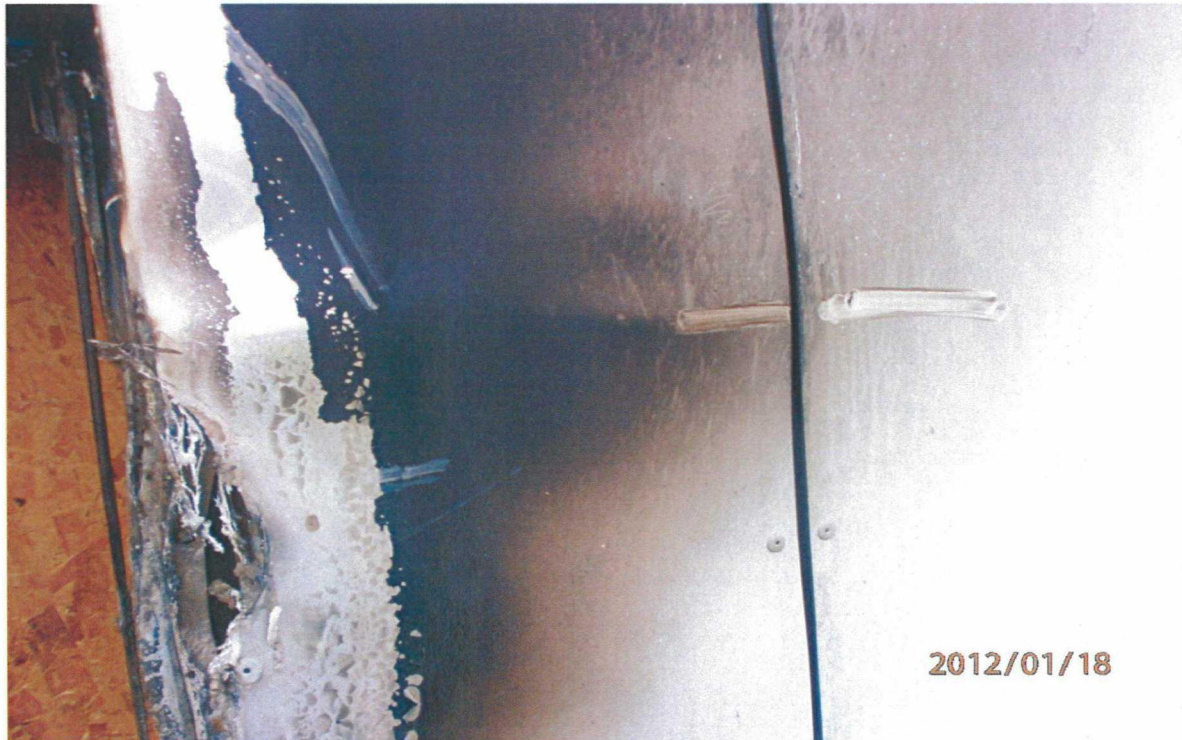
Extensive damage has also occurred to the left hand jamb section of the living room window, where the fire started. The damage includes the panels above and below the flat on the 17th floor and includes all panels on the west elevation as it meets the south elevation.



The photograph below which has been taken on the west elevation 18th floor looking down to the 17th floor where the fire broke out. Concrete repairs maybe necessary as the fire has damaged the reveals.



Photograph showing damage to the window vent location on the west elevation 17th floor, which has twisted the substructure and damaged the system.



Opposite corner on the 17th floor west elevation which shows damage to the panels, and possibly the support structure behind.



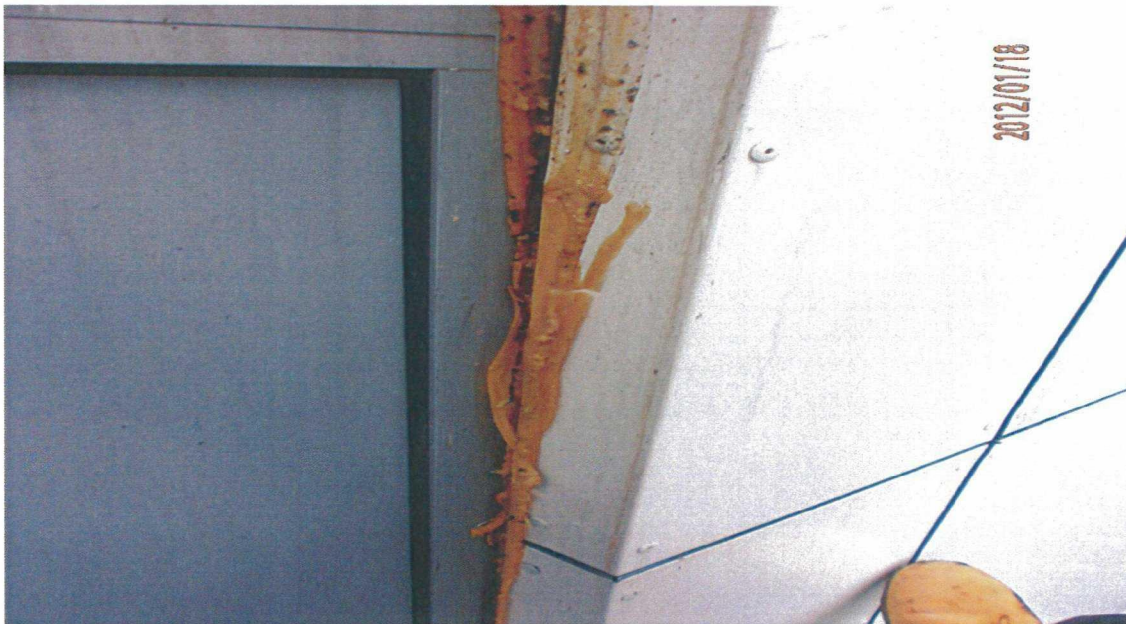
Photograph showing extensive damage to the 17th and 18th floors to the west elevation.



Visible damage to the bottom vent and the window reveal on the 17th floor to the west elevation. We would have concern as the integrity of the support structure.



Damage to the window on the 16th floor below the fire damaged flat.



Windows viewed on the 15th floor west elevation which show residue of smoke damage and foam on the surface.



The fire damage to the south elevation appears to be more severe with damage evident on the 19th floor window, affecting both the powder coating and active glass coating.



Damage to the window on the 18th floor south elevation above the fire damaged flat.



Damage on the 18th floor South Elevation looking down to the 17th floor flat where the fire occurred.



Photograph showing extensive damage to the south west corner on the 17th and 18th floors.



Damage to the bedroom window and surround panels and substructure on the 17th and 18th floors south elevation.



View from the south west corner on the 17th and 18th floors confirming damage to the flat directly above 123 Taplow House. However the fire barrier prevented the spread of fire into the internal space.



The hot residue from the burning flat has spread down to the 15th floor on the south elevation. This has stuck to the panels and burnt the PVDF surface



Conclusion

Due to the severity of the damage in Flat 123 of Taplow house it is apparent that this was a severe fire lasting more than 15 minutes, and although there is no firm evidence of temperatures reached, it is apparent that temperatures well over 300°C and at times over 600°C were reached at the inside face of the facade (as aluminium melts at 660°C and there is evidence in the flat that aluminium windows locally have melted).

This is important when considering surrounding facade components as from a structural sense aluminium becomes malleable over 300°C (which means facade areas subject to these temperatures may have suffered damage to either their structural integrity and/or their intended facade performance properties) and there is evidence that hot fire product (smoke through heat shattered glazing) and conducted heat through the framing system above 300°C has effected other facade elements nearby.

It is however apparent that the design of the facade and fire-stops has unquestionably worked well, as despite the severe heat the extremes of the damage have been compartmentalised within the flat and a progressive tower block fire has not occurred. The actions of all involved from designers - building users - fixing teams and fire brigade may have saved lives and has led to the facade remaining physically intact. In many ways this has been a success for all concerned.

However as previously stated the facade is of aluminium (thermally broken) construction, and it has been damaged in a number of ways at the flat itself and to adjacent areas. We would define this damage in the following ways:-

- Potential failure of structural integrity (medium/long term).
- Potential failure of facade properties.
- Damage to external appearance and finish warranties.

Potential failure of structural integrity (medium/longterm).

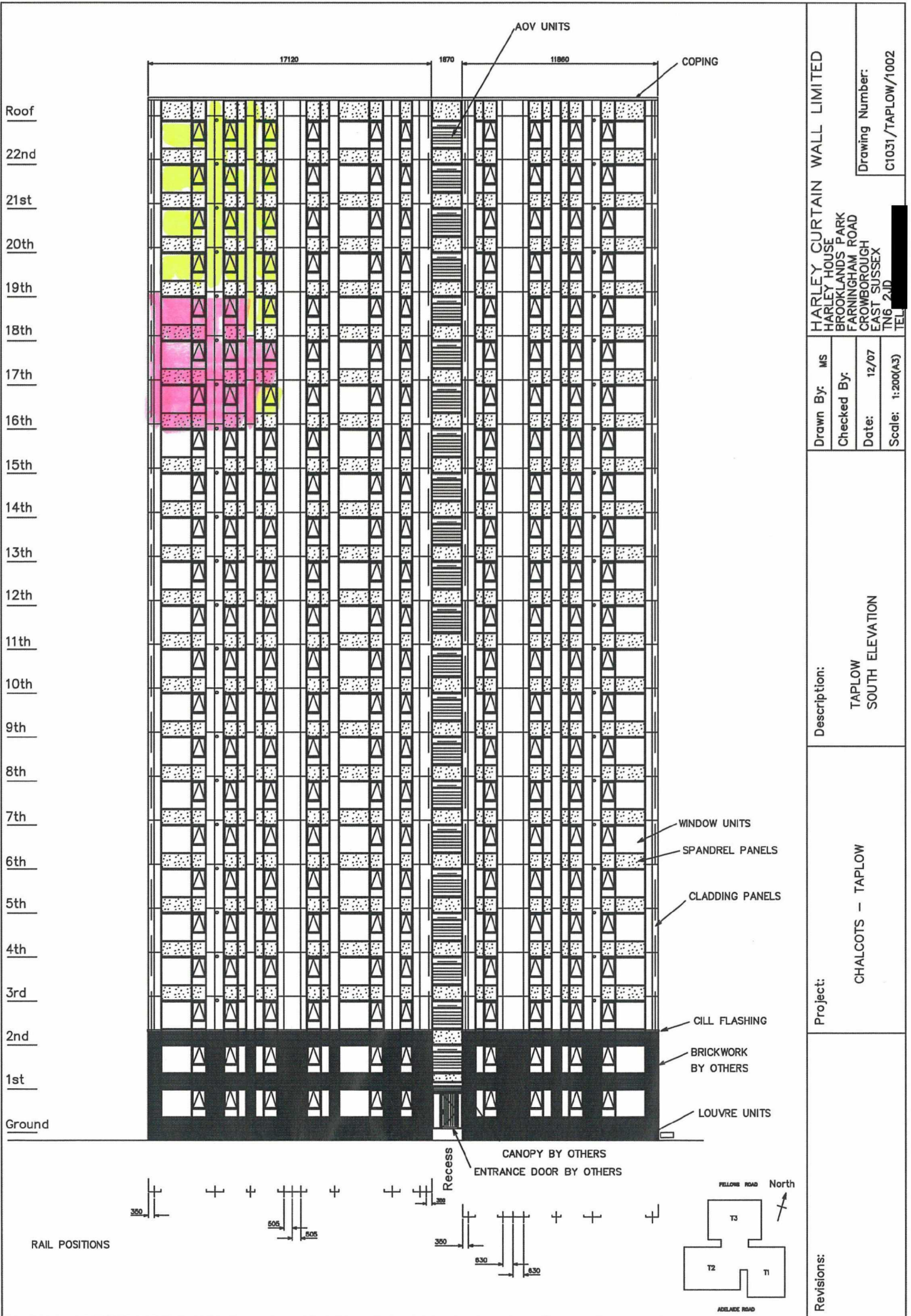
This may involve external rain-screen panels potentially becoming dislodged, concerns over window restraint carcass (which is mainly unseen with only external indicators at present, or concern over ability of concrete to restrain anchors local to the flat). Given that the goal is to end up with a safe facade that works as intended, replacement is the only reasonable course with these components. **We have highlighted in red on elevation the extent of facade we feel it is essential to replace and noted on elevation whether we are referring to windows, panels, carcass or facade restraint itself.**

Potential detrimental performance of facade (medium/longterm).

This one is not so easy to be precise about but below follows a list (not exhaustive) simply based on site observations post the fire of performance aspects compromised by the fire. **We have highlighted in yellow on elevation the extent of facade we feel it is sensible to replace and noted on elevation which performance property has been compromised.** It is worth noting that if this had been a ground floor treatment perhaps more emphasis could be placed on repair, however, as stated the damage has occurred on floor 17 of a tower block, and so replacement becomes, in our opinion, a sensible starting position.

- Weather performance. Symptom: Areas of facade that were subject to temperatures over 300°C causing potential deformation of aluminium and effecting air and water seals & drainage routes within window screens.
- Active smoke control. Symptom: Visible damage to AOVs.
- Passive performance. Symptom: Damage to IGUs in terms of coatings or potential premature loss of unit integrity leading to gas escape and interstitial condensation.
- Thermal damage. Symptom: Damage to thermal breaks and or damage to insulation to rainscreen zones, ruptured/damaged gaskets leading to gross air leakage and leaks.
- Ventilation performance. Symptom: Damage to window operation and damage to trickle ventilation.
- Fire compartmentalisation. Symptom: Damage to either firestop system within glazing screen solution or damage to cavity barriers within rainscreen zones.

Please note that the above are observations from an abseil survey and the true extent of the damage will not be known until sufficient access is provided.



HARLEY CURTAIN WALL LIMITED
 HARLEY HOUSE
 BROOKLANDS PARK
 FARNINGHAM ROAD
 CROWBOROUGH
 EAST SUSSEX
 TN6 2JD
 TEL

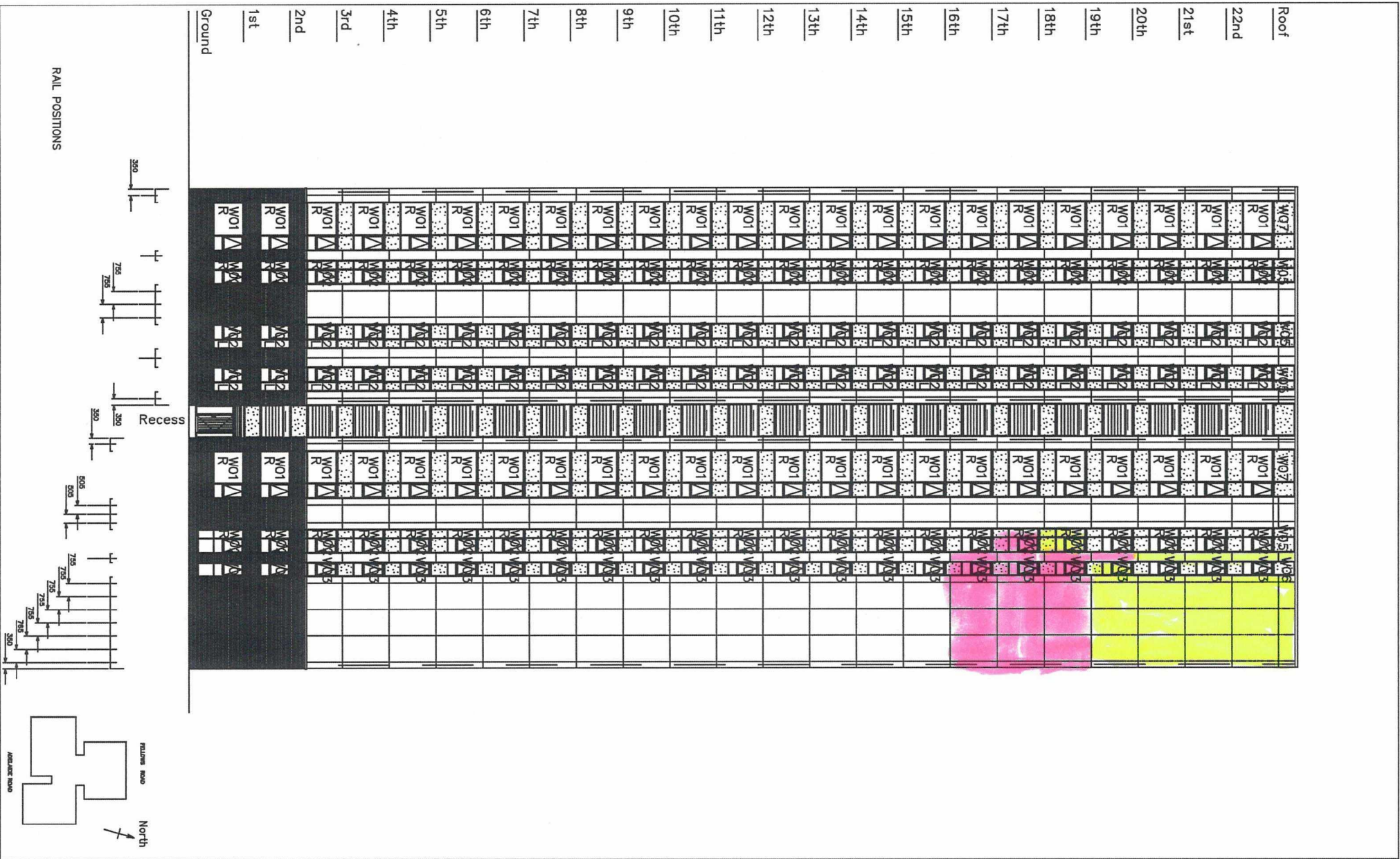
Drawn By: ms
 Checked By:
 Date: 12/97
 Scale: 1:200(A3)

Description:
 TAPLOW
 SOUTH ELEVATION

Project:
 CHALCOTS - TAPLOW

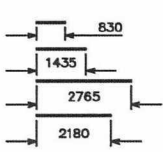
Revisions:

Drawing Number:
 C1031/TAPLOW/1002

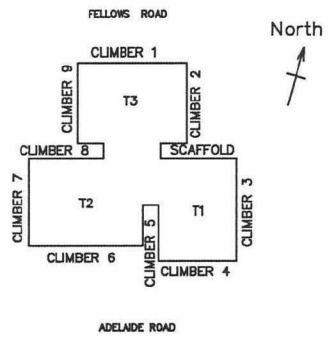
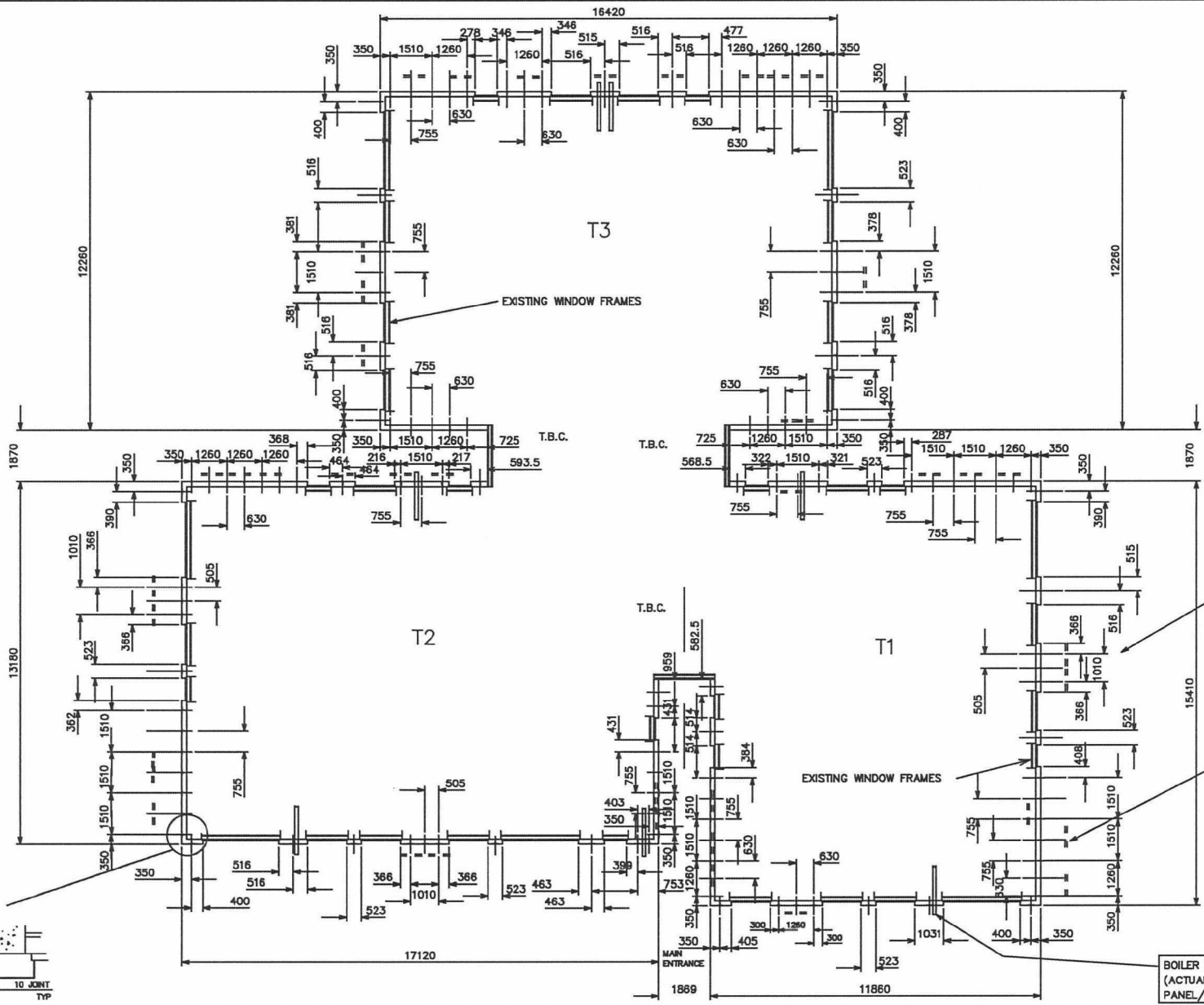


Revisions:	Project: CHALCOTS - TAPLOW	Description: TAPLOW WEST ELEVATION WINDOW LAYOUT	Drawn By: MS	HARLEY CURTAIN WALL LIMITED HARLEY HOUSE BROOKLANDS PARK FARNINGHAM ROAD CROWBOROUGH EAST SUSSEX TN6 2JD TEL. [REDACTED]	Drawing Number: C1031/TAPLOW/WL007
			Checked By:		
			Date: 12/07		
			Scale: 1:200(A3)		

UNITS



HORIZONTAL FIRE BARRIERS
EVERY FLOOR
VERTICAL FIRE BARRIERS
AT WINDOW JAMBS



PANEL SIZES (LESS 10)
(DIM TO RAIL CENTRES)

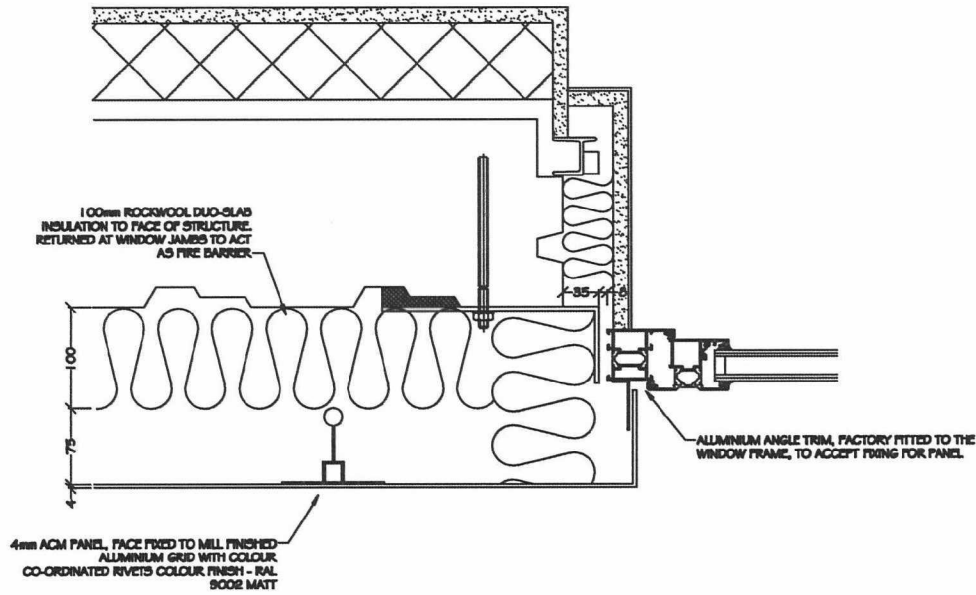
HIDDEN RAILS
EQUAL CENTRES

BOILER EXTRACT FLUES
(ACTUAL POSITIONS MAY AFFECT
PANEL/RAIL LAYOUT)

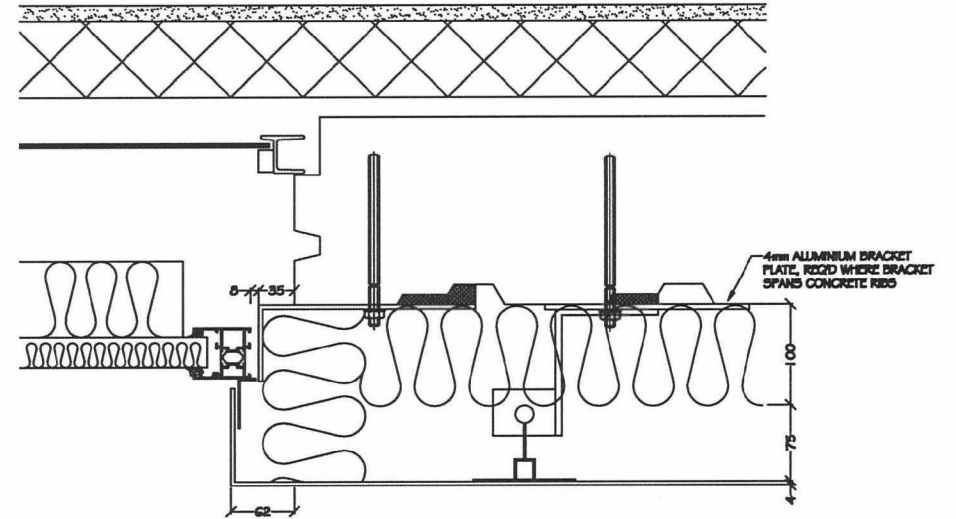
Revisions:	Project: CHALCOTS - TAPLOW	Description: TAPLOW (MID FLOORS) MAIN PLAN	Drawn By: ms	HARLEY CURTAIN WALL LIMITED HARLEY HOUSE BROOKLANDS PARK FARNINGHAM ROAD CROWBOROUGH EAST SUSSEX TN6 2JD TEL: [REDACTED]	
			Checked By:		Drawing Number: C1031/TAPLOW/1001
			Date: 12/07		
			Scale: 1:150(A3)		

CEP000003223/19

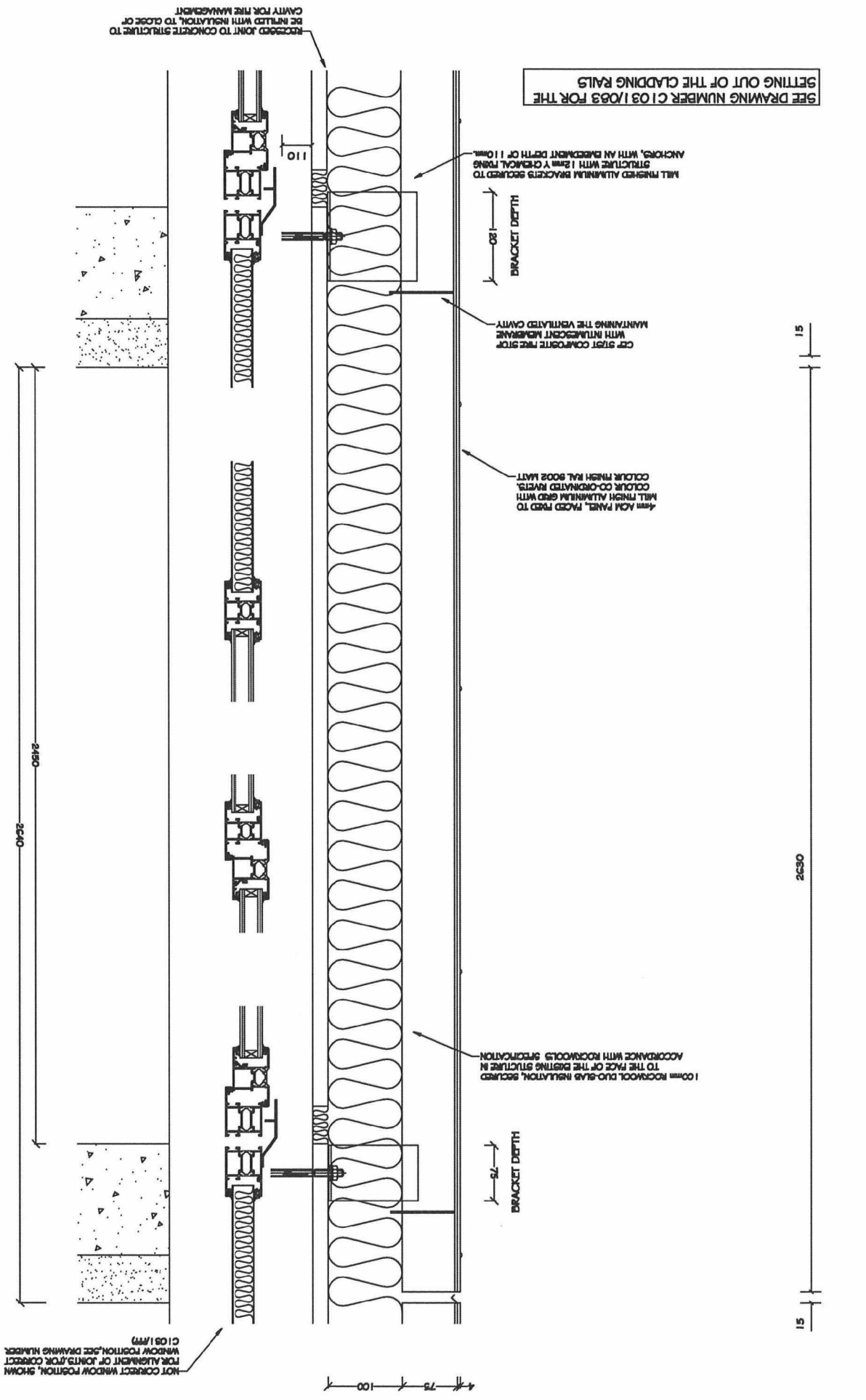
WINDOW JAMB DETAIL THROUGH VENT



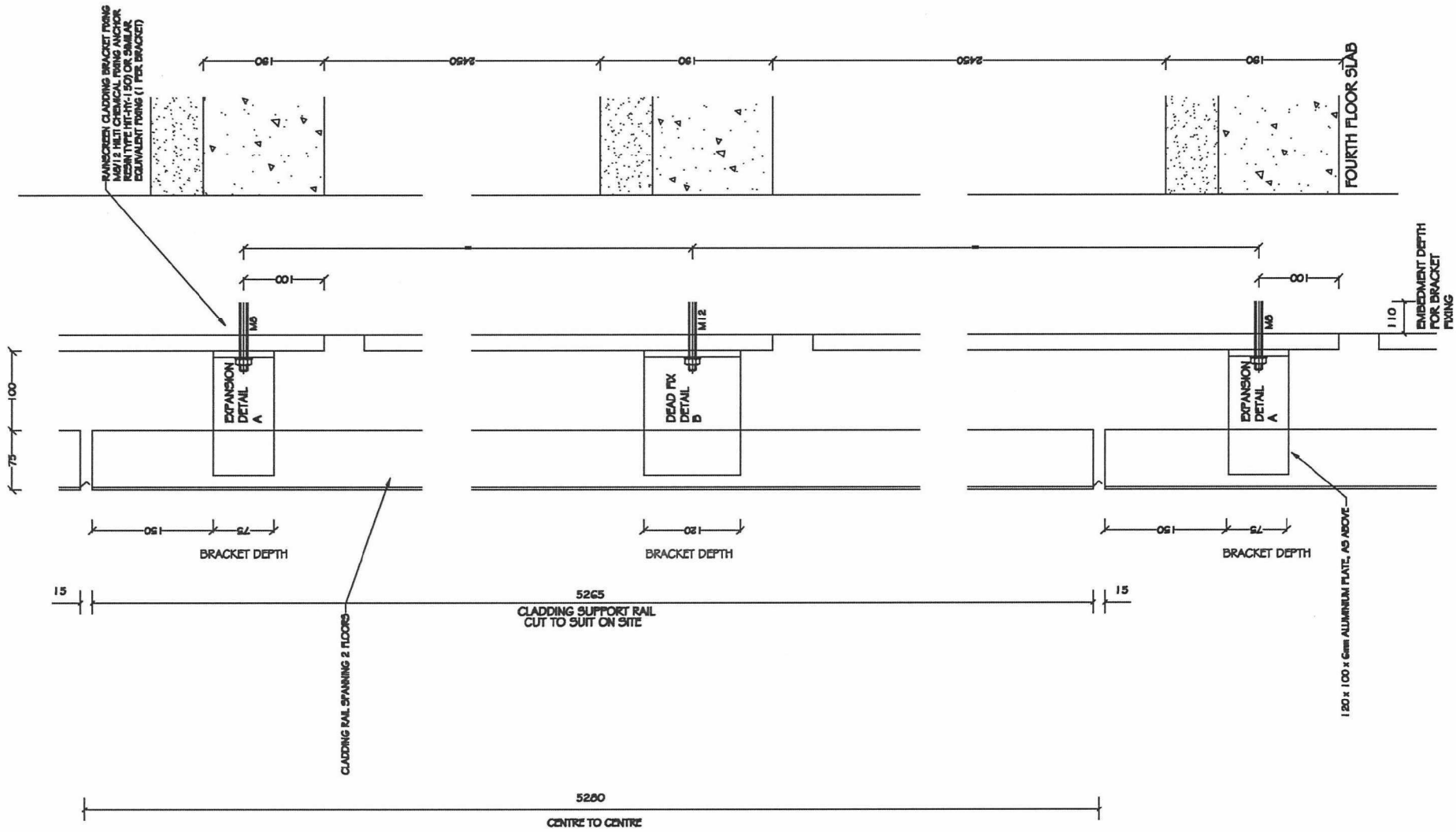
WINDOW JAMB DETAIL THROUGH VENT



Revisions:	Project: CHALCOTS ESTATE CAMDEN, LONDON	Description: CLADDING DETAILS 2	Drawn By: M.S.	HARLEY CURTAIN WALL HARLEY HOUSE BROOKLANDS PARK, FARNINGHAM ROAD CROWBOROUGH EAST SUSSEX TN6 2JD TEL. [REDACTED]	Drawing Number: C1031/TAPLOW/2000
			Date: NOV '07		
			Scale: 1:5		



Revisions:	Project:	Description:	Drawn By:	HARLEY CURTAIN WALL		
			M.S.	HARLEY HOUSE	BROOKLANDS PARK, FARNINGHAM ROAD	Drawing Number:
			Date:	CROWBOROUGH	EAST SUSSEX	C103 I/TAPLOW/2001
			Scale:	TN6 2JD	TEL: [REDACTED]	
				1:5		
	CHALCOTS ESTATE GAMDEN, LONDON	CLADDING DETAILS				



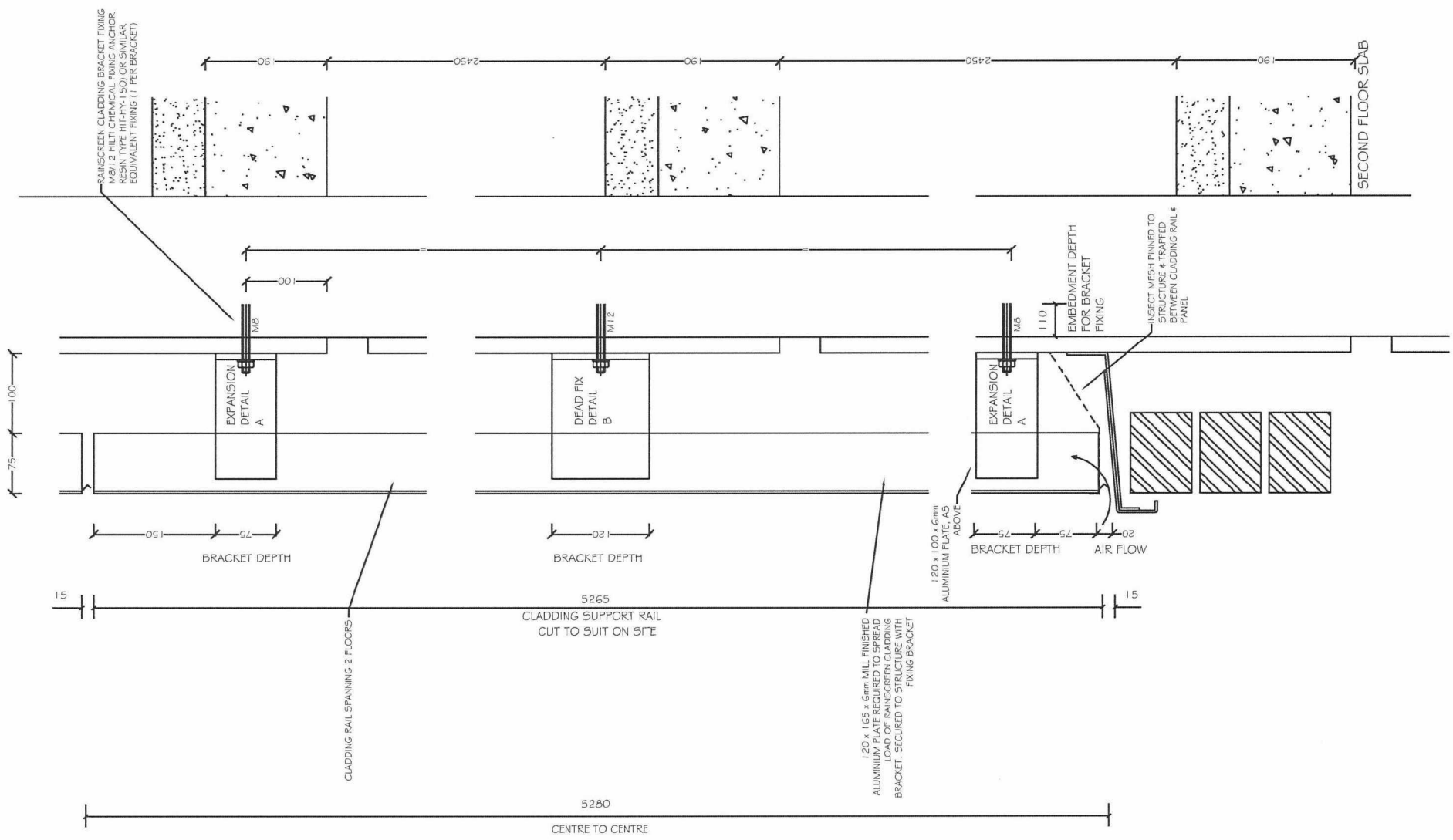
NOTE:
PLEASE READ INCONJUNCTION
WITH MHA DRAWING NUMBER
FIXING DETAIL - 3

Revisions:	Project: CHALCOTS ESTATE CAMDEN, LONDON	Description: CLADDING DETAILS SETTING OUT OF CLADDING RAILS	Drawn By: M.S.	HARLEY CURTAIN WALL HARLEY HOUSE BROOKLANDS PARK, FARNINGHAM ROAD CROWBOROUGH EAST SUSSEX TN6 2JD TEL: [REDACTED]	
			Date: NOV '07		Drawing Number: C1031/TAPLOW/2002
			Scale: 1:5		

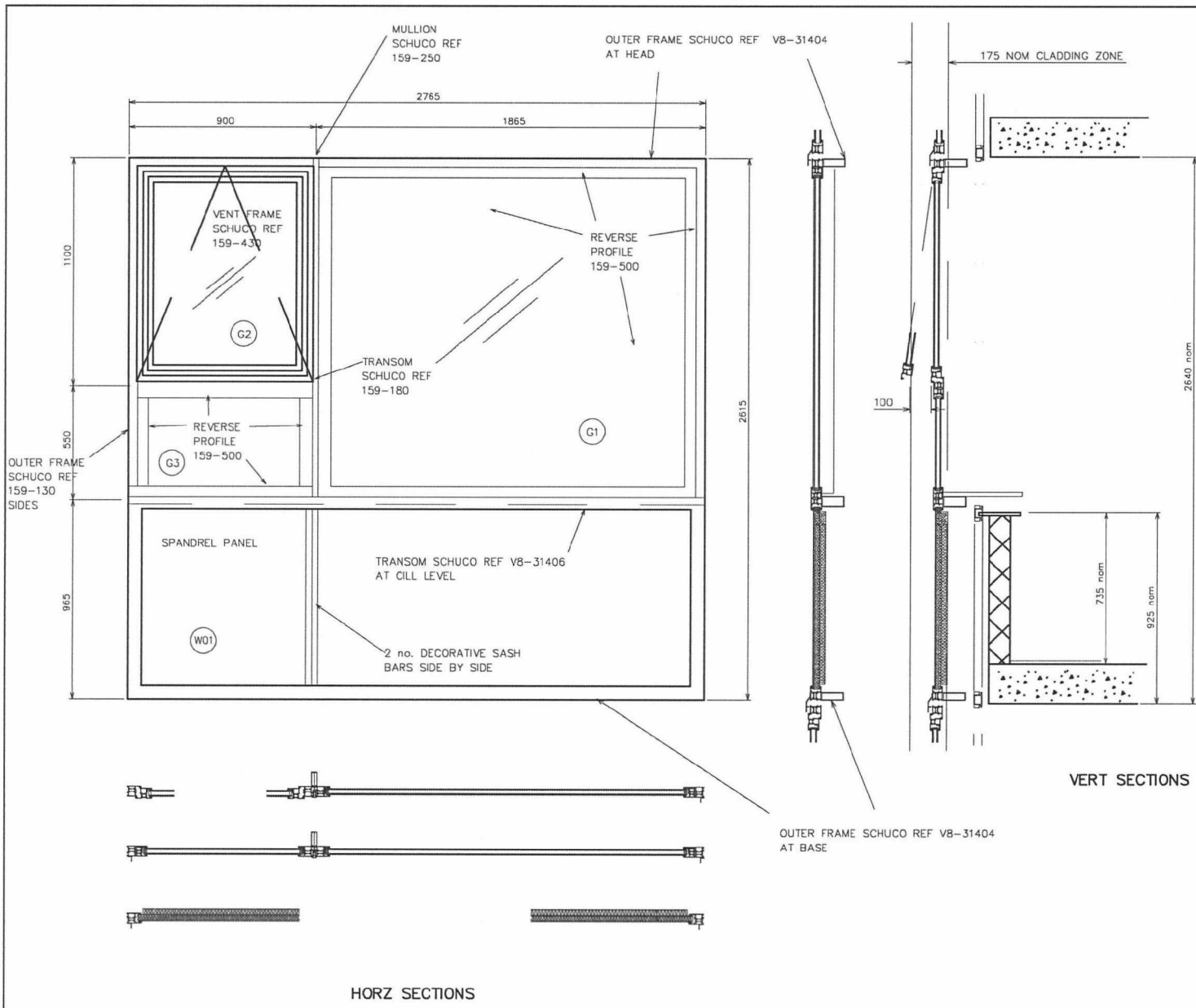
CEP00CEP000003223/22

CEP001 CEP000003223/23

NOTE:
PLEASE READ IN CONJUNCTION
WITH MHA DRAWING NUMBER
FIXING DETAIL - 3



Revisions:	Project: CHALCOTS ESTATE CAMDEN, LONDON	Description: CLADDING DETAILS SETTING OUT OF CLADDING RAILS	Drawn By: M.S.	HARLEY CURTAIN WALL HARLEY HOUSE BROOKLANDS PARK, FARNINGHAM ROAD CROWBOROUGH EAST SUSSEX TN6 2JD TEL [REDACTED]	
			Date: NOV '07		Drawing Number: C1031/TAPLOW/2003
			Scale: 1:5		

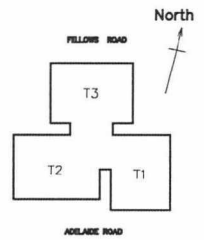


- NOTES:-
1. WINDOWS MANUFACTURED FROM SCHUCO ROYAL S 50 THERMALLY BROKEN ALUMINIUM WINDOW SYSTEM
 2. WINDOWS POLYESTER POWDER COATED AS FOLLOWS
EXTERNAL COLOUR - RAL 7037
INTERNAL COLOUR - RAL 9010 Matt
 3. THE TOP HUNG OPEN OUT VENTS ARE HUNG ON FRICTION STAYS AND HELD SECURE BY AN ESPAGNOLETTE LOCKING MECHANISM, ALL OPERATED BY A SILVER ANODISED KEY LOCKING HANDLE
1 x 4000 sq mm THROUGH FRAME TRICKLE VENTS INSTALLED TO EVERY OPENING VENT
 - NOTE- OPENING SASHES WITH A WIDTH DIMENSION GREATER THAN 1500 mm ARE TO BE FITTED WITH AN UNRELEASEABLE RESTRICTOR, THEREFORE WINDOW NOT TO BE OPENED BEYOND 100mm
 4. THE FRICTION STAYS HAVE AN INTEGRAL RELEASEABLE RESTRICTOR LIMITING THE OPENING TO 100mm. BY DEPRESSING THE RELEASE PAD / BUTTON LOCATED ON BOTH SIDES, ALLOWS THE WINDOW TO OPEN TO A SECOND RESTRICTED LOCATION FOR PURGE VENTILATION APPROX 300mm THE 100 mm RESTRICTORS WILL AUTOMATICALLY RE-ENGAGE
 5. THE WINDOWS TO BE GLAZED WITH 30 mm UNITS OUTER PANE OF GLASS HAVING A SELF CLEANING COATING PATTERN GLASS FOR BATHROOM WINDOWS

SPANDREL PANEL 30 mm ALUMINIUM FACED INSULATED PANEL WITH OUTER FACE RAL 7037

GLASS / PANEL UNIT	WIDTH	HEIGHT
G1	1730	1515
G2	717	917
G3	765	442
W01	2662	892

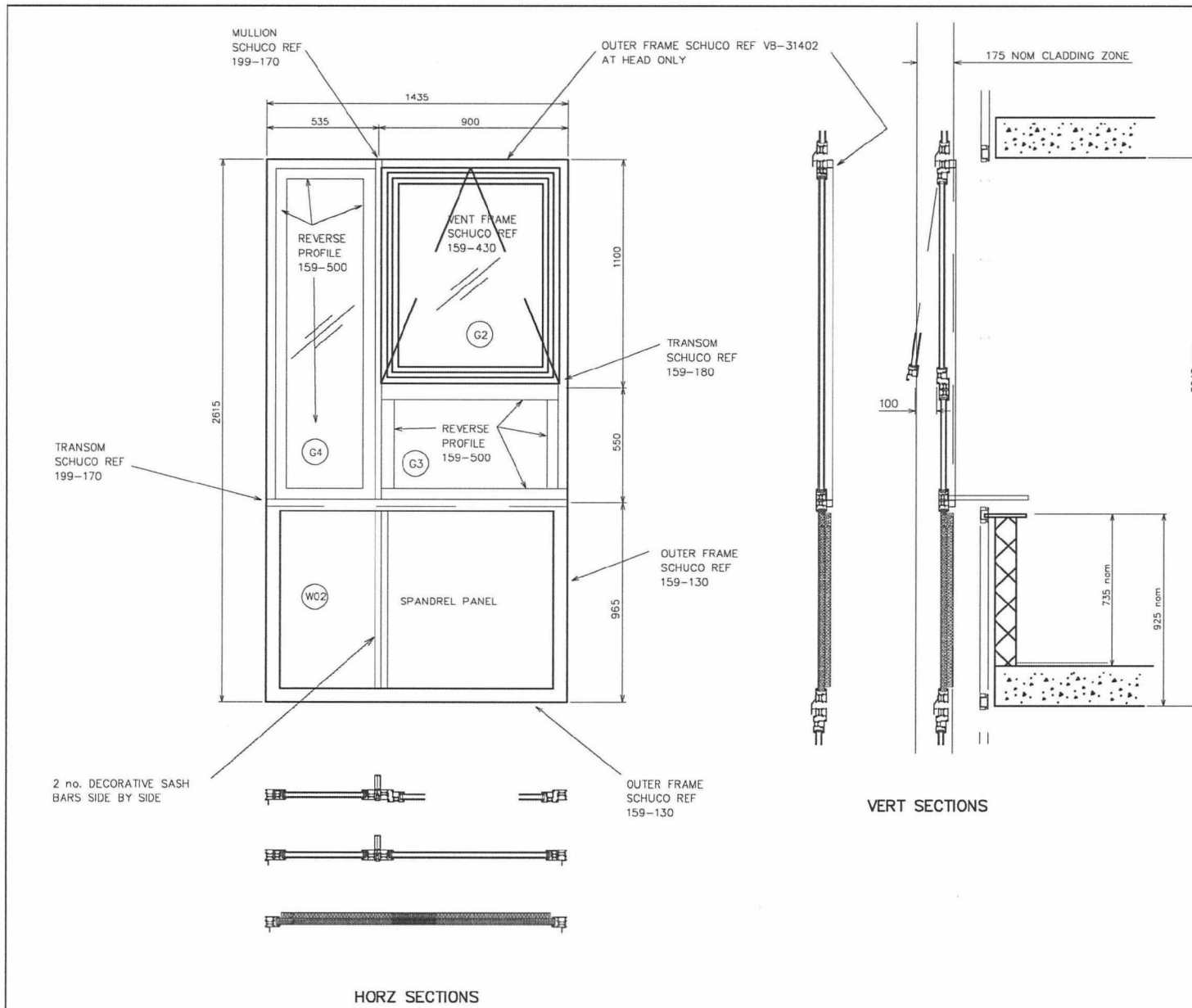
TIER	ELEVATION	QTY
1	W	0
	S	23
	E	23
2	N	0
	W	0
	S	0
3	E	0
	N	23
	W	0



UNIT W01-L
QUANTITY - 69 off

Revisions:	Project: CHALCOTS - TAPLOW	Description: TAPLOW WINDOW UNIT W01-L	Drawn By: MS	HARLEY CURTAIN WALL LIMITED HARLEY HOUSE BROOKLANDS PARK FARNINGHAM ROAD CROWBOROUGH EAST SUSSEX TN6 2JD TEL: [REDACTED]
			Checked By:	
			Date: 01/08	
			Scale: 1:20(A3)	
			Drawing Number: C1031/TAPLOW/W01-L	

CEP00CEP000003223/24



- NOTES:-
1. WINDOWS MANUFACTURED FROM SCHUCO ROYAL S 50 THERMALLY BROKEN ALUMINIUM WINDOW SYSTEM
 2. WINDOWS POLYESTER POWDER COATED AS FOLLOWS
EXTERNAL COLOUR - RAL 7037
INTERNAL COLOUR - RAL 9010 Matt
 3. THE TOP HUNG OPEN OUT VENTS ARE HUNG ON FRICTION STAYS AND HELD SECURE BY AN ESPAGNOLETTE LOCKING MECHANISM, ALL OPERATED BY A SILVER ANODISED KEY LOCKING HANDLE
1 x 4000 sq mm THROUGH FRAME TRICKLE VENTS INSTALLED TO EVERY OPENING VENT
 - NOTE- OPENING SASHES WITH A WIDTH DIMENSION GREATER THAN 1500 mm ARE TO BE FITTED WITH AN UNRELEASEABLE RESTRICTOR, THEREFORE WINDOW NOT TO BE OPENED BEYOND 100mm
 4. THE FRICTION STAYS HAVE AN INTEGRAL RELEASEABLE RESTRICTOR LIMITING THE OPENING TO 100mm. BY DEPRESSING THE RELEASE PAD / BUTTON LOCATED ON BOTH SIDES, ALLOWS THE WINDOW TO OPEN TO A SECOND RESTRICTED LOCATION FOR PURGE VENTILATION APPROX 300mm THE 100 mm RESTRICTORS WILL AUTOMATICALLY RE-ENGAGE
 5. THE WINDOWS TO BE GLAZED WITH 30 mm UNITS
OUTER PANE OF GLASS HAVING A SELF CLEANING COATING PATTERN GLASS FOR BATHROOM WINDOWS

SPANDREL PANEL 30 mm ALUMINIUM FACED INSULATED PANEL WITH OUTER FACE RAL 7037

GLASS / PANEL UNIT	WIDTH	HEIGHT
G2	717	917
G3	765	442
G4	400	1515
W02	1332	892

TIER	ELEVATION	QTY
1	W	0
	S	46
	E	46
2	N	0
	W	23
	S	23
3	E	0
	N	23
	W	23

UNIT W02-R
QUANTITY - 252 off

Revisions:	Project: CHALCOTS - TAPLOW	Description: TAPLOW WINDOW UNIT W02-R	Drawn By: MS	HARLEY CURTAIN WALL LIMITED HARLEY HOUSE BROOKLANDS PARK FARNINGHAM ROAD CROWBOROUGH EAST SUSSEX TN6 2JD TEL: [REDACTED]	
			Checked By:		Drawing Number: C1031/TAPLOW/W02-R
			Date: 01/08		
			Scale: 1:20(A3)		

CEP00CEP000003223/25