Grenfell Tower – fire safety investigation: The fire protection measures in place on the night of the fire, and conclusions as to:

the extent to which they failed to control the spread of fire and smoke; the extent to which they contributed to the speed at which the fire spread.

Phase 1 Report – Section 7

How and where the fire started

REPORT OF

Dr Barbara Lane FREng FRSE CEng

Fire Safety Engineering

24th October 2018

Specialist Field	:	Fire Safety Engineering
Assisted by	:	Dr Susan Deeny, Dr Peter Woodburn, Dr Graeme Flint, Mr Tom Parker, Mrs Danielle Antonellis, Mr Alfie Chapman
On behalf of	:	Grenfell Tower Inquiry
On instructions of	:	Cathy Kennedy, Solicitor, Grenfell Tower Inquiry
Subject Matter		To examine the circumstances surrounding the fire at Grenfell Tower on 14th June 2017
Inspection Date(s)	:	6th October, 1st November, 7-9th November 2017

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CONTENTS

7 How and where the fire started

7.1.1 How the fire started, and its exact source in Flat 16, is a specific expert area and is dealt with in full by Professor Niamh NicDaeid.

7.1.2 During all my site visits I spent time observing the damage in Flat 16 and trying to ascertain how the fire moved from being an internal compartment fire, to the major external fire event observed on the night.

7.1.3 I also wanted to independently establish for myself the original fire was located in Flat 16.

7.1.4 Flat 16 is on the fourth floor of Grenfell Tower, at the corner of the East and North elevations. (See Figure 7.1)

Figure 7.1: Location of Flat 16 (annotated on SEA00003082 &SEA00002981)

7.1.5 Flat 16 was a two-bedroom flat configuration with the bedrooms located on the North elevation and the kitchen located on the East elevation (See Figure 7.1).

7.1.6 One of the earliest photos of the fire in Flat 16 is provided in Figure 7.2 a) (MET000083344).

7.1.7 I can orientate and check the location of the very small flame visible - see red circle in Figure 7.2 a - by comparing the large windows located at levels 2 and 3 with the large windows visible in the Figure 7.3 East Elevation. I have marked them in Figure 7.2 and Figure 7.3.

7.1.8 Note, the fire is further developed in Figure 7.2 b) (MET000083343).

Figure 7.2: a) MET000083344 b) MET000083343

Figure 7.3: Kitchen window location (SEA00003082)

7.1.9 Flames from the fire are first observed on the exterior of the building in Figure 7.4 below, which is timed at 01:08.

Figure 7.4: First external flaming observed at 01:08 (IWS00000051)

7.1.10 I have marked on Figure 7.5 (the architectural floor plan), the location of the window on the East elevation through which flame was observed, with respect to its location within Flat 16.

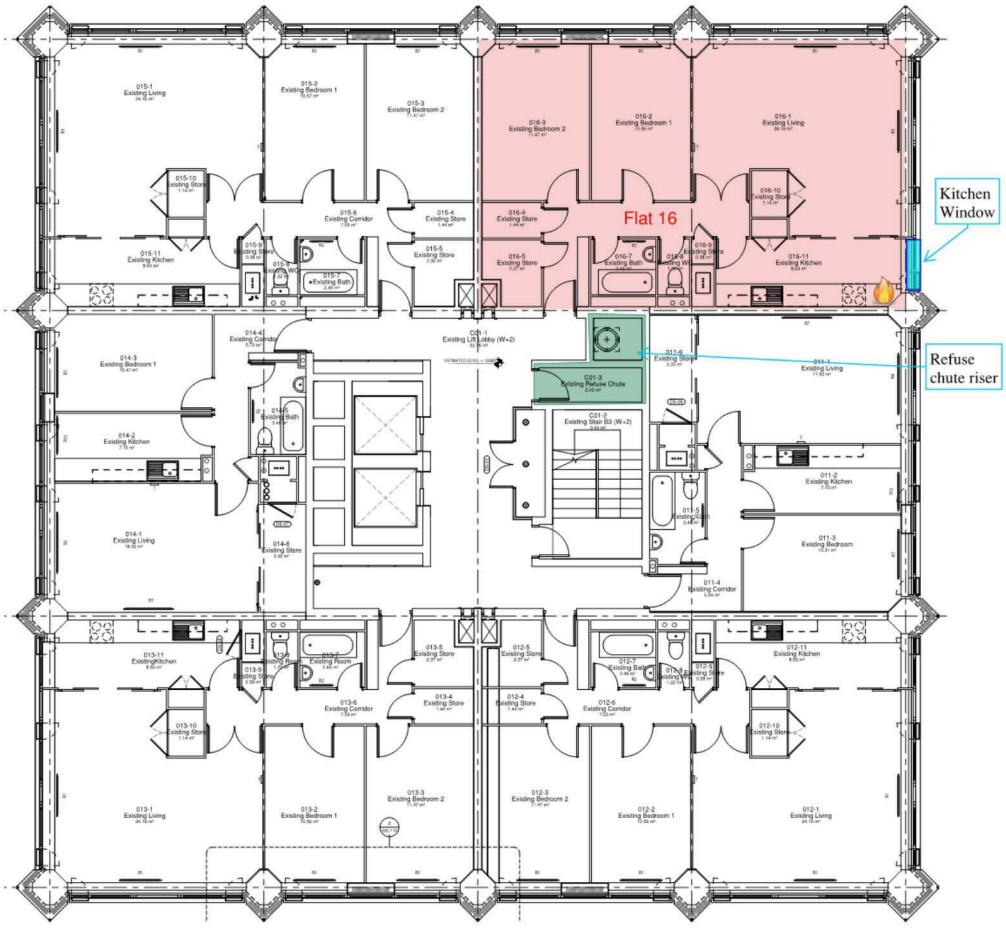

Figure 7.5: Architectural floor plan - Flat 16 location [SEA00010474]

7.1.11 Internally, the flat entrance door opened out on to the small “dogleg” portion adjacent to the refuse chute of the protected lobby to the single escape stair. See Figure 7.5.

7.1.12 In the photograph in Figure 7.6 (MET000083343) both the North and East elevations are very clear. With visible flame now protruding from the Flat 16 window in the kitchen.

Figure 7.6: MET000083343

7.1.13 In Section 8 I explain the construction materials, fixtures and fittings around this window, and throughout the external wall construction, before going on to explain the various fire spread mechanisms I have observed, in Section 9 and 10.