

GRENFELL TOWER INQUIRY

SUBMISSIONS ON BEHALF OF SIDERISE INSULATION LTD

Introduction

1. These submissions are made on behalf of Siderise Insulation Limited (“Siderise”). Siderise supplied vertical and horizontal cavity barriers to Harley Curtain Wall during 2015, which were used in the refurbishment works. Siderise was not involved in the installation of the cavity barriers.
2. These are the first submissions made by Siderise to the Inquiry. Siderise wishes to take this opportunity to offer its deepest sympathy and condolences to all of the bereaved, survivors and residents in respect of the devastating fire at Grenfell Tower.
3. Siderise makes two discreet submissions in relation to the cavity barriers:
 - (1) The cavity barriers did not play any significant role in the progress of the fire, and any defects in the cavity barriers were not a cause of the spread of the fire.
 - (2) The Inquiry should not make any finding prior to phase 2 as to whether the cavity barriers, as individual components, complied with relevant standards.

The cavity barriers did not play any significant role in the progress of the fire

4. The cavity barriers were made from stonewool and were non-combustible (paragraph 8.9.33 of Dr Lane's October 2018 report; and confirmed in her oral evidence on Day 79; page 142, lines 5-7).
5. Dr Lane has provided evidence at sections 8.9 and 11.20 of her October 2018 report that there were errors in the installation of the cavity barriers at Grenfell Tower. Those errors include that: (i) cavity barriers were not specified or installed around window openings, as was required by section 9.3 of ADB 2013; (ii) cavity barriers were not specified or installed at the top of the columns; (iii) some cavities and/or ridges were left unfilled by cavity barriers; (iv) the cutting of some of the cavity barriers on installation was poor, leading to an imperfect fit; (v) some of the horizontal cavity barriers had been installed up-side down and not in accordance with the manufacturer's instructions; and (vi) in some instances cavity barriers designed to be used as horizontal barriers had been used as vertical cavity barriers.
6. Although those errors have been identified, it is clear from the evidence of Professor Torero, Professor Bisby and Dr Lane that the installation errors did not play a significant role in the progress of the fire. In summary, the experts agree that the combustible nature of the rainscreen cladding panels was such that the cavity barriers were simply bypassed and rendered otiose. Therefore different or better installed cavity barriers would not have made any difference to the progress of the fire.
7. The relevant evidence from the experts is as follows:

Professor Torero

8. Professor Torero's conclusion in relation to the cavity barriers in his October 2018 report [page 4, lines 83-84] was:

"Cavity barriers, no matter how well or badly they were designed and/or implemented, would not have prevented vertical or lateral flame spread in the Grenfell Tower fire."

9. He was asked to expand on that opinion in his oral evidence [Day 77; pages 138-143]. He stated [Day 77; page 139, lines 3-10]:

"If you put combustible materials outside the cavity barrier, the cavity barrier actually has no meaning, because effectively the burning can happen around the cavity barrier. Obviously the cavity barrier will result in potentially slowing what is going on, because it will prevent part of the burning, but it's not going to stop the spread."

10. In Professor Torero's opinion any non-conformities in the installation of the cavity barriers would not have had a significant effect on *"the outcome"* [Day 77; page 139, line 19 – page 140, line 4].
11. Professor Torero (agreeing with Professor Bisby) considered that cavity barriers can play an important role in a rainscreen cladding system, if they are used appropriately and if the design of the system is correct [Day 77; page 140, line 16 – page 142, line 14]. However, at Grenfell the rainscreen cladding system was badly designed such that the cavity barriers could not fulfil their intended function [Day 77; page 143, lines 2-13].
12. Professor Torero noted that when designing *"this type of façade"*, many components are introduced to slow potential flame spread, including cavity barriers. His conclusion as to the overall effect of all of those components at Grenfell was that they *"more or less worked okay"*. See [Day 77; page 118, line 25 – page 119, line 15] where he stated:

"Now, if you compare the spread of Grenfell Tower with most other international events, and you see that actually the spread rate is not among the fastest, it's actually on the lower end, you can tell all these things more or less worked okay to slow the spread. But effectively they didn't solve the main problem, which is the fact that we had a combination of materials that could sustain the problem. What we can see is that given the type of materials that

we have, we are more or less at the baseline of the type of spread that we're going to have."

Professor Bisby

13. At paragraph 1135 of his October 2018 report, Professor Bisby states:

"It is not possible at present to make any definitive comments about the effectiveness (or otherwise) of vertically oriented cavity barriers installed along all but four of the column lines on the building (see Figure 29). However, given the combustibility of the ACM rainscreen cladding cassettes, and their tendency to warp, delaminate, and disband rapidly under exposure to heating, I consider it unlikely that the vertically (or, for that matter, horizontally) oriented cavity barriers, even if present and installed in strict accordance with the manufacturer specifications, would have been effective in preventing spread of fire or smoke."

14. Professor Bisby noted that if the rainscreen cassettes burn or deform "you no longer have a cavity, which defeats the purpose of having a cavity barrier" [Day 79; page 90, lines 2-5].

15. In his oral evidence Professor Bisby was asked whether "a different type of cavity barrier might have made a difference to vertical fire spread". He responded [Day 79, page 169, lines 9-19]:

"A. In the manner that the cavity barriers – assuming the same insulation was used, ie that the cavity barriers are broken at cladding rails, et cetera, et cetera?"

Y. Yes, for example.

Q. I wouldn't expect – no, I wouldn't think there would be any significant difference necessarily."

16. Professor Bisby was also asked whether putting cavity barriers around the windows “*would have made a difference at all?*” He answered [Day 79, page 106, lines 9-17]:

“A. It’s difficult to say because, to be honest – and I have thought about this – I am not sure how one would put a cavity barrier around windows installed in this manner. It’s almost an impossible question to answer because I can’t imagine how one would actually achieve what one is attempting to achieve by putting a cavity barrier around a window.”

17. Professor Bisby noted that there was evidence of pools of polyethylene forming on the cavity barriers as well as on window sills and other exposed surfaces, which contributed to horizontal fire spread [Day 78; page 189, line 23 - page 190, line 5]. To the extent that the cavity barriers played such a role in the horizontal spread of the fire, it was as a consequence of the poor design of the cladding system as a whole. If the cladding panels were allowed to burn and melt, it was inevitable that pools of polyethylene would form somewhere; the window sills and cavity barriers simply happened to be the nearest flat surface beneath the melting panel.

Dr Lane

18. Dr Lane states at paragraph 11.21.13 of her October 2018 report:

“The performance of the cavity barrier becomes irrelevant when a fire can bypass the cavity barrier through the combustible external surface to which the cavity barrier is attached.”

19. Dr Lane’s view is that use of a cavity barrier with an aluminium composite panel is “*not potentially problematic, it is entirely problematic*” [Day 79, page 142, lines 13-14]. Her reason for that view is that the flame front can simply by-pass the cavity barrier through the combustible panel.
20. Her conclusion was [Day 79; page 144, line 23 – page 145, line 1]:

"I think it makes no difference whatsoever where the cavity barriers at Grenfell Tower were because they were put in a rainscreen cladding system formed of a polymeric core".

21. Dr Lane's view is that cavity barriers can be very effective in some designs but that [Day 79; page 145, lines 10-20]:

"If the cavity barrier is jammed into a combustible piece of insulation on the right-hand side, and a burning polymeric flame front on the left-hand side, I don't know what that cavity barrier can do in that context."

22. Although she has drawn attention to installation issues in relation to the cavity barriers, Dr Lane made clear the installation issues were minor [day 79; page 148, lines 2-5]:

"So I think the installation quality of the Siderise cavity barriers is a defect, but I would classify that as a minor defect if it was another building."

23. As regards the lack of cavity barriers at the top of the columns, Dr Lane's view was that the presence of cavity barriers at the top of the columns would not have made any difference to the spread of the fire: [Day 79, page 151, lines 4-9].

The Inquiry should not make any finding prior to phase 2 as to whether the cavity barriers, as individual components, complied with relevant standards.

24. Dr Lane confirmed in her oral evidence that she had not yet considered industry practice and wishes to give a final view on compliance issues in her phase 2 report [Day 79, page 22, lines 5-23].

25. As regards cavity barriers in particular, Professor Bisby states at paragraph 365 of his October 2018 report that testing methods for cavity barrier *"have not been a focus of Phase 1, but will be examined and reported at Phase 2."*

26. Dr Lane gives an assessment of the compliance of the cavity barriers with relevant standards at sections 11.20 – 11.23 of her October 2018 report.

27. At paragraph 11.23.10 she states:

“I have determined that the horizontal and vertical cavity barriers that were installed in the cavity formed by the ACP and the thermal insulation materials at Grenfell Tower, were not classified for the required fire performance by ADB 2013, in that arrangement.” (emphasis added)

28. The qualification “in that arrangement” is not one applied by Dr Lane when giving an opinion that the cladding panels and insulation were non-compliant. By the words “in that arrangement” Siderise understands Dr Lane to mean that the cavity barriers were non-compliant when used together with the cladding panels and insulation used at Grenfell. She is not suggesting that the cavity barriers are never capable of being compliant when used in arrangements with other components.

29. Similarly, at paragraph 11.20.47 of her October 2018 report, Dr Lane states:

“I therefore conclude that none of the disclosed evidence received to date for the horizontal open state cavity barriers is representative of the construction at Grenfell Tower and therefore cannot be relied upon as evidence of their suitable fire performance in that context.” (emphasis added)

30. Therefore Dr Lane does not appear to be suggesting that the test evidence would not support the use of the cavity barriers in any context. Her evidence is that the test evidence does not support the use of the cavity barriers with the cladding panels and insulation material used at Grenfell.

31. As regards the relevant test standard for cavity barriers, Dr Lane states at 11.20.31:

“The fire resistance performance for cavity barriers is 30 minutes integrity and 15 minutes insulation, each side separately when tested to the relevant part of

BS 476 or the relevant European Standard, in accordance with Table A1 of ADB 2013.”

32. However, Siderise’s position is that there is no part of BS 476 or any relevant European Standard which gives a suitable test standard for an intumescent cavity barrier. Industry standards and tests for horizontal cavity barriers were developed in the absence of a suitable BS or EN testing standard, which adopted the principles of BS 476 and EN 1366-4 with some necessary modifications. Those industry standards have not yet been considered by Dr Lane.
33. It is appreciated that these are issues which the Inquiry may well consider fall outside phase 1, and to which the Inquiry may wish to return at phase 2. Siderise simply submits at this stage that the Inquiry should not make any findings prior to phase 2 as to whether the cavity barriers, as individual components, complied with relevant standards. In short that is because: (a) Dr Lane’s evidence appears to be limited to saying that the cavity barriers were non-compliant in the arrangement used at Grenfell, not that they could never be used in a compliant way; and (b) there is an issue as what was the relevant test standard for a cavity barrier. Siderise’s position is that the cavity barriers were, as individual components, tested to relevant standards and were capable of being used in a compliant way.

OLIVER CAMPBELL QC

6th December 2018