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Head of Standards Governance

BSI

389 Chiswick High Road

London W4 4AL

Nigel Parsley

Senior Coroner for Suffolk

BY EMAIL

26 May 2022

Dear Sir,

Regulation 28: Report to Prevent Future Deaths

I. Introduction

1. This letter constitutes BSI's response to your Regulation 28 Report ("the Report").

2. BSI would like at the outset to express its deepest sympathy and condolences for the family of Mr Corrie McKeague, who died in tragic circumstances.

II. Executive Summary

1. BSI's role as the National Standards Body ("**NSB**") is to facilitate expert committees to achieve consensus on industry standards and best practice and to act as the publisher of standards and specifications.

2. BSI has consulted experts from two committees which it considers have relevant expertise to advice on factors involved in Mr McKeague's death, and summaries their response herein.

3. BSI is not a regulatory body nor an enforcement authority. It is therefore unable to advise on regulatory matters, which are a matter for HM Government. Nor is it able to compel or monitor compliance with its standards, which are voluntary documents. As such, BSI has a limited ability to prevent further tragedies such as the death of Mr McKeague.

4. BSI believes nonetheless that the views of its experts will be of interest to the Coroner. Should any further questions or issues arise, BSI would be pleased to assist.

III. The role of BSI

5. BSI's role as the NSB is established by Royal Charter. BSI has several governing documents (available online at https://www.bsigroup.com/en-GB/standards/Information-about-standards/how-are-standards-made/The-BSI-Guide-to-Standardization/):

    a. BSI's Royal Charter and Bye-laws 1981;
    b. A Memorandum of Understanding (**MoU**) of 20 June 2002 between the United Kingdom government and BSI in respect of BSI's activities as the United Kingdom's NSB;
    c. BS 0: 2021 'A standard for standards – Principles of standardization' (**BS 0**)

6. Article 1.2 of the MoU provides that BSI's role as the NSB should be interpreted to include the management, co-ordination and understanding of:

    a) "British Standards" and "other standardization products";
    b) participation by BSI in European and international standards bodies, and other international activity undertaken in the interests of BSI as the United Kingdom's NSB;
    c) promotion, marketing, distribution and information activities concerned with British Standards, BSI's other standardisation products, and standardisation generally;
    d) support any corporate infrastructure activities intended, wholly or in part, to enable paragraph 9(a) to (c) above.

    The Director of Standards has the primary responsibility for the activities set out in paragraph 9(a) to (d). BSI's present Director of Standards is Dr [redacted]

(his full title is 'Director–General, Standards', which incorporates the role of Director of Standards).

7. BSI develops and distributes standards in response to the needs of UK stakeholders, which include UK Government and business. Standards are technical documents representing good industry practice. They are voluntary documents drafted by independent experts.

IV. Standards committee structure

8. Each individual standard is the responsibility of one technical committee. A technical committee may be responsible for more than one standard, and may establish subcommittees to deal with individual standards or other discreet areas of its work.

9. Technical committees and sub-committees consist primarily of independent (of BSI) experts, often nominated by trade associations, professional bodies, research/scientific institutions, government or other entities (see BS 0, para 7.2). They have an independent chair and BSI provides a committee manager and other support including an editorial project manager for each standard.

10. The committees referred to in this letter are examples of such committees.

V. Status of Standards

11. The defining characteristic of standards is that they are voluntary, agreed by industry experts and users, including manufacturers, health and safety representatives, regulators and consumer groups. They do not have the status of legislation or regulation (unless specifically referred to in a statute or regulatory instrument, which is extremely rare though not unknown), although they may be used as one means of demonstrating compliance in appropriate circumstances. They may also become privately enforceable between individual entities by being incorporated into a contract (see paras 4.14 and 9.2 of BS 0).

12. BSI is therefore not in a position to draft standards which would be binding on owners and operators of commercial waste bins.

VI. BSI expert committee feedback

13. BSI considered two committees would have relevant expertise:

    a. *B/538/4 - Building hardware*. This subcommittee has expertise in locks.

    b. *B/183 - Waste containers and associated lifting devices on refuse collection vehicles*

14. The subcommittee chair of B/538/4 has advised as follows. First, concerning the effectiveness of the locks on the bin in question. They are not ineffective at holding a lid closed in windy conditions or to keep animals out but they would be ineffective at keeping a motivated person out. However, the locks were never intended for that in the first place. Further, experts would describe them as 'latches' rather than 'locks' because they are not robust in design and are not operated by a unique mechanical device (they operate using a triangular peg but could also be opened with a device such as a pair of pliers).

15. To upgrade a bin to a security device would mean a significant upgrade of lock, probably one complying with BS 3621: 2017 *Lock assemblies operated by key from both the inside and outside of the door*, and would require a much more robust lid (most of them at the moment are made of flimsy plastic). In turn, this would make the bin itself much heavier and more costly. With heavier bins there might also be an increase in accidents whilst they were being emptied.

16. The experts also looked at some examples of large, commercial bin locks and noted 'On one of the bins you can latch and unlatch the device from the inside without the triangular key and is very easy to operate but on the other one you could not as it was enclosed but it would be impossible to lock yourself in that one as you can only operate from the outside. Neither of the bins lock as you close the lid so trapping yourself would have to be a conscious decision. If someone were to lock someone else in these type of bins, it would be easy to get out as the lids are plastic and flexible so the latch would "pop" once force was applied.'

17. Experts from B/183 were consulted and responded as follows:

Requirements for lids for commercial bins to be lockable

18. In the standards BS EN 840-2 (Dimensions and Design) and EN840-6 (Health and Safety) there is no stipulation that 4 wheeled containers are to be fitted with lid locks.

19. A lot has been done regarding safety with lids, but more so with the topic of entrapment of heads in "roll top" containers or domed lids.

Robustness of locks

20. Some locks within the marketplace are very robust and we should not generalise the whole standard, regarding 4 wheeled containers, on the basis of one manufacturer's lock design. Lock come in a multitude of varieties and design. Some with padlocks, other slamlocks which have proven to withstand approximately 300Kgs of force and still not open. Some manufacturers have lid designs to fit 2 locks per lid closer to each corner to make even more secure. This is an attempt to prevent contamination of the wrong waste stream entering the incorrect container but even so, preventing entry will have the same effect as stopping an individual entering a container.

21. The EN840 standard could not offer any advances in making locks more robust without introducing a whole new element of testing, and to cover off every single scenario dependant on manufacturers locks. The same lock is very difficult to work on every single container and lid design.

22. A stronger lock would in fact make it more difficult for it to be broken i.e. from inside the skip. Also, the accessory cannot readily prevent access and also subsequently provide egress.

23. In considering the waste skip as a confined space, by providing a means for escape (i.e. emergency secondary release panel, etc.) it should be noted that skips where there is either a compacted or heavy weight content, could in fact cause the escape panel to open inadvertently.

Are there any changes recommended to prevent similar incidents?

24. The experts considered this a very difficult question. If a car thief wants to steal a particular car, he will steal it, any security devices are merely a deterrent. If someone wants to get into a container they will. This includes homeless people who live in cities. There are too many variables involved in preventing entry to the container. Has the bin crew accidentally left the container unlocked? Has the end user/shop owner left the container unlocked?

25. Some manufacturers fit warning labels on the outside of the containers. In the same vein building owners fit signage to say "Warning fragile roof" therefore pushing the onus onto the individual who might climb upon it.

26. Some manufacturers can supply clear acrylic or polycarbonate panels in order to see into the container to identify the waste stream and any contaminants. To the same effect, some use wire mesh panels which cannot become opaque over time. However, this can be problematic in other areas; it would not be as effective in preventing fires / odours / vermin etc.

Any other standards that should be considered which need to be amended/updated?

27. Is there a possibility of having a sensor device fitted to all refuse vehicles that can detect individuals inside containers, sensing heartbeat, temperature, thermal imaging etc? There would be cost implications for RCV manufacture and implement this to all trucks. There is already a lot of electronic technical hardware fitted so the vehicles potentially have the means of powering such device.

Is the standard fit for purpose?

28. In terms of what the EN840 is intended to achieve, which is to have a waste receptacle which will integrate safely and effectively with a recognised lifting device and carrying out a means of emptying, then it cannot be faulted. It has been there for decades and served manufacturers well throughout Europe and other parts of the world who adopt the same principles.

29. It is assumed that in many cases, the securing lock falls outside the scope of manufacture/supply of the skip, rather it is an aftermarket accessory provided by the refuse collection provider. Note the relevant standards for supply of Container skips are under BS EN 840-2. The Standard could include a section "Instructions for use" where many of the action points identified in the BIFFA research/ WISH guidance could be included. This would be a proactive way forward to assist the Coroner without fundamentally require a review of the design standard.

30. The BIFFA research can be found at:

    https://www.biffa.co.uk/-/media/files/download-pdfs/biffa-people-sleeping-in-waste-containers.ashx

31. The research also makes reference to WISH guidance note 25: - WASTE-25-.pdf (wishforum.org.uk) and states that where practicable, bins should be located in a secure area.

Concluding thoughts of committee members

32. Clearly this is not an isolated case. It is however not accepted by the experts that the number of deaths could be reduced if stronger locks are fitted. Bin crews and/or end users might leave the container unlocked. If a refuse vehicle broke down and therefore did not empty that container when scheduled, and the bin then became overfilled, an individual could easily empty a few bags onto the floor and enter the container. The lock would have served no bearing in that scenario.

33. The container in its entirety is a very simple device. It is a receptacle for collecting waste, it needs to remain simple. More robust locks are available (taking on board the point of entombment), but the lock is not the issue. The problem is the individual themselves, intoxicated or not. Might there be some means of electronically identifying individuals that are inside containers and means of the lifting device not carrying out that cycle by means of an electronic failsafe?

Society of Motor Manufacturers and Traders

34. Finally, BSI reproduces verbatim the response from the Society of Motor Manufacturers, who are one of the nominating organizations represented on the B/183 committee:

> *The Society of Motor Manufacturers and Traders (SMMT) offers our sincere condolences and sympathy to the family and friends of Corrie following this tragic case. Our understanding is that there were many unusual circumstances that contributed as factors into his death, and that in the coroner's opinion action should be taken in order to prevent future deaths.*
>
> *Neither the SMMT, nor our members, are involved in the design or manufacture of waste bins for Refuse Collection Vehicles (RCVs) – including the large 1000 litre waste bin containers subject to this case - so we are not in a position to comment on what steps could now be taken to remove all entrapment risks; however, we feel the coroner's suggestion of considering better locks is appropriate and therefore BSI standards for such bins should be reviewed to determine if such solutions are possible.*
>
> *With regards to the RCV itself we do not foresee any changes in design that could guarantee such an event could never happen again, but SMMT members continue to invest and refine their products to maximise safety.*

35. BSI will raise the issue once again when the committee next has a meeting to discuss further if any changes to existing standards would be appropriate.

A**ttachments**

36. For completeness, BSI includes with this letter the following standards:

    a. BS 3621:2017 (Lock assemblies operated by key from both the inside and outside of the door)
    b. BS EN 840-2: 2020 (Mobile waste and recycling containers)
    c. BS EN 840-6: 2020 (Mobile waste and recycling containers)

37. These standards are the copyright of BSI and sold commercially by BSI. BSI therefore requests that they are not distributed by the Coroner further than is necessary for the purposes of the investigation.

38. BSI believes that this letter and attachments constitutes a full reply to the Coroner's Request. If, however, the Coroner has any further questions or requires clarification, BSI would be pleased to assist.

Yours sincerely

[redacted]

Head of Standards Governance

[redacted]

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By Royal Charter

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