

Construction Industry Council CDM Guidance for Designers

Designing to make management of hazards associated with maintenance easier: Suspended Access Equipment

Technical Guidance Note

T 20.014

INTRODUCTION

1. Designers have a duty to ensure that any building or structure they design can be maintained safely. Suspended access systems provide one way of doing this and designers can play a major part in making it easier to manage the hazards associated with using suspended access equipment [SAE].
2. All buildings have to be maintained. Such maintenance varies from simply cleaning the windows to significant structural repairs. Whatever the task, workers will need safe access to carry out this work.
3. Suspended access, eg, cradles, whether it is temporarily or permanently provided, is one way of providing access to the workplace at height, on a completed building.
4. The provision of access for future maintenance should not be an afterthought, because trying to work around inappropriate decisions, made early in a project, is difficult and time consuming. Therefore, it should be part of the design phase, when its provision can be thought out properly.
5. This guidance note is to help designers to understand their duties and to be aware of how they can help to make the use of SAE safer.

HAZARDS ASSOCIATED WITH USING SUSPENDED ACCESS EQUIPMENT

6. When working from suspended access equipment, people are exposed to the hazard of falling from height. This may happen when:
 - a) Getting into and out of the cradle, usually because safe access points are not provided;
 - b) They are in the cradle, due to:
 - i) structural failure, or
 - ii) accidental tipping when the SAE snags on something protruding from the building.
7. People may also be exposed to the hazard while installing the system or while maintaining the system.
8. Also, people who are in the vicinity of the cradle while it is being used are exposed to the hazard of being struck by objects, which may fall out of the cradle.

WHAT DESIGNERS SHOULD DO

9. Therefore, where suspended access equipment is the [designers] prescribed method for

cleaning and light maintenance, designers must make adequate provision for it to be:

- a) Installed safely;
- b) Accessed safely; and
- c) Used, inspected and maintained safely.

10. Designers can achieve this by Providing:

- a) Dedicated access areas;
- b) Dedicated routes to reach the SAE, which are non-slip and appropriately guarded;
- c) Dedicated inspection and maintenance areas from which operatives can work safely;
- d) Adequate anchorage points properly fixed to the permanent structure.

11. In addition, where it is possible to do so, designers should consider providing:

- a) Adequate attachment points on the building façade, eg, guiding mullions;
- b) A building form without snagging points, eg:
 - i) windows that open outwards,
 - ii) decorative corbels,
 - iii) ledges;

which could obstruct the passage of SAE down a building and cause the cradle to tip.

12. In order to achieve this, designers should consider the following:

Preliminaries

13. The design and use of SAE is covered by several British and European standards: BS 6037, BS 5974 and BS EN 1808. Obtain copies and familiarise yourself with the technical requirements of SAE and the generally accepted good practice for use of SAE.

14. You do not need to work on your own. Providers of SAE have a wealth of experience in this field. Use it to your advantage, by involving them at the earliest possible stage. They will give you a good indication of what is and is not achievable with SAE.

15. The Specialist Access Engineering and Maintenance Association [SAEMA] represents providers of SAE. You should contact this organisation, which will put you in touch with people who can help.

Developing the design

16. After these initial discussions [with experts], designers should try to incorporate any advice and recommendations while developing the design of the building. Returning to the problem and trying to

retro-fit SAE into a fully developed scheme is difficult and not recommended.

17. Points that should be considered include:

- a) *How far the SAE needs to reach:* which is particularly a problem on buildings with curved or stepped facades, because as the curve or step develops, the SAE will need to reach further out, or in, depending on the shape. SAE, which has to provide varying reach will need more space on the roof, to accommodate the extra width of track or counterweights.
- b) *Operating clearances:* SAE needs space in which to operate. Consider this when designating the areas in which the SAE is to operate. If you need to limit the space for SAE operation, you should inform the provider of SAE early, so they can adapt their equipment to suit your needs. SAE needs space for the following:
 - i) tracks to run on,
 - ii) clearance from obstructions, if possible SAE width + 600mm,
 - iii) counterweights, which may project beyond the rear of the SAE,
 - iv) cornering, on curves in the track, which are not too severe,

manufacturers know exactly what is required, talk to them;

- c) *Structural adequacy:* SAE will apply significant loads to the structure supporting it. Make sure that these loads are taken into account;
- d) *Adequacy of track:* In addition, SAE track needs to be held down. Ensure that the surface over which it runs has sufficient structural depth into which the anchors can be fixed. And, to aid inspection of these critical items, design and detail them so that they are accessible;
- e) *Form of the façade:* SAE needs to be restrained and sometimes guided. The building façade should, if possible, incorporate systems to allow this. Many unobtrusive fittings are available, which SAE providers will know about. Talk to them.
- f) *Safe access:* workers who use SAE need to get into and out of SAE. They should not be exposed to the hazard of falling from height by requiring them to perform dangerous manoeuvres while accessing the SAE. Therefore, consider providing:
 - i) a safe area, ie, appropriately guarded, for getting into and out of SAE,
 - ii) access on to the roof by an internal staircase,
 - iii) dedicated access routes across the roof, away from edges and other hazards, eg, rooflights. If this is possible, then provide handrails [or other protective measures] when people have to pass close to edges and other hazardous areas.
- g) *Providing for safe maintenance:* like all other work equipment, SAE needs to be maintained,

to ensure that it remains fit for purpose and safe to use. In order to provide for this, designers should consider the following:

- i) Providing safe access for maintenance;
- ii) for permanently installed SAE, maintenance will have to be carried out in-situ therefore, consider providing a maintenance area on the roof, away from unguarded edges and likely fragile areas, eg, rooflights,
- iii) tracks also require maintenance. Inevitably, they are close to the edge of the roof therefore, provide some fall protection measures for maintenance people. Ideally, this should be a barrier. However, if this is not possible, a permanent running line onto which a lanyard can be attached should be provided.
- h) Garaging: By preference, designers should provide garaging of an adequate size that allows for maintenance to be carried out on equipment safely. It is easier to incorporate a garage structure at the outset than when you have completed the scheme.

Problem buildings

18. Some buildings are more problematic than others when it comes to providing SAE. In particular, buildings of the following types need careful attention to detail:

- a) Domed glass atria;
- b) Stepped façades;
- c) Curved elevations;

19. Buildings with the following features also need careful attention to detail:

- a) Windows that open outwards;
- b) Localised steps in the facades, eg, sun shading, ledges, canopies, etc;
- c) Glazed facades; and
- d) Sloping roofs, ie, roofs > 30°;
- e) With attachments to the façade, which protrude, eg, CCTV cameras, signage;
- f) Recessed windows.

20. Many of the problems referred to in 18 and 19 can be allowed for, as long as the SAE supplier is made aware of them.

USEFUL REFERENCES

BS 6037:1 – 2003

BS EN 1808

LG3 [SAFED],