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To
FOD AFQ Inspectors (Bands 0-4)
Specialist Group Inspectors (Con, Mech) (Bands 0-3)
Railway Inspectors (Bands 0-3)
HID Land Division Inspectors (Bands 0-4)
NSD Inspectors (Bands 0-3)

ROLLER-CURTAIN DOORS

This 2-part OC advises that rapid-operating industrial/commercial powered roller-curtain doors used by pedestrians should be provided with presence-sensing 'stand off' safety devices. The Information Document (ID) may be copied to interested persons outside HSE.

INTRODUCTION

1 The operation of rapid-acting roller-curtain doors has led to injuries to people. HSE's Technology Division (TD) has reached agreement in principle with the industry about the further precautions that are needed if such doors are used by pedestrians. The standards to be achieved are described in the Information Document (ID). 'Rapid' is considered to be an opening or closing speed in excess of about 0.5 metres per second.

2 The standard of safety at industrial doors and shutters is described in OC 314/16. Additionally, rapid-acting roller-curtain doors used by pedestrians should be provided with a presence-sensing safety device positioned at least 0.9 metres in front of the doorway.

3 FOD Safety Unit is writing to known manufacturers, suppliers and installers of industrial/commercial powered roller-curtain doors to advise them of the requirements described in this OC. A copy of the HSE letter is given at Appendix 1 and a list of those suppliers contacted is at Appendix 2 .

ACTION BY INSPECTORS

4 Inspectors should draw the attention of relevant users and suppliers (including manufacturers and installers) to requirements in the ID. Note that, until the draft European standard (prEN 12453) is adopted, this is interpretative guidance.

5 Adequate control of the risk is achieved by:

- (1) preventing pedestrians using rapid-operating powered roller-curtain doors; or
- (2) providing appropriate safeguards, eg as described in the ID.

Where adequate control is not achieved then inspectors should take appropriate enforcement action. Where there is an impending risk of possible serious personal injury then issue of an improvement notice is likely to be appropriate action.

6 Occupiers of premises, where there are rapid-operating powered roller-curtain doors which could impose unsafe impact forces, should be advised that pedestrians should not be allowed to use them unless the installation is updated to an appropriate safety standard as described in the ID paras 7-9.

7 If the doors are not permitted to be used by pedestrians, the doorway should be clearly marked 'Danger - door not for pedestrian use' and measures put in place to enforce observance of the instruction.

8 Manufacturers, suppliers and installers should be advised that, when installing powered roller-curtain doors which could impose unsafe impact forces and which are permitted to be used by pedestrians, 'stand off' safety devices should be provided. They should also ensure that quotations to potential customers make clear that:

- (1) this type of door is not normally designed to be used by pedestrians; and
- (2) where this cannot be avoided, additional safety measures will be necessary, as above.

Alternatively, if the door is not permitted to be used by pedestrians, it is acceptable for the supplier to clearly mark the doorway 'Danger - door not for pedestrian use'. Note that there is no legal duty under the Supply of Machinery (Safety) Regulations 1992 (as amended) for the supplier of an **existing** door to provide additional safety devices free of charge.

Inspectors should accept the absence of additional safety devices on any roller-shutter door which opens and closes at less than 0.5 metres per second. Even at such low speeds, however, some risks remain and inspectors should ensure that these are addressed in the user's risk assessment (see ID para 12).

FURTHER GUIDANCE

9 Technology Division has been working in conjunction with the Door and Shutter Manufacturers Association (DSMA) and others to develop guidance on safety requirements, in particular to establish the most suitable types of safety devices, and the determination of a 'safe' level of impact force. Further guidance will be issued when more information is available about these matters. DSMA guidance for their members and the industry, similar to that in this OC, should be published shortly.

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PEDESTRIAN USE OF POWERED ROLLER-CURTAIN DOORS

INTRODUCTION

1 This document contains internal guidance which has been made available to the public. The guidance is considered good practice (rather than compulsory) but you may find it useful in deciding what you need to do to comply with the law. However, the guidance may not be applicable in all circumstances and any queries should be directed to the appropriate enforcing authority.

2 The powered industrial/commercial doors covered by this Information Document are designed to allow the movement of vehicles into and within buildings. In some situations, pedestrians may also be permitted to use them.

3 Roller-curtain doors operate on a 'roller curtain' principle, with flexible material being wrapped around a roller. The roller may either remain at the top of the doorway ('fixed roller') or may travel up and down as the door is opened and closed ('moving roller').

4 There have been increasing sales of (powered) roller-curtain doors which, for reasons of heat conservation and business efficiency, close (or open) rapidly. 'Rapid' is considered to be an opening or closing speed in excess of about 0.5 metres per second.

5 There is a risk of injury to persons when a roller-curtain door operates. The risks are of being struck on the head during closure, particularly violently if the door is the 'moving roller' type and, in the case of 'moving roller' type doors, of having clothing entangled in the roller-curtain door as it opens. The risk is increased due to the speed and quietness of operation of powered roller curtain doors. 'Moving roller' type doors are more dangerous than 'fixed roller' type doors.

6 Roller-curtain doors should be differentiated from roller-**shutter** doors. The former operate more rapidly (typically closing at 0.6 m/sec to 2.5 m/sec) and are considerably quieter than roller shutters (which typically close at 0.25 m/sec). There is generally no need with roller-shutter doors to use safety devices as described below.

PRECAUTIONS

7 Risk of injury from a rapid operating roller-curtain door should be eliminated or reduced, in particular by appropriate door controls and safeguards. HSE recommends that any such door which may be used by pedestrians should be

provided with a safety device to detect any person approaching the door, when they are at least 0.9 metres away from it. This recommendation does not apply to a roller-curtain door which is not used by pedestrians and at which there are effective measures (including appropriate warning notices) taken to prevent pedestrians passing through the doorway.

8 In theory, a device positioned close to the door and scanning the area in front of the door could provide adequate protection. However, many such devices are not acceptable for safety purposes (see para 11). It is likely that acceptable protection will normally be achieved by providing a 'stand-off' safety device, such as a photoelectric guard, about one metre from the doorway.

9 A 'stand off' safety device is one positioned some distance from the door which will prevent unsafe door motion if the **presence** of a pedestrian or vehicle is detected, approaching the door. HSE does not specify a particular type of safety device or where it should be positioned, as the choice depends on the environment, the type of traffic and the type of door. An electro-sensitive device (such as a photoelectric (p/e) beam) in a 'stand-off' location will detect the presence of a person at that point but not someone who is stationary between the beam and the doorway. This matter is being addressed (see para 14) but, at the moment, a p/e device is acceptable if positioned at least **0.9m from** the door. A barrier may be necessary between the device(s) and the doorway to prevent anyone entering the 'unprotected' area other than through the p/e beam.

10 A presence sensing safety device mounted **on** (or slightly in advance of) the door's leading edge, or **adjacent** to the door, is unlikely to be satisfactory [even if the device is manufactured to the appropriate safety device standard, ie BS EN 61496-1: 1998 *Safety of machinery: electro-sensitive protective equipment: general requirements and tests* and the draft standard prEN 12978 (powered doors)]. Owing to factors such as the speed of response of the control system and the braking system, safety devices positioned in this way are unlikely to prevent an impact on a person walking through the doorway. Where a door-mounted safety device, or a safety device mounted adjacent to the door, cannot prevent impact then an additional 'stand off' presence-sensing device should be provided.

11 A **motion** sensor (such as a passive infrared beam) is not a 'safety component'¹ and should therefore not be used as a safety device in this application. However, if installed and used correctly in conjunction with a presence-sensing device(s), a motion (movement) sensor can provide enhanced safety.

12 It is acceptable to reduce the opening and closing speeds of the door to less than 0.5 metres per second, such that it is no longer classed as 'rapid operating', to avoid the need for additional safety devices. However, this does not eliminate the risk as, even at the lower speed, the moving masses and the energy involved (particularly with 'moving roller' doors) can cause injury. Furthermore, a reduction of speed would not in itself be sufficient to overcome the risk of entanglement when a 'moving roller' door is opening. These factors need to be addressed in the risk assessment for **any** roller-curtain door.

13 A device for measuring impact force is being developed in support of draft standard prEN 1245 3 (see para 15 below) which defines a safe level. 'Safe' impact energy levels have yet to be established but, where there is a risk of a person being struck vertically on the head, a safe impact energy level is likely to be less than 0.2 joules.

LAW AND INDUSTRY STANDARDS

14 Suppliers of industrial/commercial powered doors have duties under the Supply of Machinery (Safety) Regulations 1992 as amended (SMSR) to supply products which meet all relevant essential health and safety requirements (EHSRs) and are safe. Users should ensure that their industrial/commercial powered doors have appropriate controls/safety devices etc and that they are maintained in efficient working order, to comply with the Workplace (Health, Safety and Welfare) Regulations 1992 regulations 5 and 18.

15 At present there is no European, British or industry standard covering this type of door but a draft European standard (prEN 12453) dealing with powered industrial doors (including roller-curtain doors) has now been completed. The draft recommends that doors which could cause unsafe impact forces should be provided with presence-sensing 'stand off' safety devices, as described in paras 7-9 above. Until prEN 12453 is published, useful information may be gained from BS 7036: 1996 *Safety at powered doors for pedestrian use*. Although this British standard is not intended for industrial doors, it describes suitable safety devices and their applications.

1 A motion (or movement) sensor is not a 'safety component' in accordance with the Supply of Machinery (Safety) Regulations 1992 (SMSR). Consequently, as this type of sensor relies upon electronic circuit technology which may fail to a dangerous condition, additional measures should be employed to ensure that the safety-related control system has sufficient safety integrity.

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