Safer surfaces to walk on - reducing the risk of slipping (T157b)

Background
Slips, trips, falls and related accidents are the most prevalent cause of harm to passengers at stations on the national rail network in Great Britain. In 2005, nearly 50% of accidental harm at stations resulted from such accidents, with two fatalities, over 150 major injuries, and over 2,300 minor injuries occurring. Most of these accidents are typical of those found in other sectors, so the RSSB R&D programme is taking the opportunity to learn from other industries. A previous study, undertaken for RSSB by TRL (T157a), looked into the literature on the subject covering both the transport sector and other industries. Following on from this research, RSSB decided to support work being planned by HSE to look into the whole issue in a detailed and holistic way.

Aims
The aim of this project was to bring together in one easily accessible document a collection of reference information about the risk of slipping in public places and how that risk can be reduced. HSE initiated the research, and RSSB provided technical advice (the literature search already undertaken by TRL has been made available) and co-funding.

RSSB’s participation on behalf of the railway industry was designed to ensure that:
- There was a particular emphasis on the use, maintenance and cleaning of the types of surfaces which can be used in stations, and their protection from water and other contaminants, such as oil and bird droppings.
- The work took into account the needs of station users, who are often in a hurry, may be weighed down with luggage, and are often uncertain of their route and specific destination. Users include people with young children, the elderly, and those with mobility problems and other disabilities.

Method
The work was managed by the Construction Industry Research and Information Association (CIRIA), and included a major study of existing standards and assessment techniques undertaken by ARUP, which evaluated prior research undertaken by the Health and Safety Laboratory (HSL).

HSE and HSL have developed a computer-based Slips Assessment Tool (SAT) that allows ‘non-experts’ to assess the slip risk of pedestrian walkways/surfaces. As part of this project, the tool was introduced to railway operators at a series of road shows on reducing slip and trip injuries on railway premises.

The main study consisted of a review of all the existing literature standards and models in use on the subject of slipping and covered issues as diverse as:
- Statistics
- Risk Management
- The slips assessment tool software and how to use it
- The slip potential model
- Testing of floors and flooring materials
- Legal requirements and standards development
- Risk assessment procedures for designers and facility managers
- Contributing factors such as:
  - Flooring surface properties
  - Wettage and contamination
  - Footwear
  - Cleaning regimes
  - Human factors
  - Environmental issues

These are all included in the main report, which was launched at a conference at the
Royal Institute of British Architects in London, in January 2006. The keynote speaker was David Waboso, Chief Engineer of London Underground.

**Findings**

The research was designed to provide information about all the issues described above in one easily accessible place. The main audience for the reports is likely to include:

- Architects
- Engineers
- Specifiers
- Surveyors
- Constructors
- Insurers
- Suppliers
- Maintainers
- Safety experts
- Flooring manufacturers
- Specialist contractors
- Clients of all the above

In the rail sector this will include those who own, manage, maintain and clean:

- Major stations
- Train operator-leased stations
- Car parks
- Other interchanges
- Offices
- Depots

**Next Steps**

The current study is being published in two versions - a short guide and the main report. The short guide can be accessed at [http://www.rssb.co.uk/pdf/reports/research/T157b%20Short%20Guide.pdf](http://www.rssb.co.uk/pdf/reports/research/T157b%20Short%20Guide.pdf)

The main report has been published on the CIRIA website and can be accessed at [http://www.ciria.org/downloads/01/c652_restricted_access.pdf](http://www.ciria.org/downloads/01/c652_restricted_access.pdf).

Hard copies are also available for sale from the CIRIA bookshop at [http://www.ciria.co.uk/bookshopentrance.htm](http://www.ciria.co.uk/bookshopentrance.htm).

The intention is that the guide will be kept up-to-date and reissued at regular intervals in the future.

HSE is gathering support and funding for follow-on work to look at the separate but related issue of tripping hazards and how they too can be reduced in number and severity. RSSB has agreed, in principle, to support and contribute to this work, which would be published on the CIRIA and RSSB websites and made freely available to rail industry organisations.

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