Occupational Health, Safety & Training Advisory Group, 25 July 2011

Towards a Strategy for reducing slips, trips and falls

Executive summary

Slips, trips and resultant falls[1] are the single largest type of accident reported by University staff and students. A similar situation is reported for the HE sector[2] and nationally[3]. Development of a strategy to reduce the number of accidents, and/or the severity of injury, has been under consideration for some time and is a key objective of the Board and Risk Committee. Other drivers include legal compliance with the Workplace (Health, Safety & Welfare) Regulations[4] and HSE campaigns[5], and targets set by UCEA.

A detailed analysis of slips, trips and falls reported by staff, students and visitors to the University has not shown convincing evidence for a campaign targeted at any particular group of people or activity or condition. There is a wide spread in causal factors of all kinds.

This suggests that the main focus of any strategy should be to build on existing good practices, to review and update risk assessments (particularly where physical conditions are subject to major refurbishment or change), and to increase general awareness about reporting near misses and potential causes of slips and trips. In the short term, this may in fact lead to an increase in the number of reported slips and trips.

Key objectives are:

- To examine in more detail the relationship between slip and trip accidents and the external environment, and to develop a risk-based policy for responding to adverse weather conditions
- To review procedures for specifying and improving floor finishes, particularly in and around building entrances where rain water is carried into buildings, or in areas subject to spills or contamination
- To review procedures for wet cleaning of floors
- To raise awareness in selected groups of employees reporting the most slips and trips accidents (services and administration staff) and to trial the HSE's Watch your STEP e-learning material[6] with these groups.

Tackling these objectives will require commitment and close liaison between Health and Safety Services, Estates, parts of the Student Experience Directorate and the Staff Training and Development Unit.

Although a lot of information is available directly from accident reports and investigation documents, most of the analysis work is on actual numbers of events rather than rates per 10000 at risk, or per floor area, or per footfall or journey on foot. Ways of obtaining meaningful accidents rates should be explored.

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[1] This strategy does not cover falls from height
[2] http://www.ucea.ac.uk/download.cfm/docid/41E0024F-AF3B-4082-A18AD0F55EF20932
[3] http://www.hse.gov.uk/slips/index.htm
[4] http://www.legislation.gov.uk/uksi/1992/3004/contents/made
[5] http://www.hse.gov.uk/shatteredlives/index.htm
[6] http://www.hse.gov.uk/slips/step/launch_sector.htm

The next stage is to produce a detailed action plan.

Introduction

1. In the years 2008, 2009 and 2010, the University Safety Office received 112, 94 and 120 reports of slips and trip accidents where injury had occurred, and where there was some connection with a cause that was at least in part managed by the University.

2. Each year, approx 15 accidents to staff have been reported under RIDDOR because of broken bones or absences of more than 3 days, and 3 accidents to students resulted in hospital treatment.

3. One of the key objectives in the University of Manchester Health and Safety Plan 2010 – 2015 is to develop a long term and sustainable strategy for reducing work related injuries caused by slips, tips and falls.

Main drivers

4. Whilst many slips and trips do not result in significant injury, every one has the potential to cause major injury. A slip or trip at the top of a flight of stairs can result in very serious injury, even death. A broken arm or leg will cause severe pain and considerable impact on a person's life and life style. The main driver for any campaign must be to reduce injury to staff, students and visitors. Success would have the added benefit of reducing absences from work caused by slips and trip accidents, and reducing civil claims for injury.

5. Legal requirements include the Workplace (Health, Safety & Welfare) Regulations 1992, particularly regulations 12 and 17 which relate to the condition of floors and traffic routes.

Causes of slip and trip accidents

6. These can be divided into 3 main categories and management interventions can be applied to differing degrees in each of these categories.

    - Physical factors – these include broken paving, loose carpet fittings, poor lighting, loose handrails, wet floors, icy conditions, etc. An employer can usually correct or at least ameliorate these, and can implement systems to prevent some of these factors arising.

    - Behavioural factors – these fall into 2 sub-groups
        - Those subject to at least some management direction such as rushing to keep to a work imposed schedule, carrying too much at once.
        - Those largely beyond the direct control of an employer such as using a mobile phone or talking to a companion; choice of footwear or style of wearing it (eg untied shoelaces); being under the influence of illegal drugs or alcohol.

    - Personal health factors – including blood pressure, diabetes, diet, eyesight (quoted causes have included vanity in not wearing corrective glasses and also difficulties getting used to varifocal glasses), effects of prescription medication. To a very large extent, these are beyond the direct control of an

employer, although some factors may be appropriate topics for general awareness campaigns.

7. In many cases, it is a combination of these factors that actually causes an accident, although usually only the immediate or most obvious cause will be cited on the accident report.

Analysis of reports : main findings

8. The University's accident data for 2008-2010 are presented and analysed in the statistical annex. "Near miss" incidents are very rarely reported but further data may be available in future from analysis of reports to the Estates helpdesk.

9. Since the campaign to improve general accident reporting procedures in 2006/7, the University of Manchester's slips and trips staff accident rate has exceeded the sector average by between 10-20% but has a similar year on year trace (chart A). The student accident rate is much lower and closer to the sector average (chart B).

10. In terms of where accidents happen (chart C), accident data show clearly that the focus for any strategy dealing with physical conditions must be on, in order of priority:
    - the external environment
    - general circulation areas and corridors in buildings
    - stairs (internal) and steps (external) where the risk of serious injury is probably greater.

11. Analysis of when accidents happen during the day and during the year does not show any discernable pattern (chart D and E). This, together with analysis of who reports accidents (chart F), suggests that there is no correlation with times of high pedestrian activity such as lecture beginning/end times.

12. Weather plays a part, but there does not appear to be an overall seasonal pattern apart from a peak in reports during the icy conditions experienced in late winter 2009/2010 and early winter 2010/2011.

13. The main groups reporting slips and trips are service staff in Estates and STARS/Student Directorate, and administrative staff (charts F and H). It is possible that differential reporting rates account for some of this, although service staff are also likely to be moving on foot around the campus or around buildings and service areas for most of their working day. In 2010, there was no significant difference between the sexes, although the number of accidents reported by men has increased since 2008 (chart G).

14. Slips are twice as common as trips (chart I). Of the slips in circulation spaces, the largest single cause is wet floors – from carry-over of rain into buildings around main entrances and from wet floor cleaning (chart J). Very small numbers of slips are due to accidental spillages (0, 2, 0 for 2008-2010 respectively). This suggests that work on cleaning practices and on the specification of building entrances and approaches may be useful.

15. Most accidents on stairs and steps occur indoors, and a few are accounted for by people misjudging their step. There are some trips on stairs over items like vacuum cleaner cables. Very few refer to physical defects. (Chart K)

16. The analysis suggests that the target audiences for increasing awareness should be services and administrative staff, although it may be that these groups are already better at reporting incidents.

Focus of Strategy

17. Based on the data available, a strategy to reduce the number of slip and trip accidents should focus on 3 main areas:
    - The external environment
    - Wet floors – from cleaning practices and building entrances
    - Improving risk awareness amongst service and administration staff.

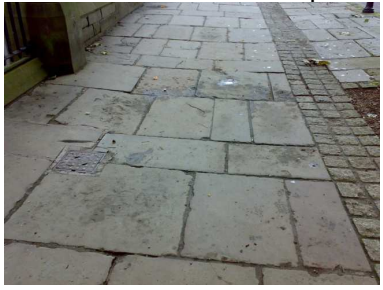
External environment

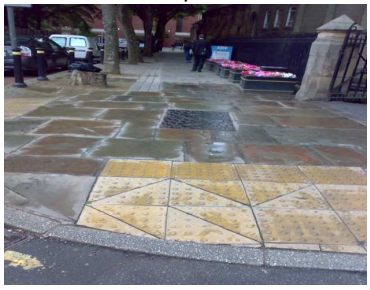
18. Generally, accidents on the public highway and areas not owned or maintained by the University have been excluded from this analysis (unless there is a clear work-related contribution, eg meeting deadlines, or transporting items). The appearance and quality of the paved external environment has in fact benefited enormously over recent years from the public realm improvement project carried out by Estates, and by City Council funded improvements to the public highway. See Appendix for campus map of areas improved under the Public Realm project. Despite this, the number of slips and trips outside has increased between 2008-2010 (chart C). Somewhat counter-intuitively, this *suggests* that there is no simple relationship between the quality and condition of paving and accident rate, and that other variables are more significant.

19. A plot of accident sites shows that there are very few "hot spots" where slips and trips occur on a more frequent basis than elsewhere (images 1 & 2). However, three areas have been subject to more work recently, at least in part because of concerns about slips and trips : Burlington Street, back of Stopford Building, and Granby Row in front of Sackville St Building. Each has been subject to risk assessment by the Safety Office and to improvement works by Estates[7].

Case Study 1: Burlington St.

3 slips accidents were reported here in July/August 2010.
Condition at time of slip and trip risk assessment, 4 Oct 2010 before improvement work.





[To be inserted – photos after improvement works due to start this summer]

[7] Works are either completed, in progress, or committed, June 2011.

Case study 2 : Portsmouth Street, rear of Stopford Building

The main reasons for improving this area were to do with safety of pedestrians and appearance, but a number of trips had been reported. The assessment of risk to pedestrians was carried out by UMIP and Dave Massey in February 2010, and work was carried out in early 2011.

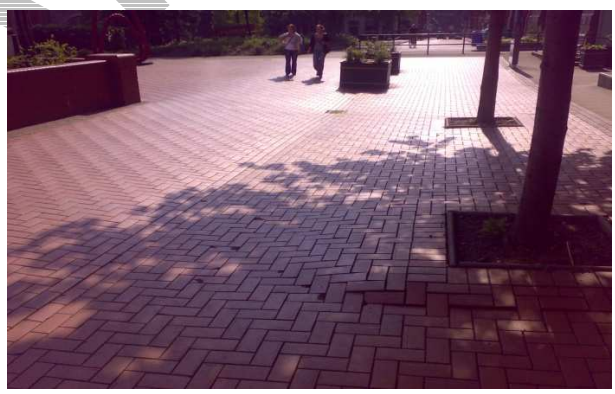
[To be inserted - before and after photos]

Case study 3 : Sackville St Building, Granby Row

The Dean of EPS, Estates and HSS and others all contributed to drawing attention to problems with the paved surface outside this building, although there are in fact only two recorded slips here.

In March 2009, HSS measurements of surface roughness and use of the HSE's slips assessment tool[8] showed that the slip risk was high or significant (scores of 34-53).

Before work commenced, the surface was uneven and subject to heave around trees:



[Details of work / after photos to be inserted]

[8] http://www.hse.gov.uk/slips/sat/index.htm

External environment – what we already do.

20. There are already well established procedures for managing the condition of external paving.

    - Estates carry out an annual survey of the condition of paving and surface finishes
    - Estates grit paths and car parks in icy weather, but to date, this has not been on a risk assessment basis
    - Estates and safety personnel actively encourage their own staff and other people to report defects before an accident occurs or defects noticed because of a near miss stumble
    - Safety personnel investigating accidents check that any immediate causes have been reported to the Estates Helpdesk where appropriate.
    - External surface finishes are being standardised across the campus
    - Estates programme in local improvements to the public realm following major refurbishment projects (eg Dover St Building)
    - Estates continue making improvements to external surface finishes in response to measurements / suggestions from staff.

21. What we could do, or do more of

    - Proactively analyse reports to the Estates Helpdesk of paving and other external environment surface finishes (including broken paving stones, potholes, uneven surfaces, poor or defective lighting over steps, soiling from leaves, moss, bird droppings, etc) to identify areas prone to such deterioration and implement preventative action on a programmed basis.
    - Analyse footfall or other parameter(s) of use or risk, so that gritting can be carried out on the basis of risk during adverse weather. For example, it may be appropriate to grit access to the multi-storey car parks and direct people to these rather than try to grit all the surface car parks.
    - Monitor the time taken to complete repairs to reported defects (as a surrogate measure for how long the defect is in existence and presenting a trip or slip risk).
    - Consider adopting a general criterion for judging if uneven or defective external paving needs repair (eg 0.5 cm?)[9]

22. It is difficult to predict the impact of these measures on the number of slips and trips reported. It is possible that increasing general awareness will increase the number of incidents reported to the Safety Office initially.

Wet surfaces in general circulation space – corridors, concourses, etc.

23. What we already do

    - There is already a system for reporting major spillages or wet surfaces to House Services (through the Estates helpdesk) and requesting their urgent attention

[9] http://www.ciria.org/service/Web_site/AM/ContentManagerNet/ContentDisplay.aspx?Section=Web_site&ContentID=12320, page 230 suggests 10mm has been construed as a trip hazard.

- Estates and safety personnel encourage all staff to report defects in floor defects or wear and tear to the Estates Helpdesk.
- Estates House Services keep corridors relatively clear of obstructions from items such as waste materials awaiting collection

Case study 4 : Alan Turing Building

[To be inserted by Estates Potted history
Photos/details of HSL results?
Lessons learned]

24. What we could do, or do more of:

- Proactively analyse reports to the Estates Helpdesk of internal flooring defects such as worn or unevenness, loose or worn carpets or carpet grippers, etc to identify areas prone to such deterioration and implement preventative action on a programmed basis.
- Review and reinforce instructions about floor cleaning techniques, to minimise wet cleaning and leaving floors with surface water remaining, or to use barriers to segregate areas being cleaned rather then rely on signs.
- For new build or major refurbishments, design building entrances and reception area flooring to minimise the risk of slipping and water being carried in from outside. Eg by having covered entrances, extensive internal matting or moisture absorbent materials designed in.
- In existing buildings, and on a risk assessment basis, consider having a planned response to wet weather posted in reception areas /notice boards, eg absorbent matting ready for deployment, or staff on stand-by to dry floors near entrances as a priority over routine cleaning.
- Explore the options and practicability of adopting a design criterion for all new floor surfaces (eg the CIRIA guide to "Safer Surfaces to Walk on"[10], and its recent update which includes research carried out in HSL[11]).

Steps and stairs

25. What we already do:

- Estates keep stairs and steps in reasonable physical condition
- Estates highlight step edges where appropriate (work is currently underway to highlight step edges as part of the DDA works)
- Estates and safety personnel encourage reporting of defects in step/stair condition or other factors such as lighting, loose handrails, etc
- Safety personnel ensure any such factor contributing to an accident is reported to the Estates Helpdesk.

26. What we could do:

[10] http://www.ciria.org/service/Web_site/AM/ContentManagerNet/ContentDisplay.aspx?Section=Web_site&ContentID=12320
[11] http://www.hse.gov.uk/slips/architects.htm

- Proactively analyse reports to the Estates Helpdesk of internal flooring defects such as worn or unevenness, loose or worn carpets or carpet grippers, etc to identify areas prone to such deterioration and implement preventative action on a programmed basis.
- Include the condition of external steps and slopes, ramps and changes in level on existing paving surveys

General awareness

27. The HSE has run campaigns for reducing slips and trips for several years, including the "Watch your step in Education"[12] and the current "Shattered Lives"[13] campaign, as part of their objective to reduce RIDDOR accident rates.

28. A general campaign urging people to be "slip and trip aware" is unlikely to attract much interest or commitment, and if anything, may increase the rate of accident reporting. A more targeted approach to reach the main staff groups reporting incidents may be more effective. For example, HSE's Step e-learning package could be made available, and groups encouraged to complete it within a given timescale. It would be quite difficult to ascertain the effect of such work on accident rates, because of the multiple causal factors.

29. The University's new e-learning course for UG, PGT and PGR already includes material on the contribution of slips and trips to overall accident figures, and draws attention to the main causes. The new induction e-learning course for staff also covers slips and trips.

30. The option of running an awareness campaign should be kept open however, and reviewed in light of annual reports on slips, trips and falls accidents and near misses.

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July 2011

[12] http://www.hse.gov.uk/slips/education/index.htm
[13] http://www.hse.gov.uk/slips/shattered.htm

Appendix

[To be inserted : site plan of areas improved by public realm project – to come from Estates]