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Standard Guide for Composing Walkway Surface Investigation, Evaluation and Incident Report Forms for Slips, Stumbles, Trips, and Falls¹

This standard is issued under the fixed designation F1694; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide provides a listing of items that may be useful in recording and evaluating the conditions of a walkway surface, including ramps and stairs, that may involve a slip, stumble, or trip that may result in a fall.

1.2 This guide provides a listing of data that may be useful in investigating, evaluating, and reporting a slip, stumble, trip, slip and fall, stumble and fall, or trip and fall incident.

1.3 Nomenclature is provided to obtain uniform language for reports.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate ~~safety~~ safety, health, and ~~health~~ environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[F1646 Terminology Relating to Walkway Safety and Footwear](#)

[F2048 Practice for Reporting Slip Resistance Test Results](#)

[F2508 Practice for Validation, Calibration, and Certification of Walkway Tribometers Using Reference Surfaces](#)

3. Terminology

3.1 *Definitions:*

3.1.1 The standard terms listed in Section 6 shall be used.

¹ This guide is under the jurisdiction of ASTM Committee F13 on Pedestrian/Walkway Safety and Footwear and is the direct responsibility of Subcommittee F13.50 on Walkway Surfaces.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3.1.2 The standard terms listed in Terminology F1646 shall be used when there is no term(s) provided in this guide.

4. Significance and Use

4.1 This guide provides recommendations for recording walkway surface investigation, evaluation, and incident report data pertaining to slips, trips, stumbles, and falls. It is intended to aid individuals or entities in the development of their own special reporting system. It is recognized that a user may use this guide in its entirety or may extract only those segments providing the level of information recommended. Depending on the intended use, a report form may be designed to be used alone or as a supplement to or incorporated within another report form. This guide is not a final report form. It lists items that may be considered for inclusion into a questionnaire, document, or report.

4.2 Potential users include persons interested in the prevention and investigation of slip, trip, stumble, and fall phenomena, such as insurance company loss control specialists, industrial and commercial safety professionals, plant and facilities management personnel, forensic engineers, and research personnel concerned with factor correlation, statistics acquisition, loss control, and cost control.

4.3 This guide provides uniform language appropriate for creating a form for manually recording information regarding pedestrian walkway evaluations and slip, trip, and fall incidents.

4.4 *Recommendations for Reporting*—Information specific to site location and case identification is given in 6.2; information specific to walkway evaluation is given in 6.3; information specific to slip, trip, and fall incidents is given in 6.4.

5. Procedure

5.1 *Preparing Report Form(s)*—Consider the recommendations in 6.1 – 6.3 when preparing a walkway surface evaluation report. Use the recommendations in Section 6 when preparing slip and fall, stumble and fall, and trip and fall incident reports and reports of near falls.

6. Report

6.1 *Form of Report*—The report may be in narrative or coded format. The form may be hard copy or electronic media, or the original data may be hard copy and then converted to electronic or computerized format. The form of the report will be left up to the user.

6.1.1 A form may be composed with a simply stated question on the form. Possible responses may be listed adjacent to the question, in a supplement, in instructions that the entity issues regarding the form, or on the reverse side of the form. See X1.3 for a sample walkway evaluation report form and X1.4 for a sample incident report form.

6.1.2 Photos and diagrams may be useful to illustrate and explain the information collected.

6.2 Case Identity:

6.2.1 *Date and Time of Report*—Enter date as mm/dd/yy, where mm indicates the month, 01 through 12; dd indicates the day of the month, 01 through 31; and yy indicates the last two digits of the year. Record the time that the evaluation is being made using a 24-h system in the form “hh/mm,” where hh represents the hour of day and mm represents the minutes. Examples are 0908 is 8 min after 9 a.m., and 2108 is 8 min after 9 p.m.

6.2.2 *Report Type*—Walkway evaluation only or walkway evaluation and incident report. An incident report may also include a walkway evaluation.

6.2.3 *Owner Location*—Report the company name, mailing address, city, state, mail zip code, country, telephone number, and fax machine number.

6.2.3.1 *Contact Person at Owner Location*—Record the last name, first name, and middle initial; and telephone number, including area code; telephone extension; email address; and fax machine number.

6.2.4 *Site Location*—Record the site name, physical address, city, state, zip code, country and specific location of the walkway being evaluated.

6.2.4.1 *Interior or Outdoors*—Record as interior or outdoors.

6.2.4.2 *Contact Person at Site Location*—Record the last name, first name, and middle initial; telephone number, including area code; telephone extension; email address; and fax machine number.

6.2.5 *Person Preparing Report*—Record the last name, first name, and middle initial; the individual’s telephone number, telephone extension, and email address; company name; mailing address, city, state, mail zip code, and country; and company telephone number.

6.3 *Walkway Evaluation:*

6.3.1 ~~*Slip Resistance-Friction Measurement*~~³~~Measurement~~—The investigator determines which measurements are necessary and the ~~instrument(s) walkway tribometer(s)~~ used to make the measurements. The choice of whether to test a walkway surface with a standard test foot, a test foot directly related to an incident, or a test foot selected for other reasons lies with the investigator. Details of the surface test are recorded in accordance with 6.3.1.1. The details of tests the investigator may require for a particular sole material, or a particular heel material, with a surface other than the walkway under investigation, are recorded according to 6.3.1.2.

6.3.1.1 ~~*Walkway Surface Slip Resistance-Friction Measurement*~~—Record the identity of the ~~instrument walkway tribometer~~ used to measure the ~~surface slip resistance-walkway friction~~. Test result details may include the ASTM standard for the ~~instrument walkway tribometer~~ or the make and model. Record a description of the surface tested, ~~instrument walkway tribometer test foot material, slip resistancefriction measurements~~ of the surface clean and dry, and ~~slip resistanceof surface contaminated-friction measurements of the contaminated surface~~. Record contaminant(s). Refer to Practice F2048 for additional data to be recorded and a ~~Sample Slip Resistance-sample Test Results Report~~.

6.3.1.2 ~~*Footwear Sole and Heel Slip Resistance-Friction Measurement*~~—Record the ASTM standard for the measuring instrument, or otherwise identify the instrument. Record the instrument test foot sole material, test surface material, contaminant(s), ~~slip resistancefriction measurements~~ of the sole material dry, and ~~slip resistancefriction measurements~~ of the sole material contaminated.

6.3.1.3 ~~*Walkway Tribometer Validation Report and Walkway Tribometer Calibration Report*~~—Include with this Incident Report. Refer to Practice F2508 for the Walkway Tribometer Validation Report and Walkway Tribometer Calibration Report.

6.3.2 *Walkway Structure:*

6.3.2.1 *Walkway Type*—Record one of the following: curb, floor, parking lot, ramp, sidewalk, stair, street, threshold, unpaved ground, or other. Drawings/sketches may be used to aid in documentation, especially if the walkway type is complex or comprised of multiple types.

6.3.2.2 *Walkway Construction Material*—Include the area of interest as well as the immediately surrounding areas, since slips often occur at transitions from surfaces of greater to lesser slip resistance. Record one of the following standard walkway constructions: surface coatings (acrylic, urethane, or epoxy), asphalt plank flooring, asphaltic concrete paving, brick, carpet sheet, carpet tile, carpet indoor/outdoor type, non-mosaic ceramic or porcelain tile, ceramic mosaic tile, concrete, conductive elastomeric liquid flooring, conductive resilient, conductive terrazzo, cut natural stone tile, earth, elastomeric liquid flooring, epoxy marble chip, flagstone flooring, floor mat, fluid-applied resilient, foot grille, granite, granular paving, crushed stone or cinders, grass, gratings, magnesium oxychloride, marble, mastic fills, metal floor plates, pedestal flooring, plastic laminate flooring, Portland cement concrete paving, quarry tile, resilient tile flooring, resilient sheet flooring, resilient flooring static control, resinous, rugs, seamless quartz, slip-resistant finishes, slate, steel deck, stone, thin brick tile, Portland cement terrazzo, precast terrazzo, conductive terrazzo, plastic matrix terrazzo, pressed concrete unit flooring, quarry tile, synthetic grass surfacing, vinyl composition tile or vinyl flooring, wood, wood decking, wood block, wood composition, wood parquet, wood strip, or other.

³ Guide F1694-2014 referred to the term “slip resistance.” Guide F1694 has been updated to reflect the terminology “friction” used as the measurement of a “walkway tribometer” as defined in Practice F2508-2016. Section 3.2.4 of Practice F2508 states that a “walkway tribometer” is “any apparatus used to measure the frictional forces acting at an interface between a walkway surface and shoe material.”

6.3.2.3 *Surface Texture*—Include the area of interest as well as the immediately surrounding areas, since slips often occur at transitions from surfaces of greater to lesser slip resistance. Record whether abrasive, button, or cross-cut grooving; note the direction of grooves in relation to the travel path, texturing, or other means intended to render the surface slip resistant; describe smooth, coarse, carpet unidentified surface, carpet runner plastic, or carpet runner other than plastic; and describe carpet shag, carpet with smooth nap, or carpet with medium nap.

6.3.2.4 *Walkway Irregularities*—Note whether the walkway is stable, planar, flush, and even. Record the nature of any irregularities. Examples for carpet condition are as follows: regular, irregular carpet; and raised edge, open seam, torn, worn, and buckled. Examples for other surfaces are as follows: broken, even, rough, smooth, uneven.

6.3.2.5 *Walkway Load*—Record any known walkway load support issues based on applicable load requirements. Record in a written report comments and stipulations such as the nature of the irregularities or deviations from applicable requirements.

6.3.2.6 *Surface Changes in Elevation*—Record whether the walkway includes any changes in elevation (such as stairs, ramps, or other walkway height transitions) and whether such transitions comply with applicable standards/requirements. Record in a written report standards applying to the walkway and comments and qualifications such as the nature of the irregularities or deviations from the requirements.

6.3.2.7 *Handrails/Guardrails*—Record whether the location complies with the requirements for handrails and guardrails. Note applicable requirements such as those in the building code, those relating to the disabled, such as the Americans with Disabilities Act (ADA) and related regulations, and occupational safety and health (OSHA) regulations and standards. Describe the construction of those not in compliance, and note how they are deficient. Record whether there is information regarding if the handrail was utilized at the time of the incident. Record the source of this information.

6.3.2.8 *Intended Use*—Record whether this surface is intended for use as a pedestrian walkway. If this is a multi-use surface provide details.

6.3.2.9 *Stairs/Steps Supplemental*—If stairs or steps are involved record characteristics of step geometry including rise, run of step where incident occurred, uniformity of steps in the stairway, and slope of stairs; specific location on steps where fall occurred; record direction of travel on steps (up or down).

6.3.3 *Surface Contaminants:*

6.3.3.1 *Contaminants Present*—Record the contamination status at the time of examination: clean, cleaning solution, dirt (soil, unidentified), dust, grease, ice, liquid (other than substances in this listing), oil, overspray, particulate (paper clips, paper), refuse (food waste), snow, water, residual ice melt or friction product, or other (identify).

6.3.3.2 *Expected Contaminants*—Record the contaminants expected to be present on the walkway surface even though not present when the walkway was examined.

6.3.4 *Janitorial Practices:*

6.3.4.1 *Manufacturer's Instructions for Use*—Record whether the manufacturer's recommendations are available to the users. Record deviations from the instructions when using janitorial products at this location. Specify instances in which the manufacturer's instructions are not followed.

6.3.4.2 *Scrubbers*—Record how often squeegees on automatic scrubbers are replaced and whether automatic scrubbers are maintained if/as applicable, so they do not leave a trail of water on the floor.

6.3.4.3 *Floor Dust*—Record whether floor dust is mopped immediately after burnishing to remove particulate residue.

6.3.4.4 *Products*—Record whether the contents of all products used on or in the vicinity of the walkway are known.

6.3.4.5 *Mats*—Record whether walk-off mats are placed adjacent to outside entrances and wet carpet.

6.3.4.6 *Rugs and Mats*—Record whether rugs and mats have a slip-resistant backing that is functional, if/as applicable. Record whether the rug or mat lies flat in the area of intended use. Additionally, record whether the edges are flush and planar with the

walkway surface (that is, no curling of edges). Also record the length of mat and number of mats used in the path of travel. If possible, measure the vertical change in elevation at the mat or rug edge to the nearest 1/32 in. If applicable, record whether any residual contaminant, normally denoted by footprints, exists on the walkway surface beyond the last mat or rug of an entrance. If a door swings over a mat or rug, comment if clearance maintained between door bottom and rug.

6.3.4.7 *Spray Products*—Record whether sprays used in the vicinity of the floor contain mineral oil, silicone, other lubricants, or ingredients that may contaminate a walkway surface.

6.3.4.8 *Contaminants and Refuse*—Record whether spilled contaminants and refuse are required to be cleaned up promptly. Record observed or reported failures to clean residue promptly.

6.3.4.9 *Surface Process*—Record whether sealed, polished, coated, or no surface process. Record the name by brand and manufacturer, polish, sealer, wax, ultra high-speed buffing polish, plastic type polish, or spray buff product.

6.3.4.10 *Cleaning Method*—Record the cleaning method as mopped, wet mop, dry buff, dry mop, machine washed, shampoo (carpet), spot clean, strip, dusted, or other. Describe prior cleaning methods if different from most recent cleaning methods. Describe other processes specific for wood, terrazzo, marble, concrete, metal, or other types of walkway material, if/as applicable.

6.3.4.11 *Buffing or High-Speed Burnishing Method*—Record the brand, model, and revolutions per minute of the buffing or burnishing machine(s). Record the coarseness/color and manufacturer of the buffing pad.

6.3.4.12 *Products Used on Floor*—Record the brand name, manufacturer, and other identifying product information. Note known incompatibilities between products. Such products may include stripper, sealer, polish or wax, spray buff product, general purpose cleaner, cleaner used in automatic scrubber, spot cleaning product, aerosol products such as metal cleaners used in vicinity of the floor (as on door guards), buffing burnishing machine, buffing pads, dust mop, wet mop, and other products. The manufacturer's maintenance instructions and walkway friction test reports should be included in this Incident Report.

6.3.4.13 *Compliance with Standards*—Record which janitorial products are in compliance with the applicable slip resistance or safety standards and which are not in compliance. Record the standard(s).

6.3.5 *Maintenance Records*—Record whether there are service and maintenance records and whether the maintenance records are maintained regularly.

6.3.5.1 *Record Retention Policy*—Summarize the record retention policy. Record whether the required records are maintained in accordance with the policy.

6.3.5.2 *Janitorial Products*—Record whether a record is kept for the brand and name of each janitorial product used on the floor.

6.3.5.3 *Janitorial Procedures*—Record whether a record is kept of the date and time each maintenance procedure was performed.

6.3.5.4 *Janitorial Employee*—Record whether a record is kept of who performed each service.

6.3.5.5 *Incident Reports*—Record whether a record is kept of slip, trip, stumble, and fall incidents.

6.3.5.6 *Time of Service*—Record whether a log is kept of the time of service and the kind of service and whether the log is maintained in a timely manner.

6.3.6 *Safety Program*—Record whether there is consideration of slip and fall issues and appropriate enforcement in the safety program.

6.3.6.1 *Review*—Record whether there is a policy for the review of incident reports for trending or follow-up, or both.

6.3.6.2 *Training Program*—Record whether there is a regular training program for personnel and environmental services staff and outside service contractors regarding safety procedures and slip and fall prevention.

6.3.7 *Signs and Warnings:*

6.3.7.1 Describe whether caution and warning signs are used at the examination site and are visible from all directions of approach.

6.3.7.2 Record whether the warning signs comply with applicable standards/requirements.

6.3.7.3 Record whether the warning signs are temporary or permanent.

6.3.7.4 Describe other warning methods used and the specific conditions cautioned against.

6.3.7.5 Record the graphics, background color, lettering color, and description of the signs.

6.3.8 *Walkway Illumination*—Record the illumination level as measured by an appropriate illumination-measuring device (such as a light meter), device used, and location of illumination measurement(s) including distance above walkway surface. Record the measurements at time and illumination levels consistent with time of incident.

6.3.8.1 Record whether the illumination is in compliance with applicable standards/requirements.

6.3.8.2 Record whether the illumination causes glare on the walkway surface.

6.3.8.3 Describe if the illumination is distracting or interferes with the pedestrian's ability to see the walkway surface.

6.3.8.4 Describe if obscuring shadows are cast by pedestrians or other objects on the walking surface, especially at changes.

6.3.8.5 Record the source and type(s) of illumination.

6.3.9 *Headroom Clearance:*

6.3.9.1 Is there minimum headroom clearance of 6 ft 8 in. (2.03 m)?

6.3.9.2 Is a low headroom clearance safely padded?

6.3.9.3 Is a low headroom clearance marked with safety contrast color coding?

6.3.10 *Horizontal Clearance/Obstructions*—Describe any permanent obstructions (for example, not debris or storage) in the walkway, such as low shelves, items hanging on the wall that protrude into walkway, or other construction that limits horizontal clearance. Measure nominal width of walkway; width of walkway at obstruction; length, width and height of obstruction; and vertical distance of obstruction from walkway surface.

6.3.11 *Visual Cues/Distractions*—Describe the appearance of incident area that may make falls less likely or more likely, such as contrasting colors or patterns at changes in elevation, obstructions and changes in surface slip resistance; accent lighting; appearance of carpet or tile patterns; appearance of displays; etc.

6.3.12 *Changes in Conditions*—Describe any known changes in conditions or procedures, or repairs made, between time of incident and time of walkway evaluation that might affect measured slip resistance, measured illumination level, or answers to any questions above.

6.4 *Incident Report:*

6.4.1 *Case Types*—Define case types as follows: ankle roll, ankle and fall, heel slip, heel slip and fall, toe slip, toe slip and fall, stumble, stumble and fall, trip, and trip and fall.

6.4.2 *Incident Date*—Record the numerical designation of mm/dd/yy, where mm indicates the month; dd indicates the day of the month, 01 through 31; and yy indicates the last two digits of the year.

6.4.3 *Incident Time*—Record the time that the incident occurred using a 24-h system in the form “hh/mm,” where hh represents the hour of day and mm represents the minutes. Examples are 0908 is 8 min after 9 a.m., and 2108 is 8 min after 9 p.m. When

the incident occurred during employment, additionally record the hour of the shift or after the beginning of the workday or the time when required by the individual company policy, using a field length and private alphanumeric designation, as desired.

6.4.3.1 *Date/Time Incident Reported*—If incident was not reported immediately by the person involved, note date and time reported, and reason for delay.

6.4.4 *Weather Conditions*—Record whether rain, snow, sleet, dry, or not applicable (indoors).

6.4.4.1 Record as reported for the time of the incident.

6.4.4.2 Record the weather conditions during the period immediately previous to the incident.

6.4.4.3 Record the weather conditions during the 24 h prior to the incident.

6.4.5 *Lighting Conditions*:

6.4.5.1 *Natural Outdoor Light*—Record whether sunny, overcast, twilight, night dark, night moonlit, or other at the time of the incident, and describe.

6.4.5.2 *Supplemental Light*—Describe what lighting fixtures were illuminated at the time of the incident.

6.4.6 *Number of People Involved*—Prepare a separate report using the data listed in 6.4 for each person. A copy of the information included in 6.2 and 6.3 may be attached to each report.

6.4.7 *Incident Category*—Record whether personal injury, property damage, personal injury and property damage, or no personal injury and no property damage.

6.4.7.1 *Height*—Record as a fall on the same level or a fall from elevation. If a fall from elevation, record the measurement of fall height.

6.4.7.2 *Personal Injury Severity*—Record incident severity whether a fatality, lost time, or no lost time, or other applicable measure of incident severity.

6.4.7.3 *Lost Work Time*—Record the days lost or hours lost, if/as applicable. Record as work days lost for full days lost and work hours lost for partial days lost.

6.4.7.4 *Property Damage Severity*—Describe the damage, and estimate the cost of repair or replacement, or both.

6.4.8 *Individual Involved in Incident*—Record the name: last, first, and middle initial; and record the employer and home physical mailing addresses, telephone numbers, and email addresses as applicable.

6.4.8.1 *Personnel or Visitor Category*—Record whether an employee, volunteer, invited visitor, contractor/vendor, customer, inpatient, outpatient, client, trespasser, other (describe), or unknown.

6.4.8.2 *Gender*—Record as male or female.

6.4.8.3 *Date of Birth*—Enter a numerical designation of mm/dd/yy, where mm indicates the month; dd indicates the day of the month, 01 through 31; and yy indicates the last two digits of the year. When the date is not available, leave blank.

6.4.8.4 *Age*—When the date of birth is not available, record as child, teen, adult, aged. If a child, indicate whether they were under the supervision of a responsible adult.

6.4.8.5 *Employer*—If individual involved in incident is not an employee, record the employer name, mailing address, telephone number and fax machine number; and physical address, telephone number, and fax machine number.

6.4.8.6 *Result*—Record whether recovered or fell.

6.4.8.7 *Part of Body Affected*—Use standard nomenclature designated by the entity for whom the report is written.