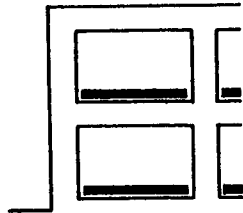


FLOORS

SUMMARY



The primary objective of the floor system is to provide a structurally stable plane for the activities occurring within the building and the equipment which supports these activities. The floor system should also be physically durable, maintainable, hygienic, safely usable and present a satisfactory appearance. The field tests in this area emphasize these primary objectives and are directed at conditions which impair this performance.

PERFORMANCE OBJECTIVE: PROVIDE STRUCTURAL STABILITY

TEST # 1: Resistance to Static Loads

Test Method: Determine past performance, if possible. Test by locating at least one heavy load in the room (e.g. a desk, bookcase, file cabinet, etc.). Observe the floor around the legs from a distance of one foot noting any change in physical condition. If possible, shift the load and observe an indentation in the flooring. Measure this with a depth gauge.

Observe the floor from a distance of three feet, at any angle, with the floor illuminated. Record the number of indentations, and photograph.

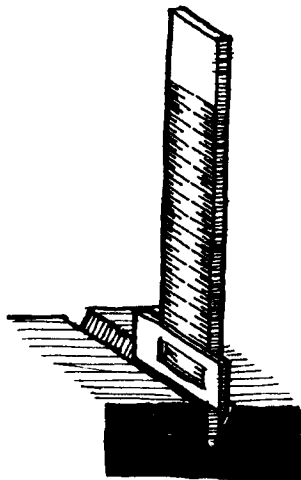
Measure: Indentation, cracking, splitting

-Based on depth, record as slight (less than 1/16 inch), moderate (1/16 to 1/8 inch), or severe (greater than 1/8 inch).

-Based on width, record as slight (less than 1/32 inch), moderate (1/32 to 1/16 inch), or severe (greater than 1/16 inch).

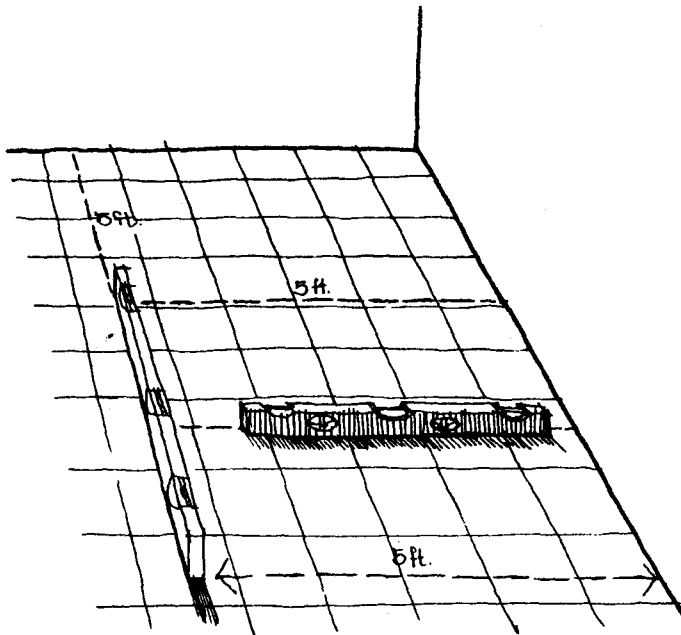
Measure: Checking

-Record as slight, moderate or severe based on areal extent and depth of cracking.



TEST # 2: Levelness of Surface

Test Method: Determine past performance, if possible. Test by sweeping the floor clean of all particulate matter which might interfere with the testing procedures. Rolling a spherical object such as a ball bearing to observe deviation from a straight line path, or observing flow or ponding of water during cleaning operations can be used as gross indicators of a general or localized non-level condition which can then be verified by more precise measurement using long levels.



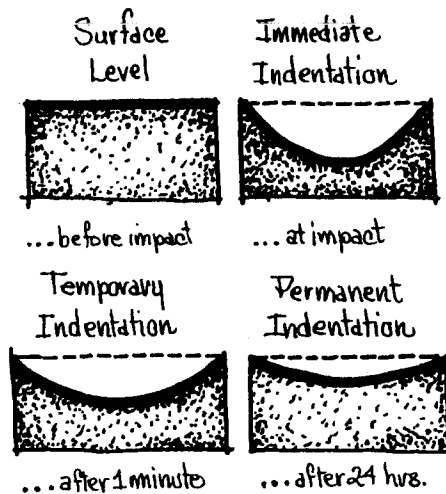
Place a four foot level on the floor parallel to, and within five feet of, a wall to determine whether or not the floor is indeed level. Determine if the level rests evenly on the surface along its entire length. Light penetration under the level from the opposite side will indicate deviations from a level condition. Repeat the test in the same location but with the level perpendicular to the wall. (Test should be conducted once for every 500 square feet of floor area.) Record the results.

Measure: Significant problems with an unlevel condition may be said to exist when such a floor is measurably and/or noticeably sloped, either in general or in any small area such that it interferes with normal activities, routine maintenance, the stability of objects resting on it, or produces psychological discomfort for its occupants. Visually note and describe instances of cupping, bulging or slope as slight, moderate or severe.

PERFORMANCE OBJECTIVE: PROVIDE A PHYSICALLY DURABLE SURFACE

TEST # 3: Resistance to Point Impact

Test Method: Determine past performance, if possible. Test by visually evaluating the result of impacting, with reasonable force, a conventional 3/4 inch diameter hammer head on the floor sur-



face. It should withstand any reasonable impact without damage. Record and photograph.

Measure: Determine the depth of any indentation, to the nearest 1/64 inch, with the aid of a level and any standard linear measuring device applicable to the situation. Note the occurrence of any splitting, cracking or crazing. Measures should be made at the time of the test and again after 24 hours. Note the permanence of the damage.

TEST # 4: Resistance to Abrasion and Scratching

Test Method: Determine past performance, if possible. Test by locating areas of heavy use (e.g. doorways, aisles between desks, under desks, in front of sinks, etc.). Place a four foot level over the area with each end of the level supported by an area of less hard use. Measure the depth of the wear with a ruler. If the test for color homogeneity (Floor Test #15) yields the fact that the surface color does not fully penetrate the material, observe and note any areas where the subsurface color of the material shows through.

For scratching, observe the flooring from a distance of three feet, at various angles, and note any areas of scratching or ground-in dirt. Clean a sample scratched area with a damp sponge passed vigorously over the area ten times. Rinse with one pass of a clean sponge. Observe the area again from a distance of one foot, recording the extent and severity of the damage from scratching and ground-in dirt. Photograph.

Measure: Abrasion

- For large area abrasion, note change in depth to 1/64 inch
- For abrasion with wear of the top surface color layer, note extent to 1 inch and depth to 1/16 inch.

Measure: Scratching

-Record depth of scratches to 1/64 inch and length to 1 inch

TEST # 5: Cohesive Strength

Test Method: Determine past performance, if possible. Test by visually locating areas of hard use (i.e. possible areas of crumbling or breaking) or areas subject to standing water. Observe from a distance of three feet. Record and photograph any deterioration.

For carpeting, test by running a common nail through a loop of the carpet. Holding the nail in the hand, exert a pressure increasing to about seven pounds. Record any yielding in the carpet, such as snagging or running, and photograph.

Measure: Crumbling, breaking

-Record as extensive, moderate or slight

Measure: Snagging, running

-Record the amount of pressure necessary to cause damage as heavy, moderate or light

TEST # 6: Adhesive Strength

Test Method: Determine past performance, if possible. Test by visually examining the entire floor from eye level for bulges or loose tile. Test these areas by pulling upward on exposed edges to see if delamination has actually occurred.

For carpeting, test by running a common nail through about five loops and exerting a quick pull of about seven pounds to determine any yielding of the adhesive has occurred. Record and photograph.

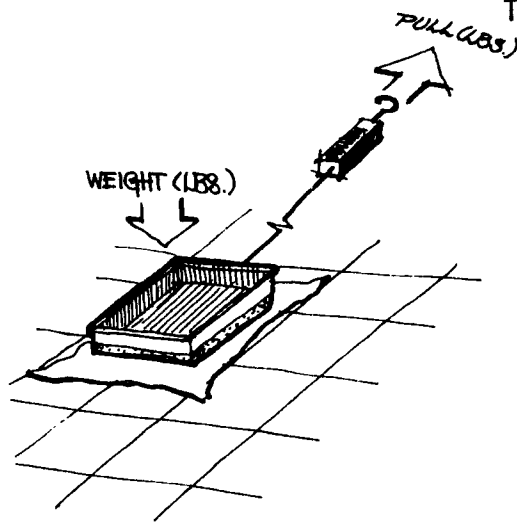
Measure: Bulges, delamination

-Note existing bulges or delaminations to 1/32 inch

-Note any test-induced bulges or delaminations to 1/32 inch

PERFORMANCE OBJECTIVE: PROVIDE A SAFE SURFACE

TEST # 7: Resistance to Slip



Test Method: Determine past performance, if possible. Test by using a slip meter to determine the coefficient of slip of hard, smooth surfaces (not to be used on carpeting or on heavily-textured surfaces). The slip meter is a weighted cloth bag which is pulled and the force necessary to cause the device to begin moving across a surface is noted on a tension scale. This test need be performed only once for each flooring material in use. Record the results for each surface, wet and dry.

Measure: Coefficient of slip

-Note the force necessary to move the testing equipment, under both wet and dry conditions, to the nearest pound. Determine the coefficient of slip.

TEST # 8: Control of Static Discharge

Test Method: Determine past performance, if possible. Test by walking several paces on the carpet or other flooring material. Touch a grounded conductor (e.g. another person or a light switch) noting the general force of any static discharge which occurs.

This test can also be performed using a voltmeter, by rubbing the surface of the floor and measuring the voltage at which a shock is received when turning on a piece of electrical equipment such as a light switch or electric typewriter. Use this measurement as a criterion for measuring other areas. (This test may not be reliable on days of high humidity.) Record.

Measure: Static discharge

- Record voltage generated during static discharge
- Indicate the severity of the discharge generally as severe, moderate or slight.

TEST # 9: Anthropometric Fit

Test Method: Determine past performance, if possible. Test by visually observing possible anthropometric problems in the course of performing other testing procedures. Record and photograph.

Measure: Anthropometric fit

- Measure to 1/2 inch

PERFORMANCE OBJECTIVE: PROVIDE SATISFACTORY APPEARANCE AND MAINTAINABILITY

TEST #10: Resistance to Chemical Cleansers

Test Method: Determine past performance, if possible. Test by exposing the floor surface, for sixty minutes, to each of the following: distilled water, a detergent solution, sodium hydroxide and a 1% soap solution. Compare the exposed surface to an unexposed sample of the same material. Record and photograph the results.

Measure: Changes in color, dimension, deterioration

- Record the type of damage and note its extent as either slight, moderate or severe.

TEST #11: Water Permeability

Test Method: Determine past performance, if possible. Test by submerging a flat sample of flooring (not to include carpeting) in water for a period of three hours. Test, by weighing, the amount of water absorbed during the test period. Absorption should not exceed 15%, by weight. Note any other deterioration of the sample as a result of the testing procedure. Record and photograph. (Test need be run only once for each type of material in use.)

Measure: Water absorption

-Record weight of the sample, before and immediately after the test, to the nearest gram. Difference should not exceed 15% of the pretest weight.

-Note any other test-related deterioration, recording its type and severity as either slight, moderate or severe.

TEST #12: Dust Accumulation

Test Method: Determine past performance, if possible. Test by collecting a sample of retained dust from a one foot square area of each type of flooring material in use by means of a baster (a tube device in which a rubber bulb is depressed to provide suction). The flooring surface (except carpeting) should not allow more than 1/4 gram of dust to be retained per square foot. Record the results.

The floor should also be checked by close visual observation, from a distance of three feet, to determine if there are any areas in which dust and other particulate matter can concentrate out of the reach of normal cleaning operations. Record and photograph any such areas.

Measure: Dust retention

-Record the weight of the retained dust sample to 1/2 gram

-Record the location of any uncleaned accumulations of dust or other particulate matter.

TEST #13: Economic Washability and Scrubability

Test Method: Determine past performance, if possible. Test by visually comparing an unused sample with each type of flooring material in use. Routine cleaning procedures should provide an 85% retention of the original appearance of the material. Record and photograph results.

Measure: Retention of original appearance
-For resilient floors, note the retention of marks and the level of gloss remaining
-For carpeting, observe pile height and record.

TEST #14: Convenient Repair and Replacement

Test Method: Determine past performance, if possible. Test by examining the entire floor, from eye level, noting areas where the flooring material has been repaired or replaced. New material should be of the same type as the original flooring. Record any significant discrepancies (other than those related to age and wear) and photograph.

Measure: Replaceability
-Record differences in material types

TEST #15: Color Homogeneity and Stability

Test Method: Determine past performance, if possible. Test by visually comparing the color of unused samples with each flooring material in use. Record and photograph any significant changes. Measure the depth of the surface color on an edge of each flooring sample. Such colored material should constitute not less than 50% of the thickness of the sample. Record the results.

Measure: Color stability

-Record any significant changes in color

Measure: Color homogeneity

- Measure depth of surface color to 1/32 Inch

TEST #16: Resistance to Fading

Test Method: Determine past performance, if possible. Test by obtaining an unused sample of each type of flooring material in use. Locate possible areas of natural fading (e.g. areas near windows, areas subjected to standing water, etc.) and compare the flooring with the unused sample of the same material. Note any instances of fading. Record and photograph.

Measure: Fading

- Record as severe, moderate or slight

TEST #17: Resistance to Staining

Test Method: Determine past performance, if possible. Test by exposing each type of flooring material in use (except carpet) to the following stain-causing materials: pencil, orange juice, coffee, tea, milk, cold drinks, residue of cigarette snuffed out rapidly with the foot, chalk, grease, permanent inks, ball point, alcohol-based marker, lipstick, nail polish, heel marks, paint, etc. Exposure for 15 minutes and a subsequent use of a stain remover or cleansing agent tests the resistance to the material to each of these agents. Observe, from a distance of one foot, any change in the appearance of the tested areas. Record and photograph.

Measure: Stain resistance

-Record each agent tested as staining or non-staining

See interior wall notes P. C-6. The reports mentioned contain excellent documentation of performance and tests in the areas of interior walls, ceilings and floors.

SUMMARY OF FLOORS PERFORMANCE TESTS

PERFORMANCE OBJECTIVE: PROVIDE STRUCTURAL STABILITY

TEST # 1: Resistance to Static Loads

TEST # 2: Levelness of Surface

PERFORMANCE OBJECTIVE: PROVIDE A PHYSICALLY DURABLE SURFACE

TEST # 3: Resistance to Point Impact

TEST # 4: Resistance to Abrasion and Scratching

TEST # 5: Cohesive Strength

TEST # 6: Adhesive Strength

PERFORMANCE OBJECTIVE: PROVIDE A SAFE SURFACE

TEST # 7: Resistance to Slip

TEST # 8: Control of Static Discharge

TEST # 9: Anthropometric Fit

PERFORMANCE OBJECTIVE: PROVIDE SATISFACTORY APPEARANCE AND MAINTAINABILITY

TEST #10: Resistance to Chemical Cleansors

TEST #11: Water Permeability

TEST #12: Dust Accumulation

TEST #13: Economic Washability and Scrubability

TEST #14: Convenient Repair and Replacement

TEST #15: Color Homogeneity and Stability

TEST #16: Resistance to Fading

TEST #17: Resistance to Staining