

Coefficient of Friction Test

Snowmaster T-1100/T-1500

1/26/07

Equipment Used: ASM 725 Slip Meter

General:

EHS was contacted to conduct numerous slip tests during a snow mock-up, which took place in SS 20 for project in order to help determine the type of pre-show flooring to be used. The static coefficient of friction (C.O.F.) was measured before and after snow had fallen, on various flooring samples. The coefficient of friction is an indicator of the slippery condition of a flooring material. The Americans with Disabilities Act (Section A 4.5.1) recommends a static coefficient of friction of 0.6 for accessible routes and 0.8 for ramps.

Methodology:

An ASM 725 Slip Meter was used to obtain the COF readings. The meter is operationally calibrated prior to the readings being taken. The meter is fitted with neolite pads and is pulled across the surface being tested. The readings are recorded.

Observations:

The following flooring materials were provided: sanded oak, veneer coated oak, concrete with integral dye, slate tile with a heat treated surface and basic concrete unsealed (the existing floor of the sound stage). See attached photos.

Results:

The flooring materials provided for the snow mock-up met the ADA requirement of 0.6, with the exception of the veneer coated oak. And in all cases, the coefficient of friction increased after the snow fell. See table on next page for data.

Recommendations:

Based on the results, the veneer coated oak shall not be used for the pre-show floor. A wet test, which time did not allow, should be conducted as well.

COF Readings

| Date | Location | Condition | Rotation* | | | | | Comments |
|---------|--------------|---------------------------------------|-----------|-----------|-----------|-----------|-----------|----------|
| | | | 1 | 2 | 3 | 4 | Ave | |
| 1/26/07 | Mock-up area | Dry-Sanded Oak | .72 | .82 | .66 | .72 | .73 | |
| | Mock-up area | Dry-Veneer Coated Oak | .32 | .44 | .42 | .36 | .39 | |
| | Mock-up area | Dry-Concrete with Integral Dye | .86 | .86 | .95 | .93 | .90 | |
| | Mock-up area | Dry-Slate Tile w/Heat Treated Surface | .90 | .86 | .86 | .92 | .89 | |
| | Mock-up area | Dry-Basic Concrete Unsealed | = or >1.0 | = or >1.0 | = or >1.0 | = or >1.0 | = or >1.0 | |

| Date | Location | Condition | Rotation* | | | | | Comments |
|---------|--------------|---|-----------|-----|-----|-----|-----|----------|
| | | | 1 | 2 | 3 | 4 | Ave | |
| 1/26/07 | Mock-up area | 1 Show Cycle of Snow-Sanded Oak | .80 | .84 | .84 | .72 | .80 | |
| | Mock-up area | 1 Show Cycle of Snow-Veneer Coated Oak | .58 | .59 | .57 | .54 | .57 | |
| | Mock-up area | 1 Show Cycle of Snow-Concrete with Integral | .86 | .92 | .96 | 1.0 | .94 | |

| | | | | | | | | |
|--|--------------|--|-----------|-----------|-----------|-----------|-----------|--|
| | | Dye | | | | | | |
| | Mock-up area | 1 Show Cycle of Snow-Slate Tile w/Heat Treated Surface | .90 | .88 | .94 | .96 | .92 | |
| | Mock-up area | 1 Show Cycle of Snow-Basic Concrete Unsealed | = or >1.0 | = or >1.0 | = or >1.0 | = or >1.0 | = or >1.0 | |

| Date | Location | Condition | Rotation* | | | | | Comments |
|---------|--------------|---|-----------|-----------|-----------|-----------|-----------|----------|
| | | | 1 | 2 | 3 | 4 | Ave | |
| 1/26/07 | Mock-up area | 15 Cycles of Snow-Sanded Oak | .96 | .92 | .92 | .88 | .92 | |
| | Mock-up area | 15 Cycles of Snow-Veneer Coated Oak | .74 | .82 | .70 | .72 | .75 | |
| | Mock-up area | 15 Cycles of Snow-Concrete with Integral Dye | .88 | .92 | .92 | 1.0 | .93 | |
| | Mock-up area | 15 Cycles of Snow-Slate Tile w/Heat Treated Surface | 1.0 | .92 | .88 | .96 | .94 | |
| | Mock-up area | 15 Cycles of Snow-Basic Concrete Unsealed | = or >1.0 | = or >1.0 | = or >1.0 | = or >1.0 | = or >1.0 | |

*Rotation is the orientation of the slip meter when the reading is taken. Four readings are taken:

- 1- Towards the North
- 2- Towards the South
- 3- Towards the East
- 4- Towards the West