

SUMMARY OF TOPICS

The following changes in requirements are being proposed:

1. For Preliminary Review Only: The proposed first edition of UL 1618, the Standard for Wall Protectors, Floor Protectors, and Hearth Extensions

COMMENTS DUE: FEBRUARY 16, 2007

This proposal is for review and comment only (no ballot at this time). Please note that comments on a preliminary review document will not receive a response from the proposal author through CSDS. Instead, the proposal author is asked to review the comments received during the preliminary review and adjust the proposals and/or supporting rationale as the author determines to be appropriate. The preliminary review process is an informal mechanism that provides authors with the opportunity to refine their proposals before the proposals advance in UL's standards development process. Normally, the next step in the process is the more formal STP ballot and stakeholder review process. Only comments newly posted during the more formal STP ballot and stakeholder review process will be addressed and responded to.

1. For Preliminary Review Only: The proposed first edition of UL 1618, the Standard for Wall Protectors, Floor Protectors, and Hearth Extensions

BACKGROUND

At the September 14, 2005 STP 127 meeting a task group was formed to develop requirements for a First Edition of a UL Standard for Wall Protectors, Floor Protectors, and Hearth Extensions. Below are the objective and charges of this task group as documented in the October 26, 2005 report of that meeting.

Objective: To develop requirements for a First Edition of a UL Standard for Wall Protectors, Floor Protectors, and Hearth Extensions. The requirements of SU 1618 may be used as a basis for this Standard at the discretion of the Task Group. Specific charges for this Task Group from the STP are:

1. Consider use of these products over insulated floors.
2. Return proposals for the appliance standards as applicable.
3. Consider a classification system, an example being Class C - Ember Protection Only. Or, develop a system to determine a k value. The system should be simple to understand, but also be able to accommodate products that might be developed in the future.
4. Base the standard on R factors and provide k factors as well, with tables showing examples.

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RATIONALE

Proposal submitted by: Bruce Richmond, Hearth Classics on behalf of the STP task group

The current Subject 1618 Outline for Investigation for Wall Protectors, Floor Protectors and Hearth Extensions has existed since 1991 in its current form. It has never evolved toward becoming a standard. It has been used as the de facto standard, but is out of date and incomplete. It is unclear in many areas and of little use in many applications. The lack of clarity has caused substantial confusion among hearth industry professionals and building inspectors alike. The attached proposal for a new Standard for Wall Protectors, Floor Protectors and Hearth Extensions is intended to help clarify and codify floor and wall protection issues. As stoves are burning cleaner and hotter, it has become more critical to eliminate as much confusion as possible.

We carried forward as much of the original as made sense. The major changes from the outline for investigation are discussed below. They are briefly:

1. Defines three levels of floor protection
2. Standardizes on the use of thermal resistance (R-values) instead of thermal conductance (k-and K- and C-values)
3. Eliminates references to "standard" materials the go/no-go benchmark.

1. Ember and thermal floor protector definitions

As written, UL 1618 does not separate the requirements for "ember protectors" and "thermal protectors". The new proposed standard separates floor protectors into three categories.

a. Ember Protectors 1, 2.2 (a), are tested and listed for appliances, such as corn and pellet stoves, that do not require thermal protection of the floor during normal operation. These appliances are also extremely unlikely to expose the floor protector to a large burning mass. These floor protectors only require a contiguous noncombustible surface between the stove and the combustible floor.

b. Ember Protectors 2, 2.2 (b), are tested and listed for appliances, such as wood and coal stoves, that do not require thermal protection of the floor during normal operation. These appliances have the potential to expose the floor protector to a large burning mass. These floor protectors require a contiguous noncombustible surface and also need to be able to protect the combustible floor from being exposed to heat transferred from the large burning mass. Therefore the Ember Protector 2 floor protectors need to have a reasonable amount of thermal resistance. The subcommittee has chosen $R=0.45$ as the minimum thermal resistance required. This value comes from the long accepted benchmark of 3/8" of asbestos millboard with a k-value of 0.84.

c. Thermal Floor Protectors, 2.2 (c), are tested and listed for appliances that require thermal protection of the floor in normal operation. These floor protectors need to have substantial thermal resistance. They are to be measured for their thermal resistance and it is to be listed on the floor protector. To ensure adequate thermal protection, the installer and inspector need only ensure that the R-value of the floor protector is equal to or greater than the requirement listed in the stove's installation manual. All building inspectors are familiar with R-values very few are well versed in k-values.

2. Specification of Thermal Resistance

In the current outline of investigation, the thermal characteristics are given in k-values. This is changed in the proposed standard to R-values for the following reasons:

- a. All of the values of the insulation with which most people, from consumers to building inspectors, are familiar are given in R-values. All standard building materials, if they have a thermal rating, are rated in R-values.
- b. R-values add and subtract very easily with simple arithmetic. Almost anyone can handle the calculations. With k-values the arithmetic is much more confusing. This is especially confusing if the thermal protection material used is non-homogeneous, i.e. a sandwich construction. Very few specialty hearth retailers or building inspectors can handle the k-value calculations when there are multiple materials involved without help. The k-value calculations are much more prone to error.
- c. Intuitively, resistance to thermal flow, "R", makes more sense as a specification for a device that is likely to want to resist the flow of heat. Thermal conductance, "k", would seem to be best used in situations in which heat flow is desired.

3. Go/No-Go Testing and Standard Material Specification

The current outline of investigation uses a go/no-go approach to qualifying floor protectors. This is changed in the proposed standard for the following reasons:

- a. A result of the "go/no-go" or "pass-fail" test methodology is that all floor protectors that are tested appear to have the same maximum thermal resistance. The devices that pass all match or exceed the Ceraform value. The calculated R-value required to pass currently is $R = 0.446$ - not a high enough thermal resistance for some stoves on the market.
- b. The "standard" material that is used to for the go/no-go test no longer exists. The standard material is listed as Ceraform 126 and Ceraform 106. Neither of those is in production any longer and data is not available on either.
- c. Dealers and installers need an actual R-value for the floor protector to know quickly whether or not the floor protector in question passes.

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PROPOSAL

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INTRODUCTION

1 Scope

1.1 These requirements cover noncombustible wall protectors, floor protectors, and hearth extensions that are intended for use with heat producing devices, such as fireplaces, fireplace stoves, fireplace inserts, and solid-fuel type room heaters.

1.2 Wall protectors, floor protectors, and hearth extensions are intended for installation in accordance with the Standard for Chimneys, Fireplaces, Vents, and Solid-Fuel Burning Appliances, NFPA 211.

1.3 The factory-built fireplaces with which these products are used are intended to comply with the Standard for Factory-Built Fireplaces, UL 127.

1.4 The fireplace stoves with which these products are used are intended to comply with the Standard for Fireplace Stoves, UL 737.

1.5 The solid-fuel type room heaters with which these products are used are intended to comply with the Standard for Room Heaters, Solid-Fuel Type, UL 1482.

1.6 The pellet-fuel type room heaters with which these products are used are intended to comply with the Standard for Room Heaters, Pellet Fuel-Burning Type, ASTM E1509.

1.7 Floor protectors are not evaluated in regard to floor protection with substantial amounts of fuel burning directly on floor protector surface.

2 Glossary

2.1 For the purpose of this standard, the following definitions apply.

2.2 FLOOR PROTECTOR – Noncombustible surfacing applied to the floor area underneath and extending in front, to the sides and to the rear of a heat producing appliance.

a) EMBER PROTECTOR 1 – for pellet and corn stoves not requiring thermal protection of the combustible floor during normal operation.

b) EMBER PROTECTOR 2 – for solid fuel appliances (wood/coal) not requiring thermal protection of the combustible floor during normal operation.

c) THERMAL FLOOR PROTECTOR – for appliances requiring thermal protection of the combustible floor during normal operation.

2.3 HEARTH EXTENSION – Noncombustible surfacing applied to the floor area extending in front of and at the sides of the hearth opening of a fireplace or fireplace insert.

2.4 NONCOMBUSTIBLE MATERIAL – A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat as specified in the Radiant Panel Test, Section 12, and in the Burning Brand Test for Floor Protectors, Section 13. Materials reported as noncombustible, when tested in accordance with the Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C, ASTM E136, are considered noncombustible materials.