

TO: All Accounts:

FROM: Donald P. Miller  
President/CEO

SUBJECT: Butting Tread Installation

Due to the fact that most of our treads are not over 72" , applications do arise when two (2) treads need to be butted together to cover the longer stair cases.

Problems can arise if certain procedures are not followed, so the instructions below need to be followed to insure an approved installation.

1. When treads are ordered for a butting installation, color match is more critical. We need to know this information when an order is placed, as the treads will be manufactured specifically for this job, so butting edges have molded edges to have a proper pattern match.
2. We recommend, when butting treads together, using a staggered installation. For example: an 8' stair installation – starting at the left, install a 6' tread and fill in the right side with a 2' piece. The next step would also begin at the left, but installation would begin with the 2' piece first and then the 6' tread, etc.
3. Whether a staggered or a straight line middle butt type installation is used, it is the responsibility of the installer to make sure the edges that are to be butted together are square.
4. After tread ends are squared, then follow normal tread installation instructions included in each box of treads.
5. Epoxy adhesive must be used on this type of installation.
6. Please call Customer Service if you have any questions regarding this matter.

SUBJECT: E-622 SMOKE DENSITY TEST RESULTS – STAIR TREAD

The rubber stair tread compound was tested for smoke density by the ASTM E-622 test, since there were several recent requests. A black compound and a gray compound were tested. All non-black compound and gray compound were tested. All non-black colors can be expected to give results similar to gray. These results will also be applicable to risers and stringers, since they are made of the same compound.

	Stair Treads, Risers, Stringers	
	Black	Other Colors (Typical)
Specific Optical Density of Smoke, Dm (corrected), mode	291	312 flaming

\* Most agencies require this value to be below 450.

RE: ASTM E-648 Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source

To Whom It May Concern:

Our standard Rubber Stair Tread Compound was tested for Critical Radiant Flux on March 9, 1987 (same compound is used for risers and stringers).

The test, also known as the Flooring Radiant Panel, is identical to the Federal Test Method Standard Number 372 and the National Fire Protection Association Test Method Number 253. It measures the critical radiant flux at flame-out of horizontally mounted complete flooring systems exposed to a flaming ignition source in a radiant heat energy environment intended to simulate the actual conditions that have been observed and defined in full-scale experiments.

The Flooring Radiant Panel test measures the level of incident radiant heat energy on the floor covering system at the most distant flame-out point, and is expressed as Critical Radiant Flux in watts per square centimeter. It provided a basis for estimating one aspect of flame-spread behavior for floor covering systems installed in corridors or exit ways of buildings.

The test results, calculated in accordance with the prescribed methods, are as follows:

SPECIMEN NUMBER	1	2	3
Distance Maximum Burn (cm)	13.5	13.6	13.9
Time to Flame-Out (minutes)	16.3	11.5	14.2
Critical Radiant Flux	1.03	1.02	1.02

AVERAGE CRITICAL RADIANT FLUX = 1.02 watts/cm<sup>2</sup>

A copy of the entire test report (#56030) is available upon request.

Sincerely,



Donald P. Miller  
 President/ CEO  
 ROPPE CORPORATION

PROPERTIES OF ROPPE 800 SERIES RUBBER STAIRTREADS

Property	Test Method	Typical Value
HARDNESS, Shore A	ASTM D-2240	85-90
MODULUS, 10%, psi	ASTM D-412	> 300
TENSILE STRENGTH, psi	ASTM D-412	700-800
ELONGATION AT BREAK, %	ASTM D-412	200-250
TEAR STRENGTH, psi	ASTM D-624 (DIE C)	100-120
TABER ABRASION WT. LOSS, g/kc	ASTM D-3389 (H-18, 500g)	0.8-1.0
STATIC COEFFICIENT OF FRICTION	ASTM D-2047 (James Machine, leather)	0.70
RADIANT PANEL - CRITICAL RADIANT FLUX, w/cm <sup>2</sup>	ASTM E-648	1.02
HALOGEN FREE		YES

To Whom It May Concern:

To the best of our knowledge, Roppe Rubber Tile and Stair Treads do not emit significant amounts of any known harmful volatile organic compounds (VOCs) under normal use conditions.

Sincerely,



Donald P. Miller  
President/CEO  
ROPPE CORPORATION

To Whom It May Concern:

Our Rubber Tile and Stair Treads have been tested for the properties listed below in accordance with the appropriate test procedures.

We hereby certify that the following typical results are true and accurate:

Property	Test	Tile Results	Stair Tread Results
Tensile Strength, psi	ASTM D-412	1200-1400 psi	700-800 psi
Elongation at break, %	ASTM D-412	20-140	200-250
Hardness, Shore A	ASTM D-2240	85-90	85-90
Taber Abrasion, weight loss, g (H-18 Calibrate, 500 gms.) 1000 cycles	ASTM D-3389	(1) less than 0.6 g ms. Loss	(1) less than 1.0
Coefficient of Friction (James Test)	ASTM D-2047-75	0.75	0.7
Flame Spread Index	ASTM E-162	(2) 45	—
Radiant Panel, Critical Flux, watts/cm <sup>2</sup>	ASTM E-648	(3) 1.03 watts/cm <sup>2</sup>	(3) 1.02 watts/cm <sup>2</sup>

Solvents to avoid: Aromatic and aliphatic hydrocarbons, halogenated types

1. This is a standard test for floor abrasion with a low result being most desirable.
2. By way of comparison, standard particleboard has a Flame Spread Index of up to 400.
3. By way of comparison, we're advised that at a rating of .10-watts/cm<sup>2</sup> carpet will not cigarette burn, and hospitals commonly specify a rating of not less than .50 watts/cm<sup>2</sup>. The higher value indicates grater fire resistance.

Sincerely,



Donald P. Miller  
President/CEO  
ROPPE CORPORATION

To Whom It May Concern:

Radiant Floor Panel Testing and Flame Spread Testing were conducted on the compounds used to manufacture our RCD Rubber Tile and Stair Treads by Commercial Testing Co. of Dalton, GA.

Flame Spread testing was performed on rubber tile per ASTM E-162 (Surface Flammability of Materials Using a Radiant Heat Energy Source). Samples were determined to have an average Flame spread Index of 45. By way of comparison, standard particleboard has a Flame Spread Index of up to 400.


Radiant Floor Panel testing was performed per ASTM E-648 (Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source). Tile and stair tread were determined to have average Critical Radiant Flux values of 1.03 and 1.02 watts/cm<sup>2</sup> respectively. (The higher value indicates greater fire resistance).

Roppe's RCD tile and stair treads rated exceptionally well on both tests.

Abrasion testing was also conducted on the compound used to manufacture our RCD tile and stair treads. The tests were performed per Abrasion Resistance, ASTM D-3389 Taber Method; 3000 cycles, H-18 wheels, 500-gram load. This is a standard test for floor abrasion with a low result being most desirable.

The average weight loss (in grams per 1000 cycles) was less than 0.6 for tile and less than 1.0 for stair tread. Shore "A" hardness was determined to be not less than 85.

Sincerely,



Donald P. Miller  
President/CEO  
ROPPE CORPORATION

To Whom It May Concern:

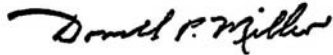
Our Rubber Stair Tread was tested for Flame Spread Classification and Smoke and Fuel Contribution on March 24, 1977. The tests were performed by United States Testing Company, Inc., Hoboken, NJ.

The samples submitted were tested for flammability in accordance with the procedures outlined in ASTM E84-769, Standard Method of Test for Surface Burning Characteristics of Building Materials. The test results cover three (3) parameters: flame spread classification, fuel contribution, and smoke density.

The test results, calculated in accordance with the prescribed methods of flame spread classification, fuel contribution, and smoke density, are as follows:

Flame Spread Value (GWL Method)	85
Fuel Contributed Factor	55
Smoke Density Factor	390

Sincerely,



Donald P. Miller  
President/CEO  
ROPPE CORPORATION

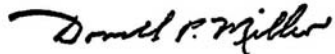
To Whom It May Concern:

Given below are the results of recent ASTM E-662 (Specific Optical Density of Smoke Generated by Solid Materials) tests on Roppe products:

	Pinnacle Rubber Base	Vinyl Wall Base	Rubber Tile	Solid Vinyl Tile	Rubber Stair Tread
Ds @ 4.0min, flaming	119	126	101	376	283
Dm (corrected), flaming	256	216	408	377	312
Non-flaming	333	343	163	315	410

The testing was conducted by Commercial Testing Laboratory, Dalton, GA.

Sincerely,



Donald P. Miller  
President/CEO  
ROPPE CORPORATION

To Whom It May Concern:

This letter pertains to the inquiries regarding whether Roppe products meet the Class A 25 or less flame spread specified in the ASTM E-84-81A test: Surface Burning Characteristics of Building Materials.

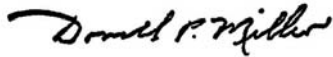
We concur with the National Fire Protection Association (Life Safety Code Handbook: page 252 6-5,4; page 254 6-5.4.1; and 6-5.4.2), which states that during an actual fire situation, floor coverings are subjected to heat energy that is radiant in nature. It has been proven in full-scale fire test data that the level of energy radiating onto the floor is a significant determinant as to whether or not a progressive flaming will occur.

Also proven is that floor coverings of modest resistance to flame spread are unlikely to become involved in the early growth of a fire. Therefore, we concur with the NFPA, "when judgment is made to regulate floor coverings, the evaluation is to be made based upon tests conducted in accordance with NFPA 253, Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source, also known as ASTM E648."

The above classification is also recommended by the BOCA (Building Officials & Code Administrators International Inc.) codes.

Our standard materials, when tested in accordance with ASTM E648, are rated as Class I products. Our standard compound material is also halogen free. When manufacturing a product to meet the Class A fire rating, the ingredients added contain chlorine, and they could produce, upon burning, chlorine, hydrogen-chloride, and other chlorine containing compounds.

Sincerely,



Donald P. Miller  
President/CEO  
ROPPE CORPORATION