I-ROCK Test Data Summary Report

Category: Testing of the properties of composite floor material, with skin removed.

Test Performed: Friction Test

Test Agency: NSF International Engineering Laboratories

Test Results: ASTM D 2394 was used as reference to test both static and dynamic friction coefficients. The United Load Frame was used for the friction testing for both smooth and rough sides. Sliding unit is a piece of metal, weighing approximately 23.4 lbs. This rested against a piece of leather, 4 in by 4.5 in, attached to a wood base. Testing speed was 0.05 in/min for static friction testing and 2 in/min for dynamic friction testing. The apparatus used is shown in the picture below. When testing the wet friction coefficient, distilled water was used.

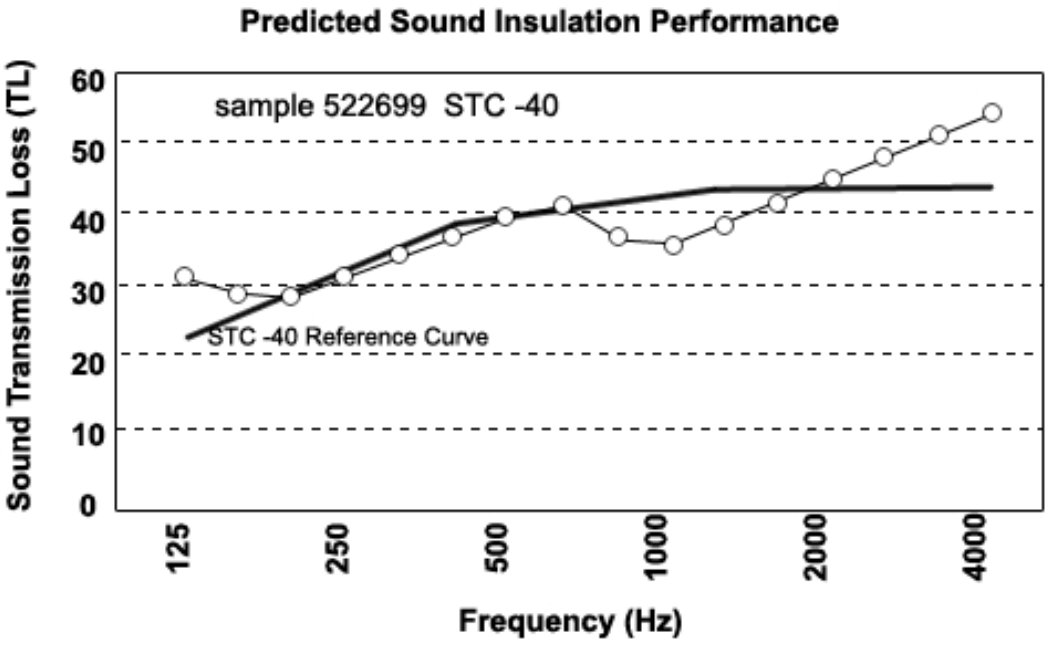
Friction Coefficients

Smooth Surface	Friction Coefficient
Static (dry)	0.22
Dynamic (dry)	0.05
Static (wet)	0.08
Dynamic (wet)	0.045
Rough Surface	
Static (dry)	0.24
Dynamic (dry)	0.17
Static (wet)	0.24*
Dynamic (wet)	0.45

* Means of 5 Tests

I-ROCK Test Data Summary Report

Category:	Sound Analysis & Testing
Test Performed:	ASTM E413-87 Classification for Rating Sound Insulation
Test Agency:	HGG Engineering
Test Results	See Graph Below:



I-ROCK Test Data Summary Report

Category:	Physical Property Testing
Test Performed:	Compression and Flexural Properties
Test Agency:	Sandia National Laboratories
Test Results	See Table Below

Summary of Flexural Tests

Specimen Number	Fabrication Process	Maximum Stress (psi)	Flexural Modulus (psi)
1	Extrusion	930	106,000
2	Extrusion	1,095	123,000
3	Extrusion	1,105	127,000
4	Extrusion	1,250	121,000
	Average	**1,095**	**119,250**

I-ROCK Test Data Summary Report

Category:	Structural Integrity Test – Smart Tie®
Test Performed:	Stress Test Analysis
Test Agency:	NSF International Engineering Laboratories
Test Results:	12’ Composite beam with an 8.5” X 5.25” Cross section under a 35 psf wind load would have a strength safety factor of 3.8 and an angular deflection of 3 degrees. If the vertical steel supports are specified as 20lb. W6 beams, the structure will be sufficient to support a 35 psf wind load at a height of 20’.

I-ROCK Test Data Summary Report

Category:	Testing of the properties of composite floor material, with skin removed.
Test Performed:	Water Absorption
Test Agency:	NSF International Engineering Laboratories
Test Results:	Water Absorption = 1.82%

Water absorption = Ww --- Wd / Wd X 100%
Where : Ww = Mass of the wet specimen, gram
Wd = Mass of the dry specimen, gram
In this testing, Ww = 96.56 grams
Wd = 94.83 grams
Water Absorption = 1.82%

I-ROCK Test Data Summary Report

Category:	Testing of the properties of composite floor material, with skin removed.	
Test Performed:	Compression Load, Compression Stress & Modules of Elasticity	
Test Agency:	NSF International Engineering Laboratories	
Test Results:	Compression Load:	2436 lbs average
	Compression Stress:	2107 psi average
	Modules of Elasticity:	25,958 psi average

Compression load, compression stress and modulus of elasticity were tested by using a United Load Frame. 3 specimens with a size 1" x 1" x 1" were tested and the speed of testing was 0.01 in/min. Results are listed in table below.

Compression Properties

Properties/Specimens	Specimen #1	Specimen #2	Specimen #3	Average
Compression Load, lbs	2199	2670	2440	2436
Compression stress, psi	1920	2300	2100	2107
Modulus of elasticity, psi	22,857	27,710	27,308	25,958

I-ROCK Test Data Summary Report

Category:	Testing of the properties of composite floor material, with skin removed.
Test Performed:	Flexural Load, Modulus of Elasticity and Flexural Stress
Test Agency:	NSF International Engineering Laboratories
Test Results:	Flexural load, modulus of elasticity and flexural stress were tested by using a 5865 INSTRON Load Frame. 3 specimens with a size 4.8in (length) x 0.48 in (width) x 0.50 in. (height) were tested. Speed of the testing was 0.05 in/min and the span was 2.50 in. Results are listed in table below.

Flexural Properties

Properties/Specimens	Specimen #1	Specimen #2	Specimen #3	Average
Flexural Load, lbs	20.42	14.71	23.39	19.51
Modulus of Elasticity, psi	46,700	41,100	49,000	45,600
Flexural Stress, psi	561	425	626	537

I-ROCK Test Data Summary Report

Category:	Testing of the properties of Composite Floor Material, with skin removed.
Test Performed:	Linear Thermal Expansion Coefficient Test
Test Agency:	Detroit Testing Lab
Test Results:	Linear thermal expansion coefficient (LTEC) was determined by Detroit Testing Lab. Standard ASTM D6969 was followed and testing temperatures were from -30^{o}C to 30^{o}C. The equipment used was 5V Vitreous Silica Dilatometer. Results are listed in table below.

Linear Thermal Expansion Coefficients

Sample #	LTEC, mm/mm ^{o}C	LTEC, in/in ^{o}F
1	2.329×10^{-5}	
2	2.407×10^{-5}	
3	2.261×10^{-5}	
Average	2.332×10^{-5}	0.0762×10^{-5}