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CORKSRIBAS – Indústria Granuladora de Cortiça, S.A.  
Rua do Fial (PO Box: 22)  
4536-907 S. Paio de Oleiros  
Portugal

**Re: CORKSRIBAS,  
Field Impact Sound Insulation Class Testing**

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HGC Engineering visited 640 Fleet Street, to perform acoustical field impact insulation class tests of several floor systems on September 14<sup>th</sup> and 15<sup>th</sup>, 2010. The primary purpose of this investigation was to evaluate the performance of various floor types and constructions. Sections of flooring were set up in several suites, and measurements were taken in the suites below.

#### **Description of Spaces**

The source rooms for the tests were the living rooms and bedrooms of suites 1703, 1705, 1706, and 1707. The receiver rooms were the living rooms and bedrooms of suites 1603, 1605, 1606, and 1607, respectively. Each pair of suites had identical floor plans, with the source room lying directly above the receiver room.

Details of the building structure were not provided to us at this time, however it is our understanding that the demising floor slab consists of 8" poured concrete, with no drop ceiling below (stucco finish on the underside of the slab).

There was no flooring installed in the source rooms except for the test sections. Some of the receiver rooms had wood or laminate flooring installed, others had no flooring. Walls in both source and receiver rooms were generally drywall, either stud assemblies or laminated to concrete. Neither source nor receiver rooms were furnished.

#### Description of Test Sections

Several hardwood and laminate floor constructions were tested on a variety of underlayments, in both floating and glue down configurations. The flooring types tested included 5/16" Solid Mosaic Parquet, 10mm Veneer Hardwood, 3/4" Engineered Hardwood, 8mm Laminate, 10.5mm Wearlayer Hardwood, and 5/8" Engineered Hardwood. Silent Cork underlayments (2.5, 4, and 6mm thick) were tested. Multiple test sections were created in each room, based on the space available and number of assemblies to be tested.

### Field Impact Insulation Test Methodology

Standardized field impact insulation testing was conducted pursuant to the methodologies described by ASTM E-1007, "*Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures*", subject to limitations of the facility and test sections, as described below. Some tests of the bare concrete slab were also performed for comparison.

For these tests, a standard tapping machine (Norsonic Nor-211A, S/N 29651) was placed on the test section in the source room, in four different orientations per the standard. The resulting average sound pressure levels were measured using a sound level analyzer (Norsonic N-140, S/N 1403176) in the room directly below. Measurements were also taken to determine the ambient sound in the receiver room and reverberation times. The reverberation times and the room geometry were used to determine the acoustical absorption present in the receiver room. This information was then used to calculate the FIIC (Field Impact Sound Insulation Class) of the test section, according to ASTM E-989, "*Standard Classification for Determination of Impact Insulation Class*".

As a result of placing multiple test sections in one room, some test sections were not large enough to perform the test in full accordance with the standard. The four positions which the machine must be placed in during a test had to be slightly modified in order to fit on the test sample, in some cases; however an effort was made to conduct the testing as closely to the standard as possible. Also, some of the smaller bedrooms were smaller than ideal, and this increases uncertainty in some of the lower frequencies.

### Test Results

The results of the test sections which were tested on the Silent Cork underlayments are summarized in Table 1 below.

**Table 1: FIIC Test Results**

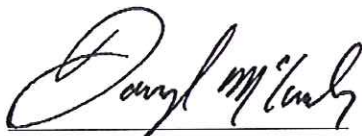
Underlayment	Measured Field IIC						
	Wood or Laminate Flooring Product						
	5/16" Solid Mosaic Parquet	10mm Veneer Hardwood	3/4" Engineered Hardwood	8mm Laminate	10.5mm Wearlayer Hardwood	5/8" Engineered Hardwood	Bare Concrete
Silent Cork CR-108 2.5, Glued	56		55		54	54	
Silent Cork CR-108 2.5, Floating		62		62	59		
Silent Cork CR-108 4.0, Glued	57		56		57	57	
Silent Cork CR-108 4.0, Floating		58		59	58		
Silent Cork CR-108 6.0, Glued	57		56		55	58	
Silent Cork CR-108 6.0, Floating		60		59	58		
N/A							31-35

Appendix A shows the detailed results of the IIC tests for each sample tested. In general all the products performed well, providing FIIC ratings of 54 to 62. The floating products generally outperformed the glue-down underlayments.

We thank you for the opportunity to provide this information, and we trust that this information is helpful and sufficient for your purposes. If you have any questions or concerns, please do not hesitate to contact the undersigned.

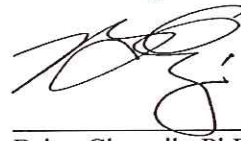
Yours truly,

**Howe Gastmeier Chapnik Limited**



Darryl McCumber, BASc  
 Attach: (22)

Reviewed by:



Brian Chapnik, PhD, PEng