Exhibit C

Flooring House Rules Hawaiki Tower 88 Piikoi Street Honolulu, Hawaii

> Final February 9, 2011

Hawaiki Tower Flooring House Rules

Objective:

The objective of this house rule is to create a set of rules and guidelines that clearly define what is an acceptable floor covering for Hawaiki Tower. In particular, these rules establish a minimum impact noise threshold for floor coverings.

General Guidelines and Guiding Principles:

The purpose of this flooring specification is to preserve the right of our residents to a **reasonably** quiet and peaceful enjoyment of their residence. As Hawaiki Tower is a "luxury class" building, these standards are appropriate for buildings of this nature. The driving concern is noise or more specifically, impact noise that migrates through floors of stacked units. It is the floor covering that is the primary noise barrier between units and thus the importance of this specification.

Definitions:

Acoustical Sealant: This is a caulking product specifically formulated and used as a sound insulator to seal gaps between an acoustical floor assembly and abutting walls or discontinuities.

Perimeter Isolation Board: This is filler that is placed wherever an acoustical floor assembly is discontinuous or abuts a wall. **Carpet:** Carpet for the purpose of this specification, means a floor covering consisting of a continuous mat of a natural or synthetic fiber material, underlain by a synthetic or rubber pad. Rugs, area mats, carpet tile and other floor coverings not **permanently** attached to a sub-base are not considered carpet.

Carpet Pad: Carpet pads are any carpet underlayment made of rubber, sponge rubber, foam rubber or similar synthetic or natural material. Pads must be installed continuously under carpet with no gaps. Provide a pad with a minimum 40 oz. density. Glue down applications of carpet directly on the slab will not be allowed, except for carpets in Zone 2 or Zone 3 areas.

Flooring House Rules Commentary:

The flooring specification for Hawaiki Tower prior to 2011, although it provides basic guidelines, is very difficult for the Owners to implement and has numerous gaps that make it hard to interpret and enforce. This revised specification attempts to be more comprehensive and attempts to address issues that were absent in previous specifications. Further, it is the goal of the Board of Directors to write the new specification in a language that is easily understandable and easily applied and enforced.

In condominium units, noise complaint is a major issue. Impact noise is particularly onerous. This is the noise created by people walking in heels on a hard surface floor or dragging a chair or any sound created by something impacting the floor. Concrete is a poor insulator of impact noise. The floor covering is the best way to mitigate impact noise transmission. Thus, our flooring house rule focuses on impact noise transmission and the selection of flooring assemblies that best mitigate impact noise.

Hard Surface Flooring: Hard surface flooring includes but is not limited to the following: Marble, ceramic, terrazzo, granite tiles. Natural and synthetic wood flooring and cork flooring. FIIC: FIIC (Field Impact Isolation Class) is a number rating system that characterizes a floor assembly's effectiveness in limiting impact sound transmission between floors of a building. IIC is a laboratory test rating conducted in a controlled laboratory facility. FIIC is a field test rating of a particular assembly conducted on the actual site of an installation.	FIIC is the standard we are using to rate floor coverings for installation in Hawaiki Tower.
Acceptable Noise Threshold: For this house rule, three flooring zones are created with differing noise thresholds. All flooring nstallations shall conform to the minimum impact noise standards established below.	Testing has shown that it is very difficult to meet an acceptable noise level with hard tile flooring. Floor assemblies of this type may be as thick as 1-3/4" to 2-1/2". These assemblies are difficult to install and will require modifications to the unit's doors and built in cabinets and vanities. As such, it is deemed impractical to force an entire unit to conform to the highest impact noise classification (FIIC-55). This is the reason why zones have been created. This gives us flexibility in controlling noise levels in various areas of a unit and offers more flexibility for the Owner to choose a floor covering.
ZONE 1: These are the areas of a home which are most sensitive to noise. Here we assign the highest threshold for noise transmission. Zone 1 includes the bedrooms, living room, dining room and the halls adjacent to these areas. In Zone 1 the minimum Field Impact Isolation noise threshold is set at FIIC-55.	Zone 1 FIIC-55 is the level recommended by our acoustical consultant, hired to assist us in setting these standards. FIIC-55 is deemed appropriated for a luxury condominium. Please note that this threshold is a very subjective criteria (all individuals have different noise tolerance levels). As such the Board will review this provision from time to time as the need arises and if complaints are numerous will revise as required.
ZONE 2: These are the areas of a home where a higher level of noise may be acceptable and normally where hard floor surfaces are desired. Zone 2 includes the entry area, kitchen and bathrooms. In Zone 2 areas a minimum impact noise threshold is set at a Field Impact Isolation rating FIIC-45.	Zone 2 FIIC-45 is the minimum FIIC level for impact noise transmission as mandated by the County of Honolulu Building Code. Setting a higher standard would result in thicker floor assemblies, as much as two to three inches thick for tile floor.
ZONE 3: These are the areas of the home that are least sensitive to noise. Here, there are no restrictions to floor coverings. Zone 3 includes exterior lanais with no enclosed living areas below it.	As Zone 3 is an exterior space exposed to a multitude of ambient noise, we do not feel it necessary to control impact noise in this area.

Zone Definitions:

The limits of Zones 1, 2 and 3 shall be as delineated by the diagrammatic representations in Exhibit 1. These limits shall be strictly observed by the Owner. Any encroachment into adjacent zones shall require that the Owner remove the flooring encroaching into other zones and replace it with proper flooring.

If there is any uncertainty on the Owner's part, in regards to the extent of a particular zone, the Owner shall request a determination be made by the Resident Manager. If the Owner disagrees with the Resident Manager, the Board of Directors shall have final say in all matters.

Allowable Floor Covering Replacements:

The following are guidelines for the selection of floor covering in the event an Owner desires to replace the existing floor covering in a particular unit.

ZONE 1: In Zone 1 it is highly recommended to install carpet as a floor covering. Carpet is superior to most floor coverings in regards to impact noise transmission. If solid surface flooring is desired in Zone 1, it is recommended to consider a wood floor installation. Testing has shown that it is very difficult to obtain the required FIIC-55 rating for tile floors. See Exhibit 2 for pre-approved floor assemblies in Zone 1 areas.

Zone 2: In Zone 2 see Exhibit 2 for preapproved floor assemblies. Note that any assembly suitable for Zone 1 installation can also be installed in Zone 2.

Custom Floor Assemblies:

If the Owner desires to install a floor covering not on the House Rules pre-approved list (Exhibit 2), then it is incumbent on the Owner to prove the desired system meets the minimum acceptance criteria for impact sound isolation established above, **prior** to installation. If the Owner desires to pursue this, then he or she shall request of the Resident Manager to initiate the flooring test procedure. All cost involved with the testing of this floor assembly shall be borne by the Owner. In general, the limits defining Zones 1, 2 and 3, are as delineated in Exhibit 1. These zones closely match the floor area definitions as established in the original construction plans for Hawaiki Tower. Owners doing extensive reconfiguring of their units or combining units must strictly observe these zones.

The pre- approved floor assemblies are installations that are pre-approved by the Association and require no testing. Owners who desire to follow these recommendations must install their flooring exactly as delineated in the descriptions of the pre-approved assemblies.

Floor Assembly Test Procedure:

In the event an Owner desires to test a particular floor assembly in regards to impact noise transmission, the following procedure shall be followed.

- The Owner shall notify the Resident Manager, in writing, of his or her intent to initiate a flooring assembly test.
- The Owner shall employ a pre-qualified acoustical consultant to conduct this test. See Exhibit 3.
- The Owner shall procure and enter into agreement with the acoustical consultant to conduct the assessment.
- 4) The Owner, Resident Manager and Testing Company shall then agree on a date and time of testing.
- 5) Prior to the testing date, the Owner shall furnish to the Resident Manager a sketch of the proposed flooring assembly, including manufacture's data and installation guide to be used for this test.
- 6) Subsequent to the test, the testing agency shall prepare a report, including the FIIC rating of the test assembly and a recommendation to accept or reject the proposed floor assembly based on our House Rules. The report shall also contain a sketch of the floor assembly with all the critical elements and components clearly indentified on this sketch. A copy of the report shall be delivered to the Resident Manager. Based on this report, the Resident Manager shall accept or reject the proposed floor assembly. In the event the Owner disagrees with the Resident Manager, the Board of Directors shall have final say in all matters.
- 8) If accepted, the floor covering shall be installed exactly as constructed for the test assembly. The Resident Manager shall be notified at each critical stage of installation, so the proper construction of the sound attenuation barriers can be verified. Failure to do so is cause for the Association to demand removal of the flooring or retesting of the installation, again at the Owner's cost.
- 9) During construction of the floor, the Owner shall photo document each layer of acoustical material that is placed. Photos shall show the material and the extent of the material being placed. A copy of the photos shall be delivered to the Resident Manager for verification.

The flooring test procedure is outlined in detail so the Association has some control over the test procedure and results. If the Owner does testing with no specific guidelines, there may be a question as to the qualification and/or objectivity of the testing agency. Having the Association in control of the test protocol and agency will give more reliable and consistent results.

If the test assembly passes the minimum FIIC rating, it is the intent of the Association to include this assembly in our pre-approved assembly list. If the Owner has any objection to this, the Resident Manage should be notified, in writing, of such concern.

Note that only the pre-qualified acoustical consultants listed in Exhibit 3, shall be used to test any floor assembly to be used in Hawaiki Tower.

Note that testing will require access to the unit below the test location. This will require cooperation between Owners of different units. This arrangement is the responsibility of the Owner conducting the test.

Zone Reconfiguration:

This House Rule specifically states that Zone limits shall be strictly adhered to. As an example it is not permissible to carpet the entry area (Zone 2) and in return extend the marble tile beyond the Zone 2 limits of the kitchen. This would be considered an encroachment. The Zone limits established above shall be strictly followed.

Flooring Repairs:

If any area of flooring is damaged and the damage is less than 25% of the floor area of the room, the Owner shall be allowed to repair the existing flooring in kind. If however, the repaired area is more than 25% of the room floor area, new flooring shall be installed, **conforming** to this House Rule.

Interpretation of This Specification:

If an Owner is unclear about any issue in regards to the installation of new flooring, Owner shall contact the Resident Manager to clarify the issue in question. Ignorance of the Flooring Rules or failure to verify a questionable installation with the Resident manager, prior to installation, is no excuse for violating Hawaiki Tower Flooring House Rules. The Resident Manger shall respond to the Owner promptly. If the issue cannot be resolved by the Resident Manager, then this issue shall go before the Board of Directors. In all matters of discrepancy, the Board of Directors of Hawaiki Tower shall have final say.

Enforcement:

The Flooring House Rules of Hawaiki Tower shall be strictly followed by the Owners. All violations shall be promptly corrected by the Owner. All costs of which shall be borne by the Owner.

The Board, if necessary shall take action to insure that Hawaiki Tower Flooring House Rules are adhered to, including the levying of fines and penalties against any Owner in violation of these standards. If a flooring violation is discovered, the following procedure shall be followed in resolving this issue.

- Upon discovery of a violation, the Board of Directors shall issue a written notice of violation and demand that the Owner correct this situation within a 90 day period.
- If the Owner is not in compliance within the 90 day grace period, the Owner may be fined \$50 per day for each day past the initial 90 day period that the violation remains uncorrected.

This stipulation is required as we have different impact noise Zones with different noise tolerance levels. Allowing reconfiguration of the floor zones will violate the Zone limits created above. Although there are some restrictions on how flooring is applied in the units, Owners still have ample opportunity to exercise their creativity in reconfiguring or even combining units.

Without this provision an Owner can conceivably call a floor replacement a repair and try to use this as an excuse to install inappropriate flooring. We are trying to close a potential loophole here.

 If the violation remains uncorrected for more than 150 days, the Board may take legal action to force a resolution to this issue. Owner shall pay for all reasonable court costs and attorney fees associated with this procedure. 	
Notification: All Owners repairing or replacing flooring in their respective units shall notify the Resident Manager in writing of the intent to do so.	This requirement is in place so management can schedule the work and notify neighbors of the pending installation. This will also help the Association to better monitor the flooring that is being installed in our building.
 Consideration: A successful noise mitigation program at Hawaiki Tower, in large part, depends upon the cooperation and willingness of Owners to adhere to the rules and use common sense. At all hard surface areas please note the following. 1) All furniture legs in this area shall be cushioned with a rubber, soft plastic, Teflon pad or similar to mitigate impact noise. a) Use sound pacifiers, such as area rugs and runners, as possible. 3) Do not move furniture late at night. 4) Eliminate or minimize walking with hard heel footwear on hard surface floors. 5) Please use common sense. In the event an Owner feels that they are being subjected to excessive noise from the unit above, the recommended course of action is to pay a visit to your upstairs neighbor to have a "friendly" chat in regards to the noise. Very often this situation can be resolved or mitigated if the parties are aware of the noise and are cooperative in addressing this issue. Keep in mind that the Resident Manager and Hawaiki Board can only step in if there is a House Rule or By-Law violation. Exceptions: This house rule is intended to be comprehensive. However, it is impossible to cover every possible flooring situation we may encounter in our residence. For this reason, the Board of Directors of Hawaiki Tower reserves the right to grant exceptions in specific cases where it is merited. Of particular concern are units in which living areas occur over bedrooms.	

Exhibit 1

Hawaiki Tower Flooring House Rules Zone Limits and Definitions

Hawaiki Tower Flooring House Rule, establishes three Zones with differing flooring requirements. This exhibit defines the limits and extent of these Zones.

- 1. It is highly recommended that Owners install **carpet** as a floor covering. This is proven to not only be a very economical floor covering but also the most effective system in regards to impact noise transmission.
- 2. When installing new flooring for a Unit, the Owner shall strictly follow the Zone limits established in this Exhibit. If there is any ambiguity or question as concerns the limits of a Zone, the Owner shall consult with the Resident Manger to clarify such issues, prior to proceeding.
- 3. A-typical Units: There are some Units in Hawaiki Tower in which the floor plans (layout) have been modified by individual Owners or Owners that have bought multiple units, have combined them. The Association has indentified the following units as being a-typical.
 - a. Units 3005, 3006, 3305, 3306, 3307, 3405, 3406, 3501, 3502, 3601, 3602, 3705, 3706, 4005, 4006, 4301, 4302.
 - b. If you own these units, you will need to consult with the Resident Manager before re-flooring your unit. These units are of concern because the floor plans of the units below do not match the floor plans of the units on these floors.
- 4. Floor Zone legend:

Zone 1:	No pattern
Zone 2:	Cross hatch
Zone 3:	Stipple











































Exhibit 2

Hawaiki Tower Flooring House Rules Definitions and Pre-Approved Systems

The following definitions and specific products apply to and are pre-approved for applications as pertains to this House Rule. In general the floor assemblies in this Exhibit are pre-approved and acceptable for installation in Hawaiki Tower, providing they are installed in strict conformance with this document and with the product manufacturer's recommendations and providing the Owner adheres to the Zoning restrictions noted in these House Rules.

- 1. Acoustical Sealant: This is a caulking product specifically formulated and used as a filler and sound insulator wherever there is a discontinuity in an acoustic floor assembly or where such assembly abuts a wall. In general, use sealants that are recommended by the product manufacturer.
- 2. **Perimeter Isolation Board:** This is a filler that is placed where ever a sound rated floor assembly abuts a wall. These products are specifically formulated and used as a sound insulator in sound rated floor assemblies. In general, use perimeter isolation board as recommended by the product manufacturer.
- 3. **Carpet:** For this specification, carpet is any floor covering made of natural or synthetic fibers. Note that carpets must cover the entire room or space and must not have discontinuities or hard surface borders. Also, carpets must be **permanently** installed. Loose floor coverings such as area rugs and, loose carpet tiles are not considered a "carpet" installation for this specification.
- 4. **Carpet Pad:** Carpet pads are any carpet underlayment made of rubberized felt, foam rubber, sponge rubber or similar synthetic or natural material. Pads must be installed continuously under carpets with no gaps. Provide a pad with a minimum 40 oz. density. Glue down applications of carpet directly on the concrete slab will not be allowed, except in Zone 2 or Zone 3 areas.
- 5. **Tile Flooring:** Tile floor installations include ceramic, marble, porcelain, natural stone or similar tiles.
- 6. **Wood Flooring:** These are natural or synthetic wood like flooring materials. Examples would be Pergo flooring, natural koa flooring, bamboo flooring, etc. For the purpose of this document, cork flooring is considered to be similar to wood flooring.

- 7. **Proprietary Sound Attenuation Products:** Proprietary sound attenuation products selected for installation by the Owner, shall be installed in strict conformance with the manufacturer's instructions. Sound attenuation systems shall be complete and include all padding, boards, perimeter isolation boards, sealants, etc as specified by the product manufacturer.
- 8. **Exterior Applications:** For exterior applications, the Owner shall verify that the product installed is appropriate for exterior exposure.
- 9. **Recommendation:** In general, it is recommended that the Owner install carpet in Zone 1 areas. It is a fact that carpet along with being an economical floor covering is also the most effective at minimizing sound transmission. If a solid surface floor is desired in Zone 1, we recommend you consider a wood floor installation.
- 10. Hard tile floor surfaces are discouraged in Zone 1 areas. It is very difficult to get the required FIIC-55 rating with hard tile floors. Tile floor installations in Zone 1 will typically be 1-3/4" to 2-1/2" in thickness and will require you to modify your doors and cabinet installations. In Zone 1 areas, if a hard surface floor is desired, it is recommended to install a wood type floor.

Zone 1

Pre-Approved Floor Assemblies









<u>Zone 2</u>

Pre-Approved Floor Assemblies











AUDIOVISUAL DESIGN

ACOUSTICS AND NOISE CONTROL

TEST AND MEASUREMENT

APPARENT IMPACT INSULATION CLASS (AIIC) TEST REPORT

Report Date:October 09, 2013Conducted for:Mary LeongCenseo Test #:11003A-2Test Date:October 3, 2012Test Location:Hawaiki TowerTest Construction:Floor/Ceiling Assembly between Unit 4208 Living Room and Unit 4108
Living Room





TEST PROCEDURE

A standard tapping machine was used as the impact sound source. At each tapping machine position, one-third octave band sound pressure levels were measured in the receiving room. One (1) 60 second measurement was taken for each tapping machine position. Each noise measurement consisted of sweeping the microphone throughout the room. Flanking transmission was not evaluated. Equipment used to conduct the test is summarized below in Table 3.

Table 3. Test Equipment Summary					
Equipment Type	Manufacturer	Model No.	Serial No.	Calibration Date	
Sound Level Meter	Larson Davis	831	2880	May 30, 2012	
Pre Amp	PCB Piezotronics	PRM831	021385	May 08, 2012	
Microphone	PCB Piezotronics	377B20	123876	May 25, 2012	
Calibrator	Larson Davis	CAL200	7492	May 09, 2012	
Amplified Loudspeaker	QSC	K10	N/A	N/A	
Signal Generator	NTI Audio	MR-PRO	N/A	N/A	

CONFORMANCE TO TEST STANDARD

Testing was conducted in general accordance with ASTM Designation E 1007-13: Standard Test method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures. The standard test method for the determination of decay rates described in E 2235 was followed to calculate receiving room sound absorption from reverberation time measurements.

The background noise level in the receiver room was greater than 5 dB below the receiver room signal level for all frequency bands except the 1000, 1250, 1600, 2000, 2500, and 3150 frequency bands, as required in ASTM E 1007-13, Paragraph 11.6.5. The receiver room volume meets the minimum required in ASTM E 1007-13, Paragraph 5.4.1 for measurements down to 125 Hz. The receiver room absorption does not meet the preferable calculated value, as determined in ASTM E 1007-13, Paragraph 5.4.1 at all frequency bands except for the 160, 250, and 500 Hz frequency bands.

The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

Test Conducted By:

Todd Beiler, PE, INCE Bd. Cert.

Kristina Foster

TEST RESULTS



Project Name: Source Room: Receiver Room: Test Partition: Test Date: Test Number:

Hawaiki Tower Unit 4208 Living Room Unit 4108 Living Room Floor/Ceiling Assembly October 3, 2013 AIIC-2

AllC Rating: 48

This page alone does not constitute a full report.

This test does not conform fully to the requirements of ASTM 1007-13.

Where:

AIIC = Apparent Impact Insulation Class



1/3 Octave Band Center Frequency (Hz)	Normalized Impact Sound Pressure Level (dB)	Average Absorption (Sabines)	Notes (see below)		
100	59	197	1	2	
125	63	232	1		
160	68	133			
200	72	166	1		
250	68	146			
315	61	161	1		
400	57	161	1		
500	51	151			
630	43	212	1		
800	37	214	1		
1000	33	205	1		3
1250	31	202	1		3
1600	31	211	1		3
2000	31	208	1		3
2500	32	200	1		3
3150	32	199	1		3

Notes:

1 The room absorption is too high to achieve the best possible simulation of an ideal diffuse field condition at this frequency band.

The room volume is too low for a reliable measurement at this frequency band.

Signal-to-noise ratio < 5 dB. SPL only provides an estimate of the lower limit of the noise reduction.

2

3



AUDIOVISUAL DESIGN

ACOUSTICS AND NOISE CONTROL

TEST AND MEASUREMENT

APPARENT IMPACT INSULATION CLASS (AIIC) TEST REPORT

Report Date:October 09, 2013Conducted for:Mary LeongCenseo Test #:11003A-1Test Date:October 3, 2012Test Location:Hawaiki TowerTest Construction:Floor/Ceiling Assembly between Unit 4208 Living Room and Unit 4108
Living Room





TEST PROCEDURE

A standard tapping machine was used as the impact sound source. At each tapping machine position, one-third octave band sound pressure levels were measured in the receiving room. One (1) 60 second measurement was taken for each tapping machine position. Each noise measurement consisted of sweeping the microphone throughout the room. Flanking transmission was not evaluated. Equipment used to conduct the test is summarized below in Table 3.

Table 3. Test Equipment Summary					
Equipment Type	Manufacturer	Model No.	Serial No.	Calibration Date	
Sound Level Meter	Larson Davis	831	2880	May 30, 2012	
Pre Amp	PCB Piezotronics	PRM831	021385	May 08, 2012	
Microphone	PCB Piezotronics	377B20	123876	May 25, 2012	
Calibrator	Larson Davis	CAL200	7492	May 09, 2012	
Amplified Loudspeaker	QSC	K10	N/A	N/A	
Signal Generator	NTI Audio	MR-PRO	N/A	N/A	

CONFORMANCE TO TEST STANDARD

Testing was conducted in general accordance with ASTM Designation E 1007-13: Standard Test method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures. The standard test method for the determination of decay rates described in E 2235 was followed to calculate receiving room sound absorption from reverberation time measurements.

The background noise level in the receiver room was greater than 5 dB below the receiver room signal level for all frequency bands except the 1250, 1600, 2000, 2500, and 3150 frequency bands, as required in ASTM E 1007-13, Paragraph 11.6.5. The receiver room volume meets the minimum required in ASTM E 1007-13, Paragraph 5.4.1 for measurements down to 125 Hz. The receiver room absorption does not meet the preferable calculated value, as determined in ASTM E 1007-13, Paragraph 5.4.1 at all frequency bands except for the 160, 250, and 500 Hz frequency bands.

The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

Test Conducted By:

Todd Beiler, PE, INCE Bd. Cert.

Kristina Foster

TEST RESULTS



Project Name: Source Room: Receiver Room: Test Partition: Test Date: Test Number:

Hawaiki Tower Unit 4208 Living Room Unit 4108 Living Room Floor/Ceiling Assembly October 3, 2013 AIIC-1

AllC Rating: 54

This page alone does not constitute a full report.

This test does not conform fully to the requirements of ASTM 1007-13.

Where:

AIIC = Apparent Impact Insulation Class



1/3 Octave Band Center Frequency (Hz)	Normalized Impact Sound Pressure Level (dB)	Average Absorption (Sabines)	Notes (see below)		
100	63	197	1	2	
125	66	232	1		
160	64	133			
200	65	166	1		
250	62	146			
315	57	161	1		
400	55	161	1		
500	51	151			
630	46	212	1		
800	41	214	1		
1000	35	205	1		
1250	31	202	1		3
1600	31	211	1		3
2000	31	208	1		3
2500	32	200	1		3
3150	32	199	1		3

Notes:

1 The room absorption is too high to achieve the best possible simulation of an ideal diffuse field condition at this frequency band.

The room volume is too low for a reliable measurement at this frequency band.

Signal-to-noise ratio < 5 dB. SPL only provides an estimate of the lower limit of the noise reduction.

2

3



AUDIOVISUAL DESIGN

ACOUSTICS AND NOISE CONTROL

TEST AND MEASUREMENT

APPARENT IMPACT INSULATION CLASS (AIIC) TEST REPORT

Report Date:October 09, 2013Conducted for:Mary LeongCenseo Test #:11003A-3Test Date:October 3, 2012Test Location:Hawaiki TowerTest Construction:Floor/Ceiling Assembly between Unit 4208 Living Room and Unit 4108
Living Room





TEST PROCEDURE

A standard tapping machine was used as the impact sound source. At each tapping machine position, one-third octave band sound pressure levels were measured in the receiving room. One (1) 60 second measurement was taken for each tapping machine position. Each noise measurement consisted of sweeping the microphone throughout the room. Flanking transmission was not evaluated. Equipment used to conduct the test is summarized below in Table 3.

Table 3. Test Equipment Summary						
Equipment Type Manufacturer Model No. Serial No. Calibration Date						
Sound Level Meter	Larson Davis	831	2880	May 30, 2012		
Pre Amp	PCB Piezotronics	PRM831	021385	May 08, 2012		
Microphone	PCB Piezotronics	377B20	123876	May 25, 2012		
Calibrator	Larson Davis	CAL200	7492	May 09, 2012		
Amplified Loudspeaker	QSC	K10	N/A	N/A		
Signal Generator	NTI Audio	MR-PRO	N/A	N/A		

CONFORMANCE TO TEST STANDARD

Testing was conducted in general accordance with ASTM Designation E 1007-13: Standard Test method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures. The standard test method for the determination of decay rates described in E 2235 was followed to calculate receiving room sound absorption from reverberation time measurements.

The background noise level in the receiver room was greater than 5 dB below the receiver room signal level for all frequency bands except the 1000, 1250, 1600, 2000, 2500, and 3150 frequency bands, as required in ASTM E 1007-13, Paragraph 11.6.5. The receiver room volume meets the minimum required in ASTM E 1007-13, Paragraph 5.4.1 for measurements down to 125 Hz. The receiver room absorption does not meet the preferable calculated value, as determined in ASTM E 1007-13, Paragraph 5.4.1 at all frequency bands except for the 160, 250, and 500 Hz frequency bands.

The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

Test Conducted By:

Todd Beiler, PE, INCE Bd. Cert.

Kristina Foster

TEST RESULTS



Project Name: Source Room: Receiver Room: Test Partition: Test Date: Test Number: Hawaiki Tower Unit 4208 Living Room Unit 4108 Living Room Floor/Ceiling Assembly October 3, 2013 AIIC-3

AllC Rating: 49

This page alone does not constitute a full report.

This test does not conform fully to the requirements of ASTM 1007-13.

Where:

AIIC = Apparent Impact Insulation Class



1/3 Octave Band Center Frequency (Hz)	Normalized Impact Sound Pressure Level (dB)	Average Absorption (Sabines)	Notes (see below)		
100	61	197	1	2	
125	65	232	1		
160	69	133			
200	71	166	1		
250	66	146			
315	59	161	1		
400	55	161	1		
500	51	151			
630	45	212	1		
800	38	214	1		
1000	33	205	1		3
1250	31	202	1		3
1600	31	211	1		3
2000	31	208	1		3
2500	32	200	1		3
3150	33	199	1		3

Notes:

1 The room absorption is too high to achieve the best possible simulation of an ideal diffuse field condition at this frequency band.

The room volume is too low for a reliable measurement at this frequency band.

Signal-to-noise ratio < 5 dB. SPL only provides an estimate of the lower limit of the noise reduction.

2

3

Field Impact Insulation Class (FIIC) Test Report

Test Date:	September 23, 2011
Test Site:	Hawaiki Tower
Test Partition:	Floor/Ceiling Assembly between Unit 1203 Living Room and Unit 1103 Living Room
Test #:	FIIC-3
Conducted for:	Hawaiki Tower Owners Association

STATEMENT OF CONFORMANCE TO STANDARD

Testing was conducted in general accordance with ASTM Standard E 1007: *Standard Test Method for Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures.* The measurements were used to calculate a Field Impact Insulation Class (FIIC) in accordance with ASTM E 989, *Standard Classification for Determination of Impact Insulation Class (IIC).*

TEST ENVIRONMENT

The source room was the Living Room of Unit 1203. The carpet was removed and rolled out of the way with a test floor mockup placed near the middle of the room. The floor mock up size was approximately 4 ft by 7 ft. Since no glue was used for adhering the floor assembly to the subfloor, concrete blocks were placed on the test specimen around its perimeter to ensure continuous contact between the test specimen and subfloor (to prevent curling of the test specimen). The unit was finished with painted gypsum board ceiling and walls, but was not furnished. The windows and doors were closed during the testing period. The tapping machine was placed in the center of the test specimen.

The receiving room, which was directly below Unit 1203, was the Living Room of Unit 1103. The receiver room was fully furnished. The windows and doors were closed during the testing period. The ceiling was 8'-0" in the Living Room area. The volume of the measurement area inside the receiving room was approximately 2,690 cubic feet.

TEST SPECIMEN

The tested partition consisted of Vinyl flooring (with a wood grain appearance) by Armstrong with no glue or fasteners. The vinyl floor was placed on top of 10mm thick Impacta Sound Shark rubber floor underlayment. The underlayment was placed directly on top of the 5-1/2" thick post tensioned structural concrete slab subfloor. There was no drop ceiling in the receiving room. Determination of the floor/ceiling assembly was based on field observations and discussions with the AOAO. The thickness of the concrete slab was not field verified. The tested partition is shown in Figure 1.



Figure 1: Floor Ceiling Assembly (Not to Scale)

TEST PROCEDURE

A standardized tapping machine was used as the impact sound source. The testing procedure described in ASTM Standard E 1007 was followed with general accordance. At each tapping machine position, one-third octave band sound pressure levels were measured in the receiving room. One (1) 60 second measurement was taken for each tapping machine position. Each noise measurement consisted of sweeping the microphone throughout the room. The *decay rate method* was used to calculate receiving room sound absorption from reverberation time measurements.

The background noise level in the receiving room is greater then 5 dB below the receiving room signal level at all frequency bands except the 3,150 Hz frequency band, as required in ASTM Designation E 1007, Paragraph 10.7.1. The receiving room volume meets the minimum volume required in ASTM Designation E 1007, Paragraph 6.4 at all frequencies. The receiving room absorption meets the preferable calculated value as determined in ASTM Designation E 1007, Paragraph 11.2 for all frequency bands.

Airborne sound flanking was subjectively evaluated but not measured. Since the effects of flanking noise could not be completely eliminated, the FIIC value given herein may be referred to as a *minimum* FIIC rating, since it is at least as great as the same partition with no flanking transmission.

STATEMENT OF TEST RESULTS

The attached data sheet summarizes the measured and calculated data. The results indicate a rating of **FIIC 54**. The FIIC rating is based on normalized impact sound pressure levels. However, since the amount of flanking was not completely determined, the FIIC value should be considered a minimum value. The FIIC reference contour is also shown on the attached data sheet, and has been fit to the normalized impact sound pressure levels, in accordance with the procedure of ASTM Designation E989-06, Standard Classification for Determination of the Impact Insulation Class (IIC).

Test conducted by:

Todd Beiler, P.E., INCE Bd. Cert.

Field Impact Insulation Class (FIIC) Test Report

Test Date:	September 23, 2011
Test Site:	Hawaiki Tower
Test Partition:	Floor/Ceiling Assembly between Unit 1203 Living Room and Unit 1103 Living Room
Test #:	FIIC-2
Conducted for:	Hawaiki Tower Owners Association

STATEMENT OF CONFORMANCE TO STANDARD

Testing was conducted in general accordance with ASTM Standard E 1007: *Standard Test Method for Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures.* The measurements were used to calculate a Field Impact Insulation Class (FIIC) in accordance with ASTM E 989, *Standard Classification for Determination of Impact Insulation Class (IIC).*

TEST ENVIRONMENT

The source room was the Living Room of Unit 1203. The carpet was removed and rolled out of the way with a test floor mockup placed near the middle of the room. The floor mock up size was approximately 4 ft by 7 ft. Since no glue was used for adhering the floor assembly to the subfloor, concrete blocks were placed on the test specimen around its perimeter to ensure continuous contact between the test specimen and subfloor (to prevent curling of the test specimen). The unit was finished with painted gypsum board ceiling and walls, but was not furnished. The windows and doors were closed during the testing period. The tapping machine was placed in the center of the test specimen.

The receiving room, which was directly below Unit 1203, was the Living Room of Unit 1103. The receiver room was fully furnished. The windows and doors were closed during the testing period. The ceiling was 8'-0" in the Living Room area. The volume of the measurement area inside the receiving room was approximately 2,690 cubic feet.

TEST SPECIMEN

The tested partition consisted of Laminate wood flooring by Home Depot with no glue or fasteners. The wood floor was placed on top of 10mm thick Ecore Model QTscu rubber floor underlayment. The underlayment was placed directly on top of the 5-1/2" thick post tensioned structural concrete slab subfloor. There was no drop ceiling in the receiving room. Determination of the floor/ceiling assembly was based on field observations and discussions with the AOAO. The thickness of the concrete slab was not field verified. The tested partition is shown in Figure 1.



Figure 1: Floor Ceiling Assembly (Not to Scale)

TEST PROCEDURE

A standardized tapping machine was used as the impact sound source. The testing procedure described in ASTM Standard E 1007 was followed with general accordance. At each tapping machine position, one-third octave band sound pressure levels were measured in the receiving room. One (1) 60 second measurement was taken for each tapping machine position. Each noise measurement consisted of sweeping the microphone throughout the room. The *decay rate method* was used to calculate receiving room sound absorption from reverberation time measurements.

The background noise level in the receiving room is greater then 5 dB below the receiving room signal level at all frequency bands except the 2,000, 2,500 and 3,150 Hz frequency bands, as required in ASTM Designation E 1007, Paragraph 10.7.1. The receiving room volume meets the minimum volume required in ASTM Designation E 1007, Paragraph 6.4 at all frequencies. The receiving room absorption meets the preferable calculated value as determined in ASTM Designation E 1007, Paragraph 11.2 for all frequency bands.

Airborne sound flanking was subjectively evaluated but not measured. Since the effects of flanking noise could not be completely eliminated, the FIIC value given herein may be referred to as a *minimum* FIIC rating, since it is at least as great as the same partition with no flanking transmission.

STATEMENT OF TEST RESULTS

The attached data sheet summarizes the measured and calculated data. The results indicate a rating of **FIIC 51**. The FIIC rating is based on normalized impact sound pressure levels. However, since the amount of flanking was not completely determined, the FIIC value should be considered a minimum value. The FIIC reference contour is also shown on the attached data sheet, and has been fit to the normalized impact sound pressure levels, in accordance with the procedure of ASTM Designation E989-06, Standard Classification for Determination of the Impact Insulation Class (IIC).

Test conducted by:

Todd Beiler, P.E., INCE Bd. Cert.

Results of Test

Project Name:Hawaiki TowerTest Partition:Unit 1203 Living Rm / Unit 1103 Living RmTest Date:September 23, 2011Test Number:FIIC-2

FIIC Rating: 51

1/3 Octave Band Center Frequency (Hz)	Normalized Impact Sound Pressure Level (dB)	Average Absorption (Sabines)	Notes (see below)
100	60	272	1
125	62	311	1
160	65	258	1
200	64	205	1
250	69	314	1
315	67	282	1
400	58	288	1
500	52	309	1
630	48	307	1
800	44	345	1
1000	40	340	1
1250	37	354	1
1600	34	347	1
2000	28	354	1 3
2500	26	329	1 3
3150	25	328	1 3



where: FIIC = Field Impact Insulation Class Average Absorption = Average Absorption in the Receiving Room

Notes:

The room absorption is too high to achieve the best possible simulation of an ideal diffuse field condition at this frequency band.

3 Signal-to-noise ratio < 5 dB. SPL only provides an estimate of the lower limit of the noise reduction.

2

Field Impact Insulation Class (FIIC) Test Report

Test Date:	September 23, 2011
Test Site:	Hawaiki Tower
Test Partition:	Floor/Ceiling Assembly between Unit 1203 Living Room and Unit 1103 Living Room
Test #:	FIIC-4
Conducted for:	Hawaiki Tower Owners Association

STATEMENT OF CONFORMANCE TO STANDARD

Testing was conducted in general accordance with ASTM Standard E 1007: *Standard Test Method for Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures.* The measurements were used to calculate a Field Impact Insulation Class (FIIC) in accordance with ASTM E 989, *Standard Classification for Determination of Impact Insulation Class (IIC).*

TEST ENVIRONMENT

The source room was the Living Room of Unit 1203. The carpet was removed and rolled out of the way with a test floor mockup placed near the middle of the room. The floor mock up size was approximately 4 ft by 7 ft. Since no glue was used for adhering the floor assembly to the subfloor, concrete blocks were placed on the test specimen around its perimeter to ensure continuous contact between the test specimen and subfloor (to prevent curling of the test specimen). The unit was finished with painted gypsum board ceiling and walls, but was not furnished. The windows and doors were closed during the testing period. The tapping machine was placed in the center of the test specimen.

The receiving room, which was directly below Unit 1203, was the Living Room of Unit 1103. The receiver room was fully furnished. The windows and doors were closed during the testing period. The ceiling was 8'-0" in the Living Room area. The volume of the measurement area inside the receiving room was approximately 2,690 cubic feet.

TEST SPECIMEN

The tested partition consisted of Laminate wood flooring by Home Depot with no glue or fasteners. The wood floor was placed on top of 10mm thick Impacta Sound Shark rubber floor underlayment. The underlayment was placed directly on top of the 5-1/2" thick post tensioned structural concrete slab subfloor. There was no drop ceiling in the receiving room. Determination of the floor/ceiling assembly was based on field observations and discussions with the AOAO. The thickness of the concrete slab was not field verified. The tested partition is shown in Figure 1.



Figure 1: Floor Ceiling Assembly (Not to Scale)

TEST PROCEDURE

A standardized tapping machine was used as the impact sound source. The testing procedure described in ASTM Standard E 1007 was followed with general accordance. At each tapping machine position, one-third octave band sound pressure levels were measured in the receiving room. One (1) 60 second measurement was taken for each tapping machine position. Each noise measurement consisted of sweeping the microphone throughout the room. The *decay rate method* was used to calculate receiving room sound absorption from reverberation time measurements.

The background noise level in the receiving room is greater then 5 dB below the receiving room signal level at all frequency bands except the 2,000, 2,500 and 3,150 Hz frequency bands, as required in ASTM Designation E 1007, Paragraph 10.7.1. The receiving room volume meets the minimum volume required in ASTM Designation E 1007, Paragraph 6.4 at all frequencies. The receiving room absorption meets the preferable calculated value as determined in ASTM Designation E 1007, Paragraph 11.2 for all frequency bands.

Airborne sound flanking was subjectively evaluated but not measured. Since the effects of flanking noise could not be completely eliminated, the FIIC value given herein may be referred to as a *minimum* FIIC rating, since it is at least as great as the same partition with no flanking transmission.

STATEMENT OF TEST RESULTS

The attached data sheet summarizes the measured and calculated data. The results indicate a rating of **FIIC 52**. The FIIC rating is based on normalized impact sound pressure levels. However, since the amount of flanking was not completely determined, the FIIC value should be considered a minimum value. The FIIC reference contour is also shown on the attached data sheet, and has been fit to the normalized impact sound pressure levels, in accordance with the procedure of ASTM Designation E989-06, Standard Classification for Determination of the Impact Insulation Class (IIC).

Test conducted by:

Todd Beiler, P.E., INCE Bd. Cert.

Results of Test

Project Name:Hawaiki TowerTest Partition:Unit 1203 Living Rm / Unit 1103 Living RmTest Date:September 23, 2011Test Number:FIIC-4

FIIC Rating: 52

1/3 Octave Band Center Frequency (Hz)	tave Band Normalized Impact Frequency Sound Pressure Level (Hz) (dB)		Notes (see below)		
100	60	272	1		
125	64	311	1		
160	66	258	1		
200	67	205	1		
250	68	314	1		
315	66	282	1		
400	57	288	1		
500	53	309	1		
630	49	307	1		
800	44	345	1		
1000	40	340	1		
1250	38	354	1		
1600	36	347	1		
2000	29	354	1 3		
2500	26	329	1 3		
3150	25	328	1 3		



where: FIIC = Field Impact Insulation Class Average Absorption = Average Absorption in the Receiving Room

Notes:

The room absorption is too high to achieve the best possible simulation of an ideal diffuse field condition at this frequency band.

3 Signal-to-noise ratio < 5 dB. SPL only provides an estimate of the lower limit of the noise reduction.

2

Field Impact Insulation Class (FIIC) Test Report

Test Date:	September 23, 2011
Test Site:	Hawaiki Tower
Test Partition:	Floor/Ceiling Assembly between Unit 1203 Living Room and Unit 1103 Living Room
Test #:	FIIC-1
Conducted for:	Hawaiki Tower Owners Association

STATEMENT OF CONFORMANCE TO STANDARD

Testing was conducted in general accordance with ASTM Standard E 1007: *Standard Test Method for Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures.* The measurements were used to calculate a Field Impact Insulation Class (FIIC) in accordance with ASTM E 989, *Standard Classification for Determination of Impact Insulation Class (IIC).*

TEST ENVIRONMENT

The source room was the Living Room of Unit 1203. The carpet was removed and rolled out of the way with a test floor mockup placed near the middle of the room. The floor mock up size was approximately 4 ft by 7 ft. Since no glue was used for adhering the floor assembly to the subfloor, concrete blocks were placed on the test specimen around its perimeter to ensure continuous contact between the test specimen and subfloor (to prevent curling of the test specimen). The unit was finished with painted gypsum board ceiling and walls, but was not furnished. The windows and doors were closed during the testing period. The tapping machine was placed in the center of the test specimen.

The receiving room, which was directly below Unit 1203, was the Living Room of Unit 1103. The receiver room was fully furnished. The windows and doors were closed during the testing period. The ceiling was 8'-0" in the Living Room area. The volume of the measurement area inside the receiving room was approximately 2,690 cubic feet.

TEST SPECIMEN

The tested partition consisted of 5/8" thick composite engineered wood flooring by Kahala Floors, which uses no glue or fasteners and "snap together" tonque-and-groove design. The wood floor was placed on top of a layer of 3/32" thick Silencer HD mat which was placed on top of 10mm thick Ecore Model QTscu rubber floor underlayment. The underlayment was placed directly on top of the 5-1/2" thick post tensioned structural concrete slab subfloor. There was no drop ceiling in the receiving room. Determination of the floor/ceiling assembly was based on field observations and discussions with the AOAO. The thickness of the concrete slab was not field verified. The tested partition is shown in Figure 1.



Figure 1: Floor Ceiling Assembly

(Not to Scale)

TEST PROCEDURE

A standardized tapping machine was used as the impact sound source. The testing procedure described in ASTM Standard E 1007 was followed with general accordance. At each tapping machine position, one-third octave band sound pressure levels were measured in the receiving room. One (1) 60 second measurement was taken for each tapping machine position. Each noise measurement consisted of sweeping the microphone throughout the room. The *decay rate method* was used to calculate receiving room sound absorption from reverberation time measurements.

The background noise level in the receiving room is greater then 5 dB below the receiving room signal level at all frequency bands except the 2,500 and 3,150 Hz frequency bands, as required in ASTM Designation E 1007, Paragraph 10.7.1. The receiving room volume meets the minimum volume required in ASTM Designation E 1007, Paragraph 6.4 at all frequencies. The receiving room absorption meets the preferable calculated value as determined in ASTM Designation E 1007, Paragraph 11.2 for all frequency bands.

Airborne sound flanking was subjectively evaluated but not measured. Since the effects of flanking noise could not be completely eliminated, the FIIC value given herein may be referred to as a *minimum* FIIC rating, since it is at least as great as the same partition with no flanking transmission.

STATEMENT OF TEST RESULTS

The attached data sheet summarizes the measured and calculated data. The results indicate a rating of **FIIC 51**. The FIIC rating is based on normalized impact sound pressure levels. However, since the amount of flanking was not completely determined, the FIIC value should be considered a minimum value. The FIIC reference contour is also shown on the attached data sheet, and has been fit to the normalized impact sound pressure levels, in accordance with the procedure of ASTM Designation E989-06, Standard Classification for Determination of the Impact Insulation Class (IIC).

Test conducted by:

Todd Beiler, P.E., INCE Bd. Cert.

Results of Test

Project Name:Hawaiki TowerTest Partition:Unit 1203 Living Rm / Unit 1103 Living RmTest Date:September 23, 2011Test Number:FIIC-1

FIIC Rating: 51

1/3 Octave Band Center Frequency (Hz)	Normalized Impact Sound Pressure Level (dB)	Average Absorption (Sabines)	Notes (see l	Notes (see below)	
100	58	272	1		
125	63	311	1		
160	66	258	1		
200	68	205	1		
250	69	314	1		
315	64	282	1		
400	60	288	1		
500	57	309	1		
630	54	307	1		
800	52	345	1		
1000	46	340	1		
1250	42	354	1		
1600	37	347	1		
2000	30	354	1		
2500	27	329	1	3	
3150	25	328	1	3	



where: FIIC = Field Impact Insulation Class Average Absorption = Average Absorption in the Receiving Room

Notes:

The room absorption is too high to achieve the best possible simulation of an ideal diffuse field condition at this frequency band.

3 Signal-to-noise ratio < 5 dB. SPL only provides an estimate of the lower limit of the noise reduction.

2

Assemblies Falling Below FIIC 45



Exhibit 3

Hawaiki Tower Flooring House Rules Pre-Qualified List of Acoustical Consultants

The following is a list of acoustical consultants that Hawaiki Tower has pre-qualified to conduct flooring investigations for our Association. Any testing to be done in regards to the acoustical performance of a floor assembly for approval by the Association, shall be done by a consultant on this list.

1) Censeo Acoustics, LLC

PO Box 1694 Kailua, Hawaii 96734 Ph: (808) 352-5888 Fax: (808) 891-2990 Todd Beiler Email: beilertodd@gmail.com

2) D.L. Adams Associates, Ltd.

970 North Kalaheo Avenue, Suite A311 Kailua, Hawaii 96734 Ph: (808) 254-3318 Fax (808) 254-5295 Dana Dorsch: Email: ddorsch@dlaa.com