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Jonathan Kam
Gentry Builders, LLC
733 Bishop Street, Suite 1400
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RE: Ka'ulu by Gentry ASTC-AIIC Testing - Acoustical Testing Results – (DLAA# 24-004)

Jonathan:

DLAA has conducted four ASTM E336-17a and ASTM E1007-16 tests at the Ka'ulu by Gentry project in Kapolei, Hawaii on Thursday April 4, 2024. The three floor/ceiling assemblies tested were between the living and bedroom areas of Building 18, Unit 1 and 2.

Acoustical Concepts and Definitions

Airborne Noise
The Sound Transmission Class (STC) is a single-number rating which grades how well an assembly attenuates airborne noise, such as conversation. STC is measured according to ASTM E90 and classified according to ASTM E413. The higher the STC rating, the more efficient the partition is at reducing airborne noise between spaces. STC is only determined in a laboratory where all paths by which sound could travel around the test specimen are strictly controlled, ensuring the measured sound is only that which travels through the test specimen. Field ratings of airborne sound isolation are measured according to ASTM E336-17a and classified according to ASTM E413. According to ASTM E336-17a, the "Standard Method for Measurement of Sound Isolation in Buildings", measurements of a partition in the field include all elements in the assembly that would otherwise be absent in a laboratory. The effects of site-specific field conditions are included in the field metric Apparent Sound Transmission Class (ASTC). The ASTC rating of a construction element is typically specified 5 points less than the corresponding laboratory rating.

Impact Noise
The Impact Insulation Class (IIC) is a single-number rating which grades how well a floor/ceiling assembly attenuates impact noise, such as footsteps. The higher the IIC rating, the more efficient the partition is at reducing impact noise between spaces. It should be noted that the IIC rating is limited in that it does not address low frequency noise below 125 Hz. This is generally not a concern when with concrete and/or steel structures. Field measurements of impact noise are classified as Apparent Impact Insulation Class (AIIC). Field measurements determine a single-number Apparent Impact Insulation Class (AIIC) rating, which is typically allowed to be 5 points less than the corresponding laboratory IIC rating. For example, a

floor/ceiling assembly with IIC 55 and AIIC 50 ratings would be considered to have equivalent impact insulation performance.

Testing Procedure & Equipment

Impact sound insulation was measured in general accordance with ASTM E1007-16, Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures. Impact sound insulation ratings are determined in accordance with ASTM E989-06 (2012), Standard Classification for Determination of Impact Insulation Class (IIC). The results include a single-number Apparent Impact Insulation Class (AIIC) rating.

Equipment used for AIIC testing included a Larson Davis Model 831 Type 1 Precision Integrating Sound Level Meter (S/N 004328) with a PCB Model PRM831 preamplifier (S/N 046469) and PCB Model 377B20 ½" random incidence microphone (S/N 168830). The sound level meter calibration was verified with a Larson Davis Model CAL200 (S/N 5955) before all measurements and at the conclusion of all measurements. The tapping machine is a Norsonic Model Nor-277 (S/N 2775671).

Test Conditions

The purpose of these tests was to analyze the performance of resilient underlayment for the Hardwood and Carpet floor surfaces, as well as the ASTC performance of their assembly. The tested floor/ceiling constructions are as follows:

<u>Unit 2</u>
The floor/ceiling assembly in Unit 2 can be described as follows:

- One (1) layer Hardwood flooring in kitchen area, one (1) layer of carpet in Great Room, hallways and Bedrooms.
- ½" Exacor Underlayment
- Wood Truss Joist construction – R19 Batt insulation secured against subfloor
- (2) Layer 5/8" Type-X gypsum board with Resilient Channels.

<u>Unit 1</u>
The floor assembly in Unit 1 can be described as follows:

- One (1) layer Hardwood vinyl floor throughout Kitchen, Great Room and Bedrooms.
- Slab on grade concrete.

Test Results Summary

A summary of the tests is provided here, and the detailed test results for each test are attached.

Table 1: AIIC/ASTC Test Results

Test No.	Adjacency Tested	AIIC Result	ASTC Result
1.1	Unit 2 Great Room, Carpet to Unit 1 Great Room/Kitchen	66	41
1.2	Unit 2 Kitchen, Hardwood to Unit 1 Great Room/Kitchen	38	41
1.3	Unit 2 Bed 3, Carpet to Unit 1 Bed 2	68	41
1.4	Unit 2 Bed 1, Carpet to Unit 1 Bed 1	63	45

Please let us know if you have any questions.
Sincerely,

Jake Pfitsch
Staff Consultant
Encl: Test Results Reports