RML Acoustics ARCHITECTURAL ENVIRONMENTAL
Sound Designs...Noise Solutions

September 3, 2024

Ameri-Tech Community Management
Attn: Villa Serena Owners Association
24701 US Hwy 19 North Suite 102
Clearwater, Florida 33763

Re: Villa Serena Condominiums – Hard Surface Flooring Evaluation and Recommendations Executive Summary

Dear Villa Serena Owners Association,

This letter contains an evaluation and recommendations for the use of hard surface flooring materials on the floor/ceiling assemblies separating first and second floor units in the Villa Serena Condominiums in Riverview, Florida. The recommendations are based on a review of the technical acoustical literature and sound testing performed by RML Acoustics on similar assemblies in other buildings.

Executive Summary

The following is a summary of the key findings and recommendations from the evaluation of hard surface flooring use on upper level units in the Villa Serena Condominiums relative to impact sound transmission.

1. RML Acoustics does not recommend replacing carpet with hard surface flooring and resilient underlayment of any kind due to the significant reduction in impact sound transmission reduction performance that will result. There are no combinations of hard surface flooring and resilient underlayment that will meet or exceed the acoustical performance of carpet on a pad when installed on the floor/ceiling assembly in the Villa Serena Condominiums in terms of reducing impact sound transmission or reducing the perception of impact sound transmission.

2. With carpet on pad, Impact Insulation Class (IIC) ratings are generally 80 or greater, whereas with hard surface flooring material and high quality resilient underlayments, the best that could likely be achieved are IIC ratings of 50 to 60. The greater the IIC rating, the better the performance of the assembly at reducing impact sound transmission.

3. RML Acoustics recommends a minimum IIC rating of 65 for new condominiums with hard surface flooring, with carpet recommended in the bedrooms. However, for existing condominiums in which carpet has historically been used, the increase in impact sound transmission from changing to hard surface flooring, even with IIC ratings as high as 60, which is the maximum that likely can be achieved with the existing structure, will be very noticeable to residents on the first floor, and therefore is not recommended.

4. The Villa Serena Condominiums utilize a Hambro structural system between the first and second floors. A Hambro system is a proprietary structural system consisting of 16" deep open web bar joists spaced 4 ft on center with 3" of concrete on top (the subfloor for the second floor) and a gypsum board ceiling attached to the bottom of the joists using metal hat channels. There is no insulation in the ceiling cavity. The large, open cavity allows for the passage of utilities such as HVAC ducts, plumbing piping, and electrical conduit. Hambro systems are known for transmitting excessive low frequency "thumping" sounds from footfalls and other impact noise sources due to a lack of stiffness in the structure and the rigid connections between the gypsum board ceilings and the joists. Replacing the carpet and pad with hard surface flooring will only exacerbate this problem. Field tests by RML Acoustics on nearly identical assemblies to those at Villa Serena show that low frequency impact sound transmission through Hambro systems with hard surface flooring, even when installed with resilient underlayments, exceeds that of carpet by as much as 30 to 40 dB. For reference, an increase in sound transmission of only 10 dB is generally perceived as a doubling of loudness.

5. If carpet will be replaced with hard surface flooring regardless of the potential noise impacts, or if existing hard surface flooring will be replaced with new hard surface flooring, underlayments must be used, and should be selected to achieve an IIC rating of 55 to 60, which is below the level recommended by RML Acoustics for condominium units, but likely the best that can be achieved in the Villa Serena Condominiums due to the use of a Hambro system. Specifically:

    - For engineered wood flooring, RML Acoustics recommends Pliteq GenieMat RST05 rubber underlayment to achieve an IIC rating of approximately 58 to 60.

    - For luxury vinyl plank (LVP) flooring, RML Acoustics recommends Proflex LV200 underlayment installed in a double-glue-down configuration (i.e., LVP glued to underlayment and underlayment glued to the slab) using Proflex PS-76 adhesive to achieve an IIC rating of approximately 58 to 60.

    - For tile flooring, RML Acoustics recommends Pliteq GenieMat RST10 rubber underlayment to achieve an IIC rating of approximately 54 to 56.

6. Wherever hard surface flooring is used, follow the underlayment manufacturer's written instructions for isolating the flooring from the perimeter using a polyethylene foam perimeter isolation strip. Also, hold base molding (if used) off the floor by 1/8" and caulk the gap with acoustical sealant to reduce flanking sound transmission through the wall.

Background

Second floor units in the Villa Serana condominium buildings have carpeted floors throughout the units, except in the bathrooms, kitchens, dining areas, A/C closets and foyers. Item 11.3.(c), *Flooring*, of the Declaration for Condominium for Villa Serena (hereinafter "Declarations"), dated May 15, 2006, prohibits replacing the carpeting in these areas with hard surface flooring materials. In areas with hard surface flooring, when replaced, the materials must be replaced with carpet on a pad, or hard surface materials with a "sound absorbent under layer."

It is our understanding that a petition to allow carpeted floors to be replaced with hard surface flooring has gained enough signatures to require a ballot of the Owners to accept or deny a change to the Declarations in this regard. RML Acoustics was engaged to provide a third party, neutral evaluation of the use of hard surface flooring in lieu of carpeted flooring in the main living areas and to provide recommendations for hard surface flooring underlayments if hard surface flooring will be allowed to replace carpet.

The evaluation was conducted based on the following assumptions.

1. The floor/ceiling assembly is constructed as shown in the architectural drawings received via electronic mail correspondence from the Client. Specifically, the floor/ceiling assembly utilizes a Hambro system consisting of 3" of concrete on 16" deep metal bar joists (typically 48" on center) with 7/8" deep metal hat channels attached to the bottom of the joists on 24" centers and 5/8" thick type C gypsum board attached to the hat channels. A section drawing of this assembly from the architectural drawings provided to RML Acoustics is included in Figure 1.

2. There will be no upgrades to the ceiling assemblies such as adding insulation to the ceilings or isolating the ceiling from the structure with resilient attachments.

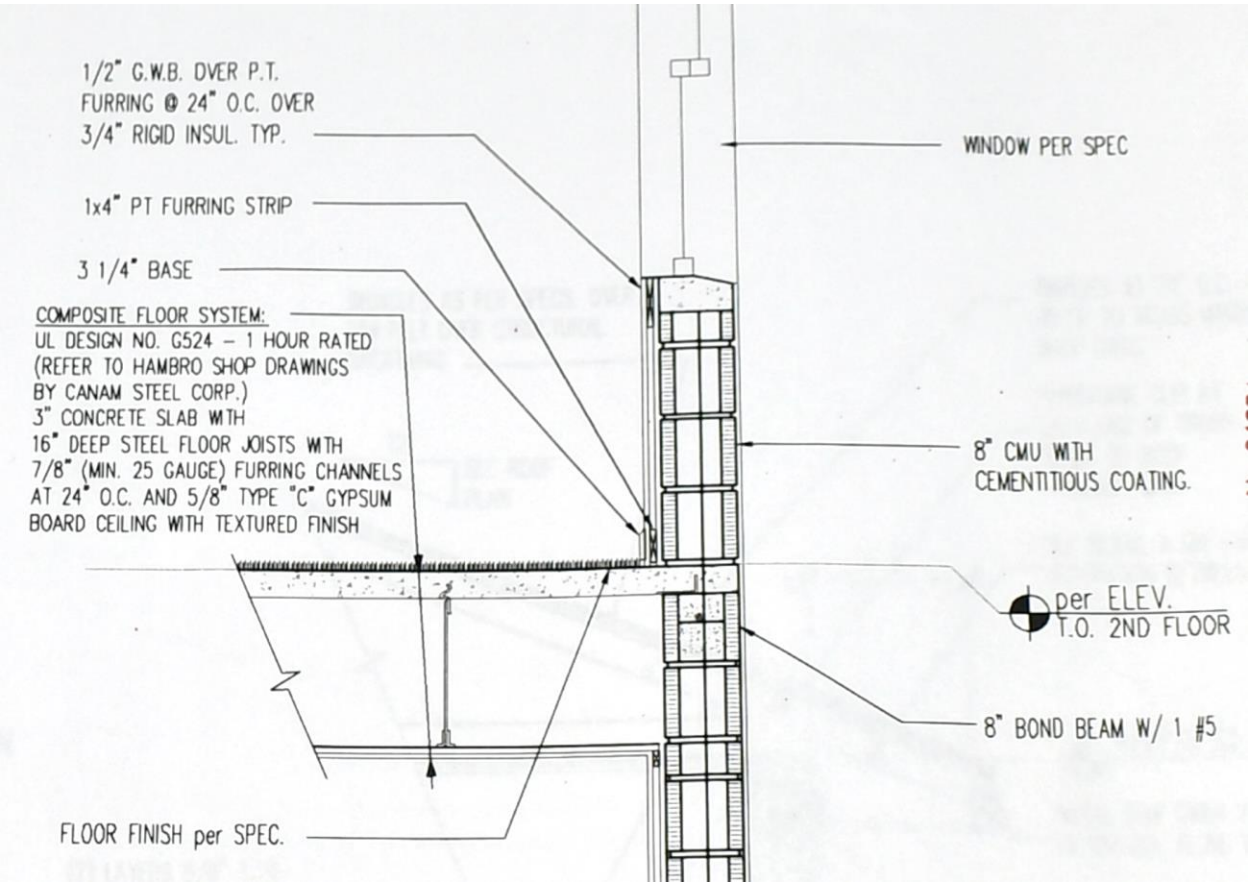


Figure 1. Section of typical floor/ceiling assembly between units in the Villa Serena condominiums.

Acoustical Criteria

The Florida Building Code (Section 1207, *Sound Transmission*) requires floor/ceiling assemblies separating multi-family dwellings have a minimum Impact Insulation Class (IIC) rating of 50 when tested in a laboratory per ASTM Standard E492 and allows an Apparent Impact Insulation Class (AIIC) rating of 45 when tested in the field per ASTM Standard E1007. The IIC rating is a single number rating used to compare the effectiveness of floor/ceiling assemblies in reducing impact sounds from a standardized tapping machine. Higher IIC ratings mean lower levels of impact sound are transmitted to the room below, although the IIC rating does not adequately reflect the extent of low frequency impact sound transmission (i.e., "thumping" sounds) common in wood-frame and Hambro floor systems.

The Florida Building Code's impact sound transmission requirement (IIC 50/AIIC 45) was adopted from the International Building Code, which was developed by the International Code Council (ICC). The International Code Council, in their *G2-2010 Guidelines for Acoustics*, recommend two higher grades of impact sound transmission reduction performance for floor/ceiling assemblies separating dwellings - "Acceptable (Grade B – IIC 55)" and "Preferred (Grade A – IIC 60)." These are taken to be equivalent to Grade B – AIIC 50, and Grade A – AIIC 55, when measured in the field.

In the book *Architectural Acoustics*, by Marshall Long (2006), multi-family building types are grouped into three categories – Minimum Quality (standard apartments), Medium Quality (high-end apartments and standard condominiums) and High Quality (high-end or luxury condominiums). For these categories, the following IIC ratings are recommended by Long:

Classification	IIC	FIIC (essentially now AIIC)
Minimum Code	50	45
Minimum Quality	55	50
Medium Quality	65	60
High Quality	75	70

Based on these criteria and RML Acoustics experience testing floor/ceiling assemblies in condominium buildings throughout Florida, RML Acoustics typically recommends a minimum IIC rating of 65 for condominiums in which hard surface flooring is used, with carpet recommended (although rarely installed in new buildings) in bedrooms to minimize the likelihood of complaints regarding impact sound transmission by residents.

Acoustical Performance of Hambro Floor/Ceiling Systems and Comparison with Acoustical Criteria

Based on a review of the technical acoustical literature, Hambro literature, acoustical test reports from underlayment manufacturers, and field tests from RML Acoustics, the current floor/ceiling assembly in the Villa Serena Condominiums, wherever carpet is used, would likely achieve a minimum IIC rating of 80 when tested in a laboratory and AIIC rating of 75 when tested in the field. This is a conservative estimate, as recent tests by RML Acoustics on a similar assembly to the one at Villa Serena resulted in AIIC ratings of 81 and 82 where carpet on pad was used as the flooring material. These are very high ratings and likely result in little to no audible sound

transmission from people walking on the floors above, except for perhaps residents hearing a low level of low frequency "thumping" sounds from footfalls on the floor above them.

Three hard surface flooring options were evaluated – engineered wood, luxury vinyl planks (LVP), and tile (porcelain, ceramic, stone, etc.). It is our understanding from discussions with Villa Serena representatives that tile flooring has not been proposed as a substitute for carpet, but should be evaluated, nonetheless.

In terms of impact sound transmission on the Hambro floor systems in the Villa Serena residences, engineered wood and LVP, with the proper underlayments, will perform similarly, and both will outperform ceramic tile on an underlayment. However, none will provide an acoustical performance that is close to what can be achieved with carpet. Specifically, with engineered wood and LVP, IIC ratings of 58 to 60 are likely the maximum that can be achieved with appropriate underlayments. With ceramic tile, an IIC rating of 55 is likely the maximum that can be achieved with an appropriate underlayment. These values are at least 20 points below that which likely currently exists with carpet on pad in the condominiums. Additionally, low frequency sound transmission through the Hambro floor/ceiling assembly will be as much as 30 to 40 dB greater with hard surface flooring than the existing carpeted floors. For reference, an increase in sound level of 10 dB is perceived as a doubling of the sound. Table 1 contains rules-of-thumb for the perceived change in loudness of a sound that corresponds to specific increases in the sound level of that sound. A 30 to 40 dB increase in sound level would likely be perceived as a six to eight-fold increase in sound level. For these reasons, RML Acoustics does not recommend replacing carpeted floors with hard surface flooring.

Table 1. Changes in the perceived loudness of a sound corresponding to specific increases in the level of the sound. This is a general rule-of-thumb that changes with the frequency of the sound. For more specific information in this regard, refer to the equal loudness contours described in ISO Standard 226:2003.

Increase in the Level of a Sound, in decibels	Perceived Increase in Loudness
0 to 1 dB	Not noticeable
2 to 3 dB	Barely noticeable
4 to 6 dB	Plainly audible
10 dB	Approximately twice as loud
15 dB	Approximately three times as loud
20 dB	Approximately four times as loud

Although an IIC rating of 60 meets the International Code Council's Grade A (preferred) performance, this rating is more applicable to apartments, not condominiums, and does not meet Long's Medium Quality performance, which is appropriate for standard condominiums. The reality is that there are many condominium buildings in Florida with floor/ceiling assemblies that do not meet an IIC of 65 or AIIC of 60, as RML Acoustics has tested many of them. However, these are typically in new buildings in which marble or tile flooring is used with no ceiling and residents are used to a certain level of sound transmission from the beginning. In Villa Serena, residents on the first floor have become accustomed to a very low (to possibly non-existent) level of impact sound transmission. Therefore, increasing the sound transmission by 20 to 40 dB will likely have a significantly negative impact on the quality of life for first floor residents, even if the IIC ratings are as high as 60.

Recommended Underlayments for Hard Surface Flooring

If the decision is made to allow carpet to be replaced with hard surface flooring regardless of the potential noise impacts on first floor residents, or if existing hard surface flooring will be replaced with new hard surface flooring, resilient underlayments must be used, and should be selected to achieve an IIC rating of 55 to 60, which is below the level recommended by RML Acoustics for condominium units but is likely the best that can be achieved with Hambro systems without making modifications to the ceiling assembly. Specifically:

- For engineered wood flooring, RML Acoustics recommends Pliteq GenieMat RST05 rubber underlayment to achieve an IIC rating of approximately 58 to 60.

- For luxury vinyl plank (LVP) flooring, RML Acoustics recommends Proflex LV200 underlayment installed in a double-glue-down configuration (i.e., LVP glued to underlayment and underlayment glued to the slab) using Proflex PS-76 adhesive to achieve an IIC rating of approximately 58 to 60.

- For tile flooring, RML Acoustics recommends Pliteq GenieMat RST10 rubber underlayment to achieve an IIC rating of approximately 54 to 56.

Manufacturer's cut sheets of the underlayment products described above are included in Appendix A. The manufacturer's installation instructions, including the use of a polyethylene foam perimeter isolation strip at the intersection of hard surface flooring with walls, must be followed to maximize the performance of the assembly. Base molding, if used, should be held 1/8" off the floor and the gap caulked with non-hardening acoustical sealant to reduce flanking sound transmission.

Please do not hesitate to contact us if there are any questions regarding the recommendations described in this letter, or if we can be of additional assistance in this regard.

Sincerely,

RML Acoustics, LLC

Robert M. Lilkendey
Principal Consultant

APPENDIX A

MANUFACTURER'S CUT SHEETS OF RECOMMENDED UNDERLAYMENT PRODUCTS

PLITEQ®

It's not magic, it's engineering.®

Impact and Airborne Sound Control

GenieMat® RST

Underlayment for Reduced Sound Transmission

GenieMat® RST

Sound Control Underlayment

FROM THE INVENTOR OF THE PATENTED TECHNOLOGY (US 6920723, US RE41945, CA 2398262) FOR RECYCLED RUBBER USED FOR IMPACT SOUND INSULATION, DIRECTLY BELOW FLOOR COVERINGS.

GenieMat RST is a flat, resilient, reduced sound transmission mat made from 94% recycled rubber content, used directly under hard surface floor finishes and over concrete and wood construction.

It is used when superior sound control is required in multi-family housing, high-rises, or commercial buildings and protects ceramic tile, porcelain and stone from substrate cracks.

Engineered for direct adhered floor coverings such as tile, stone, wood, and vinyl floor coverings.

Tile – All products rated for minimum of commercial use.

Wood – **GenieMat FAS** adhesives offer superior bonding strength.

Vinyl – One-step method provides superior sound control for resilient floor coverings.

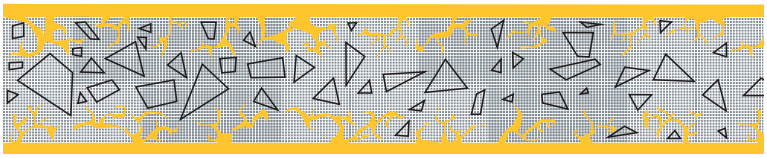
Features and Benefits:

- Mold, bacteria, fungi, and water resistant
- Exceeds pass criteria for point load test for crack isolation membrane (ANSI 118.12)
- Meets requirements for VOC emissions (IAQ test, ASTM D5116)
- Qualifies for LEED® points
- Floorscore® certified
- Complete floor covering system warranty available

PRODUCT SPECIFICATIONS

PRODUCT	ROLL SIZE	AVERAGE DYNAMIC STIFFNESS (BS EN 29052)	TYPE A HARDNESS (ASTM D2240)	TCNA ROBINSON TEST WITH TILE (ASTM C627)
GenieMat RST02	4′ x 75′	157 MN/m³	40 durometer	Extra heavy commercial
GenieMat RST05	4′ x 30′	105 MN/m³	40 durometer	Moderate commercial
GenieMat RST10	4′ x 15′	64 MN/m³	40 durometer	Light commercial
GenieMat RST12	4′ x 15′	60 MN/m³	40 durometer	Light commercial
GenieMat RST15	4′ x 15′	54 MN/m³	40 durometer	Light commercial

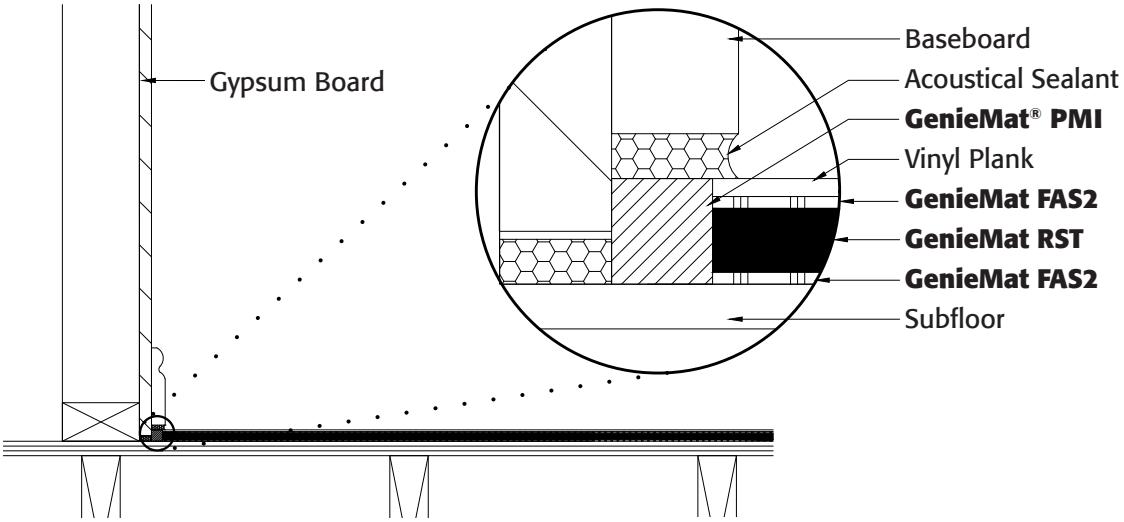
RUBBER IS THE BEST VIBRATION ISOLATION MATERIAL



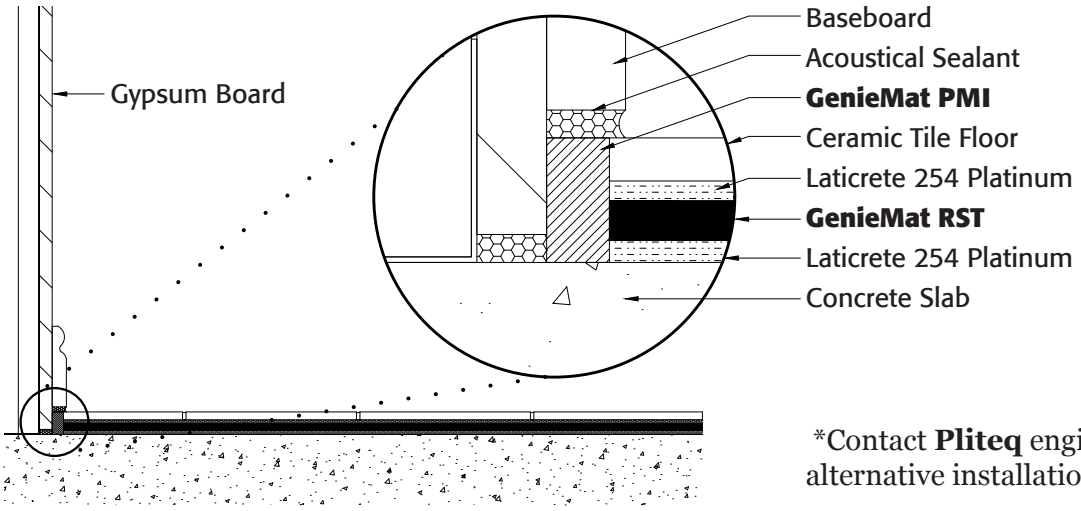
POSITIVE ADHESIVE LOCK
For very high bond strengths with adhered floor coverings

APPROVED FOR PORCELAIN TILE, VINYL SHEET, LUXURY VINYL PLANK, CERAMIC TILE, AND ALL TYPES OF WOOD FLOOR

Fully Warranted Vinyl Plank System



Fully Warranted Ceramic Tile System

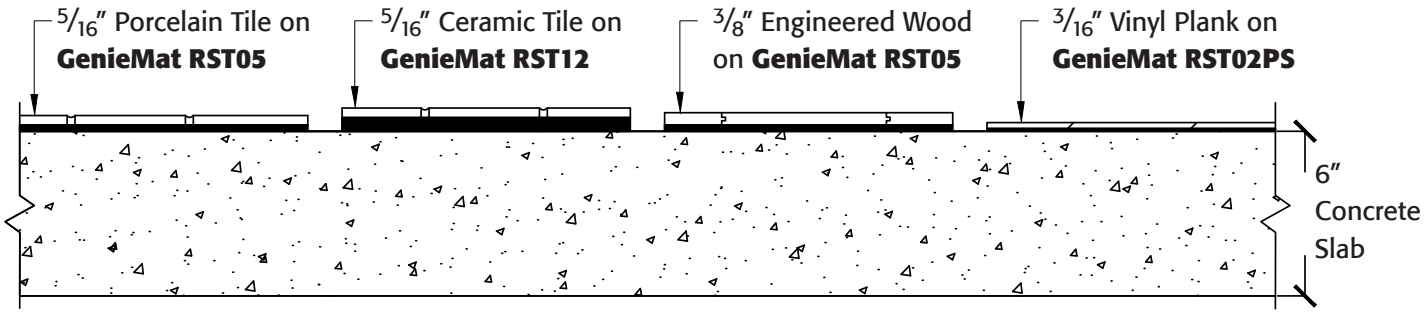


*Contact **Pliteq** engineering for alternative installation methods.

GENIEMAT® RST ACOUSTICAL TEST DATA

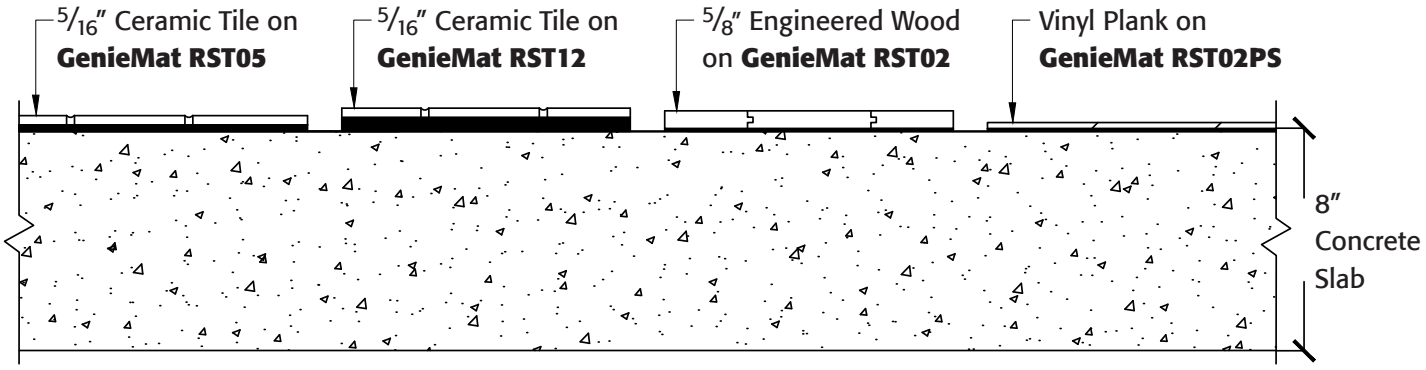
IMPACT INSULATION SYSTEM

6" Concrete Slab



50 IIC / 20 ΔIIC	53 IIC / 23 ΔIIC	51 IIC / 21 ΔIIC	52 IIC / 23 ΔIIC
E2783.02	7013025 7013026	7014011 7014012	F9365.09

8" Concrete Slab

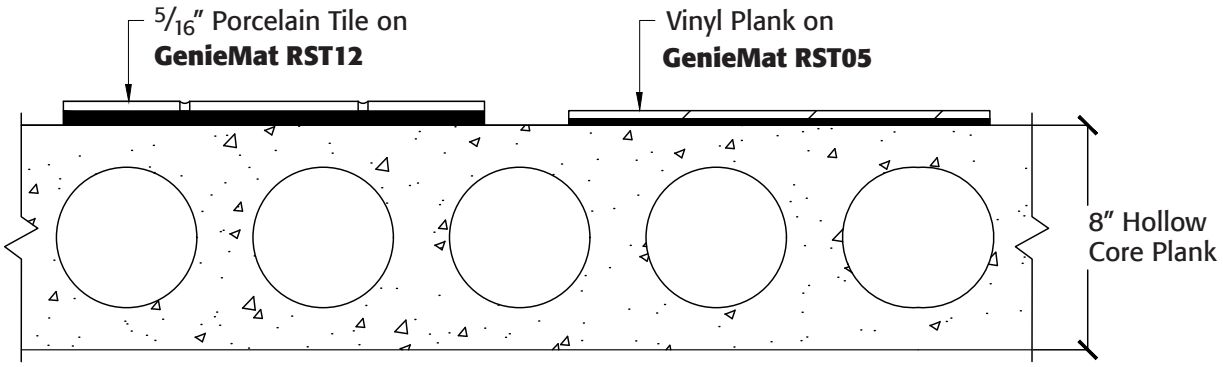


51 IIC	55 IIC	54 IIC	52 IIC
7013110	E8741.01	B3498.7	F8530.07

GENIEMAT® RST ACOUSTICAL TEST DATA

IMPACT INSULATION SYSTEM

Hollow Core Plank



51 IIC

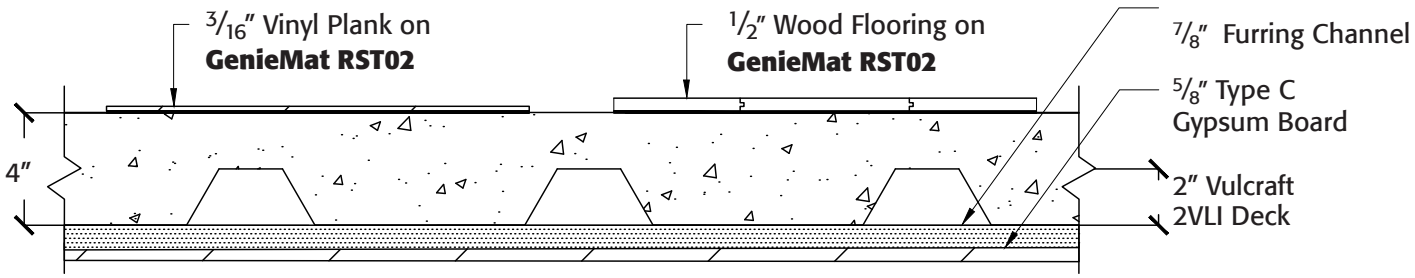
F0223.10

52 IIC

F0223.04

NOTE: No ceiling assembly tested

Composite Deck



51 IIC

F5689.13

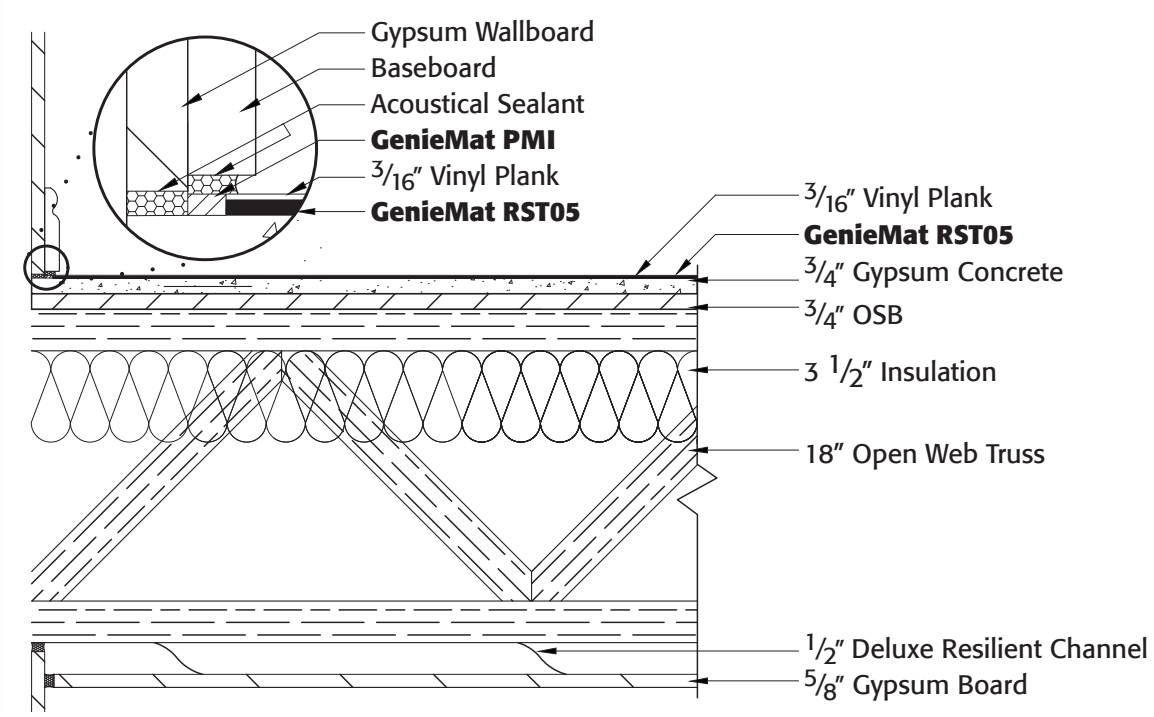
50 IIC

F5689.14

GENIEMAT® RST ACOUSTICAL TEST DATA

IMPACT INSULATION SYSTEM

Open Web Truss

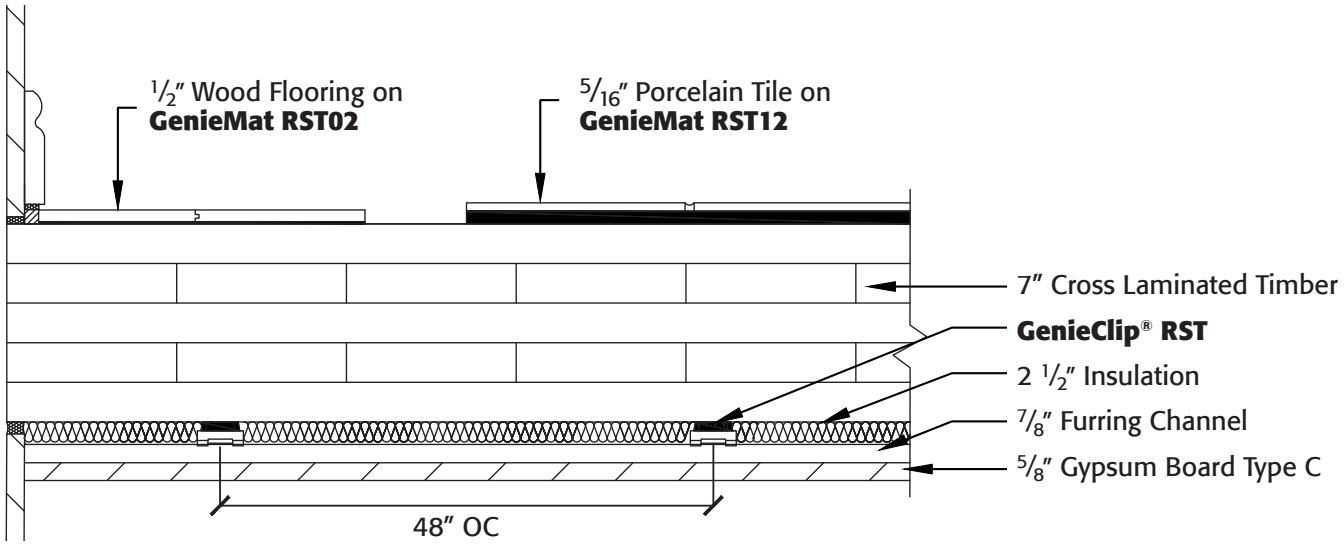


62 STC | 56 IIC

E5958.10

UL Assembly L521, etc.

Cross Laminated Timber

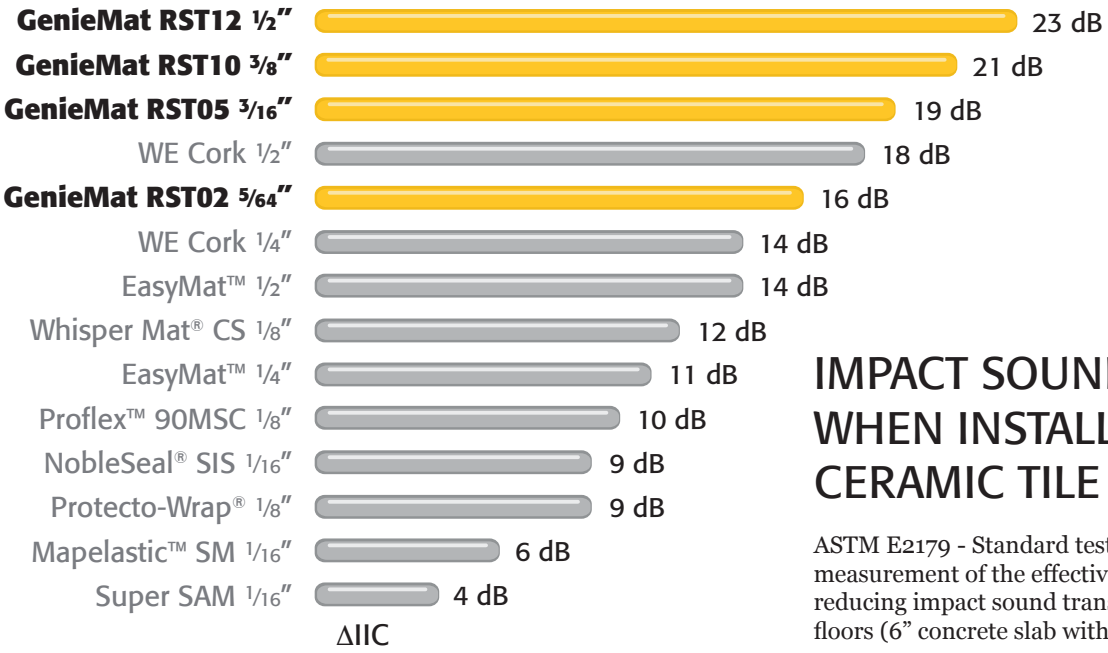


50 IIC

F2761.08

51 IIC

F2761.09



All listed dimensions are nominal.

IMPACT SOUND REDUCTION WHEN INSTALLED BENEATH CERAMIC TILE

ASTM E2179 - Standard test method for laboratory measurement of the effectiveness of floor coverings in reducing impact sound transmission through concrete floors (6" concrete slab with tile).

ACOUSTICAL TESTING STANDARDS - WOOD STRUCTURES

TEST REPORT NUMBER	PRODUCT	FINISH FLOOR	STRUCTURE	SUBFLOOR	CEILING TYPE	STC RATING (ASTM E90)	IIC RATING (ASTM E492)
G0535.08	**GenieMat® RST02PS**	Vinyl Plank	Open Web Truss	¾" Gypsum, ¾" OSB	½" RC Deluxe, ⅝" Type C GWB	60	50
G0535.07	**GenieMat RST02PS**	Wood	Open Web Truss	¾" Gypsum, ¾" OSB	½" RC Deluxe, ⅝" Type C GWB	61	50
G0535.01	**GenieMat RST02PS**	Porcelain Tile	Open Web Truss	¾" Gypsum, ¾" OSB	½" RC Deluxe, ⅝" Type C GWB	62	51
F4832.18	**GenieMat RST02**	Porcelain Tile	Engineered Joist	½" Plywood, ¾" OSB	**GenieClip RST,** 2x ⅝" Type C GWB	59	55
F5500.03	**GenieMat RST02**	Vinyl Plank	Engineered Joist	½" Plywood, ¾" OSB	**GenieClip RST,** 2x ⅝" Type C GWB	61	60
F4832.14	**GenieMat RST02**	Wood	Engineered Joist	½" Plywood, ¾" OSB	**GenieClip RST,** 2x ⅝" Type C GWB	58	61
F2761.08	**GenieMat RST02**	Wood	CLT	None	**GenieClip RST**, ⅝" Type C GWB	54	50
F2761.09	**GenieMat RST12**	Porcelain Tile	CLT	None	**GenieClip RST**, ⅝" Type C GWB	55	51
E5958.07	**GenieMat RST05**	Vinyl Plank	CLT	None	12" Wire Suspended on **GenieClip LB**, ⅝" Type C GWB	58	58
5013143 7013216	**GenieMat RST02**	Vinyl Plank	2x10 Solid Wood Joist	⅝" Plywood, ½" Plywood	**GenieClip RST**, ½" Type C GWB	55	50
5013136 7013208	**GenieMat RST02**	Ceramic Tile	2x10 Solid Wood Joist	⅝" Plywood, ½" Plywood	**GenieClip RST**, ½" Type C GWB	58	52

TEST RESULTS

ACOUSTICAL TESTING STANDARDS - CONCRETE AND STEEL STRUCTURES							
TEST REPORT NUMBER	PRODUCT	FINISH FLOOR	STRUCTURE	SUBFLOOR	CEILING TYPE	STC RATING (ASTM E90)	IIC RATING (ASTM E492)
G9222.01	**None**	Vinyl Plank	8" Concrete Slab	None	None	55	43
G9222.04	**GenieMat® RST02**	Vinyl Plank	8" Concrete Slab	None	None	54	57
E8741.01	**GenieMat RST12**	Ceramic Tile	8" Concrete Slab	None	None	57	55
F8530.06	**GenieMat RST05**	Wood	8" Concrete Slab	None	None	55	56
E2783.02	**GenieMat RST05**	Porcelain Tile	6" Concrete Slab	None	None	54	50
F9365.09	**GenieMat RST02PS**	Vinyl Plank	6" Concrete Slab	None	None	51	52
G2953.07	**GenieMat RST05**	Wood	6" Concrete Slab	None	None	52	53
F0223.10	**GenieMat RST12**	Porcelain Tile	8" Hollow Core Plank	None	None	54	51
F0223.04	**GenieMat RST05**	Vinyl Plank	8" Hollow Core Plank	None	None	53	52
G3991.07	**GenieMat RST05**	Porcelain Tile	5 1/2" Trapezoidal Steel Deck	None	**GenieClip RST**, 5/8" Type C GWB	56	51
G3991.17	**GenieMat RST02**	Wood	5 1/2" Trapezoidal Steel Deck	None	Furring channel	53	52
F9365.02	**GenieMat RST05**	Porcelain Tile	4" Trapezoidal Steel Deck	None	**GenieClip RST**, 2x 5/8" Type C GWB	58	51
F5689.07	**GenieMat RST02**	Vinyl Plank	4" Trapezoidal Steel Deck	None	**GenieClip RST**, 5/8" Type C GWB	54	54
F5689.06	**GenieMat RST05**	Wood	4" Trapezoidal Steel Deck	None	**GenieClip RST**, 5/8" Type C GWB	55	54
F5689.18	**GenieMat RST12**	Porcelain Tile	10" Steel Joist	3/4" Structural Concrete Panels	**GenieClip RST**, 2x 5/8" Type C GWB	62	50
F5689.20	**GenieMat RST02**	Vinyl Plank	10" Steel Joist	3/4" Structural Concrete Panels	**GenieClip RST**, 2x 5/8" Type C GWB	60	52
F5689.21	**GenieMat RST02**	Wood	10" Steel Joist	3/4" Structural Concrete Panels	**GenieClip RST**, 2x 5/8" Type C GWB	60	53
F3052.15	**GenieMat RST10**	Porcelain Tile	16" Insulated Concrete Form	None	1/2" Type C GWB	56	51
F3052.14	**GenieMat RST05**	Wood	16" Insulated Concrete Form	None	1/2" Type C GWB	54	53

Contact Us

For Your Project Specific Questions
T. 416.449.0049 | **E.** info@pliteq.com

11.19

www.pliteq.com

PROFLEX® LV-200

1. PRODUCT NAME
LV-200

2. MANUFACTURER
PROFLEX® Products, Inc.
2826 Broadway Center Blvd
Brandon, Florida 33510
Telephone: 863-937-9623
Toll Free: 877-577-6353
Fax: 863-937-9624
Internet: www.proflex.us

3. PRODUCT DESCRIPTION
PROFLEX® LV-200 is an advanced composite sound control underlayment utilizing a combination of 100% recycled products to achieve superior IIC (Impact Insulation Class) and STC (Sound Transmission Class) sound reduction ratings for use under LVT (Luxury Vinyl Tile) and LVP (Luxury Vinyl Plank), Laminate, Engineered Wood and Hardwood. The product is also easy to install using a direct bond or floating method.

Packaging
LV-200, 22 lbs., (1) roll, 1.8mm (0.071in) x 3' x 66'.66" = 200 sq. ft. /roll.

Approved for use under
- Laminate
- Engineered Wood
- Floating Hardwood Flooring
- LVT/LVP

Approved Substrates
- Completely cured concrete
- Interior plywood
- Cement backer units
- OSB (not for use directly over OSB when installing vinyl flooring)

Sustainability and LEED

Content	100% Virgin Latex Rubber
Recyclability	100% Post Consumer
Certification	Green Label Plus
LEED Credit EQ 4.3	Low-Emitting Materials
LEED Credit MRc5. 1,5.2	Regional Content 20-30%
LEED Credit IEQp3	Minimal Acoustical performance

4. TECHNICAL DATA
Specifications

Material Composition	Rubber
Thickness	1.8mm / .071in.
Density	30 lb./cft
Compression Set	ASTM D 1055-97 (22h, 70C) - 16%
Indentation	ASTM F1914 - 12%
Smoke Density	ASTM A662 - Less Than 89 Max
Flammability Test	ASTM D 2859 (DOC FF1-70) - Pass
Thermal Resistance (R-Value)	0.205
Antimicrobial Protection	Yes
Indoor Air Quality	CRI Certified For Low Emitting Materials
Installation Methods	Float, Double Glue, Single Glue, Nail Down, Staple
Warranty	Limited Lifetime
Sound Ratings	† Laminated Wood: IIC 54, STC 50, Delta 23 ‡ Laminate Wood: IIC 67, STC 63 ‡ Luxury Vinyl Tiles and Planks: IIC 73, STC 63

†Test conducted on 6 inch slab no drop ceiling
‡Tests conducted on 6 inch slab with drop ceiling

5. INSTALLATION

STEP 1:
Subfloor surface must be structurally sound, clean and dry before installation. Check for protruding nails and/or defects in the subfloor. If installing over concrete, the concrete must be dry with moisture emission rates that do not exceed 8lbs./1000 sf per 24 hours.

STEP 2:
Start in a corner and begin installation of the underlayment. Unroll underlayment parallel to the wall in the opposite direction as you plan to install the flooring tiles or planks. When installing the rubber side should be facing down, fabric side up.

STEP 3:
Roll out next row in the same manner butting foam close to first row. Do not overlap foam pad.

STEP 4:
Floating only:
Seal all open seams with aggressive adhesive 2" plastic tape.

STEP 5:
Install flooring per manufacturer's instructions.

ADHESIVES
For ***double glue down installations***, roll with a 35 - 75 lb. roller to smooth out any air pockets and secure a good bond to the adhesive.

In ***double glue installations over new or existing concrete slabs,*** the potential for installation performance problems exists if excess moisture or alkalinity is present. These conditions can degrade the adhesive over time. Prior to installing over a concrete slab, always confirm that moisture and alkalinity are within acceptable limits.

For ***single glue installations*** (gluing rubber underlay surface to finished flooring, not subfloor), roll with a 35 - 75 lb. roller to smooth out any air pockets and to secure a good bond to the adhesive.

PROFLEX® recommends PROSTICK 76 or PROSTICK 77 for installing LV-200. See the respective product datasheet for trowel recommendations.

6. AVAILABILITY

PROFLEX® Products are available nationwide.
To locate PROFLEX® products in your area, please contact:
Phone: 877-577-6353
Website: www.proflex.us

7. WARRANTY

PROFLEX® Products, Inc. offers a limited warranty for this product when used in accordance with printed specifications. A copy of the limited warranty can be obtained by calling technical services at 877-577-6353 or visiting www.proflex.us

8. MAINTENANCE

None required, but installation performance and durability may depend on properly maintaining products supplied by other manufacturers.

9. TECHNICAL SERVICES

Technical assistance
Information is available by calling the Technical Support
Toll Free: 877-577-6353
Fax: 863-937-9624
Technical and safety literature: To acquire technical and safety literature, please visit our website www.proflex.us

10. FILING SYSTEM

Division 9