

CASA BAHIA HOMEOWNERS ASSOCIATION POLICY AND PROCEDURES

Subject: Condominium Floor Covering Requirements

Purpose: To provide guidance and information to homeowners regarding the requirements for floor coverings in individual condominium units.

Requirements: Our CC&R's (Article III, paragraph 5) stipulates that every homeowner/resident is entitled to the quiet enjoyment of his home and no homeowners/resident may interfere with this right. Our building was constructed so that each unit would meet a minimum floor insulation rating of 65IIC. This requirement is specified in Exhibit C., paragraph m, of our CC&R's. In order to achieve this rating, all the condominium units were initially finished with wall-to-wall carpeting and pad in the living areas (living room, dining areas, hallways and bedrooms) and acoustic treated ceilings thought the unit to attenuate the noise. Changing the floor covering from carpet to a hard surface significantly reduces the IIC rating to well below the minimum rating of 65 and increases the amount of reverberent noise in the unit which is transmitted through the common walls.

Policy: In a multifamily building, such as ours, noise is a reoccurring problem and a major source of friction between neighbors. The board has a basic responsibility to protect the homeowners right to a quiet home environment while working to minimize the noise problems between units. In order to determine if the requirements of the CC&R's could be met will hard surface floors, a Certified Noise Control Engineer was hired to conduct testing of samples of hardwood, tile and cork flooring, all with a double layer of acoustic underlayment. Based on the technical data obtained (Ref 3) and the floor construction in our building, it is evident that (without structurally modifying the floor) the sound insulation requirements for flooring in our CC&R's can only be met with wall-to-wall carpeting and pad.

The board, therefore, will not approve the replacement of wall-to-wall carpet with hard surface flooring where there is another unit below unless the owner can present technical data which clearly demonstrates that the new covering will result in a minimum floor insulation rating of 65IIC (Impact Insulation Class). This must be obtained by a Certified Noise Control Engineer and a written report and test results provided to the board.

Homeowners whose units are on the slab or have no other unit under them, may request permission to install hard surface flooring with underlayment. This must also be installed with either side insulation or an air gap on common walls, including common area hallway walls.

Hard surface flooring will continue to be allowed in kitchens, baths, and entryways (within 6 feet of the front door). Again, this must be installed with underlayment and either side insulation or an air gap on all common walls.

Homeowners who have hard surface flooring that was installed without board permission will be required to replace it with wall-to-wall carpeting and pad either the time of sale or when the flooring is replaced, unless there are noise complaints from the unit below. In this case the flooring must be replaced immediately.

Data: (Data and conclusions taken from Ref #1). Most condominium floors, both solid concrete and wood framed construction which provide adequate airborne sound installation, will provide adequate footstep noise insulation if finished with carpet and underlay. In all concrete buildings, normal footstep noise is virtually inaudible in spaces located below carpeted rooms, while in wood- frame buildings, only a low frequency thudding sound is sometimes audible, particularly from heavy walkers or if the floor has no concrete topping layer board or is exceptionally flexible. However, when the carpet and underlay are removed and replaced with hardwood, tile, cork, vinyl flooring, footstep noise becomes much louder, as well as brighter in character. This is generally found unacceptable to people living below, particularly in high end buildings or areas where background noise levels from traffic or other exterior sources are very low.

Many resilient materials are marketed as a means of controlling the noise created by footsteps on hard surface floors, such as hardwood and tile. While these sheets or mastic underlay products are quite effective at reducing the brightness of impact sounds, they are generally quite thin and when applied over the entire floor, are not sufficiently resilient or soft to provide effective isolation against the mid and lower frequency components of impact noise. As such, their performance can not approach that of carpet and underlay.

The floor construction in our condominium units consists of a basic wood floor with a concrete topping layer with an uninsulated cavity between the 5/8" gypsum board ceiling in one unit and the plywood underlay in the unit above. This type of floor construction has an IIC rating of about 25 for the bare floor and 65 if it is carpeted. Another words, the carpet accounts for a 40 IIC increase in sound insulation. Removing the carpet and replacing it with a hard surface, like tile or wood flooring, on top of the plywood underlay only increases the sound installation by 15 to 20 IIC for a total of 45, which falls far short of the 65 IIC requirement. With an IIC of 45 or less, normal walking is clearly audible below, as well as impacts from the movement of chairs and drop objects. This level is unsuitable for multifamily units or where moderate isolation is required within the same dwelling unit. At an IIC level of 60 to 70, normal walking is audible only during very low background noise situations. This level is adequate for most multifamily buildings. Additionally, footsteps on a hard surface becomes much louder as well as brighter in character in that it no longer sounds like a dull thud but contains middle and high frequency

components as well. This leads to an increase in the reverberent sound in the unit which amplifies the level of sound which is transmitted through the common walls as well as the floor.

The common walls in our building are uninsulated single wood 2x4 stud construction which typically provides an STC of 32. If sound insulation material is blown into the wall, the STC can be raised to 36, which is about the best that can be achieved with this type of construction. The City of Redondo Beach Building Division (Ref 2), by comparison, requires that all new construction for residential condominiums have walls that will meet a minimum STC rating of 55. In order to achieve this rating the wall must be constructed with double 2x4's, have a third 5/8" gypsum board and be insulated. Because our building has the older, simpler wall construction, even the normal sounds of living, emanating through the common walls, can be a problem. This is why it is important that floor noise from hard surfaces not be allowed to add to the overall level of noise within a unit. Each 10 point increase in the STC means that noises coming through the wall will be roughly half as loud. At an STC of 35 to 40, normal speech is audible, and at times, words can be understood. An STC of 50 to 55 will assure speech privacy and in most situations and will be generally adequate for typical multifamily units.

Procedure: A homeowner wishing to replace the wall-to-wall carpet in his unit with some other floor covering or wishing to obtain approval for an existing non-carpet floor, **shall submit to the board, a written report data based on tests performed by a Certified Noise Control Engineer** that it meets the minimum IIC and STC requirements as specified herein. This testing will be done entirely at the homeowners expense. The board will evaluate the data and report, obtain expert opinion when necessary, and provide the homeowner with an approval/disapproval letter within 60 days of receiving the homeowners request letter.

References:

1. City of Vancouver Noise Control Manual, prepared by Wakefield Acoustics Ltd., Victoria, B.C.
2. Sound Attenuation Requirements for Residential Condominiums, City of Redondo Beach Building Division. November 2000.
3. Davy & Associates, Inc. report. September 18, 2006