

EXPERIENCES WITH THE SONOROUS ART

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ABSTRACT

The sonorous art allows us to make our life more pleasant, since multiple sonorous objects, sculptures, textures, etc, surround us with their whispers.

We can fill our surroundings with art, and this art can produce designed sounds.

This paper shows some examples with the wood, like an introduction of this art in our daily life.

WOOD EXPERIENCES WITH THE SONOROUS ART

Wood can be used as sonorous material in a very strong or very light way. In the second case, we use to take advantage of the air boxes that can be done in their back part. This boxes can perfectly act like resonance boxes according to the membrane's thickness and the possibility of making it arrive cracks, like in the chinese box. It can also be used by means of a mixture between both forms of construction.

Sometimes they are used in slabs or, still more often, in ribbons rather longitudinals some lips more or less opened by which the air can go in contact from the outside with the air placed under the wood. In other words, when you step or knock the wood, it can behave like an eardrum of a drum, and precisely this air can go out though some cracks placed between woods (because it cannot do it by means of the membrane, as in the case of the skins of the drums).

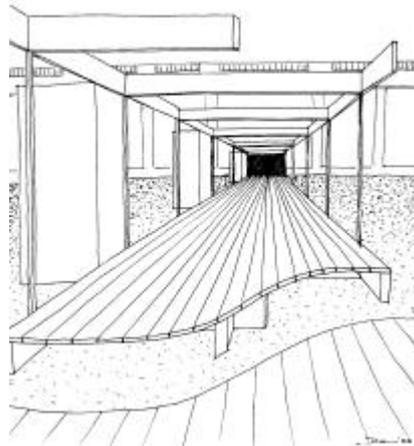
Sometimes, the air is also in contact with the outside because there is no closed baffle, but the opening is made by the lateral sides.

I am going to expose some results of my investigations about the applications of the wood respect to the acoustic characters of the spaces.

SONOROUS CHARACTERS WITH THE WOOD

Wood incorporates a trajectory an idea of directionality if it's used as it must. In figure 1 we see an example applied in Montjuïc (Barcelona). It was an access to the palaces of Alfonso XIII and Victoria Eugenia (architect Puig i Cadafalch), on the occasion of an furniture exhibition. You

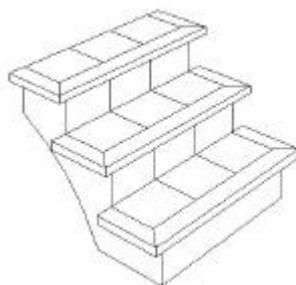
could go in though a wood carpet which caused sounds that influenced in the people who arrived from the longitudinal axis of the exhibition.



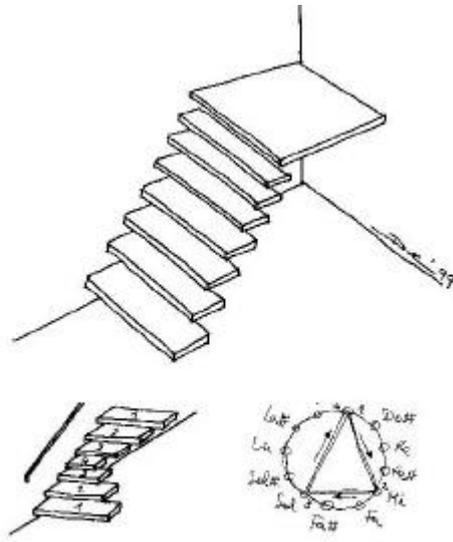
People let the longitudinal axis to take this new transverse axis formed by a subtle structure of ceiling, lateral and base (ephemeral elements pierced in the ceiling, very permeable laterals, and a very continuous base wood carpet as a small hardwood floor on the ground). The user forgot the hard sounds of his route by the marked pavements, to enter following this new transverse axis half soft that took him to the new places. It had been marked new sounds with dynamic characters in the ground level by means of the sounds that the carpet produce to being stepped.

The perimeter directionality can be obtained by knock the wood with hands, and so it can be found fundamentally, within the architecture, banister rails and banisters of stairs, in the balconies and terraces and, in the public work, the slope, retaining walls, etc. Even used in roads, it can be like protection of highways in the zones where there is much interest to avoid the visual impact and, simultaneously, to allow the passage of animals from one side to the other of the road.

The other use of the wood, for the rythmical character, is more modest. Still it's used to smooth the edges of the steps of the stairs (specially the ended ones rectangular or square floor tiles, where a special loudness is obtained with wood, like cohen you go down one of this stairs of the Benedorments castle, in Castell d'Aro Girona) (fig 2).



Character of tonality. This character can perfectly obtained with wood steps of a stair, since quite often they work in bracket form (fig 3). If there is an embeded extrem in the wall, the step (or also the shelving), cohen it is by the one who is moving over this step. It emits specific sounds much more pronouncing when you go down when you go up (something similar happens with the stone or iron stairs that also work like a embeded beam, as for exanple made of marble stone (travertin) placed in the "camí de ronda" of S'Agaró, in the Costa Brava, Girona). Thera are other sites of Barcelona where we can find this character, like in the "Rambla de Mar" and the ancient footbridge of the "Santa Monica" convent, where the wood generates all type of sonorous tonalities.



We also found applications, as for pitch, directional, perimetric or central character, in some wood banister rails, designed for euphony, usually hit by hands or by rings and bracelets that users wear. The accent is much more strong in the case of the stairs and inclines because users have a very direct contact with railings (fig 4).



Marimba character. Perhaps the clearest example of ample tonalities with effect of marimba, is the one the musicians bower of the “Ciudadella park” of Barcelona (fig 5). Sundays mornings it is assaulted by little children that run over the woods knocked in radiums in marimba form, and generate true symphonies that any a musician wanted to see written in musical staff.

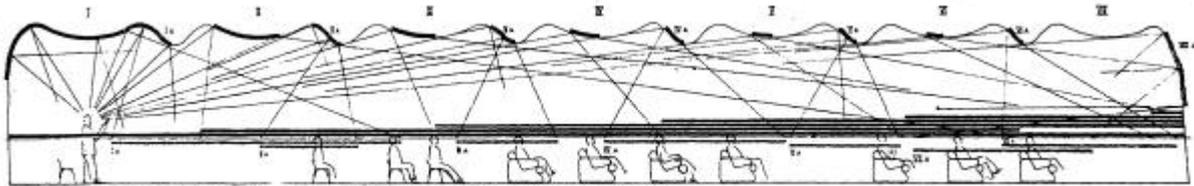


Focal character. With the application of the wood to the furniture of the architecture and urbanism, often we were with situations of focal points (and also difusion, the opposite effect), due to the sound reflection and concentration. The access to the City Council of Olot (fig 6) has been solved with concave wood screens, that cause the return towards the center of the sounds



produced by the people who circulate around it. This effect it's more important when you're talking with another person, but going single it is also possible listen perfectly if some sound of continuous rubbing with weaves of clothes takes place (better with the raincoats), or when you snap fingers or, still more simple, when you cough.

The diffusing character can be considered to obtain a distribution of the most homogenous sound, as in the example of the wood ceiling of the room of debates of the library of Vipuri of architect Alvar Aalto (fig 7).



Informative character. The wood rattle the entrance to sacristy of the cathedral of Barcelona, and many other sonorous mechanisms like rattles installed throughout in ancient times, give us concrete references and contribute to the informative character of the sounds in the territory, the cities and the buildings.

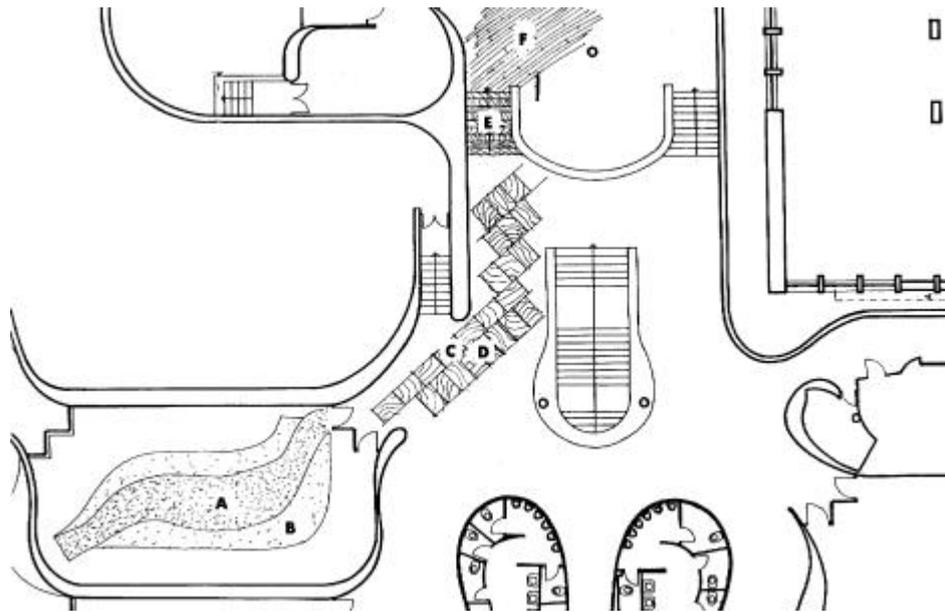
DESIGN EXAMPLE WITH WOOD CHARACTERS OF AN ITINERARY

In a course imparted in the barcelona School of architecture (ETSAB) to architects and Brazilian students, I suggested the possibility of generating a design of sonorous route by the School. We thought about using the wood exclusively as a base of all the performances, given its peculiar sonorous characteristics.

For the classroom where we were, we raised a pavement with wood grains or worked wood pieces like barren (sonorous or dumber), like using the pinions of the pines and the shell of the cork oak. However, the students showed preference for the most tropical wood (which they dominate), and whitch present higher densities. For this reason they are much more sonorous.

We also could work with its natural colours in order to obtain certain chromatic effects. The students finally chose their colours similars to their yellow and green flag, and by this we looked for the more singsong woods in zone of step and less dense wood (dumber) in the bordering zones, with the purpose of emphasizing plus the directionality of the carpet towards the exit of the classroom. We tried to create a very glad carpet (like a "Samba") because we wanted that their sounds colored very were, like in this type of music. We thought that high-pitched sound would have to dominate of barren of dense and yellow wood (tropical wood from Brazil), where as the green one could give protagonism to the wood that we used for the exteriors (less dense), which usually adopts a greenish tonality and of which we could even find in a very small size.

For the exit of the classroom, once located in the corridor of the School, we thought about a variation of the sounds of the step we based on a progression for percussion that generated impacts and sounds of the drum's type. That is to say, when people step this new pavement, they walk over some floating boards of wood, like were stepping counters or School's tables. One was to take control of the sounds of drawing boards, reason why we wanted to take advantage of the rumbling of the air boxes under the wood. The boards would act like membranes and, therefore, its tone would be rather bass, and this new itinerary would become a kind of "tablao" or scene in order to generate stronger sounds than before. Now, stepping on this platform, we could indicate to the user the importance of its own step to call the attention of the rest of the School, or to be satisfied such happening unnoticed walking over the same boards arranged on the ground, directly in contact with the pavement and without amplifying air box (fig 8).



When arriving at the stairs, we looked for a solution that was more discreet, quieter, where acoustic impacts at arriving at the hall of the School did not take place. For this space we decided to put a massive and great wood. Finally we were decided by the old crossbeams of the iron routes. These sleepers, ready directly in contact with the ground, sound wood only superficially and not structurally. Its structure is in constant contact with the ground, without generating no type of beam sound, neither supported nor embedded.

After this stairs, we were already in the hall of the School. Here we thought about a series of strips to obtain a pavement that did more “crec-crec”, perhaps more floating and acute sound, less resonant, and therefore, that it produced less sound. We did not want directionality, but that we had interest in lose and stump the sound. Really, we wanted to emphasize the global and unitary character of this space. Perhaps at heart I looked for the memory of the continuous sound of floating parquet of the Italian pavilion in the Biennial of Venice.

All this took us to make a series of actions about this small territory, designing exactly what we wanted to obtain concrete and perceptible sound effects.

The sonorous scene that we raised was not artificial, since we found different parts from the same one within our daily surroundings.

In the University of Barcelona we must pass different wood footbridges (fig 9); when we cross the bridge of Brooklyn in New York city, we do it over a wood bridge (fig 10); when the wind makes whistle the defenses of the skiers in a station; it does it with wood sticks (fig 11), and thus in many other situations.



If we paid attention, we can see that wood surrounds us by all sites and creates true resonance box of our voices and our musics. Conscious or unconsciously, we took advantage of it so that our designs generate true instruments that gather the sounds of our life, and they snead them or they absorb them, or they even amplify them.

