
The Live Room: transducing resonant architectures

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***The Live Room* was a temporary site-specific installation presented in building N51, room 117 on the MIT campus on 7 May 1998 and concluded on 10 June 1998. Using small acoustic-intensifying equipment which mounted directly to the structure of the foundation at the site, the system created an enhanced scale of 'tectonic charging' through vibration. The system engaged the architecture by running impulsive energy throughout, creating sound and vibration in direct relation to the building and the dimensions of the space. The project describes an intensified site where machines fuse into architecture and combine active forces with the building forms. The action was an attempt towards the liberation of tectonics from the limitations of the static, creating a place where resonant structures vibrate in sympathy with induced frequencies. By using various transducing devices and signal-generating equipment, the project effectively 'tuned in' the location by delivering resonant frequencies. The installation engaged directly with a unique floor system which was already present at the location. Mechanical oscillators were mounted into this floor system so that frequencies were imparted into the building, the floor and the persons who were situated in the room. With this work, I was interested in TRANSDUCING ARCHITECTURE, driving the space with external influences of a vibro-kinetic nature.**

1. INTRODUCTION

Considering the outgrowth of new technologies in relation to our collective cultural history, the effects of late-twentieth-century technical productions on humanity have been immensely profound. With the speed of communication accelerating and the density of information piling at increasing rates,¹ the biological make-up of the body is posing as a limiting factor in the reception of all this change. Studies are needed when considering how this effect manifests as real artifacts. Whether it is the rise in cancer rates in relation to the increased production of synthetic compounds, new types of psychological anomalies which arise from disjunctive social relations,² or even shortened attention spans and the advent of Ritalin³- controlled

children; all this seems to point to problems of adaptation. We live in a culture of speed where the body, in order to survive this new technological framework, couples to the machinic and is therefore driven at phenomenal rates. Whether the connection is vehicular, electronic or synthetic, they all reference an accelerated situation which had not existed before the close of the nineteenth century. At present it is an unstable situation and balance has yet to be found. The process of finding directional bearings and modes for adaptive behaviour suddenly becomes a necessary project. Perhaps our biology will change in accordance. Evolutionary time scales might shift and fuse within this technological framework which in its own adaptive way also adjusts for weak spots in our all-too-human condition. Perhaps also systems could be designed that would assist in restructuring this evolutionary time scale. With my work, I envision an art of the future where the body along with the mind is driven through intensifying experiences and provoked into new territories in reference to location, the self, to others and towards our machines.

The relationship of architecture to the body is similar to that of the body to machines.

Buildings and tectonic forms envelop occupants, defining contours of action, positioning a framework for habitation. It is a mode of identity that is modulated by constructed form and which acts in subtle ways, forming operations for living, defining interaction with others, and controlling mobility. The scale differentials between the body and the architecture inhabited mirrors that of machines. There is the same format of designed operation that is specific to the use of technical devices as there is in inhabiting a designed space. Machines define their own operative usage, which controls social relations and provokes tendencies for interaction. If you consider examples such as the automobile for navigating personal trajectories, or telecommunications which allow for immediacy of connection through separation,⁴ or even the act of writing this text on a machine which processes my words, all typify actions of modulation and control.

¹Paul Virilio, *The Lost Dimension*, Semiotext(e), 1991.

²*Amok Journal – Sensurround Edition – A Compendium of Psycho-Physiological Investigations*, edited by Stuart Swezey, Amok, 1995. Chapters on Autoerotic Fatalities and Self-Mutilation /Amputee Fetish.

³Type of barbiturate used for hyperactive children and for treating attention deficit disorder.

⁴Paul Virilio, *The Art of the Motor*, University of Minnesota Press, 1995.

The Live Room project investigates these two parallel examples of modulation and control in relation to the body and architecture and the body and technology. The project works as a kind of investigative platform for injecting reified experience. Within the amplified framework of *The Live Room*, the occupant was dynamically connected to the living architecture machine.

2. THE PROJECT

The Live Room is an interactive vibro-acoustic environment that engages directly the architecture, the room and the people who occupy it. The building where the project was located, N51 on the MIT campus, was originally part of the General Radio Corporation which manufactured electronic test equipment up until the late 1950s.⁵ In the 1960s and 1970s the building was occupied by the MIT Instrumentation Laboratory (later named the Draper Laboratory) which developed inertial guidance systems for ICBMs, Polaris submarine missiles and the Atlas rocket.⁶ It was at this time that the unique floor system was installed into room number 117, where *The Live Room* was located (figure 1). This space, which housed the Fleet Ballistic Missile laboratory, was utilised for the design and testing of the gyroscopic devices, accelerometers and sensors that were incorporated into the armament systems carried by the US submarine fleet. Because of the degree of precision inherent in the equipment production, the control of external vibration was a crucial requirement in the construction of the floors. This room has seven massive concrete isolation pads which float on beds of gravel and sand and are isolated from the rest of the building by their own separate foundation. The pads which are incorporated into the sub-floor system are surrounded by a floating floor plane of half-inch thick aluminium plate mounted on a suspended girder system. This girder system was connected to the periphery foundation, which supports the rest of the building. The room has two of these specialised floor areas, one section with two large isolation pads and the other section with five smaller pads. Each pad originally supported a gyro tilt table, which was used in the testing of the directional control instruments (figure 1).

In *The Live Room* I attached six rotary type mechanical oscillators (exciters) to the rigid girder system used to support the floors (figures 2–3). The oscillators produced intense vibrational energy, which was introduced into the structural system, the floor



Figure 1. Exposed girder system of *The Live Room* with two vibration isolation pads, floor plates removed.

panels and to the surrounding building foundation. The seven concrete isolation pads are immune to this vibrational energy and thus become dead spots or static islands surrounded by a sea of energised waveforms. Quarter-inch closed-cell foam was used to dampen the area between the underside of the floor panels and the top of the support beams. The foam enabled the floor panels to float independently of each other and allowed different frequencies to be imparted



Figure 2. Mechanical oscillator.



Figure 3. Mechanical oscillator mounted under floor plate.

⁵Arthur E. Thiessen, *The History of the General Radio Company*, General Radio Co., 1965.

⁶*Air, Space and Instruments*, edited by Sidney Lees, Draper Anniversary Volume, McGraw-Hill, 1963.

to separate areas. By mounting the vibration-inducing devices to the structural members, the twelve-by-eighteen foot and eight-by-thirty foot floor areas operated as two independent planar resonators which acted like large rigid speaker-like surfaces. The design of this system enabled the floor area to essentially work as a tuneable musical instrument with harmonic pulse frequencies shifting in relation to the fundamental settings of the separate oscillators which were modulated also by the movement of people walking on the floor surface. When standing on the activated area, the vibration travelled efficiently throughout the body as it did also throughout the building. Waveforms propagated in one area of the floor and travelled outward towards other areas while passing through those who were standing in the path of this movement. The action of people moving on the floor plates created an interactive counterpoint to the frequency patterns generated by the oscillators.

The exciters used in the project operate over a frequency range of between one to thirty cycles per second (figures 2–3). Variable voltage from six rheostats controlled the six direct-current motors that made up the oscillators and could be precisely controlled individually (figure 4). The rotary devices used offset weighting which generated sinusoidal waveforms throughout the frequency range. The two floor areas that made up the project each had three oscillators connected to the aluminium sub-floor. This rigid connection allowed the separate waveforms produced by the vibrators to connect and build upon each other in an additive way.

To help visualise the waveform propagation, fine sand was placed on the floor surface, locating the nodal points and the active areas. This technique is an architecturally scaled version of some of the work developed by the eighteenth-century Hungarian



Figure 4. Six control rheostats on table with replaced floor in the background.

researcher Ernst Florens Friedrich Chladni.⁷ His famous ‘Chladni’ figures utilised fine powders placed on metal plates which were activated with a violin bow. The powder medium when vibrated would suddenly organise into symmetrical patterns which corresponded to active and non-active areas. The Chladni patterns also relate to the material make-up of the plates, the frequency of excitation and the type of powder used. When participants walked on the floor surface, the footsteps disturbed the sand and distributed it randomly. At the same time, the vibrations of the floor induced the sand to self-organise, generating a topology that corresponded to the shifting frequencies and persons.

3. TENDENCIES

Sound artists such as John Cage with his *Cartridge Music* and David Tudor’s *Rainforest* both have similarities to *The Live Room* in reference to sound and objects. Cage used phonograph cartridges to amplify the sounds of different materials. Acting like contact microphones, sonic material was derived from placements on instruments and objects. While with *Rainforest*, Tudor resonated common everyday objects and played them back as amplified instruments. Spatial resonance and room sound was also explored by Alvin Lucier where he used conventional sound-generating equipment and the voice to create standing waves and resonance effects in direct relation to the room acoustics.⁸ Other artists have worked in territories related to architecture and technology. Gordon Matta-Clark⁹ dismantled building forms along with the pre-constructions of habitational use value. Jean Tinguely,¹⁰ Chris Burden¹¹ and Survival Research Laboratories magnify the icon of the machine to the point of absurd and dizzying spectacle, animating breakdown and mutation through a chaotic formulary within a specialised framework of the technophillic. All skirt areas where *The Live Room* was positioned. In this project, though, the intent was less on the technical object amplified and perturbed to the point of exhalation, but rather emphasising the site as an inhabitable place which echoes the original use of the room; a space where the structure itself relays its own defining voice.

⁷Mary Désirée Waller, *Chladni Figures – A Study in Symmetry*, G. Bell and Sons Ltd, 1961.

⁸Cabrera, D. 2001. Acoustical, psychoacoustical and subjective assessment of Alvin Lucier’s *I am Sitting in a Room*. *Proc. of the Australasian Computer Music Association Conf. (Waveform 2001)*, pp. 17–24, Sydney.

⁹*Gordon Matta-Clark*, exhibition catalogue, IVAM Centre Julio Gonzalez, Valencia, 1993.

¹⁰*Pandemonium – Jean Tinguely*, Benteli, 1988.

¹¹*Chris Burden – Beyond the Limits*, exhibition catalogue, MAK, Cantz Verlag, 1996.

The space was intentionally kept clear of any unnecessary devices or sculptural forms. The room when entered seemed bare. It was only when the floor planes were activated, massaged with vibratory pulsation, that the site suddenly became alive, resonating both the structure and the viewers with sympathetic harmonics. The room in this sense worked as an activated site-object, a machine which you entered into. Room 117 as a technological space, surrounded and infected the body with energised form and surface. When the system was turned on, the floor panels were charged with the imparted energy, defining the site beyond this place while also locating the occupants within. It integrated the areas of tectonics and technology through the forcing action of penetration, induction and massage. The project was a site where the technical fed into the environmental and resonated within the viewer, defining a bridge, connecting the occupier to that which was occupied. It located a place where the body experiences heightened reality and references our relationship towards machines.

Naum Gabo's¹² kinetic construction is useful to consider in relation to *The Live Room*. This piece, made in 1920 and perhaps one of the first kinetic artworks, was not intended as a sculptural object itself but was made for his students to demonstrate the principal of the standing wave. Using reciprocating motion to oscillate a thin metal rod, the device could define dimensional space through time. Due to the persistence of vision, a solidified form or virtual volume would emerge inscribing a sculpture, present only through its action. *The Live Room* similarly delineated form through action, only instead of using a metal rod, the work used pure vibration to inscribe shape within the body. Organs, bone and tissue all have particular resonant frequencies, and if these frequencies are induced through the body, shapes can be felt along with relational indices of the different body parts. *The Live Room*, a space devoid of physical objects, was therefore composed of virtual objects, which haptically interface with the audience. By interacting with the cycling waveforms, the occupant was again occupied, infested with frequencies, modulated by vibrational energy and imparted with the volumetric sensibilities inherent within the body. The audience therefore was the activated object, the sculptural form, traversing the site and feeling the liveliness of themselves, others and the space within.

The Live Room was a relative of cinematic entertainment, amusement parks and thrill ride attractions. There seems to be no limit to what type and how much intensified experience audiences will take. There was Coney Island in the 1920s where people paid to be abused by machines that hurled them about only to be

insulted by clowns as they left the park. In the 1950s there was William Castle and his film 'The Tingler' which had the seats of the theatre wired up for 'Percepto', and 'sought to simulate the monster loose on the floor under the seats and involved small motors from radar cooling units fitted with lopsided cams, bolted under the chairs and activated on cue by the projectionist'.¹³ In the 1970s there were disaster films like 'Earthquake' which had specialised Sensurround subwoofers, which physically shook the audience at cues, marked in the celluloid.¹⁴ Nowadays it is a fast-growing industry that seeks out increasingly jaded audiences who are looking for the next big thrill. Companies such as Disney and Universal Pictures are constantly developing new rides which are seemingly more extreme or are tie-ins to the film projects they produce. With computer imaging, simulation platforms and virtual reality, ride films such as Douglas Trumbull's Luxor attraction in Las Vegas are becoming hybrid forms of spectacle 'movie environments in which the audience actually moves in sync with the screen action'.¹⁵ *The Live Room* works to a similar degree in provoking the audience in new and extreme ways. The idea of placing people in these kinds of unique situations is one which permeates most of my work. When boundaries are pushed, new awakenings in the self can be located. Through this, social interactions can expand and a new type of referential identity might develop.

4. DESTRUCTIVE POTENTIALS

Every material has a specific resonant frequency which is a product related to its natural state of potential excitability, that is to say its own physical presence infers a resonant property based on its molecular make-up, physical proportions and the space in which it is situated. Buildings too, along with bodies, have their own particular resonant frequencies. If you locate this frequency, and its associated value of efficient excitation, and through mechanical reinforcement impart this frequency, it is possible literally to 'ring' a material in a manner similar to striking a bell. If, through a feedback system, a phase-aligned addition to this waveform is encouraged, it may become possible for the materials to oscillate out of control. In 1898 the inventor Nikola Tesla was working with a similar energy-imparting device which was said to be so small 'you could put it in your overcoat pocket'.¹⁶

¹³Jack Stevenson, 'A million frightened teenagers or: a hundred and one cheap ways to make your movie more exciting – in praise of the lowly gimmick', *Blimp* 36, 1997, p. 51.

¹⁴*Ibid.*, p. 49.

¹⁵*Ibid.*, p. 49.

¹⁶Article from the *New York World-Telegram*, 11 July 1935.

¹²Naum Gabo – *Sixty Years of Constructivism*, edited by Steven A. Nash and Jorn Merkert, Prestel-Verlag, 1985.

I was experimenting with vibrations. I had one of my machines going and I wanted to see if I could get it in tune with the vibration of the building. I put it up notch after notch. There was a peculiar cracking sound.

I asked my assistants where did the sound come from. They did not know. I put the machine up a few more notches. There was a louder cracking sound. I knew I was approaching the vibration of the steel building. I pushed the machine a little higher.

Suddenly all the heavy machinery in the place was flying around. I grabbed a hammer and broke the machine. The building would have been about our ears in another few minutes. Outside in the street there was pandemonium. The police and ambulances arrived. I told my assistants to say nothing. We told the police it must have been an earthquake. That's all they ever knew about it.¹⁷

This notorious event was said to have also created intense sympathetic vibrations two blocks away from Tesla's laboratory producing a similar extreme reaction which had summoned the authorities.

There is a correlation between bodies and buildings insofar as they relate to oscillatory motion. The same amplitudes and frequencies have corresponding effects which manifest in both. As Dupuis and Zerlett illustrate in the book, *The Effects of Whole-Body Vibration*, vibration induced in humans to the point of the pain threshold is relative to the same value of intensity which causes failure in structures, and at lesser intensities other anomalous effects were also produced.¹⁸ Both bodies and most building structures are excited efficiently in the same relative frequency spectrum of between one and twenty cycles per second. Though *The Live Room* was not trying to actually destroy buildings or cause physical pain, mapping this extreme range helps to clarify the potential power resident in the project. This parallel relation also helps to reinforce the concept of bridging through sympathetic resonance, of defining a trace between the body and architecture and using vibration as a vehicle to connect the two.

5. SOUND AND INFRASOUND

Normally we think of sound as pressure waves travelling through a medium (such as air) on its way to the ear. Because the molecules are more spread out, gasses like air are less efficient mediums for sound to travel through than liquids or solids. Therefore the solids which make up most architectural forms can be thought of as very efficient conductors of vibro-acoustic energy. In the design of the project, the mechanical oscillators were bolted to the structural members which make up the floor of room 117. Even though these mechanical devices do not produce their

own sound, the energy they impart charged the surfaces into what was in essence an acoustic resonator. This technique transferred the vibrational energy to the air in the form of sound while still maintaining a transference through the structure. With the use of these specialised transducers, the room was driven with an acoustic energy that was derived in direct response to the shape and material make-up of the space. It was a place where periodic waveforms were propelled into the structure, propagating throughout as a type of drone sound traversing the site. The space therefore operated as an architectural sounding instrument, stimulated by six channels of activation, which integrated infinite combinations of relational frequencies.

By using the multiple oscillators, different combinations of frequencies were generated and experimented with. This worked in the same way as additive synthesis, a technique for sound production that is commonly found on electronic musical instruments, where simple tones are combined to generate complex harmonic content. All six exciters operated at relatively low frequencies, peaking in amplitude at between twenty and thirty cycles per second. At these rates the vibration was still audible, with the threshold of hearing beginning at twenty cycles. When combining several of the oscillators together within the same structure, a situation for harmonic interaction was realised. Beat frequencies (separate waveforms which rise and lower in amplitude in relation to two or more fundamental frequencies which were combined and were of similar but not the same value) were readily produced and enriched the overall effectiveness of the soundscape. For example if one frequency of 28 cycles per second (cps) is combined with another frequency of 30 cps, the addition will reinforce as a two-cycle beat frequency (i.e. subtract 28 from 30). This slow cycling beat frequency was thus operating at a sub-audible level or what is also known as infrasonic sound. Infrasound¹⁹ and vibration are similar in their make-up, both are more felt than heard. Though you can hear the rise and fall of amplitude in the form of audible clicks or sensed pressure waves, these low-frequency sensations operate at below the hearing threshold. This does not mean that the lower frequencies do not have an effect on the body and on the architecture. The scale of the project and the massive size of the floor plane resonators were conducive to the efficient propagation of large amounts of infrasonic energy. The infrasound that *The Live Room* generated was what was most effective in transferring energy throughout the building. The subtle strangeness of this project revolves around the production and injection of these types of low frequencies.

¹⁷*Ibid.*

¹⁸H. Dupuis and G. Zerlett, *The Effects of Whole-Body Vibration*, Springer-Verlag, 1986.

¹⁹*Infrasound and Low Frequency Vibration*, edited by W. Tempest, Academic Press, 1976.

6. PHYSIOLOGICAL ASPECTS

When the body comes in contact with infrasound and vibration, unique phenomena tend to develop. Frequencies below the audible range of hearing affect the body and perception in ways which can seem unpredictable. As mentioned before, parts of the body can be excited through differing frequencies allowing the spaces inside to be felt.²⁰ Certain feelings and tendencies can also be elicited whether they be nausea, headache, the gag reflex, or the urge to defecate. These physical responses have induction components that relate to certain cycle rates and frequency amplitudes. In *The Live Room*, a common occurrence related to the vibration was the effect on the vestibular system and the sense of orientation and balance. When positioned on the active floor panels, a feeling of shifting horizon can be felt due to the resonant stimulation of the inner ear. While standing in place, balance was altered, causing a sudden perception of ‘surfing’ the architectural plane. This was an interesting irony in the context of the space. Because the site was originally used for the isolation of vibration in order to test devices specific to balance and orientation, the fact that this has been reversed in the viewer was quite appropriate. Through the precise control of the vibration, the inertial guidance system within the observer was now at play; the reference point of location suddenly shifts with stability no longer a given. The potential for this can be even greater. If the floor was driven to its maximal amplitude, standing and balance was no longer possible. With resonance of the eye, vision may also be temporarily impaired. The audience can literally be driven to its knees, overcome with the technical moment.

7. SYMPATHETIC VIBRATION

The technique of inducing sympathetic vibration is one that can have profound impact. Like Tesla’s experiment which imparted effect at a distance of two blocks, sympathetic vibration refers to energy transferred. As stated before, every material has a dominant resonating frequency. If you have two like or unlike objects which happen to have the same resonant frequency, you can vibrate one object without touching the other and yet still cause the untouched object to resonate with the imparted energy. This efficient activation or relational connection provides a type of crude form of communication between objects. The line of communication works when waveforms travel through a medium such as air or by solid coupling and activate at the point where similar resonances match. In fact, Tesla developed a whole plan for terrestrial communication through the ground

plane via his geodynamic intensifiers and sympathetic resonators. In *The Live Room*, I envisioned a similar sympathy or bridging between the resonant frequency of the occupying body and that of the resonant form of architecture. There is a relationship, and through the imparting of vibration, location can be sited within the constructed framework of the building and those who inhabit the building. Perhaps with this and through variation of frequency, a mapping could occur where sites located within the body correspond to sites within the building. It could be a true connection or perhaps displacement of all internal organs within this ‘body without organs’.²¹

8. A SOCIAL PROJECT

When groups of people occupied *The Live Room*, interesting social interactions began to emerge. The site was at once very personal, in that the waveforms reacted differently in each individual. The frequencies produced transcribe and define the interiors of the subjects bringing awareness to a place within the self. Yet sharing this experience with others created a far more dynamic experience, which was another type of sympathetic vibration operating between people. It worked in a similar way to intensified experiences such as natural disasters – events like earthquakes where groups of strangers suddenly have a shared experience and thus form bonds through the crisis. *The Live Room* generated a similar situation where patterns developed, people talked about the strange sensations and compared notes as to effects. Some gathered on the isolation pads where the sensations were the least. Others were constantly looking for the most intense areas, or following the waveforms as they travelled across the floor. People took their shoes off while some lay down so that they felt the vibrations in their backs. Sensitive types who could not deal with it stood by the edge and watched all the commotion while the jaded simply said ‘so what?’. By far the most common reactions were from those who began to learn how to control the varying frequencies within themselves. This process usually involved traversing at a slow pace along the platforms as they investigated the sensations cascading through their bodies. If you imagine forty or more people doing this movement at the same time, what developed were simultaneous patterns of integration, separation and group dynamics. Seemingly chaotic actions began to turn into self-organising systems which followed the shifting frequencies that were continually changed by the operator. As the audience moved, it mimicked the patterns of sand found in Chladni figures. Individuals acted in a similar

²⁰H. Dupuis and G. Zerlett, *The Effects of Whole-Body Vibration*, Springer-Verlag, 1986.

²¹Gilles Deleuze and Felix Guattari, *A Thousand Plateaus – Capitalism & Schizophrenia*, University of Minnesota Press, 1987, p. 153.

way to the separate grains of sand, shifting in relation to others and locating the nodal points along with the active areas.

Working in conjunction with this social aspect of the project was also the notion of the operator, the one who composes the mix. This was an important part of the project and worked in a similar way to a DJ playing musical selections in a dance club. When controlling the separate frequencies, one had to be acutely aware of how the waveforms combined with each other. A successful mix generated complex patterns which helped define the audience within the space. One that was confused and muddy served only to misdirect the crowd. It took practice; it truly is a musical instrument that needs to be learned for it to be most effective. Part of playing the room involved the slight tuning of the beat frequencies so that the waveforms shifted in infinitely variable patterns and allowed the space to play itself automatically. The issue of control was also interesting in that one could modulate the actions of many. You could choose whether to amplify certain areas or not. I found the audience travelled in accordance to these changing patterns.

After operating the project for a while I noticed that musicians and dancers seemed to gravitate to the space, sometimes coming back for each performance. The dancers returned because they could use it as a tool to formulate body actions which were outside their normal performance routines. They seemed very concentrated and playful, lost in the physicality of it all. While watching them, an action of entrainment and spiritual integration seemed to take over and propel their bodies. After each night, they would relate their excited experiences and then invite friends to upcoming shows. With the musicians, there was similar enthusiasm. I was fortunate to meet through the work some great improvisational players in the Boston area. We organised two performances as loose collaborations investigating the space in conjunction with more standard electro-acoustic performance. The musicians were: Greg Kelly, prepared trumpet; Bhub Rainey, soprano saxophone; Vic Rawlings, electric cello; James Coleman, Theremin; my brother John Bain on modified electronics (as Mutant Data Orchestra); and myself playing the architecture. During the presentation, each musician staked out his territory, whether situated on the floors or not, with the musicians distributed throughout the space so as not to define a staged proscenium separate from the audience. Audience and musician were free to move about as they wished, locating the sound throughout in accordance with the functioning of the architecture. Immediately it was possible to observe the free improvisers' relationship to the site and how the underlying sound affected the performance. The cellist used the floor vibrations to activate the strings and body of his instrument. The horn players used the vibrations

travelling up their bodies to control inflections in breathing and output. The two electronic musicians incorporated the architectural drone as a backdrop to introduce shards of sound and punctuation. This was an interesting experiment in how an activated architecture can affect musicians in direct relation to the performance. These two performances completed the work as a total sound experience, sound for the body, the building, and for the ear. A recording of the event was produced but has not yet been published.

9. SYNOPSIS

The Live Room was an experimental project produced to study the working relationship between the built environment and ourselves. It attempted to draw a line of connection related to areas within the body, while defining surfaces and loci within our architectural environment. Using vibro-acoustic energy as the working medium, the project investigated the unique properties of low-frequency waveforms as they affect structures and people simultaneously. It was an investigative project, positioned between the areas of science and architecture, a hybrid space for experiential use.

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