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**Interdisciplinary Perspectives in
Architectural Research:
A Dialogue with Music**

Clara Germana Gonçalves

Research Fellow

CITAD – Universidade Lusíada, Lisboa

Portugal

Athens Institute for Education and Research
8 Valaoritou Street, Kolonaki, 10671 Athens, Greece
Tel: + 30 210 3634210 Fax: + 30 210 3634209
Email: info@atiner.gr URL: www.atiner.gr
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Interdisciplinary Perspectives in Architectural Research: A Dialogue with Music

Clara Germana Gonçalves
Research Fellow
CITAD – Universidade Lusíada, Lisboa
Portugal

Abstract

It is believed that interdisciplinarity emerges as a fundamental experience: for if only specialization can provide a deep knowledge, this same expertise, combined with a lack of dialogue, tends to create isolated areas of knowledge, to annul the relationships between the various disciplines and to encourage forgetting of areas whose autonomy is not clear. Interdisciplinary dialogue acts as is a contribution to define not only the specific disciplinary process' variables as well as the specific disciplinary identity. While on a dialogue with another discipline – not reasoning closed on itself – each discipline better understands not only the fact that often different languages communicate the same ideals while struggling on the same concepts but also its own particularities.

In this paper we look at architecture from the exterior. Inquiring it within a dialogue with music. If on one hand architecture and music are only in rare cases object of common study, they are frequently cited as close disciplines, in particular, in what concerns to abstract or conceptual aspects.

Two parallels are established between architecture and music concerning the first decades of the 20th century: the first concerns the general *zeitgeist* and points out how architecture and music express the same reasoning on concepts in each specific language. The second parallel is established between two creators, one architect and one musician – Mies van der Rohe and Arnold Schonberg.

We find that eventually they are indeed closer than it would seem at a first glance.

Keywords:

Corresponding Author:

Specialization and Interdisciplinarity

Whilst it is true that only specialization provides in-depth knowledge of a specific subject matter, it is also the case that specialization tends to create isolated areas of knowledge, invalidate relationships between the various disciplines and contribute to the neglect of areas of knowledge whose autonomy is not well defined for interdisciplinary relationships can also themselves become new areas of study.

Interdisciplinarity favours the defining of both specific disciplinary variables and the identity of a discipline itself. In our dealing with the “other” we better understand “our own” particularities.

Interdisciplinarity thus emerges as a fundamental exercise. Not out of nostalgia for a humanist past (though perhaps also because of this), but because we think that dialogue is, indeed, essential. It can lead to contributions both in terms of the functioning of a discipline – be it in relation to the already established or in relation to the new – and in terms of the identity of the discipline itself beyond the interdisciplinary relationships themselves as matters of study or even autonomous disciplines.¹

The influence of specialization seems to be so strong that it contributes to a consciousness, at times baseless, in the distancing from other disciplines and, concurrently, to a disregard for that which might be common or shared. As Gordon Downie (1995, p.54) argues:

It is uncommon for informed comparisons to be made between distinct art media. Perhaps the main obstacle preventing such comparisons is that practitioners are, by necessity, specialists. In consequence, they may be prevented from apprehending that they are saying the same thing, because they are using different languages. Thus, concepts and ideas defined in one field may not transfer literally to another. But if we abandon, as Adorno recommends we do, attempts to compare directly characteristic features of different media, and concentrate instead upon how those features, following different routes of development, nevertheless reach the same destination or conclusion, we may discover that distinctness at the surface hides similarity at a deeper level.

Or as Steven Holl (2006, p.144) puts it:

*Three hundred years ago scientific ideas, perceptual phenomena, and their aesthetic and mystical effects could be discussed together. For example Johannes Kepler's *Mysterium Cosmographicum* united art, science, and cosmology. Today, specialization segregates the fields; yawning gaps prohibit potential cross-fertilization.*

¹See how, for Fubini (1971), for example, the history of musical aesthetics can practically be reduced to the history of the relationships between music and the other arts.

In addition to these aspects, and generally speaking, it is believed that interdisciplinary studies can also be useful and constitute historical and theoretical informers to the extent that the way they have developed over time, on the one hand, and, on the other, the way the various interdisciplinary relationships are seen – how the various authors group the various disciplines and bring them into relation with each other or how they look at these approximation and distancing processes – reflect the mental structure that prevails in each historical/cultural period.

Despite the aforementioned aspects, there is full awareness that both disciplinary specificity and specialization (as already mentioned) are facts that are as inescapable as they are necessary. For by interdisciplinarity one does not understand the search for direct correspondences between concepts, methods, rules, etc. Each discipline necessarily has its own specificities; its intimate core is exclusive and that is precisely what gives it its specific character, its identity. However, while accepting and, indeed, underlining this fact, it is believed that these specificities and intimate core can be enriched by interdisciplinary dialogue: this can be a way of – agilely and from a different (not internal) viewpoint – configuring (or reconfiguring) the identity of a discipline or identifying in certain aspects its unidisciplinary or, perhaps, multidisciplinary character.

Architecture and Specialization

Architecture is traditionally, *per se*, founded on an idea of ‘non-specialization’. But this idea of ‘non-specialization’ associated with architecture has more to do with the exchange of information *between disciplines* where the respective distances are maintained than with an *interdisciplinary* interpretation in which, from the outset, the boundaries are abolished and one proceeds with a transdisciplinary reading of themes, concepts, etc., which is the goal here.

An interdisciplinary study necessarily involves a second discipline. A choice must be made. While the universe of architecture is not merely the visual – because by space (the traditional and unequivocally fundamental prime “material” of architecture) we understand much more than the visual – other options emerge in addition to the traditional (though today increasingly less frequent) inclusion of architecture in the group of the fine arts¹.

Architecture have been losing its ties to the fine arts. It may come to be closer to, or even to favour – as a counterpoint to the more visual reading – dialogue with seemingly more distant, because more abstract, worlds such as those of music or even science (science in the non-technological sense, as in mathematics, for example). The idea is for architecture not to be considered mainly from the visual viewpoint.

¹Although, today, in the great majority of theoretical or critical studies, architecture almost always emerges as an isolated case, this fact is recent.

Music as Interlocutor

Taking music as an interlocutor would seem an opportune choice.

Music offers various opportunities for reflecting on architecture in the context of interdisciplinarity: it is often cited as being close to architecture, particularly in conceptual aspects; it has established with architecture a tradition that interrelates the two, a tradition that had its most paradigmatic moments in the humanist culture in the first half of the 20th century; its specific language is close to that of architecture; it deals primarily with time, one could say analogically to architecture's dealing with space. (Gonçalves, 2008)

Whilst music has been referred to by countless authors throughout history as being close to architecture, this aspect has rarely being explored in depth.¹ The limited number of monographic or detailed and comprehensive studies of this subject, and the much larger number of articles – most of the studies take the form of separate, isolated texts – are testament to the interest in, and the simultaneous lack of depth of, study of this subject matter. (Gonçalves, 2008) The analogy (or analogies and affinities) between architecture and music, whilst frequently mentioned, is only systematized in isolated cases (for example, in Rudolf Wittkower's *Architectural Principles in the Age of Humanism*) thought there is a very recently emerging tendency to increase the number of publications on the theme of architecture and music. (Gonçalves, 2008) This fact is referred to in practically all studies into the connection between the two disciplines. Even when the subject matter is the Renaissance (although the term Renaissance is somewhat imprecisely applied in music) – where there is more than an analogy and indeed a clear and voluntary dialogue between the two disciplines, and architecture's relationship with music does not have a less ontological and symbolic character than that which dominates the relationship it establishes with painting and sculpture – it is the reading of architecture as one of the fine arts that is most present.

Furthermore, the fact that music has a deep and permanent link to science (and to mathematics in particular) in history (albeit in differing degrees throughout the ages) also contributes to this choice, as this non-determinedly artistic/non-determinedly scientific character, this oscillating between art and science that characterizes music is something it shares with architecture.

Another aspect that aroused interest in the choice of music from the outset is the fact that whilst architecture and music are cited as being close to each other they do not appear to be at a first glance when placed side by side on a non-conceptual or non-abstract level. Besides, music is almost always the object of autonomous studies, while – no doubt due to the dominance of the visual and the physically formal to the detriment of other characteristics – the study of architecture is traditionally integrated in general studies of art – as has

¹Toby Morris (1995/1996, p. 17) writes: 'While a handful of architects, artists, and theorists [...] have explored various musical qualities for application to architecture, none to my knowledge have tried to look at music as a whole: as an art bound by laws of acoustical perception and consisting of distinctive underlying elements, structures, and organizational principles.'

been the case in art histories.¹ In reality, from the historical point of view and from the viewpoint of historical-cultural synchrony, architecture would seem to have great affinities with the fine arts and not so much with music. Nevertheless, we think that this “preconception” arises from the dominance that the visual factor tends to have. From a more abstract point of view, the point of view of the composition, of the conceptualization, architecture’s proximity to music is greater than it would seem at first sight.

The fact that most of the studies are “historical” and less compositional or theoretical is also a factor that contributes to the inclusion of architecture in the fine arts. As a reading carried out by historians – not centred in the act of creation itself – the historical reading is predominantly an external analysis, whereas a different type of study – a non-historical one – when carried out by authors heaving creation itself as the aim rather than the historical reading tends to include more abstract aspect related to conceptualization. Whereas history deals essentially with *identification* – and that identification is very much based on the visual factor – criticism deals with *style*² (which corresponds here to a specific manner of execution), having more to do with the reasons and climates/periods for emergence of a language, the application of concepts and a more abstract and abstractifying vision. One type of study does not nullify the other: they complete each other. But the truth is that the tradition on studying architecture, although it is no longer as strong today, has been built up around the historical type of approach.

Reflection using interdisciplinarity as a grid becomes a study not only of different aspects of architecture, but also of the theoretical, compositional and practical relationships architecture has established with music over time. The aim is to clarify to what degree this analysis contributes to, and is useful and pertinent to, the contemporary discussion of reflecting on and practising architecture. Through interdisciplinary dialogue the aim is to construct or propose a new gaze on architecture as a discipline in evolution, to find a new set of perplexities and idiosyncrasies.

Music is here the interlocutor of architecture. The relations between architecture and music (and perhaps the relations between any other two disciplines) can be countless. We have opted to look specifically at: the relationship between concepts, cultural settings or periods and examples where there is a realization (theoretical, practical or both) of that relationship that, in our opinion, can serve as paradigms. The research work – here exemplified in a brief way – is based on a dialogue, on questioning and investigation proceeding from information that is external to architecture, of musical origin, and not on the application of musical concepts or principles to architecture or vice-versa.

¹However, the fact that *art histories* produced today tend to analyse the fine arts/visual arts with architecture being treated as its own field of specialization is an important trend. Clement Jewitt (2000) identifies Richard Arnheim and Raymond Hedd as exceptions for the fact that they have a masterful understanding of both the visual arts and music as well as the fact that they examine the two simultaneously.

²On this idea of *identification vs style* see Goodman (1978).

In this comparative dialogue process, we encounter not only similarities, analogies and affinities but also dissimilarities and divergences. And it is often these dissimilarities and divergences that reveal ideas and serve to identify specificities – ideas and specificities which, if they did not emerge from the comparison process, would be all the more difficult to identify. Nevertheless, the similarities are also wholly relevant. We are interested not so much in the similarity of image as in the analogy, affinity in the reasoning, both in terms of creation and fruition. It is here that architecture and music come closer together and it is here that his “encounter” can be of the greatest interest.

As a fundamental instrument, interdisciplinarity gives rise to a second object of study. For whilst interdisciplinarity is the medium of architectural observation and criticism, the area itself that emerges from this is of interest as a new object of study.

Modern Architecture and Modern Music

The 20th century has, since its beginning, been the backdrop for an undeniably plural and, at times, ambiguous scenario. In the first half of the century, we witnessed, in architecture, the emergence of currents as distinct as: German Expressionism; the expressionism of the Amsterdam School; the functionalism that was the heir to the Bauhaus; the rigid rules of the International Style; classicist trends, politically-influenced or not; the inclusion of traditional values in architecture; and more. At the same time there also emerged in music a heterogeneous set of currents: the continued development of musical styles using national folk languages¹; the affirmation of movements, such as neo-classicism², which sought to integrate the new discoveries of the beginning of the century into musical styles that were linked, to varying degrees, to principles, techniques and forms of the past (in certain cases of a pre-19th century past); the transformation of the German post-Romantic language in twelve-tone approaches; and finally, that which, to a certain point, is seen as a reaction against this approach to composition – which was regarded by some as cerebral and excessively systematic: a return to simpler, eclectic languages that please the public – neo-Romantic or reductive languages (Grout & Palisca, 1988).

However, one could also argue that the heterogeneity that can be seen from a distance tends to diminish closer up and common traits begin to emerge. To illustrate this, Paul Griffiths (1986) gives the example of the fact that

¹These folk music-derived themes were always treated in an erudite way, with composers such as Béla Bartók seeking a new compositional lexicon in the music’s folk roots. Folk elements were later introduced in the music and architecture of totalitarian regimes as a form of emotional seduction and propaganda.

²In the context of music, neo-classicism emerged in the early decades of the 20th century, one of its most emblematic protagonists being Igor Stravinsky. This current set out to reinterpret the classical music of the 18th century. It emerged in the post-WWI period and corresponded – both paradigmatically and in line with many other artistic currents – to a *retour à l’ordre*.

Stravinsky and Schoenberg seemed to occupy opposite poles of the musical spectrum in the 1920s and are today included under the same umbrella of modernity. And whilst architects such as Frank Lloyd Wright and Le Corbusier saw themselves as being influenced by differing doctrines, so some composers criss-crossed these diverging trends, participating to varying degrees in one or several of them (Griffiths, 1986).

The turn of the century had already announced in architecture and music a strong impetus to break the rules imposed by tradition. Despite the great degree of heterogeneity, most of the experimentation that took place in the early 20th century in both architecture and music (and, in a wider sense, in all areas of the arts) generally manifested a common attitude: a voluntary reaction against the characteristics and values defined and established in the preceding century. In architecture, the anti-Romantic sentiment was generally reflected in the rejection of eclecticism, for example, whilst in music it was expressed in the rejection of big orchestrations and the impregnation of music with sentiment.¹

And, in line with what took place in art in general, both architecture and music had at the beginning of the vanguard periods, an expressionistic phase. Not only in terms of individual creators; collectives such as the Bauhaus also followed this path.

Concepts and Languages

The big change in terms of language that took place in the early 20th century in architecture and music was not so much the formal “freedom” – because the 19th century had already set that process in motion – but seems to have been the passage from a fragmented form to a condensed and clear form. In other words: from liberty to regularity, a *return to order*.

The changes brought about at this time in the architectural and musical languages by one and same paradigm – the “modern” – manifested themselves in aspects such as a rejection of the past, assertion of rationality, the search for the new, the search for the essential. Two languages that strove towards the same ethical ideas – transposed to an own aesthetic that translated those ideals – and advocated the presence of reason, order and the truth. Whilst they flourished in a climate of great heterogeneity, this does not mean there was a lack of rules. There were rules.

This climate, in architecture, affected the language at various levels: in volumetry, in rhythm, in the introduction of new materials. In music, the characteristics emerging from this new order affected and transformed melodies, harmonies, rhythms, tones.

¹We are aware that this approach corresponds to the current that dictated and wrote the history, which is not necessarily that which have been (re)writing history (and, of course, not what dominated the day-to-day picture). In addition to the non-erudite one should also mention architects such as Heinrich Tessenow, Gunnar Asplund and Jože Plečnik and others, who were moderate in this reaction and continued (at least in formal terms) a connection to the classic tradition. Likewise, composers such as William Walton and Samuel Barber continued to write music in the Romantic style of the past while incorporating elements that reveal influences of the new century.

Gordon Downie (1995) establishes the parallel, in general terms, between the architectural universe established by Hitchcock and Philip Johnson in 1932, with the definition of the International Style, and that which characterised the discipline of music in the same period. Thus, atonality in music corresponded, generally speaking, to the three fundamental principles – ‘architecture as volume’, ‘concerning regularity’, ‘the avoidance of applied decoration’ – identified as being paradigmatic for the new architecture. The new architectural language corresponded to this atonal language – for which there is no equivalent term in architecture. According to Downie (1995), the type of reasoning that presides, in architecture, over this type of non-hierarchical design, allowing for multiple readings of the architectural object (in strong contrast to the univalent forms of the past) is precisely the same type that presides in music over atonal composition, making it possible to evidence musical aspects, and more immediate and localized relationships between contrasting or complementary musical developments that were previously camouflaged under the cover of tonality.

Formal Regularity: Modular Regularity and Twelve-Tone Composition

This initial freer phase of Modernism (in its broad sense) was followed by a “crystallization” of formal liberty: new rules were established. These were, however, rigid rules. And paradoxically, or not, both the new architecture – for example, that advocated by Le Corbusier in his “five points” – and the new music – as proposed by Schoenberg’s twelve-tone composition – were based on a restrictive, ordered and ordering scheme of thought. In this sense one can say that the *retour à l’ordre* was also a return to a certain way of being “classical”.¹

For Downie (1995) serialism produced by the Schoenbergian school – a ‘rigorous method of composition designed to organise and furnish the pitch material and interval succession for a whole work’ – is comparable to the ‘modular regularity’ identified by Hitchcock and Johnson. This underlines the unity and coherence of expression.

Formal Clarity: Unity, Order, Truth

In the opinion of Gordon Downie (1995), what took place in architecture in relation to the three-dimensional treatment of the object – volume as opposed to mass, as proposed by the authors of *The International Style* – is equivalent to what happened in music in relation to the texture and density of the musical work. He gives the examples of Anton Webern’s last serial

¹In a certain sense Romanticism was indeed a freer medium than Modernism in the 20th century. Whilst it is true that the 20th century revealed a high degree of heterogeneity, formal freedom was, however, in certain cases, quite restricted.

compositions written in the 1930s and the post-Webernian vanguards of the 1950s and 60s. These are works which, in contrast with the ‘opaque and dense’ works of late Romanticism, are in harmony, in the author’s view, with architectural works whose formal composition is light, such as the Schröder House (Rietveld, 1924) and the Villa Savoye (Le Corbusier, 1929-31). Music thus composed sounded ‘spacious and transparent’, allowing the listener ‘to identify the qualities of individual instruments’; in the Schröder House or the Villa Savoye the different elements were also clearly identified.

Search for the Essential

The emphasis on objectivity and form¹ was another characteristic that left its mark on the music of the early 20th century. In music, this interest was accompanied by the rejection of sentiments and states of mind – which were seen as something random and, accordingly, symptomatic of an inappropriate attitude, be it on the part of the musician or the listener – also in programmatic music such as ballet music or vocal music. What was more important was the form of the music in itself. (Lippman, 1992)

This same reasoning can be applied to architecture. The rejection of ornamentation and the superfluous – the search for the essential – dominated the spirit of the early decades of the 20th century. In architecture ornamentation was rejected, while in music it was ‘unnecessary’ sounds and ‘unnecessary’ instrumentalists which was the object of rejection.

The rejection of ornamentation – a stance that was directly linked to the issue of formal and structural clarity and the search for the essential – is common to both disciplines. At the same time, structure, function and construction process are underlined.

Materials

The use of new materials – a matter that was directly linked to the emergence of new technologies – is a fundamental factor in early twentieth century architecture, though it began during the 19th century already. Whilst, in some cases, the already established language adapted to the new technologies, the Modern Movement, encouraged by these new technologies and materials, was to concurrently adopt a new language. According to Downie (1995), ‘stylistic purity and clarity’ which characterized both modern architecture and modern music required ‘strict attention to the materials of the medium in order that constructive process and intention is not obscured or compromised’.

Once again, in this aspect, too, the notion of the history of music being more ‘linear’ than that of architecture becomes evident. Indeed, with the exception of, for example, the Futurist experiments, the musical material was experimented with using the same musical instruments. The spectrum of

¹One should note that form in music has a more structural meaning than in architecture.

sounds produced was widened – in the sense that more sounds were allowed in composition – but the instruments remained the same.

An Architect and a Musician: Mies Van Der Rohe and Arnold Schoenberg

Within the first decades of the 20th century's *zeitgeist*, besides this parallel existence of architecture and music – where we find a common discussion on concepts expressed in parallel languages –, we can also be more precise and establish parallels between individuals. Two parallel paths can be established between Mies van der Rohe and Arnold Schoenberg (Gonçalves, 1998; Gonçalves, 2008; Gonçalves, 2012). Teresa Rovira (1999) establishes a parallel concerning form between Le Corbusier and Arnold Schoenberg considering four stages in each path: precedents, avant-garde, full avant-garde and overcoming of this avant-garde.

In the work and thought of Mies van der Rohe and Arnold Schoenberg many affinities can be found. Despite the avant-garde they're involved with, they do not deny tradition. On the contrary, they express great respect for it. At the same time, there is a need to accept the present, and always changing, time. They both express the desire to create a new tradition. And they did create one. Their trajectories can be put along with one another. At first, in their work the presence of tradition, and masters, is very clear. When a need for freedom and for a new age is urgent they both react similarly: through expressionism and breaking the rules of traditional design and composition. In the establishment of these new rules – Mies's structure-modulated free plan and Schoenberg's twelve-tone method of composition – analogies come to appear quickly. Finally, in both cases, sublimation is required and manifests itself when rationality and expression merge in its most poetic balance.

Will see how these phases – the presence of tradition, the need for freedom and breaking the rules, the establishment of new rules and sublimation – are expressed in a very similar way and expressed through respective language in changes in equivalent concepts.

On Tradition

Both Mies and Schoenberg show great respect for tradition. Cultural heritage is fundamental. In Mies, we observe the presence of Schinkel, Berlage or Peter Behrens. In Schoenberg, we feel Bach, Wagner or Brahms. This is visible in their works as well in their texts.

But respect for tradition is not restrictive. Despite admiration for it, and the theoretical and practical support found in it, there is a clear need for change that was rooted in a consciousness that time is in a permanent mutation. For Mies, building with contemporary means is necessary but doesn't mean rejecting traditional ones. For Schoenberg, History is a successive creation of various traditions. In both, the will to create a new tradition is explicit in the balance between tradition and innovation

Even originality, a fundamental condition for the occurrence of the artistic (Schoenberg, 1975), is based on tradition. It implies ruptures, not rejection. It is a continuation. Only thus is it possible to create a new tradition.

Moving Away From Tradition: Expressionism; Asymmetry and Atonality

The reflect of the rethinking of architectural and musical materials shows the metallic structures and glass used by Mies and Schoenberg's *Klangfarbenmelodie* or *Sprechgesang*,

Here, expressionism was a way to conquer freedom, to move away from tradition. Asymmetry and atonality characterised the new architecture and music proposed by Mies and Schoenberg. Both asymmetry and atonality seek for the end of hierarchy in design and composition. But at this point the balance was not yet achieved.

Becoming New Tradition: The Free Plan and Twelve-Tone Music

As in the 1920s the new *zeitgeist* called for reason, clarity, objectivity, order, rigour, unity, truth – all interlinked characteristics that dominated architecture and music (and modern art in general) and were fundamental in the work of these two creators. Mies's architecture had to be clear, objective, ordered and authentic. Materials are also to be employed in this way. Schoenberg's Twelve-tone Music was 'an organisation granting logic, coherence and unity' (as quoted in Griffiths, 1986).

Structural modulation introduced by Mies can be compared to the principle of the set of tones used by Schoenberg in twelve-tone method. The module can be compared to the set. Mies asserted the need for rules: 'The free ground plan is a new concept and has its own "grammar" – just like a language.' (as quoted in Neumeyer, 1991) Schoenberg establishes the same principle with his new composition method.

In both cases, structure plays an autonomous and essential role.

A turning multiplicity into absence: the infinity.

Sublimation

In both, language is gradually refined but the essential remains leading eventually to sublimation. Schoenberg (1975) is clear:

[...] I have heard this complain [about Verklärte Nacht]: "If only he had continued to compose in this style!"

The answer I gave is perhaps surprising. I said: "I have not discontinued composing in the same style and in the same way as at

the very beginning. The difference is only that I do it better now than before; it is more concentrated, more mature.

In Mies's trajectory, Farnsworth House or National Gallery are a sublimation of his previous work. In Schoenberg's *Moses und Aron* is one.

Architecture and Music

Another common aspect to consider in both Mies and Schoenberg is that they are in a quest for beauty which leads them to reasoning and ways of expressing this beauty in their respective discipline's language that appears to be parallel. Both were of the opinion that empathy and pathos in themselves were of no interest. The work, the form, should be the result of rational, and not intuitive, decisions. Nevertheless, one can observe – in both cases and despite the quest for the rational – that emotive issues never seem to disappear in their respective works. Coexistence of reason and expression is visible in each work and in the whole career of each of the two creators.

After all, both architecture's and music's desire is to express beauty in themselves. And it seems that within this desire, architecture and music, in general, and Mies van der Rohe and Schoenberg, in particular, share a common way of expressing their contemporary *zeitgeist*.

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