

An Architecture essay submitted in partial fulfillment of the requirements for the First Examination in the Diploma in Architecture 2003.

Title: Ludwig Mies van der Rohe; Design methodologies

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“I am not working on architecture, I am working on architecture as a language, and think you have to have a grammar in order to have a language. You can use it, you know for normal purposes and you speak in prose. And if you are good at that, you speak in wonderful prose. And if you are really good, you can be a poet.”¹
Ludwig Mies van der Rohe 1955

Introduction

Ludwig Mies van der Rohe (MVDR) was born in a world undergoing tumultuous changes, the machine age that had begun in the early eighteenth century shifted the wealth from the landowning aristocracy to factory owners, professionals and the working classes. With this new wealth came power and with this power came a demand for increased freedom. The rise of communism through out Europe signaled a dramatic change in aspirations in the masses, putting them on a collision course with the ruling that classes that would eventually bring about the end of the age of empires. The geo-political changes of the turn of the century such as the creation of Germany from the Kingdoms of Bavaria and Prussia in 1874, the first world war and then the great depression brought with them hardship, poverty and chaos world wide, particularly to the German people. It was in this chaos that a new order and a break from the past was sought and the Jugendstil, de Stijl and Arts and Crafts movements were born.

MVDR's believed that his profession was in a unique position to bring about order from the chaos of the times, and so felt that he had a responsibility to attempt to do so through his work². His involvement in the movements of his time and in particular modernism, led him to seek a new language to express its new ideas.

In seeking a way to bring order from the chaos of his time MVDR sought to find answers from the ancient philosophers. He would quote them in explaining his thoughts: “Organization is the determination of function. Order however imparts meaning. If we would give to each thing what intrinsically belongs to it, then all things would fall into their proper place; only there they could really be what they are and there they would fully realize themselves. The chaos in which we live would give way to order and the world would again become meaningful and beautiful”³. MVDR so tells us that the solution to the new order could only be found in the now, he states that: “only a relationship which touches the essence of the time can be real. This relation I like to call a truth relation. Truth in the sense of Thomas Aquinas's “truth is the significance of fact””⁴.

MVDR was well read and clearly concerned about the issues of the times and sought to reconcile his architectural language with them. Franz Schulz in his book *MVDR, A Critical Biography* suggests that for Mies: Spengler confirmed the unassailable facts of the material world while Aquinas posited a spiritual realm - of which fact was an earthly manifestation - through which a higher truth might be reached and by the artist, conveyed. He reports that; a year after the publication of the 2nd issue of Spengler's *The Decline of the West* that MVDR wrote: “Architecture is the will of the epoch translated

into space”; “Not yesterday, not tomorrow, only today can be given form” and “Create form out of the nature of our tasks with the methods of our time. This is our task”⁵.

This essay intends to look at the methodologies with which Mies van der Rohe (MVDR) expressed his architectural language. It will attempt to show that his architecture is a successful manifestation and physical realization of the theories upon which it is based; that order is born of reason, that it gives meaning, and that beauty is found in this meaning. The study of the methodologies will concentrate on the primary three subjects of MVDR’s considerations when working on a project; the outside space, the inside space and their details.

Methodologies

Outside space

When beginning on a project MVDR would begin with the given parameters, such as the site orientation as in the Farnsworth House (1945-50) where he pushes the house near the bank of the river and north into the shade of a linden tree. Similarly with the requirement to keep the lake Michigan sight lines of the buildings behind the 860-880 Lake Shore Drive Apartments (1948-51) led him to propose two blocks. MVDR engages with the terrain of his sites by framing views such as that of the Monadnock⁶ building seen from the north in the case of the Federal Center (1959-64). These fundamental considerations can also be seen with the Seagram Building (1954-8) where by setting it back from Park Avenue, the building is allowed to be seen from the pavement and allows the neighboring buildings in particular the Mead and White’s Racquet Club to be seen and appreciated more easily. More practical matters such as the local building codes would determine the proportions of many of his high-rise buildings such as at the Seagram building where New York zoning laws disallowed the building to rise from the sidewalk without progressive set backs. The laws did however allow buildings to be built as high as the developer wanted them to be so long as they took up only 25% of the site. The 860-880 Lake Shore drive apartments design was also limited by law, as there the height limit was 250 foot due to the code requirement for a space intensive and costly smoke tower for buildings of a greater height. The project specifications such as the required square footage for a particular building and its use determined the building type.

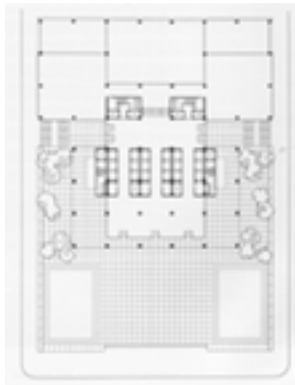


Image 1. Seagram building plan drawing



Image 2. Mead and White's racket club viewed from Seagram building lobby



Image 3. Seagram building at dusk



Image 4. 860-880 Lakeshore drive on the left and 900 Esplanade on the right. View from Lake Michigan.

MVDR's two larger development projects, the AIT campus and in his collaboration with Hilberseimer, La Fayette Park(1963), are examples of his use of a public space as a unifying element. In the case of the AIT/IIT (1939-58) the space is enclosed by the surrounding streets and the plinths on which the whole development sits, giving a feeling of separation from the neighborhood while at the same time establishing an order in the chaos of the run down neighborhood. Likewise in the case of La Fayette Park, the use of an open green space with encroaching side tree lined streets allows a sense of integration into the city's fabric while creating a neighborhood separate to the surrounding area.

The use of the plinth as a unifying influence was also effectively used by MVDR to address level changes, to step back from the hustle and bustle of surrounding streets and to act as a horizontal datum. All of MVDR's office and residential buildings use the plinth as a way to unify the site within the city as well as tying the different building masses with the site and each other. By using the same floor finish inside the lobbies as outside and recessing the lobby glass walls MVDR accentuated the sense of a whole.

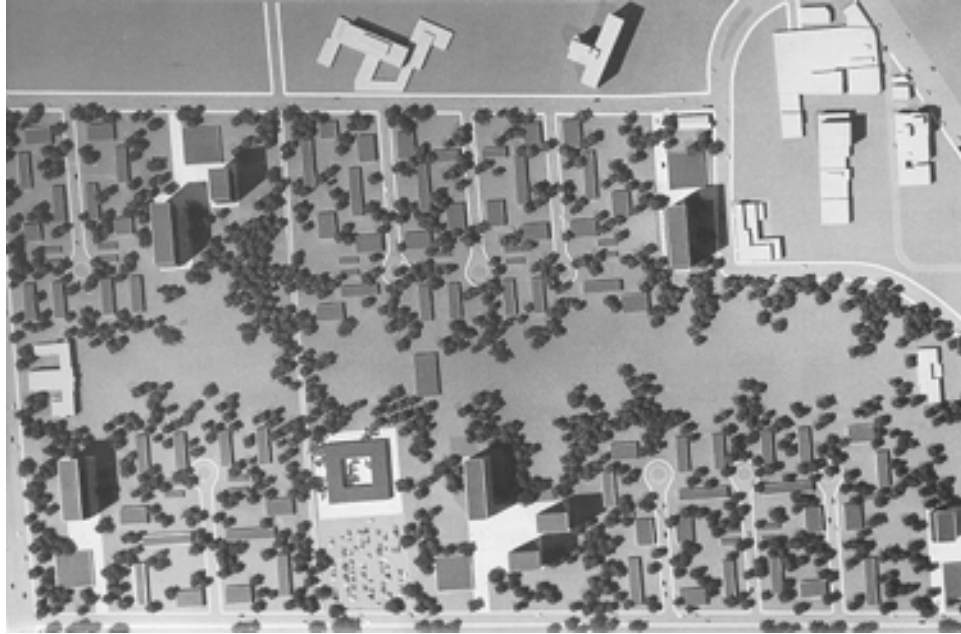


Image 5. La Fayette park model



Image 6. AII – Photo montage of preliminary proposal

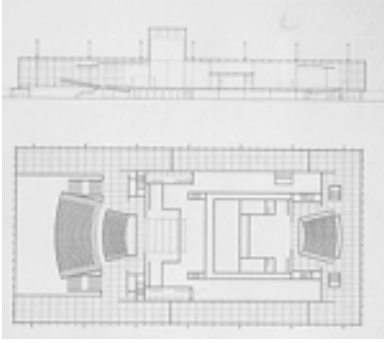


Image 7. Mannheim National theatre - Plan and section

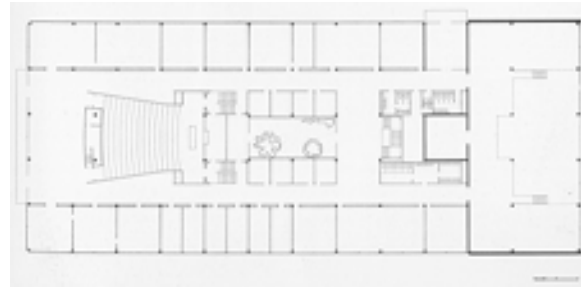


Image 8. AIT – Metallurgical and Chemical Building - plan

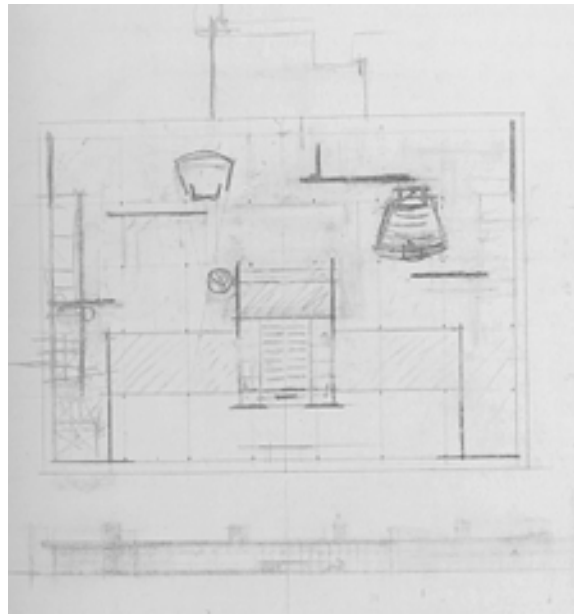


Image 9. IIT – Student union building. Plan sketch by MVDR

Developed as a solution at the AIT campus student union building and specific to building projects with auditoria such as the AIT Metallurgical and Chemical Engineering building and the National Theatre proposed for Mannheim(1952), MVDR invariably positioned the naturally radial space well within the building mass to avoid curved walls blocking the views and complicating the building geometry.

The use of a low level block in conjunction with towers brings scale to the podium area allowing the activities inside to provide long term occupancy at ground level so balancing the temporary occupancy of the visitors and users of the towers.⁷ This ordering of building mass is used for the Seagram building, the Chicago Federal Center, the Toronto-Dominion Center (1963-9) and Westmount Square in Montreal (1965-68). At pedestrian level MVDR used several methods to control the flow of the space and the path through it. The use of a plinth implies the requirement for steps. Based on the want to provide a relaxed, comfortable environment and passage, he would break his stairs into two flights interrupted by a generous landing, allowing ease of ascent and slowing the ebb and flow

of the users. To further establish the scale of the podiums and define the space, MVDR used fountains, lawns and trees arranging them to provide shelter, to act as screens and to link the exterior spaces, providing a sensual respite to people walking through.⁸ Plaza furniture, equally carefully detailed further established a sense of scale and a comfortable living environment while defining spaces and boundaries.



Image 10. Westmount Square, Montreal



Image 11. Dominion center, Toronto

To establish the differing planes of his buildings, MVDR successfully used colors, preferring his building frames to be black, which contrasted with the white or blue sky at daytime. With the different elevations separately defined by the shadows and reflections, or against the lit interior at night the perspectives of the architecture becomes clear and easily understood. To this end the Seagram building was fitted with a band of lights at each floor making the structure and plaza “alive” after-hours. The use of contrasting colors is continued to the plinths that are typically of a light colored travertine or granite, contrasting with the city streets and so clearly defining the plane and site. The plaza furniture, through the use of rich materials such as granite and marble continues this theme of identifying and ordering objects and planes yet tying them in to the whole. The lobby ceilings, low-rise roofs and canopy planes, are also typically finished in light colors and are easily recognizable contrasting against the vertical planes of the glazed walls and black vertical mullions.

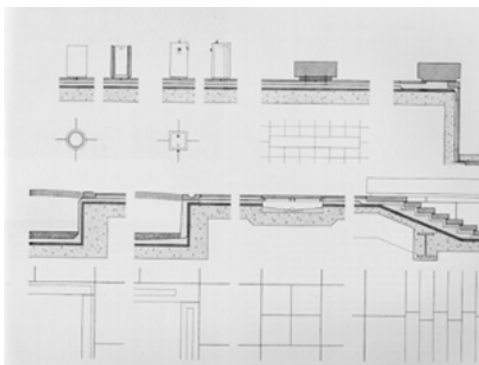


Image 12. Plaza furniture detail



Image 13. Plaza furniture - Seagram building



Image 14. Plaza furniture detail



Image 15. Plaza furniture - Seagram building

The revolutionary use of I-beam mullions on the outside face of the 860-880 Lake Shore Drive apartments was achieved by moving the enclosure from the front of the mullions, as seen in the enclosure at IIT, through the middle position, seen at the Navy building, to the back of the mullion. The effect is that the enclosure is expressed as a separate element and provides a texture to contrast the smooth glass infill. A parallax effect produces a rhythm as the opacity of the skin changes while pedestrians walk past. The effect is balanced by the play of shade and shadows on the I-beams, again contrasting with the glass pane, whose strength is the rich interplay of reflections. By placing a mullion on the column MVDR caused significant controversy as it was considered a frivolity and an aesthetic decision that contradicted his rules of objectivity.⁹ Where typical mullions supported the glass against wind load, the corner mullions apparently serve no functional purpose. MVDR explained during a 1952 interview:

“Now first I am going to tell you the real reason, and then I am going to tell you a good reason by itself. It was very important to preserve and extend the rhythm which the mullion set up in the rest of the building. We looked at it on the model without the steel section attached to the corner column and it did not look right. Now the other reason is that the section was needed to stiffen the steel plate that covers the corner column so this plate does not ripple, and we also needed it for strength when the sections were lifted into place”¹⁰

The corner profile so continues the zigzag corner that MVDR painstakingly developed for the IIT Metallurgy and Chemical Engineering Building and applied so delicately on the Farnsworth house and later developed further for the Seagram building, the Federal Center and others. The corner detail can be traced to the use of a rebate at windows and doors that MVDR learned from Shinkel and Behrens¹¹ and is used to express the separate elements leaving no doubt of its differing function. By using the rebate consistently at the edges of elements it has the dual and contrasting function of tying the elements together as a whole, while defining them as separate entities.

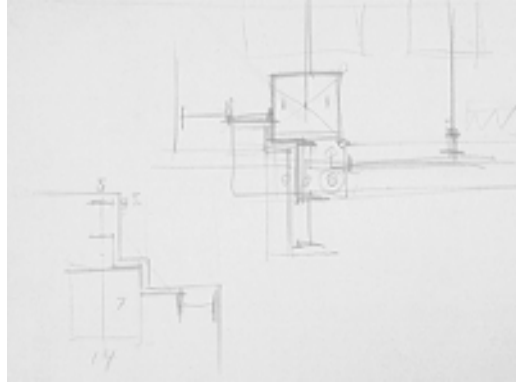


Image 16. Corner studies for AIT

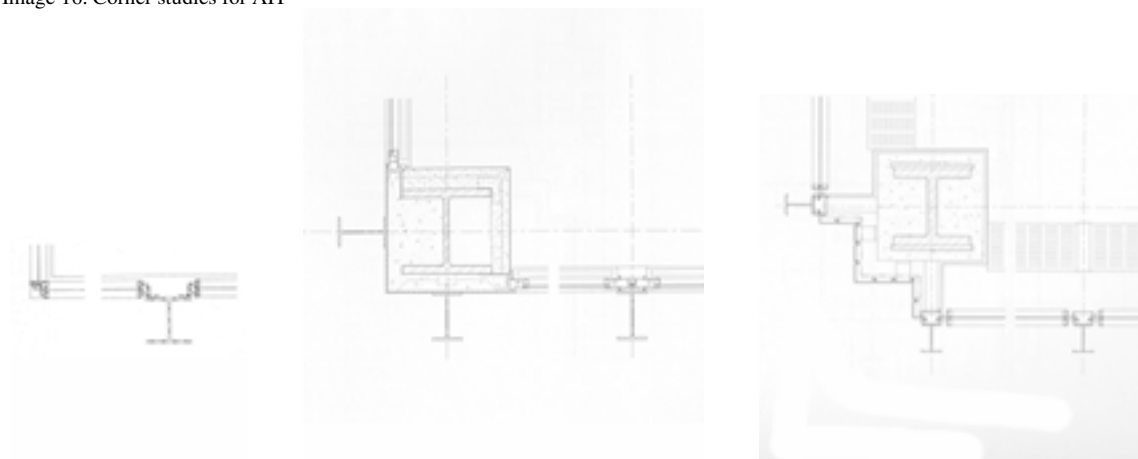


Image 17. Corner studies for The Farnsworth house, 880 Lake Shore Drive Apartments and the Seagram building

Another classical example of MVDR's repeated development of his language through the rationalizing of previous solutions, are his cruciform columns that were first conceived for the Barcelona pavilion (1928-29) and the Tugendhat house (1928-30). The four back-to-back angles were by the time they were proposed as concrete columns for the Bacardi Office Building (1957-60), no longer abutted to the ceiling but were separated from the roof plane through a pin joint connection.

The location of the supporting columns in MVDR's designs for low-rise skeleton buildings also underwent significant development from appearing as free standing regulating elements fixed on a grid within the building mass, to being pushed to the enclosure line at the 50 by 50 house project (1950-51) and the Farnsworth House so freeing the interior completely of all structural interference. When proposed for the Bacardi Building where the envelope was recessed from the roofline for shade, the only columns left are two at each elevation adjusted to the optimum position structurally and aligned to the roof edge. The pin connection solution was also used at the National Museum in Berlin, in steel again, the column webs have had a flange attached, are slightly tapered upwards and are capped below the connection supporting the roof plate.

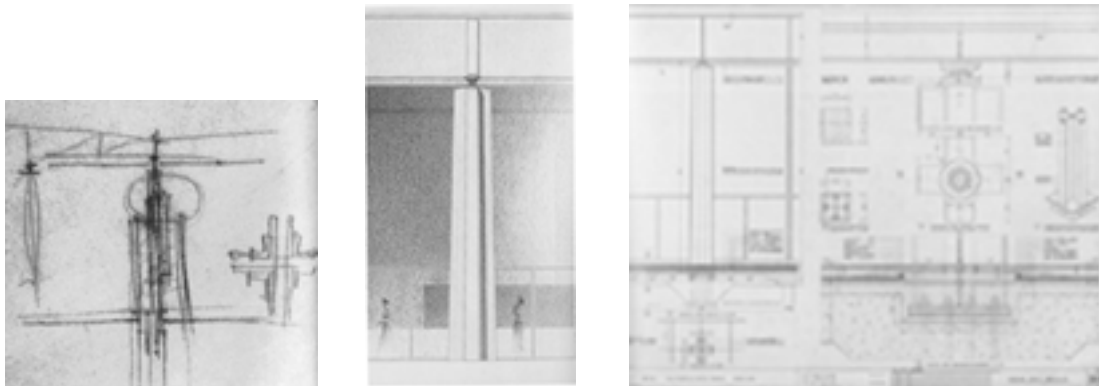


Image 18. Column studies for the Barcelona pavilion on the left, the Bacardi building center and for the National Theatre Berlin on the right.



Image 19. Model for the Bacardi headquarters, Cuba



Image 20. National Museum Berlin

The development of the flat roof of the Barcelona Pavilion can also be followed from the 50 by 50 house to the Farnsworth house. The flat roof is subsequently suspended by

trusses for the IIA Crown hall, the Cantor Drive-in Restaurant (1946-7) project and the Manheim Museum allowing the development of the clear span structures that led to the space frame of the Chicago Convention Hall (1953-4) project and finally culminated in the National Museum in Berlin, where the first ever pre-cambered rigid plate building was executed.

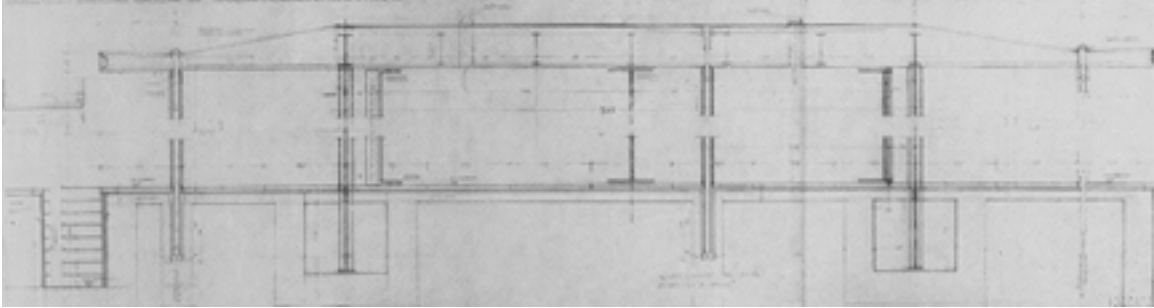


Image 21. Barcelona pavilion roof section



Image 22. Cantor Drive-in model



Image 23. AIT - Crown hall model

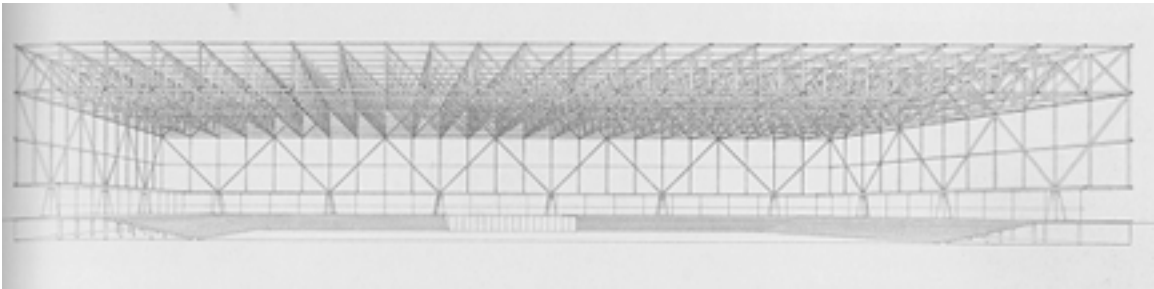


Image 24. Chicago Convention Center roof study

Interior Space

The use of columns and roof structures were crucial to the development of the ultimate universal free flowing space that MVDR sought so consistently throughout his career. MVDR's design for the German pavilion for the Barcelona International Exposition, in May 1929, was the expression of the architectural language he had learned to date. The separation of the space defining and structural elements that allowed the walls almost total freedom in defining the space was subtly expressed by his positioning the cruciform columns for supporting the roof slightly offset to the walls.

The concept of a free flowing universal space, that not only united the interior spaces but also the interior with the exterior, had been previously explored in his brick country house project of 1924. Once again the concept has the clear history of development that pervades all of MVDR's vocabulary. The link between the inside and outside was expressed with the use of walls flowing out from the mass of his brick house into the unknown. Le Corbusiers' Dom-ino system developed in 1915 as well as his "plan libre" or free plan of 1925-26¹², while surely influential on MVDR's was, by his own words an "object trouve" or a object that was found implying that it was discovered not invented. Similarly FLW's de-cellularization of rooms and their space did not develop the idea of flowing space and universal space as did MVDR. The 180 degree revelatory turn at the Barcelona pavilion probably owes a lot to Le Corbusiers' entrance at his the Stuttgart Weisenhof Development (1927) scheme as well as to Schinkel's use of a parallel stair at the Gardener's cottage at the Charlottenhof.¹³ Other clear influences on MVDR's studies of flowing space are traced to his friend Theo van Doesburg's de Stijl painting "Rhythm of a Russian dance" depicting bold coloured sliding planes.¹⁴ MVDR's development of the universal space culminated with the almost total removal of opaque elements on the periphery of the National Museum in Berlin (1962-68).



Image 25 – Interior view of Barcelona pavilion



Image 26 – View of Barcelona pavilion columns at entrance

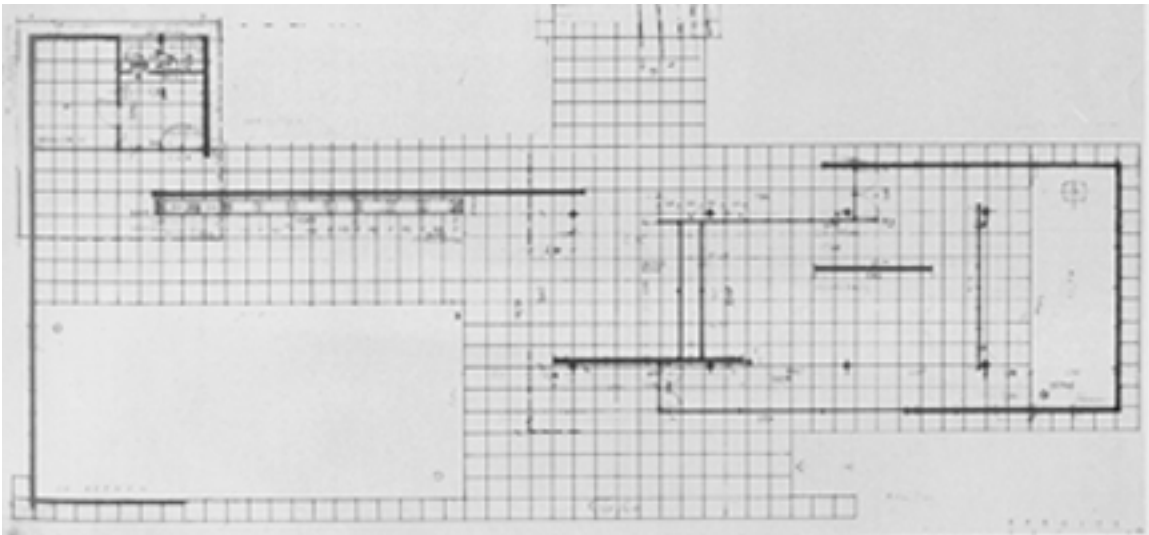


Image 27– Barcelona pavilion plan drawing

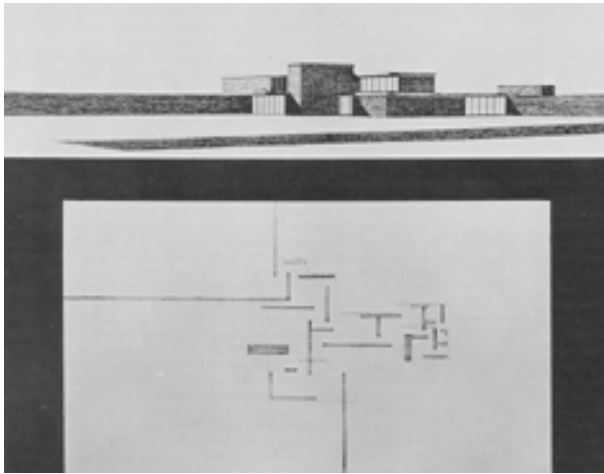


Image 28. MVDR - Brick house project 1923



Image 29. Theo Van Doesburg –
“Rhythm of a Russian dance”

MVDR's interiors are treated with the same attention to details and clarity as were the other building elements, the urban spaces and the building masses. The rebate that was used to define the different planes and elements with a shadow-line throughout MVDR's exteriors from plaza furniture, infill panels and walls, was applied even to the smallest interior elements such as the recessed stainless steel ashtrays and signs in the Toronto Dominion center and the exterior lights at the steps of the National Museum. The rebate is evident at the interfaces of the ceilings with walls, walls with windows and walls with floor. The perimeter rebates at the IIT Crown hall demonstrate how this allows the ceiling plane to visually float entirely separate from the walls as the interface between the window frame and the ceiling is hidden. Only the ceiling defines the horizontal plane and only the mullions, that frame the exterior views, define the vertical plane. The internal partitions designed for his building also have rebates along their edges again continuing the contrast of separation and unification with the whole.



Image 30. – IIT Crown Hall façade details



Image 31. – IIT Crown Hall interior view

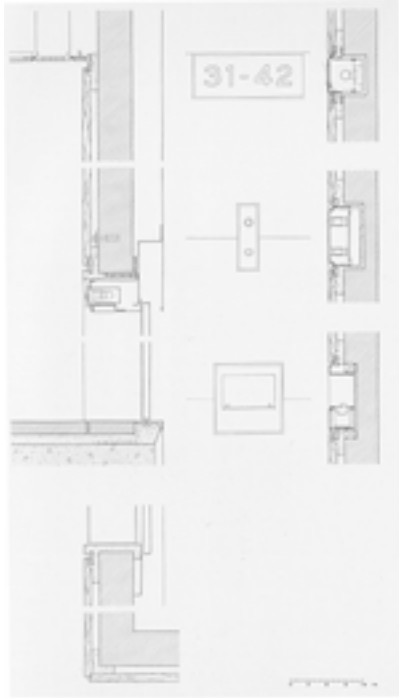


Image 32. – IIT Crown Hall façade details



Image 33. – IIT Crown Hall interior view

Conclusion

MVDR's architectural language proves his theory that the creation of order from a state of chaos will result in intrinsic meaning, beauty and truth in all things and this in turn leads to his ultimate conclusion of a free flowing universal space.

The use of complimentary opposites and contrasts provides not only the order and meaning on an individual level, but the interconnectedness and reliance of one to the other results in a universal wholeness that is not hindered by space, form or environment.

We have seen that MVDR's uses a vocabulary of contrast not only through his use of light and dark colours but also in texture as in the juxtaposition of glass and steel, reflectivity and transparency, inside and outside. This contrast was further noted between his use of the rebate, the plinth and his exterior spaces both for the separate definition of elements and as tools to unify these differing elements. Likewise his zigzag corners are separating the planes that are being joined.

Even the determination that his architecture should be architecture of the now is in contrast with his belief in the need for a tested point of reference. For it to be tested it must lie in the past and yet the fact that there can be no future without a past plays a unifying element.

His continuous development of his vocabulary, such as that for his columns, corners, enclosure, roofs and building types, give the previous expression of that solution ever more meaning. The consistency of his vocabulary not only throughout a particular project but also throughout his career further attests to this meaning.

The result of the language that he has developed throughout his sixty year career was and is and architecture both of the future and the past. As simple as he has attempted to keep his language and as inevitable as the finished works appears, that language has proved elusive to subsequent imitators. This can be attributed to his long life and career, the incredible discipline in his relentless search for new solutions to old problems and through constant reworking of those solutions by doggedly focusing on his methods.

MVDR's work stands as a clear testimony to the validity of his theory and his vocabulary, which has stood the test of time and of change. That his language has achieved a beauty cannot be denied and is demonstrated by the continued admiration of his work by a new generation of architects and critics.

“The long path from material through function to creative work has only a single goal; to create order out of the desperate confusion of our time. Nothing can express the aim and meaning of our work better than the profound words of St Augustine.... Beauty is the splendor of truth.”

MVDR 1938¹⁶

“I have tried to make an architecture for a technological society. I have wanted to keep everything reasonable and clear - to have an architecture that anybody can do”

MVDR 1966¹⁵

Footnote

1. Mies in America – Phyllis Lambert – Mies Immersion: Introduction, page 193
2. Mies van der Rohe – A critical biography – Franz Schulz page 33, 37
3. Mies in America – Detlef Mertins – Living in a jungle: Organic Architecture, and the Art of City Building page 604
4. Mies van der Rohe at Work – Peter Carter, Biographical notes, Page 182
5. Mies van der Rohe – A critical biography – Franz Schulz page 93
6. Mies in America – Phyllis Lambert – Space and Structure, page 409
7. Mies van der Rohe at Work – Peter Carter, Biographical notes, Page 127
8. Mies van der Rohe at Work – Peter Carter, Biographical notes, Page 128
9. Mies in America – Lambert page 362
10. Mies in America – Lambert page 362
11. Mies van der Rohe – A critical biography – Franz Schulz page 421
12. Le Corbusier – Kenneth Frampton – page 45
13. Mies van der Rohe – A critical biography – Franz Schulz page 157.
14. Mies van der Rohe – A critical biography – Franz Schulz page 113
15. Architectural Monographs – Mies van der Rohe- Fjames Gowan “Mies page 101
16. Mies van der Rohe at Work – Peter Carter, Biographical notes, Page 7

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1. MOMA – Mies in America
2. Peter Carter – Mies van der Rohe at work
3. Kenneth Frampton – Le Corbusier
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5. Architectural Monographs – Mies van der Rohe
6. L. Hilbersheimer – Ludwig Mies van der Rohe
7. Arthur Drexler – Mies van der Rohe

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Note: Essay word count: 3567 inclusive of annotations and quotations, exclusive of *German Miestories & Miesologies*.

The end

A German Miestory

On March the 27th 1886 Maria Ludwig Michael Mies was born in the Ancient town of Aachen in Germany, the youngest of five children, to Michael and Amelie Mies. Michael ran the family marble carving business with his brother Carl. The primary business activities were engraving marble headstones and sculpting mantelpiece's. Michael a Master Mason as his father had been and as his eldest Ewald Philipp. MVDR recounted working in the family studio “for the fun of it”, lettering gravestones which his brother had carved and on which his sisters lay gold leaf and generally finished off. At the age of ten MVDR was sent to cathedral school which included Latin and Catholic in the curriculum. At the age of thirteen Ludwig went to the *Gewerbeschule*, a trade school as opposed to *Gymnasium* a grammar school. The effect of MCDR's catholic upbringing can be inferred from his recounting of old memories of when he would go to church with his Mother and when commented on the Palatine Chappel in Aachen. “One could apprehend everything that went on. The whole space was a unity, everywhere alive with sights and sounds of the ceremony even the smell of it”. At fifteen he signed on as an apprentice at local building sites for a year after which he worked as a draftsman at various Aachen shops and ateliers until 1905. It was when working at one of these offices that he came across a copy of *Die Zukunft* “The Future”, an essay on one of Laplace's theories and a journal Published by Maximillian Harden, and that according to an interview with his daughter Georgia, he “started paying attention to spiritual things, Philosophy. And culture.”. Mies met a likeminded colleague in his office called Durlow, a fellow admirer of Shopenhauer, who suggested that MVDR go to Berlin as that was “the place where things are happening” and provided him with a contact who might give him work. Shortly afterwards, at the age of nineteen he was on a train to Berlin.

A few months after his arrival in Berlin MVDR was drafted into the Kaisers army. It was through what he called “an utterly imbecilic’ event during a drill that led to MVDR getting a bad lung infection and being discharged as “unfit for service”, thus keeping him out of the trenches of the 1st World war from which there would have been little chance of survival. In late 1905 he became first an employee and later a student of one the first historic figures that would play an important part of his architectural method, Bruno Paul.

Paul was a important figure at the time who with his colleagues in Munich having assimilated the message of the English Arts and crafts movement, that decried the effects of modern machine production on the handicrafts, became more interested in the applied arts and architecture and less in the fine arts. They gave up painting and took up crafts such as furniture design and ceramics. For them the apparent way forward was the flat abstracted patterns of Jugendstil, the German Art Nouveau. Paul went on to head both the School of Art of the Berlin Museum of industrial and Applied Arts and the Academy of Arts in 1907. It was during 1906 at the tender age of 20 that MVDR was to receive his first commission from the Professor and Mrs. Alois Riehl. This event was prompted by their looking to help the career of a talented unknown rather than an established designer. The commission was a weekend retreat called *Klosterli* or little cloister. The Riehls were clearly pleased with their house and with the designer and in 1908 Mr Riehl sent MVDR to Italy where he would see Vicenza, Florence and Rome.

In late 1908 MVDR began working for Peter Behrens through an introduction from Paul’s office manager. Behrens was world renowned at the time, recognized as one of the agents of change in German Architectural design. He had been involved in the historic reformist Artist colony “Matthilden Hohe” outside Darmstadt in Germany for three years from 1901 and was the Director of the School of Arts and Crafts in Dusseldorf in 1903 but by 1904 there were no more decorative elements in his work only geometric forms. Developing Schinkel’s, Germany’s premier architect of the nineteenth century, belief that the architect had a critical role in society and was responsible for giving a clear and eloquent form to the best public institutions and the noblest collective aspirations, Behrens realized that in his changed times this would involve confrontation and with it compromise. With his work on the AEG factories he produced several seminal buildings and being responsible for all of AEG’s visual aspects, such as stationary and products, contributed to the beginnings of industrial design. Two other young architects destined for greatness were already working in Behrens studio, Adolf Meyer and Walter Gropius, and they would all be briefly joined in 1910 by Le Corbusier, when he was still known as Charles Jeanneret, who was on a study tour to the studio. During late 1909 and early 1910 MVDR left Behrens office and received his second independent commission, the Perls house. It was also during this period that he entered the national competition for the Bismark monument which while unsuccessful was included in 41 entries chosen out of 380 and was eventually rejected “obviously excessive building costs”. While MVDR’s use of the colonnade parallax effect, the careful sizing and interlocking of volumes recalled both Schinkel and Behrens classicism and were solutions that he would use in the future, his projection of the monument across the slope jutting out into the Rhine below and out toward France as well as his clarity in ordering the interlocking masses demonstrate that at the age of twenty four he already had full command inventions.

Compare to the Riehls house The Perls house begins to hint at the method and language of simplification and rationalization in search of deliberateness that MVDR's would pursue through his career in Germany. Gone from the building are all but the practically necessary projections relief's and string courses, the roof level has been raised to the second floor throughout the building perimeter omitting the previous clash of wall and roof at the 2nd floor above the entrance and at the end walls, gone also are the windows through the roof which is now more clearly resolved by the use of atype roof as opposed to the.....type roof of the Riehl house. This rationalizing allows the shadows to clearly define different planes. The use of white shutters begins to hint at the use of contrasting colors to define different elements and planes that MVDR would use so clearly in later years.

While he had progressed at an extraordinary pace and had become one of Behrens two Principle assistants and his most trusted, friction with the other principle and a growing apart of interests, with Behrens being mostly interested in modernity and MVDR chiefly in "a painstakingly honest, down to the bone, construction.", meant a parting of paths was now inevitable. The catalyst came in the form of the Kroller-Muller house, a building that was to serve as a villa museum to house the Krollers extensive art collection. Mr. Kroller was a very wealthy industrialist and his wife a keen collector of art, notably an important patron of Vincent van Gogh. Mrs Kroller, unhappy with Behrens designs, chose to hand the project over to MVDR. And so in 1912 MVDR left Behrens office and set up his own studio with the help of Mrs. Kroller.

Eventually MVDR would be put in competition with the leading De Stil Architect H.P. Berlage on the project, which finally would not get built due the imminent war and its effects on the Kroller's fortunes. While the being a direct competitor MVDR's admiration for Berlage can be seen from recollection that after a visit to Beralge's Amsterdam stock exchange; "It came to me that the idea of a clear construction was one of the fundamentals that we should accept. We can talk about that easily, but to do it is not easy.; it is very difficult to stick to this fundamental construction and then to elevate it to structure". The principle of structural order *where form becomes a consequence of structure and not the reason for the construction* was inherent to all the great architectural times and MVDR believed that the structure in this case meant "the whole, from top to bottom, to the last detail, with the same ideas". His later citation of Saint Augustines definition of order as the "distribution of which allots things equal and unequal, each to its own place, and integrates an ensemble of parts in accord with an end" explain his distinction between building and element types.

Believing that Christianity was no longer a force, Berlage turned to science and was keen to quote the rational theorists Gottfried Semper and Viollet le Duc in his search for an objective style, for a new moral order and for repose in his architecture through order. While MVDR may have read Semper already, he would certainly have heard Berlage's quote of him;

“Just as nature is ever thrifty of motifs even in her endless abundance, constantly repeating her basic forms, but modifying them in a thousand different ways according to the condition of her creatures and their mode of life, stretching or curtailing some, hiding or revealing others – just as nature has her evolutionary processes, within whose limits old motifs continually reappear in new creations, so art lies within the scope of a few Norms or Types that derive from old tradition, each constantly reappearing in diverse forms, each with its own history, as in Nature. Nothing, therefore, is purely arbitrary, but all is governed by circumstances and relationship.”

and Viollet le Duc’s;

“The more the artist reasons on his art, the more he tries to perfect the expression by which he would interpret his meaning, he is led to strengthen the original expression - to render it clearer”

For the next 25 years Mies built commission work consisted primarily of residences for the upper Bourgeoisie. His career progressed steadily and he was recognized as an important figure in his field from his project and competition works. His investigations into glass as a building material led to his remarkable 1922 studies for a glass skyscraper for which he described the ideas in *Fruchlicht* ;

“In my project for a skyscraper at the Friedrichstrasse station in Berlin I used a prismatic form for which to me fit best at the triangular site of the building. I placed the glass walls at angles to each other to avoid the monotony of overlarge glass surface, I discovered by working with actual glass models that the important thing is the play of reflection and not the effect of light and shadow as in ordinary buildings”

“Only in the course of their construction do skyscrapers show their bold, structural character, and then the impression made by their soaring skeletal frames is overwhelming. On the other hand, when the facades are later covered with masonry this impression is destroyed and the constructive character denied, along with the very principle fundamental to artistic conceptualization. These factors become overpowered by a senseless and trivial chaos of forms. The best that can be said for such buildings is that they have great size; yet they should be more than a manifestation of our technical ability. Above all we must try not to solve new problems with traditional forms; it is far better to derive new forms from the essence, the very nature of the new problem. The structural principle of these buildings becomes clear when one uses glass to cover non-loadbearing walls. The use of glass forces us to new ways.”

By now MVRD had allied himself to the modernists whose architecture was developing a broader base in across Europe. He also cultivated his social activities and became

involved in an intellectual circle that involved among others Hans Richter, Hans Arpp, Tristan Tzara, Ludwing Hilberseimer, Theo van Doesburg, El Lissitzky, Naum Gabo, Anton Prevsner, and ManRay. Having previously not been a prolific writer or been one for debates, would spend the next ten years writing for the magazine *G* that Richter and van Doesburg co-founded. *G* stood for *Gestaltung* or ordered forming of a creative endeavor. Their café manifesto read;

“The basic demand of creative organization [*Gestaltung*] is economy. Pure relationship of power and material. This depends on fundamental [elementary] order. Regularity. We have no need for the sort of beauty that attaches itself like tinsel to our very being; rather we need to realize the internal order of our being.”

MVDR was quick to add his bit in the 1923 first and second issues with the following statements;

We reject all aesthetic speculation, all doctrine, all formalism
Create form out of the nature of our tasks, with the methods of our time.
This is our task.
Form is not the aim of our work, but only the result.
Form, by itself, does not exist
Form as an aim is formalism, and that we reject....
Essentially our task is to free the practice of building from the control of
aesthetic speculators and restore it to what it should exclusively be;
Building

He also used it as a vehicle for his studies of the architectural potential of new materials and methods. Describing his Concrete Office Building project in *G*, No. 1-1923 MVDR wrote :

The office building is a house of work, of organization, of clarity, of economy.
Broad, light workspace, unbroken, but articulated according to the organization of the work. Maximum effect with minimum means.
The materials: concrete, steel, glass.
Reinforced concrete structures are skeletons by nature. No gingerbread. No fortress. Columns and girders eliminate bearing walls. This is skin and bone construction.”
Functional division of the work space determines the width of the building: 16 meters. The most economic system was found to be two rows of columns spanning 8 meters with 4 meters cantilevered on either side. The girders are spaced 5 meters apart. These girders carry the floor slabs, which at the end of the cantilevers are turned up perpendicularly to form the outer skin of the building. Cabinets are placed against these walls in order to permit free visibility in the center of the rooms. Above the cabinets, which are 2 meters high, runs a continuous band of windows.”

The Modernist movement to MVDR was a search for understanding of a new Architecture that was emerging driven by the rise in the forces of science and technology above the age of Empires of the turn of the century. The arrival of the industrial revolution in the early eighteenth century brought with it the clear span structures of the factories, great exhibition halls and railway stations that were permitted by the use of iron and steel members. The attractiveness of the new Architecture to MVDR lay in the direct way the structure and so space could be read.

In 1930 MVDR accepted the Directorship of the Bauhaus. The eleven year old Dessau school of modernist architecture was over its glory years after the takeover of the directorship by Meyer and the subsequent resignation of Gropius. The school was dissolved by the Nazi's in 1932 and subsequently reopened in Berlin by MVDR as a private institution. The banning of modern Art in 1933 set MVDR on a collision course with the Nazi establishment and meant his work at Bauhaus became increasingly perilous. In his times a Bauhaus director, MVDR with his students through a series of court houses further developed the revolutionary expression of free flowing space and structure that he had expressed so clearly in the Barcelona pavilion. In 1936 MVDR now fifty years old received several invitations to America that would lead to his permanent departure from Germany in 1938 at the age of fifty to become the Director of Architecture, Illinois Institute of Technology.

Miesologies

“The peace of the body is a tempering of the component parts in duly ordered proportion; the peace of the irrational soul is a duly ordered repose of the appetites; the peace of the rational soul is the duly ordered agreement of cognition and action. The peace of body and soul is the duly ordered life and health of a living creature; peace between mortal man and God is an ordered obedience, in faith, in subjection to an everlasting law; peace between men is an ordered agreement of mind with mind; the peace of a home is the ordered agreement among those who live together about giving and obeying orders; the peace of the Heavenly City is a perfectly ordered and perfectly harmonious fellowship in the enjoyment of God, and a mutual fellowship in God; the peace of the whole universe is the tranquility of order – and order is the agreement of things equal and unequal in a pattern which assigns to each its proper position.”

St Augustine

“The peace of the whole universe is the tranquility of order – and order is the agreement of things equal and unequal in a pattern which assigns to each its proper position.”

MVDR

“The long path from material through function to creative work has only a single goal; to create order out of the desperate confusion of our time. Nothing can express the aim and meaning of our work better than the profound words of St Augustine.... Beauty is the splendor of truth.”

MVDR AIT inaugural address

“Wherever technology reaches its fulfillment it transcends into architecture. It is true that architecture depends on facts, but its real field of activity is in the realm of significance”

MVDR 1950

“Architecture depends on its time. It is the crystallization of its inner structure, the slow unfolding of its form.”

MVDR 1950

“I am not working on architecture, I am working on architecture as a language, and think you have to have a grammar in order to have a language. You can use it, you know for normal purposes and you speak in prose. And if you are good at that, you speak in wonderful prose. And if you are really good, you can be a poet.

MVDR 1955

“My idea or better direction, in which I go, is toward a clear structure and construction - this applies not to any one problem but to all Architectural problems which I approach.”

MVDR 1960

“Architecture exists in space; only objects in space make us aware of it”

MVDR

“To achieve order I am convinced of the need for clarity in both action and thought, without clarity there can be no understanding, without understanding there can be only confusion.”

MVDR

“Building. We know no formal problems only building problems. Form is not the goal, but the result of our work. There is no form in itself”

MVDR 1923

“Form is not the goal but the result of our work”

MVDR

“What matters not is the what but the how”

MVDR

“Create for out of the nature of the task with the means of our time”

MVDR

“Proportions are always three dimensional”

MVDR

“For the meaning and right of each age, including the new one, consists solely in providing the spirit with the necessary prerequisite for its existence”.

MVDR 1930

“All education must begin with the practical side but true education is concerned not only with practical goals but with values”

MVDR

“The real art of architecture is to be found in the broad harmony that extends from the main idea straight down to the smallest detail”

MVDR

“The problem of architecture has actually been the same in all ages. The real qualitative element in building arises from proportions, and proportions of course cost nothing. Most of the time these are the proportional relations between things, and not even the things themselves. Of course the task of designing interspaces gives an architect a great deal of work. The artistic element is always a question of proportion”

MVDR 1966

“I am not a reformer, I do not want to change the world, I want to express it. That’s all I want”.

MVDR

“Economy of gesture”

“An idea of space be at the root of any production”

“L’art difficile d’être simple” The difficult art of being simple

“Less is more”

“The world and non other is offered us and here we must take our stand”,

“The building art is always the spatially apprehended will of the epoch, nothing else”⁸.

“Reason is the first principle of all human work”.

Goethe; “Its neither core nor shell; it is all one”.

“Viollet-le-Duc has shown that the three hundred years it took to develop the Gothic cathedral were above all due to a working through and improving the same construction type. We limit ourselves to the construction that is possible at the moment and attempt to clarify it in all details.”

MVDR

“Each material has its specific characteristics that one must get to know in order to work with it. This is no less true of steel and concrete. We expect nothing from materials themselves but only from the right to use them”.

MVDR