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Fact and Fiction

Palladio's Buildings: Just Images?

Palladio's buildings are instantly recognisable. They create fascinating and highly memorable architectural images. The plans are simple and seemingly easy to read, and the façades display grandeur with great visual depth, without being overbearing.

Whilst the plans follow a straightforward, almost minimalist, symmetrical layout composed of squares and rectangles with traceable proportions, the elevations are much more elaborate and far more difficult to analyse and decode. The outline is simple, often a box with a gable roof, but the superimposed façades are created from intricate designs, conceived from complex, interwoven and layered compositions, sourced from a classic canon of architectural elements [fig. 1].

When looking at Palladio's designs, historic research tends to separate the analysis of the plan, or the structure, from the façade. In James Ackerman's seminal book on Palladio, chapter 5 on architectural principles mainly concerns itself with the horizontal layout.[1] He discusses façades regarding their artistic merit, but not in terms of the architectural process, analysing proportional relationships and comparing façade compositions to their roman

1
View of Il Redentore, Venice, from across the lagoon.

originals and to the designs of other architects. Ackerman does, however, mention that Palladio's façades are the result of "[…] co-ordination of exterior and interior design by representing the interior organization on the façades […]."[2]

Ackerman's observation of a co-ordination between plan and façade is clearly important, but it is disappointing that he does not elaborate and explain how exactly this co-ordination is achieved. Manfredo Tafuri and Howard Burns take up the notion of "co-ordination"[3] independently and explore it further. Tafuri observes how Palladio creates a "projective geometry made of transparencies and superimpositions"[4] and Burns describes how "overall layout, structure and external appearance are inseparable elements of an organic unity".[5] However, Burns also points out that Palladio used, what he called, an "extra touch, that slight bending of rules or improvisation in details, which give his buildings their individuality and beauty".[6]

This essay wants to examine this process of co-ordination further and explore if there is relevance in this for the architectural discourse today. The focus is hereby on the architectural methodology behind the designs and not on the intricacies of the actual artistic outcome.

Of particular interest is here whether Palladio's approach of *co-ordination*, clearly different from *matching*, *tracing* or *replicating*, implies a looseness and openness for interpretation that allows him freedom to create façades which cannot be completely rationally explained. Perhaps it is no surprise, and exactly the point, that plan and elevation are not a perfect match, and perhaps it is here where Palladio deviates from his mentor Barbaro who stipulated that the elevation "must also conform to the plan".[7]

Perhaps only in this way an architecture, or an image of architecture, with a higher meaning can emerge? Perhaps this openness is fundamental to artistic endeavour where fact and fiction are intrinsically linked?

2
Basilica of Sant'Abbondio,
Como, south elevation.

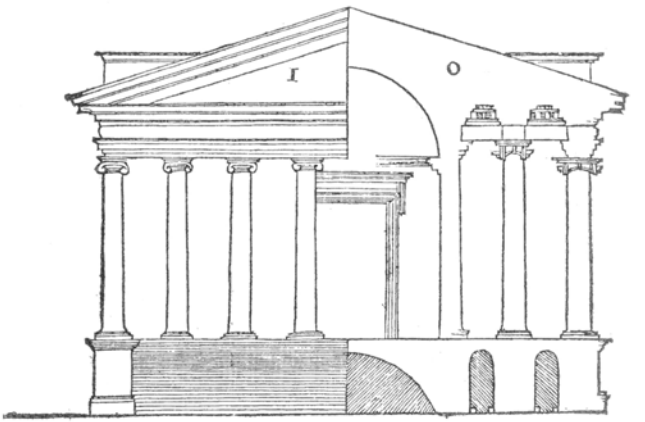
3
Basilica of Sant'Abbondio,
Como, corner detail.

Architectural Expression as a Symbolization of Structure and Space

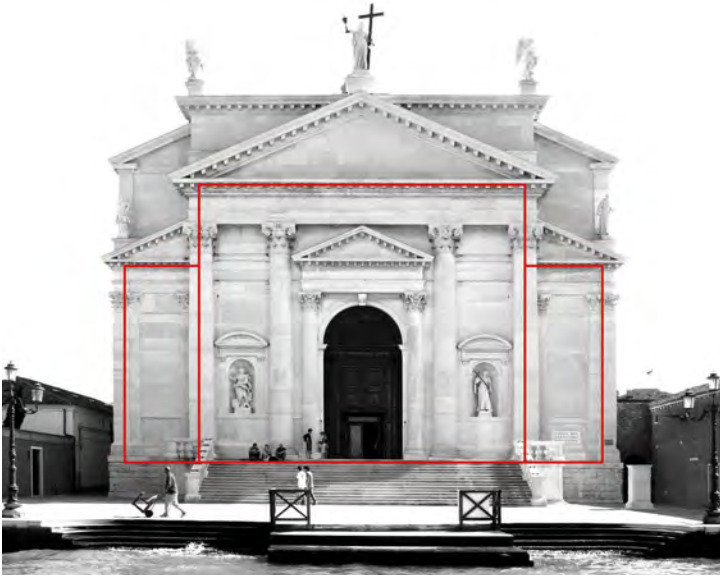
In his book, *Palladio, der Bildermacher* (Palladio, the Image Maker), Thorsten Bürklin also refers to Howard Burns and what Burns calls a "compositional kit".[8] Bürklin goes on to describe how Palladio adds a second layer of classical ornamentation to otherwise simple box-shaped buildings.[9] This second layer gives the buildings direction and outlook, and provides interest and architectural expression. A key example for this method is Palazzo Valmarana Braga in Vicenza which Guido Beltramini uses to explain Palladio's design method of orthogonal projection to create a composition of superimposed layers. [10] Even though the elevation cannot be fully appreciated head-on, as the building is located in a narrow medieval street, two expressive external "planes" have been added.[11] The façade, although condensed to about 40 cm, adds an incredible visual depth to the building, suggesting a deep architectural space in front of the building's actual perimeter.

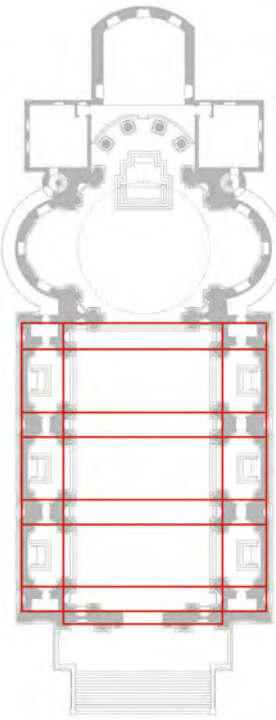
The device of adding a decorative plane, or layer, to an otherwise not-so-interesting stone volume was nothing new in 16th century architecture [fig. 2, 3]. What is interesting, however, about Palladio, is how he derives key elements of this external layer of classical expression from the building's internal structure. It is the way this layer is added to the outside and yet how it seems to grow from the inside, closely reflecting the internal arrangement and structure that make Palladio's buildings so captivating.

It is perhaps best demonstrated in Palazzo Valmarana Braga and Palazzo Chiericati in Vicenza, as well as in Il Redentore in Venice and, predating these, in his wood cuts illustrating Vitruvius' comments on architecture.[12] In an illustration of a roman temple, Palladio developed the idea of showing section and elevation of the building in the same image, suggesting that they are two aspects of the same idea; that one—the façade—cannot be conceived or comprehended without understanding the other—the section [fig. 4]. Analyzing the façades of Il Redentore and Palazzo Chiercati highlights several key steps in Palladio's methodology [fig. 5–8]:



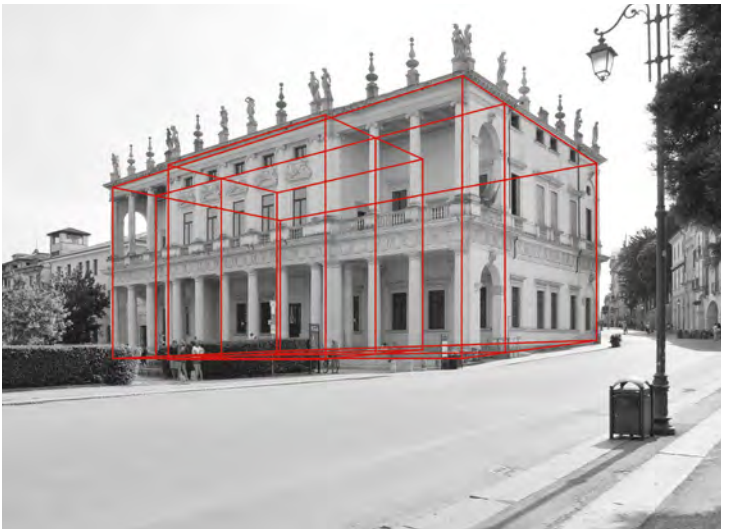
4
Daniele Barbaro and Andrea Palladio, representation of the Orthographia and Sciographia in Barbaro's commentary of Vitruvius from 1567.

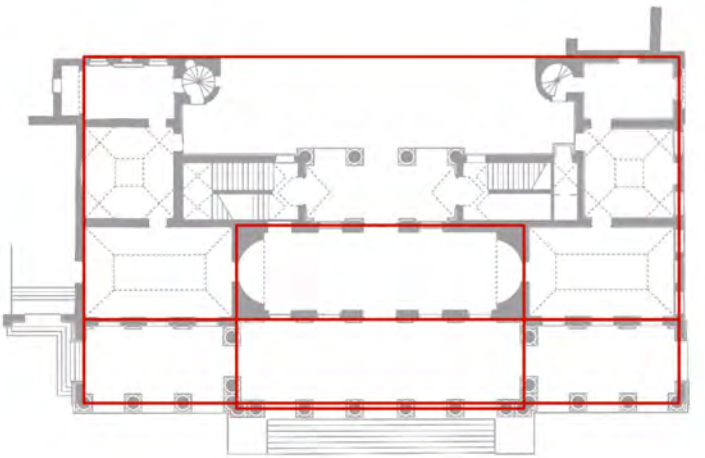




5
Il Redentore, Venice, view of main elevation.
Analysis by the author.

6
Il Redentore, Venice, plan.
Analysis by the author.





7
Palazzo Chiericati,
Vicenza.
Analysis by the author.

8
Palazzo Chiercati,
Vicenza, plan
Analysis by the author.

A. The façade is a separate layer or space. In particular in Il Redentore, the façade takes on its own allotted zone in plan and is superimposed to the front of the building.

B. As Tafuri suggests, the façade creates transparency.[13] The artistic composition of verticals and horizontals, columns and architraves is, fundamentally, a reflection of the building's internal spatial arrangement, or its structure. According to Andrea Guerra, the Il Redentore elevation "enables us to reconstruct Palladio's design process, developed through the orthogonal projection of spaces and masses on the plane of the façade."[14] Thus, the façade, the external image, reflects the internal workings of the building by projecting them onto the external elevation. Without the façade, the internal structure of the building would remain hidden behind its (masonry) external walls, and through this process the buildings become transparent and legible.

C. The façade is a dramatization. As it is not the structure itself (which is hidden from view), but an interpretation of it, this allows Palladio both a point of departure and artistic freedom at the same time. The structure becomes the skeleton of the image. It is a rough sketch which provides space to depart from slavishly *tracing* the structure onto the façade. The latter is particularly crucial when trying to understand why it is difficult to fully reconstruct Palladio's façade compositions, as he was able to make adjustments based on visual perception rather than structural or mathematical deduction.

This process of creating façades as images by layering and superimposing, interpreting and dramatizing structure and spatial arrangement can be summarized as creating images by means of symbolization of structure and space.

Thus: Image <=> Structure <=> Space.

The Modernist Pursuit of Truth

Modernism departs from this concept of interpreting and layering. Hendrik Berlage demands of modernism to adhere to "the principle of simple honest construction" and heavily criticizes other contemporary architects and in particular Henry van der Velde and the Art Nouveau movement for being "the opposite of this healthy principle".[15]

In the absence of decoration and ornament, modernism is fundamentally concerned with a notion of honesty and truth where the external expression of the building is de facto the building's inner spatial arrangement and structure without mediation or translation. *Image, structure and space become one.*

Thus: Image = Structure = Space.

Architectural quality here relies almost entirely on the architect's artistic ability to create sculpturally coherent structures as there are no other means of artistic expression left. The more successful examples of modernist architecture are often private houses or public buildings in prominent locations where the building shape takes on iconic qualities such as Le Corbusier's Villa Savoye, the Sydney Opera House by Jørn Utzon or Oscar Niemeyer's government buildings in Brasilia. En masse, celebrated masterpieces aside, this resulted in a somewhat contradictory situation. On one hand there was monotony and blandness as buildings started to look uniform and repetitive, and on the other, modernism created many ugly monstrosities due to the often-lacking sculptural and artistic abilities of the average architect.

One of the best, although lesser known and less celebrated, examples of modernist architecture is the National Theatre in London by Denys Lasdun from 1976.[16] Situated on the South Bank of the river Thames, the building offers a series of publicly accessible terraces and spaces facing the river and overlooking the London skyline. The auditoria are buried deep inside the center of the building. The result is a highly complex arrange-

ment of spaces which find their perfect expression in the building form showing the fly tower surrounded by projecting concrete decks on all sides. The building form is derived entirely from the internal arrangement of terraces and spaces. It is a fundamentally open structure, visually and physically accessible from all sides. Thus, it is more landscape than architecture and does not have a façade, building front or perimeter in a traditional sense. It is completely devoid of references of classical architecture and yet it is powerful, unique and completely convincing as a piece of publicly accessible sculpture. The view onto the building is less memorable than the spaces inside or the view from the building onto the London skyline [fig. 9].

9
Denys Lasdun, National Theatre, London, view from Waterloo Bridge.

10
Christian Kerez,
Leutschenbach School,
Zurich.

Modernism enjoyed great success in northern Europe but also in areas with moderate and warm climate and limited requirements for thermal insulation. It is no accident that almost all iconic modernist buildings were built before the great energy crisis of the 1970s. Ever since, architecture has become increasingly concerned (although not sufficiently successful) with lowering energy consumption. Buildings in the northern hemisphere have started to acquire a thick coat of thermal insulation. This added insulation layer makes it more difficult to directly express a building's structure on the outside as piercing through the shell causes thermal breaks, associated heat loss and condensation.

This has not stopped some contemporary architects, especially in the United Kingdom and Switzerland, to adhere to the modernist tradition of expressing the building's structure on the outside. Next to Richard Rogers' works in the UK, Christian Kerez's Leutschenbach School near Zurich[17] and Miller & Maranta's apartment building at Schwarzpark in Basle[18] are prime examples where the structure is visible "as is" on the outside of the building. In particular, Kerez's school is a stunningly beautiful building where the structure takes on a sublime sculptural quality that permeates all spaces and gives the building an unforgettable identity [fig. 10].

But this pursuit of truth comes at a price. Penetrating the building's thermal envelope with loadbearing columns and beams is only possible with highly sophisticated and thermally broken, yet structurally continuous, shear connectors. [19] These details are not only extremely difficult and expensive to build. They also require highly advanced thermal and structural modelling and cooperation of the local building inspectorate.

It is interesting to compare this type of "tour de force construction methodology" with Palladio's approach. Instead of using ever more complex and expensive means of construction, Palladio would have probably taken a much more pragmatic route. The author would suggest that Palladio instead would have accepted the insulation requirements of contemporary construction and added a further façade layer in front of the insulation rather than penetrate through it.

The Postmodern Disconnect

Fed up with the numbing repetition of simplistic modernist architecture and under the banner "less is a bore" a group of postmodern architects decided in the 1960s to create a more flamboyant architecture where the building's image becomes more interesting and to a greater extent separated from the building's structure and spatial configuration.

As a formula: Image ≠ Structure ≠ Space.

One of the prime examples of this departure from the modernist pursuit of truth is Philipp Johnson's design for the AT&T Tower in New York (now known as 550 Madison Avenue). Inside, the structural and spatial configuration is exactly the same as a typical 1960s office tower with a regular column grid and a central core with elevators, staircases, WCs and technical services. Yet on the outside, the building looks like a giant Chippendale cabinet. Another building, where image and structure are disconnected, is the Piazza d'Italia in New Orleans by Charles Moore. It is an entirely fictitious coulisse, a colorful assemblage of Roman stairs, porticoes, gables and columns to frame a public space. The façade does not represent any building and serves only as public entertainment.

More recent examples of image-driven architecture are de Rotterdam by OMA and West 57th Street in New York by Bjarke Ingels Group.

De Rotterdam is a mixed-use development on the edge of the river Maas with parking, hotel, commercial, office and residential space. The building consists of three towers that are formed from glass-clad cubes which have been shifted from their vertical axis to create cantilevered structures. Viewing the building across the river, it creates a visually striking and memorable image. However, with the façades clad in a uniform glass and aluminium envelope, the image remains a reflection of light and does not provide a deeper understanding of the building's inner workings.

Bart Lootsma calls the overall impression "blank" in his appraisal in the Architectural Review.[20] The shifting shapes challenge the laws of gravity. The enormous structural support required to allow the cantilevers to work is not referenced on the outside. This leaves the viewer impressed but not informed; the building image does not give any clues as to how this engineering feat is achieved. Although it hides its structural complexity behind a sleek façade, de Rotterdam at least offers some notion of the organization of the building that one might make assumptions about different uses for the different blocks and towers. Perhaps one could argue the shapes symbolize the very idea of mixed-use [fig. 11].

11
OMA, De Rotterdam, Rotterdam, view from across the river.

Bjarke Ingels Group's design for 57th West Street in New York goes one step further by creating a shape that is based on an entirely superficial notion of leaving a mark on the skyline of New York. All consideration for sensible apartment layouts or structural integrity seems to be subordinate to the creation of a memorable icon.

In their book *Learning from Las Vegas*, Robert Venturi, Denise Scott Brown and Steven Izenour explore the disconnect between content and form, structure and image. Interestingly, they notice that in their pursuit of truth, modernist architects have increasingly used the building's structure as the main form giver, and thereby required a usually mundane element of the building fabric to have poetic and artistic qualities.[21] This is an expectation which the structure normally cannot satisfy, leading to more and more extravagant and complex structural solutions which became increasingly difficult and inefficient to build.

In this juxtaposition of the modernist and postmodernist position, architecture gets stuck in a dichotomy. On one hand, there are post-modern buildings that lack visual and intellectual transparency, where image and content (space and structure) are disconnected, leaving the viewer perhaps entertained but ultimately misinformed and confused. On the other hand, there are modernist buildings that, exceptions aside, are dull, of poor aesthetic quality or increasingly difficult to build.

This is where Palladio's methodology becomes interesting.

12
Mies van der Rohe, Lake Shore Drive Apartments, Chicago.

Symbolization of Structure and Space in Contemporary Architecture

In the search for more recent applications of Palladio's methodology in contemporary architecture, surprisingly, Ludwig Mies van der Rohe, one of Modernism's main protagonists comes to the fore. His post-war oeuvre tells the story of how he moved away from a strict modernist approach in the 1920s and 30s and started adopting a Palladian construction methodology from the late 1940s onwards.[22]

His first buildings in Chicago, constructed between 1941 and 1946 shortly after he arrived there from Berlin, were simple

industrial buildings in which, in the modernist tradition, he used an expressed structural frame to give order and articulation to the building's façade. In his first commission for a high-rise apartment building, the Promontory Apartments (1946–49), he continued with this approach and employed a simple concrete structural frame with brick infills and aluminium windows. However, almost in parallel to this very direct modernist technique, Mies started experimenting with additional layers wrapping around the actual structural frame.

Although some of his first buildings in Chicago were made with a concrete frame, the subsequent ones all employed a primary steel frame. As a steel frame requires fire protection, especially in taller buildings, exposing the actual frame was no longer a possibility. So, protecting and hiding, layering and wrapping the frame was a technical necessity, but also a creative opportunity at the same time, just as it was for Palladio. This approach can notably be seen in Mies' designs for the Alumni Memorial Hall on the IIT campus from 1946 and for the Lake Shore Drive Apartments from 1951 [fig. 12]. In both cases, an internal structural steel frame is encased with concrete for fire protection which, in turn, is faced with steel plates and I-beams mounted at regular intervals.[23]

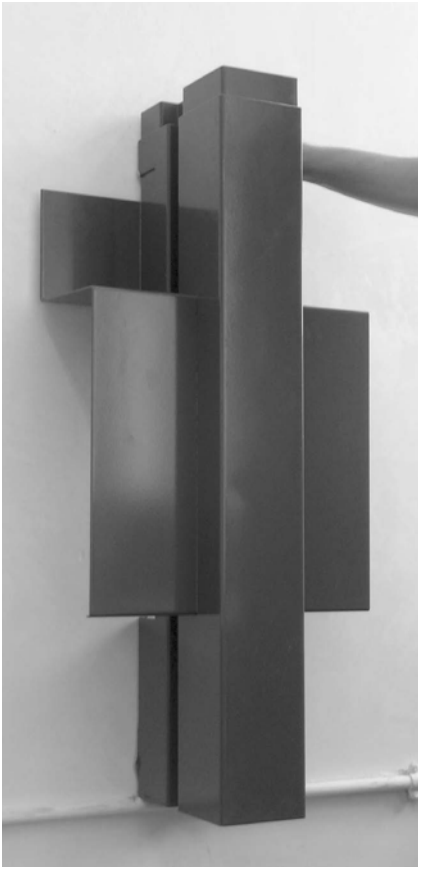
At the time, Mies van der Rohe was confronted with criticism for he was decorating his buildings with elements which look like structure but are in fact not load-bearing. Richard Padovan refers to the decorative layer of I-beams and its relationship to the internal frame in his essay *Machines à méditer*.[24] To him the I-beams become an essential part of the building fabric and, in the corners, create a kind of bundle pillar similar to the architectural vocabulary of the high gothic. He compares Mies' approach to Thomas Aquinus' famous definition of truth as the adaptation of reality and understanding, *adeaquatio rei et intellectus*. The façade not only refers to the structure situated behind the cladding, but symbolizes the very idea of *structure*, *support* and *stability*. The decorative layer becomes necessary for a deeper understanding of the building.

Mies' student at IIT, Jacques Brownson, employed exactly the same principles with great effect at the Chicago Civic Center (now Daley Center). Here the entire building is clad in a cor-ten steel envelope which, from the outside, looks remarkably like the actual structure, but it is not. Again, the actual steel frame is covered in fire protection and the cor-ten steel envelope is only a very thin skin. Visually striking, and perhaps the reason why the skin looks so much like the steel frame, is the use of applied strips of steel plating to create visual depth within the spandrels and column covers.[25]

After the postmodern hiatus of about 20 years, one of the first examples where the process of layering and symbolization of the building's structure is used again is I. M. Pei's Bank of China in Hong Kong. The interplay of building shape, structural system and façade design is truly remarkable. As with Palladio's Il Redentore, the building's main viewpoint is from across the water, from Kowloon across Victoria Bay to Hong Kong Island, and the image is similarly unforgettable. In terms of symbolization of structure, Pei employs Palladio's methodology. The crosses shown on the façade represent the building's main structural frame, a three-dimensional system of trusses that creates the building's lateral stability system. [26]

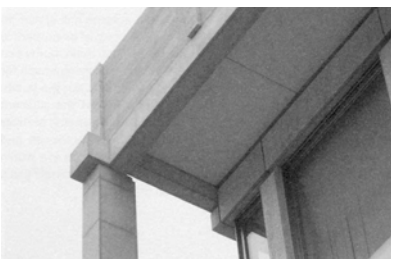
In today's architecture, there are several architects, notably Hans Kollhoff, Peter Märkli and David Chipperfield, who can be seen in this tradition of Palladio and Mies van der Rohe. These architects have accepted and accommodated the need for simple and efficient construction techniques, but this has not kept them from conceiving sophisticated architectural concepts and designs with striking visual impact.

In his designs for the Picassohaus office building in Basle and the headquarter building for Synthes in Solothurn, Märkli uses simple rectilinear forms.[27] The Synthes headquarter building is an elongated box and the Picassohaus building creates a U-shaped courtyard towards the main square. In both cases, the building skin has been hung in front of the main frame. The Picassohaus building employs an off-the-shelf cladding system to great effect by enhancing it with folded metal sheets to create an elegant grid of thin verticals and wider horizontals (which also house an external blind system) [fig. 13, 14].



13
Peter Märkli,
Picassohaus Office
Building, Basel,
façade junction
mock up

14
Peter Märkli,
Picassohaus Office
Building, Basel, view
along north-facing
elevation



15
Peter Märkli,
Headquarters Building
for Synthes, Solothurn,
colonnade detail.

In the Synthes headquarters, Märkli adds another element. Pushed out further from the thermal envelope which sits in front of the frame, representing the building's structure and geometry through windows and pre-cast elements, a colonnade has been provided, running the length of the building in the front and rear. This colonnade creates an intermediate space between inside and outside and gives a sense of scale to the very long building.

16
Peter Märkli, Headquarters Building for Synthes, Solothurn, corner view of main elevation.

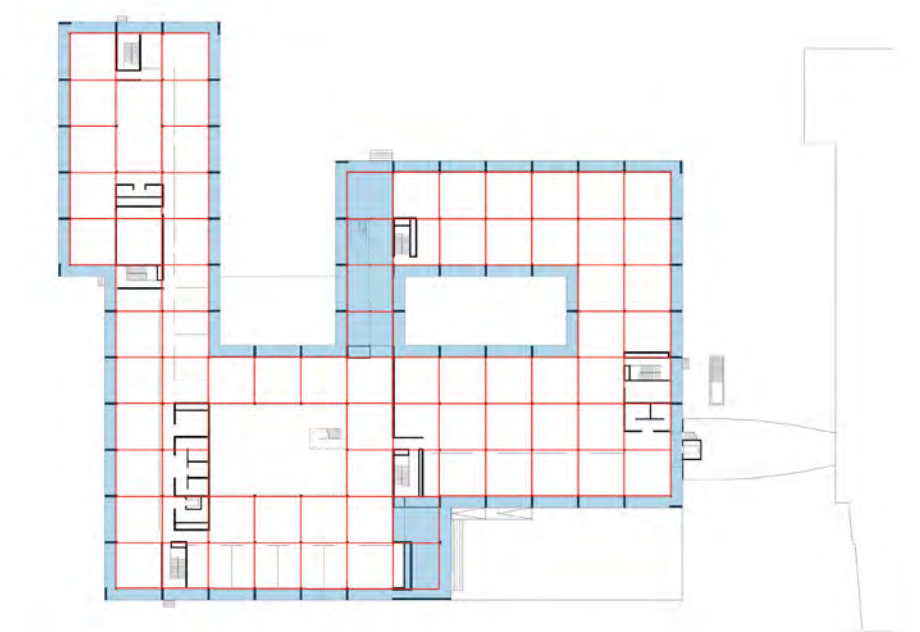
Importantly, the colonnade is not part of the building's main frame. It is very much, in the Palladian sense, an additional layer representing the building's frame, which is not the frame itself nor supports it [fig. 15, 16].

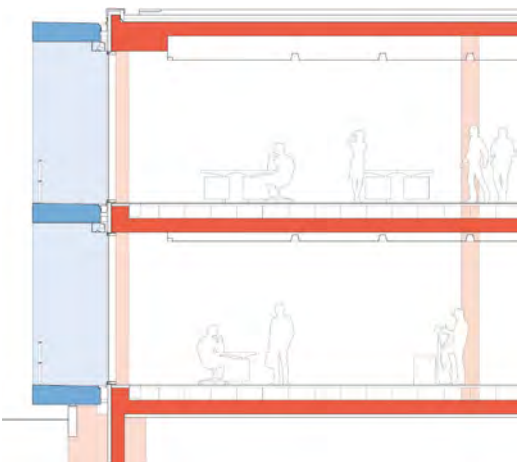
In Hans Kollhoff's tower at Potsdamer Platz in Berlin, the whole building is clad with a sophisticated relief of red bricks. The main frame is made from concrete and the bricks are part of a pre-cast sandwich element which is hung from this frame.[28] The pattern of the relief changes as it goes up the building, creating horizontal bands which correspond with steps in the building shape. The structural system does not fundamentally change over the height of the building, demonstrating Kollhoff's intention to show the relief not as structure but as a representation and, in a way, an enhancement of it.[29]

Bringing Palladio to Westphalia

In 1999 David Chipperfield won the competition for and was subsequently commissioned to design the headquarters for clothing retailer Ernsting's Family in Coesfeld-Lette near Münster in Germany.[30] The project was conceived as a group of three pavilions creating a series of courtyards and atria, with offices organized around these spaces. One fundamental consideration was the headquarters' setting in a rural landscape. Framing the views in and out of the building was an important design parameter. To further this intention, the façade was developed as an almost two meter deep space of accessible loggias, providing a space mediating between the office interior and the surrounding landscape. Viewed from the outside, the frames only cover the columns and floors, yet they appear solid and substantial, in particular when viewed at an angle. Due to their depth, the frames visually contract and form a solid-looking mass of concrete which, despite its apparent solidity, seem to defy gravity and "appear to float"[31] above the ground.

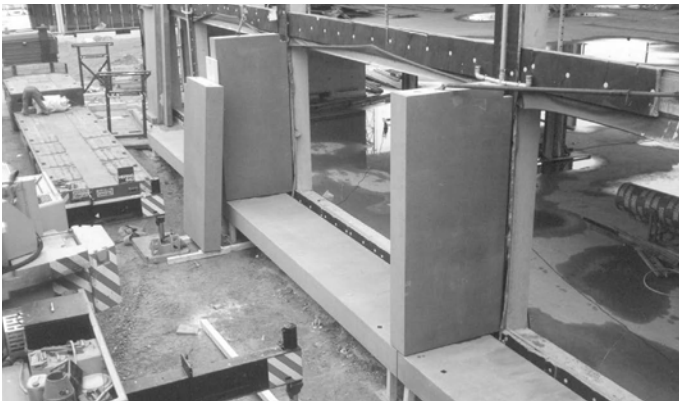
As in Palladio's façades, the loggias are added as an additional layer. They create their own zone or space, wrapping around the building on all sides, including the external courtyard. The corners are emphasized by pushing the frame to the outside of the adjoining loggia thus exposing the internal columns. The loggias also form their own structural system. They share the same foundations as the perimeter columns but they do not cantilever from the internal structure. They are constructed as vertical fins and horizontal architraves with an insulation layer between the internal structure and the external loggias. The loggias are only attached to the main structure with small stainless-steel brackets at discrete locations for horizontal support. At the main entrance and towards the garden entrance, the loggias are altered to create a portico and a colonnade. Similar to the standard frames, the portico and colonnade are effectively stand-alone structures with their own foundations, only tied back to the main building for horizontal support. [fig. 17–22].





17
David Chipperfield,
Ernsting Service Center,
Coesfeld-Lette, plan.

18
David Chipperfield,
Ernsting Service Center,
Coesfeld-Lette,
façade detail.



19
David Chipperfield, Ernsting Service Center, Coesfeld-Lette, garden view.

20
David Chipperfield, Ernsting Service Center, Coesfeld-Lette, construction of typical bay.

21
David Chipperfield, Ernsting Service Center, Coesfeld-Lette, construction of main entrance portico.

22
David Chipperfield,
Ernsting Service Center,
Coesfeld-Lette, forecourt

The similarities between the construction methods of the Ernsting's Family building and Palladio's buildings are clear.

—The internal structure is simple and straightforward, following a rigorous geometry.

—The internal structure is augmented and enhanced with an external layer.

—The external layer is separate from the main building and forms its own structural system.

—The typical external elevation is a representation of the internal structural arrangement.

—Parts of the external layer are further enhanced to form a portico and a colonnade.

Symbolization as a Method

Palladio's method of layering the external building envelope and creating a memorable image not just as an arbitrary scenery, but by using the internal spatial arrangement and structure as a reference and starting point, has discipline and yet allows great artistic freedom. This process of layering and symbolization of structure on the building's façade is relevant for both the process of making architecture and the perception of architecture.

Layering and Superimposing
Palladio used the simplest and most efficient forms of construction that were available at the time. This allowed for streamlining of the construction process and meant that his projects could be realized across a large part of the Veneto in northern Italy at a time when a site visit required several days of travel. His contractors simply knew how to build his buildings without much explanation because Palladio employed construction techniques that were widely known.

Building the main frame with simple and accepted standard practice allowed Palladio to focus his design on the precision of the plan and the decoration of the exterior. The buildings are almost always simple box-like volumes and only a few have *barchesse* (added barns or sheds) that would create more complex external spaces and building geometries. Most buildings have no sculptural qualities beyond basic massing. What makes Palladio's buildings interesting is the artistry and architectural composition of the layers added to the outside of these volumes. And this is where Palladio was able to focus his energies.

Today's architects use much of their time creating, what they believe are, interesting shapes, often ending up with buildings that are extremely difficult to build. Much design time is spent working out how the basic structure and the build-up of the external envelope is constructed.

As evidenced by the projects by Miller & Maranta and Christian Kerez, the modernist doctrine of truth by directly expressing the building's structure on the outside is running into difficulty in the northern hemisphere as buildings have to become heavily insulated to reduce heating requirements. Thus, penetrating a building's envelope with the structural frame is becoming increasingly technically challenging, difficult to construct and ultimately costly.

Taking a leaf out of Palladio's handbook, architects could spend less time worrying about the shape of the building and complicated detailing, and instead create a simple and purposeful plan, use well-established, standard construction techniques and have more time to concern themselves with the creation of legible and well-proportioned façades.

Accessibility

The other effect of this process of layering and superimposing the structure as an image is that the buildings become more visually accessible. Palladio's façades are immediately recognizable and highly effective, probably mostly due to their visual clarity despite the underlying compositional complexity. They are not arbitrary fabrications of architectural fiction. They represent the building's inner workings and allow the viewer to begin to understand how the building is organized on the inside. Thus, Palladio's façades make the buildings accessible to the public and facilitate an initial, although perhaps unconscious, appreciation of its overall design and layout.

In this way Palladio's buildings achieve something that much of recent architecture does not. They are beautiful and comprehensible at the same time. And perhaps this is why they are so memorable.

Endnotes

If not indicated otherwise, all translations are by the author of this paper.

1 Ackerman 1966, 170–185.

2 Ackerman 1966, 182.

3 Beltramini/Burns (eds.) 2008b, 149.

4 Tafuri 1987, XV: "*A ciò, Palladio aggiunge una geometria proiettiva fatta di trasparenze e di sovrapposizioni, tale da permettere il contemporaneo controllo di membrature, piani spazi dislocati a profondità successive:* […]."

5 Beltramini/Burns (eds.) 2008b, 269.

6 Beltramini/Burns (eds.) 2008b, 272.

7 Vitruvius Pollio/Barbaro 1567, 30: "[…] *deue esser lo in piè conforme alla pianta* […]

8 Beltramini/Burns (eds.) 2008b, 269.

9 Bürklin 2019, 126–146.

10 Beltramini/Burns (eds.) 2008b, 199.

11 Tafuri 1973, 155.

12 See Barabaro 1567.

13 See note 4.

14 Guerra 2008. In: Beltramini/Burns (eds.) 2008b, 231.

15 Berlage 1991, 70.

16 See Curtis 1994, 108–157.

17 See Deplazes (eds.) 2008, 435–444.

18 See Loudon (ed.) 2011, 32–47.

19 See Deplazes (ed.) 2008, 442.

20 Lootsma 2014.

21 Venturi / Scott Brown / Izenour 1977, 103, 139, and 163.

22 See Lambert 2003, 277–325.

23 See Carter 1974, 46–49.

24 Padovan 1986, 38.

25 See Condit 1964, 219; Grube (ed.) 1977, 58.

26 Robertson 2019.

27 See Johnston (ed.) 2017, 93–105 and 133–156.

28 See Deplazes (ed.) 2008, 51.

29 See Cepi 2003, 352–361.

30 See Marquez Cecilia/Levene 2004, 50–63.

31 Weaver 2003, 87.