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1.A GIFT FROM THE PAST

Firstly, I indicate that the old buildings mentioned in the following chapters are not related to the heritage protection. Without question, of course, it is not because the heritage is not meaningful or with low value, but it is the treatment to the heritage may be quite different, either be recovering to a resemblance or keeping the remaining part with a controlled decay treatment, requiring a more careful handling, leaving fewer possibilities to design. The topic of is about the existing building with more interaction flexibility, a more common one we could say, which could be regarded as freely available and changeable “building material”.¹ Like the mass produced buildings, or those abandoned houses due to the unfitting function as time changes.

For the economic and ecological consideration, the reason for renovating the old buildings is straightforward. Since the remaining usually contains the site construction, needing less carbon energy produced during the construction process, materials can be reused, correspondingly, less construction cost. The fact of these benefits needs no more to prove.

¹ InDetail-BuildinginExistingFabricRefurbishment-Extensions-NewDesigns, P17



Josef Albers

Color Study for Homage to the Square, n.d.

Oil and graphite on blotting paper

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Joseph Albers calls "the discrepancy between physical fact and psychic effect" a contradiction which is "the origin of art."³

This is the example Robert Venturi quoted in his book *Complexity and Contradiction in Architecture*, when he was trying to elaborate the qualities of contradiction, paradox, and ambiguity as basic to the medium of various art form like literature and painting⁴, which should also be the

² <http://www.theartsection.com/albers---color>

³ *Complexity and Contradiction in Architecture*_2nd ed,P20

⁴ *Complexity and Contradiction in Architecture*_2nd ed,P20

one of architecture's. He pointed out that a valid architecture evokes many levels of meaning and combinations of focus⁵, and should be a difficult unity of inclusion of the contradictions. For instance, both closed and open, continuous and articulated, round and square, structural and spatial⁶etc. That is why Venturi proclaimed the duality in the first chapter of the book, which is seemingly to be the basis of all the elaboration. But the reason is obvious and rational, since contradiction needs to first admit the existence of two opposite ends.

Based on Venturi's elaboration, the old buildings naturally have the great potential to be renovated as valid architectures with rich meanings and perception. For there already existed one "end" of the contradiction, which is the old part. However, a good handling with the old building is not simply the contrast between old and new as it seems, otherwise, only by putting a new building besides will just fix the problem.

You can make a good contemporary design—but you cannot construct history. An appealing, multilayered existing building is like a gift from the past. —Christian Bruckner

Old and new is just a main category which contains a lot more of contents.

⁵ Complexity and Contradiction in Architecture_2nd ed,P16

⁶ Complexity and Contradiction in Architecture_2nd ed,P23

Also in the book "LAYERS" written by Anne-Catrin Schultz who study the work of Carlo Scarpa from the layers or the stratification point of view. She indicated in the book that the stratification involves the polarity of individual elements and the relation between them⁷. It is the dialects, tension and unity between them that matters. And apparently, no matter of the contradiction or, like what the other architects and scholars say, the layers or the stratification, we need to admit the duality in the renovation work in the first place. Anyway, the duality discussed here can also be considered as a tool when dealing with the intervention of the historical buildings, it is a method to find out the way to build up contradiction in order to create ambiguity and unity like Venturi indicated. I mean, what could be more expressive and meaningful than the one that relates with time span?

2.THE ANALYSIS OF DUALITY OF RENOVATION OF EXISTING BUILDINGS

As mentioned before, the intervention of the old buildings is not just the

⁷ Carlo Scarpa—Layers, by Anne-Catrin Schultz

contrast between old and new, and now that the duality is acknowledged, or we can say the duality is a tool to deal with the reuse of the historical architecture, how to present the old, making differences and unity becomes our problem. The topic can also be dissected into several layers too.

The duality is actually established once the existing building starts to be renovated by the architects, mainly due to the two facts.

2.1 Duality from the mutation of form and function

Form and function, one effects the other, which has been the topic of architecture. There is no doubt that the form and the function of a building change, the ambiguity of architecture is generated in the oscillation of this two definitions.

2.1.1 The illusion from the function mutation

Obviously, in most cases the new inserted function into the existing buildings is different from the original one. This is a common case for sure. The barn house to a museum like the Hedmark Museum , or a factory to a complex like the FIAT Factory in Lingotto. The reason for this mutation could either come from the industrial development or the movement of

the population, which results in the emptiness of the buildings. The most known cause for the western countries may be the oil crisis in 1970s, which resulted in a large number of abandoned factories. There is a classic example of new function and old form done by Renzo Piano, the Auditorium Niccolo Paganini.



It was once an old sugar factory and transformed into a music hall. The enormous transparent façade enhances the form of the factory and there exists an obvious contradiction between the musical activities and the rough structure. The “fake” illusion of its industrial use and the delicacy of the cultural activities create a tension.



The cement factory renovated by Ricardo Bofill
The dramatic tension caused by the “unfit” industrial elements and oversized dimension.

Sometimes the tension in the renovated space is caused by the dramatic dimension which “unfits” the common sense of the new inserted function. Like in the case of the cement factory renovated to be the architect’s house and workshop by Ricardo Bofill, the space for the original industrial use is huge compared with the daily use of a house, tension is strong in terms of the dimension. On the other hand, the architect purposely retained the element of the industry, the machine on the top for example, to further enhance the contradiction caused by the function mutation.

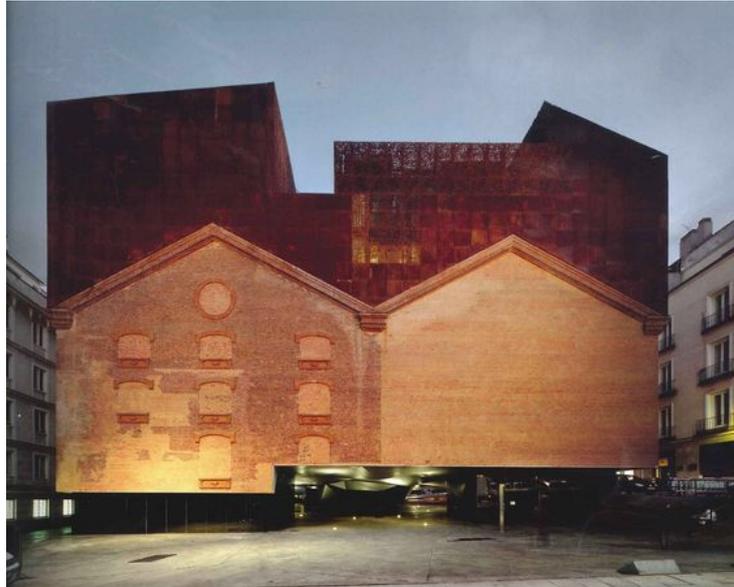
2.1.2 Contradiction between forms

What needs to mention first is that the form here to discuss has a broader

meaning which also includes the structure. We can consider it the physical appearance of a building. And for the easier understanding for the rest of the essay, the meaning of the “form” remains the stay for the following part of the discussion.

The most obvious contradiction that one can observe is the form of architecture, no matter in terms of the dimension, the volume or the shape, it is the most straightforward image that meets the eye and give the very first perception about a building, that may be the reason Venturi wrote most of the texts talking about form of the casestudies in the *Complexity and Contradiction in Architecture*.

The form is very likely to change when the function mutates, either inside or outside, new parts needs to be added. Or it could be the new part to compensate what is remained at the site in order to have a complete volume. From this point of view, the residue of the old is seemingly doomed to be for the contradiction, as long as there will be the new added form.



The old form dooms to be ready for the contradiction

In the case of the CaixaForum Madrid, the added abstract form follows the new inserted museum function. The modern shape of the new form and the garble shape of the old house creates the contradiction. Further, Herzog & de Meuron may even purposely elevate the old volume in order to enhance the contradiction of these two significant shapes. Without question, there are a lot more of the approaches they did in this project to enlarge the contradiction of old and new, like the texture and material, but we are going to leave them to the later chapters.

2.2 Duality from the mutation of building materials

Another fact that will naturally generate duality in the renovation of

existing buildings would be the development of building materials, or say, the construction method difference, even sometimes the preference of the building industry. The past, for example, stones, bricks or solid woods were the in the favored materials. The glass, steel and polywood, for instance, come to the main stage nowadays. For the future, it could probably be more of the eco-materials being able to be recycled. Anyway, the concern, the aesthetic preference, the topic changes in architecture, along with the materials changes for sure.



The staircase overlaps on the old one in the urban renewal in salami by Alvaro Siza.
Material changes in different age. Perception differs.

And even the materials are the same, but the way they are organized, produced or settled differs from time to time. Take concrete, for example, the texture of the fair-faced concrete is much finer than the one in decades ago, which results in great difference in human perception. The former feels soft and smooth, the later one rough and old.



Chinese studio Archi-Union Architects programmed robots to construct the undulating brick facade of this art gallery in Shanghai's West Bund district.

Not only the preference of the way building materials mutates, but also the way they are organized. The materials could be still the same, or even the single component remains the same, but the logic assembling them mutates as the development of the architecture industry. The façade in the above picture, the bricks themselves may remain unchanged as the one ancient Chinese used hundreds of years ago, but the way the bricks organized is totally different with the help of the robot. Bricks are the same, but the perception giving is much more expressive and modern, significantly different from the traditional one.

For the record, these examples are to make an unbiased indication about the strong distinctive perceptions of building materials as the development of architecture industry or the changes of value nowadays, but not saying which is better than the other. Only to elaborate the significant duality in the renovation work would naturally have. It is a way for the coming chapter to broaden the approaches in the intervention of existing buildings.

3.THE RENOVATION APPROACHES CASE STUDIES BASED ON THE DUALITY ANALYSIS

To building up the workable contradiction in the intervention of old architectures, to achieve multi-layers with meanings, or as Venturi said, to enhance the complexity and ambiguity, the approaches of the intervention of old buildings may start from the duality analysis above, which are the oscillation between form and function, and from the building materials. The following discussion will be analyzing the case studies from these two points of views. What is worth mentioning is that there are without question lots of intervention methods of existing

buildings, and also each project varies according to the specific conditions and site. But like I said, it is a focus analysis about the approaches in terms of the obvious duality phenomenon in renovation caused by time, hence to finally conclude a way of thinking about the interventions and a general list of related approaches. Consider the duality as a tool to dissect the renovation problem.

Further, the intervention is usually the synergy of several approaches at the same time, but for the convenience of analyzing, approaches will be separated for the discussion below accordingly.

3.1 THE METHODS FROM THE FORM AND FUNCTION MUTATION

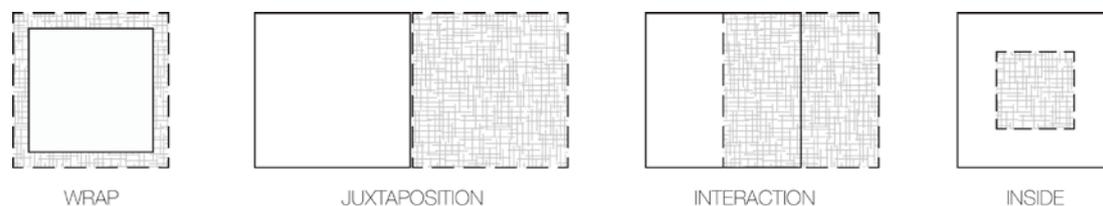
There exists an obvious duality in old building renovation caused by the function mutation, however, in order to enhance the contradiction the methods of placing the new function inside the old form seem to be much more limited than using the form. The reason is rather straightforward. In most cases, the program to put inside is not within the control of architects' but the clients. Even if in the case of the factory by Ricardo Bofill, the architect was able to fully decide the new use because he bought that factory, but cases like these are rare. So, thinking about the methods in terms of form would be a more effective and general way,

also the case study research I did indicates that is a quite common way to enhance the contradiction done by the architects, like Carlo Scarpa.

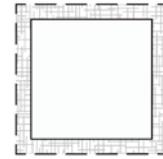
The form approaches can be divided in terms of dimension, from the whole volume to a small architectural component.

3.1.1 The four basic relations of the new form with the old one

In terms of entirety of the form, there are obviously 4 relations between the new added part and the old one. Either wrap, juxtaposition, interacted or inside, as demonstrated in the diagrams below.

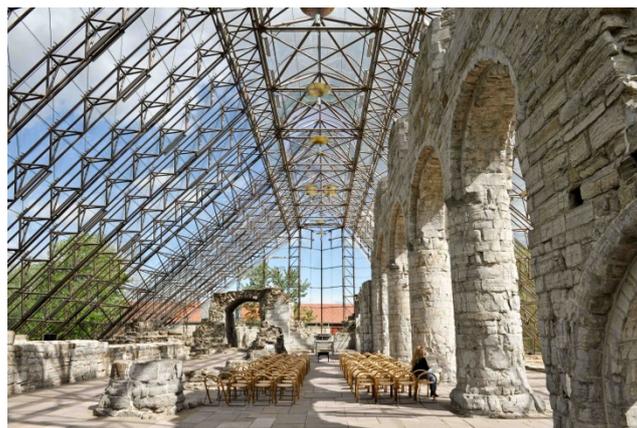


a) WRAP



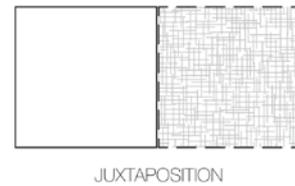
WRAP

This situation is more common in the protection work of old buildings with high cultural value. In the Hedmark Museum renovated by Sverre Fehn, there is a medieval Cathedral Ruins. High steel and glass construction was built to protect the ruins, on the other hand, the glass cover generate a space and put the place back into the original use, the church again. Also the gable roof shape has the symbolized function indicating the religious use in a modern way. To the common buildings, the entire wrapping approach is not commonly seen.



The newly built church in Hedmark Museum by Sverre Fehn.

b) JUXTAPOSITION



The method is adopted usually when the space of the envelop is not enough or suitable to accommodate the new function, extension has to be built. The duality here could be quite obvious, sometimes could be a defect which may need some special treatment, the unity in materials or shape similarity for instance, in order to achieve the duality and unity at the same time, otherwise, contradiction becomes total contrast, ambiguity becomes division.

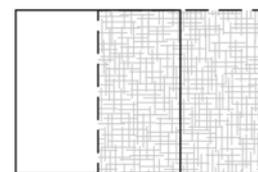
And the direction of the extension could be, of course, horizontal or vertical. Again in the classic case of the CaixaForum Madrid by HERZOG & DE MEURON. The vertical extension is for the inserted cultural activities.



Sealed openings reduce duality from pattern in order to enhance the duality of volumes.

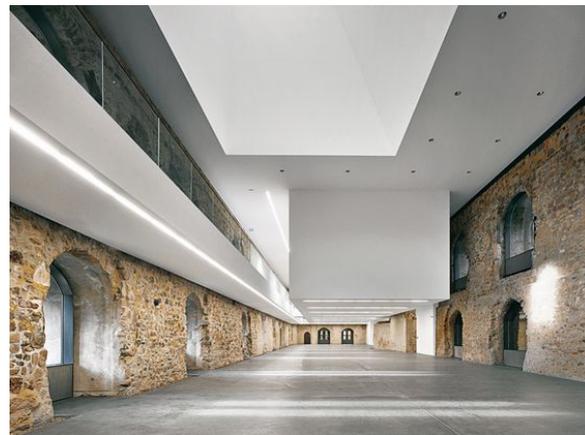
There is no doubt that the new volume on top and the old envelop will generate a certain duality. On the other hand, the architects had some special treatment to the new volume and the old one in order to gain the unity and ambiguity. The corten steel façade represents a similar perception compared to the old house below, so as to reduce the duality caused by the color or texture. Further, the up and down motion of new roof figure on top seemingly corresponds to the old house roof, indicating the close relation between the two volumes. Lastly, also the most interesting one is that the architects may purposely seal the openings of the old volume to reduce of duality caused by the window pattern duality, enhancing the contradiction of the old and new volume. One duality is enhanced and always be duality in other dimensions to compensate. The ambiguity is achieved by obvious contradiction in one dimension and unity in others.

c) INTERACTION



The interaction approach is used mostly when the residue of the old

envelop is ruined and needs a complete volume. The approaches vary and are always accompanied by other detailed methods, since the contact of the new and old form is the most outstanding among the four relations.



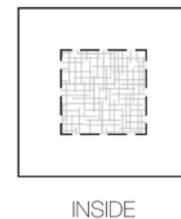
Moritzburg Museum by Nieto Sobejano Arquitectos

In the case of Moritzburg Museum, the place was once a Gothic castle. Part of the castle was ruined, and the architects completed the volume, a large folded platform, which rises and falls with uneven crenellations to allow natural light to enter through skylights⁸. The newly-added platform completely overhang in the air, tension is built between the close

⁸ Build-on Converted Architecture and Transformed Buildings,P28

interlock of the volumes. There are various detail approaches to enhance the contradiction in this case which will individually analyzed in the new coming chapter.

d) INSIDE



In the book of Complexity and Contradiction in Architecture, the residual space in chapter 9 is mentioned when talking about the additional space between the lining and the exterior wall. Venturi made plan diagrams illustrating the contradiction from shape, position, pattern, and size⁹. Venturi quote the word of Aldo van Eyck, that an in between space in this sense provides the common ground where conflicting polarities can again become twin phenomena¹⁰. And in the book “The Eyes Of The Skin”, Pallasmaa said:

*“The world is reflected in the body. And the body is projected onto the world.
We remember through our bodies as much as through our nervous system*

⁹ Complexity and Contradiction in Architecture,P74

¹⁰ Complexity and Contradiction in Architecture,P82

*and brain.*¹¹”

In this sense, when someone stands inside the residual space, perception about the contradiction between the old and new should be rather strong, since one is totally within transition space, not just the optical sense, but all senses are influenced by the in between tension.

However, there are various types of this inside approach, not just because there may exist the residual space due to a larger old envelop, but sometimes due to the purpose of the space. The form of the inserted programs varies because it depends on whether the activities require a volume or a cover. The situations can be divided into two kinds according to the completeness of the old envelop.

i) COMPLETE OLD ENVELOPE

In this situation, the old building is still able to provide protection as a shelter, the program input can be more flexible, on the other hand, some of the cases even provide the ecological benefits.

¹¹ The Eyes of the Skin, Pallasmaa, P49

a. Directly insert new function.

Like in the case of the Auditorium Niccolò Paganini by Renzo Piano mentioned before. Part from replacing two facades to glass curtain walls, the envelope remained the same.

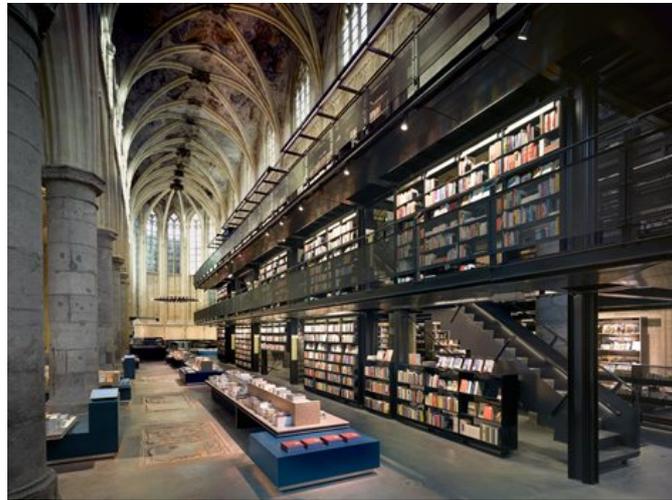


b. Inserting new volume



Thermal buffer zone between the new and old volumes

The Wildau Laboratory Building by Anderhalten Architekten. The factory is in Berlin and was renovated into an educational institution in 1991. In order not to impair with the unity of space in the factory, the envelopes inserted were made largely transparent which created contrast with the masonry shell. A thermal envelope is formed by the historical façade and the new inner façade, which creates a thermal buffer zone fed with heat from the inner space¹².



The book store suits the Gothic church environment

Placing new volume into the old one could sometimes take advantage of the inner atmosphere, like in the case of the Slexyz Dominicanen Bookstore by Merckx+Girod Architecten. The Gothic church in Amsterdam was transformed into a bookstore in 2007. Due to a large amount of book collections, and not willing to impair the sacral atmosphere inside, the architects inserted a volume with three levels in the form of bridges inside. A additional benefit of this intervention is that the tourists are able to take

¹² Old&New Design Manual for Revitalizing Existing Buildings, P153

a closer look to the roof fresco of the church thanks to the elevated bridges¹³. Tension is created between the modern building and the Gothic church as well as the harmony.

ii) INCOMPLETE OLD ENVELOPE

In this case, the existing building is very likely to have only a residual part and the architects want to retain the history or atmosphere by considering the envelope as a surrounded façade or even part of the landscape.



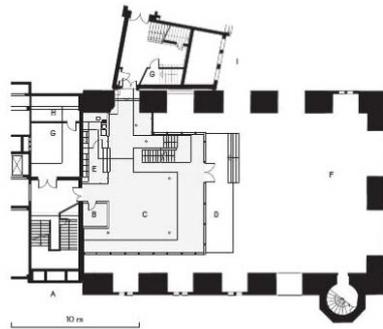
Cafeteria in the Zeughaus Ruin

The ruined wall named Zeughasu was once a historical armory which was almost about to be demolished in the city Kassel. The wall was connected to a school, and with the rise of the awareness of the heritage protection in the city, the wall was preserved and the place was reused as a

¹³ Old&New Design Manual for Revitalizing Existing Buildings, P165

cafeteria¹⁴.

Again, the architects adopted many methods to enhance the contradiction here, the light materials as glass and thin steel are for the purpose to enhance the historical building as well as the modern one. Other methods will be analyzed in the coming part of the chapter.



Plan of the cafeteria. Unsealed openings

The interesting point about this case is that, apart from the old and new tension, since the openings of the ruined wall are not sealed, the ruined wall creates an ambiguous space between the inside cafeteria and the outside space, like Venturin said about the contradiction, open while closed. From far distance, the ruined wall is perceived one envelope with a larger dimension belonging to the surrounding, but when going closer, the perception changes to open space.

The analysis of the four basic relations wrap, juxtaposition, interaction and inside is the discussion of a large dimension. The approaches of

¹⁴ Old&New Design Manual for Revitalizing Existing Buildings, P31

generating contradiction in terms of form are much more in the smaller dimension.

3.1.2 The detailed approaches

The refurbishment of the Castelvecchio in Verona (1956-1964) by Carlo Scarpa influenced many creative renovation works of the existing building. The principle he developed in this project, which is distinct separation, is still now one of the most common rules when architects deal with the historical architecture. The project retained the development traces of the castle, layers ancient, recent history and the modern were shown in the break of the two buildings.



Castelvecchio in Verona

No matter of form, material or other architectural elements, separation should base on the premise of admitting different individuals, which seems coincidentally totally match with the duality phenomena in the

renovation. Carlo Scarpa adopted many detailed component design to create distinction from the existing fabric, most of his approaches are processing the form, but he may not have noticed, that the double shell method has already extended to another level of separation, according to Venturi, which is the definition separation of architectural components.

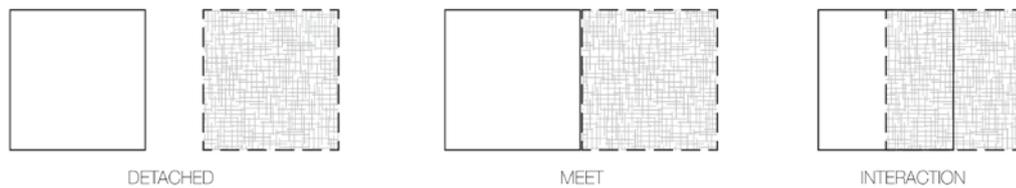
“An architectural element is perceived as form and structure, texture and material. These oscillating relationships, complex and contradictory, are the source of the ambiguity and tension characteristic to the medium of architecture.”¹⁵

A change of the definition of one architectural component may be due to the mutation of the function in the house, or it could be the intension of the designer, purposely or not, the separation of the definition triggers the duality, enhancing the ambiguity and the richness of meaning in the existing fabric, which could be our way of intervention just like dealing with the form. Hence, the following analyze will be divided in two parts, one is about the physical form and the other will be the definition.

¹⁵ Complexity and Contradiction in Architecture,P20

a) Detailed approaches in physical form

In terms of the detailed approaches, similar to the relations between volumes, apart from the one includes or wraps entirely the other, two objects in physical space must have the relations of detached, meet and intercept according to the distance.



It is easy to understand and create the duality of detached situation, and maybe also the interacted one, but things become slightly subtle when the objects meet each other. The following duality discussion will be arranged according to this physical distance between them. Like mentioned before, these are not the entire list of the approaches but commonly used.

i) DETACHED



a.Suspension

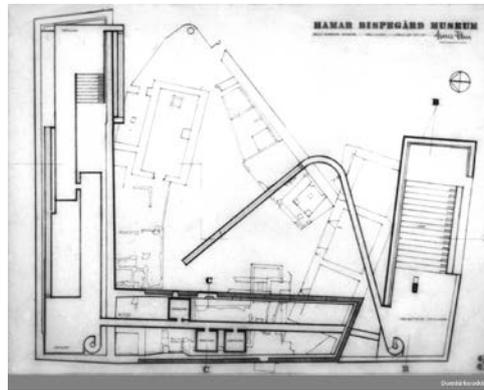
Sometimes the architect would deliberately elevate the elements inside the house to indicate a distinction from the past. In the refurbishment of the barn at Hamar by Sverre Fehn, the barn was transformed into Hedmark County Museum.



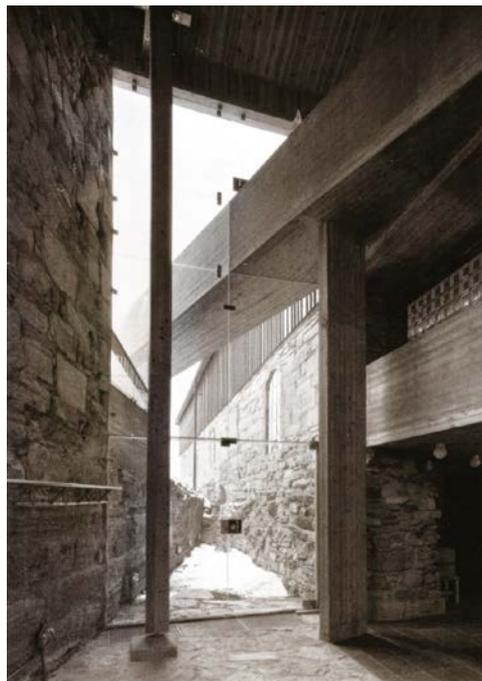
The elevated elements to perceive walking over the past.

Sverre designed a continued route all along through the old barn house, with the functional cubes elevated as well which some of them contains the staircases. This intervention is, on one hand, to retain what had remained on the ground floor of the barn, on the other hand, in a sensual way, to let the visitors to perceive that they are walking over the past, and

as they look down at the residue of the old house, this perception even grow stronger.



Plan of the Hedmark County Museum

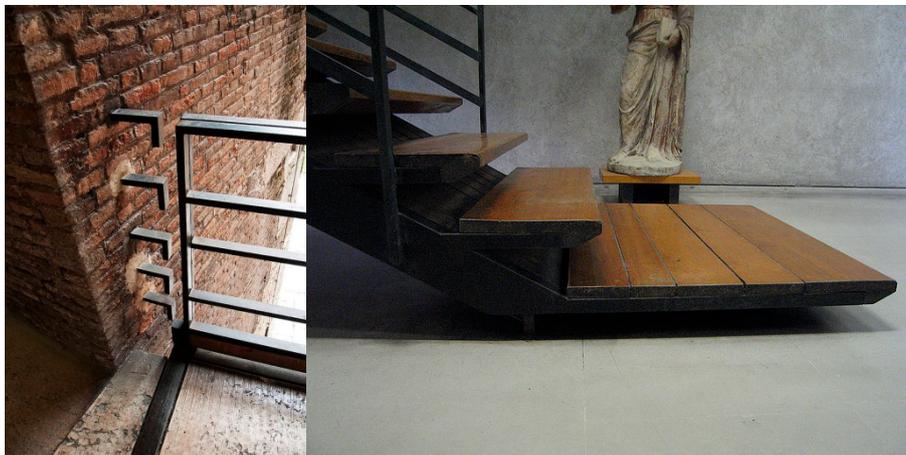


The route directly blurred the inside and outside space

Further, the linear route started from the outside all along to the inside of the Museum, which enhanced the duality between this modern form and the old fabric. But the similarity of the material on the other hand, tried to pull back the duality to unity, which created a strong tension in the space.

Also, the route gave the ambiguity between the inside and outside space. To some extent, the linear route here is one critical element in the overall renovation design, creating duality and unity both at blurring in and out, and the contradiction between forms. By the way, the route is actually considered to be in the interacted situation to be demonstrated later.

b. Separation



Separation in detail of Castle Vecchio

This rule is the most straightforward and common one in creating duality in historical building. In the Castelvecchio in Verona, apart from the big break, details of the separation can be found.

ii) MEET



a. Dislocation

This approach can be understood to be the new elements not exactly match with the position of the old envelope, hence creates duality, which appears most usually in the pattern of the openings.



Hôtel Fouquet's Barrière, Paris

The hotel project by Edouard Francois reflects the surrounding context, which is the reason why on the whole the building has classic facades all along the street, but the facades are only the appearance with modern windows inserted in. One can clearly see the deliberate dislocation of the openings and the contradiction between these two patterns. However, the look of the old facades was built but from a real old building.



San Michele in Borgo

In the renovation of the San Michele, the duality caused by the dislocation of the windows is more natural. The newly added part has opening, no matter of dimension or position, different from the ones of the remained ruin wall. But the one can still see through the old opening from the inside of the building. Ambiguity is clearly created in this case, since the definition of the original openings and wall is altered. It has a multi-layer contradiction here in the case which will be discussed later.



In St. Thecla Parish Of Duomo Di Milano



Various duality phenomena caused by the dislocation of the opening patterns

The dislocation in pattern is even clearer in the case of In St. Thecla Parish Of Duomo Di Milano, the façade of which is obviously renovated for times. Hence, multi layers can be found in the pattern. The pattern of the inserted windows of the upper part is different from the lower ones. Even in their own sequence, they show a slight difference in size, height and distance between. For the upper part, traces of the ancient arch framed openings can be found, though some elements of them are missing, but it enhances the effect of Gestalt. There are actually three patterns in the upper façade, among which the modern glass ones and the arch ones are in the main control. The dislocation between the glass and the arch creates at least two types of relations.



At least two types of contradictions in the patterns

Type 1 is that the ancient arch pattern in the main control, with the contradicted modern glass window inside, which shows layers of materials. The asymmetric position of the modern glass window is pulling off the symmetry of the arch frame, also the missing part enhance the effect, where tension is created. The duality effect develops even more in

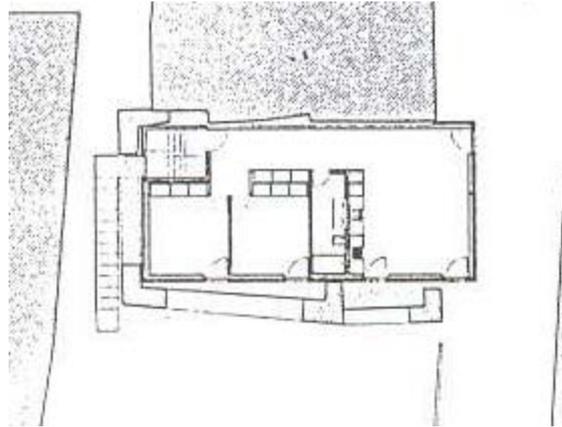
the second type. The glass windows have already pulled off the control of the arch frame, forming a more balanced condition with the arches.

Tension is generated about the control of the middle line of the arch or the middle line of two glass windows. With the Romanesque opening in between, the duality and complexity become stronger. Contradiction and layers of meanings is fully presented in this case.



Haus in Bergun by Daniele Marques & Bruno Zurkirchen

Apart from the pattern, the dislocation is also applied in other elements like volume. The old house above was once a stable, now was later refurbished into flats. A new volume was inserted into the house, but the dimension is slightly larger than the enclosure of the stable. Either smaller or larger will create the tension in forms.



Plan of Haus in Bergun



Residual space as balcony reducing duality.

One benefit of the not entirely fitting between the volumes is, as Venturi said, generating the residual space which could contain some unexpected result. For example in this case, the left-over between the stable and the new volume was used as the balcony, the irregular shape of which brought more vigor to this building, as well as the unity of space contrast to the duality between the volumes.

b. Underline edges

When planes overlap congruently, the material qualities become visible only at edges or cross sections.¹⁶ The emphasizing of the edges was one of the common methods by Carlo Scarpa in his renovation projects.



Enhancing the edges by distance and different materials of the new pavement in Castelvecchio. Picture source: Research on the Organic Renovation in the Old Buildings, Zhaoqinchang

In Carlo Scarpa's project, one can always find evidence of leaving distance between, emphasizing the optical effect by using different color and material, creating height difference or complex abstract geometries and patterns to underline the edges

We should always make it clear that the edge here is more a special definition where the contradiction happens. It could be a realistic physical space or just a perceptual line between materials.

For edge with realistic space, like again in the case of Moritzburg Museum by Nieto Sobejano Arquitectos. In a small room in the museum, the new part almost totally fit the profile of the ruined walls like it was growing

¹⁶ Carlo Scarpa—Layers, Anne-Catrin Schultz, p13

from it. The interspace between the old and new is enhanced by lights which make the edge even more visible. The contradiction within the edge is significant.

The perceptual edge happens mostly by optical overlap of object, with the help of contrast between materials, real and unreal figure, light and shadow. The edge of the ruined façade of the castle is clearly presented with the modern glass building behind. The modern and unreal perception of the glass makes perfect contrast with the heavy old fabric. The light even softens the unreality of the glass volume. The strongest contradiction between these two perceptions takes place at the edge where they meet, which is the figure of the upper part of the ruined wall.



Edge with actual interspace though small



Perceptual edge by the optical overlap of materials with the help of light and shadow
Moritzburg Museum by Nieto Sobejano Arquitectos

iii) INTERCEPT



In the book of “Carlo Scarpa—Layers” by Anne-Catrin Schultz , the author quoted the words of Gyorgy Kepes: if one spatial form obstructs our view of another form, we do not assume that the second ceases to exist because it is hidden. Further, as the author quoted another more vivid description about the interception of volumes, the perceptual psychologist Rudolf Arnheim describes the overlapping, that one partially conceals another, intensifies the relations between forms, simultaneously comprising the complete form and the fusion. It detracts from the completeness of at least one of the forms involved, and generally all of them. The outcome is not only a “correlation”- that is , an exchange of energies between independent, completely intact entities. The entities go

together, there is a bond because they reciprocally modify each other.¹⁷ The perceptual description seems to correspond to the ambiguity Venturi put forward, the perception about the architecture continues to change between situations, an outcome of what it seems to be, the tension exists in the process of changing.



Shoreham Street / Project Orange

This is an industrial brick building in Sheffield and considered locally significant. The reuse was to provide mix use including offices, restaurants and bars. An upward extension was created in replace of the pitched roof.¹⁸ The protrude part of the new volume overlapped with the brick envelop, the sharp angle generates a strong contrast with the traditional façade. On the other hand, part of the new volume is also disappearing which seems the two parts are binding each other, which even enhances

¹⁷ Carlo Scarpa—Layers, Anne-Catrin Schultz, p13

¹⁸ www.archdaily.com

the tension between them.

b) Detailed approaches in definition separation

Another type of the detail intervention would be starting from the definition or of the architecture elements, in other words, this could also be interpreted in the element is perceived to be. Is it a window, or just a decoration left on the façade? Is it a façade outside, or it is a inner wall? The oscillating definition of the architectural elements is a way to generate ambiguity, as Venturi put it. Since there must be differences in the way they work after years, more or less at least, the “seems to be” phenomena could be significant in the refurbishment of existing building. Two of the situations below are commonly used.

I) CHANGE IN THE DEFINITION OF BUILDING COMPONENTS

a. Separation façade from structural wall

Before the prototype domino freed the façade from structural function, the wall had been long used as the bearing wall of the whole building, at

least in the Western architectural history. As a result, most of the abandoned buildings are made of bricks, masonry or similar stone-like materials, even for the buildings in the time of industrialization. These buildings usually have the traces in relation with the surrounding context, or have become part of the memory of the community, anyway, locally significant we could say. But these old structural elements may be too fragile to support again. Or they do not need to be since they may be more culturally important. Hence, structural function is separated from these façades. In some cases, the old façade blurs the space inside and outside, creating a buffering zone.

Architecture can be understood as a skin to contain activities, what inside may have changed, but the first image what happened in the local memory is without question. The spirit of the place is sometimes contained in the façade of this existing fabric.



The Oriental Warehouse by Fisher & Friedman Associates



Structural elements were added to strengthen the old façade

The Oriental Warehouse constructed in 1868 on the San Francisco waterfront was converted to 66 /live/work lofts. Some parts of the house were damaged by fire and earthquake. The renovation incorporated the surviving part into the design. Some necessary structure was added to strengthen the old wall. The openings of the new building inside do not match the position of the ones on the old wall, which creates tense relation. Also, due to the double facades, there was a residual space created as a path and the space allowing additional light to go in.¹⁹ Also, as analyzed before, the profile of the old wall was underlined by the contrast of old and new. More importantly, the separation in definition of

¹⁹ New Houses in Old Buildings Architectural Design,P84-P89

the wall adds multi meanings to the renovation.

b.Double shell



Show room in Castelvecchio

The double shell method here by Carlo Scarpa actually blurs the definition of the opening on the façade. There is an ambiguity between the old one and the glass one. The shapes of the new glass box may be purposely to design differently from the pointed arch one, to generate duality, and the asymmetric pattern of the steel bars on the modern shell creates duality with the symmetric old opening.



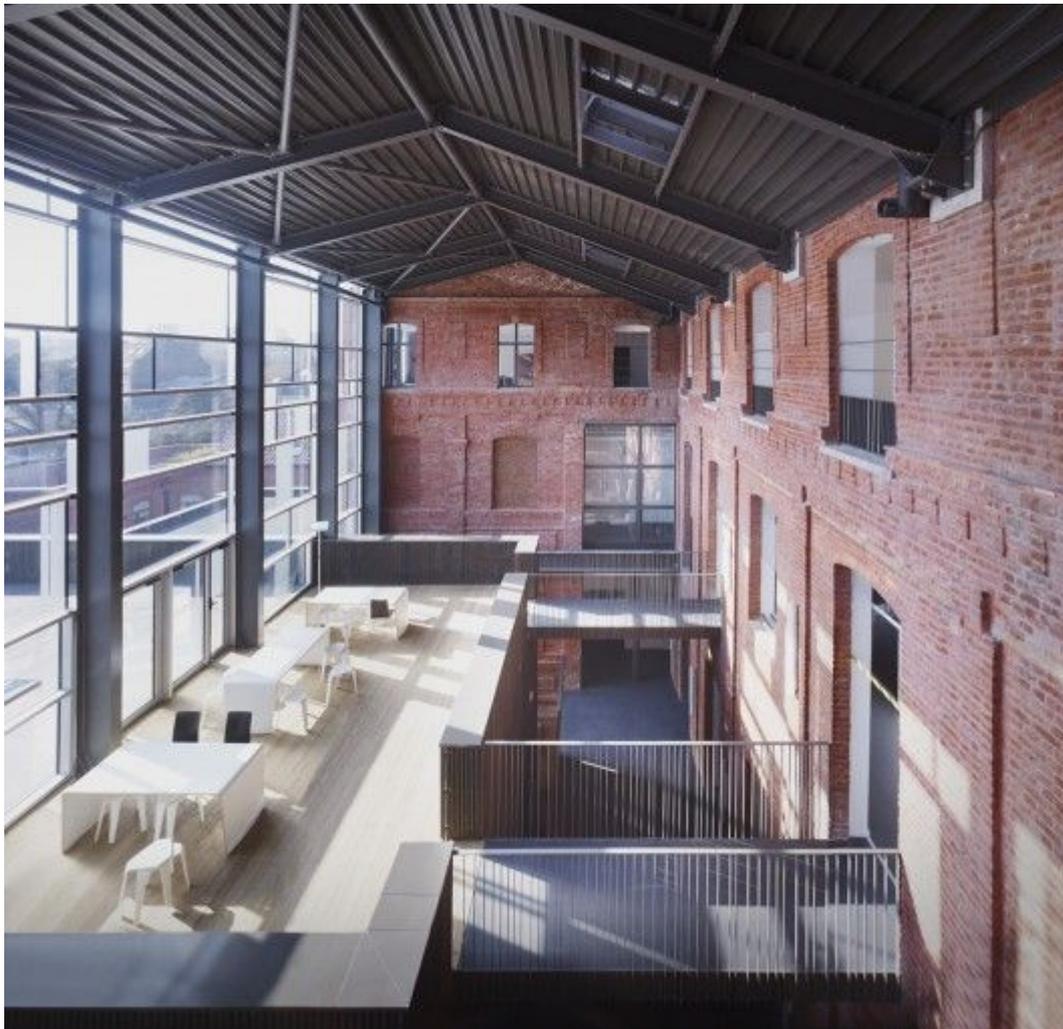
Madre de Dios Convent in Seville

Another case is the Madre de Dios Convent in Seville, which was converted into educational use. The new shell here not only blurs the definition of the old shell, but also blurs the unity of the arch door figure into arches and the pillars below.

ii) CHANGE IN DEFINITION OF SPACE

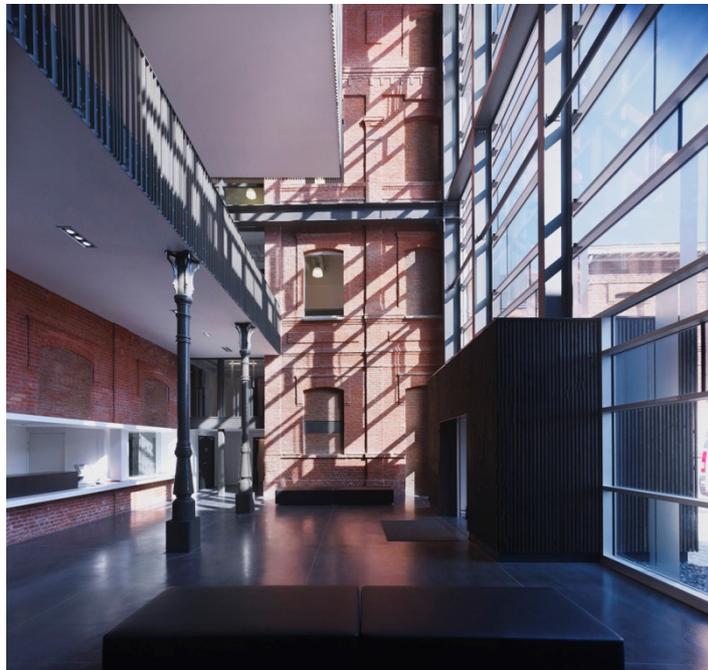
Venturi described the architecture as a skin to contain, a skin between the inside and outside space. The skin can be considered to be a carried body reflecting the culture and history locally, like the details on the classic orders. The skin also reflects the information of direction, of inside and outside, for example, the out façade usually represents more details of decoration elements or more obvious rustication due to the weathering, on the other hand, the inside would show a finer and cozier appearance.

Maybe not as significantly as the enclosure of walls or the roof cover indicates, the features and the weathering on the facades also imply a impression about this inside or outside space definition. Hence, when the outside façade is included within the space of the newly added volume, or the inside space of the existing building is opened for outside activity, the perception about the space starts to generate the duality of in and out, creating a tension and ambiguity in the space, in which the old elements would try to pull the space back to its original definition.



The old façade tries to pull the inner space back to the outside space

In the case of the extension of Music Academy Of Roubaix by Zig Zag architecture, the red brick facades originally are the out facades of the existing building, but due to the extension they are now given the role of creating the antiquated and industrialized atmosphere in the rather modern space. The openings on the wall also changed their function and definition, carrying no more of the window use, but more like a natural decoration elements on the inner wall, the opening for the aisles.



The columns to be like the street lampposts

The architects even played with the outdoor elements, like the columns to be like the lampposts in the street, which enhance the illusion of indoor or outdoor. In this case, the existing outdoor façade gave a tension trying to pull back the perception of outdoor space, creating an ambiguity in space.

3.2 THE METHODS FROM MATERIALS

Materiality, Sense, Duality

Compared adopting various forms and function, the methods of using different building materials to make distinction seems to be more direct and common in the renovation work. The sense of the materials changes as time goes by, history left traces on them, which distinct them from the modern materials, even if the architects want to purposely to simulate the exact effect. There is a part in “The Eyes Of The Skin” by Pallasmaa talking about the materiality and time:

-Natural materials express their age, as well as the story of their origins and their history of human use. All matter exists in the continuum of time, the patina of wear adds the enriching experience of time to the materials of construction.²⁰

For now, at least, large amount of old buildings are made of natural materials like bricks, stones, wood and concrete, even in the eastern world, or say even so. The heaviness of these natural materials makes great distinction from the modern ones, for transparency and weightlessness and flotation are central themes in modern art and

²⁰ The Eyes Of The Skin, Pallasmaa, P34

architecture.²¹

*-our optical sense is like all the other senses, are the extensions of the tactile sense. The gaze implies an unconscious touch, bodily mimesis and identification.*²²

The optical sense reminds us of our memory of touch, which is the reason why the vision gives us the tactile sense. Maybe there is no need to prove that, when we look at the materials, they would naturally evoke our perception about the weight, softness and warmth. Architects have used this phenomenon since a long time ago, like the reducing gradation of rustication of Palazzo Medici in Florence, which balances the massive look of the volume.



The rustication of Palazzo Medici

²¹ The Eyes Of The Skin, Pallasmaa, P34

²² The Eyes Of The Skin, Pallasmaa, P45

With sense of touch involved, whether it feels lighter, softer or warmer, that would largely help to explain the duality in terms of building materials could be so strong, because it is truly not just something that meets the eye, but the whole body we could say.

The sense of the materials depends on factors like color, texture, pattern, smoothness and light reflection. Some of the materials contradict each other because most of their own innate characters are opposite. Like glass feels light, soft and smooth, on the other hand, stones are heavy, opaque and rough. But other materials show similarity in these characters though they are different, or the same materials present differently. Like what Venturi said about the ambiguity of architecture, the oscillation between architecture elements. The ambiguity also emerges in the oscillation between the perception of materials and what they really are essentially.

In this sense, the approaches to generate duality in materials could be at least concluded into three types: various materials and various characteristics, various materials and similar characteristics, similar materials and various characteristics.

3.2.1 Various Materials & Various Characteristics



Façade of the Hedmark Museum

The reason to take Hedmark Museum by Sverre Fehn as example again is because there is some detail processing to enhance the material comparison in this case. As mentioned before, the glass and the stone contradicts each other due to the opposite intrinsic characteristics, glass as light, smooth, transparent, stone as heavy, rough and opaque. Here in this case maybe even the warmth between them is different, the wall shows a warm color and the glass cold. The glass is not totally transparent in order to make contrast with the wall, and reflection on the

glass make the contradiction of motion compared to the steady wall. Sverre did not use a frame in this case, but to slightly overlap the glass with the wall and use almost nothing but small joints to stable the glass, which upmost emphasized the contradiction between the materials. The materials differ significantly, but it happens to reflect the characteristics of each other, forming a dependent relation. That is why the duality here is contradiction with unity but not confrontation.

3.2.2 Various materials and similar characteristics



Cultural Centre in Toledo

In the case of Cultural Centre in Toledo by Ignacio Mendara Corsini, there are multilayers of various materials in the reuse of the church here, but seemingly representing a unified antiquated and warm tone.

This former church of San Marco was renovated into a cultural center. With simple and restrained means, the tension between the old and new was achieved by the materials, especially in the interior. The façade was restored with concrete slabs with the coloration that matched the surrounding urban fabric.²³ And the warm color seems to extend all along into the refurbishment of the interior.

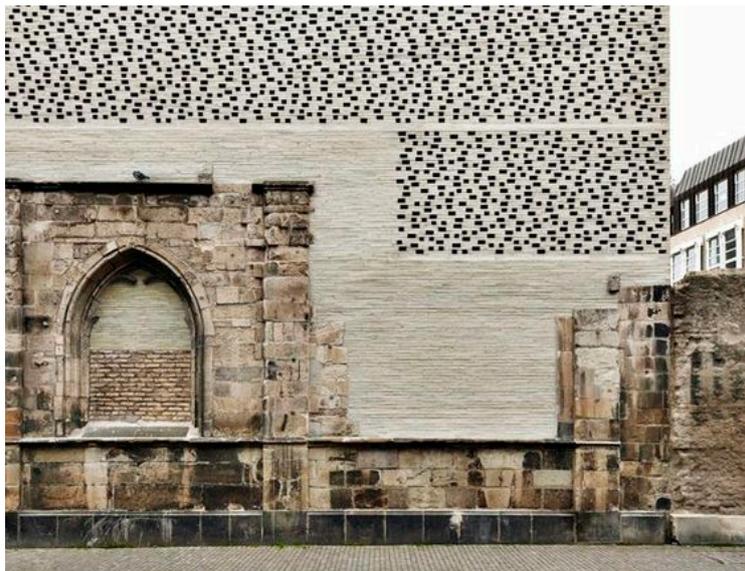


The various materials represent unified perception. The stones of the ruined church, concrete slabs, steel sheets and the wooden pavement are adopted. These materials ought to have quite different characteristics, for example, normally, steel would show a cold perception with smooth surface, but corten steel chosen here is exceptional. It gives the warm and

²³ InDetail-BuildinginExistingFabricRefurbishment-Extensions-NewDesigns, P42

rustic perception which totally fit in the antiquated environment. On the other hand, the hardness and sharpness sensation of steel can still be perceived in the tactile memory of the visitors, which created an oscillation between what it looks like and what it should be like. Further, the surface of the concrete slabs on the wall and the one of the pillars was purposely given the wood plank pattern, which corresponded to the wooden paving. Also the wood pattern on the slabs gave the concrete material warmer perception. The tactile temperature and smoothness of the steel and concrete was changed. The combination different materials generated the ambiguity in sensation by altering some of the characteristics of the materials, color or texture in this case mostly.

3.2.3 Similar Materials and Various Characteristics



Kolumba Museum in Cologne by Peter Zumthor
Modern technique of gradient rustication

The art museum by Peter Zumthor, the architect who emphasize perception and materiality on architecture, rises from the ruined gothic church. The church presents the site's history, the architect decided to build on this ruin. The use of the material was mindfully considered by the architect, and grey brick was used similar to the stone material of the old church. The façade shows several layers due to the fine arrangement of the color, texture and pattern. The color of the grey brick is much lighter, but still stays in the same hue as the old building. On the whole, the lighter color reduces the heaviness of the new volume. Compared to the roughness of the church, the fineness of the texture is much smoother and ordered which are the characters of modern architecture, where the duality emerges significantly here. Also the pattern of the top represents another layer different from the middle one. The hollow texture gives an even lighter perception than the middle one, though the hollow was intended to allow additional light. What is also interesting about the façade is the little part made of grey bricks within the Gothic arch. The part here generated the Gestalt phenomenon, giving a unity of the new volume, contradiction is enhanced between the ruined part and the modern volume.



Dimension contradiction besides materials

The upper part of the building shows a much larger dimension compared to the church part, which builds up the contradiction in dimension. The upper part, the dramatic size of window and the huge cubes at both corners is related to the dimension of the modern surrounding, however, the lower part is more closed to the street dimension. Tension is created and emphasizes both of the ancient and modern part. The method is within the discussion of contradiction in form, but worth mentioning here.

The layers form a gradation of fineness on the façade, giving a floating sensation and reducing the volumetric perception. Like the façade of Palazzo Medici, this seems to be the adaptive rustication in modern building. The fine choice of the grey brick and the arrangement not only built up the contradiction with the existing building, but also the

contradiction within the material itself. It is not quite common the produce a strong sense of lightness, fineness and order, which are the theme of modernity, with the use of bricks whose characteristics are intrinsically to be heavy and rough.

Chapter 4

The renovation project

The old building is a former wood factory, located in Latvia. An initial proposal for the renovation of the old house is to reuse it as a camp house for the travelers, to encourage the ecological tourism in Latvia, which requires low cost, environmental friendly and self-maintenance. As discussed in the former chapters, there are many ways of intervention in order to present the old architecture, to create contradiction. But there should always be restrictions when comes to the real project, like the funding, material to use and some other requirements from case to case. Like the way to renovate a house to a museum would be quite different from the case of turning into a house to live, since the living condition would need to consider more about the thermal performance in the intervention. On the other hand, to reuse the old house to a museum may present a more dramatic form and materials, which may not be appropriate for living.

With the restrictions shown in the proposal, low cost, environmental friendly and self-maintenance, there would be a more reasonable strategy when choosing the methods discussed in the former chapter to intervene

the old house, presenting the old part while having a good balance with the restrictions, exploiting the maximum use of the old part.

Main strategy based on form and function analysis

The old house has a rather regular form, slope roof made of timber and thick walls of stones and bricks. The timber roof is corrupted due to the humid weather, which will need to be removed. But, this will give the potential to let natural light in. The inner space is cleared out in order to have a united and extended space. On the whole, the house is in a rather bad condition, the part with a significant feature is the stone façade. The façade has been one part of the landscape, the stones in the wall show a natural appearance due to the weathering.

As discussed in the third chapter, there are mainly four basic relations between the new form and the old one, which are wrap, juxtaposition, interaction and inside. Among the four, the one of placing the new part inside the old shows a great ecological potential, mainly due to the thermal buffer zone. Considering the geographical position and weather condition, cold and humid, the old wall is not suitable to reuse it directly as the new wall, there should be insulation, but in that case, the old part

will be almost completely hidden. Therefore, a new separated part with insulation within the old house would be a main appropriate strategy in the camp house case. The strategy can be further dissected into two parts, the new complete outside skin, and the new volumes input inside.

The skin

Given the main strategy above, the old wall forms a skin with the new part. New part is added to compensate the old one to create a complete form. Here comes naturally the consideration of the contradiction between the new and old. What is a better way to present and hence the old part.

There exists a direct contact between the two.

A new upper part is added to walls in order to have a complete form. New openings are also added to the walls. The new roof is translucent in order to let natural light in and to absorb the sun energy. In summer, both of the upper and the lower windows are opened for the ventilation, to prevent the overheating of inner space. In colder months or at night, windows are closed to keep the heat inside. The old stone wall is used as heat mass, releasing the heat absorbed during the day.

The new compensated form is similar to the shape of the former one.

However, , the lightness of the wood and polycarbonate boards

contradicts with the heavy stone wall, no matter in the perceptive or construction aspects. The edge of the old wall figure is enhanced when the two different materials are met.

A change in the definition of the old part

The stone wall is enhanced by a ring beam, preventing the possibility of falling. Now it plays no longer its original purpose, the function of which has changed, now the wall is considered to be a barrier, an outside skin of the renovated house, which plays no more a bearing structure. The façade is not only be recognized from outside but also within, one can perceive the original image remained, but the oscillation of the function gives it an ambiguity of the new use and the old one.

The added volumes

Due to the old stone walls, the space within to reuse is almost fixed, although the extension could be upwards, still, the potential is limited. Also, in order to let more natural light in and encourage ventilation, but most importantly, leaving space to keep the distance between the old and new part, the space cannot be too compact inside, volumes should not occupy too much of the inner space of the skin. Volumes are separated and elevated in the space in order to create further the

lightness and floating perception, compared to the surrounding heavy stone walls. However, this is also because the ground floor within the skin is connected to the outside natural environment, which needs more of the flexible and buffered space. Further, the remaining window frames of the old house give us the clue of the position to place the volume and the appropriate number of them. Four smaller volumes are placed on the upper part and used as the rooms of the camp house, only one façade of theirs contacts with the old wall.

As for the ground part, only one volume is placed, used as the common living space in the camp house, containing living room, kitchen and dinner room and a small bathroom. A single united volume on the ground would create not only the buffer zone between the outside and inside space, a inside garden, but most importantly, a in-between space of the new the old which gives a strong contradiction. The ground volume is biased to one side, but not touching the old wall, leaving a space for the aisle and the staircase. When walking though the space, the contradiction is rather significant, on one side is the new volume, the other is old part of the house.

Strategy with closer contact

The edge is the direct contact of the stone wall and the added roof. In order to enhance one of the significant feature of the old part, the new volume is made of one material, the translucent polycarbonate boards, the simplicity of the facade will enhance the contrast when the two different materials meet, in which the contradiction is made.

The balcony is the direct contact between the added volume and the old part. The position and the size of the opening of the new volume differs from the original one, which creates a double shell, contradiction in terms of forms is significant. Railing and the ground cover is made of metal. The metal sheet has a rather smooth surface, on the other hand, the stone wall is rough, but both of their color and texture shows a corrupted appearance, which creates both contradiction and ambiguity.