

Re-readings: the design principles of remodelling existing buildings

S. Stone

The Manchester School of Architecture, UK

Abstract

The re-use of existing structures has been a common practice since the first buildings were constructed and yet very little theoretical analysis of the subject exists. At the start of this new century, in an attempt to preserve our cultural heritage, large numbers of existing buildings are re-modelled in preference to demolition. Often, rather than an approach being taken that promotes a sympathetic and symbiotic relationship between new and old, contemporary statements of construction and environment are being imposed upon these buildings.

But an approach based upon a perceptive and discriminating reading of the existing can produce both dynamic and appropriate results. The discovery and recognition of the embodied meaning of a place can be interpreted through building. The architect has the opportunity to reflect upon the contingency, usefulness and emotional resonance of particular places and structures through their-use of existing buildings.

This paper proposes a theoretical framework for architects and designers involved with the interpretation and adaptation of buildings. It attempts to respond to remodelling as an artform, making sense of the considerable structural, aesthetic, environmental, contextual and programatic challenges of re-using buildings. This process can be broken down into a number of different sections, although in practice the separate factors inevitably merge. These stages are; the **analysis** or the revealing of the existing building which leads to the development of a **strategy** that will provide an overall plan for the design of the building whilst the **tactics** provide the detail of what the remodelling actually feels or looks like.

It is through the understanding of the pre-existing that the remodelled building can become endowed with a new and greater meaning. An investigation of the archaeology of the original can reveal previously hidden or obsolete characteristics that contain the possibility of being exploited. The place can be activated.

Keywords: re-use, adaptation, conservation, remodelling, analysis, strategy, tactics.



1 Introduction

Buildings outlast civilisations, they evolve and they are changed, but their reuse emphasises continuity. A building can retain a remembrance of the former function and value; it has a memory of its previous purpose engrained within its very structure. The exploitation and development of this can create a composite of meaning and consequence. The inherent qualities of the place and its surroundings, combined with the anticipation of the future use, can produce a multi-layered complexity that is impossible to replicate in a new building. Louis Kahn once asked: 'What does it want to be?' and this paper proposes to show that the unique answer is hidden within the profundity of the existing building.

This proposition is based not upon the proposed or consequential function of a remodelled building, but upon an understanding of the theoretical method of the interpretation and adaptation employed by the architect or designer. This paper proposes an analysis and, from that, a catalogue of the relationship between the existing building and the new elements of the remodelling. The premise is that to establish a satisfactory symbiotic association between the new and the old, the factors influencing the condition of the existing need to be comprehended and an appreciation of why a particular approach was taken has to be established. As one might expect, because the architect or designer is not dealing with a greenfield site, indeed not even considering a cleared site, the existing building in whatever form influences the outcome of the final design. This appreciation will inevitably affect the approach taken by the architect or designer and ultimately the look of the ensuing building. The form of the existing building and the form of the resultant are inexorably linked.

Rodolfo Machado uses the palimpsest or writing over as a metaphor for building reuse; the text of the manuscript has been scraped off and the canvas or parchment used again, but inevitably a trace of the original text remains, a shadow that haunts and influences the author of the succeeding inscription. And so with buildings, they are remodelled, reused, rethought and yet a suggestion of the former meaning disturbs and inspires the subsequent design. As Rodolfo Machado describes it:

"Remodelling is a process of providing a balance between the past and the future. In the process of remodelling the past takes on a greater significance because it, itself, is the material to be altered and reshaped. The past provides the already written, the marked 'canvas' on which each successive remodelling will find its own place. Thus the past becomes a 'package of sense', of built up meaning to be accepted (maintained), transformed or suppressed (refused)." (Machado [1])

2 Analysis

The analysis of the existing building provides the principles or basis of the argument for the remodelling of a specific place. This understanding can generate the strategy and tactics of the redesign. This process can be broken down into a number of different stages, although in practice the separate factors



inevitably merge. The formal act of designing is not necessarily a smooth procession of independent considerations

The most successful building reuse projects are produced when a firm understanding of the original building is combined with a sympathetic remodelling. The existing context, structures, spaces, function and history can offer many significant conceptual opportunities and an appreciation and interpretation of these can provide the inspiration for the redesign. The uncovering of the meaning in the precondition of the building determines the rules or strategies for the subsequent redesign. The analysis may be as simple as an awareness of the orientation of the building, so that sunlight can be admitted into a particular area of a building or a relationship established with a landmark or entrance. Or perhaps the complexities and the history of the existing building need to be explored to unravel and uncover its intricacies and depth.

An understanding of the site provided much of the stimulation for the design of the Scottish Poetry Library in Edinburgh. It is situated next to the city walls in an area that is a real historical composite, incorporating a 16th century gable end, a fragment of the 17th century city wall and the end of a 19th century warehouse. Malcolm Fraser Architects' small insertion snuggles gently against this amalgamation of history; it is almost buried within parts of the old city walls, the existing eyelets actually lighting the bookshelves, and yet the topography of the site allows the library to open out and provides views of distant hills. A book is selected within the dark depths of the building and is taken into the light to be read. These strong heavy city walls also support the structural steel frame of the new building. The architects have simultaneously created a relationship between the history, the structure and the landscape. "There is an ability for the building to nestle up to history on one side and to open up to the crags and the sun on the other." (Bevan [2])

For ease of comprehension, the analysis of an existing building can be divided into four sections. Without an appreciation of the basic structural system employed to construct the building it is, of course, impossible to be confident that any alterations will stand up! This knowledge will allow the architect to make alterations to the original building and ensure that any new constructions are adequately supported. The mass, the size, the rhythm and the form of the building all provide opportunities for balance or for counterpoint. The new café designed by Jakob and Macfarlane in 1997 on the top floor of the Pompidou Centre exploited the exact 800mm grid that had generated the building. This grid was used to inform a new brushed aluminium floor that was deformed and exploded into oversized bulbous carbuncles that squashed up against the open ceiling whilst containing the service areas.

The memory of the building can be written on its walls, its history can be pathetically exposed or deeply suppressed. The original function for which the building was designed may have dictated a ridiculous and particular organisation of quality of spaces or forms. A building may have been used and reused a number of times. There are many interesting and valuable inspirational factors that make up the history of a site. The remodelling of the Kongresshalle in Nuremberg by Gunther Domenig in 2002 confronted the uncomfortable history



of the building in an extreme and brutal manner. A dynamic shard of glass was inserted directly against the orthogonal grain of the original building. This uncompromising element was both a symbolic event and also organised the circulation through the new museum, fig 1.



Figure 1: Centre for the Documentation of the Third Reich.

A building occupies a specific place. It has its own identity and a distinct relationship with its surroundings, involving not just its immediate neighbours but also things more remote. The perception, the character and scale of a particular building or place can be influenced by its context. It is just a small element within a huge collage of different points and references. The Bull Staircase inserted into the walls of Prague castle by Jozef Plecnik after the First World War was an emblematic signal of the change of status of the country from a kingdom to a republic. The slot cut into the castle walls created a direct link between the town and the castle, thus uniting the two.

The successful marriage of old and new, of past and future is dependent upon a thorough knowledge or anticipation of what is expected. The nature of the proposed function for the building inevitably has a massive influence upon the final design. When O'Donnell and Tuomey were approached to design the Irish Film Centre, they quickly realised that unless amongst the collection of eight different buildings, there was a space sufficiently large enough to contain the main cinema, then the project was not viable. Their analysis revealed that there was just one suitable space and the location of this element dictated the positioning of all the supporting areas.

3 Strategy

When designing a new building the architect, whether consciously or not, will employ an architectural strategy, that is, a device that will inform and order the

building. This controlling device is often the basis of the theoretical issues that drive the design of the building. This strategy can manifest itself in many different ways, whether it is the controlling grid and ultimate freedom of Le Corbusier's plan libre used for example in the Villa Savoye or the spatial qualities of Adolf Loos's Raumplan as shown in the Muller or the Moller Houses, the complex contextual issues of Hans Hollein's Gallery in Mönchengladbach or the prominent symbolic imagery of Smirke's British Museum. These strategic moves are of course supplemented by a complex combination of different factors, such as site conditions, structural systems, programmatic requirements, the era in which the building was constructed or the pursuit of the individual architect. These all combine to produce a building of rich complexity driven by an often simple strategy.

But when a building is reused, the most important and meaningful factor in the design is, of course, the original building and it is the establishment of a relationship between the old and the new that is the most influential device in the design. The new could not exist without the original. The method by which the relationship is established is the key to the strategic analysis of building reuse. Of course those other factors intrinsic in the design of new building play an important part in the redesign of a building, but they are really overshadowed by the association of the new programme with the original building, and this approach or the plan for the building is influenced or based upon the factors discovered within the analysis of the place.

The three types of strategy are classified according to the intimacy of the relationship between the old and the new, that is the sheer extent of the integration between the host building and the new elements.

If the existing building is so transformed that it can no longer viably exist independently and the nature of the remodelling is such that the old and new are completely intertwined, then the category is intervention. If a new autonomous element, the dimensions of which are completely dictated by those of the existing, that is, it is built to fit, is placed within the confines of the existing, then the category is insertion. The final classification, that of installation, includes examples in which the old and the new exist independently. The new elements are placed within the boundaries of the building. The design or the grouping of these elements may be influenced by the existing, but the fit is not exact and should the elements be removed then the building would revert to its original state.

Intervention is a procedure that activates the potential or repressed meaning of a specific place. It only truly works when the architectural response of the modifications draw all their cues from the existing building. The architect will regard the building as a narrative, a story to be discovered and retold and through a process of uncovering, clarification and interpretation will reveal and reactivate the place.

The original building provides the impetus for change; the architect's localised and highly specific reading of the place will dictate the appropriate moves. In order to impose a degree of control or order, the building may need to be simplified, thus producing a new way of looking or understanding it. The



analysis and reading of the original building can often be as destructive as it is constructive, the architect will strip away, remove, clarify, undo in order to reveal new or hidden meanings.

The modifications to the building can act in an extremely intrusive manner with new elements imposing themselves directly upon the existing structure. The new elements, which are often many small changes, alterations, additions and subtractions are, of course, related entirely to the original building as they are inspired by it, but the language used is usually completely at odds with the host although the character may be balanced.

When converting Giles Gilbert Scott's Bankside Power Station in London into the Tate Modern, Hertzog and de Meuron strove not to obliterate the qualities of the industrial building but to heighten them. They aimed to integrate the everyday life and the cityscape with the urban fabric of the building. Herzog and de Meuron describe their strategy as one that unleashes the hidden depths of the building:

"It is exciting to deal with existing structures, because the constraints demand a very different kind of creative energy. When you don't start from scratch you need architectural strategies that are not primarily motivated by taste or stylistic preferences. Our strategy was to accept the physical power of Bankside's massive mountain-like brick building and even to enhance it rather than breaking it up or trying to diminish it. This kind of Aikido strategy where you use your enemy's strategy for your own purposes. Instead of fighting it you take all the energy and shape it in an unexpected and new way." (Moore and Ryan [3].)

The majority of the spaces in the recent conversion were dictated by the original building. The huge former turbine hall provides a massive street or public space, which penetrates the entire length and height of the building, and from this the galleries and other activities are accessed. The gallery spaces themselves vary in proportion, scale and size and their use of natural or artificial light, all of which is of course dependent on their position within the building. But the modification that is the most obvious and has the greatest impact is the creation of a huge body of light hovering above the main bulk of the massive brick structure of the building. This functions as a light well during the day and as a beacon at night. Most importantly, this intervention has the symbolic quality of representing the sheer quantity of energy once physically generated in the building and it now appears to hum with the stored latent energy.

Insertion is a practice that establishes an intense relationship between the original building and the remodelling and yet allows the character of each to exist in a strong and independent manner. Insertion, as its title suggests, is the introduction of a new element into, between or beside an existing structure. The inserted object can often be seen as independent and confrontational, a single large powerful element that establishes surprising dialogues between itself and the existing structure or volume. It is at its best when the clearest possible distinction between the crisp new contemporary work and the crumbling antiquity of the existing is established and therefore the style, the language, the materials and the character of each are different.



Although the inserted element is independent, particular qualities are derived from the original building. This is inevitable because the insertion always has a direct architectural relationship with the absolute physical properties of the existing space. It is built to fit. Factors such as the scale and the dimensions, the proportions, the rhythm and the structural composition of the existing building influence the design of the insertion. At times perhaps, the insertion can be seen as some sort of interpretation of the past.

It is necessary for the form of the host building to be sufficiently powerful in order to accommodate the addition of a new and autonomous object, that it is not overawed. It is also important that the host building is relatively physically unaltered, that it retains its original integrity. Often it is necessary for the architect to do little more than address any structural or environmental problems, although sometimes the complete restoration of the building to its original majesty may be required but the recognition of the distinction between the original building and the insertion is important. Equally, the insertion must be sufficiently strong to sit easily within or around it and a counterpoint or balance must be realised. For a successful dialogue to be established the two components must be speaking with a similar magnitude of language.

The tension and the ambiguities in the relationship between the two can also strengthen and reinvigorate the existing building: it can be considered and examined in a new way, it is looked at afresh and it is almost as if new life has been drawn into it. At the Royal Exchange Theatre in Manchester, the structure containing the theatre was inserted as an alien element into the original exchange building. Levitt Bernstein designed the steel and glass 'space ship' in direct contrast to the formidable classical marble and stone of the existing building. It provides a focus for the space. The open hall of the Exchange building is so huge that the theatre can comfortably sit within it as a sculptural object and can be accessed from all sides. There is no confusion about what and where the theatre is. Both the original building and the insertion have strong independent characters and yet the theatre depends upon the exchange for such measures as scale, proportion, size and support. The floor of the exchange was not structurally capable of supporting the new structure, so the weight of the theatre was loaded onto long legs, which actually raise the theatre from the ground and transfer the load onto the columns of the original building. The insertion of this new object reinvigorates the original building. A symbiotic relationship between the two elements is established based upon juxtaposition, counterpoint and contrast, and this relationship heightens the quality of both.

Installation is the placement of a series or group of related elements within the context of an existing building. This is a process that, while recognising the oeuvre of an architect, will heighten the awareness of an existing building and successfully combine the two without compromising or interfering with either.

The character of the objects or elements that constitute the installation is usually dictated by the style or the passion of the commissioned architect or artist. There are generally a number of related imported objects, concepts and ideas that embody the character of the creator and are positioned in groups or in



series. The objects are usually of a limited size and often have a limited lifespan, perhaps an exhibition.

The objects are not necessarily without a relationship with the host building, they can be grouped together or placed in position to give maximum impact, both to the building and to themselves. They can be used to organise and delineate space or to create order in a confusion of buildings and volumes. Considerations such as adjustments of scale and appropriateness can be dictated by the building itself. The site can set up the parameters and be part of the reason for the installation. It can inspire the installation; the existing materials, structure, quality of space, history, context all may directly provide the impetus or generate the design of the new installed elements.

The existing building generally needs few physical modifications. The architect will repair or even restore it but these changes generally have nothing to do with the installation. Sometimes the building is little more than a stage for the performance of the objects but the best installations actually expose and reveal the beauty and qualities of it, allowing it to be read and understood in its own condition. The installation will enliven and reveal the true, possibly hidden or lost character of the building.

Christo and Jeanne-Claude created an installation within a disused gasometer in Oberhausen, Germany. This huge structure was a very unusual host building; circular with a diameter of over 50m, the empty space was 25 storeys high, that is, about 100m. The artists constructed a high wall made from oil barrels in the middle of the space. The coloured barrels, which were stacked ten deep and reached to about half the height of the building, were intended to provoke reflections upon the scale of the space and its former function. The barrels were imported objects intended to enliven the space; they were neither built to fit, having been collected and placed within the space, nor did they alter the building in any way. At the end of the exhibition, the installation was dismantled and removed, the two elements returning to their original state

4 Tactics

The tactics employed within the remodelling of a building can be seen as the manipulation of the elements or details in support of the strategy. They are an expression of the use and of the character of a building. It is these elements that distinguish or make different one place from another. The elements give character; they define the quality and provide the features of a building and it is this tactical deployment of them that gives the remodelled building its individual nature. The whole building can be understood through the reading of the details. As Umberto Riva puts it:

“I like to confer nobility on an interior, make sure that no window, door or sequence is taken for granted. Knowing how to construct space is fundamental. Sometimes positioning a wall at an angle is enough to capture and reflect more light. You can bring tension into an environment simply by adding something 'out of scale' like a door that's bigger than all the others in the same room. You might draw attention to a door or window frame, or enhance the relationship



with the exterior by inserting a carefully designed window. This is what nobility means to me: non-obviousness, care over detail, intelligent economy.” (Riva [4])

The tactics or details can be quite easily divided into six sections, each focusing quite specifically upon the use of a particular element and its relationship with the whole building. Planes are normally either horizontal or vertical and can be used to organise and separate space. Objects are elements such as furniture or larger-scale things that can provide a focus or a rhythm to a space. The articulation of light and the effect of both natural and artificial light can radically transform a building. Surface is the use of specific materials to confer identity and meaning. Movement refers to circulation and Openings establish physical and visual relationships between places and things.

A wall is very good illustration of how the character of a particular element can change, not just based upon its position, but also its method of construction and the materials that it is made from. A concrete wall is symbolically strong and impenetrable, whilst a glazed wall has an ephemeral, open quality. The sink wall at the Edzzoni Press bookshop in New York communicates a sense of playful creativity, while the backlit floating wall at the Basis Wien Information Centre for Contemporary Art, in Vienna contrasts strongly with the decaying building and changes function as it flies through the room and out of the door, fig 2.



Figure 2: Basis Wien Information Centre for Contemporary Art.

Frascari in his essay, ‘The Tell-The-Tale Detail’. used the conceptual analogy of total architecture; that is, the plot plus the details equals the tale. The idea that although the details are perhaps elements that are considered late within the conception of a building they play as an important role as the strategic approach.

They are but a small part in relation to a larger whole, and yet the selection of details and style gives character to a building. Frascari explains:

“In the details are the possibilities of innovation and invention, and it is through these that architects can give harmony to the most uncommon and difficult or disorderly environment generated by a culture.” (Fracari [5])

To conclude: the form of the adaptation must be based on the form of the original building. Without an in-depth understanding of the unique qualities of the existing situation, it is impossible to create a coherent and comfortable remodelling. The analysis leads to the development of a viable strategy, which in turn generates the tactics employed to realise the design.

References

- [1] Machado, R, Old Buildings as Palimpsest. *Progressive Architecture*, pp 46-49. Nov 1976.
- [2] Bevan, R, Slim Volume. *Building Design*, 4th June 1999.
- [3] Moore, R, Ryan, R, *Building the Tate Modern*, Tate Publishing 2000.
- [4] Riva, U, On Interior Design, *Abitare*, pp 236, September 1993.
- [5] Fracari, M, The Tell the Tale Detail, *VIA* 7, pp 23-37, 1984.

