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# Superimposed Materiality

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## Abstract

*Our contemporary cities can be seen as a collage of materials, superimposed layers that represent the stages of development of the establishment. Each of these phases has been designed and developed in accordance with the technology available in that period of time, and is characterized by specific construction techniques. Complex architectural spaces have the power to influence the life of a city; however, in the vast majority of cases, common users do not possess the means to understand the complexity of the inhabited space. They perceive the context as a whole made of small pieces, not always being able to figure out which were the intentions of the architect. A public space is not only defined by the activities that take place there and by the volumes of the buildings, but by the material properties of the architectural surfaces as well. The aim of this paper is to analyze a public space from a different perspective, gradually decomposing the exterior shell of architectural objects that were built in distinct periods of time. We propose an analysis that will focus on the materials and the techniques that were used to build a part of the Liverpool Waterfront and docks. The chosen area comprises buildings that were erected in over the space of two centuries and belong to different styles of architecture. Almost every architectural object tells a story, emphasizing the impact of each era's technology on the city. Brick, steel, stone, glass, composites and water are mixed to create a unique sensorial experience. Therefore, we propose reconsidering, from a visual and tactile point of view, the important part played by materials used in public spaces.*

## Rezumat

*Orașele noastre contemporane pot fi interpretate ca un colaj de materiale, straturi suprapuse ce reprezintă etapele de dezvoltare ale așezării. Fiecare dintre aceste faze a fost proiectată și dezvoltată în directă legătură cu tehnologia disponibilă în acea perioadă, și este caracterizată de către tehnici specifice de construcție. Spațiile arhitecturale complexe au capacitatea de a influența viața orașului, deși în majoritatea cazurilor utilizatorii obișnuiți nu dețin mijloacele pentru a putea înțelege complexitatea spațiului locuit. Ei percep contextul ca pe un întreg compus din fragmente, nefiind întotdeauna capabili să înțeleagă care a fost intenția arhitectului. Un spațiu public nu este definit numai de forma sa ori de activitățile pe care le adăpostește, ci de proprietățile de natură tangibilă ale suprafețelor. Scopul acestei lucrări este de a analiza un spațiu public dintr-o perspectivă diferită, bazată pe descompunerea cojii aparținând obiectelor de arhitectură construite în perioade diferite de timp. Propunem o analiză ce se va concentra pe materialele și tehnicile constructive utilizate pentru edificarea unei zone din vecinătatea râului și a docurilor din*

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*Liverpool. Zona aleasă cuprinde clădiri ce au fost realizate de-a lungul a două secole, aparținând unor stiluri arhitecturale diferite. Aproape fiecare obiect de arhitectură spune o poveste, subliniind impactul pe care tehnologia l-a avut în fiecare perioadă asupra orașului. Cărămidă, oțel, piatră, sticlă, materiale compozite și apă se suprapun pentru a crea o experiență senzorială unică. Propunem astfel reconsiderarea importanței avute de către materialele folosite în spațiul public, dintr-o perspectivă tactilă și vizuală.*

**Keywords:** *materiality, tactile, visual, layers, superimposed.*

**Cuvinte cheie:** *materialitate, tactil, vizual, layer, suprapuneri.*

## 1. Introduction

Every architectural space can be understood as collection of layers. The study of these layers can reveal different stages of development regarding construction techniques and materials. For ages architecture has been pushing its boundaries. Architects have been designing based on the discoveries made by their predecessors; however, every creator's dream is to bring something new.
The characteristics of the urban tissue, the architectural style of the buildings and the construction materials indicate the complexity of an architectural space. In his article entitled *Images of the City*, David Hall emphasizes that *The city has a history – a history that can be read in the buildings, in the names of localities, in the street plan and the many ways in which people have left their mark on the physical space* [1]**.**

Each user perceives in a subjective manner the city's space and has a special affinity with building materials. From our point of view, to understand the whole, we need to gradually decode the layers used to build the architectural space. Layers possess not only visual characteristics but tactile as well. We become more connected to the buildings due to their material properties.

Liverpool is one of the most interesting cities from Great Britain. Its history is related to the trade and shipping industry and to the Industrial Revolution. The city had its moments of rise and fall, and the economical ups and downs generated consequences/effects on the architectural image. Due to the growth of the shipping and trading industry during the 19th century, innovation was the key to success. There are several aspects that brought originality to Liverpool such as innovative building techniques and materials. In the last two decades, new buildings appeared in the historic fabric/ tissue, generating an even more complex architectural space.

The aim of this paper is not to study Liverpool's development, but to analyse the exterior shell of the buildings that belong to a part of the city waterfront and docks. From our point of view this is a great case study to discuss the way in which different layers were added in time, generating a superimposed materiality. We believe that we can emphasize technology's impact specific to each period, starting from the building materials and the way they compose the architectural shell.

## 2. The City and the Study Area

Liverpool is situated on the West Coast of England and on the East Bank of River Mersey. Its development is related to The Industrial Revolution and to the International Trade (18th-20th centuries). In the UNESCO World Heritage nomination (2004) there are six main areas comprising the historic centre and the docklands. We will discuss only two of these areas: The Pier Head and Albert Dock Conservation Area (Fig. 1). From our point of view a walk in this part of the city represents an important architectural experience, mostly because of the contrasting relationships

that are established between the old and the new. Our approach will refer to the materiality of these areas, focussing on the types of materials and the construction techniques. We will analyse some buildings chronologically, emphasizing the innovative aspects that characterize them. We do not propose to deal with all the complex aspects of these buildings; however, we want to highlight the visual and tactile features of this complex architectural space.

The old maritime mercantile city is one of the examples that shows that even a historical city needs to adapt for its contemporary users. This is not a new idea, because more than 150 years ago innovation was the keyword for Liverpool.

Figure 1. The Pier Head and Albert Dock Conservation Area.

## 3. Old, new materials

Even though the new interventions that were made between The Pier Head and Albert Dock Conservation Area were not welcome by all the architectural critics and historians, this public space can be seen as a complex one. The new and old materials and construction techniques generate a complex architectural experience. This is an example of superimposed materiality, based on a variety of shapes, textures and colours that represent a different period of time. We will start with brick and iron, then we will pass to concrete and stone and in the end we will talk of glass and stone. Our paper will try to analyse chronologically The Albert Dock, the three buildings situated on the Pier Head and two contemporary interventions: the Museum of Liverpool and the Mann Island Buildings. Our goal is to discuss how materials were used for the facades of the buildings and how this evolved through time.

### *3.1 Brick & Iron: The Albert Dock*

The Albert Dock (1846) is one of the most important docks belonging to Liverpool. It was *opened by Prince Albert himself in 1846*, and contains *the largest collection of Grade 1 listed buildings in the whole of the country* [2]. The architect and dock engineer Jesse Hartley designed the Albert Dock using only non-combustible building materials. He made six plans for this project and chose one of them. Jesse Hartley *was eager to use new structural materials in his works and was interested in new patents and inventions. The Albert Dock warehouses exhibit some novel uses of iron* [3]. Being new in the design of warehouses, Hartley felt responsibility and asked the opinion of a more experienced colleague, Philip Hardwick which was the architect of St Katharine's Dock warehouses. Hardwick offered to help him and was involved in the process of designing some important building situated in that area [3].

The Albert Dock is composed of five warehouses A,B,C,D,E that now have commercial use, museums or residential use (upper levels). The utilised materials for building the dock were: brick, iron and granite. All the warehouses are five storeys buildings and have similar design. The dock was separated by the city using a granite wall. As shown by Nancy Ritchie-Noakes, Hartley stipulated in the contract with the brick contractor that he could reject all the brick that was not burned to a certain degree, didn't have the perfect shape or had different impurities in its mass. The exposed brick walls are typical for industrial buildings. The brick patterns suggest that the functional purpose prevails over the aesthetic one. *On section, the warehouse walls reduce in thickness by half a brick at each level. At 2.4m, the dock wall is much thicker. On the dockside elevation, there are elliptical arches at each crane bay recess* [4]. The columns made from cast iron or granite range from 300 mm diameter to 1200 mm diameter. *Hartley's meticulous attention to every detail of each project under his superintendence is shown first in the design and then as completely in its execution* [3].

During the Second World War the dock was used by the British Fleet; however some damage was done during the 1941 May Blitz. This was the starting point of the decline of the buildings.
The regeneration of the Albert Dock was developed by The Merseyside Development Corporation, and started in 1981.

In one of the lecture Series regarding Albert Dock, Anthony Clarke, a Chartered Engineer, presents some of the most important aspects regarding the structural characteristics of the warehouses. From his point of view: *It is amazing to think that one man designed, planned and supervised the building of all the work on the south docks. Hartley completed the full construction of Albert Dock and the river wall in the same time that it took to repair and refurbish the same buildings in the 1980s* [4]. The restoration procedures consisted of cleaning the brickwork, repairing the cracks, treating corrosion, fixing several structural problems and eliminating damp. From Clarke's point of view *repairing the damaged brickwork was perhaps the largest element of the works. All the masonry was blast cleaned and the cracked masonry either rebuilt or repaired by resin injection* [4].

Nowadays the Albert Dock (Fig. 2-3) looks astonishing due to the restoration process and its spaces are used for different purposes. The rough industrial, regular surfaces send us back 150 years ago, emphasizing values that were important when the buildings were erected. From a visual and tactile point of view, moving through these spaces offers us a complex sensorial experience. The surfaces made of brick, iron and granite show us the raw face of the materials. Even though their aim was strictly functional, their expressivity connects us to the time in which they were built.


Figures 2-3. The Albert Dock.

### *3.2 Concrete, Portland Stone and Granite: "The Three Graces"*

Arriving at the Pier Head after just passing through Albert Dock might be a really interesting experience. The three massive buildings facing the Mersey River do not dominate the landscape only through their dimension but also through their impressive facades. After seeing the industrial buildings we have an enhanced perception of the characteristics of these architectural objects (used as offices), known by the Liverpudlians as "The Three Graces" (Fig. 4-5). This part of the waterfront was built on the old site of George's Dock (known also as the North Dock). The Three Graces are: The Royal Liver Building, the Cunard Building and the Port of Liverpool Building. They were built in the same period and as Richard Meegan points out in his article *Urban Regeneration, Politics and Social Cohesion: The Liverpool Case: Liverpool was probably at the peak of its economic power at the turn of the twentieth century, a power symbolised in the bricks and mortar of the three world famous waterfront buildings at the Pier Head, which were started in 1906 and finished in 1917* [5].

**The Port of Liverpool Building**, known before as The Dock Office is a grade II listed building and was completed in 1907 and resembles to the Capitol (Washington DC). There was a competition were architects were invited. The competition was won by *Briggs and Wolstenholme, F.B. Hobbs and Arnold Thornely. Even so, the winning architects were asked to prepare a revised design* [6]. Three years were needed to erect this building that possesses a reinforced concrete structure and a stone facade *with Portland stone from the quarries of F.J. Barnes, Isle of Portland* [6].

**The Royal Liver Building** was built by Walter Aubrey Thomas between 1908-1911 and is a grade I listed building. Its structure consists of reinforced concrete (*the Hennebique patented system)*, while its facade is made of granite cladding [7]. With a height of 98 m it was the first British skyscraper and *widely believed to be the largest reinforced concrete structure in the world* [8].

**The Cunard Building** was constructed between 1913 and 1916 and is a grade II listed building. The famous Farnese Palace was the inspiration for the Cunard Building which was adapted to the new technical conditions and has a reinforced concrete structure and a facade made of Portland Stone. The architects Willink and Thicknesse chose the style of the building to create a dialogue between The Port of Liverpool Building and Royal Liver Building. *Under these circumstances, therefore, it was necessary to select a style which, while in contrast with the neighbouring buildings, would, to some extent, harmonise with these opposing elements, and at the same time do full justice to the commanding position it occupies on the river front* [9]. The exterior of the building is defined by a variety of textures that start from smooth and get to rough: *the chiselling of the protuberant stone faces is rough, thus increasing the impression of rugged strength and forcefulness....Elsewhere the stonework of the facades is smooth and polished* [9].

The three massive buildings situated on the Pier Head do not share only the idea of power possessed by the companies that were built for; they share the ideas that represent the beginning of the 20th century. Even though different in style, they create a space characterized by unity. Their structures consist of a reinforced concrete skeleton, and their facades' cladding is made with elegant pieces of light shaded stone. The way in which the surface of the blocks and slabs of stones is treated is different for each building and generates a distinct tactile and visual approach. The stone brings the sensation of prosperity, coldness but in the same time is the material that establishes the dialogue between The Three Graces.

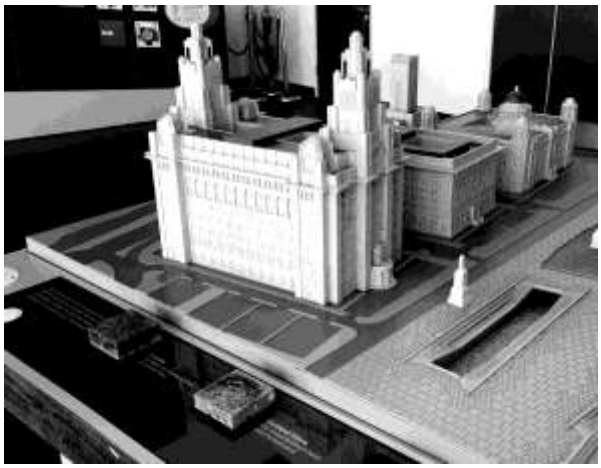


Figure 4-5. The Three Graces model and view from the Liverpool Museum

### *3.3 Steel, limestone, glass and granite: The Liverpool Museum and The Mann Island*

**The Museum of Liverpool** was opened in 2011 and is one of the biggest and newest museums in the UK. The Danish office 3XN won the competition in 2004 (Fig. 6-7). The museum, situated between the Albert Dock and the Three Graces, appears as a sculpture and *is conceived as inclined or elevated platforms* [10]. For the facade, the Danish architectural office opted in favour of a stone cladding, considering that *the facade's relief pattern offers a new interpretation of the historical architectural detail in the 'Three Graces* [10]. As in any contemporary building, glass plays an important part, and through the big windows, the museum opens towards the city. The building process was neither simple nor perfect. The news journalist Richard Waite points out in his article from the Architect's Journal that because of financial problems, the stone proposed for the facade (travertine) was replaced by a cheaper stone Jura limestone [11].This type of stone, resistant to environmental factors was brought from the heart of Bavaria and has a scratched surface finish "Kratzschliff". The slabs of stone have a thickness of 3-4 cm. There is a really complex steel framing underneath the cladding that had to be adapted to many atypical situations. *Much of the stone cladding was installed in a system that allows panels to angle outward from the building - creating a three-dimensional pattern* [12].

**Mann Island** is the newest controversial project situated near the Museum of Liverpool. The project consisting of three mixed-use buildings was designed by the architecture office Broadway Malyan. Even though the development received in 2013 the RIBA Award, there are some voices that claim that this intervention affected the magnificent views belonging to this part of the city. The exterior shell of the three objects consists of a curtain wall cladded with granite and glass (Fig. 8-9). The volumes are quite massive; however, the way in which the surfaces were treated changes our perspective. The used glass is a special one, possessing insulating, sun shading and acoustic properties. As argued by the architects that designed this project *the granite facades create a civic scale and the cladding, which is diamond cut polished Shanxi absolute black Granite and glass, ties in with the foreground dock water and maintains a contrast in views with the pale stone historic pier head buildings* [13].

The Museum of Liverpool and the Mann Island bring to the waterfront and dock area a fresh approach regarding contemporary architecture tendencies. Smooth, reflective materials cut in a variety of twisted shapes that try to defy balance, are more familiar to nowadays users.

Figures 6-7. The Liverpool Museum.

Figures 8-9. The Mann Island.

## 4. Conclusions

The Pier Head and Albert Dock Conservation Area represent an extraordinary architectural space, not only for the historical buildings that are found here, and have been analysed and studied by historians and architects, but for the new buildings that were built in the last 20 years as well. From our point of view this is a place where one is able to read how the materiality of the architectural space has been changing through the years. Each period of time is characterized by the use of some materials which are utilized in a specific way, emphasizing if possible, the level of novelty. This part of Liverpool might be read, from our point of view, as a collage of materials. The old and the new superimpose and shelter a variety of uses that ensure proper activities in this part of the city. The complex architectural space can be decomposed in many distinct spaces. Each of them was created with a definite purpose, and influenced the life of the city. As a city evolves through time, changes need to be made and sometimes the uses of certain buildings might have to be reconsidered.

From our point of view, while walking through the city we are able to understand how architects have changed their way of conceiving a space. Heavy materials were replaced by lighter ones, or at least the buildings suggest the sensation of lightness. The surfaces that compose the facades two centuries ago were rougher, while nowadays became shinier. Of course, finishing processes have

changed as well; however, we want to emphasize that contemporary architecture works with reflections. Surfaces try to connect to the context by recreating the image of the surroundings and not always by interpreting their materiality. If two centuries ago we were able to use only limited surfaces of glass, today the boundaries have been pushed further, thus giving us more flexible choices. Contemporary spaces are defined mostly by transparencies and reflections.
For the construction of the Albert Dock brick and iron were used in innovative way. The exposed brick walls have not only a bearing purpose, but they represent the exterior shell of the building as well. Due to its use, the dock did not need decorations, however the type of brick bonding, the iron elements and the granite blocks used by Jesse Hartley were expressive enough. From our point of view the tactile effect of these materials is superior to many of the buildings constructed in the last decades.

The three buildings built on the Pier Head belong not only to a different period, but to a different type of use. They were designed as office and leisure spaces and their exterior, as well as their interior had to represent the prestigious company that they accommodate. In contrast to the Albert Dock the structure does not represent the exterior shell of these buildings. The concrete frame is hidden under a stone cladding. Even though not all of them are made from the same type of stone, they have a similar shade/colour. The dimensions of these amazing buildings overwhelm the viewer that can perceive the whole only from distance. While approaching the buildings, the viewer looses the overall image, and can detect the way in which the surface was treated only when situated close enough.

The Liverpool Museum and the Mann Island, the new buildings from this area, interpreted in a certain way some of the characteristics of the site. The contemporary image of these objects interferes with the historical buildings. The stone facades remind in a way of the aforementioned buildings, however, the shapes of the buildings and their constructive techniques belong to contemporary tendencies.

To conclude, we would like to emphasize that the studied area is an example of what we may call superimposed materiality. Every building regardless its age possesses its own visual and tactile characteristics. The space comprised between these buildings borrows/extracts from all of them their finest material aspects, becoming a complex one. Every period has characteristic materials and building techniques, however, as our cities are a collection of old and new layers, we consider that the superimposed materiality generates the complexity of the architectural space.

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