

2011 International Conference on Advances in Engineering

Material Factor for the Beauty of Modern Architecture Decoration in Harbin

He Ying¹, Liu Songfu¹, Sun Quan^{2*}

1. School of Architecture, Harbin Institute of Technology, Harbin, Heilongjiang, 150006 China

2. The Architectural Design and Research Institute of HIT, Harbin, Heilongjiang, 150090 China

Abstract

To conduct an in-depth research on the outstanding performance of architecture decorative material in the areas of technology and art at certain historical times, this article mainly studied the modern architecture decoration in Harbin. We did a survey on the decoration of 231 modern buildings in Harbin, and comprehensively studied the construction and artistic performance of materials used to decorate the modern buildings, such as woods, bricks, stone, plaster and iron, from the perspective of traditional art and technological philosophy, from which we found the important role of materials playing in the process of sculpturing the beauty of architecture decoration. The material factor of architecture decoration is a substantial foundation for the existence of architecture beauty, and reflects the traditional concept of different schools and culture in the areas of architecture materials and constructive technology.

© 2011 Published by Elsevier Ltd. Open access under [CC BY-NC-ND license](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Selection and/or peer-review under responsibility of ICAE2011.

Key words: modern architecture in Harbin, wood decoration, bricks, stone, plaster, iron processing

The basic structure of modern architecture in Harbin consists of wood, brick and ferroconcrete. Woods, bricks and stone are the main materials for decorating the architecture, and plaster decoration is commonly for the external side of the architecture. The “new art” campaign in Harbin popular in this period initiated traditional handicraft, so the decoration of architecture commonly took the iron decorative elements as the first choice, which was perfect combination of technology and art for decoration. The decorative materials mentioned above outstandingly reflect the unique beauty of modern architecture decoration through different construction technique according to their own characteristics, and add unique appreciation value to the architecture of this emerging city in modern times.

1. Simple wood decoration

* Corresponding author. Tel.: ; fax:.
E-mail address: heyingsongfu@163.com.

Wood is a kind of natural material, which can be applied to the partial decoration of the architecture after being processed by artisans. It's a unique material language praising simple architecture and the beauty of nature. In modern times, the decoration of traditional architecture of the Russian nation in Harbin commonly preferred wood as well. The History of Russian Architecture said, the solemn nature of the North, the simple technique and the only material (wood) urged the architects to find a way to show the artistic and splendid buildings in decoration and furnishing, and they had also deliberated on the proportion in composition of the external volume, the beauty and the balance of the sketch. Therefore, the architecture with wood decoration represented remarkable classic and profound reality.



Figure 1 the Orthodox Cathedral of St Nicola



Figure 2 the Cathedral of St Nicola

The Orthodox Cathedral of St Nicola at Nan Gang Centre, the highest geological site in Harbin, was the paragon of wood architecture in this period. This was the first large architecture project of “East Moscow” and the centre of the Lama Square, which is the Harbin Museum Square now. (Figure 1) The exquisitely carved wood decorations are some details of this kind of style, such as the wood stairs with exquisitely carved double slope roof crossing into the flame shape of an arch, at the centre of which is the elegant wood flower, at the entrance of the cathedral. (Figure 2)



Figure3 traditional wood residence of the Russian nation



Figure4 partial wood decoration of Independent residence

The traditional independent architectures of the Russian nation in Harbin, such as the independent residence at Jiangbei Garden Street (Figure 3), also commonly take woods as the decorative materials, which represents the traditional decoration of the Russian nation and expresses the culture of folk art and romanticism. Besides, some independent houses would use wood to decorate the balcony and the door handle. (Figure 4)

2. Simple brick decoration

In modern times, the brick was a widespread architecture material in Harbin city. According to the research on 231 modern buildings, 89.5% of them were constructed with bricks.



Figure 5-1 traditional brick residence of the Russian (1)



Figure 5-2 traditional brick residence of the Russia (2)

In the early stage, most of the brick architectures were the residential blocks for employees of the Middle East Railway, which consist of brick wall and one-store double slope roof which was made by wood. These buildings are located at the central area of Nangang town, Harbin province, becoming a side-by-side building zone. All of their external walls are brushed in the colors of butter yellow and white, thus having achieved the artistic effect of overall coordination and brought people fresh feeling. (Figure 5-1 and figure 5-2)



Figure 6 The original Amur Military Command

There are various kinds of public architectures in early stage such as business schools, hospitals, clubs, supermarkets, etc. Compared to residence for employees of the Middle East Railway, the wall and the cornice with brick decoration of these public architectures are far more various. The original Amur Military Command (Figure 6) which is the Chinese Medicine Hospital of Heilongjiang Province now and the original Pharmacy of Middle East Railway Hospital which is the emergency centre of No.4 Hospital of Harbin Medical University (Figure 7) are typical buildings of this kind. The most distinguishing characteristic of the architecture decoration is concave and convex changes at the cornice.



Figure7 the original Pharmacy of Middle East Railway Hospital



Figure8 the St Sonhia Church



Figure9 the Church guarded by St Mother



Figure10 the Church of St Alexejev

Besides, the brick construction was also popular among some grand Russian orthodox churches of Harbin in modern times. According to the finishing time, St Sophia Church (Figure 8), the Church guarded by St Mother (Figure 9) and the Church of St Alexeyev (Figure 10) were some of the examples. The brick decoration for the external wall of these churches was various and clear in molding in order to stress the integrated feeling of the churches and show us the carved potential of bricks, just like the churches mentioned above.

3. The natural stone decoration

Stone is the traditional material of west architecture. There are less stone to be exploited in the North area of China, and the cost is very high. Therefore, in modern times, the only architecture with stone decoration in Harbin was the original office building of Middle East Railway Bureau which is the office building of Harbin Railway Bureau now. (Figure 11)

The office building of Middle East Railway Bureau located at the West Street of Nangang area in Harbin was constructed in 1904, which was the first grandest public architecture in Harbin. The wall of the architecture was constructed with thick granite. To enclose and stabilize the architecture, large pieces of granite were arranged regularly and it was decorated with smoothly straight wall corner, highlighting the natural beauty of stone decoration. (Figure 12-1 and figure 12-2)



Figure 11 The original office building of Middle East Railway Bureau



Figure 12-1 The original office building of Middle East Railway Bureau (1) Figure 12-1 The original office building of Middle East Railway Bureau (2)

4. The splendid plaster decoration

Plaster means the gypsum slurry decorative art and using lime mortar, mixed mortar, polymer mortar, hemp fibred mortar and paper strip mixed lime mortar to decorate the surface layer of the architecture. The Architecture Ten Book describes it like this: the architecture is plastered with mortar with the help of ruler. The ruler and the wire help determine the length, and the hammer is used to adjust the height. When it comes to the corner, we use the square ruler. In this way, the mural on the surface will be perfectly suitable. Then repeat for the second and third time after it is dry. By doing so, the mortar layer will be solider and solider and the wall will be strengthened as time goes by.



Figure 13 "Chinese Baroque" decorative plaster



Figure 14 Decorative plaster in the building

For the external decoration of modern decoration in Harbin, plaster was the common material as well. It provided different decorative theme to the parapet, columns and windows of the architecture, showing the substantial content of plaster decoration and different types of artistic character. (Figure 13)

Apart from the specific decoration form of architecture, various types of potential of plaster can be also reflected in the details of architecture decoration. For example, the horizontal line feet of the doors, windows and walls are the result of deeply deliberating on the proportion and decorative effect of the architecture. (Figure 14)

5. The pliable iron process

The “New Art” architecture in Harbin was a school based on trying to make the architecture accustomed to and improving the industrialized idea in modern times. To pursue the new style of modernization and be accustomed to needs of the new society, the architecture decoration introduced some pop artistic techniques and materials. One decorative trait of New Art Architecture was taking the iron processing parts as the architecture. The parapet, the railing of the balcony, the door handle and the canopy at this period preferred the iron processing parts as well. (Figure 15) The traditional architecture parts were replaced by various iron decorations, which added to vitality of modern architecture for their flexibility and represented the progress of modern architecture in decorative material.



Figure 15 Iron decorations in the building

6. Conclusions

We found the relationship between materials of architecture decoration and the beauty of form through the study in this article. Firstly, all kind of materials comply with their own destiny. In other words, they should fulfill their duties in some certain form. They have integrated colors and textures. Secondly, materials are not chosen for easy treatment or satisfying life needs. Last but not the least, the form of material has enlightened, underlined and multiplied some other forms at the stage of raw material, because the form can free the other form according to its own law. However, the formal duty of material is not blind fatalism, for the reason that the rich kinds of materials are individual and suggestive.

Reference

- [1]Zhu Guangqian. Art History In The West, Beijing: Jincheng Publication,2010
- [2]Hagel. The Aesthetics. Translated by Zhu Guangqian. Beijing: Business Publishing House, 2010
- [3]Zhang Fuhe. The Study of Modern History of China In 21 Century, Central China Architecture, 2001(3)
- [4]Ren Guangxuan, Art History of Russian. Beijing University Publication, 2000
- [5]Focillon. Form of Life. Translated by Chen Ping. Beijing University Publication, 2011
- [6]Paul Greenhalph. Art Nouveau1890-1914.V&A Publication,2000
- [7]Elena Borisona, Grigory Sternin. Russian Art Nouveau. Rizzoli New York,1998
- [8]Willarm Jr Curtis. Modern Architecture Since1900.Phaidon Oxford,1987
- [9]David Dernie, Alastair Carew-Cox. Victor Horta.AcademyEditions,1995
- [10]David Wolff. To the Harbin Station: City Building in RussianManchuria,1898-1914.California Univercity,2000