

# Discussion on the Techniques of Marker in the Hand-painted Effect Drawing of Interior Design\*

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**Abstract**—In the modern interior design, the designer combines the design theory with the multiple originality to seek the best optimization of the design scheme and display the design idea and the construction technology. It needs the computer virtual-simulation 3D effect drawing and the hand-painted effect drawing as the technical means to explain and communicate. The computer virtual-simulation 3D effect drawing is designed to reproduce design expression with the realistic three-dimensional image. With a fast spatial expressive force, the hand-painted effect drawing is a necessary technique for designers to design inspiration expression and record the needs of the owners. This paper, taking analysis of marker technique as an example, embodies the comprehensive quality and skill of the designer, shows the construction rationality, design integrity and the artistic appreciation of the design object, and aims to further analyze and discuss the multifaceted application of marker hand-painted technique in the interior effect drawing.

**Keywords**—marker; technique; hand-painted drawing

## I. INTRODUCTION

Indoor space is an important place for people to live and work. It is divided into various functional spaces for rest, entertainment, privacy, office and so on. Interior design is designed to build reasonable functional zoning, create corresponding style and environment atmosphere to meet the needs of the owner's spiritual life and reflect the unique personality according to the interior structure of the building, space environment and the owner's appeal by designers. In the design, expression and communication of the interior space, the two expression forms, the computer virtual-simulation 3D effect drawing and hand-painted effect drawing, are the most direct means to show designer's design effect.

## II. THE CHARACTERISTICS OF THE EFFECT DRAWINGS OF COMPUTER VIRTUAL-SIMULATION 3D TECHNOLOGY AND HAND-PAINTED TECHNOLOGY

In the modern society the virtual simulation technology is constantly updated. People can find the expression of its technology in three-dimensional space, film and television and

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display. The quality of life has been greatly improved with the progress of virtual simulation technology. The virtual simulation technology in interior design is realized through 3DS MAX, SKETCHUP, LIGHTWAVE, MAYA, Myhome3D and other panoramic software of software companies. Computer personnel realistically show three-dimensional simulation image of indoor space by modeling technology, material mapping, lighting configuration and rendering output in the software according to construction drawings. It is not only an important part of engineering delivery drawings, but also a realistic representation of designer's intentions. The present computer virtual-simulation 3D effect drawing can not only reflect the single area, but also can realize the panoramic roam effect drawing of the indoor space through view conversion and character movement and other directions.

In the highly competitive design industry, experienced designers believe that hand-painted effect drawing is not only a presentation technique, but also a way to show designer's comprehensive design accomplishment. In the interior design, the hand-painted drawing effect drawing is an expression means of designers to carry out and modify design conception, express originality quickly and make creation. It is also the component part of the preliminary plan and the detail expression in the engineering drawing. It can intuitively show humanistic design and engineering technicality. Hand-painted representation uses skilled and accurate spatial structure lines, soft material expression, color light and dark harmonization and other coloring technique and exquisite detail adjustment, and all of them give out artistic natural atmosphere and highlight the level in unity of form and spirit. They are reflections of art quality and value, and the decorations of space. It can be seen that the hand-painted effect drawing is an art comprehensive product that combines the beauty of technology, the power of technology and the wisdom of mankind.

## III. THE IMPORTANCE OF GRASPING MARKER'S TECHNIQUES IN DRAWING HAND-PAINTED EFFECT DRAWING

With the accelerating pace of modern life, more and more people hope to achieve results in the shortest possible time. It is also the same in the interior design. After communicating with the designer, the owner often hopes to see the project effect as soon as possible, and a high quality computer virtual-simulation 3D effect drawing often takes several days to

complete. The hand-painted effect drawings are based on the concept of design communication. Designers use the shorter time and use lines and coloring methods to show the effect drawing. Although the hand-painted effect drawing is not as realistic as that realized by the virtual expression technology software. But the hand-painted effect drawing effect is more artistic and ornamental on the basis of space modeling.

Hand-painted expression technique is the main medium for designers and owners to communicate and express creativity, and it has been more and more emphasized by the design company and industry. Through the interview and research of design companies and designers, the author finds that large or comprehensive design companies and decoration companies regularly select designers to participate in the learning and practice of hand drawing skills each year in order to improve the professional ability of designers and broaden the expression technique of designers. Designers themselves also actively participate in learning of hand-painted expression technique. They often learn from online tutorials, extracurricular classes, training classes and other channels to enhance their design ability. At the same time, more and more hand-painted professional institutions have carried out advanced studies of hand drawing techniques for designers in the country, such as the Mount Lu Hand Drawing Training Camp, the Beijing Huayuan Hand Drawing Training Camp, the Wuhan Superior Hand Drawing Training Institution and Jingcheng Design Hand Drawing Training Group. The teaching content they set up includes enhancing classes for students for postgraduate exam and practice class for design companies and designers.

The expression techniques of hand-painted effect drawing mainly are watercolor, color pencil, marker and so on. The most important and popularized technique is the drawing drawn by marker. Marker has the characteristics of volatile nature, rich colors, strong expressive force and fast painting. There are many kinds of color categories. The color system includes red, blue, yellow, green, purple, and the non-color system include cold grey, warm grey, blue grey and green grey. Markers mainly have two ends, a big end and a small end. The big end has a corner cut, and can mark out lines of different effects. Its equal-ratio paralleling lines can form strong sense of block face. It is suitable for large-area fast coloring and overall hand drawing. At the same time, designers also can combine other materials and techniques to further depicting and enhance the sense of layer on the basis of marker effect drawing.

Compared with other hand drawing techniques, marker hand drawing techniques are more authentic and complete to reflect the artistic essentials and artistic accomplishment of modern designers. While the designer exchanges with the customer, marker hand-painted effect drawing has the advantages of space, time and efficiency. It can express local and overall spaces in a few minutes. The combination of accurate perspective pen line draft, coloring technique of marker and expression of material can flexibly show the targeted effect of space. In addition, the designer can collect and sort out inspiration, thinking and creation results, show the integrity of design drawing through marker's hand drawing technique, show the styling, structure and design beauty of the

interior space of the building by art expression form and technique, giving a higher realm of spirit and life to the image of space.

#### IV. ANALYSIS OF MARKER TECHNIQUES IN DRAWING HAND-PAINTED EFFECT DRAWING OF A LIVING ROOM

##### A. Customer Communication and Concept Expression

At the beginning of each design scheme, the designer shall communicate with the client, know their design requirements, style preference, specific elements, soft decoration selection, construction cost budget and so on, and carry on the field measurement, analyze and determine design style, plane and facade function layout, decoration landscaping and so on according to the requirements of the customers and the house site. Grasp the idea and conception of the design correctly, record the key requirements of the owner, express the purpose and effect of the design as far as possible in the later drawing design, create the best originality to meet the requirements of the customer and the original intention of design, and form the prototype of the design.

##### B. The Conception and Analysis of Sketches

After communication with customer and design analysis, the designer can show space sketch. Through the practice of a small-frame sketch on a 5cm\*8cm paper, designer can make creation of plane and vertical drawings, revise and adjust. It can improve the design ability of designers and collect materials for local creativity and the overall style expression. Select one mature scheme for presentation of effect drawing. First, uses the perspective law to express the structure of the object, build the space frame, and uses the artistic technique to show the shade, color and texture, and finally completes the spatial representation, thus reflecting the designer's intention.

In view of the expression of sketching and creative design, marker's hand-painted effect representation is a more suitable expression means. For a complete interior design hand-painted drawing, using marker to color is to describe the color and texture of scheme. There are oil marker and water marker, and they are not adjustable. One marker has one color. It enriches general appearance through thickness of lines and overlaying and contrast of lines and color matching of similar color. It is one of the most convenient and effective coloring tools on the basis of the pen line draft and the spatial light and shade relationship in the process of hand drawing. The following is analysis of the design of a living room effect drawing.

##### C. The Spatial Perspective Expression

Accurate perspective is the shape and bone of the effect drawing, and the representation of image's position, size, proportion and direction on the picture are based on the scientific perspective law. In perspective selection of interior space, one perspective can show the three facades of the whole space in a more comprehensive way. Two perspectives can flexibly show local effects. Choose the applicable space perspective, set the disappearance point, draw the wall structure, clear lines, and arrange the perspective ratio correctly; secondly, determine the location of furniture display,

and pay attention to the anteroposterior relation of furniture and objects.

**D. The Proportional Relation**

In hand effect drawing, the space, shape, color, shadow and atmosphere are shaped according to environment site. After the perspective of the space, design the size relationship of house and furniture and the layer height of room, depict styles and features of sofa combination, tea table, TV stand, single chair, desk and bookcase. Calculate the proportion relationship of length, width and height of individual furniture and the overall space in "Fig. 1".

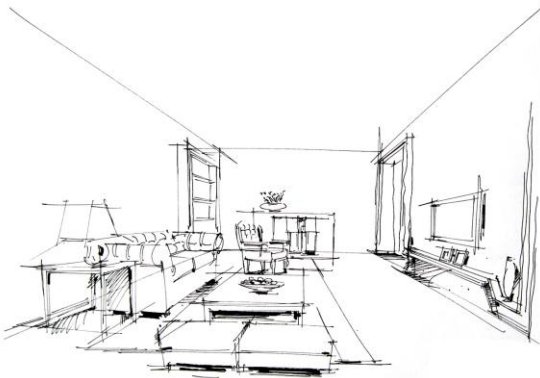


Fig. 1. A preliminary draft of indoor space with one perspective.

**E. Light and Shade and Detail Adjustment**

To give proper expression of light and shade on the precise perspective skeleton can fully represent a space form with soul and flesh and blood. Further adjust the false and real relationship of the picture, determine the direction of light source and lighting, pay attention to the processing of projection and backlight, strengthen the decoration method of the TV background wall, the decoration of the desk and frames on the wall, the virtual and real expression of the books in the bookcase, the treatment of the lighting on the sofa background wall, and the depiction of the local details and the relation of the light and shade, until complete the draft in "Fig. 2".



Fig. 2. Pen draft of interior space with one perspective.

**F. Coloring Expression Techniques**

Color is an important technique to embody vivid design and enrich picture. The features of marker's painting technique are fast coloring, vivid summary, and fresh color, with a certain artistic and interesting qualities. It not only shows the style relationship of space color, the light and shade relationship of the furniture, but also shows the effect of the textures of different materials. (Fig. 3)

First, determine the cool and warm tones of the big environment, and analyze the selection of markers in each facade.

Second, determine the proper color of main object sofa in the space. The selection of main object color directly dominates the color orientation of the whole space. But the color shall not too dark, and use the expression technique from light to dark.

Third, paint the background wall with lines. Before painting, match and select colors according to color card of markers. Draw according to the structure and perspective direction, and pay attention to the change of virtual and real relationship.



Fig. 3. The overall coloring of interior space with markers.

**G. Detail and Overall Adjustment**

The details of marker hand-painted techniques are mainly embodied in the material expression of each individual object. The realistic texture of material can increase the true sense of the effect drawing, and make the picture more visual and persuasive in "Fig. 4".

First, enhance the basic material expression of objects, and implement different techniques according to the embodiment of different properties of materials. The methods are as follows:

- Cloth material: furniture and ornaments in cloth material mainly are sofa, curtain and bedding. Takes proper color and vein of objects as priority when using marker to paint them; the overall color contrast shall not be too strong; drawing coloring line with natural transition and retain white space of lighting face; as for hairy carpet, uses the correction pen to add white dot gloss, showing its fluffy feature.



- Metal objects: this kind of furniture mainly includes tea table, lamps and ornaments. Because of the strong reflectivity of metal, color selection of markers shall be strong in contrast of light and shade; usually use vertical line of marker to present the highlight point of white space.
- Wooden material: wooden furniture includes floor, wall, table, chair, sofa, desk, bookcase and so on. The raw wood color is the basic color. The relationship of light and shade shall be nature, with no large contrast. Uses decisive line-paralleling method, pay attention to angle of perspective expression, and then use the same kind of fine marker to draw wood grain.
- Stone material: the stone material mainly includes floor and table face. The color of stone material is single, and shows the proper color of objects. Pay attention to the influence of environmental color on highlight and light reflection points, and do not need to repeat color. Pay attention to the transparent and refraction effect of stone material, and then the fine marker to show the pattern of stone.
- Leather and plastic: there is no strong light and reflective effect, mainly in proper color, and with a small part of high gloss.
- Transparent material: transparent material uses environmental color as basic color. Mainly use straight line to present object and leave more white and high light.

Second, after the completion of the overall tone and material expression, adjust the virtual and real relation of the picture. Use color pencils to further strengthen the details, and keep the overall tone and atmosphere harmonious.



Fig. 4. Detail adjustment of interior space with markers.

## V. CONCLUSION

From above analysis, it can be seen that in the process of performing the effect drawing, designers shall pursue art effect on the basis of real space condition and follow the spatial dimension, the ratio relationship of furniture and decorations in hand drawing. It needs accurate and rigorous thinking to show

reasonability of hard structure, texture of material, the consistency of soft decorations matching and the overall style, the nature effect of daylighting and lighting, color matching and other complicated relationships in hand drawing, so as to meet objective reality of design environment and space requirements of client. In hand drawing effect expression, marker can make full use of its characteristics. With its fast painting characteristic, it wins the preference of designers. Designers could show smooth and vital line space with perceptual and rigorous marker painting technique, and realize fast expression effect of originality diversity. Hand drawing techniques of markers has become the main expression means of design industry and designers, and will be widely used for a long time in the future.

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