

Development of Lighting Compressed by Injection Yellow Ocher Soil¹

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ABSTRACT

The compressed injection yellow ocher soil is the process-technology by drying the product through sunshine, not by firing like pottery and ceramic ware. It is the technology of development being able to achieve the far infrared ray and humidity adjustment by adding recycling paper, Korean paper and bamboo salt, and it corresponds with the construction enforcement ordinance 2007 as an interior-finishing product which is fire-resistant.

In case that the yellow ocher soil would be used as lighting device and interior-finishing material and decoration, it could contribute to an improvement of National Health by avoiding the sick house syndrome and adding humidity adjustment, and it has more efficient economic effect due to using recycle-available additives. Through such developments of the yellow ocher soil products the domestic market of lighting device and construction material can be advanced and the replacement effect of imported goods & also export effect can be expected accordingly.

Key words: Compressed injection yellow ocher soil, design of lighting, environment-friendly.

INTRODUCTION

In accordance with the restrict environmental regulation globally the environment question is becoming a biggest issue making a future of enterprises, and domestic companies are concentrating their main strong point on an improvement of competitiveness through the environmental management accordingly. The main code of Well-Being popular for the time being is environment-friendly & healthy life. With this tendency the green marketing of enterprises are being more competitive. In industry the brands named "clean", "green", "antibiotic" are brought on the market. Like that the demand to 'environment-friendly' concept for electric appliance, consumer goods and construction material is so called explosive.

The business sector having a great influence thanks to the environment-friendly tendency is air cleaner in particular. The air cleaner that had not appealed it's effect till now is being sold in great scale with help of the sick house syndrome & yellow waste from China etc. Hereupon the existing wall paper, PVC flooring and panel etc. however have just 20% composition rate of yellow ocher soil. In consideration of this point it is expected that the existing interior finishing material could be made from 100 % yellow ocher soil, if it was manufactured by the method of construction and technology from a ground. Also the recycle-availability, more reasonable price and mass

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production can contribute to fire prevention effect and reduction of heating bills, and the excellent products against the sick house syndrome and atopy can be produced.

The theme : if there will be a possibility to enjoy 'Korean sauna effect' using yellow ocher soil also at home ?, namely the interior made of soil material is very popular under the condition that soil is little seen also outside of house.

The reason why soil is so beloved is an emission of the far infrared ray and it is helpful for us to vitalize our energy and to be healthy accordingly. In particular Korean sauna with soil is very popular and the effects of soil have a special attention from the audience. Also it plays a good role to make indoor air clean and to adjust the suitable humidity, and it works as sound arresting effect & interior material. Yellow ocher soil is regarded as well- being item in our daily life contributing to improvement of environment and the possibility of marketing of environment-friendly product lineup, by absorbing and/or cracking environmental hormones, atopy and electromagnetic waves.

Purpose of Study

This study intends to analyze the exact target of the developed product and to reflect the result for mold-development for production of the definite technology. On the basis of the development of environment-friendly interior finishing material, in order to develop an emotional interior construction material of New Brand Image, the compressed injection yellow ocher soil board utilized by high tech digital device, and articles made of natural material, products releasing an anion and being easy to install & assemble, emotional products having display effect as interior finishing material and article and the purpose based on tradition, multifunctional yellow-soil and products to adjust humidity and release an anion should be developed.

Scope and Method of Study

Laying an emphasis on the products being currently produced and sold, they were analyzed according to material, shape and formative image and furthermore the collected data to develop the lighting design on the basis of the probable material and decoration skill were also analyzed per posting image map. The characteristics and improvement points of products were noticed through that and development of design was created. Then Idea sketch, drawing and rendering processes were developed and the suitable prototype was manufactured being matched with the production capacity of company and the current status of ground.

CURRENT STATUS OF THE RELATED TECHNOLOGY IN DOMESTIC & INTERNATIONAL MARKET AND SCALE

Domestic status and market scale

- Yellow ocher panel: is usable immediately after production, due to being dried through sunshine, not by baked like pottery & ceramic ware. This principal allows yellow waste to be used as bed, flooring and finishing material.
- This principal is combined with bed made by yellow ocher soil, flooring and construction finishing material etc. Instead of papering and PVC flooring, installation technology by plastering and spraying can make a plastered wall technology with a 20% penetration rate product of yellow ocher soil.
- DongBang Bio Ceramic & Samjeon Hwangto have brought the products like bricks, mortar, painting and construction material etc on the market and are achieving a good response.

- Hwangto Munhwa has launched the products like cushion, pillow and car seat contained yellow ocher soil. But the attention of yellow mud product lies in it's functional aspects for healthy life than as an aesthetic interior material.
- Hwangto Bogumzari manufactures diverse interior articles using soil of different color as well as makes an installation of interior with soil. Not only yellow ocher soil, also so colorful soil like white, black, yellow and reddish color is used here for the characterful articles. Curtain, bed seat and cloths dyed in soil material and puppet baked with soil etc. can be mentioned as examples for that. Furthermore this company makes soil wall by spraying different-colored soils on the wall.
- “Some companies of construction material are introducing yellow ocher mortar and flooring etc to the market, but such products are not comparable to that made uncultivated soil in terms of effect.” “Soil can keep moisture and adjust the suitable humidity in the room accordingly, so it has lots effectiveness.
- Hankook Minyae is the company achieved many attentions to “Toka”, tile made of a grayish-blue powdered celadon. It has remarkable name value nowadays by concluding many contracts with main construction companies. The tiles made of a grayish-blue powdered celadon represents Korean traditional style, beauty and texture and hereupon pure clay, natural glaze and powder soil are used. They have no hazardous contents and have rather the functions releasing the far infrared ray, cleaning the sir and isolating electromagnetic waves etc.
- Kiyong Construction is one of the representing companies building the construction with soil material. Mr. Kiyong Jung, the owner of company is asking again “ why the artificial material like cement, iron reinforcing bar etc are used for construction of house, while the natural stuff for cloths ? “.

International status and market scale

The effectiveness of yellow ocher soil has been verified in Asian area first of all e.g. in China and Japan and the related products was produces there, but due to lack of processing technology the full production is limited. The reason that the yellow ocher is from chemical paint & coloring material, not from nature causes the disadvantage to decline the effectiveness of the yellow ocher soil. In consideration of this current situation the product developed from ground can approach to the overseas market.

In accordance with the restrict regulation regarding environment globally, this environment issue is being a decision-making subject for enterprises to plan their future, and domestic enterprises are no exception hereupon and they also are trying to rise the competitiveness through environment-friendly management. In particular the 132 companies designated as environment-friendly enterprises by the Ministry of Environment are concentrated on the advanced environment management, namely Green Marketing, not only on developing the new environment-friendly technology and improving the production process. The reason for that as mentioned is that the environment matter is being a big issue to make the future of enterprises due to the more strong restriction of regulation regarding environment globally, especially in EU.

It is already normal for the consumer in advanced county to request the credible information about the enterprises manufacturing the goods to check whether it manages environment-friendly

and it' products are not hazardous and so on. Also in Japan Producer liability / Recycle regulation of electric household appliance" is into effect and in EU WEEE (Waste Electrical and Electronic Equipment) was in operation since 2006, too. Like this the country to introduce "EPA" are increasing now by regarding environment issue as important.

Together with such extension of environment-friendly management, the tendency is showed in the existing industry that new department is organized and/or the expanded.

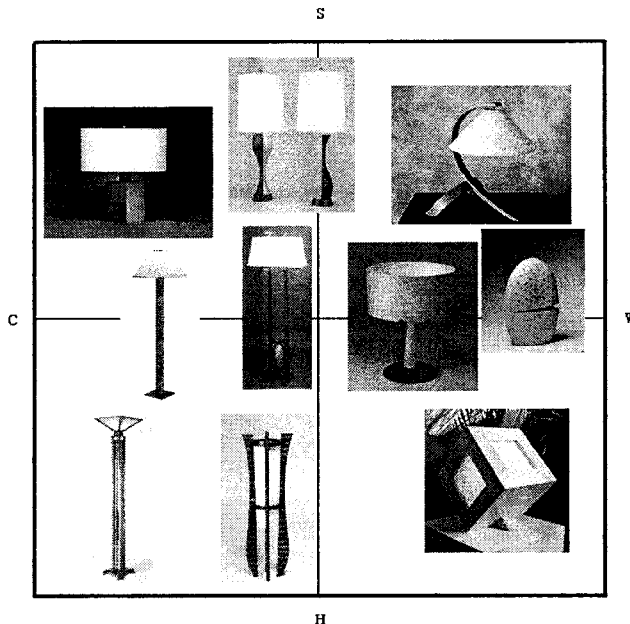
Green Procurement Program is expected to be introduced in Philippine as preference of environmental-friendly goods from Oct. 08 to Sep. 09 step by step, and it program will be into effect by a Presidential decree.

If this program will be into effect, all Government ministries and agencies give a preference at procuring the goods needed to the enterprises experienced environmental-friendly business. The Presidential decree EO Provision 301 was in effective in last April but it is not in force at this moment, and providing that each Government ministries and agencies respectively need to submit the environmental-friendly program to National Eco-Labeling Program Board : ELPB) during July ~ September when the new Government is organized.

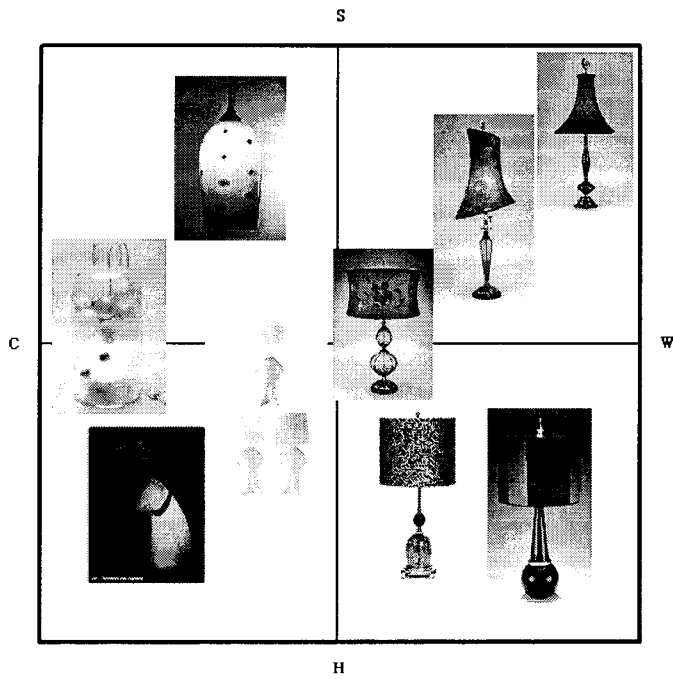
Environmental quality agency plays a role as the 3rd institution to inspect whether the goods of enterprises are environment-friendly and to make list up of the goods verified as environment-friendly, regularly. Furthermore it reports to President regularly whether the Government ministries and agencies are obeying the regulation or not. This environmental quality program in Philippine is the system to grant a code on the good itself or packaging qualified as environmental friendly, and this program and it's enforcement result from a cooperation between DENR and Department of Trade & Industry.

Image-analysis of Lighting

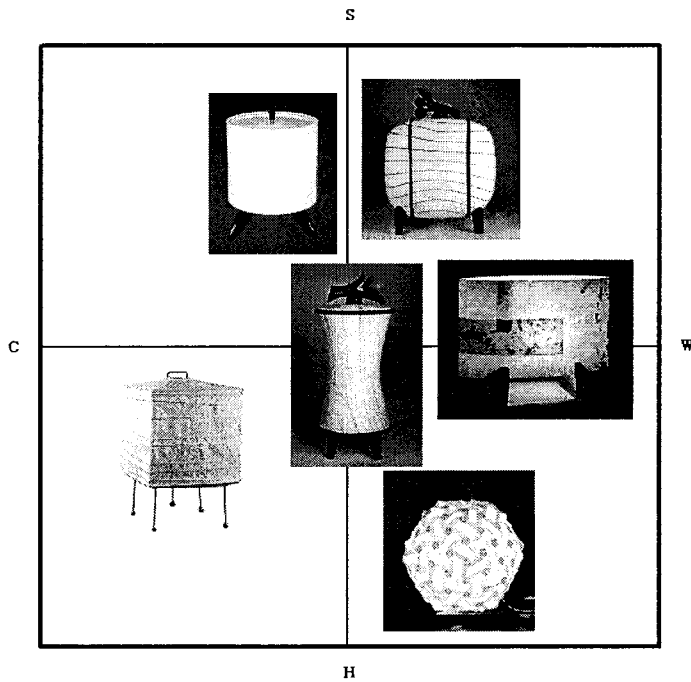
- Image made of wood



■ Image made of glass



■ Image made of paper or fabric



DEVELOPMENT OF DESIGN

Direction of Design Creation

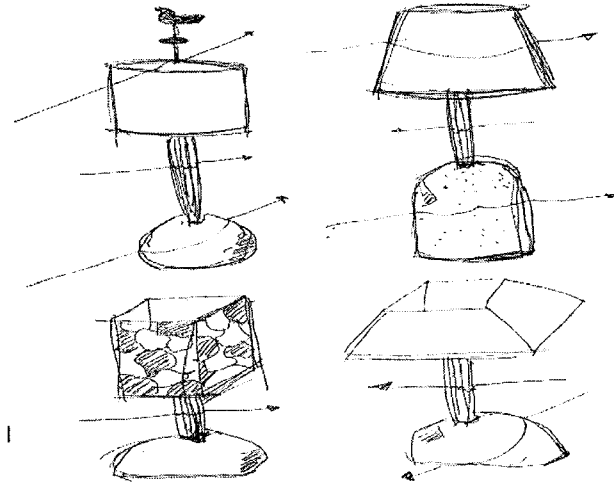
The following points were mainly considered at designing by compressed injection yellow ocher soil to create a development direction.

First, practical interior finishing by compressed injection yellow ocher soil and production of mold by high-tech digital equipment was stressed.

Second, the products easy to be installed by e.g. usual adhesives were designed.

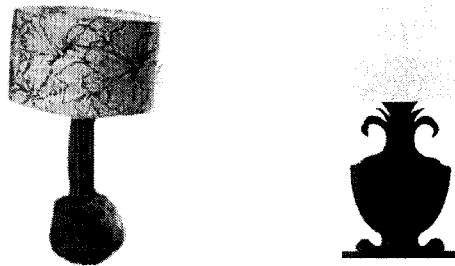
Third, the living article releasing no environmental hormones and being on contrary environment-friendly was here developed.

Idea Sketch



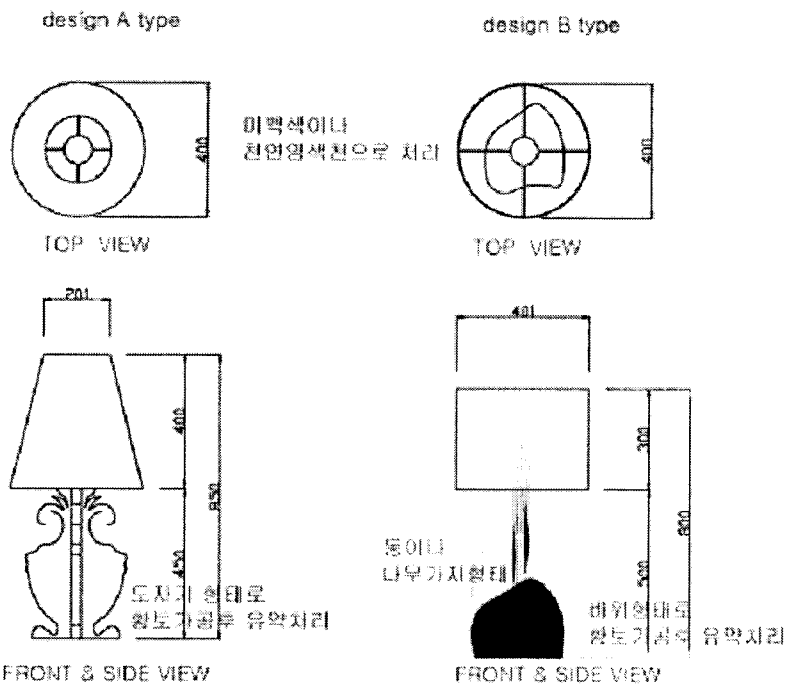
Temporary Model

After checking idea sketch the iso pink easy to be produced and the fabric will be a real material of the product were made according to 1:1 proportion. On the basis of the overall shape and volume fit the correction need to be checked prior to production of prototype.

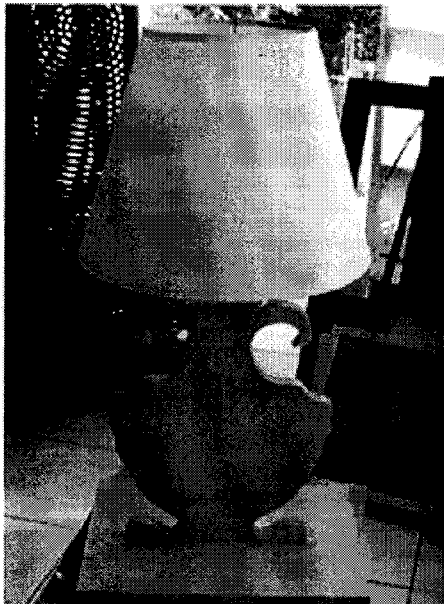


Drawing

Some correction was done after considering the temporary model and the CAD drawings were designed in 2 types.



Prototype



CONCLUSIONS

The design developed by this study can utilize yellow ocher soil, an anion of natural material and lighting devices releasing the far infrared ray, and it can indicate the products having such effectiveness of yellow ocher soil like deep sleep, antibiotic and air cleaning, and also the effectiveness of physiological function through absorbing electromagnetic waves thanks to the unbaked and 100 % fresh yellow ocher soil, and it finally can contribute to harmonic design matched with general interior finishing material and different & beautiful lighting operated by simple one-touch and jog & shuttle system

In the economical & industrial aspects it is expected that conformation of brand value and it's strategic management can help a speedy development of products and competitive price. Furthermore balanced & cooperative development with production-process companies as partner firms can lead prior occupation of niche market on the basis of brand development and development of demand & market thanks to simple way of using & good quality of function and also induction of development for the more value added products in near future.

The possibilities of the utilization can be offered in the form of the good combination with the lightings in family based on the finding & development of environment-friendly material and Well-Being item caring healthy life being free from indoor environmental hormones, atopy and electromagnetic waves can be an excellent example hereupon, and development of new-styled items can help the local firms with poor brand identity make more sales volume and contribute to create employment accordingly and finally advance the corporate image.

In case of design development constant aftercare is highly needed, and in particular the stable cooperation between the project leader and the corporate as the project giver is necessary in order to make more sales volume according to design development in the growing market where yellow ocher soil is highly demanded. The most difficult question hereupon is to reduce the price to cut competitors in the market, e.g. by reflecting high cost of the raw material flexibly and reacting the discount of competitors on time. Therefore it will be more important in the future to keep the current price and to produce the quality good at the same time and finally to develop the replacement material.

REFERENCES

- Yoon Gun. 2007. Current Status of Korean modern industrial arts.
Koream Craft Council Exhibition: 41.
http://www.samjun-ocher.co.kr/sub_b03.htm
<http://www.idbc.co.kr/whangto.htm>
<http://www.toka.co.kr>
<http://cafe.naver.com/aqlab.cafe?iframe-url=/ArcticleRead.nhn%3Farticleid=2610>
<http://blog.naver.com/evas12.do?Redirect=Log&logNo=20007927971>
<http://www.artfulhome.com/lighting-lamp.html>