The surface design by the smart technology

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Abstract: The purpose of this study was to analyze the surface design by the technology development since the modern architecture and to examine the possibility of a new form language to develop the next generation technology by applying smart technology, which is a normative alternative in the future, in a situation that the expression of skin and surface design, as an interface to be expanded since the advent of digital era.

The results of this study: The general diverse technology of smart technology acting on them will offer not only the freedom of element of technology which had limited the expression, the possibility of active expression of material which had not endowed the possibility of elements of the surface design.

Key Word: Technology, surface, interface, smart technology, cloth, skin, media

1. Introduction
From the point of artistic view on architectural design, an architectural technology could be a term containing all the processes comprising a building as well as the skin and surface design and materials used.

That is to say, a technology shall be accepted in various methods and ranges within a category of architectural design, react as a media to expand the possibility of its spatial functions and expressive forms and have the relationship directly with the configuration and the beauty, not limited to its structure and system. Namely, it could be said that a form in architectural design arts and the aesthetic aspect of its skin and surface design shall have a form embodied as media of technology and a form of chronological style.

Since the Industrial Revolution, with the development of technology, the skin and surface design in architecture has been separated from a main body as various architectural materials appeared either and formulated its unique characteristics and fields. The interpretation for the skin and surface design in the modern architecture seems that it was transparent to the main body and designed according to characteristic properties and normative and reasonable objectivity while at present, it seems that through the expressions and processes of various materials acquired from the advanced technology, it experiments the expression of organizing new skin and surface design.

Therefore, this study is intended to examine the possibility of a new form language to develop the next generation technology by applying smart technology, which is a normative alternative in the future, in a situation that the expression of skin and surface design, as an interface to be expanded since the advent of digital era, may not reach the limit of design, based on the expression of the skin and surface design experimented by the recognition of architects together with the separation from the main body and the structure from the progress of technology.

2. Surface design change by the technology development
2.1. Recognition of surface design in Modern architecture
The recognition of technology in modern architecture was used as the method to realize the technology that could recognize the most reasonably and efficiently under the decisive formative paradigm of modernity. In addition, it was the architecture as a 'mechanical configuration' that appeared while accepting the reasonable architecture configuration.

The uniformity relating to the new structural method resulting from the industrialization is a counterpart against the architectural components of a standardized building and connected to mass-manufacturing. The introduction of industrial production materials and new structural methods formed geometric buildings reflecting the reasonable and economic phases from 'mechanical configuration'. And it was developed as a representative style since the modern age.

Accordingly, the skin and surface design in modern architecture is transparent in a body and acts to express constructional methods, space or functions via design, not by expression of a skin and surface design itself.

However, the functions of expression for the skin and surface design were essential, so the conflict with structural rationalism was not inevitable. Entering into the present, starting from separating the relations with structure and body, it concentrated on the expression and autonomy of the skin and surface design.

2.2. Recognition of surface design in Contemporary architecture
The optimistic trend for the technology established since Modernism has been continued to the contemporary architecture although it had skeptic views.

Since 1960's, Archigram, metabolism and high tech architecture with more realistic approaches symbolized a technology itself by utilizing the development of the state-of-the-art technology to the max while Neo-modernism architecture showed the recognition of relative values for the expression about optimistic expectation to technology.

Regardless of optimistic or skeptic expressions, a lyrical recognition on technology such as minimalism to express the emotion for the nature using a method, 'technology' appeared. As such, the technological development in the contemporary architecture, which has been experimented while accepting and converting technological recognition starting from 1980's,
discontinued the relation with the structure and body and it was raised that the skin and surface design itself is an architectural component. Subsequently, the skin and surface design in the contemporary architecture recognized properties of materials, characteristics of toughness and superficial meanings as important components in architecture while the new materials and construction according to the progress of technology made architecture lightweight, increasing concerns about surface effects.

3. Surface design change by the digital technology

3.1. Recognition of surface design since the digital era

One of phases for the skin and surface design changed in architecture in the digital era is that it faces with different spaces in view of characteristics, responds to video, information and etc through digital media, virtualization and etc. And digital technology works for the skin and surface design as an interface beyond the functions of an skin and surface as just a facade.

But nonmaterial expressions of skin and surface design as an interface through digital media have stayed not in construction of complete subject but in 'as if' construction. But induction of smart technology based on digital technology will work on the limit of expression of technology through experimenting with possibility of type of recognition as 'cloth', 'skin' and 'media', and it seems to be possible to express of new skin and surface design as a complete subject in application and expression of materials.

3.2. Surface design to apply the smart technology

Refer to diagram 1 : Expansion of a surface recognition and design implementation which introduces the smart technology.

will offer not only the freedom of element of technology which had limited the expression, taking a step forward from the expression of the skin and surface design of contemporary architecture appeared from separation from structure, but also the possibility of active expression of material which had not endowed the possibility of elements of the skin and surface design.

After introduction of recognition of technology, which of the separation from structure and body based on the boundaries of interior and exterior of building, the skin and surface design will function as a mediator which accepts the nonmaterial elements in the building constructed with constant physical configuration and should be attempted and defined with active acceptance of newly developed technology carrying specific characters of continuous variety.

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