Profile of Old Architecture Rescue Center

1.About Old Architecture Rescue Center

Carved beams and painted columns are so beautiful and present exquisite crafts' aesthetics in every detail in the arts of eastern architecture which is far contrast to the western. Although traditional arts of architecture still surprise many foreigners, it stays in an inferior situation and gradually loses its importance under the impact of modern industry and technology. Therefore, owing to acknowledge the important task of cultural heritage preservation, Old Architecture Rescue Center (OARC) of NPUST (http://oarc.npust.edu.tw/) was established and preserves about one thousand pieces of architectural elements with exquisite ornaments of old Xinhuei temple constructed in 1926 and dismantled in 2005 (Fig. 1~2).

Fig.1 Old Architecture Rescue Center (outside)

Fig.2 Artifacts preserved in Old Architecture Rescue Center

In order to transmit the cultural beauty and techniques and to educate next generations' traditional arts, the center proceeded several projects, such as digital archive of NSC, international symposiums with workshops on emergency conservation and exploit added value of digital archives to produce innovative commodities. The center functions as a university museum as well as a research center for conservation of historical architecture and a center of innovative design. In 2008, the left structural frame (Jia-shan) of the central bay of back was reconstructed in OARC .

2.The Purposes of OARC

The purposes of OARC are to preserve and transmit Taiwanese architectural techniques and arts. Its four main functions are research, conservation, education, and production . It was also founded for nurturing architects, conservators, designers, and craftsmen as well as a territory to educate and provide creative origins.

(1) Research and Archive

One of missions of OARC is to set up a standard process for hetero conservation of temple architecture and its related arts in terms of research and archive from dismantling, recording, classifying, coding, and measuring to restorations. The preservation of cultural heritage , especially, Taiwanese traditional architecture and arts are the major field of research.

In the year of 2007/03-2008/02, OARC participated National Digital Archives Program of NSC to proceed 2D digital archives under the project of "Digital archives of museum of rural arts". Afterwards, for the following three years, OARC continues to proceed 2D archives and research 3D digital technology. The website of http: //oarc.npust.edu.tw shows the results of one year of funding and three years of self supports on digital archives of a traditional temple and its related projects.

At present, OARC preserves about

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1000 pieces of architectural elements and finish the digital archive- the retrieval system of 200 structural elements of left frame of back hall with descriptions .

(2)Conservation and Restoration

OARC occasionally holds international symposiums and workshops on theory and practice of traditional temple architecture and arts, such as timber structure, wood polychrome, fresco, wood carving, and clay sculpture. It is to transmit those precious traditional techniques and advocate adequate techniques for cultural heritage preservation and restoration.

(3)Education and Exhibition

The center is not only a shelter for these dismantle elements, but also a "learning by doing" workshop. It opens periodically extension courses on timber structure as well as conservation of architectural decorations. To integrate the extensional course of timber structural reconstruction on the left frame of back hall, the architectural exquisite techniques and aesthetics can be presented for public to invoke more attentions for the beauty of arts crafts and construct a learning environment for arts and humanities. The integrated function of archive, reconstruction, and education with exhibition is one of distinguished features of the center.

(4) Creation and Production

From preservation of cultural heritage to creation of innovative cultural products is a necessary process to promote the beauty and value of those architectural elements. Some prototypes of innovative commodities are developed,

such as 1/4 model, 3d animation of temple reconstruction, carving artifacts, and etc. Those prototypes of innovative commodities has ever participated international Licensing EXPO(Fig.3~4).

Fig3 2009 International Licensing Expo (Delivery before exhibition in Taipei)

Fig4 OARC, 2009 International Licensing Expo in Las Vegas, USA.

3.List of recent projects

(1) List of recent projects of OARC

2010 Extension on digital archives of traditional temple architecture: creative production and educational extension on piling up Do timber structure (NSC)

2010 Environmental planning of settlements after Morak typhoon (CEPD)

2009 1.Innovative products of piling up Do timber temple structure of old Xinhuei temple , "Licensing International Expo" in Las Vegas, USA (NSC)

2.Innovative Products of piling up Do timber temple structure of old Xinhuei temple, " ACE Fair in Kuangzhong, Korea" (NSC)

2009 Cultural heritage conservation technology: research and application of 3D scanning techniques on tradi

tional temple architecture and art (NSC)

2008 Timber structure extension courses (CLA)

2008 International Symposium and workshop on Emergency Conservation (CCA)

2007 Park of Rural cultural extension and education (COA)

2007 Digital Archive of rural arts museum(NSC)

2007 Preservation and rehabilitations of old Architecture - sustainable development of rural Taiwan (CEPD)

2006 Preservation of temple culture - a study on Temple architectural ornament of Xinhuei Gong, Pingtung

4.Digital archives and its application of old Xinhuei temple (4 NSC Projects)

4.1 Digital Archives of Piling up Dou timber structure

This project is to digitally preserve all the structural members decomposed from an old temple through classification, coding, and digitalization with 2D and 3D techniques to vividly display to the public. Besides, with convenient interface of retrieval system, the public can understand the techniques and beauty of a temple to promote the preservation consciousness and enhance the artistic appreciation level of public.

The recording for digital archive of old Xinhuei temple architecture includes three different scales of digital scanning - whole, object, and detail. The whole scale digital preservation is to 3D scan whole temple before being dismantled . The 3D animation of temple before its deconstruction is shown in the website (http://oarc.npust.edu.tw/Xinhuei/movie.aspx).

The object scale of digitalization is the main task for the project of "Digital archives ". Two hundreds' components are digitalized. They are structural members of Piling up Dou timber structural system of traditional temple architecture.

For some refined artifacts, such as climbing squash tube, lion seat, and Mazu mud sculpture (now is destroyed) are 3D scanned to preserve its 3D dimensional data for later applications .

4.2 the Website (http://oarc.npust.edu.tw) (Lu, 2008a,)

The preparation period is to set up the coding system of temple architecture and design the description form for each structural member. Each structure member, can be called an artifact, too, is the main object for digitalization. Setting up an idea of place and time for taking photos and control its quality is the first crucial step of digitalization. After collecting those digital contents, I design the structure of website according to the logics of the construction system of a temple. The retrieval system in the web for researchers and public are according to 1) all components, 2) key words, 3) codes of members, 4) names of members, 5) types of ornaments

For one year project, 200 structural members accompanied with 1200 photos are archived, including 28 decorative members of carving or refined painting and 7 fresco paintings. Each member has at least six photos (front, back, left, right, up, and down) with a format of 500 × 500psi and 200dpi to demonstrate its form, color, and ornament as detail as possible. Besides, each decorative member has seventeen items of description. They are 1)Serial Number, 2)Code, 3) Hall, 4)Purlin-Frame, 5)Name, 6)Scale, 7)Material, 8)Functional description, 9) Mortise-Socket, 10)Ornament, 11)Ornament in detail, 12) Theme/Type, 13)Contents of theme, 14)Technique and Color, 15)Damage, 16)Condition, 17)Craftsman, Researcher (collect, photo, description, and drawing), Restorer.

4.3 The prospect about Digital Archive of OARC

OARC has demonstrated a digital archive system for preserving traditional temple architecture in web and finished digital archives of 200 structural objects. Besides, it also develops the way of application of innovative added value of traditional architecture by developing prototypes of creative commodities in realities. Furthermore, OARC also participate international Licensing Expos to promote Taiwanese creativity and beauty and set

up a web network. Both for digital contents and added value of digital archives, I have tried to exploit traditional architecture as a unique element with social, cultural and educational purposes. The question that academic data can be applied to market and have commercial effect is still unknown. However, this is expected to make the beauty and knowledge of traditional architecture residing in the heart of common people and in turn promote the public consciousness of cultural heritage preservation. Finally, there are still a lot challenges in the future, including developing markets for mass productions, setting up a reasonable licensing mechanism, and developing compromise mechanism to adjust different perceptions between academics and industries to reach consensus.

5.Related Projects - Cultural Heritage and Environment Conservation

Old architecture rescue center not only concern temple architecture, it also concern other kinds of cultural heritage and its environment conservation. For example, the aboriginal architecture and settlements, hakka architecture and settlement. In the year of 2010, one research project on the conservation of aboriginal settlements after Morak typhoon disaster and the other project on old hakka architecture are to be proceeded. This is an attitude that any study or any actions are deserved to be taken which is helpful for cultural heritage conservation, then OARC will undertake it and would like to share the research results with public.

6. Future Prospect

The Future goal of OARC is to accumulate researches and professional information on cultural heritage conservation, restoration, and reuse on historical architecture and set up a platform for information exchange to be a place for extension on cultural heritage and its related fields.