

## **Conservation Input for Fabricating a Contemporary Artwork**

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## **Conservation Input for Fabricating a Contemporary Artwork**

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### **Abstract**

In early 2007, the Hong Kong Heritage Museum organized an exhibition called “Cameras Inside-out” to showcase the development of cameras and photographic art as well as the diversity of modern photography. The exhibition included artists KAN Hing-fook, Bobby SHAN Ka-ho, Francis WU, Almond CHU Tak-wah, Francis WU, Spencer YEE Poon-shack and many more. The conventional practice of providing conservation input to preserve the exhibits during their installation and display had to be changed in this exhibition as most of the works of the contemporary artists were provided in digital format and the photographic prints had not been produced. Instead, our conservators worked closely with the contemporary artists, curator, exhibition designer, collection manager and exhibition fabricators during the creative process of the production of the artworks for display. This poster will describe how the early participation of conservators contributed to the choice of appropriate printing methods and materials, and mounting substrates in the course of artwork production for the sake of ensuring their permanence; this will facilitate future collection management work when the images are acquired by the museum after the exhibition. The analyses and approach taken by conservators in search of solutions will be illustrated using the example of a contemporary mosaic photograph – *Creation of Adam* by CHOW Chun-fai. The work comprises 782 (6” X 8½” ) individual photographs totaling 6936cm (W) X 3519cm (H) in size and was displayed on the ceiling of the exhibition gallery.

### **Making Prints for the exhibitions**

- Selecting printing paper and process

More than 200 black & white and colour prints were to be displayed in the exhibition “Cameras Inside-out” of various dimensions: 50 x 150cm, 75x 100cm, 20” x 24”, 44” x 44” and 44” x 53”. New prints would be made for this exhibition and would be accessioned as the museum collection after the exhibition. Some artists submitted their works in traditional black & white negatives (print films), colour negatives and some are colour positives (slides) in 135, 120, 4”x5” format. There were also some contemporary artists who submitted their artwork in digital format that had not been printed before. Meetings were held to discuss how the prints should be made. The most

desirable way to make the prints was to use the same printing technology when the artists created the artworks, that is, the conventional B/W print with conventional dark room printing technique for the B/W negatives.

After some market searching, the B/W enlarger was no longer available in the local printing laboratories. B/W prints could still be made by the colour enlargers by adjusting different filters. However, most of the printing labs did not have the conventional printing paper in stock. So it might be necessary to order the black and white printing paper from overseas for this exhibition. Apart from conventional enlarger printing, lightjet printing and inkjet printing were also considered in the early stage. Both printing process involved digitization of the media, that is scanning the films into computer image files. Lightjet printing process uses laser beams of three colour to expose the printing paper. The paper would then be developed and fixed by the conventional chemical processing method. The light fading stability of the lightjet prints depends on the printing paper. It has the advantage of better edge sharpness, less distortion and less vignetting than darkroom enlarger printing. But not all the artists and curators wished to print their artwork through scanning by computer. Lightjet printing also requires using chemical processing printing paper. B/W printer paper is not suitable for lightjet printing and only colour paper could be used. The media to express the artwork would not be the same as the artists originally created the work. The light fading stability of inkjet printing with the latest pigment inkjet printers had surpassed traditional darkroom prints (Wilhem 2002). There were many types of different inkjet printing paper available in the market including glossy, semi-gloss, matte, texture and fibre type printing paper of various weights. The museum had requested the printing laboratories to provide 4"x6" sample prints of all the available printing paper. Hahnemühle photo rag fine art paper of 308 gsm, was preferred to the others by the artists and curator because it could best express the artwork created by the artists. After the discussion among the artists, curator and conservators, inkjet printing was finally selected as the medium.

- Scanning the film

Once decided that inkjet prints would be made for this exhibition, it was necessary to scan the film before printing. Rather than just making prints for the exhibition, the museum decided to keep the images in digital format permanently. In order to make a high quality print-out, the minimum scanning resolution should be higher than 2400 dpi with drum scanner in 16 bit tiff format.

Printing method	labs availability	choice of paper	Scanning	Light-fading stability
B/W Enlarger	Not available	Very few	Not required	Good
Colour Enlarger	Some	Fair	Not required	Fair
Lightjet	Many	Fair	Required	Fair
Inkjet	A lot	A lot	Required	Very Good

### **Fabricating a Contemporary Artwork**

Amongst the various form of artworks, there was one contemporary mosaic photograph – “Creation of Adam” by CHOW Chun-fai. The work comprises 782 (6”x8”) individual photographs totaling 6936cm (W) X 3519cm (H) in size. It was decided that it would be displayed on the ceiling of the exhibition gallery. This artwork is one in the series Renaissance Trilogy, in which the artist had included his self-portrait as part of the artwork. The work was submitted in digital format by the artist for printing. The museum was responsible for printing, mounting the individual prints and installing the whole artwork. As the work would be collect as museum collection, the archival properties of the object, mounting method and future storage method were part of our conservators concerns. The prints were made using the same inkjet printer and paper.

### **Mounting substrate**

Selecting suitable supporting substrates for the photographs was one of the most important tasks. Given the huge size of the artwork, the substrate should be a large rigid material that has smooth and flat surface to support the prints. The materials should not be too heavy otherwise it would be very difficult to be fixed on the ceiling. The gallery fabrication contractor had suggested to build a wooden frame work on the ceiling and use 1/4” plywood to mount the artwork. As the storage room cannot accommodate the whole artwork in one piece, the collection manager of the museum suggested the artwork to be constructed with a size no larger than 4m X 2m. As plywood is not an archival material and the adhesives used might emit volatile organic vapour that would cause deterioration on the prints and other objects in the storage, conservators always try to avoid plywood directly in contact with the objects. In this artwork, the individual photographs were supposed to be put in a way that each picture should be in contact with the others without any gap. It was impossible to use photo corners for mounting the pictures. Therefore it seemed that mounting with adhesives on the back of the prints was the only feasible solution. Initially, it was suggested to interleave alkaline-buffered museum board between the prints and

the substrate. Staples, nails, non-acidic adhesive or double-sided tape could be used for mounting the museum board to the substrate. The individual prints would then be attached to the museum board by adhesive. Starch, methylcellulose and gelatin were commonly used adhesives in paper conservation. Tests were carried out to see the ease of application, the adhesion strength, colour stability of the prints and also the dimensional stability of the prints. Colour charts were printed on the same type of printing paper using the same pigment ink as the final artwork. The colour at various areas were measured with colour spectrophotometer (Minolta CM-2002, 8mm measuring head, light source D65, SCI mode) using  $L^*a^*b^*$  colour space before and after the application of the adhesives. Starch, methyl cellulose and gelatin were applied on the back of the prints by brushing. The colour (mainly  $a^*b^*$ ) changed a lot after the application of each adhesive. Some areas had changed significantly with  $\Delta E$  up to 15. Besides, all three adhesives had caused the prints to cockle and shrink seriously which concluded that that wet mounting by these adhesives were not the solution. 1/2" double sided tapes manufactured by Scotch (3M photo-safe, acid free) and FK, were tested repeating the same procedures as mentioned above. The  $\Delta E$  was less than 0.5 and there was nearly no shrinkage on the prints. Though the acrylate adhesive on the double side tape was not removable, it was apparently a more convenient and feasible solution for mounting the prints on the substrate.

Aluminium sheet, foam board, polymethylacrylate (PMMA) sheet and polycarbonate sheet (Péncichon 2004) were also considered as the mounting substrate. Aluminium sheet is a stable, smooth and strong material which is very suitable for mounting oversized photographs, but the major disadvantage is its heavy weight which add extra difficulties in mounting on the ceiling. Foamboard (Kapa) with both sides lay with paper and a polyurethane core is a light and reasonably strong material which is commonly chosen for mounting thin paper for display. However, polyurethane is very susceptible to degradation by oxidation and resulting in loss of physical strength that make it unsuitable for mounting the photographs permanently. Polymethylacrylate sheet, also known as Plexiglas and Perspex, is available in thickness varying from 3 to 25mm and size up to 2m x 3m. It is a stable and fairly strong material, but large-sized ones may break if not supported evenly. So future storage of the PMMA sheet would be difficult. Multiwall polycarbonate sheets are available in various thickness ranging from 4mm to 18mm and size up to 2m x 4m. The weight ranges from 0.82 to 2.70 kg/m<sup>2</sup> depending on its thickness. The twin wall polycarbonate sheet is fairly strong and reasonably light to be used as a

photographs mounting substrate and convenient enough for installing on the ceiling as well as future storage. 10mm twin wall polycarbonate sheet manufactured by GE was finally selected for mounting this artwork.

Additional tests were carried out to see if the double sided tape could hold the prints in place by placing the mounted prints upside down to simulate the artwork mounted on the ceiling for 2 days. Both tapes passed the gravity test. The Scotch tape were preferred to the FK as it claimed to be acid free but not tested. The Scotch tape had one more advantage over the FK as the prints could easily be removed from the polycarbonate sheet if the prints were not well aligned.

#### The mounting procedure

A wooden frame work was built and hung on the ceiling of the gallery. Four 10mm twin wall polycarbonate sheets of size 1734cm(W) x 3519cm (H) were drilled with holes along the edges for mounting. The 4" x 6" prints were attached on the polycarbonate sheets with the double-sided tape by experienced art mounters. It was found that dividing the artwork into 4 pieces facilitated the mounting work as the mounters could easily reach the centre of the substrate. The sheets were fixed on the wooden framework by bolts and nuts.

#### Conclusion

More than conservation treatment and preservation of museum objects, the role of conservators had been changing to be in line with the current needs of the museums in the 21<sup>st</sup> century. Handling the contemporary artworks submitted to the museums in an unfinished form, the conservators could contribute the production and mounting an artwork taking account of the conservation and preservation requirements of the object as both a displaying object and as collection item through close liaison with the artists, curators, collection manager and the exhibition fabricators.

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#### Author Bibliography

Wing-Fai Lai graduated with a BSc degree in Chemistry at the Hong Kong University

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