

## The Green Pagoda Press Ltd

### Visit to the Facility

Date of Visit: 25 July 2006

### General Information on the Facility

Nature of Business: Printing company in Hong Kong  
Working Hours: 9/F: 8:30am – 5:30pm (Monday to Saturday)  
13/F (Office): 9am – 6pm (Monday to Friday) and 9am – 1pm (Saturday)

Number of Staff: 9/F: 15 (full-time)  
13/F: 15 (full-time)

Age of Building at the Site: 42 years  
Duration of Occupation of the Site: 9/F: 42 years (since 1964)  
13/F: 5 years (since 2001)

### Description of Operation and Observations during the Visit

Green Pagoda offers a full range of services from pre-press to post-press processes for offset lithography printing as well as digital printing service. Green Pagoda occupies two floors for its facilities, namely the printing and binding workshops on 9/F and the office, film processing room, pantry, colour printing and design workshops located on 13/F. The production activities undertaken on Green Pagoda's premises and observations made during the visit are described below.

#### **13/F**

##### Main Office

Split-type (ceiling cassette) air conditioners and window-mounted type air conditioners are used in the office. The temperature in the office is kept between 22 and 24 °C and the air conditioning system for the office area is switched off during the lunch hour.

##### Design Office

A dedicated exhaust duct is provided for the large colour printer used in this office. Split-type (ceiling cassette) air conditioners are used for this area and a ventilation system comprising fresh air intake and exhaust air duct is provided.

##### Pantry

No air-conditioning system is provided in the pantry.

##### Film Processing Room

The film processing room is equipped with an image setter (Agfa SelectSet Avantra 25S) and a film processor (Glunz & Jensen MultiLine 80RA). The chemicals used for the film processor are refilled once every 1.5 months and the machine is washed every 6 weeks. The room is provided with a dedicated exhaust system. There is individual air-conditioner in the room. The cooled air is supplied by one of the air conditioner of the office.

#### **9/F**

Facilities located on 9/F include the digital printing room, an office for logistics arrangement, plate room, warehouse, paper storage room, binding area and printing area. During

lunchtime, the lights for most of the areas on 9/F are switched off.

#### Digital Printing Room

Two digital printers are installed in the room and each of these printers is connected to a dedicated duct for discharging the exhaust to the atmosphere. The printers are reportedly inspected and/or maintained four to five times a month. Both split-type and window-mounted type air conditioners are used in this room. A fresh air intake is provided for the room and exhaust fans are installed to provide extra ventilation. A filter replacement sensor is reportedly installed for the HVAC system and the filter is replaced at regular intervals. Dust was however observed to have accumulated on the HVAC louvres.

#### Office and Plate Room

Film processed on 13/F is used here to make zinc plates for printing. Chemicals including plate developer and plate gum are used in the process. The plate is developed by exposure to ultraviolet light. Plate processing machine normally cleanonce a week. A split-type (ceiling cassette) air conditioner is used in this room and an exhaust fan is installed for ventilation.

#### Warehouse

Printing products are stored in the warehouse. No air conditioner is provided in the warehouse.

#### Paper Storage Room

Paper is cut with a paper cutter into appropriate sizes at this location for printing. A split-type air conditioner and an exhaust fan are installed for this room.

#### Binding Workshop

The workshop is equipped with an electric book binder, an electric paper cutter, an electric punch, a paper folding machine, a saddlestitcher, a dividing machine and a wire-o machine. Alcohol (likely to be isopropyl alcohol) is reportedly used for cleaning the binding equipment. A water-cooled single packaged air conditioner and two exhaust fans are installed for the binding workshop.

#### Printing Workshop

The printing workshop is equipped with a 5-colour press, two 2-colour presses, three single-colour presses, an adhesive binder and a laminator. The zinc plate prepared in the plate room is used for all printing machines. A water-based solvent, SuperDot Wash WH11, is used to clean the 5-colour presses. N-hexane is used for cleaning the printing machine. Traditional ink is normally used in the printing process. Soy ink is also used upon request by clients. For certain special printing products, Green Pagoda mixes soy ink with traditional ink in 1:1 ratio to improve printing quality. The cost of soy ink is reported to be similar to that of traditional ink. For the single-colour and 2-colour presses, n-hexane and R-602 (a solvent) are used to clean the machines. A fresh air intake is provided for the printing workshop. During the site visit, odour from the solvents used was detected.

Solid adhesive is melted with heat in the binder for adhesive binding of printed documents. No odour was detected from the adhesive binding process during the visit.

#### **9/F & 13/F**

The fresh air intakes and exhaust pipes are reportedly cleaned every month.

#### **Identification of Good Practice Adopted**

- Use of soy ink, which has lower volatile organic compound (VOC) contents, helps to reduce VOC emissions from the printing process.
- Provision of dedicated exhaust ducts for digital printers in the design office and the printing room help to reduce accumulation of ozone or other emissions in the working area.
- Switching off the air conditioning system and lights in the office during lunch time helps to reduce electricity consumption.

#### **Areas for Improvement and Recommendations**

- Dust was observed to have accumulated on some of the ceiling air grilles. It is recommended that the frequency of cleaning for the air diffusers and grilles be increased to reduce the energy loss.
  - Odour from the solvents used for machine cleaning was detected. The possibilities of using low or zero VOC emission solvents are worth exploring. In addition, the wider application of environmental-friendly ink (such as soy ink or ink with lower VOC contents) to replace traditional ink should be encouraged.
  - It is recommended that the T12 or T10 fluorescent tubes be replaced by more energy-efficient T8 or T5 fluorescent tubes.
  - It is recommended that electrical appliances and office equipment with higher energy efficiency be used. For information, electrical appliances with a 'Grade 1' Energy Label consume at least 20% less energy as compared to those with a 'Grade 3' Energy Label.
  - It is recommended that the indoor air temperature in the main office or the design office be raised from the existing 22 to 24 °C to 25.5 °C, as currently promoted by the HKSAR Government for energy saving.
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*Dedicated Exhaust Ducts for Digital Printer*



*Package-Type Air Conditioner*



*Dedicated Exhaust Duct for Digital Printer*