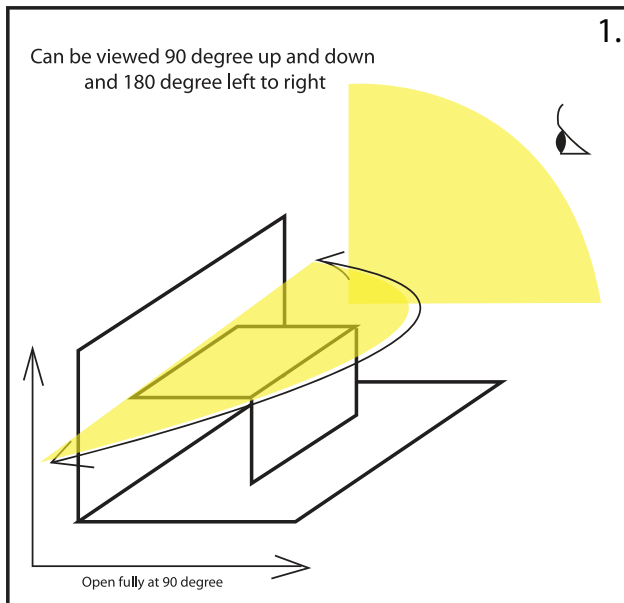


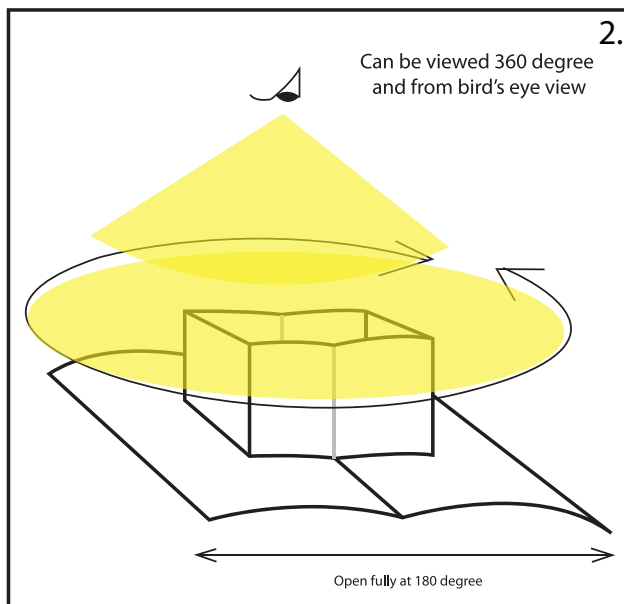
## 1. Different structure of pop-up book

Generally there are three different types of pop-up book format in the market so far:



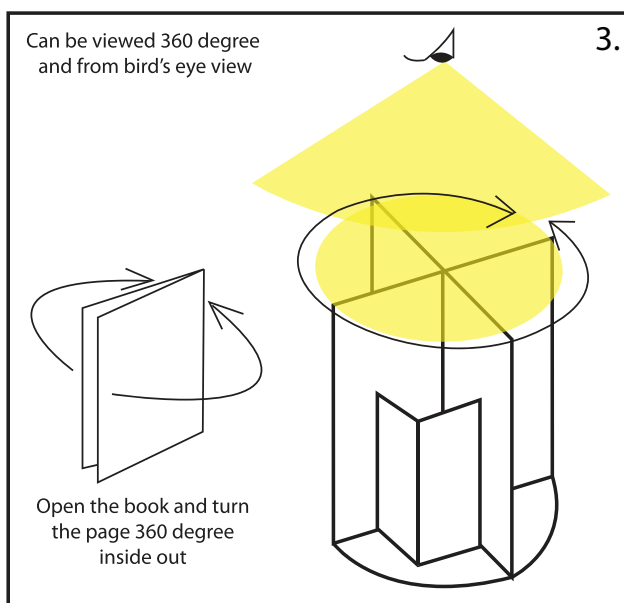
### 1. Open 90 degree

This is the oldest style of pop-up design. It works well when fully open at 90 degree. This format of pop-up book is simple to make, economy to produce and easy to assemble. However, it can be too simple compare with other pop-up books in the market nowadays.



### 2. Open 180 degree

This is the most common structure for pop-up book in the market. It works well when fully open at 180 degree and can be viewed 360 degree. This pop-up style is very flexible, versatile and can use many techniques to apply.



### 3. Open 360 degree

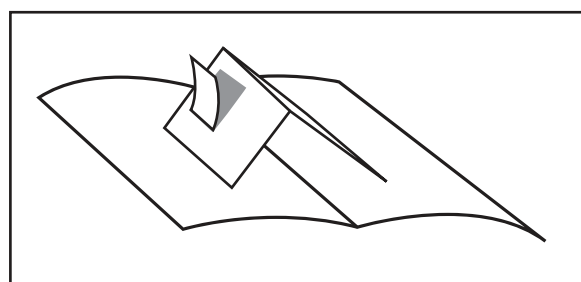
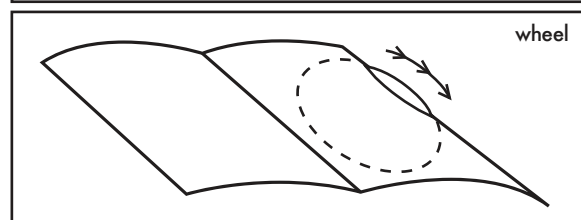
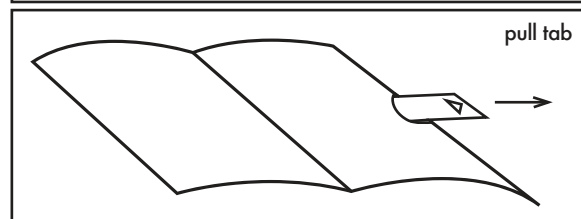
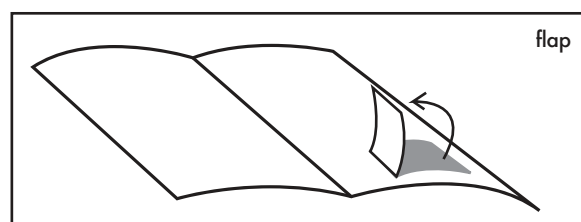
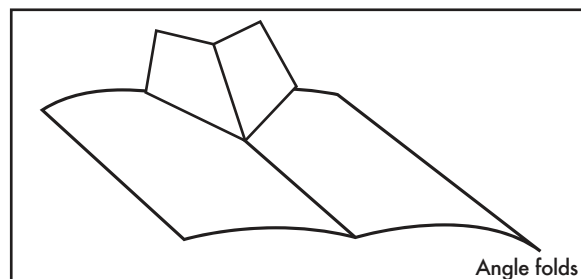
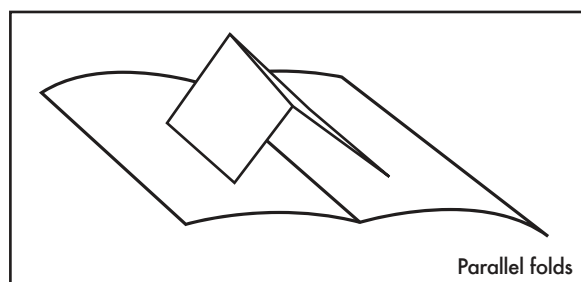
This structure can also called "Carousel" pop-up. This structure is the most suitable for making buildings. It works when fully open at 360 degree.

This format of pop-up are simple to design, can make it economy to produce and can be assemble easily. However, this kind of pop-up is very popular and many are already in the market.

## 2. Add - on components that can be added to the pop-up structure

There are three type of add - on components:

semi-auto movement components, manual-movement components and combination of both



### 1. Semi-auto movement components

The reason to call the components in this category "Semi-auto movement" is because they will move by the one-step force: the mechanics will move once the page of the book is opened by the reader.

There is no need to do any further action to make it move.

Most of the components in this category are created by using parallel folds and different angle folds as core design. Parallel folds are the fold that usually equal on both sides. Angle folds are the fold that angles to the gutter.

By experimenting using these two folds alone, you can create variety of pop - up design.

### 2. Manual-movement components

The components in this category are flaps, pull tabs, and wheels. They will move by two-steps force: the mechanics will move once the page of the book is opened AND the flaps, tabs and wheels need to be pulled or turned.

Eventhough all these flaps, pull tabs, and wheels look simple. In fact, they need skills to make them work. Simple-looking working mechanics might have lots of components hidden inside the pages. However, these techniques are suitable for some designs and designers can use some on their pop-up to make it more interesting.

### 3. Semi-auto and manual combination

This is the combination of both 1 and 2 together. Sometimes you can combine 2 techniques together making pop-up more complex and interesting.

All of these 3 add-on components can be added to the main structure of the pop-up book. However, it is up on every designer's imagination how to apply each technique to make each book interesting.

### 3. Ways to work: illustrator VS paper engineer

There are two ways how to working on pop-up project:  
you either start from illustration part or paper engineering part!

#### 1. Designing pop-ups starting with a paper engineer

1.1 This process start from paper engineer design the pop-up by sketches and build some rough mock-ups until the mechanics are fully workable. Also at this stage the book needed to be design if it will be printed one or both side because it can effect how to design each component.

1.2 Afterward, the paper engineer will start working on blank mock-up (the proper mock-up), to ensure that everything is working fine and also creating die-lines and nesting plan (a whole set of die-line that lay on the printing area). Afterward the blank mock-up and nesting plan will be prepared for 3 sets: one set send to estimating team, one for keep as a reference and one for sending to illustrator to draw illustration on.

1.3 The illustrator will draw illustration following the guideline from paper engineer. They will draw on the nesting plan and use the blank mock-up as a guide how to draw each piece of artwork together.

1.4 The illustrator will send back the nesting plan with illustraion added back to the paper engineer. The paper engineer will do mock-up again, using the illustrated die-lines to see if all the illustration match once it is assembled together. If there are any adjustment on illustration the 1.3 process needed to be repeated again. If everything works the paper engineer has to prepare the files for printer.

##### Pros and Cons

###### Pros

- the mechanics tend to be more creative and suite for each design

###### Cons

- takes longer time to develop  
- most likely to cost more too

#### 2. Designing pop-ups starting with an illustrator

2.1 This is a twist from the first process: The illustrator will draw the whole 2D illustration and finalise it. The illustration will work best for pop-ups if it is in a different layer.

2.2 Once the illustration is approved it will be sent to the paper engineer together with the instructions on which part of the illustration should comprise part of the pop-up.

2.3 The paper engineer will design the pop-up and build rough mock-ups, using the illustration provided, until the mechanics are fully workable. This rough mock-up needs to be approved, confirming that it displays the right movements/mechanics.

2.4 Once the rough mock-up is approved, the engineer will start working on blank mock-ups (the proper mock-up), to make sure that everything is working fine and also creating die-lines and nesting plans. Everything will be sent for approval and if everything is fine the paper engineer will prepare the files for printer. If any adjustment is needed this 2.4 process needs to be repeated again.

##### Pros and Cons

###### Pros

- the mechanics tend to be less creative

###### Cons

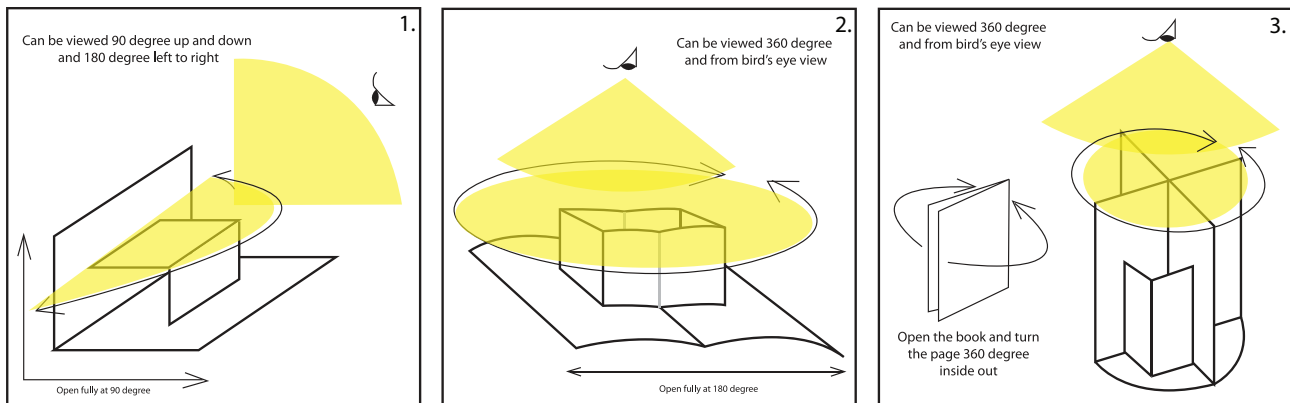
- faster turnover time  
- you get the visual look exactly you want

## 4. Turning 2D illustration to become 3D pop-up

You can also turn the original 2D illustration work to become 3D pop-up. This way, we can create another pop-up book with the same illustration (in some case with just a minimum adjustment). This is particularly useful with some popular 2D children books.

### 1. Overall visual look

Have a look if the pop-up that you want should be 90, 180 or 360 degree structure



### 2. Moving parts

2.1 Be consider which parts you think it can be move, some parts can be move but should not do and some parts that you wish to move but it might be too complicate to do so. For example there might be some license charactors which you can not move their face expression.

2.2 Creating any moving parts mean you need hand assembling work and glue to complete the book, which are the main part of production cost that you should take it into your account.

Too complicate

- more hand assembling
- more glue points
- high percentage of defected products

Too easy

- less hand work
- may not be able to compete with other pop-up books in the market

### 3. Budget

Whatever you design, it has to be within the budget. Therefore, be prepare for some compromise or adjustment if that lead to better production and cost-friendly.

- less hand work
- less glue point
- some printing techniques that can be substitute for glued on components

= less cost per unit

# Producing Pop-up: Working Process

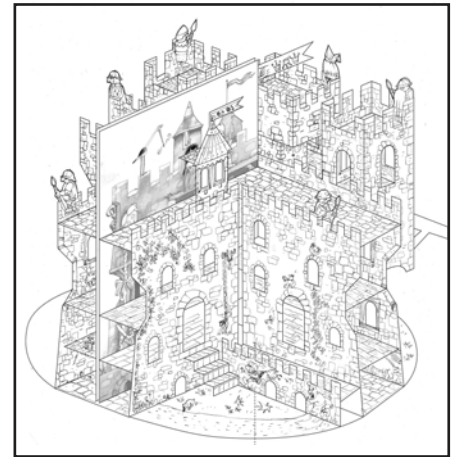
## 1. The idea

- Customers have the ideas of the pop-up project.
- Customers provide the drawings, photos, sketches, illustration or any other materials.
- Mention or point out what, where and how they want to do pop-ups (better use pictures or photos for better explanation)
- The Paper Engineer will decide roughly which mechanics will work best on which spread.

## 2. Budget

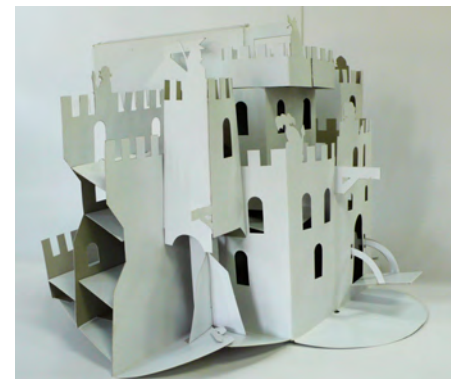
(this also can be work out together with the 1st stage)

- Know customer budget.
- How they would like the pop-up book to be printed? One side or double sided printing.
- Type and grams of the paper they preferred. Hung Hing can suggest them if they required.



## 3. Making blank mock-up

- Paper Engineer turn 2D drawings from customers to 3D pop-up. This are working mock-ups to test if the mechanics works or not. This step will be repeated until everything works fine and the paper engineer will go back and forth to the client from time to time for approval and/or any changes that may required.
- Customer approval is required at this stage before the paper engineer can do the die-cut file.



## 4. Preparation of die-cut file

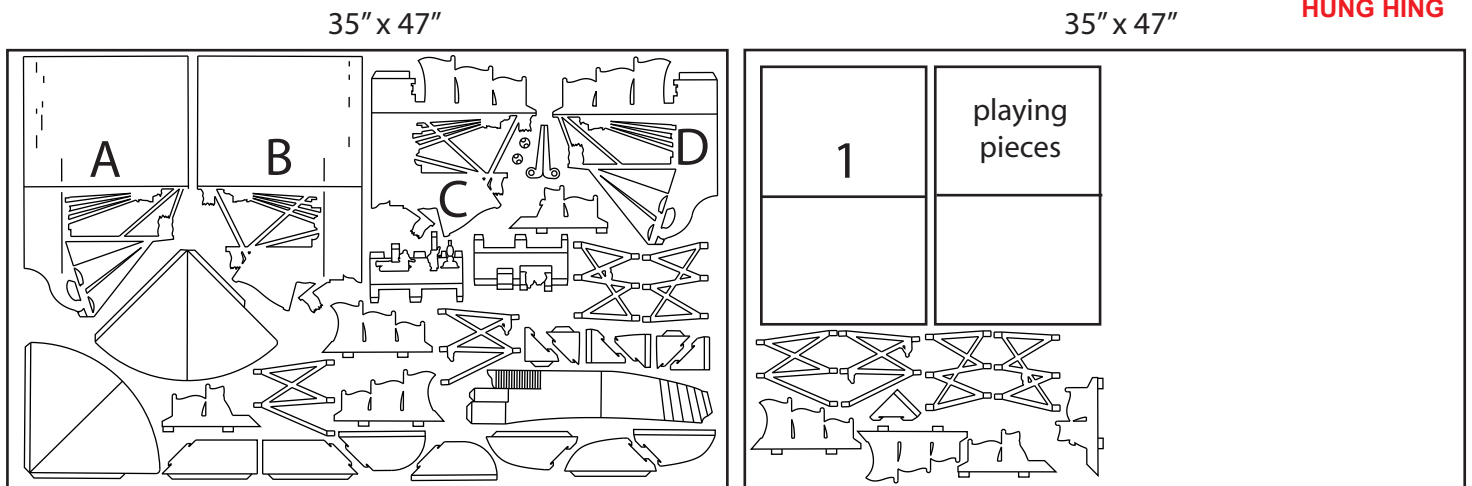
- The paper engineer will do die-cut files after customers approval. This is what we called "computer production". Hung Hing Design Department usually use Illustrator program. (please see "Preparing artwork for pop-up in Illustrator file" section)
- Once the die-cut files are completed, the the paper engineer will send out to the illustrator who will fill the blank die-cut files with arts.
- When the illustrator completed his/her job, the illustrated die-cut file will be return to . The paper engineer will make a "finish" mock-up based on the files that we received from the illustrator again.
- If there is any changes/adjustment from illustrator then the paper engineer will re-adjust the die-line again following their design and will be back and forth communicate with the illustrator and the customers until everybody is happy with the design and give final approval. This to ensure that the files are work perfectly fine at the end.

This process is required experience, skills and good communication from all three parties: Design Dept at Hung Hing, our client and illustrator.

## 4. Production

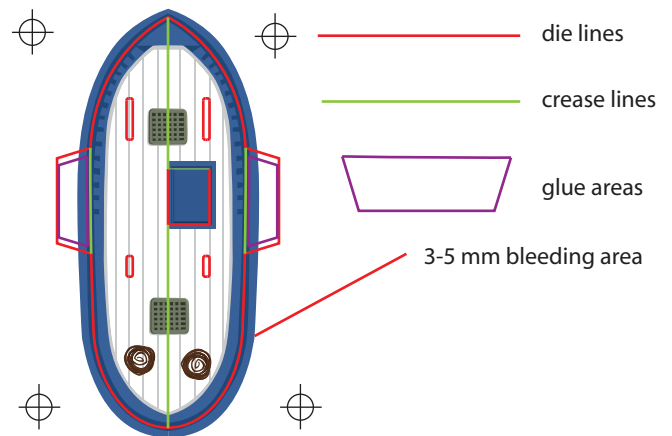
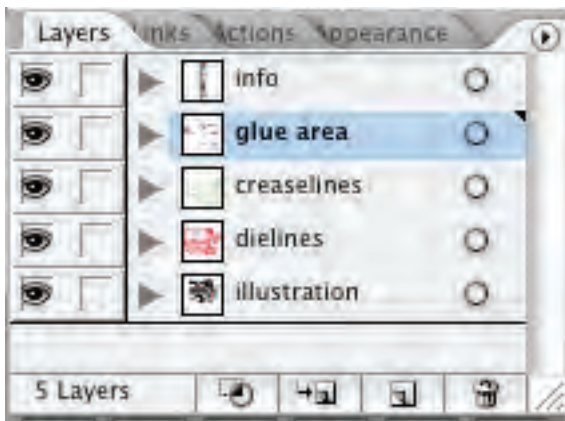
The finished files will be pass on to one of the Marketing Team. He/she will help the client handle the bulk production process.

# Preparing artwork for pop-up in Illustrator file



This diagram is for demonstration only and NOT in actual scale/size.

1. The paper engineer will send the blank nesting plan to the illustrator to fill in the illustration. The common nesting sheet size that Hung Hing is usually 35" x 47"



2. The nesting plan will always come in different layers: info, glue area, creaselines, dielines. The illustrator need to add "illustration" layer at the last one and work on that layer.

- Always keep an eye on the crop marks on 4 corners. Especially if the components have to be illustrated on both sides. The front and back artworks have to match with each other.

- If artwork required bleeding area, please ensure that the area of the artwork should be bigger than the die-cut line for at least 3mm.

- The die-cut line, crease lines, glue areas and other add on effects (e.g. foil, vanish) will be clearly indicate with different colour.

3. The illustrated nesting plan should be like the picture on the right:

