



## **THE FIGURE-MAKING PROCESS AT MADAME TUSSAUDS STUDIOS**

Each year Madame Tussauds' Studios creates approximately 40 to 50 figures for distribution to all the attractions worldwide. When large projects are in progress, production at Tussauds Studios can grow to over 100 figures and all departments are expanded accordingly. The all-new Hollywood destination, opening August, 1 2009, and will open with more than 100 wax figures and plans to launch approximately 6-8 new figures each year.

Although each process has variations, figure making at Tussauds Studios has not changed fundamentally, apart from its use of materials as well as quantity and quality of reference from sittings, since Madame Tussauds was founded over 200 years ago in Marylebone, London.

Before making a figure it must be decided in which part of the attraction it is to be placed, what the pose should be, and possibly how it should relate to other figures. If the recipient agrees to be immortalized and is available, he or she will attend a 'sitting' in specialty built rooms at Tussauds Studios in Acton, West London. If not, Tussauds Studios sculptors travel all over the world to come to the stars! No destination is too remote for these sculptors and many have traveled to New York, Mumbai, the Bahamas, even the swanky Ivy Restaurant in Los Angeles for a celebrity sitting.

At the sitting, the sculptor discusses pose, expression and the image of the figure while also taking detailed measurements and photographs. The average sitting lasts

between two to three hours, but sometimes it can take a fraction of that depending on the subject's schedule. The process is hard work and the time spent at the sitting will greatly support the figure making process which can last as long as 6 months to complete. The sculptor usually has an assistant and an in-house photographer at 'external' sitting sessions, but when the meetings take place at Tussauds Studios, the sculptor typically has assistance from additional experts in assessing hair, eyes and skin coloring. Members of the Tussauds Studios molding team are also present to take hand casts and sometimes teeth casts.

A sitting also offers our sculptor an opportunity to get to know his or her subject gaining valuable insight into the 'real person' behind the media image. Madame Tussauds endeavors to reflect each subject's personality in their final figure.

## **SCULPTING**

Tussauds Studios sculptors model their subjects in clay to achieve a lifelike portrait, using as their reference the photographs and measurements taken at the sitting. This reference is supplemented with press pictures and videos so that sculptors can keep in mind the public image of the person. If the portrait is of an historic subject then they use paintings, sculptures, life or death masks, and contemporary descriptions of the person, as well as descriptions how people, in general, looked at that time, all of which is obtained by our Research Department.

The sculptors build an armature – essentially a skeleton – out of steel and aluminum, which are bulked out with newspaper padding and held in place with wire. Aluminum is used for the arms because it is strong and can be moved aside while the body is being sculpted. The armature also helps establish the exact stance of each figure. Any props, particularly the shoes, have to be available as they are essential to the pose. For instance, the posture of a woman wearing high heels and a skirt will be quite different from that of a woman wearing casual shoes and trousers.

The body is then built up around the armature in clay. When the positioning of the neck and head has been established, the head is removed and sculpted on a separate purpose-built stand. This stand allows the sculptor to adjust the head to any angle, to match that of the photographs. The sculptors have to increase each measurement of the head taken at the sitting to compensate for the wax shrinkage (see below). When the head is almost complete, it is worked back onto the body for final adjustments. Allowances have to be made in the clay body for the way the clothes will sit on the hard fiberglass surface (see below). For example, men wearing trousers with a belted waistband will have a slight indentation around their waist where a belt normally pushes gently into the flesh.

The hair is sculpted using clay to obtain the correct proportions and likeness, but this is removed before the head is molded, so that a correct skull shape can be achieved. In total, the sculpting process takes 10 to 12 weeks with a majority of the time spent on the head (six to eight weeks) versus the body (four weeks).

## **MOLDING**

Tussauds Studio molders cut the clay head away from the body at an appropriate point around the neck and shoulder area, depending on how much of the neck and torso will be visible on the final figure. We recycle the original clay use once the figure has been completely molded.

A 'piece mold' of the head is created using high quality plaster to reproduce the surface of the clay, which is then cast into a beeswax and Japan wax mix. We affectionately refer to it as *the Madame Tussauds secret wax recipe*. Because the head mold is comprised of many separate pieces, it typically lasts longer than a single mold. In the annals of Madame Tussauds history are plaster piece molds more than 200 years old and in good enough condition that fresh wax casts can be taken from these originals.

The main body, which will ultimately be clothed, is molded in plaster with Hessian-backing, steel reinforced rods and then cast into resin and fiberglass. Fiberglass is chosen for its stability, strength and lightweight. The two-piece plaster body mold, also known as 'waste' molds, is usually destroyed in the casting process.

A highly skilled process, sculptors cast the 'negative' head mold into the final 'positive' wax head for each figure. The plaster 'piece mold' is saturated in hot water, rendering it completely airtight so that no air bubbles will appear in the wax cast. The mold is then removed from the water and dried before the special molten wax blend – dye colored and heated to 170° F – is poured into the mold. The wax is then left to cool until it hardens to a 5/8-inch thickness. The surplus liquid wax is removed leaving the hollow wax cast. After further cooling for 1½ hours, the mold pieces are carefully pulled away to reveal the wax head.

At this stage the wax surface is interrupted by a number of tiny ridges formed by the joints between each mold section. The head is returned to the sculptor who carefully removes these seams. At this stage, the head still retains wax eyes and these are melted away to make room for lifelike acrylic eyes. The sculptors use a heated eyeball-shaped brass tool which allows the eyes to be fixed in place from inside the head. The teeth, if showing, are treated in a similar way.

Hands are also cast into wax, but a strengthening plastic agent, called elvex, is added which serves to reinforce the wax and give it more flexibility while helping to preserve vulnerable fingers. All Tussauds Studio hands are 'life casts' molded in dental alginate. Plaster is poured into the molded alginate 'negative' to make a 'positive', which is then remolded creating a more permanent, flexible rubber 'negative.' From this, the final wax hand is cast by Tussauds Studio sculptors. Alginate is so fine a material that it allows the lines, pores and hair follicles of the skin to be reproduced in minute detail. The wax hand cast is fitted with a square metal section at the wrist, which will eventually situate into the fiberglass arm fitting.

## **TEETH, EYES AND HAIR**

If the portrait is to have an open mouth expression, an impression of the teeth is taken. From a silicon mold, the impression is then cast into dental acrylic. Teeth shades and color vary from top to bottom and from tooth to tooth, so each tooth is processed and colored individually referencing the color match taken during the sitting. The teeth are then polished and set in the pink palate.

When artists are unable to take teeth impressions, they compare the sizes on detailed photographs of the subject in order to make the teeth.

The teeth-making process was developed in conjunction with Mount Vernon Hospital in Middlesex, U.K. and the materials come from actual dental suppliers. It takes Tussauds Studio technicians four days on average to make a set of teeth.

Each pair of eyes takes approximately 10 hours to produce. At the sitting, stock glass eyes are compared to the subject's eyes and life-size color transparencies are taken, so that our eye-making artists can reproduce the exact inner, middle and outer iris and sclera colors. Each eye is painted with watercolors with fine red silk thread used to create the veining lines and the finished eye is cast into acrylic.

At the sitting, hair samples are also compared to the subject to perfectly match hair color. It takes approximately six weeks on average to insert a full head of hair. Every strand of human hair is inserted in the direction of hair growth, stand-by-strand, using a specially developed fine needle which has been cut across the 'eye', forming a fork. Once the inserted hair is secured in wax, it is cut, styled and washed again and again. Eyelashes, eyebrows and any body hair needed are also inserted by artists into each figure one-by-one.

If a head of hair will require extra maintenance, the hair artists may choose to make two wigs instead of doing one full head insertion. It can take two or three weeks to

make a single wig. If a portrait is to wear a wig, a front insertion is still completed and this is styled into the wig when it is fitted, so that the wig is not noticeable.

## **COLORING**

Like human skin, wax is translucent allowing light to pass through it in the same manner that skin does which gives it a 'glowing' quality and appearance. The Tussauds Studio artists apply color to the wax 'skin' using oil paints. The paint is applied in layers to create realistic skin color and texture. Because the paint is oil-based, the head can be sponged with water and maintained without the color washing out.

At the sitting, coloring artists match skin color on the face and body, in order to accurately paint the head and hands, and any other exposed areas of the figure. The artists constantly bear in mind the particular light conditions under which the figure will be displayed, and adjust their color accordingly. The fiberglass bodies are painted using enamels and acrylics.

It takes approximately five days to color a head, and two days to color the hands respectively. Additional time is needed if more of the figure's body is exposed.

## **WARDROBE**

It is a Madame Tussauds tradition that each celebrity donates their own clothing whenever possible. These fashion articles take on the individuality of the wearer, which adds to the authenticity of each figure. If we are unable to obtain the subject's own clothes, we either go directly to their tailor to have replicas made, or approach the retailer where the clothes were purchased. We also copy outfits in-house, using our team of trained costume specialists. If a subject is unable to donate their shoes, Tussauds Studios purchases them and, if appropriate, wear them in to get an authentic, 'slightly worn' look.

Jewelry is also apart of the figure's wardrobe and if the subject cannot donate items,

Tussauds Studios will arrange for replicas to be made or purchased from an original source.

## **THE FINAL FIGURE**

Once completed, all the body parts are carefully fitted together and the figure is fully dressed. All departments work together to ensure that the figure looks as it was intended, and any final adjustments are made. The figure is then photographed for record keeping and maintenance ensuring it always looks as intended.

The opportunity to have the subject stand alongside their figure is invaluable, as it allows the Tussauds Studios team to see how accurate and true to life the figure truly is, and further cements Madame Tussauds' excellent relationship with the famous and glamorous.

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