AESTHETIC CONSIDERATIONS IN DESIGN

● Each product is to be designed to perform a specific function or a set of functions to the satisfaction of customers.

● The parameters that are normally considered by the customer while selecting the product are :

1. Functional Performance

2. Durability

3. Initial and Running Costs

4. Ability to Withstand Adverse Conditions

5. Service Support Available

6. Comfort to User

7. Appearance

● In a present days of buyer's market, with a number of products available in the market are having most of the parameters identical, the appearance of product is often a major factor in attracting the customer.

● This is particularly true for consumer durables like : automobiles, domestic refrigerators, television sets, music systems, etc.

● Aesthetics is defined as a set of principles of appreciation of beauty. It deals with the appearance of the product.

● Appearance is an outward expression of quality of the product and is the first communication of the product with the user.

● At any stage in the product life, the aesthetic quality cannot be separated from the product quality.

● The growing importance of the aesthetic considerations in product design has given rise to a separate discipline, known as ‘industrial design’. The job of an industrial designer is to create new shapes and forms for the product which are aesthetically appealing.

1. Guidelines in Aesthetic Design :

● For any product, there exists a relationship between the functional requirement and the appearance of a product.

● The aesthetic quality contributes to the performance of the product, though the extent of contribution varies from the product to product.

● For example, the chromium plating of the automobile components improves the corrosion resistance along with the appearance. Similarly, the aerodynamic shape of the car improves the performance as well as gives the pleasing appearance.

● The following guidelines may be used in aesthetic design (design for appearance) :

1. The appearance should contribute to the performance of the product. For example, the aerodynamic shape of the car will have a lesser air resistance, resulting in the a lesser fuel consumption.

2. The appearance should reflect the function of the product. For example, the aerodynamic shape of the car indicates the speed.

3. The appearance should reflect the quality of the product. For example, the robust and heavy appearance of the hydraulic press reflects its strength and rigidity.

4. The appearance should not be at too much of extra cost unless it is a prime requirement.

5. The appearance should be achieved by the effective and economical use of materials.

6. The appearance should be suitable to the environment in which the product is used.

2. Aspects of Aesthetic Design :

The various aspects of the aesthetic design, which are discussed below, are also related to : functional requirements, ergonomic considerations, manufacturing considerations, assembly considerations and cost, in addition to the aesthetic considerations. These aspects are not very rigid.

1. Form (Shape) 7. Contrast

2. Symmetry and Balance 8. Impression and Purpose

3. Colour 9. Style

4. Continuity 10. Material and Surface Finish

5. Variety 11. Tolerance

6. Proportion 12. Noise

1. Form (Shape):

There are five basic forms of the products, namely, step, taper, shear, streamline and sculpture, as shown in Fig. 1.4. The external shape of any product is based on one or combination of these basic forms.



Fig. 1 : Basic Types of Product Forms

(i) Step form :

The step form is a stepped structure having vertical accent. It is similar to the shape of a multistorey building.

(ii) Taper form : The taper form consists of tapered blocks or tapered cylinders.

(iii) Shear form : The shear form has a square outlook.

(iv) Streamline form : The streamline form has a streamlined shape having a smooth flow as seen in automobile and aeroplane structures.

(v) Sculpture form :The sculpture form consists of ellipsoids, paraboloids and hyperboloids.

2. Symmetry and Balance :

● Most of the life forms in the nature are approximately symmetrical about at least one axis.

● The human eye is thus conditioned to see the things in symmetrical form and tends to reject asymmetrical shapes as ugly.

● Hence in many products, symmetry about at least one axis improves the aesthetic appeal of the product.

● However, wherever functional requirement demands asymmetry, balance in the product improves the aesthetic feeling.

Fig. 1.5 : Arrangements of Control Panel

● Fig. 1.5 shows three arrangements of a control panel :

(i) Arrangement (a) : It is symmetrical but is ergonomically poor, as control knobs are placed on either side of the panel.

(ii) Arrangement (b) : It is ergonomically good but looks unbalanced because bulk of the display ‘mass’ is towards the right of the panel, and hence aesthetically poor.

(iii) Arrangement (c) : It is ergonomically good as well as aesthetically pleasing because of the sense of balance of mass about the central axis.

3. Colour :

● Colour is one of the major contributors to the aesthetic appeal of the product. Many colours are linked with different moods and conditions.

● The selection of the colour should be compatible with the conventions. Morgan has suggested the colour code given in Table 1.1.

Table 1.1 : Morgan Colour Code

Colour Meaning

● Red Danger, Hot

● Orange Possible’ Danger

● Yellow Caution

● Green Safe

● Blue Cold

● Grey Dull

4. Continuity :

● A product which has good continuity of elements is aesthetically appealing.

● For example, a fillet radius at the change of cross section adds the continuity to the product, and hence improves the appearance, as shown in Fig. 1.6.

(a) Poor Appearance (b) Better Appearance

Fig. 1.6

5. Variety :

● Variety is particularly useful while marketing the range of products. The

variety releives the user of the boredom.

● For example, in a consumer appliances, the functionally identical products are manufactured in a number of varieties by a single manufacturer.

6. Proportion :

● Proportion is concerned with the relationship, in size, between connected items or elements of items.

(a) Poor Appearance (b) Better Appearance

Fig. 1.7 : Spanner

● The product which is out of proportion, is not aesthetically pleasing.

● Normally, the proportions of the product are developed from the sound

functional requirements, but can sometimes override the functional aspect.

● The spanner, shown in Fig. 1.7(a), satisfies the functional requirement and is

also easy to manufacture. But it is out of proportion, and hence poor in appearance.

● The spanner shown in Fig. 1.7(b) is in proportion and aesthetically pleasing.

7. Contrast :

● Contrast is a distinction between the adjacent elements of the product which have clearly different characteristics and functions.

● The contrast improves the aesthetic appeal of the product.

8. Impression and Purpose :

● The product not only should look nice but also should look as if it will work.

● The product should give the impression of the satisfactory performance or purpose.

● The taper shape gives the impression of strength and stability as shown in

Figs.1.8 and 1.9 respectively.

 (a) Impression of Weakness (b) Impression of Strength

 Fig. 1.8

 (a) Impression of Unstability (b) Impression of Stability

 Fig. 1.9

● Similarly, the streamline shape gives the impression of speed.

9. Style :

● Style is a visual quality of the product which sets it apart from the rest of the functionally identical products.

● Good style will skillfully reflect a current public mood, which may be influenced by the technological developments, or by a prevailing social or environmental climate.

10. Material and Surface Finish :

● The material and surface finish of the product contribute significantly to the appearance.

● The material like, stainless steel gives better appearance than the cast irons, plain carbon steels or low alloy steels.

● The brass or bronze give richness to the appearance of the product.

● The products with better surface finish are always aesthetically pleasing.

● The surface coating processes like : spray painting, anodizing, electroplating, etc. greatly enhances the aesthetic appeal of the product.

11. Tolerance :

● Proper tolerancing of the mating parts improve the aesthetic appeal of the product.

● Unwanted clearance or interference hampers the aesthetic appeal.

12. Noise :

Unwanted noise is disturbing and is suggestive of some malfunction within the product, and hence it greatly reduces the aesthetic appeal.