Aspects of Design

The **Aspects** can be considered to be those areas of design that affect the use and manufacture of a product more than the underlying principles and basic elements.

Functionality
When designing a product, the final design is meant to meet the requirements set out in the design brief and be consistent with the research conducted. The functionality is closely linked to all of the aspects described below.

Aesthetics
Aesthetics are a set of principles concerned with the nature and appreciation of beauty. Essentially we are considering the appearance of a product.

Factors determining appropriateness of design: economics
The design of a product does not end with the final drawing depicting the item. Appropriate design will also consider the financial side of manufacturing the product. If a design is too expensive to produce it is not an appropriate design solution.

Factors determining appropriateness of design: environment
Environment relates to the area or setting the product has been designed for use in. It is not considering the trees that may be cut down to manufacture the product.

Factors determining appropriateness of design: manufacturing techniques
Like the 'economic' aspect of design, the manufacturing process required to make a product also need to be considered. It is no use including design features if you do not have the ability to make them or access to the required equipment.

Factors determining appropriateness of design: sustainability
Sustainable design is the philosophy of designing objects to comply with the principles of economic, social, and ecological sustainability.

Factors determining appropriateness of design: decoration
Decoration with regard to appropriate design of timber products relates to the type of finish used, routing edges, incorporating inlays, veneering and other decorative features that may be included on a product.

Factors determining appropriateness of design: anthropometrics & ergonomics
Anthropometrics refers to the measurement of the human individual for the purposes of understanding human physical variation. These measurements are then used to develop ergonomic designs.

The AS1837 Australian Standard defines ergonomics as the design of work so that the best use is made of human capabilities without exceeding human limitations. It is the study of the interaction of people, their work and their environment, using data derived from engineering, anatomical, physiological and psychological sources.

Most mass produced items are not made in a wide variety of sizes. They are made for the average person. The average person is usually found from 5% to 95% on a bell curve. The people that fall into the highest and lowest parts of the bell curve will usually find mass produced furniture very uncomfortable.

When designing a piece of furniture the following areas need to be applied when considering ergonomics.

- Benefits such as reduced fatigue, reduced risk of injury, and increased efficiency of working.
- The inclusion of other industrial practices such as industrial engineering and OH&S.

Ergonomics is applied in the office when designing furniture to reduce fatigue and increase the workers output. The design of office chairs is very important in because most people that work in an office are seated for long periods of time. The height of desks is also important.

Chairs and furniture that is used for leisure activities should be designed for the relaxation of muscles. They are often designed so that the spine is able to hold its natural inverted ‘S’ shape.

The design of home furniture must take into consideration the other items of furniture it will interact with. A dining room chair cannot have arms

that are too high because it will not fit under the dining table. The scale and proportions also need to be suited to the human anatomy.

When you sit on well designed furniture your muscles start to relax and the flow of blood is not impeded. Your back relaxes as the spine is supported in the correct places at the proper angles. Poorly designed furniture will prevent relaxation by inhibiting blood circulation with sharp edges, crimping muscles through incorrect positioning and creating pressure on the lumbar area of your back.

The size of parts and pieces of furniture need to take into account the action that it will be used for. A wardrobe is no good if the clothes are at knee height. Modifications to existing designs or completely new designs might be required for people with handicaps.

Material suitability & selection

Materials appropriate to the manufacture and use of the product are all researched, justified and selected as a standard part of the design process. Factors such as availability, working properties of the materials and cost are all considered when deciding upon the suitability of a material for a specific component of the product being designed.

Tables	Height	Length	Width
Dining	710-760	915-1830	760-990
Occasional	355-560	460-1830	300-610
Office Desk	710-735	1220-1980	610-915
Writing Desk	685-710	760-1220	460-840
Dressing Table	610-810	760-1450	430-535
Stools	Height	Length	Width
Foot	100-255	255-380	180-300
Dressing Table	380-460	380-460	300-315
Piano	560	460-610	380
Bar	660	300-380	Square or circular
Storage	Height	Depth	Width
Chest of Drawers	660-1065	405-460	610-1015
Wall Cabinets			
Buffet	685-735	405-610	990-1830
Bar	990-1065	300-405	915-1525
Wardrobes	1730-1980	460-610	760-1830
Bookshelves	180-255 deep shelves, 200-300 vertically apart with vertical supporting division 600-750 apart		

Seating	Seat Height Front	Seat Height at Rear Lower Than Front	Width of Seat	Depth of Seat	Height of Back	Angle of Back
Dining Chair	430	0-50	460-560	405-560	810-840	100-105
Office Chair	380-460	0-25	430-480	300-380	660-735	100-110
Lounge Chair	355-430	0-100	510-610	460-585	760-990	105-115