

Foot Facts!

In the Middle East, heels were added to shoes to lift the foot from the burning sand.

❖ Pointed toes on shoes became symbol of wealth and power in Europe. They remained mostly in fashion between 11th and 15th century



❖ World's biggest feet belong to Brahim Takioullah. His shoe measures 40 cms in length (European shoe size: 58) and was produced at a cost of nearly 3000 Euros. At 8'1", he is also the second tallest man alive.

❖ Penny Gold, a retired teacher, who lives in Florida, owns a staggering 733 pairs of converse sneakers. She has spent 15 years and \$15,000 on her collection.

Most expensive shoes: Judy Garland's ruby red slippers, used by her in the 1939 movie, "The wizard of oz", remain the highest paid slippers ever auctioned - the winning bid was for \$665,000.



Largest pair for shoes: One of the main attractions of Marikina, Philippines is the World's Largest Pair of Shoes. It is located and displayed at the Riverbanks Center. The shoes measures 5.29 meters long, 2.37 meters wide and 1.83 meters high. The heel of the shoe was measured 41 centimeters or 16 inches. The shoes were made in the year of 2002. This was displayed for the First Sapatero Festival.



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A Guidance Portal – Plan your career: The most common question, since we were kids, has been "What do you want to be when you grow up?" Though an answer always came readily then, now when it is time to pursue your desired career – it's time for confusion. To ease your confusion, we present to you our newest feature – "PLAN YOUR CAREER" – A guidance portal just for you. CADD Centre Guidance Portal is special because it is uniquely designed just for budding engineers.

Plan your Career is a page where you can use the tool provided to chart out your own career map. The module will inform you of the qualifications and skills you need to pursue a career of your choice. The user-friendly module will also provide you the narrowed down options of courses pertaining to your degree. This is a trusted guidance portal because it is backed by CADD Centre's years of experience.



CAD/CAM in the footwear industry

In the footwear industry, Computer Aided Design and Computer Aided Manufacturing are used for designing and grading shoe upper patterns and, manufacturing of cutting dies, shoe lasts and sole moulds, respectively.

CAD was introduced in the shoe industry first in 1970s. Initially, it was used primarily for pattern grading. It enabled manufacturers to easily and quickly perform complex grading.

Today, CAD systems are used in a wide range of functions. Logos, textures and other decorations can be incorporated into product designs of both the uppers and soles to help reinforce branding on all areas of a model. CAD automates routine procedures, increasing speed and consistency whilst reducing the possibility of mistakes. CAD data can now be used effectively for a wide variety of activities across footwear manufacturing business. CAD/CAM generates data at the design stage, which can be used right through the planning and manufacturing stages.

Latest improvements in the CAD/CAM technology are:

- Graphic capabilities and interconnectivity have improved enormously
- Software developments have progressively made systems more intuitive and easier to use
- With 2D sketch and paint modules, a serviceable sketch can be produced and then color and texture can be added
- 3D systems enable the last and design to be viewed from any perspective and several angles even simultaneously.

With CAD/CAM software, footwear manufacturers can cut their time to market dramatically and hence, increase market share and profitability. In addition, the power and flexibility of the software can overcome restrictions to the designer's creativity imposed by traditional methods.



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CAD/CAM in the footwear industry

Pattern grading

Shoe upper patterns need to be graded for the whole scale of the assortment of the required shoe sizes, which can be European, British or American sizing. Individual parts are graded instantaneously, which enables the designer to check the graded parts on the monitor. If any discrepancies are found, the designer can change the grading specifications immediately and re-grade the parts in no time.

Die making

Cutting dies made of steel are used in the shoe production to cut uppers from leather, textile or synthetics. Some CAD systems offer modules that enable long-distance transfer of data for shoe production preparation via modem or the Internet. The

graphics data of patterns designed can then be transmitted easily to the die producer. The system also calculates the circumference of the die, which is the key factor of the die cost.

Automated leather

Automated cutting machines are widely used today in the footwear industry to cut uppers from leather, when die costs are relatively high for samples or low quantity styles. Computerized cutting systems use graphics data output of CAD systems as input.

Cost calculation

Using the graphics data generated, the CAD software can perform instant and highly accurate calculations for material consumption and product

cost of the shoe, eliminating grueling and time-consuming work. It also helps in the introduction of detailed documentation and in effective staff training.

Shoe last design

Lasts can now be produced on a selection of numerically controlled lathes and milling machines using data output from CAD systems. Last shapes can be modified and new lasts created in the CAD systems. Variations in toe shape, heel curve and toe spring are easily achievable. Combining parts of different lasts also takes a few minutes with CAD technology.

It is possible to develop shoe design and tooling before the last physically exists because they are all derived from the same source data in the CAD system.

Easy modification of last shapes through CAD has enabled the development of software

and procedures for orthopedic and customized footwear. Modules for materials and labor costing, lay planning and style specification sheets can be used early in the development of shoe styles.

Complex shapes can be generated, both rapidly and accurately, from the 3D computer representation of the appropriate last.

Sole design

CAD/CAM software can be used to generate machining data for shoe sole models and moulds. Shoe sole mould makers are able to strengthen their capabilities of mould design and production techniques to meet the market demands for shorter product life cycle, quality improvement and handling versatile pattern design. This helps especially sports shoe producers to manufacture products rapidly and to introduce them earlier than their competitors.

3D CAD/CAM is the core technology for shoe sole mould in the footwear industry and develops towards specialization.

Benefits of CAD/CAM in the mould manufacturing are:

- ❖ Total modeling for rapid generation of design concepts and variations
- ❖ Reverse engineering from existing models or parts
- ❖ Easy design modification and morphing capability
- ❖ Completely accurate designs regardless of complexity
- ❖ Group grading of soles and uppers
- ❖ Advanced decorating techniques
- ❖ Realistic onscreen visualization
- ❖ Rapid generation of molds from product designs

Footwear - Changing styles through the decades

1910s:

The First World War of 1914-1918 saw millions of men going to fight around the world. With women filling the jobs left vacant by the men's absence, a desire for more practical women's shoes for use in the factories was born. However, as shortages started to bite, the idea of being wasteful was severely criticized. With a lack of fabrics, dresses became shorter and the same design of lace-

up boot that had been worn at the turn of the century was now viewed as practical rather than 'old-fashioned'.

Suede became popular, and ballet-style pumps were decorated with a variety of removable buckles made from steel and decorated. Once peace was declared, fashions quickly changed in an effort to throw off the depression of wartime austerity.

1920s: This decade witnessed incredible changes in fashion in general - more liberal views on acceptable dress codes were forged. Dance crazes like the Charleston, which demanded a securely-fastened shoe with a low heel and a closed toe, influenced standard shoe design tremendously.

The discovery of ancient Egyptian Pharaoh Tutankhamen's tomb in 1922 served to encourage a love of all things exotic, and this was reflected in shoe designs of the age. Brilliantly-dyed leather, metallic finishes and bright fabrics were used to create never-before seen designs, and rich brocades, satin, silk and velvet were

embellished with metallic overstitching, embroidery and fake gemstones. Heels were often decorated with crystals, often in Art Deco designs.

1930s: This was a decade that saw the world plunged into a financial depression after the US stock market crash of 1929. As in the First World War years, footwear needed to last longer and somber colours such as black, brown, maroon and navy blue became standard.

1940s: With the Second World War dominating everyone's life for much of the decade, it was viewed as unpatriotic to be very fashionable during such a time of shortage. In much of the world, leather was reserved for military use, so shoemakers had to show initiative in their choice of raw materials. Reptile skins and mesh became popular alternatives.

1950s: After the war, optimism was high and stiletto heel, one of the great icons of fashion footwear, gained a massive following during the early part of the decade. Flat pumps based on the ballet shoe regained their popularity,

and were quickly available in an incredibly diverse colour range.

1960s: Young people suddenly found themselves with more money to spend. This led to a decade of tremendous change, with highly experimental styles of fashion, music, art and literature. Hot pants and miniskirts took the Western youth market by storm, with flat-heeled high boots proving particularly popular. The hippie culture also became a major fashion and, as the race to be the first on the moon accelerated, new metallic 'space-age' materials (including coated plastic) were increasingly used by the world's shoemakers.

1970s: Celebrities dressed to shock in the 1970s, with punk and glam rock encouraging dramatic styles that quickly found their way onto the high street. The birth of disco demanded comfortable dancing shoes, and strappy sandals became the choice of millions.

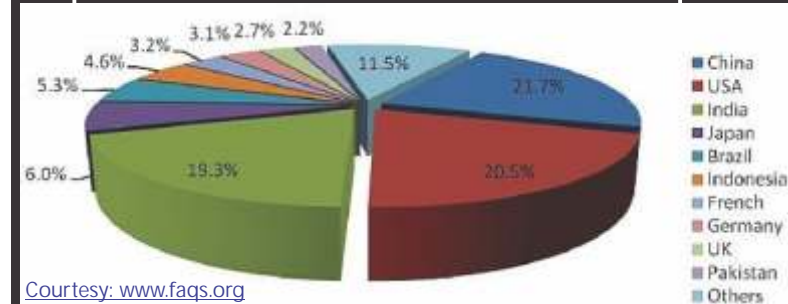
1980s: A new group of ambitious consumers with money to spend - well-paid young

professionals nicknamed 'Yuppies' - looked to designer labels to emphasize their wealthy status in life, and retailers were only too pleased to supply just what they wanted. Many 'new' styles were actually updated versions of popular shoes from the 40s and 50s, with men's wear influencing women's fashions in the form of lace-up brogues.

1990s: While some glittering styles continued to hit the high street, the excesses of previous decades were replaced by more somber designs before the end of the millennium. A number of shoe fashion revivals took place, with 1970s-style chunky platform shoes regaining their popularity and pastel-colored ballet pumps once again proving to be a best buy.

2000s: Heels began to rise once more at the beginning of the 21st century, and the popularity of designer labels showed no signs

Top 10 countries of Footwear consumption



Courtesy: www.faqs.org

of flagging. Embellishment of shoes with crystals, beads, embroidery and exotic leathers arrived yet again - and has since proved to be a regular part of the footwear designer's palette.

Courtesy: www.satira.co.uk

