

AUTHOR

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Malawi

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**[ Disabled footwear design and production ]**

**[this is a project mainly focusing on the challenges disabled people are facing when it comes to the issue of getting a proper footwear**

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PROJECT NAME : **DISABLED SHOE DESIGNING AND PRODUCTION**

## **BACKGROUND**

My name is Daniel Mkama, more than 25 years in leather footwear. For many times I have observed and try to help adjusting shoes for disabled people the thing that inspired me to think and find a final solution for the problems our colleagues are facing .

Most of the time disabled people finds it hard to find expert who can adjust or produce footwear that can fit or help them to protect their foots. Through my experience I have been conduction a research on how I can start producing something better for them, most of designers and producers don't consider the importance of start finding solution for the disabled people .After trying for many years producing such type of footwear I came up with the systems and procedures on how this can be done locally and become the source of local solution. Bellow is the tittle and technical ways of designing and producing .

## **SKILLS BECOMING A RELIABLE SOLUTION TO THE NEEDY**

During my research I was conducting my skills has become the reliable source and a solution to my country. Most of the disabled are referred to me by the hospital specialists to do the following adjustments ;

- A. Footwear mending (increasing or reducing sizes to suit the foot required specialists recommendations)
- B. Increasing the height of the shoe if the problem is about leg height difference

## **C. DISEASE COURSED PROBLEM**

Some people can have foot problem due to prolonged sickness like blood pleasure and sugar. These people also are requested to avoid heavy footwear, I found some skills In which I remove the old sole and replace it with lighter materials and making sure that the height of the heel does not affect nerves (keeping a persons goog posture)

## **D. ACCIDENT COURSED PROBLEMS**

Some people foot problems are course by accident and medical experts recommends them to have a LEATHER FOOT/LEG GURD that helps to keep bones intact after undergo operation.

## **KNOW BY MEDICAL EXPERTS**

For more than 5 years now a lot of hospitals are referring different people to my business. Currently I am receiving 6 to 10 people monthly and this has shown to be the solution to many. I hope and believe that if many countries adopt these systems and skills a lot of poor people who can not afford to go abroad and meet expert to produce these items will be getting locally and at the cheapest prices.

## **WHY HAVING SUCH CHALLENGES IN MALAWI**

In Malawi we use to have Kamuzu collage of rehabilitation, this was the only collage which was providing training skills to artisans especially disability category which is no long in full operation that's why a lot of people are finding more problems to have experts who can produce according to the physicians recommendation, that's why I found it very important to focused mainly on foot wear for disable apart from what I have been producing for more than 25 years.

## **WHY CHOSSING DISABLED FOOTWEAR**

I choose footwear for disabled in order to bring much awaited solution to the minority and become a source of relief, effective solution and sustainable way of bridging the gap.

## ENVIRONMENTAL PROTECTION

Some of the plastics wastes materials used are collected from the dumping sites. Plastics are causing threats to the environment and if we are taking away from our rivers, cultivation fields for re-cycle we are creating a safe environment to aquatic, local leaving things, areas, countries and the whole world .

## DISABLED SHOE DESIGNING PROCEDURE

First and most important step is to produce a LAST. This is a special artificial foot made from the used dumped plastic materials that resemble a person's foot shape.

### 1. MATERIALS FOR LAST DESIGN

- (a) Used plastics (from dumping sites) see attached video
- (b) clay soil, for foot shaping and extraction of man made last
- (b) Gas cooker, for melting plastics that will be use to produce last similar to the disabled person's shape
- (c) Boilling pot

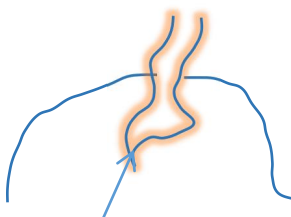
### 2. MATERIALS FOR DISABLED SHOE DESIGNING

- (a) Original leather material (sheet) for uppers
- (b) Soft leather for quarter linnings
- (a) Insole board
- (b) Shanks ( crafted one to suit foot shape)
- (c) Linings cotton cloth (for roomstered)
- (d) Bostic
- (e) Rubber cement
- (f) Stifners
- (g) Maskingtape
- (h) Patten paper
- (i) Silver pen
- (j) Pencil

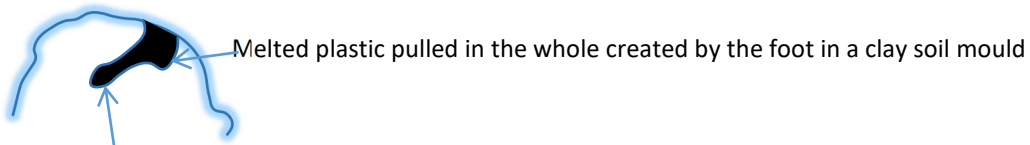
### HOW TO PRODUCE



### METHOD



- Disabled foot in clay soil that created a hole similar to the disabled foot
- The foot should be moved sideward to give allowance to the whole so that the last become a little bit bigger due to the smoothing process, the other outer rough part is removed.



- Foot removed from the clay soil only the foot shape remain



- The cooled plastic removed from the clay soil taking the disabled foot shape. Cleaned and smoothed making it a final **LAST**.

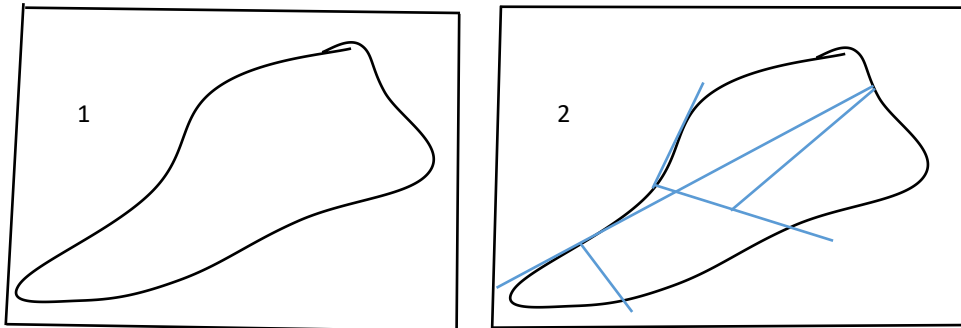
## STEP 2- DESIGNING THE UPPER AND SOLE

### UPPER



THE LAST

On the last we use masking tape which I past on the last fully, by using manual shoe designing I come up with a **MIN FORM** same procedure in normal shoe designing as shown bellow;



Key notes on above methods;

#### Diagram 1

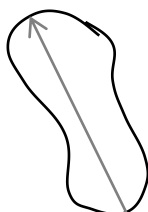
- After masking the last. The mask is been removed and pasted on a piece of paper only half of the last is considered mostly the outer side.

#### Diagram 2 standard form

- Measurements of pattern begins as follows,

### STANDARD DISTANCE CALCULATION

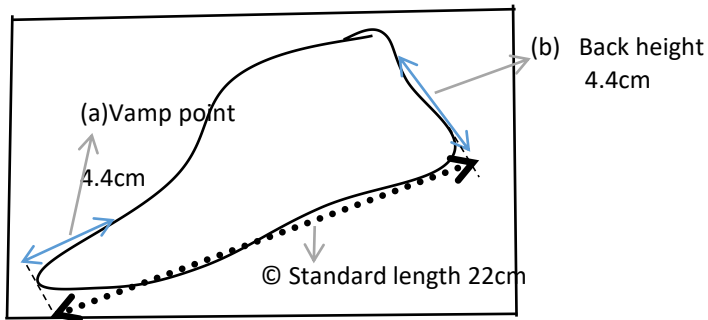
Getting standard distance which is a measured distance from toe to heel at the bottom of the last as shown bellow



Now the total distance of the bottom is being divided by 1/5 in order to find The back height and vamp point on the Pattern.

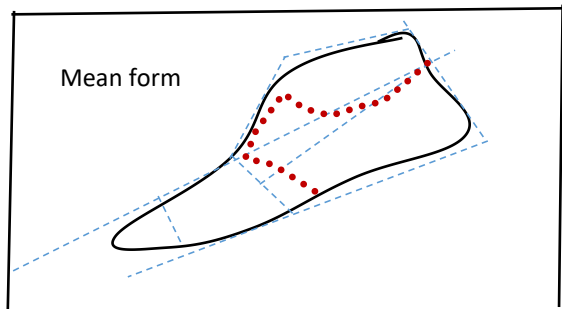
Example

if the total bottom measurement was 22cm. This means  $1/5 \times 22\text{cm}$   
 $22/5 = 4.4\text{cm}$ . This will be as bellow on the standard form

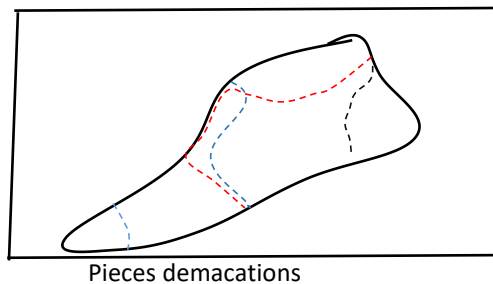


(a) We usually find a vamp point in order to prevent the stiffener or toe counter causing wounds on top of the foot, giving much needed contour to the user .

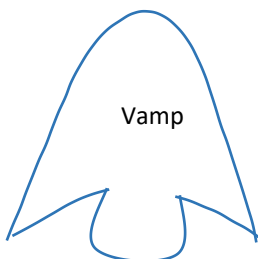
(b) The back height should not go beyond the 1.5 of the standard line to prevent the age of cutting the back nerve of the user



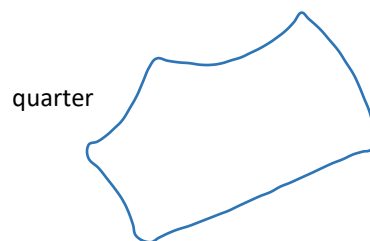
From the diagram above I can easily formulate what we call standard pattern and extract upper pieces as example bellow



Pieces demarcations



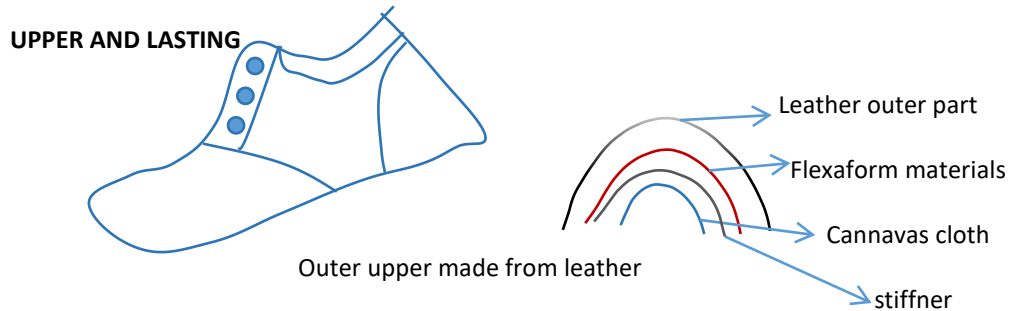
Vamp



quarter

NOTE;

The above demonstration shows only the procedures and guides on how the footwear can be produced and steps taken .  
 After extracting all the pattern pieces. Then we go into the actual **LEATHER MATERIAL** cutting so that we may come up with the upper as shown bellow.



The upper is made up of genuine leather which is put outside and cotton lining which helps in absorbing sweat, and in between the upper and linings we put a flexaform which keeps the foot comfort and prevent wounds.

Bellow is how the sole designing procedures



The sole is made up crepe rubber which is lightweight and the landing made up of hard leather

### LASTING PROCESS

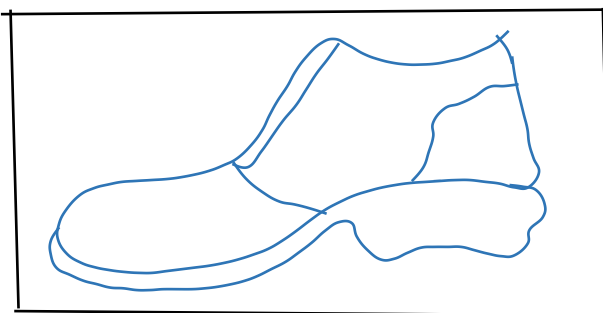
1<sup>st</sup> step

During lasting process we usually use the same LAST that was produced, and using bostic when touching the upper to the insole board .

2<sup>nd</sup> step

Bonding the sole using rubber cement which helps to keep the footwear intact and guarantees its usage strength

Example of the final product”s shape



## **Conclusion**

The above drawings are just demonstration on how this should be done. This method has proven to be effective ,sustainable and cheap comparing to how people use to access these footwear. It is my wish to take this system as a solution in my whole Country, Africa the the whole world. This