

DESIGN OF FIRST AID KIT

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Design of First Aid Kit

Diploma Project

Submitted in partial fulfilment of the
requirements for the postgraduate
diploma in Industrial Design

by

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1. Problem Statement

To redesign a First Aid Kit

with particular emphasis on:

- . First Aid Kit for the industries
- . Hygiene
- . Efficiency in the immediate treatment

2. Introduction

Today the need for First Aid is greater than ever. Populations are growing throughout the world and the increased use of mechanical and electrical appliances in everyday use at home, at work, at play places more and more people at the risk of injury.

Aims of First Aid specially in the industries:

- . To ensure as rapid and complete return of function as possible
- . To reduce to a minimum unavoidable period of absence from the work due to injury.

First Aid is emergency treatment of the casualty provided immediately after the injury. But most of the industries do not satisfy this basic requirement of the temporary, immediate and efficient treatment. The fault lies with the inadequate training as well as with the unhygienic First Aid box. Coupled with this is the mentality of the society which is not conducive to proper hygienic treatment.

It was felt that to a certain extent hygienic attitude could be developed and proper treatment encouraged by a well-designed First Aid Kit.

3. Information

3.1 Information about First Aid

First Aid is given to the casualty

- to sustain life
- to prevent his condition from becoming worse
- to promote his recovery till the services of the doctor can be obtained.

Essentials of First Aid are

- acting quickly and methodically
- not attempting too much.

General information about the First Aid boxes and the treatment was collected from three sources.

1. Users

Industries of different nature and capacity, Railways, State Transport, Air Lines, Fire Brigade and Armed Services.

2. Manufacturers

Commercial as well as Red Cross

3. First Aid trainers and doctors specially in the field of First Aid.

3.1 Information from the user.

3.1.1 Railways

Accidents - injury or sudden illness on the train, major accidents of the trains, accidents during the work on the rails.

User - guards, station master and loco man.

Box - three kinds of boxes for the three users mentioned above.

Guard's box is of aluminium 16" x 7" x 4" with no compartments inside. Contents are as specified by Railway Board.

Sterilised finger dressing	6 Nos.
Sterilised wound dressing	6 Nos.
First field dressing	6 Nos.
Triangular bandages	3 Nos.
Roller bandages	6 Nos.
Sterilised cotton 25 gms.	2 Nos.
Antiseptic cream or jelly	1 No.
Liquid paraffin drop bottle	1 No.
A.P.C. tablets	10 Nos.
Safety pins	12 Nos.
Tourniquet	1 No.
Scissors	1 No.
Splints wooden	1 set
List of contents	1 No.
Injury card	1 No.
Stretcher folding	1 No.

This box is kept in the guard's compartment.

Present condition of the box.

Consumption very little since few people avail themselves to this facility due to ignorance. Hence contents are old and full of dust.

Station master's box is wooden box 20" x 12" x 7" hung vertically in the Station master's office.

Contents are as in the guard's box.

Present condition of the box.

Cotton in exposed condition, few medicine bottles, burnol tube and few bandages in the unclean box.

Loco man's box is wooden 6" x 6" x 4" carried with the Loco man on the side. Contents are cotton wool, antiseptic liquid, bandages and dressings.

Present condition of the box.

All the contents are present, but kept in unsystematic manner.

3.1.2 State Transport

Accidents - sudden illness like vomiting or injury on the bus, and major accidents on the road.

User - Driver and conductor who are supposed to be first aiders.

Box - M.S. box painted white of size 12" x 9" x 4½" with three compartments inside, a plastic sleeve for holding the glass and two cutouts in the compartment for holding bottles.

Location is on the shelf near the driver's seat. Contents are as specified by Road Transport organisation.

First Aid leaflet	1 No.
Small sterilised dressing	24 Nos.
Large sterilised dressing	12 Nos.
Large burn dressing	2 Nos.
Small burn dressing	2 Nos.
Extra large burn dressing	1 No.
1 oz. sal volatile bottle	1 No.
15 gm. antiseptic cream	1 No.
Empty bottle fitted with rubber stopper and camel hair brush	1 No.
1/2 oz. sterilised cotton wool	2 Nos.
Medicine glass	1 No.

Present condition of the box.

Only four dressings, cotton wool, sal volatile bottle and the medicine glass were present.

3.1.3 Air-India

Accidents - Aeroplane accidents and illness on the aeroplane.

User - Air hostess and pilots who are trained in First Aid.

Box - Fibre board box 24" x 12" x 5".

Location is in the storing place of the aeroplane. Contents are specified according to the international standards.

Crepe bandages

Bandages

Triangular bandages

Sterilised cotton 50 gms. packet

Absorbent lint in 50 gms. packet

Absorbent gauge

Adhesive plaster

Splints

Rubber bands

Safety pins

Turniquet

Scissors

Artery forceps

Antiseptic and burn compound

Spirit stimulant

Anti-diarrhoeal drug

Anti-malarial drug

Tranquilliser

Anti-nauseant drug

Ophthalmic ointment

3.1.4 / Fire Brigade

Accidents - rescue calls like fire, drowning, house collapse etc.

User - All fireman were trained in First Aid.

Box - There are 3-4 types with no standard design and a very little difference in shape.

Material is wood. Size 12" x 12" x 9".

There is one imported M.S. box with front, sides and top flaps opening for extra storage.

Contents are specified as -

set of splints

triangular bandages

2 inches roller bandages

3 inches roller bandages

1/2 oz. packet of cotton wool

grey wool for padding

adhesive plaster

scissors

medicine glass

safety pins

kidney tray

dressing forceps

dressing medium

dressing small

dressing large

tourniquet

sal volatile bottle





Location of the box is behind the driver's seat. The box is carried from the fire engine to the place of injury. Ambulance usually follows the fire engine when major rescue calls are attended to.

Present condition of the box.

All the boxes have cotton wool in exposed condition with mercurichrome bottles and few bandages and dressings. The boxes are not maintained properly and cleanliness and sufficiency of the contents are conspicuous by absence.

3.1.4 Armed Services

Accidents - On the field or during parades, etc.

User - First Aiders

Box - Two types of kits, one of haversack type of canvas with leather belt. Size 12" x 12" x 6" with flaps inside for compartments.

Second is box type of 3' x 2' x 12".

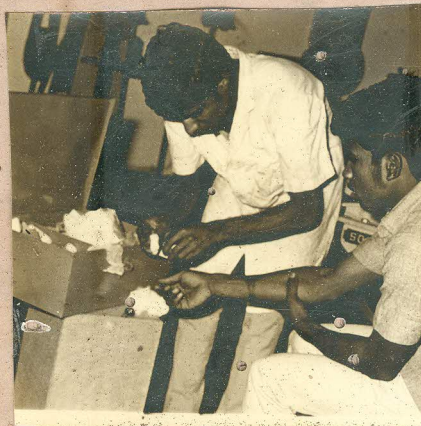
3.1.5 Industries

Industries which are accident-prone were chosen from the list of the Factory Inspector's office. They were further categorized by the strength of the workers. Thus about 15 industries were visited.

All the industries are supposed to keep the First Aid equipment according to the Factory Act.

The information collected from various industries is presented in the form of chart.

Common First Aid treatment in an industry.



Factory Act regarding First Aid.

First Aid appliance

The First Aid boxes or cupboards shall be distinctly marked with a red cross on white background and shall contain the following equipment.

A) For factories in which the number of persons employed does not exceed ten or the factories in which mechanical power is not used where the number of employees do not exceed fifty, the First Aid box shall contain

1. Six small sterilised dressings.
2. Three medium size sterilised dressings.
3. Three large size sterilised dressings.
4. One bottle of cetrimide solution.
5. One bottle of mercurichrome solution.
6. One bottle of sal volatile solution.
7. One pair of scissors.
8. One roll of adhesive plaster.
9. Six pieces of sterilised eye pads.
10. Bottle of 100 A.P.C. tablets.
11. PE wash bottle for washing eyes.
12. One bottle of potassium permanganate.
13. One copy of First Aid leaflet.

B) For factories in which mechanical power is used and the number of employees does not exceed fifty, the First Aid box shall contain

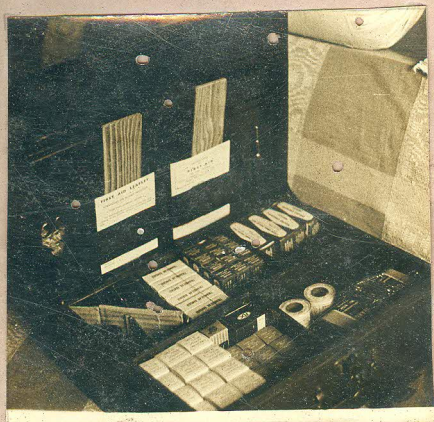
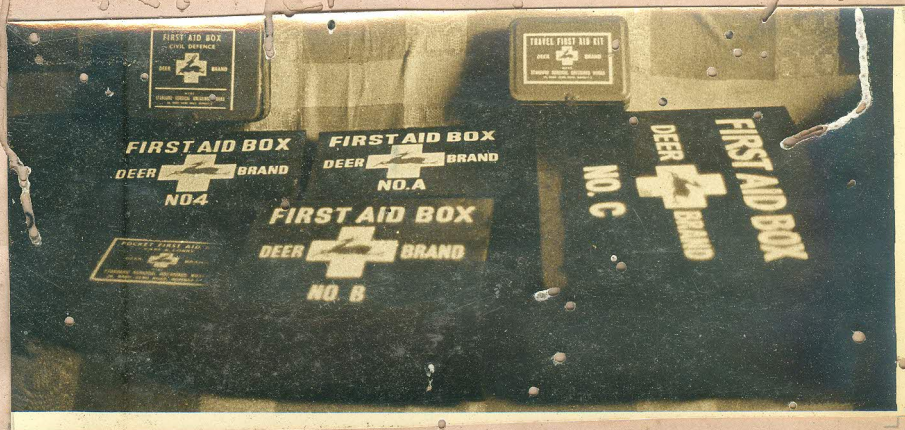
1. Twelve small sterilised dressings.
2. Six medium sterilised dressings.
3. Six large sterilised dressings.
4. Six large burn sterilised dressings.
5. Six packets of sterilised cotton wool.
6. One bottle of cetrimide solution.
7. One bottle of mercurichrome
8. One bottle of sal volatile
9. One pair of scissors
10. Two rolls of adhesive plaster
11. Eight pieces of eye pads
12. One tourniquet.

13. One dozen safety pins
14. Bottle containing 100 A.P.C. tablets.
15. One PE wash bottle for washing eyes.
16. A snake bite lancet
17. Bottle of potassium permanganate solution.
18. One copy of First Aid leaflet

C) For factories employing more than fifty persons each First Aid box shall contain

1. Twentyfour small sterilised dressings.
2. Twelve medium sterilised dressings.
3. Twelve large sterilised dressings.
4. Twelve large sterilised burn dressings.
5. Twelve packets of cotton wool (15 gms each)
6. One bottle of cetrimide solution.
7. One bottle of mercurichrome
8. One bottle of sal volatile
9. One pair of scissors
10. Three rolls of adhesive plaster
11. Twelve pieces of sterilised eye pads
12. Bottle containing 100 A.P.C. tablets
13. One PE wash bottle
14. Twelve roller bandages (10 cm wide)
15. Twelve roller bandages (5 cm wide)
16. Six triangular bandages
17. One tourniquet
18. A supply of suitable splints
19. Two packets of safety pins
20. One kidney tray
21. A snake bite lancet
22. One bottle of potassium permanganate
23. First Aid leaflet

D) When the number of employees exceed 500 a special ambulance room should be provided.



3.2 Information from the manufacturers.

The commercial manufacturers are many in number having identical design of the box, but the quality of the contents vary. The boxes are of sheet metal with few compartments inside regardless of the contents. The contents are generally bought from the surgical companies and packed in made-to-order boxes. Some manufacturers have about 8-9 different sizes for different uses like shops, homes, vehicles, industries etc. But the difference in sizes is very little and is not justified.

Some well known pharmaceutical companies like Kemp and Akbaralleys have good quality equipment, but storage in the box is given no attention.

St. John Ambulance boxes of three types according to the Factory Act. They contain standard quality equipment, but are over-packed in the M.S. rectangular boxes.

There is no particular trend of choice from the customers since First Aid box is not a consumer article. For the same reason, the manufacturers do not indulge in any competition and hence no development is seen in the design of First Aid boxes.

It is observed that during war the sale of First Aid boxes increases.

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3.3 Information from First Aiders and Doctors.

First Aiders from civil defence and St. John Ambulance were interviewed. General information about First Aid was obtained.

First Aid is an emergency treatment. Hence though the nature of accident differ from place to place, the First Aid is more or less basic. The accidents can be divided into seven broad groups.

1. Asphyxia
2. Fractures
3. Shock
4. Poisoning
5. Nervous disorders
6. Burns and scalds
7. Wounds of various nature

The First Aid training course includes all the treatments for the above mentioned injuries. The First Aid certificate is awarded by St. John Ambulance and it is to be renewed every three years.

Every industry is supposed to have at least one First Aider in every department.

4. Analysis

4.1 Analysis of the accidents in the various industries.

It is presented in the form of chart.

Thus cuts, crushed injuries, burns and eye injuries are very common. All these injuries are not treated in the manner in which the ideal First Aid should be given. Most of the injuries are treated with cotton and some antiseptic regardless of the type of the injury. Because of highly unhygienic treatment there is a fear of septic and hence every injured person with a wound small or big is send to the nearest hospital to avoid any legal complications later. Thus, the employer as well as the worker are careless about the First Aid given in spite of the fact that taking every injured person to the hospital means waste of time and energy.



ANALYSIS OF THE ACCIDENTS IN VARIOUS FACTORIES

NAME OF FACTORY	TOTAL NO. OF ACCIDENTS	CUTS	BURNS	CRUSH HAMMER FALL	FOREIGN BODY EYE	FAINT	FRACTURE	FLE.	SPRAIN
Motor body builders	51	27	1	13	-	-	-	-	-
Aluminium Works	33	21	1	9	1	1	-	1	-
B.A.R.C.	114	27	29	46	2	-	3	7	-
Metal Works	9	4	-	5	-	-	-	-	-
Paper Boards	14	5	-	6	1	-	1	-	1
Machine parts manufacturers	137	22	5	41	19	-	-	-	-
Metal Works	88	52	20	10	6	-	-	-	-
Total number of factories: 7	432	158	56	130	29	1	4	8	1
Percentage	100%	36%	12%	30%	7%	51%		15%	

4.2 Structural analysis

4.2.1 Container

There are two types of boxes - Standard and made-to-order.

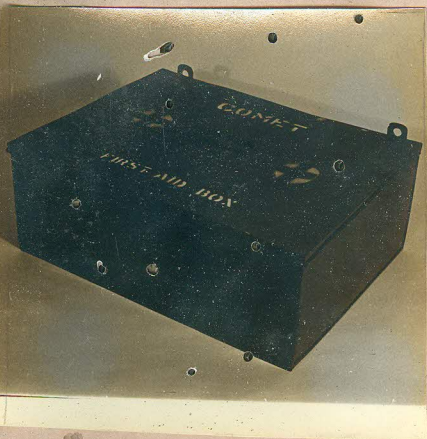
Standard : Sheet metal welded together to form a box. Three or four compartments inside.

Sizes: A type, B type, C type

Two hooks on the back to fix on the wall.

Handle welded at the top.

Top openable.



Made-to-order: Plywood sheets glued to form the box.

Compartments inside by shelves.

Sizes differ according to the individual requirements.

Side shutter openable. Shutter some times have glass pane.

4.2.2 Contents

Dressing:

Dressings are three types, finger type, medium and large.

They are wrapped in tissue paper and placed in paper cartones.

The large dressing 6 cms. wide with sterile pad and small bandage attached to it.

Finger and medium dressing are 3 cms. and 4 cms. wide respectively with no separate pad. They consist of loose woven gauge with small ribbon attached.

Burn dressing are similar to wound dressing with a special burn pad.

Bandages:

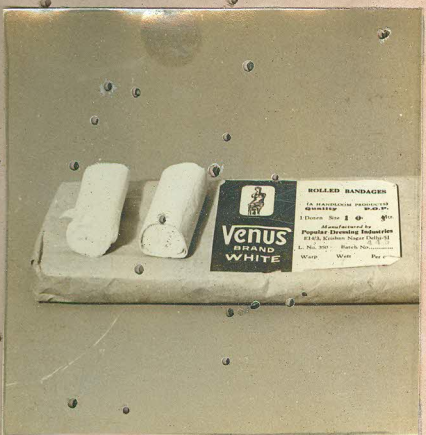
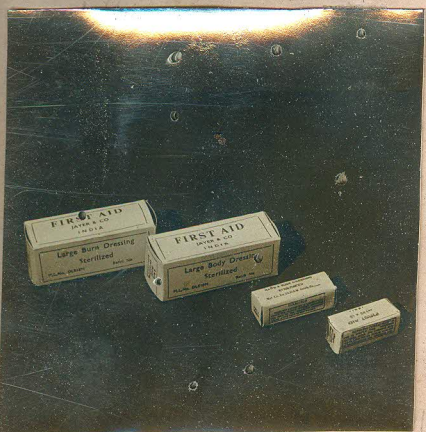
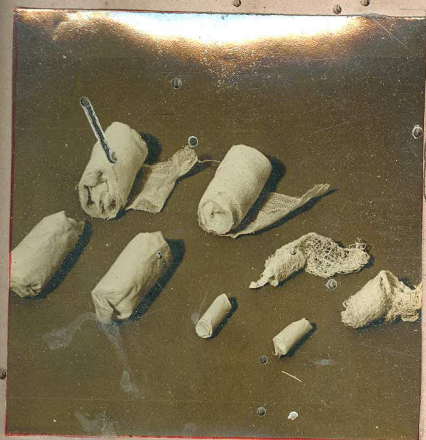
Two types - triangular bandages of 120 X 90 x 90 cms packed in a brown paper packet.

Roller bandages are 5 cms., 6 cms. and 12 cms. wide made of loose woven gauge about 3 meters long.

Each bandage is wrapped in white paper and a bundle of 12 bandages in brown paper packet.

Size of 10 cms. wide bandages of the packet of one dozen is 30 x 9 cms.

Size of 6 cms. wide bandages of the packet of one dozen is 20 x 8 cms.





Cotton wool:

Most used content of the box.

25 gms. cotton wool wrapped in paper and again wrapped in a thicker packet.



Tourniquet:

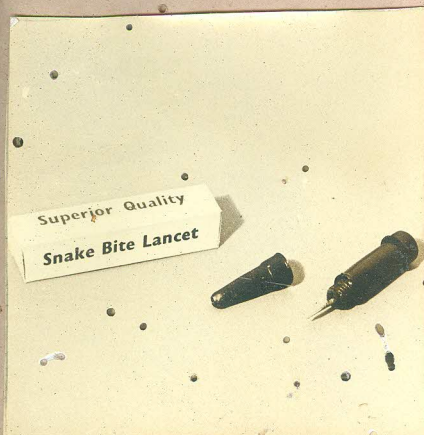
Rubber bandage with ribbons for tightening or canvas belt with a buckle.

Rubber bandage is about 6-8 cms. wide, 90 cms. long whereas the belt is 30 cms. long and 3 cms. wide.

The tourniquet is packed in paper carton.

Splints:

Wooden or steel planks of sizes from 3" to 12" x 1½" x 3".



Snake bite lancet:

Steel or plastic cylindrical holder with a sharp point at the end having a cap.

Packed in paper carton or polythene bag.

Size 3" x 1½" diameter.

4.3 Functional and Ergonomical analysis

4.3.1 Container

Function of the box is to hold the contents in such a way that they can be easily removed without damage.

It is hung by the hooks at the back and the top lid is openable which does not stay without support causing difficulty in removing the contents. The lids of the metal box tend to bend and make the closure difficult and unsatisfactory.

The compartments are only 3-4 and the contents vary from 15-100 in number making difficult to locate each item.

Metal and wooden boxes are difficult to keep clean. Metals also corrode because of certain medicines. In all the industries visited, it is observed that the contents were never kept as required by the common injuries. There is no system in arrangement.

Metal box although lighter than wooden has sharp corners and edges which are dangerous. The box is locked with standard lock and there is no arrangement to keep the key at a suitable position except in a few cases where a small cubicle with a glass pane is attached on top of the wooden box to keep the key.



4.3.2 Contents

Dressings:

Opening the carton, tearing the tissue paper wrapping and to take out the dressing takes about $1\frac{1}{2}$ minute.

The wound and burn dressing cartons are similar and hence there is difficulty in locating the required one.

Graphics. The paper carton has printed matter all six sides and hence difficult to locate the direction. The smaller dressings have the information written in a very small type making impossible to read.

Bandages:

Triangular bandages used as slings tourniquets, foot and palm bandages.

Opening the packet and taking out the bandage takes $1\frac{1}{2}$ minute.

Roller bandages takes half a minute to remove it from the packet. It easily comes out because the paper wrapping is only at the sides.

Once the packet is open remaining bandages are in exposed condition.

Graphics. No instructions are given on the packet.

Cotton wool:

Removing the thread and opening the packet is difficult and time consuming because the inner wrapping is stuck to the cotton at many places. Time taken is one minute.

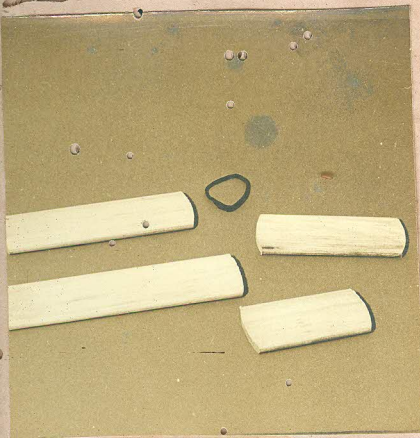
After using the cotton it is not possible to wrap it again in the packet and hence remains exposed. It is then kept in totally unclean and open condition. Because of its lightness and the structure of the box it often falls out while removing the other contents.

Tourniquet:

Its function is to apply indirect pressure to control the flow of the blood. It is tied tightly to the limb or leg. It should be released for few seconds after every 15 minutes. Since this is difficult to follow doctors do not advise this to be used in the First Aid kit.

Splints:

It is used as support for fractures. The splint is covered with bandage and put under the broken bone and then the wound bandaged.



Snake bite lancet:

It is used to make the incision in the snake bite wound to allow the wound to bleed.

The cover to be opened, incision is made, cutter is cleaned and cap is replaced.

The cutter is always rusted, hence there is fear of infection.

It was observed in the survey that nobody had ever used the lancet.

Graphics. There are no instructions on the carton about its correct use.

Bottles of liquid medicines:

The operation consists of taking the bottle from the paper carton, opening the cap and pouring the liquid.

Opening of the bottle is not designed for proper pouring of the liquid. Hence, spilling is common in all the boxes.

Being made up of glass and there being no special compartment for it in the box, while carrying breakage is not uncommon.

Graphics. There is no identification on the bottles of different liquid medicines.

4.4 Socio-economic analysis

Every accident, major or minor is recorded for the reference of the Factory Inspector.

It was observed that all the casualties are taken to the hospital irrespective of the nature of the injuries.

There are two reasons. One being that the employer does not want to take any risk because of legal complications. Secondly, there is fear of septic even in small injuries. The hospitals to which the workers are sent are mostly Municipal hospitals which are always overcrowded. The industrial casualties add to the load. Secondly, for long standing complaints which temporarily develop acute phase during working hours, if patient is sent to the hospital, patient's history is not available.

Every department of a factory is supposed to have a First Aider who should maintain the box and treat the patient. The boxes are sometimes locked and valuable time is wasted in locating the First Aider. The problem of pilfering is often advanced as an excuse to lock the First Aid box and place it in an inconspicuous position. Another reason for locking is the misuse of the equipment

because of the ignorance on the part of the workers.

It was observed that 40% of the industries do not have the First Aider and even the industries having First Aider do not renew the certificate after every 3 years. The training given to the First Aiders is of theoretical nature. Hence he does not have ideal First Aid knowledge, but treat the patient in a general manner whereas the equipments provided in the box by the act are of ideal nature and hence most of it is wasted.

The patient is always taken to the First Aid box, but First Aid box never carried to him however serious is the injury. It is not only because of the apathy towards the proper treatment but also because of the box which is not easy to carry.

5. Hypothesis

The survey and the analysis showed that though the accidents differ according to circumstances the common injuries are same in all the organisations. For example, burns are caused at home, in the industries as well as in the offices and vehicles though their causes may be different. Since First Aid is the immediate and temporary, the treatment for all the burns is same viz. remove the heat from the affected area and guard it against infection. Thus it is not necessary to have different kits for various organisations.

The contents of the box could be simplified and brought to optimum number.

Essential contents with regards to the common accidents should be separated from the contents needed to meet the needs of particular situation.

5.2 Hypothesis of the container

- Light in weight and of compact size to be carried whenever required.
- Material should be easily cleanable.
- Compartments should be with regards to the contents.
- Working surface needed for keeping the required equipment while treating.
- Should be easily accessible to any injured person.
- Easy to open and keep in that position for required time.
- Only the contents needed should be carried.

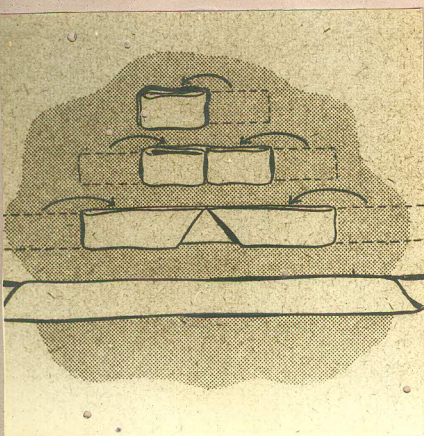
5.3 Hypothesis of the contents

Dressings and bandages:

- Wrapping should be easily removable.
- Only one at a time should be taken out.
- There should be arrangement for the ends of the dressings and bandages to be tied.
- Sizes should be brought to optimum.
- Different types should be easy to locate.

Triangular bandages:

- Should be kept in folded manner as shown.
- Material should be tough and durable.
- Various uses could be mentioned.



Cotton wool:

- . Exposure should be avoided as far as possible and minimum portion should be touched.

Liquid medicines:

- . Container should be of unbreakable material.
- . Cap should be leakproof and easily removable.
- . Storing place should avoid toppling down.
- . Colour and amount of the liquid should be seen.
- . Should be easily identified.

5.4 Hypothesis of general environment

The box should be kept in well-lit area near washing place and drinking water. The instructions about First Aid should be displayed boldly. There should be arrangement to throw waste or used matter.

Self help should be encouraged.

If the fear of infection is eliminated in minor injuries by hygienic treatment and equipment it can avoid number of patients taken to the hospital. It must be emphasised that medical grounds are the only adequate reason for a person to be taken to the hospital. It does not exist to provide legal cover for deficiencies found in First Aid services.

6. Synthesis

6.1

There can be only two types of First Aid kits viz. an industrial First Aid kit which can also be used in offices, shops, schools, hostels, transport services, etc.

The second kit can be a home kit which will be used not only as First Aid kit but as a medicine chest.

6.2

Number of contents can be reduced by taking only those contents that are required for the immediate, efficient and temporary treatment for the common injuries which are observed.

These contents can be grouped

- according to the type of contents for example all the bandages together, all the liquids together.
- according to the common injuries treatment with proper identification of the groups. Commonly injuries are four types.

Cuts - cotton
antiseptic lotion
dressing medium
adhesive dressing small



Figure 67: Contused wound

Figure 68: Punctured wound

Burns - cotton
tray
glass for cool drinks
burn ointment
burn dressings

Crushed - tray
injury crepe bandages
cotton
triangular bandages

Eye - tray
injury eye wash cup
cotton
bandages
caster oil

6.3

First Aid equipment can be divided into

- for general use (for common injuries)
- required to meet the needs for particular situation and refill of the general equipment.

The First Aider may be responsible for the second box whereas the First Aid kit can be accessible to any one.

6.4 Container

- To meet the hypothetical requirements of cleanliness, lightness and strength, the material should be polypropylene, or HD polyethylene or aluminium or A B S.
- Easily openable lid which will stay in the required position will be provided with proper hinge detail.

- Working surface can be provided by a separate working area near the kit or the area can be incorporated in the kit.
- A tray, separate or incorporated in the kit can be provided to carry only the required contents to the patient when necessary.

6.5 Contents

Bandages and dressings:

- These can be stacked such that only one comes out attached to the lid when the lid is opened or only one is exposed when the lid is opened.
- The bandages and dressings will be wrapped by tissue paper only which can be twisted and removed.
- Each dressing and bandage can have a safety pin attached to tie the end or the end can be parted into two divisions.

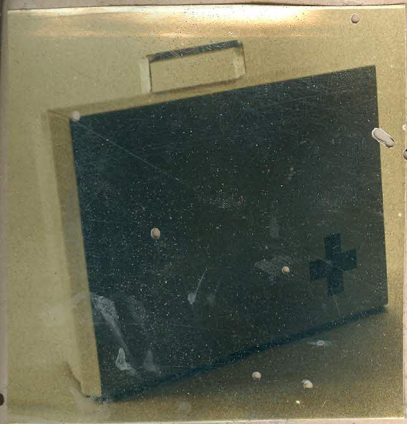
Cotton wool:

- It can be stored in unwrapped condition behind the cover either in flat vertical position or in a roll so that it can be pulled out from the slit provided in the cover.



Bottles of liquid medicine:

- PE or PVC translucent bottles can be used to see the colour and the amount of liquid inside.
- The opening can be adjusted to control the flow or flexibility of the bottle can be used to control the flow of the liquid.
- The bottle can be graduated and the name of the content inside written boldly.



7. Design decision

7.1

Two types of First Aid kits are designed. One for industrial and commercial use, and second of domestic type with minor alterations in the design of the industrial kit.

7.2

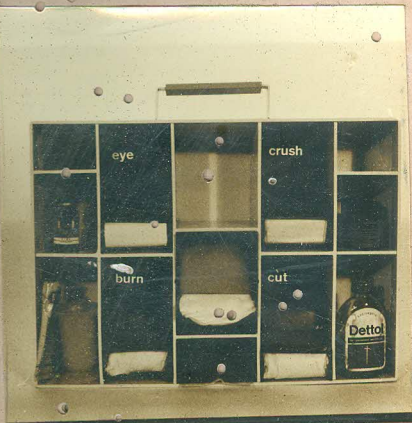
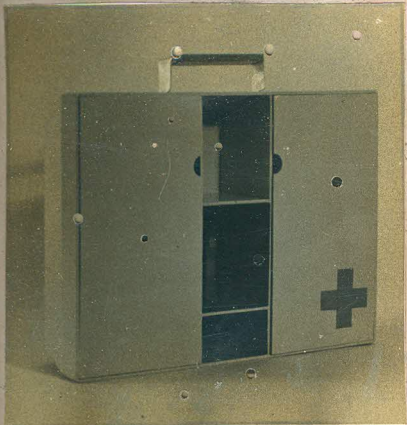
The contents are grouped according to the common injuries viz. cuts, burns, crushed injuries and eye injuries.

The common and most used article in all the groups is the cotton and hence it is placed in the centre. Similarly, adhesive dressings, scissors and triangular bandages are placed in the central place.

7.3

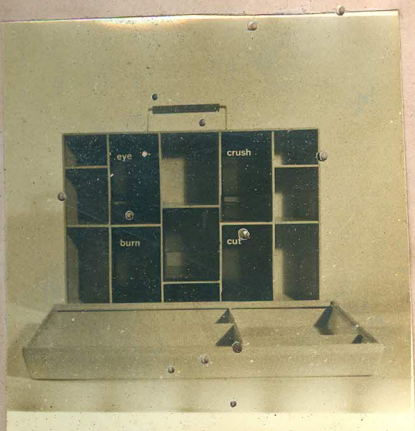
The container is made up of HDPE which is durable, easily cleanable, not affected by the chemicals used in the First Aid kit and is light weight. In lightness it is $\frac{1}{3}$ of aluminium which was the alternative. Polypropelene and ABS were discarded because of high cost and difficulty in availability.

The container has divisions formed for the contents which are grouped according to the injuries. There is an additional compartment for miscellaneous use.



.. The container is hung on the wall in the vertical position. It can be removed and carried easily because of its lightness and compact size.

. The working surface is provided by the cover of the kit which act as a service tray. It has four compartments (a) for water (b) for used and waste material (c) for carrying the required contents only to the place of accident (d) for keeping First Aid leaflets and PE bags. This cover-cum-tray can be washed and replaced on the kit after use.



In the home kit the service tray is not needed, hence instead of the cover-cum-tray the equipment is covered by two shutters hinged at the sides.

.. All the contents in the kit will have a supporting ring of rubber to avoid toppling down while carrying.

This is absent in home kit where one compartment can be used for more than one content and where there is no need for much transportation.

. For communication the name of the injury is printed on each group.

7.5 Contents

Bandages and dressings :

- They are stacked in tinted acrylic boxes which are specially shaped so that the bandages and dressings slide one by one. There are four such boxes in the four groups.

In the home kit there will be only one such box and other compartments can be used for general medicine storage.

- The bandages and dressings are wrapped only in paper wrappings with no carton.
- Each dressing and bandage will have a safety pin attached at the end.

Cotton:

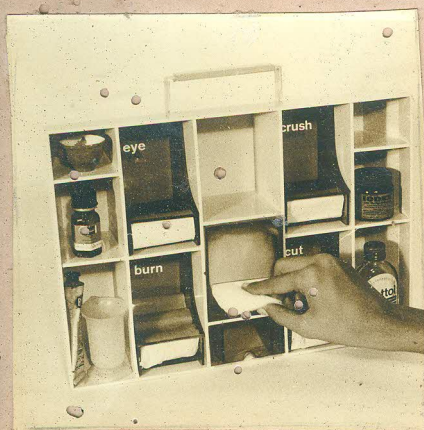
- Cotton is stored centrally in a roll which rotates on a rod. It can be pulled through the slit provided in the cover of that compartment, thus exposing very small portion of the cotton.

Bottles of liquid:

- P.V.C. semi-transparent bottle is used for antiseptic lotion. The content will come out as required by pressing the bottle.

The kit has a taper on all the sides for easy moulding and better appearance.

There are no sharp corners.



Alternative solution

A kit was thought of, with the contents grouped in the four groups according to common injuries. Each of these groups will have a separate cover-cum-tray. The inside of this cover can have the contents attached to it, so that when the cover is open the contents come out with it. If required, this cover-cum-tray can be taken out and carried. On the front of the cover name and treatment of the particular injury is presented.

This arrangement is more effective in encouraging the user for right treatment. But due to four removable shutters, danger of misplacement could not be overlooked.

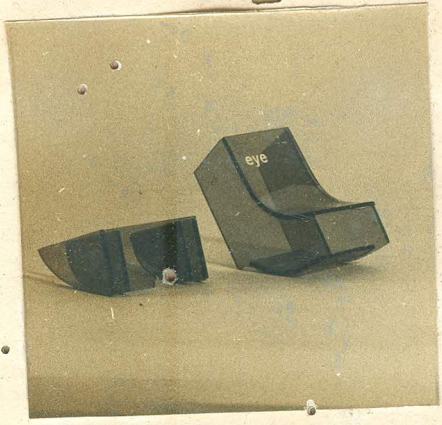
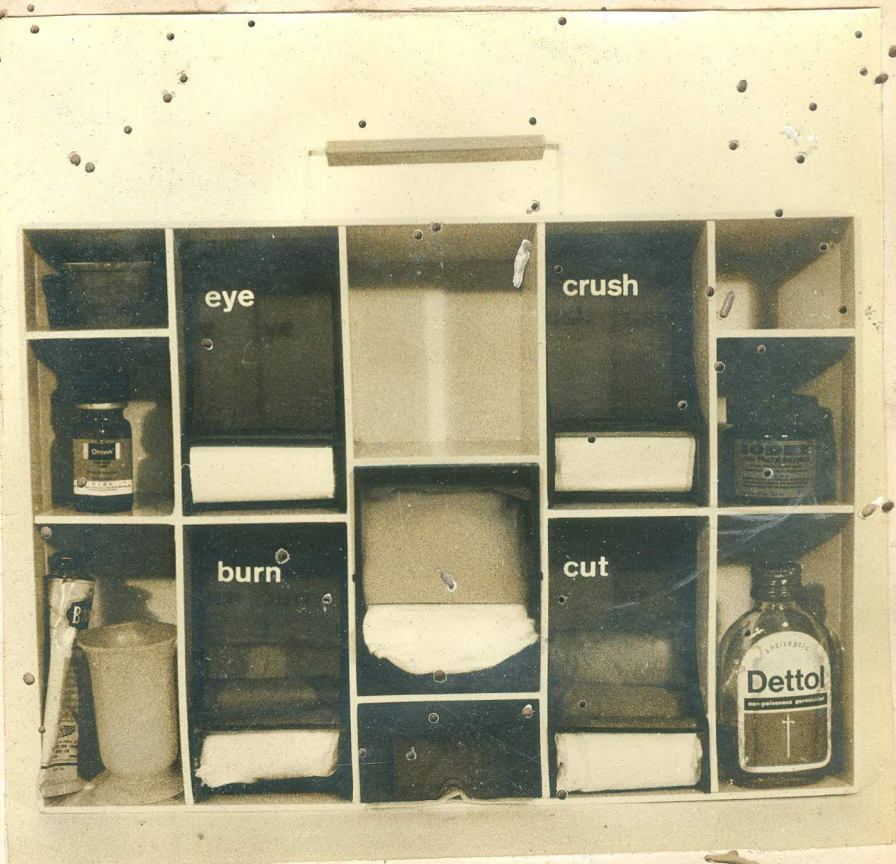
Similarly, since the contents are attached to the cover, treatment and replacement is difficult.

Salient features of the design

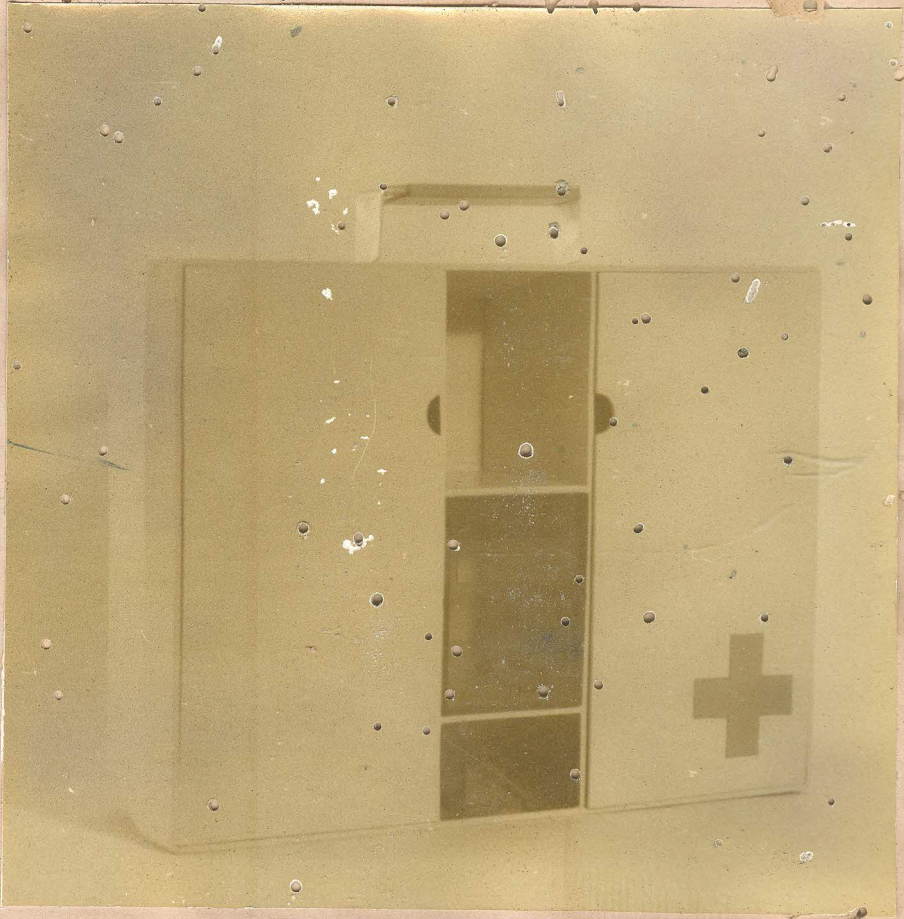
- By keeping only precise contents and grouping them according to the injuries,
 - a) the kit encourages right treatment for the common injuries,
 - b) the kit does not limit the use of First Aid to the trained First Aiders only,
 - c) misuse of special treatment contents like snake bite lancet, splints, tourniquet which will be in the charge of trained First Aider will be avoided.
- Hygiene rules are strictly observed by keeping covered the contents which directly come in contact with the wool. Example - cotton and bandages.
- The kit is transportable and on certain occasions only the cover-cum-tray can be carried to the injured person.
- The kit is easy to clean and maintain because of the easily cleanable material.
- Waste is thrown in the special compartment in the service tray.
- Because of this hygienic kit the fear of infection can be considerably limited and number of casualties sent to the hospitals can be reduced.

domestic kit





stic kit

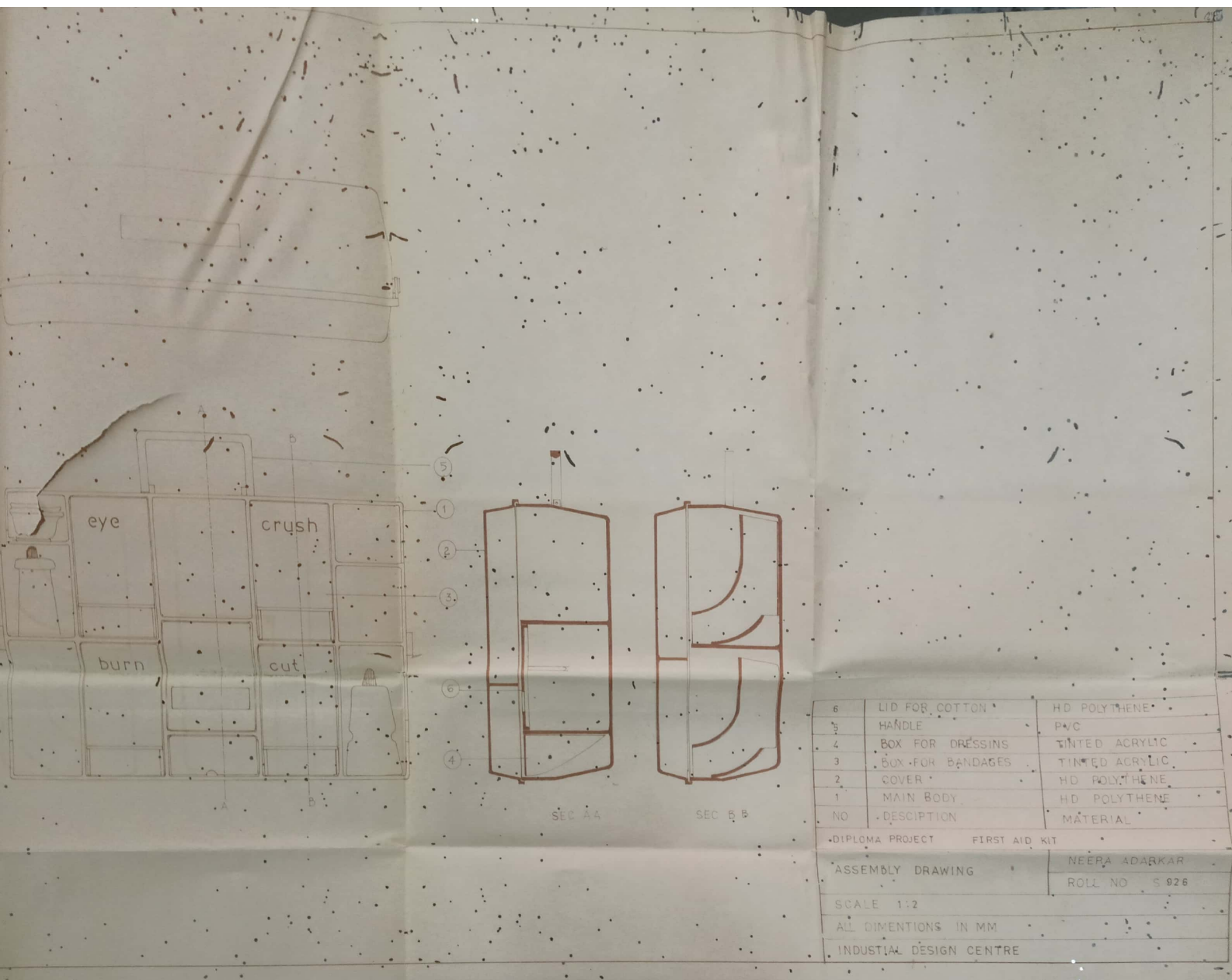


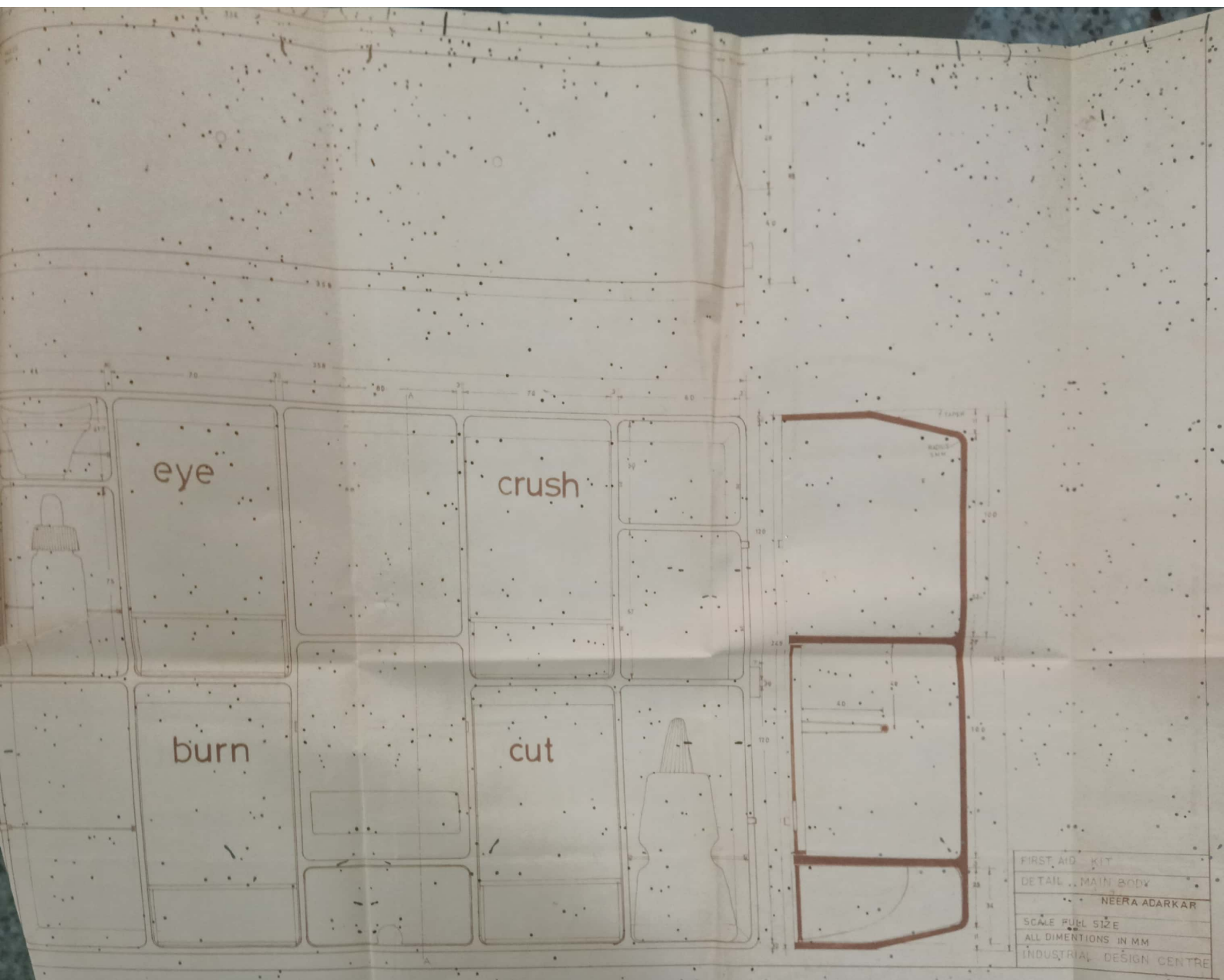
8. Bibliography

Hand book of Industrial Safety.

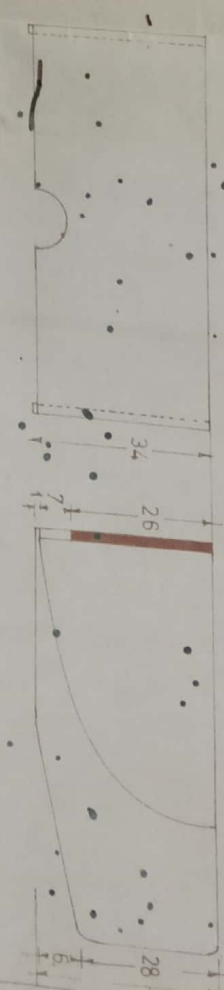
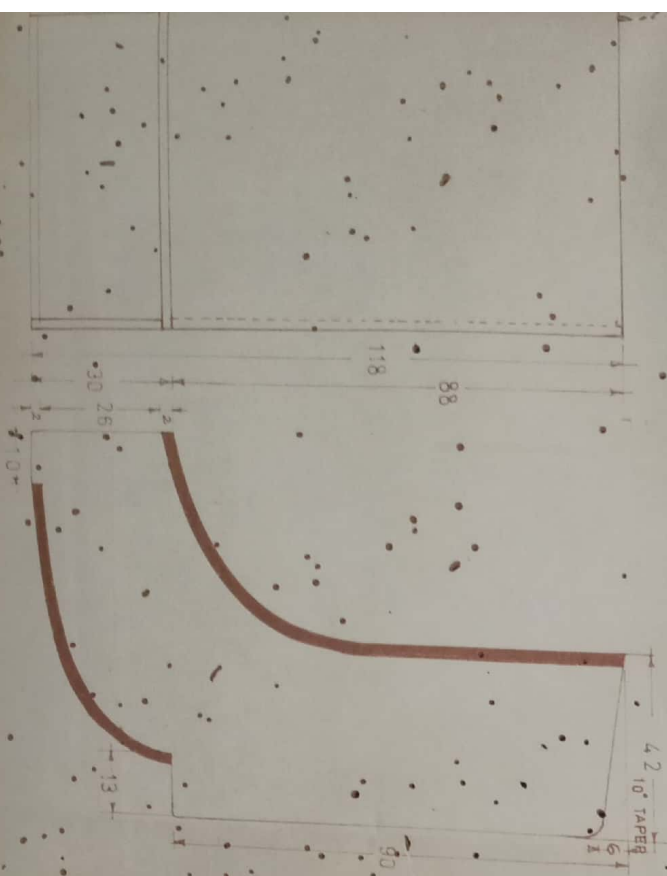
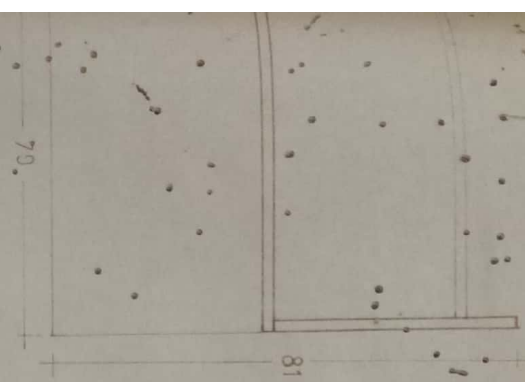
First Aid - British Red Cross Society.

Book of Factory Acts.









BOX FOR THE DRESSINGS

FIRST AID KIT

DETAIL BANDAGE AND DRESSING BOX

NEERA ADARKAR
ROLL NO. S.92.6

SCALE FULL SIZE

ALL DIMENSIONS IN MM

INDUSTRIAL DESIGN CENTRE