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CONTENTS

FROM THE DESK

COVER FEATURE

ARTICLE	6
CONSULTANCY/RESEARCH.....	11
FATAL ACCIDENTS IN PORTS...	13
EDUCATION & TRAINING	14
CIS	15
DATA SHEET	16
GLIMPSES OF BOOKS	18
ANNOUNCEMENTS	19
ABOUT DGFASLI	27-28

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PERSONAL PROTECTIVE EQUIPMENT – NON RESPIRATORY

MRS. M.K.MANDRE

Adequate protection of body is essential in order to ensure the safety of human life at work in every industry though the nature of protection varies from industry to industry and is dependent not only on the type of operation but also on the kind of hazard associated.

The Industries in our country are making all efforts to ensure safety of the workmen in hazardous processes and dangerous operations by adopting safe design of plant, machines, equipment & methodologies. In addition, various types of Non-respiratory Personal Protective Equipment such as Safety Helmets, Eye Protectors, Safety Handgloves, Safety Shoes, Safety Clothing are also used in industry as a second line of defence to safeguard the life & limbs of the workers who are exposed to a series of physical, chemical & biological hazards. The demand for the use of Personal Protective Equipment (PPE) has increased many fold in the recent past due to public awareness, effective safety supervision by the management and strict implementation of statutes. The Factories Act 1948 and the Rules made there under provide legal obligation on the part of employers for making available suitable type of Personal Protective Equipment to the workers who are exposed to unsafe & unhealthy work environment.

The quality of the Non-respiratory Personal Protective Equipment is required to be checked to ensure that it provides the desired level of safety to the users. The Bureau of Indian Standard (BIS) has brought out many standards describing the quality of Personal Protective Equipment used for the protection of head, eyes, face, arms, hands, legs, feet and body. However, the testing facilities to examine the quality of Personal Protective Equipment as per the specification laid down by the BIS are available only in some manufacturing units and government laboratories with specific purpose. The Directorate General Factory Advice Service and Labour Institutes (DGFASLI)

under Ministry of Labour, Government of India is primarily concerned with Safety & Health of Industrial workers. As such, the department established the Non-respiratory Personal Protective Equipment Testing Laboratory at Central Labour Institute in late eighties to carry out performance tests of various types of Personal Protective Equipment and to ensure that it meets the specification laid down by the Bureau of Indian Standard (BIS). This laboratory is well equipped with precision electronic instruments to carry out the testing of Safety Helmets, Eye Protectors, Safety Handgloves, Safety Clothing and Safety Shoes. The manufacturers and user industries are extensively utilizing the facilities available in the laboratory.

TYPES OF NON-RESPIRATORY PERSONAL PROTECTIVE EQUIPMENT

Non-respiratory Personal Protective Equipment for various parts of the body can be divided into five broad groups.

1. Safety Helmets
2. Ear & Eye Protectors
3. Safety Hand Gloves
4. Safety Clothing
5. Safety Shoes

SAFETY HELMETS

Helmet is one of the most important type of Personal Protective Equipment and widely used by the workers for protection against head injuries, which may be caused by falling /striking objects in industries like mining, tunneling, ship building, construction and engineering.

A blow to the head is the most common cause of all head injuries in the work place. Sharp, heavy objects can penetrate & break open the skull causing deep cuts, fractures or brain injury. Safety helmets act as a barrier against such hazards and it can also protect the head from flame, preventing burn

injuries. Safety Helmet used for protection of head deflects object and distributes the force of the impact over the whole head, diffusing the gravity of the blow. A permanent extension of the shell over the eyes protects the face, and especially eyes from injury. The brim is a narrow rim surrounding the shell also helps to deflect objects away from the head. The chin strap holds the helmet securely in place. Ventilation holes in the shell allow circulation of air inside. Safety helmet should be of right size, to fit correctly and comfortably .

The hard shell of the safety helmet is designed to protect the head against impact. The specification for Industrial safety helmets, as given in IS : 2925-1984 is as follows.

Safety helmet shall be tested for shock absorption test where force transmitted from the head form to the base shall not be higher than 510 kgf. This test is required to be carried out after three conditions of the sample for 4 hrs. at $50^{\circ}\text{C} \pm 5$, $-10^{\circ}\text{C} \pm 2$ and with water flow(1lit./min.). For penetration test safety helmet should withstand the impact of a steel plumb bob of 500 gm. with conical steel point having an included angle of 36° and a spherical point radius of not more than 0.5 mm from a clear height of 3.0 meters with the pointed end downwards on the top of the crown of the helmet without getting pierced, dented or suffering failure of any integral part. Other tests carried out are heat resistance, flammability, disinfection and water absorption test.

EAR & EYE PROTECTORS

(a) **Ear Protector :** Hearing is one of life's most precious gifts. Exposure to loud noise can cause hearing loss. Such a loss is temporary and it is restored after a period of rest away

from the noise source. Permanent hearing loss usually is the gradual decrease in hearing sensitivity over a period of time. High level of noise

can also create stress that can sometimes affect one's physical and mental well being & cause accidents in the work place when people cannot hear instructions and warning signals.

There are three basic types of ear protectors namely Ear plugs, Canal caps, and Earmuff.

Ear muff and ear plugs are tested as per IS: 6229-1980 & IS:9167-1979. It is believed that a properly carried out audiometric testing program will determine whether the hearing protective devices worn by the employees are in fact protecting their hearing system from noise. No matter how good a hearing protective device may be, its comfort has a great deal of influence on how well it will be accepted by the users.

(b) **Eye Protector:** Eyes are our windows to the world and the best means of direct and instant communication that the body has with environment. If eyesight is lost, a curtain of darkness descends between us and the world, isolating us physically, psychologically, and emotionally. Hence, it is very much important to protect this vital part of our body by all means. Wearing right type of eye protection on the job is the key to the prevention of eye injury at work. Selection of proper eye protector according to the type of hazard is very much important.

If grinding, chipping and cutting operations are involved, there is a great risk of flying particles and dust, leading to eye injury. Industrial Safety spectacles with side shields are used for eye protection. Box cup

goggles also provide protection against these hazards. Chemical splash goggles are used while handling chemicals. Welding

goggles or optical filters should be used against radiation hazards. Improper use of eye protectors can lead to eye injury or eye fatigue and there is also a chance of accident.

To ensure quality of eye protectors, its samples are tested as per BIS specification IS:5980 –1984 / IS: 7524 – 1980 Part-I/ Part-II for stability at elevated temperature 55^o in hot air oven. Robustness test is carried out for finding toughening of glasses after conditioning them at (i) 55^oC & (ii) - 5^oC for 1 hr. Important tests are spherical and cylindrical power test and transmittance test for specific radiation for which they are used. In case of chemical goggles, chemical splash test is carried out to check resistance against splashes . Face shields are tested as per IS : 8521-1977 and IS 8521-1994 for impact test, robustness test, transmittance test and flammability.

SAFETY HANDGLOVES

Protection of hands and arms becomes necessary when workers have to handle materials having sharp end, sharp edges or hot and molten metals, chemicals and corrosive substances. Whenever machinery is in use, hands are at risk from mechanical hazard. Safety hand gloves will give protection from lacerations, amputation with punctured flesh and bone leading to serious infection. They also protect from destruction of tissue, severe burns, frost bite leading to loss of fingers and toes. Contact with irritating substances can lead to inflammation of the skin and dermatitis caused by chemical and biological agents.

Safety hand gloves are made of leather, canvas, PVC coated fabric, Rubber etc.

They are tested against IS: 2573-1986, IS:6994-1973, IS: 4770-1991 & 4501-1981 for chrome content, tongue tear test, braking strength, tensile strength,

elongation at break and resistance to chemical etc.

SAFETY CLOTHING

In hazardous work environment the skin is the most vulnerable part of our body to get physical injury and infection from harmful exposures. The skin has two layers. The epidermis or the outer layer which constantly sheds dead cells and replaces them with new ones. The dermis, the inner layer which contains sweat glands, nerves endings, oil etc. The skin acts as a barrier against harm from sunlight, bacteria and physical injury. However, the protective skin of human body cannot withstand the penetration of harmful chemicals and solvents. A number of chemicals are absorbed through the cutaneous root without one being aware of it. The harmful effect of this can be severe and long term effects are often irreversible.

Use of safety clothing can prevent such harmful effect. The quality of safety clothing can be checked by testing for chemical resistance, cold test, aqueous extract and breaking strength against IS: 5915-1970 , IS: 4501-1981. Disinfection, cleaning and maintenance is also very important in case of safety clothing.

SAFETY SHOES

Adequate protection may have to be provided to the workers employed in certain jobs where there may be risk of feet injury may be in handling of heavy materials, exposure to caustic and corrosive liquid, oils and grease, molten metals etc. Common foot and leg protective equipment are safety shoes and boots, leggings, foot guards and leg guards.

There are various types of safety shoes such as Ankle Shoe, Jodhpuri Shoe, Derby Shoe, Safety Knee Boots and Safety Gum boots.

The main feature of safety shoe is carbon steel toe cap of thickness 1.8 mm \pm 0.2 which I can withstand an impact of 14 kg force for protection of our toe. The upper leather conforms to IS : 5677-1992. The

mass of complete pair of safety shoe size 8 (Derby) should not exceed 1200 gm. Laces should conform to IS: 9778-1992 and should be free from sulphur dyes. The sole of safety shoe may be rubber/PVC/PU and it should be tested for oil resistance /chemical Resistance, hardness, tensile strength /elongation at break, Relative Density and if required for antistatic property.

CARE & EFFECTIVE USE OF NON-RESPIRATORY PERSONAL PROTECTIVE EQUIPMENT :

Personal Protective Equipment should always be carefully inspected, repaired and maintained in its original condition. For this purpose, following points must be kept in mind.

- Proper maintenance of safety helmet is required to be done by regular checking for cracks, dents and for broken straps. The sweatbands and cradle of the safety helmet should be washed with warm, soapy water or suitable detergent solution.
- Goggles must be frequently inspected while in service. See that damage parts, lenses, etc. are replaced before they cause any discomfort or result in loss of protection.
- Goggles should be kept clean and sure that they are sterilized frequently. Lenses should be wiped carefully with a clean, soft cloth.
- Goggles should always be kept in a substantially clean case or box to prevent scratching. It should not be thrown carelessly into boxes or on to the bench. Never carry goggles loose in the pocket.
- Provision of a comfortable Safety shoe. A good fitting will not cramp or chafe the feet on the job. Keep shoes as dry as possible.
- Do not allow shoes to get deteriorated beyond repairable condition, whether the repair is undertaken by the employee or employer.
- Replace worn out sole before it gets further damaged.

- For protection against acids, caustics, solvents and similar materials, fabrics impregnated or coated with plastics are used for garments.
- Use warm soapy water for cleaning chemical resistant clothing & gloves.
- Protect rubber equipment from excessive heat and mechanical damage.

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WORKSTATION ERGONOMICS

P C GHOSH & DR R IQBAL

INTRODUCTION

Ergonomics is the relationship between people and their occupation, taking into consideration the interactions of individuals, equipment and particularly applying anatomical, physiological and psychological knowledge. All ergonomic evaluation of workstations should begin by establishing the optimum posture of the operator. The height and angles of the equipment should be adjusted to fit each individual operator. Ergonomics strives toward fitting the workstation to the individual, not fitting the human body to the workstation and aiming for increased worker comfort and productivity (Damon et al, 1971).

Several physical factors play important role in effective design of workstation in relation to operators' performance and productivity. The most important factor in design process is anthropometry. Anthropometry refers to human body measurements, with which the equipment designer is mainly concerned. Such measurements include body dimensions, strength, speed and range of motions. Involvement of human body dimensions in design process deals with 'fitting the machine to the man, and keeping him function efficiently with safety and without discomfort in any environment'.

The need for close co-ordination of man and machine became acute during World War-II, when the complexity of some types of modern military equipment began to outstrip the activities of the man trained to operate them (Damon and Randall, 1944). So, there was a mismatch between man and machine and the man becomes the weak link in the man machine complex (Damon et al, 1971).

Since man cannot be redesigned, his dimensions, capability and limitations must form the basis for machine design.

Keeping this concept in mind, various studies have been carried out in abroad and also in India to develop data pack on human body dimensions for workstation / equipment design. Among the Indian anthropometric work, available data published by Bureau of Indian Standards (formerly known as the Indian Standards Institution) "Anthropometric dimensions for school children," ISI No. 4838, Part 1, for the age group of 5 – 11 years, 1969 and Part II, for the age group 12 – 16 years, 1968 and a revision in 1969, have furnished very limited measurements and cannot be utilized for industrial population also which possesses higher age group. Similarly, the Industrial Design Centre, IIT Mumbai, has studied the "Anthropometry of School Children", in 1986, in the age range of 5 – 19 years and has developed a data pack on children's body dimensions for school furniture design (Ray and Sadhu, 1986). The same also cannot be used for older populations.

Anthropological research has been done on some limited body measurements as the "Anthropometry in India", 1966. But these do not satisfy the engineering aspects of workspace and equipment design.

The National Institute of Design, Ahmedabad, has conducted a couple of studies on body dimensions of Indian male and female subjects and has developed dimensional standards suitable for Indian home activities. One such study entitled "

Indian Anthropometric data for Designers' use" was conducted in 1989 (Chakrabarti, 1989). Another study- "A study on Indian body dimensions for home interior and furniture design" was conducted in 1994 (Chakrabarti, 1994). The National Institute of Occupational Health (NIOH), Ahmedabad, has also carried out some anthropometric studies to develop some standards (Nag et al, 1987).

Central Labour Institute, Mumbai has conducted a couple of studies on anthropometry to develop the data pack for designers use. One such study is "Anthropometric Studies on Industrial Workers in Eastern and Southern regions" by Saha et al, 1988. Another study is entitled "A National Project on Anthropometry: Study on sedentary population" by Iqbal et al, 2001 (presented in table 1,2,3&4).

USE OF ANTHROPOMETRIC DATA

Anthropometric data should be utilized in the design process on the basis of the behavioral aspects. To design a machine or workstation for a single individual's need, his own body dimensions may be considered directly, but to design a machine or workstation for mass use and for mass production, proper percentile selections of the data and appropriate clearance allowances should be made.

Percentile: Percentiles are the statistical values of a distribution of variables transferred in to a hundred scales. If 100 men lined up from least to greatest in any respect, percentiles are values corresponding to each man. In other words 5th man makes 5th percentile value, 50th man makes 50th percentile value and 95th man makes 95th percentile value and so on.

The 1st percentile of any height indicates that 99 percent of the population would have heights of greater dimensions. Similarly, a 95th percentile height would indicate that only 5 percent of the study population would have heights greater and 95 percent of the study

population have same or lesser heights than that value. The 50th percentile value approximates the average value of a dimension which divides the whole study population into two similar halves having one half slightly higher and another half lower values in relation with the average value.

Percentile Selection for Design: Percentiles can serve in the accurate design of the equipment and workstation. Lower percentile values should be considered to facilitate maximum number of people with higher values than that, where easy reach is the prime factor. Higher percentile values should be considered when the maximum number of persons having lower values than that, and a particular reach is to be avoided for ensuring safety, etc.

Following are the selections of percentile values for different design considerations:

- 1) For placement of any dangerous moving part in a machine, that is not to be touched, the higher value of the arm reach learning forward along with appropriate safety allowances should be considered. In such a case, 95 percentile of the forward arm reach value should be considered.
- 2) If a handle or switch is required to be operated only a few times, then it can be placed at a distance of around 75th percentile of the forward grasp reach in an erect posture, so that, while working, it should not create any obstacle to central work attention and it could be operated when required.
- 3) If anything is required to be operated smoothly, it should be placed within 5th percentile of the arm grasp reach so that people having a higher value can reach easily and people below this value can handle it with a little difficulty by bending forward.

But the number of people below the value is very limited.

- 4) The average value should not always be considered in design process because the design should usually be conceived to accommodate the range of body dimensions from 5th to 95th percentiles, so that most the population can be covered.

CONCLUSION

Ergonomic design of workstation to provide greater safety and health and to ensure more productivity is a challenge and an opportunity for the scientists. The application of ergonomics is a complex process that requires careful management. To ensure that standards and guidelines drawn from human factors and anthropometric data are safe and effective for individuals, they must be validated through prospective demonstrations and case studies in actual field learning environments.

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Table 1: Measurements of Body Dimensions in standing posture (Male)

Parameters	Values in cm (Minimum, Percentiles, Maximum, Mean & \pm SD)								
	Min	5th	25th	50th	75th	95th	Max	Mean	\pm SD
Weight (Kg)	45.3	52.7	62.8	69.8	76.5	87.5	113.8	70.1	10.6
Height	147.0	157.9	164.2	168.2	172.1	178.3	185.5	168.1	6.22
Eye height	138.0	147.4	153.4	157.4	161.2	167.2	173.8	157.3	6.03
Shoulder height	120.3	130.6	136.4	140.3	143.8	149.6	157.8	140.1	5.75
Waist height	82.3	90.3	95.4	98.5	101.7	106.7	113.0	98.5	5.00
Elbow height	73.8	96.8	102.4	105.1	108.5	113.4	119.6	105.1	5.02
Wrist height	37.5	74.7	80.2	82.8	85.4	91.3	113.2	83.0	5.03
Arms overhead	179.0	196.1	207.0	213.0	220.0	230.2	252.0	213.2	10.4
Total arms span	146.3	159.4	167.4	172.7	177.4	185.4	208.0	172.4	7.91
Forward arm reach	53.0	77.4	82.1	84.5	87.1	91.6	95.8	84.5	4.29

Table 2: Measurements of Body Dimensions in sitting posture (Male)

Parameters	Values in cm (Minimum, Percentiles, Maximum, Mean & ± SD)								
	Min	5th	25th	50th	75th	95th	Max	Mean	± SD
Sitting height	75.0	80.6	83.6	85.7	88.0	91.0	95.4	85.8	3.18
Sitting eye height	63.5	69.2	72.4	74.3	76.6	79.8	91.4	74.5	3.21
Shoulder height	47.5	53.0	56.1	57.9	59.6	62.9	80.2	58.0	3.01
Seat height	31.2	33.5	36.2	37.8	39.7	42.7	49.8	38.1	2.78
Knee height	35.6	52.9	49.9	51.5	53.4	62.4	62.2	51.6	2.93
Shoulder breadth	30.2	37.8	40.6	42.0	43.5	46.2	53.9	42.0	2.53
Elbow width	32.0	37.7	42.1	45.0	47.8	52.2	64.4	45.0	4.41
Hip breadth	28.7	31.3	34.0	35.6	37.4	40.3	49.6	35.8	2.76
Lumber height	15.3	18.3	21.5	24.1	26.6	30.3	37.8	24.3	3.66
Shoulder-Elbow height	20.4	31.7	34.3	35.4	36.5	39.0	46.9	35.4	2.21
Seat-Elbow height	14.1	17.8	21.0	22.7	24.5	27.9	42.9	22.9	3.06
Fore arm length	23.2	41.5	44.8	46.4	47.8	50.9	60.0	46.2	2.89
Buttock knee length	35.3	50.9	54.6	56.6	58.2	61.8	69.0	56.4	3.29
Seat length	32.1	39.0	42.5	44.5	46.5	49.9	55.1	44.5	3.34
Thigh clearance	9.6	10.4	13.0	14.2	15.6	18.4	40.8	14.4	2.43

*** For female data and other details please refer the report.**

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SAFETY AUDIT IN A MAJOR ACCIDENT HAZARD FACTORY

This Safety Audit was conducted in a major hazard factory by Central Labour Institute, Mumbai to enable them to take necessary measures to strengthen the safety and health systems. This safety audit was conducted as per BIS Standard Codes of Practices for Occupational safety & Health (OSH) audit system (BIS 14489:1998).

OBJECTIVE

The audit was carried out to examine the existence and effectiveness of safety, health and environment management system. Information was collected through questionnaires, checklist and plant visit. Findings of shortcomings and recommendations were reported to the factory management.

FINDINGS

Although the unit had a good system of safety management, in certain areas, it requires some improvement. Safety audit identified the areas which required improvement .

RECOMMENDATIONS

Some of the important recommendations are:

- Workers responsibility for safety should be included in safety policy
- Strengthening of safety department
- Proper representation of workers in Safety Committee
- Development of infrastructure for training purpose

- Occupational health centre should be equipped with medicine equipment.
- Duties of Medical Officer should be stated.
- Disaster Management Plan should be updated incorporating the changes made. Critical equipment and instrument should be identified for priority in inspection and preventive maintenance
- Safety report should be prepared.

NOISE SURVEY IN AN AUTO ANCILLARY ENGINEERING FACTORY

This noise study was conducted by Regional Labour Institute, Chennai as a consultancy study.

OBJECTIVE

The objective of this study was to assess the sound levels at various locations and to suggest remedial measures wherever necessary to bring down the noise levels and to prevent the excessive exposure of the workers.

OBSERVATION

This auto ancillary engineering factory was engaged in the production of wheels for four wheeler vehicles such as cars, trucks, tractors etc. There were a number of engineering operations producing high sound levels.

Sound levels exceeding 90 dBA were found in a number of areas such as Generator Room, Compressor Room, Defacing machine, EM unit, Induction Heater, CV Shear, LP Disc and Assembly, HD press, NRP Induction Heater and Roll Former, Butt welding etc.

REMEDIAL MEASURES

Provision of enclosures for the noisy machines, proper and regular maintenance of machines, provision of sound proof cabin for operators in high noise areas etc. Besides, effective use of ear plugs and audiometric examination of workers have also been suggested. In certain areas, sound levels were found between 85 to 90 dBA. Keeping in view the fluctuating nature of the sound levels, same measures have been suggested for such areas also. In all other areas, sound levels were found well within the permissible levels.

SAFETY AUDIT IN A SHIPPING COMPANY

This Safety Audit was conducted by Central Labour Institute, Mumbai for a systematic and documented evaluation of the Occupational Safety & Health systems and procedures in the factory.

METHODOLOGY

During the field visits, all shops, departments and places of work activities including the work on board ships were covered by the audit team. Relevant documents pertaining to safety system were obtained. The compliance to statutory requirement were also checked and verified. Personnel interviews were held with the workers, managers and senior executives regarding maintenance of safety and health norms at work place. The management system and technical elements of safety audit covering thirty elements of the organizational activities/techniques/systems were observed to identify strength and weakness with respect to the existing standards at the factory.

RECOMMENDATIONS

Some of the important recommendations are given below:

- The existing “Safety Policy” should be revised to Safety & Health Policy. Safety & Health Policy, targets and goals are to be displayed in all the departments/shops like display of quality target and goals. The Safety &

Health Policy should also mention the compliance to the relevant statutory provisions.

- The Safety Officers should be empowered to stop any unsafe work/practice only in the case of imminent danger.
- The terms of reference, type, structure, tenure, function and other aspects of the Central Safety Committees, which have been constituted under statutory provisions should be prepared and maintained as a document for statutory compliance.
- The expenditure under the head “Safety Budget” should be included in the Annual Budget of the factory and all the expenditure related to safety should be placed under this head.
- The “Accident Report Form” (Form No.16) should be printed in quadruplicate in Yellow, White, Pink & Grey colours. All the forms are to be filled in by the concerned department which will retain the yellow format while the white and pink should go to Safety and Personnel Department and the grey form to the Medical Department for necessary action and record.
- Basic safety training on safety and health should be imparted to all the workers, staff and officers from production, maintenance, transport, administration, allied service

department and contractor personnel.

- First-aid boxes should be provided in all the shops/departments and it should contain all the required items

intact. The first-aid box may be kept under lock and key available to each shift-in-charge.

On 26.9.2001, in the first shift, a worker was discharging timber logs in a Port. In Hatch No.2, workers tied the logs (4 nos.) at one end and asked for signal from the Signalman for tightening the wire rope to insert the wire rope at the other end of the log. Signalman gave signal to the crane operator for tightening the rope slowly. Accordingly, the crane operator operated the crane for tightening the wire rope. When the logs were being lifted, all of a sudden one wooden log placed on the top of the side stack (lying with the hatch coaming at aft end and star board side of the hatch) slipped and rolled down and hit the head (covering face also) of a casual worker, who was adjusting the logs with the help of a wooden piece(baton) to prevent shifting of the wire rope sling outwardly from the timber logs.

The Investigation Officer has made the following findings –

1. Discharging of timber logs in unlevelled manner resulted in the formation of side stack, which led to the rolling down/shifting of log placed on top of the stack. This is in violation of Regulation 66(4) of Dock Workers (Safety, Health & Welfare) Regulations, 1990.
2. Cargo Supervisors/Foreman did not supervise and monitor their work properly that unlevelled discharge of cargo had formed side stack, which caused slippage (rolling down of log), which endangered the life of other dock workers. This is in violation of Section 11(1)(b) of the Dock Workers (Safety, Health & Welfare) Act, 1986.
3. The employer did not provide measures in cargo handling to guard the dock workers against the accidents by shoring or otherwise. This is in violation of Regulation 66(1) of Dock Workers (Safety, Health & Welfare) Regulations, 1990.
4. It shows that employer failed to provide effective supervision and monitoring of cargo handling work.

This is in violation of Regulation 117 of Dock Workers (Safety, Health and Welfare) Regulations, 1990.

5. Cargo Supervisor/Foreman did not observe that the workers who were booked were working at their designated place of duty.

On 27.12.2001, in the second shift, a 20 ft. empty trailer after unloading container in a port was on its way to go out from the container gate. Before leaving the gate, the trailer was waiting near the gate. There were so many other trailers parked near the gate including the above trailer. One such trailer loaded with 40 ft. container was also parked among these trailers for passing out. When the cleaner of the 20 ft. trailer was getting down from the cabin for handing over the papers at the gate, the 40 ft. trailer came from behind and hit him. He was immediately taken to hospital where he was declared dead.

The Investigation Officer has made the following findings:

1. Cleaner of 20 ft. empty trailer got injured due to hit by 40 ft. loaded trailer from behind and succumbed to the injuries.
2. The 40 ft. trailer hit the cleaner because it was moving past of 20 ft. trailer and he was getting down from the cabin.
3. The accident occurred because of the fact that there was no proper parking and regulation of vehicles movement from the container gate, which shows that workers were negligent in these aspects which endangered the life and safety of the workers, contravening Regulation 117 of Dock Workers (Safety, Health and Welfare) Regulations, 1990.
4. There was no proper illumination near the container gate, contravening Regulation 83(7) of the Dock Workers (Safety, Health & Welfare) Regulations, 1990.

ADVANCED TRAINING PROGRAMME ON OCCUPATIONAL HEALTH AND ENVIRONMENTAL MEDICINE

PROGRAMME PERSPECTIVE

Occupational health is no more a science which deals with work related disorders/diseases only, but has developed to encompass all the factors, which affect the community health within it. Needless to say therefore, that in this fast developing industrial scenario, the role of doctors has become very demanding and those who are unable to maintain the pace with such development will be left behind. This needs regular updating of the information on occupational health so that knowledge and skills of doctors are appropriately strengthened for better occupational health management of workers. This training course is tailor-made for this purpose. Factory medical officers, medical officers of enforcement agencies and other medical professionals engaged in health care of the community in general and industrial workers in particular will be benefited most by this course. On completion of course, it is expected that medical officers shall be able to develop the appropriate strategies for the occupational health protection of the workers, prevention of occupational diseases and better compliance of rules.

HIGHLIGHTS

- Challenges of occupational health in the new millennium, occupational health management and productivity, environmental issues involved in occupational health practice, social dimension of occupational health, medical emergency response planning, de-addiction planning.
- Developments and recent advances in management of occupational health hazards, advancement and development in technique and assessment of

work environment, role of occupational health in total safety programme, selection of PPE.

- Occupational musculo-skeletal disorders, adverse effects of noise, heat, etc., occupational skin diseases, occupational stress.
- Occupational health management, factory legislation and organization of occupational health service at workplace and medical surveillance in industry.
- Epidemiology, sickness absenteeism, medico-legal considerations in occupational health and women at work.

TECHNIQUES

The training will be conducted through class-room lectures, group discussions, field visits, scientific audio-visual presentation, laboratory visits and demonstration, etc. English will be the language of the training programme.

FACULTY

Eminent experts on the topics from hospitals, institutions, industries, will be the faculties besides the experts of DGFASLI and Central Labour Institute.

PARTICIPANTS

Medical doctors (MBBS) from factories, ports and docks, mines, plantation, ESIS, ESIC, certifying surgeon, general practitioner and teachers in preventive and social medicine etc.

DURATION: 2 weeks

**Conducted by:
Industrial Medicine Division
Central Labour Institute,
Sion, Mumbai.400022**

INTERNATIONAL OCCUPATIONAL SAFETY AND HEALTH INFORMATION CENTRE (CIS)

International Occupational Safety and Health Information Centre, is a part of the International Labour Office, Geneva, Switzerland. The mission of CIS is to collect world literature that can contribute to the prevention of occupational hazards and to disseminate this information at an international level. CIS imparts to its users the most comprehensive and up-to-date information in the field of Occupational safety and health. The work of CIS is supported by a worldwide Safety and Health information exchange network which includes over 91 affiliated National Centres and 38 CIS collaborating Centres. Central Labour Institute, Mumbai has been designated as the CIS National Centre of India.

CIS can offer you rapid access to comprehensive information on occupational safety and health through:

- Microfiches on original documents abstracted in CIS DOC (CISILO)
- ILO CIS Bulletin "Safety and Health at Work"
- Annual and 5-year indexes
- The CIS Thesaurus
- The list of periodicals abstracted by CIS

EXCERPT FROM CIS DOC

Title: Comparing levels of o-cresol and hippuric acid in the urine of workers exposed to toluene

CIS ACCESSION NUMBER

CIS 01-489

ABSTRACT

Toluene is an aromatic solvent widely used in the manufacturing process of many products such as glue, thinners and paints. Its neurotoxicity is the main risk factor to workers' health, therefore the use of control and evaluation measures of occupational exposure is essential. Toluene absorbed by workers is oxidized into aromatic compounds, including o-cresol, which has been suggested as a preferred biological indicator for exposure to toluene. The fact that o-cresol is not found in significant amounts in the urine of non-exposed individuals is a great advantage over hippuric acid as an indicator. This study focused on comparing the levels of o-cresol and hippuric acid in urine samples of individuals occupationally exposed to toluene in three industrial activities (shoe manufacturing, metalworking and printing) with those of an unexposed control group. Results indicate that further research is necessary to validate o-cresol as a biomarker for exposure to toluene.

Note:

For details write to CIS National Centre for India, Central Labour Institute, Sion, Mumbai 400 022.

The Library & Information Centre of Central Labour Institute has unique collection of Material Safety Data Sheet of about 1,20,000 chemicals/materials taken from Canadian Centre for Occupational Health & Safety. MSDS provides extensive coverage over safety perspective with detailed evaluation of health, fire and reactivity hazards. It also provides precaution as well as recommendation on handling, storage, personal protective equipment, accidental release etc.

IDENTIFICATION

PRODUCT NAME: METHANOL

FIRE AND EXPLOSION HAZARDS

Flammable liquid. Flame is invisible in daylight. Methanol-water mixtures will burn unless very dilute. Autoignition temperature is 385C (725F). Keep unnecessary people away; isolate hazard area and deny unnecessary entry. Vapours can form flammable mixtures at ordinary temperatures. Static electricity may accumulate and create a fire ignition hazard. Move container from fire area if possible. Vapours are heavier than air and may travel a considerable distance where they may linger and/or find an ignition source and flash back. Stay upwind; keep out of low areas.

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure self-contained breathing apparatus and full protective equipment.

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion may produce carbon dioxide, carbon monoxide and water. Unidentified organic compounds may be formed during combustion.

HAZARDOUS POLYMERIZATION: Will not occur.

ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS: Keep unnecessary people away; isolate

hazard area and deny unnecessary entry. Keep out of sewers, storm drains, surface waters and soil. Vapour explosion hazard indoors, outdoors or in sewers. In case of large spills, warn public of downwind explosion hazard. Remove all possible ignition sources like cigarettes, flames, pilot lights, electrical sources, etc. Pump up (with appropriate explosion proof equipment) or soak up with sand or other absorbent. Application of vapour suppression foams may be appropriate. Check area with approved explosion meter before re-entering area. Ground and bond all containers and handling equipment. Under some conditions of use, application of clay or cellulose based absorbents on spills of this material may result in the generation of flammable vapours since there is a heat of absorption and a high surface area. If temperature is above flash point, cover with vapour suppression foam until it can be cleaned up.

DISPOSAL METHOD: Burn in an approved incinerator in compliance with local, state, and federal laws.

HEALTH HAZARD DATA

EYE: May cause slight irritation with corneal injury.

SKIN CONTACT: Prolonged or repeated exposure may cause skin irritation.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. Repeated skin exposure may result in absorption of harmful amounts. The dermal LD50 for skin absorption in rabbits is 20,000 mg/kg. Effects are the same as those observed via oral and inhalation exposure and include central nervous system depression, visual impairment up to blindness, metabolic acidosis with effects on organ systems such as the liver, kidneys and heart, even death.

INGESTION: Ingestion may cause blindness. The oral LD50 for rats is 12,800 mg/kg. The lethal dose in humans is estimated to be around 1-8 ounces. Even these small amounts may cause serious injury or death. Effects may be delayed. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects.

Methanol is highly toxic to humans and ingestion may cause central nervous system depression, metabolic acidosis, and visual disturbances up to blindness. Metabolic acidosis may lead to effects on various organ systems including the liver, kidneys and heart.

INHALATION: Excessive vapor concentrations are readily attainable and may cause serious adverse effects, even death. Excessive exposure may cause irritation to upper respiratory tract. Effects may be delayed. Signs and symptoms of excessive exposure may be abdominal cramps and/or diarrhea. Inhalation may cause central nervous system depression with effects such as headache and narcosis, visual impairment up to blindness; metabolic acidosis with effects on other organ systems such as the liver, kidney, and heart; even death.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Repeated exposures may cause central nervous system effects, impairment of vision up to blindness, gastric distress, and headache.

TERATOLOGY (BIRTH DEFECTS): Methanol has caused birth defects in laboratory animals. Slight behavioral effects were seen in the offspring of female rats ingesting methanol during pregnancy.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL): Results of in vitro ('test tube') mutagenicity tests have been negative for methanol.

FIRST AID

EYES: Flush eyes with plenty of water.

SKIN: Wash off in flowing water or shower.

INGESTION: If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Seek medical attention immediately.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

NOTE TO PHYSICIAN: In cases where significant quantities have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

VENTILATION: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Lethal concentrations may exist in areas with poor ventilation.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved positive-pressure supplied-air respirator. For emergency and other conditions where the exposure guideline may be greatly exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved positive-pressure supplied-air respirator.

SKIN PROTECTION: Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse.

EYE PROTECTION: Use chemical goggles.

NOTE: The above details constitute part information of MSDS taken from Canadian Centre for Occupational Health and Safety. For complete MSDS write to MIS division, Central Labour Institute, Sion, Mumbai.400022. MSDS on about 1,20,000 chemicals/materials are available with Central Labour Institute. Computer printout will be supplied on nominal charge basis.

LIBRARY AND INFORMATION CENTRE

The Library-cum-Information Centre of Central Labour Institute has unique and rare collection of different kind of publications in the field of Occupational Safety, Health, Management and allied subjects. It also has a good collection of different standards, codes, regulations on these matters. In the current year the centre is subscribing to 25 Indian & foreign journals, besides receiving complimentary copies of different periodicals from all over the world. The centre provides facilities for study and research and at the same time supplies authentic and up-to-date information on Occupational Safety, Health and Management. It also extends reading facilities to students & scholars attending different training programmes & courses conducted by CLI. From January 2001 till date a number of publications in the field of OS&H have been added to Library. Some of them are :

ENVIRONMENTAL JURISPRUDENCE

Author: Justice Ashok A. Desai
Publisher: Vikas Publishing House Pvt. Ltd., New Delhi

The book begins by tracing the references and instructions in the Vedantic Tenets, the Ayats of Allah, and the preachings of Jainism and Buddhism dealing with the environment.

The book reflects remarkable breadth of vision and depth of knowledge on the part of author. The author has elaborately quoted international and national declarations and recommendations in the environmental field. He has highlighted emerging economical imbalances and deteriorating quality of life along with the remedies available in the existing legal system and has also suggested future remedies including legislation to meet the emerging situations.

ENVIRONMENT CRISIS AND MANAGEMENT (Indian Case)

Author: Sunit Gupta
Published by: Sarup & Sons, New Delhi

The global problem of environment degradation would throw our very existence in peril, unless proper and timely remedial action is initiated in right earnest. No nation can sit tight over this problem, because it respects no national boundaries. Its extent is limitless. Since the problem is global and not confined to a particular area, it also requires global solution, yet no one can ignore it at local level. Now the time has come to plan for the sustainable development in harmony with the environment.

Considering the problem in its totality this encyclopaedia has been planned and is divided into three volumes for the convenient of the readers:

1. Global Environment Present Satus,
2. Environment Problems and Management: Indian Case,
3. Environment and Social Issues.

The present volumes cover diverse aspects of the subject and discusses complexity of problems emerging due to environment degradation. This book would be of great value to all end users.

**TRAINING PROGRAMMES
OCTOBER-DECEMBER 2002
CENTRAL LABOUR INSTITUTE, MUMBAI**

Programme title	Contact person
Diploma in Industrial Safety-2002-2003	Director (Safety) & Incharge Incl. Safety Division
Evaluation and Control of Hazards in Fertiliser Industry	Director (Incl.Hygiene) & Incharge Incl..Hygiene Division
Quality of Work Life	Director (Incl.Psychology) & Incharge Incl.Psychology Division
Workshop for Safety Committee Members	Director (Safety) & Incharge Incl.Safety Division
Training Methodology for Trainers	Director (Staff Trg.) & Incharge Staff Training Division
Training programme on Noise Hazards Prevention & Control In Industry	Director (Incl.Hygiene) & Incharge Environmental Engineering Div.
Ergonomics	Director (Physiology) & Incharge Incl.Ergonomics Division
Effective Leadership for Safety Health & Productivity	Director (Incl.Psychology) & Incharge Incl.Psychology Division
Lungs Function and Air Contaminants- Its Management for Safety, Health & Productivity	Director (Physiology) & Incharge Incl. Physiology Division
Specialised Training Programme on Safety Engineering & Management	Director (Safety) & Incharge Incl.Safety Division
Wage & Salary Management	Director (Productivity) & Incharge Productivity Division

Programme title

Contact person

Training programme on Testing & Examination of Lifting Appliances and Pressure Vessels.

Director (Safety) & Incharge
Indl.Safety Division

Advanced training programme on Occupational Health & Environmental Medicine for Medical Officers

Director (Medical) & Incharge
Indl. Medicine Division

Selection & Quality Assurance for Effective use of PPE

Director (Indl.Hygiene) & Incharge
Indl.Hygiene Division

Training programme on Salient Features of Legislation on Occupational Safety & Health

Director (Indl.Hygiene) & Incharge
Major Accident Hazard Control
Advisory Division

Quality & Productivity Improvement through Employee Empowerment

Director (Productivity) & Incharge
Productivity Division

Motivation for Safety, Health & Productivity

Director (Indl.Psychology) & Incharge
Indl.Psychology Division

Management of Occupational Stress – Its Evaluation & Control for Safety, Productivity & Health

Director (Physiology) & Incharge
Indl.Physiology Division

**TRAINING PROGRAMMES
OCTOBER-DECEMBER 2002
REGIONAL LABOUR INSTITUTE ,LAKE TOWN , KOLKATA**

Programme title	Contact person
Safety Audit	Director Incharge
Appreciation course on Industrial Hygiene	Director Incharge
Higher Productivity and Better Place to Work	Director Incharge
Refresher course on Occupational Health for Plant Medical Officers	Director Incharge
Training programme on Chemical Safety	Director Incharge

**TRAINING PROGRAMMES
OCTOBER-DECEMBER 2002
REGIONAL LABOUR INSTITUTE , CHENNAI**

Programme title	Contact person
Diploma Course in Industrial Safety	Director Incharge
Training programme on Major Accident Hazard Control in Industries	Director Incharge
Workshop on HAZOP	Director Incharge

**TRAINING PROGRAMMES
OCTOBER-DECEMBER 2002
REGIONAL LABOUR INSTITUTE, KANPUR**

Programme title	Contact person
Post Diploma Course in Industrial Safety	Director Incharge
Workshop on Dispersion Modelling & Effect Calculation for gases of moderate density	Director Incharge
Training programme on Occupational Health.	Director Incharge
Workshop on HAZOP	Director Incharge
Training programme on Industrial Safety & Health	Director Incharge

**TRAINING PROGRAMMES
JANUARY TO DECEMBER 2002(TENTATIVE)
REGIONAL LABOUR INSTITUTE
S.C.F-46, SECTOR 19, PART-II MARKET, FARIDABAD**

Programme title	Contact person
Training programme on Effective Supervision in Managing Safety, Health & Better Environment	Deputy Director (Staff Trg./Prod)
Training programme on Team Building for Safety, Health and Welfare	Deputy Director (Staff Trg./Prod)
Training programme on Personal Growth and Group Dynamics	Deputy Director (Staff Trg./Prod)

इंडोशनेट

भारत सरकार का श्रम मंत्रालय व्यवसायिक सुरक्षा और स्वास्थ्य सूचना प्रणाली पर इंडोशनेट नामक राष्ट्रीय नेट वर्क का विकास कर रहा है। श्रम मंत्रालय का एक संबद्ध कार्यालय, कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय इस नेट वर्क प्रणाली के सफल कार्यान्वयन में सहायता देता है। इस नेट वर्क का उद्देश्य व्यवसायिक सुरक्षा और स्वास्थ्य संबंधी राष्ट्रीय जानकारी सुदृढ़ करना और लाभहानि रहित आधार पर इसका आदान-प्रदान करना है ताकि हमारे समग्र सूचना स्रोतों का परस्पर लाभ के लिए उपयोग हो सके। आपस में सूचना या जानकारी की यह सहभागिता केवल राष्ट्रीय स्तर तक ही सीमित नहीं होगी बल्कि इसमें अंतर्राष्ट्रीय स्रोत भी शामिल होंगे। इस जानकारी का आदान-प्रदान ई-मेल के साथ-साथ डाक/कुरियर सेवा द्वारा किया जाएगा। यदि औद्योगिक संगठनों, संस्थानों, उद्योग संघों, मजदूर संघों, व्यवसायिक निकायों और गैरसरकारी संगठनों के पास व्यवसायिक सुरक्षा स्वास्थ्य संबंधी कोई जानकारी हो और वे राष्ट्रीय और अंतर्राष्ट्रीय स्तर पर उक्त जानकारी बाँटना चाहते हों तो कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय की ओर से इस नेट वर्क के सदस्य के रूप में भाग लेने के लिए उनका स्वागत है। इच्छुक इकाइयों संगठनात्मक रूपरेखा संबंधी प्रोफार्मा के लिए महानिदेशक, कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय, केंद्रीय श्रम संस्थान भवन, एन.एस.मंकीकर मार्ग, सायन, मुंबई-४०० ०२२ से संपर्क करें।

टिप्पणी : जिन इकाइयों ने हमारे पहले आग्रह के संदर्भ में संपर्क किया है और निर्धारित प्रोफार्मा में रूपरेखा भेज दी है, वे दुबारा आवेदन न करें।

नेशनल रेफरल डायग्नोस्टिक सेंटर

भौतिक, रासायनिक, जैविक तथा मनो-सामाजिक जैसे विभिन्न कारणों से कामगारों पर होने वाले विपरीत स्वास्थ्य प्रभावों की रोकथाम और नियंत्रण करने के लिए व्यावसायिक स्वास्थ्य विकार और व्यावसायिक रोगों की शीघ्र पहचान और उसका निदान एक प्रमुख पहलू है। व्यावसायिक रोगों का शीघ्र पता लगाने और निदान करने के लिए केंद्रीय श्रम संस्थान, मुंबई के औद्योगिक चिकित्सा प्रभाग के अधीन 'नेशनल रेफरल डायग्नोस्टिक सेंटर' कार्यरत है जो व्यावसायिक स्वास्थ्य समस्याओं / व्यावसायिक रोगों की रोकथाम / नियंत्रण के लिए आवश्यक उपायसुझाता है। प्रभावित कामगारों की चिकित्सीय जाँच के लिए यह निदान केंद्र पूर्णतया सज्जित है और यहाँ श्वास/धमनी संबंधी जाँच, श्रव्यता मापन, ई.सी.जी., टिट्मस दृष्टि जाँच, जैविक निगरानी आदि के लिए सुविधाएँ उपलब्ध हैं। कारखाना चिकित्सा अधिकारी, ई.एस.आई. डॉक्टर, कारखानों के चिकित्सा निरीक्षक सहित व्यावसायिक चिकित्सक तथा मेडिकल कॉलेज और अस्पतालों के प्रमाणित शल्य चिकित्सक और डॉक्टर व्यावसायिक रोगों के संदेहास्पद रोगी, निदान और परामर्श के लिए इस केंद्र में भेज सकते हैं। इस मामले में अधिक जानकारी के लिए महानिदेशक, कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय, केंद्रीय श्रमसंस्थान भवन, एन.एस.मंकीकर मार्ग, सायन, मुंबई-४०० ०२२ से संपर्क करें।

INDOSHNET

Ministry of Labour, Government of India, is developing a National Network on Occupational Safety and Health information system known as INDOSHNET. Directorate General Factory Advice Service & Labour Institutes (DGFASLI), an attached office of the Ministry of Labour will act as a facilitator of the network system. The objective of the network is reinforcement and sharing of national occupational safety and health (OS &H) information on no-profit no-loss basis with a view to pooling our information resources for mutual benefit. The sharing of information will not only confine to the national level but also includes international sources. The communication of information will be through E-mail as well as postal/courier service. DGFASLI invites industrial organisations, institutions, industry associations, trade unions, professional bodies and non-governmental organisations having information on OS&H and willing to share the same with others at the national and international level to participate as members in the network. Interested agencies may please write for proforma of organisational profile to Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022.

Note: Those who have responded to our earlier communication and sent organisation profile in the prescribed format need not write again.

NATIONAL REFERRAL DIAGNOSTIC CENTRE

Early detection and diagnosis of occupational health disorders and occupational diseases is one of the most important factors in the prevention and control of adverse health effects on workers due to various factors - physical, chemical, biological and psycho-social. The Industrial Medicine Division of Central Labour Institute, Mumbai runs a National Referral Diagnostic Centre (N.R.D.C.) for early detection and diagnosis of occupational diseases and recommends necessary measures for prevention/control of occupational health problems/occupational diseases. The diagnostic centre is well equipped for medical examination of the exposed workers and facilities are available for carrying out special investigation, e.g. Pulmonary function tests, Audiometry, ECG, Titmus vision test, Biological monitoring, etc. Medical professionals including Factory Medical Officers, ESI Doctors, Medical Inspectors of Factories and Certifying Surgeons, Doctors from Medical Colleges and Hospitals can refer suspected cases of occupational diseases to N.R.D.C. for diagnosis and advice. The communication should be addressed to the Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022 for further details.

‘इन्डोश्न्यूज़’ एक त्रैमासिक समाचार पत्र है जो व्यावसायिक सुरक्षा और स्वास्थ्य के क्षेत्र में अनुसंधान, ध्ययन और सर्वेक्षण के माध्यम से उपलब्ध जानकारी तथा तत्संबंधी विचार विनिमय में अत्यंत सहायक है । कारखाना सलाह सेवा एवं श्रम संस्थान उन व्यक्तियों, उद्योगों, औद्योगिक संगठनों, मज़दूर संघों और व्यावसायिक निकायों से लेख आमंत्रित करता है जिनके पास व्यावसायिक सुरक्षा एवं स्वास्थ्य संबंधी जानकारी है तथा जो उसे स्वेच्छा से दूसरों में बाँटना चाहते हैं ।

१. प्रकाशन के लिए पांडुलिपि की दो प्रतियां ‘डबल स्पेस’ में ए-४ आकार के कागज़ पर एक ओर टाइप किए गए लेख जो ३ या ४ पृष्ठ से अधिक न हों, मुख्य संपादक के पास भेजी जानी चाहिए । कोई फ़ोटो छापा नहीं जाएगा ।
२. प्रकाशन के लिए स्वीकृत पांडुलिपियों में प्रकाशन की दृष्टि से आवश्यक संपादकीय परिवर्तन करने का अधिकार प्रकाशक का है । प्रकाशक बिना कोई कारण बताए लेख का प्रकाशन नहीं भी कर सकता है ।
३. लेखक अपने लेख में दिए गए आँकड़े तथा संदर्भ स्वयं सुनिश्चित करने में सावधानी बरतें ।

INDOSHNEWS is a quarterly newsletter that facilitates exchange of ideas and data developed through research, study and surveys in the areas of occupational safety and health. DGFASLI invites articles from individuals, industry, industrial associations, trade unions, professional bodies etc. having information on OS & H and willing to share the same with others at the national and international level.

- 1. Manuscripts for publication should be typed in double space within 3 to 4 A4 size sheets only on one side of the paper and sent in duplicate to the Editor-in-Chief. No photographs can be published.**
- 2. Once the manuscripts are accepted for publication, publisher reserves the right to make editorial changes as may be necessary to make the article suitable for publication; and publisher reserves the right not to proceed with publication for whatever reason.**
- 3. Authors should take care to ensure the accuracy of data and reference.**

भारत सरकार, श्रम मंत्रालय
कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय

कारखाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय इंडीजीफासलीट भारत सरकार के श्रम मंत्रालय का एक संबद्ध कार्यालय है। कारखानों और गोदी में व्यावसायिक सुरक्षा और स्वास्थ्य संबंधी नीति बनाने के लिए तथा कार्य स्थलों पर कामगारों की सुरक्षा, स्वास्थ्य, दक्षता संबंधी मामलों पर राज्य सरकारों और कारखानों को परामर्श देने की दृष्टि से १९४५ में भारत सरकार के श्रम मंत्रालय के अधीन डीजीफासली की स्थापना की गई थी। यह महानिदेशालय देश के प्रमुख पत्तनों में सुरक्षा एवं स्वास्थ्य संबंधी नियम भी लागू कराता है।

कारखाना सलाह सेवा और श्रम मंत्रालय संस्थान महानिदेशालय इंडीजीफासलीट के निम्नलिखित अंग हैं:

- मुम्बई स्थित मुख्यालय;
- मुम्बई स्थित केंद्रीय श्रम संस्थान और
- कोलकाता, चेन्नई, फरीदाबाद और कानपुर स्थित क्षेत्रीय श्रम संस्थान।

मुम्बई स्थित केंद्रीय श्रम संस्थान समाजार्थिक प्रयोगशाला के रूप में कार्य करता है और यह मानवीय पहलुओं से संबंधित औद्योगिक विकास के सभी पक्षों के वैज्ञानिक अध्ययन का एक राष्ट्रीय संस्थान है।

पिछले ३३ वर्षों में केंद्रीय श्रम संस्थान का केवल आकार की दृष्टि से ही नहीं बल्कि महत्ता की दृष्टि से भी विकास हुआ है और इसने राष्ट्रीय तथा अंतर्राष्ट्रीय स्तर पर मान्यता प्राप्त की है। एशिया और पैसिफिक क्षेत्र में व्यावसायिक सुरक्षा और स्वास्थ्य पर सर्वोत्कृष्ट प्रशिक्षण केंद्र के रूप में अंतर्राष्ट्रीय श्रम संगठन ने मान्यता प्रदान की है। यह सीआईएस इअंतर्राष्ट्रीय व्यावसायिक सुरक्षा और स्वास्थ्य सूचना केंद्र टके राष्ट्रीय केंद्र तथा राष्ट्रीय सुरक्षा एवं स्वास्थ्य जोखिम सतर्कता प्रणाली के केंद्र के रूप में कार्य करता है। राष्ट्रीय स्तर पर सरकार को अनुसंधान और प्रशिक्षण सुविधा उपलब्ध कराने और श्रम मंत्रालय के तकनीकी सहायक के रूप में कार्य करने के अलावा यह संस्थान अध्ययन, तकनीकी परामर्श, प्रशिक्षण और सूचना प्रसार के माध्यम से औद्योगिक पत्तन सेक्टर को गहन और बहु-आयामी सेवा उपलब्ध कराता है। इसके अधीन, व्यावसायिक विकारों की शीघ्र पहचान और उसके नियंत्रण और रोकथाम के लिए रेफरल डायग्नोस्टिक सेंटर कार्यरत है। सुरक्षा और स्वास्थ्य से संबंधित स्तरीय यू-मैटिक वीडियो फ़िल्मों के निर्माण के लिए परिष्कृत उपकरणों से सज्जित एक आधुनिक ऑडियो विजुअल स्टूडियो उपलब्ध है। केंद्रीय श्रम संस्थान के लघु रूप में क्षेत्रीय श्रम संस्थान हैं जो अपने संबद्ध क्षेत्रों की आवश्यकता पूरी करते हैं।

निरंतर बढ़ती माँग को देखते हुए, इस संगठन का आगे विकास हो रहा है। किसी विकासशील देश में विभिन्न और जटिल प्रकृति के उद्योगों की बड़ी संख्या को देखते हुए, कामगारों की सुरक्षा और स्वास्थ्य एक चुनौतीपूर्ण कार्य है। तकनीक, औद्योगिक समाज की साख और समर्पित कर्मचारियों से सज्जित यह संगठन भविष्य की चुनौतियों का सामना करने में सक्षम है। कार्य स्थल सुरक्षित बनाने के अपने लक्ष्य के लिए यह संगठन प्रतिबद्ध है।

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**GOVERNMENT OF INDIA, MINISTRY OF LABOUR
DIRECTORATE GENERAL FACTORY ADVICE SERVICE & LABOUR
INSTITUTES**

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) is an attached office of the Ministry of Labour, Government of India. DGFASLI organisation was set up in 1945 under the Ministry of Labour, Government of India to serve as a technical arm to assist the Ministry in formulating national policies on occupational safety and health in factories and docks and to advise State Governments and factories on matters concerning safety, health, efficiency and well-being of the persons at workplace. It also enforces safety and health statutes in major ports of the country.

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) comprises:

- * Headquarters situated in Mumbai
- * Central Labour Institute in Mumbai
- * Regional Labour Institutes in Kolkata, Chennai, Faridabad and Kanpur

The Central Labour Institute in Mumbai functions as a socio-economic laboratory and is a national institute dealing with the scientific study of all aspects of industrial development relating to the human factors.

Over the past 33 years the Central Labour Institute has constantly grown not only in size but also in stature and has earned national and international recognition. It has been recognised by the International Labour Organisation as a Centre of Excellence in training on Occupational Safety and Health in the Asian and Pacific Region. It also functions as a National Centre for CIS (International Occupational Safety and Health Information Centre) and the Centre for National Safety and Health Hazard Alert System. At the national level, apart from providing research and training support to the Government and functioning as a technical arm of the Ministry of Labour, the institute provides comprehensive and multi-disciplinary services to the Industrial Port sector through studies, technical advice, training and dissemination of information. It also runs National Referral Diagnostic Centre for early detection of occupational disorders and thereby controls and prevents them. It has a modern Audio Visual Studio fully equipped with sophisticated video production equipment to produce quality U-matic video films on Safety and Health. The Regional Labour Institutes are a scaled-down version of the Central Labour Institute and cater to the needs of their respective regions.

The organisation is poised to grow further, and meet the increased demands on it. In a developing country with a large number of industries having diverse and complex nature, the task of protecting safety and health of workers is an uphill task. Armed with the technology, good-will of the industrial society and the strength of the dedicated staff, the organisation is well prepared to meet the challenges of tomorrow. It is committed to the goal of making the workplace safer.

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