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*Indian Standard*

METHOD FOR  
COMPUTATION OF FREQUENCY AND  
SEVERITY RATES FOR INDUSTRIAL INJURIES  
AND CLASSIFICATION OF INDUSTRIAL  
ACCIDENTS

*( First Revision )*

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**BUREAU OF INDIAN STANDARDS**  
**MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG**  
**NEW DELHI 110002**

# Indian Standard

## METHOD FOR COMPUTATION OF FREQUENCY AND SEVERITY RATES FOR INDUSTRIAL INJURIES AND CLASSIFICATION OF INDUSTRIAL ACCIDENTS

( *First Revision* )

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# *Indian Standard*

## METHOD FOR COMPUTATION OF FREQUENCY AND SEVERITY RATES FOR INDUSTRIAL INJURIES AND CLASSIFICATION OF INDUSTRIAL ACCIDENTS

*( First Revision )*

### 0. FOREWORD

**0.1** This Indian Standard ( First Revision ) was adopted by the Indian Standards Institution on 30 September 1983, after the draft finalized by the Industrial Safety Advisory Committee had been approved by the Executive Committee.

**0.2** This standard was originally issued in 1966 with the following objectives in view:

- a) To help in evaluating the relative need for taking accident prevention measures in different departments of an establishment;
- b) To help in making an appraisal of the progress of an accident prevention campaign and making people safety-conscious;
- c) To provide encouragement when methods used for the prevention of accidents are successful; and
- d) To enable comparisons to be made.

**0.3** The committee responsible for preparing this standard felt that time was opportune to revise this standard to incorporate the following changes:

- a) It aligns the definitions of 'partial disablement' and 'Total disablement', and includes other definitions as given in the latest version of the Workmen's Compensation Act, 1923 ( India );
- b) It also includes the definition and method for computation of incidence rates;
- c) It has given more comprehensive coverage to classification of accidents;

- d) It includes an additional item covering the basis of assessment of work injury; and
- e) It includes a clause on statistical period so as to make comparison meaningful.

**0.4** While preparing this revision, particularly **0.3** (c) above, assistance has been derived from AS 1885-1976 'Recording and measuring work injury experience', issued by the Standards Association of Australia.

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## **1. SCOPE**

**1.1** This standard prescribes basic methods for recording and classifying industrial accidents. It also includes details of work injury and gives the methods for computation of frequency, severity and incidence rate of work injuries in industrial premises. This would enable adoption of a uniform system of recording events associated with injuries and the determination of corrective action.

## **2. TERMINOLOGY**

**2.0** For the purpose of this standard, the following definitions shall apply.

**2.1 Accident** — An unintended occurrence arising out of and in the course of employment of a person resulting in injury.

**2.2 Death** — Fatality resulting from an accident.

**2.3 Disabling Injury ( Lost Time Injury )** — An injury causing disablement extending beyond the day of shift on which the accident occurred.

NOTE — An ideal system of accident statistics would take into account every occurrence causing injury however slight. Unfortunately, this is impracticable because the record of trivial injuries varies not only according to the number sustained but also according to the strictness with which a firm insists on this being reported. On the other hand, if an accident keeps a man away from work for a day or more, his absence is bound to be noticed. In other words, the 'one day' or, 'one shift' accident has been chosen because it is a standard unit which cannot vary to a great extent from firm to firm or from year to year. This is, therefore, used for practical purposes as it is the nearest accurate figure to the ideal and is a very simple standard to use.

**2.4 Non-disabling Injury** — An injury which requires medical treatment only, without causing any disablement whether of temporary or permanent nature.

**2.5 Reportable Disabling Injury ( Reportable Lost Time Injury )** — An injury causing death or disablement to an extent as prescribed by the relevant statute.



**2.6 Days of Disablement ( Lost Time )** — In the case of disablement of a temporary nature, the number of days on which the injured person was partially disabled as defined in 2.7. In the case of death or disablement of a permanent nature whether it be partial or total disablement as defined in 2.7 and 2.8 man-days lost means the charges in days of earning capacity lost due to such permanent disability or death as specified in Appendix B. In other cases the day on which the injury occurred or the day the injured person returned to work are not to be included as man-days lost; but all intervening calendar days ( including Sundays or, days off, or days of plant shut down ) are to be included. It after resumption of work, the person injured is again disabled for any period arising out of the injury which caused his earlier disablement, the period of such subsequent disablement is also to be included in the man-days lost.

**2.7 Partial Disablement** — This is of two types: disablement of a temporary nature which reduces the earning capacity of an employed person in any employment in which he was engaged at the time of the accident resulting in the disablement; and disablement of a permanent nature, which reduces his earning capacity in every employment which he was capable of undertaking at the time.

**2.8 Total Disablement** — Disablement, whether of a temporary or permanent nature, which incapacitates a workman for all work which he was capable of performing at the time of the accident resulting in such disablement, provided that permanent total disablement shall be deemed to result from every type of injury specified in Part A of Appendix A or from any combination of injuries specified in Part B of Appendix A where the aggregate percentage of the loss of earning capacity, as specified in that part against those injuries, amounts to one hundred percent.

**2.9 Man-Hours Worked** — The total number of employee-hours worked by all employees working in the industrial premises. It includes managerial, supervisory, professional, technical, clerical and other workers including contractors' labour.

**2.10 Scheduled Charge** — Charges in days of earning capacity lost due to permanent disability or death ( see Appendix A ).

### 3. CALCULATION OF MAN-HOURS WORKED

**3.1 Man-hours worked** shall be calculated from the pay roll or time clock recorded including overtime. When this is not feasible, the same shall be estimated by multiplying the total man-days worked for the period covered by the number of hours worked per day. The total number of man-days for a period is the sum of the number of men at work on each day of the period. If the daily hours vary from depart-

ment to department separate estimates shall be made for each department and the result added together. When actual man-hours are not used, the basis on which the estimates are made shall be indicated.

#### **4. CLASSIFICATION OF ACCIDENTS**

**4.1** The principal factors related to causation of accidents are:

- a) agency,
- b) unsafe mechanical or physical condition,
- c) unsafe act,
- d) unsafe personal factor,
- e) type of accident,
- f) nature of injury, and
- g) location of injury.

A standard classification as given in Appendix B could serve as a guide for detailed analysis of accidents for the study of the various causative factors and their relationships.

**4.2** Each of the items of classification in Appendix B has been assigned a code number which may be used to identify the recorded items of information. When mechanical tabulating procedures are used, the code number will serve as a useful guide for sorting and tabulating the data.

#### **5. ASSESSMENT OF WORK INJURY**

##### **5.1 Basis of Assessment**

**5.1.1 General** — Thorough investigation of all factors relating to the occurrence of each reported injury is essential. Determination as to whether or not the injury should be considered a work injury under the provisions of this standard shall be based on the evidence collected during investigations.

**5.1.2 Evidence** — The evidence to be considered in determining whether or not the reported injury should be considered a work injury may include, but not necessarily be limited to, the following:

- a) Facts resulting from investigation of the injured employee's work activities and working environment to which the injury might be related;
- b) Statements ( written if possible ) of the injured employee, fellow employees, witnesses and supervisors;

- c) Medical reports acceptable to the authority classifying the work injury; and
- d) Facts concerning the injured employee's work activity for other employers, and other off-the-job activities, injuries and illnesses.

## 5.2 Assessment of Special Cases

**5.2.1 General** — Before inclusion in the record special cases should be assessed. Clauses 5.2.2 to 5.2.15 are intended to assist in such assessment but these provisions/rules should not be used to exclude a genuine work injury from the record.

**5.2.2 Inguinal Hernia** — An inguinal hernia shall be considered a work injury only if it is precipitated by an impact, sudden effort, or severe strain, and meets, after investigation, all of the following conditions:

- a) There is clear evidence of an accidental event or an incident, such as a slip, trip or fall, sudden effort or over-exertion;
- b) There was actual pain in the hernial region at the time of the accident or incident; and
- c) The immediate pain was so acute that the injured employee was forced to stop work long enough to draw the attention of his foreman or fellow employee, or the attention of a physician was secured within 12 hours.

**5.2.3 Back Injury** — A back injury or strain shall after investigation, be considered a work injury if:

- a) There is clear evidence of an accident event or an incident such as a slip, trip or fall, sudden effort or over-exertion, or blow on the back; and
- b) A medical practitioner, authorized to treat the case, is satisfied after a complete review of the circumstances of the accident or incident, that the injury could have arisen out of the accident or incident.

**5.2.4 Aggravation of Pre-existing Condition** — If aggravation of pre-existing physical deficiency arises out of or in the course of employment, the resulting disability shall be considered a work injury and shall be classified according to the ultimate extent of the injury except that if the injury is an inguinal hernia or a back injury the requirement of 5.2.2 or 5.2.3 shall apply.

**5.2.5 Aggravation of Minor Injury** — If a minor injury is aggravated because of diagnosis or treatment, either professional or non-professional, or if infection or other symptoms develop later, either on the job or off-the-job the injury shall be classified according to its ultimate extent.

**5.2.6 Cardiovascular Diseases** — This term is used to cover the following groups:

- a) Rheumatic heart disease,
- b) Hypertensive disease,
- c) Ischaemic disease,
- d) Heart disease secondary to pulmonary disease,
- e) Cerebrovascular disease,
- f) Diseases of arteries, arterioles and capillaries, and
- g) Disease of veins and lymph vessels.

**5.2.6.1 Cardiovascular diseases shall not be recorded as work injuries unless:**

- a) the symptoms were so severe during working hours that the attention of a supervisor was drawn to them; and
- b) a medical practitioner, authorized to treat the case, satisfied after a thorough investigation, that the disease or aggravation of the disease was work caused.

**5.2.7 Miscellaneous** — The category includes the following:

- a) *Purposely inflicted injuries* — An injury purposely inflicted by the employee or another person shall be considered a work injury if it arises out of or in the course of employment;
- b) *Skylarking* — An injury inflicted by or arising out of skylarking during employment shall be considered a work injury.

**5.2.8 Other Disabilities** — The following are examples of injuries which shall be considered work injuries if they arise out of or in the course of employment:

- a) Animal and insect bites;
- b) Skin irritations and infections;
- c) Muscular disability;
- d) Injuries arising from exposure to extreme temperature ( hot or cold ); and
- e) Loss of hearing, sight, taste, feel or sense of smell.

## 6. COMPUTATION OF FREQUENCY, SEVERITY AND INCIDENCE RATES

**6.1 Frequency Rate** — The frequency rate shall be calculated both for lost time injury and reportable lost time injury as follows:

$$F_A = \frac{\text{Number of lost time injury} \times 1\,000\,000}{\text{Man-hours worked}}$$

$$F_B = \frac{\text{Number of reportable lost time injury} \times 1\,000\,000}{\text{Man-hours worked}}$$

**NOTE 1** — If the injury does not cause loss of time in the period in which it occurs but in a subsequent period, the injury should be included in the frequency rate of the period in which the loss of time begins.

**NOTE 2** — If an injury causes intermittent loss of time, it should only be included in the frequency rate once, that is, when the first loss of time occurs.

**NOTE 3** — Since frequency rate  $F_B$  is based on the lost time injuries reportable to the statutory authorities, it may be used for official purposes only. In all other cases, frequency rate  $F_A$  should be used for comparison purposes.

**6.2 Severity Rate** — The severity rate shall be calculated from man-days lost both of lost time injury and reportable lost time injury as follows:

$$S_A = \frac{\text{Man-days lost due to lost time injury} \times 1\,000\,000}{\text{Man-hours worked}}$$

$$S_B = \frac{\text{Man-days lost due to reportable lost time injury} \times 1\,000\,000}{\text{Man-hours worked}}$$

**NOTE** — Since severity rate  $S_B$  is based on the lost time injuries reportable to the statutory authorities, it should be used for official purposes only. In all other cases severity rate  $S_A$  should be used for comparison purposes.

**6.2.1** Calculation of man-days lost under **6.2** shall be based on the following:

- a) Man-days lost due to temporary total disability;
- b) Man-days lost according to schedule of charges for death and permanent disabilities as given in Appendix A. In case of multiple injury, the sum of schedule charges shall not be taken to exceed 6 000 man-days;
- c) Days lost due to injury in previous periods, that is, if any accident which occurred in previous period is still causing loss of time in the period under review, such loss of time is also to be included in the period under review;

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- d) In the case of intermittent loss of time, each period should be included in the severity rate for the period in which the time is lost; and
- e) If any injury is treated as a lost time injury in one statistical period and subsequently turns out to be a permanent disability; the man-days charged to the injury shall be subtracted from the schedule charge for the injury when permanent disability becomes known.

### 6.3 Incidence Rates

**6.3.1** General incidence rate is the ratio of the number of injuries to the number of persons during the period under review. It is expressed as the number of injuries per 1 000 persons employed.

The incidence rate may be calculated both for lost-time injuries and reportable lost-time injuries as follows:

$$\text{Lost-time injury incidence rate} = \frac{\text{Number of lost-time injuries} \times 1\,000}{\text{Average number of persons employed}}$$

$$\text{Reportable lost-time injury incidence rate} = \frac{\text{Number of reportable lost-time injuries} \times 1\,000}{\text{Average number of persons employed}}$$

NOTE — Since reportable lost-time injury incidence rate is based on the lost time injuries reportable to the statutory authorities, it should be used for official purposes only. In all other cases lost-time injury incidence rate should be used.

**6.4 Statistical Period** — Rates for any period, that is month, quarter or year shall include injuries which occurred during the period, together with any injuries which occurred in the previous 12 months and which have not already been included in earlier calculations.

**6.4.1** An injury which occurred in a previous period and which did not cause lost time at the time of occurrence, but caused lost time in the current period, shall be included as a lost-time injury in the current period.

**6.4.2** When calculating duration rates, the time lost for the period shall include time lost in the current period caused by injuries which occurred in previous period.

**APPENDIX A**( *Clauses 2.8, 2.10 and 6.2.1* )**SCHEDULED CHARGES FOR DISABILITIES\***

Sl. No.	DESCRIPTION OF INJURY	PERCENTAGE OF LOSS OF EARNING CAPACITY	EQUIVALENT MAN-DAYS LOST
(1)	(2)	(3)	(4)
<b>Part A Total Disablement</b>			
1.	Death	100	6 000
2.	Loss of both hands or amputation at higher sites	100	6 000
3.	Loss of a hand and a foot	100	6 000
4.	Double amputation through leg or thigh, or amputation through leg or thigh on one side and loss of other foot	100	6 000
5.	Loss of sight to such an extent as to render the claimant unable to perform any work for which eyesight is essential	100	6 000
6.	Very severe facial disfigurement	100	6 000
7.	Absolute deafness	100	6 000
<b>Part B Partial Disablement</b>			
<i>a) Amputation Cases — Upper Limbs ( Either Arm )</i>			
8.	Amputation through shoulder joint	90	5 400
9.	Amputation below shoulder with stump less than 205 mm from tip acromion	80	4 800
10.	Amputation from 205 mm from tip of acromion to less than 115 mm below tip of olecranon	70	4 200

\*Based on Workmen's Compensation Act ( India ), 1923 as modified up to 1 February 1962.

Sl. No.	DESCRIPTION OF INJURY	PERCENTAGE OF LOSS OF EARNING CAPACITY	EQUIVALENT MAN-DAYS LOST
(1)	(2)	(3)	(4)
11.	Loss of a hand or thumb and four fingers of one hand or amputation from 115 mm below tip of olecranon	60	3 600
12.	Loss of thumb	30	1 800
13.	Loss of thumb and its metacarpal bone	40	2 400
14.	Loss of four fingers of one hand	50	3 000
15.	Loss of three fingers of one hand	30	1 800
16.	Loss of two fingers of one hand	20	1 200
17.	Loss of terminal phalanx of thumb	20	1 200
	<i>b) Amputation Cases — Lower Limbs</i>		
18.	Amputation of both feet resulting in end-bearing stumps	90	5 400
19.	Amputation through both feet proximal to the metatarsophalangeal joint	80	4 800
20.	Loss of all toes of both feet through the metatarsophalangeal joint	40	2 400
21.	Loss of all toes of both feet proximal inter-phalangeal joint	30	1 800
22.	Loss of all toes of both feet distal to the proximal inter-phalangeal joint	20	1 200
23.	Amputation at hip	90	5 400
24.	Amputation below hip with stump not exceeding 125 mm in length measured from tip of great trochanter	80	4 800
25.	Amputation below hip with stump exceeding 125 mm in length measured from tip of great trochanter but not beyond middle thigh	70	4 200



SL No.	DESCRIPTION OF INJURY	PERCENTAGE OF LOSS OF EARNING CAPACITY	EQUIVALENT MAN-DAYS LOST
(1)	(2)	(3)	(4)
26.	Amputation below middle thigh to 90 mm below knee	60	3 600
27.	Amputation below knee with stump exceeding 90 mm but not exceeding 125 mm	50	3 000
28.	Amputation below knee with stump exceeding 125 mm	40	2 400
29.	Amputation of one foot resulting in end-bearing	30	1 800
30.	Amputation through one foot proximal to the metatarsophalangeal joint	30	1 800
31.	Loss of all toes of one foot through the metatarsophalangeal joint	20	1 200
	<i>c) Other Injuries</i>		
32.	Loss of one eye, without complications the other being normal	40	2 400
33.	Loss of vision of one eye, without complications or disfigurement of eye-ball, the other being normal	30	1 800
	<i>d) Loss of Fingers of Right or Left Hand</i>		
	<i>(i) Index fingers</i>		
34.	Whole	14	840
35.	Two phalanges	11	660
36.	One phalanx	9	540
37.	Guillotine amputation of tip without loss of bone	5	300
	<i>(ii) Middle finger</i>		
38.	Whole	12	720
39.	Two phalanges	9	540
40.	One phalanx	7	420
41.	Guillotine amputation of tip without loss of bone	4	240

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SL No.	DESCRIPTION OF INJURY	PERCENTAGE OF LOSS OF EARNING CAPACITY	EQUIVALENT MAN-DAYS LOST
(1)	(2)	(3)	(4)
	(iii) <i>Ring or little finger</i>		
42.	Whole	7	420
43.	Two phalanges	6	360
44.	One phalanx	5	300
45.	Guillotine amputation of tip without loss of bone	2	120
	e) <i>Loss of Toes of Right or Left Foot</i>		
	(i) <i>Great toe</i>		
46.	Through metatarsophalangeal joint	14	840
47.	Part, with some loss of bone	3	180
	(ii) <i>Any other toe</i>		
48.	Through metatarsophalangeal joint	3	180
49.	Part, with some loss of bone	1	60
	(iii) <i>Two toes of one foot excluding great toe</i>		
50.	Through metatarsophalangeal joint	5	300
51.	Part, with some loss of bone	2	120
	(iv) <i>Three toes of one foot, excluding great toe</i>		
52.	Through metatarsophalangeal joint	6	360
53.	Part, with some loss of bone	3	180
	(v) <i>Four toes of one foot, excluding great toe</i>		
54.	Through metatarsophalangeal joint	9	540
55.	Part, with some loss of bone	3	180

NOTE 1 — Complete and permanent loss of the use of any limb or member referred to in this appendix shall be deemed to be the equivalent of the loss of that limb or member.

NOTE 2 — Maximum scheduled charges in case of any injured person shall be 6 000 man-days.

**A P P E N D I X B**( *Clauses 4.1 and 4.2* )**CLASSIFICATION OF INDUSTRIAL ACCIDENTS**

CODE NO.                      PARTICULARS

**B-1. CLASSIFICATION ACCORDING TO AGENCY**

( Agency is the object or substance which is most closely associated with the accident causing the injury and with respect to which adoption of a safety measure could have prevented the accident )

**20 Machines****201 *Prime-movers, except electrical motors***

2011 Steam engines

2012 Internal combustion engines

2012 Others

**202 *Transmission Machinery***

2021 Transmission shafts

2022 Transmission belts, cable pulleys, pinions, chains, gears

2029 Others

**203 *Metal Working Machines***

2031 Power presses

2032 Lathes

2033 Milling machines

2034 Abrasive wheels

2035 Mechanical shears

2036 Forging machines

2037 Rolling mills

2039 Others

**204 *Wood and Associated Machines***

2041 Circular saws

2042 Other saws

2043 Moulding machines

2044 Overhand planes

2049 Others

CODE No.	PARTICULARS
205	<i>Agricultural Machines</i>
2051	Reapers ( including combined reapers )
2052	Threshers
2059	Others
206	<i>Mining Machinery</i>
2061	Drilling and boring machine including augurs
2062	Cutting machine
2063	Loading machine including scrapers
2064	Cutter-loaders including other continuous miners
2069	Others
209	<i>Other Machines Not Elsewhere Classified</i>
2091	Earth-moving machines
2092	Spinning, weaving and other textile machines
2093	Machines for the manufacture of foodstuffs and beverages
2094	Machine for the manufacture of paper and leather
2095	Printing machines
2099	Others
21	<i>Means of Transportation and Moving Equipment</i>
211	<i>Lifting Machines and Appliances</i>
2111	Cranes
2112	Lifts and elevators
2113	Winches
2114	Pulley blocks
2119	Others
212	<i>Means of Rail Transportation</i>
2121	Inter-urban railways
2122	Rail transportation in mines, tunnels, quarries, industrial establishments, docks, etc
2129	Others
213	<i>Other Wheeled Means of Transportation, Excluding Rail Transportation</i>
2131	Tractors
2132	Lorries

CODE NO.	PARTICULARS
2133	Trucks
2134	Motor vehicles, not elsewhere classified
2135	Animal-drawn vehicles
2136	Hand-drawn vehicles
2139	Others
214	<i>Means of Air Transportation</i>
215	<i>Means of Water Transportation</i>
2151	Motorised means of water transportation
2152	Non-motorised means of water transportation
219	<i>Other Means of Transport</i>
2191	Cable cars
2192	Mechanical conveyors, except cable-cars
2199	Others
22	<i>Other Equipment</i>
221	<i>Pressure Vessels</i>
2211	Boilers
2212	Pressurised containers
2213	Pressurised piping and accessories
2214	Gas cylinders
2215	Vacuum vessels
2219	Others
222	<i>Furnaces, Ovens, Kilns</i>
2221	Blast furnaces
2222	Refining furnaces
2223	Other furnaces
2224	Kilns
2225	Ovens
223	<i>Refrigerating Plants</i>
224	<i>Electrical Installations, Including Electric Motors but Excluding Electric Hand Tools</i>
2241	Rotating machines
2242	Conductors

**CODE No.**

**PARTICULARS**

- 2243 Control apparatus
- 2249 Others
- 225 *Electric Hand Tools*
- 226 *Tools, Implements and Appliances Except Electric Hand Tools*
  - 2261 Power-driven hand tools, except electric hand tools
  - 2262 Hand tools, not power-driven
  - 2269 Others.
- 227 *Ladders, Mobile Ramps*
- 228 *Scaffolding*
- 229 *Other Equipment not Elsewhere Classified*
- 23 *Materials, Substances and Radiations*
  - 231 *Explosives*
  - 232 *Dusts, Gases, Liquids and Chemicals, Excluding Explosives*
    - 2321 Dusts
    - 2322 Gases, vapours, fumes
    - 2323 Liquids
    - 2324 Chemicals not elsewhere classified
    - 2329 Others
  - 233 *Flying Objects Other Than Due to Explosion*
  - 234 *Radiations*
    - 2341 Ionising radiations
    - 2349 Others
  - 239 *Other Materials and Substances not Elsewhere Classified*
- 24 *Working Environment*
  - 241 *Outdoor*
    - 2411 Weather
    - 2412 Traffic and working surfaces
    - 2413 Water
    - 2414 Fire
    - 2419 Others

CODE NO.	PARTICULARS
242	<i>Indoor</i>
2421	Floors
2422	Confined quarters
2423	Stairs
2424	Other traffic and working surfaces
2425	Floor openings and wall openings
2426	Environmental factors ( Lighting, ventilation, temperature, noise, etc )
2427	Water
2428	Fire
2429	Others
25	<i>Other Agencies — Mining and Tunneling</i>
251	<i>Underground Mining and Tunneling</i>
2511	Roof
2512	Side and face
2513	Floor
2514	Mine shaft
2515	Water
2516	Fire
2517	Others
252	<i>Opencast Mining ( Including Quarrying )</i>
2521	Overhang
2522	Side face
2523	Ground
2524	Water
2525	Fire
2529	Others
26	<i>Other Agencies, not Elsewhere Classified</i>
261	Animals
2611	Live animals
2612	Animal products
262	<i>Other Agencies Not Elsewhere Classified</i>

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CODE NO.	PARTICULARS
27	<i>Agencies Not Classified for Lack of Sufficient Data</i>
29	<i>Other Agencies</i>

**B-2. CLASSIFICATION ACCORDING TO UNSAFE MATERIAL OR PHYSICAL CONDITIONS**

( This identifies the unsafe mechanical or physical condition or conditions related to the agency, which contributed to the causation of accident )

- 10 Improperly guarded agency
- 20 Defects in agency
- 30 Hazardous arrangement, procedure, etc in, on, or apparel
- 40 Improper illumination
- 50 Unsafe dress or apparel
- 60 Improper ventilation
- 70 Others

**B-3. CLASSIFICATION ACCORDING TO THE UNSAFE ACT**

( This identifies the deviation from the accepted and laid down safe procedure, which contributed to the causation of accident )

- 10 Operating without authority, failure to secure or warn
- 20 Operating at unsafe speed
- 30 Marking safety devices inoperative
- 40 Using unsafe equipment, hand instead of equipment, or equipment unsafely
- 50 Unsafe loading, placing, mixing, combining, etc
- 60 Taking unsafe position or posture
- 70 Others

**B-4. CLASSIFICATION ACCORDING TO UNSAFE PERSONAL FACTOR**

(This identifies the anatomical, physiological or the psychological characteristic which permitted or occasioned the selected unsafe act )

- 10 Unsuitable anatomical, physiological, or psychological characteristics
- 20 Lack of knowledge or skill



CODE NO.	PARTICULARS
30	Unsuitable mechanical or physical conditions, social environment, etc.

### **B-5. CLASSIFICATION ACCORDING TO TYPE OF CACIDENTS**

( The type of accident is the manner in which the object or substance causing the injury comes into contact with the injured person, or the movement of the injured person which resulted in the injury )

#### *10 Falls of Persons*

101 Falls of persons from heights ( trees, buildings, mine trenches, scaffolds, ladders, machines, vehicles ) and into depths ( wells, ditches, excavations, shafts, holes in the ground )

102 Falls of persons on the same level

#### *11 Fall of Objects*

111 Cave-ins ( earth, rocks, stone )

1111 Cave-in or fall of roof

1112 Cave-in or fall of side and face

1113 Cave-in or collapse of shaft

1114 Premature collapse of ground

1115 Bumps and rock-bursts

112 Slides ( earth, rock, stone, snow )

113 Subsidence of ground

114 Collapse of buildings, walls, scaffolds, ladders, piles of goods, etc

115 Fall of cages, skips and kipples

116 Fall of objects during handling

#### *12 Stepping on, Striking Against or Struck by Object Excluding Falling Objects*

121 Stepping on objects

122 Striking against stationary objects ( except impacts due to previous fall )

123 Striking against moving objects

124 Struck by moving objects ( including flying fragments and particles ) excluding falling objects

CODE NO.	PARTICULARS
13	<i>Caught in or Between Objects</i>
131	Caught in an object
132	Caught between a stationary object and a moving object
133	Caught between moving objects ( except flying or falling objects )
14	<i>Over-Exertion or Wrong Movements</i>
141	Over-exertion in lifting objects
142	Over-exertion in pushing or pulling objects
143	Over-exertion in handling or throwing objects
144	Wrong movements
15	<i>Exposure to or Contact With Extreme Temperature</i>
151	Exposure to or contact with heat ( atmosphere or environment )
152	Exposure to or contact with cold ( atmosphere or environment )
153	Contact with fire, hot substances or objects
154	Contact with very cold substances or objects
16	<i>Exposure to or Contact with Electric Current</i>
17	<i>Exposure to or Contact with Harmful Substances, Including Relations</i>
171	Contact by inhalation, ingestion or absorption of harmful substances including gases
172	Exposure to ionising radiations
173	Exposure to radiations other than ionising radiations
18	<i>Explosions</i>
181	Explosion
182	Gas explosion
183	Dust explosion
184	Others
19	<i>Others</i>
191	Inundations and eruption
192	Exposure to high noise
193	Bursting and rupture of vessels

CODE NO.

PARTICULARS

**C-6. CLASSIFICATION ACCORDING TO NATURE OF THE INJURY**

( This identifies the injury in terms of its principal physical characteristics )

**310 *Fractures***

Includes simple fractures; fractures with injuries to soft parts of the body ( compound fracture ); fractures with injuries to articulations ( dislocations, etc ); fractures with internal or nerve injuries.

**320 *Dislocations***

Includes subluxations and displacements.

Excludes fracture dislocations ( 310 ).

**325 *Sprains and Strains***

Includes, unless associated with an open wound, the ruptures, tears, and lacerations of muscles, tendons, ligaments and joints, as well as hernias due to over exertion.

**330 *Concussions and Other Internal Injuries***

Includes, unless fractures are involved, all internal contusions, haemorrhages, lacerations, ruptures.

Excludes those injuries with fractures ( 310 ).

**340 *Amputations and Enucleations***

Includes traumatic avulsion of eye.

**341 *Other Wounds***

Includes lacerations, open wounds, cuts, contusions with wounds, scalp wounds, as well as loss of nails or ears; includes wounds involving injury to nerves.

Excludes traumatic amputations, enucleations; avulsion of eye ( 340 ) compound fracture ( 310 ); burns with open wounds ( 360 ); superficial injuries ( 350 ).

**350 *Superficial Injuries***

Includes abrasions, scratches, blisters, bites of non-venomous insects, superficial wounds; also includes superficial injuries due to foreign bodies entering in the eye.

CODE NO.

PARTICULARS

355 *Contusions and Crushings*

Includes aemarthrosis, haematoma and bruises; contusions and crushing associated with superficial injuries.

Excludes concussions ( 330); contusions and crushing with fracture ( 310); and contusions and crushings with an open wound ( 341 ).

360 *Burns*

Includes burns from hot objects; from fire; scales; friction burns; radiation burns ( infra-red ); chemical burns ( external burns only ); burns with open wounds.

Excludes burns due to swallowing a corrosive or caustic substance ( 370 ); sunburn ( 380 ); effects of lightning ( 380 ); burns due to electric current ( 382 ); and radiation effects other than burns (383 ).

370 *Acute Poisonings*

Includes the effects of the injection, ingestion, absorption or inhalation of toxic, corrosive or caustic substances; bites of venomous insects or animals; asphyxiation by carbon monoxide or other toxic gases.

Excludes external chemical burns ( 360 ).

380 *Effects of Weather, Exposure and Related Conditions*

Includes effects of reduced temperature ( frost-bite ); the effect of heat and isolation ( heat strokes, sunstrokes ); barotrauma ( effects of high altitude, decompression caused due to working in compressed air well ); the effects of lightning; sound trauma ( total or partial loss of hearing as a separate injury, not a sequel to another injury ).

381 *Asphyxia*

Includes drowning asphyxiation or suffocation by compression, constriction or strangulations; also includes asphyxiation by suppression or reduction of oxygen in the surrounding atmosphere and asphyxiation by foreign bodies in the respiratory tract.

Excludes asphyxiation by carbon monoxide or other toxic gases ( 370 ).

382 *Effects of Electric Currents*

Includes electrocution; electrical shock and burn due to electric current.

CODE NO.	PARTICULARS
	Excludes burns caused by electrical heating appliances ( 370 ) and the effects of lightning ( 380 ).
383	<i>Effects of Radiations</i> Includes effects caused by X-rays, radio-active substances, ultra-violet rays, ionising radiations. Excludes burns due to radiations ( 360 ) and sunstrokes ( 380 ).
390	<i>Multiple Injuries of Different Nature</i> This group should be used only for case where the injured person sustained several injuries of different nature and no injury is obviously more severe than the others.  In case of multiple injuries suffered in one accident where one of the injuries is obviously more severe than the others, then this accident should be classified in the group corresponding to the nature of the more obviously severe injury.
399	<i>Others and Unspecified Injuries</i> This group should only be used to classify injuries which cannot be classified elsewhere.  Includes various early complications of trauma and pathological reaction which should be classified in this group only when the nature of the antecedent injury is unknown.

## **B-7. CLASSIFICATION ACCORDING TO THE LOCATION OF THE INJURY**

( Location of injury identifies the part of the injured person's body directly affected by the injury identified ).

NOTE — The groups relating to multiple locations ( see Code No. 46 ) should be used only to classify cases where the victim suffers from several injuries to different parts of the body and no injury obviously is more severe than the others. When in an accident which caused multiple injuries located at different parts of the body one of these injuries is obviously more severe than the others, this accident, should be classified in the group corresponding to the location of the obviously more severe injury. For example, a fracture of the leg accompanied by the scratch of the hand should be classified in group 454.

- 41 *Head*
- 411 Cranium region ( skull brain, scalp )
- 412 Eye ( including orbit and optic nerve )
- 413 Ear

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CODE NO.	PARTICULARS
414	Mouth ( including lips, teeth and tongue )
415	Nose
416	Face, locations not classified elsewhere
417	Head, multiple locations
418	Head, unspecified location
42	<i>Neck ( including Throat and Cervical Vertebrae )</i>
43	<i>Trunk</i>
431	Back ( spinal column and adjoining muscles, spinal cord )
432	Chest ( ribs, sternum, internal organs of the chest )
433	Abdomen ( including internal organs )
434	Pelvis
438	Trunk, multiple locations
439	Trunk, unspecified location
44	<i>Upper Limb</i>
441	Shoulder ( including clavicle and shoulder blade )
442	Upper limb
443	Elbow
444	Forearm
445	Wrist
446	Hand ( except fingers alone )
447	Fingers
448	Upper limb, multiple locations
449	Upper limb, unspecified location
45	<i>Lower Limb</i>
451	Hip
452	Thigh ( upper leg )
453	Knee
454	Leg ( lower leg )
455	Ankle
456	Foot ( except toes alone )
457	Toes
458	Lower Limb, multiple locations
459	Lower limb, unspecified location

CODE NO.	PARTICULARS
46	<i>Multiple Locations</i>
461	Head and trunk, head and one or more limbs
462	Trunk and one or more limbs
463	One upper limb and one lower limb or more than two limbs
464	Other multiple locations
465	Multiple locations, unspecified
47	<i>General Injuries</i>
	[ This group should be used only when the functioning of an active body system has been affected without a specific injury ( for example, poisoning, etc ); when the systemic damage results from an injury a specific part of the body ( for example, a fracture of the spinal column involving injury to the spinal cord ) the location of the injury to this part of the body ( in this case the spinal column ) should be coded ].
471	Circulatory system in general
472	Respiratory system in general
473	Digestive system in general
474	Nervous system in general
475	Other general injuries
476	General injuries, unspecified
49	<i>Unspecified Location of Injury</i>
	( This group should only be used when no information is available to identify the part of the body affected )

( Continued from page 2 )

**Safety Practices and Procedures Subcommittee, ISAC/S-3**

*Convener*

**SHRI P. R. SURENDRANATHAN**

*Representing*

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# BUREAU OF INDIAN STANDARDS

## Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanatha  
(Common to all offices)

## Regional Offices:

	Telephones
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI-110002	[331 01 31 331 13 75
*Eastern : 1/14 C.I.T. Scheme VII M, V. I. P. Road, Maniktola, CALCUTTA 700054	36 24 99
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Southern : C. I. T. Campus, MADRAS 600113	} 41 24 42 41 25 19 41 29 16
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