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Indian Standard
CODE OF PRACTICE FOR
STORAGE OF ROPES
(*First Revision*)

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

Indian Standard

CODE OF PRACTICE FOR STORAGE OF ROPES

(*First Revision*)

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Indian Standard
**CODE OF PRACTICE FOR
STORAGE OF ROPES**
(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 8 January 1987, after the draft finalized by the Cordage Sectional Committee had been approved by the Textile Division Council.

0.2 This Indian Standard, first published in 1967, has been revised in the light of the experience gained, mainly relating to 'storage conditions' and 'periodic inspection'.

0.3 Ropes made from both natural and synthetic fibres are liable to be weakened to some extent even under the best storage conditions. Under the optimal conditions of a cool and dry environment, the rate of deterioration will be relatively slow and in an excessively damp or warm environment, the same will be accelerated, since dampness encourages deterioration by microbial action while the warm air results in gradual oxidation or hydrolysis of the fibre. Exposure to light will darken the cordage and possibly accelerate the rate of deterioration. Some of the man-made fibres such as polyamide, polyester and polyethylene are inherently resistant to microbial attack.

0.4 In cases where it is observed that the inner centre yarn of a particular strand are frayed or partially broken, this condition should be considered as an indication that the rope has been over loaded short of breaking point and such ropes should not be stored any more.

1. SCOPE

1.1 This standard prescribes the code for storage of synthetic and natural fibre ropes.

1.1.1 It prescribes certain optimal conditions for storage of ropes which would retard the rate of storage deterioration to a negligible extent.

2. STORE ROOM

2.1 The store room structure shall be located on a raised, well-drained site not liable to flooding or inundations.

2.2 Rain water pipes shall be provided at every alternate bay for drainage of rain water from the roof. The lower end of the drain pipe shall be 15 cm above the ground level and shall be provided with shoes and suitable provisions for drainage of rain water.

2.3 The store room shall be situated at such a place where there is no danger of noxious fumes (such as, of acids or other deliterious chemicals) coming in contact with ropes.

2.4 The store room shall be well ventilated and shall not have any stagnant air pockets. Stagnant air pockets may be avoided by providing electrical air circulation and exhaust arrangement. In case some stagnant air pockets in the store room cannot be eliminated, these shall be avoided for storing ropes.

2.5 The roofing of the store room may be of RCC or asbestos sheets but corrugated iron sheets shall not be used for roofing.

2.6 Brick work is suitable for the construction of walls.

2.7 The floor of the store room should preferably be damp-proofed.

2.8 The store room structure and the electrical wiring shall satisfy the regulations of fire-fighting and the fire insurance authorities.

2.9 As far as possible, the store room shall be kept reasonably cool and dry. This is particularly important in the case of ropes made from natural fibres.

NOTE — Temperature from 20 to 30°C and relative humidity from 45 to 70 percent are considered suitable for store room conditions.

3. STORAGE CONDITIONS

3.1 Care shall be taken to make sure that the wooden platforms, racks or gratings do not breed organism which would affect the ropes. The legs of the platforms, racks or gratings should be given suitable anti-termite treatment (*see* IS : 401-1982*) from time to time.

*Code of practice for preservation of timber (*third revision*).

3.2 The ropes shall be stacked in a pyramidal way so that air freely circulates around them.

3.3 Minimum allowable clearance shall be as follows:

<i>Between</i>	<i>Clearance</i> m
Rope stack and wall	0.5
Adjacent stacks	1.0
Top of the stacks and ceiling	1.0

3.4 The rope coils shall be turned around from time to time.

3.5 Wet or damped rope shall not be stored. It shall first be completely dried in shade in the ambient atmosphere and then stored as ropes made from natural fibres are susceptible to mildew rot.

NOTE — Drying the rope by heating or in direct sunlight renders the fibres brittle in a few hours making it unfit for service.

3.6 Direct sunlight shall not be allowed to fall on the stored ropes. In the case of man-made filament ropes, strong sunlight may cause weakening of the rope filaments. So, care should be taken to avoid ropes from exposure to sunlight. Ultra-violet rays are more intense at high altitudes. Since ultra-violet ray is the greatest single factor responsible for weathering, special care should be taken to prevent unnecessary exposure of mountaineering ropes to sun at high altitudes.

3.7 If the rope is to be stored on open deck on board the ship the coils shall be stacked on wooden grating in such a way that air freely circulates around them. The stacks of coils shall be covered with canvas or other suitable material for protecting them from deliterious effect of sun and wind.

NOTE — The drying of rope is usually done on board the ship, on simple reels fitted on a bulkhead or to a deckhead. The drum and the flanges of the reel are of skelton frame work to allow air to circulate around the coil and thus keep it dry. Both ends of the rope are kept stopped by their brackets to frame work of the flange. The reel is secured by a lanyard, fitted on the flange to prevent it from rotating when the rope is dried.

3.8 If rope is to be stored under deck on board the ship, it shall be allowed to dry up completely before coiling (*see 3.5*). The dried rope shall be coiled and stacked on wooden gratings in such a way that air freely circulates around them.

4. PERIODIC INSPECTION

4.1 The coils of ropes in a store shall be examined periodically, to make certain that there is no undue deterioration, by the methods prescribed in **4.1.1** and **4.1.2**.

4.1.1 Take the coil and untwist it to loose open the strands at several places along its length. Examine the inside yarns of the strand for the following indications of deterioration:

- a) Blackish-brown, yellow or red coloured growth due to chemical or microbiological deterioration between the strands or within the strands;
- b) Sour or musty odour;
- c) Powdering in the strands or within the strands; and
- d) Inner centre yarns of a particular strand are frayed or partially broken.

4.1.2 Untwist about 15 cm of rope. From one of its strands take out a few yarns. Hold them with both hands and apply force by pulling apart. The deteriorated yarn will break with little force. In case of complete deterioration, merely striking a bent strand will break it. The tendering may also be measured by tensile strength test.

4.2 Ropes found to be deteriorated as in **4.1.1** and **4.1.2** shall be declared unfit for use and shall not be stored further.

BUREAU OF INDIAN STANDARDS

Headquarters:

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

Telephones: 331 01 31, 331 13 75

Telegrams: Manaksanstha
(Common to all Offices)

Regional Offices:

	<i>Telephone</i>
*Western : Manakalaya, E9 MIDC, Marol, Andheri (East), BOMBAY 400093	6 32 92 95
†Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola, CALCUTTA 700054	36 24 99
Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036	{ 2 18 43 3 18 41
Southern : C.I.T. Campus, MADRAS 600113	{ 41 24 42 41 25 19 41 29 16

Branch Offices:

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5-8-56C L.N. Gupta Marg (Nampally Station Road), HYDERABAD 500001	23 10 83
R14 Yudhister Marg, C Scheme, JAIPUR 302005	{ 6 34 71 6 98 32
117/418 B Sarvodaya Nagar, KANPUR 208005	{ 21 68 76 21 82 92
Patliputra Industrial Estate, PATNA 800013	6 23 05
Hantex Bldg (2nd Floor), Rly Station Road, TRIVANDRUM 695001	7 66 37

Inspection Offices (With Sale Point):

Pushpanjali 205-A West High Court Road, Bharampeth Extension, NAGPUR 440010	2 51 71
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