



**DALMIA CEMENT (B) LIMITED – CEMENT PLANT  
ARIYALUR  
SAFETY DEPARTMENT MANUAL**



Issue No. 01	Rev. No: 00	Effective Date: 01.11.2010	WI-11(PI-14; AM-7)
Issued By: M.R		Approved By: HOD -SAFETY	
WORK INSTRUICTION FOR SAFETY PRECAUTIONS ( MANUAL HANDLING)			

**1.0 MANUAL HANDLING:**

**1.1 INTRODUCTION:**

Unsafe manual handling practices such as improper lifting, carrying too heavy a load, failing to wear proper equipment etc., cause common injuries like strains and sprains, fractures and bruises.

The answers to the following questions will gain insight on the material handling injury problem. These are by no means the only questions, but they serve as a start for further developments.

- 1.1.1 Can the job be engineered so that manual handling will not be necessary?
- 1.1.2 How do the materials being handled (such as chemicals, dusts, rough and sharp objects) hurt the people doing the handling?
- 1.1.3 Can employees be given handling aids such as trucks or hooks that will make handling safer?
- 1.1.4 Will protective clothing or other personal protective appliances help prevent injuries?  
The art of safe lifting consists to a great extent of the skillful use of the right muscles and the lifting ability is not indicated by one's height or weight.

**1.2 LIFTING AND SETTING DOWN PROCEDURE:**

- 1.2.1 Consider the size, weight and shape of the object to be carried. Do not lift more than can be handled comfortably. If necessary get help.
- 1.2.2 Set foot solidly, with one foot slightly ahead of the other for increased effectiveness.  
Feet  
Should be far enough apart to give good balance and stability.
- 1.2.3 Get as close to the load as possible. Bend legs about 90 degrees at the knees. Crouch, do not squat. It takes about twice as much effort to get up from a squat.
- 1.2.4 Keep the back straight as possible. It may be far from being vertical, but it should not be arched. Bend at the hips, not the middle of the back.
- 1.2.5 Grip the objects firmly, maintain that grip, while lifting and carrying. Before changing this grip, set the object down again.
- 1.2.6 Straighten the legs to lift the object and at the same time bring the back to a vertical position
- 1.2.7 Never carry a load that you cannot see over or around. Make sure the path of travel is clear.



**DALMIA CEMENT (B) LIMITED – CEMENT PLANT  
ARIYALUR  
SAFETY DEPARTMENT MANUAL**



Issue No. 01	Rev. No: 00	Effective Date: 01.11.2010	WI-11(PI-14; AM-7)
Issued By: M.R		Approved By: HOD -SAFETY	
WORK INSTRUICTION FOR SAFETY PRECAUTIONS ( MANUAL HANDLING)			

**“SETTING DOWN AN OBJECT REQUIRES JUST THE REVERSED PROCEDURE”**

**1.3 PRINCIPLES OF LIFTING:**

**Correct Grip:** Incorrect gripping may lead to load dropping. A finger tip grip forces the arms to bend and weak arm muscles resulting early fatigue. A full palm grip makes the part seemed and enables the arms to be kept straight and permits the load to be distributed over the whole of the body.

**Arms close to the Body:** Keeping arms close to the body will employ the whole body to share the load without much stress. If the objects are to be supported by arms in front of the body, the arms must be kept straight and as close to the body as possible.

**Chin in:** Slightly elongating the neck and tucking in the chin locks the vertebral and prevents injury by keeping the spine straight and firm.

**Flat back:** Flat back eliminates compression of the abdominal contents which provides a definite mechanical advantage. There is no uneven stress on risks and the back muscles are not employed in severe and dangerous fashions.

**Foot position :** Placing the foot a hip breath apart gives a large base and putting one foot forward and to the side of an object to be moved gives an even bigger base and the balance in all directions. Most important, the knees can now be bent to lower the body vertically allowing the back to be kept flat.

**Use of Body Weight:** All movements should be done ballistically. This means that the strongest muscles are employed to overcome the inertia of the object. Employing movement to allow the body weight to be used to the best advantage advantage in such action results in heavy loads being moved with minimum effort and least possibility of cumulative strain.

Complete the lifting by using leg muscles. Also never take deep breath while lifting. This will add further strain to the spine. Remember that the spine will be subjected to enormous stresses and strain when you handle objects as it has to balance your own



**DALMIA CEMENT (B) LIMITED – CEMENT PLANT  
ARIYALUR  
SAFETY DEPARTMENT MANUAL**



Issue No. 01	Rev. No: 00	Effective Date: 01.11.2010	WI-11(PI-14; AM-7)
Issued By: M.R		Approved By: HOD -SAFETY	
WORK INSTRUICTION FOR SAFETY PRECAUTIONS ( MANUAL HANDLING)			

body as well as the additional load Any wrong posture will cripple the spine and sometime the injury cannot be cured.

**EXCESSIVE WEIGHTS:**

**1.4 ACT: Section 34 of Factories Act, 1948 reads as follows:**

**1.4.1 EXCESSIVE WEIGHTS:**

(i) No person shall be employed in any factory to lift, carry or move any load so heavy as to be likely to cause him injury. Rule 57 of Tamil Nadu Factories Rules specifies as given hereunder:

(ii) No man, Woman or young person shall, unaided by another person, lift, carry or move by hand or on hand, any material, article, tool or appliance exceeding the maximum limit, in weight set out in the following schedule.

<u>Persons</u>	<u>Maximum weight of material, Article, tool or Appliance Kilo Grams.</u>
----------------	---

a)	Adult male	50
b)	Adult female	30

(2) No man, woman or young person shall engage, in conjunction with others, in lifting, carrying or moving by hand or on head, any material, article, tool or appliance, if the weight thereof exceeds the lower weight fixed by the schedule to sub-rule (1) for any of the persons engaged, multiplied by the number of the persons engaged.

**1.4.1 HANDLING LENGTHY OBJECTS:**

- (i) Ladders lumber or pipe shall be carried over the shoulders.
- (ii) The front end shall be held as high as possible to avoid striking others.
- (iii) Always move in the middle of the gangway. Induce maximum caution while turning corners.



**DALMIA CEMENT (B) LIMITED – CEMENT PLANT  
ARIYALUR  
SAFETY DEPARTMENT MANUAL**



Issue No. 01	Rev. No: 00	Effective Date: 01.11.2010	WI-11(PI-14; AM-7)
Issued By: M.R		Approved By: HOD -SAFETY	
WORK INSTRUICTION FOR SAFETY PRECAUTIONS ( MANUAL HANDLING)			

- (iv) Never keep sharpened ends in the front while carrying