TRADE OF PLASTERING

PHASE 2

Module 1

Slabbing, Rendering, Floating and Skimming

UNIT: 2

Manual Handling
Produced by

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Table of Contents

Unit 2 – Manual Handling.................................................................................... 1

Unit Objective: ................................................................................................. 1

1.0 Manual Handling Legal Obligations.......................................................... 2
  1.1 Employee’s Duty...................................................................................... 2

2.0 Care of the Spine, Muscles and Tendons when Lifting......................... 3
  2.1 Structure of the Spine: Spinal Cord, Spinal Canal, Vertebrae,
     Intervertebral Discs ............................................................................ 3
  2.2 Stooping to Lift ................................................................................... 5
  2.3 Bending the Knees.............................................................................. 6

3.0 Proper Lifting To Avoid Injury................................................................. 6
  3.1 Pre-Lift Analysis of a Load................................................................... 6
  3.2 Raising a Load Correctly...................................................................... 8
  3.3 Putting the Load Down Correctly......................................................... 12

4.0 Pushing and Pulling Safety................................................................. 14
  4.1 Pushing and Pulling......................................................................... 14

5.0 Team Effort ............................................................................................ 17
  5.1 Coordination of Team Activity When Team Lifting.......................... 17

6.0 Handling Devices.................................................................................... 18
  6.1 Handling Loads in the Workplace...................................................... 18
Unit 2 – Manual Handling

Unit Objective:

By the end of this unit each apprentice will be able to:

- List the main statutory requirements of both employers and employees in relation to manual handling and general safety in the workplace.
- Explain the structure of the spine.
- Explain the functions of muscles, tendons and ligaments.
- Explain the types of injury that may occur from lifting and handling loads.
- Explain the requirement for a pre-lift analysis of a load.
- Explain how the body should be positioned before attempting a lift.
- Explain and demonstrate good handling techniques for lifting workplace objects.
- Explain and demonstrate good handling techniques for pushing and pulling a workplace object.
- Demonstrate the correct procedures for team lifting a load.
- Describe the various types of handling devices and in what situations they may be used.
- Correctly demonstrate how to handle a typical workplace load using a handling aid.
1.0 Manual Handling Legal Obligations

Key Learning Points

- Duty of the Employer
- Duty of the Employee

1.1 Employee’s Duty

- Duty of employer towards employee to:
  
  a) Take measures where possible to avoid manual handling
  b) Carry out risk assessment where manual handling is unavoidable to reduce dangers involved
  c) Provide employee with precise information about the load

- Duty of employee to:
  
  a) Take reasonable care for his safety and welfare and that of others in the workplace
  b) Use any equipment, protective clothing or other means provided by the employer for securing his safety and welfare in the workplace
  c) Report any problems or defects to his employer which might endanger health and safety

1. Take reasonable care for his safety and welfare and that of others in the workplace.
2. Use any equipment, protective clothing or other means provided by the employer for securing his safety and welfare in the workplace.
3. Report any problems or defects to his employer which might endanger health and safety.

Pregnant Employees

- Risks due to manual work must be assessed for pregnant employees and employees who have recently given birth.
- Health and safety leave must be given if the maternity employee cannot be protected from the risks identified.
- Certification of risk by employer for social welfare purposes.
Safe Systems of Work

- Wherever possible, place one foot in front of the other to produce a good base and reduce the pressure on the body.
- Assess the load by placing your hand on it and moving it.
- Only handle what you feel you can manage.
- Initiate movements with your legs, unlocking the knees and drive with the legs to start the lift.
- Keep the load as close, or get as close as possible to the load when lifting or handling.
- Turn instead of twisting and move your feet.
- Let your back find its natural curvature.
- Never lose control of the load.

2.0 Care of the Spine, Muscles and Tendons when Lifting.

Key Learning Points

- Structure of the spine: spinal cord, spinal canal, vertebrae, intervertebral discs
- Stooping to Lift
- Bending the Knees


1. Injuries resulting from lifting heavy loads (Prolapsed/slipped disc, cuts and abrasions, crushed feet and hands, muscle and joint strain).
2. Pre-lift analysis of a load (Checking object for sharp edges, difficult to grasp, unstable, teamwork required).
3. Workplace obstacles/hazards such as slippery/uneven surfaces, poor lighting conditions, steps.
4. Other factors that may hinder movement such as clothing or personal protective equipment.

It is well known that the vertebral column, or spine, has the shape of an elongated S. At chest level it has a slight backwards curve called a kyphosis, and in the lumbar region it is slightly curved forwards, the lumbar lordosis. This construction gives the spine elasticity, to absorb the shocks of running and jumping.
The loading on the vertebral column increases from above downwards, and is at its greatest in the lower five lumbar vertebrae. Each pair of vertebrae are separated by an intervertebral disc. Degeneration of the discs first affects the margin of the disc, which is normally tough and fibrous. A tissue change is brought about by loss of water, with the result that the fibrous ring becomes brittle and fragile and loses its strength. At first the degenerative changes merely make the disc flatter, with the risk of damage to the mechanics of the spine, or even of displacement of the vertebrae. Under these conditions quite small actions such as lifting a weight, a slight stumble or similar incidents, may precipitate severe backache and lumbago.

When degeneration of the disc has progressed further, any sudden force upon it may squeeze the viscous internal fluid out through the ruptured outer ring and so exert pressure either on the spinal chord itself or on the nerves running out from it. This is what happens in the case of a “Slipped Disc” or disc herniation. Pressure on nerves, narrowing of the spaces between vertebrae, pulling and squeezing at adjoining tissues and ligaments of the joints are the causes of the variety of aches, muscular cramps and paralyses including lumbago and sciatica which commonly accompany disc degeneration.

Back troubles are painful and reduce one’s mobility and vitality. They lead to long absences from work, and in modern times are among the main causes of early disability. They are comparatively common in the age group 20 – 40, with certain occupations (labourer, farmer, porter, nursing staff, etc.) being particularly vulnerable to disc troubles. Moreover, workers with physically active jobs suffer more from ailments of this nature, and their work is more affected than in the case with sedentary workers.
2.2 Stooping to Lift

Stooping to lift is dangerous because:

- The arched spine may cause a ‘slipped disc’
- It can overload the lower back muscles

We are lifting the load AND the upper body weight in that posture!
2.3 **Bending the Knees**

Bending the knees to lift ensures:

- That the leg muscles do the lifting not the smaller back muscles
- That a good lifting posture can be adopted
- That the load can be reached without arching the spine

![Diagram of correct and incorrect lifting]

3.0 **Proper Lifting To Avoid Injury.**

**Key Learning Points**

- Use of good posture before beginning to lift a load.
- Raising a load correctly.
- Putting the load down correctly.

3.1 **Pre-Lift Analysis of a Load.**

**Avoid**

- Very heavy loads.
- Arching of the spine.
- Excessive or repeated twisting.
- Over-stretching or over-reaching.
Ensure

- A good secure grip
- Awareness of the weight and stability of the load.
- Correct stance and lift posture.
- Smooth quick lift.
- Correct protective clothing and equipment.
- Proper co-ordination of team lifts.

Lifting

Always keep the load close when carrying.

Do not lift with feet in line or with load in front of the front foot
3.2 Raising a Load Correctly

- Picking from mid level
- PPE: Hard hat and safety shoes required
- Place one foot forward
- Take a firm grip of the load
- Pull the load to a point of pivot (using the legs if necessary)
- Pivot against the stack
- Keep the load close
- Turn by moving the feet

- Do not twist
- Do not pick with feet in line
Handling Lengths of Materials

- Work your way to the middle
- Pivot the stack and carry in a balanced manner

- Place over the shoulder
- Work your way to the middle (point of balance)
Unlock the knees to rest the stack against the shoulder
Allow the stack to pivot against the shoulder as you stand up

**Carrying**

- Carry the board in a balanced manner (for large boards, you can support the board on the top of the chest/ shoulder)
- Only lift what you feel you can manage
- If necessary, seek assistance
Two person picking

- Operate from the corners of the stack
- Unlock the knees for low level work
- Lift board together to vertical position
- Only lift what you feel you can manage

Carrying

- Carry in a balanced manner across the body
- If walking backwards, ensure it is over the shortest possible distance and clear the route beforehand
3.3 Putting the Load Down Correctly

Loading and Unloading Pallets

- PPE: Safety shoes required
- Always place one foot forward by operating from the corner of the pallet or placing one foot on the pallet taking care to ensure that the pallet does not tip in the process
- Unlock the knees for low level work
- Take a firm grip of the load with both hands
- Lift using the legs to start the movement
- Turn by moving the feet

Do not carry heavy objects on one side!
Awkward Objects

- Stand over one corner of the load, with your feet comfortably apart.
- Grasp the bottom inside and top outside corners.
- Bend your knees and loft, keeping the same grip.
- Seek advice if you have any doubts.

Lifting to a High Place:

- Lighten the load if possible
- Stand on something sturdy, with one foot in front of the other, unless using a stepladder.
- Use a mechanical aid or get help if the load is awkward or heavy.

Lowering from a High Place:

- Test the load’s weight by pushing up on it. Check to see if the load will lift it.
- Stand as close to the load as possible.
- Grasp the object firmly, sliding it down your body.
- Use a mechanical aid or get help if necessary.
4.0 Pushing and Pulling Safety

**Key Learning Points**

- Good handling techniques for pushing and/or pulling an object using a handling device

4.1 Pushing and Pulling

For either movement, remember:

- Stay close to the object.
- Lean in the direction you’re pushing or pulling.
- Get a good grip on it.
- Watch out for obstructions.
- Keep your back straight, stomach in and knees bent.
- Keep the strain of your back
- Let your body’s weight and leg muscles do the work for you
Special Objects and Lifts

Mixing

When emptying bags into a mixer:

- PPE: Mask, eye protection, hard hat and safety shoes required
- Always place one foot down by the side of the mixing container
- Unlock the knees if necessary
- Turn by moving the feet

Handling Buckets

- PPE: Hard hat and safety shoes required
- Always place one foot alongside the bucket before lifting, or pivot the bucket towards you before lifting
• Take a firm grip with both hands
• If heavy, you may need to tilt and take a grip of the base and the top of the bucket
• Start the lift with the legs
• Unlock the knees for low level work

Carrying Board Up/Down Stairs

• PPE: Hard hat and safety shoes required
• Whether going up or down stairs, place one foot forward then bring both feet together on each step
• Keep the boards in a balanced manner
• Place both feet on each step before moving off to improve control and balance throughout the lift
• Work together in timing
• Stop wherever necessary (if steps are in poor order, or have a deeper drop, you may need to place the load down first)
• Only lift what you feel you can manage
5.0 Team Effort

Key Learning Points:
- Coordination of team activity when team lifting

5.1 Coordination of Team Activity When Team Lifting

Lifting Plasterboards Into Place (including ceilings)

- Two person operation
- PPE: Eye protection, hard hat and safety shoes required
- Communicate – work together
- Take a firm grip of the board in both hands
- Unlock the knees to place board into position
- Always work in front of the body
6.0 Handling Devices

Key Learning Points:

- Safe working practices at all times when handling heavy objects

6.1 Handling Loads in the Workplace

Know yourself and your limits.

Know how to move materials

Use mechanical aids and the safety equipment provided by your employer

Know when to get help

You can get the job done safely and easily!
Examine the object

Determine its weight and look for sharp edges. All loads which are heavy or awkward should be marked. Check to see if the load is stable and equally distributed. This is a responsibility that your supervisor shares with you.

Plan the job

Check with your supervisor on a safe system of work. Plan a route that’s free from tripping and slipping hazards. Know where the object will be unloaded and plan ‘rest stops’ along the way.

Get a good grip

Decide in advance how to hold the object. Protect your hands and feet by grasping the load firmly. If you wear gloves to prevent cuts or burns, make sure they fit properly.

Get help

Use the mechanical aids provided and get help if you have any doubt about moving an object by yourself.
Lifting and Lowering Whilst Standing

- Full height
- Shoulder height
- Elbow height
- Knuckle height
- Mid lower leg

Columns:
- Column 1
- Column 2

Weights:
- A: 5kg, 10kg
- B: 10kg, 20kg
- C: 15kg, 25kg
- D: 10kg, 20kg
- E: 5kg, 10kg
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