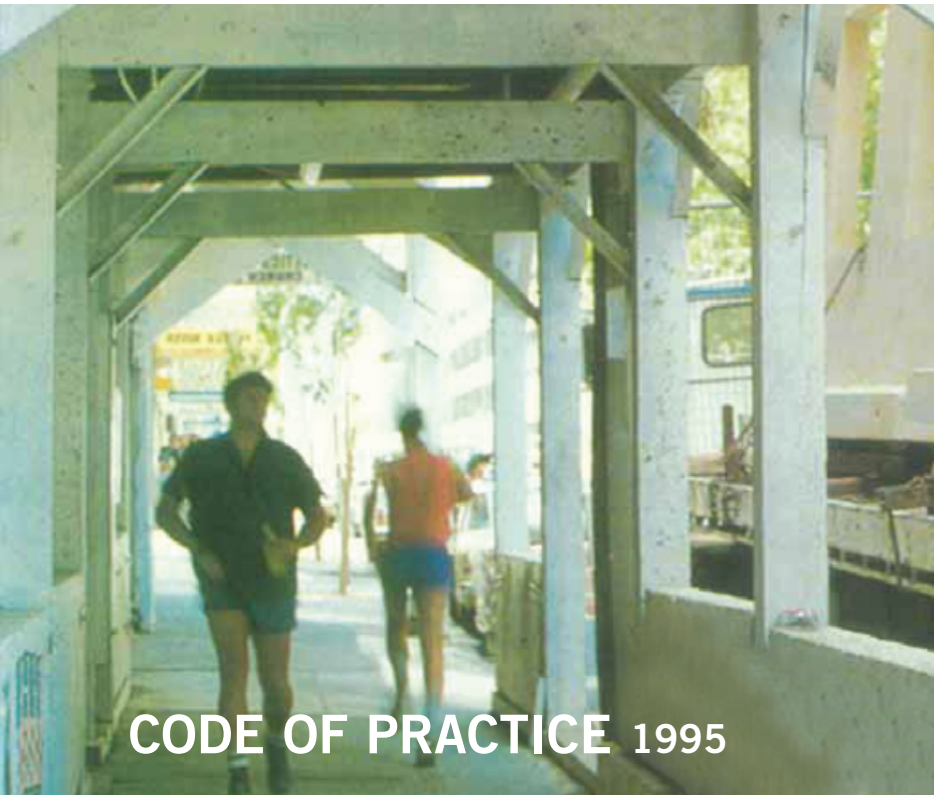


# OVERHEAD PROTECTIVE STRUCTURES



*making a difference*



**Disclaimer**

This publication may contain occupational health and safety and workers compensation information. It may include some of your obligations under the various legislations that WorkCover NSW administers. To ensure you comply with your legal obligations you must refer to the appropriate legislation.

Information on the latest laws can be checked by visiting the NSW legislation website ([www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au)) or by contacting the free hotline service on 02 9321 3333.

This publication does not represent a comprehensive statement of the law as it applies to particular problems or to individuals or as a substitute for legal advice. You should seek independent legal advice if you need assistance on the application of the law to your situation.

**CODE OF PRACTICE**  
**Overhead Protective**  
**Structures**

**20 March 1995**

# FOREWORD

This industry code of practice has been produced by the WorkCover Authority of NSW to provide industry with practical guidance on the design, supply, installation and use of overhead protective structures.

This Code has been developed to support the 'SaferSite Program', a WorkCover initiative aimed at improving health and safety standards on NSW building and construction sites.

When preparing the Code WorkCover has consulted with employer groups, unions and the WorkCover Construction Industry Consultative Committee. The Occupational Health, Safety and Rehabilitation Council of NSW has also provided advice.

General Manager  
WorkCover Authority of NSW

# WHAT IS AN INDUSTRY CODE OF PRACTICE?

An approved industry code of practice is a practical guide to achieving the standard of health and safety required by the *Occupational Health and Safety Act 1983* and Regulations for a particular area of work.

An approved industry code of practice should be followed, unless there is an alternative course of action which achieves the same or a better standard of health and safety in the workplace.

An industry code of practice is approved by the Minister for Industrial Relations and Employment. It comes into effect on the day the notice of this approval is published in the NSW Government Gazette or on the day specified in the Gazette notice.

An approved industry code of practice is designed to be used in conjunction with the Act and Regulations but does not have the same legal force. A person or company cannot be prosecuted for failing to comply with an approved industry code of practice.

However, in proceedings, under the Act or Regulations, failure to observe a relevant approved industry code of practice can be used as evidence that a person or company has contravened or failed to comply with the provisions of the Act or Regulations.

A WorkCover Authority inspector may cite an approved industry code of practice in a direction in an Improvement or Prohibition Notice, indicating the measures that should be taken to remedy an alleged contravention or non-compliance. Failure to comply with a requirement in an Improvement or Prohibition Notice is an offence.

## **In summary an approved INDUSTRY CODE OF PRACTICE:**

- ✓ gives practical guidance on how the required standard of health and safety can be achieved in an area of work.
- ✓ should be followed unless there is an alternative course of action which achieves the same or better standard of health and safety in the workplace.
- ✓ can be used in support of the preventive enforcement provisions of the *Occupational Health and Safety Act*.
- ✓ can be used to support prosecution for failing to comply with or contravening the Act or Regulations.

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# 1 INTRODUCTION

## 1.1 Citation

This code may be cited as the *Code of practice – Overhead Protective Structures*.

## 1.2 Purpose

To provide practical guidance and set minimum safety standards for all overhead protective structures in New South Wales.

## 1.3 Scope

This code covers all overhead protection required in the building and construction industries in New South Wales.

## 1.4 Commencement date

This code will take effect from 20 March 1995.

## 1.5 Authority

This code is approved as an Industry Code of Practice pursuant to section 44A of the *Occupational Health and Safety Act 1983* by the Minister for Industrial Relations and Employment on the recommendation of the WorkCover Authority of NSW.



## 2 PLANNING AND PREPARATION

The first essential step in ensuring safety is to effectively plan and prepare for the work required in the design, supply, installation and use of an overhead protective structure.

Planning and preparation should involve consultation with all those parties engaged in the work, including local council.

### 2.1 Planning by the user

When planning for overhead protection, the user, in conjunction with the supplier, should consider such factors as:

- type and loading of overhead protective structure required
- location of areas to be protected
- pedestrian and vehicle access
- location of underground services and access to services
- overhead power lines
- other obstructions, eg trees, light posts, bus stops
- duration of overhead protection
- preferred materials to be used
- is the structure to be freestanding or tied to existing building
- drainage of water
- placing of accommodation sheds or materials and equipment on the overhead protective structure and associated access
- is scaffolding to be erected on the structure
- crane lifting area
- provision of temporary services, eg power, water, drainage and concrete pump lines.

## **2.2 Planning by the supplier**

In conjunction with the user, the supplier who designs and supplies an overhead protective structure should consider such factors as:

- the needs of the user
- structural adequacy
- a documented work method statement and risk assessment.  
(See Clause 7.2 c. of this code)
- alternative safe means of pedestrian access including signage
- time of erection to minimise disruption of pedestrian traffic
- supporting ground conditions
- provision of adequate lighting
- protection of portable electric tools by earth leakage devices.

# 3 STRUCTURAL DESIGN

The overhead protective structure must be designed for dead loads and live loads including wind loads in accordance with the appropriate Australian Standards unless otherwise specified by this code.

## 3.1 Live loads

Two classes of live loads are covered under this code:

- a. 5kPa live loads for construction work of a minor nature, eg light swinging stage used for building maintenance including cleaning, painting etc.
- b. 10kPa live loads for construction work and demolition work.

The supplier should provide a layer of 200mm x 200mm x 6.3mm welded steel mesh or equivalent to strengthen planked decks against shear failure from impact loads. WorkCover, the local council or other authorities may require a 10kPa live load for certain work and locations.

## 3.2 Wind loads

Determine wind loads in accordance with AS1170.2-1989 *Wind Loads*, considering conditions prevailing after demolition if the permanent structure is to be demolished.

Wind load calculations are to consider site sheds, equipment and materials which are expected to be supported by the overhead protective structure and adversely affect the stability of the overhead protective structure.

### **3.3 Superimposed loads**

Superimposed loads from site sheds and materials are not to exceed 40 per cent of the design live loads.

### **3.4 Stability**

Design the overhead protective structure for the effect of lateral loads including wind load and a horizontal load equivalent to at least 2.5 per cent of the vertical dead loads applied at the deck level.

The structure is to be designed as a free standing structure in all cases except where it can be shown that adequate support is obtained from adjacent permanent structures which will remain for the duration of the overhead protective structure.

Do not connect the overhead protective structure to a temporary facade supporting structure. Both structures should be independent, unless designed as a dual purpose structure. The structure should have a factor of safety of 1.5 against overturning and 2 against sliding.

### **3.5 Foundation**

- a. Design the footings of the structure so as not to damage or have an adverse effect on any underground services and to be acceptable to the local council.
- b. Overhead protective structures affected by adverse foundation conditions require special design in accordance with the appropriate Australian Standards.

### **3.6 Vehicle impact**

The deck of an overhead protective structure should be designed so that it will not collapse when the superimposed load on the deck is equivalent to 40 per cent of its rated load with the removal of:

- a. any one column anywhere in the structure.
- b. a minimum length of 2 metres of wall supporting the deck on any side of the structure.

Provision should be made for a suitable system of buffer railing or barrier kerb or a combination of both to minimise the effect of any vehicular impact on main load-bearing members, particularly at a location of greater risk such as at an intersection or on the outside of a sharp bend.

### **3.7 Dimensional requirements**

The following dimensions are considered necessary for safe access:

- a. A minimum clear distance of 250mm from the edge of the kerb to any part of the structure or any part attached to it. If this distance is greater than 400mm, pedestrian access between the structure and the kerb is to be blocked off at each end.
- b. A minimum overhead clearance of 2.2 metres to any bracings, beams or any other part of the structure.
- c. The street side should be open for at least two-thirds of its height for the full length of the structure to prevent a “tunnel effect”.

### **3.8 Waterproofing of deck**

Where pedestrians have access under the overhead protective structure, the deck is to be made waterproof.

The decking should have a fall of at least 2 degrees to the horizontal to channel the run-off water to the work site. (See Clause 6.1 of this code).

## 4 SAFETY

### 4.1 Proximity to any powerline, transmission line, main or transmission apparatus

The distance of any part of an overhead protective structure from any powerline, transmission line, main or transmission apparatus should not be less than:

- a. 4 metres for a metal part, or
- b. 1.5 metres for parts of non-conductive materials, such as timber, except with the approval of the Electricity Supply Authority.

If conductive materials such as metal clad site sheds are to be stacked on the structure, the required clearance of 4 metres should be maintained from the powerline, transmission line, main or transmission apparatus.

### 4.2 Electrical

Adequate artificial lighting should be provided to the satisfaction of the local council to illuminate the public place. The lighting should be protected by wire guards or proprietary manufactured diffusers. In addition, the *Code of Practice: Electrical Practices for Construction Work* should apply to all electrical work.

### 4.3 Visibility

The overhead protective structure should be painted white below the deck level or any light colour acceptable to the local council.

# 5 ACCESS

## 5.1 Pedestrian access

Overhead protective structures should not adversely affect pedestrian traffic along existing footpaths and access to or from buildings.

Where necessary the overhead protective structure should provide safe access to and from a construction site.

Provide safe access to and from the overhead protective structure being used by construction site personnel. Safe access should also be provided for emergency situations, eg there should be easy access for stretchers to any First Aid room.

## 5.2 Services

The overhead protective structure should comply with local council's requirements for public access and fire services.

## 5.3 Vehicle access

Provide sufficient clearance to allow safe access for any traffic entering and leaving the site. Post a sign clearly stating the height clearance at the access point. Reference should be made to *Guide to Traffic Engineering Practice: Intersections at Grade 1988* and AS 1742 (Part 3), 1985 *Traffic control devices for work on roads*.

Vehicle access should also provide adequate visibility of both pedestrians and vehicles for any traffic entering and leaving the site.

# 6 MISCELLANEOUS

## 6.1 Drainage of water

Rainwater falling on the overhead protective structure should be collected and directed to the site and discharged in a manner acceptable to the local council.

## 6.2 Crane area

Site sheds or accommodation:

- a. should be capable of sustaining the 10kPa requirements of this code, or
- b. should otherwise be protected by a 10kPa overhead protective structure complying with this code,

if they are situated on the deck of the overhead protective structure within a designated crane lifting area or where materials are being lifted over them.

## 6.3 Protective fence and handrails

- a. Ground level

Provide a protective fence attached to the side of the overhead protective structure closest to the construction site. The fence should be clad to a minimum height of 2 metres above footpath level with plywood of at least 17mm thickness. The gap between the top of the protective fence and the underside of the deck should be enclosed with plywood of at least 17mm thickness or wire mesh complying with the following standard. Except as otherwise specified above, the fence should comply with the requirements of AS1725-1975 *Galvanised Rail-less Chainwire Security Fences and Gates*.



b. Deck level

Provide a protective fence clad with sheeting material to at least 1 metre above the deck level along the road frontage and both ends of the overhead protective structure.

Provide guardrailing and toeboards along any open sides of an overhead protective structure if access to the deck level is required.

Fence and handrails attached to the overhead protective structure should comply with the requirements of AS1170.1-1989 *Dead and Live Loads and Load Combinations*.

# 7 RESPONSIBILITIES

## 7.1 User

The user is responsible for the daily use of the overhead protective structure and should draw up reports at least once a month on the condition of the structure. Any changes or alterations to the structure should be recorded in the report.

This report together with the Engineer's Certificate is to be kept on site for the duration of the project and should be made available on request by any concerned party.

The following list may be used for guidance when preparing initial and monthly reports:

a. Accepted systems

Is the structure constructed from a prefabricated system accepted by the local council?

b. Structural design

Does the structure still comply with the load and stability requirements as specified in Clause 3 of this code?

Is there any additional load placed or to be placed on the structure (eg scaffolding, plant, materials)?

c. Location and foundation

Does the structure still provide adequate safety for personnel?

Have the footings supporting the structure been affected by other work?

d. Dimensions of the structure

Are the dimensions of the structure safe for pedestrians and vehicular movement? (See Clause 3.7 of this code).

e. Safety

Has the distance to any electrical powerline, transmission line, main or transmission apparatus been maintained? (See Clause 4.1 of this code).

Is there adequate lighting and visibility? (See Clauses 4.2 and 4.3 of this code).

Is there any risk to the public?

f. Alterations

Have any changes occurred to the structure since the last inspection report which could affect:

- i. The strength or stability of the structure (Clause 3)
- ii. Electrical Safety requirements (Clause 4.2)
- iii. Visibility requirements (Clause 4.3)
- iv. Pedestrian or vehicle access (Clause 5)
- v. Drainage of rainwater (Clause 6.1)
- vi. Protective fencing (Clause 6.3) or any other item which could affect the purpose of the overhead protection
- vii. The dead or live load conditions.

g. Has the supplier been directed to modify the structure?

## **7.2 Supplier**

- a. The supplier is responsible for the design and installation of the overhead protective structure in accordance with this code and is to provide an Engineer's Certificate to this effect to the user on completion of the erection, alteration or addition to the structure.
- b. The supplier should ensure that the persons erecting, altering or dismantling the overhead protective structure are adequately trained and supervised, have received appropriate instructions and are fully aware of all details of this code.
- c. A documented work method statement and risk assessment should be made by the supplier for persons erecting the overhead protective structure to follow for the protection of the erectors and the public.

## **7.3 Local council**

The local council may require review and follow-up inspections in public areas in addition to other requirements of this code.

# 8 LEGAL REQUIREMENTS

## 8.1 Local council

The local council may have additional requirements regarding the overhead protective structure including the submission of drawings and calculations for approval before erection.

## 8.2 Employer responsibilities

Under the *Occupational Health and Safety Act 1983* employers have a duty of care to ensure the health, safety and welfare at work of employees and others and must take all practicable measures to control risks against injuries in the workplace.

### Duty of Care

There is a legal requirement for industry to be responsible for managing workplace health and safety. This requirement expressed as the duty of care principle is the basis of the *Occupational Health and Safety Act 1983*. Implementing the duty of care principle means planning for prevention of workplace accidents, injuries and illness.

If any uncertainty exists, enquiries should be made at the planning stage to the WorkCover Authority.

Various Australian Standards and codes of practice which offer practical guidance on health and safety are listed in Section 8.5. However, these are subject to change and checks should be made with the WorkCover Authority.

## 8.3 Employee responsibilities

The *Occupational Health and Safety Act 1983*, requires employees to take care of their own health and safety and to co-operate with their employer in the interests of health, safety and welfare.

## **8.4 Self-employed persons**

The *Occupational Health and Safety Act 1983* requires self-employed persons to ensure that persons not in their employment are not exposed to risks to their health and safety arising from the conduct of their undertaking at a place or work.

## **8.5 Standards and codes**

### a. Standards

AS 1725-1975, Galvanised Rail-Less Chainwire Security Fences and Gates

AS1170, Part 1-1989, Dead and Live Loads and Load Combinations

AS1170, Part 2-1989, Wind Loads

Refer also to Clause 2 Structural Design and Clause 3.1 Proximity to Powerlines or Electrical Equipment.

AS1742, Part 3, Traffic Control Devices for Work on Roads

Guide to Traffic Engineering Practice: Intersections at Grade 1988. (This is available from the Roads and Traffic Authority.)

### b. Codes

*Code of Practice: Electrical Practices for Construction Work.*

## **8.6 Fees**

Some statutory authorities require a fee for applications for the erection of overhead protective structures.

## 9 DEFINITIONS

In this code of practice:

“Overhead Protective Structure”

means an overhead structure required for the protection of persons on a construction site and the adjoining public areas. It may also cover structures to protect public property of a special nature.

“Engineer”

means a person qualified for Corporate Membership of the Institution of Engineers of Australia.

“WorkCover”

means the WorkCover Authority of New South Wales.

“Construction work”

means construction work as defined in the *Construction Safety Act 1912* (see Appendix).

“Local Council”

means a Local Government Council of an area and includes an Administrator.

“User”

means the person, company or organisation with eventual responsibility for use of the overhead protective structure.

“Supplier”

means the person, company or organisation which supplies the overhead protective structure to the user.

# 10 APPENDIX

Definitions from the *Construction Safety Act 1912*:

“Construction work” means:

- a. building work, excavation work, compressed air work and diving work
- b. work in or in connection with the construction or maintenance of roads, airfields or airstrips, or of the permanent way of a railway or a tramway
- c. dredging or salvaging work
- d. the laying, lining or maintenance of pipes or cables
- e. earthmoving carried out with equipment for, or in conjunction with, the operation of which power other than manual power is used
- f. land clearing in preparation for any work referred to in paragraph a, b, d or e
- g. any work in which explosives are used
- h. any other prescribed work.

“Constructor”, in relation to any construction work, means:

the person who by himself (otherwise than as a servant or agent of the person carrying out that work) or by his servants or agents carries out that work.



“Building work” means:

work in constructing, erecting, installing, adding to, altering, repairing, equipping, finishing, painting, cleaning, signwriting, sheathing, spraying, dismantling or demolishing or any other prescribed operation that:

- a. is done in relation to a building or structure, at or adjacent to the site thereof
- b. is done in relation to a vessel on or adjacent to the vessel while it is at a wharf, in dock or on slips
- c. work in lining any shaft, well or tunnel.





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