



Government  
of South Australia

SafeWork SA

## Approved Code Of Practice

### WORKING HOURS

November 2009

*safe*worksa

## Acknowledgement

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## Foreword

The term ‘approved Code of Practice’ has a particular meaning under the *Occupational Health, Safety and Welfare Act 1986* (the Act).

An approved Code of Practice is designed to be used in addition to the Act and its associated Regulations. In proceedings for an offence against the Act, where it is proved that a person failed to comply with a provision of a relevant approved Code of Practice, the person shall be taken to have failed to exercise the required standard of care, in the absence of any proof to the contrary (section 63A of the Act).

Thus, a Code of Practice provides practical guidance on how a particular standard of health and safety can be achieved. It describes the preferred methods or courses of action for achieving this standard of safety. However, an approved Code of Practice allows the flexibility to show that an equivalent or better standard of health and safety is achieved by alternative action. An approved Code of Practice is therefore different from a Regulation where the responsible person must meet the specific requirement of the Regulation.

In summary, an approved Code of Practice:

- provides practical guidance;
- should be followed unless there is another solution which achieves the same or a better standard of health and safety; and
- can be used to support a prosecution.

Codes of Practice are approved under section 63 of the Act by the Minister for Industrial Relations, following recommendation by the SafeWork SA Advisory Committee.

Industry-specific regulations on working hours, such as the *Rail Safety (General) Regulations 2008* and the *Road Traffic (Heavy Vehicle Fatigue) Regulations 2008*, already exist in South Australia. These regulations should be referred to by those industries affected as the main tool in addressing working hours and will apply to the extent of any inconsistency with an Approved Code of Practice.

There are particular considerations relating to employees and volunteers engaged in the provision of frontline emergency services and reference should be made to specific guidelines that will be developed to be read in conjunction with this Code.

Regulation of working hours intersects both the areas of industrial relations and occupational health, safety and welfare. Industrial awards and enterprise agreements often specify ordinary hours of work for employees and the payments that attach to work that is outside of those parameters. Award and agreements made under the relevant industrial relations legislation

represent compulsory minimum requirements for workplaces. They will prevail over the Working Hours ACOP to the extent of any inconsistency. However the Working Hours ACOP is designed to be complementary tool.

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## 1. Introduction

### Title

- 1.1 This approved code of practice may be cited as the *Approved Code of Practice for Working Hours*.

### Purpose

- 1.2 The purpose of the Approved Code of Practice for Working Hours (the Code) is to provide practical guidance to employers and **employees** on the action that should be taken to minimise the impact of working hours on the health, safety and welfare of **employees** and other persons in the **workplace**.

### Authority

- 1.3 The Code is approved pursuant to section 63 of the *Occupational Health, Safety and Welfare Act 1986* (the Act).
- 1.4 Section 19 (1)(a)(i) of the Act requires employers to, so far as is reasonably practicable, provide **employees** with safe systems of work.
- 1.5 For the purpose of section 19(1)(a)(i); the number of hours that an **employee** is required to work and the scheduling of those hours of work form part of the system of work for that **employee**.
- 1.6 Working hours must therefore, so far as is reasonably practicable, be designed and managed in such a way so as to minimise the impact of working hours on the health safety and welfare of **employees**.
- 1.7 Section 20 of the Act also requires employers to prepare and maintain policies and procedures that set out the arrangements, practices and procedures at the **workplace** to protect the health and safety of **employees**.
- 1.8 For the purpose of working hours this means employers must:
- (a) Develop appropriate policies/procedures that set out the arrangements, practices and procedures at the **workplace** to minimise any risks associated with working hours; and
  - (b) take reasonable steps to ensure **employees** are aware of the arrangements that have been put in place to minimise the risk of injury of ill health in relation to working hours.
- 1.9 Section 19 (1) (c) requires employers to provide **employees** with such information, instruction, training and supervision as are reasonably necessary to ensure each **employee** is safe from injury and risk to health.
- 1.10 For the purpose of working hours this means employers must: not only provide appropriate information, instruction and training but ensure that decisions regarding the level of supervision to be provided, takes into account the potential impact of working hours.
- 1.11 Section 21 of the Act requires **employees** to take reasonable care to protect not only their own health and safety but the health and safety of others at work.
- 1.12 For the purpose of working hours this means that **employees** must:
- (a) comply with the arrangements that have been put in place by their employers to minimise any risks associated with working hours;

- (b) obey any reasonable instruction an employer may give in relation to reducing the risks associated with working hours;
- (c) take reasonable care in relation to the issues associated with working hours, to protect their own health and safety and avoid adversely affecting the health and safety of others in the **workplace**.
- (d) ensure that they are not, by the consumption of alcohol or a drug, in such a state as to endanger their own safety at work or the safety of any other person at work.

## Definitions

1.13 In the Code, terms that have a related definition in the Act, the *Occupational Health Safety and Welfare Regulations 1995* (the OHSW Regulations), or the Code are marked in bold.

1.14 For the purpose of the Code:

“**fatigue critical tasks**” means those tasks that are inherently dangerous and require a high level of concentration, alertness and/or co-ordination (such as operating machinery, working with electricity) and where the consequences of a mistake or error in judgement could cause serious injury to the **employee** undertaking the task or others nearby.

“**shift work**” means as any work which is conducted outside of the standard 8am to 6pm work cycle. Shift work includes:

- (a) permanent night shifts, or other permanent shifts that extend into hours that would normally be spent asleep;
- (b) compressed work weeks with extra long work days; and
- (c) rotating work shifts, or shifts where workers work permanently on one shift.

“**sleep debt**” means the difference between a person's required amount of sleep, and the actual amount of sleep obtained. For example, if a person who requires eight hours of sleep only obtains six hours of sleep, then this person is deprived of two hours of sleep. If this occurs over four consecutive nights, the person will have accumulated an eight hour sleep debt. Sleep debt leads to increased levels of fatigue.

“**working hours**” means not only the number of hours an **employee** works for an employer on any given day, week or month, but they time of day when those hours are worked.

“**FIFO**” (**Fly-in fly-out**) is a method of employing people in remote areas. Rather than relocating the **employee** and their family to a town near the work site, the **employee** is flown to the work site where they work for a number of days and are then flown back to their home town for a number of days of rest.

Usually a FIFO job involves working a long shift (e.g. 12 hours each day) for a number of continuous days with all days off spent at home rather than at the work site.

## 2. How do working hours increase the risk of work-related injury or illness?

- 2.1 For the purpose of this Code the term “working hours” means not only the number of hours an **employee** works for an employer on any given day, week or month, but the time of day when those hours are worked.
- 2.2 A person’s working hours can have a significant effect on the risk of work-related injury and illness because they impact on:
- (a) the amount of exposure to hazards in the **workplace** (e.g. exposure to hazardous substances, noise or heat for a 10 versus 8 hour period);
  - (b) the level of fatigue experienced by **employees**; and
  - (c) the amount of time **employees** have out of work to recover, sleep and tend to other life commitments (e.g. family, study, sport and/or community service).

### Exposure to hazards

- 2.3 In most cases the greater the amount of time that a person is exposed to a hazard, the greater the risk of injury or illness from that hazard.
- 2.4 Most nationally recognised exposure standards for hazards such as noise and hazardous substances are based on the assumption that people will be exposed to those hazards over an 8 hour working-day. If exposure to such hazards exceeds this time frame it may be necessary to take additional measure to minimise the risk of excessive exposure.

### Fatigue

- 2.5 Due to circadian rhythms, the human body is programmed for different levels of wakefulness depending on the time of day. The human body experiences a depression or reduction in activity in the midnight to dawn period. This decline is a fundamental characteristic of the human body and cannot be changed.
- 2.6 Work schedules that require people to be awake and active at night, or to work for extended periods of time, disrupt circadian rhythms and increase the risk of fatigue.
- 2.7 A person suffering from fatigue may in turn experience:
- (a) difficulty in concentration;
  - (b) impaired recollection of timing and events;
  - (c) poor judgement;
  - (d) reduced capacity for effective interpersonal communication;
  - (e) reduced hand-eye coordination;
  - (f) reduced visual perception;
  - (g) reduced vigilance; and
  - (h) slower reaction times.
- 2.8 Evidence also suggests that fatigued people are more likely to engage in risk taking behaviour. Each of the above effects is relevant to many, if not all, occupations. Not only do these effects decrease performance and productivity within the **workplace**, but they simultaneously increase the potential for accidents and injuries to occur.

- 2.9 People working in a fatigued state may place themselves and others at risk, most particularly:
- (a) when operating machinery (including driving vehicles)
  - (b) when performing critical tasks that require a high level of concentration
  - (c) where the consequence of error is serious.
- 2.10 Accidents are more likely to occur at night, particularly during the period when the circadian cycle is at its lowest point (midnight to dawn) when a person would ordinarily be sleeping.
- 2.11 Therefore it is not only the number of hours worked but when those hours of work are done (i.e. the shifts or rosters) that can increase the risk of work-related fatigue and its associated injuries and ill-health.

## General Health and Welfare

### Sleep and fatigue

- 2.12 It is critical that **employees** have sufficient time between working hours to physically rest and to give their bodies an opportunity to recover from fatigue and exposure to hazards in the **workplace**.
- 2.13 While tired muscles can recover with rest, the brain can only recover with sleep. Sleep is the only effective long-term counter-measure to fatigue. Maintaining sufficient levels of sleep is essential to recovering from and preventing fatigue.
- 2.14 The optimum amount of sleep required by a person varies, with seven to eight hours of daily sleep considered the average amount required by an adult. People who continually get less sleep than that necessary for them will accumulate a **sleep debt**.
- 2.15 In addition to contributing to fatigue, a lack of sleep has been indirectly linked with the following health effects:
- (a) heart disease and high blood pressure
  - (b) stomach ulcers and other gastrointestinal disorders
  - (c) depression; and
  - (d) lower fertility.
- 2.16 A number of factors peculiar to **workplace** or an individual can cause sleep loss, examples include:
- (a) extended working hours;
  - (b) irregular and unpredictable working hours;
  - (c) time of day when work is performed and sleep obtained;
  - (d) shift work;
  - (e) having more than one job;
  - (f) having an underlying health problem such as sleep apnoea.

### Other commitments

- 2.17 When considering issues associated with working hours it should be noted that work life and personal life are inter-related, and both can impact on each other.
- 2.18 If an **employee** leaves their work tired and exhausted they may at best, be less able to enjoy out of work activities and at worst be a danger to themselves and others in the community (e.g. to other road users).

- 2.19 Likewise, if an **employee** arrives at work unfit for work due to a lack of sleep, illness or other condition, they may at best, be less productive, and at worst, a danger to themselves and others in the **workplace**.
- 2.20 In some industries and **workplaces** shift work and working at night is a core and unavoidable feature of the **workplace** (e.g. emergency services, hospitality and health).
- 2.21 If potential conflict between work demands and personal demands are to be minimise to the benefit of both employer and **employees** it is critical that:
- (a) **employers** do all that is reasonably practicable to allow for some flexibility in working hours that will enable **employees** to meet both work and personal commitments;
  - (b) **employers** provide potential **employees** with an accurate account of the requirements regarding working hours prior to starting employment; and
  - (c) that **employees** do all that is reasonably practicable to ensure that their out of work commitments and activities do not render them fatigued and unfit for work.
- 2.22 If any imbalance between work and personal life is unresolved it may have a negative impacts on not only the **employee** but **employer** –including:
- (a) health problems such as sleep disorders, anxiety and depression;
  - (b) drop in morale and productivity; and
  - (c) increased absenteeism and staff turnover.

### 3. The Risk Management process

- 3.1 The management of risks associated with working hours should be managed through the following three-step process:
- identify all reasonably foreseeable hazards and factors that indicate risk;
  - assess risks of injury or harm arising from each identified hazard; and
  - implement control measures to eliminate or minimise the risks.
- 3.2 The following sections provide guidance on the three risk management steps and a tool, the *Risk Management Matrix* in Section 3.2.3, is provided for use by **workplaces**. For an initial assessment, please refer to the Checklist in Appendix 1.
- 3.3 The risk management process should be conducted and monitored on an ongoing basis to ensure control measures are working and no new hazards have been introduced when, for example, work schedules, equipment, tasks or the work environment are changed.
- 3.4 In accordance with the Act, any relevant Health and Safety Representatives (HSRs) and Occupational Health and Safety Committees (OHS Committees) must be consulted on the health and safety issues related to working hours. Their involvement in the risk management process is important, as they are most likely to know about risks associated with their work.

#### The first step: Hazard Identification

- 3.5 The first step in the risk management process is identifying all reasonably foreseeable hazards. Hazard identification processes involves collecting information through consultation and observation to:
- gain an accurate understanding of the patterns, trends or peaks in both the number hours worked and when those hours are worked (i.e. time of day, week, months or year); and
  - assist in identifying any hazard factors that may, in combination with hours work and each other, lead to an increased risk of injury and or illness.
- 3.6 Table 1 is provided to assist in the hazard identification process by identifying a range of factors that may indicate that working hours is contributing to the risk of injury or harm to the health of a person. Not all the factors listed will be relevant to every **workplace**.
- 3.7 Likewise, there may be other relevant factors not listed in Table 1 that are uncovered through the hazard identification process. These **workplace**-specific factors should be noted as they may also indicate areas where action can be taken to reduce the risk.
- 3.8 Methods to obtain information to determine the extent to which the hazard factors listed in Table 1 are relevant to a **workplace**, include:
- examining records to determine hours of work - especially any situations where excessive hours have been worked or worked at non-ideal times);
  - consulting with supervisory staff, **employees**, HSRs and OHS Committees;
  - using a hazard checklist particularly to identify fatigue critical tasks;
  - examining records of past incidents and injuries at the **workplace**;
  - examining relevant information, research and data from industry associations, unions, other similar businesses and other sources; and
  - reviewing other relevant codes and guidance notes.

**Table 1: Potential hazard factors associated with working hours****1. Working hours**

- 1.1 Number of hours worked:
- Average weekly hours other than Fly in/Fly out (FIFO);
  - Total hours over a three-month period (other than FIFO)
  - Daily work hours ~ usual arrangements and unplanned peaks
  - Daily work hours plus work-related travel.
- 1.2 When hours are worked
- Scheduling of work ~ usual arrangements and unplanned peaks
  - Breaks during work, for example frequency and length of breaks
  - Breaks between work periods, for example recovery time
  - Seasonal peaks, demands and hours of work
- 1.3 Shiftwork, for example:
- Length of shift other than FIFO;
  - Time of shift, speed and direction of shift;
  - Split shifts patterns (see box explaining these Section 4);
  - FIFO — total hours over a three-month period;
  - FIFO — sequential night shifts;
  - FIFO — period of non-work following a sequence of night shifts; and
  - FIFO — return from rest and recreation to operations;
- 1.4 Night work, for example:
- Shift end (for those working eight hours or less between 10.00 pm and 6.00 am or finishing work between those times).
  - Length of shift.
  - Sequential shifts other than FIFO.
  - Period of non-work following a sequence of night shifts other than FIFO.

**2. Demands of the work tasks**, for example:

- 2.1 Repetitive work, for example inadequate variation of tasks (physical and/or mental) with excessive periods of repetitive and demanding work.
- 2.2 Static work postures, for example standing or sitting for prolonged periods of time.
- 2.3 Physically demanding work.
- 2.4 High concentration and/or mentally demanding work.

**3. Fatigue critical tasks**, (definition paragraph 1.14) examples include:

- 3.1 Driving a road vehicle or operating a crane or other high risk plant
- 3.2 Working at heights;
- 3.3 Electrical work and other types of hazardous work (see OHSW Regulations)
- 3.4 Work with flammable or explosive substances or significant quantities of hazardous substances.

**4. Extended exposure to hazards**, for example:

- 4.1 exposure to hazardous substances and atmospheric contaminants;
- 4.2 exposure to noise;
- 4.3 exposure to extreme temperature; and
- 4.4 exposure to vibration.

**5. Information, instruction and training**, for example:

- 5.1 Training on job skills and the most time-efficient process/way to do the job or tasks required.
- 5.2 information, instruction and training on arrangements in place to minimise fatigue and the expectations on **employees** (e.g. to ensure fitness for work - health and lifestyle factors).

**6. Supervision**, for example

- 6.1 Have supervisors been instructed on their role in reducing the risks associated with working hours (e.g. discourage cutting corners and enforcing rest breaks)?
- 6.2 Level of supervision – (Is the level of supervision appropriate for high risk times like extended shift and night work?)

**7. Other organisational factors**; for example

- 7.1 Type of work culture, for example work environments where there is an accepted practice of working long hours or a work ethic of working until the job is done which leads to excessive working hours.
- 7.2 Flexibility or lack thereof - for example is it possible for **employees** to work at home and/or outside of usual working hours if needed to accommodate family commitments provided they deliver the outcome required on time?
- 7.3 Lack of clear processes and planning leading to unrealistic deadlines and workloads.
- 7.4 Little or no control over work demands (e.g. police, ambulance, fire services and other emergency services).

**8. Individual factors**

- 8.1 Are there any individual factors that need to be considered and, so far as is reasonably practicable, accommodated when determining the number of hours worked and when and where they are worked?
  - 8.1.1 Lack of sleep – e.g. due to illness, sleep disorder, family/carer commitments; personal loss or hardship.
  - 8.1.2 Conflict between work and personal commitments, for example, family responsibilities.
  - 8.1.3 Time taken to commute to and from work.

The hazards/hazard factors and risks may be inter-related and, in some cases, cumulative — see further explanation the highlighted box below item 3.17 titled “*Example of the inter-relationship of hazard factors effect on risk level*”.

## The second step: Risk Assessment

- 3.9 The second step in the risk management process is assessing the risks of injury or illness from the hazards/hazard factors identified at the specific **workplace**.
- 3.10 In general, this involves looking at the chance or likelihood of a hazard occurring and, if it does occur, the extent of any harm or injury, ie the consequences. It is a way of deciding which hazards need to be addressed first, ie where there is the highest risk of injury or harm. This step should provide information on:
- where, which and how many **employees** are likely to be at risk of incurring injury or harm to their health;
  - how often this is likely to occur;
  - the potential severity of any injuries or illness; and
  - the extent to which working hours could increase the risk of injury or illness.
- 3.11 Risk assessment is not an absolute science — it is a 'best estimate' on the basis of available information. Therefore, it is important the person undertaking a risk assessment has the necessary information, knowledge and experience of the work environment and work process, or such a person is involved, and **employees** and health and safety representatives (if they exist) are consulted as they may be able to advise on the particular hazards and risks associated with different work activities.
- 3.12 The *Risk Management Matrix* (see Section 3.2.3) is provided to assist with the risk assessment process and can be used to identify the hazards and risk factors that are most common and/or potentially most problematic.
- 3.13 For example the hazard identification process may have identified that shift work is a regular feature and potential hazard factor in the **workplace**. If eliminating shift work is not reasonably practicable, then the risk assessment should determine how the shifts operate and if these rosters could reasonably be modified to minimise the likelihood of sleep deprivation and fatigue.
- 3.14 Methods to obtain information to assist with the risk assessment process include:
- examining records to determine hours of work - especially any situations where excessive hours have been worked or worked at non-ideal times
  - consulting with supervisory staff, **employees**, HSRs and OHS Committees on workloads and work schedules - especially to assist in assessing the impact of issues that there are unlikely to be the subject of formal records e.g.
    - work-related travel;
    - work completed outside of normal hours including situations where people have felt the need to take work home; and
    - organisational factors that have a negative impact on work–life balance.
  - examining records of past incidents and injuries at the **workplace**;
  - examining information, research, codes, guidance and data from industry associations, unions, other similar businesses and other sources.
- 3.15 Table 2 provides additional information to assist with the assessment of risk in relation to sleep deprivation and/or fatigue.

**Table 2: Assessing the risk of sleep deprivation**

**With risks of acute sleep deprivation and/or fatigue**, in addition to the above recommendations, risk assessment methods may include the following.

- Assessing schedules and whether there may potentially be effects on **employees'** body clock and alertness that may impact on performance and health and safety at the **workplace**. Consider the time of day/night when the work or work schedule(s) is carried out and when **employees** start and finish in the context of the body clock (see Appendix 2) and the times people are normally awake or asleep.
- When investigating incidents at the **workplace**, considering whether fatigue was a contributing factor.

**A way to start** assessing these risks, may be to work through Step 1 of the *Risk Management Matrix* (Section 3.2.3) of this code, reviewing individual jobs, work groups and/or operations in relation to opportunities for sleep and recovery from fatigue.

**To further assess** the risks of acute sleep deprivation and/or fatigue, consider also:

- Looking at research on working hours, shiftwork and fatigue, in particular on the specific industry, **workplace** and/or tasks. Information can be found through internet searches and, in some instances, employer associations or unions.
- Obtaining information and/or advice on developing adequate scheduling, shift work and fatigue management planning to minimise fatigue and other health effects.
- Implementing techniques that enable estimation of potential sleep deprivation and fatigue; and
- Implementing a fatigue management plan as part of a safety management system.

Risk assessment methods for fatigue should consider the frequency of hours worked, the operational task, the probable outcomes of the operational task and implement in response to these issues reasonably practicable measures.

3.16 The risk assessment should identify the hazard factors with the highest risks that will require risk control measures.

3.17 In assessing risk of hazard factors, it is important to recognise that many of them will be inter-related and they should not, therefore, be considered in isolation.


***Example of the inter-relationship of hazard factors effect on risk level***

In the case of new workers, there may be an inter-relationship between hazard factors of daily work hours, training and work task demands. For example, the risks of injury and/or harm could be higher where there are new workers working long daily hours in a physically demanding job, with inadequate training in job and fatigue management skills. See the information on training in Section 4 for issues that could be addressed.

### The third step: Risk Control

- 3.18 The third step is to implement control measures to eliminate or reduce the risk of a person being injured or harmed and ensure they are monitored and reviewed on an ongoing basis.
- 3.19 There is a general preferred order of control measures, ranging from the most effective to the least effective, that needs to be followed to eliminate or reduce the risks of injury or harm. This is outlined in Table 3, below.

**Table 3: Preferred order of control measures to eliminate or minimise the risk of injury or harm.**

|                                                                                                                                                                                                                                                             |                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <b>Elimination</b> — removing the hazard or hazardous work practice from the workplace.                                                                                                                                                                  | <p><b>Most effective control measure</b></p>  <p><b>Least effective control measure</b></p> |
| 2. <b>Substitution</b> — substituting or replacing a hazard or hazardous work practice with a less hazardous one.                                                                                                                                           |                                                                                                                                                                                |
| 3. <b>Isolation</b> — isolating or separating the hazard or hazardous work practice from people involved in the work or people in the general work area.                                                                                                    |                                                                                                                                                                                |
| 4. <b>Engineering controls</b> — if the hazard cannot be eliminated, substituted or isolated, an engineering control is the next preferred measure.                                                                                                         |                                                                                                                                                                                |
| 5. <b>Administrative controls</b> — this includes introducing work practices that reduce the risk, such as providing procedures, instruction and training.                                                                                                  |                                                                                                                                                                                |
| 6. <b>Personal protective clothing and equipment</b> — these should be considered only when other control measures are not practicable or to increase protection. While essential for some work procedures, these should be last in the list of priorities. |                                                                                                                                                                                |
| In some instances, a combination of control measures may be appropriate                                                                                                                                                                                     |                                                                                                                                                                                |
| See Section 4 for recommendations for control measures.                                                                                                                                                                                                     |                                                                                                                                                                                |

- 3.20 In applying the above principle of preferred order to develop control measures to address potential risks arising from the working hours arrangements, the following are examples of control measure in relation to working hours.
- Elimination – employing additional casual or labour hire staff during predictable times of peak demand thereby eliminating the need for extended shifts and additional overtime.
  - Substitution – moving the time when work is done to minimise exposure to a particular hazard, for example during a heatwave, re-scheduling work to a cooler time of the day.
  - Administrative control may be training **employees** about the hazards and risks, their responsibilities for health and safety and relevant health and lifestyle choices; and
  - Personal protective clothing and equipment control may be requiring workers wear hearing protectors when a risk assessment indicates they may be exposed to noise hazards.

- 3.21 The applicability of the control measures will depend on the particular situation and the hazards and risks. Recommendations for control measures are outlined in Section 4.

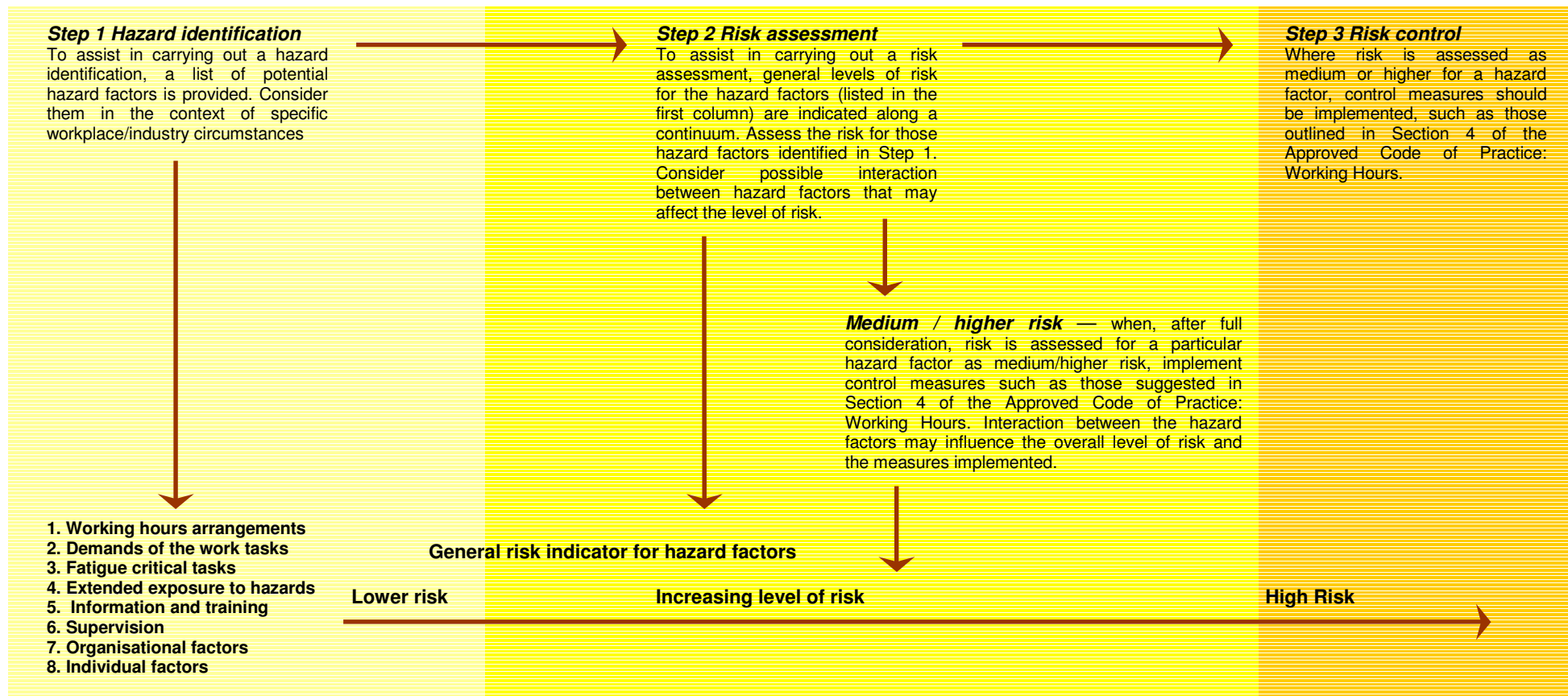
**Holistic approach to risk management**

- 3.22 The risk management process of identifying hazard factors and assessing the risks and implementing controls should be holistic. For example:
- (a) interaction between a combination of hazards and its effect on the level of risk should be assessed;
  - (b) in some instances, it may be acceptable to have a higher risk rating for a hazard factor or hazard factors provided the implemented control measure(s) address the overall risk; and
  - (c) a potential hazard factor may not necessarily require a single matching control measure. A response could be to implement a control measure that addresses a number of potential hazard factors.

## Risk Management Matrix



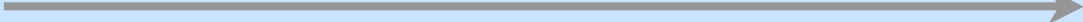






3.23 The *Risk Management Matrix* is provided on the following pages for use in considering potential hazards and risks from the **workplace**/industry working hours arrangements, and the diagram below demonstrates how to use it. The Matrix shows at which point action should be taken to introduce risk control measures. A holistic approach should be taken in assessing risks and implementing control measures.

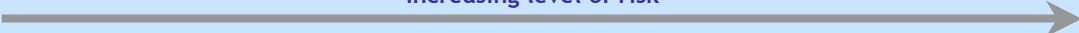








### How to use them



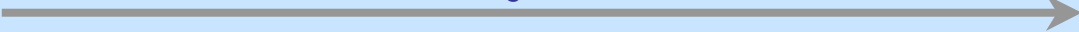
### Risk Management Matrix

To start considering hazards and risk that may be associated with the working hours arrangements at your **workplace**/industry, follow the three steps set out below.

| <p><b>Step 1: Hazard identification</b></p> <p>Identify potential hazard factors at the workplace/industry, such as those listed in the column below.</p>  | <p><b>Step 2: Risk assessment</b></p> <p>Assess level of risk for the hazard factors identified at the workplace (such as those listed in the column to the left), using the general risk indicator arrow guide below. In assessing risk: 1) consider interaction between hazard factors that could influence level of risk; and 2) as level of risk for each hazard factor is only indicative, take into account specific workplace/industry circumstances that may influence it.</p> <p style="text-align: center;"></p> <p style="text-align: center;"><b>General risk indicator for hazard factors</b></p> <p style="text-align: center;"><b>Action:</b> Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.</p> <p style="text-align: center;">Increasing level of risk</p>  <p style="text-align: center;">Lower risk <span style="float: right;">Higher risk</span></p> | <p><b>Step 3: Risk control</b></p> <p>Where a hazard factor is assessed as being above low risk/medium risk, consider implementing control measures, such as those outlined in Section 4 of the Approved Code of Practice: Working Hours.</p>  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. Working Hours Arrangements</b></p>                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                   |
| <p><b>1.1 Hours</b></p> <p>1.1.1 Average weekly hours (other than FIFO)</p>                                                                                                                                                                 | <p>35-40 hours <span style="float: right;">48 hours <span style="float: right;">56 hours</span></span></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                   |
| <p>1.1.2 Total hours over a three-month period (other than FIFO)</p>                                                                                                                                                                        | <p>624 hours</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                   |
| <p>1.1.3 Daily work hours</p>                                                                                                                                                                                                               | <p>9 hours <span style="float: right;">12 hours</span></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                   |
| <p>1.1.4 Daily work hours and work-related travel</p>                                                                                                                                                                                       | <p>10 hours <span style="float: right;">13 hours</span></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                   |
| <p>1.1.5 Scheduling of work</p>                                                                                                                                                                                                             | <p>Regular and predictable hours <span style="float: right;">Irregular and unpredictable hours<br/>Short notice of schedule<br/>Extended overtime<br/>On call across shift cycle</span></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>Consider control measures — see those suggested for working hours in Section 4 of the Approved Code of Practice: Working Hours.</p>                                                                                                                                                                                            |

|                                                                                                             | <p align="center"><b>General risk indicator for hazard factors</b></p> <p align="center"><i>Action: Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.</i></p> <p align="center">Increasing level of risk </p> <p align="center">Lower risk <span style="float: right;">Higher risk</span></p> |  |  |                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1.2 Shiftwork, including Fly in/Fly out (FIFO)</b></p> <p>1.2.1 Length of shift (other than FIFO)</p> | <p align="center">10 hours      12 hours </p>                                                                                                                                                                                                                                                                                          |  |  | <p>Consider control measures — see those suggested for shiftwork in Section 4 of the Approved Code of Practice: Working Hours.</p> |
| <p>1.2.2 Time of shift</p>                                                                                  | <p align="center">Day shifts                      Afternoon shifts                      Night shifts </p>                                                                                                                                                                                                                              |  |  |                                                                                                                                    |
| <p>1.2.3 Speed and direction</p>                                                                            | <p align="center">Forward rotation<br/>(ie morning/afternoon/night)                      Backward rotation<br/>(ie night/evening/ morning)<br/>or slower rotation<br/>(eg weekly rotation/3-4 weekly rotation) </p>                                                                                                                    |  |  |                                                                                                                                    |
| <p>1.2.4 Split shifts</p>                                                                                   | <p align="center">13 hour period </p>                                                                                                                                                                                                                                                                                                  |  |  |                                                                                                                                    |
| <p>1.2.5 FIFO — total hours over a three-month period</p>                                                   | <p align="center">728 hour period </p>                                                                                                                                                                                                                                                                                                 |  |  |                                                                                                                                    |
| <p>1.2.6 FIFO — sequential night shifts</p>                                                                 | <p align="center">7 x 12 hour shifts<br/>7 x 8 hour shifts<br/>6 x 10 hour shifts<br/>6 x 12 hour shifts </p>                                                                                                                                                                                                                        |  |  |                                                                                                                                    |
| <p>1.2.7 FIFO — period of non-work following a sequence of night shifts</p>                                 | <p align="center">48 hours                      24 hour minimum </p>                                                                                                                                                                                                                                                                 |  |  |                                                                                                                                    |
| <p>1.2.8 FIFO — return from rest and recreation to FIFO operations</p>                                      | <p align="center">Adequate sleep prior to first shift                      Extended travel prior to shift start </p>                                                                                                                                                                                                                 |  |  |                                                                                                                                    |

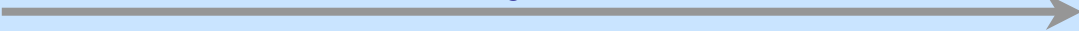
|                                        |                                                                                | <p style="text-align: center;"><b>General risk indicator for hazard factors</b></p> <p style="text-align: center;"><i>Action: Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.</i></p> <p style="text-align: center;">Increasing level of risk </p> <p style="text-align: center;">Lower risk <span style="float: right;">Higher risk</span></p> |                                                                                 |                                                                                   |                                                                                                                                                       |
|----------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.3 Night work</b>                  |                                                                                |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 |                                                                                   | <p>Consider control measures — see those suggested for night work in Section 4 of the Approved Code of Practice: Working Hours.</p>                   |
| 1.3.1                                  | Shift end (for those working eight hours or more between 10.00 pm and 6.00 am) |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 | <p style="text-align: right;">After 10.00am<br/>Before 6.00 am</p>                |                                                                                                                                                       |
| 1.3.2                                  | Length of shift                                                                |                                                                                                                                                                                                                                                                                                                                                                                             | 8 hours    10 hours    12 hours                                                 |                                                                                   |                                                                                                                                                       |
| 1.3.3                                  | Sequential night shifts (other than FIFO)                                      |                                                                                                                                                                                                                                                                                                                                                                                             | 6 or more 8 hour shifts<br>5 or more 10 hour shifts<br>4 or more 12 hour shifts |                                                                                   |                                                                                                                                                       |
| 1.3.4                                  | Period of non-work following a sequence of night shifts (other than FIFO)      | 48 hours                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                 | <p style="text-align: right;">Less than<br/>48 hours</p>                          |                                                                                                                                                       |
| <b>1.4 Breaks during work</b>          |                                                                                |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 |                                                                                   | <p>Consider control measures — see those suggested for breaks during work suggested in Section 4 of the Approved Code of Practice: Working Hours.</p> |
| 1.4.1                                  | Frequency of breaks                                                            | Adequate and regular breaks                                                                                                                                                                                                                                                                                                                                                                 |                                                                                 | <p style="text-align: right;">Infrequent or<br/>no breaks</p>                     |                                                                                                                                                       |
| <b>1.5 Breaks between work periods</b> |                                                                                |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 |                                                                                   |                                                                                                                                                       |
| 1.5.1                                  | Recovery time                                                                  | Adequate time for sleep, travel and meals etc                                                                                                                                                                                                                                                                                                                                               |                                                                                 | <p style="text-align: right;">Inadequate time for sleep, travel and meals etc</p> |                                                                                                                                                       |
| <b>1.6 Seasonal work arrangements</b>  |                                                                                |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 |                                                                                   |                                                                                                                                                       |
| 1.6.1                                  | Hours worked                                                                   | Regular hours over 12 months                                                                                                                                                                                                                                                                                                                                                                |                                                                                 | <p style="text-align: right;">Long hours during peak season</p>                   |                                                                                                                                                       |

|                                                                                                                                                    | <p style="text-align: center;"><b>General risk indicator for hazard factors</b></p> <p style="text-align: center;"><i>Action: Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.</i></p> <p style="text-align: center;">Increasing level of risk</p> <p style="text-align: center;">  </p> <p style="text-align: center;">Lower risk <span style="float: right;">Higher risk</span></p> |                                                                                                                  |                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>2. Demands Of The Work Tasks</b></p> <p><b>2.1 Repetitive work (physical and/or mental)</b></p>                                              | <p>Varying task demands</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Highly repetitive work and/or high concentration work, with high demands over an extended period of time.</p> | <p>Consider control measures — see those suggested for breaks during work period and work task demands in Section 4 of the Approved Code of Practice: Working Hours.</p> |
| <p><b>2.2 Physically demanding work</b></p>                                                                                                        | <p>Minimal physically demanding work</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Highly physically demanding work that results in muscle fatigue.</p>                                          |                                                                                                                                                                          |
| <p><b>2.3 High concentration and/or mentally demanding work</b></p>                                                                                | <p>Minimal periods of high concentration and/or mentally demanding work</p>                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Long periods of high concentration and/or mentally demanding work.</p>                                        |                                                                                                                                                                          |
| <p><b>3. Fatigue critical tasks where there are potentially increased risks</b> of incidents, injury or harm should employees become fatigued.</p> | <p>Non-fatigued employees operating plant and/or making critical decisions</p>                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Fatigued employees operating certain plant and/or making critical decisions</p>                               | <p>Consider control measures — see those suggested for fatigue critical tasks in Section 4 of the Approved Code of Practice: Working Hours.</p>                          |
| <p><b>4. Extended exposure to hazards</b></p> <p><b>4.1 Exposure to hazardous substances</b> and atmospheric contaminants</p>                      | <p>For hazardous substances, low risk calculated using national exposure standard<sup>1</sup></p>                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>For hazardous substances, high risk calculated using national exposure standard.</p>                          | <p>Consider control measures — see those suggested for exposure to hazards in Section 4 of the Approved Code of Practice: Working Hours.</p>                             |

<sup>1</sup> To access exposure standards, see the internet database, Hazardous Substances Information System, available at [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)

|                                                                                            | <p style="text-align: center;"><b>General risk indicator for hazard factors</b></p> <p style="text-align: center;"><b>Action:</b> Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.</p> <p style="text-align: center;">Increasing level of risk </p> <p style="text-align: center;">Lower risk <span style="float: right;">Higher risk</span></p> |                                                                                   |                                                                                                                                       |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>4.2 Exposure to noise</b>                                                               | Low risk calculated according to formulae in AS/NZS 1269.1 <sup>2</sup>                                                                                                                                                                                                                                                                                                                     | High risk calculated according to formulae in AS/NZS 1269.1                       | Consider control measures — see those suggested for exposure to hazards in Section 4 of the Approved Code of Practice: Working Hours. |
| <b>4.3 Exposure to extreme temperatures</b>                                                | Minimal exposure                                                                                                                                                                                                                                                                                                                                                                            | Long period of exposure                                                           |                                                                                                                                       |
| <b>4.4 Exposure to vibration</b>                                                           | Minimal exposure                                                                                                                                                                                                                                                                                                                                                                            | Long period of exposure                                                           |                                                                                                                                       |
| <b>5. Information and training</b>                                                         |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                   | Consider control measures — see types of information suggested in Section 4 of the Approved Code of Practice: Working Hours.          |
| <b>5.1 Provision of information</b> on fatigue management and health and lifestyle factors | Adequate information is provided                                                                                                                                                                                                                                                                                                                                                            | No information is provided                                                        |                                                                                                                                       |
| <b>5.2 Provision of training</b> on fatigue management and health/ and lifestyle factors   | Adequate training is provided                                                                                                                                                                                                                                                                                                                                                               | No training provided                                                              |                                                                                                                                       |
| <b>5.3 Training on job skills</b>                                                          | Adequate training for job demands                                                                                                                                                                                                                                                                                                                                                           | Inadequate training for job demands                                               |                                                                                                                                       |
| <b>6. Supervision</b>                                                                      |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                   | Consider control measures — see those suggested for supervision in Section 4 of the Approved Code of Practice: Working Hours.         |
| <b>6.1 Adequacy of supervision</b>                                                         | Adequate supervision                                                                                                                                                                                                                                                                                                                                                                        | In some instances, working alone (refer to Division 2.14 of the OHSW Regulations) |                                                                                                                                       |

<sup>2</sup> Risk should be calculated according to formulae in Australian/New Zealand Standard AS/NZS 1269.1 Occupational noise management - measure and assessment, published by Standards Australia (www.sai-global.com).

|                                                                                                                                                  | <p style="text-align: center;"><b>General risk indicator for hazard factors</b></p> <p style="text-align: center;"><i>Action: Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.</i></p> <p style="text-align: center;">Increasing level of risk</p> <p style="text-align: center;">  </p> <p style="text-align: center;">Lower risk <span style="float: right;">Higher risk</span></p> |                                                                                                                          |                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>7. Other Organisational factors</b></p> <p><b>7.1 Work Culture</b></p>                                                                     | <p>Work-life balance is recognised as important &amp; a range of flexible work arrangements are offered.</p>                                                                                                                                                                                                                                                                                                                                                                                                       | <p>Employees expected to work for as long as needed whenever needed.</p>                                                 | <p>Consider control measures — see those suggested for individual and lifestyle factors in Section 4 of the Approved Code of Practice: Working Hours.</p> |
| <p><b>7.2 Flexibility or lack thereof</b></p>                                                                                                    | <p>Flexible work hours available to staff.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Flexible work hours not feasible &amp;/or tolerated.</p>                                                              |                                                                                                                                                           |
| <p><b>7.3 Planning</b></p>                                                                                                                       | <p>Deadlines set based on work required and resources available.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Deadlines set without proper consideration of the work involved.</p>                                                  |                                                                                                                                                           |
| <p><b>7.4 Control over work demands</b></p>                                                                                                      | <p>Steady flow of work – able to set own deadlines.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>Little or no control over timing and volume of work.</p>                                                              |                                                                                                                                                           |
| <p><b>8. Individual factors</b></p> <p><b>8.1 Lack of sleep</b> (amount and quality) due to e.g. illness, sleep disorder, family commitments</p> | <p style="text-align: center;">Night sleep<br/>8 hours night sleep<br/>(in 24 hrs)</p>                                                                                                                                                                                                                                                                                                                                                                                                                             | <p style="text-align: center;">Day sleep<br/>6 hours night sleep<br/>(in 24 hours)</p>                                   | <p>Consider control measures — see those suggested for individual and lifestyle factors in Section 4 of the Approved Code of Practice: Working Hours.</p> |
| <p><b>8.2 Conflict between work and personal commitments</b></p>                                                                                 | <p>Access flexible work arrangements when needed.<br/>Has good support networks in times of peak work demands.</p>                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Experiencing life trauma such as serious illness of self or loved one. Sudden surge in non-work responsibilities.</p> |                                                                                                                                                           |
| <p><b>8.3 Travel time between work and home</b></p>                                                                                              | <p>Minimal travel time between work and home.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Long travel time between work and home.</p>                                                                           |                                                                                                                                                           |

## 4. Working Hours Control Measures

The control measures on the following pages are presented as examples. When considering which measures to implement:

- take a holistic view on the interaction of hazard factors, in the assessment of their risks and the implementation of control measures; and
- assess alternative control measures for their applicability.

### *Working hours*

Potential control measures to implement include:

- reviewing whether the type of work and work schedule is suitable for the allocated time period and modifying work/work schedules if they place **employees** at risk of developing fatigue or experiencing acute sleep deprivation;
- designing working hours to allow for good quality sleep and enough recovery time between work days or shifts for traveling, eating, washing and sleeping;
- with the scheduling of work, reviewing the necessity for it to be conducted outside of standard business hours and/or during extended hours. For non-essential work, consider rearranging the schedule so it is not carried out during these times;
- considering whether unscheduled, additional hours of work may increase the level of risk of fatigue;
- considering scheduling work for certain hours when the risks may be lower. For example, where practicable, scheduling potentially higher risk work for times when people are normally awake to align with the body clock and lower risk work for periods where there may be fatigue. See also the suggested control measures for fatigue critical tasks on the following pages;
- developing a working hours policy on daily work hours, maximum average weekly hours, total hours over a three-month period and work-related travel, as relevant to the **workplace**;
- developing procedures for long daily work hours and related travel, where there may be increased risk of injury or harm, for example requiring minimum breaks on a regular basis, especially when total hours exceed a set limit;
- consulting with **employees** and health and safety representatives (where they exist) about levels of fatigue and any health and safety issues arising from them;
- avoiding overtime arrangements for extended periods and, for example:
  - reviewing overtime in the context of previous patterns and future scheduled work; and
  - considering the requirements for relief/stand-by/on-call/additional staff;
- allowing trial periods for new working hours arrangements and evaluating them;
- endeavouring to provide regular and familiar hours of work. This should include giving reasonable notice if working hours or roster changes are planned;
- encouraging part-time work and other forms of flexible work arrangements;
- offering more flexible work hours, especially to **employees** who through a change in personal circumstance may find it difficult to work their usual hours; and

- also considering the control measures suggested for work task demands on the following pages.

### ***Shiftwork and rosters***

As well as the control measures suggested above for working hours arrangements, potential control measures to implement for shiftwork and rosters include:

- reviewing roster design, that is:
  - choosing a shift system to suit the work required;
  - revising the length, time, speed and direction of shifts;
  - using a forward rotation shift system (ie morning/afternoon/night), where possible;

#### **Forward shift rotations**

A forward rotation means the direction of shifts is day to evening to night shift. A backward rotation is from day to night to evening shift. A forward (clockwise) rotation is generally considered to suit the body better, rather than a backward rotation.

- designing shifts and rosters to allow for adequate sleep and enough recovery time between shifts for traveling, eating, washing and sleeping;
- where possible, avoiding early starts of morning shifts, for example before 6.00am;

#### **Early starts**

Early starts may lead to sleep restrictions from both the early start time and difficulties sleeping in the early evening when people (their body clocks) are normally awake.

- considering the timing of split shifts, ie whether there could be sleep disruption because of the times **employees** are required to work;

#### **Split shifts**

Consideration should be given to avoiding split shifts that involve, for example, early morning work and late night work because they can affect the amount of night sleep obtained, with any day sleep gained not being necessarily as efficient.

- setting shift rosters ahead of time and avoiding sudden changes of shifts to allow **employees** to plan leisure time;
- managing workload change arising from absenteeism; and
- considering measures to address the risks that may arise when **employees** either start a sequence of shifts, or travel home after a sequence of shifts, and could be experiencing acute sleep deprivation, for example where **employees** have an extended period of travel to or from the **workplace** after a period of extended working hours.

***Night work***

As well as the control measures suggested above for working hours arrangements and shiftwork and rosters, potential control measures to implement include:

- considering whether night work is necessary and, where practicable, rearranging schedules so non-essential work is not carried out at night;
- where practicable, scheduling critical tasks at times when the assessed risk of **employees** experiencing sleep deprivation, fatigue or disruption to the body clock is low;
- keeping sequential night shifts to a minimum, where possible;
- ensuring there is an adequate period of days or time off following a sequence of night shifts;
- allowing regular night workers periods of normal night sleep so they can catch up on their sleep debt;
- providing controls and clear procedures for hazardous work, particularly for work carried out between 2.00 am-6.00 am;
- ensuring shifts do not finish after 10.00 am so day sleep is not restricted;
- minimising night work when **employees** return from leave or an extended period away to allow them time to adapt; and
- excepting for emergencies, giving at least 24 hours' notice before night work. Consider providing a longer period of notice so that **employees** have time to adjust their activities.

***On call and call back work***

In considering potential control measures for on call and call back work, refer to those recommended in other parts of this section such as:

- designing shifts and rosters to allow for good quality sleep and enough recovery time. Consider the opportunities for sleep and recovery in instances where staff are required to work on call after a normal shift or on days off; and
- instructing **employees** on what they are to do while on call to ensure they are fit for work, if needed (e.g. no alcohol).

***Emergencies and unexpected events***

Planning for emergencies and unexpected events, for example staff shortages, plant breakdowns and situations where staff are called back to work, where applicable, should address control measures to prevent fatigue and other risks outlined in this code, such as those listed above for on call and call back work.

***Breaks during work period***

If work is organised so there are long work periods without breaks, then the risks of **employees** developing fatigue, as well as muscle and soft tissue injuries, may increase if it is uncomfortable or repetitive.

Potential control measures to implement include:

- ensuring there are adequate and regular breaks so that **employees** can rest, eat and rehydrate; and

- providing some flexibility and ensuring **employees** to take breaks as required.

See also the suggested control measures for work tasks demands and job design on the following page.

### ***Breaks between work periods***

Where the recovery time between work periods is insufficient, fatigue may arise. See Appendix 2 for information on fatigue.

Potential control measures to implement include:

- ensuring breaks allow adequate time for recovery;
- with night shifts, allowing a rest break of at least 24 hours after each set of shifts;
- considering whether the recovery time between shifts or schedules may be affected by **employees** working overtime in addition to normal shifts;
- allowing consecutive days off, including some weekends;
- where practicable, allowing flexibility for **employees** to change shifts; and
- where relevant, developing an education and awareness program on the impact of second shifts or jobs on performance at work and health and safety.

### ***Seasonal work***

Where long hours are necessary during seasonal work, in addition to the control measures listed above for working hours, shift work and rosters and night work, potential control measures to implement include:

- developing a working hours policy (see suggestions for policies);
- developing procedures for long daily work hours and work-related travel, for example requiring adequate breaks and additional breaks if total hours exceed a set limit;
- providing on site accommodation, meals and other facilities so **employees** do not have to drive after extended hours;
- avoiding situations where **employees** drive when tired or fatigued due to extended working hours; and
- considering requirements for relief, on call or additional staff.

### ***Work task demands***

As well as the control measures suggested for working hours, shiftwork and rosters, potential control measures to implement include:

- minimising extended work periods of uncomfortable, repetitive or demanding mental or physical work without breaks to reduce the risks of muscle and soft tissue injuries and other health effects — see also the suggested control measures for breaks during work period;
- where practicable, redesigning jobs to include variation of physical and/or mental tasks; and
- arranging contingency plans for potentially unavoidable situations where there is a risk workers could become fatigued while carrying out work activities with considerable risk to health and safety.

### **Job design to address the risks of muscle and soft tissue injuries**

Job design should include variety and flexibility, where possible, to address health and safety risks of muscle and soft tissue injury, as well as fatigue. When reviewing jobs, consider:

- the required output and/or the urgency of deadlines; and
- the duration and limited variation of tasks.

### ***Fatigue critical tasks***

Fatigue critical tasks are tasks where there are potentially increased risks of incidents, injury or harm should **employees** become fatigued. For example, during operation of certain plant and/or making critical decisions where there may be significant consequences if errors occur.

Should fatigue critical tasks be identified, potential control measures to implement include:

- scheduling critical work for certain hours when the risks may be lower, for example, where practicable, scheduling potentially higher risk work for times when people are normally awake to align with the body clock;
- scheduling lower risk work during periods where **employees** may be potentially fatigued, for example between 2.00 am and 6.00 am when people are normally asleep;
- in some situations, controlling the level of risk by avoiding the need for people to work alone;
- ensuring there are adequate breaks between shifts/schedules so that staff are not potentially at risk of becoming too affected by acute sleep deprivation or fatigue to carry out work in a safe manner;
- increasing the level of supervision to minimise the risk of short cuts being taken that increase the risk of accidents and injuries.

### ***Exposure to hazards***

Potential exposure to hazards, such as hazardous substances, noise, extreme temperature and vibration, are further considerations with the working hours arrangements.

Potential control measures to implement include:

- providing adequate information, instruction, training and supervision to ensure exposure is minimised;
- obtaining advice from a competent person who can advise on the specific risks, appropriate work period and control measures;
- for potential exposure to **hazardous substances** and **atmospheric contaminants** such as dusts:
  - consulting the national exposure standards for each **hazardous substance** used to assess risk and determining an appropriate work period. To access the national exposure standards, see the internet database, Hazardous Substances Information System (HSIS), available at [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au).

There will need to be adjustments to the work period if an **employee** is working long hours, as exposure standards are determined on an eight hour day. For extended hours work involving hazardous substances, advice should be sought from a competent person on adjusting exposure levels.

- arranging for a competent person to design and install adequate ventilation;
- where appropriate, suppressing **atmospheric contaminants** with, for example dust suppression and/or removal of **employees** from the hazardous area; and
- where there is potential unsafe exposure to **atmospheric contaminants**, implementing appropriate testing and monitoring by a competent person.
- for potential exposure to **noise hazards**:
  - ensure that exposure is of a short time and of a low level (see requirements in the OHSW Regulations); and
  - implement noise control and hearing protection measures as required by the OHSW Regulations.
- for potential exposure to **extreme temperature** control measures include:
  - where practicable, scheduling work for times when temperatures are moderate;
  - ensuring exposure time is minimised. This could include rotating workers' tasks, where possible;
  - provide a cool area where **employees** can take a rest break and rehydrate; and
  - providing adequate personal protective clothing and equipment and, where applicable, sunscreen complying with the relevant Australian Standard; and
- for potential exposure to **vibration hazards**:
  - ensuring exposure time is minimised. This could include rotating workers' tasks, where possible;
  - where practicable, redesign the job or substitute equipment to eliminate or reduce the risk of whole body and/or hand vibration; and
  - for hand vibration, requiring workers use anti-vibration protective gloves.

### **Information**

Types of information that could be provided include:

- the health, safety and implications of working hours i.e. exposure to hazards, fatigue and work-life balance.
- How to recognise the symptoms of fatigue in themselves and others;
- the identified hazards and risks from the working hours arrangements in the **workplace** and the measures to control them;
- **workplace** fatigue and alertness management strategies tailored for the type of work and **workplace**;
- a working hours policy statement (see the suggestions for policies);
- beneficial sleep and health management advice, for example information on good sleeping environments — see information for **employees** in Appendix 3;

- information on consultative mechanisms for raising health and safety matters at the **workplace** and the joint responsibilities for health and safety management; and
- other relevant **workplace** policies, such as a 'fitness for work' policy (see the suggestions for policies).

#### **Consider a range of formats and forums to provide information**

For example, incorporate fatigue, sleep management and other beneficial health management information in:

- staff newsletters;
- **workplace** functions involving **employees'** families; and
- any health, fitness or 'wellness' programs.

### ***Training***

The OHSW Act requires training on safe work procedures to be provided.

Potential control measures to implement include:

- training managers and supervisors to:
  - understand the unique demands of work schedules;
  - recognise fatigue indicators; and
  - understand the health and safety hazards and risks arising from the working hours arrangements and their control measures;
- training **employees** on:
  - hazards and risks that may be associated with the working hours arrangements and their control measures. For example, where applicable, providing training on fatigue: its causes; symptoms, potential effects on health, safety and welfare and its measures to control it, including fatigue management skills, such as alertness strategies, and safe practices for work involving hazardous substances, manual handling and plant use;
  - their responsibilities for health and safety at the **workplace**;
  - relevant health and lifestyle choices including, for example, beneficial sleep and health management and fatigue indicators;
  - general job skills to promote understanding of the demands of the job; and
  - other relevant information, such as policies on working hours, fatigue management, drugs and alcohol and 'fitness for work' (see the following suggestions for policies);
- providing further training to refresh understanding of fatigue, health management and the working hours control measures, when new methods, tasks, equipment, hazards, operations, procedures or schedules are introduced or the environment changes; and
- where appropriate, training managers and supervisors on the preparation of suitable rosters.

## ***Supervision***

Employers must provide an appropriate level of supervision relevant to the assessed level of risk.

Potential control measures to implement include:

- monitoring work to ensure safe work practices are followed;
- ensuring **employees** new to the job or unfamiliar with the work environment are adequately supervised;
- where appropriate, training supervisors and managers on fatigue indicators and the control measures to implement to eliminate or reduce the risks;
- where appropriate and practicable, ensuring **employees** do not work alone; and
- for those working alone, providing a means of communication and a procedure for regular contact.

## ***Individual and lifestyle factors***

To address the effect non-work factors may have on fatigue levels and other risks, potential control measures to implement include:

- where appropriate, implementing health and fitness promotional initiatives, such as providing information on beneficial sleep and health management, to both **employees** and their families — see information for **employees** in Appendix 3;
- developing and implementing, in consultation with **employees** and health and safety representatives (if any), the following policies and program:
  - a drugs and alcohol policy;
  - a 'fitness for work' policy;
  - for extended hours or night work, strategies to enhance **employees'** alertness; and
  - self-assessment checklists;
- providing training on the above policies and programs;
- providing adequate supervision for **employees** starting night shifts or extended hours for the first time to ensure they will not be exposed to increased risk of injury or harm; and
- assessing the work and the work environment in the context of individual factors and health and safety issues that may arise from the working hours arrangements.

## ***Policies***

Consistent with Section 20 of the Act a policy and procedure should be developed regarding the arrangements, practices and procedures that have been put in place at the **workplace** to minimise any risk to the health, safety and welfare of **employees** arising from working hours. Such a document may include:

- a statement that demonstrates a commitment to reasonable working hours, taking into consideration specific **workplace** circumstances. For possible issues to address in it, see control measures for working hours suggested at the beginning of this section;

- information on the roles and responsibilities of supervisors and **employees** in relation to fatigue prevention and management;
- information on any fatigue management plan/strategy that addresses specific **workplace** issues associated with different tasks, jobs and operations.
- procedures for **employees** to alert supervisors of potential hazard factors;
- procedures for the management of fatigued **employees**;
- information on any other related policies e.g. drugs and alcohol, fitness for work; working in heat; and work-life balance.
- Information on any **employee** assistance and/or health and fitness programs.
- A fatigue management plan/strategy could include:
  - job, task and operations-specific fatigue management plans;
  - fatigue management guidelines, based on current knowledge, with information and training tailored for the **workplace** and range of occupations and tasks;
  - self assessment checklists; and
  - a means for checking information and training is provided to **employees** on fatigue management and other control measures;

### ***Working environment***

Provision of safe and suitable **workplace** conditions helps to reduce fatigue, and may assist with reducing exposure to other hazards. This involves designing the **workplace** to ensure there is adequate lighting, ventilation and the correct equipment to perform tasks.

### ***Security issues***

Potential exposure to threatening behaviours is a consideration where the working hours arrangements require staff to work non-standard business hours or alone.

Measures must be implemented to ensure the protection and security of workers against physical violence.

### ***Consultation***

To address health and safety risks associated with working hours, consult HSRs and OHS Committees (where they exist) on issues such as:

- work schedules, rosters and shift design;
- working hours and possible effects;
- the control measures to be implemented;
- procedures for notifying supervisors of any hazard factors; and
- changes in hours to be worked and shifts and rosters.

### ***Incident management***

Consideration could be given to investigating work-related fatigue, acute sleep loss and cumulative sleep debt (over past months) as contributors to incidents.

See Appendix 3 for information on fatigue indicators.

***Work-related travel***

As relevant, consideration could be given to the risks of drivers driving when tired or fatigued due to extended working hours.

Potential control measures include:

- when taking into account hours that will be worked, considering the travel time;
- developing procedures for long daily work hours and work-related travel, where there may be increased risk of injury or harm, for example requiring adequate and regular breaks when total hours exceed a set limit;
- in certain circumstances, where there is the potential risk that drivers may be affected by fatigue, providing alternative transport arrangements; and
- considering alternative options to face-to-face meetings, such as teleconferencing and connection via computer for shared presentations.

With other travel, consider avoiding situations where **employees** drive when tired or fatigued due to extended working hours.

***Monitoring and review of control measures***

Constantly monitor and review the working hours control measures to ensure they continue to prevent or control exposure to hazards or hazardous work practices.

In determining the frequency of the monitoring and review processes, consider:

- the level of risk — high-risk hazards need more frequent assessments;
- the type of work practice, schedule or plant involved;
- a regular review of the process for hazard identification, risk assessment and risk control to ensure the risks are effectively managed; and
- further review of control measures when methods, tasks, equipment, hazards, operations, procedures, rosters or schedules are introduced or the environment changes, or there is any indication risks are not being controlled.

## **Appendix 1 – Fatigue hazards identification checklist**

This checklist can be completed by a range of parties: employers, supervisors, OHS managers and officers, and health and safety representatives (HSRs) and committees. If you answer yes to **any** of the questions in the shaded areas go to Part 3: “The Risk Management process”, Section 3.2.3 the *Risk Management Matrix*. If yes is ticked three times or more for questions in the non-shaded areas, go to Part 3: “The Risk Management process”, Section 3.2.3 the *Risk Management Matrix*.

| <b>WORK-RELATED FACTORS THAT CAN CONTRIBUTE TO FATIGUE</b>                                                                                                                                                                                                                                                 |                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Mental and physical work demands</b>                                                                                                                                                                                                                                                                    |                                     |
| Does anyone undertake work that is physically demanding?<br>For example, tasks that are especially tiring and/or repetitive such as: teaching, bricklaying, typing, process work, moving bags of cement, childcare, felling trees.                                                                         | <input type="checkbox"/> <b>YES</b> |
| Does anyone undertake work that is mentally demanding?<br>For example, work that requires long periods of vigilance; work that requires continuous concentration and minimal stimulation; work performed under pressure; work to tight deadlines; emergency callouts; interacting/dealing with the public. | <input type="checkbox"/> <b>YES</b> |
| <b>Work scheduling and planning</b>                                                                                                                                                                                                                                                                        |                                     |
| Does anyone consistently work or travel between midnight and 6am?                                                                                                                                                                                                                                          | <input type="checkbox"/> <b>YES</b> |
| Does the work schedule prevent full-time workers having at least one day off per week?                                                                                                                                                                                                                     | <input type="checkbox"/> <b>YES</b> |
| Does the work schedule make it difficult for workers to consistently have at least two consecutive <u>nights</u> sleep per week?                                                                                                                                                                           | <input type="checkbox"/> <b>YES</b> |
| Do work practices include on-call work, call-backs and/or sleepovers?                                                                                                                                                                                                                                      | <input type="checkbox"/> <b>YES</b> |
| Do planned work schedules vary from those actually worked?                                                                                                                                                                                                                                                 | <input type="checkbox"/> <b>YES</b> |
| Does the work schedule involve rotating shifts?                                                                                                                                                                                                                                                            | <input type="checkbox"/> <b>YES</b> |
| Does anyone travel more than one hour to their job?                                                                                                                                                                                                                                                        | <input type="checkbox"/> <b>YES</b> |
| <b>Working time</b>                                                                                                                                                                                                                                                                                        |                                     |
| Does anyone regularly work in excess of 12 hours a day including overtime?                                                                                                                                                                                                                                 | <input type="checkbox"/> <b>YES</b> |
| Is the break between shifts less than 10 hours?<br>For example, split shifts, quick shift changeovers.                                                                                                                                                                                                     | <input type="checkbox"/> <b>YES</b> |
| Is work performed at low body clock times (between 2am & 6am)?                                                                                                                                                                                                                                             | <input type="checkbox"/> <b>YES</b> |
| <b>Environmental conditions</b>                                                                                                                                                                                                                                                                            |                                     |
| Does anyone perform work in harsh or uncomfortable (e.g. hot, humid or cold) conditions?                                                                                                                                                                                                                   | <input type="checkbox"/> <b>YES</b> |
| Does anyone work with plant or machinery that vibrates?                                                                                                                                                                                                                                                    | <input type="checkbox"/> <b>YES</b> |
| Is anyone exposed to hazardous substances?                                                                                                                                                                                                                                                                 | <input type="checkbox"/> <b>YES</b> |
| Is anyone consistently exposed to loud noise?                                                                                                                                                                                                                                                              | <input type="checkbox"/> <b>YES</b> |

## Appendix 2: Fatigue (Informative)

Fatigue can result from long hours or arduous work (mental or physical), little or poor sleep, and the time of day when work is performed. It can be influenced by health and emotional issues, or by several of these factors in combination. Fatigue can accumulate over a period of time.

'Fatigue' is a general term used to describe the feeling of being tired, drained or exhausted. Fatigue is accompanied by poor judgment, slower reactions to events, and decreased skills.

Work practices, such as long hours, prolonged night work, split shifts, irregular hours, early starts and/or those limiting quality sleep, may increase the risk of fatigue.

Repetitive movements, standing for long periods, frequent manual handling and monotony, when accompanied by long working hours, may also contribute to fatigue.

Work schedules that require people to be awake and active at night or early morning or working for extended periods cause disruptions to the body's natural rhythms (the body clock). This will affect the quality and quantity of sleep and lead to a build up of sleep debt and a drop in alertness and performance.

The risk of incidents may increase when **employees** are working at times when they would normally be asleep, particularly in the pre-dawn hours. There is also an increased risk of incidents during the mid-afternoon 'siesta hours'.

Where fatigue may affect a person's ability to work safely, it must be identified, assessed and controlled like other hazards at the **workplace**.

Importantly, fatigue impairs a person's judgement of their own fatigue. This means the effective management of fatigue should not be the responsibility of **employees** alone.

Controlling fatigue requires cooperation between employers and **employees**. Both employers and **employees** have a role to play in making sure any risks associated with it are minimised.

### ***The body clock***

Most people are day-orientated, designed to work in the daytime and sleep at night. The circadian rhythms (the body clock) are the body's natural rhythms that are repeated approximately every 24 hours. These rhythms regulate sleeping patterns, body temperature, hormone levels, digestion and many other functions.

### ***The need for sleep***

All people have an irresistible need to sleep, with the urge greatest during the night and early morning when most people would normally be asleep.

The most beneficial sleep is a good night's sleep taken in a single continuous period. The restorative effects are less if it is split between day and night time. However, people differ in the amount they need and their tolerance levels may also vary if they do not get enough.

Poor sleep, such as having a small amount of sleep over several days, leads to severe sleep debt and the irresistible urge to sleep.

**Sleep indicators** include:

- a drowsy feeling;
- blurred vision;
- difficulty keeping eyes open;
- head nodding;
- excessive yawning; and
- repeatedly drifting out of lane if driving.

Some people experience excessive sleepiness during the day, despite an apparently adequate length of sleep. This suggests the presence of a sleep-related disorder that may require medical attention.

**Fatigue indicators** include:

- not feeling refreshed after sleep;
- a greater tendency to fall asleep while at work;
- more frequent naps during leisure hours;
- feelings of sleepiness;
- extended sleep during days off; and
- increased errors and loss of concentration at work.

Using the working environment, for example radio, air-conditioning or bright lights, to stimulate alertness has limited effect and will not overcome tiredness. Substances, such as stimulant drugs, will provide a boost but do not reduce the need for sleep. Sleep that is delayed will need to be made up later.

Working at night elevates the risk of fatigue because it combines the daily low point of alertness with the increased likelihood of reduced amounts of sleep.

There are also difficulties adjusting the body clock with night work. No matter how much sleep a person has beforehand, he or she will feel sleepy between one and six a.m.

Regular night workers can make some adjustments to their body clock to enable them to sleep during the day. However, this is rarely a complete readjustment and, on average, night workers get around two hours less daily sleep than day workers.

Night workers' sleep is also more prone to disturbance. When they go back to being 'day people' on their days off, their body clocks reset to the normal day-night schedule. With both the quality and duration of sleep being affected, sleep deficit and fatigue can accumulate.

## Appendix 3: Information for employees

### (Informative)

Everybody at the **workplace** has responsibilities for health and safety. **Employees** have responsibilities to take reasonable care to ensure their own health and safety, and that of others affected by their work.

Individual factors and lifestyle choices may result in insufficient sleep and can adversely impact on an individual's work performance the next day.

**Employees** can help address fatigue at the **workplace** by:

- planning social activities so adequate time for sleep is scheduled;
- being aware of its signs — see information on fatigue indicators earlier in this appendice;
- helping to identify the problem at the **workplace**;
- cooperating with employers and being supportive of **employees** trying to control it;
- seeking confidential help with emotional and family problems that may be contributing to it;
- employing simple strategies (see below) that can help a fatigued person be refreshed; and
- seeking professional advice if health matters, such as a poor diet, recent illness, injury or sleep disorders, may be contributing to it.

In considering general fitness for work, non-work factors, for example lifestyle and individual factors, may play a role.

### ***Tips for sleeping***

Work outside of normal hours, generally means the body's circadian rhythms will cause:

- more trouble getting sufficient sleep; and
- poorer quality sleep.

It is important for shift workers to get as close to the average amount of required daily sleep (or rest in bed) as possible. The quality of day sleep will not be the same as night sleep. It is lighter than night sleep, and is more likely to be disturbed by noise. This is why planning is required to ensure conditions for day sleep are as favourable as possible.

The following tips may help avoid unwanted disruptions while trying to sleep during the day:

- blinds or curtains with backing will reduce the light level in bedrooms during the day — consider using heavy curtains and sound insulation on doors and windows to also reduce noise levels;
- cool conditions can help in getting to sleep and staying asleep;
- inform relatives and friends of work schedules and sleep times to avoid unwanted disruptions;

- use an answering machine or turn the phone down to help minimise disturbances;
- try ear plugs and an eye cover such as those supplied by airlines;
- develop ways of 'unwinding' after the afternoon or night shift, for example take a walk or watch some television;
- take a shower or relaxing bath before going to bed; and
- go through all of the normal rituals of going to bed the same as before a normal sleeping night.

### ***Tips for eating and drinking***

Food and drink consumed before going to bed can affect sleep quality. This is because the digestive system is controlled by circadian rhythms and has its own regular rhythm of activity and rest.

Digestion slows down at night irrespective of bodily activity. The timing of meals and the quality of foods eaten can affect sleep, and may lead to digestive complaints such as heartburn, constipation and indigestion. As a result, heavy or fatty food eaten at night is difficult to digest.

Shift workers should be aware of the following tips.

When to eat and drink:

- wherever possible, keep to daytime eating patterns;
- when working a night shift, try having two meals at regular times and light meals in the middle of the night shift;
- consider having the largest daily meal during the day;
- do not have a big meal or drink too much liquid before sleeping; and
- eat a meal before 1.00am as the effects of digesting a meal can decrease alertness in the second part of the night shift. It is better to eat before becoming fatigued at night.

What to eat and drink:

- alcohol lowers the quality of sleep and overloads the bladder. It is recommended that alcohol is not consumed in the last few hours prior to sleeping;
- avoid drinks which contain caffeine in the last few hours prior to sleeping; and
- eat light, healthy food that is easy to digest.

### ***Tips for health and physical fitness***

As health and fitness may be contributing factors to fatigue, it is important to maintain a good level of physical fitness.