**Review of crane licensing under the model Work Health** **and Safety laws**

**Discussion paper**

May 2022

1. Introduction

Ministers with responsibility for work health and safety (WHS ministers) agreed to Safe Work Australia reviewing the high risk work (HRW) licence framework for cranes in the model Work Health and Safety (WHS) laws (crane HRW licensing) to ensure it remains relevant to contemporary work practices and equipment (the review).

The first stage of the review is this discussion paper. This paper outlines how the consultation process for the review will be undertaken and provides an overview of the issues that will be examined. The paper also seeks to gather evidence of any problems with crane HRW licensing and if relevant, explore potential solutions to those problems. The review is particularly focused on any perceived issues with the model WHS laws that may have a significant impact on workers and workplaces that use cranes, including concerns related to crane definitions, licence classes, and descriptions of HRW using cranes and how these might be best addressed.

All stakeholders with an interest in crane HRW licensing are invited to have their say. Information on how to do this is provided in Part 2.

## Consultation process

Public consultation on this consultation paper will be held in May 2022.

Information and evidence gathered will be used to identify any areas that need improvement, and the findings will be reported to Safe Work Australia Members.

## About the model WHS laws

The model WHS laws are designed to protect all workers in Australia, wherever they work and whatever work they do. The laws were developed to provide a national, harmonised framework for WHS regulation in Australia.

The Commonwealth, the Australian Capital Territory, New South Wales, the Northern Territory, Queensland, South Australia, Tasmania and Western Australia have implemented the model WHS laws. Victoria has its own occupational health and safety laws.

### High risk work licensing

Under the model WHS Regulations, certain work activities are deemed to be ‘high risk work’ and require a licence to perform them. Schedule 3 to the model WHS Regulations sets out the types of work that require a licence, including a description of the associated work activities. Schedule 4 to the model WHS Regulations sets out the qualifications required for each licence.

There are 11 types of crane that require a HRW licence to operate. A crane HRW licence (crane licence) allows a person to use a crane in a particular licence class anywhere in Australia, including Victoria, despite this state not implementing the model WHS laws.

Further information on HRW licensing is provided in Appendix B.

### Vocational Education and Training

Schedule 4 to the model WHS Regulations specifies the vocational education and training (VET) course required for each HRW licence class. The training and assessment a person must undertake to obtain a HRW licence is set out in the relevant unit of competency (UoC) for the VET course.

The review is focused on any perceived concerns with the model WHS laws and whether improvements to the framework could be made. However, it is important to remember that UoCs are developed and maintained by the VET sector and operate separately and independently to the model WHS laws. Concerns with development or delivery of UoCs are not within the scope of this review and should be directed to the VET sector.

The national VET regulator is the Australian Skills Quality Authority (ASQA). For more information visit at [www.asqa.gov.au](http://www.asqa.gov.au/about/contact-us) or email at enquiries@asqa.gov.au.

1. How to provide feedback

Safe Work Australia welcomes submissions from all stakeholders with an interest in the HRW licensing framework. We encourage businesses operating, supplying or manufacturing cranes, unions, workers, regulators, industry bodies, government departments and members of the public to provide their views. We also encourage submissions from those involved in other HRW related to crane operations, particularly dogging and rigging work. Please support your view with evidence or data wherever possible.

You may answer some or all of the questions posed in this paper or raise other matters not explicitly addressed, as long as it is relevant to crane licensing. Generally, matters raised that fall outside of the scope of the review will not be considered.

## Making a submission

Submissions are sought by **11:59 pm (AEST) on Thursday 16 June 2022**. Submissions can be made using Safe Work Australia’s [online Engage consultation platform](https://engage.swa.gov.au/).

Demographic data will be collected as part of this process through your registration with Engage and in the electronic submission form. Consultation questions are provided in a template available on the Engage platform to assist with drafting a response.

You can decide how your submission is published on the Safe Work Australia website by choosing from the following options:

* submission published with your name or your organisation’s name
* submission published anonymously, or
* submission not published.

For further information on the publication of submissions on Engage, please refer to the [Safe Work Australia Privacy Policy](https://www.safeworkaustralia.gov.au/privacy) and the [Engagement HQ privacy policy](https://engage.swa.gov.au/privacy).

If you are unable to lodge your submission using Engage, please email HighRiskWork@swa.gov.au.

1. Data

## Crane use in Australia

## This part provides an overview of what we know about crane use in Australia, including the number of crane licences and crane-related fatalities, compensation claims, and incidents.

We have limited data on national crane usage or on crane-related incidents and their causes, which makes it difficult to determine the overall risk profile of crane operations nationally. We also have limited data about how the risks of crane use are controlled in practice and how effective these controls are.

A key focus of the review is collecting evidence related to the risk of crane use to support any recommendations for change to crane HRW licensing. We acknowledge that availability of quantitative data may be limited, and so qualitative data/information can also be provided.

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| **Discussion questions – data and evidence** |
| 1. Can you provide additional data or information on the:
* extent and nature of crane use in Australia
* frequency and nature of crane-related incidents, or
* impact of crane licensing and other regulatory controls on managing risks?
1. In your view, what are the gaps in or limitations with crane-related data or evidence? What impact do these limitations have on determining, at a national level, the overall risk of using cranes in workplaces (e.g., underestimation of injuries)?
 |

## High risk work licences

The exact number of businesses and workers operating cranes in Australia is not known.

The latest national data available shows that, as of April 2022, there were more than 220,000 active crane licences across Australia. **Table 1** on the following page shows a breakdown of active crane licences in Australia by jurisdiction.

Please note the figures in the table likely underestimate the number of crane licences held nationally, as they only include licences issued by WHS regulators. A number of other agencies, such as mining and energy authorities in some jurisdictions, have a role in issuing crane licences and are not included in the table.

## Fatalities and serious claims involving cranes

Safe Work Australia holds two national data sets that contain information that can help build a national picture of crane-related incidents:

* the Traumatic Injury Fatality database (TIF), which records information on all work‑related traumatic injury fatalities in Australia, and
* the National Data Set for Compensation-based Statistics (NDS), which contains information on all approved workers’ compensation claims made in Australia.

Combined, these data sets provide valuable information about the extent of crane-related injuries and fatalities in Australia, with some limitations. In particular, the NDS only records accepted workers’ compensation claims. Incidents that do not result in a claim (e.g. because a worker is not eligible for workers’ compensation or decides not to make a claim when injured) are excluded. The NDS may therefore underestimate the number of serious injuries and dangerous incidents involving cranes in Australian workplaces.

Reporting crane incidents from both the TIF and the NDS is also limited by the extent to which information about can be disaggregated[[1]](#footnote-2). In particular, only broad crane classes can be reliably reported rather than specific crane types that align with HRW licences.

**Table 1: Active crane licences in Australia by jurisdiction and licence class, April 2022**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** |  **Tower crane**  |  **Self-erecting tower crane**  |  **Derrick crane**  |  **Portal boom crane**  |  **Bridge and gantry crane** |  **Vehicle loading crane**  |  **Non-slewing mobile crane**  |  **Slewing mobile crane— with a capacity up to 20 tonnes** |  **Slewing mobile crane— with a capacity up to 60 tonnes** | **Slewing mobile crane— with a capacity up to 100 tonnes** |  **Slewing mobile crane— with a capacity over 100 tonnes** |  **Total**  |
| **New South Wales** | 3,072 | 544 | 171 | 183 | 6,595 | 5,845 | 7,036 | 7,487 | 13,302 | 1,281 | 2,931 | **48,447** |
| **Victoria** | 1,873 | 84 | 156 | 315 | 4,708 | 6,687 | 11,315 | 5,196 | 4,552 | 1,315 | 1,480 | **37,681** |
| **Queensland** | 1,651 | 515 | 297 | 297 | 4,467 | 10,156 | 16,546 | 4,122 | 6,773 | 1,594 | 3,365 | **49,783** |
| **Western Australia** | 2,528 | 126 | 292 | 309 | 2,214 | 19,311 | 24,136 | 5,107 | 7,507 | 2,550 | 4,087 | **68,167** |
| **South Australia** | 91 | 13 | 9 | 13 | 2,115 | 1,825 | 3,261 | 702 | 1,409 | 289 | 442 | **10,169** |
| **Northern Territory** | 72 | - | - | - | 302 | 795 | 1,225 | 219 | 557 | 162 | 267 | **3,599** |
| **Tasmania** | 30 | - | - | - | 189 | 362 | 337 | 89 | 100 | 33 | 52 | **1,192** |
| **Australian Capital Territory** | 129 | 8 | 7 | 7 | 157 | 532 | 366 | 226 | 130 | 56 | 97 | **1,715** |
| **Commonwealth** | 14 | 1 | - | - | - | - | - | - | - | 286 | - | **301** |
| **Total** | **9,460** | **1,291** | **932** | **1,124** | **20,747** | **45,513** | **64,222** | **23,148** | **34,330** | **7,566** | **12,721** | **221,054** |

The TIF shows that between 2005 and 2020, there were a total of 53 worker fatalities where a crane was identified as being the principal cause[[2]](#footnote-3) for the incident. Of these fatalities, the highest number were in the construction industry (28 per cent, 15 fatalities) and the manufacturing industry (26 per cent, 14 fatalities).

The two most common causes for injury fatality were by being hit by falling objects (40 per cent, 21 fatalities) and being hit by moving objects (17 per cent, 9 fatalities).

NDS data shows that, between 2005–6 and 2019–20p, the number of serious claims for incidents involving cranes decreased (see **Figure 1**).

**Figure 1: Safe Work Australia – Number of serious claims involving cranes – 2005-06 to 2019-20p**

NDS data also shows during this period that the industries with the highest number of serious workers’ compensation claims for crane-related incidents were manufacturing and construction and the most common cause of crane-related injuries was ‘muscular stress’ which accounted for 832 claims (33 per cent)[[3]](#footnote-4).

## Incidents involving cranes

Some jurisdictions collect information about crane-related incidents that are not included in the national data sets.

Data from Victoria[[4]](#footnote-5) and NSW[[5]](#footnote-6) show most crane incidents involve a mobile crane or a tower crane.

The high number of incidents for mobile cranes aligns with their popularity; there were over 131,000 mobile crane licence holders across Australia in 2015, more than all the other crane licences put together. Mobile cranes are used frequently, across many types of workplaces, and in areas where they interact with workers and the public.

On the other hand, there were less than 7,000 tower crane licences issued nationally in 2015. This suggests there may be a disproportionately high number of tower crane-related incidents. Recent data from NSW shows the number of incidents resulting in serious injury and involving tower cranes more than tripled from 2015–2018.

In NSW between 2012 and 2019, the industries with the highest proportion of crane incidents were construction, manufacturing, and transport/storage, and being 'Hit by load' was the most common cause of crane incidents (42 per cent).

In NSW between 2012 and 2019, human error was identified as the immediate cause of 82 per cent of all crane-related incidents[[6]](#footnote-7) where an immediate cause was identified. Faulty equipment was the second most frequent immediate cause, accounting for 12 per cent of all crane-related incidents.

This suggests worker competency is a major factor in the vast majority of crane-related incidents. Finding ways to improve worker competency will likely be critical to improving crane safety and reducing the number of crane-related incidents.

1. Licensing

Crane licensing must reflect contemporary work practices and equipment to remain effective at protecting the health and safety of workers. If licence classes do not reflect current technology and work environment, then the training a crane operator receives may not provide the skills required to keep them and others at the workplace safe. Licence classes should also remain relevant to the workplaces and industries that use cranes most.

Schedule 3 to the model WHS Regulations sets out the types of cranes that require a licence and the activities a licensed operator can perform. Schedule 4 to the model WHS Regulations sets out the specific qualifications required.

Licences are only one of a range of controls used to ensure the safe use of cranes in the workplace. Other important controls include, for example, maintenance of the crane and other plant and equipment, isolation of other hazards from the work area, and the provision of training, instruction, and supervision to both the crane operator and other workers. When deciding if changes to licensing are needed, it is also important to consider how these changes will interact with other controls.

This part seeks general feedback on how the current crane licence system is operating and potential improvements that could be made to improve safety outcomes in the workplace. It also seeks input on a number of specific issues, including:

* slewing mobile crane licence classes
* cranes not covered by the current licensing scheme
* encompassment of mobile crane licences
* training of crane operators in dogging work
* rigging work involving cranes
* HRW licence requirements to operate a bridge or gantry crane
* the increase of remotely controlled tower cranes, and
* telehandler licensing.

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| **Discussion questions – Licensing (general issues)** |
| 1. Is the licensing framework under Part 4.5 of the model WHS Regulations fit for purpose now and will it remain fit for purpose with changing work practices, equipment, and environments? Why/why not?
2. How well do the crane licence classes and descriptions of HRW in Schedule 3 to the model WHS Regulations (and the relevant definitions in Regulation 5) reflect contemporary work practices and equipment? Why?
3. How well do the qualification requirements in Schedule 4 to the model WHS Regulations ensure crane operators can perform their work safely? Why?
4. What risks to safety, if any, are not being managed by the current crane licensing requirements, or are already managed adequately by other controls?
5. Are some issues confined to particular industry sectors, crane classes or geographical areas (e.g., regional and urban areas)?
6. Which crane licence issues are most important to you? Why?
7. How much of an impact have these issues had—or will they have—on you, your workplace, and your work?
8. What could we do to make crane licensing work better? How would that ensure the health and safety of workers and others at the workplace?

If available, please provide evidence of any problems with crane licensing, and how this impacts WHS (e.g., injuries, fatalities, near-misses).  |

## Slewing mobile crane licence classes

In [its submission](https://engage.swa.gov.au/32134/widgets/190877/documents/93749) to the [2018 review of the model WHS laws](https://www.safeworkaustralia.gov.au/law-and-regulation/model-whs-laws/review-model-whs-laws), the Crane Industry Council of Australia (CICA) raised concerns that the training and assessment required to obtain slewing mobile crane HRW licences do not reflect the capabilities of modern cranes and that the types of HRW licence available are overly focused on differences in load capacity.

In Schedule 3 to the model WHS Regulations, licence classes for the use of slewing mobile cranes include:

* Slewing mobile crane – with a capacity over 100 tonnes (Class CO)
* Slewing mobile crane – with a capacity up to 100 tonnes (Class C1)
* Slewing mobile crane – with a capacity up to 60 tonnes (Class C6)
* Slewing mobile crane – with a capacity up to 20 tonnes (Class C2).

CICA also raised similar concerns with other HRW related to crane operation, particularly dogging and rigging. As an example, CICA says a person must hold an intermediate rigging licence to change the crane configuration when changing the hook block. CICA suggests this was only necessary when changing the crane configuration to add lattice sections to a crane to increase its boom length. CICA suggests this is no longer needed because cranes now have hydraulic extendable booms.

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| **Discussion questions – slewing mobile cranes** |
| 1. How well do the slewing mobile crane licence classes reflect the capabilities of current cranes and how they are used? Why?
2. What are the risks to safety resulting from the current licensing of slewing mobile cranes?
	1. What changes to the model WHS Regulations could be made to manage these risks? How would this ensure the health and safety of workers and others at the workplace?
	2. Are there any other ways these risks could be managed?
3. How much of an impact has this had on you, your workplace, or your work?
4. How will this change as technology, work practices, and environments evolve?

If available, please provide evidence of any problems with slewing mobile crane licensing, and how this impacts WHS (e.g., injuries, fatalities, near-misses). |

## Cranes not covered by the current licensing scheme

## The model WHS Regulations specify which cranes require a licence. This also has the effect of excluding some cranes from licence requirements.

## These include, for example:

* bridge and gantry cranes without a permanent cabin or control station; or remote controlled and having 3 or less powered operations
* vehicle loading cranes with a capacity of less than 10 metre tonnes
* non-slewing mobile cranes with a capacity of less than 3 tonnes.

Despite the lack of a licensing requirement, operating these cranes still involves WHS risks, which in some cases may be significant. The exclusion of these crane classes from the licensing system may also incentivise their use.

There may also be circumstances where uncertainty exists about whether a HRW licence is required for a particular crane (such as for pillar cranes or articulated mobile cranes when driven on the road).

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| Discussion questions - cranes not covered by the current licensing scheme |
| 1. What are the common WHS issues associated with using cranes that do not require a HRW licence?
2. How much of an impact have these issues had—or will they have—on you, your workplace, and your work? Does this create safety risks and, if so, what are they?
3. Should the cranes listed above (or any other cranes not included in the model WHS Regulations) require a licence to operate? How would that ensure the health and safety of workers and others at the workplace?
4. What other approaches could be taken besides requiring a licence, and how would those approaches ensure the health and safety of operators and others at the workplace?

If available, please provide evidence of WHS risks arising from the operation of cranes that do not require a licence, and their impacts (e.g., injuries, fatalities, near-misses). |

## Encompassment of mobile crane licences

Safe Work Australia is aware of concerns that the encompassment of mobile crane licences may be permitting licence holders to perform high risk mobile crane operations without undertaking the necessary training and assessment to ensure competency.

Under the model WHS Regulations, mobile crane licences follow a hierarchy and are ‘encompassed’, so the holder of a ‘higher’ level licence may also operate all other cranes lower down the hierarchy. Encompassment allows the holder of any slewing mobile crane licence (C2–CO; see above) to operate a non-slewing mobile crane (CN), a vehicle loading crane (CV) (excluding the application of load estimation and slinging techniques) and a reach stacker (RS).

For example, the holder of a CO mobile crane licence is also authorised to operate C1, C6, C2, CN, CV and RS. Whereas the holder of a C6 mobile crane licence may also operate cranes in the ‘lower’ classes of C2, CN, CV and RS; but cannot operate cranes in the ‘higher’ Classes C1 or CO.

Stakeholders are concerned that non-slewing mobile cranes, vehicle loading cranes, and reach stackers require unique competencies to use safely, but these competencies are not included in the training and assessment for any slewing mobile crane licence. These include:

* the unique set up and operation of non-slewing mobile cranes and vehicle loading cranes
* the use of an articulated non-slewing mobile crane, which may involve unique safety risks
* the application of load estimation and slinging techniques to move a load with a vehicle loading crane
* the use of higher-capacity non-slewing cranes on a lower-capacity slewing crane licence (for example, use of a 25 tonne non-slewing crane on a C2 licence), and
* the use of a spreader on a reach stacker and lifting, moving and travelling with a shipping container.

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| **Discussion questions – encompassment**  |
| 1. How well is the ‘encompassment’ of mobile crane licences working and why? What impact, if any, does this have on workplace safety?
2. What are the risks to safety resulting from the current crane licence ‘encompassment’?
	1. What changes to the model WHS Regulations could be made to manage these risks? How would this ensure the health and safety of workers and others at the workplace?
	2. Are there any other ways these risks could be managed?
3. How much of an impact has licence ‘encompassment’ had on you, your workplace, or your work?
4. How will this change as technology, work practices, and environments evolve?

If available, please provide evidence of any problems caused by ‘encompassment’, and how this impacts WHS (e.g., injuries, fatalities, near-misses). |

## Training of crane operators in dogging work

Many crane operations require some level of understanding of dogging work, including how to communicate with a dogger to safely move a load while it is out of full view of the crane operator, and the application of load estimation and slinging techniques to move loads. The extent to which a crane operator works directly with a dogger varies across crane types.

Under the model WHS Regulations, only a vehicle loading crane or bridge and gantry crane licensed operator is able to apply load estimation and slinging techniques to move a load. For other cranes and licence classes, a licensed dogger must perform this work.

This applies any time the load is out of view of a crane operator, regardless of whether the crane requires a HRW licence to operate or not.

Recently, the training packages for most crane HRW licences changed to include additional competencies related to dogging work. This was in response to concerns that some crane HRW licences did not include sufficient training or assessment related to dogging work. These changes have not removed the requirement that only a licensed dogger may perform dogging work.

Although the recent training package changes may address the most urgent concerns about ensuring crane licence training covers relevant elements of dogging work, questions remain about what level of dogging competency crane operators need, and how best to provide this in practice.

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| Discussion questions - Training of crane operators in dogging work  |
| 1. Noting that the training packages for most crane licences have recently changed to include competencies related to dogging, how well do the current arrangements for dogging of crane loads work and why? Are they improving or likely to improve safety outcomes?
2. What are the risks to safety resulting from the current training requirements for crane operators in relation to dogging competencies?
	1. What changes to the model WHS Regulations could be made to manage these risks? How would this ensure the health and safety of workers and others at the workplace?
	2. Are there any other ways these risks could be managed?
3. How much of an impact has this had on you, your workplace, or your work?
4. How will this change as technology, work practices, and environments evolve?

If available, please provide evidence of any WHS risks that are not covered by the current training requirements related to dogging, and their impacts (e.g., injuries, fatalities, near-misses). |

## Rigging work

Crane crews are often comprised of licensed crane operators, doggers, and riggers. Schedule 3 to the model WHS Regulations sets out three levels of high risk work licence for rigging work – basic, intermediate and advanced, and the classes of high risk rigging work that are within the scope of each licence.

Construction methodologies have modernised since the development of the model WHS laws and many historical activities have been displaced with modular builds to improve the safety environment on site.

While Schedule 3 activities for crane operations are under broad review, it may be beneficial to also consider whether the definition of rigging work as it relates to cranes, and the relevant activities listed for the three tiers of rigging licence are fit for purpose.

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| Discussion questions – Rigging licences |
| 1. How well do the rigging licence classes and definitions in the model WHS Regulations reflect the capabilities of current crane and rigging activities? Why?
2. How will this change as technology, work practices, and environments evolve?
3. How much of an impact has this had—or will this have—on you, your workplace, and your work? Does it create safety risks and, if so, what are they?
4. What could we do to make licensing for rigging work better? How could the model WHS Regulations be changed and how would that ensure the health and safety of workers and others at the workplace? Are there other ways?

If available, please provide evidence of any problems with rigging licences, and how this impacts WHS (e.g., injuries, fatalities, near-misses). |

## Telehandler licensing

Safe Work Australia is aware of concerns about the risks posed by operating telehandlers, for example, that workers and others at the workplace are less protected from the risks of using telehandlers compared to using similar powered mobile plant.

WHS authorities in all jurisdictions consider a number of telehandler operations to be HRW (e.g., use of a forks, jib, or work platform attachment). However, there is no national telehandler specific HRW licence under the model WHS laws. Instead, WHS authorities require workers performing these high risk telehandler operations to hold HRW licences for other powered mobile plant, such as an elevating work platform (EWP) licence for work platform attachments, or a non-slewing mobile crane licence to operate a non-slewing telehandler as a crane.

Similar to concerns with encompassment, these HRW licence classes may not be specifically designed to train and assess workers to use a telehandler safely. While similar to other high risk powered mobile plant, telehandlers can have different operational controls and unique features. Stakeholders have indicated that using a telehandler with a jib attachment is very different to operating a non-slewing crane, for example when travelling with suspended loads over uneven surfaces. Similarly – as with a forklift truck fitted with a personnel cage -- using a telehandler with a work platform can be very different to using an EWP. For example, all EWPs can be operated from the work platform but some telehandlers can only be controlled from the operator’s cabin.

Further, stakeholders have indicated most crane licence training and assessment is focused on construction work. This can be very different to the work telehandlers perform in other industries, such as agricultural work involving handling hay, shifting grain, fruit picking, or arboriculture. The qualifications for crane licences, outlined in Schedule 4 to the model WHS Regulations, are not industry‑specific, with content determined by the VET sector.

Stakeholders suggest this means the training to obtain HRW licences for other powered mobile plant is irrelevant for learning to use a telehandler safely and that the current licensing approach is permitting licence holders to perform high risk telehandler operations without building and verifying their competency.

Stakeholders suggest that this lack of telehandler-specific training in the required crane or EWP HRW licences may be leading some workers to not bother obtaining these licences or to use lower capacity telehandlers that don’t require a licence, which are less stable and may be more dangerous if used to carry loads above their rated capacity.

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| **Discussion questions – telehandlers** |
| 1. How well are the current jurisdictional arrangements for telehandlers working and why? Are they improving safety outcomes? Is a national approach needed?
2. What are the risks to safety resulting from the current arrangements for telehandlers?
	1. What changes to the model WHS Regulations could be made to manage these risks? How would this ensure the health and safety of workers and others at the workplace?
	2. Are there any other ways these risks could be managed?
3. How much of an impact has this had on you, your workplace, or your work?
4. How will this change as technology, work practices, and environments evolve?

If available, please provide evidence of the WHS risks arising from the use telehandlers, and their impacts (e.g., injuries, fatalities, near-misses).  |

1. Definitions

This part discusses a number of potential issues with how cranes and crane operations are defined in the model WHS Regulations, including the:

* definition of crane
* definition of tower crane
* definition of vehicle loading crane, and
* description of high risk work using a bridge or gantry crane.

These definitions are fundamental to the crane licensing framework and it is critical to ensure they are not having unintended consequences. There may also be other crane types not listed here which require changes to the definition within the model WHS laws.

## Definition of crane

Safe Work Australia is aware of concerns that the crane definition could apply to plant not typically considered a crane. In particular, the crane definition does not describe the load being raised, lowered, or moved horizontally as ‘freely suspended’. This may result in crane requirements, such crane HRW licensing and crane design and item registration, being applied to plant not intended to be considered a crane.

There is no definition or mention of ‘freely suspended load’ in the model WHS Regulations. Australian Standard AS 2549–1996 *Cranes (including hoists and winches)–Glossary of terms* defines a ‘freely suspended load’ as ‘*a load hanging free with no direct external force applied except by the hoist or load attachment’*.

Under regulation 5 of the model WHS Regulations, a crane is defined as an appliance intended for raising or lowering a load and moving it horizontally and includes the supporting structure of the crane and its foundations. The definition also lists items of plant that are specifically excluded from the definition.

Schedule 3 to the model WHS Regulations lists the cranes that require a HRW licence to use. Schedule 5 lists the crane items and crane designs that are required to be registered. Crane licensing and registration requirements would therefore only apply to plant that also meet the definitions of those cranes listed in these Schedules.

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| **Discussion questions – definition of crane / general issues with definitions** |
| 1. How well does the current definition of a ‘crane’ reflect the capabilities of current cranes and how they are used? Why?
2. How will this change as technology, work practices, and environments evolve?
3. How much of an impact has this had—or will this have—on you, your workplace, and your work? Does it create safety risks and, if so, what are they?
4. What changes could be made to improve the definition? How would this ensure the health and safety of workers and others at the workplace?
5. Are there other cranes for which the definitions in the model WHS laws cause issues or problems? If so, please provide details.

Wherever possible, please provide evidence of any WHS risks arising from the current definition, and their impacts (e.g., injuries, fatalities, near-misses). |

## Definition of a tower crane

Safe Work Australia is aware of concerns that the definition of a tower crane could apply to a pillar crane (also known as ‘post’ or ‘jib’ cranes). This may result in tower crane requirements being applied to a pillar crane, such as a tower crane HRW licence as well as tower crane design and item registration.

From the definitions for ‘crane’ and ‘tower crane’ in regulation 5 of the model WHS Regulations, a tower crane is defined as:

* an appliance intended for raising or lowering a load and moving it horizontally
* that has a boom, or a horizontal or luffing type jib mounted on a demountable or permanent tower structure, and
* includes the supporting structure (of the crane) and its foundations.

Under Schedule 3 to the model WHS Regulations, the use of a tower crane is considered HRW and requires a HRW licence. Schedule 5 to the model WHS Regulations also requires that tower cranes and the design of tower cranes be registered.

The model WHS Regulations do not define a ‘pillar crane’ or make any specific requirements related to pillar cranes. While the pillar section of a pillar crane could be considered a tower structure, a pillar crane has a simpler and less variable design and operation than a tower crane.

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| **Discussion questions – definition of a tower crane** |
| 1. How well does the current definition of a tower crane reflect the capabilities of current cranes and how they are used? Why?
2. How will this change as technology, work practices, and environments evolve?
3. How much of an impact has this had—or will this have—on you, your workplace, and your work? Does it create safety risks and, if so, what are they?
4. What changes could be made to improve the definition? How would this ensure the health and safety of workers and others at the workplace?

Wherever possible, please provide evidence of any WHS risks arising from the current definition, and their impacts (e.g., injuries, fatalities, near-misses).  |

## Definition of a vehicle loading crane

Safe Work Australia is aware of concerns that the definition of a vehicle loading crane does not reflect their use as a general purpose lifting crane at workplaces, particularly construction sites.

Under the model WHS Regulations, a vehicle loading crane means a crane mounted on a vehicle for the purpose of loading and unloading that vehicle. If a vehicle loading crane is used for a purpose other than loading and unloading the vehicle on which it is mounted, a slewing mobile crane HRW licence may be required to operate the vehicle loading crane for that purpose.

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| **Discussion questions – definition of a vehicle loading crane** |
| 1. How well does the current definition of a vehicle loading crane reflect the capabilities of current cranes and how they are used? Why?
2. How will this change as technology, work practices, and environments evolve?
3. How much of an impact has this had—or will this have—on you, your workplace, and your work? Does it create safety risks and, if so, what are they?
4. What changes could be made to improve the definition? How would this ensure the health and safety of workers and others at the workplace?

Wherever possible, please provide evidence of any WHS risks arising from the current definition, and their impacts (e.g., injuries, fatalities, near-misses). |

## Description of HRW using a bridge or gantry crane

Safe Work Australia is aware of concerns that the description of high risk work using a bridge or gantry crane is creating uncertainty about when a bridge and gantry crane HRW licence is required. In particular, some stakeholders are of the view that there is ambiguity as to what constitutes a ‘powered operation’ when operating the crane, as this term is important to determining whether a licence is required or not.

Under Schedule 3 to the model WHS Regulations, a HRW licence is required for the operation of a bridge or gantry crane that is:

1. controlled from a permanent cabin or control station on the crane, or
2. remotely controlled and having more than 3 powered operations.

The number of powered operations could affect the complexity of operating the crane —and therefore the level of risk—of operating a bridge or gantry crane.

The model WHS Regulations do not define or include examples of a ‘powered operation’. Some stakeholders have indicated this makes it unclear when a bridge and gantry crane HRW licence is required.

Safe Work Australia’s information sheet *High Risk Work Licensing for Bridge and Gantry Cranes* has advice that typical independent powered operations of bridge or gantry cranes include:

* traversing - the movement of the crab from one end of the bridge to the other
* travelling - the movement of the crane along its runway
* hoisting - raising and lowering are considered to be one powered operation, and
* rotating - powered rotation of the hook or attachment by the movement of the crane support structure.

There is a lack of agreement about what other operations should be considered ‘independent powered operations’ for licensing purposes. Operations that have been suggested include:

* rotation provided at the hook by the hook or a rotator attachment on the hook
* energising a magnetic lifting device
* energising a vacuum lifting device
* operating more than one hoist at the same time from the same remote control, and
* opening and closing a grab for hoisting and lowering a load.

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| **Discussion questions – definition of HRW using a bridge and gantry crane** |
| 1. How well does the current definition of HRW using a bridge and gantry crane reflect the capabilities of current cranes and how they are used? Why?
2. How will this change as technology, work practices, and environments evolve?
3. How much of an impact has this had—or will this have—on you, your workplace, and your work? Does it create safety risks and, if so, what are they?
4. What changes could be made to improve the definition? How would this ensure the health and safety of workers and others at the workplace?

Wherever possible, please provide evidence of any WHS risks arising from the current definition, and their impacts (e.g., injuries, fatalities, near-misses). |

1. Additional issues

This discussion paper does not cover all issues related to crane licensing under the model WHS laws. We welcome responses that identify additional issues that have not been covered in this paper.

Concerns with development or delivery of UoCs are not within the scope of this review and should be directed to the VET sector. The national VET regulator is the Australian Skills Quality Authority (ASQA). For more information visit at [www.asqa.gov.au](http://www.asqa.gov.au/about/contact-us) or email at enquiries@asqa.gov.au.

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| **Discussion question – additional issues** |
| 1. Are there other issues related to crane licensing under the model WHS laws?

Wherever possible, please provide evidence to support your responses. |

# **Appendix A: Key definitions**

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| Term | Description |
| Bridge crane | A crane that:* consists of a bridge beam or beams, that are mounted to end carriages at each end
* is capable of travelling along elevated runways, and
* has 1 or more hoisting mechanisms arranged to traverse across the bridge.
 |
| Crane | A crane means an appliance intended for raising or lowering a load and moving it horizontally including the supporting structure of the crane and its foundations, but does not include any of the following:* an industrial lift truck
* earthmoving machinery
* an amusement device
* a tractor
* an industrial robot
* a conveyor
* building maintenance equipment
* a suspended scaffold, or
* a lift.
 |
| Dogging work | Dogging work means:* the application of slinging techniques, including the selection and inspection of lifting gear, to safely sling a load, or
* the directing of a plant operator in the movement of a load when the load is out of the operator's view.
 |
| Duty holder | A duty holder refers to any person who has a WHS duty under the model WHS laws, including a PCBU, designer, manufacturer, importer, supplier, installer of plant or structures, officer and worker. |
| Gantry crane | A crane that:* consists of a bridge beam or beams supported at one or both ends by legs mounted to end carriages
* is capable of travelling on supporting surfaces or deck levels, whether fixed or not, and
* has a crab with 1 or more hoisting units arranged to travel across the bridge.
 |
| HRW | High risk work, which means any work set out in Schedule 3 to the model WHS Regulations as being within the scope of a high risk work licence. For more information, see Appendix B. |
| HRW licence | High risk work licence, which means any of the licences listed in Schedule 3 to the model WHS Regulations.  |
| Licence holder | In the case of a HRW licence, a licence holder is the person who is licensed to carry out the work. |
| Mobile crane | A crane capable of travelling over a supporting surface without the need for fixed runways and relying only on gravity for stability. |
| Model Codes | Model Codes of Practice, which are practical guides to achieving the standards of health and safety required under the model WHS laws and identifying and managing risks. Under the model WHS Act, a code of practice may be admissible in court proceedings as evidence of whether or not a duty or obligation has been complied with (s275(2) of the model WHS Act). what is known about a hazard or risk, risk assessment or risk control (s 275(3)(a) of the model WHS Act) and may rely on the code of practice in determining what is reasonably practicable in the circumstances to which the code relates (s 275(3)(b) of the model WHS Act). |
| Model WHS Act | The model WHS Act refers to the model Work Health and Safety Bill. It forms the basis of the WHS Acts that have been implemented in most jurisdictions across Australia. |
| Model WHS laws | The model WHS laws comprises the model WHS Act, model WHS Regulations and model Codes. |
| Model WHS Regulations | The model WHS Regulations form the basis of the WHS Regulations that have been implemented in most jurisdictions across Australia. They set out detailed requirements to support the duties in the model WHS Act. |
| Non-slewing mobile crane | A mobile crane incorporating a boom or jib that cannot be slewed, and includes an articulated mobile crane or a locomotive crane, but does not include vehicle tow trucks. |
| PCBU | Person conducting a business or undertaking, as defined under s 5 of the model WHS Act. A PCBU can be a company; an unincorporated body or association; a sole trader or self-employed person; a not-for-profit organisation; a local council; a government department or agency; a school; a franchise; or in some circumstances a volunteer organisation. Individuals who are in a partnership that is conducting a business will individually and collectively be a PCBU. |
| Plant | Plant includes any machinery, equipment, appliance, container, implement and tool; any component of any of those things; and anything fitted or connected to any of those things. |
| Powered mobile plant | Plant that is provided with some form of self-propulsion that is ordinarily under the direct control of an operator. |
| Rated capacity | The load a plant is designed to lift for a given operating configuration and position of load. |
| Rigging work | Rigging work means:* the use of mechanical load shifting equipment and associated gear to move, place or secure a load using plant, equipment or members of a structure to ensure the stability of those members, or
* the setting up or dismantling of cranes or hoists.
 |
| Self-erecting tower crane | A self-erecting tower crane is a crane:* that is not disassembled into a tower element and a boom or jib element in the normal course of use, and
* where the erection and dismantling processes are an inherent part of the crane's function.
 |
| Serious claims | Serious claims include all accepted workers’ compensation claims for an incapacity that results in a total absence from work of one working week or more, excluding fatalities and journey claims. |
| Slewing mobile crane | A mobile crane incorporating a boom or jib that can be slewed, but does not include a front-end loader, a backhoe, an excavator, or other earth moving equipment when configured for crane operation. |
| Telehandler | A telehandler (also known as a telescopic material handler or multipurpose tool carrier) is a type of powered mobile plant with either a fixed or slewing boom that lifts primarily by luffing and telescoping of the boom. It is designed to be configured with a range of temporary attachments including forks, a work platform, or a jib attachment. |
| Tower crane | A crane that: * has a boom or a jib mounted on a tower structure
* the crane, if a jib crane, may be a horizontal or luffing jib type, and
* the tower structure may be demountable or permanent but does not include a self‑erecting tower crane.
 |
| UoC | Unit of competency are developed by the VET sector and delivery by RTOs. A person wishing to undertake a certain class of HRW must first be successfully trained and assessed against the UoC for the relevant VET course in Schedule 4 to the model WHS Regulations. |
| WHS authority | The relevant WHS authority for each jurisdiction. The authority manages compliance and enforcement of WHS laws and has enforcement and arbitration powers. The authorities are Comcare (Cth), WorkSafe ACT, SafeWork NSW, NT WorkSafe, Workplace Health and Safety Queensland, SafeWork SA, WorkSafe Tasmania, WorkSafe Victoria and WorkSafe WA. |
| Worker | Any person who carries out work in any capacity for a PCBU, as defined under s 7 of the model WHS Act. This includes work as an employee, contractor, subcontractor, self-employed person, outworker, apprentice or trainee, work experience student, employee of a labour hire company placed with a ‘host employer’ and volunteer. |
| Workplace | Any place where work is carried out for a business or undertaking and includes any place where a worker goes, or is likely to be, while at work, as defined under s 8 of the model WHS Act. This may include offices, factories, shops, construction sites, vehicles, ships, aircraft or other mobile structures on land or water. |

# **Appendix B: High Risk Work under the model WHS laws**

## WHS duties

Everyone in the workplace has a health and safety duty under the model WHS Act.

**A person conducting a business or undertaking** (PCBU) must ensure, so far as is reasonably practicable, workers and other people are not exposed to health and safety risks arising from the business or undertaking. It also includes ensuring so far as is reasonably practicable the:

* provision and maintenance of safe plant, and
* safe use, handling, storage and transport of plant.

A PCBU must manage risks by eliminating health and safety risks, so far as is reasonably practicable and if it is not reasonably practicable to eliminate the risks, by minimising those risks, so far as is reasonably practicable.

The model WHS laws include more specific requirements for PCBUs to manage the risks of hazardous chemicals, airborne contaminants and plant, as well as other hazards associated with powered mobile plant and plant that lifts or suspends loads at a workplace.

A PCBU must also ensure workers have the necessary training, qualifications or licences to operate powered mobile plant, for example checking licensing, qualifications and fitness for work when engaging drivers and operators or hiring contractors. A PCBU must not direct or allow an unlicensed worker to carry out work for which a licence is required.

**A person who has management or control of a workplace** must ensure, so far as is reasonably practicable, the workplace, the means of entering and exiting the workplace and anything arising from the workplace is without risks to health and safety. This requirement includes work areas where powered mobile plant is being used. They must also manage risks to health and safety associated with plant.

**Workers** at the workplace must take reasonable care for their own health and safety, co-operate with reasonable policies, procedures and instructions and not adversely affect other people’s health and safety. Workers who operate plant should be competent or suitably supervised during training. A worker who operates plant that requires a licence, must hold a valid HRW licence. A [HRW](https://www.safeworkaustralia.gov.au/glossary#HRW) licence holder must:

* only do [HRW](https://www.safeworkaustralia.gov.au/glossary#HRW) for which they are licensed, and
* comply with any conditions imposed on the [HRW](https://www.safeworkaustralia.gov.au/glossary#HRW) licence.

## What is High Risk Work?

HRW describes a variety of hazardous work environments as well as the operation of hazardous plant and equipment. The risks arising from these environments and activities are so significant it is considered necessary to apply additional statutory controls on who can conduct this work. Specifically, the model WHS Regulations require people undertaking these work activities to hold a HRW licence.

## What is a High Risk Work licence?

A HRW licence demonstrates that the holder has achieved a minimum standard of competency and can undertake the work safely. A HRW licence is an authority from a WHS authority permitting the worker to undertake a prescribed HRW activity.

The model WHS Regulations provide a WHS authority the opportunity to set conditions on a HRW licence, such as not operating a crane at night, to ensure the safety of workers and workplaces. The model WHS Regulations also provide a WHS authority with the authority to suspend or cancel a HRW licence, and to disqualify that licence holder from applying for a further HRW licence, to prevent further work occurring if a worker is shown to not be competent.

A HRW licence helps PCBUs ensure their workers have the minimum competency required to undertake work safely.

## What classes of work require a High Risk Work Licence?

Schedule 3 to the model WHS Regulations sets out 29 licence classes of HRW. The HRW licence classes generally seek to ensure minimum worker competency to adequately control risks relating to:

* plant operation
* slinging and lifting of loads
* erection of structures, and
* working at height.

Licensing for HRW has a long history in Australia. The vast majority of classes of work contained within Schedule 3 date before 1991.

In 2011, the model WHS laws were finalised and have been implemented in most states and territories. While Victoria has not implemented the model WHS laws, there is an agreement between WHS authorities that if a person obtains a HRW licence in one Australian jurisdiction, they will be considered competent and permitted to do the relevant HRW in any other Australian jurisdiction.

## How is a High Risk Work licence obtained?

To obtain a HRW licence, a person must be trained and assessed as competent to undertake the work.

The knowledge and skills necessary to undertake HRW are set out in relevant training courses developed by the VET sector. Schedule 4 to the model WHS Regulations sets out the VET courses for each HRW licence class.

Training and assessment against a VET course is delivered by a registered training organisation (RTO) which has been accredited by the Australia Skills Quality Authority, the national VET regulator.

A person wishing to undertake a certain class of HRW must first be successfully trained and assessed by the RTO. Once assessed competent by the RTO, the person must undergo further assessment against the associated National Assessment Instrument (NAI) endorsed by Safe Work Australia Members.

NAIs provide a nationally consistent tool for assessing a person’s competence to undertake classes of HRW. NAIs are used by all jurisdictions. Assessment against the NAI is conducted by an assessor accredited by the WHS authority.

Once assessed as competent by an accredited assessor the person can apply to the WHS authority for a HRW licence.

## What High Risk Work licensing is required for crane operations?

The operation of certain types of cranes is ‘high risk work’ under the model WHS Regulations and, as such, a person must not operate certain cranes without holding the appropriate high risk work licence. Licence classes for the use of cranes include:

* Tower crane (Class CT)
* Self-erecting tower crane (Class CS)
* Derrick crane (Class CD)
* Portal boom crane (Class CP)
* Bridge and gantry crane (Class CB)
* Vehicle loading crane (Class CV)
* Non-slewing mobile crane (Class CN)
* Slewing mobile crane – with a capacity up to 20 tonnes (Class C2)
* Slewing mobile crane – with a capacity up to 60 tonnes (Class C6)
* Slewing mobile crane – with a capacity up to 100 tonnes (Class C1)
* Slewing mobile crane – with a capacity over 100 tonnes (Class C0)

(Schedule 3 to the model WHS Regulations, Table 3.1, Items 8 to 18).

## Who bears the cost of High Risk Work licensing?

Duty holders under the model WHS laws include PCBUs, officers, workers and other persons at the workplace, as well as designers, manufacturers, importers, and suppliers of plant, substances, or structures. All have a role to play to ensure that health and safety is a priority in the workplace.

The burden of HRW licensing is primarily carried by workers as training, obtaining a licence, and renewing a licence generally falls on the licence holder. Some businesses may decide to pay these costs for their workers.

Licensing regimes are often criticised as a barrier to entry, decreasing the availability of operators, and increasing production and wage costs.[[7]](#footnote-8) On the other hand, a competency‑based licence system can help ensure the quality of work performed and the safety of workers and others, and may provide a pathway for entry into an occupation.

1. An earlier version of this paper included breakdowns for mobile, tower and truck mounted cranes. These data have been removed due to poor data quality. [↑](#footnote-ref-2)
2. The [*Type of Occurrence Classification System (TOOCS)*](https://www.safeworkaustralia.gov.au/system/files/documents/1702/typeofoccurrenceclassificationsystemtoocs3rdeditionrevision1.pdf)provides two different methods for identifying whether a crane was involved in an incident. In the Traumatic Injury Fatalities (TIF) database, ‘crane’ has been classified using the breakdown agency which identifies the object, substance or circumstance that was principally involved in, or most closely associated with, the point at which things started to go wrong and which ultimately led to the most serious injury or disease.

‘Crane’ in the National Dataset for Compensation-based Statistics has been identified using the Agency classification which identifies the object that caused the injury. [↑](#footnote-ref-3)
3. Muscular Stress includes 3 sub-categories of the Mechanism of incident classification of Body stressing, they are: *Muscular stress while handling objects other than lifting, carrying or putting down objects; Muscular stress while lifting, carrying, or putting down objects;* and *Muscular stress with no objects being handled.* Please see the TOOCS for further information on the Mechanism of incident classifications. [↑](#footnote-ref-4)
4. The Crane Industry Council of Australia and WorkSafe Victoria raw data on crane incidents on construction sites in Victoria during 2019 and the first quarter of 2020. [↑](#footnote-ref-5)
5. SafeWork NSW/RMIT University - crane safety on construction sites in NSW, including interrogation of 1075 crane incidents between 2012 and 2019. [↑](#footnote-ref-6)
6. [Crane safety interactive data | Centre for Work Health and Safety (nsw.gov.au)](https://www.centreforwhs.nsw.gov.au/knowledge-hub/towards-crane-safety-interactive-data), Incidents - By Immediate Cause [↑](#footnote-ref-7)
7. Senate Select Committe on Red Tape, *Interim report: Effect of red tape on occupational licensing*, Commonwealth of Australia, 2018. [↑](#footnote-ref-8)