



Supplementary Criteria for Accreditation
**PECPR Regulations: Minimum Requirements for Effective
Supervision, Equipment Inspectors and Training Systems**

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Supplementary Criteria for Accreditation

Inspection Body Accreditation Programme

PECPR Regulations: Minimum Requirements for Effective Supervision, Equipment Inspectors and Training Systems

AS IB C1.5

First Edition June 2020

Published by:

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Edition Statement

Edition	Amendment	Date of Issue	ISBN No.
1	Initial publication; revising, up-dating and replacing AS IG5 (Nov 2014)	June 2020	978-1-877531-74-3

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0 Preamble

The document is published by IANZ in collaboration with:



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1 Introduction

1.1 The Health and Safety in Employment (Pressure Equipment, Cranes, and Passenger Ropeways) Regulations 1999 (PECPR) regulations define equipment inspectors in terms of the functions they perform and the qualifications they must hold.

1.2 Equipment inspectors must be employed or engaged by an accredited inspection body, as it is inspection bodies that issue certificates on the recommendation of equipment inspectors.

1.3 ISO/IEC 17020:2012, the standard to which inspection bodies must be accredited, has general requirements for training and authorisation of inspectors that apply to all fields of inspection.

1.4 This document clarifies the application of ISO/IEC 17020:2012 and regulatory expectations for equipment inspectors and inspection bodies in the engineering safety field.

2 Definitions

2.1 Effective supervision: The overall management and general direction of a trainee by a skilled, capable and experienced person, in order to achieve a desired result.

Note: The above definition of 'effective supervision' is reasonably broad and would permit a range of possibilities from 'close and constant overseeing' to 'overall task direction and readily communicated support'.

2.3 Equipment category: A group of equipment for which an inspector can gain authorised signatory status.

2.4 Equipment sub-category: A convenient subset of an equipment category, determined by the inspection body (see Appendix C).

2.5 Competence Level: A stage of trainee progression, the requirements for which must be documented and fulfilled prior to advancement to the next level for a particular equipment sub-category. See requirement 5.6.

2.6 Supervisor: An equipment inspector as defined in the PECPR Regulations, competent to inspect the equipment being inspected by a trainee under their supervision, and meeting the requirements in section 4.

2.7 Equipment inspector: a person who is employed or engaged by an inspection body to carry out the functions referred to in regulation 27, and is the holder of a relevant certificate of competence.

Note: To perform all the functions of an equipment inspector for an accredited inspection body an individual must be an authorised signatory of that inspection body.

2.8 Trainee Equipment Inspector: A person employed or engaged by an inspection body, who is pursuing a documented course of training towards attainment of a certificate of competence and signatory status within a period of time specified by the inspection body.

3 Effective Supervision - Principles

3.1 The term *effective supervision* is used in regulation 36(2) of the PECPR Regulations, but is not defined. The exemption from the regulations, issued by WorkSafe, enabling inspection bodies to use trainee inspectors, also relies on effective supervision. For consistency of application of the regulations and exemption, it is necessary to have an agreed definition and common understanding of effective supervision. It is also necessary for inspection bodies to have documented policy and procedures on effective supervision.

3.2 Effective supervision is not the same as technical mentoring or training. The purpose of effective supervision is to provide assurance that inspections performed by trainees, under supervision, are carried out in accordance with the inspection body's quality management system and that the results are as technically reliable as if the inspections had been carried out by an authorised signatory.

3.3 PECPR (regulation 36(2)) permits inspection bodies to allow a person to perform work for which they do not have a valid certificate of competence, on condition that the individual can be shown to be under training and the effective supervision of an equipment inspector designated as the supervisor for the job. The principles and aims of effective supervision and the minimum requirements for effective supervision are described in this document.

3.4 The reasons for ensuring effective supervision from an inspection body's perspective include:

- a) Risk management - safety and liability
- b) Utilisation of resources - profitability
- c) Client satisfaction – market security
- d) Personnel development – staff job satisfaction.

3.5 The reasons for requiring effective supervision from a WorkSafe perspective include:

- a) Safety – the outcome should be as reliable as if the inspection was performed by an equipment inspector
- b) Training – the attainment of sufficient skills and knowledge by the trainee to provide the inspection pool with a competent future equipment inspector.

4 Minimum Requirements for Supervisors and Supervision

4.1 In each case the supervising equipment inspector who makes the recommendation to issue a certificate, and whose name appears on it, must review all the records generated by the trainee during the progress of the job, before signing as the responsible signatory.

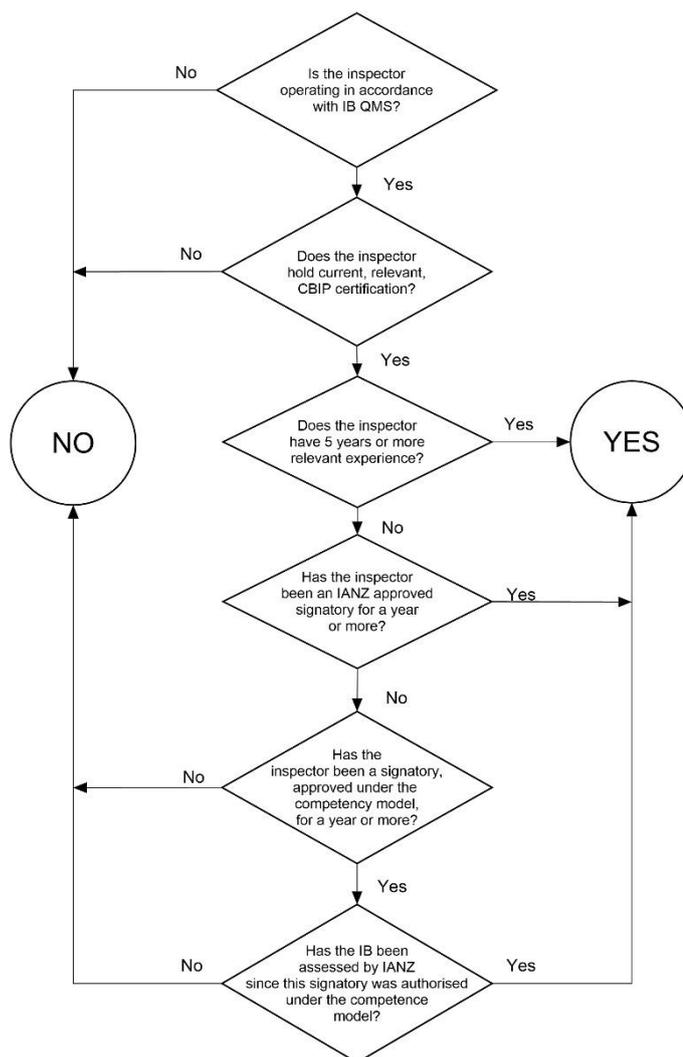
4.2 Supervisors of trainees must keep sufficiently detailed records of all supervised activities to justify the recorded decisions on competence levels or the need for further specified training.

4.3 To provide meaningful assurance that an inspection, undertaken by a trainee, has been performed in accordance with the inspection body's procedures and that the outcome is as technically reliable as if performed by an authorised signatory, the supervising inspector must be able to visit the site, within a reasonable time, to provide guidance and resolve any issues that arise. Therefore a supervisor shall not be remote (in distance or time) from the trainee while supervised inspections are being performed and must be able to attend the site of the inspection prior to a certification recommendation being made if necessary.

Note: In accordance with the conditions of accreditation the signatory that authorises the release of a report or certificate is personally responsible for the content and validity of these documents, whoever performed the on-site inspection.

4.4 The inspection body must define, record and enforce supervisor competence requirements. The decision-making flow chart (Figure 1 below) shows the minimum requirements for an individual to be designated as a supervisor.

Figure 1: Supervisor qualification process



5 Minimum Requirements for Inspector Training

5.1 To become an effective inspector of the types of equipment covered by the regulations an individual must have sufficient practical experience of the equipment in question to be aware of the defects that can occur, recognise symptoms of potential failure and make sound judgements of the significance of defects found (see ISO/IEC 17020:2012; 6.1.3).

ISO/IEC 17020:2012; 6.1.1 requires inspection bodies to define competencies in detail. Inspection body systems should both define, and enforce, pre-requisites for employment that equate to the pre-requisites for certification or provide structured training to enable inexperienced trainees to gain the pre-requisites before applying for formal certification.

5.2 Personnel must progress through the training process for each equipment sub-category that is necessary to gain a specific signatory scope authorisation status.

The inspection of some types of equipment requires knowledge, skills, experience and judgement in addition to that required for more basic equipment. Because these attributes are **in addition** to the basic requirements it is not acceptable for individuals to enter trainee status for items requiring additional qualifications until the basic qualification has been achieved. Training systems must document the additional requirements, in the terms listed in ISO/IEC 17020:2012 clauses 6.1.1 - 6.1.3 and training must be structured to assist candidates to meet those requirements.

As an example, it is not acceptable for an individual to be inspecting a boiler with superheat, as a trainee, if they have not yet achieved the basic PEI qualification.

5.3 All entrants into inspection, other than those covered by 5.4 below, shall commence at Level 1 for each equipment sub-category.

5.4 New inspection personnel, who up until engagement held current signatory status with another accredited inspection body, shall be trainees until authorised signatory status is again achieved. Such personnel may commence at an appropriate trainee level for each equipment sub-category as determined by the inspection body.

5.5 Rate of advancement through training will depend on the types and complexity of inspections, the availability of equipment to inspect and the rate of acquisition of the appropriate knowledge, skills and experience needed to demonstrate competence. A minimum number of closely related inspections must be required to be successfully completed before progressing beyond Level 1. This minimum number, to be determined by the inspection body, must not be less than the number of generic equipment types in the sub-category.

5.6 In all cases, progression to the next level must be based on detailed records, made by the supervisor, attesting to achievement of the full scope of requirements of the current level. These decisions must not be based on the number of inspections alone.

5.7 A trainee, even when all other equipment subcategory requirements have been met, shall continue under defined effective supervision until attainment of the required certificate of competence and authorised signatory status.

5.8 The planned time period for achieving a certificate of competence in any one discipline shall not be greater than 3 years, from application to the certification body, and shall not be more than two years without recorded justification.

5.9 The planned period allowed to gain a certificate of competence may be extended, once, by a maximum of one year, provided the justification for the extension is reasonable and documented.

5.10 If an individual fails to gain a certificate of competence for a specified discipline within the planned, or extended, period they must not be permitted to continue working in that discipline.

5.11 If a person is unable or unwilling to renew a certificate of competence for a specified discipline, the inspection body may allow the individual to work as a 'trainee', under the level of supervision defined in the company's quality management system, for a maximum of 6 months. Under these circumstances, it is not acceptable for an individual to operate as a trainee, in a specific discipline, under supervision for an extended period. If an individual fails to renew a certificate of competence for the specified discipline within a six month period, they must not be permitted to continue working in that discipline.

6 Minimum Requirements for Training Systems

6.1 The number of pre-signatory competence and supervision levels is to be decided by the inspection body. The highest level should closely correspond to Level 3 in Appendix A and the lowest level should closely correspond to Level 1 in Appendix A – therefore there must be at least two levels (The labels ‘Level 1’, ‘Level 2’, etc. were chosen as neutral examples and naming is at the discretion of the inspection body.)

6.2 While only two pre-signatory competence levels are **required**, inspection bodies may find additional levels to be beneficial for clarity of progress and definition of present status. Examples could include the following:

- Level 1: New entrant - learning basic knowledge/theory
- Level 2: Basic training (trainee observing only)
- Level 3: Trainee performing activities - with mentor/supervisor on-site and observing
- Level 4: Trainee performing activities without mentor but supervisor validating findings on-site
- Level 5: Trainee performing activities without on-site mentor – every job discussed with supervisor and all records reviewed by the supervisor before a certification recommendation is made by the supervisor
- Level 6: (Signatory level) Inspector authorised to undertake activities without supervision and make certification recommendations to the inspection body
- Level 7: Authorised to authorise trainee inspectors at levels 2 to Y
- Level 8: Authorised to train inspectors at levels X to Y.

Appendix A: Example of an effective supervision policy

An idealised example of an effective supervision policy is as follows and applies to each equipment sub-category:

The table should be read in conjunction with the requirements, in the body of this document.

Trainee Level	Nature of supervision
Level 1	<ul style="list-style-type: none"> • Full direction of activities (chosen work assignments) and constant direct overseeing of work by designated supervisor(s) • Supervisor shall be present at all times • Trainee must keep records of all activities performed and their outcomes • Supervisor must discuss all reports directly (face to face) with the trainee prior to signing them as the equipment inspector (this could be achieved by teleconferencing) • Supervisor must record details of performance, positive and negative, for each supervised activity and, when relevant, provide recommendations for specific further training/experience
Level 2	<ul style="list-style-type: none"> • Assignment of activities by designated supervisor(s) • Supervisor present during a proportion of the inspections (proportion set, monitored and recorded by inspection body but not less than 20% of supervised inspections) • Supervisor must discuss all reports directly (face to face) with the trainee prior to signing them as the equipment inspector (this could be achieved by teleconferencing) • Trainee must keep records of all activities performed and their outcomes • A plan must be in place to deal with unforeseen trainee inspection difficulties which shall include the capability of the supervisor to intervene as required • Records must be kept of all instances where a supervisor's assistance is required including the nature of the issue, how it was resolved and what additional training is considered necessary to equip the trainee with the required knowledge and experience to address the identified issue in future without supervisor intervention
Level 3	<ul style="list-style-type: none"> • Assignment of activities by supervisor(s), combined with occasional overseeing of work as required (a minimum of 5% of inspections until authorised as an equipment inspector) • The supervisor who assigned the work must check all reports and certificates prior to signing them as the equipment inspector. • Trainee must keep records of all activities performed and their outcomes • The supervisor who assigned the inspection must be readily available (during the inspection) for communication by an appropriate means • A plan must be in place to deal with unforeseen trainee inspection difficulties • Records must be kept of all instances where a supervisor's assistance is required including the nature of the issue, how it was resolved and what additional training is considered necessary to equip the trainee with the required knowledge and experience to address the identified issue in future without supervisor intervention
Signatory	<ul style="list-style-type: none"> • Must maintain current competency certification at all times • Must be formally authorised by the inspection body for each category of equipment • No requirement for day-to-day supervision • Subject to on-going monitoring and training needs assessment

Factors that may influence the assessment of trainee experience include but are not limited to, the following:

- Previous relevant trainee experience.
- Trainee's apparent understanding, for example as displayed by pertinent questioning.
- Trainee's willingness to ask questions.
- Trainee's willingness to acknowledge the limitations of their knowledge and/or experience.
- The variety of equipment used to assess the trainee's competence.
- Proof of successfully completed and assessed subject matter training directly related to the discipline.

Appendix B: Example Inspection Log (with supervision)

The following table is an example inspection showing supervision (where appropriate):

<i>Date</i>	<i>Job ID</i>	<i>Trainee</i>	<i>Inspector (supervisor)</i>	<i>Equip class</i>	<i>Item description</i>	<i>Type of inspection</i>	<i>Level</i>
22/03/05	10010	A Newman	W White	B	6MW gas-fired shell (unattended)	Internal	Level 3
23/03/05	10011	B Blake	J Leadman	PV	LPG storage tank	External	Level 1
23/03/05	10012		W White	B	10MW hot water boiler	Internal	Signatory
24/03/05	10013	D Checker	G Edwins	TC	5T self-erecting	Prior to erection	Level 2
29/03/05	10014		G Edwins	GC	10T EOT	Annual	Signatory
29/03/05	10015	A Newman	G Edwins	MC	20T telescopic	Annual	Level 1
30/03/05	10016	N Brown	W White	B	20MW oil-fired water-tube (unattended)	Internal	Level 1

Appendix C: Example equipment categories and sub-categories

The following table is an example of equipment categories and sub-categories for training, competence assessment and signatory authorisation purposes.

Category	Sub-category	Sub-sub-category	Notes/comments
Cranes			
	Cranes Type A		
		Overhead Travelling Cranes	
		Underhung Travelling Cranes	
		Goliath and Semi Goliath Cranes	
		Container Cranes	
		Wall Cranes	
		Pillar Cranes	
		Straddle Carriers	
		Monorail	
	Cranes Type B		
		Tower Cranes	
		Self-erecting Tower Cranes	
Pressure Vessels			
	Vessels fabricated from carbon steel or austenitic grades \leq 316 and without post weld heat treatment.		Excluding those that are lined, clad, transportable, subject to cyclic operation or are intended for cryogenic use.
	Fired Heaters fabricated from carbon steel or austenitic grades \leq 316 without post weld heat treatment		
	Vessels fabricated from materials <u>in addition to</u> carbon steels and/or austenitic grades $>$ 316 not requiring heat treatment		Requires CBIP endorsement B
	Vessels with requirements for post weld heat treatment		Requires CBIP endorsement B
	Clad vessels		Requires CBIP endorsement B

Note: It is strongly recommended that inspection bodies' use equipment categories and sub-categories that directly reflect or can be transparently correlated with IANZ/CBIP scope categories. Further levels of sub-division by an inspection body may facilitate the documentation of training, competence assessments and signatory authorisations.