INTERNATIONAL COMMITTEE FOR NON-DESTRUCTIVE TESTING

Working Group 1 on Qualification and Certification

Report of ICNDT WG1 on interpretation of ISO 9712:2012

Introduction

ISO 9712 was published in June 2012. It was a real step forward on the way of harmonization of third party certification. It combined two previous standards EN 473:2008 and ISO 9712:2005. A lot of unclear provisions were eliminated. Standard became more practicable to use. In spite of this some provisions of the standard still allow PCBs, especially young and inexperienced, to interpret them in different way.
In order to avoid a threat to harmonization process ICNDT Working group 1 "Qualification and certification of NDT personnel" has drafted the Report on interpretation of ISO 9712:2012 which has advisory nature only.

Para.	Statement to be interpreted	Interpretation of statement
3.3	… under the supervision of personnel having a qualification acceptable to the certification body	It is recommended for CB to define criteria for acceptance of qualification of supervision personnel in order to meet requirements of paragraph 3.25. It is recommended that qualification of supervision should be at least ISO 9712 Level 2 or equivalent (e.g. ASNT Level 2 or ASNT SNT TC 1A level 2).
3.25	**qualified supervision** supervision of candidates gaining experience by NDT personnel certified in the same method under supervision or by non-certified personnel who, in the opinion of the certification body, possess the knowledge, skill, training, and experience required to properly perform such supervision	WG1 feels that non-certified supervisor is not suitable for qualified supervision. However if it is the case CB should require from applicant to submit CV of candidate's non-certified supervisor. It is recommended for CB to define requirements to experience of non-certified supervisor. Experience should be not less than Level 3 experience duration according to Table 3 of ISO 9712:2012 for the method concerned.
5.2.2 b)	shall publish specifications for training courses that include the syllabi which embody the content of recognized documents, e.g. ISO/TR 25107 or equivalent	It is recommended for CB to use syllabi from ISO/TR 25107 as minimum requirements to draft specifications for training courses. ASNT CP-105 and IAEA TecDoc 628 could be taken as equivalent. In case of using another documents CB should define equivalence with ISO/TR 25107 prior to use.

5.4.1 e)	prepare and conduct examinations under the responsibility of an examiner authorized by the certification body, using only those examination questionnaires and specimens established or approved by the certification body for that purpose	CB should develop examination questions according to documented procedure. CB should invite examiners, representatives of industry and training organizations who has ISO 9712 Level 3 or ASNT Level 3 for drafting of new examination questions and evaluating of problematic questions already in use. CB should implement the process of verification and validation for examination questions. CB can purchase examination questions, e.g. ICNDT question bank. In this case examination questions shall be verified and approved by CB. CB should establish examination questionnaires that shall be used by examination centers. If examination questionnaires are formed by AQB or examination centers themselves examination questionnaires shall be verified and approved by CB. Examination specimens should be established by CB. AQB or examination centers can propose new examination specimens to use. In this case examination specimens shall be verified and approved by CB
5.5.1	If the candidate is unemployed or self-employed, the declaration of education, training and experience shall be attested to by at least one independent party acceptable to the certification body.	Unemployed or self-employed candidate should provide CB with the declaration of education, training and experience that shall be confirmed by ISO 9712 or ASNT certified level 2 or 3.
5.6 b)	provide verifiable documentary evidence that the required experience has been gained under qualified supervision;	A signature of personnel described in the WG1 Report, rev.3 for Clauses 3.3 and 3.25 could be sufficient as verifiable documentary evidence.
7.2.1	The candidate shall provide documentary evidence, acceptable to the certification body, that he has satisfactorily completed training in the method and level for which the certification is sought	It is recommended for CB to have documented procedure for authorization of training organization. In order to be authorized training organization (TO) should comply with ISO/TR 25108. Training certificates issued by those training organizations can be accepted by the CB. If candidate presents training certificate issued by unauthorized TO, CB should define requirements to documentary evidence to be accepted by CB, e.g. compliance with published syllabus, duration, percent of attendance etc.

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<tr><td>7.2.2.</td><td>For all levels, the candidate shall satisfactorily complete a course of theoretical and practical training recognized by the certification body</td><td>Specifications for training courses published by CB should include both theoretical and practical parts based on ISO/TR 25107 or equivalent document, e.g. ASNT CP-105 and IAEA TecDoc 628. Authorized training organizations shall fulfill those requirements. Level 3 practical training may include drafting of NDT procedures or critical review of existing NDT procedures.</td></tr>
<tr><td>7.2.3.</td><td>This duration is based upon candidates possessing adequate mathematical skills and prior knowledge of materials and processes. If it is not the case, additional training may be required by the certification body.</td><td>It is recommended for CB to define a minimum level of basic education received by candidate which can confirm that candidate possesses adequate mathematical skills and prior knowledge of materials and processes. It could be secondary education for Level 1 and Level 2 and vocational education for Level 3 or equivalent.</td></tr>
<tr><td>7.2.3.</td><td>When creating industrial sectors as defined in Annex A, the certification body should consider whether the minimum training requirements in Table 2 are sufficient or should be increased</td><td>It is recommended for CBs operating product sectors to develop Matrix: Method/Level/sector/ Training hours

<table><tr><td></td><td>L 1</td><td>L 2</td><td>L 3</td></tr><tr><td>1 sector</td><td></td><td></td><td></td></tr><tr><td>2 sectors</td><td></td><td></td><td></td></tr><tr><td>3 sectors</td><td></td><td></td><td></td></tr></table>
It is recommended for CBs operating industrial sectors to increase the number of training hours given in Table 2 depending on product sectors from which industrial sector is composed.</td></tr>
<tr><td>7.2.5.</td><td>for candidates who have graduated in a relevant subject from technical college or university, or have completed at least two years of relevant engineering or science study at college or university, the total required number of training hours may be reduced by up to 50 %.
NOTE It is appropriate for the subject to be relevant to the NDT method (chemistry, mathematics or physics)</td><td>Based on the national education system (for example, European Qualification Framework EQF) CB should define which subject is relevant to particular NDT method. Number of training hours may be reduced by 50 % if subject is NDT itself or if candidate have completed full course of relevant engineering or science study at college or university.
Candidate asking for reduction of training duration should submit a copy of his degree certificate or technical college certificate.</td></tr>
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	and/or to the product or industry sector (chemistry, metallurgy, engineering, etc.).	
7.3.1.	The minimum duration of experience to be gained in the sector where the candidate is seeking certification shall be as given in Table 3, with the possible reductions given in 7.3.3. When the candidate is seeking certification in more than one method, the total time of experience shall be the sum of the experience in each method.	It is recommended for CBs to interpret the first paragraph as following: The minimum duration of experience to be gained in the sector and NDT method on which the candidate is seeking certification shall be as given in Table 3, with the possible reductions given in 7.3.3. When the candidate is seeking certification in more than one method, the total time of experience shall be the sum of the experience in each method. When the candidate is seeking certification in more than one sector the total time of experience should be increased. CB should define percentage of increasing taking into account item 7.3.3.1, third bullet.
7.3.1.	For Level 2 certification, the intent of this International Standard is that work experience consists of time as a Level 1. If the individual is being qualified directly to Level 2, with no time at Level 1, the experience shall consist of the sum of the times required for Level 1 and Level 2. No reduction in the period of experience shall be allowed.	Requirement *"No reduction in the period of experience shall be allowed"* is applicable if candidate is seeking certification in one NDT method. In other case item 7.3.3 is applicable.
7.3.1.	For all levels, a minimum period of experience prior to examination shall be defined by certification body (a fraction or percentage of the total requirement in Table 3, as appropriate).	It is recommended that for level 1 candidate the minimum experience prior to examination can be 0%. For level 2 candidate - not less than the period of experience for level 1. For level 3 - not less than 50%. Item 7.3.3.2 may be applicable in this case. In all cases certification can be made after gaining of appropriate experience.
7.3.2.	If the individual is being qualified directly from Level 1 to Level 3, with no time at Level 2, the experience shall consist of the sum of the times required for Level 2 and	Requirement *"No reduction in the period of experience shall be allowed"* is applicable if candidate is seeking certification in one NDT method. In other case item 7.3.3 is applicable.

	Level 3. No reduction in the period of experience shall be allowed.	Direct access for non-certified personnel to Level 3 requires the total period of experience for Levels 1, 2 and 3
7.3.3.1	When considering possible reduction in the duration of experience, the certification body should take into consideration following elements: – The quality of experience can be variable, and skills may be assimilated more quickly in an environment where the experience is concentrated and has a high degree of relevance to the certification sought – When gaining experience simultaneously in two or more surface NDT methods, i.e. MT, PT and VT, the experience gained in the application of one NDT method may be complementary to the experience gained in one or more other surface methods. – Experience in one sector of an NDT method for which certification is already held may be complementary to the experience in a different sector of the same NDT method. – The Level and quality of education possessed by the candidate should also be considered. This is particularly the case for the Level 3 candidate but it can also be applicable for other levels**.**	The quality of experience and quality of education is very difficult to evaluate. It is recommended do not take this provision into account when considering possible reduction in the duration of experience.
7.3.3.3	In all cases, the candidate shall be required to show that for each of the NDT method and sector combinations for which he seeks certification, he has at least half of the experience required, and this shall never be less than one month in duration.	It is recommended for CBs operating product sectors to define experience requirements for each possible NDT method and product sector combinations. Item 7.3.3.1, third bullet, should be taken into account.

7.3.3.5	Up to 50 % of the practical experience time may be achieved by an appropriate practical course, the duration of which may be weighted by a maximum factor of five (5). This procedure shall not be used in conjunction with that described in 7.3.3.4. The course shall be concentrated on practical solutions of frequently occurring testing problems, should involve a significant element of testing known defective specimens, and the programme shall be approved by the certification body.	It is recommended for CB to define criteria for determining factor. Training duration, number of samples, discontinuities and reports to be quantified for each factor increment reduction, viz. 6 hrs + 3 UT (having a combined total of 6 flaws) test samples inspected for 1 factor increment.
7.4.	The certification body may consider replacing the requirements in a) by compliance with an appropriate alternative	CB should establish valid alternatives as Tumbling E chart or other and should specify who has the capacity to carry out the tests. It could anybody within the certification body appointed for that purpose.
8.1	The qualification examination shall cover a given NDT method as applied in one industrial sector or one or more product sectors. The certification body shall define and publish the maximum amount of time allowed for the candidate to complete each examination, which shall be based upon the number and difficulty of the questions. The average time allowed for questions requiring narrative answers shall be determined by the certification body.	The average time allowed should be no longer than two minutes per multiple choice question for general examination. The average time allowed should be no longer than three minutes per multiple choice question for specific examination. For Level 3 the average time allowed should be no longer than three minutes per multiple choice question. The average time allowed should be no longer than ten minutes per question requiring narrative answer.
8.2.1.	The general examination shall include only questions selected in an unpredictable way from the certification body's or authorized qualification body's collection of general examination questions valid at the date of examination.	CB is responsible for creating and maintaining of Examination Question Bank (EQB). AQB can use CB's EQB only. AQB can propose new questions. They can be included in CB's EQB after appropriate verification and approval by CB.

8.2.2.	If the specific examination covers two or more sectors, the minimum number of questions shall be at least 30, evenly spread between the industrial or product sectors concerned (see Annex A).	It is recommended for CBs operating product sectors to apply for specific examination 20 questions per sector. It is recommended for CBs operating industrial sectors to apply for specific examination minimum 30 questions evenly spread between product sectors from which industrial sector is composed.
8.2.3.2	Each specimen shall be uniquely identified and have a master report which includes all of the equipment settings used to detect specified discontinuities contained within the specimen, which shall be uniquely identified by an appropriate permanent marking to ensure that it is completely traceable. Such marking shall not interfere with the practical testing or inspection of the specimen and shall, wherever practicable, be concealed from the candidate while the specimen is being used for examination.	It is recommended for CBs to conceal the marking of examination specimens wherever it's possible, e.g. big examination samples with stickers. In order to avoid leaking information about small specimens to candidates CB should increase the number of such specimens as much as possible.
8.5.2	A candidate who fails to obtain the pass grade for any examination part, may be re-examined twice in the failed part(s), provided that the re-examination takes place not sooner than one month, unless further training acceptable to the certification body is satisfactorily completed, nor later than two years after the original examination.	If a failed candidate wishes to re-sit the failed part of an examination before 30 days they are required to sit a training course or take one –to – one training covering the area of weakness and provide evidence of this to CB upon application for reexamination. CB should recommend candidate which part of syllabus he/she shall retake.
11.3.2.	The individual shall successfully complete an examination that includes a minimum of 20 questions on the application of the test method in the sector(s) concerned which demonstrates an understanding of	It is recommended that CB should include at least five additional questions on the requirements of the certification scheme in Level 3 recertification examination.

	current NDT techniques, standards, codes or specifications, and applied technology and, at the option of the certification body, five additional questions on the requirements of the certification scheme	
8.6.2.	A certified Level 3 individual changing sectors or adding another sector for the same NDT method is exempt from the need to retake the basic examination and the Level 3 part D of the main method examination (see Table 7)	If Level 3 individual did not pass Level 2 practical examination in industrial sector covering product sector concerned or does not have Level 2 in product sector concerned he has to take Level 2 practical examination in the relevant product sector.