

October - December 2015

Examiners' Report NEBOSH National Certificate in Construction Health and Safety (NCC1)



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Examiners' Report

NEBOSH NATIONAL CERTIFICATE IN IN CONSTRUCTION HEALTH AND SAFETY

UNIT NCC1: MANAGING AND CONTROLLING HAZARDS IN CONSTRUCTION ACTIVITIES

OCTOBER – DECEMBER 2015



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Introduction

NEBOSH (The National Examination Board in Occupational Safety and Health) was formed in 1979 as an independent examining board and awarding body with charitable status. We offer a comprehensive range of globally-recognised, vocationally-related qualifications designed to meet the health, safety, environmental and risk management needs of all places of work in both the private and public sectors.

Courses leading to NEBOSH qualifications attract around 50,000 candidates annually and are offered by over 600 course providers, with examinations taken in over 120 countries around the world. Our qualifications are recognised by the relevant professional membership bodies including the Institution of Occupational Safety and Health (IOSH) and the International Institute of Risk and Safety Management (IIRSM).

NEBOSH is an awarding body that applies best practice setting, assessment and marking and applies to Scottish Qualifications Authority (SQA) regulatory requirements.

This report provides guidance for candidates which it is hoped will be useful to candidates and tutors in preparation for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content and the application of assessment criteria.

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General comments

Many candidates are well prepared for this unit assessment and provide comprehensive and relevant answers in response to the demands of the question paper. This includes the ability to demonstrate understanding of knowledge by applying it to workplace situations.

There are other candidates, however, who appear to be unprepared for the unit assessment and who show both a lack of knowledge of the syllabus content and a lack of understanding of how key concepts should be applied to workplace situations.

This report has been prepared to provide feedback on standard date and on-demand NCC1 examinations sat between October and December 2015.

Feedback is presented in these key areas; examination technique, command words and learning outcomes and is designed to assist candidates and course providers to prepare for future assessments in this unit.

Candidates and course providers will also benefit from use of the 'Guide to the NEBOSH National Certificate in Construction Health and Safety' which is available via the NEBOSH website. In particular, the guide sets out in detail the syllabus content for NCC1 and tutor reference documents for each Element.

Additional guidance on command words is provided in 'Guidance on command words used in learning outcomes and question papers' which is also available via the NEBOSH website.

Candidates and course providers should also make reference to the NCC1 'Example question paper and Examiners' feedback on expected answers' which provides example questions and details Examiners' expectations and typical areas of underperformance.

Unit NCC1

Managing and controlling hazards in construction activities

Candidate performance

This report covers all examinations, both standard and on-demand examination sittings during October to December 2015.

Learning outcomes

The following six learning outcomes have been identified as being the most challenging areas of the syllabus for candidates in this period:

5.4 Explain the main control measures for reducing risk from common construction machinery hazards

Candidates were expected to have an understanding of mechanical hazards of common construction machinery to enable them to accurately explain the main control measures for reducing risk when working with such machinery. During this period, questions were set on machinery such as diesel compressors, bench-top grinders, pedestal drills, cement mixers and petrol-driven plate compactors and candidates were expected to explain the principles of operation, merits and limitations of both appropriate 'management' and 'physical' control measures to help reduce risk. However, on this subject, many candidates structured their answers by following the hierarchy of control (ERICPD), therefore reducing the opportunity to gain marks from explaining the type of guarding or management controls that could be considered.

Examiners reported that candidates either did not know the hazards or control measures for reducing risk from common construction machinery hazards, or they did not read the questions carefully enough to understand the requirements of the question. Producing the mnemonic ERICPD without understanding how this could be applied, or providing controls that bore no relevance to the item of equipment in the question did not gain marks.

Candidates found control measures for common construction machinery hazards to be one of the most challenging learning outcomes both in knowledge and application. Course providers must give candidates a thorough understanding of this area of the syllabus to enable candidates to have a better understanding of how to reduce risk when working with or in the vicinity of such equipment and ultimately to reduce the high accident rate.

6.1 Outline the principles, hazards and risks associated with the use of electricity in the workplace

Learning outcomes within element 6 are frequently highlighted as being one of the candidates' most challenging areas of the syllabus and Examiners reported that there is a general weakness concerning electricity.

On this occasion, it was learning outcome 6.1 that presented itself as being the most challenging. Candidates were expected to be able to demonstrate knowledge of the principles of electricity, such as the relationship between voltage, current, and resistance, and the differences between alternating current and direct current, which was one of their weakest areas.

Candidates were also expected to demonstrate knowledge of the risks of electricity, including electric shock and the effect on the body and factors influencing severity; electric burns; causes of electrical fires; high risks associated with electricity including work on live and dead electrical supplies; and contact with underground power cables. Some of the other areas assessed during this period, covered examples of faults and bad practices that could contribute to electrical accidents when using portable electrical equipment; the effects of electricity on the body; protective measures to help reduce the risk of electric shock; and ways in which fires on a construction site may be prevented.

Candidates tend to fare better on questions concerning more general issues such as the effects of electricity on the body, but where technical knowledge and application is required the candidates seem to have difficulty. Another less technical area where candidates performed better was questions relating to electricity and fires, although where candidates were required to outline ways in which electrical fires could be prevented, some candidates deviated from electrical fires and produced answers in relation to general fire precautions. Candidates could gain minimum marks here but they could not gain the marks available because they did not read the question properly before starting their answer.

Candidates had difficulty in demonstrating knowledge of a technical nature in this area. Course providers must strengthen the tuition of element 6 and, perhaps, give practice questions, to give the candidates a better opportunity to achieve better marks on this unit.

8.5 Outline the hazards, risks and controls associated with specific agents

In addition to demonstrating knowledge of hazards, risks and controls relating to specific agents candidates are also expected to be able to demonstrate knowledge of the circumstances in which the agents might be present, to be able to put in controls to reduce risk when working with such substances. Candidates are also required to have knowledge of the generation of dust on a construction site and be able to outline ways in which dust, including cement dust and wood dust, could be controlled.

Examiners have reported that candidates had difficulty in demonstrating knowledge of controls that would be required to reduce risk to persons working with 'specific agents' and were unaware that general personal protective equipment does not provide the required level of protection in these circumstances. Limiting answers to generic references of personal protective equipment or respiratory protective equipment that should be issued to persons working with these agents is not sufficient to gain the marks available. Candidates should be able to make reference to respirators with the correct filter media and with the appropriate protection factor that should be worn by workers to reduce the risk of exposure to dust when cutting MDF using a hand-held circular saw for example.

Examiners reported that candidates had an adequate knowledge of the health risks associated with working with asbestos and its possible location. However, with a few exceptions, candidates showed limited knowledge of the tools that should be used when removing asbestos sheets from an industrial building as part of a demolition process, and included a suggestion that a hammer and chisel should be used to break the sheets down to smaller pieces to make them easier to handle.

Course providers must provide further tuition in this area, in particular, to strengthen candidates' knowledge of the hazards and risks that are particular to specific agents and the individual controls that must be put in place that are appropriate to reduce risk when working with these specific agents.

9.2 Outline the health effects associated with exposure to vibration and appropriate control measures

Learning outcome 9.2 requires candidates to demonstrate knowledge of the effects on the body of exposure to vibration with respect to both hand-arm vibration (HAV) and whole body vibration. Candidates were also expected to know the requirement for the assessment of exposure to vibration; limit and action values that apply; the respective basic control measures to be implemented; and the type of controls available to reduce exposure to vibration. During this period questions were set on the possible health effects from exposure to vibration, whole body vibration (WBV), exposure limits and action values for WBV, the health effects from the use of vibrating hand-held tools, and control measures to reduce the risk of effects from exposure to vibration.

Examiners reported that while candidates were able to provide adequate knowledge of possible health effects from the use of hand-held vibrating tools and the controls required to reduce risk from vibration in general, they had difficulty in providing the breadth required (number of points provided) to gain the available marks for the appropriate controls to reduce risk.

Candidates also had difficulty in giving the correct daily exposure limit values and the action values for exposure to vibration, with some candidates giving the limit value for the action value and the action value for the limit value. Some candidates did not provide the metres per second squared (m/s^2) unit of measurement, which was required in order to demonstrate an adequate understanding of vibration measurement values and to be able to gain the marks available.

To enable candidates to demonstrate adequate knowledge in this area, course providers need to strengthen their tuition on the action values in order to enable candidates to understand when action is required to reduce exposure to vibration. Course providers also need to provide further guidance on examination technique so that candidates know, for example, that if an 'identify' or an 'outline' question is worth 8 marks or 4 marks then 8 or 4 'correct' points must be provided to gain the marks available.

10.4 Outline control measures to reduce risk of injury when working over or near to water

Learning outcome 10.4 requires candidates to demonstrate knowledge and understanding of specific control measures to reduce risk when working over or near to water. However, to recommend controls measures for working in such circumstances, candidates would need to firstly know of, or identify, the hazards relating to such work. During this period questions were asked on control measures to reduce risk when work is to be carried out from a scaffold that overhangs a fast flowing river; hazards and control measures that should be considered when a bridge is to be constructed over a fast-flowing river; and emergency arrangements to have in place should a worker fall into the water.

Some Examiners stated that many candidates were not familiar with types of work that are carried out over water, and therefore had difficulty in providing appropriate controls other than emergency procedures, including rescue plans in the event that a worker(s) fall into the water, instead of putting in controls to reduce the risk of occurrence. Examiners also reported that a number of candidates did not differentiate the particular requirements of two-part questions and, as such, confused their answers by including responses to part (a) that would have been more appropriate to part (b) and vice versa.

Course providers must give candidates examples of the work that may be carried out over water to enable them to discuss practical control measures that would be appropriate with respect to working in this hazardous situation. Practising examination technique to ensure the candidates answer the right part of the questions set would be beneficial.

11.1 Explain the hazards and risk assessments of excavation work

11.2 Explain the control measures for excavation work

Learning outcomes 11.1 and 11.2 were ones that candidates found most challenging. In this area, candidates are expected to demonstrate knowledge and understanding of not only hazards in and around excavations, overhead hazards, including powerlines and issues to consider when undertaking a risk assessment when work is required to be carried out in an excavation, but also hazards in relation to the use of cofferdams, caissons, contaminated ground, etc. Learning outcome 11.2 requires candidates to be able explain control measures associated with excavation work, requirements for contaminated ground and inspection requirements for excavations and excavation support systems.

During this period the questions set included hazards associated with excavation work and the risks that could arise from such work, and precautions required for persons working in and around excavations including measures to reduce the risk of injury from buried services and excavation inspections in line with the syllabus.

Examiners reported that one of the reasons why this learning outcome was seen as one of the most challenging was because many candidates confused excavation hazards with risks and therefore could not be awarded marks for such basic inaccuracies. Some candidates did not read the questions fully prior to providing their answers and did not answer the questions as set. This was particularly noticeable where the question required candidates to outline precautions required when working around excavations at *ground* level, yet some candidates focused on the word '*excavation*' and provided an answer on precautions to be taken for workers working *inside* excavations, which again, would not gain the marks available.

Course providers must advise candidates to read and re-read the question to enable them to understand the requirements of the question before they start to write their answers. A candidate may have an adequate level of knowledge to reach a pass standard in the examination but they must be taught to apply that knowledge to the question as set and not to a 'buzz' word which, while it may relate to a pre-prepared answer, would not be relevant for the specific question asked on the question paper.

Examination technique

The following issues are consistently identified as the main areas in need of improvement for candidates undertaking Certificate level qualifications:

Candidates misread/misinterpreted the question

Candidates misreading or misinterpreting the question is by far the most common cause of candidates not gaining the maximum marks available.

NEBOSH questions are systematically and carefully prepared and are subject to a number of checks and balances prior to being authorised for use in question papers. These checks include ensuring that questions set for the Certificate level qualifications relate directly to the learning outcomes contained within the associated syllabus guides. The learning outcomes require candidates to be sufficiently prepared to provide the relevant depth of answer across a broad range of topic areas. For example, a candidate could be asked about the causes of stress, or could be asked about the effects of stress. A question could require a response relating to the principles of fire initiation, or a question could require a response relating to the spread of fire. Therefore, a candidate should focus not only on the general topic area (eg stress, fire) but also the specific aspect of that topic to which the question relates.

Candidates must also pay attention to the command word. For example, a question could ask candidates to '**identify** the hazards associated with demolition work', or a question from the same element could ask candidates to '**outline** the control measures required during demolition work'. Candidates appear to focus solely on the object of the question (demolition) and do not pay sufficient attention to the subject (hazards or control measures in the examples given) or the command word ('identify' or 'outline' in the examples given). There is often some confusion between hazard and risk. If a question requires an outline of hazards for a given situation, candidates must be careful not to provide risks, or even in some circumstances precautions, as they will not be able to attract marks.

Examiners suggest that while many candidates do begin their answer satisfactorily and perhaps gain one or two marks, they then lose sight of the question and include irrelevant information. Although further points included in an answer can relate to the general topic area, these points are not focused on the specific learning outcome and marks cannot be awarded. However, some candidates appear to misread or misinterpret several questions. This situation is more likely due to candidates preparing for the examination with a number of stock answers obtained through rote-learning, that again can provide answers that are loosely associated with the topic matter but do not provide answers specific to the question. Such an approach is clearly evident to an Examiner and demonstrates little understanding of the topic matter and marks are not awarded.

Candidates are advised to allow sufficient time to read and re-read the question in order to determine the key requirements prior to committing their answer to paper. Preparing a time plan before the examination will indicate how many minutes are available for each question and then part of this time allocation can be given to reading the question. Underlining or highlighting key words can assist in keeping focused on the salient points and simple mind maps or answer plans can also be useful. Maps and plans should be kept simple so as not to use up too much examination time.

Candidates did not respond effectively to the command word

A key indicator in an examination question will be the command word, which is always given in **bold** typeface. The command word will indicate the depth of answer that is expected by the candidate that relates to the amount of detail that should be included in each point of the answer.

The learning outcomes in each element of all syllabus guides include the relevant command word that dictates the level of detail that should be covered in a course of study and the depth of answer that a candidate would be expected to provide in an answer to an examination question.

Examiners report that candidates continue to incorrectly observe the command words and therefore compromise their ability to gain the marks available. The majority of cases where command words are not observed relate to insufficient detail being given by a candidate in their examination answer. A significant number of candidates, irrespective of the command word given in the question, provide all answers in the form of a brief list of one or two words. This would normally not be sufficient to gain marks where the command word given was 'outline', 'explain' or 'describe', all of which require answers of more than one or two words.

Some candidates do provide too much information, which would not be required where a command word limits the expected answer to 'give' or 'identify'. Candidates would not be penalised for providing excessive detail but this would not be an efficient use of the time allocated.

Course providers should ensure that learning materials complement the command words in the syllabus guide and the NEBOSH guidance on command words and that sufficient time is given to advising candidates on suitable examination technique during a course of study.

Candidates unnecessarily wrote the question down

Developing a time plan is a key element in preparing for an examination. Advice included on Certificate question papers suggests that 30 minutes should be allocated for the answer to the long 20-mark question, and 90 minutes should be allocated to the answers for the remaining ten, 8-mark short questions. Therefore there are around 9 minutes available to answer an 8-mark question. This time will be required for reading the question properly at least twice, developing an answer plan, and then committing the answer to paper while regularly referring back to the question in order to maintain focus. Therefore any inefficient use of this time should be avoided.

The efficient use of this time is essential in order to ensure that all questions can be answered within the 2 hours available. Many candidates feel it necessary to write out the question, in full, prior to providing their answer and although this practice will not lose marks it will lose valuable time. A significant number of candidates do not answer all of the questions in the time permitted and do not complete the question paper, some of whom obviously ran out of time.

Candidates provided rote-learned responses that did not fit the question

It is clear that there are a significant number of candidates who seem to recite answers in the examination that have been rote-learned in advance and do not answer the question.

While knowledge of material forms a part of the study for a Certificate-level qualification, a key aspect being assessed is a candidate's **understanding** of the topic and reciting a pre-prepared and memorised answer will not show a candidate's understanding. In fact, if a candidate gives a memorised answer to a question that may look similar, but actually is asking for a different aspect of a topic in the syllabus, it shows a lack of understanding of the topic and will inevitably result in low marks being awarded for that answer.

Candidates repeated the same points but in different ways / Candidates provided the same answer to different questions

There are instances where candidates repeat very similar points in their answers, sometimes a number of times. This is easily done in the stressful environment of the examination. However, once a point has been successfully made and a mark awarded for it, that mark cannot be awarded again for similar points made later in the answer.

Candidates are advised to practise examination technique in their preparations to avoid this kind of pitfall. Writing an answer plan where points can be ticked off when made, or structuring an answer so that each point made is clearly shown, for example by underlining key points, can be of great use. This technique aids candidates and makes it much clearer in the stress of the examination for candidates to see which points have been made and reduce the chances of the same point being made several times.

Candidates did not answer all of the questions

It has been noted that a number of candidates do not attempt all of the questions on the examination and of course where a candidate does not provide an answer to a question, no marks can be awarded. This seriously affects the potential marks available and the possibility of achieving a pass. Course providers must emphasise the importance of attempting all questions in order to maximise the opportunity to attract marks. Some candidates do not answer up to four questions which is a potential thirty-two marks that the candidates could not gain. Obviously, this will affect pass rates.

There can be several reasons for this issue: running out of the allocated time for the examination, not knowing the answer to the question, or forgetting to answer a question.

Questions can be answered in any order and answers can be written in any order in the answer book provided. Candidates are advised to clearly keep track of questions they have attempted, such as marking them on the question paper that would minimise the risk of inadvertently missing a question to answer.

If the topic of the question is unfamiliar or the answer is not known, then it will be challenging to provide an answer. This can result from rote-learning and preparing for an examination with a number of stock answers, or simply not being adequately prepared for the examination across the breadth of the syllabus. There is always the risk of a candidate 'going blank' in an examination situation, in which case candidates should be prepared with some techniques to help. Rather than trying to remember what was taught or what has been read, ask yourself 'what would I do, in this situation?'. Reference to personal application or experience is sometimes enough to stimulate an answer that otherwise may have been missed. Alternatively, candidates can go back to first principles and break a question down into elements such as 'people', 'equipment', 'materials' and the 'working environment'. Approaching a question in small sections can minimise the risk of being overwhelmed by it as a whole.

Running out of time can be avoided by having an examination time plan and working to it. The question paper advises that you should spend 30 minutes on the long answer (question 1) and 90 minutes on the remaining ten short answer questions. This will provide around 9 minutes per short answer, follow the clock and when the time per question has expired, move on. Answering a question partly is better than not answering at all.

Candidates did not allocate enough time to the question / Time management

In a number of cases question 1 is left until last or later in the question paper and does not appear to be answered completely. Other candidates appear to rush the last one or two questions by providing very brief or bullet point answers, even when these questions require an outline. This indicates a lack of time management. It is advised that course providers and candidates spend time developing the skill of writing answers to questions bearing in mind the number of marks and time available. A 20-mark question requires significantly more detail than an 8-mark question.

Candidates might benefit from writing abbreviations to save time and to recognise that there is no need to write out the question at the beginning of their answer. Standard abbreviations such as HSE, RIDDOR, COSHH, PPE and DSE are acceptable.

Candidates' handwriting was illegible

Sometimes Examiners have difficulty in reading the handwriting of some candidates. Although allowances are made for candidates under the pressure of an examination, course providers must remind candidates that their writing needs to be legible or valuable marks may not be picked up during marking.

There is a minimum literacy requirement for candidates on NEBOSH qualifications. As stated in the syllabus guides the standard of English required by candidates studying for Certificate level must be such that they can both understand and articulate the concepts contained in the syllabus.

NEBOSH recommends to accredited course providers that candidates undertaking this qualification should reach a minimum standard of English equivalent to an International English Language Testing System score of 6.0 or higher in IELTS tests in order to be accepted onto a Certificate level programme.

For further information please see the latest version of the IELTS Handbook or consult the IELTS website: http://www.ielts.org/institutions/test_format_and_results.aspx

Candidates wishing to assess their own language expertise may consult the IELTS website for information on taking the test: <http://www.ielts.org/institutions/faqs.aspx>

Course providers are reminded that they must ensure that these standards are satisfied or additional tuition provided to ensure accessible and inclusive lifelong learning.

Command words

Please note that the examples used here are for the purpose of explanation only.

Outline

The command word 'outline' is by far the most challenging for candidates. Referring to the NEBOSH guidance on command words available on the NEBOSH website, 'outline' means *"To indicate the principal features or different parts of"*.

Many candidates do not give sufficient detail in order to warrant an 'outline' answer. The NEBOSH guidance on command word states that *"an exhaustive description is not required. What is sought is a brief summary of the major aspects of whatever is stated in the question"*.

If the use of the command word in everyday language or conversation is considered it may help the candidate understand what is required. If asked to '**outline** the risks to an operator when manually closing a valve' an answer such as 'cuts, bruises, burns and strains' would be insufficient as this represents a listed answer. However, 'cuts from contact with sharp edges of the hand wheel, bruises from impact with adjacent plant items, burns from contact with adjacent uninsulated pipe work and strains from using excessive force' would be sufficient.

Explain

The command word 'explain' requires the candidate to provide an understanding of the subject of the question and will usually be used in conjunction with 'why' or 'how'. Such as '**explain** how an interlocked guard operates' or '**explain** why a forklift truck may overturn'.

Some candidates approach an 'explain' question the same as an 'outline' and provide a number of individual points rather than providing an explanation as to how something operates or why something occurs. While some candidates do answer such questions sufficiently and satisfactorily, other candidates have difficulty in explaining in a logical sequence and many repeat the same point.

Identify

'Identify' questions require the name or title of an item, such as, '**identify** the effects of electricity on the human body', or '**identify** the features of a vehicle route'. In most cases one or two words will be sufficient and further detail will not be required to gain the marks.

For example, if asked to '**identify** types of equipment found in an office' appropriate answers could be personal computer, printer, telephone, photocopier, etc. There would be no need to embellish those points with a description of the equipment or its function.

However, in contrast to 'outline' answers being too brief, many candidates feel obliged to expand 'identify' answers into too much detail, with the possible perception that more words equals more marks. This is not the case and course providers should use the NEBOSH guidance on command words within their examination preparation sessions in order to prepare candidates for the command words that may arise.

Describe

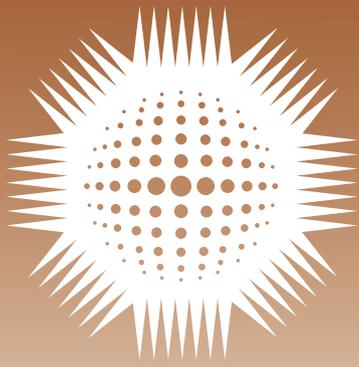
The command word 'describe' clearly requires a description of something. The NEBOSH guidance on command words says that 'describe' requires a detailed written account of the distinctive features of a topic such that another person would be able to visualise what was being described.

If a person was asked to describe the clock in the examination room, they would have little difficulty in doing so and would most probably refer to its shape, its size, the colour of the clock and the style of numerals. Answers to such a question would almost certainly not result in general unconnected information about clocks, the history of clocks, or an explanation of why the clock is present in the room. Candidates should consider the general use of the command word when providing examination answers.

Give

'Give' questions require a statement that is relevant to the subject asked for in the question but additional explanation is not required. Often, 'give' questions ask for the meaning of a particular term. While detailed explanation of the application of the term would not be required, a correct knowledge of the term itself is needed in order for the Examiner to award marks.

For additional guidance, please see NEBOSH's '*Guidance on command words used in learning outcomes and question papers*' document, which is available on our website: www.nebosh.org.uk/students/default.asp?cref=1345&ct=2.



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