



Water-Based Systems Layout Certification Level II Content Outline

(Updated Exam Release Date: July 8, 2024)

Associate Engineering Technician

The candidates for NICET certification at Level II in Water-Based Systems Layout should have the knowledge, experience, and skills needed to work more independently than Level I technicians. Under reduced supervision, they perform routine job tasks. They work on projects and perform routine hydraulic calculations independently, prepare close out documents, and participate in project management. Level II technicians have at least 2 years of experience in water-based systems layout.

2.1 Safety

(Questions related to these tasks make up 1-7% of the exam.)

2.1.1 Identify safety requirements. 10, 11, 12

2.2 Contract Documents

(Questions related to these tasks make up 1-9% of the exam.)

2.2.1 Understand and apply project specifications. 1

2.2.2 Interpret project plans. 1, 5

2.2.3 Coordinate with other trades. 1

2.2.4 Identify project scopes. 2, 3

2.3 Survey Existing Conditions

(Questions related to these tasks make up 1-9% of the exam.)

2.3.1 Identify conflicts between plans and existing conditions. 1

2.3.2 Identify occupancies and uses. 1

2.3.3 Obtain water supply information. 1, 4

2.3.4 Field-verify existing systems and conditions. 1

2.4 Codes and Standards

(Questions related to these tasks make up 6-16% of the exam.)

2.4.1 Select and apply applicable codes and standards. 1, 3, 4, 6, 7, 8

2.4.2 Evaluate design options. 1, 9

2.5 Basic Sprinkler System Layout

(Questions related to these tasks make up 40-50% of the exam.)

2.5.1 Select system types (e.g., wet, dry, pre-action). 1, 2

2.5.2 Select system configurations (e.g., tree, loop, grid). 1

2.5.3 Determine hazard classifications (e.g., non-storage). 1

2.5.4 Identify storage arrangements. 1

2.5.5 Identify storage commodity classifications (e.g., Class I, Class II). 1

2.5.6 Identify the impact of construction types on the selection and layout of sprinklers. 1

2.5.7 Determine the minimum locations and sizing of various types of pipe supports. 1
(e.g., trapeze hangers, bracings, and restraints)

2.5.8 Prepare material and fabrication stocklists. 1, 3

2.6 Basic Standpipe System Layout

(Questions related to these tasks make up 4-14% of the exam.)

2.6.1 Select type and class of standpipe systems. 2

2.6.2 Layout valves and hose connections. 2



2.7 Basic Fire Pump System Layout

(Questions related to these tasks make up 3-13% of the exam.)

2.7.1 Configure fire pump layouts (e.g., basic valve and piping). 3

2.7.2 Establish pipe and valve sizes (e.g., suction or test header sizes). 3

2.8 Hydraulic Equations

(Questions related to these tasks make up 7-17% of the exam.)

2.8.1 Obtain water supply. 1, 4

2.8.2 Determine hydraulically remote areas. 1

2.8.3 Hand-calculate a branch line. 1

2.8.4 Hand-calculate manual standpipe systems. 1, 2

2.9 Submittal and Approval Process

(Questions related to these tasks make up 1-7% of the exam.)

2.9.1 Compile initial and subsequent submittal packages (see the approval process through completion). 1

2.10 Project Management

(Questions related to these tasks make up 1-8% of the exam.)

2.10.1 Follow project schedules. 1, 3, 5

2.10.2 Prepare closeout documents. 1

April 12, 2024 Footnote number is linked to a reference on the General References listing