



Water-Based Systems Layout Certification Level III Content Outline

(Updated Exams Released July 8, 2024)

Engineering Technician

The candidates for NICET certification at Level III in Water-Based Systems Layout should have the knowledge, experience, and skills needed to work independently with codes, standards, plans, and specifications to produce complete submittals for all types of water-based systems. They oversee Level I and II technicians and design and coordinate projects from start to finish. Level III technicians have at least 5 years of experience in water-based systems layout.

There are two exams listed at Level III. Both are required for certification.

General Plans Preparation Exam (10013)

3.1 Contract Documents

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

- 3.1.1 Apply project specifications. 1
- 3.1.2 Explore value engineering options. 1
- 3.1.3 Develop design-build project criteria. 1

3.2 Survey Existing Conditions

(Questions related to these tasks make up 1-10% of the exam.)

- 3.2.1 Evaluate existing systems. 1

3.3 Codes and Standards

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

- 3.3.1 Determine design criteria. 1
- 3.3.2 Implement water-based system designs. 1, 3, 7

3.4 Sprinkler System Layout

(Questions related to these tasks make up 42-52% of the exam.)

- 3.4.1 Layout complex systems. 1, 8
- 3.4.2 Address mixed occupancy protections. 1, 2, 7
- 3.4.3 Determine applicability of pipe schedule systems. 1
- 3.4.4 Evaluate storage occupancies. 1
- 3.4.5 Address impacts of building features on water-based systems. 1
- 3.4.6 Perform seismic calculations. 1
- 3.4.7 Optimize system layouts. 1, 9

3.5 Complex Standpipe System Layout

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

- 3.5.1 Determine flow and pressure requirements. 1, 2, 3

3.6 Fire Pump Unit Layout

(Questions related to these tasks make up 9-19% of the exam.)

- 3.6.1 Layout fire pumps and all appurtenances. 3

3.7 Water Storage Tanks

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

- 3.7.1 Select and layout water storage tank. 1, 4



3.8 Project Management

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

3.8.1 Manage contract modifications. 1, 6

3.8.2 Prepare project schedules. 1, 5

3.8.3 Manage approval processes. 1

Hydraulics and Water Supply Planning (10014)

3.9 Calculate Standpipe Systems

(Questions related to these tasks make up 5-15% of the exam.)

3.9.1 Calculate automatic standpipe systems. 1, 2

3.9.2 Determine remote hose valve locations. 2

3.10 Calculate Water Supply with Pumps

(Questions related to these tasks make up 25-35% of the exam.)

3.10.1 Evaluate water supplies. 1, 3, 4, 5

3.10.2 Select fire pumps. 1, 2, 3, 6

3.10.3 Evaluate fire pump systems. 1, 3

3.11 Hydraulic Calculation Principles

(Questions related to these tasks make up 55-65% of the exam.)

3.11.1 Perform hydraulic calculations. 1, 3, 4, 5

3.11.2 Perform a hand calculation of a tree system. 1

3.11.3 Perform a hand calculation of a simple loop system. 1, 5

3.11.4 Evaluate hydraulic calculations. 1

3.11.5 Balance simultaneous demands. 1

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Footnote number is linked to a reference on the General References listing