# Water-Based Systems Layout Certification

## Level III Content Outline

(Updated Exam Release Date: July 8, 2024)

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

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**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.
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

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