



Texas Commission on Environmental Quality

January 2013

Licensing of Irrigation Inspectors

Curriculum Guidance for Required Courses

In order to obtain an Irrigation Inspector license, an individual must successfully complete an approved irrigation inspection course or a set of three courses covering basic irrigation, backflow prevention, and water conservation or water auditing. At this time there is not an approved single course for inspector licensure and the following courses are required:

Basic Irrigator Training Course

Course Goals and Objectives

The goals and objectives of this course are to provide the student with fundamental knowledge and skills necessary to complete the design and installation of a basic landscape irrigation system. The course does not fully prepare an individual to enter the business of landscape irrigation. Topics such as *business practices, correct use of tools and equipment*, etc. are beyond the scope of this course. Although *safety* is mentioned in the course, the student should be referred to other sources of safe construction practices. This course should contain not less than 32 hours of instruction.

- 1. Introduction to Landscape Irrigation**
 - Reasons for Landscape Irrigation
 - Types of Landscape Irrigation Systems
 - State and Local Rules and Regulations
 - Fundamentals

- 2. Design**
 - Component Parts of Landscape Irrigation Systems
 - Site Evaluation
 - Plan Preparation and Interpretation
 - Efficient Irrigation Head Layout
 - Hydraulics
 - Practice designs by students

- 3. Installation**
 - Connection to the Water Supply
 - Backflow Prevention
 - Trenching and Backfill
 - Installation of Pipes and Fittings
 - Drip and Other Low Volume Irrigation
 - Appurtenances

- 4. Testing, Maintenance, Operation and/or Troubleshooting**
 - Introduction to Water Auditing
 - Irrigation Scheduling and Customer Education

More detail on the specifics of this course may be obtained in the curriculum guidance for Landscape Irrigator training. The TCEQ website has a listing of approved training providers.

Backflow Prevention Assembly Tester (BPAT) Course

Course Goals and Objectives

The 40-hour course for backflow prevention assembly testers (BPAT) must include information in the proper techniques for testing and repairing backflow assemblies. The course shall include an introduction to the theory and principles of backflow prevention and cross-connection control, and recognition of the rules, codes, regulations, statutes, and ordinances that affect BPAT testers and water purveyors. The course topics shall include:

- 1. Introduction**
 - the history of plumbing as it pertains to backflow, cross-connections and the public health.
 - industry terminology, definitions, and vocabulary.
 - knowledge of backflow and cross-connection incidents.
 - purpose of cross-connection control program.
 - knowledge of the responsibilities of the BPAT tester, plumber, plumbing inspector, water purveyor, and customer.

- 2. Codes, Regulations and Laws**
 - regulations, statutes, ordinances, and codes relating to backflow and cross-connection.

- 3. Theory of Backflow and Cross-Connections**
 - knowledge of principles of backflow, backpressure, and backsiphonage.
 - identification of direct and/or indirect cross-connections.

- 4. Mechanical Equipment for Cross-Connection Control**
 - identification and description of backflow preventers, devices, and assemblies utilized for the prevention of backflow.
 - knowledge of the principles and operation of test gauges.
 - knowledge of the proper testing of backflow prevention assemblies.

5. **Hands-on Testing**

- safety.
- proper test procedures for backflow prevention assemblies.
- troubleshooting and repair of backflow prevention assemblies.
- proper documentation of installation, testing, and/or repair of backflow prevention assemblies.

Backflow assembly testing procedures shall be in accordance with the latest edition of the American Water Works Association (AWWA) or University of Southern California Foundation for Cross-Connection Control and Hydraulic Research standards. During the performance examination, every candidate for a license shall demonstrate proper testing, troubleshooting, and operational procedures on the following:

- reduced pressure principle assembly -RP,
- double check-valve assembly-DC,
- pressure vacuum breaker assembly-PVB,
- spill resistant pressure vacuum breaker-SVB,
- testing equipment i.e. gauges.

6. **Written and Performance Exams**

The course shall include both a written exam and performance exam that meets the requirements of the American Society of Sanitary Engineers (ASSE), American Backflow Prevention Association (ABPA), and/or University of Southern California Foundation for Cross-connection Control and Hydraulic Research (USCFCCC&HR) to test each student's knowledge and understanding of the course objectives. A typical BPAT class shall include 16 hours of classroom instruction, 16 hours of hands-on testing of assemblies with no more than 2-3 students per testing station, plus 8 hours for the written and performance examinations.

Water Conservation or Water Audit Course

A TCEQ approved Water Conservation or Water Audit course must be successfully completed. The goal of this requirement is to provide the student with knowledge and skills that can be applied to promote water conservation and the most effective and efficient use of landscape irrigation. Students should successfully complete at least 8 approved hours of instruction. The following courses can be taken to fulfill this training requirement:

- Landscape Irrigation Auditor Training (cc: 8) 12 hours classroom
- Irrigation Water Management of Commercial Landscapes (cc: 14) classroom
- Landscape Irrigation Auditing and Management (cc: 15) 16 hours classroom
- Irrigation Scheduling (cc: 90) 8 hours classroom
- Predicting & Estimating Landscape Water Use (cc: 891) 4 hours classroom
- Water Conservation (cc: 183) 8 hours correspondence
- Certified Golf Irrigation Auditor (cc: 213) 12 hours classroom
- Irrigation Auditing for the Texas Practitioner (cc: 385 or 386) 8 hours classroom or correspondence

Water Conservation or Water Audit Course List (continued)

- Practical Application of Irrigation Auditing (cc: 387) 8 hours correspondence
- Fundamentals of Irrigation Auditing (cc: 425) 8 hours classroom
- Water Conservation in Design & System Evaluation (cc: 496) 4 hours classroom
- Water Conservation Strategy in Landscape Irrigation (cc: 767) 8 hours classroom
- Water Conservation through Water Auditing (cc: 768) 8 hours classroom
- Irrigation Scheduling (cc: 793) 8 hours on-line
- Irrigation System Troubleshooting & Performance Testing (cc: 829) 8 hours classroom
- Predicting & Estimating Landscape Water Use (cc: 891) 4 hours classroom
- Advanced Landscape Irrigation Auditing (cc: 897) 8 hours classroom
- Sprinkler System Scheduling (cc: 1224) 4 hours classroom
- SMART Technologies for Irrigation Management (cc: 1225) 8 hours classroom
- Advanced Irrigation Design for Water Conservation (cc: 1227) 8 hours classroom

The above list of courses is not all inclusive. Other courses may be approved provided course content covers topics directly related to water conservation and/or water auditing. Additional information on approved providers of the courses in the above list can be found at the following TCEQ website:

<http://www.tceq.texas.gov/licensing/training/landscape-irrigation-training>

For further information please contact staff in the TCEQ Occupational Licensing Program at (512) 239-6300.