

32nd Annual Student Career Days
March 27 – 30, 2008
North Metro Technical College

IRRIGATION DESIGN

Description: The student (maximum of one individual per school) will be required to layout an irrigation system for a residential landscape. All participants will take a written exam on Friday. Based on test scores, the top students will go on to compete in the design event on Friday evening. The design portion of the event includes selecting and positioning appropriate irrigation equipment; zoning the system based on plant types, exposure, water supply and equipment type; placing pipe and sizing it, which includes a hydraulic calculation to determine the working pressure at the sprinkler head; and appropriate back flow protection for the domestic water supply. The student will be given a residential site plan that includes service line type and length, meter size, static water pressure, format for an irrigation legend and hydraulic calculation.

Time: Students will have one hour to complete the written exam on Friday. Students will be given 1 hour and 50 minutes to complete the design event on Friday evening.

Limits: No limit on the number of students for the written exam. **The sponsor reserves the right to limit the number of students that will compete in the design event based on exam scores.** Written exam scores for all participants will be included in individual and team scores.

JUDGING CRITERIA

Points: 100 possible points for the individual score; the individual score is doubled toward the team score for a total of 200 possible points.

Points will be assigned based on the following criteria:

1. Written exam (20%)
2. Head selection (15%) – Most appropriate equipment for the areas being irrigated.
3. Head spacing (15%) – Sprinklers are spaced to ensure efficient distribution of water, adequate overlap and irrigation of only the planted areas.
4. Zoning (15%) – Irrigated areas are valved according to available water, similar plant types, similar exposure and compatible irrigation equipment.
5. Piping (15%) – Pipe size is such that velocity is limited to five FPS. A hydraulic calculation for the largest zone includes all friction losses from the service line to the most distant head on the valve.
6. Graphics and readability (20%) – Symbols are of adequate style and size so they can be easily identified, pipe is shown so separate zones are easily distinguished and pipe size is shown in a systematic manner. The design reads well with all equipment adequately labeled.

Time will only be used as a tiebreaker.

(continued)

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Students are required to bring the following materials to the event: Two sharpened pencils with erasers for the written exam. Architects' and engineers' scales, calculator, drafting tape, parallel roller, triangles, templates, two sharpened pencils with erasers, and scratch paper for the design portion of the event.

Sponsor is required to supply the following materials for the event:

- 70 copies of written exam with answer sheets
- Final solution for written exam ready for scoring the students' tests
- Vellum and poster board (to protect surfaces) for 40 tables
- 40 copies of the site plan (final plan to be no larger than 18" x 24")
- Equipment and technical data manuals
- Stopwatches
- Sufficient number of judges and event monitors
- Any other items deemed necessary for this event