

Root Watering Series Helps University Increase Tree Survival Rate and Reduce Water Use



Project Details:

LOCATION

King Abdullah University of Science and Technology
Thuwal, Kingdom of Saudi Arabia

IRRIGATION TEAM

KAUST's Landscape Maintenance Division

RAIN BIRD PRODUCTS USED

Root Watering Series

- RWS: 4" diameter x 36" length (10,2 cm x 91,4 cm)
- RWS-Mini: 4" diameter x 18" length (10,2 cm x 45,7 cm)
- RWS-Supplemental: 2" diameter x 10" length (5.1 cm x 25,4 cm)

PROJECT OVERVIEW:

The King Abdullah University of Science and Technology's mission is to nurture innovation in science and technology; it emphasizes energy and sustainability, which is reflected in the campus and landscape designs. The campus has earned the U.S. Green Building Council's Leadership in Energy and Environmental Design Platinum Certification. The campus boasts over 4,000 native and adaptive ornamental trees, palm trees and shrubs. To irrigate its trees and shrubs, the university uses the Root Watering Series (RWS) to provide efficient irrigation that eliminates evaporation and promotes deep and healthy root growth.

CHALLENGE:

Hot temperatures during most of the year and an arid climate with limited potable water resources are tough conditions for any landscape. In a typical transplant project, as many as 20 percent of trees do not survive beyond two years due to water and nutrient stress; however, trees are important to the campus environment because they provide a cooling effect and shade for students walking to and from classes. Given the tough climate conditions and limited and expensive water resources, the university sought options that would give the trees the best chance of survival and make the most efficient use of water.

RESULTS:

From the beginning, the RWS was easy for the landscape designer to specify and for the irrigation contractor to install. All RWS sizes can be preassembled with bubbler and check valve options. Depending on the tree's size, the contractor installed two to three RWS units spaced around the tree and below grade so the grate is level with the surface; this provides a clean aesthetic and eliminates the possibility of pedestrians tripping on the sprinkler heads.

The RWS provides subsurface watering that delivers water directly to the trees and shrubs' root balls. This causes the roots to spread horizontally and downward rather than upward, producing trees that have higher survival rates, healthier long-term growth and greater stability against high winds. Subsurface watering also eliminates the evaporation that occurs during overhead irrigation. This type of irrigation also prevents shallow root growth, which can damage hardscaping as the roots push up through the ground to find surface water.

Using the RWS, the university has been able to provide an efficient watering method for the over 4,000 trees and shrubs that line its streets, delivering shaded, green spaces throughout the campus.