



PRIVATE UNIVERSITY PRODUCTS AND NEWS

LANDSCAPE & EXTERIORS WINTER SPECIAL EDITION 2022
PUPNMAG.COM

**THE OUTDOOR
FITNESS PARK:
A CREATIVE CAMPUS TOOL
FOR HEALTHIER STUDENTS**

**BUILDING A CAMPUS
RAIN GARDEN**

**MAKING THE
FINANCIAL CASE FOR
SAVING WATER**

A SENSE OF PLACE AT WELLESLEY COLLEGE

COLLECT.

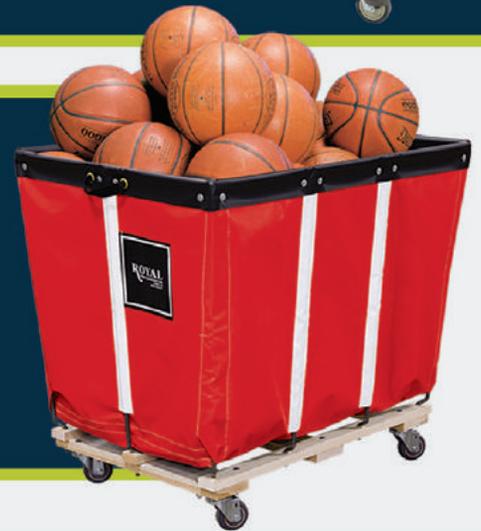
SORT.

TRANSPORT.

ROYAL[®]
BASKET TRUCKS
www.royal-basket.com
800.426.6447



ORGANIZE YOUR AUDITORIUMS & PERFORMING ARTS FACILITIES WITH FUNCTIONAL CART SOLUTIONS FROM ROYAL[®]. OUR CARTS ARE DESIGNED TO REDUCE CLEAN UP TIME, TRANSPORT LAUNDRY AND EQUIPMENT, AND KEEP YOUR FACILITIES LOOKING CLEAN AND PROFESSIONAL.



CHOOSE YOUR CART.

PICK YOUR COLOR.

ADD YOUR LOGO.

- 13 VINYL COLORS
- 7 MESH COLORS
- 9 POLY COLORS
- CUSTOM BRANDING & LABELING



CONTACT US TODAY!

WWW.ROYAL-BASKET.COM • 800.426.6447



COMMERCIAL GRADE. ALL DAY POWER.



Commercial Grade



All Day Power



User Friendly



Planet Friendly

MEANGREEN
ELECTRIC MOWERS

Find a Dealer at:
meangreenproducts.com

★ USA
ENGINEERED AND BUILT
Assembled in the USA
using domestic and
foreign parts.

EDITOR'S LETTER

Winter greetings!

The grounds and exteriors are the first impression many of your visitors get when they visit your pristine campuses. You are enormously proud of what you display, and rightly so. While many people might question a focus on grounds when snow is blowing and we are dealing with walkways covered in falling leaves, you know that now is the time to do the prep work that will bring stunning results in the spring.

At this time of year, you are making plans and getting things ready for your spring show while also having devoted areas that allow visitors, faculty, staff, and students to gather across your campuses. Visitors and students—both prospective and current—enjoy the work you do, and many will tell you that the campus grounds are a huge factor in choosing where they will pursue their academic careers. The outdoor vistas are what hold them in awe as they first encounter your campuses; these spaces also set the tone for their visit and—potentially—the choice they make to attend your college or university.

Now, more than ever, students are looking at greenspace and what park-like scenery each campus delivers. When I come onto a campus, I am always impressed by how much you pay attention to even the smallest of details. From building façade selections to walkway materials, to planters and light uses across the campus, your choices are impeccable, delivering a sense of wonder and beauty that all campus visitors experience.

I'd like to express my thanks to each one of you who works to provide the beauty that we all enjoy; this labor is not taken for granted. We here at *Private University Products and News* look forward to continuing to provide information about products as well as keeping you abreast of landscaping design ideas to offer you examples and ways to continue updating and improving exterior spaces on each of your campuses.

Wishing you all a happy preparation for spring, and Happy Holidays—

Ed Bauer

Publisher

Private University Products and News Magazine

ed@pupnmag.com



Ed Bauer

Publisher/Editor-in-Chief
ed@pupnmag.com

Lawrence Provenzano
Associate Publisher

Cynthia Mwenja, PhD
Copyeditor

Hilary Moreno
Creative Director

Lisa Gibbs, EdD
Cynthia Mwenja, PhD
Staff Writers

Jeanne Aranovitch
Shannon Brennan
Catherine O'Neill Grace
Ruben Mejia
Anne-Marie Spencer
Contributing Writers

Cassidy Clevenger
Circulation
circulation@pupnmag.com



PUBLISHED BY FLAHERTY MEDIA
PO Box 1903, Pelham, AL 35124
Toll Free: 800-705-5280
Fax: 855-239-8093

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage-and-retrieval system without permission in writing from the publisher. The views expressed by those not on the staff of PUPN magazine, or who are not specifically employed by Flaherty Media, LLC, are purely their own. Comments and submissions are welcome, and can be sent to rachel@pupnmag.com.



6 A SENSE OF PLACE
AT WELLESLEY COLLEGE



14 THE OUTDOOR FITNESS PARK:
A CREATIVE CAMPUS TOOL
FOR HEALTHIER STUDENTS



18 BUILDING A CAMPUS
RAIN GARDEN



24 MAKING THE FINANCIAL CASE
FOR SAVING WATER



A SENSE OF PLACE

BY CATHERINE O'NEILL GRACE

Anya Sheldon ('20) speaks of the Wellesley landscape as if it is a person. "I thought Alumnae Valley was really interesting because of its biography and how it had come from being a parking lot. It's just so alive and full of energy," she says.

Wellesley's campus—its meadows and hillsides, its winding paths along Lake Waban, its ancient trees and stands of rhododendron—has inspired the community for generations. It's well known beyond the college, too. In 2021, Wellesley's 1998 landscaping master plan was awarded the top juried prize in the category of excellence in landscape architecture open space planning by the Society for College and University Planning. "This award is a testament to ... our outstanding landscaping team, led by John Olmsted, whose efforts touch every corner of the stunning campus that we love so much," says President Paula Johnson.



PHOTO COURTESY WELLESLEY COLLEGE COMMUNICATIONS & PUBLIC AFFAIRS



PHOTO COURTESY WELLESLEY COLLEGE COMMUNICATIONS & PUBLIC AFFAIRS

Faculty members across disciplines, including English, art, biology, geoscience, and more, regularly use the landscape as a living laboratory for hands-on learning and inspiration. And engaging with every inch of it has been the mission of the Paulson Ecology of Place Initiative since its launch in 2018. Through programming and intensive academic year and summer internships, the initiative supports students in connecting with the outdoors in innovative ways as they commit to understanding and protecting the campus—and the natural world beyond its gates—in an era of climate change.

“The Wellesley landscape was an essential part of the original vision for the College,” says Wendy Judge Paulson ’69, whose gift to Wellesley established the initiative. “The founding Durants had a deep conviction that an exceptionally beautiful campus would provide a setting for higher learning that would inspire, uplift, and nurture the students who lived and studied and recreated there,” she says. “Their vision has only increased

in importance as our society has become more urbanized, mechanized, and technological. The ongoing pandemic has brought deeper recognition of the value of nature to our lives—physically, intellectually, emotionally, spiritually. The Wellesley campus has provided, and continues to provide, an expansive and inspiring natural context for teaching, learning, investigation, reflection, and wonder.”

When landscape architect Frederick Law Olmsted, Jr., described the campus in 1902 in a nineteen-page letter to Wellesley President Caroline Hazard, he extolled the natural beauty of its glacial landforms. He celebrated its valleys and meadows, its native plants, its distribution of trees. After the 1914 fire necessitated a reconsideration of campus design, the College developed a 1921 master plan organized around, and honoring, those features of the landscape.

But as the campus evolved through the 20th century, a number of projects eroded this vision, particularly by realigning roads to allow cars to traverse campus more quickly and covering

wetland meadows with parking lots. The Alumnae Valley area became industrialized and paved over, with tennis courts surrounded by chain-link fencing and a parking lot situated over a toxic brownfield. Olmsted would no longer have recognized it as the “exceedingly intricate and complex topography” he had celebrated in his 1902 letter.

In 1998, another master plan was spearheaded by landscape architect Michael Van Valkenburgh. “A lot of [the plan] was to address how the automobile had taken over campus. We needed to restore the primacy of the pedestrians and their experience of the landscape,” says Kristina Niovi Jones, director of the Wellesley College Botanic Gardens.

The Van Valkenburgh master plan, carried out over several years, recommended moving cars from the lowland areas, wet meadows, and edges of greens into a central parking facility, restoring meadow ecologies; redesigning courtyards for community use rather than cars; and reclaiming Alumnae

Valley. Today, the valley fits comfortably in the landscape. Smooth, grass-topped artificial drumlins refer to the College’s geological history. The area teems with bird life. Tupelo trees and sumac bushes show fall color early, and rabbits graze near a bench memorializing Wellesley alumnae. “The basic structure of the landscape goes back to the Olmsted letter, with the meadows as the connective tissue, and then the hillsides clothed with trees, and the buildings hidden up on the hillsides. It accentuates the topography,” says Jones. “If your low points have low vegetation and your high points have trees, that makes it even more dramatic. I think it’s a spectacular vision, and I don’t think it’s going to change. And it’s also a very sustainable vision.”

Sheldon, who works at landscape architecture firm Reed Hilderbrand in Cambridge, Massachusetts, credits her internships with the Paulson Ecology of Place Initiative with introducing her to the field of landscape architecture. “I learned a whole new way of seeing

and thinking about landscape and engaging with it. [The campus] didn’t just pop out of the earth as it was and is,” she says. “In my final months at Wellesley, I was seeing the landscape with a lot more specificity and curiosity than I was when I first arrived, and I had a better sense of how it was impacting my daily life.”

Sheldon believes Wellesley’s surroundings provide critical emotional support for the community. “It helps them feel whatever they need to feel,” she says. “If you’re feeling trapped, the landscape can feel really expansive. If you’re feeling lost and overwhelmed, you can find little moments where you can focus on specific small things.” Sheldon says the thoughtful architecture of the outdoors determines “where you spend time, where you feel safe and where you feel exposed, where you feel alone and where you feel you’re in company. There’s a whole rhythm to campus. You can find what you need in it.”

continued...

Award-Winning Solutions from Billy Goat!

- Aerators*
- Sod Cutters*
- Power Rakes
- Overseeders
- Brush Mowers
- Wheeled Blowers
- Stand-On Blowers*
- Outdoor Vacuums
- Debris Loaders

*Call 800-776-7690 for demo.

Take the chore out of the chore with Billy Goat!

Call 800-776-7690 or visit billygoat.com

Finding Home

Ecology means “the study of home,” and that is the Paulson Initiative’s mission. But for some Wellesley students, encountering the landscape can be complicated. “Your identity can affect the way you see a specific space outdoors,” says Dayna De La Cruz (’21), who worked as a Paulson Initiative anti-racism ambassador. “If you’re an international student, you might not feel completely at home because you’re lacking the native plants that you’re used to.”

Phoebe Shea Pérez (’23) and Jada Onwuta (’24), De La Cruz organized a weeklong Winter session program in 2021 called “Redefining the Outdoors,” which focused on racial inclusivity and belonging in nature. The program addressed topics like how the participants’ identities shaped their experiences with the outdoors. There were discussions about who is seen as an “outdoors person” and who is excluded from those spaces. Green spaces that are comfortably accessible to the

privileged can feel off-limits to people of color, and the ambassadors seek to break down those barriers.

De La Cruz recently bumped up against a personal experience of this kind of complexity. “I got a job offer to work at a company in California, where I’d be providing pollination services to farmers in the area to potentially increase crop yield and address food insecurity,” she says. “Farms are lovely, and they can be such pleasant and fruitful environments. But then I thought about how my family has a history of working and picking crops, being paid almost nothing, and surrounded by very dangerous pesticides. [Through] that lens, it was hard to have the same view.”

Despite that discomfort, De La Cruz plans to take the job in California, and she hopes to apply to graduate school in an environmental field in the future. Though she grew up in an urban environment in Houston, her time at Wellesley honed her deep love of the

landscape and her commitment to protecting it. “Land is not meant to be owned,” she says. “We should have a symbiotic relationship with the land, and not a parasitic ownership. It’s borrowed.”

The question of land ownership has been very much on the minds of the Wellesley student body. Long before founders Henry and Pauline Durant pieced together a collection of subsistence farms to create Wellesley’s campus in 1870, the land was home to Indigenous peoples. In May, Kimimilasha “Kisha” James (’21), then president of the Native American Student Association, offered the first public acknowledgement of this fact that had been made at commencement. And this October, the Wellesley College Board of Trustees voted on its first land acknowledgement, approving this statement:

“We acknowledge that Wellesley College is built on ancestral and traditional land of the Massachusetts people. We also recognize that the United States’ removal, termination, and

KAY
KAY PARK RECREATION
 MAKING PLACES PEOPLE FRIENDLY • SINCE 1954

Tables, Benches, Bleachers, Dog Park Equipment, Litter Receptacles, Grills, Bike Racks, Fountains, Pedal Boats, Planters, NuCanoe, Highway Towable Bleachers & Stages

Over 65 Years
 FAMILY OWNED
 ★★★★★
 AMERICAN MADE

1-800-553-2476
www.kaypark.com

assimilation policies and practices resulted in the forced settlement of Indigenous lands and the attempted erasure of Indigenous cultures and languages. We further acknowledge the oppression, injustices, and discrimination that Indigenous people have endured and that there is much work to be done on the important journey to reconciliation. We commit to strengthen our understanding of the history and contemporary lives of Indigenous peoples and to steward this land.

“We further recognize the many Indigenous people living here today—including the Massachusett, Wampanoag, and Nipmuc nations—who have rich ancestral histories in Wellesley and its surrounding communities. Today, their descendants remind us that they are still here, where they maintain a vital and visible presence. We honor and respect the enduring relationship between these peoples and this land, as well as the strength of Indigenous

culture and knowledge, the continued existence of tribal sovereignty, and the principle of tribal self-determination.”

Finding Joy

Bindu Nicholson ('16) was a post-baccalaureate fellow with the Paulson Initiative from 2019 to 2021, designing activities to connect students to nature and landscape. “My job was trying to get students to pay attention, to walk slowly, to pause, to say hello to trees and birds and frogs who live in the Wellesley community with us, getting to know their names, getting to know a little bit about them,” she says. Nicholson says that one of the initiative’s goals is for the Wellesley community to develop empathy for the natural world. “I think the more we know about the natural world, the more we’ll want to take care of it, especially in these times of climate change,” she says.

For one activity, Nicholson led students to the Wellesley College Botanic Gardens.

continued...

“My job was trying to get students to pay attention, to walk slowly, to pause, to say hello to trees and birds and frogs who live in the Wellesley community with us, getting to know their names, getting to know a little bit about them. I think the more we know about the natural world, the more we’ll want to take care of it, especially in these times of climate change.”

— BINDU NICHOLSON ('16), POST-BACCALAUREATE FELLOW WITH THE PAULSON INITIATIVE FROM 2019 TO 2021

WP[®] Wooster Products Inc.
Making every step a safe one!

Stairmaster[®] Safety Treads

Stairmaster Safety Renovation Treads:

- Designed for the modernization and restoration of all stair types
- High quality to assure long tread life under heavy pedestrian traffic
- Durable and long lasting treads for both indoor and outdoor use

Wooster Products Inc.
Anti-slip safety stair and walkway products
For more information contact us today!
woosterproducts.com | 800-321-4936

PROUDLY MADE IN THE USA

ORDER BY 6 PM FOR SAME DAY SHIPPING

ULINE

HERE WE GO AGAIN!
BE PREPARED FOR THE NEXT SNOW

COMPLETE CATALOG
1-800-295-5510 uline.com

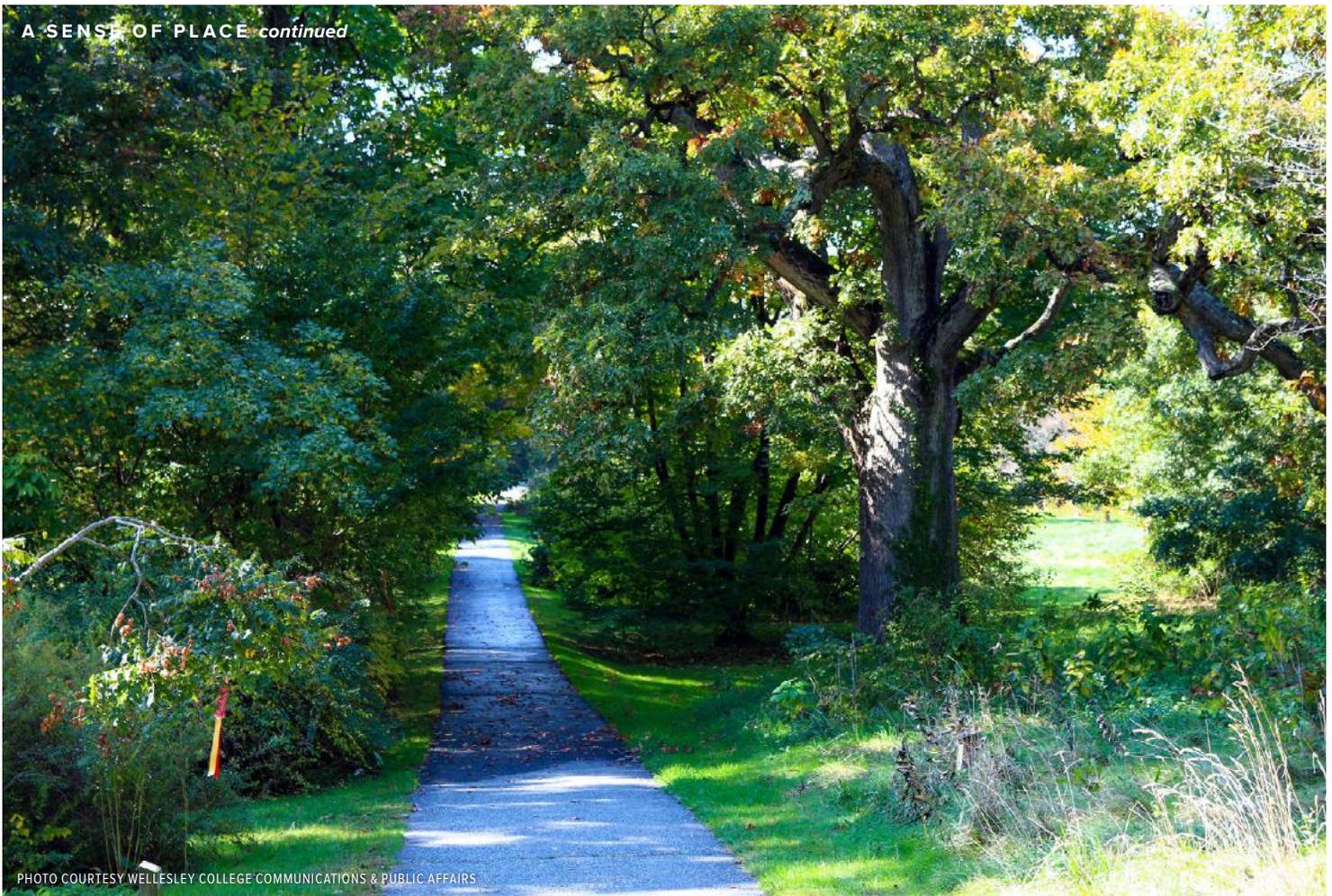


PHOTO COURTESY WELLESLEY COLLEGE COMMUNICATIONS & PUBLIC AFFAIRS

“We would go to sit spots,” she says. “For ten minutes, we would just sit in a place that we chose. And we’d do this weekly. And we just observed the things around us, trying to be mindful in terms of being in the present, and trying to let go of other thoughts that are coming through, and just focus on what we’re seeing.” After those ten minutes, she’d have the students respond to some type of prompt, such as, “Write a letter to yourself, write a letter to your future self about your sit spot.”

Finding Knowledge

“One of the central things about being a residential college is having the opportunity to learn from your backyard,” says Kristina Niovi Jones. “And to have this landscape as your backyard for four years is an incredible opportunity.”

Each year, faculty head outdoors to take advantage of the landscape. Dan Brabander, Frost Professor in Environmental Science and professor of geosciences, says his department asks, “How do we instill an appreciation of how unique this landscape is? It is worth thinking creatively about how we preserve the

features in our landscape, both from a climate perspective and also from the perspective of teaching, research, and connection,” he says. “During COVID, one of the fascinating things that we learned—and this was a really good lesson for us in geoscience—is it doesn’t need to be fancy to be ‘wow.’ I think we get infatuated with going to a front range in Colorado, or even as far as New Zealand, when we can just walk across the other side of Lake Waban and really take a look at an esker, [a ridge of sand, gravel, and boulders deposited by a glacier] and ask questions about the processes that caused this landform. There was a mile and a half of ice sitting here 12,000 years ago, and in geology, 12,000 years ago is like yesterday.”

Brabander would like to see a greater cross-section of the Wellesley community become connected to the landscape in a wider range of ways. “We talk about the beauty and the aesthetic,” he says. “But we can use the landscape in a liberal arts/transdisciplinary kind of way, where you ask questions as well as appreciate. And that’s a great gift. That’s what got me interested in geosciences: Why

are these trees here? How is that related to the soil? The question-asking, that’s the key thing.”

Andrew Mowbray, lecturer in art, has taken to using the campus landscape as a resource for art making. “In my own practice, I’ve been questioning the materials I use around issues of sustainability and climate change,” he says. “That’s also what the students want.” With his students, Mowbray constructed an archway using winter-killed bamboo that now serves as an entryway to the Edible Ecosystem Teaching Garden. They have crafted birdhouses from leftover wooden pallets and built stepped benches on Severance Green using wood from a fallen tree. They devised 3D sculptures using the invasive phragmites that grow in the meadows along College Road, then placed them next to the *Mozart III* sculpture by Kenneth Snelson near the Science Center. “When we did the piece around *Mozart III*, it was an opportunity to have free materials from the phragmites, but also to talk about what is invasive, what can be done with these materials? From a design perspective, kind of thinking outside of the box, we asked, how can we make this into a positive thing?” Mowbray says.

Heather Corbally Bryant, a poet and a lecturer in the writing program, says the Wellesley landscape is a place of “rejuvenation and connection” for her and her students. It played a central role in her class *You Are Not Here: Writing in the Distracted Age*. “My idea for the class came out of watching students walking around campus buried in their phones,” she says. “I wanted them to look up. That’s really what this class was all about.”

Bryant says her students spent a lot of time examining their physical surroundings. “We would often go out of the classroom and find a spot on campus and do some impromptu writing down by the lake or in the Academic Quad,” she says. “We would just go out into the landscape. And a bunch of students started doing that practice on their own, outside of the class.”

They toured meadows and learned the names of trees. Students picked a landscape feature and wrote a poem about it. “They got invested in their particular tree or spot of expanse of

grass,” Bryant says. “Probably the most lasting thing we did was to take part of their poem or some of the writing that they’d done and paint the words on a rock. And we hid the rocks in the botanic gardens area.”

Finding Connection and Community

As the new Science Center nears its opening date, a Science Hill landscape master planning project is underway. The project, a partnership among Facilities Management, the Paulson Initiative, and the botanic gardens, with extensive community input, will involve plans to restore the forty-three acres comprising the Science Hill landscape. The goal is to provide resiliency in the face of climate change, cultivate a sense of belonging for all students, create outdoor spaces for discovery and learning, and reopen that part of campus to everyone after the long disruption of construction. “A landscape is memories, places, and values,” says Hannah Cho (’20), a former Paulson Initiative intern who now works at

architecture firm Sasaki, which has offices in Massachusetts, Colorado, and China. “Space is the literal, basically geographic location you are in, and the physical properties of that location. Memories are made there. The Wellesley landscape is full of meaning; it is a place to a lot of people, especially after graduating. The landscape is not just a landscape. It’s also the association with community that each of us alums has and carries with us.”

Perhaps one of those alums will come across a rock in the botanic gardens inscribed with a poem by a Wellesley student, bringing the connection full circle.

ABOUT THE AUTHOR: Catherine O’Neill Grace is senior associate editor of *Wellesley Magazine*. Her “sit spot” is an Adirondack chair in the Harris Courtyard behind Green Hall, a place that used to be a parking lot but is now where the first snowdrops now appear each year.



Protect Your Floors

Strataflex® waterproofing membrane features a unique 2" double stick lap joint that creates a watertight seal to protect your floor against water intrusion while also providing crack isolation protection for up to 3/8" of lateral movement.



The ultimate solution for kitchens, bathrooms, dormitories and more.

800-633-4622 • nacproducts.com





A photograph of an outdoor fitness park. In the foreground, there are two pieces of exercise equipment, likely treadmills or ellipticals, with blue frames and yellow handrails and foot pedals. The equipment is set on a dark, textured rubber mat. In the background, there are lush green trees and a grassy area, suggesting a park or campus setting. The lighting is bright, indicating a sunny day.

THE OUTDOOR FITNESS PARK

A CREATIVE CAMPUS TOOL FOR HEALTHIER STUDENTS

BY ANNE-MARIE SPENCER

Many people, especially college students, live with the stress of fast-paced lifestyles. Too often, exercise time gets cut out to make room for all of the other areas of their lives they need to manage. Given this situation, when campus improvements help students more easily make time for fitness, then wonderful things can happen for students.



Physical activity is vital for maintaining overall fitness, which includes maintaining a healthy weight, caring for bones, muscles and joints, promoting physiological wellbeing, and strengthening the immune system. As the incidence of obesity grows, so does the increased risk of hypertension, Type 2 diabetes, coronary heart disease, stroke, sleep apnea, respiratory problems, and certain cancers. These health-related risks are not the only challenges faced by increasingly sedentary behaviors. Skill-related risks, like loss of agility, balance, and power can also have a detrimental effect on the overall quality of life.

Removing Impediments to Student Exercise

People have a variety of reasons for avoiding exercise. Common reasons provided are that they don't have enough time, they think

exercise is boring, or they don't know how to begin an exercise regime or how to perform exercises. Luckily, a movement toward outdoor gyms is helping people address these concerns.

Outdoor gyms consist of between five to fifteen pieces of equipment positioned in a cluster or along a trail. Because they are in public spaces, they are open anytime the common area is open, and most feature instruction signage or QR codes near each piece of equipment to provide instruction to beginners. In addition, while it is widely accepted that being outdoors is good for people, there are many additional benefits associated with outdoor exercise, including improved wellbeing and physiological health. Additionally, there is emerging evidence of psychological and social benefits. Just as importantly, evidence shows that people who exercise outdoors tend to persist in regular outdoor exercise, thereby driving positive health behavior change and outcomes.

A Gym Alternative: A Low-Stress, Social Environment

The Center for Disease Control reported that among the US population, one in five adults exercises enough (150 minutes per week of moderate aerobic activity, plus muscle-building activity at least twice a week.) Outdoor adult fitness parks may be one of the greatest settings for students looking to begin an exercise regimen. Away from the pressures often perceived in a gym environment, outdoor adult fitness parks provide a low-stress, no-cost environment where students can go alone or in groups, enjoy walking as part of the overall exercise, enjoy the company of peers, and reap the benefits of vitamin D. While scientists have long known that vitamin D plays a key role in bone health, recent studies suggest that it is also essential for maintaining muscle mass. Vitamin D helps preserve the Type II muscle fibers that are prone to atrophy, especially as people age. Scientists recently noted that vitamin D helps support both muscle and bone tissue, and that low vitamin D levels may be associated with poor bone formation and muscle function.

Improving Memory and Brain Function

A new study conducted by researchers at the Center for Brain Health at The University of Texas at Dallas found that engaging in regular physical exercise also helps adults improve memory and brain health in addition to overall fitness. The physical training group participated for one hour, three times a week, for twelve weeks on a stationary bike or treadmill. The group's cognition, resting cerebral blood flow, and cardiovascular fitness were assessed prior to the beginning of the study, at the mid-point, and at the end. Researchers saw increase in brain blood flow to the anterior cingulate, indicating higher neuronal activity and metabolic rate.

What's equally impressive is the fact that exercising outside is proven to increase the length of time the exercise is performed. A 2012 study found that those who exercised outside did so for longer periods and more often than those working out indoors.

Specifically, the researchers asked people aged sixty-six or older about their exercise habits and then fitted them all with

electronic gadgets that measured their activity levels for a week. The gadgets and the survey showed that the volunteers who exercised outside, usually by walking, were significantly more physically active than those who exercised indoors, completing, on average, about thirty minutes more exercise each week than those who walked or otherwise exercised indoors.

When designing outdoor adult fitness parks, it is important to think of creating opportunities for a well-rounded workout, providing muscle resistance training, core development, aerobic activity, and opportunities to develop balance and flexibility; all of these elements are crucial for overall fitness. While indoor fitness areas generally achieve this balance due to the overwhelming amount of equipment to choose from, these four areas must be strategically planned in an outdoor fitness park, as there are on average fewer than fifteen pieces of equipment present in these environments.

Guidebooks such as *Outdoor Adult Fitness Parks, Best Practices for Promoting Community Health by Increasing Physical Activity* provide design guidance by way of charts that highlight the primary benefit of most outdoor fitness equipment, as well as a list and images of the muscles each piece will work. The guide provides an easy reference for facilities wanting to ensure the four elements of an effective workout are covered; it also cites several case studies on outdoor environments around the U.S. that have put the design guidelines into practice.

ABOUT THE AUTHOR: Anne-Marie Spencer is the Corporate Vice President of Marketing for PlayCore and serves as a member of their Center for Professional Development team. She has a monthly column dedicated to active lifestyles, play, and fitness. For more information on outdoor fitness spaces, contact her at aspencer@playcore.com.

Outdoor adult fitness parks may be one of the greatest settings for students looking to begin an exercise regimen. Away from the pressures often perceived in a gym environment, outdoor adult fitness parks provide a low-stress, no-cost environment where students can go alone or in groups, enjoy walking as part of the overall exercise, enjoy the company of peers, and reap the benefits of vitamin D.

Effective against SARS-Related Coronavirus 2 (SARS-CoV-2) in 10 minutes on hard, non-porous surfaces. **(Kills)** (Effective against) SARS-CoV-2 (virus) **(COVID-19 virus)** on hard, non-porous surfaces (Kills 99.9% of) (Eliminates 99.9% of) SARS-CoV-2 (virus) (COVID-19 virus) in 10 minutes on hard, non-porous surfaces.

Sterifab It!!



STERIFAB
MUCH MORE THAN A BED BUG KILLER

800 359-4913 • STERIFAB.COM



ICE MELT ENVIRONMENTALLY FRIENDLY "GREEN" DE-ICERS FOR PROFESSIONALS

CALL TOLL FREE: 1-800-528-1922
PHONE: 920-238-0482
Promotional code: PUPN
VISIT US ONLINE AT: GreenEarth.com

Granular CMA GREEN ICE MELT LIQUID

**DO YOU NEED TO EXTEND YOUR SALT SUPPLY?
UNABLE TO OBTAIN ROCK SALT FROM YOUR SUPPLIER THIS YEAR?**

Use "Salt Saver - Liquid" and make your salt go farther, saving money and supply.
Longer lasting - Lower application rate - Fewer applications - Colder Temps
Also, see our other great environmentally friendly products - ALWAYS IN SUPPLY!
CMA - Safe for NEW CONCRETE • Green Earth Ice Melter • Clean Sweep Liquid





BUILDING A CAMPUS

RAINGARDEN

**AN ECOLOGICALLY AND
VISUALLY PLEASING SOLUTION**

BY SHANNON BRENNAN AND JEANNE ARANOVITCH

Though rain gardens may appear to be purely ornamental perennial campus adornments, they are designed to filter and slow the rate of stormwater runoff while using vegetation to remove pollutants. As both a powerful green initiative and beautification project, rain gardens are becoming increasingly common on college campuses.

In essence, a rain garden is a shallow depression that is designed to host any number of native flowers, grasses, shrubs, and plants that thrive in wet conditions. Designed to collect rainwater from sidewalks or down spouts, a rain garden allows excess water to seep slowly back into the ground. In this slow infiltration process, many pollutants are filtered out, so that they gradually break down in the soil rather than flowing into storm drains.

Messiah College Rain Garden

Whether studying bank erosion along the Yellow Breeches Creek, identifying plants and trees along the Stabler Fitness Trail, or recreating in the lush green space of Starry Athletic Field, Messiah students have many opportunities to enjoy the natural environment of the College's scenic 471-acre campus. Elements of the campus—such as the creek—provide a unique learning lab for students who are partnering with educators to use the wide-open spaces of the Grantham campus to practice environmental stewardship locally.

A sampling of Messiah's conservation efforts includes an on-campus garden and development of alternative energy including solar and biodiesel. In addition to these ongoing projects and a thirty-year, campus-wide commitment to recycling, a team of students recently designed and implemented a rain garden stormwater management system for the new Cottage Brook Lane housing development. Whenever it rains (or pours) in the new Cottage Brook Lane residential development on Mill Road, homeowners will reap the rewards of the beautiful and functional flowering rain gardens that David Foster, professor of biology and environmental science, and a number of his Messiah College biology students designed and built last year. These three rain gardens form the first such system in Upper Allen Township to combine bio-filtration and stormwater management on the scale of a residential subdivision. Traditionally, stormwater flowing along the streets of a residential subdivision has been collected and held in a detention basin so as not to overwhelm nearby streams and creeks with excessive and possibly contaminated runoff. These earthen berm and concrete detention basins, while functional, can be eyesores, and the standing water sometimes

creates a breeding ground for buggy pests.

Rain gardens, when well designed and maintained, are a visually delightful and ecologically-sound alternative with root and soil systems which treat many contaminants found in residential runoff, permitting the clean water to percolate naturally through to nearby waterways.

The developers of the Cottage Brook Lane project, Jim and Joy MacDonald, are Messiah College alumni who had talked with Foster about the possibility of this project during the design phase in 2007. The project engineers, Fischbach Morgan and Associates, LLC, and—later—J.W. Gleim Excavating, participated in the project to create site grading that would deliver the stormwater to the area designated for the three rain gardens. In addition to the need for selecting plants that could bio-remediate runoff water and tolerate a broad set of soil moisture conditions, the developers also desired to improve site views by obscuring infrastructure and walls and providing a spread of texture and flower colors across the various seasons of the year.

Plant Ecology and Planning

An additional objective was to plant primarily native species of plant that would spread vigorously within the rain garden area. Last spring, students enrolled in Plant Ecology worked together with Foster to create the planting design and select the plants for the principal rain garden, which covers approximately 275 square meters. The grouping of plants was selected to give the appearance of a naturalized wetland. Once the plants were selected, students in the Ecological Field Techniques class worked with Foster and Black Landscape Contracting to locate and plant the rain gardens. Evaluation and ongoing maintenance of this multi-faceted project will be undertaken by future students in the College's Plant Propagation course.

The beautiful flowers that bloom at Cottage Brook Lane each season are a visual reminder of the cooperation of the participants; the students, community, township, environment, and clients all continue to benefit. Foster, summing up the positive nature of this effort, says, "This project is a model of service learning for students in technically demanding areas. It combines professional knowledge, skills, and community service

with real projects. It benefits the community and builds community and expertise at the same time.”

Lynchburg College Students Plant Rain Garden

Capturing and cleaning stormwater runoff is an increasingly important way to improve water quality in rivers and lakes, and Lynchburg College installed a \$65,000 biofilter and rain garden to help protect Blackwater Creek and the James River. Dr. Tom Shahady, professor of environmental science, proposed the project, which provided hands-on learning for students as they planted a rain garden near the Lakeside Drive entrance to the college. “This project improves rainwater coming off the steep grade of the new loop road around the Drysdale Student Center, as well as the main driveway,” Dr. Shahady said. “The aquatic plants we put in the pond, in addition to two biofilters, will infiltrate the stormwater instead of discharging it directly into Blackwater Creek.” Infiltration of stormwater into groundwater is the best treatment available.

Effective Biofilters

Two biofilters, composed of mulch, rocks and sand, now pretreat the water before it reaches the pond, where aquatic plants absorb nutrients and prevent their escape to Blackwater Creek. Excessive nutrient loads are one of the biggest pollutants in Virginia’s rivers and lakes, as well as the Chesapeake Bay.

Rob Smith, LC’s director of buildings and grounds, said there may be the occasional heavy rain event that overwhelms the system, but it is a huge improvement over previous conditions. “In 90 percent of the storms, it’s going to filter the water,” he said.

“This commitment to cleaning up the water will have ongoing costs,” Smith said. The biofilters will likely need to be replaced about every seven years, at an estimated cost of between \$7,000 and \$8,000.

Two Rain Guardian turrets, which capture trash, will have to be cleaned out regularly. They represent innovative technology suggested by Erin Hawkins, the city’s water quality manager. Hawkins said she learned about the turrets at the annual Environment Virginia Symposium at Virginia Military Institute. They were developed by a soil and

water conservation district in the western U.S. Hawkins said LC’s project sets a good example of innovative ways to decrease stormwater runoff. She said the project is unusual because it’s one of the first voluntary rain gardens of its kind in the city. The cost of the project was offset by a \$114 reduction in the College’s stormwater fee, which was previously \$2,000 a month.

UNE Classes Use Environmental Grant to Create Biddeford Campus Rain Garden

The rain garden project began last year when five UNE faculty and staff members collaborated to apply for an Environmental Protection Agency (EPA) sub-contract through the Maine Campus Compact—a coalition of seventeen college campuses that aims to reinvigorate the civic mission of higher education. Several UNE faculty and staff were

“After the first year or two, there won’t be much maintenance required, but this rain garden is very much a work in progress. There is a lot of experimentation to see what works, which plants are thriving in which locations, and we adjust and rearrange when necessary.”

—JORDAN TATE, AN ENVIRONMENTAL SCIENCE MAJOR '15

successful in securing a \$5,000 grant to pursue a community-based environmental project. They proposed the creation of a Biddeford Campus rain garden: Alethea Cariddi, UNE’s Sustainability coordinator; Thomas Klak, Ph.D., professor in the Department of Environmental Studies; Theo Dunfey, M.A.L.D., coordinator of Citizenship and Service Learning; Christine Feurt, Ph.D., assistant lecturer in the Department of Environmental Studies, director of the Center for Sustainable Communities, and codirector of the Saco River Estuary Project; and Bethany Woodworth, Ph.D., assistant lecturer in the Department of Environmental Studies.

continued...



While the rolling hills and proximity to the Saco River lend aesthetic charm to UNE's Biddeford Campus, its uneven topography coupled with its closeness to the Saco River present a unique environmental challenge. Rainwater, carrying environmental pollutants, flows from areas of high elevation to low elevation and makes its way through underground pipelines in the campus that eventually release the rainwater into the river. Additionally, the downhill flow of rainwater erodes soil. Christine Feurt's Sustaining Water class performed extensive background research on rain gardens. One of her students, Jordan Tate, an environmental science major in the class of 2015, who was serving as an "eco-rep," a federal work-study student in the UNE Sustainability Office, volunteered to be an intern for the rain garden project.

Sustainability and Ecological Restoration Classes

A Sustainability and Ecological Restoration class taught by Thomas Klak grew the plants to be used in the rain garden, using only species that are native to Maine. The students

raised the plants from seeds in an on-campus greenhouse.

Alethea Cariddi's Sustainability Lab students created a design and installation plan for the rain garden, considering factors not only related to the garden's function but its acceptability to the UNE Community. They strived to make the garden aesthetically pleasing and sought to create a place that students could enjoy. Purchasing an Adirondack-style chair from the Biddeford company Conversion Products, Inc. made entirely out of 240 recycled milk jugs, the students created a serene nook in the garden for the community's use while echoing the commitment to environmental protection that is at the heart of the rain garden project.

With the help of UNE grounds staff, Cariddi's Sustainability Lab class prepared the location by digging out the area where the rain garden was to be created. Students in Klak's Sustainability and Ecological Restoration class completed the plantings. Tate laid down topsoil and stones to help to break up water momentum. She also added supplemental plants. Several students in Dunfey's

Citizenship class volunteered to perform weeding, lay additional soil, and add mulch. "After the first year or two, there won't be much maintenance required," Tate explained. "But this rain garden is very much a work in progress. There is a lot of experimentation to see what works, which plants are thriving in which locations, and we adjust and rearrange when necessary."

Challenges and Solutions

Tate has dealt with several challenges thus far and has come up with various solutions. "We were having some flooding initially, so we had to change the design a lot. We had to fill up sections of the garden with rocks," she noted. Erosion also plagued the rain garden, requiring unanticipated amounts of mulch. The latest obstacle is an infestation of aphids on some of the plants. "The other thing that you have to think about when planning a rain garden is that it has to withstand times of draught as well as times of extreme moisture," said Tate. "So the selection of plants and their precise placements are key to the success."

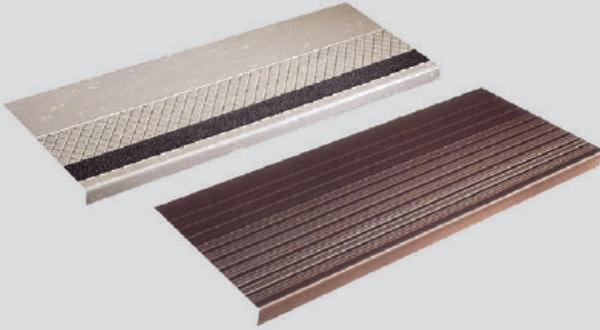
The rain garden is home to 17 native plant species, including more than 160 individual plants. New England aster, mountain mint, pale leaved sunflowers, sheep laurel, great blue lobelia, milk weeds, and sweet fern are a few of the types of plants one can see in the garden. The very center, the moistest area, contains an island of Siberian irises, a water-loving plant, surrounded by a circle of stones. Complete with a rain gage, a pebbled walking path, and a cedar bridge, the garden is marked with a plaque that explains the function of the garden and honors those who led to its creation.

ABOUT THE AUTHORs: Shannon Brennan is director of media relations at Lynchburg College; she also writes a nature column for *The News and Advance*. The Messiah Rain Garden piece was contributed by Messiah College Office of Marketing and Communications.

Jeanne Aranovitch is a graduate of Colby College who works in the Communications Office at the University of New England on its Biddeford Campus. She promotes the university both in print and online and serves as a contributing writer for the *UNE Magazine*.

ONE SOURCE FOR ALL YOUR FLOORING NEEDS

Rubber & Vinyl Stair Treads for Interior Applications



Sheet Rubber



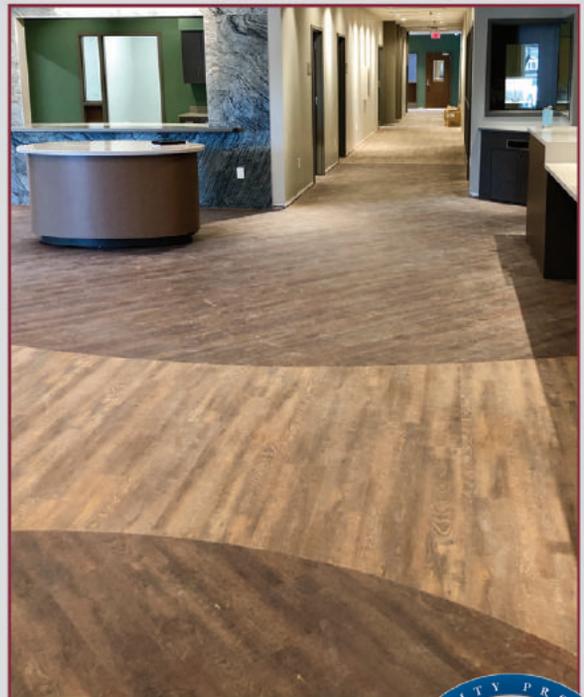
Entrance Matting



Rubber Stair Treads for Exterior Applications



40 Mil LVT



For more information
visit our website at
www.mussonrubber.com
or email us at
info@mussonrubber.com



MUSSON RUBBER CO.

P.O. Box 7038 • Akron, Ohio 44306
800-321-2381 • Fax 330-773-3254
info@mussonrubber.com • www.mussonrubber.com

A photograph of a well-maintained green lawn with several trees. In the background, multiple sprinklers are active, spraying water across the grass. The scene is brightly lit, suggesting a sunny day. The text is overlaid on the lower half of the image.

MAKING THE FINANCIAL CASE FOR SAVING WATER

BY RUBEN MEJIA

As private schools and universities look for ways to reduce costs and become more fiscally responsible, one area that seems to get overlooked is water usage. However, if administrators really want to save money, water usage should not be ignored. Additionally, today's students appreciate their university's efforts to go green.



The Environmental Protection Agency (EPA) has reported that for the past decade, the costs associated with water and wastewater services (taking water away from a facility or campus) have increased “at a rate well above the consumer price index (CPI).” This finding was confirmed by a 2014 posting on the Environmental Finance Blog, written by the staff of the Environmental Finance Center (EFC) at the University of North Carolina at Chapel Hill. It indicated that according to the university’s research, “Water rates have been rising faster than CPI inflation in the past few years for hundreds of utilities.”

Additionally, USA Today reported back in 2012 that according to their research,

“residential water bills in at least one in four places [in the US] have doubled in the past twelve years.”

- Regarding how these price increases apply to commercial facilities such as private schools, utilities typically have three choices:
- Pass on the same rate increases to all water consumers across the board
- Increase water charges for commercial facilities but not as much as for residential consumers
- Increase water charges for commercial facilities more than for other users

Sewer charges are escalating around the country as well. In many cases, utility

companies are increasing these charges to address sewer repair, replacement, and expansion. As has been long reported, water infrastructure in many parts of the United States is in dire condition. We can expect these charges to escalate even faster than water charges in coming years as the need to address this issue becomes paramount.

The amount schools will be paying for water and sewer services five or ten years from now will likely be significantly higher than they are currently. The more emphasis colleges put on reducing water consumption today, the more likely these costs will be minimized and easier to manage tomorrow.

Benefits beyond Cost Savings

The business case for reducing water consumption ranges far beyond saving some dollars, and it relies on a long-term commitment to water reduction. Whereas water conservation refers to reducing consumption for a short time, such as during a drought, water efficiency takes a longer view. Water efficiency means making permanent changes in water use habits. Only through increased water efficiency can the full savings and benefits of reduced water consumption be achieved. Using water efficiently is a sign of fiscal responsibility in all sectors of a university's operations. According to an EPA booklet, *The Lean and Environmental Toolkit: Identifying and Eliminating Waste*, excessive environmental

The business case for reducing water consumption ranges far beyond saving some dollars, and it relies on a long-term commitment to water reduction. Whereas water conservation refers to reducing consumption for a short time, such as during a drought, water efficiency takes a longer view.

waste, including water waste, is “a sign of inefficient production” and management.

If water is not being used efficiently, it often indicates other areas of a facility's operation are not efficient either. Fuel and energy consumption may not be properly managed or monitored, or the facility may not be properly cleaned in order to control costs. Private universities that have reduced their water consumption are also on the path to becoming much more sustainable overall. Fiscal responsibility and sustainability are at the top of the agenda in many private universities. Studies released in 2014 by the Pew Research Center indicate that millennials are the most sustainability-focused generation in American history. As a result, a university's efforts to become more sustainable could be used to promote the school.

How to Start

Most likely, a larger private school or university is going to need to consult with water engineers who specialize in helping facilities use water as much as 75% efficiently. However, the more administrators know about the process and the steps they can take on their own, the easier

the water efficiency journey will be. The first step is simply to measure and monitor water consumption. Planners should go through two or three years of past water utility bills to see how much water the school uses and what it pays on a month-by-month basis, then average the consumption along with the charges to find what can and should be reduced.

Once those calculations are made, planners can set goals to reduce water consumption by a certain percentage over a defined amount of time. Having a goal helps keep the journey focused. At this point, planners have two options: conducting a water audit to determine exactly where water is being used on the campus or taking steps to reduce

consumption in general. The water audit should be conducted at some point so that planners can determine where water is being wasted. The audit, however, does not have to be the first step. Instead, administrators can focus on two primary categories of water use: landscaping and restrooms. More water is used in these two areas than any other part of the campus.

Landscaping

Water usage in landscaped areas can be reduced quickly when designers take these steps:

- Minimize vegetation irrigation needs. At one time, the campus of the University of New Mexico looked like it was somewhere in water-rich New England instead of in the middle of the desert.
- Establish smaller lawns, turn to native vegetation, and make sure plants are clustered. Making these changes usually helps minimize water needs.
- Reduce mowing frequencies and set mower blades higher to help keep the soil below the surface moister.

- If sprinklers are installed, make sure they are not also irrigating sidewalks and streets; and reduce water time and frequency overall. Overwatering is not only wasteful; it can also lead to fungi growth and disease in some plants.

Restrooms

A few initiatives with toilets and urinals can bring big results. Newer toilets are mandated to use 1.6 gallons per flush or less. However, as toilets age and undergo repairs, they may be using more than these amounts. Administrators should have an ongoing policy to replace toilets every six to seven years. Not only will this rotation help lower consumption, but the reality is many manufacturers are now making toilets that surpass the 1.6 gallons of water per flush mandate. With more frequent replacement, schools can take advantage of the latest technologies. As to urinals, in California, all new urinals installed in a facility must use no more than 0.5 gallon of water per flush—a standard half of the federal mandate.

Due to cost factors, however, many facilities are now taking the next step toward water efficiency and installing no-water urinals. No-water systems come with financial benefits beyond water savings. For example, even if a new urinal uses less water than a traditional urinal, it still needs to be plumbed and piped; it still needs a flush valve and likely a sensor system; and the urinal itself is likely more costly than a no-water system. None of these costs applies to a waterless urinal system.

The Learning Experience

Here in the United States, we have been given time to prepare, to adjust, and to develop the technologies that will help us lower consumption, use water more responsibly, and, along with it, become much more fiscally responsible in our operations.

ABOUT THE AUTHOR: Klaus Reichardt is

CEO of Waterless Co. Inc. in Vista, California.

Reichardt founded the company in 1991 with the goal to establish a new market segment in the plumbing fixture industry with water conservation in mind. Reichardt is a frequent writer and presenter, discussing water conservation issues. He can be reached at klaus@waterless.com.

DON'T LET AN AUXILIARY DRAIN SINK YOUR SUPPLY CHAIN

YOUR PARKING GARAGE, SELF-STORAGE, AIRPORT, STADIUM, LOADING DOCK, GARDEN CENTER, ...



FLOODELIMINATOR

- Stops Flooding due to Frozen, Vandalized, or Improperly Maintained Fire Sprinkler System Auxiliary Drains
- For Dry and Pre-Action Fire Sprinkler Systems
- Compatible with Compressed Air and Nitrogen Systems
- No Power Required
- Automatically Resets
- Allows Condensation to be Drained Normally
- Retrofit onto Existing Auxiliary Drains
- Made in the USA



www.agfmfg.com

JOIN 100+ CAMPUSES IN DEPLOYING AWARD-WINNING

SELF-SERVICE DISPENSING KIOSKS



Space-Saving • Experience-Enhancing • Forever-Flexibility

Mix-N-Match Laptops And Now
110V Portable Power Outlets



For More Info Go To:
ChargersAnytime.com

A New Innovative Approach To Student Battery Access

OVER 4 MILLION
ANNUAL CHECKOUTS AND GROWING
4,000,000



Trusted Technology Branded to Your Local Look-n-Feel

LAPTOPSANYTIME™

Automated Checkout Kiosks

1-877-836-3727 • LaptopsAnytime.com