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ADVANCED LIGHTING FOR A FORWARD-THINKING CAMPUS

by Paul Mitchell

Paul McCartney and John Lennon had other thoughts in mind when they wrote that now famous line almost five decades ago, but their words still resonate across today's technological landscape. Bringing together various technologies can create powerful synergy.





Remember how clever it was when someone first integrated a VCR right into the TV itself instead of their being separate machines? I still recall how impressed I was the first time I saw a refrigerator that had an ice dispenser on the outside of the door. Today, refrigerators can not only keep track of the food you have on hand but also find recipes online to match that inventory. To this day, few technological advancements have changed my home-life as much as the DVR technology now built into my cable box. The ability to binge-watch a whole season of "Breaking Bad" in one weekend is beyond what even Michelangelo or Galileo would have dreamt, and being able to skip over the commercials is just a slice of heaven.

Nowhere is this technological synergy more apparent than with the smart phones that most of us carry around in our pockets and purses (or "satchels," according to my brother in law). In addition to micro-processors that the Cold War Soviet Union would have killed for, these handheld devices commonly include proximity sensors, ambient light sensors, magnetometers, gyroscopic sensors, fingerprint scanners, voice recognition software, virtually scratch-proof ultra HD touch screens, miniaturized HD video cameras,

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and much more. Oh, and they can also make phone calls. The next generation of “wearable tech” that would have been equally at home on the wrist of George Jetson or James Bond is already here and fast becoming as commonplace as our phones.

Forward-thinking Campus Planners and Technological Synergy

Today, forward-thinking campus planners are harvesting these advancements in sensor miniaturization and combining them with recent advancements in solid state lighting and wireless control systems. Whereas a light pole in the past was just that—a means to simply support and energize a light fixture—today it is recognized as a far more valuable asset to the university.

That singular structure can include not only an energy efficient LED light fixture capable of adaptive light levels and wireless internet-based control, but also house a robust speaker, LED messaging system, and two-way communication with campus Security. That same pole can integrate seismic, atmospheric, gunshot,

or water sensors. It can house a relatively small camera capable of recording daytime HD images and video, or utilizing infrared technology, allowing it to “see” and record in shadows and behind foliage where a normal camera cannot.

Using Blue Light Call Boxes for More Than Emergencies

Most campuses utilize blue light style emergency call boxes. Dotting the campus landscape, these units are most commonly standalone. Not only can two-way emergency communication be integrated into the light pole, but it can be done on a higher level, providing a far more robust deterrent to a potential predator.

Consider the scenario where a person walking at night feels threatened or believes he or she is being followed. On an average campus, the student would locate the nearest emergency call box, then press the button and wait for a response from campus Security (hopefully an immediate response). Now consider a scenario where that person presses the blue light button and the LED light on that pole—and on

poles within a predetermined zone—immediately increases by 25-50%, brightening the entire area.

Simultaneously, the HD camera on the pole, and others within that zone, immediately start recording. At the same time, an authoritative voice from the pole loudly announces that the area is now being recorded and that Security has been notified, as the blue light on top of the light pole turns to red so that the specific call box location can be identified from a distance. All of this happens before someone in the campus Security office has even had a moment to react and answer the incoming call.

Using Integrated Speakers for Mass Messaging and Wayfinding

In addition to being part of a more robust system to deter an assault, the integrated speaker also allows for mass messaging and wayfinding assistance. According to Mark

Taussig, the university landscape architect for Kansas State University in Manhattan, Kansas, one of the shortcomings of traditional emergency call boxes is that they’re rarely used.

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Taussig explains, “The emergency phone idea needs to transition away from the 9-1-1 feel into a more information-based system for general assistance. It’s unfortunate that students often have the impression that they’ll get in trouble for using the system if they’re not in danger. They could use the call box to ask for directions or for help if they’re lost, but that generally doesn’t happen.”

Part of the problem may lie in the fact that many of these call boxes have the word Emergency on them, giving the impression that emergencies are the only occasion for which they’re allowed to be used. By integrating a speaker and two-way communication into the light pole in a more aesthetic manner, that stigma goes away, and the two-way communication becomes far more useful. The light pole can still have a blue LED element shining all night, noting the presence of the emergency call capability, but will be greatly enhanced by the camera and powerful speaker.

These speakers also allow Security to alert students and faculty to any threats, weather related or otherwise, and can even be used to play the fight song across campus on game days. The integration of a multi-colored LED element, separate from the



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main light fixture, brings a number of new abilities, only one of which is the Blue Light style notification that the pole includes an emergency call system. By combining the integrated speaker with multi-colored LED lights, the administration or Security now has the means to effectively direct people to overflow parking, to an event venue, or where to go in the event of an emergency or traffic mishap.

The combination of speakers with “chasing” lights provides an effective means for mass messaging, particularly during sporting events, which often bring a flood of both pedestrian and vehicular traffic to the campus. To handle those conditions, a higher level of mass communication and way finding are necessary to maintain a safe environment, as well as to quickly resolve emergencies and/or mishaps that inevitably occur.

For nighttime events, standard light levels can be easily increased by Security in order to maximize pedestrian and driver safety, after which the lighting would return to preprogrammed illumination levels.

Using Environmental Sensors to Detect Increased Threat Levels

It is also an unfortunate reality that these events, because of the large number of spectators and a wide television audience, can also bring an increased threat level from those who might plan an unfortunate act in order to bring attention to their cause or grievance.

This level of integrated lighting/security/messaging system can provide Security with real-time imaging and the ability to quickly and effectively communicate in order to maintain a safe environment. Environmental sensors which can detect explosives or other pollutants in the air can be combined with gunshot sensors. This additional layer of security may be relevant not only near stadiums and theaters, but around facilities involved with sensitive research related to defense or the Department of Homeland Security.

The ability to bundle the form and function of these various elements into one interactive asset is already here. Tomorrow’s campus environments are being designed today. The above examples are only part of the menu of options that technology has brought to the table.

Utilizing what was once just a light pole as a means to both gather and disseminate information across the campus has changed the way facility staff now approach the various issues of lighting, security, messaging, and emergency management.



ABOUT THE AUTHOR: Paul Mitchell heads up National Sales & Education for Sternberg Lighting and is the Regional Sales Vice President of Western North America. A graduate of Michigan State University, he serves on the IES Roadway Lighting Committee and on the Planning Committee for the IES Street and Area Lighting Conference. For more information on Sternberg Lighting and Intellistreets, please visit www.sternberglighting.com/intellistreets.

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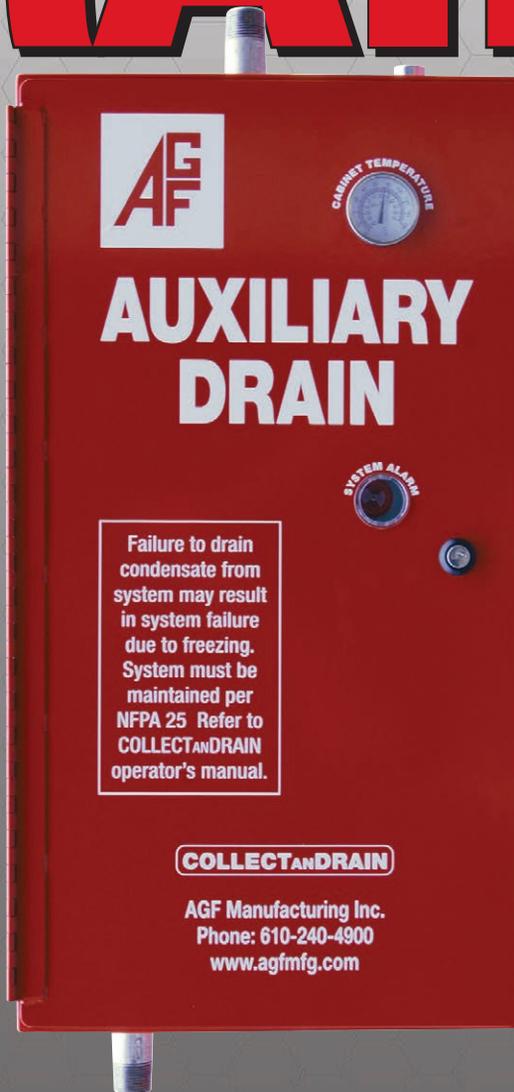
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