

Reducing Electrical Fire Risk in a College Dormitory

AFCI Receptacles Increase Safety with Added Convenience

When students at the College of Mount St. Joseph in Cincinnati, Ohio returned to school for the fall 2013 semester, they were welcomed to fresh updates at the Seton Residential Center. As the largest building on campus, the six-story Seton Center is home to office space, classrooms, campus police, a chapel and more than 500 students.

Over the summer months, four levels of the building holding nearly 160 dormitories underwent renovations for not only enhanced cosmetics, but updates to the electrical system for increased safety and convenience to residents.

Facing upcoming changes to the National Electrical Code® (NEC) and concern for student safety, electrical contractor, Nicholas Volpenhein, P.E., of Volpenhein Brothers Electric, was tasked with finding a solution for protection from arc-faults that may lead to electrical fires resulting from damage in branch circuit wiring as well as extensions to branches such as appliances and cord sets.

Arc Fault Circuit Interrupters, or AFCIs, are now required by the NEC in many areas throughout residences; and in 2014 the NEC will require that AFCI protection be added when replacing receptacles in locations where AFCI protection is needed, such as living rooms and bedrooms. Additionally, the 2014 NEC will expand the requirements to include dormitories.

In selecting a product solution, Mr. Volpenhein considered the lifestyles of the students. "The occupants



of college dorms, like any other residences, are constantly plugging in computers, tablets and other devices and using cord connected equipment," he explained. "It doesn't take a lot of abuse to damage cords or cord ends to the point where some arcing may occur, which can then result in an electrical fire."

As part of the electrical updates, Mr. Volpenhein's team intended to replace all of the existing standard receptacles in the dorm rooms while also installing new AFCI breakers on the circuit panels. Mr. Volpenhein sought a solution for replacing both

the receptacles and breaker style AFCIs with a single solution.

Director of Buildings and Grounds at Mount St. Joseph, Dennis Young, also had concerns regarding the AFCI breakers and their locations in a central panel. In the past, students experiencing loss of power due to an AFCI breaker interruption relied on Residence Life staff or Mr. Young himself to reset trips of the electrical circuit. Students and staff were inconvenienced when this occurred after business hours, having to wait for access to the electrical breaker.





With this in mind, Mr. Volpenhein selected Leviton's SmartlockPro® Outlet Branch Circuit (OBC) AFCI receptacle, providing AFCI protection at the device level while allowing students to reset the AFCI directly from the receptacle.

"The Leviton OBC AFCI receptacle is the only receptacle-based AFCI product of its kind," said Mr. Volpenhein. "The more I looked more into the NEC requirements and the alternative option of installing AFCI breakers, it was determined that the site conditions allowed for device-based protection per the NEC, and I felt comfortable with the new Leviton product."

Although specific requirements for AFCI protection in dormitories will not be in the NEC until 2014, many colleges and universities have taken the initiative to add this protection during renovations of student housing.

With Mr. Volpenhein's team already planning to replace all of the devices in each of the dorm rooms with new receptacles, the Leviton OBC AFCI receptacles provided additional benefits outside of the ability for localized reset. The AFCI

receptacles saved time and money, eliminating the need to purchase and replace all the breakers in each of the 18 existing panel boards on the project residence room circuits in addition to all new receptacles.

"Leviton is a trusted name in the world of wiring devices. While this product is relatively new, I was comfortable that they would get the job done safely and correctly," said Mr. Volpenhein.

Leviton's new OBC AFCI receptacle offers protection from arc-faults

that may lead to electrical fires. Designed to detect a wide range of arcing electrical faults, it helps reduce the likelihood of the electrical system being an ignition source of a fire by de-energizing the circuit downstream of the device when an arc-fault is detected to help prevent ignition and a resultant fire. The OBC AFCI is able to provide protection for downstream circuit wiring and outlets as well as electrical devices and cords that are plugged into those downstream outlets.

In the months following the installation of the Leviton AFCI receptacles, Mr. Volpenhein has received positive feedback from the school. Leviton and Voepnhein Brothers Electric will be following up to make sure all expectations are being met and continue to make recommendations that will enhance the safety, efficiency and reliability of the electrical systems at the College of Mount St. Joseph.

