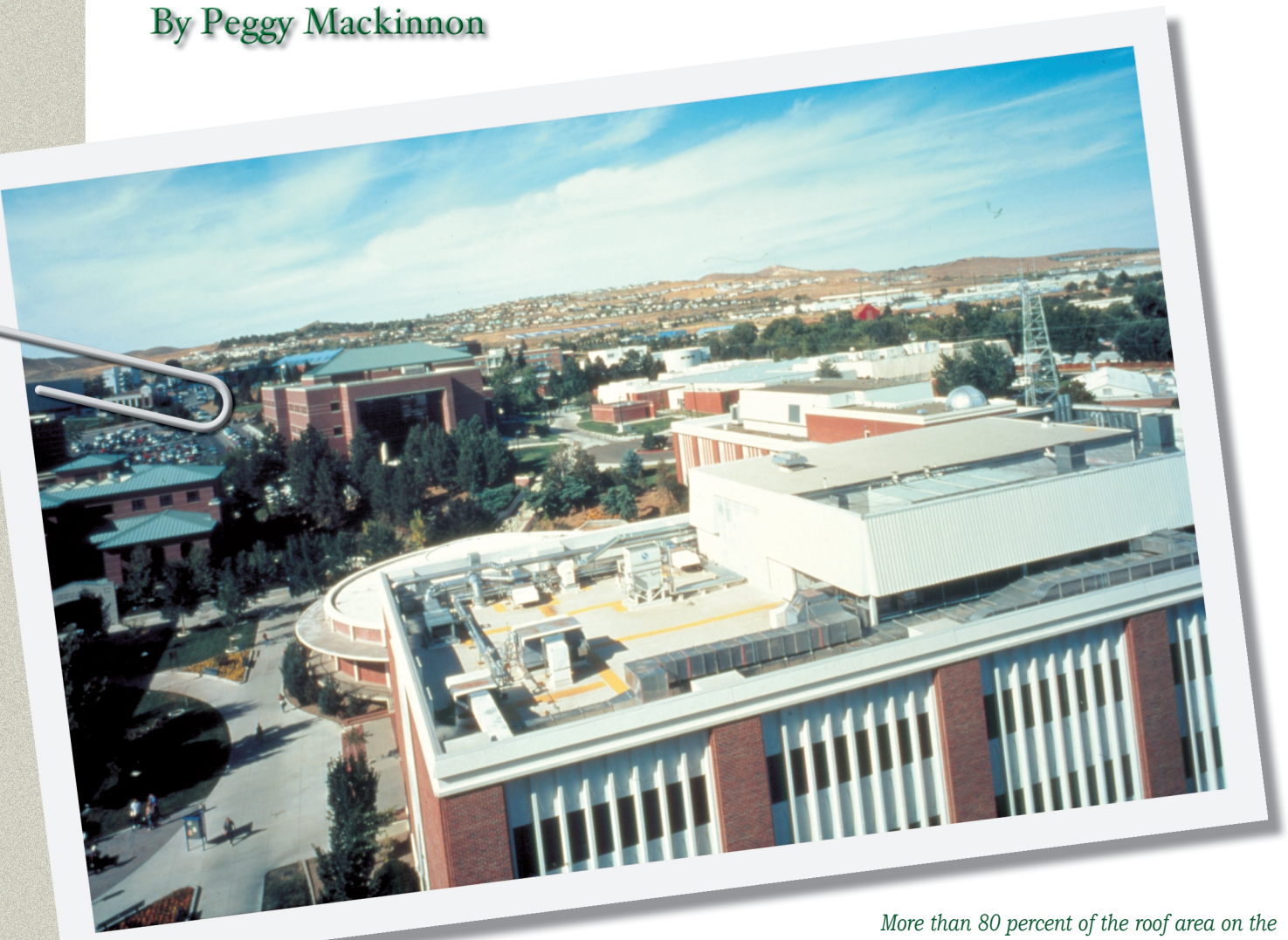
REROOFING CHEMISTRY LAB A CHALLENGE

By Peggy Mackinnon



More than 80 percent of the roof area on the University of Nevada chemistry lab was covered with mechanical equipment.

Judy Good, the foreman for D&D Roofing & Sheet Metal, Inc., said that reroofing the 14,000-square-foot University of Nevada chemistry lab was the most difficult job she has experienced in her 23 years of roofing. More than 80 percent of the surface was covered with mechanical equipment, some weighing several tons, which had to be moved. Because chemistry experiments were taking place during the reroofing project, ventilators were kept open for safety reasons. Moreover, years of pigeon droppings left up to two feet of residue that had to be removed.

"This was a very challenging job and very labor intensive," Good said. "We took this project one step at a time. We approached each area of the roof individually and solved problems in each area before moving onto the next. It required a lot of coordination."

The original roof had been installed in the 1970s and had deteriorated. In some cases, the concrete structure had been damaged, and the reinforcing was exposed. Leaks were common, due, in part, to the penetrations necessary to install mechanical equipment (HVAC, ventilation, air ducts). To address many of the challenges, Michael J. Perry, vice president for CRC Consulting Group, Inc., a professional member of RCI and the roof consultant on the project, specified a PVC roofing system. A Johns Manville UltraGard® SR60 PVC roofing system was installed over JM Tapered ISO 1™ roof insulation because the roof had minimal natural slope.

"We thought PVC provided a number of advantages for this project," Perry said. "We were able to accommodate the variety of flashing conditions and the minimum clearances we had to work with. We also could accommodate the relatively complex detailing necessary for covering the high walls, including a variety of levels, protrusions, and duct penetrations. We also thought that a PVC membrane might help inhibit the pigeon activity."

The first challenge was the size and quantity of mechanical equipment. According to Sam Chamberlin, operations manager for D&D Roofing & Sheet Metal, Inc., the mechanical part of the project was 2-1/2 times the cost of the roofing system. Coordinating with the mechanical engineer and electrician, a lot of the equipment was removed from the roof with a crane. Some equipment, however, could not be dismantled and had to be left in place. For example, a several-ton mechanical unit had to be raised 10 inches so the surface underneath could be roofed.

The equipment and penetrations required some unique flashing details. For the 80-ton air coil cooler, a cylindrical iron pedestal was wrapped with flashing and clamped to form the watertight base for the unit. All of the pitch pans were removed. The membrane was extended up 10-foot, stair-stepped parapet walls with clad metal used on the top of the wall. Massive bolts were concealed by coated metal. Each coated metal cover had 32 corners, and 16 covers were along each wall.

Another challenge was coordination. According to John Walsh, assistant project supervisor for the University of Nevada, there were restrictions on how long the equipment could be down, which required coordination with class schedules. If the ventilation system was down during chemistry classes, it could result in injury to the students.

Another significant issue was the years of build up of pigeon droppings. Not only did the roofing contractors have to remove the droppings, but it was also desired to prevent pigeon activity in the future. Old screening over the roof was replaced, and the university plans to install additional deterrents.

Asbestos abatement also was part of the project. Despite inclement weather, the roofing system was installed on time and with minimal change orders. Perry cited D&D's coordination as key to the success of the project.

"D&D did a great job in working closely with everyone to make sure the needs of the building owners were maintained throughout the project," Perry said. "They made every effort to follow plans and specifications. As a result, we ended up with a quality product." ■

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