

Contractor Makes Quick Work of Colossal Recover
Maintenance Contract Helps Land Contractor Huge Reroofing Job in Colorado
by Andrew Romano, senior product manager, GAF

It's the closest most crews get to nearly half-a-million square feet of roofing. Yet, with a little faith and a secret weapon, Colorado Moisture Control Inc. (CMC) conquered this Goliath-size project quickly and cost-effectively. CMC of Commerce City, Colo., nurtured the existing EPDM roof of the "333 Centennial" building in nearby Louisville for years. "Quoting a reroof had become a yearly exercise for us," says Rich Cohen, president and operations manager of CMC. "The membrane had been serviceable, but was close to failure mode. This year, they decided to do it."

Thanks to a close relationship between the contractor, building owner, and roofing materials manufacturer, the sales cycle was measured in weeks instead of months. CMC knew the installation process needed to go just as quickly. Because of his familiarity with the existing roof, Cohen knew a recover would be a safe and economical option. He specified GAF's EverGuard® 60-mil TPO (thermoplastic polyolefin) single-ply roofing membrane and his secret weapon, the RhinoBond non-penetrating fastening system from OMG Roofing Products of Agawam, Mass. "We've already done more than ten roofs using our two portable RhinoBond tools," says Cohen. "The induction welding of the TPO to the fastening plates beneath the membrane, and the fasteners' uniform location throughout the system, solves the problem of membrane fluttering, and high winds were definitely a concern on this roof."

At their height, local winds were strong enough to blow rooftop ventilators off their curbs and across the EPDM membrane. The aging roof suffered repeated wind damage over its 20-year service life, weakening the

mechanically attached system and increasing its need for maintenance and repair. "What I like about RhinoBond is the fastening pattern distributes wind uplift forces more evenly across the membrane, rather than putting the stress on one fastener every 10' in the seam," explains Cohen. CMC used eight fasteners per insulation board, instead of the usual six fasteners, to comply with local code requirements. "We've basically got a fastener every 2' in every direction," says Cohen. "So I don't think the new roof will be as prone to wind damage as a standard mechanically-attached system with fasteners every 10' in the seam."

The contractor chose to install 1/2" EnergyGuard(TM) Perlite Recovery Board over the existing EPDM membrane and 2.5" of polyisocyanurate insulation. "We agreed the insulation value was sufficient and the Energy Star® qualified TPO was also attractive," says Cohen. "The building owner could not justify spending more money on additional insulation. Cost is a significant factor on a large roof like this."

One-day delivery

When *Western Roofing* magazine asked Brad Titus, CMC's secretary/service manager about the roof, he described it as, "a very large and challenging project." Getting 14 truckloads of roofing materials to suburban Denver in a timely manner was also challenging for the roofing manufacturer on this job. "The pressure was on us because CMC wanted 450 squares of TPO delivered all at once," recalls GAF territory manager, Chris Marano. The contractor wasn't just being demanding. It had a variety of reasons for requiring a one-day delivery that included the best interests of the building owner.

Although the property was vacant at the time of reroofing, the building owner expected that it could be leased at any time. For this reason, CMC was not able to store any materials inside the buildings. Also, the roofing

contractor wanted to avoid damaging or tracking up any newly installed white TPO membrane by stocking the roof with materials in a piecemeal fashion. "Because GAF was able to deliver in one day, it took us just two days to stock the two adjacent buildings that made up the project," says Cohen. "Also, we don't own a large crane, so multiple deliveries would have been a problem for us." As it was, CMC had a tough time loading the materials on the roof. "The crane can only load into the field of the roof so far, and we wanted to spread the load evenly," says Cohen. "So we used the crane as best we could and then manhandled it; there was a lot of material to move to the center of the roofs."

GAF also came through for the contractor by manufacturing and delivering 800 custom tube penetrations. These "tube" penetrations weren't round, they were 4" square. Equipment screens were anchored throughout the 450,000-square-foot field of the roof, and each screen featured four square-shaped "legs" that penetrated the roof deck and supported the screen system. "But in this case, we only asked GAF to ship 200 at a time," quips Cohen.

Charging Ahead

The rhinoceros is well known for its size and strength, but the RhinoBond system uses advanced technology and microprocessor controlled induction welding to achieve its strong bond to roof fastening plates. The RhinoBond system has been tested to FM 1-90 and 1-120 standards and doesn't depend on insulation thickness to enhance wind performance. This means the fastening pattern for 1/2" wood fiberboard would be the same as for 3" of polyiso. In a fully adhered application, the thinner the insulation layer(s), the more fasteners are required to receive the same amount of wind uplift performance. In addition, there is no need for in-seam fastening (typically 12" o.c.) and the widest sheets available from the manufacturer

can be used, without the need for half sheets. All of these advantages saved a significant amount of time and money on a job as large as CMC's. "You don't need to mess around with half sheets around the perimeter," says Cohen. "You just fasten at the required rate, roll out the sheet, and weld."

During inclement weather, in some installations, the roof can also be dried in faster by spot welding with the RhinoBond tool before the crew leaves the roof. "I prefer to have it all done the same day, but I don't always get my way," says Cohen. Obviously, installers need to take precautions against slipping on the surface of a slick TPO membrane, but this was not the case on the 333 Centennial job. "This roof had good slope and did not pond any water," says Cohen. "The roofers tell me it (the RhinoBond tool) will work when the roof is wet. But I worry putting a \$6,000 machine and one of my men in standing water. No one recommends that."

CMC started its project in May and finished in early September, but the weather did not always cooperate. The crew was also able to tack down the sheet with RhinoBond and finish the fastening of the sheet the next day when needed. "We had one group of guys screwing down insulation and rolling out the membrane, while two other installers went back to ensure all the RhinoBond welds had been completed the previous day," says Cohen. After the RhinoBond plate is welded and the machine is moved forward, Cohen has a roofer mark the plate with red crayon. This makes it easier for non-welded plates to be spotted during in-progress inspections. "We've really had no issues with welding or adjusting the machine properly," says Cohen. "The more experienced the operator is with the machine, the more efficient he can be."

While it's possible to install up to 100 squares of roofing a day with RhinoBond, Cohen's ten-man crew got bogged down at the equipment screens but moved ahead quickly after that. Even though the GAF-supplied

pipe boots were custom made, there was still work to do in terms of properly flashing the “legs” of the screens and other penetrations.

A Clean Machine

Another thing Cohen is adamant about is keeping the bottom surface of the Rhinobond machines clean. The magnet on the tool gives it its compression ability, and if small shards of metal or other debris stick to it, the membrane can be pierced. So Cohen’s men clean the machine twice a day. On a tear-off, or when using a dusty insulation like perlite, dirt and debris on the fastening plate may inhibit the quality of the weld to some degree. Before CMC’s crews roll out the TPO sheet, they use a leaf blower to remove any loose debris from the fastening plates and roof surface. “This was a recover, so we were fortunate,” says Cohen. “Even if we had to tear off the EPDM, it wouldn’t have been too bad. But a built-up roof removal would have been ugly.”

Fortunately, this roof turned out beautifully. It was a beast to maintain and a monster to recover, but it turned out to be a quick closeout for the contractor and his client. “We handled the interim inspections in a timely manner,” says GAF’s Marano. “The roof went straight through the EverGuard Diamond Pledge(TM) NDL guarantee process and final inspection, and cost-wise, everything worked well for the owner.”

Photo Captions

(Photo 15574)

Roofing contractor Colorado Moisture Control Inc. specified an EverGuard 60-mil TPO membrane and the RhinoBond non-penetrating fastening system for the 450 square recover job in Louisville, Colo.

(Photos courtesy of GAF, Wayne, New Jersey.)

(Photo 15519)

Getting 14 truckloads of roofing materials to suburban Denver in a timely manner was also challenging for the roofing manufacturer on this job.

(Photo 15585)

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(Photo 15565)

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