FleeceBACK® RL™ EPDM
RapidLock Membrane

CASE STUDY

TURNER MORRIS COMMERCIAL ROOFING

CARLISLE HALL OF FAME APPLICATOR CENTURION

FLEECEBACK CHAMPIONS CARLISLE SYNTEC SYSTEMS

The Stables Village

JOB PROFILE

PROJECT LOCATION:
» Breckenridge, Colorado

CARLISLE APPLICATOR:
Turner Morris Commercial Roofing

BUILDING OWNERS:
» The Stables Village Homeowners Association

ROOFING SYSTEM:
115-mil FleeceBACK RL EPDM

Located nearly two miles above sea level at 9,600 feet, Breckenridge, Colorado, is a world-class outdoor playground. With an average annual snowfall of nearly 300 inches, the area offers superb skiing and riding in the winter and excellent fly fishing, mountain biking and hiking during the warmer months.

In 2022, the town initiated a workforce housing project designed to address local housing needs for middle-class families. In 2023, The Stables Village neighborhood master plan – consisting of five single-family homes, 19 duplexes and 6 triplexes – was approved by the Breckenridge Town Council. The homes are designed to be net zero, all-electric, solar-powered, carbon neutral, and highly insulated. They will be sold based on a lottery system to locals that live and work in the community.

The Stables Village project is being developed and managed by Suzanne Allen Sabo and built by Denver-based Thrive Home Builders. The mountain modern-style homes were designed by Allen-Guerra Architecture of Frisco, Colorado.

The first phase of the project included the construction of 17 buildings, which will house 37 units. Off-site, panelized construction is being used to create the roof trusses, floor trusses, and walls to greatly expedite framing in the field, and reduce construction waste.

Each of the stick-built, two-story units features a one- or two-car garage, granite kitchen and bathroom counters, as well as raised decks for breathtaking views of the surrounding area. In addition, each has a low-slope roof designed for maximum solar exposure.

“These homes are being constructed year-round,” said Dan Chapman, Project Architect. “That means we have to get them dried-in at times during the height of the winter, and contend not only with snow, but also with the high winds Breckenridge is famous for.”

For that reason, when it came time to specify a roofing system for the 30 buildings, Allen-Guerra reached out to Brandon Dawson of CSL West, the exclusive representative for Carlisle SynTec Systems in Colorado and Western Nebraska.

“Brandon was a big help to us in developing the roofing specification,” said Chapman. “He suggested Carlisle’s RapidLock EPDM system for its ease of installation, its ability to be installed year-round, and for its outstanding wind uplift performance.”

The exclusive roofing system provides an innovative method for securing the membrane in place with the benefits of a fully adhered system but without any adhesives. Instead, the system uses VELCRO® Securable Solutions along with the fleece back EPDM membrane and special polyiso insulating coverboard to provide a system with performance equal to a traditional adhered roofing system.

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The 10-foot-wide FleeceBACK RL EPDM membrane is 115-mils thick and comes with 3-inch-wide Factory-Applied Tape™ for consistent quality seams. The VOC- and odor-free system offers significant labor savings compared to traditional adhered systems and is ideal for new construction projects like the Stables Village.

Turner Morris Commercial Roofing of Arvada, Colorado, with mountain branches in Silverthorne, Vail, and Aspen, was hired to install the roofing system on the first 30 buildings. Turner Morris is local to Summit County and a well-established roofing contractor specializing in both flat and steep-slope applications with thermoplastic, thermoset, asphaltic, and metal roofing systems. The firm has been providing roofing services to Colorado's resort communities for decades.

"We were very excited about this project," said Tom Clark, project manager at Turner Morris. "We've used RapidLock on several other projects and really like the system, its performance, and how fast and easy it is to install."

Fast and easy was critical for the project, as the Turner Morris crews typically only get a few days in a row during the winter when the weather is nice enough, and the winds are low enough, to install a roof.

Not a Typical Assembly

Unlike many single- and multi-family projects, the units at the Stables Village have a unique roofing assembly. First and foremost, they are insulated from the bottom side of the half-inch plywood deck with blown-in fiberglass insulation installed in the 24-inch-deep roof trusses, achieving R-68, all toward the top priority of being 'net zero and carbon neutral' facilities. In addition, they are designed for solar, so all the roofing has a maximum slope of one inch per foot, which made it relatively easy for Turner Morris to install the roofing system.

"The first step for us was installing Carlisle's VapAir Seal™ 725TR Air and Vapor Barrier," said Clark.

The 40-mil temporary roof barrier consists of a woven polypropylene film laminated to a self-adhering rubberized asphalt backing. The 725TR was applied across each of the roof decks, which ranged in size from about 1,800 square feet on the single-home units to about 3,500 square feet on the triplex units.

"Due to the winter temperatures, which were often below 40° F, the air and vapor barrier, which has a peel-and-stick backing, had to be installed using CAV-GRIP® III Low-VOC Adhesive/Primer," said Clark. "The crew really likes CAV-GRIP III because it's a single-component spray adhesive that can be applied in temperatures as low as 25° F, which is not uncommon in Breckenridge during the winter."

The adhesive must be 70° F when dispensing regardless of the outside temperature. So, the crew kept the canisters warm in their trucks and used heated canister tank blankets to make sure that the material remained warm during application.

Once the 725TR was installed, the crew mechanically fastened half-inch Carlisle SecurShield® HD RL Polyiso to the deck using HP-X Fasteners and 3-inch round insulation plates. The SecurShield RL board is made with VELCRO 'hooks' to accommodate the FleeceBACK EPDM membrane, which serves as the 'loops' for the RapidLock system.

"We were able to move right along with the cover board and membrane installation," said Clark, "because the roofs were fairly wide open. Most only have one or two through-deck penetrations such as a waste stack and radon vent to deal with, which was great for our productivity."

The first step was to blow the dust, dirt, and debris off the surface of the insulation. Once that was done, the Turner-Morris crew very carefully laid out the membrane to be perfectly aligned on the roof. Once the membrane was placed properly, the crew carefully peeled the release liner from underneath the membrane, broomed the sheet in place, and then used a 150-pound segmented weighted roller to finish the application. The membrane had Factory-Applied Tape, which made it very easy to seam.

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"RapidLock membrane is really tenacious," said Clark. "We had to be very careful installing it, because once it's down and the release liner is removed, nothing's moving that membrane!"

In addition to the main roof area, each unit has a few small roofs over entryways, next to the decks, and over some windows.

"Once we finished with the main roof, we would jump to the smaller roof sections to give the electric company plenty of time to install the solar panel supports and wiring. We did a lot of hopping around from roof to roof on this project to make it all work."

Tons of Solar Supports

One of the goals of this development is to be net zero and all-electric, which meant that the roofs on every structure are covered with solar panels. As a result, there are lots of solar supports on each roof that needed to be flashed. The single homes had 50 or more supports, with the duplexes and triplexes each having 80 to 100 or more supports, respectively.

For that work, the Turner Morris crew used Carlisle's pre-molded Sure-Seal® EPDM Pressure-Sensitive Pipe Seals. Each comes with pre-applied pressure-sensitive tape for a quick and resilient flashing solution.

For each support, the crew had to clean the area with splice cleaner, cut the pipe boot to the appropriate height, place the boot over the support, peel the release liner off the bottom of the flange, secure the boot to the deck and hand roll the flange, and seal the top with Lap Sealant and a clamping ring. With an average of 75 solar supports per structure, there were more than 2,200 solar pipe supports to flash on the project.

"Flashing all of the solar supports certainly took a significant amount of time," said Clark, "but using the pre-molded boots made the process go a bit faster, and our crew did an excellent job installing them."

Turner Morris terminated the membrane at the edges with a gravel stop drip edge that frames the roof nicely, as well as installed custom-fabricated gutters from Drexel Metals.

"This is a very important project for Breckenridge and Summit County," said Clark, "and we are honored to be part of it, and very proud of the work that we have completed this far."

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