Walkways

By Karl A. Schaack, P.E., RRC

WALKWAYS, WALK PADS, OR TRAFFIC PADS are commonly installed on the various types of conventional commercial roof systems to provide some level of protection from foot traffic. These "paths" are typically originated at a roof access point (i.e., ladder, hatch, door, etc.) and extend outward across the surface of the roof. The paths are directed toward and around rooftop mechanical equipment where future maintenance and/or service is anticipated. They are normally installed in relatively straight linear directions with right angled turns.

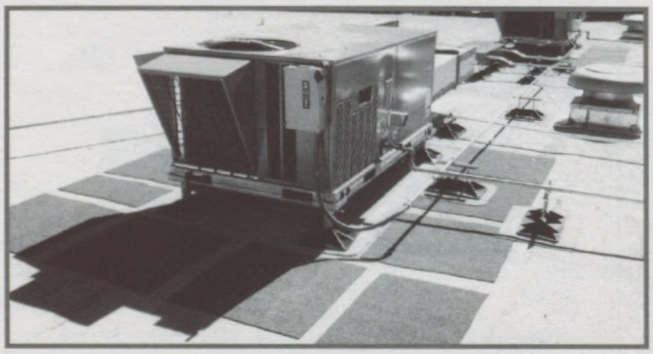
A variety of materials and installation scenarios is available for providing walkways on various roof coverings. A common material that was used extensively in the past and is still available today is an asphaltic-based rigid board with mineral granule surfacing. The board is comprised of a core of asphalt, plasticizers and fillers bonded between inorganic sheets. The bottom sheet is a standard fiberglass ply and the top sheet is a mineral surfaced cap sheet. This type of product is available in thicknesses of 1/2" 3/4" and 1" with panel sizes of 3'x3', 3'x6', and 3'x5'. These panels can be installed on either bituminous or single-ply roof systems. For bituminous roofs, the panels are installed on top of the surfacing in spot applications of plastic roof cement. For single-ply systems, the panels are either set in spot applications of a compatible adhesive or adhered using seam tape. Adjacent panels should be installed with a 3" to 6" spacing. Commonly available products are "Carey Tred" by Celotex and "Whitewalk" by W. R. Meadows.

Another type of available walkpad consists of a board composed of reclaimed rubber particles that are held together with a binder. This product is available in thicknesses of 3/8", 1/2", 3/4", and 1" and sizes of 3'x4' and 1'x2'. These panels can also be installed on both bituminous or single-ply roof systems. The panels can be installed in spot applications of plastic roof cement/adhesive or in full moppings of bitumen. Examples of these types of products are "Trafblok" by Siplast, "Duo-Pad" by W. R. Meadows and "J-Walk" by Johns Manville.

Mineral-surfaced modified bitumen sheet products have gained popularity for use as walkpads on both modified bitumen and built-up roof assemblies. This type of product is typically polyester reinforced and is available in rolls of 30-36 inches in width. Examples of these types of products are "Paratred" by Siplast, "Dyna-Tred" by Johns Manville and "Brai Walk Pad" by U.S. Intec.

Cut segments from a standard roll of polyester-reinforced modified bitumen sheet flashing or cap sheet membrane can also be used to create walkpads. When installed on top of a granule-surfaced roof membrane, the walkpads constructed from mineral-surfaced products typically have a contrasting granule color from the membrane surfacing to create an obvious demarcation for the walkway.

Single-ply membrane manufacturers typically provide walkpads produced from the same material as the membrane. These products are usually provided with a textured or non-slip surface. Walk pads for thermoplastic single-ply membranes commonly have a tread, embossed or gridded type of surface. These types of walk pads are approximately 1/4" thick and 2'x2' or 2'x3' and bonded to the membrane with an adhesive. The pads can also be heat welded directly to the



Modified bitumen walk pads around roof-top HVAC unit.

Concrete paver walkway for ballasted EPDM roof system.

Walk pads with tread-type surfacing for single-ply roof membrane.

Modified bitumen walk pads around roof hatch.

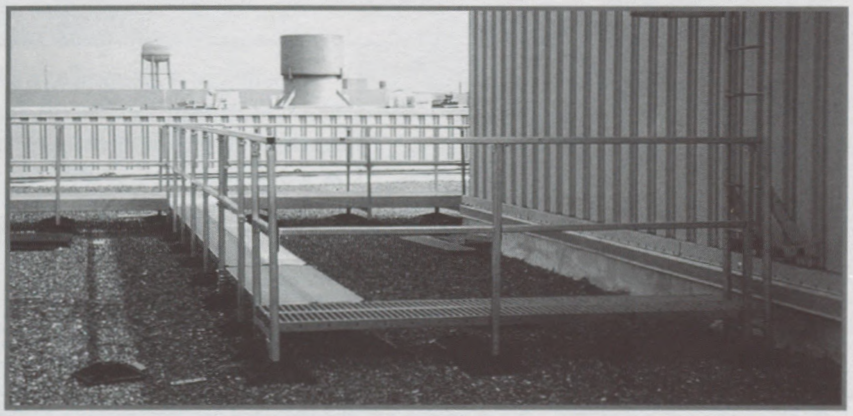
membrane or attached by tabs that are welded to the membrane. A few examples are "Sarnatred" by Sarnafil, "Hi-Tred Walkway Pads" by JPS Elastomerics, and "Bondgard Walkpads" by Bondcote Roof Systems. The walk pads for EPDM single plies are composed of rubber and often have raised nibs on the top surface. These kinds are approximately 1/2" to 3/4" in thickness and available in sizes of 4'x6', 2'x6' and 3'x4'. They are usually adhered to the surface of the EPDM roof membrane with a contact-type adhesive. A few examples of these are "Molded Walkway Pads" by Carlisle, "Roof-Gard Pads" by Humane Manufacturing, and "Protection Mat" by Firestone.

On spray-applied polyurethane foam roof coverings, high traffic areas or walkways can be treated with two different concepts. One approach consists of broadcasting granules into the elastomeric coating on top of the foam. This is accomplished by broadcasting the granules into the initial elastomeric coating that is applied onto the top of the foam. After the coating cures, any loose granules are swept away and a second application of the coating is applied over the previously embedded granules. While the second layer of coating is wet, a second application of granules is broadcast into the coating. After the second coating cures, loose granules are again swept away and bare spots or voids are filled in with coating and granules. An alternative method involves embedding a ply sheet into the wet coating. This method consists of embedding either a fiberglass or polyester felt ply into the initial application of the coating.

Curled processed rubber walk pads.

The felt ply or fabric is then overcoated with an additional layer of the elastomeric coating. While the top coat remains wet, granules are broadcast into the coating in the same manner as the first option previously discussed. Factory-formed walkpads are not recommended for use as walkways on foam roofs. Isolated applications of individual walk pads may be spot adhered to the foam as approved by the foam manufacturer.

Walkways traditionally are not installed on metal roofs due to the lack of either rooftop equipment or the degree of slope, or both. However, if required or necessary, metal grating planks such as "Roofwalks" as provided by Unistrut can be installed on the metal roof system. This system consists of planks that are 6" or 9" wide and are roll-formed from either 12, 14 or 18 gauge galvanized steel. The planks are available in 20 to 24 foot lengths. The top of the planks have an open grid grating that provides a 360 degree anti-skid surface. These planks are typically installed over a support system that spans the panel and rests on or is anchored to the standing seams. This system can also be installed on a conventional low-slope roof. This type of application could utilize a steel support structure (steel pipes or tubes) which penetrates the roof and is anchored to the decking or the supports could be set directly on a rubber pad set on top of the roof system. A similar system is also available that does not involve penetrating the roof system. This system was developed by Portable Pipe Hangers and GS Metals and is



Pre-fabricated metal plank walkway system on built-up roof system.

called the "GrateWalk" system. It utilizes a combination of the previously mentioned steel planks, steel tubing and channels and pre-manufactured bases. The steel channels/tubes extend vertically upward from the base, providing both a support for a horizontal member and a post for a handrail. The planks are then installed on top of the horizontal members to form the walkway. The bases are injection-molded plastic and are set on top of a protection pad placed on the roof surface.

An unusual product that has been used for walkpads is called "Yellow Spaghetti," which consists of continuously-bound strands of polyethylene (plastic). These products have been used for walkpads on single-ply membrane roof systems and spray-applied polyurethane foam roof coverings.

Precast concrete pavers can also be used to construct a walkway on a roof. Pavers are commonly used to construct walkways on single-ply membranes that have a stone ballast surfacing. Walking on stone ballast is difficult due to the relative size (1-inch to 1-1/2-inch diameter), quantity of ballast (10 to 15 psf), and roundness of the stones. Furthermore, foot traffic on top of the ballast could cause damage (i.e. puncture) to the membrane if an angular piece of stone is located below the point of loading. When used to construct walkways on a roof, pavers should have drainage channels on the underside of the paver. A slip sheet or protection pad should be installed on the membrane prior to installing the paver. Examples of concrete pavers that are utilized in roofing are "Ballast Paver" by Westile and "Hanover Prest Paver" by Hanover Architectural Products.

The general function of walk/traffic pads is to protect the roof covering from damage and/or abuse due to roof-top traffic. However, since walkways are installed by the roofing contractor and the location often determined by a designer, the paths are often not the most direct way to a specific area and often are not utilized by the respective personnel performing their rooftop duty. Sometimes, the most practical installation scenario for walkpads is to install them only at the roof access point and around the desired roof-top equipment. Each product, roof covering and manufacturer has specific recommendations regarding the installation of walkpads. Therefore, the products and their intended use should be properly evaluated in relation to the type of roof covering and the anticipated service in order to provide the best option for the building owner/user.

About The Author

Karl A. Schaack *received a bachelor of science degree in civil engineering from Clemson University and is a professional engineer in the states of South Carolina, North Carolina and Texas. He is Vice President of Houston Operations for Price Consulting, Inc., and is a Registered Roof Consultant through RCI.*

