REFERENCES

CHARLES MILLER ■ READING HOSPITAL

Project Data: Architect: Ballinger, PA GR Designer: Roofmeadow GR Contractor: Sean's Landscaping, Inc. Total GR Size: 55,000 SF Installed: 2016

peal, architects will be attracted to DIADEM® FLG's elegant and unobtrusive solution for the increasingly sophisticated green-roof market.

Why is DIADEM[®]'s FLG dynamic fall-arrest system better than conventional securant posts?

C.M.: First and foremost, the

system is designed to be used in restraint mode. This means that workers are never in a position to fall in the first place! By contrast, most conventional anchor systems are set further in from the parapet. and as a result, there's either oreater fall risk or the workers' will have limited access to the roof's corners. DIADEM®'s lifeline system allows nearly 100 percent access to the roof surface for inspection and maintenance, it also offers the ability to install a post where no structure exists, such as a beam or thick concrete deck. For this reason it is easily incorporated into existing structures; this is a key component of DIADEM®'s system because trends point to increasing repurposing of buildings in urban environments as condominiums and commercialuse developments. Further, the dynamic fall-arrest system lifeline provides a definitive boundary, separating areas of the roof where workers must be attached to a fall-protection system, and areas where work can be conducted safely without personal protection equipment like harnesses and lanvards

What are the technical benefits, and what are the challenges?

C.M.: DIADEM®'s fall-arrest system is the first ballasted dyof education and inspector certification. System layouts, specifications, and installa-



tion instructions are prepared by DIADEM®'s engineers for each project. The system can be placed on roofs with up to 5 percent slope. The system's lavout is completely flexible, so workers can have full and easy access for maintenance activities. Since DIADEM®'s fall-arrest system requires a ballast weight of only 16.4 lb/sf, it can be integrated without special considerations on nearly all green roofs. Competing products require penetration of the roof membrane material and bolting or fixing the device in place. By contrast, the FLG system can be placed almost anywhere and is corrosion- and rot-proof.

In addition to its utility on green roofs, DIADEM®'s fall-arrest system also is suitable for conventional PMR (protected membrane roofing) with gravel ballast. PMR roofs are much more common than green roofs, and many of these will be retrofit applications. Since conventional PMR ballast typically weighs less than 16.4 lb/ sf, a structural analysis is required to confirm that the roof will has the required capacity to accept a higher load.

■ Is it legal to specify safety devices which do not have an OSHA or ANSI certification?

C.M .: In short, yes. The picture in Europe differs from that in the U.S.; Europe has embraced this type of fall-protection system and has de-

or her workers. In the case of DIADEM®'s fall-protection systems, a contractor's plan must include proper use of the svstem

veloped specific standards

and testing criteria. In Amer-

ica, horizontal lifeline sys-

tems, including dynamic sys-

tems such as those offered by

DIADEM[®], are not addressed

in current ANSI and OSHA

standards. So the manufac-

turer, whether American or Eu-

ropean, is tasked with dem-

onstrating that its system is

safe and reliable. In the case

of Reading Hospital's instal-

lation of DIADEM® FLG, the

fall-arrest criteria associated

with vertical lifelines was used

as a basis for developing ap-

propriate performance tests.

the U.S., supplement tests al-

ready conducted on this sys-

tem in Europe. In all instances,

the choice to rely on any fall-

protection system belongs to

the contractor that is furnishing

crews for maintenance or con-

struction work. Full documen-

tation from DIADEM®, includ-

ing instructions for use and the

results of performance testing,

is provided to the owner and

is available to anyone who re-

Does the contractor need

C.M .: Again, yes. As a mat-

ter of course, contractors car-

ry suitable workman's com-

pensation insurance; he or

she is responsible for under-

standing and identifying the

hazards in any work environ-

ment and preparing specific

health and safety plans for his

a special insurance poli-

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These tests, conducted in in

C.M .: For DIADEM®'s systems, the company provides an annual checklist to determine use readiness. All systems have an identification tag that indicates their most recent inspection date and the system's condition. It is the crew chief's responsibility to check the tag before entering into the roof's controlled access zone (CAZ).



Charles Miller, P.E., President, Roofmeadow, Philadelphia.

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Mr. Miller is a professional engineer with 35 years of experience in projects related to civil and environmental engineering. In 1997 he founded Roofmeadow, a pioneering green-roof company. Consulting services offered by Roofmeadow focus on providing affordable green-roof options for controlling stormwater runoff and nurturing green space in urban areas. More than 200 green roofs have been designed by Roofmeadow. Recent projects include the Brooklyn Botanic Garden Visitor Center, Jackson National Insurance Headquarters in Lansing, Mich., and the Cira Green rooftop park in Philadelphia.

Diadem[®]'s Safety Solution for Green Roofs

What is the trend in the United States' roof-safety market?

C.M.: Increasing numbers of building owners and architects emphasize the importance of installing fall-protection systems. Worker safety and tightening regulations are the driving factors behind this industry trend; I expect purchase and installation of fall-protection systems to become more and more common. Roofmeadow selected its top choice -DIADEM® FLG dynamic fallarrest system - for its Reading Hospital project in Reading, Pa., because it's practical and affordable. Uniquely, the system is installed on top of the waterproofing system, and it does not require attachments to a roof's structural deck. Consequently, the layout for the DI-ADEM® FLG dynamic fall-arrest system is not constrained by the roof structure, and the lavout can be adjusted as needed to offer the optimum safety coverage. At Reading Hospital, 45 permanent FLG system anchors support 600 feet of lifeline on three roof areas.

What are the general benefits of the DIADEM® FLG dynamic fall arrest system?

C.M.: Building owners and managers are increasingly both risk-averse, regarding their employees' health and safety, and liability-shy, Europe is ahead of the fall-protection system curve; we're grateful for the time-tested, affordable, and adaptable fallprotection system solution designed in Europe that we've employed. Engineers report the system offers a reliable, permanent fall-safety solution that can be installed along with the green roof cover and without concerns for the underlying roof structure or waterproofing. Competing products require penetration of the roof membrane material and bolting or fixing the device in place. Increasingly, architects wish to include progressive elements in their designs that are sustainable and socially responsible, particularly for roofs that require regular and frequent maintenance. With a focus toward visual ap-

namic fall-arrest system used in North America. The company administers its own program



DIADEM®'s fall-arrest system is the first greenroofballasted solution used in North America. The company administers its own program of education and inspector certification. System layouts, specifications, and installation instructions are prepared by DIADEM[®]'s engineers for each project.

What are the system use conditions? And what are the products' maintenance needs?

To learn more about **DIADEM®** FLG fall-protection system and the special technology behind it, please contact a product representative or click to: diademusa.com.

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