

# Project Profile



## Project

Janelia Farm Research Campus  
Ashburn, Virginia

## Owner

Howard Hughes Medical Institute

## Architect

Rafael Vinoly Architects P.C.  
New York, New York

## General Contractor

Turner Construction  
Arlington, Virginia

## Consulting Engineer

Simpson Gumpertz & Heger  
Waltham, Massachusetts

## Roofing Contractor

Prospect Waterproofing Company  
Sterling, Virginia

## Green Roof Engineering

Roofscapes, Inc.  
Philadelphia, Pennsylvania

## Landscape Design

Dewberry & Davis LLC  
Leesburg, Virginia

## Roofing and Waterproofing Systems

Grid System and Loose-Laid System  
using Sarnafil® 80 mil G476 membrane  
and G410 feltback membrane (over labs)

## Project Size

245,500 square feet

## Completed

May 2006

## Janelia Farm Research Center Trusts Sika Sarnafil to Protect Sensitive Labs

Picture standing in a meadow between a lake and a large forest in Ashburn, Virginia. What is going on beneath your feet? You might assume there are insects or small critters scurrying about, but the reality is that below the grass is the laboratory of the Howard Hughes Medical Institute's Janelia Farm Research Campus. Designed by Rafael Vinoly Architects (RVA), the *landscape building* of this biomedical research facility is built to both blend into the natural surroundings of the site as well as offer flexible laboratory space. Literally *topping off* the building is the U.S.'s second largest green roof, featuring Sika Sarnafil's waterproofing system.

### A Green but Proven Roof

The Janelia Farm Research Campus' mission is "to pursue fundamental problems in basic biomedical research that are difficult to approach in academia or industry." The research building, which is built into the natural landscape in the form of three descending terraces, houses two research floors and meeting, cafeteria, administrative, and support spaces for lab equipment with 37-foot high ceilings, which are less

sensitive to vibration. Because the building is carved into a hill, a green roof featuring indigenous grasses was the *natural* choice for a roofing system.

Due to the delicate nature of the biomedical research being conducted underneath this 245,500 square foot roof, it was imperative that the roofing and waterproofing systems for the green roof be secure, reliable, and watertight. Sika Sarnafil is one of the most experienced roofing and waterproofing companies in the green roof arena, with 35 years of green roof experience in Europe and 25 years in the U.S. "Sika Sarnafil has a good track record with both roofing and waterproofing systems," said Jay Davis, project executive at Turner Construction of Arlington, VA, the general contractor on the project. Added Jon Hillis, project manager at Prospect Waterproofing Company, installers of the roof, "It was the best system for this project."

### A Team Effort

Installation of the green roof was challenging, due to the scope of the job and the many different trades involved. (According to RVA, if you stood the research building on its end it would be as tall as an 85-story building.) Trades at the site dealt with concrete,

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steel, mechanical, electrical, glass (at 147,000 square feet this is one of the largest installations of structural glass in the United States), stone flooring, millwork and wood flooring, landscaping, structural engineering, curtainwall, and exterior cladding.

“One of the first things we did for the installation of the roof was build a team, which included the owner, architects, Sika Sarnafil representatives, Turner Construction, and Prospect Waterproofing,” said Davis. “This team walked through the details and identified any problems. It required more collaboration than you would normally have on a job, but it paid off in the end.”

The Sika Sarnafil representatives played a key role in the success of this project, according to Hillis. “The Sika Sarnafil representative was great ... he was always available when there was a question and was a big help in helping us work out design details,” Hillis stated. “The teamwork between all the parties involved enabled the waterproofing work to be completed within the schedule, and resulted in a high quality installation that met the expectations of both the Howard Hughes Medical Institute and RVA.”

“Sika Sarnafil gave us service that was a step above what you’d usually expect,” Davis added. “They sent representatives to do on-site demonstrations and even took our superintendents through a training course so they could become certified installers.”

#### A Thorny Installation

The green roof consisted of *meadow* areas of 65,500 square feet on the second and third terraces, 70,000 square feet over the labs, and 110,000 square feet over the garage.



A section of waterproofing membrane is loose-laid over one of the Janelia Farm laboratories.



Seen under construction above is the Howard Hughes Medical Institute's Janelia Farm Research Campus. The Institute is home to a broad range of scientific programs aimed at advancing the study of biology and medicine.

Prospect Waterproofing installed a modified Sarnafil Grid System with containment areas ranging from 2,500 square feet to 9,000 square feet. The system over the labs included a layer of extruded polystyrene insulation and a loose-laid layer of G410 feltback membrane over the base layer.

The G410 membrane supports an efficient flood irrigation system in which up to three inches of water covers the membrane and irrigates the plants from below. Irrigation water is derived from an on-site spring-fed pond. This configuration has the added advantage in that it acts as a back-up to the primary waterproofing application.

On the south side of the building, more than 10,000 linear feet of water-retention ridges were welded to the primary G476 membrane in order to create water reservoirs to catch rainfall and sustain the unirrigated meadow. In all, three different modified Grid System applications were installed in various places in the *meadow* area.

Adding to the complexity of the installation was the requirement by the structural engineer that the roof be loaded with green roofing materials prior to the precast installation along the façade at three levels. “The structural engineer thought it might damage the precast if the green

roof materials were installed afterwards,” Hillis explained. “This created an extremely difficult five-step detail with G476 membrane and Sarnaclad through-wall flashing at the precast connection all along the parapet. This detail alone took approximately 2,500 man-hours to complete and needed to be coordinated with the precast, curtainwall, and landscaping trades.”

Not only was Prospect Waterproofing able to meet these demands, but the quality of its work won it First Place in Sika Sarnafil's 2007 Project of the Year Waterproofing category. “Prospect did a great job and the team came out with a great product,” Davis said.

#### Splendor in the Grass

Today the Janelia Farm Research Campus is a place to picnic as well as conduct research. The building appears to be part of the sloping hillside and offers a clear, unobstructed view across the Potomac River into the Maryland countryside. Yet within the building researchers continue to unlock the mysteries of neurons and brain mapping, among other things. “We are proud to have played a part in this monumental project,” Hillis stated. “Not only is this a beautiful site, but it is also one that will advance medical science.”

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