

A photograph of a green roof with a city skyline silhouette overlaid. The green roof is covered in various plants and grasses. In the background, there are buildings, including one with a sign that reads "DOWNTOWN JACKSON HALL".

THE MINNESOTA GREEN ROOF PROFILE

GREENING ROOFTOPS FOR SUSTAINABLE COMMUNITIES CONFERENCE 2007

ACKNOWLEDGEMENTS



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The list of green roofs shown here comes from a web-based database which was developed and is maintained by the Minnesota Green Roofs Council (MGRC). The MGRC will continue to keep the database up to date; please visit www.mngreenroofs.org for the most recent information on green roofs in Minnesota. Funding for the website is provided by American Hydrotech, Carlisle SynTec, Tecta America Corporation (Central Roofing Company) and Sika-Sarnafil. The Minnesota Green Roofs Council was formed in 2007 in order to promote green rooftop technology and educate stakeholders in Minnesota.

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INTRODUCTION

The Minnesota Green Roof Profile was printed as the Legacy Project for the 5th Annual Greening Rooftops for Sustainable Communities Conference held in Minneapolis, Minnesota, April 28 – May 2, 2007. The goal of the Minnesota Green Roof Profile is to help promote awareness of green roofs, and to showcase the area's growing green roof industry.

Seven case studies are presented here, profiling a variety of established green roofs from the greater Minneapolis-St. Paul metropolitan area that differ in age, size, building type and plant community. An inventory of known green roofs found in Minnesota as of March, 2007, follows. Please note that this booklet represents a snapshot in time, and that green roofs are being added to the Minnesota landscape in increasing numbers.

WHAT IS A GREEN ROOF?

A green roof (or green rooftop) is a roof that uses living plant material as part of a roofing system. Green roofs generally include the following components:

- *A waterproof membrane (keeps the water out)*
- *A root barrier (to keep roots from damaging the membrane)*
- *Thermal insulation (to insulate both plants and the building)*
- *A drainage system (to keep excess water off the roof)*



This model of the green roof at the Ramsey Washington Metro Watershed district shows the components of this green roof system.

- *A filter layer (to keep growing medium from washing away)*
- *Growing medium (lighter than "soil" and designed for green roof plants)*
- *Living plant material*

Plaza areas with minimal green space or planter boxes, while they provide benefits to urban areas, are not considered green rooftops.

THE STATE OF GREEN ROOFS IN MINNESOTA

As of March of 2007, over 60 green roofs were identified across the state of Minnesota. This represents more than one million square feet of green roofs, or about 23 acres.

To put this in perspective, many green roof professionals consider Germany to be the world leader in promoting green roof technology. Many of the technologies used in green roofs in Minnesota were developed in Germany in the 1950s and 1960s. One in twenty German buildings features a green

roof, and one in eight new buildings includes a green roof. This amounts to billions of square feet of green rooftops installed over the past 50 years.

In North America, the City of Chicago leads the way in promoting green roofs. In 2006, Chicago boasted 2 million square feet of green roofs either installed or underway.

The City of Minneapolis is considered one of the more progressive cities supporting green roofs and can be favorably compared to cities like Portland, Seattle, and Boston in promoting green roofs. The city's Stormwater Utility Fee Credit System is a strong driver for the increase in green roofs and other stormwater management practices.

The number of green roofs in Minnesota has doubled in the past five years, and we expect that number to double again in the next five years.

BENEFITS OF GREEN ROOFS

Green roofs are booming in number because they bring multiple benefits to buildings and to communities. These benefits include:

REDUCING ROOF REPLACEMENT COSTS.

In Minnesota, a typical gravel-ballasted flat roof is expected to perform for 15–20 years before replacement is necessary. Roof membranes deteriorate when exposed to the hot and cold temperature extremes we experience in Minnesota, and also when exposed to UV radiation from sunlight. The components of a green rooftop protect a roof membrane from these two aging factors. The membrane under a green rooftop can be expected to perform for 35–50 years before replacement is necessary. This means that a building can avoid 1–2 roof replacements over a 50-year lifespan. This reduces life cycle costs as well as significantly reducing the volume of roofing materials deposited in our landfills.

REDUCING ENERGY COSTS.

Green roofs can reduce heating and cooling demands. During a Minnesota winter, the insulation layer and growing medium of a green roof can add r-value to a building's roof. In the summer, the impact is more significant. Living plant material evaporating moisture from leaf surfaces will cool the rooftop surface, reducing cooling demand up to 25 percent.

REDUCING STORMWATER MANAGEMENT COSTS.

An extensive green roof with four inches of growing medium



The green roof at East Village Apartments in Minneapolis manages stormwater while providing valuable amenity space that would otherwise be unavailable in this affordable housing development.

can be expected to hold a one-inch rainfall event before any water runs off the roof surface. Nearly all of the rainfall events we receive in Minnesota are less than one inch. This four-inch green roof can be expected to capture two-thirds of the rain that falls on its surface over the course of a year. With a deeper layer of growing medium or with rainwater or greywater harvesting systems, a green roof can be used to manage a significantly larger volume of water. As a part of a building's stormwater management infrastructure, a green roof can reduce the cost of other stormwater management systems, and in some cities can reduce monthly stormwater management fees. The City of Minneapolis uses a stormwater utility fee structure that provides incentives for using green roofs to manage stormwater on-site.

IMPROVING URBAN AIR QUALITY.

Green space improves air quality. Green rooftops provide opportunities to increase the amount of green space in densely developed urban areas where green space can be hard to find. A 1998 study by Green Roofs for Healthy Cities developed a model showing that, if six percent of the rooftop surfaces in the City of Toronto were replaced with green rooftops, the additional green space would remove 30 tons of airborne particulate matter each year.

MITIGATING CLIMATE CHANGE AND THE URBAN HEAT ISLAND EFFECT.

Urban areas like Minneapolis-Saint Paul are generally 2–5 degrees °F warmer than surrounding rural areas. This is known as the Urban Heat Island effect. On top of that, the USEPA projects a 2–7 degree °F increase in aggregate temperature for our region over the course of the 21st Century. It is projected that a three-degree aggregate temperature increase in Minneapolis would triple annual heat-related deaths from 60 to nearly 200. By cooling rooftop surfaces and improving air quality, a critical mass of green rooftops can mitigate each of these impacts.

PROVIDING URBAN GREEN SPACE.

Green roofs can provide opportunities for significant

green space amenities in urban areas. East Village Apartments in the Elliot Park neighborhood of Minneapolis features an at-grade green rooftop installed over underground parking. The green space includes picnic tables and provides an amenity to this affordable housing development. The green rooftop at Brit's Pub on Nicollet Mall in Minneapolis can be used for lawn bowling and private parties. And pedestrians using the Loring Greenway in Minneapolis may not even realize that they are walking on green roof surfaces above occupied spaces. Hospital administrators know that patients who can see green space outside their windows can recover from illness more quickly. Nursing home and elder care facilities can use green roofs as part of horticultural therapy programs.

TYPES OF GREEN ROOFS

Intensive vs. Extensive and Modular vs. Integrated

Extensive And Intensive Green Roofs

Many types of green roofs can be installed in Minnesota. Some green roofs have less than two inches of growing medium and some have more than a foot of growing medium. Some will support only a few varieties of sedums while others will support native flowers and grasses, highly maintained

turf grass, or even trees and shrubs. Generally, green roofs are considered to be either intensive or extensive.

Extensive: Extensive green roofs are generally designed to be lightweight and to maximize the performance and environmental benefits that a green roof can bring to a building. Extensive green roofs feature a layer of growing medium that is six inches deep or less and are generally planted with sedums or native plant species. Extensive green roofs are generally not accessible to the public. Extensive green roofs in Minnesota include the Ramsey-Washington Metro Watershed District in Little Canada and the Visitor's Center at Lebanon Hills Regional Park in Eagan.

Intensive: Intensive green roofs are generally designed as an amenity space that can be used by building tenants or by the general public. Intensive green roofs are generally heavier, include a deeper layer of growing medium, support a wider variety of plants, and have greater needs for irrigation and maintenance. The most visible intensive green roof in Minnesota is probably the lawn bowling club



The visitor's center at Lebanon Hills Regional Park features an extensive green roof.



Brit's pub in downtown Minneapolis features an intensive green roof that is used for lawn bowling and private parties.

at Brit's Pub in Downtown Minneapolis. The Crowne Plaza Northstar Hotel, also in Downtown Minneapolis, has an intensive green roof that was originally installed in 1978 and features maple trees that are now ten inches in diameter.

Semi-intensive green roofs include features of both intensive and extensive green roofs. These are referred to as semi-intensive green roofs. The Green Institute's green roof at the Phillips Eco-Enterprise Center is a highly visible semi-intensive green roof. While the roof features a range of extensive plantings and is designed to be low-maintenance, it is also fully ADA accessible and can hold 30 people for events.

Modular And Integrated Green Roofs

Many green roof systems developed by German and American companies are available in Minnesota. Some green roofs are rolled out like sod, some are pre-planted in boxes, and some are installed layer by layer. Green roof

systems can generally be divided into two types, integrated roofs and modular roofs

Integrated: Most green roofs installed in Minnesota are integrated green roofs. The green roof components are installed as a series of layers. The Minneapolis Central Library, East Village Apartments, and many other local green roofs use integrated systems.

Modular: Modular green roofs are partially assembled off-site and installed in units. Some modular systems feature plastic or metal trays that are filled with growing medium and placed on the rooftop. Plants can be grown in these trays before or after installation. Other systems feature plants pre-grown in mats that are laid onto the roof surface. The Macalester College "fishbowl" green roof in Saint Paul features modular Green Roof Blocks and Green Roof Paks systems. Firehouse 14 in Northeast Minneapolis uses a GreenGrid modular green roof system. The Marcy-Holmes Neighborhood's Rainwater Resources Recycling project features a Xeroflor modular green roof on a pitched residential garage in Southeast Minneapolis.



In this image, taken during the installation of the integrated green roof at Fred's Glass in Saint Paul, the drainage, filter, and growing medium layers can be seen.



Firehouse 14 in Northeast Minneapolis features a modular green roof.

THE PHILLIPS ECO-ENTERPRISE CENTER

WHERE: 2801 21ST AVENUE SOUTH
MINNEAPOLIS MN 55407
SIZE: 4000 SQ FT
TYPE: SEMI-INTENSIVE, INTEGRATED
YEAR: 2004
PLANTS: SEDUMS, NATIVES
FEATURES: THIS ADA ACCESSIBLE GREEN ROOF INCLUDES A DECK MADE FROM RECYCLED PLASTIC LUMBER WITH A CAPACITY FOR 30 PEOPLE.
MORE INFO: WWW.GREENINSTITUTE.ORG

The Phillips Eco-Enterprise Center features the most visible green rooftop in Minnesota, with more than ten thousand light rail passengers passing by daily on the Hiawatha Line.

The green rooftop is just one of scores of sustainable building practices on display at the Phillips Eco-Enterprise Center, the first speculatively-built green office warehouse in the United States. Other

features include a geo-exchange heating and cooling system, active daylighting systems, and incorporation of salvaged, recycled, and sustainable building materials.

Green roof components such as increased joist density, concrete deck, monolithic membrane, root barrier and drainage layer were installed during the original construction in 1999. However the green



Native grasses and flowers were chosen to replicate plants growing on a Minnesota river bluff prairie

roof system was not completed until 2004 when the Mississippi Watershed Management Organization, the Metropolitan Council, The McKnight Foundation, the Beim Foundation, and the Frederick O Watson Foundation provided additional financial assistance.

Pro bono design services were provided by Kestrel Design Group. More than 150 volunteers participated in the installation, contributing more than 1,000 hours of labor.

Two depths of growing medium support two plant communities on the rooftop. Sedums and other extensive plants grow in two inches of growing medium, while grasses and flowers native to Minnesota river bluff prairies grow in six inches of growing medium.



Extensive areas of the rooftop feature sedums, chives, and arctic poppies planted in two inches of growing medium.



10,000 Light Rail Transit passengers daily can see the PEEC green rooftop from the Hiawatha line.

The roof features an American Hydrotech membrane, Floradrain 60 drainage system and an electric field vector monitoring system installed by International Leak Detection.

Extensive green roof plants were shipped from Emory Knoll Farms, while native plants were grown by Dragonfly Gardens and Prairie Restorations.

Performance monitoring is still underway. Data collected includes plant survival, rainwater runoff volume, and rooftop surface temperature as compared to a reference rooftop.

MARCY-HOLMES NEIGHBORHOOD DEMONSTRATION ROOF

WHERE: 1205 7TH ST. S.E.
MINNEAPOLIS, MN 55414
SIZE: 600 SQ FT
TYPE: SEMI-INTENSIVE, INTEGRATED
YEAR: 2004
PLANTS: SEDUMS
FEATURES: PART OF THE MARCY HOLMES NEIGHBORHOOD'S RAINWATER RESOURCES RECYCLING PROJECT
MORE INFO: WWW.MARCY-HOLMES.ORG

Minneapolis' Marcy-Holmes Neighborhood drains directly into the Mississippi River, a polluted waterway. Stormwater runoff is a significant source of pollution in the Mississippi River. To show neighborhood residents what they can do in their own "backyards" to help improve water quality of the nearby Mississippi River, The Kestrel Design Group led the

Marcy-Holmes Neighborhood in securing funding for and implementing the Marcy-Holmes Neighborhood Rainwater Resource Recycling Demonstration Project. Made possible by a generous grant from the Mississippi River Watershed Management Organization, the project included design and installation of numerous rainbarrels and raingardens installed by neighborhood



Green space on residential garages can significantly reduce the area of impermeable surface in neighborhoods.

volunteers, a pervious pavement parking area, a green roof installed by contractors, as well as extensive community education presented in many forms.

The Marcy-Holmes Neighborhood Rainwater Resource Recycling Demonstration Project's demonstration green roof is a pre-grown Xero Flor XF301 Vegetated Roof System, that weighs only 11 lbs/square foot saturated. Installed on a residential garage, the green roof is visible from the adjacent alley as well as from the street that leads into the alley, and catches the eye of many passers-by who are surprised to see vegetation growing on this garage roof. The owner of the roof reports that the garage has become much more comfortable to work in on hot summer days since the green roof was installed.

The Marcy-Holmes Neighborhood was recently nominated one of the top 10 eco-neighborhoods in America.



The Marcy Holmes neighborhood demonstration roof can be seen by visitors from the ground level.



The Xeroflor green roof system features pre-grown sedum mats that can be rolled out like sod.

MINNEAPOLIS CENTRAL LIBRARY

WHERE: 310 NICOLLET MALL
MINNEAPOLIS, MN 55401
SIZE: 19,000 SQ FT
TYPE: EXTENSIVE, INTEGRATED
YEAR: 2005
PLANTS: SEDUMS, NATIVES
MORE INFO: WWW.KESTRELDESIGNGROUP.COM

The much-anticipated Minneapolis Central Library was designed by Cesar Pelli & Associates Architects and locally-based Architectural Alliance. The building proves the backbone for the Minneapolis Public Library system.

The library's green roof operates as part of the building's stormwater management system. To complement the stormwater management capacity of the green rooftop, the library also features a 7,500 gallon rainwater harvesting system. Captured rainwater can be used to irrigate at-grade landscaping as well as to irrigate the green roof during drought periods.

The Central Library includes two green roofs. A larger, 18,000 square foot green roof on top of the building, and a smaller green roof that is visible from the Teen Central section on the library's second floor.



Growing medium was delivered in bags and hoisted by crane to the top of the building. The custom-designed drip irrigation system seen here ensured that newly installed plants would be evenly watered.



This smaller green roof can be seen from the "Teen Central" section on the library's second floor.

The extensive roof system developed by Kestrel Design Group uses four inches of growing medium. Plantings include a variety of sedums as well as plants native to Minnesota Bedrock Bluff Prairies. The addition of native plants greatly enhances the value of the green rooftop as wildlife habitat. This mixture of natives and sedums can better support birds and beneficial insects than sedums alone. Native plants also enhance a sense of regional identity.

The roof features an SBS modified bitumen membrane installed by Rosenquist Construction. Mortenson/Thor, AMBE, Erickson Ellison & Associates and Aloha Landscaping were also involved in the installation.



The Central Library's green rooftop is best viewed from other downtown buildings. The biodegradable erosion control mat seen here holds moisture, shades roots, and protects new plants from birds.

THE EDGEWATER CONDOMINIUMS

WHERE: 1805 LAKE STREET WEST
MINNEAPOLIS, MN 55408
SIZE: 3,480 SQ FT
TYPE: INTENSIVE/EXTENSIVE, INTEGRATED
YEAR: 2006
PLANTS: TURF, SEDUMS, NATIVES, ANNUALS
FEATURES: PRIVATELY-ACCESSIBLE EXTENSIVE GREEN ROOF.
MORE INFO: WWW.GATEWAYTOUPTOWN.COM

The Edgewater residence is located on the East shore of Lake Calhoun at the gateway to the vibrant Uptown neighborhood. The building contains 24 dwellings and is designed with an intimate feel.

The Edgewater features 3,480 square feet of green rooftops divided into two areas. An intensive at-grade green rooftop covers underground parking, while an extensive green roof on top of the building is accessible only to the three penthouse units on the fifth floor.

Growing medium on the upper green roof varies in depth from 3-5 inches to support different plant

communities and to create visual variety. Plantings include a mixture of sedums and native varieties.

The lower green roof features turf grass while the upper green roof is planted with a mixture of sedums and native plants.

The building was designed by Elness Swenson Graham Architects with structural engineering from MJB Engineers. Oslund & Associates were the landscape architect who designed the lower roof while Kestrel Design Group designed the upper green roof.



The Edgewater Condominiums green roof is planted with a mixture of sedums and native plants along with trellised vines.



The Edgewater Condominiums incorporates green building design techniques in uptown Minneapolis.



Privately accessible deck areas overlook Lake Calhoun.

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT GREEN ROOF

WHERE: 2665 NOEL DRIVE
LITTLE CANADA, MN 55117
SIZE: 1,140 SQ FT
TYPE: EXTENSIVE, INTEGRATED
YEAR: 2005
PLANTS: SEDUMS, NATIVES
FEATURES: SLOPED GREEN ROOF VISIBLE FROM THE PARKING LOT
MORE INFO: WWW.RWMWD.ORG

The Ramsey-Washington Metro Watershed building was completed in 2005 with the goal of establishing a zero runoff site demonstrating a wide range of best management practices for stormwater. The building site contains six rain gardens, prairie upland landscaping, native trees & shrubs, no mow turf grass, porous asphalt parking lot and a green roof.

The building was designed by Sarah Nettleton Architects and Michael Huber Architects. Engineering for the project was done by Barr Engineering Company. The extensive green roof is an American Hydrotech Garden Roof™ located on the District garage. The system was installed and planted fall 2005. A second supplemental planting was performed in September 2006.



In addition to a green roof, the RWMWD headquarters include permeable paving and a series of rain garden to manage stormwater on site.



The roof area was divided into a grid and plant selections were installed randomly on the grid to study survival rates.

B.A. Associates, Inc. installed the roofing membrane and Garden Roof™ system. District staff planted the roof and maintain the roof as necessary.

The roof is pitched 3:12 with a slant toward the parking lot to match the office design and to aid in viewing. American Hydrotech Floratec FS 75 was installed to hold the growing medium in

place while providing a drainage layer and a small amount of insulation for the roof.

1,140 square feet of roof is planted with a mix of Minnesota native plants and sedums. Growing medium on the roof averages two inches in depth. Plant survival has been monitored since installation. Water quality monitoring will begin in 2007.



The roof is planted with a variety of sedums and native plants growing in as little as 2 inches of growing medium.

PRAIRIE TECHNOLOGIES / ERSYSTEMS HEADQUARTERS

WHERE: 6900 BLECK DRIVE
ROCKFORD, MN 55373
SIZE: 5,000 SQ FT
TYPE: EXTENSIVE, INTEGRATED
YEAR: 2004
PLANTS: SEDUMS
FEATURES: ROOF ALSO INCLUDES A PHOTOVOLTAIC
SOLAR ARRAY AND WIND TURBINES.
MORE INFO: WWW.ERSYSTEMS.COM

The corporate headquarters for ER Systems and Prairie Technologies is a 50,000 square foot manufacturing and office facility is located in Rockford, MN. The building and site were designed to meet the needs of a functioning, fast growing corporation while mitigating the environmental impact. Although the industrial use of the building and site provided a number

of challenges, this same use offered many opportunities for sustainable design.

The building features several sustainable building strategies including permeable parking, prairie restoration area, and rainwater harvesting. The building won the 2005 "Excellence in Design" Award from the National Roofing Contractors Association.



The building, located in Rockford, Mn demonstrates Prairie Technology's own prairie green roof system.

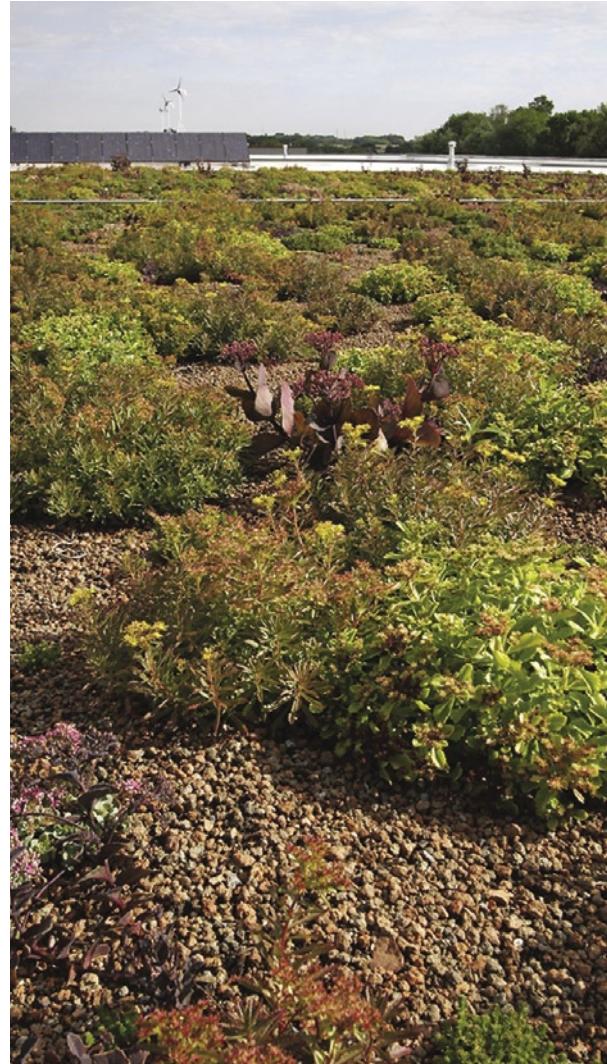
The building's green roof demonstrates the company's own products, including an ER Systems membrane and Prairie technologies' own Prairie Green Roof system. The extensive system uses three inches of growing medium planted with sedums. The system weighs 10–12 pounds per square foot when dry, and fully saturated weighs 17–19 pounds per square foot.



The rooftop also features a photovoltaic solar array and wind turbines.

Prairie Technologies is using its green rooftop to study the cooling effects of green roofs on rooftop surfaces. Rooftop green space adjacent to air intake units can be shown to reduce the summer temperature of intake air, thereby reducing the energy required to cool that air.

A live web cam and real-time weather data can be viewed on the ER Systems web site.



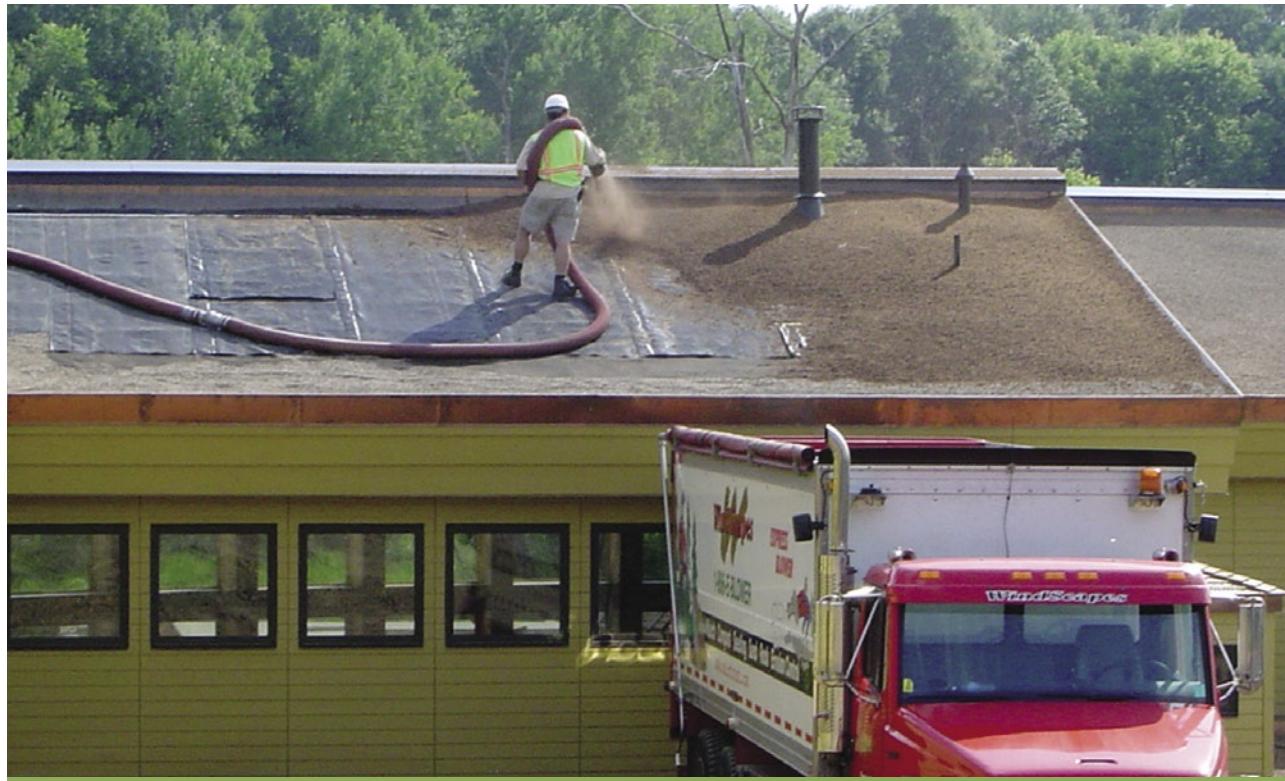
Sedums planted at the headquarters of ERSystems & Prairie Technologies.

LEBANON HILLS REGIONAL PARK VISITOR'S CENTER

WHERE: 860 CLIFF ROAD
EAGAN, MN 55123
SIZE: 7,500 SQ FT
TYPE: EXTENSIVE, INTEGRATED
YEAR: 2003
PLANTS: SEDUMS
FEATURES: SLOPED GREEN ROOF VISABLE FROM OUTSIDE THE VISITOR'S CENTER.
MORE INFO: WWW.CO.DAKOTA.MN.US/LEISURERECREATION/PARKS/LEBANONHILLS

The Lebanon Hills Regional Park Visitor Center serves visitors enjoying the park's amenities. Dakota County designed the Visitor Center to showcase green building strategies, including low-VOC building materials, natural lighting, high efficiency wood heating and rapidly renewable resources.

The most visible green building strategy is the vegetated roof. The park suffers from flooding, and minimizing stormwater runoff was imperative. A vegetated roof greatly reduces runoff compared to conventional roofs and provides a complementary aesthetic to the park.



Growing medium was installed using a blower truck.



The green roof is planted with a variety of sedums that bloom in a range of colors throughout the growing season.

The 7,500 square foot roof was first planted in June 2003 with over 6,000 young plants. Unfortunately, that summer's drought, combined with inadequate watering, led to the loss of over half of the plants. During 2004, staff extensively investigated the four inches of soil-less mix used,

researched drought tolerant plant species, and found few problems that aggressive maintenance during an establishment phase couldn't solve. In 2005, the roof was replanted, and with better maintenance, is now thriving.



The Visitors Center includes four different pitched green roofs.

THE MINNESOTA GREEN ROOFS INVENTORY

(AS OF MARCH 14TH, 2007, BY ONLINE SUBMISSION)

The following pages include an inventory of Minnesota green roofs. To the best of our knowledge, this is the most comprehensive effort in the state. The inventory was developed by volunteer stakeholders including architects, developers, roofing companies and landscape firms using an online database provided by the Minnesota Green Roofs Council. This database will continue to grow online, and additions or corrections to this inventory can be made at www.mngreenroofs.org.



Bookmen Stacks, Minneapolis

Bakken Museum

LOCATION: 3537 ZENITH AVENUE SOUTH
MINNEAPOLIS, MN 55416

Bookmen Stacks Restaurant

LOCATION: 526 4TH STREET NORTH
MINNEAPOLIS, MN 55401
SIZE: 8,750 SQ. FT.
ROOF YEAR: 2005

Brit's English Garden Pub

LOCATION: 73 SOUTH ELEVENTH STREET
MINNEAPOLIS, MN 55403
SIZE: 11,200 SQ. FT.
ROOF YEAR: 1997

Bryant Village

LOCATION: 2824 ALDRICH AVE. S.
MINNEAPOLIS, MN 55408

Bureau of Criminal Apprehension

LOCATION: 1430 MARYLAND AVENUE EAST
ST. PAUL, MN 55106
SIZE: 11,000 SQ. FT.
ROOF YEAR: 2003

Carleton College Green Roof Project

LOCATION: 1 NORTH COLLEGE STREET
NORTHFIELD, MN 55057
SIZE: 666 SQ. FT.
ROOF YEAR: 2005

Church Street Garage

LOCATION: 401 CHURCH STREET SOUTH EAST
MINNEAPOLIS, MN 55455

Community of Peace Charter School

LOCATION: 471 EAST MAGNOLIA
ST. PAUL, MN 55101

Como Park Visitor and Education Resource Center

LOCATION: 1225 ESTABROOK DRIVE
ST. PAUL, MN 55103

Crowne Plaza Northstar Hotel

LOCATION: 618 2ND AVENUE SOUTH
MINNEAPOLIS, MN 55402
ROOF YEAR: 1978

Cummins Residence

LOCATION: DEEPHAVEN, MN
SIZE: 6,000 SQ. FT.
ROOF YEAR: 1998

Deacon Flats

LOCATION: 115 MAIN STREET SE
MINNEAPOLIS, MN 55414

East Village Apartments

LOCATION: 1423 11TH AVENUE SOUTH
MINNEAPOLIS, MN 55404

Eclipse

LOCATION: 240 & 258 HENNEPIN AVENUE
MINNEAPOLIS, MN 55401
SIZE: 15,000 SQ. FT.

Empire Wastewater Treatment Plant

LOCATION: EMPIRE TOWNSHIP, MINNESOTA
SIZE: 1,800 SQ. FT.
ROOF YEAR: 2006

ERSystems / Prairie Technologies

LOCATION: 6900 BLECK DRIVE
ROCKFORD, MN 55373
SIZE: 5,000 SQ. FT.
ROOF YEAR: 2004

Flour Sack Flats

LOCATION: 521 2ND STREET SE
MINNEAPOLIS, MN 55414
SIZE: 7,100 SQ. FT.

Fred's Glass

LOCATION: 134 E. 9TH STREET
ST. PAUL, MN 55101
SIZE: 3,000 SQ. FT.
ROOF YEAR: 2006

Greenleaf Lofts

LOCATION: 2000 NICOLLET AVE.
MINNEAPOLIS, MN 55404

Groveland Terrace

LOCATION: 50 GROVELAND TERRACE
MINNEAPOLIS, MN 55403



Carleton College, Northfield

Holiday Erickson Corporate Headquarters

LOCATION: 494 & FRANCE AVENUE
SIZE: 20,000 SQ. FT.
ROOF YEAR: 1986

International Market Square

LOCATION: 275 MARKET STREET
MINNEAPOLIS, MN 55405
SIZE: 800 SQ. FT.
ROOF YEAR: 2005

Jackson Lofts Parking Area

LOCATION: JACKSON LOFTS
MINNEAPOLIS, MN 55418

Kravig Garage

LOCATION: MARINE ON ST CROIX, MN 55047
SIZE: 1,600 SQ. FT.
ROOF YEAR: 2006

Lagoon Irving Condos

LOCATION: 2910 IRVING AVE S
MINNEAPOLIS, MN 55408
SIZE: 2,200 SQ. FT.

Lagoon Mixed-Use Development

LOCATION: 1320 LAGOON AVENUE
MINNEAPOLIS, MN 55408
SIZE: 25,214 SQ. FT.



Crowne Plaza Northstar Hotel, Minneapolis

*Lebanon Hills Visitor Center,
Lebanon Hills Regional Park,*

LOCATION: 860 CLIFF ROAD
EAGAN, MN, 55123
SIZE: 7,500 SQ. FT.
ROOF YEAR: 2003

Loring Greenway

LOCATION: THE LORING GREENWAY
MINNEAPOLIS, MN 55403

Macalester College First Green Roof

LOCATION: MACALESTER COLLEGE FISHBOWL
1600 GRAND AVENUE
ST. PAUL, MN 55105
SIZE: 600 SQ. FT.
ROOF YEAR: 2006

Marquette Plaza

LOCATION: 250 MARQUETTE AVE.
MINNEAPOLIS, MN 55401

Midtown Lofts

LOCATION: 2840 BRYANT AVENUE SOUTH
MINNEAPOLIS, MN 55408

Minneapolis Central Library Green Roof

LOCATION: 310 NICOLLET MALL
MINNEAPOLIS, MN 55401
SIZE: 19,000 SQ. FT.
ROOF YEAR: 2005

Minneapolis Fire Station 14

LOCATION: 1704 33RD AVE N
MINNEAPOLIS, MN 55412
SIZE: 2,840 SQ. FT.
ROOF YEAR: 2006

Minneapolis Waterworks

LOCATION: EAST RIVER ROAD
MINNEAPOLIS, MN 55412
SIZE: 2,500 SQ. FT.
ROOF YEAR: 2005

Nokomis Square Cooperative

LOCATION: 5015 35TH AVENUE SOUTH
MINNEAPOLIS, MN 55417



Marquette Plaza, Cancer Survivors Park, Minneapolis

Phillips Eco-Enterprise Center

LOCATION: 2801 21ST AVENUE SOUTH
MINNEAPOLIS, MN 55407
SIZE: 4,000 SQ. FT.
ROOF YEAR: 2003

Phoenix

LOCATION: 221 MAIN STREET SOUTH EAST
MINNEAPOLIS, MN 55414
SIZE: 5,900 SQ. FT.

Pinehurst

LOCATION: 3500 50TH STREET WEST
MINNEAPOLIS, MN 55410

Plymouth Public Safety Building

LOCATION: PLYMOUTH, MN
SIZE: 4,000 SQ. FT.
ROOF YEAR: 2004

Ramsey-Washington Metro Watershed District

LOCATION: 2665 NOEL DRIVE
LITTLE CANADA, MN, 55117
SIZE: 1,140 SQ. FT.
ROOF YEAR: 2005

Residential Urban Garage Demonstration

(*Marcy-Holmes Neighborhood Association*)

LOCATION: 1205 7TH ST. S.E.
MINNEAPOLIS, MN, 55414
SIZE: 600 SQ. FT.
ROOF YEAR: 2004

Residential Urban Garage Upgrade

LOCATION: 115 RUSTIC LODGE WEST
MINNEAPOLIS, MN 55419
SIZE: 1,367 SQ. FT.
ROOF YEAR: 2002

River Towers Plaza

LOCATION: HENNEPIN AVENUE & 2ND STREET NORTH
MINNEAPOLIS, MN 55401
SIZE: 60,000 SQ. FT.
ROOF YEAR: 2003

Riverview Tower

LOCATION: 1920 SOUTH 1ST STREET
MINNEAPOLIS, MN 55454



Phillips Eco-Enterprise Center, Minneapolis

Shakopee Mdewakanton Sioux Community Wastewater Treatment Plant Green Roof

LOCATION: 15364 ORION ROAD
PRIOR LAKE, MN, 55372
SIZE: 31,000 SQ. FT.
ROOF YEAR: 2006

Skyscape

LOCATION: 953 PORTLAND AVENUE
MINNEAPOLIS, MN 55404

St Anthony Main

LOCATION: ST ANTHONY MAIN
MINNEAPOLIS, MN 55414

The Bancroft

LOCATION: 3500 WEST 50TH STREET
MINNEAPOLIS, MN 55410

The Edgewater Condominiums

LOCATION: 1805 LAKE STREET WEST
MINNEAPOLIS, MN 55408
SIZE: 3800 SQ. FT.
ROOF YEAR: 2006

University of Minnesota Civil Engineering

LOCATION: 500 PILLSBURY DRIVE SOUTH EAST
MINNEAPOLIS, MN 55455

University of Minnesota Classroom Office Building Plaza

LOCATION: 1994 BUFORD AVENUE
ST. PAUL, MN 55108



University of Minnesota Coffman Union

LOCATION: 300 WASHINGTON AVENUE NORTH EAST
MINNEAPOLIS, MN 55455

University of Minnesota Humphrey Institute

LOCATION: 301 19TH AVENUE SOUTH #307
MINNEAPOLIS, MN 55455

University of Minnesota Law School

LOCATION: 229 19TH AVENUE SOUTH WALTER
MONDALE HALL
MINNEAPOLIS, MN 55455

University of Minnesota Riverbend Commons

LOCATION: 220 DELAWARE STREET SOUTH EAST
MINNEAPOLIS, MN 55455
SIZE: 145,000 SQ. FT.
ROOF YEAR: 2002

University of Minnesota Sanford Hall

LOCATION: 1122 UNIVERSITY AVE SOUTH EAST
MINNEAPOLIS, MN 55455

University of Minnesota Williamson Hall

LOCATION: 31 PILLSBURY DRIVE SOUTH EAST
MINNEAPOLIS, MN 55455

Village Green

LOCATION: 1212 WEST LAKE STREET
MINNEAPOLIS, MN 55408

Waldsee Biohaus

LOCATION: CONCORDIA GERMAN LANGUAGE VILLAGE
BEMIDJI, MN 56601
ROOF YEAR: 2006

Walker Art Center

LOCATION: 1750 HENNEPIN AVE
MINNEAPOLIS, MN 55403

Walker Library

LOCATION: 2880 HENNEPIN AVENUE
MINNEAPOLIS, MN 55408

Washburn Lofts

LOCATION: 700 2ND STREET SOUTH
MINNEAPOLIS, MN 55401
SIZE: 2,000 SQ. FT.
ROOF YEAR: 2002

Westwood Hills Nature Center

LOCATION: 8300 W FRANKLIN AVE
ST LOUIS PARK, MN 55426

EASY TO VISIT GREEN ROOFS

Because rooftops are generally not very accessible spaces, sometimes it can be difficult to see green roofs up close. But several green roofs in the Twin Cities are accessible (or at least visible) to the public.



Brit's Pub, Minneapolis

The Bakken Museum
3537 Zenith Avenue South
Minneapolis, MN, 55416
(612) 926-3878
Accessible to museum visitors

Brits Pub
1110 Nicollet Avenue
Minneapolis, MN 55403
(612) 332-3908
Open seasonally during business hours

Lebanon Hills Regional Park Visitors Center
860 Cliff Road
Eagan, MN, 55123
(651) 554-6530
Sloped green roof can be seen from the ground outside the visitor's center

Minneapolis Central Library
310 Nicollet Mall
Minneapolis, MN, 55401
A small section of the green roof can be seen from the library's teen section on the second floor

Phillips Eco-Enterprise Center
2801 21st Avenue South
Minneapolis, MN 55407
The green roof can be seen from the Hiawatha LRT line just north of the Lake Street/Midtown station, and can be accessed by appointment by calling (612) 278-7100

Ramsey-Washington Metro Watershed District
2665 Noel Drive
Little Canada, MN, 55117
(651) 792-7950
Sloped green roof can be seen from the parking lot



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CELEBRATING 40 YEARS OF IMPROVING QUALITY OF WATER, QUALITY OF LIFE



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